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

VICTORIAN RIVERS

2017–18 SNAPSHOT

Above: Goulburn Broken CMA – Flows in the Goulburn River at Bunbartha supporting fringing vegetation. Credit: Meegan Judd
Cover: Gunbower Creek
Back cover: Southern bell frog

All images by Commonwealth Environmental Water Office unless noted otherwise.

We use environmental water to improve the health of our rivers, floodplains and wetlands

Throughout the Murray–Darling Basin, we deliver water to important locations to support the health of waterways and the many unique native animals, plants, birds and fish that depend on them to survive and thrive.

More than half of Victoria is in the Murray–Darling Basin, with many of the state's rivers flowing directly into Australia's longest river, the Murray. These rivers are a source of water for domestic use and extensive agriculture, are central to the cultural values and practices of local Aboriginal traditional owners and support tourism and recreation activities.

The natural waterways of Victoria's river system are highly connected and contain a multitude of wetlands and floodplains, including the internationally significant Kerang Wetlands and the nationally significant Lower Goulburn Floodplain.

This floodplain covers about 200,000 ha and includes some of the largest lignum wetlands in Victoria. The whole region is home to iconic and threatened species such as Murray cod, Macquarie perch, trout cod, Murray hardyhead, growling grass frog (also known as southern bell frog), platypus, and nine bird species listed under international waterbird agreements, including great egret and Latham's snipe.

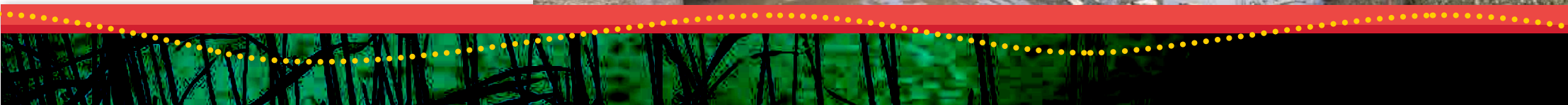
The Commonwealth Environmental Water Office works in partnership with state government agencies, such as the Victorian Environmental Water Holder, and local organisations to plan and manage flows for the environment. We are working to achieve environmental outcomes as outlined in the Basin-wide Environmental Watering Strategy and the Murray–Darling Basin Plan.

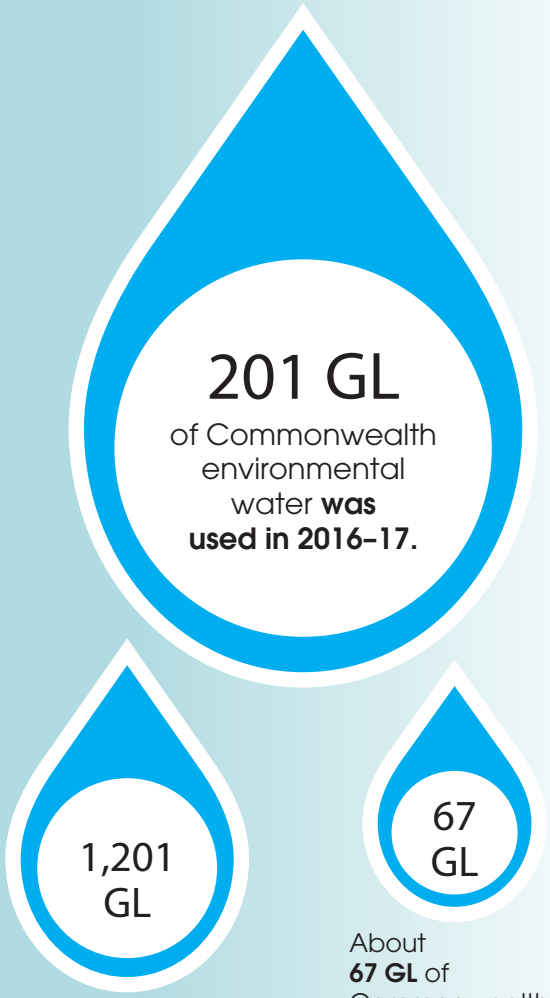
Summary of longer term outcomes under the Basin-wide Environmental Watering Strategy

- Maintain base river flows and increase the number of 'fresh' events.

  A fresh event is an increase in a river's water levels beyond the base flow. It does not fill the river or go over the bank.
- Improve the condition and maintain the current area of plants on the riverbanks and in stream.
- Maintain current waterbird species diversity and increase their populations.
- Create the right conditions to improve native fish health, spawning and movement, with the aim of increasing the overall fish populations.

Goulburn broken CMA – Lower Broken Creek at Lukes Weir. Credit: Daniel Lovell





Approximately **1,201 GL** of Commonwealth environmental water was delivered **between 2009–10 and 2016–17**.

About **67 GL** of Commonwealth environmental water was **carried over** for use in 2017–18.

For the first time in this region, in November 2015 the Commonwealth Environmental Water Holder sold 22.864 gigalitres of temporary water allocations for a return of $6.458 million. The proceeds of the sale are being used in the interests of maximising environmental outcomes elsewhere in the Murray–Darling Basin.

ML = megalitre = 1 million litres GL = gigalitre = 1000 megalitres

Water for the Victorian Rivers environment to date

The environmental need for water is a reflection of the health of rivers, wetlands and floodplains, and the plants and animals they support.

Ecological health is influenced by flows and conditions in the past. In some cases this can date back many years—parts of the Victorian Rivers environment are still showing the effects of the millennium drought.

Harsh climatic conditions over the past 15 years—extensive drought between 1997 and 2010, record floods in 2010 and 2012, then a series of dry to moderate years—have left the Victorian Rivers region in need of water. However, recent annual environmental watering and the wet conditions experienced in 2016–17 have helped to improve river health. For example, natural flows and environmental watering in the Goulburn River over the last couple of years have resulted in the restoration of vegetation that was drowned and scoured from the riverbanks in the 2010–11 floods. These flows have also supported the spawning and movement of native fish, particularly golden perch, in the lower river reaches.

Ongoing environmental needs in the Victorian Rivers include improving the health and coverage of bankside plants; supporting the survival, movement and breeding of native fish (particularly golden and silver perch); providing habitat for waterbirds, native fish, platypus, water rats, turtles and frogs; and maintaining suitable water quality.

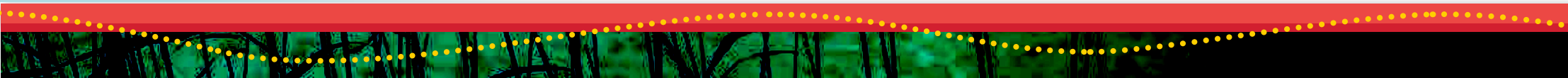
Supplying water for the environment

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

We use this water to supplement natural events and water provided by other environmental water holders.

Depending on river operating rules, flow constraints and climatic conditions, the Commonwealth Environmental Water Holder can decide 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 (buy or sell water) for equal or greater environmental benefits.



Our partners

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

Commonwealth environmental watering is planned, delivered and managed in partnership with individuals and groups in the Victorian Rivers region. Partners include:

- the Victorian Environmental Water Holder
- Goulburn–Murray Water
- the Goulburn–Broken Catchment Management Authority
- the North Central Catchment Management Authority
- the North East Catchment Management Authority
- the Wimmera Catchment Management Authority
- the Mallee Catchment Management Authority
- Grampians Wimmera Mallee Water
- the Murray–Darling Basin Authority.

The Commonwealth Environmental Water Office regularly attends community forums, events and committees in the catchments. We continue to forge local partnerships to ensure that community groups, including Aboriginal traditional owners, have the opportunity to help shape the regional planning and management of water delivery over the long term.

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

Local engagement officer—Berri, SA
M: 0437 064 664,
E: ewater@environment.gov.au

Local engagement officer—Mildura, Victoria P: 03 5051 4372, M: 0437 218 649
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Goulburn River near Murchison. Credit: GBCMA

VICTORIAN RIVERS REGION

Australian Government
Commonwealth Environmental Water Office

The Victorian Rivers region includes the Ovens, Goulburn, Broken, Loddon, Campaspe and Wimmera catchments. The northern Victorian rivers, particularly the Ovens and Goulburn, contribute significantly to the water resources of the River Murray.

This area of the Murray–Darling Basin is highly developed, with storages in the Ovens (Lake Buffalo and Lake William Hovell), Goulburn–Broken (Lake Eildon), Loddon (Cairn Curran Reservoir and Tullaroop Reservoir) and Campaspe (Lake Eppalock) catchments.

The Wimmera River in central-west Victoria flows into lakes Hindmarsh and Albacutya, which are terminal wetlands, and does not connect to the River Murray.

Goulburn River near Murchison. Credit: Goulburn Broken CMA

Responding to environmental demands in 2017–18

The following plans for 2017–18 are based on careful consideration of the health of the rivers, the urgency of water needs (from year to year and over multiple years) and what we believe can be achieved depending on water availability.

Goulburn River: Water will be delivered in the river channel. This may include year-round variable base flows and freshes in winter, spring, summer and autumn. The aim of these flows is to support water bugs; improve the condition of bank and in-stream plants, which in turn can help manage bank erosion; and provide native fish (particularly golden and silver perch) with food, habitat and triggers for movement and spawning. There is also potential to coordinate releases with flows from other rivers, to meet broader environmental needs.

Lower Broken Creek: Ongoing issues with poor water quality, such as low dissolved oxygen levels, and excessive growth of azolla (a water fern) means there is high demand for water every year. The aims of watering in 2017–18 will be to provide variable base flows to support native fish passage through fishways, maintain dissolved oxygen at levels tolerable for native animals, and manage azolla growth.

Goulburn–Broken catchment wetlands: During 2016, natural flows inundated these wetlands, so any watering we do in 2017–18 will be in response to natural events. For example, if the wetlands are dry in autumn there may be a need for water at Moodie Swamp to maintain the health of wetland plants and waterbird habitat, including ridged water milfoil and cane grass.

Campaspe River: Wet conditions in 2016–17 have improved the health of the Campaspe. In 2017–18 the aim will be to provide variable base flows and freshes throughout the year to maintain the health of river red gums, support platypus populations, maintain water quality in deep pools (which provide habitat for native fish), and flush organic matter from riverbanks in the cooler months to mitigate potential water quality issues during the summer.

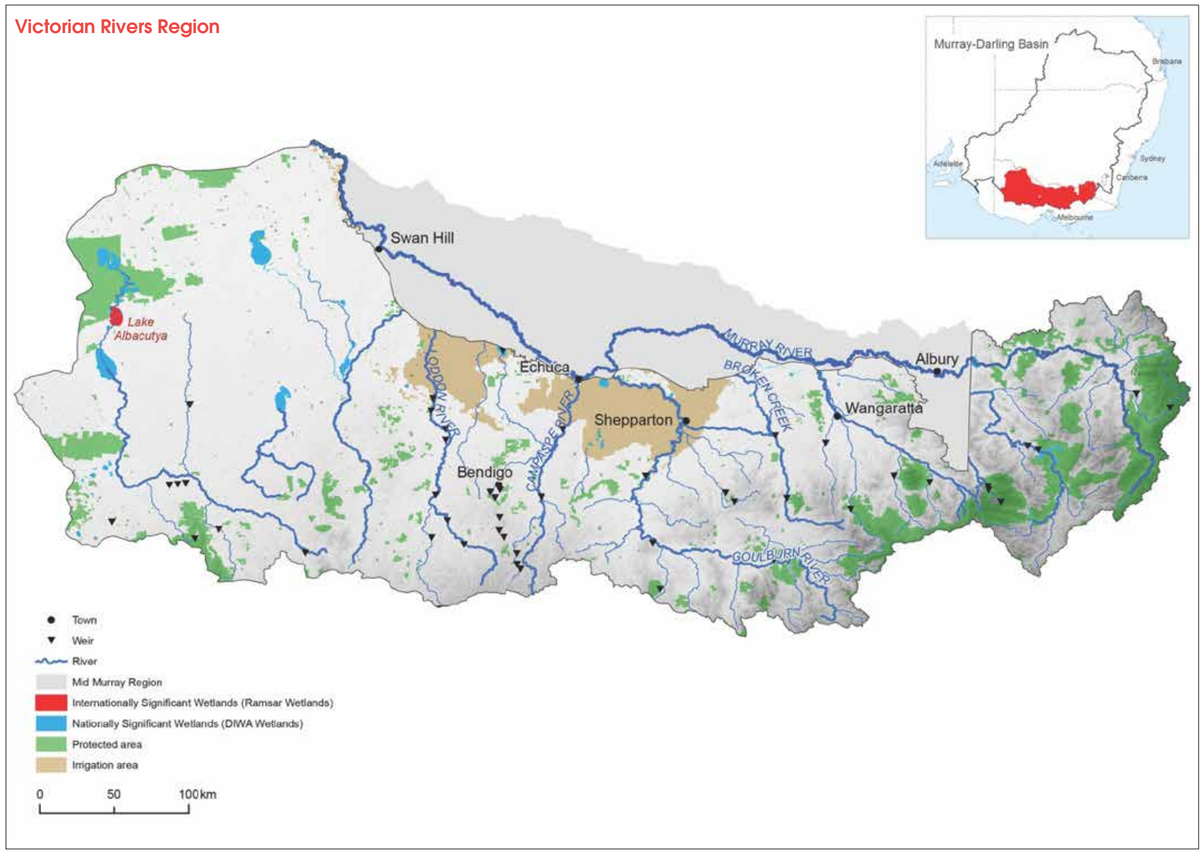
Loddon River: Wet conditions and a contribution of environmental water to in-stream flows year round in 2016–17 improved the overall health of the Loddon. Watering in 2017–18 will build on these improvements by again focusing on in-stream flows to maintain water volume and quality in refuge pools for native fish, platypus and water rats, and to flush organic matter from banks to reduce the likelihood of poor water quality.

Wimmera River: We will provide variable base flows and freshes to support native fish reproduction and condition, riverside plant condition and macroinvertebrate (water bug) habitat and food, and maintain appropriate water quality.

Re-using water to make the most of our flows

In Victorian rivers, such as the Goulburn and the Campaspe, water delivered for the environment at upstream sites can be re-used further downstream. This water is known as a 'return flow'. After benefiting the targeted sites, water delivered to Victorian rivers continues to flow across the border to South Australia and provides environmental benefits in areas such as the Coorong, Lower Lakes and Murray Mouth.

Victorian Rivers Region



Outcomes snapshot

Monitoring and evaluation help us identify what is working and what is not. We consider the results as part of our planning and decision-making process throughout the year.

Scientific monitoring shows that water delivered to the Victorian Rivers is providing food, habitat and breeding opportunities for many of the region's unique wildlife species.

The lower Goulburn is part of a long-term monitoring program. Recent results are summarised below.

Full monitoring reports are available on our website: www.environment.gov.au/water/cewo/catchment/northern-victorian-rivers/monitoring

2014–15—Lower Goulburn River

Environmental flows in spring resulted in strong golden perch spawning—the numbers of eggs and larvae collected were at levels not seen since the 2010 floods. Critically endangered silver perch also spawned following increased flows.

Flows promoted fish movement, with golden perch moving to breeding areas.

Spring flows helped maintain and improve plant numbers and diversity.

The condition and coverage of native plant species increased, providing improved habitat and assisting with bank stability during natural floods and heavy rainfall.

2015–16—Lower Goulburn River

Long-distance movements of golden perch were detected frequently—including one trip of around 600 km from the Goulburn River, through the River Murray and to the junction of the Wakool River in two months. These results highlight the importance of connectivity between catchments.

Over the past two years, endangered trout cod have been found below Shepparton. This may indicate an expansion in range since 2003, when they were only found further upstream.

Spawning was detected for five native fish species: Murray cod, Australian smelt, carp gudgeon, flathead gudgeon and Murray River rainbowfish.

Large numbers of young carp were found in a reach of the Lower Goulburn River close to the Murray. It is not known whether their breeding was enhanced by the delivery of water in early spring to support plants on the riverbank or whether they spawned in the Murray and moved into the Lower Goulburn.

Although macroinvertebrate (water bug) numbers declined in 2015–16, providing extra water may have helped some to survive the very dry conditions, as there was less reduction in the Lower Goulburn than in nearby Broken River, which received no water.

Spring environmental flows improved native plant numbers and diversity along areas of riverbank. This built on past efforts to improve and re-establish plants through consistent delivery of water during spring.

Carefully managed declines in flows allowed a layer of mud to be deposited onto the riverbank, providing an ideal location for the germination and growth of new plants.