

The Commonwealth Environmental
Water Holder acknowledges
Australia's traditional owners and
respects their continued connection
to water, land and community.
We pay our respects to them and
their cultures and to their elders both
past and present.



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Australian Government

Commonwealth Environmental Water Office

RESTORING AND PROTECTING THE

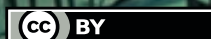
LACHLAN RIVER VALLEY

2016-17



Above: Welcome to Wiradjuri country on the Lachlan River.
Photo: Brooke Lenon
Cover: Booligal Wetlands
Back cover: Lachlan River

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unless noted otherwise.



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Environmental water is dedicated to improving the health of our rivers, floodplains and wetlands.

The Lachlan Valley contains diverse and rich natural environments. Its natural waterways are a source of water supply for domestic water use, diverse agriculture, tourism and recreational activities and Aboriginal cultural values and practices.

Environmental water is delivered to key locations throughout the Valley to support the region's many unique native animals, plants, birds and fish. The region's river system, floodplains, swamps and wetlands provide habitat for birds including straw-necked ibis, glossy ibis and egrets, Australian painted snipe, osprey and blue-billed duck, and a range of native fish including the critically endangered silver perch. These wetlands also feature areas of valuable river red gum forest and woodland, blackbox woodland and lignum.

Commonwealth environmental flows are designed in partnership with state and local delivery partners to improve connections between rivers, floodplains and wetlands particularly, to those sites that support nationally threatened species under the *Environmental Protection and Biodiversity Conservation Act 1999*, NSW-listed threatened

species and communities under the *Threatened Species Conservation Act 1995* and endangered populations under the *Fisheries Management Act 1994*. We are also working toward the achievement of environmental outcomes as outlined in the Basin-wide Environmental Watering Strategy (part of the implementation of the Murray-Darling Basin Plan).

Summary of longer-term outcomes under the Basin-wide Environmental Watering Strategy



Maintain base river flows, with the region experiencing more bank-full and 'fresh' events.

A fresh event describes an increase in levels of the river beyond the base flow, but does not fill the river or go over the bank.



Maintain the current extent of river red gum and blackbox communities, along with improvements to condition including increased numbers of young trees.



Maintain and improve the condition of lignum communities particularly focusing on the shrublands in the Lower Lachlan region, which are important habitats for waterbirds found throughout the Basin.



Maintain and prevent any further decline of vegetation communities in, or near, the Lachlan River and Willandra Creek. It is also important to maintain the common

reed and Cumbungi (a semi-aquatic plant) in the Great Cumbung Swamp.



Maintain the current species diversity and increase abundance of waterbirds by supporting breeding opportunities.



Create the right conditions that encourage fish to move between areas and improve the age ranges, genetic diversity and health of their communities.



Lachlan long-term monitoring site

Environmental water use in the Lachlan to date

Delivery of held environmental water into this region is planned and managed by the Commonwealth Environmental Water Holder and New South Wales Office of Environment and Heritage in consultation with local land and water managers and communities, as part of Murray-Darling Basin Plan implementation.

In recent years, high natural flows and large-scale environmental watering events have improved the conditions in the lower Lachlan catchment. In 2015-16, conditions were moderate due to above average rainfall. However, the catchment has generally experienced persistent dry conditions since 2013.

In 2015-16 an in-channel fresh was planned and initiated targeting the Great Cumbung Swamp using NSW and Commonwealth environmental water. During this event, high natural flows triggered the translucent flow rules of the Lachlan Regulated River Water Sharing plan, and the environmental water action was suspended to allow passage of the translucent flow. At the completion of the translucent flow, the Commonwealth and NSW environmental water action was resumed to allow for a slower recession phase to minimise the risk of bank slumping and black water. When the combination of held environmental water and translucent flow reached the end of the system it spread through the Great Cumbung Swamp, wetting over 9000 hectares and providing signals for native fish and waterbird breeding.

What is a translucent flow?

Under the state rules that govern management of water in the regulated Lachlan river, if a certain amount of water (250,000 ML since 1 January of each year) flows into the Wyangala Dam over the period 15 May to 15 November, water from tributaries is allowed to flow the length of the river, or a volume is released down the river from storage. This is called a translucent flow and is a type of planned environmental water event that is intended to restore natural medium to high flows, seasonality, and flow variability. Translucent flows are an important contributor to the health of the Lachlan catchment because water from tributary inflows is generally richer in nutrients than water released from the dams.

Commonwealth environmental water supply

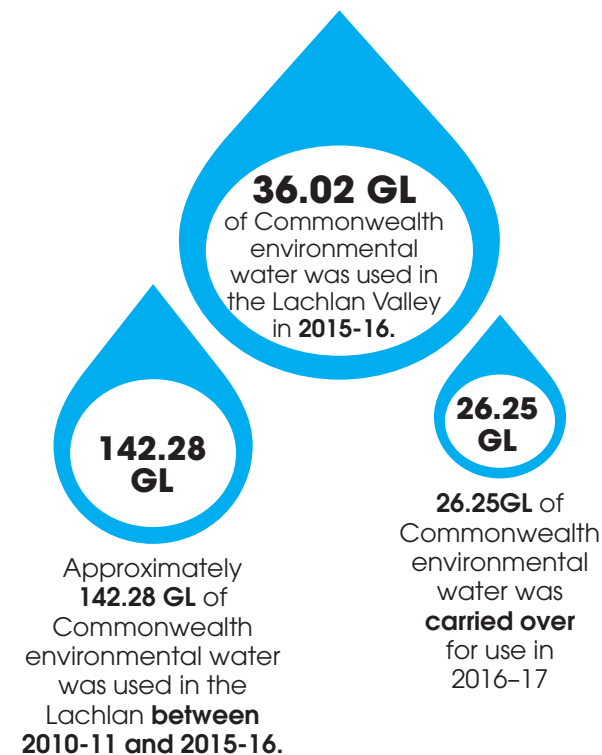
The water acquired by the Australian Government, including through investment in more efficient irrigation infrastructure and other measures, enables the Commonwealth Environmental Water Holder to help bring back some of the river flows needed to restore and protect the natural system throughout the Basin's irrigation districts.

Commonwealth environmental water often complements natural events and environmental water provided by New South Wales Office of

Environment and Heritage, as well as water used for irrigation and domestic purposes.

Depending on river operating rules, flow constraints and climatic conditions, the Commonwealth Environmental Water Holder can agree to:

- use water to meet identified environmental demands
- hold on to the water and carry it over for use in the next water year ('carryover')
- trade (sell water or buy in another catchment) for equal or greater environmental benefit.



To date, there have been no specific requirements for sale or purchase of Commonwealth environmental water in the Lachlan Valley.

Our partners

The best approaches to environmental water management involve local knowledge and the latest science.

Commonwealth environmental water is planned, delivered and managed in partnership with a number of people in the Lachlan Valley, including:

- New South Wales Office of Environment and Heritage
- New South Wales Department of Primary Industries - Water
- Central Tablelands Local Land Services
- New South Wales Department of Primary Industries - Fisheries
- Lachlan Environmental Water Advisory Group, which includes local landholders and community members
- University of Canberra
- Charles Sturt University
- University of New South Wales
- WaterNSW
- Murray-Darling Basin Authority.

The Commonwealth Environmental Water Office regularly attends community forums, events and committees within the catchment. We will continue to forge local partnerships that allow community groups, including Aboriginal Traditional Owners, to help shape the regional planning and management of environmental water delivery over the long term.

Please contact your local engagement officer, Erin Lenon, to learn more about our work or offer suggestions for the use of environmental water locally.

Erin Lenon

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Blackwinged stilts in flight



Lignum communities in Booligal Wetlands



Lachlan long-term monitoring site

LACHLAN RIVER VALLEY



Australian Government
Commonwealth Environmental Water Office

The Lachlan River travels around 1400 km to its junction with the Murrumbidgee River. It is part of a terminal system that ends at the Great Cumbung Swamp – a wetland of national significance.

The Lachlan is only connected to the Murrumbidgee River when both rivers are in flood. The Lachlan River is a tributary of the Murrumbidgee River, and without river regulation would have connected more frequently.

Tributaries to the Lachlan include Belubula, Boorowa and Crookwell Rivers.

Nearly 1300 kilometres of the Lachlan's total length is regulated, with major dams located in Carcoar, Wyangala, Lake Brewster and Lake Cargelligo. This infrastructure impacts natural river flow patterns, with some parts of the landscape left either too wet or too dry, because a greater percentage of river flows now stay in channel.

Responding to environmental demands

Like all water users, Commonwealth and state water holders and managers must consider variable seasonal conditions to manage the best way to restore our rivers, floodplains and wetlands.

This involves careful consideration of the urgency of environmental demands each year (and from year to year and over multiple years) and what we believe can be achieved depending on water availability due to conditions.

The following scenarios for the use of Commonwealth environmental water in the Lachlan are based on our assessment of environmental demands (in the context of targeted outcomes and watering requirements in 2016-17, watering history, asset condition and the available supply according to different scenarios).

Great Cumbung Swamp: Environmental water is not essential this year as the translucent flow in 2015 and flows in 2013 helped the recovery of the wetlands and inundated core reed beds. However, there is the potential for environmental water to be used to increase the benefits associated with natural flows to maintain the healthy condition of vegetation, native fish and waterbird habitats.

Lower Lachlan Swamps: There is moderate demand for water because flows from previous years have assisted in the recovery of the Lachlan Swamp system. However, Commonwealth environmental water may be used to provide flows to the wetlands to maintain the healthy condition of vegetation, providing refuges from drought and aquatic habitat.

Booligal Wetlands: Watering will be required this year or next following the delivery of environmental water to the Merrimajeel and Muggabah Creeks in late winter-early spring 2015 and a translucent flow in September 2015. Commonwealth environmental water may piggyback off natural inflows to Merrimajeel or Muggabah Creeks to contribute to the inundation of wetlands and aquatic vegetation and the maintenance of waterbird habitat.

Merrowie Creek: There is low demand for water following the translucent flow in 2015. However, Commonwealth environmental water may be used to supplement future natural or translucent flows to inundate wetlands and waterbird habitat.

Lachlan River (in-channel): Flows to benefit native fish habitat, breeding and movement have been undertaken in the last two watering years and could be undertaken in most years, depending on the amount of Commonwealth environmental water available.

Maintain inundation of key native fish or waterbird habitat at critical times: This type of watering is opportunistic. Water is kept in contingency to support the completion of waterbird or other native animal breeding events triggered by other flows in the system. For example, waterbird habitat at Booligal Wetlands was maintained in condition suitable for breeding in October 2015. Unfortunately waterbirds did not progress to breeding at this time.

Willandra Creek: Willandra Creek received water through translucent flows in 2015 resulting in healthy vegetation. There is very low demand for water so watering is not required this year.

For further information on our planning process and for a copy of the Portfolio Management Plan for the Lachlan River Valley 2016-17 visit www.environment.gov.au/water/cewo.

Outcomes snapshot

Scientific monitoring shows that water delivered to the Lachlan is providing food, habitat and breeding opportunities for many of the region's characteristic wildlife, including native fish, frogs and birds.

Full monitoring reports are available each year on our website:
www.environment.gov.au/water/cewo/catchment/lachlan/monitoring

2014-15

Approximately 80 per cent of the fresh delivered to the Lachlan River during early September 2014 was Commonwealth environmental water. It caused water levels to rise by up to 1.5 metres between Willandra Weir and Booligal wetlands, providing flow variability and changes in hydraulic character for the benefit of native fish.

Spawning of native fish including Murray cod, flat-headed gudgeon, eel-tailed catfish, Australian smelt and carp gudgeon occurred after the delivery of environmental water between August and September. With the exception of eel-tailed catfish, these species were also recorded as small individuals, indicating that conditions supported recruitment.

Environmental water delivered in Spring reached the central reed beds of the Great Cumbung Swamp, a wetland listed in 'A Directory of Important Wetlands in Australia'.



Egret in flight



Great Cumbung Swamp in 2015



Goobang Creek weir in 2010, near Condobolin NSW

