

Seasonal Watering Plan

2024-25



Acknowledgement of Traditional Owners

The Victorian Environmental Water Holder (VEWH) proudly acknowledges Victoria's Traditional Owners and their rich culture and pays our respect to Elders past and present, whose knowledge and wisdom have ensured the continuation of culture and traditional practices.

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it.

We are committed to genuinely partner and meaningfully engage with Victoria's Traditional Owners and Aboriginal communities to support the protection of Country, the maintenance of spiritual and cultural practices and their broader aspirations in the 21st century and beyond.

The VEWH sees the meaningful intersection between the aims of the environmental watering program —

healthy waterways, healthy communities — and the deep and enduring obligations Traditional Owners have to Country and to Aboriginal people. We deeply value the ongoing contribution that Traditional Owners and Aboriginal knowledge systems are making to planning and managing water for the environment. We recognise that this contribution is largely through frameworks and processes that have not been determined by Traditional Owners, and contribution does not imply endorsement of those frameworks and processes. More can be done to increase Traditional Owners' power and agency and enable progress towards self-determination within the environmental watering program.

Adequately recognising and strengthening the rights of Traditional Owners in water management is critical for achieving self-determination and healthy waterways into the future. The VEWH is committed to an active role in supporting and enabling this within its power and capability.

Cover image: The Glenelg River near Harrow, supplied by Glenelg Hopkins CMA

Acknowledgement of program partners

The VEWH acknowledges that the seasonal watering plan is based on the significant contributions and hard work of Victoria's catchment management authorities and Melbourne Water in consultation with their communities.



Contents

Section 1: Introduction	2
Section 2: Gippsland region	20
Section 3: Central region	64
Section 4: Western region	124
Section 5: Northern region	170
Section 6: Further information	336

SECTION 1:

Introduction

The Victorian environmental watering program is the ongoing, collaborative management of water for the environment used to improve the health of Victoria's rivers and wetlands and of the native plants and animals that depend on them.

Where can I find more information about the Victorian environmental watering program?

Information about the Victorian environmental watering program is on the Victorian Environmental Water Holder's (VEWH's) website at vewh.vic.gov.au or available from the VEWH on (03) 9637 8951 or by email to general.enquiries@vewh.vic.gov.au.

This includes general information such as:

- what water for the environment is
- why water for the environment is important
- what the environmental watering program aims to achieve
- what delivery of water for the environment involves
- how we know if water for the environment is successful
- what environmental water trading is.

You can get more detailed information about water for the environment in your region by contacting your local catchment management authority or Melbourne Water (waterway manager): the contact details are in **section 6.3**.

1.1 The seasonal watering plan

The seasonal watering plan is a statewide plan that guides decisions about delivering water for the environment in Victoria. It outlines how water for the environment is likely to be used across the state under different climate scenarios and tells our program partners, stakeholders and communities what to expect during the water year.

In this section...

- 1.1.1 What 'seasonal' means**
- 1.1.2 How the seasonal watering plan fits into planning environmental flows**
- 1.1.3 Who contributes to the seasonal watering plan**
- 1.1.4 Changes to the seasonal watering plan**
- 1.1.5 When a formal variation to the seasonal watering plan is not required**

This plan publicly describes all the potential watering actions that could be carried out using water available under all environmental water entitlements held in Victoria. This includes water available under the VEWH's environmental water entitlements and water held by other environmental water holders for use in Victoria.

The VEWH releases the seasonal watering plan for the upcoming water year by 30 June each year. The plan and any variations are valid for the whole water year, which runs from 1 July to 30 June, or until the next seasonal watering plan is released.

1.1.1 What 'seasonal' means

'Seasonal' refers to various climate conditions in a given year, including normal differences between summer, autumn, winter and spring and whether a year is estimated to be drier or wetter than average.

Seasonal conditions affect the health and needs of plants and animals, water availability and the environmental watering actions that may be delivered in a given year.

When we plan water for the environment, it is important to consider potential seasonal conditions ranging from drought to wet and related water availability scenarios for the year.

This scenario planning enables the VEWH and waterway managers to plan environmental flows before the start of the water year and adapt to seasonal conditions as they occur throughout the year. For example, watering actions may be delivered under a dry scenario at the start of a water year and then shift to delivering in an average or wet scenario if conditions become significantly wetter. There is more on how seasonal conditions influence environmental flows planning and delivery in **subsection 1.2.4**.

Sections 2 to 5 of the seasonal watering plan have more details about potential watering actions likely to be delivered in each river and wetland system during the year under different climatic conditions.

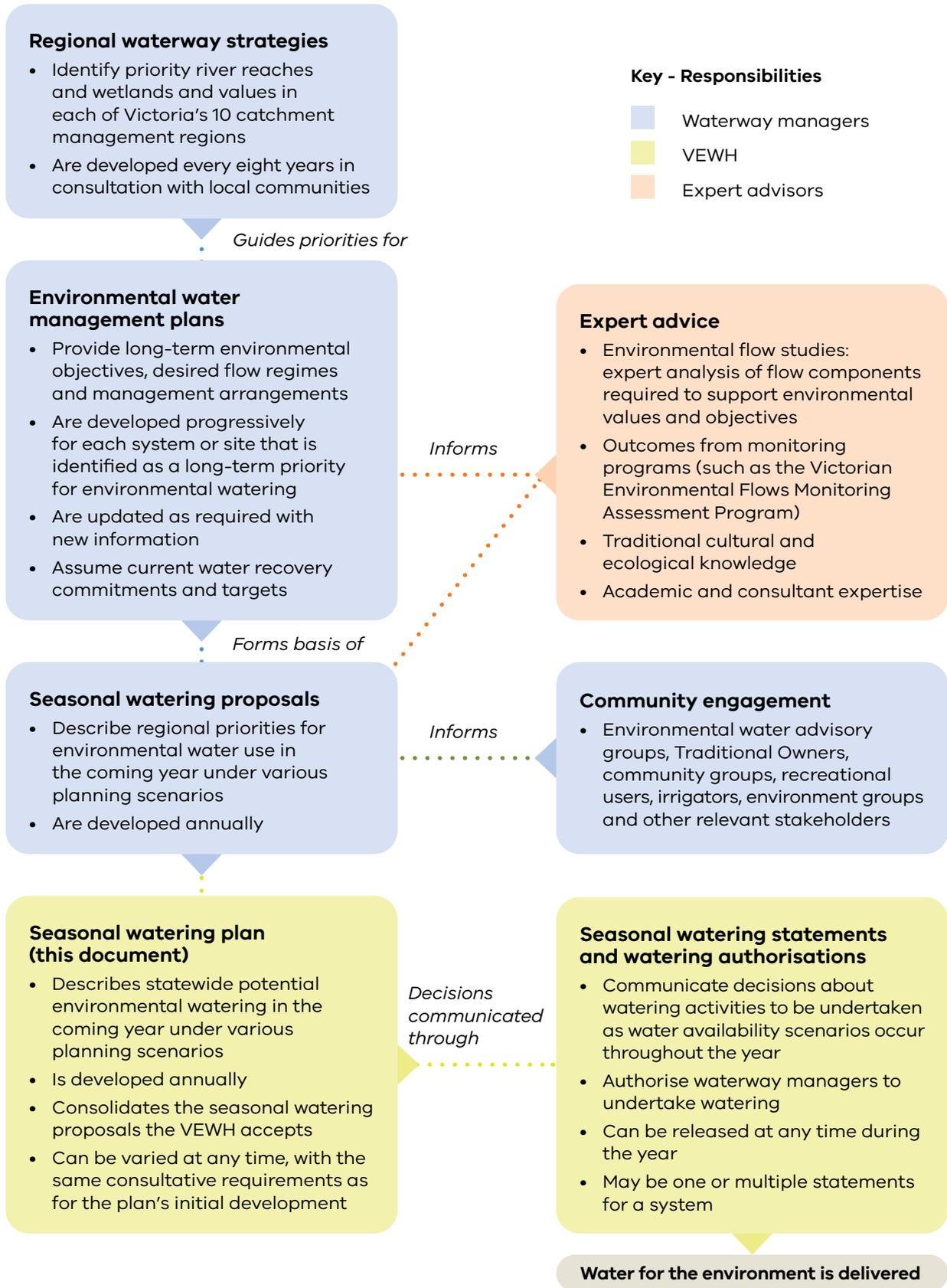
1.1.2 How the seasonal watering plan fits into planning environmental flows

Waterway managers scope potential environmental watering actions in seasonal watering proposals to deliver water for the environment in their regions for the coming year. Seasonal watering proposals draw on environmental flows studies and environmental water management plans, regional waterway strategies and regional catchment strategies, and each year seek knowledge and advice from Traditional Owners, stakeholders and local communities.

The VEWH reviews the proposed watering actions in each seasonal watering proposal and works with waterway managers to identify the potential watering actions for each region and across the state. This seasonal watering plan is a summary of agreed actions from all the seasonal watering proposals.

The different stages of environmental flows planning are shown in **Figure 1.1.1**. More information about the strategies and plans in the figure (such as environmental flows studies and environmental water management plans for Victorian waterways) is available at vewh.vic.gov.au. Regional waterway strategies and regional catchment strategies are published on the relevant waterway manager's website.

Figure 1.1.1 Victorian environmental watering program planning framework



1.1.3 Who contributes to the seasonal watering plan

Program partners in the environmental watering program are those with some implementation responsibility, while stakeholders are those organisations or individuals with an interest in the environmental watering program.

The VEWH's program partners include Victoria's waterway managers, the Department of Energy, Environment and Climate Action (DEECA), other environmental water holders, storage managers and land managers. Traditional Owners also increasingly partner in the environmental watering program.

Many stakeholders are engaged in discussions about potential actions to deliver water for the environment as seasonal watering proposals are being developed. Levels and methods of engagement vary, depending on different water systems, watering actions and stakeholders across Victoria and regional preferences. Traditional Owners¹, irrigators, farmers, people living close to or interested in a specific waterway and members of recreational and environmental groups are among the stakeholders who get involved.

There are formal environmental watering advisory groups in some regions for waterway managers and stakeholders who are members of the local community to talk about potential environmental flows in their system for the coming year. In other systems, there is one-on-one engagement between waterway managers and interested stakeholders. Land managers and storage managers endorse seasonal watering proposals. This makes sure that releases of water for the environment align with land and storage management objectives, can feasibly be delivered through planned system operations, and risks can be adequately managed.

1.1.4 Changes to the seasonal watering plan

Under the *Water Act 1989*, the VEWH can only authorise the use of water for the environment if it is consistent with the seasonal watering plan. This makes sure there is transparency about the planning and management of environmental flows.

The Act allows the VEWH to vary any section of the seasonal watering plan to incorporate new knowledge or address circumstances that were not identified before the start of the water year. This enables flexibility to adapt to changing conditions. Any variations are publicly available at vewh.vic.gov.au as separate attachments to the current seasonal watering plan.

1.1.5 When a formal variation to the seasonal watering plan is not required

Sometimes there may be an unforeseen circumstance that calls for the use of water for the environment that does not require a variation to the seasonal watering plan. This includes:

- a minor operational adjustment to a specific water delivery action
- water for the environment being used for environmental emergency management purposes
- a small volume of water for the environment being used for a technical investigation or infrastructure maintenance
- help to deliver water for the environment held by other water holders for downstream, non-Victorian objectives.

The VEWH cannot anticipate these specific circumstances or include details about them in this plan. Waterway managers must consult the VEWH in all situations where releases of water for the environment do not align with the seasonal watering plan.

1 In the context of the Victorian Government commitment to self-determination for First Nations, partners in the environmental watering program are committed to strengthening the role of Traditional Owners as program partners into the future and supporting self-determination within and beyond the program.

Minor operational adjustments

There may occasionally be minor operational adjustments to actions to deliver water for the environment. The targeted river reaches, flow rates, timings, magnitudes and durations detailed in **sections 2 to 5** may need slight adjustments because of changes in predicted rainfall, other water orders, delivery infrastructure constraints, emerging environmental knowledge or the timing of specific ecological triggers (such as bird breeding).

In all cases, actions will still aim to optimise environmental outcomes to meet the seasonal watering plan's objectives.

Any changes to the timing, magnitude or length of a planned watering action must be approved by the VEWH Commission through a formal variation when the proposed action requires additional water or funding to support the delivery, or by the VEWH CEO for minor variations relating to the use of water already allocated in the seasonal watering plan.

Environmental emergency management situations

Water for the environment may be needed for an environmental emergency management situation, like mitigating a toxic water quality event. **Section 1.2.8** describes how environmental watering emergencies are managed and authorised.

Small technical investigations and maintenance

There may be situations where a small volume of water for the environment is used for research and development or for small-scale infrastructure testing or maintenance. These are considered on a case-by-case basis and must aim to improve knowledge and management of water for the environment. They must not compromise the potential to achieve the environmental objectives in the seasonal watering plan.

Facilitating the delivery of water held by other water holders for downstream objectives

Some water held by other water holders is stored in Victorian storages and may be required to meet downstream demands, such as for the Coorong, Lower Lakes and Murray Mouth area in South Australia. Sometimes this water needs to be delivered at a time and flow rate that was not specified in **section 5** of this seasonal watering plan. The VEWH authorises and makes these deliveries possible as long as risks like potential harm to Victoria's rivers, wetlands and floodplains are managed appropriately.

1.2 Implementing the seasonal watering plan

The seasonal watering plan scopes the potential delivery of water for the environment for the coming year, but many factors influence decisions about what water is committed and delivered.

In this section...

- 1.2.1 How watering decisions are made throughout the year**
- 1.2.2 When the VEWH commits and authorises the use of water for the environment**
- 1.2.3 How the VEWH prioritises different watering actions when there is not enough available water for the environment**
- 1.2.4 How seasonal conditions affect the use of water for the environment**
- 1.2.5 Traditional Owner cultural values and uses, and recreational, social and economic benefits from water for the environment**
- 1.2.6 Self-determination for Traditional Owners in the management of water for the environment**
- 1.2.7 How risks are managed**
- 1.2.8 How environmental watering emergencies are managed**

Factors that influence decisions about committing and delivering water for the environment are:

- seasonal conditions, weather forecasts and catchment conditions
- river and system operations like unregulated flows, catchment inflows, storage levels, other water users' needs and potential delivery constraints
- environmental or biological factors and triggers like plant and animal responses to natural flows or temperature
- water availability
- risks or costs associated with an action to deliver water for the environment
- the opportunity to deliver shared benefits, such as for Traditional Owner and recreational values.

It is important there is flexibility to respond to these different factors because they can have a big influence on the environmental outcomes and shared benefits that we can achieve.

1.2.1 How watering decisions are made throughout the year

Many of the uncertainties about seasonal conditions, water availability and the consequential impacts of system operating rules become clearer as the season unfolds. This clarity informs decisions about which environmental flows go ahead and when. Many on-ground factors do not become clear until much closer to the anticipated water delivery.

The VEWH takes a flexible and adaptive approach to decisions with program partners and relevant stakeholders, then reviews and adjusts them so that water for the environment is used efficiently for the best environmental outcomes across Victoria.

Waterway, storage and land managers advise the necessary watering actions that can be delivered in each region during the year. Environmental water holders use that information to decide which actions to authorise. All program partners have a role in identifying potential watering actions and enabling the release of water for the environment, as explained in **subsection 1.2.3**.

The VEWH can also ask for more scientific or community contributions if planned watering actions need to change significantly during the season to respond to unforeseen circumstances.

Updated information about current and anticipated deliveries of water for the environment is published regularly at vewh.vic.gov.au.

1.2.2 When the VEWH commits and authorises the use of water for the environment

The VEWH aims to commit as much water as realistically and as early as possible to give waterway managers certainty to go ahead with planned actions to deliver water for the environment.

The VEWH can commit its water at any point before or during the water year. It commits this water through seasonal watering statements that authorise waterway managers to release water for the environment and are published at vewh.vic.gov.au.

Depending on the nature of the system and the entitlement being used, the VEWH may make one or multiple statements for a system during the water year. Before issuing a seasonal watering statement, the VEWH must be sure the required delivery arrangements, including risk management measures, are in place and that any related costs are acceptable.

Decisions to commit water for the environment may need more thorough consideration if delivery of the water across different systems requires access to the same environmental or bulk entitlement. One river, wetland or flow component may have to be prioritised over another.

The VEWH may sometimes commit water very close to the anticipated date of release. This may be necessary because of a sudden demand for water caused by environmental, operational or weather conditions. For example, a colonial waterbird nesting event in Barmah Forest may trigger a need for water to maintain shallow flooding long enough for the birds to grow and fly from the nest.

The Commonwealth Environmental Water Holder (CEWH) and the Southern Connected Basin Environmental Watering Committee (for the Living Murray program) commit water for use in Victoria, and the VEWH formally authorises that use through seasonal watering statements.

When water in Victorian accounts held by the CEWH and the Living Murray program needs to be delivered to non-Victorian sites, the VEWH enables that use through a watering authorisation. These authorisations generally include the same conditions and requirements as seasonal watering statements, but the water must be ordered and delivered by the VEWH instead of a waterway manager.

When environmental water holders and waterway managers can change their plans after a seasonal watering statement or watering authorisation has been issued

The VEWH can withdraw a seasonal watering statement or watering authorisation at any point during the year to address emerging risks or changes in operating conditions or water availability. It consults with the relevant waterway manager, storage manager and any other relevant environmental water holder for that river or wetland system before withdrawing a seasonal watering statement or watering authorisation.

A waterway manager or storage manager may decide, in consultation with the VEWH, not to go ahead with delivering water for the environment after a seasonal watering statement has been issued. This could be due to environmental triggers indicating the water was no longer required, resourcing constraints or new information that the potential environmental or public risk of watering is too high.

1.2.3 How the VEWH prioritises different watering actions when there is not enough available water for the environment

When the VEWH decides to trade or carry water over to get the best possible outcomes for the health of Victoria's rivers, wetlands, estuaries and floodplains, it works with program partners on where the available water for the environment and funding can be used.

It is essential to recognise the dynamic nature of delivering water for the environment when putting the program into action. Seasonal conditions can vary greatly between years, affecting the demand for water for the environment for particular sites and the supply of available water for the environment.

There can be a deficit in supply because of large, high-value demands for water for the environment or low water availability.

The VEWH may use tools like carryover and trade to avoid a deficit. If a deficit can't be avoided, the VEWH works with waterway managers and other relevant water holders to prioritise actions to deliver water for the environment. There is more information about trade in the annual VEWH Allocation Water Trading Strategy at vewh.vic.gov.au.

Criteria used to guide prioritisation decisions

The VEWH considers criteria, shown in **Figure 1.2.1**, when making trade-off decisions and prioritising specific watering actions. Waterway managers provide information in their seasonal watering proposals about how different watering actions meet these criteria and about opportunities for shared benefits.

When the VEWH decides how to use its available Water Holdings in any given year, it also considers:

- decisions by other water holders about the use of their water for the environment
- decisions by the Victorian and Commonwealth governments about water resource policy
- the resources, knowledge and capability of the VEWH and its program partners
- storage managers meeting their obligations to the environment as part of the right to harvest and distribute water sustainably
- complementary works and measures being undertaken
- the availability of funds to pay the costs of water delivery and/or storage
- the merit of selling available water allocation to resource activities, strategic projects, complementary works and measures, research and knowledge to improve the performance of the environmental watering program
- services associated with managing Water Holdings and delivering water for the environment.

Figure 1.2.1 Criteria for prioritising actions to deliver water for the environment

PRIORITISATION CRITERIA 	TYPES OF FACTORS CONSIDERED 
Extent and significance of environmental benefit	<ul style="list-style-type: none"> • Size of the area being watered • Expected ecological outcomes • Expected scale of response • Conservation status of the species or community that will benefit • Expected contribution to regional environmental objectives
Likelihood of success	<ul style="list-style-type: none"> • Evidence that the desired outcomes are likely to be achieved • External threats that may affect getting the desired results
Longer-term benefits	<ul style="list-style-type: none"> • Value added to previous watering undertaken at the site • Longer-term environmental benefits expected • Ability to sustain these values into the future
Urgency of watering needs	<ul style="list-style-type: none"> • History of watering at the site • Potential for irreversible damage if the watering does not occur • Risks associated with not delivering the water
Feasibility of the action	<ul style="list-style-type: none"> • Capacity of infrastructure to meet the delivery requirements • System or operational constraints • Flexibility in the timing of delivery • Likelihood that planned management actions will mitigate external threats
Environmental or third-party risks	<ul style="list-style-type: none"> • Adverse environmental outcomes that may arise • Third-party risks associated with the event • Effectiveness of mitigation to manage third-party and environmental risks
Cost effectiveness of the watering action	<ul style="list-style-type: none"> • Likely environmental benefit compared against: <ul style="list-style-type: none"> – costs to deliver and manage water – costs of interventions to manage external threats and risks
Efficiency of water use	<ul style="list-style-type: none"> • Volume of water needed to achieve the desired outcomes • Volume and timing of return flows that may be used at downstream sites • Alternative supply options such as use of consumptive water en route or augmenting natural flows • Risks of spills from storages in the upcoming water year and any carryover water that may be available
AFTER CONSIDERATION OF ABOVE CRITERIA	
Cultural, economic, social and recreation benefits	<ul style="list-style-type: none"> • Social and recreation values • Community events and activities • Economic benefits

Who is involved in the prioritisation process

Waterway managers, environmental water holders, storage managers, land managers, Traditional Owners and stakeholders, including recreational users, environmental and farming groups and interested landholders and community members, all have a role in prioritising actions to deliver water for the environment, depending on the nature and scale of the decisions being made.

Waterway managers engage with stakeholders and communities and advise about the extent and significance of actions to deliver water for the environment and the highest priorities in their region.

The VEWH and other environmental water holders resolve watering priorities across regions. The VEWH collaborates with waterway managers and other program partners to decide on the best possible environmental outcomes for Victoria.

Storage managers' advice is important to help understand how practical it is to water at a particular time within potential operational constraints. Storage managers endorse deliveries of environmental flows through their delivery network. They advise on deliveries after considering likely operational and maintenance activities and the risks associated with the watering actions.

Land managers consent to the delivery of environmental flows on their land. They advise about this after considering land management activities, public access and the risks and benefits of the proposed watering actions.

Waterway managers draw on specialist and local knowledge when prioritising environmental watering actions. Where environmental outcomes are not compromised, they can consider shared benefits for cultural values (in addition to healthy Country where these values align with environmental objectives) as well as social, recreational and economic values.

1.2.4 How seasonal conditions affect the use of water for the environment

Different climatic conditions influence how water for the environment is managed, just as rainfall patterns influence how we water our gardens or paddocks. Seasonal conditions, as explained in **subsection 1.1.1**, influence what water will be available during the water year and how that water may be best used to realise environmental objectives. Waterway managers take seasonal conditions into account when planning environmental watering actions for sites in their seasonal watering proposals. Seasonal planning scenarios describe the range of watering actions that could occur under drought to very wet conditions.

Waterway managers work with the program partners to get the best possible outcomes from water for the environment by considering:

- environmental water management objectives under each climatic scenario, plus any essential needs for water for the environment
- how rainfall, natural flooding and delivering water for operational and/or consumptive use can help achieve or impact short-term management objectives and longer-term environmental objectives
- how water for the environment can build on natural flows or irrigation deliveries to meet environmental needs
- natural climatic cues that might help produce an environmental outcome: for instance, a drying wetland.

Planning scenarios are presented in the seasonal watering plan as a basis for adaptively managing water use as the season unfolds. They also give an early indication of how much water may be used at different sites and whether the VEWH may need to trade water during the season to meet identified environmental needs.

Figure 1.2.2 shows how different planning scenarios can influence decisions about how water for the environment is managed in a year.

Figure 1.2.2 Example planning scenarios under a range of climatic conditions

Planning scenario	DROUGHT	DRY	AVERAGE	WET
EXPECTED CONDITIONS	No or negligible contributions from unregulated flows; waterways may stop flowing at times, more likely in summer & autumn	Minor contributions from unregulated reaches and tributaries, more likely in winter & spring	Unregulated flows provide extended low flows and multiple freshes, more likely in winter & spring; minor storage spills may occur	Extended, unregulated high flows, multiple large storage spills and overbank flooding, more likely in winter & spring but possible at any time of the year
MANAGEMENT OBJECTIVES	Protect <ul style="list-style-type: none"> Avoid critical loss Maintain refuges Avoid catastrophic events 	Maintain <ul style="list-style-type: none"> Maintain river functioning with reduced reproductive capacity Maintain key functions of high-priority wetlands Manage within dry-spell tolerances 	Recover <ul style="list-style-type: none"> Improve ecological health and resilience Improve recruitment opportunities for key plant and animal species 	Enhance <ul style="list-style-type: none"> Restore key floodplain wetland linkages Maximise recruitment opportunities for key animal and plant species
EXAMPLE WATERING ACTIONS TO SUPPORT MANAGEMENT OBJECTIVES	Provide low flows and trigger-based freshes to maintain water quality in deep refuge pools	Provide summer & autumn low flows to manage water quality and maintain connectivity	Provide year-round low flows to maintain habitat connectivity to support fish movement	Maintain year-round low flows and seasonal freshes to improve the quality of in-stream and bank vegetation and trigger the spawning and movement of native fish
		Extend the duration and/or magnitude of flow peaks to freshen water quality in deep refuge pools	Extend the duration and/or magnitude of peaks to provide spawning cues for fish	Maintain connectivity and the exchange of nutrients between the river and floodpath
			Provide seasonal freshes to support the establishment and maintenance of bank vegetation	Slow the recession of natural peaks to avoid bank slumping and erosion
				Top up natural flows if needed, to meet targets for winter low flows and spring peaks

1.2.5 Traditional Owner cultural values and uses, and recreational, social and economic benefits from water for the environment

Waterway managers identify Traditional Owner cultural values and uses of waterways through ongoing engagement with Traditional Owners to determine how seasonal watering proposals may contribute to cultural objectives for healthy Country.

As well as waterway managers' engagement with Traditional Owner Nations, the VEWH is progressively engaging directly with First Nations when this is their preferred method of engagement to support their increased leadership, decision-making and self-governance about water management.

The VEWH recognises current government frameworks for managing water for the environment have not been determined by Traditional Owners, and it is committed to progressing Traditional Owner self-determination in the environmental watering program as set out in the Victorian Government's **Water is Life: Traditional Owner Access to Water Roadmap** and the VEWH's **position statement on its commitment to progress Traditional Owner self-determination**. There is more information about this in **subsection 1.2.6**.

Water delivered for the environment improves the health of rivers, wetlands and floodplains and provides many social, recreational and economic benefits to users, local communities and beyond. It helps to increase populations of fish species (including those popular with anglers), support bird breeding events that bird watchers enjoy, contribute to healthy Country for Traditional Owners and boost experiences for the many people who gravitate to healthier waterways for relaxation and wellbeing.

Waterway managers work with Traditional Owners, stakeholders and communities to identify environmental, social, economic and recreational values and uses of waterways. They consider opportunities to support cultural, social, recreational and economic values and uses wherever possible when planning environmental water deliveries, as long as the delivery does not compromise environmental outcomes. Longer-term benefits for the environment — and community — sometimes involve short-term inconvenience. For example, floodplain watering

in Hattah Lakes may limit access, which can inconvenience campers in the short term, but the environmental benefits of watering boost tourism and recreational experiences in the longer term and add to the experience of connecting with nature. Where short-term inconveniences may happen, waterway managers work with land managers to limit the disruption to users.

Values and uses considered during planning for environmental flows are authorised in each system shown in **sections 2 to 5**. Specific watering actions planned to align with a social or recreational objective or be delivered in partnership with Traditional Owners to support Aboriginal cultural values and uses are identified by the icons shown in **Figure 1.2.3**.

Figure 1.2.3 Cultural, social and recreational objectives icons



1.2.6 Self-determination for Traditional Owners in the management of water for the environment

The *Seasonal Watering Plan 2024-25* represents existing legislative requirements to take Aboriginal cultural values into account when preparing seasonal watering proposals. While this is based mainly on engagement with waterway managers, the VEWH is committed to increasing the agency and self-determination of Traditional Owners in the Victorian environmental watering program and to supporting Traditional Owners to access and manage water on their own terms.

Early in 2022, the VEWH published its position statement outlining its commitment to progressing Traditional Owner self-determination. The Victorian Government's 2022 ***Water is Life: Traditional Owner Access to Water Roadmap*** sets out short, medium and long-term policy actions to reform existing government frameworks and processes for the management of water on Traditional Owner Country, including water for the environment. The VEWH is working with Traditional Owners, DEECA and waterway, land and storage managers to progress these policy actions. This has included starting trials for Traditional Owner-led seasonal watering proposals. Additional watering actions that may result from the trials can be approved by the VEWH Commission through a variation to the seasonal watering plan.

1.2.7 How risks are managed

Risk management is essential in managing water for the environment, and program partners consider risks continually during annual and longer-term planning, implementation and review.

The VEWH and its program partners have a risk management framework that addresses interagency risk, respects each partner's practices, and it documents roles and responsibilities for operating arrangements.

The seasonal watering proposals that are the basis for this seasonal watering plan identify potential risks with specific watering actions proposed for the coming water year. Partners jointly assess risks and identify and commit to mitigation actions when developing proposals to manage the shared risks of delivering water for the environment.

The main shared risks are shown in **Table 1.2.1**. Program partners consider and assess these and other potential risks as the season unfolds and planned watering actions are about to start.

Some risks may only happen at the time of delivery, such as forecast heavy rain that coincides with a planned environmental flow that could increase the risk of nuisance flooding. Program partners review risks immediately before a planned environmental flow and take agreed measures to mitigate the risks. Program partners identify and agree on mitigation actions through operational risk workshops and endorsement of seasonal watering proposals and/or delivery plans. Watering actions will not be carried out if unacceptable risks to the public or environment cannot be mitigated.

Table 1.2.1 Main shared risks of delivering water for the environment

Type of risk	Example mitigating actions
Delivering water for the environment contributes to third-party impacts	<p>Identify and understand the capacities of water systems and monitor water levels at key locations to inform daily water release decisions to mitigate potential risks</p> <p>Take into account the potential catchment run-off from forecast rainfall before deciding on the timing, duration and volume of releases of water for the environment</p> <p>Put a communication plan into action (for example, including media releases, public notices and signage) before environmental flows to make sure people are informed about significant deliveries; this includes early liaison with stakeholders who may be affected</p> <p>Restrict access by closing gates and tracks</p>
Inability to achieve or demonstrate environmental outcomes from delivering water for the environment	<p>Do intervention monitoring with available resources to identify the environmental response and consider longer-term environmental responses.</p> <p>Conduct research to better understand responses to water for the environment.</p> <p>Share the outcomes of monitoring and apply learnings to future deliveries.</p> <p>Identify complementary works to help achieve the environmental objectives of delivering water for the environment.</p>
Delivering water for the environment has negative effects on the environment (such as bank erosion and the spread of weeds)	<p>Plan the timing, frequency, length and variability of environmental flows to limit negative effects.</p> <p>Monitor the outcomes of deliveries of water for the environment and adapt future deliveries and/or scientific recommendations and learnings if necessary.</p>

Even with the best risk management controls, there may be unintended effects from environmental flows or situations where those flows cannot be delivered as planned. In these situations, program partners work together to respond to incidents and then learn and adapt their risk management. The VEWH has developed an agreed approach to incident management to help program partners report, investigate and respond to risks.

1.2.8 How environmental watering emergencies are managed

An emergency watering action is where water for the environment may be necessary to prevent, mitigate or respond to an acute environmental threat.

Common threats are:

- impacts on water quality from low oxygen levels, toxic levels of blue-green algae, high temperatures or high salinity
- falling water levels at a refuge habitat or breeding site that are an immediate risk to native aquatic plants and animals.

Acute environmental threats are unpredictable, so potential emergency watering actions may not be specified in **sections 2 to 5** of this plan. The VEWH has developed a procedure for emergency watering actions to be taken at short notice.

Emergency watering procedure

Emergency actions to deliver water for the environment are usually one or other of the following scenarios:

- the necessary watering action is not described adequately or at all in the current seasonal watering plan, but there is a valid seasonal watering statement with water available that covers other watering actions for the affected system and authorises a total volume that is enough for the proposed emergency watering action, or
- there is no authorised seasonal watering statement for the affected system, or there is not enough water available under the seasonal watering statement to cover the proposed emergency watering action.

Under the first scenario, waterway managers can re-prioritise watering actions authorised under the existing seasonal watering statement to allow the emergency watering action to be taken without affecting the overall resource.

Under the second scenario, waterway managers must ask for an emergency seasonal watering statement from the VEWH before water for the environment can be used for an emergency watering action. The VEWH has administrative processes to support emergency decisions to deliver water and to expedite requests for emergency seasonal watering statements.

1.3 How to read the seasonal watering plan

Under the Victorian *Water Act 1989*, the VEWH can only authorise the use of water for the environment where it is consistent with a seasonal watering plan. This is to maintain transparency about the planning and management of environmental flows.

The plan must make sure that the scope, objectives and potential watering activities for each waterway are clear and that decisions about possible water use are made effectively and transparently.

Four broad geographic areas in Victoria's Gippsland, central, western and northern regions are represented in **sections 2 to 5** of the seasonal watering plan with overviews that include:

- a description of the region
- an acknowledgement of the Traditional Owners of the area
- a description of communities and program partners engaged
- examples of integrated catchment management in the region
- a description of how risks are managed
- a seasonal outlook for the region.

Each region is divided into system sections for waterways and wetlands supplied with water for the environment from an environmental entitlement. Each section presents the system's environmental values, environmental objectives and planned actions for the year.

The system sections include:

- **a system introduction page** with the names of the one or more waterway managers, storage managers and/or environmental water holders for the system
- **a system overview** describing the system's location, its waterways and major features
- **environmental values** outlining the main water-dependent species, communities, ecological processes and habitats that rely on healthy waterways and form the basis for environmental objectives

- **environmental objectives in the system**, which **Figure 1.3.1** shows, that summarises the measurable outcomes sought for each environmental value in the system. Each objective usually relies on one or more continuing watering actions and complementary actions, like controlling invasive species or installing fishways. It may take years or several decades to achieve targeted outcomes
- **Traditional Owner and recreational values** considered in planning for environmental flows, along with opportunities to support these values, as long as environmental outcomes are not compromised
- **the scope of deliveries of water for the environment**, which **Figure 1.3.2** shows, that sets out potential actions to deliver water in 2024-25, the expected physical or biological effects of the actions and the longer-term environmental objectives they support. Achieving each environmental objective relies on one or more potential actions and their expected watering effects
- **scenario planning**, which **Figure 1.3.3** shows, indicating in a table the range and priority of potential actions to deliver water for the environment in the coming year under different climate and water availability scenarios. The text with the table describes the rationale or need for the proposed combination of potential actions under each scenario. Climate scenarios considered are mostly drought, dry, average and wet, but occasionally more or fewer scenarios are used. **Section 1.2.4** explains how seasonal conditions are considered in planning.

Figure 1.3.1 Example environmental objectives table

Environmental objectives in the Macalister system	
	F1 – Increase the distribution, recruitment and abundance of all native fish and increase opportunities for the spawning and recruitment of native migratory fish (such as the Australian grayling)
	G1 – Maintain the form of the riverbank and bed to provide physical habitat for aquatic animals and plants
	M11 – Increase the abundance and number of functional groups of waterbugs
	PR1 – Increase the abundance of platypus and rakali (water rats)
	V1 – Maintain emergent (non-woody) and fringing (woody) vegetation in the streamside zone; reinstate submerged aquatic vegetation
	WQ1 – Improve water quality during periods of reduced or no passing flow from Lake Glenmaggie

In this example, environmental flows that provide optimal spawning opportunities for Australian grayling will contribute to achieving this objective, as will complementary works such as the construction of fishways to increase the habitat range for native fish.

Figure 1.3.2 Example potential actions to deliver water for the environment and objectives table

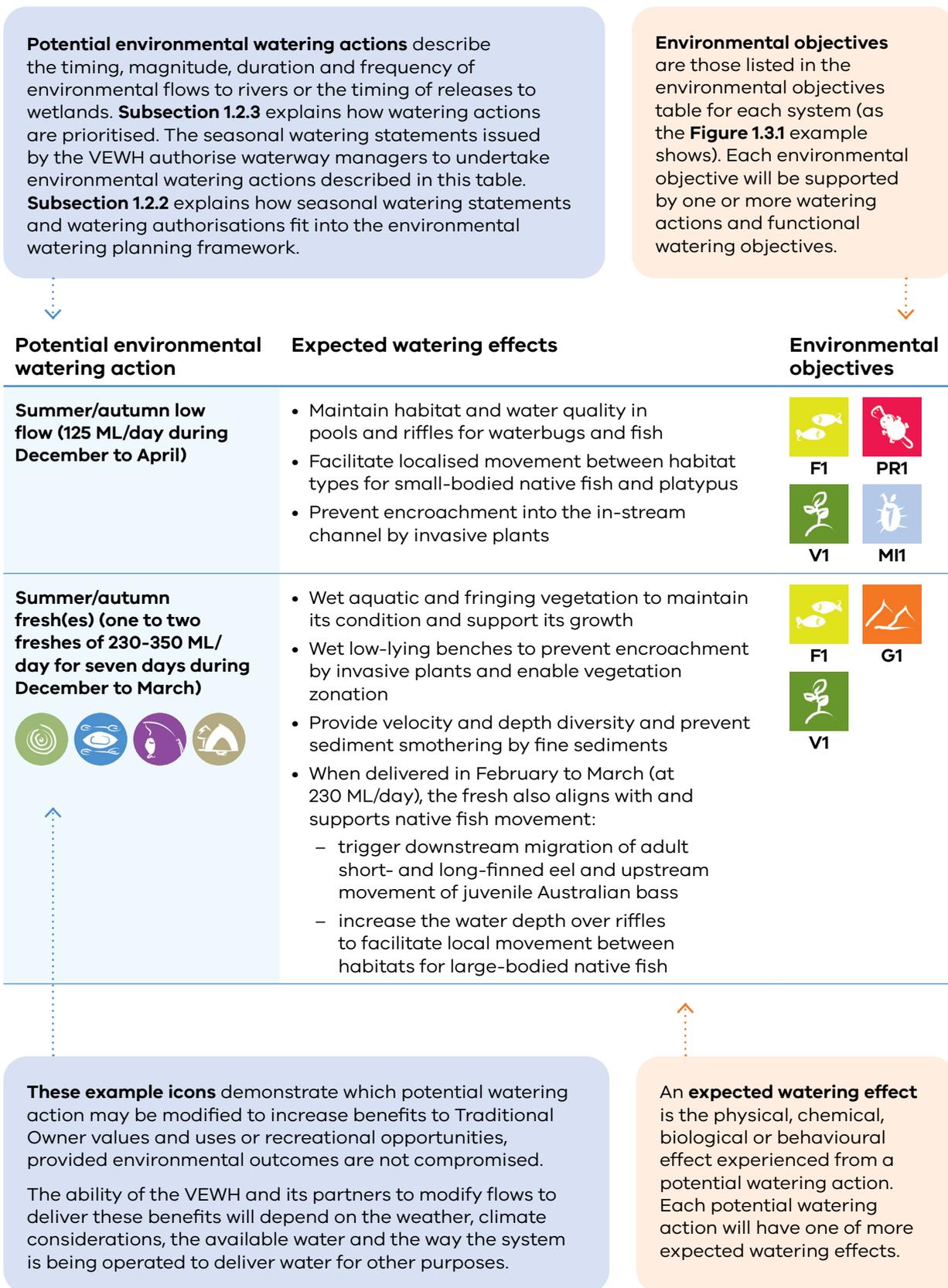


Figure 1.3.3 Example scenario planning table

Planning scenario	Drought	Dry	Average	Wet
Expected river conditions	<ul style="list-style-type: none"> No unregulated flows Passing flows reduced 	<ul style="list-style-type: none"> Possible spills from storages in spring, minor flood levels may occur Passing flows may be reduced 	<ul style="list-style-type: none"> Regular spills from storages in spring, minor-to-moderate flood levels may occur 	<ul style="list-style-type: none"> Large and frequent spills from storages, moderate-to-major flood levels may occur
Predicted supply of water for the environment	• 1,000 ML	• 1,500 ML	• 6,000 ML	• 8,000 ML
Potential environmental watering – tier 1 (high priorities)	Tier 1a (can be achieved with predicted supply)			
	<ul style="list-style-type: none"> Summer/autumn low flow Summer fresh (one fresh) 	<ul style="list-style-type: none"> Summer/autumn low flow Summer/autumn low flow (one fresh) 	<ul style="list-style-type: none"> Winter/spring low flow Winter/spring freshes (two freshes) Winter/spring high flow (one high flow) Summer/autumn low flow Summer/autumn fresh(es) (three freshes) 	<ul style="list-style-type: none"> Winter/spring low flow Winter/spring freshes (four freshes) Winter/spring high flows (two high flows) Summer/autumn low flow Summer/autumn fresh
	<p>The remaining tier 1 watering actions that the waterway manager does not expect to be able to deliver if predicted supply is exhausted on tier 1a actions.</p>			
	Tier 1b (supply deficit)			
	<ul style="list-style-type: none"> Winter/spring low flow Summer/autumn fresh (one fresh) 	<ul style="list-style-type: none"> Winter/spring low flow Winter/spring fresh (one fresh) Summer/autumn freshes (two freshes) 	<ul style="list-style-type: none"> Winter/spring freshes (two freshes) Spring high flow (one high flow) 	<ul style="list-style-type: none"> Winter/spring high flows (two high flows) Autumn high flow (one high flow)
Potential environmental watering – tier 2 (additional priorities)	• N/A	• N/A	• Autumn high flow (one high flow)	• N/A
Possible volume of water for the environment required to achieve objectives	<ul style="list-style-type: none"> 500 ML (tier 1a) 2,000 ML (tier 1b) 	<ul style="list-style-type: none"> 1,300 ML (tier 1a) 2,600 ML (tier 1b) 	<ul style="list-style-type: none"> 4,200 ML (tier 1a) 2,000 ML (tier 1b) 1,200 ML (tier 2) 	<ul style="list-style-type: none"> 6,200 ML (tier 1a) 1,200 ML (tier 1b)
Priority carryover requirements	• 200 to 1,900 ML			
<p>The volume that is planned to be kept in storage to achieve high-priority watering actions the following year. For the seasonal watering plan, predictions of the volume of water available and carryover are made before the beginning of the water year and are based on best available information. They are estimates only, and the VEWH and its program partner revise the estimates continually throughout the year.</p>				

Predicted volume of water for the environment that will be available over the entire year.

Potential watering actions that are required this year, given current environmental conditions and the planned environmental watering strategies under each planning scenario.

The subset of tier 1 watering actions that the waterway manager proposes to deliver with predicted supply under each planning scenario.

Potential watering actions that are generally not required every year to achieve intended environmental objectives but are needed on occasion to meet long-term condition outcomes.

At the time of seasonal watering plan development, tier 2 potential watering actions are not considered necessary to deliver in the current year under specific planning scenarios, but they are likely to be needed in coming years and may be delivered in the current year if environmental conditions change or to take advantage of operational circumstances.

