2026-2036







WIMMERA WATERWAY STRATEGY

A HEALTHY WIMMERA CATCHMENT WHERE A RESILIENT LANDSCAPE SUPPORTS A SUSTAINABLE AND PROFITABLE COMMUNITY.

VICTORIA State Government Australia

Wimmera CMA

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Acknowledgement of Country

Wimmera CMA acknowledges the Traditional Custodians of the land and waters where we work and pay our respects to Elders past and present.

We acknowledge and respect Traditional Owners, Aboriginal communities and organisations. We recognise the diversity of their cultures and the deep connections they have with Victoria's lands and waters.

We value partnerships with Traditional Owners for the health of people and Country.

Wimmera CMA Board, management and staff recognise the primacy of Traditional Owners' obligations, rights and responsibilities to use and care for their traditional lands and waters.

Acronyms

CMA	Catchment Management Authority
DEECA	Victorian Government Department of Energy, Environment and Climate Action
EMAC	Eastern Maar Aboriginal Corporation
GWMWater	Grampians Wimmera Mallee Water
MERI	Monitoring, Evaluation, Reporting and Improvement
RCS	*Wimmera Regional Catchment Strategy*
SEPP (Waters)	*State Environment Protection Policy (Waters) 2018*
Wimmera CMA	Wimmera Catchment Management Authority

INTRODUCTION

The Wimmera Catchment Management Authority (Wimmera CMA) is pleased to present the third *Wimmera Waterway Strategy* (the Strategy).

Waterways play a vital role in the environmental, social, cultural, and economic wellbeing of western Victoria's Wimmera region. This Strategy provides a 10-year framework for waterway managers, First Nations Peoples, stakeholder organisations and groups and regional communities to work together to care for Wimmera waterways and the environmental, social, cultural and economic values they support.

Requirements and responsibilities

Under Section 190 of the *Water Act 1989* (Vic), Wimmera CMA is required to prepare a regional waterway strategy for the Wimmera waterway management district. The Act requires that regional waterway strategies contain:

a) Plans and priorities for performing Wimmera CMA's functions.
b) A program of actions for implementing those plans and priorities.
c) Any other information required to be included by any relevant rules made under Section 197A of the Act (Section 190(2)).

In line with these provisions, the Minister for Water issued *Ministerial Guidelines for Regional Waterway Strategies* in September 2024.

The Act requires the Strategy to be submitted to the Victorian Government Minister responsible for administering the Act and the Minister for Environment for approval.[1]

Purpose of the Wimmera Waterway Strategy

Consistent with the requirements of the *Water Act 1989* and the *Ministerial Guidelines for Regional Waterway Strategies*, the purpose of the Strategy is to guide strategic investment and coordinated action to protect and improve the condition of the region's rivers, streams, wetlands and floodplains over a 10-year period from 2026.

It aligns the efforts of waterway managers, First Nations Peoples, land managers and community partners around shared priorities for waterway health.

What the Strategy covers

To achieve this purpose, the Strategy outlines:

- The Wimmera's waterways and their importance to the community, including the environmental, economic, social and cultural values and benefits they provide.
- The key threats and challenges that may affect the health of the region's waterways and the values they support.
- A 10-year plan to contribute towards achieving the Wimmera's:
    - Long-term vision for water, land and biodiversity.
    - Desired outcomes for waterways that support this vision - long-term outcomes (more than 20 years) and medium-term outcomes (less than 10 years).
- Priority areas for implementing management actions to achieve the desired outcomes.

A separate *Implementation Plan* details the management actions required to achieve the region's waterway outcomes.

A *Monitoring, Evaluation, Reporting and Improvement Plan* outlines how progress towards achieving these outcomes will be measured, reported and evaluated, and how the Strategy will be reviewed and improved over time.

FIRST NATIONS INTRODUCTION

The Wimmera region encompasses the traditional lands of the Wotjobaluk, Jaadwa, Jadawadjali, Wergaia and Jupagulk Peoples of the Wotjobaluk Nations, represented by the Barengi Gadjin Land Council Aboriginal Corporation, and the Eastern Maar Peoples, represented by Eastern Maar Aboriginal Corporation. Figure 1 illustrates the overlap between the Wimmera region and Traditional Owner group areas.

Barengi Gadjin LAND COUNCIL
ABORIGINAL CORPORATION RNTBC
ICN: 4395

This Strategy acknowledges and supports the deep cultural knowledges, aspirations, rights and responsibilities of the Wotjobaluk Nations Peoples and Eastern Maar Peoples in caring for Country. This includes the stewardship of waterways, floodplains and the broader landscape.

Barengi Gadjin Land Council serves as trustee for the Native Title rights and interests of the Wotjobaluk, Jaadwa, Jadawadjali, Wergaia and Jupagulk Peoples of the Wotjobaluk Nations - collectively known as the Wotjobaluk Nations Peoples - as recognised in the Native Title Consent Determination of 13 December 2005. This landmark determination was the first of its kind in Victoria and affirmed, among other things, the ongoing connection between the Wotjobaluk Nations Peoples and an area covering much of the Wimmera region and its waterways.(2)

"We are part of our Country and our Country is part of us.

Bunjil the creator, made our land, waterholes, animals, and plants and gave the Bram-bram-bult brothers, sons of Druk the frog, the responsibility to finish the tasks he had set for himself. They had to bring order to the new world by naming the animals and the plants, and to make the languages and give the Lore.

This is why Wotjobaluk Nations Peoples are obligated to look after Country and Culture and keep it healthy and strong.

Country heals us: it connects us to our dreaming stories, to our ancestors and spirits. It is the foundation of our future.

All parts of Country are connected and if our Country is treated with respect and care, then it will continue to sustain and provide for us.

It is vitally important that we continue to share our traditional land management practices so the land, waters and all living resources can thrive."

- Barengi Gadjin Land Council



A culturally modified tree in Barrabool Flora and Fauna Reserve.

Eastern Maar Aboriginal Corporation

The Eastern Maar Aboriginal Corporation manages native title rights for the Eastern Maar Peoples. Eastern Maar Aboriginal Corporation is a formally recognised Registered Aboriginal Party, with responsibilities for protecting and managing cultural heritage across a broad area extending to Landsborough in the Wimmera catchment management region.

As the representative body for Eastern Maar citizens, the Eastern Maar Aboriginal Corporation leads the advancement of native title rights and interests, cultural heritage protection, high-quality policy advice and initiatives aligned with the inherent rights, aspirations and independence of its people.(3)

The following statement in a Maar language, and in English, is from the Eastern Maar Peoples:(4)

"'Watnanda koong meerreeng, tyama-ngan malayeetoo' Ngatanwarr

Ngeerang meerreeng-an Peepay meerreeng-an Kakayee meerreeng-an Wartee meerreeng-an

Maara-wanoong, laka. Wanga-kee-ngeeye

Meereeng-ngeeye, pareeyt, nganpeeyan, weeyn, wooroot, poondeeya-teeyt

Meerreeng-ngeeye, nhakateeyt, woorroong, leehnan, mooroop, keerray

Meerreeng-ngeeye, thookay-ngeeye, pareeyt pareeyt ba waran waran-ngeeye,

wangeeyarr ba wangeet – ngeeye, maar ba thanampool- ngeeye, Ngalam Meen-ngeeye, mooroop-ngeeye Meerreeng-ngeeye Maar, Maar meerreeng

Wamba-wanoong yaapteeyt-oo, leerpeeneeyt-ngeeye, kooweekoowee-ngeeye nhakapooreepooree-ngeeye, keeyan-ngeeye Wamba-wanoong nhoonpee yaapteeyt-oo, tyama-takoort meerreeng

Peetyawan weeyn Meerreeng, nhaka Meerreeng, keeyan Meerreeng, nganto-pay ngootyoonayt meerreeng Kooweeya-wanoong takoort meerreeng-ee ba watanoo Meerreng-ngeeye, yana-thalap-ee ba wanga-kee Meerreeng laka

Ngeetoong keeyan-ngeen Meerreeng, Meerreeng keeyan ngooteen."

"Together body and Country, we know long time.

(We see all of you), greeting.

Mother my Country.

Father my Country.

Sister my Country.

Brother my Country.

We are the Maar speaking Peoples. Hear us. Our Country is water, air, fire, trees, life.

Our Country is thought, language, heart, soul, blood.

Our Country is our Children, our youth, our Elders, our men and women, our Ancestors, our spirit.

Our Country is Maar, Maar is Country.

We invite all that choose to live on or visit our Country to slow down. To tread softly and listen to Country speak. If you love Country, Country will love you

We bring to the light our songs, our stories, our vision, our love.

We bring these things to the light so All can know Country. To care for Country. To think about Country. To love Country. To protect Country."

- Eastern Maar Aboriginal Corporation



Staff from Eastern Maar Aboriginal Corporation and Wimmera CMA inspecting a culturally modified tree.

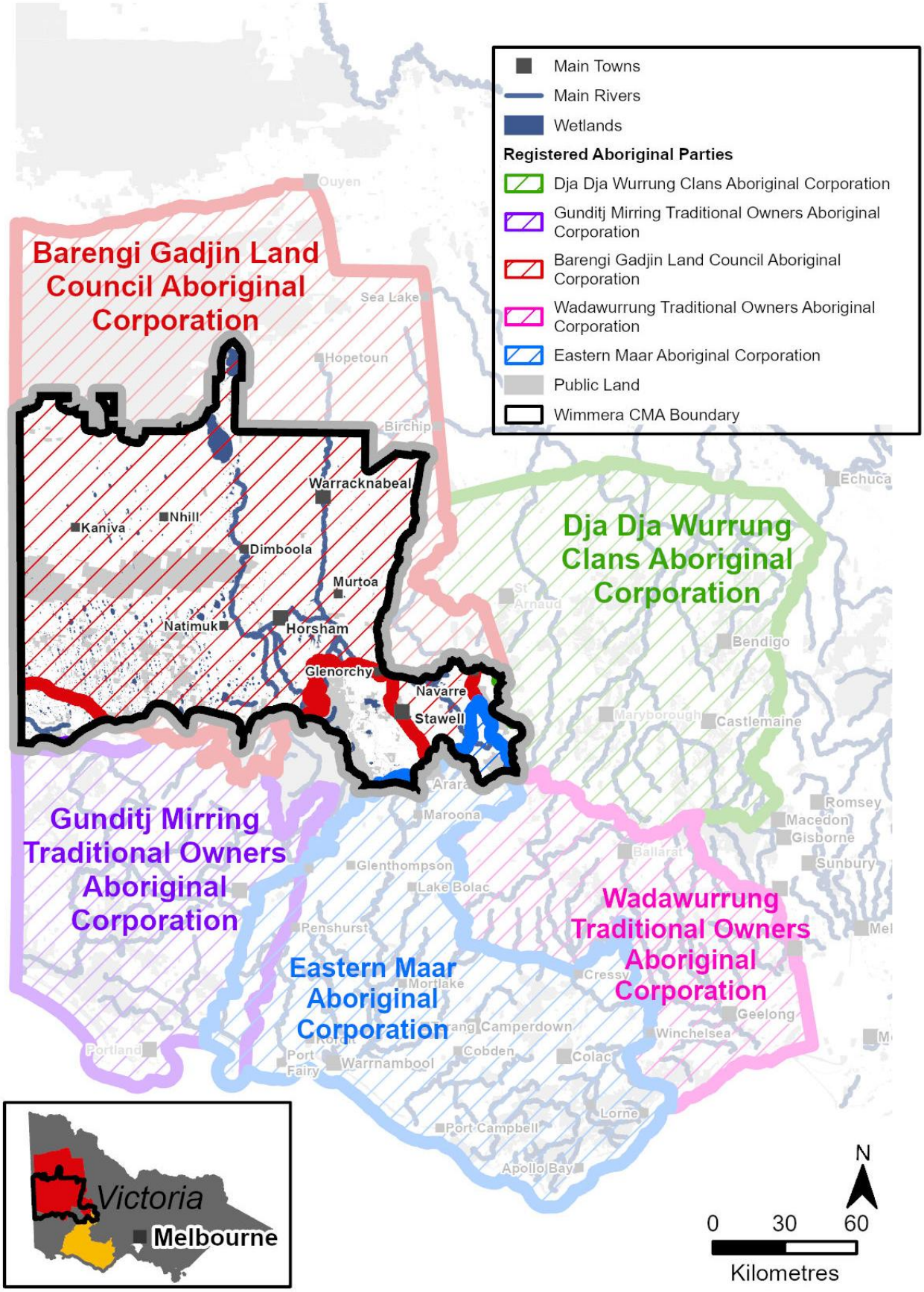


Figure 1. Registered Aboriginal Party areas in the Wimmera region.



PART A

STRATEGY SUMMARY

VICTORIA State Government Australia

Wimmera CMA

STRATEGY SUMMARY

Strategic context

The *Wimmera Waterway Strategy* sets out a 10-year framework for strategic, coordinated investment in waterway management across the region. It identifies outcomes, priority areas and actions to balance the diverse values and uses of waterways, deliver regional outcomes and align management activities with relevant legislation, policies and planning frameworks. These include Commonwealth and Victorian Government legislation and policy, the *Wimmera Regional Catchment Strategy*, *Western Region Sustainable Water Strategy*, Traditional Owner *Water is Life* Nation Statements and Country Plans, *Murray-Darling Basin Plan*, and regional and local strategies and plans.

The primary Victorian legislation and policy frameworks guiding and informing the Strategy are:

- *Water Act 1989* – sets out requirements for regional waterway strategies.
- *Victorian Waterway Management Strategy* – provides the statewide policy framework for waterway management and guides regional strategies.
- *Water is Life: Traditional Owner Access to Water Roadmap* – supports Traditional Owner self-determination in water access and management while balancing stakeholder rights and entitlements.

The primary regional documents guiding and informing the Strategy are:

- *Wimmera Regional Catchment Strategy* - the overarching strategy for integrated catchment management in the Wimmera.
- Traditional Owner Nation Statements – developed by Barengi Gadjin Land Council and Eastern Maar Aboriginal Corporation for the *Water is Life: Traditional Owner Access to Water Roadmap*.

Figure 2 illustrates the connections between these and other key Australian Government, Victorian Government, regional and local legislation, policies, plans and strategies. Appendix 1 provides a comprehensive list of the legislation, policies and planning documents that have informed and are supported by the Strategy.

Legislative requirements

Section 190 of the *Water Act 1989* (Vic) sets out the requirements for preparing regional waterway strategies. Under the Act, an authority with a designated waterway management district must prepare a regional waterway strategy to support the delivery of its waterway management functions.

The Act identifies Victoria's nine catchment management authorities and Melbourne Water Corporation as authorities with waterway management districts. As the authority responsible for the Wimmera waterway management district, Wimmera CMA is required to prepare the regional waterway strategy for the region.

The Act also requires the Strategy to be submitted to both the Victorian Government Minister responsible for administering the Act and the Minister for Environment for approval.[1]

Ministerial Guidelines for Regional Waterway Strategies

The *Ministerial Guidelines for Regional Waterway Strategies*, issued by the Victorian Government Minister for Water, set out the requirements and expectations for the preparation of regional waterway strategies.[5]

The guidelines describe the purpose of regional waterway strategies as providing:

> *"A single regional planning document to guide strategic investment in waterway management activities over a ten-year period. The regional waterway strategies aim to enable effective management of the condition of waterways in priority management areas and achieve regional outcomes."*

The guidelines set out a range of requirements for regional waterway strategies. This includes aligning with and supporting relevant state and regional policies, strategies and plans such as the *Victorian Waterway Management Strategy*, *Water is Life: Traditional Owner Access to Water Roadmap*, regional catchment strategies, sustainable water strategies, Traditional Owner Country Plans and other key regional and statewide documents.

In addition, the guidelines require waterway managers to develop and implement regional waterway strategies in partnership with Traditional Owners, local communities, relevant state and regional agencies, private landholders and other key stakeholders. This collaborative approach helps ensure that regional priorities, knowledge and values are reflected in waterway management planning and decision-making.

Victorian Waterway Management Strategy

The *Victorian Waterway Management Strategy* provides a 10-year framework to sustain living waterways, including rivers, wetlands, estuaries and floodplains, and balance the many ways Victorians use and value them. This strategy provides the statewide policy framework for waterway management and guides regional strategies.(6)

Regional waterway strategies help to implement this statewide framework at the local level, ensuring waterway management responds to local needs while supporting statewide outcomes.

Water is Life: Traditional Owner Access to Water Roadmap

The *Water is Life: Traditional Owner Access to Water Roadmap* seeks to achieve meaningful outcomes regarding water and waterway management in partnership with Traditional Owners. *Water is Life* outlines outcomes and actions to be delivered collaboratively by the Victorian Government, Traditional Owners and the water sector to increase Traditional Owner access to water and waterways and support self-determination. This includes outcomes and actions that support the recognition of waterways and their surrounding lands as living, integrated, natural and cultural entities in law, with Traditional Owners recognised as a unique "voice" of these living entities. (7)

Regional waterway strategies contribute to these outcomes by increasing the role of Traditional Owner knowledge in waterway planning and management. They also support the integration of Traditional Owner aspirations and priorities into decision-making, including those expressed through Country Plans, Water is Life Nation Statements and other Traditional Owner strategic documents. This helps ensure waterway management reflects cultural values, supports healthy Country and delivers shared benefits for communities and the environment.

The *Wimmera Waterway Strategy* is also guided by Nation Statements developed by Barengi Gadjin Land Council and Eastern Maar Aboriginal Corporation for *Water is Life.* Nation Statements express Traditional Owners' cultural and water-related values, goals, aspirations, outcomes and other relevant information deemed important by each Nation.

Wimmera Regional Catchment Strategy

The *Wimmera Regional Catchment Strategy* (RCS) is the overarching strategy for integrated catchment management in the Wimmera. Developed by Wimmera CMA in 2021 in partnership with First Nations Peoples, the Wimmera community and stakeholder organisations, it sets a long-term vision and desired outcomes for the region's water, land and biodiversity.(4)

The vision and waterway-related outcomes of the RCS have guided the development of the *Wimmera Waterway Strategy*. In turn, the *Wimmera Waterway Strategy* and its accompanying *Implementation Plan* provide the detailed framework for delivering the RCS's desired outcomes for rivers, streams, wetlands and their floodplains. Together, they translate the strategic direction of the RCS into coordinated actions and investment priorities for waterway management across the region.

What is not included in the Strategy

During consultation on the Strategy, stakeholders raised concerns about water availability, water security for recreational waterways and opportunities to deliver water to additional waterways for community and environmental benefits. Key concerns include whether sufficient water is available to support new developments and pipeline projects and the potential impacts of further water allocations on existing users and the environment.

Stakeholders also highlighted concerns about the effects of a drying climate, declining runoff into waterways and water supply storages and the risk that increased water extraction could impact waterway health and the social, economic and cultural values waterways provide.

Water allocation and water-sharing arrangements are outside the scope of this Strategy and are considered through the Victorian Government's sustainable water strategies. Sustainable water strategies seek to secure a region's long-term water supply and can identify potential threats to water availability and water quality.(8)

During 2025, the Victorian Government announced that a new *Western Region Sustainable Water Strategy,* which includes the Wimmera region, would be developed. The new strategy provides an opportunity for the community, water sector agencies, Traditional Owners and stakeholders, such as farming and environmental groups, to discuss and plan for the region's water needs to support economic, cultural, environmental and social values.(9)

Flood management is also generally outside the scope of this Strategy. These matters are addressed through the *Wimmera Floodplain Management Strategy*, which was developed by Wimmera CMA in consultation with local government and other stakeholders. This strategy identifies priority flood management actions across the region, including improvements to flood warning systems and the integration of flood risk information into municipal land-use planning schemes.(10)

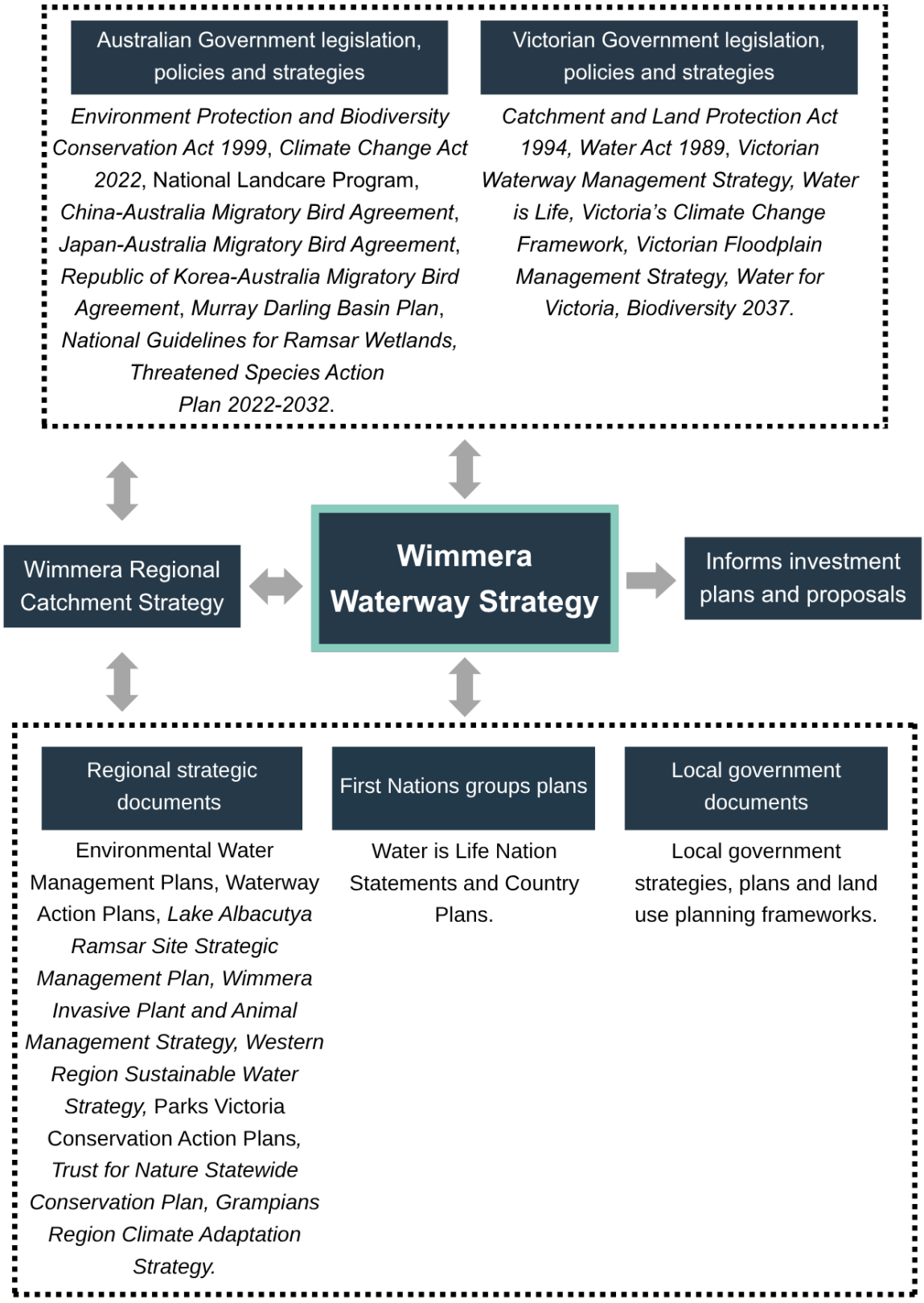


Figure 2. Key Australian Government, Victorian Government, regional and local policies, legislation and plans that guide and are supported by this Strategy.

Review of the previous strategy

In 2022-23, Wimmera CMA reviewed the previous strategy, the *Wimmera Waterway Strategy 2014-2022*, confirming strong progress in improving waterway health and management across the region. The review also highlighted important lessons and considerations to guide the next strategy.[11]

Over its eight-year life and beyond, the strategy provided clear direction for investment and action, guided regional planning and strengthened partnerships with First Nations Peoples, agencies and communities. The strategy delivered a wide range of environmental, social, economic and cultural benefits for the Wimmera region.

Strategic integration

The previous waterway strategy informed the *Wimmera Regional Catchment Strategy 2021-27* and supported funding applications for priority waterway projects. It also informed strategic and project planning for regional stakeholder organisations and groups such as Landcare, local government and recreational management committees.

Environmental outcomes

The Strategy significantly improved waterway health through extensive on-ground works:

- Over 4,000 hectares of pest control, 4,600 hectares of weed control, 162 kilometres of fencing and 486 hectares of riparian management agreements were implemented to protect waterways and their riparian areas, reduce erosion and improve habitat quality. The Victorian Government's *Regional Riparian Action Program* enabled substantial gains in invasive species control and riparian protection.
- Native vegetation restoration and rabbit control at waterways such as Ngalpakatia/Ngelpagutya (Lake Albacutya) Ramsar site helped maintain ecological character and biodiversity with the condition of vegetation including nationally threatened pine-buloke communities enhanced by targeted rabbit control.
- Strategic water for the environment releases supported aquatic ecosystems, improving habitat, sustaining fish and platypus populations, and maintaining drought refuges and water quality. The Barringgi Gadyin (Wimmera River)'s resilience to a major blackwater event in 2021 was positive. Infrastructure upgrades and erosion control works reduced sediment movement and improved water quality, creating a legacy for waterway resilience.

Ongoing challenges remain for water quality and erosion, particularly in the lower Barringgi Gadyin (Wimmera River), upper catchment rivers and streams and west Wimmera wetlands.

Initiatives from the Wimmera's volunteer Landcare groups and networks contributed significantly to improving the health of Wimmera waterways. Their activities included pest control, tree plantings, habitat improvements such as nesting boxes, community education opportunities and monitoring.

Cultural and community benefits

First Nations Peoples' involvement in waterway management increased through Aboriginal Water Officer roles, cultural watering projects and collaborative planning.

Landholder trust in Wimmera CMA as a reliable partner grew along with confidence that recommended practices like fencing waterways and off-stream watering points improve environmental outcomes.

Wimmera CMA and partner organisations raised awareness of waterway health and encouraged community action. Community education initiatives included major events such as wildlife presentations at the annual Horsham Fishing Competition, cultural heritage projects including *Virtual River Yarns*, school-based programs such as *River Detectives* and curriculum resources developed in partnership with the Geography Teachers Association of Victoria.

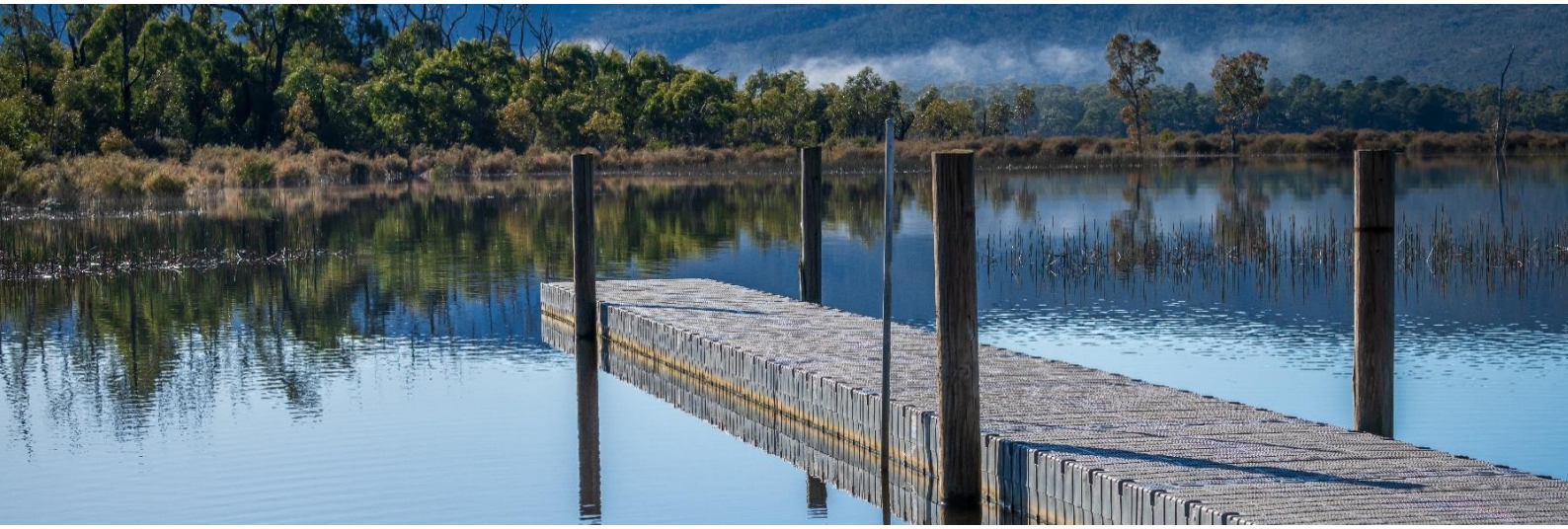
The Jeparit Waterwatch Group, Victoria's longest-running Waterwatch group, continued its long-term monitoring of water quality in the lower Barringgi Gadyin (Wimmera River), providing valuable data and strengthening community involvement.

Adaptive management

Adaptive management was applied in response to new knowledge, changing conditions and emerging opportunities. For example, dry conditions created an opportunity to remove European carp that had become concentrated in pools as river water levels declined.

The release of several new government and regional plans, strategies, reports and programs also influenced waterway management. In response, Wimmera CMA adapted its project planning and delivery approaches to align with evolving government priorities and funding opportunities. For example, following the release of the Victorian Government's *Water for Victoria* plan, Wimmera CMA and its partners placed greater emphasis on managing waterways to deliver shared environmental, social and economic benefits.

Wimmera CMA and partner organisations also demonstrated flexibility and responsiveness by adjusting priorities and management actions in response to changing climate conditions and extreme events, including drought, floods and bushfires.



Lake Wartook, Gariwerd (Grampians National Park).

Key learnings

The review of the *Wimmera Waterway Strategy 2014-2022* identified several important lessons and priorities to inform future waterway management:

- **Build climate resilience** by planning for a drier climate, reduced flows and more frequent extreme events. Priorities include protecting drought refuges, strategically delivering water for the environment and managing bushfire risks.
- **Improve monitoring and evaluation** to better measure environmental and community outcomes. Future frameworks should focus on tracking outcomes as well as activities and outputs.
- **Address key knowledge gaps** through targeted research, including wetland hydrology, fish populations, erosion processes and social drivers of landholder participation to inform evidence-based management decisions.
- **Strengthen partnerships and shared benefits** by continuing to work with First Nations Peoples, agencies, landholders and community groups to deliver environmental, cultural, social and economic outcomes.
- **Support integrated catchment management** by delivering multiple benefits across environmental, cultural, recreational, amenity and economic values, while aligning with government policy directions such as the *Victorian Waterway Management Strategy*, *Water for Victoria* and *Water is Life*.
- **Maintain Ramsar site values** through ongoing monitoring and protection of the Ngalpakatia/Ngelpagutya (Lake Albacutya) Ramsar site, while exploring opportunities to strengthen the protection of internationally important wetlands.
- **Continue to deliver on-ground actions and landholder engagement in priority areas** to address ongoing threats to waterway values and protect assets, including:
    - Erosion of soils, moving sediments into waterways, impacting on aquatic habitat and water quality.
    - Impacts of weeds and rabbits affecting riparian areas and wetlands across the catchment.
    - Cropping and drainage of shallow seasonal wetlands, particularly in the south-west Wimmera.
    - Salinity in the lower Barringgi Gadyin (Wimmera River), particularly during low flow periods.
    - European carp causing turbidity and competing with native fish.
    - Looking after the MacKenzie River platypus population, native fish and other aquatic life.
    - Continuing to protect and connect riparian areas and wetlands.
    - Improving the community's access to waterways, while preventing impacts on environmental values.

The review confirmed that the previous strategy delivered significant improvements and established a strong foundation for future management. Applying these lessons will help ensure that future waterway management remains adaptive, collaborative and effective in sustaining the health and values of the Wimmera's waterways.

Developing the Strategy

Wimmera CMA led the development of the Strategy with valuable contributions from a range of partner organisations, groups and individuals with interests and expertise in waterway management.

Steps taken to develop the Strategy

Following the review of the *Wimmera Waterway Strategy 2014-2022*, steps taken by Wimmera CMA to develop the new Strategy included:

Early stakeholder and community consultation

- Collaborating with First Nations organisations, including Barengi Gadjin Land Council and Eastern Maar Aboriginal Corporation, resulting in On Country discussions and meetings.
- Wimmera CMA invited more than 60 stakeholder organisations and community groups to contribute to the development of the Strategy. These organisations represent a range of interests, including waterway and water management, natural resource management, sustainable agriculture and water-based recreation across the Wimmera.
- Wimmera CMA engaged directly with more than 35 of these organisations, while others chose to provide written submissions. Stakeholders were invited to share their aspirations and priorities for Wimmera waterways, along with their perspectives on key challenges, issues and opportunities.
- Most stakeholders expressed an interest in remaining involved throughout the Strategy's development by reviewing draft documents and participating in further discussions with Wimmera CMA as required.
- Wimmera CMA invited community members to share their priorities and aspirations via an online form, promoted through Wimmera CMA's website and social media, forums including an annual *Environmental Water Management Forum* hosted by Wimmera CMA and the annual *Wimmera Machinery Field Days* agricultural and community event.

Stakeholder consultation draft

- A working draft was developed, informed by a range of evidence and information, including:
    - The strategic directions and outcomes outlined in the *Wimmera Regional Catchment Strategy 2021-27*.
    - Findings from the review of the *Wimmera Waterway Strategy 2014-22*.
    - Priorities and aspirations identified by stakeholder organisations and groups, First Nations Peoples and community members.
    - Relevant Australian and Victorian Government legislation, policies and strategies.
    - Relevant regional and local strategies and action plans.
    - The best available scientific data and information, including investigations, reports and monitoring assessments.
- In early November 2025, Wimmera CMA invited stakeholders to provide feedback to help refine and strengthen the draft Strategy. The draft was distributed to a range of partner and stakeholder organisations and groups, as well as the Wimmera CMA Board.
- Wimmera CMA met with Barengi Gadjin Land Council to discuss and refine the draft Strategy.
- Wimmera CMA subsequently revised the draft Strategy in response to stakeholder feedback and submitted it to the Victorian Government Department of Energy, Environment and Climate Action (DEECA) for review, feedback and approval, prior to release for public consultation.

Public consultation

- Wimmera CMA released the draft Strategy and associated *Implementation Plan* for a 47-day public consultation period, from Thursday 2 April to Monday 18 May 2026. Approximately fifteen submissions were received from community members, community groups and stakeholder organisations.
- Following the consultation period, Wimmera CMA reviewed all feedback and revised the draft Strategy accordingly. The final document reflects input from the community, partner agencies and stakeholder organisations.

Finalisation and approvals

- The Wimmera CMA Board approved the final Strategy in August 2026.
- Following Board approval, Wimmera CMA submitted the Strategy to DEECA for final review, prior to its submission to the Victorian Government Minister for Water for consideration and approval.

Guiding principles

A set of principles was developed to guide both the preparation and implementation of the Strategy. These principles provide a foundation for planning, decision-making and the delivery of management actions across the region.

Specifically, the principles:

- Promote a consistent approach to decision-making and waterway management.
- Support waterway managers and partners when navigating trade-offs, differing stakeholder perspectives or situations where evidence is limited or uncertain.

Waterway managers and delivery partners are best placed to apply these principles, drawing on their knowledge of local conditions and broader regional contexts.

The principles are aligned with the *Victorian Waterway Management Strategy* and have been adapted to reflect the Wimmera's unique environmental, social and economic circumstances. The following principles have guided the development of this Strategy and will inform the approach to the Strategy's implementation:

- **Integrated catchment management –** Integrated management of waterways will occur in a broader framework of integrated and coordinated catchment management. This recognises the importance of waterways as part of living connected systems, contributing to greater resilience of waterways, land, biodiversity and communities.
- **Partnership approach –** Waterway management is a partnership between government, First Nations Peoples, stakeholder organisations and groups, industry and communities. Waterway managers will provide opportunities for partners and community to:
    - Participate in decision making.
    - Build regional capacity and knowledge to effectively manage waterways.
    - Facilitate appropriate community care of, use and benefits from waterways.
    - Use partnerships to generate additional support.
    - Secure long-term outcomes by developing a collective or shared responsibility for waterway management.
- **First Nations Peoples' self-determination –** Waterway managers are committed to partnering with First Nations Peoples to improve the management of waterways on Country. Waterway managers will seek to collaborate with First Nations organisations where opportunities exist. The Strategy acknowledges and respects First Nations Peoples' obligations and rights to care for water and country and to increase the role of cultural knowledges, provided with consent, to inform waterway management activities on Country. Traditional Owners always maintain sovereignty over their cultural data and information.
- **Indigenous data sovereignty** - is the inherent right of Traditional Owners to govern the collection, access, ownership, control and use of data relating to their peoples, communities, Country, cultures, knowledges and resources. It recognises that Indigenous data should be managed in accordance with Traditional Owner values, protocols and governance arrangements, supporting self-determination in decision-making. In practice, this means Traditional Owners determine how data is collected, stored, shared and used and the benefits it delivers to their communities and Country.
- **Climate change and waterway planning -** Waterway management will apply a climate change adaptation lens, that considers predicted climate change impacts within the context of other pressures on the environment and other socio-economic drivers.
- **Value for money -** Public investment in waterway management will be directed to actions, activities and approaches that provide the most efficient and cost-effective progress towards long-term outcomes for the greatest public benefit, considering opportunities for multiple benefits.
- **Evidence-based decision making -** Waterway management will be informed by the best available knowledge and the precautionary principle. Management action will be risk-based and proportionate. Ongoing monitoring and evaluation will facilitate adaptive management.
- **Good governance -** Waterway management activities will be delivered effectively and strategically using a transparent, coordinated and integrated framework.
- **Maintain outcomes of previous investment -** Previous effective on-ground waterway management activities that align with government policy and priorities will be considered within future strategies and work programs to ensure that outcomes are consolidated.
- **Quadruple bottom-line decision making -** Decision making will integrate considerations for environmental, social, cultural and economic values of waterways and seek to maximise overall benefits of management actions that maintain and improve condition in priority areas.
- **Adaptive management –** Effective monitoring, reporting, evaluation and research will support continuous improvement in managing waterways.



PART B

WIMMERA WATERWAYS - OVERVIEW

VICTORIA State Government Australia

Wimmera CMA

OUR REGION

The Wimmera catchment and waterways

Wimmera waterways are fundamental to supporting life and prosperity across the Wimmera. The region's rivers, streams, wetlands and floodplains are living entities that provide essential habitat for native plants and wildlife, places of cultural significance for First Nations Peoples, nature-based recreation and tourism opportunities, and water supply for towns, farms and industry.

Victoria's Wimmera catchment includes both the Wimmera Basin, which is a southern section of the greater Murray-Darling Basin, and the Millicent Coast Basin, which extends into south-eastern South Australia.

The catchment covers 10% of Victoria, spanning 2.3 million hectares. More than 77% of the catchment's land is used for agricultural production. In 2023, 57% of the catchment was dedicated to broadacre cropping and almost 20% to agricultural livestock production. Non-agricultural uses such as urban environments and nature conservation areas comprise the remaining land use.[12]

The Wimmera's population is approximately 50,000 with around one-third of residents living on farms or in small townships with fewer than 2,000 people.

The region contains more than 3,400 wetlands including deep freshwater and saline lakes and shallow seasonal freshwater and saline wetlands. The diversity of wetlands supports a large variety of plants and wildlife.

The catchment's waterways are influenced by a temperate to semi-arid climate. Severe droughts and large floods make for variable hydrology and the adaptation of unique riparian and aquatic ecosystems.

Five local areas, based on municipal and sub-catchment boundaries, make up the Wimmera catchment. These are Hindmarsh, Horsham, West Wimmera, Yarriambiack and Buloke, and the Upper Catchment, which includes parts of Northern Grampians, Ararat and Pyrenees municipalities. Figure 3 shows the catchment and its major attributes.

Rivers and streams

The Barringgi Gadyin (Wimmera River), the largest inland-terminating river in Victoria, is the most significant waterway in the catchment. It features an extensive network of tributary streams, two distributary streams, and ultimately feeds into a series of large inland freshwater lakes during high flows and floods.

Upper Barringgi Gadyin (Wimmera River) flows originate upstream of Glenorchy, where tributaries including Mount Cole, Glenlofty, Glenpatrick and Concongella Creeks collect run-off from the Pyrenees ranges and Ararat foothills. The river then travels west to Dadswell's Bridge where Mount William Creek enters.

Through the mid-reaches, the river continues west to Horsham receiving tributaries from the northwestern slopes of the Grampians ranges, including Burnt Creek, MacKenzie River and Norton Creek. It then flows north through Dimboola, fringing the eastern edge of the Little Desert National Park, and onto Jeparit.

The Lower Barringgi Gadyin (Wimmera River) terminates at Gurru (Lake Hindmarsh), Victoria's largest freshwater lake. During extremely wet periods, flows can continue to Outlet Creek, flowing north to a series of terminal lakes including internationally important, Ramsar-listed Ngalpakatia/Ngelpagutya (Lake Albacutya) and beyond to Wirrengren Plain in the Mallee region.

During high flows, Yarriambiack Creek, which ends at Lake Corrong near Hopetoun, and Dunmunkle Creek, which dissipates in the southern Mallee near Lascelles, are notable distributaries flowing north into the Mallee CMA region. Collaboration with cross-border organisations seeks to support the health of the entire length of these creeks.

Similar collaborations are required in the western part of the region where several streams in the Millicent Coast Basin flow west into South Australia. The basin's largest waterway is Mosquito Creek, flowing into South Australia's Bool and Hacks Lagoons Ramsar Site near Naracoorte.

Figure 4 shows the main rivers and streams in the Wimmera.

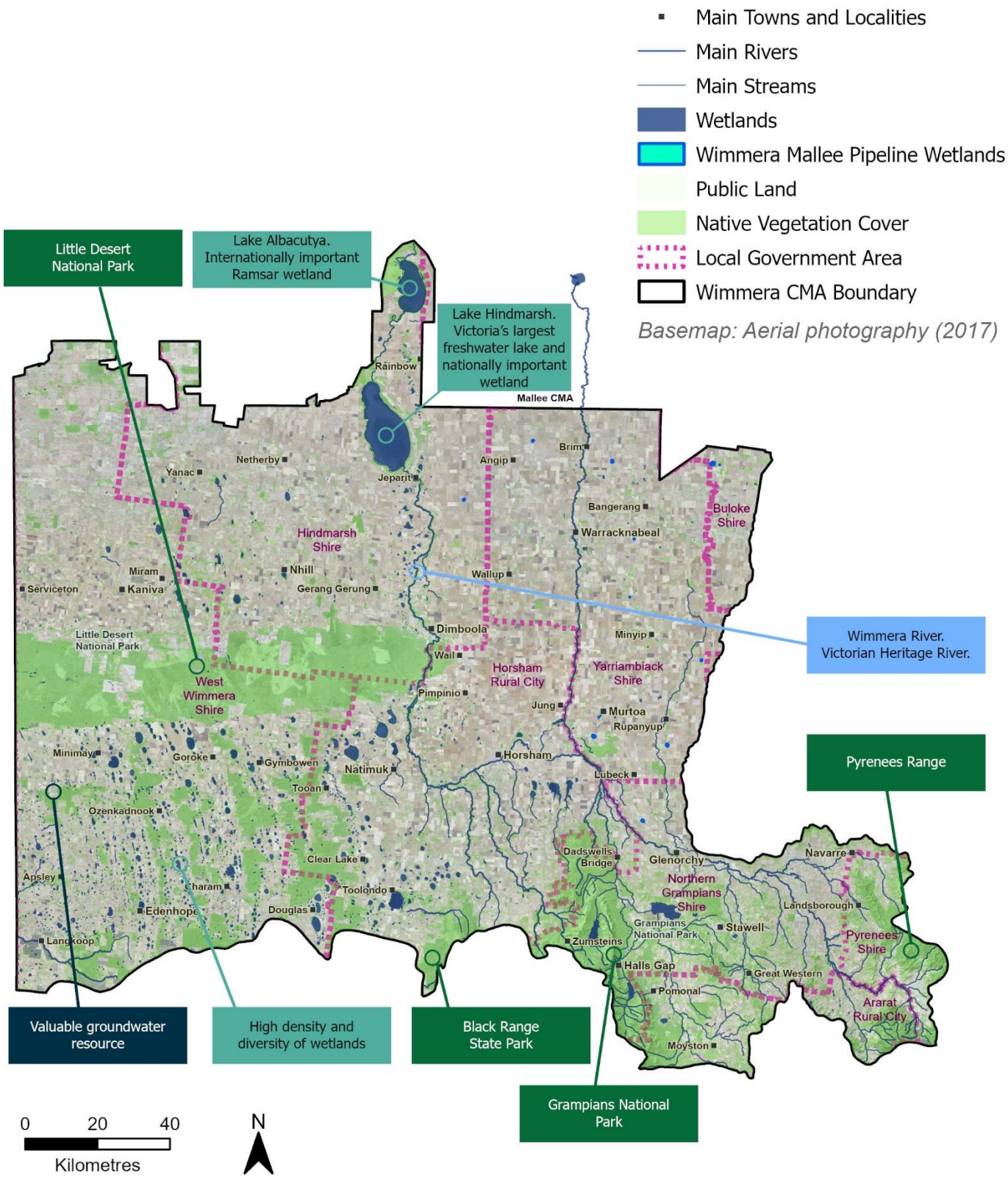


Figure 3. The Wimmera catchment and its major attributes. Information boxes are colour-coded by feature type: blue for rivers and streams, teal for wetlands, navy for groundwater, and green for national parks and terrestrial biodiversity features.

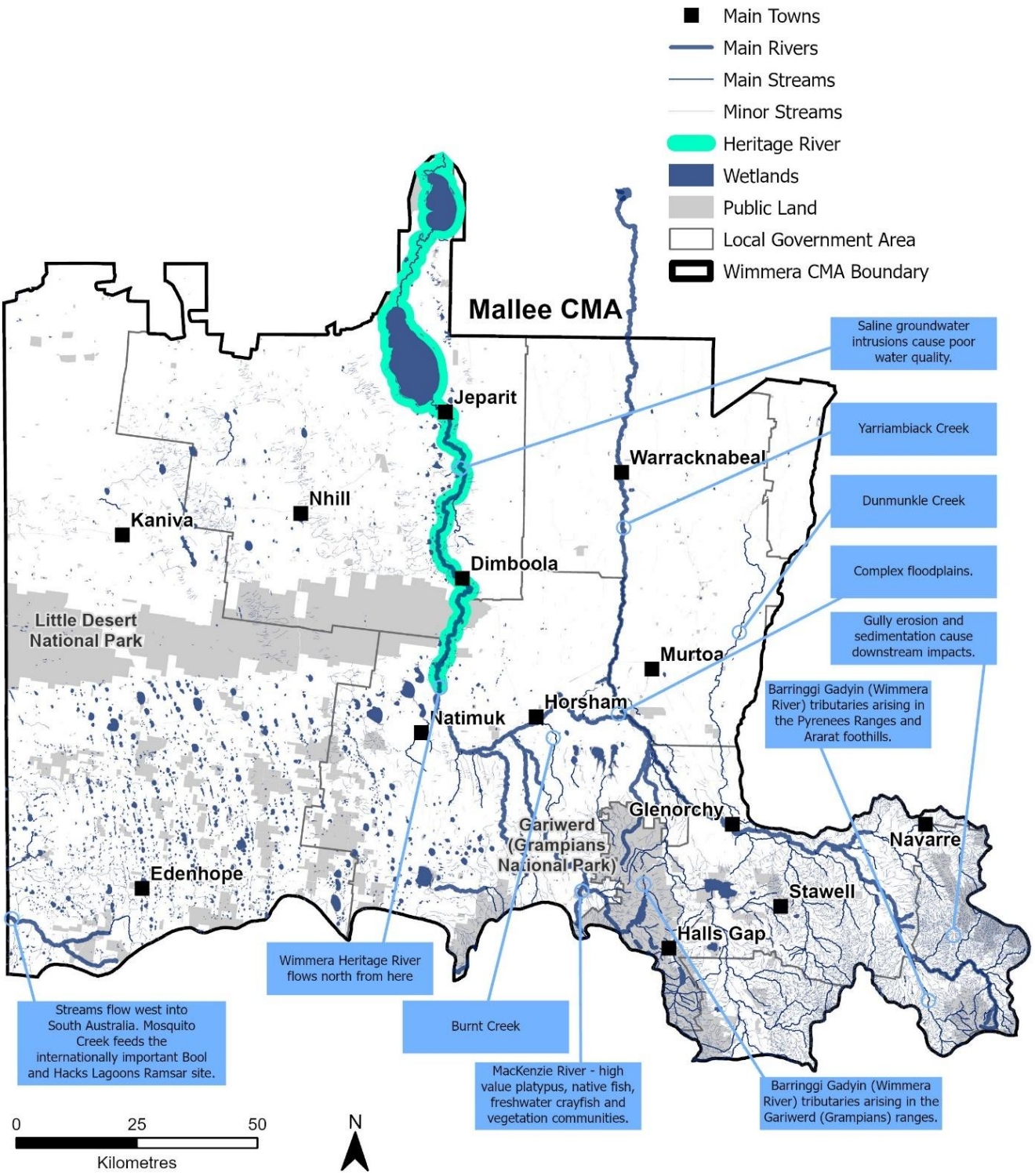


Figure 4. Major rivers and streams in the Wimmera.

Wetlands

The Wimmera has a high abundance and diversity of wetlands and related natural values. There are more than 3,400 wetlands in the region covering an area of over 75,000 hectares. This represents approximately a quarter of Victoria's depressional wetlands not linked to rivers or streams.[13]

Wetlands are defined as "*areas of the landscape that hold still or very slow-moving water. They can be natural or constructed, permanent or periodic, fresh or saline. They support plants and animals adapted to inundation and the aquatic environment*."[14]

Examples of wetlands in the Wimmera include lakes, swamps, billabongs and man-made reservoirs and dams, where they support wetland plants and animals.

Most wetlands fill from catchment runoff, holding water near permanently, seasonally or intermittently, depending on annual climate conditions. A small number are filled from pipeline allocations. Lake Marma and Watchem Lake, in addition to Warracknabeal and Brim weir pools on Yarriambiack Creek, receive recreational allocations from the Wimmera Mallee Pipeline. Thirteen additional wetlands in the region's north-east receive piped water for the environment via the Wimmera Mallee Pipeline under a Victorian Environmental Water Holder entitlement.

There are also wetlands and lakes operating as catchment water-supply storages, including lakes Bellfield, Fyans, Taylors, Wartook and Lonsdale. These also support recreational and environmental value.

While wetlands occur across the whole Wimmera region, most wetlands are on private land (90%) in southern and western areas.

Wimmera wetlands are highly diverse in terms of their hydrology, salinity and native vegetation composition. The Wimmera includes a range of freshwater, shallow, seasonal and periodically inundated wetlands, permanent deep lakes and shallow and deeper groundwater-fed saline wetlands.

Most Wimmera wetlands are seasonal freshwater depressions (89%) which fluctuate between wet and dry cycles. Less than 1% are classed as permanent fresh lakes, with the remainder being saline or hypersaline.[13]

This variety contributes to high wetland biodiversity, with the different categories of wetland supporting a highly diverse mix of plant, bird, macroinvertebrate and other wetland species.

Wimmera wetlands can be grouped into sub-regions or wetland systems based on their geographic characteristics and management issues. Figure 5 shows the location of these groups:

1. **Terminal lakes of the Barringgi Gadyin (Wimmera River)**
    - Including internationally important Ngalpakatia/Ngelpagutya (Lake Albacutya) Ramsar site, nationally important Gurru (Lake Hindmarsh), Ross Lakes, Outlet Creek and other wetlands filled from high flows and floods in the Barringgi Gadyin (Wimmera River). This also includes the Wirrengren Plain in the Mallee region to the north.
2. **Natimuk-Douglas Chain of Lakes**
    - A "chain" of saline and freshwater lakes.
    - Recognised as an important bird area of conservation importance.[15]
    - Eleven wetlands listed as nationally important.
3. **South–west Wimmera wetland system**
    - Major wetland complex, supporting high biodiversity.
    - Includes Seasonal Herbaceous Wetlands (freshwater) of the Temperate Lowland Plains, listed as Critically Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999.*
4. **Northern Wimmera Plains wetlands**
    - Scattered wetlands in an intensively cropped landscape.
    - Pink Lake is nationally important.
    - Thirteen receive piped environmental allocations when water is available.
5. **Wetlands of the Upper Barringgi Gadyin (Wimmera River) catchment**
    - Scattered seasonal freshwater wetlands.
    - Regionally important water supply storages and recreational lakes.

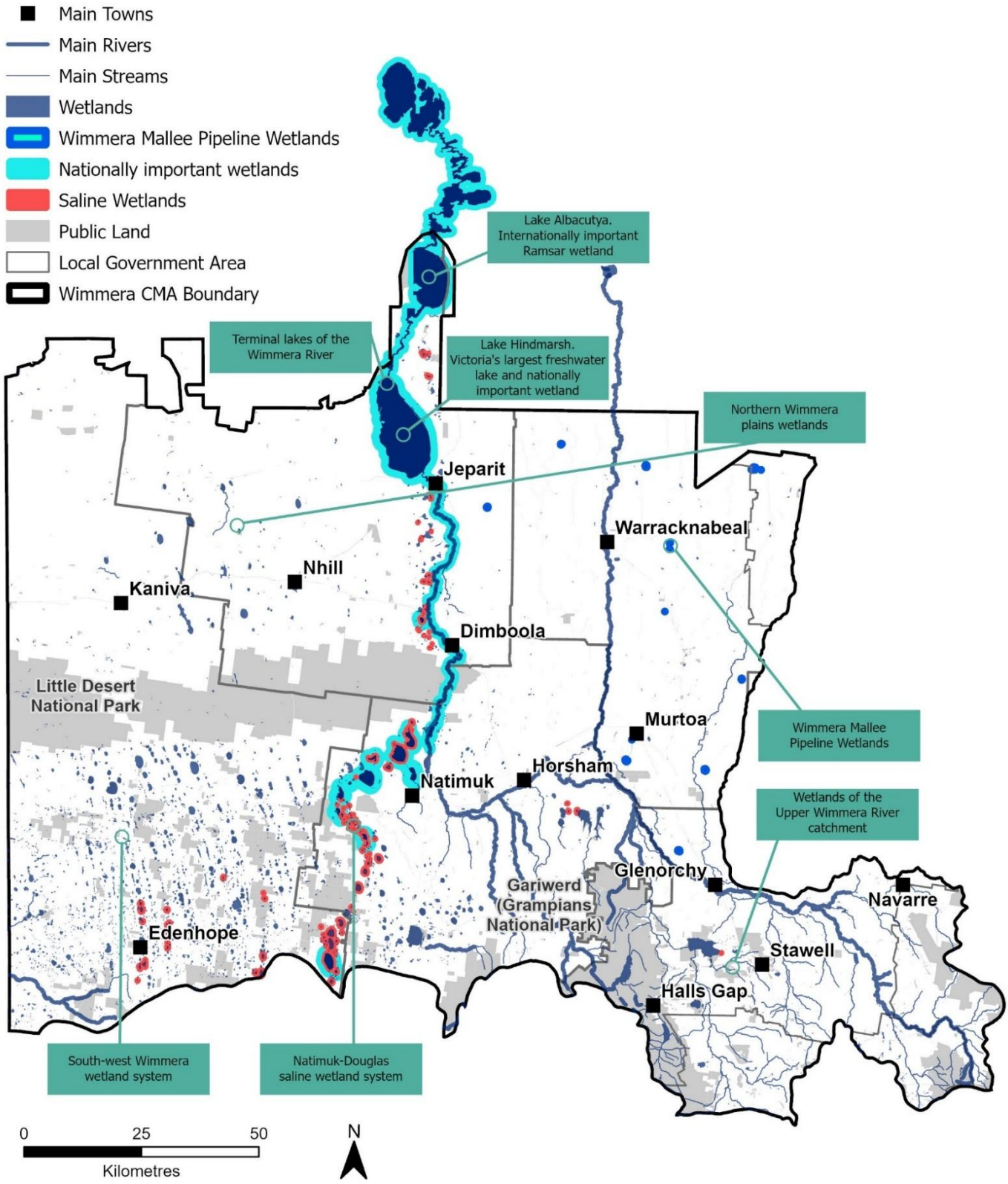


Figure 5. Wetlands and major wetland systems in the Wimmera.

Significant waterway assets

The Wimmera region is home to rivers, streams and wetlands of exceptional environmental, cultural and recreational importance. These assets provide critical habitat for threatened species, support biodiversity and hold deep cultural significance for First Nations Peoples. They also contribute to regional identity and community wellbeing through recreation, amenity and tourism.

Environmental values

Wimmera waterways and their adjoining floodplains form complex, richly diverse ecosystems. They sustain a wide array of native plants, animals and communities - many of which are threatened or endangered - and drive the movement and cycling of sediment and nutrients across the landscape.

These systems also serve as a crucial interface between aquatic and terrestrial environments, providing habitats, refuges and corridors that underpin regional biodiversity.

The Wimmera's rivers, streams, wetlands and floodplains support natural ecosystems by providing sanctuaries in and movement corridors or pathways through a highly agricultural landscape.

Native aquatic species that rely on Wimmera waterway health and connectivity include the Wimmera's last known population of platypus (*Ornithorhynchus anatinus);* a rare and isolated Wimmera clade of river blackfish (*Gadopsis marmorata)*; fragmented populations of small-bodied fish such as southern pygmy perch (*Nannoperca australis);* threatened western swamp crayfish *(Gramastacus insolitus);* and an abundance of bird, frog, mammal, reptile and insect life integral to the region's ecosystem health, but also to First Nations Peoples, community wellbeing and agricultural production.

Some Wimmera species relying on Wimmera waterways are listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and Victorian *Flora and Fauna Guarantee Act 1988*. Examples include the regent parrot (*Polytelis anthopeplus)*; brolga (*Antigone rubicunda*); and white-bellied sea eagle (*Haliaeetus leucogaster*).

Waterways, wetlands and riparian corridors are important to Wimmera bird life, attracting a variety of waterbird species, particularly in wet periods. Wimmera waterways also provide refuge for migratory waterbird species, including when there is drought in other parts of Australia.

Wimmera wetlands play an important role in supporting intercontinental migratory shorebirds such as the red-necked stint (*Calidris ruficollis)* and sharp-tailed sandpiper (*Calidris acuminata),* listed on the *Japan-Australia Migratory Bird Agreement*, *China-Australia Migratory Bird Agreement* and *Republic of Korea-Australia Migratory Bird Agreement*. There is also the gull-billed tern *(Gelochelidon nilotica macrotarsa)*, listed as endangered under the Victorian *Flora and Fauna Guarantee Act 1988*. Hotspots include Gurru (Lake Hindmarsh) and wetlands in the Natimuk-Douglas Chain of Lakes system.

Ngalpakatia/Ngelpagutya (Lake Albacutya), in the northern Wimmera, is one of Victoria's 12 Ramsar-listed wetlands of international importance. It is listed for its outstanding environmental values, including habitat for the nationally threatened regent parrot, a genetically unique population of river red gum, and large numbers of waterbirds when it contains water. The lake also holds deep cultural significance and is a popular recreation site, especially when holding water.



Water for the environment at Carapugna Swamp in the northeast Wimmera.

The lower Barringgi Gadyin (Wimmera River), from Polkemmet Bridge north-west of Horsham, and through to the terminal lakes, Outlet Creek and Wirrengren Plain in the Mallee, has been classified as a Heritage River under the Victorian *Heritage Rivers Act 1992*.[16]

Several Wimmera wetlands are listed in Australia's *Directory of Nationally Important Wetlands*, based on their ecological significance. Wetlands include Heard Lake, Bitter Swamp, Natimuk Lake, Mitre Lake, Friedman's Salt Lake, Lake Wyn Wyn, White Lake, Gurru (Lake Hindmarsh), Saint Marys Lake, Hateley's Swamp, Oliver's Swamp, Pink Lake (Lochiel) and Grass Flat (Telfer's) Swamp. Sections of the Barringgi Gadyin (Wimmera River) (downstream of Polkemmet Bridge to Wirrengren Plain) and Natimuk Creek (between Natimuk Lake and Lake Wyn Wyn) are also listed.

Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains are listed as a critically endangered ecological community under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* due to their decline and ongoing threats from drainage, vegetation clearing, weeds, climate change, grazing and loss of connectivity. Many occur in the southern Wimmera, but further data is needed to confirm their number, location and condition.

Cultural values

First Nations Communities maintain deep and enduring connections to the region's waterways. These connections are formally recognised through Registered Aboriginal Parties, Barengi Gadjin Land Council and Eastern Maar Aboriginal Corporation. Native Title Determinations cover the Barringgi Gadyin (Wimmera River) and much of the tributary and distributary system and wetlands.

Barengi Gadjin Land Council serves as trustee for the Native Title rights and interests of the Wotjobaluk, Jaadwa, Jadawadjali, Wergaia and Jupagulk Peoples of the Wotjobaluk Nations - collectively known as the Wotjobaluk Nations Peoples - as recognised in the Consent Determination of 13 December 2005. This landmark determination was the first of its kind in Victoria and affirmed, among other things, the ongoing connection between the Wotjobaluk Nations Peoples and an area covering much of the Wimmera and its waterways.[2]

The Eastern Maar Aboriginal Corporation (EMAC) manages native title rights for the Eastern Maar Peoples. EMAC is a formally recognised Registered Aboriginal Party, with responsibilities for protecting and managing cultural heritage across a broad area including the Barringgi Gadyin (Wimmera River)'s upper catchment extending to Landsborough in the region's east.

As the representative body for Eastern Maar Peoples, the Eastern Maar Aboriginal Corporation leads the advancement of native title rights and interests, cultural heritage protection, high-quality policy advice, and initiatives aligned with the inherent rights, aspirations and independence of its people.[17]

The region's river and wetland systems have extensive cultural values and many waterways are recognised as Special Places by First Nations Peoples. Ongoing collaboration seeks to strengthen partnerships for the health of People and Country, and support actions that reflect local situations, relationships and existing agreements.

First Nations Peoples recognise that Wimmera land and waterways are living entities in which water, land, plants, animals, people and culture are interconnected and form part of a single living system. The wellbeing of each element contributes to the wellbeing of the whole, reflecting the relationships and responsibilities that connect all aspects of Country. Waterways were considered as living and connected entities when developing the Strategy and proposed waterway management approaches.

Barengi Gadjin Land Council's *Dya (Country) Plan* identifies the Barringgi Gadyin (Wimmera River) as a living waterway central to Wotjobaluk Dya (Country), connecting landscapes, significant places, cultural memory and long-standing rights and responsibilities across Dya (Country).[18]

Similarly, Eastern Maar Aboriginal Corporation's *Traditional Owner Nation Statement* for the *Water is Life: Traditional Owner Access to Water Roadmap* recognises Meerreeng, Parreeyt pa Moorrnong (Land, Water and Sky) as living components of the greater Maar bio-cultural landscape.[19]

Social values

Wimmera waterways substantially enhance the region's livability and contribute to the wellbeing of Wimmera residents. Many Wimmera townships are located alongside rivers, streams, wetlands and floodplains, reflecting their importance to people's wellbeing. Water-retaining weirs at Horsham, Dimboola, and Jeparit on the Barringgi Gadyin (Wimmera River) and Warracknabeal and Brim on the Yarriambiack Creek support and promote community wellbeing via the benefits of tourism, recreation and aesthetic appeal.

Grampians Wimmera Mallee Water (GWMWater) supplies Lake Marma at Murtoa, Watchem Lake, Warracknabeal weir pool and Brim weir pool with piped recreational water allocations, supplementing natural flows and runoff in wet periods. This is part of a group of 15 lakes and weir pools in the broader Wimmera Mallee region receiving recreational water.[20]

Other recreational lakes of importance to local communities include lakes Wallace, Natimuk, Charlegrark, Fyans, Lonsdale, Hindmarsh and Toolondo, Nhill Lake, Nhill Swamp and Green Lake near Horsham.

The Barringgi Gadyin (Wimmera River) system is a base for a variety of community recreational interests including angling, rowing regattas, camping, birdwatching, sightseeing, swimming, skiing and canoeing.

The Barringgi Gadyin (Wimmera River) regularly hosts community fishing competitions in Horsham, Jeparit and Dimboola, the largest being Horsham's annual Labor Day long weekend event. In 2025, the Horsham competition, running since 1972, attracted about 1,000 entrants, consistent with its 10-year average.[21]

Horsham's riverbank, including the riverfront meeting place, Sawyer Park, soundshell, playpark reserves, walking and bicycle tracks are also the foundation for major events.

Dimboola's rowing regatta and barefoot ski jump competition on the Barringgi Gadyin (Wimmera River) are major community attractions. Additionally, the Wimmera River Discovery Trail, following the river between Dimboola and Jeparit, is an emerging tourist attraction, which opened in late 2025, spanning 56 kilometres.

Other lakes and wetlands have historically provided settings for major community festivals and events. The foreshore of Murtoa's Lake Marma provides a base for Murtoa's Big Weekend, New Year's Eve celebrations and other community gatherings. Lake Charlegrark near Goroke is home to a major country music gathering and Lake Wallace at Edenhope provides the backdrop for the Henley on Lake Wallace festival. Horsham district communities have also used Green and Natimuk lakes for a multitude of sporting and community events including national sailing regattas, speed-boat racing and picnic carnivals.

Duck hunting, fishing and yabbying are popular recreational pursuits at Wimmera lakes, particularly in the region's south-west, attracting locals and visitors from outside the region.

The region's waterways provide bird-watching opportunities, particularly the Natimuk-Douglas Chain of Lakes, as they support a high diversity of birdlife including local Wimmera birds, international migrants and rare and endangered species.

Economic values

The Wimmera's rivers, streams and lakes provide essential water for towns, farms and industry. Groundwater is also an important resource in the western Wimmera. As new industries emerge across the region, demand for reliable water supplies is expected to grow.

Healthy waterways support the agricultural sector by supporting services such as pollination, pest control, clean water and healthy soils.

The region's upper catchment water storages, together with the Wimmera Mallee Pipeline, provide an affordable and efficient piped water supply to much of the Wimmera. In the face of a changing climate and increasing water scarcity, the pipeline is a vital asset that underpins agricultural productivity, regional resilience and environmental benefits.

Waterways also make a significant contribution to the region's economy through recreation and tourism. In 2023, recreational activities associated with waterways across the municipalities of Horsham, Northern Grampians, Hindmarsh, Yarriambiack, West Wimmera and Buloke generated an estimated $30 million for local communities.[22] Major events such as the Horsham and Jeparit fishing competitions and a water-skiing event at Dimboola generated a combined $830,000 for the region in 2022 alone.[23]

Waterways with high social, recreational and economic value

Feedback from community groups, Wimmera residents and other stakeholders during the development of the Strategy highlighted the importance of local waterways to community life, recreation and regional economies.

Figure 6 identifies key examples of Wimmera waterways with particularly high social, recreational and economic value. These waterways make a significant contribution to local economies, tourism, recreation and community wellbeing, and are typically characterised by:

- High levels of visitation by local residents and tourists.
- Strong economic benefits through visitor spending and the hosting of community events, such as rowing regattas, fishing competitions and other recreational gatherings.
- Active management by organisations responsible for recreation, tourism and amenity outcomes, such as local councils, Committees of Management or Parks Victoria.
- Being "activated" public spaces, where infrastructure, access and management encourage a wide range of recreational uses.
- Their ability to attract visitors to the region and support local tourism.

The waterways highlighted in Figure 6 represent those with the greatest overall contribution to social wellbeing, recreation, tourism and local economies. However, they are not necessarily the highest priorities for management action under this Strategy. Priorities for investment and management will depend on the condition of each waterway, the level of risk to its values, and whether action is needed to enhance recreational access or manage visitor use sustainably while protecting environmental, cultural and other values.

It is important to recognise that some waterways that were once considered permanent or near-permanent are now filling less frequently and to a lesser extent than in the past. Lakes such as Ngalpakatia/Ngelpagutya (Albacutya), Natimuk, Wallace, Bringalbert, Toolondo and Green Lake deliver their greatest social, recreational and economic benefits when water is present. However, even when dry, these waterways continue to support recreation, attract visitors and hold significant value for local communities. Many are supported by active and dedicated community groups that play a key role in their management and advocacy, including exploring opportunities to improve water security and secure additional water supplies.

Gariwerd (Grampians National Park) contains many waterfalls and waterways that attract tourists and contribute to the region's social, recreational and economic values. Figure 6 shows some of the key waterway attractions in the Wimmera.



Competitors participating in the Jeparit Fishing Competition in 2026.

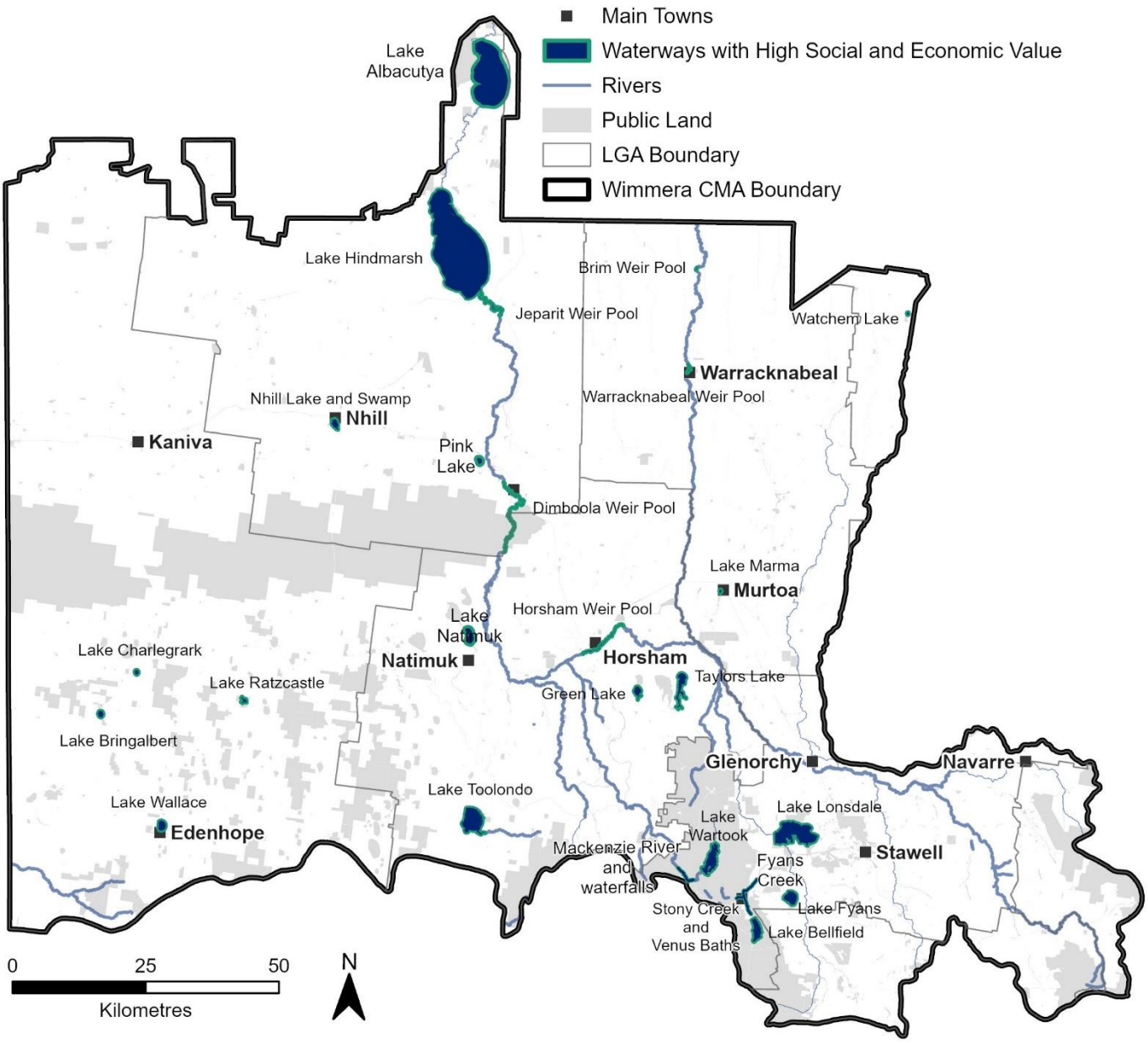


Figure 6. Wimmera waterways with high recreational, social and economic value.

Threats to waterway assets

Wimmera waterways face a range of pressures that threaten their environmental condition and the social, cultural and economic values they support. These threats vary across rivers, streams, wetlands and floodplains, but many are interconnected and compounded by climate change.

This section summarises key threats to Wimmera waterways.

Climate change and dry conditions

The Wimmera is experiencing a long-term decline in annual rainfall and runoff, which is reducing river and stream flows and lowering the frequency of wetland filling and extent of inundation. At the same time, rising temperatures, more hot days and longer heatwaves are increasing evaporation. These changes place growing pressure on water resources, stress aquatic ecosystems and increase the risk of blue-green algae blooms in some locations.

Water allocations for the environment are also becoming more vulnerable. Under high or worst-case climate change scenarios, projections suggest these allocations could halve by 2065.[(24)]

Reduced water availability may result in loss of habitat, weakened connectivity, declining water quality and a higher risk of species decline. These impacts are expected to be particularly evident in the lower Barringgi Gadyin (Wimmera River), which depends on sufficient rainfall, runoff and streamflow from upper and mid-catchment tributaries, as well as water for the environment deliveries, to maintain healthy conditions downstream.

The Barringgi Gadyin (Wimmera River)'s terminal lakes system, including lakes Hindmarsh and Albacutya, is also expected to receive water less often in a drying climate. Gurru (Lake Hindmarsh) typically holds water following high flows and flooding in the Barringgi Gadyin (Wimmera River). For water to reach Ngalpakatia/Ngelpagutya (Lake Albacutya), and other terminal lakes beyond Gurru (Lake Hindmarsh), successive wet years with significant flooding are likely to be required. Ngalpakatia/Ngelpagutya (Lake Albacutya) last filled in 1974 and retained water until 1983, with only small flows entering the lake since then. The lake experienced four flooding events since 1920.[(25)]

Water quality decline

Water quality in the Wimmera is under increasing pressure from multiple factors. Poor water quality impacts biodiversity, habitat, food webs, riparian vegetation and cultural, social and economic values, reducing the overall health and function of the waterway.

Saline groundwater intrusion in lower reaches and water extraction for stock and domestic use in the upper catchment impacts aquatic species and stresses riparian vegetation, particularly in the lower Barringgi Gadyin (Wimmera River).

Historic river regulation, current water storage and extraction practices, periods of low rainfall, and land management activities that retain water in paddocks and reduce runoff to rivers and storages can limit the amount of water reaching sections of the lower Barringgi Gadyin (Wimmera River). When flows are insufficient, opportunities to improve water quality are reduced, particularly in relation to salinity and dissolved oxygen levels.

Runoff from agricultural land and erosion in upper catchment tributaries and wetland catchments add sediment and nutrients, increasing turbidity and the risk of algal blooms.

These conditions along with fires and floods increase the risk of harmful blue-green algae outbreaks and hypoxic blackwater events which threaten aquatic life and limit recreational use.

Habitat loss and fragmentation

The health of Wimmera waterways is compromised by riparian degradation, where native vegetation clearing, stock access and weed invasion reduce riparian vegetation width, condition and connectivity. This increases the risk of erosion and diminishes habitat quality for native species.

Similarly, wetland modification through cropping, grazing and drainage works on private land is degrading wetland condition and function, with shallow seasonal wetlands particularly at risk. This includes critically endangered seasonal herbaceous wetlands.

The expansion of cropping into formerly grazed areas threatens shallow seasonal wetlands, particularly in the south and southwest Wimmera and upper catchment. Cropping has negative impacts on wetlands and waterway habitats when it disturbs wetland soils and native seedbanks, introduces chemicals and leads to draining or levelling of wetlands.

These changes lead to a decline in habitat, reduced resilience to climate extremes and the loss of ecosystem services.

Invasive species

Invasive plants and animals are a major threat to the health of waterways and riparian land. These environments are highly productive and frequently disturbed, making them especially prone to invasion. Their natural connectivity also enables pests to spread rapidly, as flowing water moves plant fragments, seeds and aquatic organisms across river systems and floodplains, especially during high-flow or flood events.

Across the Wimmera, a range of established invasive species are already affecting waterway condition. Introduced non-native fish, including carp, redfin and mosquitofish, compete with native fish, prey on eggs and juveniles, degrade habitat and increase turbidity.

Deer damage riparian vegetation and compact soils, while terrestrial pests such as rabbits, foxes and regionally established weeds invade riverbanks and wetland margins, reducing vegetation cover, destabilising soils and threatening wetland-dependent species.

Recreational activities can unintentionally introduce or spread weeds and pest animals, for example, through seed or mud carried on boats, trailers, vehicles, waders or fishing gear, or through the deliberate or accidental release of garden, aquarium or recreational fish species.

In some cases, the greatest current threat is the spread of invasive species already established within the region, while in others the risk comes from new incursions from outside the Wimmera. Preventing new introductions remains far more effective and cost-efficient than eradication or long-term control efforts and is a priority for future management.

Altered flow regimes

Water regulation, infrastructure, such as weirs and storages, water extraction and agricultural practices have significantly changed natural flow patterns in the Wimmera.

The expansion of large-scale continuous cropping and enhanced pasture management have changed catchment hydrology and is expected to continue. In addition, modifications of overland runoff paths and improvements in soil moisture retention and infiltration, reduces the volume of runoff and inflows reaching waterways.[26]

Combined with flow regulation, these changes disrupt natural flow variability, reduce inflows and water quality, restrict fish movement and interfere with essential ecological processes that sustain healthy waterways. Further consequences include the loss of connectivity between habitats, altered cues and ability for fish movement and breeding, changes to natural habitat structure and availability, and greater vulnerability of key native water-dependent species during drought periods.

Fire and flood

Bushfires in headwater catchments can destroy groundcover, leaving soil exposed and increasing the risk of sediment and ash washing into waterways after rain. This degrades water quality and threatens aquatic life. Similarly, floods and high-flow events can mobilise large amounts of sediment and nutrients, causing erosion and water quality issues, and spread weeds along waterways.

The consequences of these extreme events include increased risks to aquatic ecosystems, water supply storages, and downstream communities.

Future challenges

The Wimmera region faces significant challenges in managing waterways under changing environmental, social and economic conditions. These challenges also present opportunities for innovation, collaboration and adaptive management.

New industry and development

New industrial and mining developments, including renewable energy and mineral sands mine projects emerging in the Wimmera, can alter rainfall runoff patterns and place additional pressure on waterways and water resources. These changes require careful environmental oversight to prevent long-term impacts on landscape hydrology and ecosystem health.

Extreme events

Floods, fires and droughts pose significant risks to waterways. For example, fires in water supply catchments, such as those in the Gariwerd (Grampians National Park) area, can remove ground cover, increasing the likelihood of ash and sediment entering waterways and impacting on water quality, habitat and native plants and animals during subsequent rainfall events.

The *Emergency Preparedness and Response Plan for Biodiversity and Agricultural Natural Capital Assets in the Wimmera region* sets out an approach for preparing for, responding to and recovering from emergency events including fire and flood impacting on agricultural natural assets including riparian land.[27]

Artificial water-control structures

Weirs and other structures alter natural flow regimes, disrupting processes that support aquatic life. However, weir pools also present opportunities by providing socio-economic benefits for regional towns and drought refuges for water-dependent species. These values are likely to become increasingly important under climate change scenarios.

Balancing access with sustainable management

Balancing the community's desire for safe and accessible waterways with the need to protect environmental and cultural values presents an ongoing challenge across some Wimmera waterways.

Waterways are highly valued by local communities and visitors for recreation, tourism, amenity and cultural connection, driving demand for improved infrastructure and greater accessibility. At the same time, these waterways are environmentally and culturally significant, supporting unique habitats, native species and the cultural heritage of First Nations Peoples that can be adversely affected by overuse, pollution and changes to natural flow regimes. Climate variability and water scarcity further increase the complexity of managing these competing needs.

During development of this Strategy, community members and recreational user groups identified concerns about fallen trees and limbs, and instream vegetation affecting rowing and boating access along sections of the Barringgi Gadyin (Wimmera River). While these features can create safety hazards and limit recreational access, they also provide important habitat for native plants and animals and may hold cultural significance. As a result, there can be competing priorities between maintaining safe access and protecting environmental and cultural values.

Fallen trees and branches within waterways are assessed on a case-by-case basis and managed collaboratively by relevant organisations, including Wimmera CMA, local councils, Parks Victoria, Barengi Gadjin Land Council and recreational user groups. This partnership aims to achieve balanced outcomes that protect river health, respect cultural heritage values, manage safety risks, maintain appropriate recreational access, and reduce potential impacts on infrastructure during flood and high-flow events.

Illegal activities around waterways

The potential for illegal activities to harm waterways is an ongoing concern. Such activities may include unpermitted works on waterways such as vegetation removal or crossings, unpermitted earthworks, chemical dumping, littering, illegal firewood collection, the use of inappropriate fishing nets and damage caused by four-wheel drives or other off-road vehicles. These actions can degrade waterways, pollute soils, degrade riparian vegetation and endanger wildlife as well as human health.

Monitoring remote parts of the catchment is challenging, making it essential for agencies and the community to remain vigilant by observing, reporting and responding quickly to any illegal activity to help protect waterway health and values.

Invasive species

Victoria's Biosecurity Strategy highlights that biosecurity risks are intensifying, meaning that, despite best efforts, more pest and disease incursions are expected in the future. This growing risk is driven by:

- **Climate change.** Warming temperatures and more extreme weather events are enabling pests and diseases to spread into new areas. Associated biodiversity loss weakens natural ecosystem defenses.
- **Rising trade, travel and online shopping** increase movement of goods and people, heightening the likelihood of new pest and disease incursions and spread. Garden plants, aquarium species and some recreational fish species also pose risks of accidental or deliberate introduction.
- **Changing land use and ownership.** In some parts of the Wimmera, growth in semi-rural "lifestyle" properties and absentee landholders are shifting regional biosecurity risks and influencing their management.

Victoria's Biosecurity Strategy emphasises that preventing and managing the harms caused by pests and diseases requires a coordinated, collective effort across government, industry, land managers and the broader community.[28]

Waterways and riparian land are particularly vulnerable to invasive species, and everyone needs to work together to reduce and manage biosecurity risks.

Future opportunities

Future opportunities for waterway management in the Wimmera arise from emerging partnerships, technologies and approaches that can strengthen resilience and adaptation to a drying climate. The following considerations highlight areas where innovation and collaboration can deliver meaningful long-term benefits.

Strengthening partnerships with First Nations Peoples

There are opportunities for continuous improvement in the way waterway managers and other partner organisations collaborate with First Nations Peoples to enhance waterway condition.

Collaborating with First Nations Peoples includes joint activities at high-priority sites, such as cultural burning practices, supporting culturally significant species and actions to address vulnerable riverbanks and trees, which support both ecological and cultural values.

New technology and innovation

Emerging technologies, such as artificial intelligence (AI) and drones, have the potential to improve waterway management across the Wimmera. Continued exploration and adoption of suitable technologies can help address environmental challenges and increase monitoring and management efficiency.

Potential applications in the Wimmera include using drones to map riparian vegetation condition, wetland extent, erosion sites, pest plant outbreaks and areas affected by flood or fire. When combined with AI, imagery and other monitoring data can be analysed more efficiently to detect changes over time and identify patterns that may not be apparent through field inspection alone. This can help target on-ground assessments and investment to priority areas.

These technologies may also support water quality management by improving responses to storms, fires and algal blooms. More timely information can help inform adaptive management and decision-making. Used appropriately, AI and drones can complement local knowledge, field monitoring and partner input. This has the potential to assist waterway managers to work more efficiently and effectively across large or difficult-to-access areas of the catchment.

Virtual fencing is an example of emerging technology that could support better waterway management. As it develops, it may help control livestock access to sensitive riparian areas, particularly where traditional fencing is vulnerable to flood or fire damage or difficult to install. Victoria approved virtual fencing for cattle in 2025, but its use for other livestock, including sheep, is still restricted. This limits its current usefulness in the Wimmera, where most landholders run sheep or mixed sheep-and-cattle operations. If future developments demonstrate that virtual fencing is safe, humane and effective for sheep, it could become a valuable tool for protecting riparian areas.

Innovative water management solutions

Wimmera CMA is exploring the use of rural water supply pipelines to deliver water for the environment directly to drought refuge pools during dry periods. This can use water for the environment efficiently during times of scarcity, delivering water directly to large refuge pools without sending high volumes down entire river systems. Maintaining these pools helps aquatic species survive drought and recolonise waterways when flows return, while also providing refuge for terrestrial wildlife. This is a key climate change adaptation measure designed to strengthen resilience in priority Wimmera waterways.

If implemented in the future, new water supply pipelines could provide opportunities to enhance waterway resilience by delivering piped water to drought refuges in new areas.

Integrated water management presents a valuable opportunity to enhance the health and resilience of Wimmera waterways. By coordinating water use across urban, agricultural and environmental sectors, integrated water management promotes more efficient water delivery and reduces competition for scarce resources. Water recycling and reuse schemes can play an important role in this approach by providing alternative supplies to water traditionally extracted from rivers, streams and wetlands for socio-economic use. Improvements to recycled water quality also have potential to generate an alternative source for supplementary flows in the Barringgi Gadyin (Wimmera River).

Facilitating dispersal of key species

Iconic Wimmera species, such as the platypus and river blackfish, experienced significant declines in range and numbers during the Millennium Drought. Today, they persist only in small, isolated and vulnerable populations within the MacKenzie River. The completion of the Wimmera Mallee Pipeline Project in 2010 delivered large water savings, enabling water for the environment flows that have improved waterway condition and potential habitat for these species.

There are opportunities to support the dispersal of platypus and river blackfish into previously occupied areas that still provide suitable habitat. Expanding their range would strengthen the resilience and long-term security of Wimmera populations.

Climate change and water sharing

Growth in industry, expanded piped-water services and the need to protect environmental, cultural and community waterway values under climate change scenarios highlight the importance of efficient, effective and appropriate water sharing operational arrangements. These arrangements should reflect both current and future water demand and availability.

Enhancing community knowledge and stewardship

The Wimmera community plays an important and ongoing role in waterway stewardship through groups such as Waterwatch and Landcare, school-based programs, forums, field days, events and one-on-one discussions. Supporting community groups, schools and the broader community to participate in waterway initiatives such as on-ground activities, education programs and monitoring initiatives can deepen community connection to and care for local waterways. This presents an opportunity to build long-term stewardship and deliver sustained environmental outcomes for the region's waterways.

Fire management

There is an opportunity to adapt fire management practices to reduce the risks posed by increasing frequency, severity and scale of fire driven by climate change. A collaborative approach involving government, community and agencies is essential for fire prevention, response and recovery to protect water and catchments across Victoria. This approach must balance multiple priorities, including safeguarding life and property.



Lake Wallace at Edenhope in the south-west Wimmera.

CLIMATE CHANGE

Climate change is significantly affecting water availability, water quality and habitat integrity, posing major risks to local waterways, wildlife and the communities that depend on them. Shifts in rainfall patterns - when and where it falls, how much falls and changes to inflows - are altering waterway conditions and challenging regional water and waterway management across the Wimmera.

Current impact

Clear signs of climate change are beginning to take hold across the region. A Bureau of Meteorology and CSIRO report noted that many predicted consequences under various greenhouse gas emission scenarios are already occurring. Over the 30 years leading up to 2019:

- Average annual rainfall decreased by 9%, from about 480 mm to around 440 mm.
- Dry years (lowest 30%) occurred 12 times and wet years (highest 30%) five times, with the remaining years in the average range.
- Average rainfall decreased in autumn and spring months.
- The autumn 'break' was one to three weeks later than what was typical in the preceding 30-year period.
- More frosts occurred, including later in the season.
- There were more consecutive days where the temperature was above 40 degrees.[29]

This period included the Millennium Drought, a prolonged and severe drought from the late 1990s to 2010.

There is evidence that a significant shift in water availability occurred around 1997, with annual inflows to storages failing to recover to previous levels. Figure 7 presents GWMWater data on average annual inflows to the Grampians water supply storages, showing a marked decline from 1997 to 2025. This reduction has been driven by lower rainfall and decreased runoff into waterways.

Despite the substantial water savings achieved through the Wimmera Mallee Pipeline project, which replaced an extensive network of leaky channels and was completed in 2010, declining inflows continue to place pressure on both waterway health and regional water supplies.

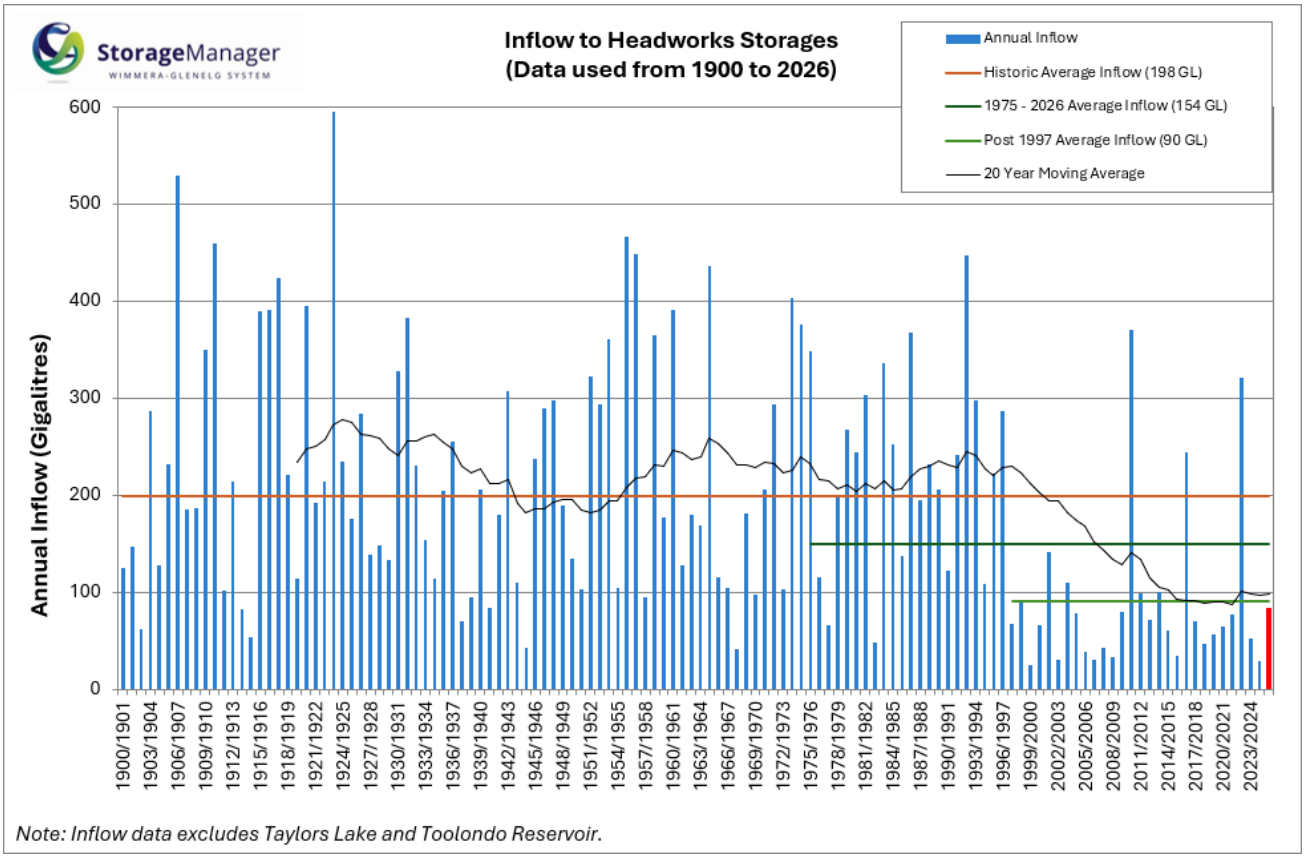


Figure 7. Total inflows to headworks storages from 1900 to 2026. The red bar shows 2025-26 inflows.[30]

Reduced inflows limit water available for entitlements, including water for the environment, passing flows and water for recreational lakes. This directly affects flows in the mid and lower Barringgi Gadyin (Wimmera River), Mount William Creek, MacKenzie River and Burnt Creek systems, as well as four recreational lakes and 13 piped wetlands across the catchment.

Natural flows are declining, turning some waterways, such as Mosquito Creek in the region's southwest, from permanent baseflow systems into intermittent streams. Dry events are becoming more frequent in rivers, terminal lakes and wetlands. Large lakes once considered permanent, such as Natimuk Lake and Lake Wallace, now fill only occasionally and often function as shallow seasonal wetlands supporting high numbers of waterbirds. Many smaller seasonal wetlands remain dry for extended periods with reduced frequency and extent of inundation and filling. These changes have driven land-use shifts, with some landholders taking advantage of drier conditions to move from sheep grazing to broadacre cropping in the south-west Wimmera and opportunistically cropping wetland beds during dry years which has long-term impacts.

Wimmera Mallee Pipeline

Efforts to reduce climate-related risks to water supply and improve flows to waterways in the Wimmera and neighbouring Mallee intensified during the Millennium Drought, which lasted from the late 1990s to 2010.

Completed in 2010, the Wimmera Mallee Pipeline was designed to improve regional water security while creating opportunities for water for the environment. The project replaced 17,500 kilometres of evaporation and seepage-prone earthen channels with more than 9,000 kilometres of rural pipeline.

Based on historic inflows to regional storages, the pipeline was expected to save an average of 103 billion litres of water each year. Although climate change has reduced actual savings due to declining rainfall and runoff, the pipeline remains critical in ensuring water supply for people, farms and the environment. Without the system, major waterways would experience little to no flow and significant ecological decline, and many towns and rural properties would lack a secure water supply.

The Northern Mallee Pipeline spans 3,650 kilometres and covers 890,000 hectares. Completed in 2004, it replaced 17,500 kilometres of inefficient channels that lost up to 85% of water during transfers. Water for the pipeline is now sourced from the Murray River.

The Commonwealth Environmental Water Holder holds a 28 gigalitre low-reliability entitlement in the Wimmera system. This entitlement, which becomes available only in wetter years once higher-priority needs are met, was created through the purchase of irrigation rights in 2012. It can supply water to the Wimmera River and lower Mount William Creek. The Commonwealth Environmental Water Holder received allocations in two of the thirteen years between 2012 and development of this Strategy in 2026.

Water savings from pipeline projects enabled creation of the Wimmera-Glenelg Environmental Entitlement, which includes passing flow requirements. Passing flows are the volumes of water that water corporations or licensed users must provide from a storage, or allow to flow past a diversion point, before water can be taken for other (consumptive) use. These requirements help ensure water is used sustainably and reduce impacts on the waterway health.

The Wimmera Mallee Pipeline now enables delivery of water for the environment to drought refuges and isolated wetlands, supporting their recovery since the Millennium Drought (see Figure 8). However, the Wimmera River remains a regulated system with altered flow patterns. Annual rainfall and natural inflows remain fundamental to the health of waterways.



Figure 8. Carapugna Swamp, a drought refuge in the northeast Wimmera, before and after receiving water for the environment delivered via the Wimmera Mallee Pipeline.

Predicted climate impacts

Average annual temperatures are expected to rise by 0.9-1.4°C by 2050 and up to 3.1°C by 2090 under high emissions scenarios for the Wimmera.[31] Warmer conditions are expected to increase the frequency of hot days and extend the duration of heatwaves, placing greater pressure on water resources and aquatic ecosystems.

Rainfall is expected to remain highly variable. Cool-season rainfall in autumn and winter is projected to decline, reducing soil moisture and runoff.[31] While changes to summer rainfall are less certain, the overall trend indicates an increased risk of drought and reduced water availability. Together, these changes point to a future characterised by warmer temperatures, less reliable rainfall and more frequent climate extremes, requiring ongoing adaptation in waterway management, agriculture and community planning.

The Murray-Darling Basin Authority's *Strategic climate risk assessment of Basin Plan objectives and outcomes* report identifies several potential impacts for rivers, streams and wetlands across the Wimmera. Upland waterways are expected to become increasingly vulnerable to more frequent and intense bushfires. Fire can increase erosion and lead to greater sediment and nutrient loads entering waterways. As rivers and streams experience longer periods of low flow or cease to flow altogether, the risk of hypoxic or low-oxygen conditions increases when flows return.

Water storages may experience more frequent and longer-lasting algal blooms as water temperatures rise and nutrient-rich runoff enters waterways following fire or intense rainfall. Weir pools and deep waterholes are also likely to experience more stratification and mixing events, increasing the risk of low dissolved oxygen levels, harmful algal blooms and fish deaths.

Overall, waterways are expected to experience more frequent drying and rewetting cycles. These stop-start flow conditions can reduce water quality, increase the likelihood of hypoxic events and contribute to more frequent algal outbreaks.[32]

Water for the environment

Conserving water for future seasons is a key principle guiding the management of water for the environment entitlements. This approach is becoming increasingly important as climate change contributes to a drier and more variable climate.

Since 2010, major rainfall events have occurred approximately every six years. These large events tend to produce rapid inflows that fill storages and generate flash flooding, rather than the more gradual catchment wetting that historically occurred.

Although these high-flow events provide important ecological benefits and deliver large volumes of natural flow, careful management of water for the environment water between these periods remains essential. Conserving water when natural conditions are favourable helps ensure it is available to support waterways and wetlands during drier times.

For example, when rivers and tributaries are experiencing suitable flow conditions, releases of water for the environment may be reduced or deferred to retain water for future ecological needs. This flexible approach helps build resilience and supports environmental outcomes in an increasingly drier and variable climate.[33]

Water quality

Future climate-induced impacts on water quality will primarily be driven by reduced flows due to lower rainfall and run-off, increased temperatures and an increase in extreme events. Changes in seasonal rainfall patterns are also likely to impact water quality.

Impacts in the Wimmera are likely to include an increased risk of blue-green algal events, black water events and high salinity levels in some parts of the catchment. These events stress waterway species and can restrict waterway use by the community.

Resilience, transition and transformation

Adapting to longer periods of dry weather and less water in the landscape centres on continuing to build a foundation of environmental and community resilience. Regional waterway managers, farms and other businesses, and Wimmera residents have continued to adapt to changing scenarios and a drier climate. Three adaptation approaches help guide and inform the planning and management of waterway values and outcomes in the context of climate change. These are:

1. **Resilience** – the ecosystem or value will be impacted but has the capacity to recover to its previous state. Management involves minimising the impacts of threats and supporting existing waterway values to be maintained or improved so that they persist or are restored in their current locations.
2. **Transition** – the ecosystem or value will be impacted and will not recover to its previous state. Waterway values can change in structure or composition. Management involves supporting existing waterway values and systems to incrementally move to a new state by maintaining the integrity of ecosystems and processes.
3. **Transformation** – the ecosystem or value will be impacted when a step change or tipping point is reached and will not recover to its previous state. This may result in new waterway values and new management outcomes. Waterway values and systems may need to be managed in novel ways to address the root causes of vulnerability. This is especially important for those undergoing rapid and significant transformation, or those that have already reached a tipping point and changed irrevocably, such as following an extreme event.

This Strategy's approach to adapting to the impact of climate change is guided by these adaptation approaches.

Building resilience and supporting transition and transformation

Planning for water scarcity in the Wimmera is not new. Regional water management has long recognised water as a finite resource and invested in systems to improve efficiency and secure supply. This includes saving water via the Wimmera Mallee Pipeline, establishing water for the environment entitlements and managing them to support waterway values like native fish, platypus and vegetation during dry conditions.

As the Wimmera faces a drying climate, waterways will need to adapt to new conditions. Some changes will occur naturally, while others will require active intervention to protect environmental, cultural, social and economic values.

Opportunities to increase resilience

Despite the dry forecast for the Wimmera under climate change predictions, there are opportunities to increase waterway resilience and retain important waterway values in the region. These include:

- **Water for the Environment** – Managing available water for the environment will focus on building resilience and maintaining priority values, such as water quality, fish populations and aquatic and riparian vegetation, in feasible locations. Availability of water for the environment in the Wimmera is forecast to decline as climate change progresses. If these projected reductions occur, there may be insufficient water to sustain some waterway values in parts of the system. While water for the environment can increase ecological resilience, it may not be sufficient to prevent all impacts. It can also be used to support ecological transitions and transformation, depending on the desired outcomes, priorities and what can be feasibly achieved with the water available.
- **Restore values lost during the Millennium drought** - Many waterways suffered severe ecological decline during the Millennium drought. Pipeline savings and targeted water for the environment delivery is supporting the recovery of species such as platypus, river blackfish and other small-bodied native fish, as well as instream and riparian vegetation in suitable waterways.
- **Maintain drought refuges** - Protecting and managing refuge pools during extended dry periods will be essential for sustaining aquatic life and biodiversity.
- The **Victorian Government's new *Western Region Sustainable Water Strategy***, commencing development in 2026, will plan for the sustainable use of water resources across Victoria's Western Region, including the Wimmera. It may provide opportunities to consider improvements to water operations and infrastructure that enhance water for the environment outcomes in priority waterways.[34]
- **Disaster preparedness and recovery** - Planning to prevent, minimise and recover from extreme events, particularly bushfires in headwater catchments. Priority areas include the MacKenzie River and Upper Barringgi Gadyin (Wimmera River) and tributaries, and Mount Cole, Fyans, and Mount William creeks.
- **Upper catchment erosion control** - Works to stabilise erosion and maintain riparian groundcover are more critical than ever. Reduced flows mean less dilution of pollutants and increased pressure on water quality. Partnerships with community-led groups such as Project Platypus and Perennial Pasture Systems will be vital.
- **Supporting community wellbeing** - Dry conditions heighten the importance of local waterways for recreation, tourism and amenity. Enhancing access and maintaining waterway health will support regional livability and economic resilience.

Transitioning and transforming to new states

Some waterways have shifted ecological states, and further transitions and transformations are expected. For example, some lakes once considered permanent or near permanent are now experiencing longer and more frequent dry periods, or prolonged phases holding shallow water rather than filling. This Strategy acknowledges these changes and seeks to manage them in ways that protect priority ecological functions, cultural heritage and community benefits. Where possible, interventions such as piping water to drought refuges and maintaining connectivity will help ecosystems adapt to new flow regimes and ecological states.



A wetland in the south-west Wimmera.



PART C

VISION, OUTCOMES & PRIORITIES

VICTORIA State Government Australia

Wimmera CMA

VISION

The *Wimmera Regional Catchment Strategy* sets the long-term vision for integrated catchment management. It outlines what the region aims to achieve over the next 50 years and beyond:

> *"A healthy Wimmera catchment where a resilient landscape supports a sustainable and profitable community."*

This vision shapes this Strategy and its long- and medium-term desired outcomes for waterways.

Achieving this vision for waterways beyond 2076 will mean:

- Waterways are healthy and part of a healthy catchment.
- Waterways, ecosystems and species are resilient within a resilient landscape.
- Waterways contribute to a sustainable and profitable community.



Burnt Creek, south of Horsham.

THEMES AND LOCAL AREAS

The Strategy is built around two themes and five local areas.

Themes

These themes align with the water themes in the *Wimmera Regional Catchment Strategy*:

1. Rivers and streams.
2. Wetlands.

Local areas

The Wimmera region is divided into five local areas based on local government and sub-catchment boundaries. This place-based approach provides a practical framework for planning, prioritising and delivering waterway management actions on a local scale. It recognises that environmental values, threats, community priorities and management opportunities vary across the region and that communities relate to their local areas and waterways.

Each local area includes priority areas, with tailored management approaches designed to address local threats, improve ecological condition and support community aspirations. This helps ensure that investment and management actions are targeted where they can deliver the greatest benefit for waterways and the communities that depend on them.

The Wimmera's local areas are shown in Figure 9 and include:

1. Hindmarsh.
2. Horsham.
3. Upper Catchment (including parts of Ararat, Northern Grampians and Pyrenees local government areas).
4. West Wimmera.
5. Yarriambiack and Buloke.

Waterway asset groups

River, stream and wetland assets are grouped by their characteristics and location within each local area. Grouping similar assets helps with planning and management by bringing together places with comparable condition, values, threats, and management needs.

Wimmera waterway asset groupings are shown in Figure 9 and include:

1. **Hindmarsh local area:**
    a. Lower Barringgi Gadyin (Wimmera River) and terminal lakes system including Outlet Creek, Gurru (Lake Hindmarsh) and Ngalpakatia/Ngelpagutya (Lake Albacutya).
    b. Northern Wimmera Plains wetlands (central).
2. **Horsham local area:**
    a. Mid Barringgi Gadyin (Wimmera River).
    b. MacKenzie River, Burnt Creek and Bungalally Creek.
    c. Horsham wetlands, including the Natimuk-Douglas Chain of Lakes.
3. **Upper catchment local area:**
    a. Upper Barringgi Gadyin (Wimmera River) and tributaries.
    b. Mount William Creek and tributaries.
    c. Upper catchment wetlands.
4. **West Wimmera local area:**
    a. South-west Wimmera wetlands.
    b. Northern Wimmera Plains wetlands (western).
    c. Mosquito Creek and west-flowing streams.
5. **Yarriambiack and Buloke local area:**
    a. Yarriambiack and Dunmunkle Creek.
    b. Northern Wimmera Plains wetlands (eastern).

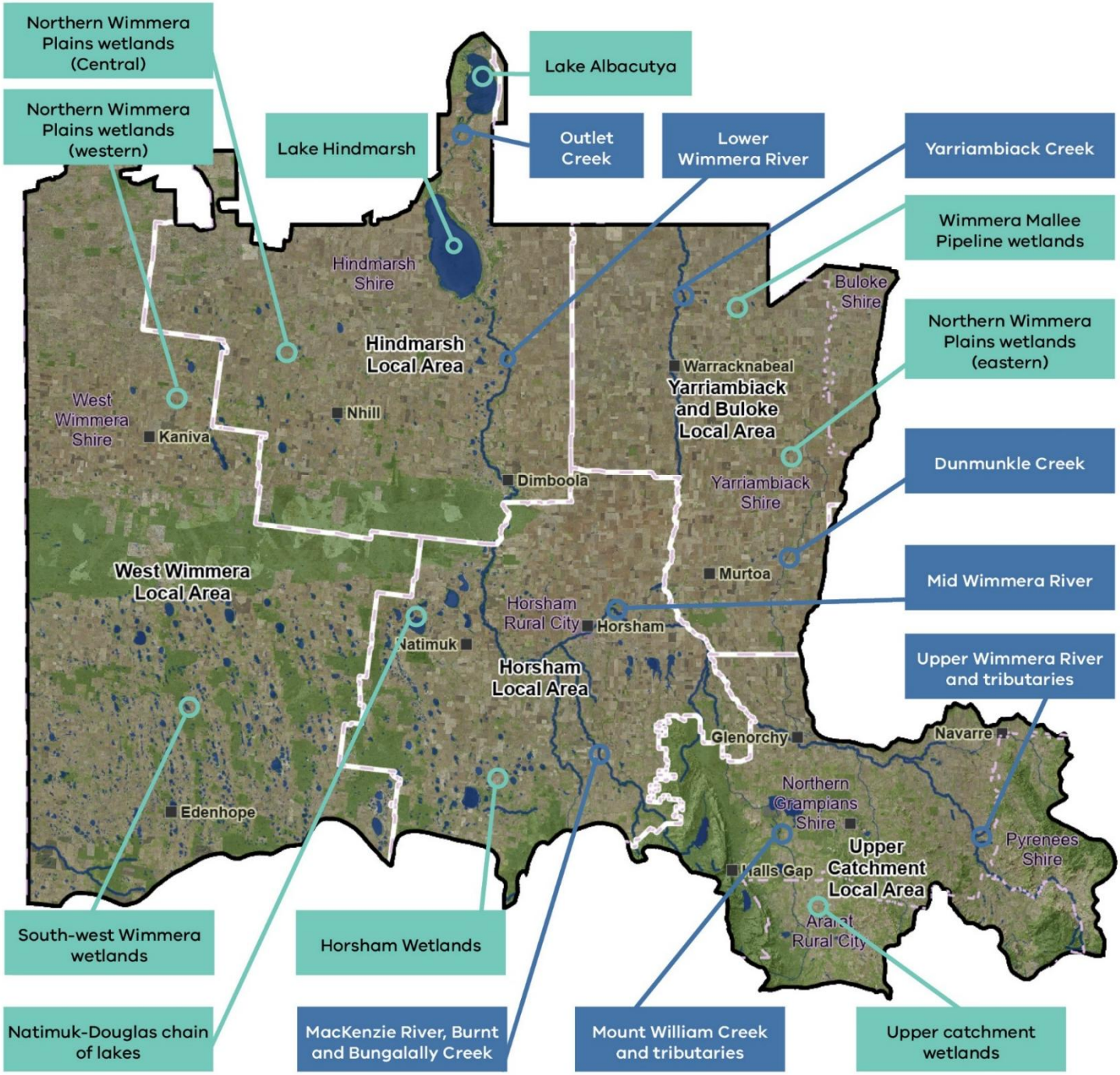


Figure 9. Local areas and waterway assets in the Wimmera region. Information boxes are colour-coded by feature type: blue for rivers and streams and teal for wetlands.

OUTCOMES

The *Wimmera Regional Catchment Strategy* sets the region's desired outcomes for integrated catchment management. It outlines 20-year long-term and 6-year medium-term outcomes across four themes including water, land, biodiversity and community. These outcomes are brought together for an integrated approach through the region's five local areas.

This Strategy is the sub-strategy for waterways. It provides a 10-year plan for achieving the *Wimmera Regional Catchment Strategy's* water-related outcomes for rivers, streams and wetlands.

Long-term outcomes reflect the region's aspirations and are expected to take 20 years or more to achieve, with some likely requiring a longer timeframe.

Medium-term outcomes are expected to take 10 years or less to achieve and are designed to be "SMART":

- **Specific** - describing what stakeholders and the community aim to achieve for waterway health and management. Additional detail is provided elsewhere in the Strategy and supporting documents. For example, the Strategy identifies priority areas relevant to each outcome, while the *Monitoring, Evaluation, Reporting and Improvement Plan* sets out detailed outcome statements and success factors.
- **Measurable** - supported by indicators outlined in the *Monitoring, Evaluation, Reporting and Implementation Plan,* which enable progress towards the Strategy's outcomes to be monitored and assessed.
- **Achievable** - considering available resources, community capacity and the predicted impacts of climate change.
- **Relevant** - aligned with the regional vision and informed by the best available information about waterway condition, threats, priorities, feasibility and stakeholder and community aspirations.
- **Time-bound** - intended to be achieved over 10- and 20-year timeframes. Figure 10 illustrates how medium-term outcomes link to long-term outcomes and the regional vision. Medium-term outcomes act as pathways towards the region's long-term outcomes and 50-year vision.

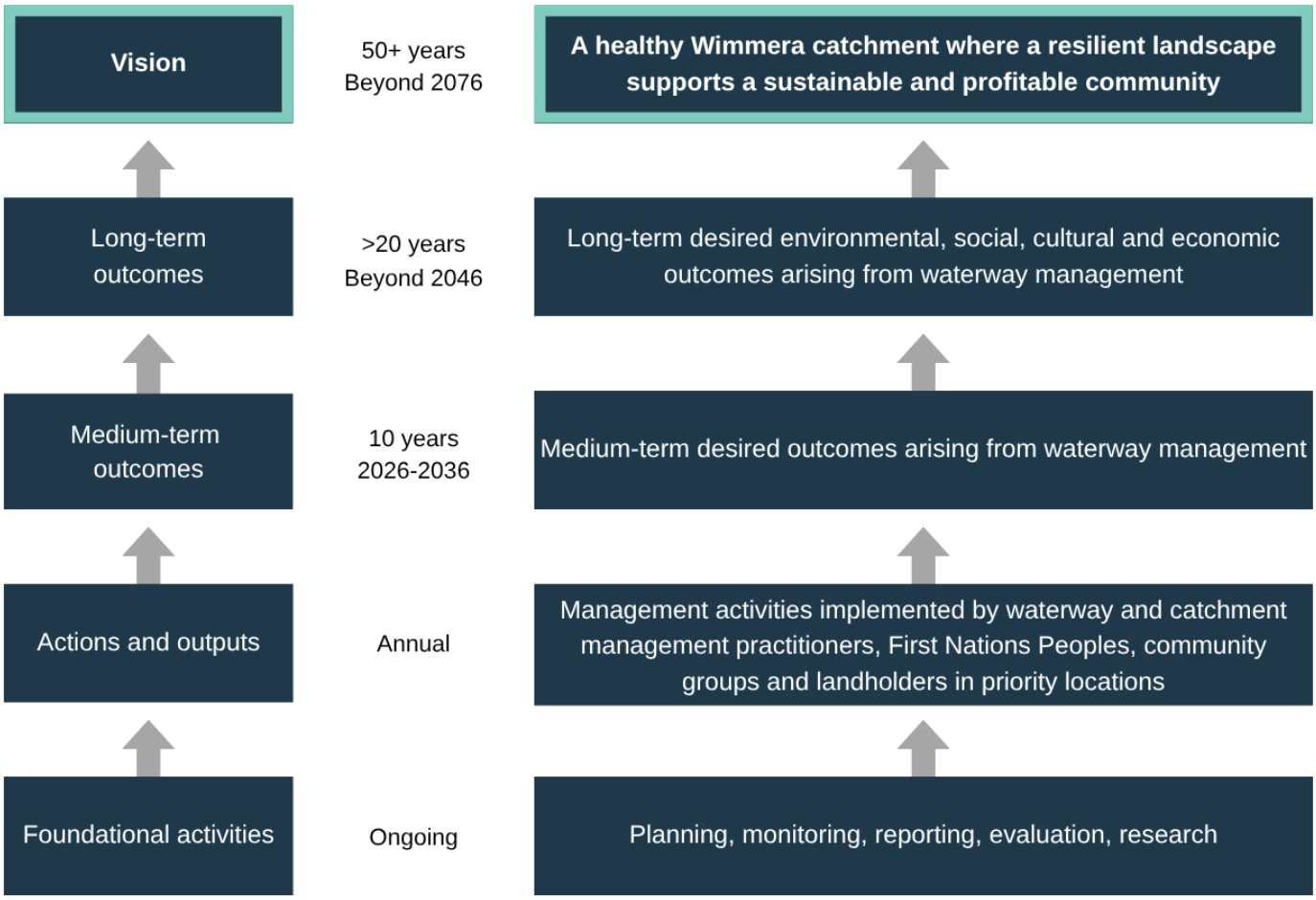


Figure 10. Vision, outcomes and actions hierarchy.

Wimmera CMA has reviewed the *Wimmera Regional Catchment Strategy's* 6-year medium-term outcomes to confirm appropriateness for inclusion in the Strategy as <10-year medium-term outcomes. Most were appropriate to carry across, reflecting the strong stakeholder and community input that shaped the *Wimmera Regional Catchment Strategy*.

However, minor edits and additions were made to keep the outcomes current with similar outcomes combined across river, stream and wetland themes. This approach maintains a clear line of sight between the two strategies.

The contribution of regional outcomes and the broader Strategy to Murray-Darling Basin outcomes established in the *Basin-wide Environmental Watering Strategy* (BEWS) were also considered. This helps ensure that water for the environment management decisions support both regional objectives and their contribution to broader Murray-Darling Basin outcomes. The *Monitoring, Evaluation, Reporting and Improvement Plan* for this Strategy outlines the expected environmental outcomes aligned with the BEWS and demonstrates how these outcomes relate to the Strategy's outcomes, statements of success, and associated monitoring and evaluation activities.

There are many important outcomes to achieve for Wimmera waterways. The outcomes included in the Strategy represent the most important, based on best available science, and community and stakeholder knowledge.

Desired outcomes for Wimmera waterways

Long-term outcomes (>20-years)

1. Knowledge and experience of First Nations Peoples is informing waterway planning, management and delivery in the Wimmera, advancing self-determination.
2. Values and condition of waterways with formally recognised significance are maintained or improved.
3. Waterway condition, connectivity and resilience is improved, providing habitat that supports native species and native communities.
4. Water is of sufficient quality to support waterway values and uses at important areas for water supply, cultural, environmental and social values.
5. Waterways with high environmental, social, cultural and economic values are maintained.
6. Wimmera people are active stewards taking action to care for waterways.

Medium-term outcomes (<10-years)

1. Ongoing collaboration and two-way learning in waterway planning and management, supporting self-determination and strengthening partnerships with First Nations Peoples.
2. Priority areas have improved management to enhance habitat, landscape connectivity and resilience.
3. Wetland modification, loss and deterioration of condition occurs at a declining rate.
4. Drought refuges support native species' survival and resilience during dry periods.
5. Risks to water quality in Wimmera waterways are managed where possible to reduce impacts on values.
6. Waterways identified as high priority for recreation and amenity provide enhanced recreational opportunities and community benefits, while minimising impacts on their environmental values.
7. Healthier waterways enable more On Country activities for First Nations Peoples.
8. Key water-dependent native species are supported in waterways that provide suitable habitat, including during dry conditions.
9. Net rates of streamflow interception from water extraction and storages are stabilising in the Barringgi Gadyin (Wimmera River) catchment.
10. Stewardship increases, with more people taking action to care for waterways.

PRIORITY AREAS

What are priority areas?

Wimmera waterways hold significant environmental, cultural, social and economic value. The natural environment is an interconnected living entity, and all water, biodiversity and land assets are important.

While all waterways matter, it is not feasible to actively manage every waterway across the region within the 10-year life of this Strategy. Priority areas have therefore been identified to focus effort and investment where they can make the greatest contribution to the region's desired outcomes for rivers, streams, wetlands and their floodplains.

These priority areas represent locations where waterway management is likely to deliver the greatest benefits in line with desired outcomes. Focusing management effort on these areas will deliver the greatest benefits for habitat, connectivity, cultural values, native fish, recreation opportunities and community wellbeing.

Prioritisation is based on a range of factors, including environmental condition, the level of risk posed by current or emerging threats, and the feasible opportunities available to protect or enhance important values. For example, an area in excellent condition may be a lower priority if few threats are present. Conversely, it may be a higher priority if its values are at risk from threats such as invasive species, low flows or bushfire.

Areas may also be prioritised where practical management actions can support First Nations Peoples' aspirations, community values or stakeholder objectives, such as caring for and connecting to Country, and improving opportunities for sustainable recreation.

In some cases, areas are prioritised because threats in one location can have significant impacts elsewhere. For example, managing erosion in upper catchment tributaries helps reduce sediment entering and impacting on downstream waterways, protecting aquatic habitat and water quality.

A separate *Implementation Plan* outlines the actions that will be undertaken in priority areas over the life of the Strategy.

Other priorities

This Strategy also identifies priority water-dependent species that align with its desired outcomes. Wimmera waterways support a rich diversity of plants, animals and ecological processes that contribute to the health and resilience of waterway environments. First Nations Peoples have long recognised that water, land, plants, animals and people are all part of living, interconnected Country, where the wellbeing of each element supports the wellbeing of Country as a whole.

Reflecting this understanding, the Strategy seeks to improve the condition of waterways and habitats to benefit the broad range of species and ecological communities that depend on them. Within this broader focus, additional attention will be directed towards priority native species where targeted action can contribute to conservation outcomes.

Priority water-dependent species were identified by considering a combination of national, state and regional conservation status, cultural significance and priorities, community values and the level of threat to their populations in the Wimmera. Species were prioritised where feasible, targeted management is likely to improve population viability, or where further knowledge is needed to inform effective conservation and management decisions.

Low and medium priorities

Many important areas and species may be a lower or medium priority for regional-scale investment over the 10-year life of this Strategy. This does not mean management actions cannot occur, only that limited funding and resources are directed first to higher-priority areas and species.

Management actions may still take place for low- or medium-priorities when:

- There is strong community desire for management action in line with desired outcomes.
- Local groups or individuals show strong commitment to caring for the waterway or species.
- New opportunities arise that previously did not exist. For example, a change in land ownership enabling stock to be excluded from riparian areas or a new water supply pipeline enabling water for the environment to be delivered to new areas.
- External funding becomes available for these areas from sources outside the Strategy, such as philanthropic grants or local government or industry programs.
- New threats emerge that were not present when the Strategy was developed that could affect desired outcomes.
- Waterway processes pose a serious risk to public infrastructure, or there is an opportunity to reduce risks from extreme events such as floods, bushfire or drought.
- Management effort is required to meet statutory or regulatory obligations.

How priorities were identified

The prioritisation process for this Strategy is guided by the medium- and long-term outcomes, ensuring that management efforts focus on areas that best support the region's vision and desired outcomes.

This process draws on a wide range of knowledge sources, including scientific research, monitoring and assessments, expert advice, First Nations Peoples' contributions and insights from stakeholders, local communities and the 'WaterwayDiver' Tool, an interactive tool for identifying aquatic biodiversity values and risks across Victoria.[35] The process drew heavily on existing plans, including those developed for Flagship waterways, Ramsar purposes, water for the environment and waterway action plans.

Environmental, social, cultural and economic values were assessed, along with the multiple benefits they provide and any potential conflicts between values and outcomes.

A climate-change lens was applied, considering the predicted impacts and implications for the feasibility of achieving desired outcomes under predicted climate conditions. The process considered whether waterway ecosystems, biodiversity and other values can be made more resilient, and where management should instead support transition or transformation.

First Nations organisations and other stakeholders were invited to contribute through:

1) Early discussions with Wimmera CMA, where they identified important waterways, desired outcomes, priorities, issues, opportunities and potential management actions.
2) Providing feedback on a working draft of the Strategy.
3) Considering and providing feedback on a public consultation draft of the Strategy.

Community members also had the opportunity to share their views through an online survey.

Steps in the prioritisation process included:

1) **Confirming the region's desired outcomes.**
   The 2020-21 *Wimmera Regional Catchment Strategy* established medium- and long-term desired outcomes for rivers, streams, wetlands and floodplains through extensive stakeholder and community consultation. These outcomes form the foundation of the Strategy, ensuring strong alignment between the two documents.

2) **Identifying waterways relevant to each outcome.**
   This step involved drawing on multiple information sources, such as research, monitoring and assessments, expert advice, input from First Nations organisations, stakeholders and community representatives, and the Victorian Government's 'WaterwayDiver' Tool to:
   - Collate information on the environmental, social, cultural and economic values present across waterways.
   - Identify waterways where attributes linked to each outcome occur, such as areas with high environmental, recreational or cultural values.
   - Assess the condition or level of these values at relevant waterways.

3) **Assessing risks to values.**
   Risks were assessed by examining threats to waterway values and their likely impacts. Threats included predicted climate-change impacts such as declining rainfall and runoff, more frequent drought periods, extreme rainfall events, and increased bushfire risk, as well as other threats such as invasive plants and animals, erosion and salinity.

4) **Assessing the potential to enhance waterway values.**
   This step helped prioritise areas where actions could actively enhance values, not just reduce risks. For example, the medium-term outcome "*Waterways identified as high priority for recreation and amenity provide enhanced recreational opportunities and community benefits, while minimising impacts on their environmental values*" focuses on increasing recreational opportunities and minimising potential impacts.

5) **Evaluating the feasibility of management actions.**
   Feasibility was assessed by considering factors such as climate change, cost-effectiveness, landholder and stakeholder participation, scale of intervention, effectiveness of past actions and any barriers to achieving outcomes.

6) **Prioritising waterways as high, medium or low.**
   Waterways were assigned a priority level based on where management actions would deliver the greatest benefit toward achieving desired outcomes over the Strategy's 10-year timeframe.

Further details regarding the prioritisation process are described in the *Identifying priorities* supporting document to the Strategy.

A separate *Implementation Plan* outlines the feasible management actions to be delivered in priority areas.

Priority areas for management

The region's priority areas for management hold the highest ecological, cultural and recreational value and face the greatest management needs. These waterways support threatened species, provide vital habitat and drought refuges, contain nationally and internationally recognised wetland systems, and hold deep cultural significance for First Nations Peoples. Managing them well will deliver the greatest long-term benefits for habitat, connectivity, cultural values, native fish, recreation and community wellbeing.

The following section summarises the priority areas for management action that will contribute to achieving the medium-term and long-term outcomes of this Strategy. While all waterways across the Wimmera region are valued and important, priority areas have been identified to focus effort and investment where management is likely to deliver the greatest environmental, cultural, social and economic benefits. Unless otherwise stated, all waterways listed are priority areas for their respective outcomes, based on their values, risks, threats and opportunities for management intervention.



An upper catchment waterway affected by stock access.

Long-term outcome 1 – Knowledge and experience of First Nations Peoples is informing waterway planning, management and delivery in the Wimmera, advancing self-determination.

First Nations Peoples hold deep knowledge and cultural connections to the Wimmera's waterways, built over thousands of years of caring for Country. This outcome seeks to ensure that waterway planning and management occur in genuine partnership with First Nations Peoples and they are empowered to embed their knowledge, cultural values and priorities in decision-making in self-determined ways.

This approach seeks to result in waterway management that reflects and prioritises cultural values alongside environmental, social and economic outcomes and upholds the rights and aspirations of First Nations Peoples.

Figure 11 shows the medium-term outcomes that contribute to long-term outcome 1.

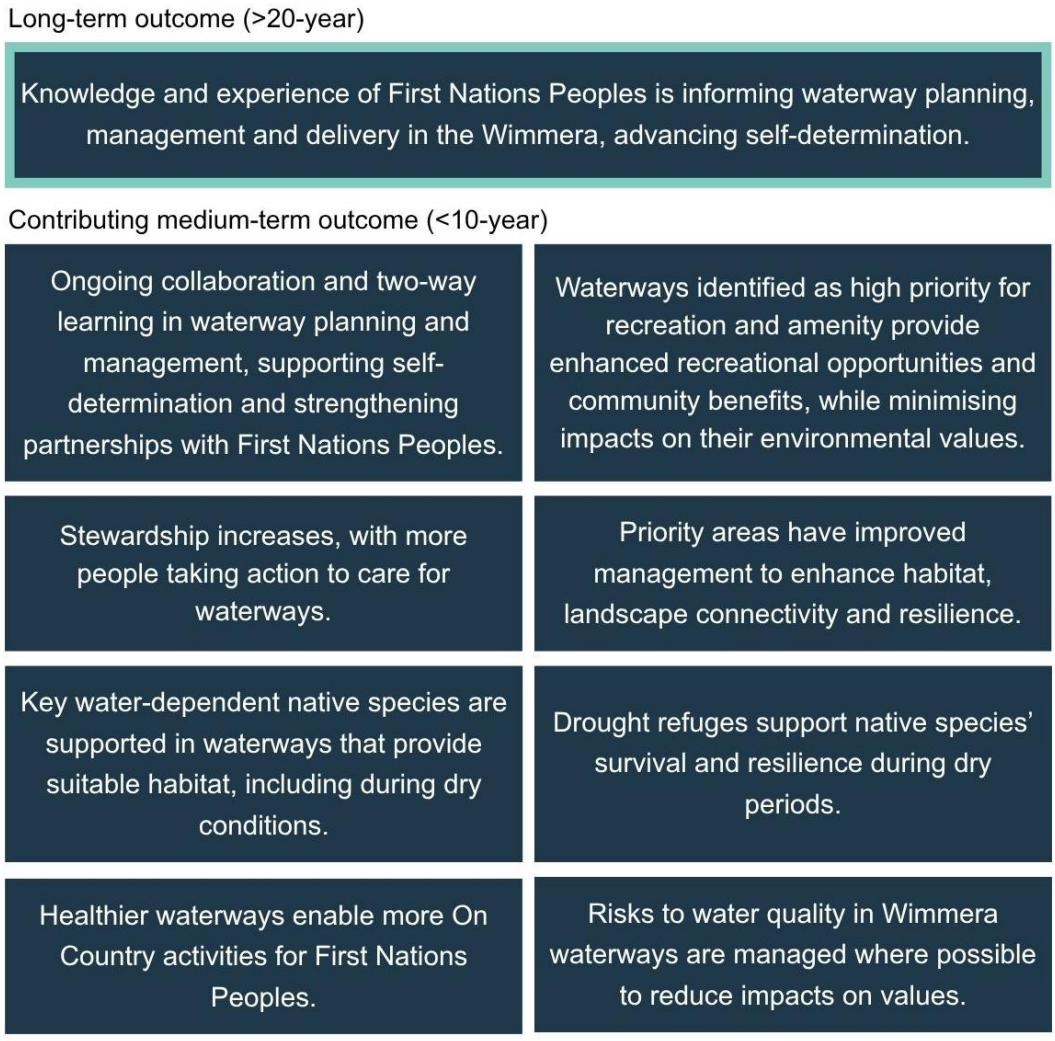


Figure 11. Medium-term outcomes that contribute to long-term outcome 1.

Priorities

Waterway planning, management and on-ground action in the Wimmera will support self-determination by fostering genuine collaboration and two-way learning with First Nations Peoples. This approach will be applied across waterways and activities where First Nations Peoples choose to be involved.

Long-term outcome 2 – Values and condition of waterways with formally recognised significance are maintained or improved.

This outcome focuses on making sure waterways with formal recognition through international agreements, national listings or state legislation, keep or improve the values that make them important. These waterways hold important environmental, cultural, social or heritage values that need ongoing protection. By directing management effort to these high-value systems, the Strategy aims to protect their recognised values, reduce key threats and strengthen their resilience where possible.

Figure 12 shows the medium-term outcomes that contribute to long-term outcome 2.



Figure 12. Medium-term outcomes that contribute to long-term outcome 2.

Priorities

Table 1 lists the priority areas identified for management over the next 10 years to achieve medium-term outcomes that contribute to long-term outcome 2.

Table 1. Priority areas for long-term outcome 2.

Local area	Priority areas	Why they are priorities
Hindmarsh	**Lower Barringgi Gadyin (Wimmera River)**	• Victorian Heritage River listing and Flagship waterway. • Riparian vegetation corridor linking Little Desert-Wyperfeld National Parks. • High cultural, environmental and recreational value, including native fish and drought refugia. • Risks to values from lack of flow, climate change, saline groundwater intrusion, invasive species and recreation impacts.
Hindmarsh	**Outlet Creek**	• Part of Heritage River with high cultural, environmental and recreational value. • Riparian vegetation corridor linking Gurru (Lake Hindmarsh), Ngalpakatia/Ngelpagutya (Lake Albacutya) and Wyperfeld National Parks. • Risks to values from lack of flow, climate change, invasive species and recreation impacts.
Hindmarsh	**Ngalpakatia/Ngelpagutya (Lake Albacutya)**	• Internationally important Ramsar wetland, nationally important wetland and part of Heritage River. • Major intermittent refuge for >20,000 waterbirds when it contains water. • Supports threatened species and Eucalyptus woodlands. • Risks to values from low water availability, invasive species, fire and inappropriate recreation.
Hindmarsh	**Gurru (Lake Hindmarsh)**	• Nationally important wetland and part of Heritage River. • Supports thousands of birds when wet. • Risks to values from low water availability, invasive species and recreation impacts.
Hindmarsh **Horsham** **West Wimmera**	**Other nationally important wetlands:** Natimuk Lake, Natimuk Creek and Lake Wyn Wyn; Oliver's Swamp (Lake); Parker/Telfer's Swamp; Saint Mary's Lake; Heard Lake; Friedman's Salt Lake; Mitre Lake; Hately Lake (Swamp); Pink Lake; Bitter Swamp; White Lake	• Nationally important wetlands. • High biodiversity and bird habitat, support threatened flora, fauna and vegetation communities. • Some support valued recreation – skiing and swimming at freshwater sites and birdwatching. • Risks to values from reduced inflows and invasive species.
Hindmarsh **Horsham** **West Wimmera**	**Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains**	• Critically endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. • High biodiversity. • Predominantly on private agricultural land. • Risks to values from cropping, drainage, stock grazing and drying climate.

Long-term outcome 3 – Waterway condition, connectivity and resilience is improved, providing habitat that supports native species and native communities.

This outcome aims to strengthen the health, connectivity and resilience of rivers, streams, wetlands and floodplains so they can continue to support native species, ecological communities and social, economic and cultural values. It focuses on improving habitat quality, restoring natural links along waterways and reducing pressures such as erosion, poor water quality, flow stress and habitat fragmentation.

By building healthier, connected and more resilient waterway systems, the Strategy seeks to ensure where possible that native species can survive, move, reproduce and adapt under changing environmental conditions, including in a drying climate and more frequent extreme events.

Figure 13 shows the medium-term outcomes that contribute to long-term outcome 3.

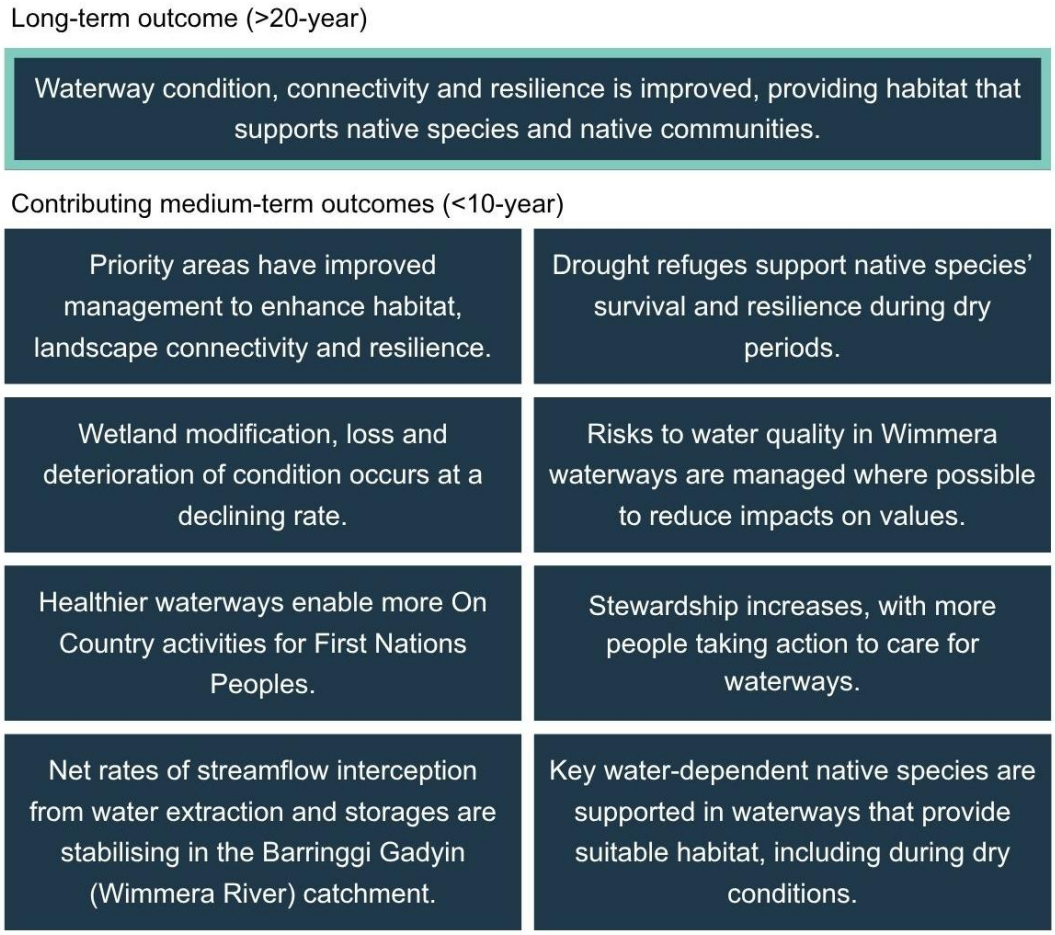


Figure 13. Medium-term outcomes that contribute to long-term outcome 3.

Priorities

Table 2 lists the priority areas identified for management over the next 10 years to achieve medium-term outcomes that contribute to long-term outcome 3.

Table 2. Priority areas for long-term outcome 3.

Local area	Priority areas	Why they are priorities
Upper Catchment	**Upper Barringgi Gadyin (Wimmera River) and tributaries**	• Key biolink connecting the Pyrenees range with the Grampians range and mid Barringgi Gadyin (Wimmera River). • Important catchment for water supply (Wimmera Systems Special Water Supply Catchment Area). • High erosion risk due to steep hillslopes and erodible soils. • Many unfenced riparian areas requiring protection. • Actions here reduce downstream sediment impacts on high value aquatic habitats.
Upper Catchment	**Mount William Creek and tributaries**	• Key biolink connecting the Pyrenees range with the Grampians range and mid Barringgi Gadyin (Wimmera River). • Important catchment for water supply (Wimmera Systems Special Water Supply Catchment Area). • Variable riparian protection, stock access and erosion risk. • Opportunity to strengthen riparian condition and biodiversity fringing Gariwerd (Grampians National Park).
Horsham Upper Catchment	**MacKenzie River, Burnt Creek, Bungalally Creek**	• High-quality riparian corridor linking Gariwerd (Grampians National Park) and the mid Barringgi Gadyin (Wimmera River). • MacKenzie River hosts the last Wimmera populations of platypus and river blackfish. • Supports other key species, including small native fish and freshwater crayfish. • Upper reaches are important for water supply (Wimmera Systems Special Water Supply Catchment Area). • Opportunity to create drought refuge pools for these species with piped water. • Risks include flow stress, climate change, invasive species and recreational vehicle impacts.
Hindmarsh	**Lower Barringgi Gadyin (Wimmera River)**	• Victorian Heritage River listing and Flagship waterway. • Riparian vegetation corridor linking Little Desert and Wyperfeld National Parks. • High cultural, environmental, social and economic value, including native fish and drought refugia. • Risks to values from lack of flow, climate change, saline groundwater intrusion, invasive species and recreation impacts.
Horsham	**Mid Barringgi Gadyin (Wimmera River)**	• High cultural, environmental, social and economic value. • Major corridor linking the Grampians and Little Desert National Parks. • Variable condition. • Threats from stock access and weeds. • Potential future platypus restoration focus.

Local area	Priority areas	Why they are priorities
Yarriambiack and Buloke	**Yarriambiack and Dunmunkle Creeks (medium priority)**	• Connected vegetation through a highly modified landscape. • Maintain north-south habitat routes under climate change. • Local stewardship via Landcare. • Community support for restoring natural flow patterns to Dunmunkle Creek. • Risks include invasive species, lack of flow, altered flow and drainage regimes, particularly for Dunmunkle Creek.
West Wimmera	**South-west Wimmera wetlands**	• Dense “chains” of wetlands with high biodiversity and connectivity. • High threat from cropping, modification including drains and dams and stock grazing - a high priority to arrest further decline.
Horsham	**Horsham wetlands including Natimuk–Douglas Chain of Lakes**	• Multiple nationally listed wetlands. • Important saline habitat connectivity. • High bird and threatened species and community values. • Risks include invasive species and hydrology changes.
Horsham	**Dock Lake**	• Supports key habitat for waterbirds. • Recreational asset for both active and passive activities. • Threats from reduced filling frequency and duration. • Declining water quality. • Invasive plants and animals threaten native vegetation.
Hindmarsh **Upper Catchment** **Yarriambiack and Buloke**	**Wimmera Mallee Pipeline-watered wetlands**	• Water for the environment sustains diverse native flora and fauna in a highly modified agricultural landscape. • Increasingly important drought refuges under climate change.

Long-term outcome 4 – Water is of sufficient quality to support waterway values and uses at important areas for water supply, cultural, environmental and social values.

Healthy waterways are essential for sustaining the Wimmera's environmental, cultural, social and economic values. Achieving water of sufficient quality ensures that rivers and streams can support critical uses such as water supply for communities, agriculture and industry while protecting habitats, cultural heritage and recreational opportunities.

This long-term outcome underpins the resilience of the region's ecosystems and the wellbeing of the people who depend on them.

Figure 14 shows the medium-term outcomes that contribute to long-term outcome 4.

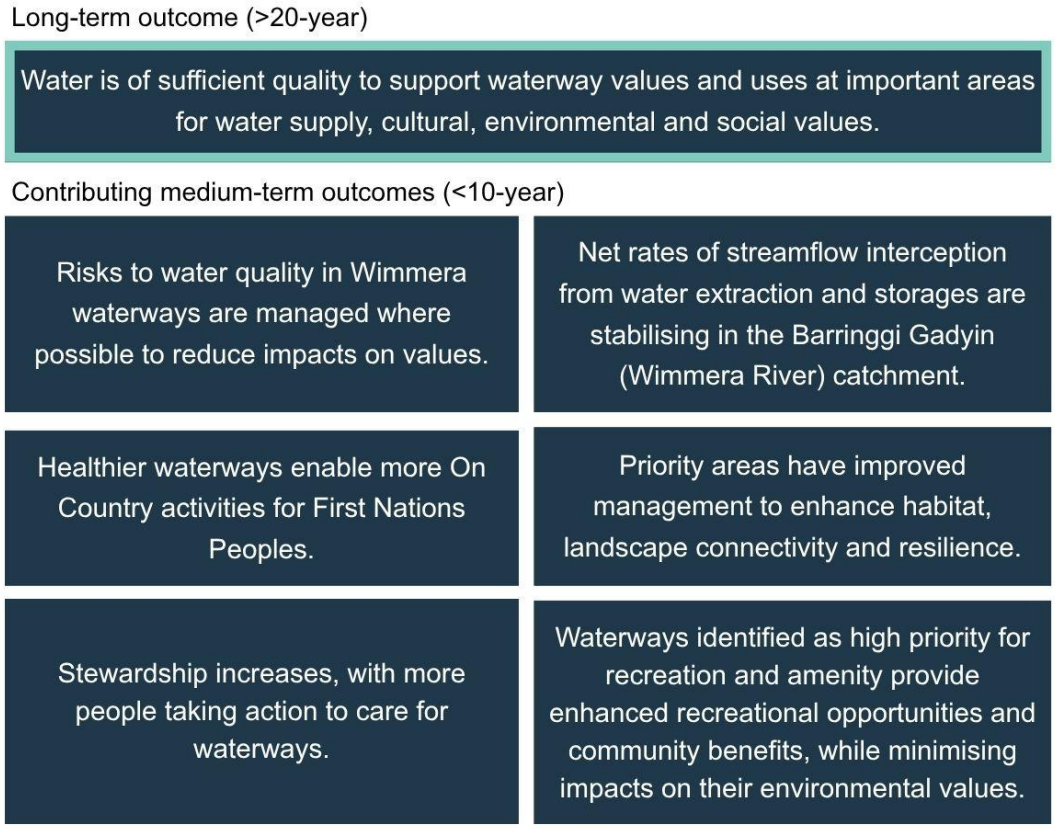


Figure 14. Medium-term outcomes that contribute to long-term outcome 4.

Priorities

Table 3 lists the priority areas identified for management over the next 10 years to achieve medium-term outcomes that contribute to long-term outcome 4.

Table 3. Priority areas for long-term outcome 4.

Local area	Priority areas	Why they are priorities
Hindmarsh	**Lower Barringgi Gadyin (Wimmera River)**	• Victorian Heritage River listing and Flagship waterway. • Riparian vegetation corridor linking Little Desert and Wyperfeld National Parks. • High cultural, environmental, social and economic value, including native fish and drought refugia. • Risks to values from poor water quality, lack of flow, climate change, saline groundwater intrusion, invasive species, and recreation impacts.
Horsham	**Mid Barringgi Gadyin (Wimmera River)**	• Supports diverse native fish and community recreation (especially Horsham weir pool) • Manage variable water quality risks under changing flow regimes.
Hindmarsh **Horsham**	**Barringgi Gadyin (Wimmera River) weir pools at Horsham, Dimboola and Jeparit**	• High recreation, amenity, cultural and economic values. • High-visitation recreation nodes associated with townships. • Ongoing improvements to support access and recreation while minimising impacts on the river environment and cultural heritage.
Upper Catchment	**Lake Bellfield and catchment** **Lake Wartook and catchment** **Mount William Creek catchment**	• Provide essential urban, pipeline and water for the environment supply (Wimmera Systems Special Water Supply Catchment Area). • High bushfire risk in Gariwerd (Grampians National Park). • Priority to minimise bushfire risk and maintain post-fire water quality.
Upper Catchment	**Barringgi Gadyin (Wimmera River) headwaters**	• High environmental value in headwaters and downstream reaches. • Important catchment for water supply (Wimmera Systems Special Water Supply Catchment Area). • High bushfire risk in upper catchment forests. • Priority to minimise bushfire risk and maintain post-fire water quality.

Long-term outcome 5 – Waterways with high environmental, social, cultural and economic values are maintained.

The Wimmera's waterways are vital to the region, supporting rich environmental habitats, cultural heritage, recreational opportunities and economic activity.

Maintaining waterways with high environmental, social, cultural and economic values is essential for sustaining biodiversity, protecting cultural connections and ensuring communities can continue to enjoy and benefit from these natural assets. This long-term outcome reflects a commitment to preserving these values for future generations.

Figure 15 shows the medium-term outcomes that contribute to long-term outcome 5.



Figure 15. Medium-term outcomes that contribute to long-term outcome 5.

Priorities

Table 4 lists the priority areas identified for management over the next 10 years to achieve medium-term outcomes that contribute to long-term outcome 5.

Table 4. Priority areas for long-term outcome 5.

Local area	Priority areas	Why they are priorities
Hindmarsh **Horsham**	**Barringgi Gadyin (Wimmera River) weir pools at Horsham, Dimboola and Jeparit**	• High recreation, amenity, cultural and economic values. • High-visitation recreation nodes associated with townships. • Ongoing improvements to support access and recreation while minimising impacts on the river environment and cultural heritage.
All	**Lakes with high social and economic value:** including Taylors, Green, Toolondo, Fyans, Bellfield, Wartook, Lonsdale, Charlegrark, Wallace, Ratzcastle, Bringalbert, Marma, Watchem and Nhill.	• Region's most important sites for tourism, recreation and community wellbeing. • Some are important for water supply (Wimmera Systems Special Water Supply Catchment Area). • Some lakes lack management plans to plan and support effort to maintain and improve values (e.g. Charlegrark, Bringalbert, Marma).
Horsham **West Wimmera** **Upper Catchment**	**High-environmental-value wetland groups:** South-west Wimmera; Horsham and Natimuk–Douglas chain; Upper Catchment.	• High density and diversity of wetlands with high habitat and connectivity values. • At risk from cropping, drainage, grazing, drying climate and other impacts.

Implementation of medium-term outcome 8: "*Key water-dependent native species are supported in waterways that provide suitable habitat, including during dry conditions*" will contribute to achieving long-term outcome 5. Table 5 identifies the priority water-dependent species and associated priority areas that will be the focus of management actions.

Table 5. Priority water-dependent species.

Priority species	Local area	Priority area	Why they are priorities
Platypus (*Ornithorhynchus anatinus*)	**Horsham**	**MacKenzie River**	• Vulnerable in Victoria under the *Flora and Fauna Guarantee Act 1988*. • Successfully breeding. • High cultural significance and identified as a priority for First Nations Peoples. • High social value for the local and regional community. • Once widespread, the MacKenzie River supports the only known remaining population. • At risk of local and regional extinction due to small population size, low genetic diversity and restricted range. • MacKenzie River receives flows, providing a conduit for transporting water for Horsham's water supply and water for the environment. Flows at risk from drying climate.
		Burnt Creek	• Potential exists to provide longitudinal connectivity between the MacKenzie River and the Barringgi Gadyin (Wimmera River) when sufficient flows are present, supporting platypus dispersal and long-term viability if a population outside the MacKenzie River could be established.
		Barringgi Gadyin (Wimmera River)	• Formerly supported platypus. • Suitable instream and riparian habitat and food sources are present. • Potential to establish a second population.

Priority species	Local area	Priority area	Why they are priorities
River blackfish *(Gadopsis marmoratus*)	**Horsham**	**MacKenzie River**	• Once widespread, MacKenzie River supports a remnant population. Key breeding and refuge area. • High cultural significance for First Nations Peoples. • High social value for the local and regional community. • At risk of local and regional extinction due to small population size and restricted range. • MacKenzie River receives flows, providing a conduit for transporting water for Horsham's water supply and water for the environment. • Flows at risk from drying climate. • Feasible opportunities exist to improve population viability.
	Horsham Upper catchment	**Burnt Creek** **Mount William Creek** **Mount Cole Creek** **Glenlofty Creek** **Barringgi Gadyin (Wimmera River)**	• Previously supported river blackfish. • Retain large pools with suitable habitat. • Potential to restore river blackfish and establish additional populations. • These priority areas require further investigation.
Freshwater crayfish, including: • **Western swamp crayfish (*Gramastacus insolitus*)** • **Glenelg spiny crayfish (*Euastacus bispinosus*)**	**Horsham Upper catchment**	**MacKenzie River and Burnt Creek** **Mount William Creek and tributaries** **Upper Barringgi Gadyin (Wimmera River) and tributaries**	• High cultural significance for First Nations Peoples – identified as a priority. • Glenelg spiny crayfish are nationally endangered under the *Environment Protection and Biodiversity Conservation Act 1999* and endangered in Victoria under the *Flora and Fauna Guarantee Act 1988*. • Western swamp crayfish are endangered in Victoria under the *Flora and Fauna Guarantee Act 1988*. • Both species are recorded in priority area waterways. • These priority species and priority areas require further investigation.
Freshwater mussels *(Velesunio ambiguus)* Also known as floodplain mussels.	**Horsham Hindmarsh Upper catchment**	**Barringgi Gadyin (Wimmera River) and tributaries** **MacKenzie River, Burnt and Bungalally creeks**	• High cultural significance for First Nations Peoples – identified as a priority. • Thought to have significantly reduced numbers and range. • These priority species and priority areas require further investigation.
Waterbirds	**Horsham Hindmarsh Upper catchment**	**Barringgi Gadyin (Wimmera River)** **Gurru (Lake Hindmarsh)** **Ngalpakatia/Ngelpagutya (Lake Albacutya)** **Dock Lake** **Wimmera Mallee Pipeline wetlands**	• Threatened species, including Australasian bittern, brolga, freckled duck, blue-billed duck and Australasian shoveler. • International migratory species, protected under *Japan-Australia Migratory Bird Agreement*, *China-Australia Migratory Bird Agreement*, and *Republic of Korea-Australia Migratory Bird Agreement*. Examples include red-necked stints (*Calidris ruficollis*) and sharp-tailed sandpipers (*Calidris acuminata*). • High concentration and diversity of habitat. • Numerous lakes including Ngalpakatia/Ngelpagutya (Lake Albacutya), Gurru (Lake Hindmarsh) and Dock Lake support large numbers of waterbirds when flooded, including threatened, migratory and breeding species. • High cultural significance for First Nations Peoples. • High social values including birdwatching.

Long-term outcome 6 – Wimmera people are active stewards taking action to care for waterways.

The Wimmera's waterways benefit when local people are actively involved in their care. Encouraging people to actively care for waterways fosters shared responsibility, strengthens connections to nature and ensures lasting environmental, cultural and social benefits.

This long-term outcome reflects a commitment to empowering Wimmera people to take meaningful action for healthy rivers, streams, wetlands and floodplains.

Figure 16 shows the medium-term outcomes that contribute to long-term outcome 6.

Priorities

These long- and medium-term outcomes apply to stewardship across all waterways in the Wimmera.

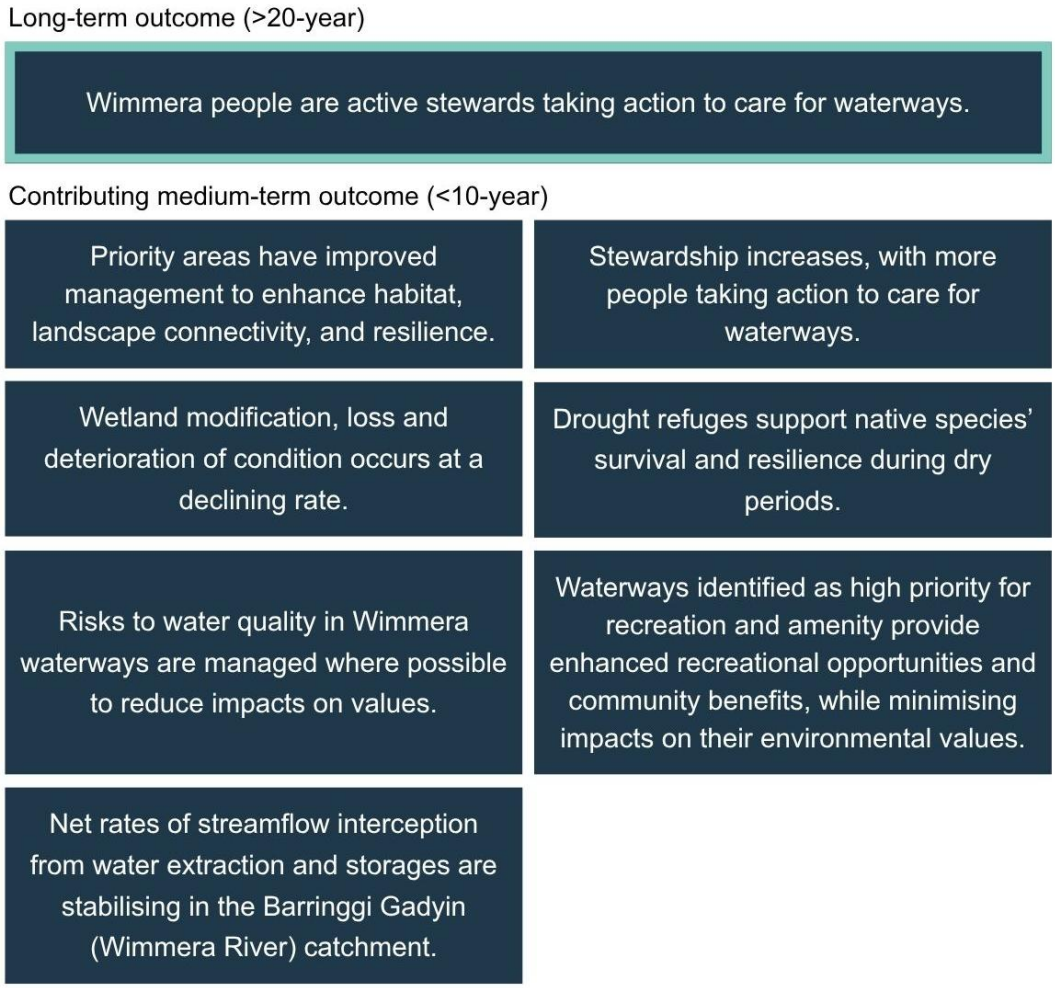


Figure 16: Medium-term outcomes that contribute to long-term outcome 6.

Flagship Waterways

Flagship waterways are large-scale, long-term priority waterways identified by the Victorian Government for coordinated investment and rehabilitation to improve catchment and waterway health across regional and urban areas.[36]

There are two Flagship waterway projects in the Wimmera region focused on supporting targeted waterways to continue to provide substantial economic, social, cultural, recreational and environmental benefits to the Wimmera and Victorian communities. The Flagship waterway projects focus on the Upper Barringgi Gadyin (Wimmera River) and its tributary streams, and the Lower Barringgi Gadyin (Wimmera River) and its terminal lakes system. Both areas are high priorities under this Strategy. Figure 17 shows the waterways covered by each Flagship project.

Upper Wimmera River Flagship Waterway

The Upper Wimmera River Flagship Waterway project is a large-scale river restoration initiative for the Barringgi Gadyin (Wimmera River) and its tributary streams in the upper Wimmera catchment upstream of Glenorchy township. Wimmera CMA leads the project in partnership with First Nations groups, public and private land managers, and community and Landcare groups.

The upper Wimmera catchment is a critical source of water for towns, agriculture and the environment. It supports important aquatic and riparian ecosystems, providing habitat for native fish and aquatic invertebrates, while also holding significant cultural heritage, recreational and social values.

The health of the river system is being impacted by erosion in upper catchment tributaries. Eroding streambeds and banks contribute sediment and salts to waterways, reducing water quality and increasing turbidity. The accumulation of sediment in waterways also degrades aquatic habitat, reducing the diversity and abundance of native plants and animals.

The project's vision is that by 2040, much of the Upper Barringgi Gadyin (Wimmera River) and its tributaries will be stabilised and protected through restoration works, healthy native vegetation and sustainable, fit-for-purpose land and waterway management practices. To achieve this vision, the project will deliver large-scale waterway restoration, riparian protection and enhancement works that improve waterway stability, increase the extent and quality of riparian vegetation, strengthen habitat connectivity, enhance water quality and protect the region's high-value chain of ponds systems.

Key activities include:

- **Waterway restoration works** to stabilise the beds and banks of highly eroding tributaries. These works will help reduce sediment movement, improve water quality, protect downstream environmental values and prevent the loss of productive agricultural land.
- **Riparian protection and enhancement activities** that support private landholders to improve the health and condition of waterways on their properties. Activities may include fencing, revegetation and improved land management practices to protect and restore riparian vegetation and habitat.
- **Complementary pest plant and animal control activities** on adjoining public land along priority waterways, delivering a coordinated, landscape-scale approach to improving river health, ecological connectivity and catchment resilience.

Lower Wimmera River Flagship Waterway

The Lower Wimmera River Flagship Waterway project focuses on the Lower Barringgi Gadyin (Wimmera River) downstream of Horsham, including Outlet Creek and terminal lakes, Hindmarsh and Albacutya.

The project's vision is to ensure that by 2040, the Lower Barringgi Gadyin (Wimmera River) will be a healthy, functioning ecosystem that supports social, cultural and recreational activities. Wimmera CMA is leading the project, working in partnership with public and private land managers, Barengi Gadjin Land Council and community groups.

To achieve this vision, the project will deliver a range of threat mitigation and environmental enhancement activities aimed at improving the quality, extent and connectivity of riparian vegetation and habitat. It will also support local and regional investment in the Lower Barringgi Gadyin (Wimmera River) and enable angling clubs and community groups to undertake priority work along the waterway.

Key activities include:

- **Pest plant and animal control** to reduce competition and grazing pressure on native vegetation and wildlife.
- **Fencing and revegetation** to protect existing habitat, increase native vegetation cover and improve biodiversity outcomes.
- **Bank stabilisation works** to reduce erosion and sedimentation, while protecting environmental, cultural and recreational values.

The project will be delivered as part of a broader program of work across the Lower Barringgi Gadyin (Wimmera River). This includes the management and delivery of water for the environment and initiatives that support land stewardship, recreation and community wellbeing through the Victorian Government's *Our Catchments, Our Communities* program.

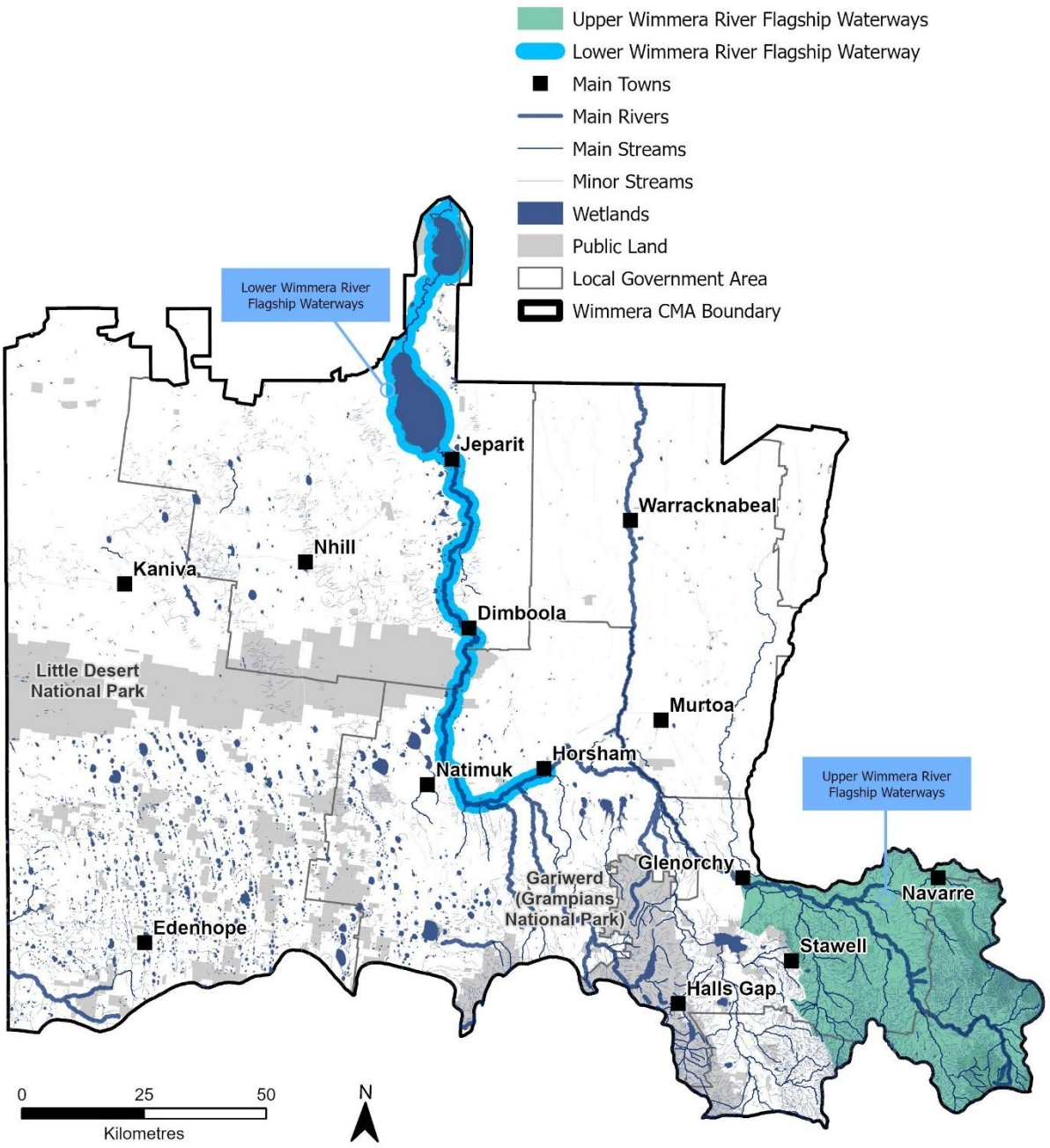


Figure 17. The Upper Wimmera River Flagship and Lower Wimmera River Flagship waterways.



PART D

KEY MANAGEMENT TOPICS

VICTORIA State Government Australia

Wimmera CMA

KEY MANAGEMENT TOPICS

This section addresses key issues that affect waterways across the entire Wimmera catchment, rather than specific local areas. These topics represent broad-scale challenges and opportunities that require coordinated management to protect environmental, cultural, social and economic values.

The section covers themes such as waterway-based recreation, water quality, fire preparedness and recovery, blue-green algae management, native fish conservation, platypus recovery and birdlife protection. Each theme outlines the current context, major threats and desired medium-term outcomes, supported by evidence and examples of ongoing initiatives.



Rowing on the Barringgi Gadyin (Wimmera River) at Horsham.

Waterway-based recreation

Rivers, lakes and wetlands are central to community recreation and livability in the Wimmera. Some waterways are vital for the amenity and economy of many small regional towns. They support activities such as fishing, boating, skiing, camping, birdwatching and sightseeing, generating millions of dollars annually in health, wellbeing and economic benefits.

A socio-economic study estimated that water-based recreation generates up to $30 million annually for the Wimmera–Southern Mallee region.[22] This underscores the importance of collaborative management to maintain both environmental and recreational values.

Recreational use can also pose environmental threats. Activities such as off-road driving, littering, vegetation removal and illegal firewood collection can contribute to bank erosion, habitat loss, poor water quality and reduced amenity. Popular non-native fish species, like redfin and trout, impact native fish populations, while visitation can damage riparian areas and spread pest and weed species. These pressures can be intensified during dry periods, when empty creek beds and wetlands become more vulnerable to misuse by four-wheel drives and motorbikes.

Balancing recreation with environmental protection is a key goal of this Strategy. Many community groups recognise that healthy waterways underpin recreational opportunities and actively contribute to stewardship. For example, angling clubs have partnered with waterway managers to deliver projects that improve access while minimising environmental impacts and enhancing the natural environment.

Partnerships and initiatives

Since 2016, Wimmera CMA has worked under the Victorian Government's *Our Catchments, Our Communities* framework to foster partnerships with local councils, First Nations organisations and recreational user groups. Key initiatives include a walking track along the Barringgi Gadyin (Wimmera River), floating wetlands at Dimboola, weed and carp control, flow upgrades at major lakes and a waterway action plan for Green Lake.

Strategic, partnership-based planning with land managers and recreational users is essential to balance community access with environmental protection. This includes monitoring land-use changes, managing rubbish collection, maintaining roads and implementing fire, pest animal and weed control.

Desired outcome

The 10-year medium-term desired outcome for waterway-based recreation is:

- **Waterways identified as high priority for recreation and amenity provide enhanced recreational opportunities and community benefits, while minimising impacts on their environmental values.**



Australia Day event on the Barringgi Gadyin (Wimmera River) at Horsham.

Water quality

Access to clean water is critical for environmental health, community wellbeing and the Wimmera's farming and industrial sectors. Towns and farms rely on high-quality water for drinking, sanitation, stock watering, crop spraying, industry and maintaining public spaces. Poor water quality can trigger algal blooms and fish deaths, harming ecosystems and disrupting recreation such as fishing and swimming. Freshwater species, like fish, plants and macroinvertebrates, are especially vulnerable.

Grampians Headworks Storages supply water to approximately 34 townships and 9,000 farms across the Wimmera and Southern Mallee. This network of reservoirs, diversion weirs and streams is protected under the *Catchment and Land Protection Act 1994* as the *Wimmera Systems Special Water Supply Catchment Area*. Maintaining water quality in these streams is essential for reliable supply and healthy ecosystems.

Runoff from farmland often carries nutrients and sediments into waterways, influenced by land management and riparian vegetation. During the Millenium Drought (2000-2010), water quality declined sharply, with salinity in the lower Barringgi Gadyin (Wimmera River) exceeding seawater levels. Water savings arising from construction of the Wimmera Mallee Pipeline, completed in 2010, saved large volumes of water and enabled water for the environment flows to key waterways, improving water quality and supporting recovery.

Water for the environment entitlements, made possible through the water savings generated by the Wimmera Mallee Pipeline and managed by Wimmera CMA, continue to support river health. Water for the environment flows have improved water quality, reconnected previously isolated pools, enhanced aquatic habitats and contributed to the ongoing recovery and resilience of river ecosystems.

During extended dry periods with reduced natural flows, such as those experienced in 2014-15, 2018-21 and 2024-25, Wimmera CMA took a conservative approach to using water for the environment. Water flows were targeted at priority refuge pools to maintain water quality, preserve aquatic habitats and support the survival of native plant and animals.

Some water storages and wetlands experience occasional algal blooms, and many waterways do not consistently meet Victoria's reference standards for key water quality objectives and indicators including salinity, dissolved oxygen, turbidity and pH. Despite these challenges, water quality is generally sufficient to support native fish populations, recreational activities and community events. Strategic management of water for the environment, together with complementary actionssuch as stock exclusion and erosion control, helps maintain and improve water quality, protect aquatic habitats and support the ongoing health and resilience of river ecosystems.

Key threats

The main threats to water quality in the Wimmera include:

- **Saline groundwater intrusion:** a major risk in the lower Barringgi Gadyin (Wimmera River) during low flows, degrading habitats and harming fish and vegetation.
- **Erosion and sediment movement:** upper catchment erosion increases turbidity and smothers habitats downstream.
- **Point-source pollution:** urban stormwater, septic leaks, discharge or drainage from industrial areas and illegal chemical dumping pose low but ongoing risks, requiring vigilance and monitoring.
- **Bushfire:** removes ground cover, increasing erosion and runoff after rainfall, which can carry more sediment and nutrients into waterways, reducing water quality and impacting aquatic ecosystems.

Desired outcome

The 10-year medium-term desired outcome for water quality is:

- **Risks to water quality in Wimmera waterways are managed where possible to reduce impacts on values.**

Interim water quality targets

This Strategy identifies waterways where interim targets are desired to address threats posed by poor water quality, and where waterway managers can feasibly make a difference to achieve the targets.

Background

The *State Environment Protection Policy (Waters) 2018* (SEPP (Waters)) was introduced to protect and improve water quality in Victoria. Clause 18 required the development of interim regional targets for priority waterways identified in regional waterway strategies where:

- Environmental quality objectives for surface water were unlikely to be met during the SEPP (Waters)' lifetime.
- Poor water quality posed a threat to values.

These interim targets were intended to guide waterway managers in achieving measurable, time-bound improvements in water quality for environmental outcomes.

SEPP (Waters) is no longer a statutory instrument under the *Environment Protection Act 2017* (EPA Act). The *Environment Reference Standard* now sets out environmental values for water, land, air and sound that the Victorian community seeks to achieve. However, SEPP (Waters) remains part of the 'state of knowledge', consequently the Environment Protection Authority Victoria may still use Clause 18 to inform its actions and expectations for water quality protection under the EPA Act, *Environment Reference Standard*, regulations and guidance.[37]

Interim water quality targets can help businesses, agencies and individuals understand their responsibilities for preventing harm caused by poor water quality.

A key principle of the EPA Act is that decisions must be based on the best available, relevant and reliable information about risks of harm and practical ways to minimise them. This information, which evolves over and is drawn from reputable sources such as research institutions, government agencies and industry bodies, forms the foundation of the *General Environmental Duty*.

The *General Environmental Duty* requires all Victorians to reduce risks of harm to human health and the environment from pollution and waste.

Considerations

Analysis of monitoring data indicates that many areas across the Wimmera are not consistently meeting *Environment Reference Standard* or SEPP (Waters) environmental quality objectives. However, water quality cannot be assessed in all areas, as sufficient monitoring data is not available everywhere.

Waterways for interim water quality targets

This Strategy identifies waterways where interim water quality targets are desirable and outlines outcomes and actions in its *Implementation Plan* to address threats to water quality. Proposed sites for setting interim water quality targets for Barringgi Gadyin (Wimmera River) locations are detailed in Table 6.

Monitoring data is available near these sites from permanent gauges, supplemented by monitoring by Wimmera CMA for the Horsham and Dimboola sites.

Interim water quality targets will be set by 2030.



Works underway in an upper catchment waterway to reduce sediment movement and impacts downstream.

Table 6. Priority sites for interim water quality targets.

Priority site	Waterway type	Pollutants of concern and their main sources	Broad types of activities that can reduce impacts
Barringgi Gadyin (Wimmera River) at Glenorchy	Rural	Sediment and nutrients from erosion in up-stream tributaries.	Actions to minimise erosion and sediment/nutrient transport from upstream tributaries, including: • Riparian protection. • Structures to reduce highly eroding sites. • Supporting landholders to maintain groundcover on neighbouring paddocks, via education and research activities.
Barringgi Gadyin (Wimmera River) at Horsham weir pool	Urban	Urban stormwater runoff. Sediment and nutrients from erosion in up-stream tributaries.	Actions to minimise erosion and sediment/nutrient transport from upstream tributaries, including: • Riparian protection. • Structures to reduce highly eroding sites. • Supporting landholders to maintain groundcover on neighbouring paddocks, via education and research activities. Monitoring point source pollution from industrial areas and new industry and acting where necessary. Water sensitive urban design to minimise impacts from urban stormwater runoff.
Barringgi Gadyin (Wimmera River) at Dimboola weir pool	Rural	Urban stormwater runoff. Sediment and nutrients from erosion in up-stream tributaries. Saline groundwater intrusion upstream at Wail.	Actions to minimise erosion and sediment/nutrient transport from upstream tributaries, including: • Riparian protection. • Structures to reduce highly eroding sites. • Supporting landholders to maintain groundcover on neighbouring paddocks, via education and research activities. Monitoring point source pollution from industrial areas and new industry and acting where necessary. Water sensitive urban design to minimise impacts from urban stormwater runoff.

Next steps

The interim water quality targets will be developed in a management plan as part of an interim target setting process. In addition to setting targets, the management plan will list all partner and stakeholder activities that will directly address the drivers of poor water quality and other environmental influences associated with the risks to values.

Target development will consider factors including:

- Ecological values and water quality processes to set realistic targets.
- Feasible actions and resources to achieve targets.
- Priority of the site and significance of reducing ecological risks.
- Future land-use and climate change impacts.[38]

Progress on interim targets will be tracked through the *Monitoring, Evaluation, Reporting and Improvement Plan* for this Strategy.

Fire preparedness, response and recovery

Evidence shows that climate change is increasing the severity, frequency and geographic extent of fires in Victoria.[39] Fire regimes appear to be changing in the Wimmera's key water catchments in the *Wimmera Systems Special Water Supply Catchment Area*.

Waterways can experience declines in water quality, water yield and ecosystem health following catchment bushfires. Bushfires remove ground cover, increasing the risk of erosion and runoff during post-fire rainfall events, delivering higher loads of sediment and nutrients to rivers and streams. This influx can reduce water clarity, alter habitat and disrupt aquatic ecosystems.

Decomposing organic material may also cause short-term drops in dissolved oxygen, stressing or killing aquatic life. Elevated nitrogen and phosphorus levels from burned soils can further trigger harmful algal blooms, compounding water quality degradation and ecological impacts. In some forest types, postfire regeneration can reduce water yields, further stressing water supplies.

Lake Bellfield, for example, experienced water-quality issues following the 2006 Gariwerd (Grampians National Park) fires and the 2010-11 floods. Considerable investment was needed to address these problems so the lake could continue supplying water to the Wimmera Mallee Pipeline and Lake Fyans.

The 2024 Bayindeen fire burnt a large area of the Mount Cole State Forest within the Wimmera catchment. Fortunately, only light rainfall occurred in the months immediately following the fire. Had heavy rainfall occurred, it could have washed substantial amounts of sediment, ash and organic material into waterways, threatening aquatic life in the upper Barringgi Gadyin (Wimmera River) and reducing water quality further downstream, including in the Jeparit, Dimboola and Horsham weir pools. Such impacts could have compromised the important environmental, social, cultural and economic values these waterways provide. In response, GWMWater implemented extensive sediment control measures to protect Mount Cole Reservoir, a key water supply source for Ararat.

Vic Catchments, representing Victorian catchment management authorities, and supported by fire authorities and experts, has acknowledged that both the direct and indirect impacts of fire require a coordinated, whole-of-government and community approach to prevention, response and recovery.

Fire authorities recognise the need to adapt management practices to reduce the risks posed by large fires and respond to changes in fire behaviour influenced by climate change. This approach will need to balance a range of priorities including the protection of life and property.

Blue-green algae

Blue-green algae (cyanobacteria) are naturally occurring, but blooms can develop when conditions become unbalanced, typically when elevated nutrient levels, warm temperatures, sunlight and still water occur together. These outbreaks can produce harmful toxins, posing risks to human health, aquatic life and recreation, with significant social and economic impacts.

Blooms occur most often in summer and can persist into cooler months, leading to extended closures of lakes and rivers. This affects popular recreation sites, such as lakes Wallace, Charlegrark, Dock and Lonsdale, Green Lake, and weir pools such as Yarriambiack Creek at Warracknabeal. Sections of the Barringgi Gadyin (Wimmera River) are also vulnerable during drought, though managed water for the environment helps reduce the risk.

GWMWater coordinates monitoring and response under the *Regional Blue-Green Algae Coordination Plan*, working with local government, Parks Victoria, and the Department of Energy, Environment and Climate Action to protect public health and minimise impacts. The plan outlines roles, responsibilities and response protocols for local and regional outbreaks.

Climate change is expected to increase bloom frequency due to higher temperatures, reduced flows and more extreme weather. While treatments such as aerators, ultrasonic devices, floating wetlands and clay exist, most are costly, short-term or unsuitable for the large lakes and weir pools at risk of blue-green algae outbreaks in the Wimmera. Furthermore, chemical treatments can harm ecosystems.

Long-term solutions require continued research, stakeholder collaboration and integrated catchment planning to maintain water quality for supply, environmental health and recreation.

Water for the environment and drought refuge pools

Water for the environment is an important mechanism for implementing the Strategy, alongside other complementary actions. Water for the environment is water allocated and managed to support the health of rivers, wetlands and floodplains. It helps maintain water quality, sustain native plants and animals, and restore more natural flow patterns, where possible, to improve the health, resilience and long-term sustainability of aquatic ecosystems.

Considerable research, planning and monitoring and evaluation helps guide decisions about management of water for the environment, including environmental flow assessments, environmental water management plans, seasonal watering proposals and dry inflow contingency plans.

Climate change modelling for the Wimmera indicates that the region is likely to experience declining rainfall, reduced runoff to waterways, lower availability of water for the environment and increased temperatures and evaporation. These changes are expected to result in less frequent and lower-volume flows in rivers and wetlands, on average.[24; 31]

Maintaining and establishing drought refuges at sites with high environmental values is a key precautionary measure designed to help the Wimmera's water-dependent species and ecosystems cope with drought and a drying climate. This is particularly important when natural flows and water for the environment allocations are insufficient.

Maintaining drought refuges

Wimmera CMA is assessing the benefits, costs and feasibility of maintaining drought refuges in high-priority areas to help retain environmental values during drought and a changing climate. This work includes exploring opportunities to deliver water for the environment directly to suitable refuge sites using the region's extensive water-supply pipeline network.

Delivering water for the environment directly to these refuges via pipeline infrastructure may offer several important benefits:

- Maintaining habitat and supporting water-dependent species and ecosystems during dry periods.
- Sustaining source populations that can recolonise waterways when wetter conditions return.
- Preventing local extinctions of threatened and vulnerable species, such as platypus (*Ornithorhynchus anatinus*), river blackfish (*Gadopsis marmoratus*), western swamp crayfish (*Gramastacus insolitus*) and Glenelg spiny crayfish (*Euastacus bispinosus*).
- Enabling more efficient use of water for the environment by directing limited supplies to locations where it will have the greatest benefit.
- Ensuring water can reach priority sites that would not otherwise receive flows during periods of low natural flow or limited water for the environment allocations.

Using pipelines for watering is more expensive. The approach requires upfront investment to install the necessary infrastructure and involves water delivery costs.

The intent is for water to be delivered through pipelines on an as needed basis to respond to the ecological needs of species and the waterway system, while minimising costs. For example, it may be preferable to deliver water to refuges via pipelines during dry periods when the environmental values of refuge pools are at risk due to a lack of flow when natural flows and available water for the environment are insufficient.

Further investigation and adaptive management are required to assess the long-term feasibility of this initiative and ensure that efficient and effective drought refuge management can achieve desired outcomes.

If the Wimmera experiences significant climate change in the future, such as modelled high or worst-case scenarios, many waterways may shift toward systems with much lower annual average streamflow. They may function more often as "chains of ponds," connecting only for reduced periods during major rainfall or storm events or when water for the environment is delivered.

In this situation, particularly during extended, severe dry conditions, these sites may no longer act as reliable drought refuges, sustaining a range of species until wet conditions return. Instead, they may become the only remaining viable aquatic habitats in an increasingly dry landscape, where other refuge pools have dried out or are too small to support many species.

There remains uncertainty about when and how these changes will unfold and how extensive they might be. Research and adaptive management will be essential to help these systems adjust over time and inform future management approaches.

Given this uncertainty, adopting a precautionary approach is important to support ecosystem resilience, guide transition to new conditions, and protect waterway features valued by the community and First Nations Peoples. Maintaining drought refuge pools is a key part of this precautionary approach.

Assessing feasibility

Feasibility investigations will be important when establishing drought refuge sites. These assessments help ensure that investment in drought refuge management can viably support long-term desired outcomes. Feasibility considerations may include:

- Cost–benefit analysis.
- Likelihood of continuing to support waterway values under climate-change scenarios over the long-term.
- Whether water for the environment at drought refuge sites is likely to sustain target species and ecological values over the long-term given modelling of future streamflow projections.

Complementary measures

Management measures will be required at drought refuge sites to complement water for the environment and support aquatic species, ecosystems and other important site values such as cultural heritage. For example, complementary actions may be needed to maintain site integrity and reduce risks associated with stock access, water extraction for stock and domestic use, invasive species, including carp, and recreational pressure, such as fishing. Threats and management measures should be managed on a site-by-site basis.

Site-specific management plans should aim for a holistic approach to drought refuge management, ensuring water for the environment is supported by broader protective actions.

Lower Barringgi Gadyin (Wimmera River)

The lower Barringgi Gadyin (Wimmera River) is a Victorian Flagship Waterway and a priority area under this Strategy due to its Heritage River status and significant environmental, cultural, social and economic values. It is highly vulnerable to climate change, reduced flows and declining water quality.

To help protect aquatic ecosystems during extended dry periods, Wimmera CMA has planned four drought refuge pools in the lower Barringgi Gadyin (Wimmera River), via infrastructure to connect these sites to the Wimmera Mallee Pipeline.

During dry conditions, reduced flows can allow saline groundwater to enter the river, affecting water quality and threatening aquatic life. While water for the environment can help maintain habitat and water quality, delivering water to the lower river requires large volumes of water and may not always be feasible. Directly supplying drought refuges via pipeline provides a more efficient way to maintain critical habitat during extreme dry conditions.

Mount Cole Creek

The East Grampians Rural Pipeline has created a new opportunity to support drought refuge pools in flow-stressed Mount Cole Creek. Infrastructure to deliver pipeline water to these refuges will help key aquatic species persist through extended dry conditions, including western swamp crayfish (*Gramastacus insolitus*), obscure galaxias (*Galaxias oliros*), southern pygmy perch (*Nannoperca australis*) and flatheaded gudgeon (*Philypnodon grandiceps*).[40; 41]

Potential future drought refuges

Wimmera CMA is investigating opportunities to establish additional drought refuges in the MacKenzie River and Burnt Creek. This work includes assessing the feasibility and benefits of using pipeline water to protect high-value ecosystems and species during extreme dry conditions.

Wimmera CMA will work with water agencies and other stakeholders to ensure future water supply infrastructure considers opportunities to support ecological values and maintain drought refuges at priority sites during dry conditions.

Plants, animals and ecosystems

Wimmera waterways support interconnected systems made up of plants, animals and ecological processes that depend on one another. Every aquatic animal, from fish, birds and mammals to insects, mussels and crayfish, along with aquatic and riparian vegetation, are vital for maintaining the health, function and resilience of these ecosystems.

First Nations Peoples have long understood and articulated this interconnectedness. Their knowledge teaches that all elements of Country, including water, land, plants, animals and people, are part of a single living system, where the wellbeing of each species contributes to the wellbeing of the whole.

Within this broader context, many of the Strategy's desired outcomes focus on improving waterway health and habitat to support the wide range of species and ecosystems that rely on Wimmera waterways.

While this holistic approach is central to the Strategy, some species are prioritised for more targeted action over the 10-year Strategy, particularly threatened or culturally significant native species, such as platypus (*Ornithorhynchus anatinus*) and river blackfish (*Gadopsis marmoratus*), that were once widespread, but are now at risk of local extinction. This also includes culturally significant species, such as freshwater mussels, crayfish and birdlife, and species valued by the Wimmera community, such as native fish, where it is considered possible to make a meaningful difference to their populations or where further information is needed to guide effective management.

Native fish

Native fish are vital to the Wimmera's aquatic ecosystems and cultural heritage. The region supports a range of freshwater fish, including river blackfish, (*Nannoperca australis),* obscure galaxias (*Galaxias oliros),* flat-headed gudgeon (*Philypnodon grandiceps)*, Australian smelt (*Retropinna semoni*) and carp gudgeon *(Hypseleotris spc*).

Other species present include golden perch *(Macquaria ambigua)*, silver perch *(Bidyanus bidyanus*), eel-tailed catfish *(Tandanus tandanus)* and Murray cod (*Maccullochella peelii)*, which have been widely stocked to support recreational fishing.

Wimmera waterways also support common yabbies *(Cherax destructor),* floodplain mussels *(Velesunio ambiguous)* and threatened freshwater crayfish such as western swamp crayfish (*Gramastacus insolitus)* and Glenelg spiny crayfish (*Euastacus bispinosus*). Barengi Gadjin Land Council identified freshwater crayfish and mussels as priority species of high cultural significance.

There is a long history of fish stocking across the region, particularly in the Barringgi Gadyin (Wimmera River) and recreational lakes. Freshwater catfish are the only stocked species thought to maintain a self-sustaining population in the Barringgi Gadyin (Wimmera River).

First Nations Peoples recognise the cultural significance of native fish and are important partners in conservation and recovery programs.

Threats

The *Wimmera Native Fish Management Plan* identifies declining stream flows, reduced connectivity, invasive species and habitat loss as the major threats to native fish populations. Significant declines occurred during the Millennium Drought, when several species disappeared from large parts of their former range.

The plan notes that improved waterway condition, riparian restoration and delivery of water for the environment since this major drought have created opportunities to support recovery and improve the resilience of native fish populations.[(42)]

River blackfish recovery

River blackfish were once widespread throughout the region but survive mainly in the MacKenzie River. Their recovery remains a priority for native fish management in the Wimmera.

Guided by the *Wimmera Native Fish Management Plan*, recovery actions include habitat restoration, translocations, captive-breeding research and supporting habitat by providing water for the environment. These efforts benefit other native species, including southern pygmy perch, obscure galaxias and threatened crayfish.

Introduced fish

Introduced fish in the Wimmera include stocked native species outside their natural range, such as golden perch, silver perch, freshwater catfish and Murray cod, which are valued recreational fishing species. Non-native fish species present include carp, gambusia, tench, goldfish, trout and redfin, with trout and redfin also popular among anglers.

Several introduced species negatively impact native fish through competition, predation and habitat degradation. Carp and gambusia are declared noxious aquatic species under Victorian legislation and must not be returned to the water if caught.

Under this Strategy, and its supporting *Implementation Plan* and *Monitoring, Evaluation, Reporting and Improvement Plan*, introduced fish will be monitored and managed in priority areas to protect native fish populations and other high-value waterway assets, in collaboration with partner agencies including the Victorian Fisheries Authority.

Desired outcome

The 10-year medium-term desired outcome for Wimmera fish is:

- **Key water-dependent native species are supported in waterways that provide suitable habitat, including during dry conditions.**



Removing invasive carp from Burnt Creek refuge pools.

Birdlife and Wimmera waterways

Wimmera waterways provide critical habitat for waterbirds and shorebirds, attracting large numbers during seasonal wetting and drying cycles and after floods. Many species are threatened or migratory, protected under international agreements, such as the *Japan-Australia Migratory Bird Agreement*, *China-Australia Migratory Bird Agreement* and *Republic of Korea-Australia Migratory Bird Agreement*. These include Palaearctic migrants like red-necked stints (*Calidris ruficollis*) and sharp-tailed sandpipers (*Calidris acuminata*), which travel from the northern hemisphere.

Birds move across the landscape to where water is present and waterway conditions are suitable, with the partial filling of Gurru (Lake Hindmarsh) in 2022 a prime example. Notable species include endangered freckled duck (*Stictonetta naevosa*), blue-billed duck (*Oxyura australis*), Australasian shoveler (*Spatula rhynchotis*) and brolga (*Grus rubicunda*), alongside abundant species such as grey teal (*Anas gracilis*), black swan (*Cygnus atratus*), pelicans and cormorants.

River and wetland riparian areas are equally important, offering nesting hollows, dense cover and food sources for honeyeaters, wrens, robins, parrots and cockatoos, including the vulnerable regent parrot (*Polytelis anthopeplus*) and endangered south-eastern red-tailed black cockatoo (*Calyptorhynchus banksii graptogyne*). These areas also support diverse insects and invertebrates, attracting raptors, kookaburras and other predators.

Priority habitats in the Wimmera include the Barringgi Gadyin (Wimmera River) system, Gurru (Lake Hindmarsh), Ngalpakatia/Ngelpagutya (Lake Albacutya), the Natimuk-Douglas Chain of Lakes, Dock Lake, ephemeral wetlands in the south-west, some large lakes and headworks storages. These areas provide important bird habitat when holding water.

Threats

Waterbirds face a range of threats that are reducing habitat quality and water availability. The main threats include:

- Habitat loss, including nesting, foraging and breeding habitat.
- Reduced water availability.
- Invasive species.
- Altered fire regimes.
- Disease, including avian influenza.
- Climate change.
- Wetland degradation.

Desired outcome

The 10-year medium-term desired outcome for birdlife is:

- **Key water-dependent native species are supported in waterways that provide suitable habitat, including during dry conditions.**

Under this Strategy and its supporting *Implementation Plan* and *Monitoring, Evaluation, Reporting and Improvement Plan*, birdlife associated with waterways will be supported through the targeted delivery of water for the environment to priority areas, including Dock Lake, the Barringgi Gadyin (Wimmera River) and wetlands connected to the Wimmera Mallee Pipeline. Watering actions will be guided by environmental water management plans and seasonal watering proposals. Complementary on-ground works will also be undertaken to enhance nesting, roosting and feeding habitat, including riparian revegetation and regeneration, pest plant and animal control, stock exclusion fencing and improved grazing management.

Platypus

The platypus (*Ornithorhynchus anatinus*), listed as vulnerable in Victoria, has a long connection with Wimmera communities, including First Nations Peoples. The Wimmera population is critically small, estimated at around 25 individuals, with low genetic diversity and confined to about 15 kilometres of the MacKenzie River in Gariwerd (Grampians National Park). Once widespread across the Barringgi Gadyin (Wimmera River) and tributaries, numbers collapsed during the Millennium Drought due to drying waterways.[43]

Surveys confirm that platypus persist in the MacKenzie River, with juvenile captures between 2022 and 2025 offering hope for recovery. Occasional anecdotal sightings in waterways including the Barringgi Gadyin (Wimmera River), Mount Cole Creek and lower MacKenzie River remain unverified.

Figure 18 shows the verified known location of platypus in the Wimmera in 2026.

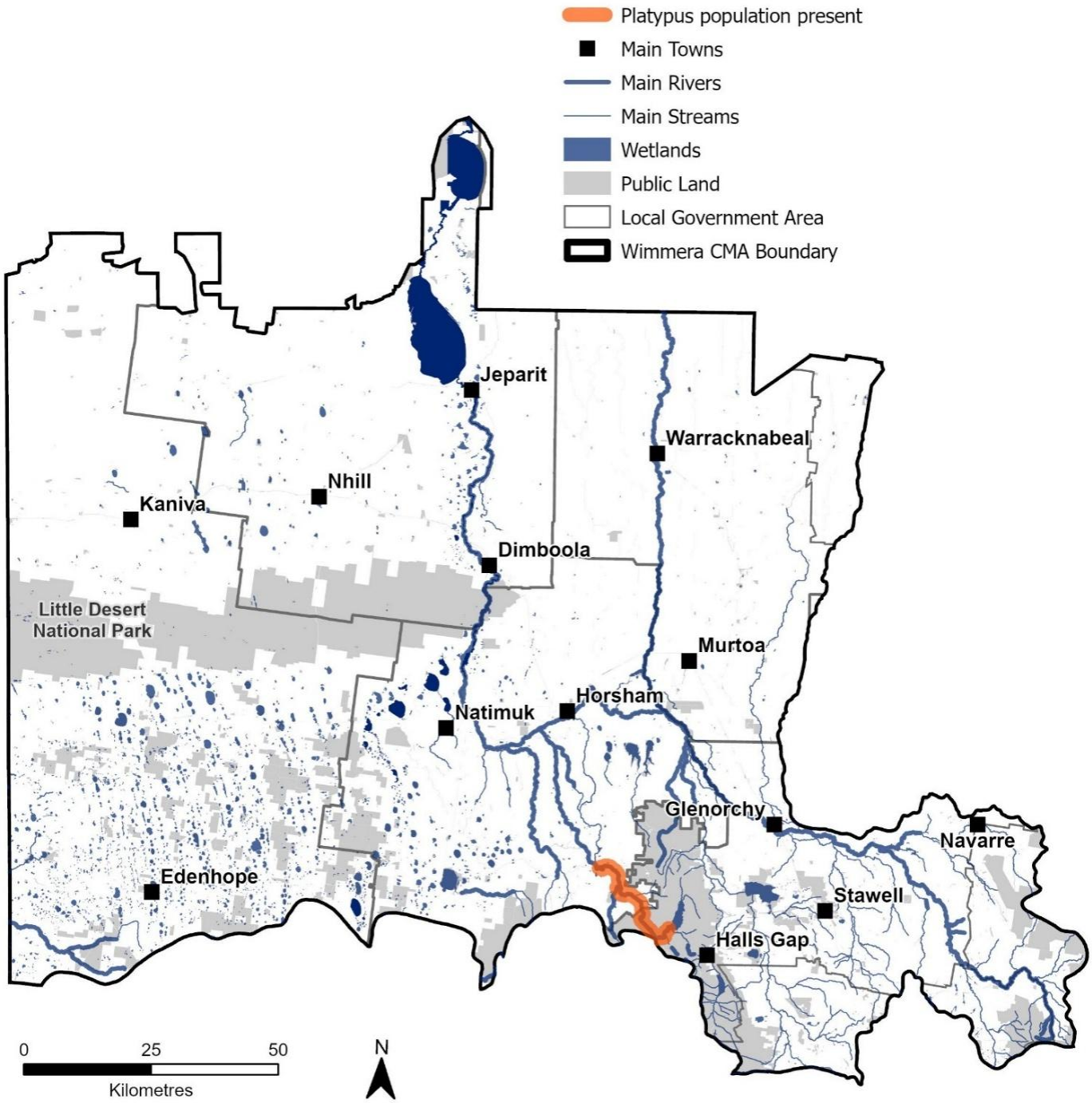


Figure 18. Platypus population in the Wimmera.

Actions to care for platypus in the MacKenzie River, such as delivering water for the environment and riparian restoration, will also benefit other threatened species including the Glenelg spiny crayfish (*Euastacus bispinosus*), river blackfish (*Gadopsis marmoratus*), southern pygmy perch (*Nannoperca australis*), western swamp crayfish (*Gramastacus insolitus*) and obscure galaxias (*Galaxias oliros*).

Threats

Platypus decline in the Wimmera is driven by reduced surface water, vegetation clearing, water extraction and degraded habitat. The main threats include:

- Low water availability from reduced rainfall and rising demand for consumptive water supply.
- Fox predation.
- Illegal yabby traps.
- Littering.
- Altered flow regimes in highly regulated waterways.
- Barriers, such as weirs and dams, restricting movement.
- Low population size and genetic diversity.
- Bushfire risk, which can degrade water quality through sediment and ash runoff.

Desired outcome

The 10-year medium-term desired outcome for platypus is:

- **Key water-dependent native species are supported in waterways that provide suitable habitat, including during dry conditions.**

Wimmera CMA is preparing an evidence-based *Wimmera Platypus Management Plan* that identifies barriers to platypus population growth and outlines actions to support their long-term conservation. The Plan will focus on:

- Protecting the existing core platypus population in the MacKenzie River.
- Supporting expansion of the existing population in connecting waterways, where feasible.
- Establishing a second population to improve long-term viability.
- Supporting delivery of the region's 10-year outcome for platypus as a priority water-dependent native species.[43]

Habitat assessment and restoration works are also underway to improve riparian, floodplain and aquatic habitats in and around the Horsham township, supporting platypus habitat, movement and breeding.



A platypus caught during monitoring in the MacKenzie River



PART E

IMPLEMENTATION, MONITORING & REVIEW

VICTORIA State Government Australia

Wimmera CMA

IMPLEMENTATION

The Strategy will be delivered through a 10-year *Implementation Plan* (the Plan), which translates the strategic priorities identified in this document into practical, on-ground action.

The Plan will set out the specific actions required to progress the Strategy's outcomes, with a focus on the high-priority areas identified for each outcome. A key component of the Plan will be a series of management programs designed to achieve measurable environmental, cultural and community benefits in line with the outcomes.

Management programs will be organised around the priority areas identified within each local area. In addition, whole-of-catchment actions will be identified where outcomes are regional in nature or extend beyond individual local areas.

Each program of action will identify:

- **Water for the environment** actions, such as planning and delivery of water to priority areas.
- **On-ground works**, such as fencing to exclude stock from riparian areas, revegetation to improve habitat, habitat restoration, erosion control, water quality improvement projects and cultural initiatives.
- **Supporting activities**, including monitoring, assessments, investigations, education and community engagement.
- **The level of effort required** to achieve desired outcomes, based on anticipated funding, while also identifying additional priority actions that could be undertaken if further funding becomes available.
- **Roles and responsibilities**, identifying lead organisations and groups as well as opportunities for partnerships and collaborative delivery with First Nations Peoples, local communities, agencies and landholders.
- **Links to other plans or strategies**, including the *Wimmera Regional Catchment Strategy*, environmental water management plans, flagship waterway plans, waterway action plans, *Water is Life* nation statements, Country plans and local government plans and strategies.
- **Monitoring and adaptive management requirements**. A separate *Monitoring, Evaluation, Reporting and Improvement Plan* will provide the framework for evaluating progress and adapting management approaches to changing conditions, including climate impacts.
- **Investment guidance**, directing government and partner funding towards the highest-priority projects and locations.

A coordinated and collaborative approach underpins the Plan, recognising that many waterways extend beyond the Wimmera CMA boundary and therefore require shared management. Key examples include Yarriambiack and Dunmunkle Creeks in the northeast, Mosquito Creek and other streams that flow west into South Australia, and the Barringgi Gadyin (Wimmera River)'s terminal lakes system, including Wirrengren Plain in the northern part of the catchment.

Achieving the outcomes outlined in this Strategy will depend on strong partnerships across jurisdictions and sectors. This includes collaboration with neighbouring catchment management authorities, particularly Mallee CMA, South Australian agencies and organisations, First Nations Peoples, landholders and community groups. Together, these partnerships will support a coordinated approach to managing and improving the region's waterways.

The *Implementation Plan* will be reviewed and updated regularly to ensure it remains current, effective and responsive to emerging issues, new knowledge and changing environmental conditions.

PARTNERS

The Strategy was developed by and will be implemented by waterway managers including Wimmera CMA in partnership with First Nations Peoples, local communities, private landholders, relevant state and regional agencies, and other key stakeholders. Table 7 identifies implementation partners and their relevant roles and responsibilities.

The specific responsibilities of individual organisations will be further defined in the Strategy's *Implementation Plan*. This approach supports collaborative, efficient and effective delivery of services while minimising duplication of effort.

Table 7: Wimmera Waterway Strategy implementation partners.

Type of partnership	Partners	Relevant waterway roles, responsibilities and interests
First Nations	Registered Aboriginal Parties: • Barengi Gadjin Land Council Aboriginal Corporation • Eastern Maar Aboriginal Corporation	First Nations communities have a deep connection with waters and waterways which are essential to Spiritual and Cultural practices, as well as environmental management, food production, language and Lore (law). Water connects People and communities to land, and to each other.(44) Barengi Gadjin Land Council Aboriginal Corporation and Eastern Maar Aboriginal Corporation are Traditional Owner Groups legally recognised under the *Aboriginal Heritage Act 2006*, with responsibilities for managing and protecting Aboriginal Cultural Heritage on Country that overlaps with specific areas of the Wimmera CMA region, including waterways. Barengi Gadjin Land Council Aboriginal Corporation represents Traditional Owners from the Wotjobaluk, Jaadwa, Jadawadjali, Wergaia and Jupagulk Peoples of the Wotjobaluk Nations, who were recognised in a 2005 Native Title Consent Determination, the first in south-eastern Australia. Eastern Maar Aboriginal Corporation represents the Eastern Maar People of south-west Victoria and manages their rights and interests.
Australian Government agencies and statutory authorities	Murray-Darling Basin Authority	The Murray-Darling Basin Authority was established under the Commonwealth *Water Act 2007* as an independent, expertise-based statutory agency. The Wimmera Basin is a southern section of the greater Murray-Darling Basin. The Act outlines the primary roles of the Authority: • Preparing and reviewing the *Murray-Darling Basin Plan (Basin Plan).* • Measuring, monitoring and recording the quality and quantity of the Basin's Water resources. • Supporting, encouraging and conducting research and investigations about the Basin's water resources. • Developing equitable and sustainable use of Basin water resources. • Disseminating information about the Basin's water resources. The *Wimmera Waterway Strategy* complements and informs the Wimmera's contribution to the *Basin Plan* and contributes to meeting Victoria's obligations under the plan.

Type of partnership	Partners	Relevant waterway roles, responsibilities and interests
Australian Government agencies and statutory authorities	Australian Government Department of Climate Change, Energy, the Environment and Water	Key responsibilities include: • Designating Australian sites for addition to the List of Wetlands of International Importance (*Ramsar List*). • Leading the development of national guidance and approaches on implementing the Ramsar Convention in Australia. • Participating in partnerships and agreements that seek to protect migratory species and their flyways. • Working with state and territory governments to promote the conservation of Ramsar sites, wise use of all wetlands and review Ramsar wetland site condition. The Wimmera includes the Ngalpakatia/Ngelpagutya (Lake Albacutya) Ramsar Site and contains waterways visited by migratory species.
	Commonwealth Environmental Water Holder	The Commonwealth Environmental Water Holder is appointed under the Commonwealth *Water Act 2007* to manage the Commonwealth's environmental water holdings and protect and improve the environmental assets of the Murray-Darling Basin. The Commonwealth Environmental Water Holder: • Makes decisions about the use of Commonwealth water holdings, including providing water to the Victorian Environmental Water Holder for use in Victoria. • Liaises with the Victorian Environmental Water Holder to ensure coordinated use of water for the environment in Victoria. • Reports on management of Commonwealth water holdings. In the Wimmera, the Commonwealth Environmental Water Holder is an environmental water holder of an entitlement for the Barringgi Gadyin (Wimmera River).
	Australian Government Department of Agriculture, Fisheries and Forestry	Key responsibilities include: • Developing policy on sustainable fisheries and aquatic ecosystems, including impacts on waterways. • Advising government on environmental impacts of fishing and industry activities. • Leading biosecurity for aquatic systems. • Contributing to national water and natural resource policy. • Providing research and data on water use, pests and impacts relevant to catchment and industries.

Type of partnership	Partners	Relevant waterway roles, responsibilities and interests
Victorian Government agencies and statutory bodies	Catchment Management Authorities	Wimmera CMA, along with nine other Catchment Management Authorities, was established in 1997 by the Victorian Government, under the *Catchment and Land Protection Act 1994*, with the aim of creating a whole of catchment approach to natural resource management in the state. The primary goal of Victorian Catchment Management Authorities is to ensure the protection and restoration of land and water resources, the sustainable development of natural resource-based industries and the conservation of natural and cultural heritage. Under Part 10 of the Victorian *Water Act 1989,* Catchment Management Authorities are designated with specific responsibility for the management of waterways, drainage and floodplains. The range of functions that Catchment Management Authorities undertake include: • Developing regional waterway Strategies and associated action plans. • Developing and implementing work programs. • Authorising works on waterways, and acting as a referral body for planning applications, licences to take and use water and construct dams, for water use and other waterway health issues. • Identifying regional priorities for water for the environment and facilitating water delivery. • Providing input into water allocation processes. • Developing and coordinating regional floodplain management plans.
	Department of Environment, Energy and Climate Change	The Department of Environment, Energy and Climate Change is a Victorian Government department that develops and implements statewide policy for waterway management, including water for the environment and water resource allocation, and oversees Victoria's compliance with international and national water obligations and intergovernmental agreements, such as the *Murray-Darling Basin Plan* and *Ramsar Convention* for wetlands. The department also develops and implements related policy and programs for Crown frontage management, biodiversity, biosecurity, climate action and emergency management.
	Environment Protection Authority Victoria	The Environment Protection Authority Victoria is Victoria's environmental regulator. As an independent statutory authority under the *Environment Protection Act 2017*, Environment Protection Authority Victoria's regulatory role is to prevent and reduce harm to human health and the environment from pollution and waste. The authority uses a range of tools under the Act to deliver improved outcomes for Victorian communities and the environment. These include the provision of guidance on how to minimise harm to waterways from pollution and waste.

Type of partnership	Partners	Relevant waterway roles, responsibilities and interests
Victorian Government agencies and statutory bodies	Parks Victoria	Parks Victoria manages parks and conservation reserves in which many waterways are located, including national, state, wilderness, metropolitan and regional parks, marine national parks and sanctuaries and conservation and natural features reserves. They play a role in vegetation protection from fire. They create, manage and maintain visitor sites and manage a range of assets, including visitor facilities and access points, piers and jetties, sporting facilities and navigation aids, many of which are associated with waterways.
	Victorian Environmental Water Holder	The Victorian Environmental Water Holder is appointed under the *Water Act 1989* to manage Victoria's environmental water entitlements. The Victorian Environmental Water Holder works with waterway managers, the Commonwealth Environmental Water Holder, the Murray-Darling Basin Authority, storage operators and land managers to ensure water for the environment entitlements are used to achieve the best environmental outcomes.
	Fishing, Hunting and Outdoor Victoria	Fishing, Hunting and Outdoor Victoria administers the *Fisheries Act 1995*. It is an independent statutory authority established to effectively manage Victoria's fisheries resources – including licensing for fishing, assessing fish stocks, and stocking fish for conservation and recreational fishing. The *Fishing, Hunting and Outdoor Victoria Act 2026* objective is to promote outdoor recreation, including fishing, and to work with land, water, waterway and coastal managers to improve access to public land for outdoor recreation, and fisheries and recreational boating activities.
	Trust for Nature	Responsible for helping people protect biodiversity on private land, including wetlands and riparian areas. This includes conservation covenants, land management stewardship, Revolving Fund program, land ownership and management and assistance in arranging native vegetation offsets.

Type of partnership	Partners	Relevant waterway roles, responsibilities and interests
Water Corporations	Grampians Wimmera Mallee Water Corporation (GWMWater)	Water corporations in Victoria are established under the *Water Act 1989* and provide a range of water services to customers within their service areas. GWMWater Corporation provides a combination of domestic and stock services, bulk water supply services and urban water and wastewater services in the Wimmera region. Their link with the Strategy includes: • Broader catchment health and improved water quality links to water supply. • Storage operator role in managing water for the environment. • Management of large storages and surrounding recreational areas.
Local Government	Horsham Rural City Ararat Rural City Pyrenees Shire Hindmarsh Shire Northern Grampians Shire West Wimmera Shire Yarriambiack Shire Buloke Shire	Councils are involved in the management of waterways in Victoria through their role as responsible planning authorities, managers of stormwater drainage and onsite domestic wastewater systems, users of integrated water systems, land managers, emergency management bodies, litter authorities and supporters of community groups. Local government have the following roles and responsibilities regarding waterways: • Incorporate waterway restoration and catchment management objectives, priorities and actions into statutory planning processes. • Undertake floodplain management and flood warning in accordance with the *Victoria Flood Management Strategy*. • Develop and implement integrated water management plans. • Regulate on-site domestic wastewater systems. • Manage waterway lands as committees of management under the Victorian *Crown Land (Reserves) Act 1978*. • Manage rural drainage schemes where appropriate. • Prepare municipal emergency management plans, including for the protection of environmental assets that consider the cultural, biodiversity and social values, including impact on waterways. • As a litter authority, oversee litter enforcement within the local government area. • Work with local community groups and individuals on the amenity and social values of waterways.

Type of partnership	Partners	Relevant waterway roles, responsibilities and interests
Community	Community groups and volunteers	Community and volunteer groups and programs such as Landcare, Waterwatch, 'Friends of' groups and recreational user groups participate in regional planning and priority setting, the implementation of regional works programs, monitoring waterway condition and undertaking projects in priority areas. Community groups undertake voluntary advocacy and on-ground management activities. They provide essential local insights and knowledge to inform waterway management priorities and actions. Volunteers also contribute through citizen science programs, such as Waterwatch.
	Landcare Networks including: • Horsham and District Landcare Network • Project Platypus • Yarrilinks Landcare Network	Landcare Networks are community-based organisations that provide support to Landcare groups and landholders in their local areas through leadership, planning and provision of resources.
	Committees of management of Crown land reserves	Committees of management of Crown land reserves are voluntary committees whose role under the Victorian *Crown Land Reserves Act 1978* is to "manage, improve, maintain and control" Crown land reserves that have been set aside for the benefit of the people of Victoria. Reserves support amenities and uses such as public halls, showgrounds, gardens, bushland, caravan parks, foreshores, sporting facilities, playgrounds, swimming pools, walking tracks and rail trails.
	Landholders	Landholders are vital to successful implementation of this Strategy. Many waterway restoration works occur on privately owned land or affect areas that require private cooperation, and land management practices have a vital role in catchment health. Under the Victorian *Catchment and Land Protection Act 1994*, landholders are required to: • Protect water resources. • Avoid causing or contributing to land degradation which causes or may cause damage to land of another owner. • Conserve soil. • Eradicate regionally prohibited weeds and prevent the growth and spread of regionally controlled weeds. • Prevent the spread of, and as far as possible eradicate, established pest animals.
	Individuals	Community members have an important role in protecting waterway health by avoiding and reporting pollution, reducing resource consumption, contributing to environmental management processes and managing activities to prevent harm to the environment in accordance with the *General Environmental Duty* under the Victorian *Environment Protection Act 2017.*

Type of partnership	Partners	Relevant waterway roles, responsibilities and interests
Community	Industry	Industry can assist in the protection and improvement of waterways by managing its activities in accordance with ecologically sustainable development principles and actively reducing the environmental impacts of its activities. Industry has obligations to prevent harm to the waterway environment under the Victorian *Environment Protection Act 2017*. Industry can assist in the maintenance and improvement of waterway condition by managing its activities to prevent harm to the environment in accordance with the *General Environmental Duty*, by staying informed of best practices and guidance to minimise harm and ensure good corporate citizenship.
Research organisations	Commonwealth Scientific and Industrial Research Organisation Arthur Rylah Institute for Environmental Research One Basin Cooperative Research Centre Universities Ecological contractors	Continue to improve the state of knowledge for waterway management and provide advice to continue to inform adaptive management, particularly considering climate change.
Not-for-profit organisations	Conservation Volunteers Australia	Recruits and volunteers around Australia and across the world to support participation in diverse projects to protect and enhance the natural environment.
	Greening Australia	Engages the community in vegetation management to protect and restore the health, diversity and productivity of Australian landscapes.
	Landcare Victoria Incorporated	Independent representative body for Landcare in Victoria. Exists to secure increased recognition, resourcing and support for Landcare. Serves the broader Landcare community within Victoria and represents paid members.

MONITORING, EVALUATION AND ADAPTIVE MANAGEMENT

Monitoring, evaluation, reporting and improvement (MERI) is a structured approach for tracking progress, assessing effectiveness and guiding continuous improvement in delivering strategic outcomes. It ensures accountability and transparency by monitoring activities, evaluating results, reporting findings and applying lessons learned to improve future planning and implementation.

For the Strategy, MERI is important for:

- **Demonstrating progress** toward achieving regional waterway outcomes.
- **Supporting adaptive management** by identifying how improvements have delivered strategic outcomes.
- **Providing accountability** for public investment and government obligations.
- **Sharing lessons and best practices** to strengthen waterway management across Victoria and the Wimmera.

Purpose of MERI

The primary purpose of MERI is to evaluate progress toward achieving outcomes and to improve the effectiveness of activities delivered through the Strategy.

MERI is also essential for:

- **Accountability and transparency**, communicating how resources are used to achieve outcomes, ensuring public expenditure and government obligations are delivered responsibly.
- **Improving waterway management** policy and practice by:
  - Evaluating the effectiveness of management actions.
  - Understanding external influences on long-term outcomes to inform assumptions.
  - Learning from successes, challenges and failures.
  - Sharing lessons and best practices through reporting and other opportunities.

Key principles

The key principles that will guide the MERI for the Strategy have been developed from learnings from reviews of MERI processes used in previous Victorian regional waterway strategies, and other CMA strategies and plans. They are:

Integrate MERI throughout the Strategy's lifecycle

- Develop a clear MERI plan at the start of Strategy implementation to ensure outcomes can be measured and tracked.
- Maintain MERI's focus through regular reviews, including mid-term and final evaluations, to support adaptive management and corporate knowledge.
- Use external expertise at key stages and build internal capability in evaluation.

Align with existing monitoring and evaluation processes

- Coordinate with other frameworks to avoid duplication and create efficiencies.
- Draw on relevant programs as evidence sources, focusing on priority areas like Flagship Waterways and formal obligations. Examples include Ngalpakatia/Ngelpagutya (Lake Albacutya) Ramsar Site monitoring, Lower Wimmera Flagship project, *Wimmera Regional Catchment Strategy* and environmental water management plans.

Collaborate and communicate

- Work with partners and First Nations Peoples, where appropriate, ensuring data sovereignty and culturally appropriate knowledge management.
- Tailor reporting and communication to meet the needs of diverse audiences, including staff, boards, landholders, agencies and the community.

MERI Plan for the Strategy

The MERI Plan will provide a clear framework for tracking progress, assessing effectiveness and informing adaptive management throughout the life of the Strategy. It will:

- Define the objectives of MERI, its coverage, intended audiences and any limitations.
- Outline evaluation methods and timing, including formal mid-term (5-year) and final (10-year) reviews, supported by regular, less formal evaluations to guide adaptive management.
- Specify responsibilities for monitoring, evaluation, reporting and improvement activities.
- Document how implementation will lead to desired outcomes, including assumptions and linkages between inputs, activities and outcomes.
- Establish outcome indicators to define what needs to change and the measures required to track progress, incorporating scientific information, cultural knowledges and community knowledge, where appropriate.
- Detail monitoring methods, timing and data sources. Monitoring will be targeted to critical evaluation questions and priority areas, such as Ramsar sites, flagship waterways and formal obligations, and aligned with existing programs to avoid duplication.
- Identify key evaluation questions framed around assessing the Strategy's impact, appropriateness, efficiency, effectiveness and legacy, balancing rigor with practicality and resource constraints.
- Identify key knowledge gaps to support adaptive management and ongoing improvement.
- Specify governance arrangements and mechanisms for embedding continuous review and improvement.
- Identify processes for reporting MERI results and findings to ensure clear communication, accountability and transparency.

The MERI Plan will ensure that progress toward outcomes is measurable, transparent and adaptable, supporting continuous improvement in waterway management.



River blackfish monitoring in the MacKenzie River.

Knowledge gaps and adaptive management

Effective waterway management relies on a sound understanding of environmental, social, cultural and economic values, and the processes that influence them. While a substantial knowledge base exists for the Wimmera region, important uncertainties remain. These uncertainties can influence the effectiveness of management actions, the achievement of desired outcomes and the region's ability to respond to emerging challenges, such as climate change.

The Strategy adopts an adaptive management approach, recognising that knowledge will continue to evolve over time. The Strategy's *Monitoring, Evaluation, Reporting and Improvement Plan*, and other supporting documents, including Flagship waterway MERI plans, identify the assumptions and uncertainties underpinning the Strategy's program logics and outcomes framework. These documents identify priority knowledge gaps, investigations and research needs, including site-specific and issue-based priorities, and describe how new information will be incorporated into future planning, investment and management decisions. This approach enables knowledge priorities to be reviewed and refined over time as information becomes available and management needs evolve.

Guided by the *Monitoring, Evaluation, Reporting and Improvement Plan* for this Strategy, targeted investigations will be used to test key assumptions, improve understanding of waterway processes and management responses and support continuous improvement in decision-making.

At a strategic level, key knowledge themes relate to:

- **Climate change adaptation and resilience** – understanding how climate change, drought, altered flow regimes and extreme events may affect waterway values and the effectiveness of management approaches over time.
- **Waterway connectivity and ecological function** – improving knowledge of the processes that support healthy, connected aquatic ecosystems, including movement of water, sediment, nutrients and species across the landscape.
- **Waterway responses to management interventions** – improving understanding of how different management actions contribute to desired ecological, social and cultural outcomes, and the conditions under which they are most effective.
- **Species persistence and recovery** – understanding the habitat requirements, distribution, population trends and recovery potential of priority native species and ecological communities.
- **Water for the environment management** – strengthening knowledge of how water for the environment contributes to ecological, social, cultural and recreational outcomes and how delivery can be optimised under changing conditions.
- **Threat identification and prioritisation** – improving understanding of the location, severity and cumulative impacts of key threats, including erosion, sedimentation, salinity, invasive species and changing land use.
- **Cultural values and knowledge** – expanding understanding of First Nations knowledges, values and aspirations relating to waterways, and how these can inform waterway management and outcomes.
- **Community values and benefits** – improving understanding of how communities use, value and benefit from waterways, and how management actions influence these benefits.

REVIEW

Regular reviews are essential to ensure effective implementation and identify opportunities for improvement.

Wimmera CMA will coordinate two formal reviews of the Strategy guided by the *Monitoring, Evaluation, Reporting and Improvement Plan*:

1. **Mid-term Review – After 5 years in 2031:**
   This review will assess the Strategy's effectiveness and report on progress toward medium-term outcomes, where data and information are available. It will identify minor adjustments for immediate action and consider more substantial changes where needed, such as in response to major events like fire or flood. Outcomes, priorities and management approaches may be updated as required.
2. **Final Review – After 10 years in 2036:**
   This comprehensive review will evaluate the overall effectiveness of the Strategy at the end of its implementation period and provide recommendations for the future.

Both reviews will focus on adaptive management, ensuring the Strategy remains relevant and effective.

They will be undertaken in collaboration with First Nations Peoples and other stakeholder organisations and community groups.

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Appendix 1.

Legislation, policies and strategies informing the Strategy

The key legislation, policies strategies and agreements relevant to the Strategy at a regional, state, national and international level are:

Legislation

International Legislation

- *Commonwealth Biosecurity Act 2015*

National Legislation

- *Climate Change Act 2022*
- *Environment Protection and Biodiversity Conservation Act 1999*
- *Native Title Act 1993*
- *Water Act 2007*
- *Water Amendment Act 2008*

Victorian Legislation

- *Aboriginal Heritage Act 2006*
- *Catchment and Land Protection Act 1994*
- *Climate Change Act 2017*
- *Conservation, Forests and Lands Act 1987*
- *Crown Land (Reserves) Act 1978*
- *Environment Protection Act 2017*
- *Environmental Effects Act 1978 (and EE Act Ministerial Guidelines)*
- *Flora and Fauna Guarantee Act 1988*
- *Heritage Rivers Act 1992*
- *Land Act 1958*
- *Planning and Environment Act 1987*
- *Traditional Owner Settlement Act 2010*
- *Fisheries Act 1995*
- *Water Act 1989*

Policies, strategies and agreements

International

- *China-Australia Migratory Bird Agreement* (1988)
- *Convention on Biological Diversity* (1992)
- *Convention on the Conservation of Migratory Species* (Bonn Convention) (1979)
- *Japan-Australia Migratory Bird Agreement* (1981)
- *Kunming-Montreal Global Biodiversity Framework* (2022)
- *Ramsar Convention on Wetlands* (1971)
- *Republic of Korea-Australia Migratory Bird Agreement* (2007)
- *The Paris Agreement* (2016)
- United Nations Declaration of Rights of Indigenous Peoples (2007)

National

- *Australia's Strategy for Nature 2024-2030*
- *National Biosecurity Strategy 2022-2032*
- *Murray-Darling Basin Plan* (2022)
- *National Climate Resilience and Adaptation Strategy 2021-2025*
- *National Water Initiative* (2004)
- *Net Zero Plan 2050*
- *Threatened Species Action Plan 2022-2032*

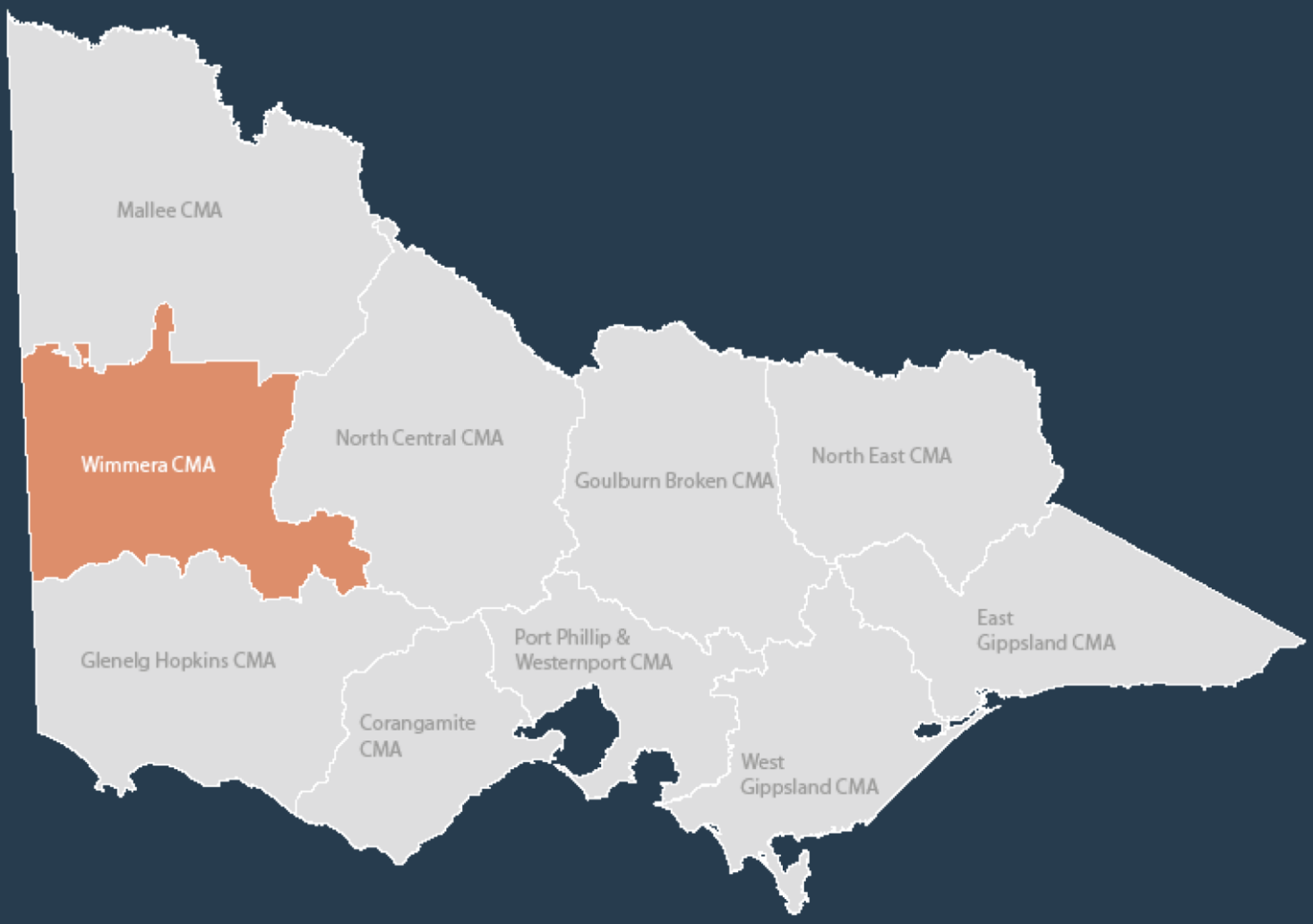
Victorian

- *Protecting Victoria's Environment - Biodiversity 2037*
- *Pupangarli Marnmarnepu 'Owning Our Future' Aboriginal Self-Determination Reform Strategy 2020-2025*
- *Self-Determination Reform Framework* (2019)
- *Victoria's Climate Change Strategy 2026-2030*
- *Victorian Floodplain Management Strategy* (2016)
- *Freshwater Fisheries Management Plan – building better recreational fisheries 2018-2028*
- *Victorian Rural Drainage Strategy* (2018)
- *Victorian Waterway Management Strategy* (2016)
- *Water for Victoria* (2016)
- *Water is Life: Traditional Owner Access to Water Roadmap* (2022)

Regional

- *Wimmera Regional Catchment Strategy 2021-2027*
- *Action Plan for the Regional Land Partnerships Program (2021)*
- *Lake Albacutya Ramsar site information sheet*, ecological character description, boundary description, and *Lake Albacutya Ramsar Site Management Plan*
- *Grampians Region Climate Adaptation Strategy 2021-2025*
- *Wimmera Floodplain Management Strategy (2016)*
- *Western Region Sustainable Water Strategy (2011)*
- Waterway Action Plans (numerous) - https://wcma.vic.gov.au/publications-resources/#water
- *Growing What is Good Dya (Country) Plan. Voices of the Wotjobaluk, Jaadwa, Jadawadjali, Wergaia and Jupagulk Guli (Peoples) (2026)*
- *'Meerreengeeye Ngakeepoorryeeyt' Eastern Maar Country Plan (2015)*
- Aboriginal Cultural Heritage Land Management Agreements and Strategic Plans
- *Water is Life Nation Statement – Barengi Gadjin Land Council (2022)*
- *Water is Life Nation Statement – Eastern Maar Aboriginal Corporation (2022)*
- *Wimmera Strategic Directions Statement (2020)*
- *Environmental Water Management Plan for the Wimmera River System (2024)*
- *Environmental Water Management Plan - MacKenzie River and Burnt and Bungalally Creeks (2025)*
- *Environmental Water Management Plan for the Wimmera Mallee Pipeline Wetlands (2016)*
- *Conservation Action Plan for parks and reserves managed by Parks Victoria - Grampians (Gariwerd) (2019)*
- *Conservation Action Plan for parks and reserves managed by Parks Victoria - Wimmera (2018)*
- *Greater Gariwerd Landscape Management Plan (2021)* (Parks Victoria)
- *Wimmera Carbon Ready Plan (2016)*
- *Wimmera Invasive Plant and Animal Management Strategy (2019)*
- *Trust for Nature's State-wide Conservation Plan (2021-2030)*
- Wimmera CMA's *Landcare and Community Participation Plan (2021)*
- *Wimmera Biodiversity Action Plan (2022)*
- *Wimmera Platypus Management Plan* (draft 2026)
- Flagship waterway plans and MERI plans
- *Emergency Preparedness and Response Plan for Biodiversity and Agricultural Natural Capital Assets in the Wimmera region (2024)*

Wimmera CMA is one of 9 CMAs and Melbourne Water working in Victoria under an integrated catchment management approach to achieve sustainability across the state.
Each CMA supports the role that communities and government play in protecting and enhancing local natural environments including waterways.



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