ANNUAL WATER OUTLOOK

Annual Water Outlook 2024

WESTERNPORT WATER™

Table of contents

Summary

Westernport Water (WPW) plays a vital role in ensuring that our region continues to be amongst the most liveable and productive regions of Victoria. This Annual Water Outlook (AWO) provides data and information for stakeholders and the community with forward looking projections on WPW's water security from the 1 December 2024 to 30 November 2025. It provides an overview of identified likely risks to the region's water supply and is informed by the 2022 WPW Urban Water Strategy (UWS).

The outlook for the upcoming year indicates water supplies will be sufficient to meet supply and demand requirements by the end of the outlook period, with a rare (1-5%) likelihood of implementing water restrictions.

If WPW was to source water only from Candowie Reservoir, towards the end of the summer high demand period, it is likely that the level in Candowie Reservoir would fall below the trigger level where WPW would consider implementing Drought Response measures. Given WPW has access to the Greater Yarra Thomson River System (GYTRS), which has a current resource position of approximately 4,856 ML being a mix of carryover and current year allocation (equivalent to approximately two years supply), WPW plans to source water from both Candowie and GYTRS over the outlook period. With this utilisation strategy WPW will not fall into the Drought Response mode. WPW has been forecasting the need to utilise more water from the GYTRS for water quality reasons and will also increase our water conservation messaging. Implementing these combined measures is forecast to mitigate the need for implementing any Drought Response measures over the outlook period.

WPW provides water and wastewater services wherever economically, environmentally and socially practicable to properties and communities throughout its district. WPW provides services to over 23,500 customers (100,000 in peak holiday periods) in an area covering 300 square kilometres, encompassing Phillip Island and the district stretching from The Gurdies to Archies Creek.

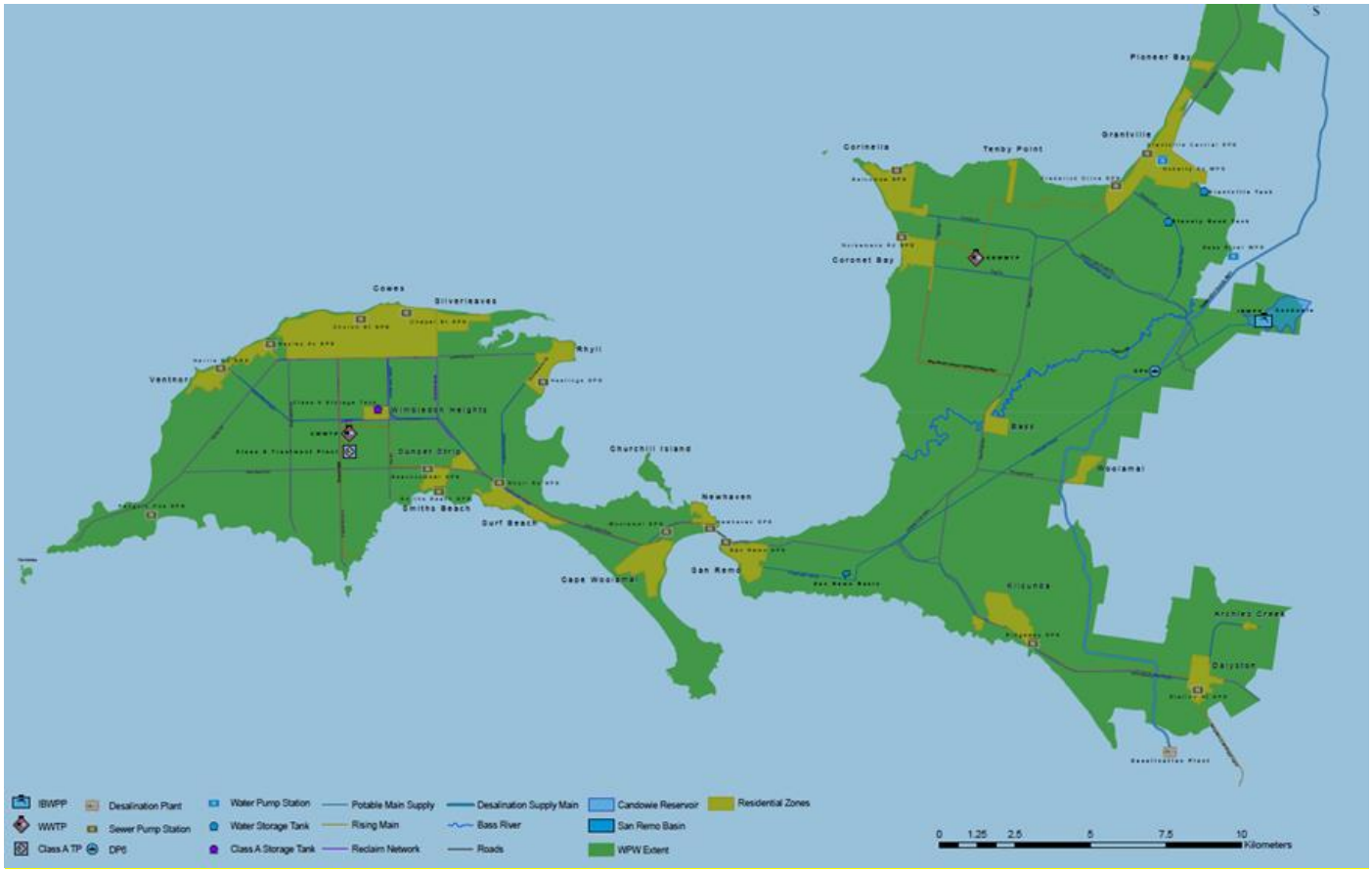

Figure 1 Westernport Water's supply district and primary sources of supply.

Introduction

Westernport Water Supply Outlook

The AWO provides an overview of WPW water availability from 1 December 2024 to the 30 November 2025. The AWO has been developed taking account of the winter/spring inflows, the latest forecasts for rainfall from the Bureau of Meteorology and the UWS. WPW's AWO will inform the State's AWO and provide information on the upcoming peak summer demand, the available water held in storage to adequately meet the predicted demand and inform customers and stakeholders of any changes to our water restriction regime, in accordance with WPW's Drought Preparedness Plan (DPP).

Further information on Permanent Water Saving Rules can be found on our website.
https://www.westernportwater.com.au/pws-rules/

Using water responsibly is everybody's opportunity to help secure water supplies. Information on how to save water can be found on our website.
https://www.westernportwater.com.au/learning-centre/education/target-your-water-usage/

Despite the rare likelihood of restrictions, extreme events or emergencies such as bushfires in WPW's catchments, major loss of power supply or water contamination could require the implementation of restrictions to manage water demands.

Likelihood of Restrictions over the next 12 Months

Table 1 Westernport Water supply system and expected restriction levels in the outlook period.

System	Towns supplied	Primary source of supply	Likelihood of restrictions	Comment
Westernport Water Supply System	Grantville, Corinella/Coronet Bay, San Remo, Phillip Island, Kilcunda, Dalyston/ Archies Creek	Candowie Reservoir (Tennent Creek), Melbourne Headworks supply, Bass River	Rare (1-4%)	Maintain Permanent Water Saving Rules, Supplement with GYTRS Entitlement

Key Achievements for 2023/24

Key Achievements

- Continued a trial at CWWTP as part of an environmental study to understand how wetland plant species can improve water quality while reducing greenhouse gas emissions and potentially leading to beneficial return of water to the environment.
- Continued the Integrated Water Management Forum (IWM) in the Western Port region to identify key priority projects to achieve integrated solutions for water management in the region.
- Commenced masterplan of the distribution system looking to minimise water losses and optimise system performance in the distribution network.
- Participated in regional Integrated Water Management with Bass Coast Shire Council.
- Participated in the Central and Gippsland Region Sustainable Water Strategy action to create a south-central pooled resource and associated reforms.
- Continued Pilot Trial Class B recycled water for agricultural use on surrounding farmland to the Cowes Wastewater Treatment Plant.
- Continued to successfully utilise the connection to the Melbourne Pool via the pipeline with water supplied from Westernport Water's treatment plant to maintain supply during periods of poor raw water quality.
- Surpassed the effluent reuse target of 267 ML, achieving a total of 320ML.
- Completed the masterplan of CWWTP which reviewed the recycled water treatment plant and capacity to supply users now and, in the future.

Future Initiatives

- Exploration of options for expansion of irrigation infrastructure at both CWWTP and KRWWTP sites to further enable the use of recycled water.
- Continue to develop an operating protocol for priority selection of water supply considering successful commissioning of Melbourne Pool connection.
- Continue to improve our understanding of customer water use behaviour.
- Community campaign to raise awareness of recycled water and how it can be beneficial to customers.

Existing Water Use

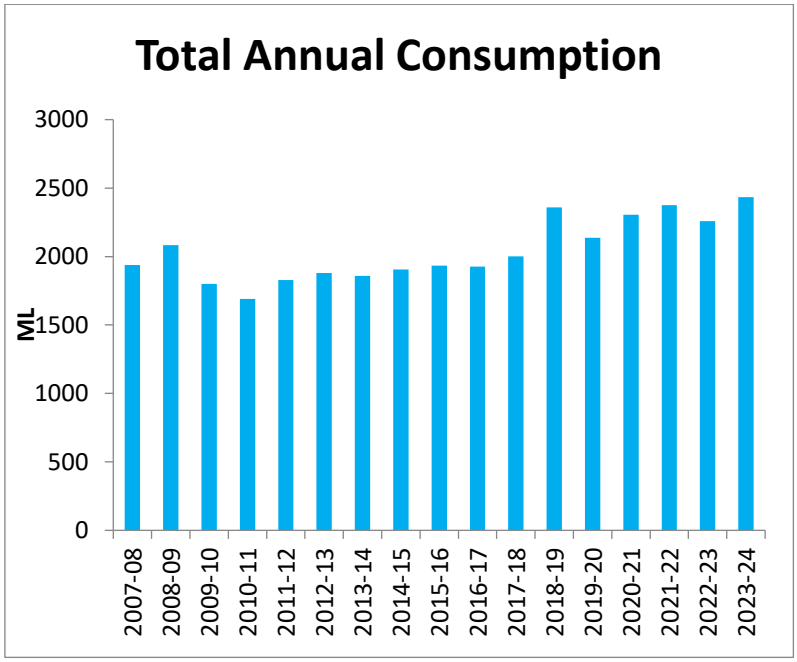

Figure 2 Westernport Water's yearly annual consumption comparison for the supply system.

Westernport Water's annual water usage has risen by 176 ML, increasing from 2,258 ML in 2022–23 to 2,434 ML in 2023–24. This growth is primarily attributed to drier conditions in 2023–24 compared to the wetter conditions of the previous year. Additionally, the ongoing population growth and rising demand have contributed to the overall upward trend in water consumption.

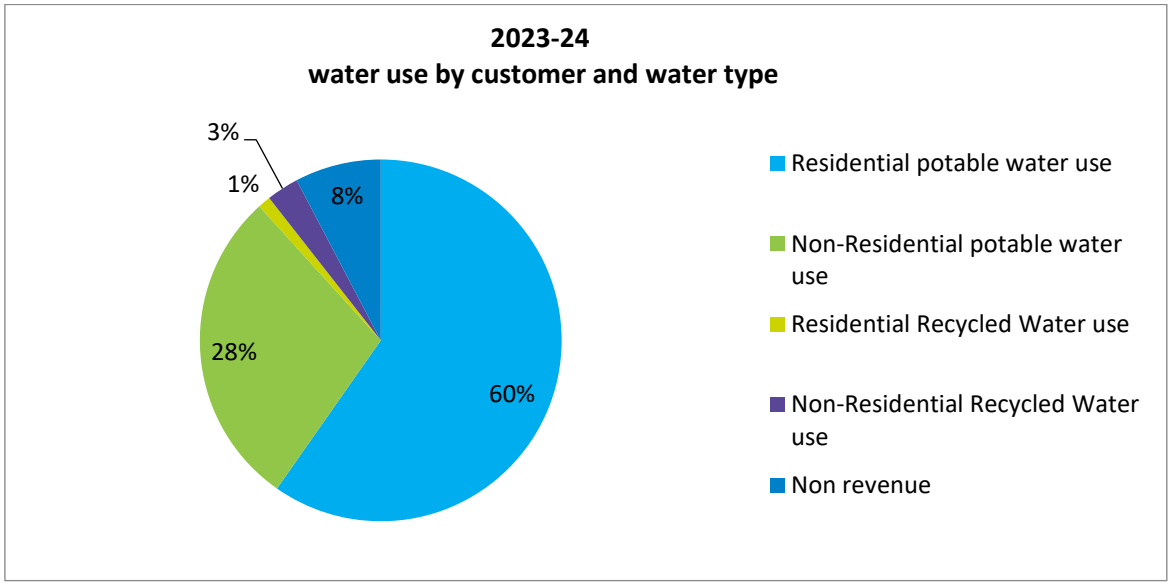

Figure 3 2023-24 break down of use customer/non-revenue/non-residential water and recycled water use.

Figure 3 shows the distribution of water use in 2023-24 including potable water, recycled water and non-revenue water including water losses through leakage in the system.

Water use is primarily potable water, and the greatest percentage of that use is by residential customers (60%).

Class A recycled water makes up a small percentage of total (4%) water use. Non-residential (i.e. commercial) customers are the major users of Class A recycled water (via irrigation), compared to residential customers, who are only using Class A recycled water for toilet flushing, gardening and wash down activities.

Existing Sources of Water Supply

Table 2 Bulk Entitlements for supply systems including environmental flow requirements.

System	Bulk Entitlement (ML/year)	Max rate of extraction (ML/day)	Daily flow to environment (ML/day)	Environmental flow (ML/year)	Amount taken (ML/year)
Tennent Creek	2,911	14.2	5.0 winter 0.1 summer 7.5 fresh	344	2,368
Bass River	3,000		N/A		0
Greater Yarra System – Thomson River Pool	1,000		N/A		117

As of the 01/10/2024 WPW currently holds 4,856ML of allocation and carryover in the Greater Yarra System -Thomson River Pool Bulk Entitlement.

Current Water Resource Position

Demand Indicators

As part of the development of the UWS, WPW reviewed its water demand forecast to 2070. Water demand is typically difficult to forecast because it varies depending on climate variability, changing population and water use behaviour. The WPW region has an additional level of complexity associated with the large peaks in (non-permanent) population in summer and the large number of tourists that visit the region. To reflect the uncertainty in forecast demand, WPW developed a baseline demand forecast with an upper and lower bound to reflect a probable range of demand growth. These forecasts are based on historic water consumption, population growth projections for the area and trends in water use.

The forecasts for future demand are shown in the tables below.

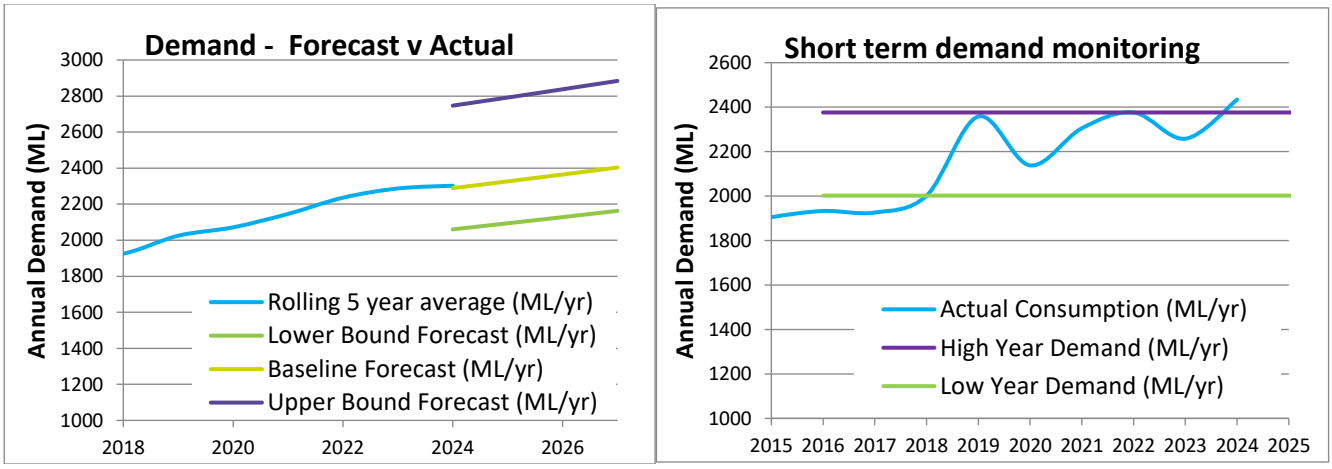

Figure 4 Updated demand indicators considered in the Annual Water Outlook determination October 2024.

Supply Indicators

Supply indicators:
Inflows into Candowie Reservoir were such that the reservoir peaked in the last 6 months at 71% on the 31st of July. Since then, the reservoir level has slowly declined. Currently the reservoir level is at 66% as of the 15th in October.

No water was extracted from Bass River during the reporting period as Candowie Reservoir did not reach the trigger levels to pump from Bass River.

117ML was extracted from the Melbourne Supply System. Extraction was to augment supply when raw water quality was poor in Candowie Reservoir.

Alternative Water supplies:

Westernport Water produces Class A recycled water on Phillip Island. The Class A Recycled Water Treatment Plant (RWTP) underwent membrane replacement in September 2022. During 2023-24 the plant produced 106 ML Class A water.

Overall, across WPW's two effluent treatment facilities, WPW reused 320ML of treated effluent, equating to 20% of total inflows. This exceeded the total reuse target of 267 ML by 53ML or 20%.

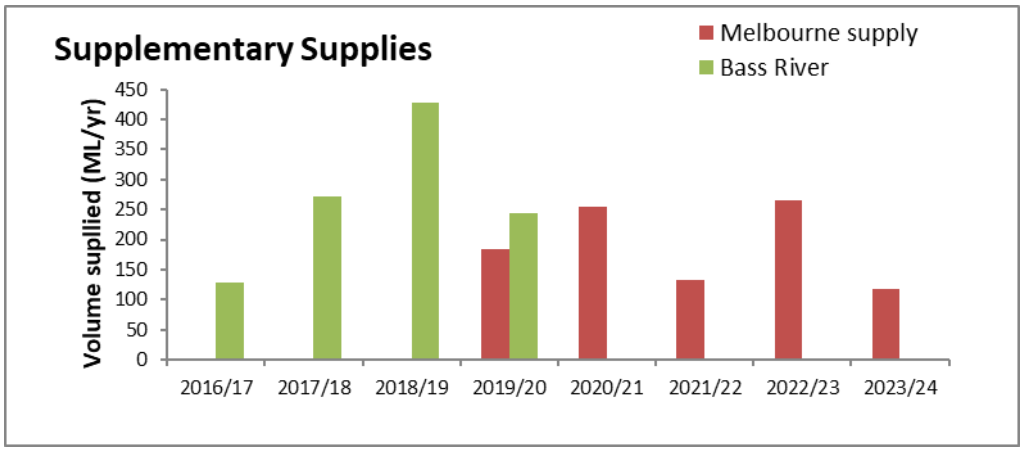

Figure 5 Use of supplementary supplies for the previous six years

Seasonal Climate Outlook

The Bureau of Meteorology (BOM) November to January rainfall outlook, issued 3 October 2024, November to January rainfall is likely to be above median (greater than 63% chance).

Temperatures for November to January are likely to be warmer than the median for much of the country (greater than 93% chance).

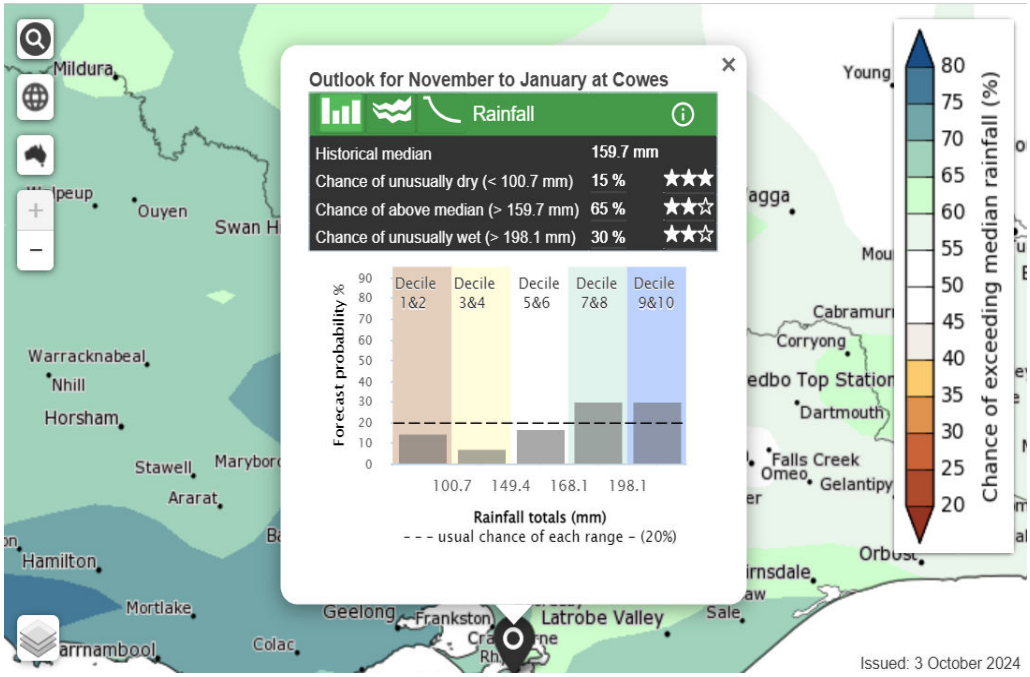

Figure 6 BOM Seasonal Rainfall outlook for November 2024 to January 2025.

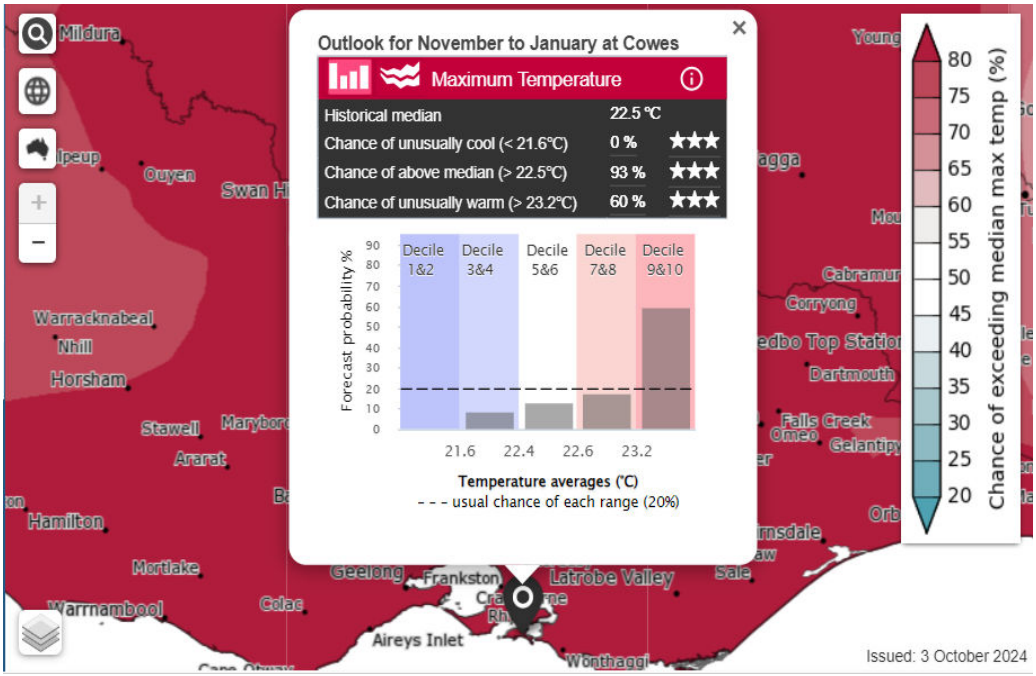

Figure 7 BOM Seasonal Temperature outlook for November 2024 to January 2025.

Victorian climate and streamflow in the longer-term context

Victorian climate and streamflow in the longer-term context Victoria's climate and streamflow is highly variable, but within this variability we have experienced a warming and drying trend over recent decades.

- higher temperatures and more hot days;
- reductions in rainfall during the cooler months;
- in some locations, increases in extreme, short-duration rainfall events; and
- in some catchments, particularly in western Victoria, a shift in the streamflow
- response to rainfall with typically less streamflow generated for a given amount of rain.

Some of the rainfall declines in the cooler months can be attributed to increases in greenhouse gas concentrations in the atmosphere. During the cooler months, we have been getting less rainfall from low-pressure and frontal systems.

Over future decades we can expect:

- the rainfall reductions during the cooler months to persist;
- increases in extreme rainfall events;
- increases in potential evapotranspiration due to higher temperature and lower relative humidity;
- reductions in streamflow because of less rainfall and higher potential evapotranspiration; and
- the streamflow response to rainfall to no longer remain the same, and generally decline.

Victoria's climate will continue to be variable with wet years and dry years, against a background drying trend. With a warmer future and projections of declining water availability, we can expect more frequent and severe droughts in the coming decades and increases in extreme rainfall events. The Victorian Government is investing in further research to better understand how Victoria's climate is changing and the water resource implications, through the Victorian Water and Climate Initiative. More information on the observed changes and longer-term future climate and water projections can be found at:

https://www.water.vic.gov.au/our-programs/climate-change-and-victorias-water-sector/hydrologyand-climate-science-research/victorian-water-and-climate-initiative

Forward Outlook for Water Resources over the Coming Year

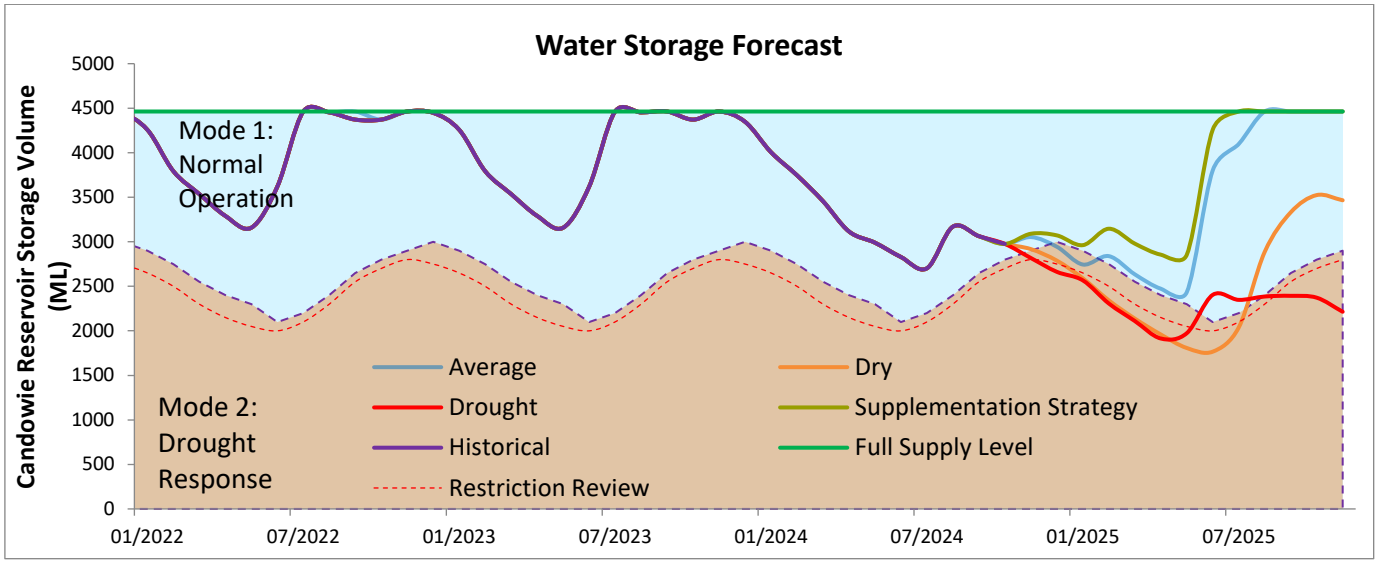

Figure 8 November 2024 Water Storage Forecast

Current Status: No restrictions, remain on Permanent Water Savings Rules

Likely Status July 2025: Likelihood of restrictions rare (1-4%), remain on Permanent Water Savings Rules

Likely Status Dec 2025: Likelihood of restrictions rare (1-4%), remain on Permanent Water Savings Rules

WPW has recently started supplementing the supply from Candowie Reservoir with water from the GYTRS bulk entitlement. Figure 8 outlines the "Supplementation Strategy" that WPW is currently using to manage water quality and minimise the risk of entering Drought Response Mode. This strategy involves using 1.25 ML per day from the GYTRS entitlement and blending it with water from Candowie Reservoir. During December, January, and February, WPW will increase the GYTRS flow to approximately 3 ML per day reflecting increased demand and anticipated deterioration in water quality and to reduce the risk of entering Drought Response Mode. This strategy modelling has been built upon the average scenario as the BOM are predicting median to average rainfall for the coming three months. By applying this supplementation strategy, WPW is expected to remain in Mode 1 operation and avoid entering Drought Response Mode.

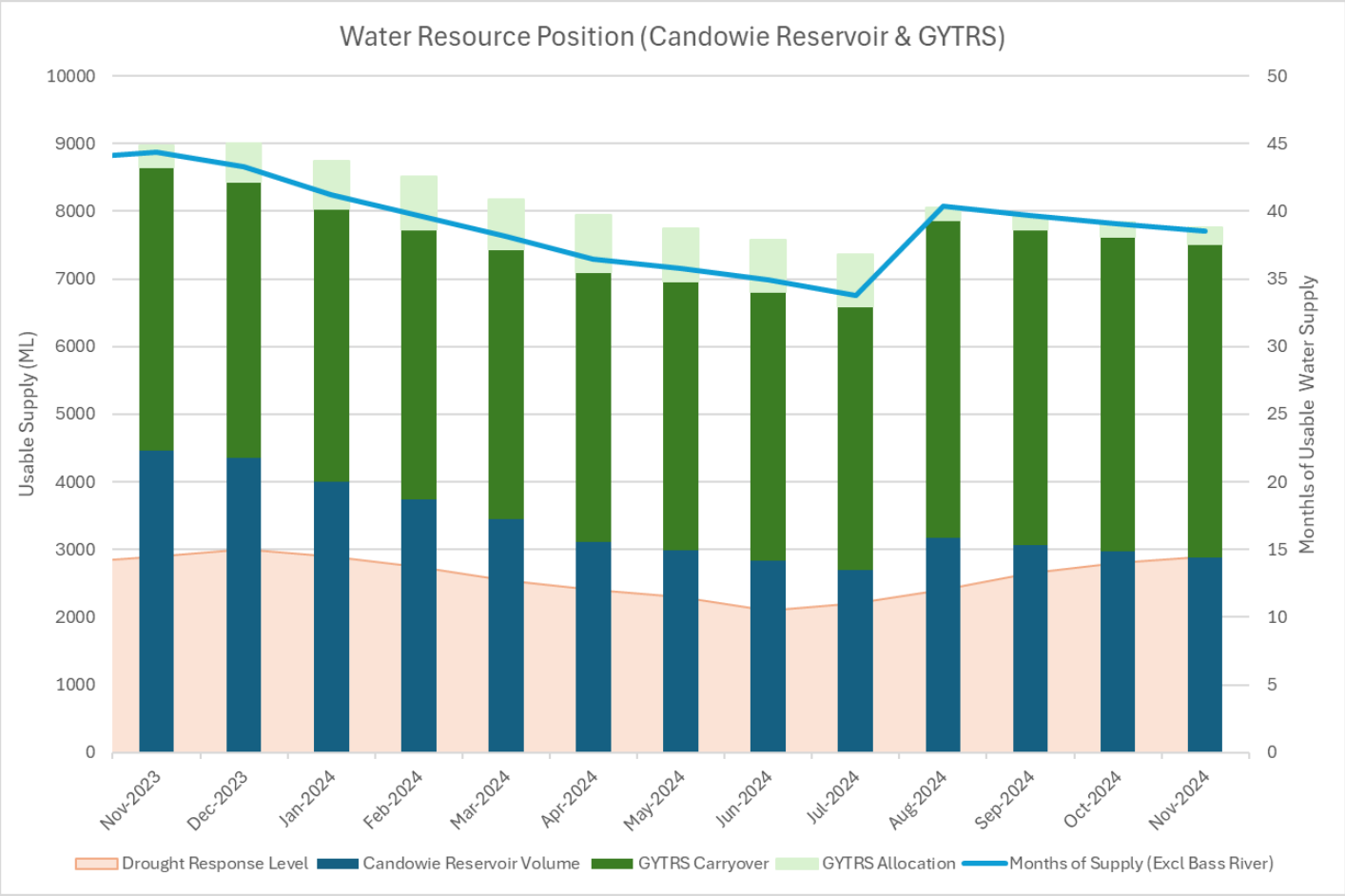

Figure 9 November 2024 Historic Available Water Supply

Drought response levels are based upon water volumes in Candowie Reservoir and the time of year without taking into consideration particular annual contexts.. As shown above, the volume of water in Candowie (Blue Bar) is approximately at the level at which Drought Response measures would be considered. However, when considering the carryover and allocation volumes within the GYTS, WPW has water available in the Candowie Reservoir and GYTS to meet approximately 38 months of demand and as such Westernport Water is not forecasting the need for water restrictions but will continue water conservation messaging to our customers.

Without the supplementation strategy and based on the current reservoir storage of 66% as of 16 October 2024, along with BOM's forecast of a 63% chance of above-median rainfall over the next three months, Candowie Reservoir storage levels are expected to enter Drought Response Mode in December 2024 under an average scenario, with recovery predicted in February 2025. Under dry conditions, the reservoir would enter Drought Response in December 2024 and recover by August 2025. In a drought scenario, Candowie Reservoir would fall into Drought Response in December 2024 and recover by July 2025.

This outlook indicates that the system will not enter the Drought Response Mode with the proposed supplementation strategy but will fall into Drought Response mode under the other

scenarios. WPW will be utilising their entitlement to the GYTS to supplement supply. As stated, before there is currently 38 months of water available in combination from Candowie Reservoir and the GYTRS. If WPW implements its Drought Response, the Drought Management Team will be activated to closely monitor the situation. The team will also consider measures such as further utilising supplementary water supplies and enhancing community education and awareness campaigns to encourage voluntary water conservation.

Implementation of Mode 1 (Normal Operation), when the storage volume is above the Drought Response Trigger A, indicates that Westernport Water is not anticipating a drought event in the short term that will threaten the security of the region's water supply. In this mode WPW will continue to monitor the following aspects of system security:

- Storage volume in Candowie Reservoir
- Inflows to Candowie Reservoir
- Climatic trends and seasonal outlooks published by the Bureau of Meteorology
- Water consumption and trends in water consumption behaviour.

Implementation of Mode 2 (Drought Response) indicates that Westernport Water considers it possible that a drought event may occur that could lead to a water shortage. The purpose of this mode is to allow Westernport Water adequate time to prepare for supply enhancement options and commence demand management actions to avoid further action.

If the reservoir falls below Mode 2 trigger levels WPW will -

- Convene Drought Response team comprising of WPW management and staff.
- Provide weekly updates of system status to GM Assets and Operations.
- Commence community education campaign.
- Promote voluntary water conservation measures.
- Increase surveillance of water leaks and pipe burst within the system.

Short-Term Action Plan

The demand and supply indicators discussed in the previous section demonstrate that WPW has sufficient water to meet demand in the short to medium term, supported by the supplementary supply from the GYTRS. The current utilisation strategy involves drawing 500 ML from this supply in 2024–25. However, WPW is prepared to increase usage from the GYTRS if necessary. WPW currently holds 4,856 ML of allocation and carryover in the GYTRS Entitlement.

As of 1 November, the combined volume, including the current level of Candowie Reservoir, totals 7,754 ML, providing an estimated 38 months of available supply. While trading entitlements has been considered, it is not an option WPW is currently pursuing in the short term.

Urban Water Strategy Actions:

Ongoing monitoring of the implementation of the UWS approved in 2022, including the following detailed strategic actions. The actions listed in the UWS, future initiatives and any actions listed in this Outlook have been consolidated below. All key focus areas as per the Minister's letter have been highlighted in blue.

System	Action	Description	Status	Timing for Completion	Source
Candowie Reservoir	1	Westernport Water will continue to seek new customers for its Class A recycled water supply, relieving pressure on the potable supply and reducing treated wastewater outfalls to the ocean.	Ongoing	2027	UWS, 2022
Candowie Reservoir	2	Any other significant augmentation planning/delivery or demand management activities in response to arising circumstances that were not scheduled for this five-year period.	Ongoing	2027	UWS, 2022
Candowie Reservoir	3	In the medium term (next five to 20 years), investigate the purchase of additional bulk entitlement from the Melbourne supply system either on a temporary or permanent basis.	Ongoing	2027	UWS, 2022
Candowie Reservoir	4	Westernport Water's aim is to provide the lowest practical cost of water to its customers while ensuring a reliable water supply.	Ongoing	2027	UWS, 2022
Candowie Reservoir	5	Westernport Water has adopted a service level that water restrictions are not required in 95 years out of 100 to maintain a supply demand balance.	Ongoing	2027	UWS, 2022
Candowie Reservoir	6	Westernport Water will actively pursue water conservation measures, including leakage detection, education and public awareness and implementing water efficiency programs.	Ongoing	2027	UWS, 2022
Candowie Reservoir	7	Westernport Water will report against the assumptions that underpin the UWS annually to monitor deviation from the demand and supply balance forecasts.	Ongoing	2027	UWS, 2022
Candowie Reservoir	8	Westernport Water will update this UWS within five years of the submission of the strategy.	Ongoing	2027	UWS, 2022
Candowie Reservoir	9	Continue to supplement supply with water from the GYTRS entitlement.	Ongoing	2025	Annual Water Outlook 2024