Reflections

Water for the Environment in Victoria 2024-25

VICTORIAN ENVIRONMENTAL WATER HOLDER

VICTORIA State Government

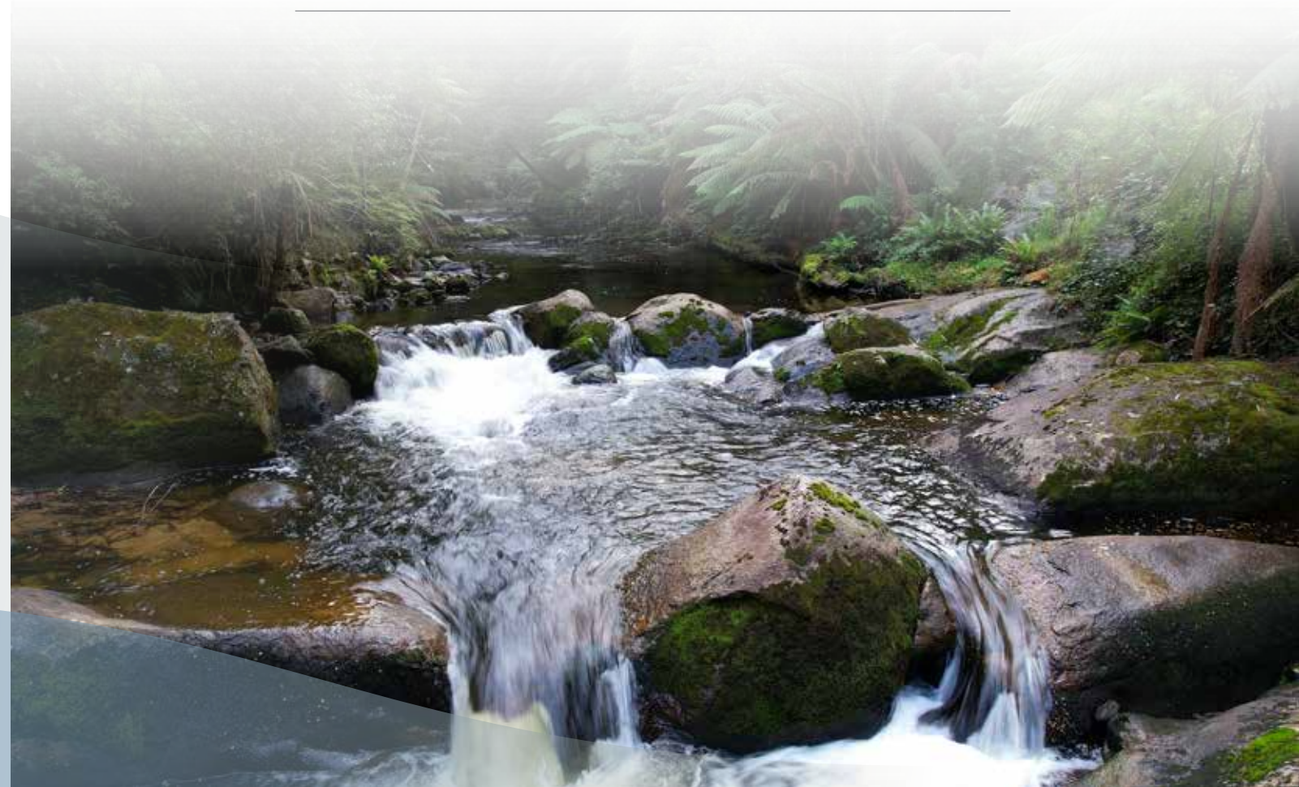
Contents

Acknowledgment of Country

The Victorian Environmental Water Holder proudly acknowledges Victorian Traditional Owners and their rich culture and pays our respect to Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices. We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country, and deep spiritual connection to it.

Cover photo: Thomson River by Darryl Whitaker, supplied by West Gippsland CMA

Contents page photo: Latrobe River, known as *Durt'Yowan* to the Gunaikurnai people, by Kylie Jackson, supplied by West Gippsland CMA



Water for the Environment in Victoria 2024-25

Reflections is the Victorian Environmental Water Holder's (VEWH) annual report on the outcomes achieved in the 2024-25 environmental watering season. Each year, the VEWH reflects on how we work with our program partners to play our part in supporting the health of rivers and wetlands, landscapes and communities.

The maintenance of healthy landscapes is fundamental to Victorians' quality of life, supporting public health, wellbeing and economic prosperity. The effective management and delivery of water allocated for environmental purposes is especially critical.

Water held for the environment provided cues for fish migration and breeding and triggered the growth of wetland plants. It maintained flows or permanent pools in rivers that would have otherwise dried out, improving the water quality in the channel. It also improved the condition of floodplain trees, providing feeding and breeding places for waterbirds.

Environmental water was delivered to vary flow rates, such as seasonal pulses and freshes, and increase the magnitude of flows to sustain plants and animals depending on water for survival.

Partners who worked with us to put the program into action included waterway managers in nine catchment management authorities (CMA) and Melbourne Water, other environmental water holders, storage managers, land managers, Traditional Owners, and scientists. Our stakeholders are those organisations and people with an interest in the environmental watering program.

Each year watering actions are managed to respond to seasonal conditions over the short and long term and deliver a program that adapts to climate extremes and variability.

These regional stories in Reflections showcase how the VEWH's portfolio of water and program partners' efforts support biodiversity, cultural values, ecosystem function, landscape restoration and help connect rivers, their wetlands and floodplains. Benefits of environmental flows included increased recreation and tourism.

Photo: Macalister River by Darryl Whitaker, supplied by West Gippsland CMA

This year the VEWH worked with program partners to build ecosystem resilience and prevent waterway health decline in response to increasingly unpredictable climate conditions.

Environmental water managers and program partners had to adapt to conditions, to maintain water levels in some areas and move quickly to support systems as rivers and wetlands dried out.

Case studies in Reflections highlight initiatives that delivered environmental water in ways that provide aspects of natural flow patterns.

Program delivery

The VEWH works to support increasing Traditional Owner self-determination, leadership and decision-making in the environmental watering program, as outlined in the Victorian Government policy **Water is Life**.

In 2024-25, 23 environmental watering actions in six systems were planned in partnership with Traditional Owners. Of the 23 actions, 18 were fully or partially achieved, helping to deliver on objectives identified by Traditional Owners and supporting development of more culturally informed watering practices. The other five actions weren't required because of changes in environmental conditions that unfolded during the year.

Some of this year's highlights included how environmental water was accessed and managed to align cultural objectives and environmental outcomes and to learn about the different values on Country.

Reinstating flow patterns

Infrastructure to supply water for a range of human uses has reduced the volume and changed the flow rates in most rivers.

Dry conditions, such as those observed in 2024-25, intensified these effects and contributed to further alterations in flow rates. Delivering environmental water in dry conditions was critical for drier catchments, as well as significant for those with higher rainfall and flows.

This year drier parts of Victoria saw limited flow, known as 'passing flows', provided from upper catchment storages. In some of these waterways, environmental water was delivered to build on passing flows or water released for urban and irrigation uses.

A few baseflows or small freshes were delivered, providing refuge for plants and animals during tough conditions and keeping rivers and wetlands connected.

Drought refuges

After successive wet years between 2020 and 2022 where many Victorian catchments experienced flooding, conditions dried off from 2023 and water levels in floodplains, wetlands and lakes dropped considerably in 2024-25.

Environmental water was used in 2024-25 to sustain river flow and protect drought refuges, playing a crucial role in supporting plants and animals relying on water for survival across the state.

Deliveries of environmental water continued to support actions to sustain plant and animal populations and communities through the seasonal variability and extremes of accelerating climate change.

Achievements and outcomes 2024-25

These snapshots highlight the program achievements and outcomes of water deliveries for 2024-25.

They resulted from planning and active coordination between program partners, deep engagement with Traditional Owners and communities, and the combined efforts of waterway and land managers to take care of water, land and biodiversity from the top to the bottom of Victoria's catchments.

948,047 megalitres (ML) of water for the environment was delivered by partners in the environmental watering program across Victoria in line with priorities published in the Seasonal Watering Plan 2024-25.

This includes water managed by these water holders and programs:

- Victorian Environmental Water Holder - 175,902 ML
- Commonwealth Environmental Water Holder (CEWH) - 568,628 ML
- The Living Murray program - 203,517 ML.

These deliveries and the associated volumes for each waterway system are reported in our Summary of Water for the Environment Delivery.

Water deliveries for 2024-25

948,047 ML of water for the environment delivered

88% of required potential watering actions were fully or partially achieved. These actions were achieved through environmental flow deliveries, natural river flows or delivery of consumptive water en-route to customers.

All **six Ramsar sites** that can receive water for the environment **were watered.**

100% of **Victoria's 28 top recreational fishing river reaches** that can receive environmental flows **were watered this year.**

At least **250 stakeholders** and **program partners contributed** to **planning** for **environmental flows** in 2024-25.

The VEWH oversaw **delivery of 948,047 ML of environmental water**. The total includes 175,902 ML of water made available by the VEWH, 568,628 ML of water made available by the CEWH and 203,517 ML made available by the Living Murray program.

59% of environmental flows delivered were re-used to meet downstream environmental water needs. Environmental flows were also 'piggybacked' on water delivered for towns and farms to further increase efficiency.

The **VEWH coordinated delivery of water** for the environment to **168 river reaches** and **wetlands** in **Victoria.**

Traditional Owners partnered in planning and/or delivered **23 watering activities** in **6 systems,** of which **18** were **planned** and **fully or partially achieved.**

Photo: Birrarung in the Upper Yarra Reservoir Park, by Melbourne Water

Water on Country

The VEWH advocates for and supports Traditional Owner agency and self-determination in the management and delivery of water held for the environment.

Our environmental watering program is guided by and seeks to support the enduring connection that Aboriginal communities have with the land and waterways they have cared for for thousands of years.

Traditional Owners' knowledge and contributions in planning, decision-making and delivery of water for the environment on Country are vital as we work to manage and protect waterway health.

We progressed this work with Traditional Owners in 2024-25, in collaboration with waterway managers, through meaningful relationships and understanding Traditional Owner objectives for water to heal Country and to water sites of ecological and cultural significance.

Highlights of this year's season we have included are environmental watering at Ryans Lagoon on Dudoroa Dhargal Country in north east Victoria, and the pilot restocking of native fish at Yarran Creek near Gunbower Forest involving Barapa Barapa Traditional Owners, and at Musk Duck wetland in the Mallee with First People of the Millewa Mallee Aboriginal Corporation.

Traditional Owner-led seasonal watering proposal guidelines *Water for Country – Guidance provided by and for Traditional Owners Making Proposals for the use of Environmental Water in Victoria* were finalised and distributed to Victorian Nations in March 2025.

Developed by Traditional Owners for Traditional Owners with the VEWH and Department of Energy, Environment and Climate Action support and funding, these guidelines are an important step towards increased agency and self-determination in environmental water management.

They start to bridge the gap between westernised environmental water management and Traditional Owner objectives for healthy Country.

The VEWH received two seasonal watering proposals directly from Traditional Owners for 2025-26 and both were included in the *Seasonal Watering Plan 2025-26*.

Photo: Monitoring native fish restocking at Musk Duck lagoon with First People of the Millewa Mallee Aboriginal Corporation, Arthur Rylah Institute and Victorian Fisheries Authority, by Rod Healy, Murray-Darling Basin Authority

Photo: Traditional Owner Dylan Lawson of First People of the Millewa Mallee Aboriginal Corporation, by Rod Healy MDBA

Environmental water sustains life at Ryans Lagoon

The watering of wetlands at Ryans Lagoon Nature Conservation Reserve, on Duduroa/Dhudhuroa Country in north east Victoria, was a prime example of the great things that can be achieved when organisations work together towards a common goal.

A nationally significant wetland, the Ryans Lagoon complex is currently managed by the Duduroa Dhargal Aboriginal Corporation (DDAC) and Parklands Albury Wodonga (PAW). Grazing has been removed from the reserve and revegetation works are underway. Traditional cultural burns occurred in spring and autumn 2024 for weed control.

The wetlands provide a site for cultural education and knowledge exchange for First Nations people, with DDAC hosting workshops including weaving and toolmaking.

Duduroa Dhargal Aboriginal Corporation Elders said in the *Upper Murray Seasonal Watering Proposal* of 2024:

"We are water people. We lived on the river and lived on the wetlands. We used these waterways for foods, medicines and resources. When the wetlands dried up, we would have moved on. We moved to where the water was to sustain life. Water in these wetlands is essential to Cultural connection, learning and sharing knowledge with our people. Without water, we wouldn't be here today."

Home to a wide range of culturally and ecologically important plants and animals including the endangered Sloane's Froglet, the two lagoons in the complex rely on overbank flows from the Murray River to fill. However, river regulation means that such flows occur a lot less frequently than they used to.

Partially or totally filled by unregulated flows four times since 2015, in July 2023 the wetlands began to dry out. The North East CMA and DDAC identified the need for additional water, resulting in the first ever delivery of environmental water in spring 2024.

The pumping was the result of a partnership between Duduroa Dhargal Aboriginal Corporation, North East Catchment Management Authority, North East Water, Parklands Albury Wodonga, the Murray-Darling Basin Authority and the Commonwealth and Victorian Environmental Water Holders.

"These partnerships helped us discover and understand where our environmental and cultural values overlap, and how we can benefit both by delivering environmental water here," said Corinne Hutchinson, Environmental Water and Wetland Officer at North East CMA.

"The uncles have created a really welcoming environment that now is a real showcase for this Victorian Murray floodplain area and a useable space for knowledge sharing and environmental events."

North East CMA and Duduroa Dhargal Aboriginal Corporation worked together to remove more than 150 carp from the wetlands before the watering action.

A total of 184.7 ML was pumped from Ryans Floodway to Ryans Lagoon 2 between September to late November 2024, achieving a complete fill of Lagoon 2 and a partial fill of Lagoon 1.

Monitoring of the wetlands was conducted under the Victorian Environmental Watering Monitoring and Evaluation Program, as well as by La Trobe University, Turtles Albury Wodonga and BirdLife Australia.

Animals found at the site include the Eastern long-necked turtle, a totemic species for DDAC, and Murray River turtle, listed as critically endangered under the *Victorian Flora and Fauna Guarantee Act 1988*.

Fifty-eight bird species have been recorded, including 18 waterbird species, with the highest numbers of waterbirds seen in February 2025 after the delivery of environmental water. Eight species of frog have been recorded since 2023, including the nationally endangered Sloane's Froglet.

Vegetation surveys following the delivery of environmental water showed that tree health had improved. There was a considerable increase in wetland vegetation coverage in areas that were flooded, with an average of more than 40 per cent greater coverage of wetland species in inundated areas, compared to those that weren't flooded. Terrestrial weed species numbers were also reduced.

"With ongoing restoration work, and strong partnerships in place to support environmental watering, we expect that Ryans Lagoon will continue to improve in future," said Catherine McInerney, Manager Environmental Water Resource Program at North East CMA.

"It's very important for the next generation, that they learn all about this stuff - how to manage the land and how to manage water, and how to look at setting up partnerships with government agencies" said Uncle Allan Murray of Duduroa Dhargal Aboriginal Corporation.

Photo: Aunty Valda Murray with a turtle hatchling, by North East CMA

Photo: Uncle Phil Murray doing a cultural burn at Ryans Lagoon, by J. Schulz, North East CMA

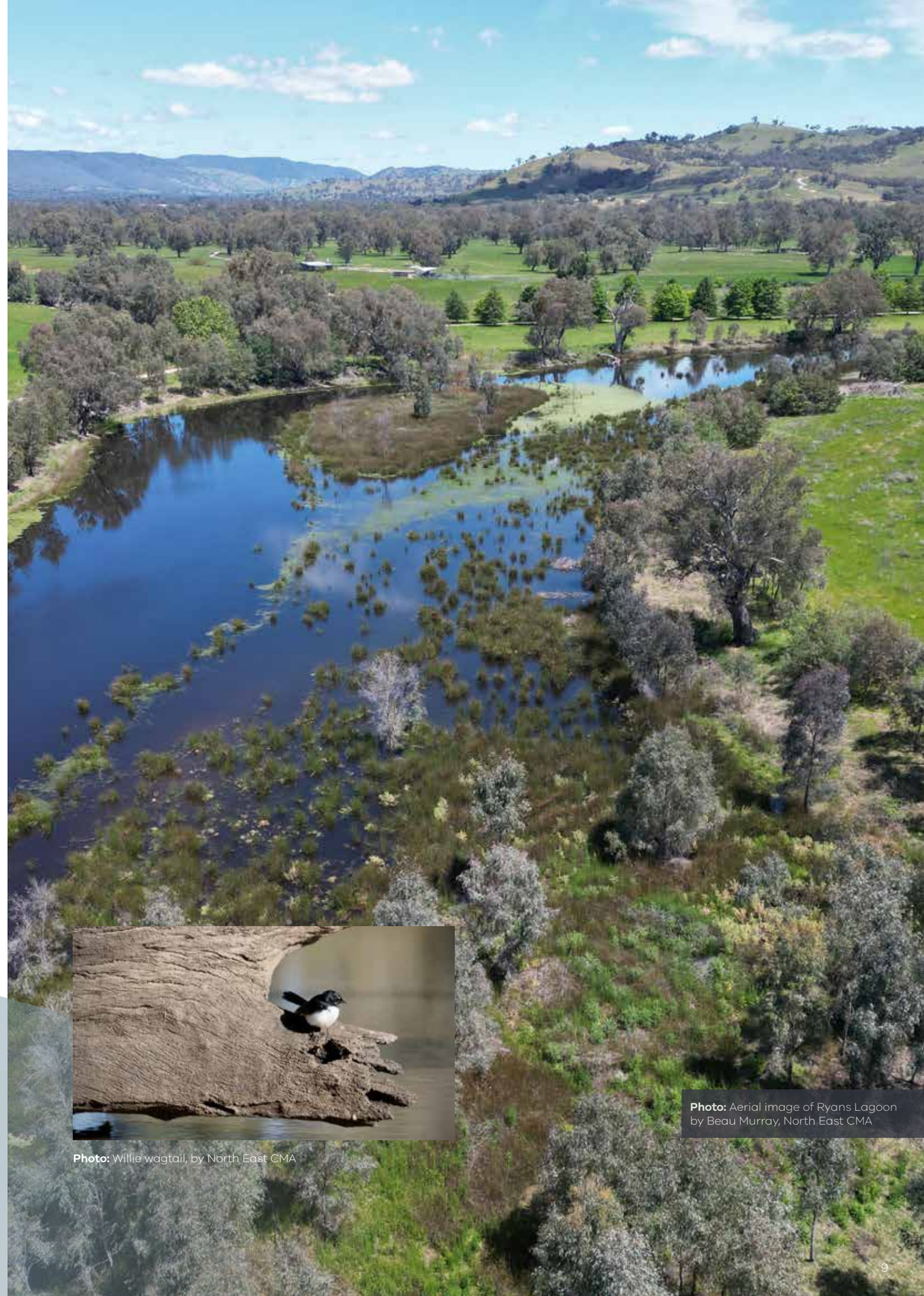


Photo: Aerial image of Ryans Lagoon by Beau Murray, North East CMA

Photo: Willie wagtail, by North East CMA

Strong partnerships sharing knowledge to benefit native fish

Yarran Creek in northern Victoria's Gunbower Forest and Musk Duck wetland and Karadoc-Outlet Creek in the Mallee were sites for a pilot native fish stocking project in 2025 that relied on strong partnerships to share knowledge between Traditional Owner cultural practices and values with western fish ecology and waterway management.

The sites along the Victorian Murray corridor were selected to be used as wild 'nursery' environments to stock and grow iconic golden and silver perch.

The 12-month pilot was part of a project led by the Victorian Fisheries Authority (VFA) and involving Traditional Owners working with waterway managers and scientists from Arthur Rylah Institute (ARI).

Funded by the Commonwealth Government's Murray–Darling Water and Environment Research Program, it aims to show that meeting the ecological requirements of native fish can be built into environmental watering plans alongside other outcomes for plants and animals.

The First People of the Millewa Mallee Aboriginal Corporation worked with Mallee CMA at Musk Duck wetland and Karadoc-Outlet Creek. The sites were supplied with environmental water in summer before being stocked with silver perch and golden perch larvae. Further water top ups were scheduled to assist with the planned recapture and translocation of fish.

The Yarran Creek pilot involved Barapa Barapa Traditional Owners in partnership with North Central CMA, the VFA, the VEWH and ARI scientists.

An ephemeral creek with natural wetting and drying phases, Yarran Creek was chosen because it had Traditional Owner support and could be operated as a temporary wetland and watered in early autumn when fish hatchery fingerlings were available. Regulators at either end of the creek could flexibly deliver environmental water and maintain water levels.

"It was a real partnership project that highlighted how important it is to have buy-in from stakeholders when trying something new and innovative," said Will Honybun, Project Manager with North Central CMA.

"We work closely with Barapa Barapa Traditional Owners and had the same group of Traditional Owners involved in all stages on the project – from site selection to a knowledge sharing day at Arcadia Native Fish Hatchery and then stocking and monitoring of the fish."

"There was lots of enthusiasm from Traditional Owners to come back on Country, be involved in fish surveys, learning about electrofishing and working on their fish identification skills."

Barapa Barapa elder Quinton 'Jack' Atkinson said of the pilot: "It's really important for our survival, food sources and ecology of the river. The health of the river is very important to myself, my people and my culture and heritage."

It was important that the watering did not risk other ecological values in Gunbower Forest. Finding the window of opportunity for this type of project can be tricky, according to Will, but the site was able to be watered and stocked in autumn when conditions were cooler and the risk of water quality issues was lower.

Dissolved oxygen concentrations can limit the success of stocking efforts and regular water quality monitoring was important for the Yarran Creek site. Monitoring levels before the stocking and after watering showed that although the dissolved oxygen concentration was low, there were still healthy silver and golden perch fingerlings in Yarran Creek.

"That made sense because historically golden and silver perch likely would have used floodplains and wetland habitats, such as Gunbower Forest," Will said. "These productive habitats are where fingerlings would have grown out, and when it was reconnected with the main system they would have moved back into the system as juveniles."

"They have evolved to spend part of their life at the wetlands so it makes sense they can survive pretty harsh dissolved oxygen concentrations."

"This gets us closer to finding out how this native fish stocking strategy might fit within environmental watering plans, at our site and across other sites."

Andrew Briggs, VFA Senior Project Manager, was excited about discovering the growth rates when fish were harvested later in the year at Yarran Creek, Musk Duck wetland and Karadoc-Outlet Creek.

"We're hoping to simulate the recruitment strategy of silver perch and golden perch, of their larvae and eggs being washed into wetlands in floods, then use these wetlands as nursery environments to grow the fish before harvesting and translocating them back into permanent waterways."

Photo: Traditional Owner Brandon Moore (left) and Project Manager for North Central CMA, Will Honybun (right), using fyke nets at Yarran Creek, by North Central CMA

Photo: Golden perch and silver perch fingerlings, by North Central CMA

Photo: Barapa Barapa Traditional Owners Brandon Moore (left) and Jack Atkinson (right), by North Central CMA

Photo: Laura Kirby, Barapa Barapa Traditional Owner and Indigenous Partnerships Project facilitator for Gunbower Creek and Aboriginal Projects Officer with North Central CMA

Photo: Gunbower Creek, by North Central CMA

Gippsland region *Gippsland*

Our reflections for 2024-25

There were drier conditions and more average-to-dry flow patterns across Gippsland in 2024-25, in contrast to successive wet years since 2020.

Actions to maintain baseflow, provide freshes to trigger fish spawning and migration and improve environmental condition for plants and animals were the focus in the Thomson, Macalister, Snowy and Latrobe rivers.

Melbourne Water reported below-average inflows into Thomson Dam for most of 2024-2025, and streamflow across all major harvesting storages was below the overall average for the past 30 years.

Environmental, unregulated and consumptive water flows combined to meet watering actions planned for the year in the Thomson and Macalister Rivers.

Fish monitoring in the Thomson and Macalister rivers recorded Australian grayling young-of-year, indicating recent recruitment. Tupong were detected above Horseshoe Bend tunnel, and this species is now captured consistently in this section of the Thomson since the Cowwarr fishway was installed.

Native fish in the Thomson and Macalister rivers need low flows for connectivity and local movement, and freshes to trigger spawning, recruitment and survival of previous year's fish in the rivers and Lake Wellington catchment. These flows can sometimes be met through natural flows in wetter years but were mostly met through planned releases of water for the environment during 2024-25.

Reduced rainfall and river flows and drier conditions in the second half of the water year dried out much of the Latrobe floodplain following multiple years of prolonged inundation.

Southern Rural Water released significant operational flows between November and January which were planned with West Gippsland CMA to meet environmental requirements by delivering two managed freshes.

These freshes helped improve water quality within the river to support fish and waterbug communities, and wetted banks and benches to support the growth of emergent vegetation.

A series of natural floods between July and October filled the wetlands over winter and early spring. After drawing down during late spring and early summer in hot and dry weather, they partially filled again with local rainfall and natural flows in January and February.

Minimising salinity levels and maintaining freshwater conditions is a high priority environmental objective in the lower Latrobe wetlands, and monitoring in 2024-25 revealed sensitive freshwater plants were continuing to grow in Heart Morass and Dowd Morass.

However, disturbance by European carp that can enter the wetlands during natural floods continues to impact environmental outcomes.

Photo: Lower Latrobe wetlands by Colin Cook, supplied by West Gippsland CMA

Community celebration of advocacy for the Thomson River

This year marks the twentieth year since water for the environment was first legally provided to the Thomson River to safeguard its health.

The mighty Thomson River is one of the state's most significant waterways, providing social, economic, cultural and environmental values for many Victorians.

Known as *Carran Carran* to the Gunaikurnai people, the river supports life in the landscapes around, providing communities with drinking water and sustaining irrigated agriculture.

Two major structures regulate flow in the Thomson River: Thomson Reservoir — the largest water supply storage for metropolitan Melbourne — and Cowwarr Weir — a regulating structure that supplies irrigation water to parts of the Macalister Irrigation District.

While they have brought many benefits to the people in Gippsland and over five million people in Melbourne, these structures have also had an impact on the health of Thomson River.

Water shares are documented in legal instruments known as bulk entitlements, and the Thomson River was one of the first examples of Victorian waterways being allocated a portion of available river water.

In August 2005, a legal right was created to take and use water from the Thomson Dam with the primary aim of improving the environmental condition of the Thomson River for the plants and animals that live there.

"The protection of water for the environment was required because of its critical ecological role in connecting the relatively undisturbed upper sections of the Thomson River to the Gippsland Lakes. Reaches of the river had been given a heritage river status based on their recreational, historical and ecological characteristics since 1992", said VEWH CEO, Dr Sarina Loo.

This year, the West Gippsland community is celebrating the memorable action made 20 years ago that recognised and sought to reduce the impact of regulating the river's flow.

In the lead up to the action, community advocates put forward the local and regional importance of the Thomson River.

Dr Stephanie Suter, Environmental Water Officer at West Gippsland CMA, said "The efforts of community and government agencies in demonstrating the significance of more natural flow patterns and their relationship to aquatic animals and plants were highly persuasive."

Before approving the environmental provision, a Ministerial taskforce was formed, chaired by the late Gippsland farmer and community leader Llew Vale, to oversee water sharing between Melbourne's urban area and the Macalister Irrigation District.

At the time, water sharing processes in Victoria did not legally include environmental considerations, and any passing flows or water quality allowances could be removed in dry conditions.

Working together, community and government action made the Thomson River the first exception.

Other commitments made for the Thomson and Macalister rivers included investment in complementary catchment work, as well as monitoring the ecological benefits of the increased flow.

"These deliveries of environmental water are just one of the important ways we support the Thomson," said Dr Suter.

"Over the past decade, we've built fishways at Cowwarr Weir and upstream of the Horseshoe Bend tunnel to reconnect the river for native fish, while restoration efforts included weed removal, stock exclusion fencing and planting native vegetation along the river and its tributaries."

Kayakers, canoe clubs, anglers, walkers, birdwatchers, campers, photographers and four-wheel drive enthusiasts are among the many people who enjoy the results of the historic entitlement supporting the environmental health of the Thomson River.

Photo: Enjoying results of the historic entitlement for the Thomson River, by Darryl Whitaker

Photo: Thomson River, known as *Carran Carran* to the Gunaikurnai people, by West Gippsland CMA

Central region

central

Our reflections for 2024-25

Rainfall was below or very much below-average across most of the central region, with below average streamflow and inflows to storages. Temperatures were 1.5 – 2.0 °C above average throughout the year.

Tarago River

The Tarago received average inflows over winter/spring and there were protracted dry conditions in late spring and early winter. Environmental water was delivered to improve water conditions, maintain plants and help movement and spawning of fish, including the endangered Australian grayling.

Monitoring and tracking Australian grayling, common galaxias and platypus has been a priority. In June 2025, 100 short-finned eel, common galaxias, Australian grayling and tupong were collected and tagged as part of downstream migration research by ARI ecologists. Their movements will be monitored over the next few years to study responses to flows in the Tarago and Bunyip Rivers.

Data analysis of common galaxias' movements from the fish tagging project found that moon phase, change in flow discharge and time of year are positively linked to fish movements downstream. Environmental water delivery managers can build this into the timing of planned flow releases to maximise movement for this native fish.

Birrarung (Yarra River)

Below-average rainfall and streamflow were recorded across Yarra catchments since July 2024. Inflows into storages recorded across summer/autumn and high losses in the mid/lower Birrarung (Yarra River) were consistent with a dry scenario.

Lack of inflows into Maroondah Dam and low storage levels in Sugarloaf Reservoir limited delivery options from the Yarra environmental entitlement.

Environmental water delivered in autumn high and winter/spring freshes in 2024-25 focused on improving conditions for diadromous fish like the endangered Australian grayling. Summer/autumn freshes to improve conditions for waterbugs and plants increased food resources to sustain the favourable spawning and recruitment of Australian grayling.

Photo: Narrap Rangers monitoring eels, by Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation

Over the last ten years, six of the Birrarung billabongs have received environmental water regularly. Yering Backswamp and Bolin Bolin billabong now have established watering regimes and arrangements are progressing for Banyule and Annulus billabongs.

The billabongs in the lower floodplain are now managed with a landscape-scale approach for wetlands, with different watering arrangements to provide a mosaic of diverse environments.

Vegetation surveys of the lower Birrarung billabongs by the University of Melbourne and Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation's Narrap team showed increases in native plants, decreases in exotic plants, and greater length and frequency of billabong inundation.[1] Traditional Owner knowledge is building through research, which includes vegetation monitoring, core sampling and eDNA sampling.

Among the results recorded at different billabongs that received environmental water in 2024-25 were aquatic herbs, the traditional medicinal plant old man weed, red gums in good condition, Eastern long necked turtle, six species of frogs and rakali (water rats). Cultural burning by Wurundjeri, and more regular flooding, are expected to be most effective approaches to long-term weed management and billabong rehabilitation.

1 Greet J and Narrap Rangers (2025) Caring for Birrarung's Billabongs: vegetation and fauna responses to wetting and drying 2020–25. Melbourne Waterway Research-Practice Partnership. Technical Report 25.3. The University of Melbourne and Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation.

Photo: Yering Backswamp, by Melbourne Water

Moorabool River

The Moorabool catchment had sporadic, inconsistent rainfall from July 2024 to June 2025. Persistent warmth throughout 2024 produced the second-warmest winter on record and warmest spring on record.

The 2024-25 water year was much drier than predicted, with March being the seventh driest on record and the driest since 1986. This impacted natural flows and levels in Lal Lal Reservoir and emphasised the need to adapt to conditions and adjust to expectations in environmental water planning.

Environmental water was invaluable in a dry period to maintain low flows across the year supporting refuge pools and connectivity for the ecological values within the Moorabool. Low flows helped to maintain pool and riffle habitats for fish, waterbugs, platypus and submerged aquatic plants.

Despite being the most flow-stressed river in Victoria, no cease-to-flow events were recorded during these drier conditions because of the full entitlement volume provided to support the values in the river.

The three recommended freshes for a wet/average year for the Moorabool were met by a combination of managed Corangamite CMA environmental water releases, Wadawurrung Traditional Owners Aboriginal Corporation (WTOAC) temporary transfers and natural rainfall events.

While Wadawurrung Traditional Owners Aboriginal Corporation's focus of improving cultural values within the Moorabool is the primary aim in their managed releases, they are a growing source of nourishment for the flow-stressed Moorabool.

In 2024-25 the summer fresh was achieved primarily thanks to Wadawurrung water, alongside smaller volumes from Barwon Water and low flow environmental water releases. The combined impact of environmental and cultural water will become more pronounced as water is recovered next water year and is likely be an integral part of supporting life in the Moorabool.

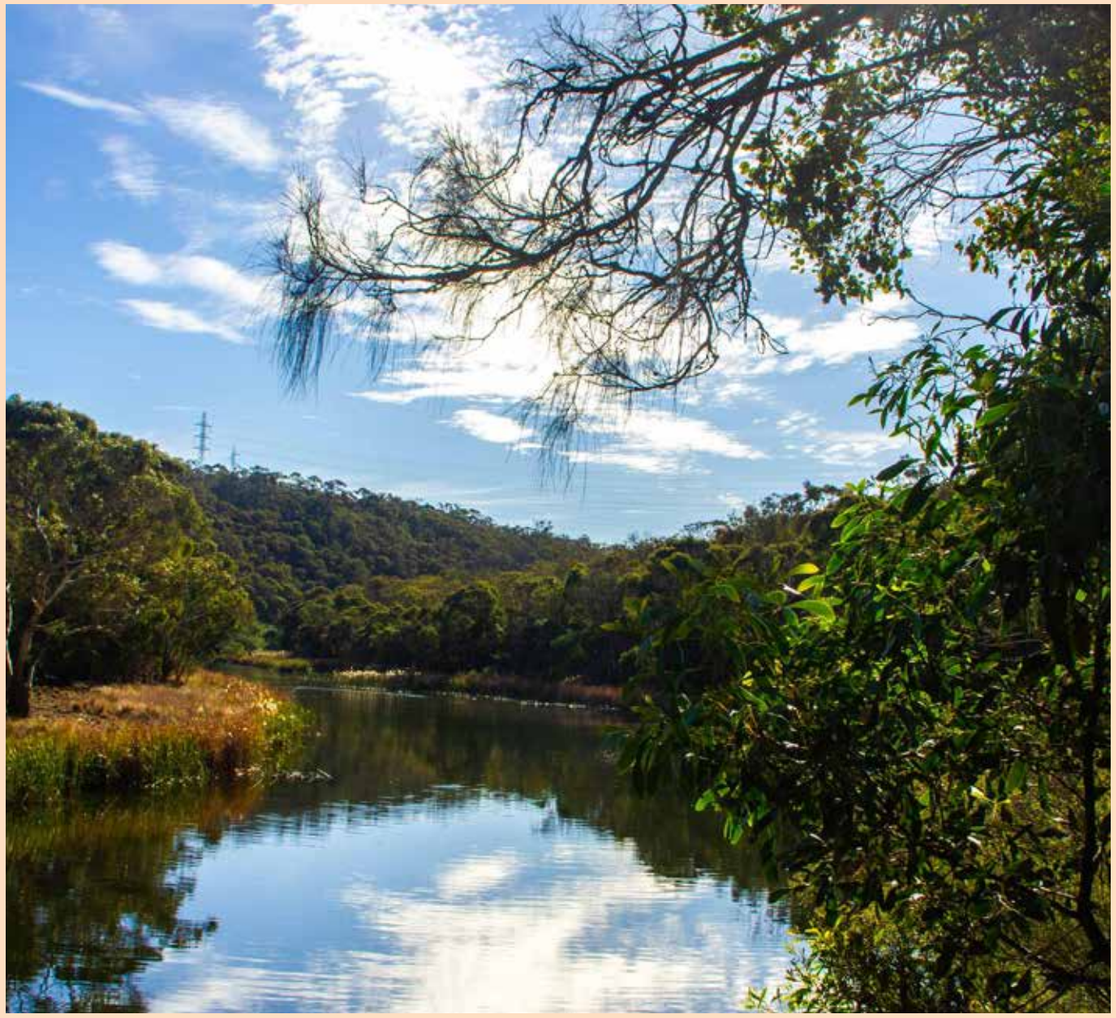


Photo: Moorabool River upstream of Sheoaks Weir, by Corangamite CMA

Werribee River (*Wirribi Yaluk/ Weariby Yallok*)

There were below-average rainfall and above-average temperatures in the Werribee catchment during winter/spring and summer/autumn 2024-25.

Water for the environment was actively delivered to Pyrites Creek to achieve a spring continuous low flow, four spring/summer freshes and one spring high flow event. These flows maintain channel form, conditions and plants, and allow for fish movement between pools.

Environmental water for four summer/ autumn freshes was delivered in the lower Werribee River to improve habitat, maintain plants, reduce blue-green algal bloom, and support fish and frogs.

Despite improved achievement of environmental flow components over recent years, there is still a big gap between what can be achieved with environmental water and the environmental flow recommendations for the lower Werribee River.

Due to the low volumes of environmental water and system constraints, there are limits to what can be achieved in the Werribee system. The focus remains on maintaining health of the natural environment in summer and autumn to protect water quality and maintain access to refuge pools by keeping the system connected during hot and dry periods.

Photo: Birrarung upstream of Reefton in the Upper Yarra Reservoir Park, by Melbourne Water

Photo: Pyrites Creek in the Werribee catchment, by Melbourne Water

Taking care of the Moorabool River in dry times

Dry spells can be tough for local communities and challenge the health of plants and animals depending on water for their survival. Unpredictable rainfall from climate change is worsening the impact.

Regional partnerships are at the heart of managing through dry times and improving the health and resilience of the Moorabool River – a waterway in the Corangamite catchment in south west Victoria.

The importance of flows

The Moorabool Yaluk (river in Wadawurrung language) is on the traditional lands of the Wadawurrung people who have had continuous connection to the river for many thousands of years.

The river is home to many native fish species of high conservation value such as the Australian grayling, river blackfish, Australian smelt, flat-headed gudgeon, southern pygmy perch, short-finned eel, spotted galaxias and tupong. Platypus, water rats and a range of waterbugs also call the river home.

While the Moorabool River provides social, cultural, economic and environmental benefits for the community, it is one of Victoria's most flow-stressed waterways.

Infrastructure built to supply water for drinking water, public health, business and industrial use continues to be the main factor affecting waterway flow. The river supplies water to Geelong and Ballarat, two rapidly growing Victorian communities.

Much of the land around the river has changed with urban growth and agriculture now covering 65 per cent of the area – all of which impacts river health.

Regional partnerships have proven to be the key to looking after the Moorabool River. Water is released from Lal Lal Reservoir at different times of the year in different volumes to support a range of ecological processes identified by the Corangamite CMA.

Further water flow has been guided by Wadawurrung Traditional Owners Aboriginal Corporation (WTOAC) and coordinated with Central Highlands Water and Barwon Water over the past two years to support cultural values.

Recent dry times

Rainfall in the catchment has been below average since April 2024. Wadawurrung water and environmental flows have helped protect the river's environmental condition during periods of low or unpredictable rainfall.

Watering from reservoirs on the Moorabool helps prevent poor water quality, algal blooms and oxygen depletion caused by prolonged low water levels. Despite this year being among the driest, environmental water has successfully continued to flow through the waterway.

"The success of the delivery of these flows is grounded in the relationship with Wadawurrung and government agencies" said Corangamite CMA CEO Dr Amber Clarke.

In particular, the delivery of recent large pulses of water have helped trigger fish migration and streamside plant growth.

In 2024-25 the summer fresh was achieved primarily thanks to Wadawurrung water, alongside smaller volumes from Barwon Water and low flow environmental water releases.

Photo: Moorabool River at Batesford, by Corangamite CMA

Delivering water for a thriving Moorabool

The combined impact of environmental and cultural water for the Moorabool River has been successful for meeting needs under all conditions – dry, wet and average years.

Integrating diverse watering strategies to align with seasonal conditions has been a key component in providing higher flows to allow native plants to grow and spread and providing habitat for animals.

"Our self-determined water releases have enabled us to provide essential support to Yaluk (river), Buniya (eel), and Kuwiyn (fish) throughout dry periods," said Zade Kennedy, Wadawurrung man and Junior Water Officer at Wadawurrung Traditional Owners Aboriginal Corporation.

"It is really encouraging to see what can be achieved with strong regional partnerships. The Moorabool has continued to flow during some really challenging times," said Dr Clarke.

Delivery of environmental water is only one of the activities that support the health and resilience of the Moorabool River. Others include fencing, revegetation and weed control on riparian land, citizen science monitoring programs, removal of barriers from the river and the promotion of sustainable agriculture practices.

Photo: Moorabool River at Coopers Bridge, by Corangamite CMA

Western region

Our reflections for 2024-25

Total rainfall across the western catchments in 2024–25 was significantly below average, resulting in the second-lowest inflow year on record for the Wimmera-Glenelg system since 1900.

Only 29,308 ML entered storages, and drought conditions were experienced across the entire catchment.

This followed a similarly dry year in 2023–24, which saw inflows of just 52,732 ML—well below the post-1997 average of 93,000 ML.

The allocation to the Wimmera and Glenelg Rivers Environmental Entitlement reached only 7,706 ML, or 19 per cent of 40,560 ML, and no wetland allocation was received for the year.

Environmental water deliveries commenced under a dry scenario, with water conserved from the previous year's wetter conditions used strategically to support key environmental values.

However, low rainfall and elevated evaporation rates led to higher-than-anticipated environmental water demands, increased risks to achieving ecological objectives and a shift to the planned very-dry and drought scenarios.

Waterway managers responded proactively, adapting their strategies as it became evident that conditions were unlikely to improve. Their approach required agility and innovation to maximise the benefits of the limited water available.

In the Glenelg system, the focus was maintaining water quality and connectivity. In contrast, efforts in the Wimmera system centred on sustaining critical drought refuges. Watering activities in the Wimmera-Mallee Pipeline wetlands aimed to preserve the ecological condition of priority environmental assets.

Photo: Emergency relocation of native fish from MacKenzie River drought refuge pools, by Wimmera CMA

Photo: Watering Lower Burnt Creek drought refuge pool, by Wimmera CMA

While low rainfall and high temperatures are characteristic of the region, the increasing frequency, duration, and intensity of these events is placing growing pressure on native plant and animal populations, challenging their long-term persistence.

Drought conditions in the Glenelg River catchment through the 2024–25 season put the river under extreme stress. The Glenelg River depends on natural winter flows to meet all winter objectives, but there was no meaningful winter run off, and many reaches experienced periods of flow below the summer baseflow levels.

These conditions led to a significant decline in water quality and high salinity through late spring. Environmental water, compensation flows and accumulated passing flow releases started in early November 2024, several weeks earlier than usual.

Low water volumes and water quality impacts of blue green algae limited planned use from storages. Evaporation losses over autumn were higher than expected, leading to more demands for higher flows and increased risks to environmental objectives.

Photo: Glenelg River, by Glenelg Hopkins CMA

Making the most of environmental water in drought

Environmental water in the Glenelg and Wimmera systems contributed to the survival of native wildlife, including native fish and birds, in extreme dry conditions of 2024-25.

Despite being in the same region and sharing an environmental entitlement, the river systems were managed according to their differences to make the most of limited environmental flows.

Glenelg River

An unseasonable lack of rain in the Glenelg River catchment during winter and spring persisted through summer.

Managed environmental flows were a vital buffer against the worst impacts of drought, helping to maintain ecological connectivity and water quality from Rocklands to Dartmoor through summer and autumn.

Water for the environment was managed carefully so that even with low natural inflows, releases into the Glenelg River supported freshwater ecosystems and aquatic values. Without environmental water, the Glenelg River would have had either zero or near zero flow, resulting in poor water quality, receding pools, loss of connectivity for fish and platypus and limited spawning opportunities.

Instead, there was strong recruitment for river blackfish, attributed to sufficient flows to support survival of the young. Estuary perch and tupong remained relatively abundant and widely distributed, maintaining gains made over the past five to ten years from water for the environment and complementary works.

Glenelg Hopkins CMA managed regulated releases into reach 0 through the Grampians (Gariwerd) National Park for the first time since 2019, aiming to learn how the ecology and water quality in this section responded to environmental flows. But as almost 100 per cent of the catchment area was burnt during the summer fires it was not known if environmental flows provided any refuge during the bushfire.

Flows supporting fish

Regulated low flows and targeted summer freshes were critical for river blackfish, variegated pygmy perch, estuary perch and tupong. Regular environmental flows support their movement, spawning, recruitment and resilience and seasonal flows help species like blackfish and tupong maintain or expand their range.

Notable discoveries from monitoring in March 2025 for the Victorian Environmental Flows Monitoring and Assessment Program (VEFMAP) included:

- 15 fish species recorded, including 10 native and five introduced species
- river blackfish populations increasing overall, supported by good water quality from targeted summer freshes
- tupong widespread through the river system and larger, older individuals suggesting that baseflows have successfully maintained river connectivity, enabling movement and dispersal.

A rare, pouched lamprey was recorded in June 2025, highlighting the importance of variable flows for survival of this fish. This eel-like fish migrates long distances from the sea to spawn in rivers and low numbers of this species have been linked to altered river flows and fragmentation of their habitat from infrastructure on the river.

Wimmera River

The Wimmera River suffered drought conditions through 2024-25, with the season ranking as the second-lowest inflow year on record.

The Wimmera River's total catchment of 24,011 km² includes the regulated waterways of the lower Wimmera River, MacKenzie River, Burnt Creek, Mt William Creek and Bungalally Creek.

Wimmera CMA concentrated its efforts on the MacKenzie River and Burnt Creek tributaries. Water from the limited allocation available was used strategically to preserve conditions for a vulnerable platypus population and support river blackfish and other fish by providing water to drought refuges.

Drought refuges

Drought refuges are river sections that hold water through long dry times to maintain ecological values, increase resilience and help the waterway recover once there is a wet period.

The important regional water source of Lake Wartook supplies water for Horsham and Natimuk, the Wimmera-Mallee Pipeline and for environmental flows.

Environmental flows were released from Lake Wartook for MacKenzie River and Burnt Creek from mid-August, targeting five drought refuge pools in the Upper Burnt Creek and Lower MacKenzie River.

The CMA reviewed the system's water use in October because of the dry conditions and resulting pressure on Lake Wartook. Environmental flows to MacKenzie River and Burnt Creek were modified to 2 GL for the rest of year to make sure Lake Wartook remained above its critical needs reserve level.

There were reduced flows to Upper Burnt Creek and mid-MacKenzie River to support drought refuge pools, with alternating flows of 1 ML a day during December 2024 and January 2025 to meet required levels.

Emergency fish rescue in MacKenzie River pools

In early February 2025, flows to the MacKenzie River's two higher drought refuges were not meeting required levels so it was decided to use all flows to target the Upper Burnt Creek drought refuges.

Wimmera CMA was concerned about the survival of native fish in deteriorating conditions in the MacKenzie refuge pools caused by lack of inflows, extended dry weather and diminishing water supply.

This prompted immediate action to rescue the native fish and move them to a safer, wetter area higher upstream. A team of people worked quickly and shifted native fish including obscure galaxias, southern pygmy perch, flathead gudgeon, western carp gudgeon and freshwater shrimp to a mid-waterway refuge site that was still environmentally viable.

The whole exercise, from notifying serious conditions to rapid permit approval by the Victorian Fisheries Authority, and the final response, was completed successfully within a day and half.

Photo: Glenelg River, by Glenelg Hopkins CMA

Northern region

Our reflections for 2024-25

Back-to-back years of increased environmental watering across the Mallee have produced real benefits to local sites and built resilience into the system for when conditions are dry.

High flows in the Murray River during 2021 and 2023 and large-scale overbank flooding in spring-summer 2022 transported essential nutrients onto the floodplain to enrich soils and support strong plant growth. Natural inundation through these years was far greater than deliveries of environmental water could achieve alone.

Monitoring through 2024–25 confirmed that delivering environmental water after natural flooding had supported germination and seedling survival. Sites receiving environmental water had stronger regeneration than those that did not, with wetland plants and water quality responding positively.

Periodic drawing down and drying of some wetlands has been shown to be important for maintaining good environmental health by encouraging a mosaic of different environments such as lakebed herblands, mudflats for shorebirds and shallow water for waders.

Goulburn River flows

Drier and warmer-than-average conditions and well-below-average unregulated flows meant that regulated releases to meet irrigation, inter-valley trade (IVT) and environmental water demands dominated Goulburn River flows over 2024-25.

Goulburn Broken CMA worked with the VEWH and Goulburn-Murray Water to overcome the challenges of delivering higher flows while still aiming for ecological outcomes in the Goulburn and Murray rivers.

Negotiations between stakeholders about IVT deliveries and the autumn fresh produced a balance. The resulting fresh provided much-needed water to mid-bank plants without compromising plants at the river's edge and allowed larger volumes of IVT to be delivered with environmental water for the health of the lower Murray.

As wetlands and billabongs were connected with the river, the shared benefits of environmental water enabled traditional practices like fishing and gathering bush foods, and Traditional Owners to teach younger generations about cultural lore and ecological stewardship.

Environmental water delivered at lower base flows offered local residents, visitors, anglers, game hunters, kayakers and canoers easier access to sandbars. Better fishing conditions for anglers boosted local economies, and landholders could use their diversion pumps in high demand periods when low base flows did not impact their infrastructure.

Brolga nesting

Gaynor Swamp is one of six Goulburn wetlands that can receive environmental water through irrigation supply infrastructure. No environmental water was planned for delivery there in 2024-25, but Arthur Rylah Institute (ARI) ecologists confirmed a brolga nesting in September 2024 as the swamp began to draw down.

The VEWH approved a watering variation for a 120 ML top up in October to maintain the right environment until a chick successfully fledged in November. The wetland then drew down and was completely dry within a few weeks.

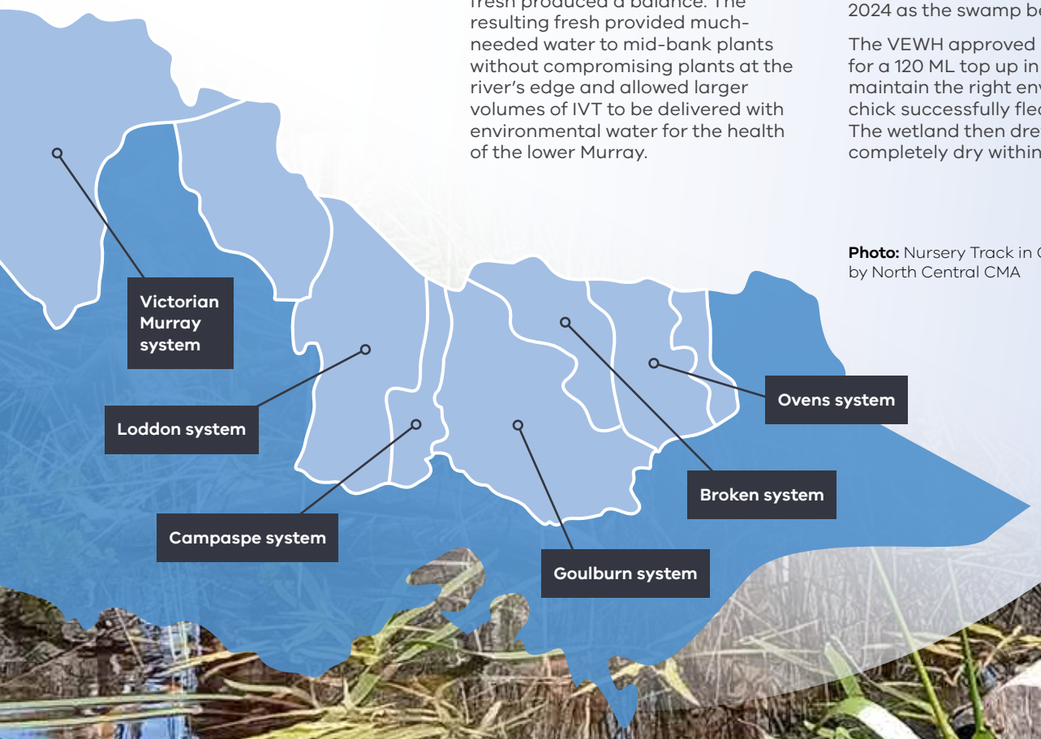


Photo: Nursery Track in Gunbower Forest, by North Central CMA

Brolga breeding is a watering objective in the Environmental Water Management Plan for Gaynor Swamp, with the first successful breeding recorded in 2024. Outside of formal surveys, ARI's Danny Rogers observed 27 brolga in May 2024 and up to 50 were seen regularly nearby at private properties and Greens Lake.

Kinnairds wetland

A new underground pipeline was opened at Kinnairds wetland at Numurkah in 2024, delivering environmental water directly and effectively for plants to grow and for food and breeding areas for frogs, waterbirds, turtles and fish.

The pipeline was built by Goulburn Murray Water and co-funded by the Commonwealth Environmental Water Holder and the VEWH in a project involving Goulburn Broken CMA, Moira Shire Council and Yorta Yorta Nation Aboriginal Corporation.

The new pipe reduces transition losses from when water was delivered after a 16-kilometre journey from an irrigation channel. It enables quicker responses to the timing of water deliveries from previous times when required volumes could take from 40 to 50 days to arrive.

Waterbirds in central Murray wetlands

Below-average rainfall and above-average temperatures limited natural inflows to the north central region. Environmental water was the only watering source for the central Murray wetlands of Lake Elizabeth, Kunat Kunat (Round Lake), McDonalds Swamp and Hird Swamp.

Water deliveries to Kunat Kunat and Lake Elizabeth helped maintain plants and the Murray hardyhead at two of the few sites for the fish left in Victoria. ARI's fish monitoring at Lake Elizabeth in April 2025 indicated that Murray hardyhead were breeding over spring and summer.

Lake Elizabeth is an important wetland for waterbird feeding and resting, and fluctuating water levels brought in wading birds, with thousands of black swans through the year, Eurasian coots, musk duck, blue-billed duck and red-capped plover.

ARI monitoring in October recorded 1,665 waterbirds across 15 species, including grey teal, chestnut teal, hoary-headed grebe, musk duck and Caspian tern.

Watering Gunbower and Barmah Millewa forests

In the absence of unregulated inflows, watering actions at Gunbower Forest in 2024–25 consisted of a top-up and spill of the Little Gunbower Complex and Barapa Swamp in spring, partial fill of Yarran Creek in late summer and top-ups in autumn, and a partial fill of Reedy Lake in autumn.

Environmental flows were managed to provide a more natural regime on the lower floodplain and to improve water quality and the environment for turtles and frogs.

Environmental water releases that started in September 2024 combined with a small natural flood to inundate around 25 per cent of the forest in October. Another small natural flood in November maintained water in wetlands until mid-December.

Low numbers of Murray spiny crayfish were found, suggesting slow recovery from hypoxic conditions in the Millennium Drought, and the turtle monitoring program recorded a rare Murray River turtle hatchling.

Releases of environmental water were relied on to inundate the floodplain in the dry-to-average conditions through spring and into early summer.

There was exceptional growth of Moira grass inside and outside of the floodplain sites that exclude grazing, showing the benefits of growth since the absence of horse grazing in 2022 and 2023.

Photo: Kayaking on Lake Nagambie, by Martine Hooper, Goulburn Broken CMA

Photo: Ryans Lagoon in north east Victoria, by J Schulz

Birds flock to Lake Powell and Lake Carpul after watering

A remarkable bird breeding event unfolded at Lakes Powell and Carpul after environmental watering from winter to spring 2024, signifying the health of these important local wetlands near Robinvale.

About 4,300 ML of water for the environment delivered to the lakes sparked the vigorous growth of water plants and then the arrival of large flocks of native birds.

Expansive growth through spring of common nardoo, spike sedge, lesser joy weed, old man weed and potamogeton attracted yellow-billed spoonbills, musk ducks, Australasian grebes, black swans, wedge tailed eagles and straw necked ibis.

There had been inflows to the wetlands from high river flows in 2022 and 2016, but this was the first time environmental water had been delivered since a planned watering in spring 2015.

It showed how water for the environment can effectively supplement the important natural wetting and drying cycles of wetlands and build on the positive ecological effects of recent flooding to improve the health of river red gum, black box trees and lignum.

“The benefits really tell us a lot about the health of the wetlands,” said Nicole Wishart, Mallee Catchment Management Authority (CMA) Executive Manager for Waterways, Wetlands and Statutory Functions.

“The presence of this amount of red water milfoil alone said so much. It’s an important species of aquatic vegetation in the Mallee and a great food source for many waterbirds, absorbing nutrients from the water. Now Lakes Powell and Carpul have been absolutely bursting with it."

“This also tells us that there is minimal European carp in the lakes, and that both lakes are healthy and thriving, which is exactly what we wanted to see.”

Mallee CMA’s landscape-scale planning involves drawing down some wetlands to complete their dry phase cycle and using environmental water to keep other wetlands in their wet phase as refuges for birds and other animals.

Environmental water deliveries to Lakes Powell and Carpul had kept them healthy, and as wetlands in the region dried down in response to low rainfall and high temperatures over summer, the birds had flocked to where the water was and there were abundant supplies of red milfoil.

As well as supporting native plants, bird breeding, and young fledglings to grow and thrive, the lakes are a popular place for recreational activities when carrying water, including bird watching, kayaking, fishing and camping.

Mallee CMA observed significant bird breeding at Lake Powell and Lake Carpul, which included black swan and Australasian darter, with nests present everywhere across the lakes. Importantly, almost every single tree with a nest in it had birds present.

Other species recorded in extremely high numbers included hoary-headed grebes and great and pied cormorant, and the lakes were teeming with baby birds.

"Without the environmental water delivery in 2024, the lakes would not have been topped up following natural floods,” said Ms Wishart. "The benefits are huge, and the proof is in the pudding – we’ve never seen bird breeding events or aquatic vegetation thriving quite like this at these sites before.”

After the bird breeding event, the ephemeral wetlands Lake Powell and Lake Carpul went through their normal drying cycle.

Photo: Australasian darter, by Mallee CMA

Photo: Black swans in Lake Powell, by Mallee CMA

Photo: Australasian darters nesting in Lake Powell, by Mallee CMA

A final reflection

The twentieth anniversary of one of the earliest Environmental Water Reserve allocations to the Thomson River is a notable milestone to celebrate.

It was the first time in Victoria there was an environmental flows study approach that supported community to set objectives for local waterways recognising current needs, and harnessed hydrologists' and ecologists' knowledge and advice on how to get there.

Newly established catchment management authorities were learning how to deliver environmental water effectively.

"It's such a reminder of how much things have changed", reflected VEWH CEO, Dr Sarina Loo.

"For example, our planning now includes Traditional Owners as program partners and our evidence-based decision-making has expanded considerably".

Reflections case studies are evidence of the success of Victoria's environmental watering program across landscapes, periods of time and climate conditions.

Measurable outcomes have been achieved by integrating short-term action with a year-on-year strategy to address the ongoing challenges of regenerating changed landscapes and an increasingly variable climate with a long-term drying trend.

Over the years leading up to this season, many Victorian catchments experienced the effects of three back-to-back La Nina years with flooded rivers, wetlands, lakes and floodplains. Since then, water levels in floodplains, wetlands and lakes have dropped considerably.

In the subsequent drying of the 2024-25 season, environmental water was used to sustain river flow and protect drought refuges, playing a crucial role in supporting plants and animals relying on water for their survival.

Beyond the short term, this year's delivery of environmental water has further supported continuing efforts to sustain plant and animal populations and communities over the long term.

"We are also aware that our work is one part of the myriads of on-ground activities necessary to make sure the health of our waterways is maintained or improved."

"We are proud to partner with many organisations and their local communities to tackle the issues that challenge the health of our waterways. This year we have some great examples that bring to life how we are dealing with some of those challenges".

Photo: Glenelg River, by Glenelg Hopkins CMA

Summary of water for the environment delivery 2024-25

System	Site	Total (ML)	VEWH (ML)	TLM (ML)	CEWH (ML)
GIPPSLAND REGION					
Latrobe system	Latrobe River	-	-	-	-
	Lower Latrobe wetlands	Water may be diverted into Heart Morass, Dowd Morass and Sale Common from the Latrobe River[i]			
Thomson system	Thomson River	18,473.0	18,473.0	-	-
	Heyfield Wetlands	30.0	30.0		
Macalister system	Macalister River	22,725.0	22,725.0	-	-
Snowy system	Snowy River	N/A [ii]			
GIPPSLAND REGION TOTAL		**41,228.0**	**41,228.0**		
CENTRAL REGION					
Yarra system	Yarra River	11,582.0	11,582.0	-	-
	Yering Backswamp	20.0	20.0	-	-
Tarago system	Tarago River	2,062.0	2,062.0	-	-
Werribee system	Werribee River	1,096.0	1,096.0	-	-
	Pyrites Creek	618.3	618.3	-	-
Maribyrnong system	Upper Jacksons Creek	305.0	305.0	-	-
Moorabool system	Moorabool River	2,498.0	2,498.0	-	-
Barwon system	Upper Barwon River	385.9	385.9	-	-
	Lower Barwon wetlands[i]	Water may be diverted into Reedy Lake and Hospital Swamps from the Barwon River[i]			
CENTRAL REGION TOTAL		**18,567.2**	**18,567.2**	**-**	**-**
WESTERN REGION					
Glenelg system	Glenelg River	13,405.8	13,405.8	-	-
Wimmera system	Wimmera River	11,164.8	3,865.0	-	7,299.8
	MacKenzie River	1,399.2	1,399.2	-	-
	Upper Burnt Creek	411.5	411.5	-	-
	Upper Mount William Creek	240.0	240.0	-	-
Wimmera-Mallee wetlands system	Barbers Swamp	12.1	12.1	-	-
	Broom Tank	2.0	2.0	-	-
	Bull Swamp	7.7	7.7	-	-
	Carapugna (Watchem Bushland Reserve)	11.3	11.3	-	-
	Challambra Swamp	5.8	5.8	-	-
	Chiprick Bushland Reserve	3.4	3.4	-	-
	Cherrip Swamp	4.0	4.0	-	-
	Clinton Shire Dam	2.5	2.5	-	-
	Cokum Bushland Reserve	7.3	7.3	-	-
	Considines	2.9	2.9	-	-
	Corack Lake	4.3	4.3	-	-
	Coundons Wetland	0.7	0.7	-	-
	Creswick Swamp	2.1	2.1	-	-
	Cronomby Tanks	6.4	6.4	-	-
	Crow Swamp	7.5	7.5	-	-
	D Smith Wetland	0.7	0.7	-	-
	Davis Dam	0.8	0.8	-	-
	Falla Dam	2.0	2.0	-	-
	Fieldings Dam	1.9	1.9	-	-
	Goulds Reserve	12.7	12.7	-	-
	Greens Wetland	3.6	3.6	-	-
	Harcoans Swamp (Burrereo Bushland Reserve)	10.8	10.8	-	-
	Homelea	1.1	1.1	-	-
	J Ferrier Wetland	3.0	3.0	-	-
	Jeffcott Wildlife Reserve	1.5	1.5	-	-
	Jesse Swamp	1.8	1.8	-	-
	John Ampt (House Dam)	2.6	2.6	-	-
	Lake Danaher Bushland Reserve	10.8	10.8	-	-
	Mahoods Corner	1.0	1.0	-	-
	Morton Plains Reserve	2.0	2.0	-	-
	Mutton Swamp	12.2	12.2	-	-
	Opie's Dam	0.8	0.8	-	-
	Pam Juergens Dam	0.3	0.3	-	-
	Part of Gap Reserve (Stephen Smith Dam)	2.6	2.6	-	-
	Paul Barclay	2.5	2.5	-	-
	Pinedale	8.0	8.0	-	-
	Poyner	3.0	3.0	-	-
	R Ferriers Dam	4.9	4.9	-	-
	Rickard Glenys Dam	2.3	2.3	-	-
	Roselyn Wetland/Reids Dam	8.5	8.5	-	-
	Round Swamp Bushland Reserve (Marlbed Lake Swamp/Newer Swamp)	3.6	3.6	-	-
	Schultz/Koschitzke	3.7	3.7		
	Shannons Wayside	2.4	2.4		
	Tarkedia Dam	6.0	6.0		
	Tchum Lake - Wetland (Tcham Lakes Lake Reserve)	85.5	85.5		
	Towma (Lake Marlbed)	1.6	1.6		
	Uttiwillock Wetland	4.2	4.2		
	Wal Wal Swamp	4.7	4.7	-	-
WESTERN REGION TOTAL		**26,914.2**	**19,614.4**	**-**	**7,299.8**
NORTHERN REGION					
	Barmah Forest	229,401.2	41,458.8	37,942.4	150,000.0
	Gunbower Creek	10,567.7	175.5	-	10,392.2
	Little Gunbower Creek Complex	3,063.9	2,751.1	312.8	-
	Reedy Lagoon	240.0	120.0	120.0	-
	Yarran Creek	449.5	449.5	-	-
Victorian Murray system	Hattah Lakes	10,549.8	2,405.9	8,143.9	-
	Mulcra Horseshoe	974.4	-	974.4	-
	Woodcutters Creek	115.8	-	115.8	-
	Ryans Lagoons	184.7	-	-	184.7
	Hird Swamp	787.3	787.3	-	-
	Kunat Kunat (Round Lake)	360.9	360.9	-	-
	Lake Elizabeth	822.2	822.2	-	-
	McDonalds Swamp	500.0	500.0	-	-
	Brickworks Billabong	315.3	315.3	-	-
	Bullock Swamp North	756.9	756.9	-	-
	Lake Carpul	1,713.9	1,713.9	-	-
	Lake Hawthorn	744.4	744.4	-	-
	Lake Powell	1,457.3	1,457.3	-	-
	Musk Duck Wetland (Neds Corner East)	120.5	120.5	-	-
	Neds Corner Central (Neds Corner Floodplain, Neds Corner Lagoon and Old Tip Wetland)	167.3	167.3	-	-
	Outlet Creek (Karadoc Swamp)	805.0	805.0	-	-
	Murray River via Great Darling Anabranch[iii]	42,686.0	-	-	42,686.0
Ovens system	Ovens River	54.2	-	-	54.2
	King River	145.0	95.0	-	50.0
	Mullinmur Wetland	18.8	-	-	18.8
Goulburn system	Goulburn River	467,446.0	11,608.7	150,733.9	305,103.4
	Gaynor Swamp	110.6	110.6	-	-
Broken system	Broken River	1,710.7	868.5	-	842.2
	Lower Broken Creek	44,820.1	4.0	-	44,816.1
	Upper Broken Creek	1,486.4	515.4	-	971.0
Campaspe system	Campaspe River	21,496.1	13,468.5	5,174.0	2,853.6
	Coliban River	580.2	580.2	-	-
Loddon system	Loddon River	15,472.4	12,116.4	-	3,356.0
	Serpentine Creek	1,213.7	1,213.7	-	-
NORTHERN REGION TOTAL		**861,338.1**	**96,492.7**	**203,517.2**	**561,328.2**
Total water use		**948,047.4**	**175,902.2**	**203,517.2**	**568,628.0**

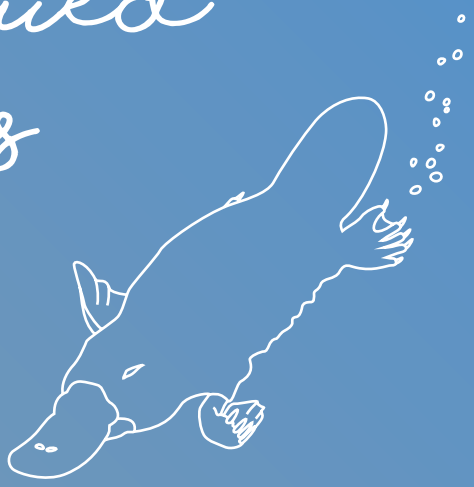
i The VEWH's environmental entitlements in the lower Latrobe and lower Barwon wetlands allow diversion of water from the Latrobe and Barwon rivers into the wetlands at any time when specific river height triggers are met. The entitlements do not consist of a set volume and the volume of water diverted into the wetlands is not measured.

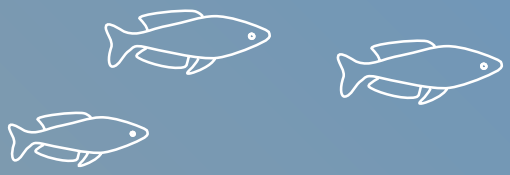
ii 211,030 ML of water for the environment delivered to the Snowy River by the New South Wales Department of Industry between 1 May 2023 and 30 April 2024. This water is authorised and delivered by NSW and therefore is not included in the regional or statewide totals presented in this table.

iii Water available in the Victorian Murray system was delivered to achieve non-Victorian environmental objectives for the Great Darling Anabranch and Lake Victoria in partnership with New South Wales, South Australia and other delivery agencies

Photo: Yellow-billed spoonbill, by Mallee CMA

water for healthy waterways, valued by communities





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VICTORIAN ENVIRONMENTAL WATER HOLDER

VICTORIA State Government