

Annual Water Outlook 2023

ANNUAL WATER OUTLOOK



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Executive 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 2023 to 30 November 2024. 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 to the end of the outlook period, with no requirement to change restriction levels from the ongoing Permanent Water Saving Rules campaign.

WPW provides water and wastewater services wherever economically, environmentally and socially practicable to properties and communities throughout its district. WPW provides services to over 22,000 permanent 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).

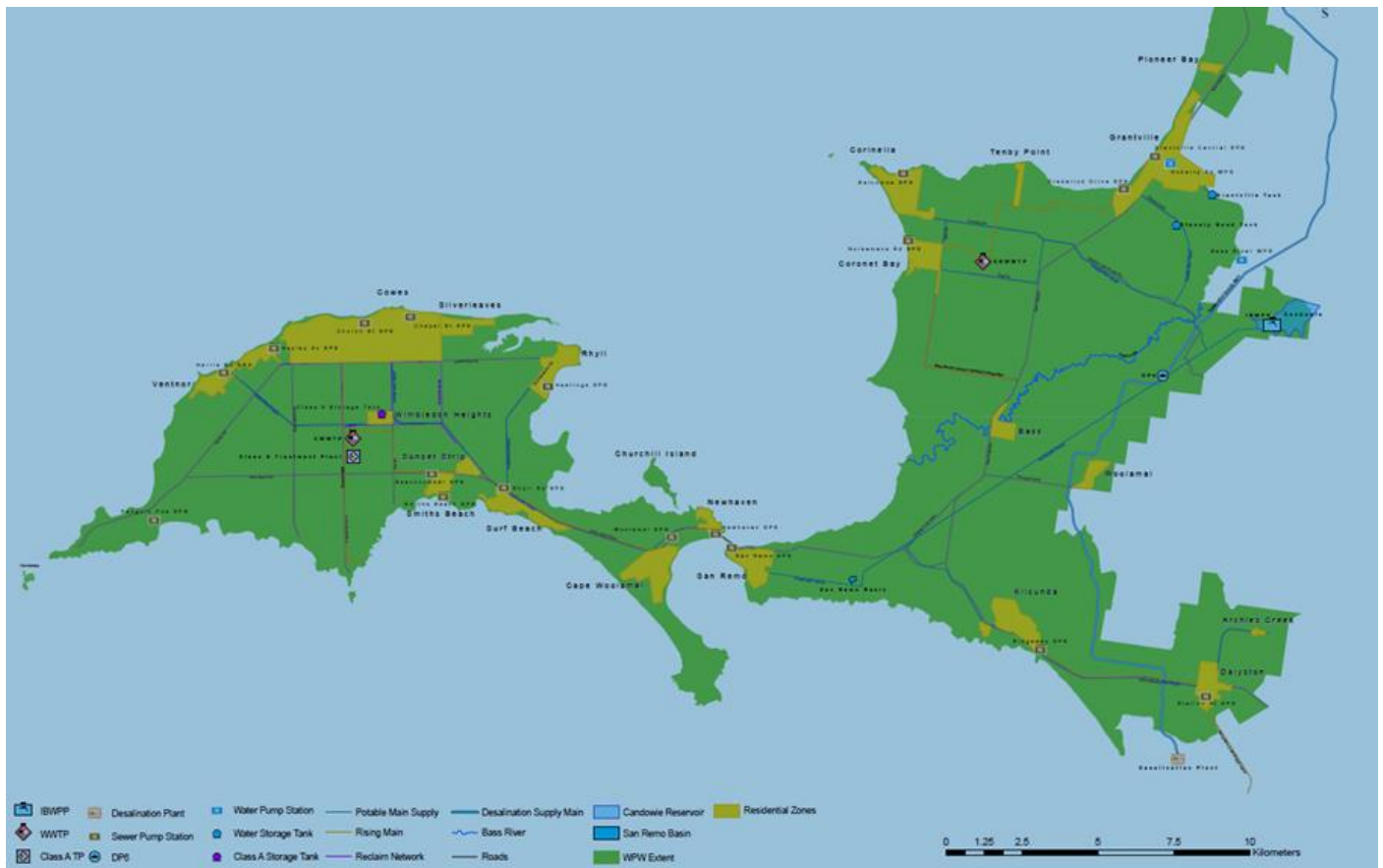


Figure 1 Westernport Water's supply district and primary sources of supply.

In 2022, WPW revised its UWS, which governs the provision of water supplies to customers for the next 50 years. The UWS determines how demand will be met whilst enhancing the water supply, integrating water cycle management and meeting customers expected level of service. The UWS examines climate change and demand scenarios when managing water and considers feedback from customers and the community, as well as key stakeholders. WPW undertook a number of tasks in 2022/23 in relation to the UWS and our ongoing commitment to meet levels of service. These are:

- Developed the next iteration of our Recycled Water Strategy which developed targets and explored opportunities to increase recycled water use.
- Utilised the connection to the Melbourne Pool to supplement supply during periods of poor raw water quality

Introduction

Westernport Water Supply Outlook

The AWO provides an overview of WPW water availability from 1 December 2023 to the 30 November 2024. 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).

The outlook for the upcoming year indicates water supplies are expected to meet supply and demand requirements for the outlook period, the requirement to change restriction levels from the ongoing Permanent Water Saving Rules is very rare.

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 very 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	Very rare (<1%)	Maintain Permanent Water Saving Rules

Key Achievements for 2022/23

Key Achievements

- Construction and installation of a floating wetland at CWWTP as part of an environmental study to understand how wetland plant species can improve water quality and reduce greenhouse gas emissions.
- Completion of the Recycled Water Strategy which reviewed targets and outlined opportunities to increase recycled water use.
- 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.
- Participated in regional Integrated Water Management with Bass Coast Shire Council.
- Participated in the Central and Gippsland Region Sustainable Water Strategy working group.
- 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.

Future Initiatives

- Exploration of options for expansion of irrigation infrastructure at both CWWTP and KRWWTP sites to further enable the use of recycled water.
- Complete a review of the recycled water treatment plant and capacity to supply users now and in the future.
- 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

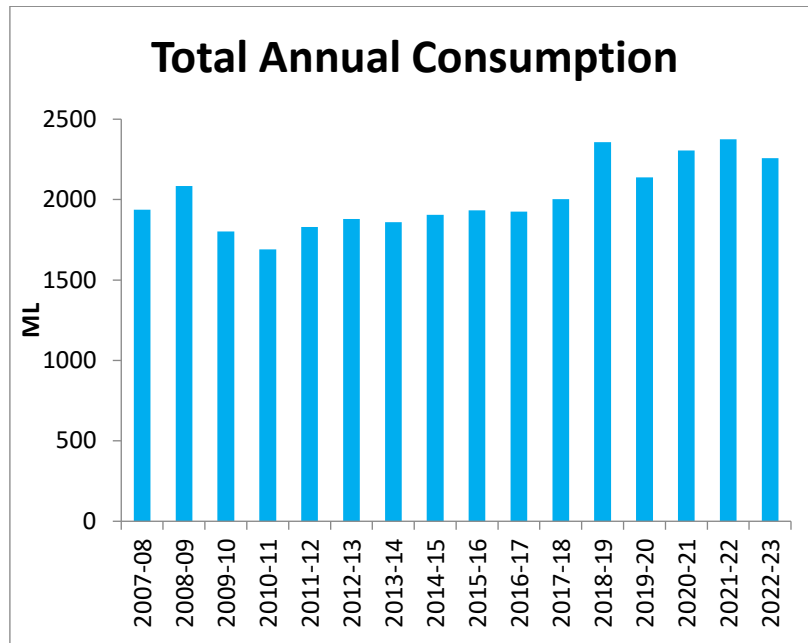


Figure 2 Westernport Water's yearly annual consumption comparison for the supply system.

Westernport Water's annual water use has seen a decrease of 118 ML in the last year from 2,376 ML in 2021-22 to 2,258 ML in 2022-23. This decline in water usage compared to the previous year can be attributed to the shift towards a post-COVID-19 lifestyle, marked by reduced remote work and the return of permanent residents to Melbourne.

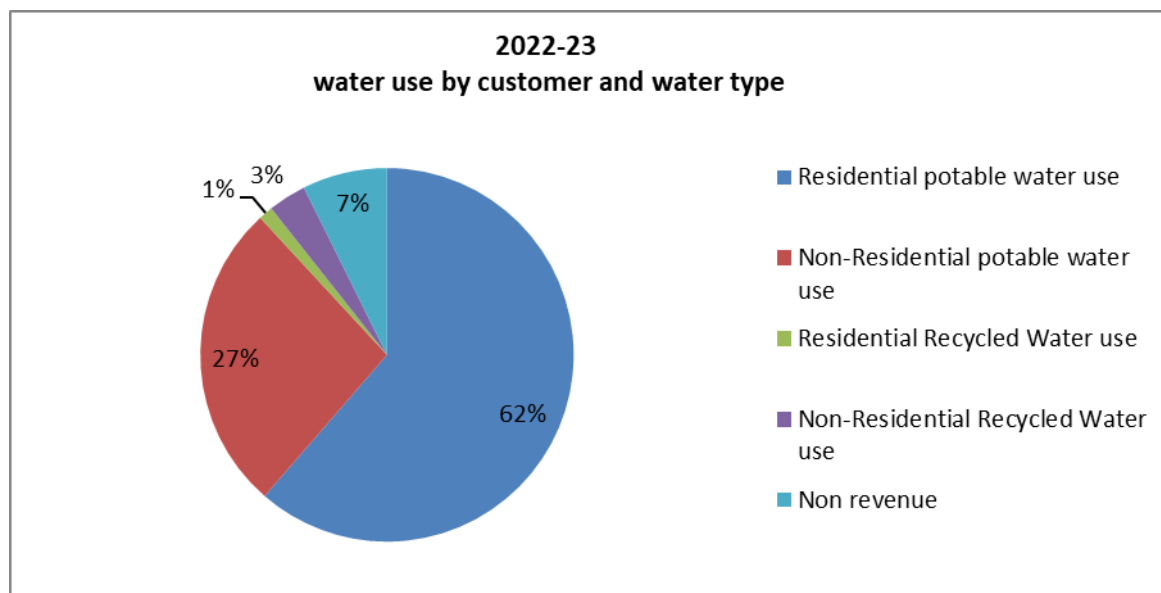


Figure 3 2022-23 break down of use customer/non-revenue/non-residential water and recycled water use.

Figure 3 shows the distribution of water use in 2022-23 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 (62%).

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	13.2	5.0 winter 0.1 summer 7.5 fresh	464	2,096
Bass River	3,000	12	N/A		0
Greater Yarra System – Thompson River Pool	1,000		N/A		265

As of the 01/07/2023 WPW currently hold 4,395ML of carryover for their Greater Yarra System -Thompson 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.

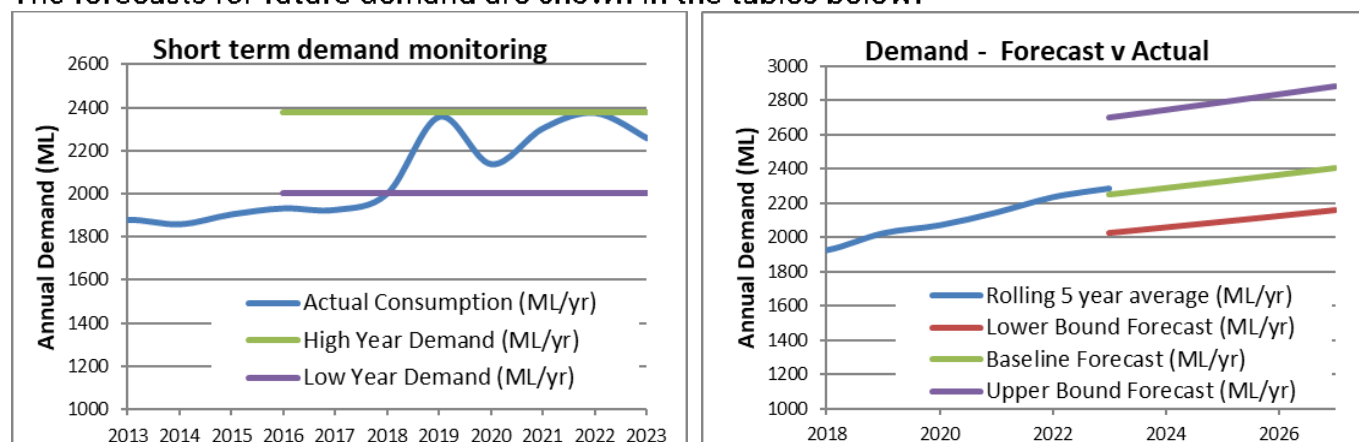


Figure 4 Updated demand indicators considered in the Annual Water Outlook determination October 2022.

Supply Indicators

Supply indicators:

Inflows into Candowie Reservoir were such that in June 2023 it reached 100% full and has remained at 100% full through until October 2023.

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.

265ML 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 2022-23 the plant produced 64 ML Class A water.

Overall, across WPW's two effluent treatment facilities, WPW reused 348ML of treated effluent, equating to 18% of total inflows. This was below the forecast total reuse target of 25% and can be attributed to La Nina weather patterns impacting stormwater infiltration into the sewerage network.

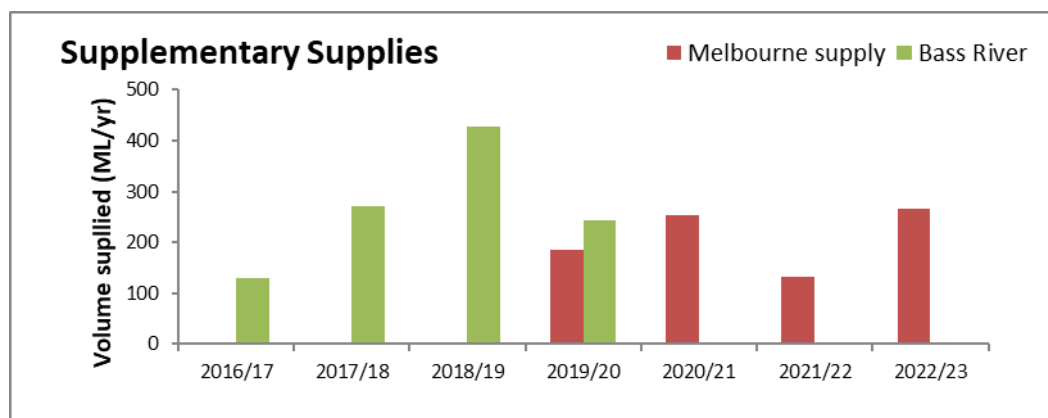


Figure 5 Use of supplementary supplies for the previous six years

Seasonal Climate Outlook

The Bureau of Meteorology (BOM) November to January rainfall outlook, issued 5 October 2023, November to January rainfall is likely to be below median for much of western, northern, and southern Australia.

Temperatures for November to January are likely to be warmer than average for much of the country (greater than 80% chance).

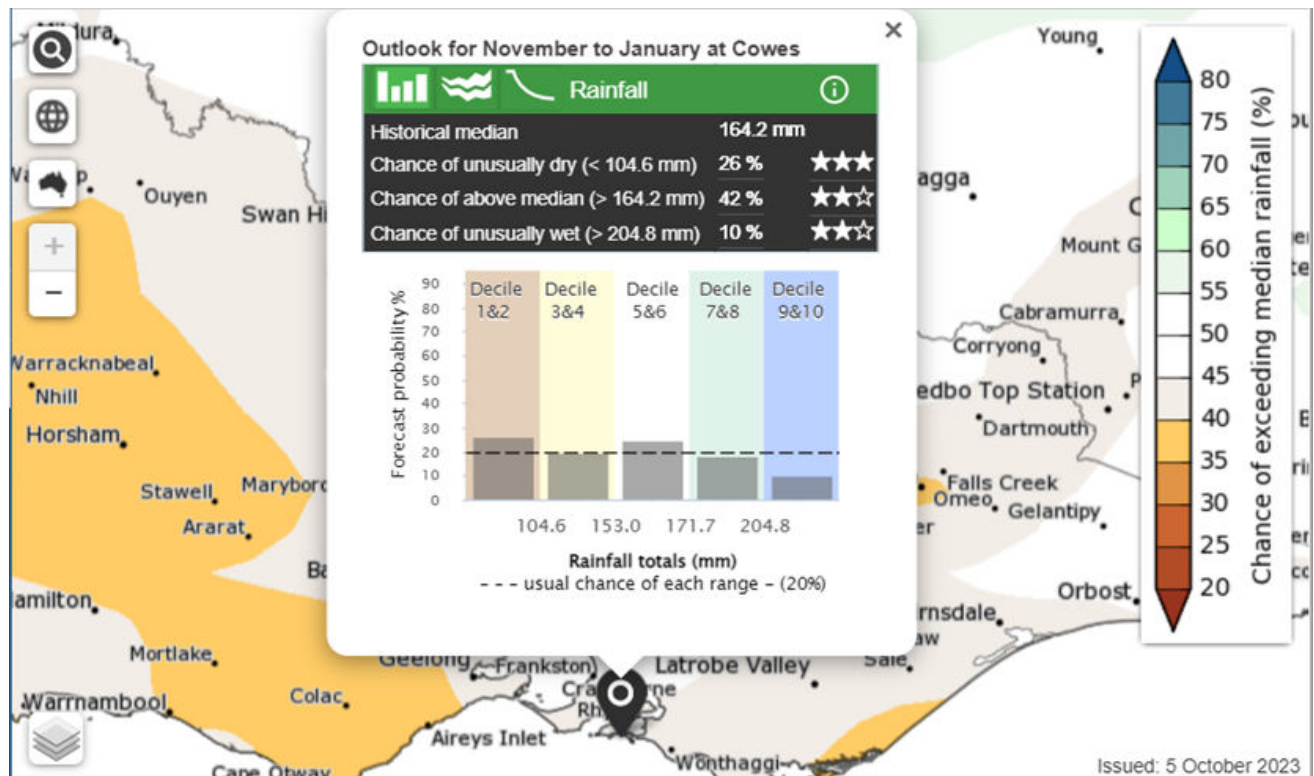


Figure 6 BOM Seasonal Rainfall outlook for November 2022 to January 2024.

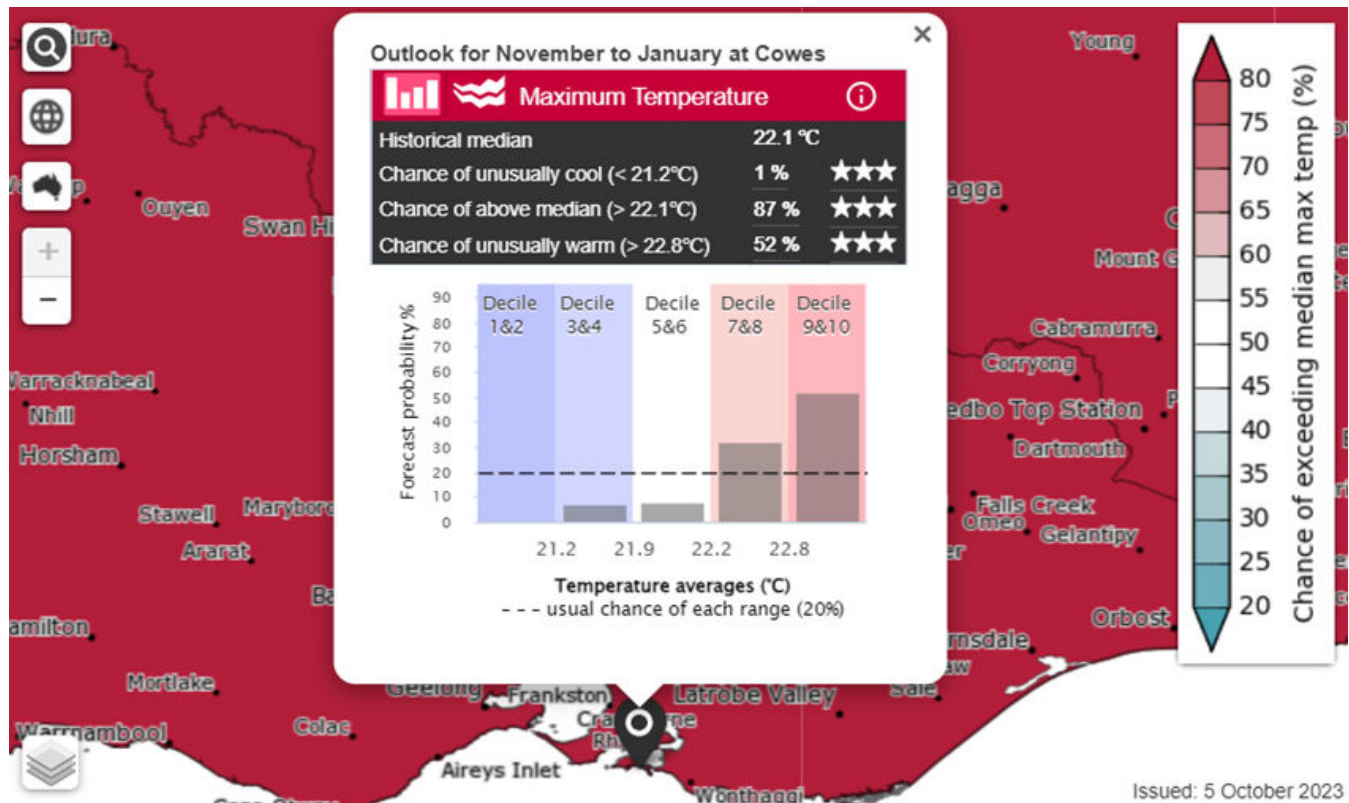


Figure 7 BOM Seasonal Temperature outlook for November 2023 to January 2024.

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.

Over recent decades we have experienced trends toward:

- 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 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/climate-change>

Forward Outlook for Water Resources over the Coming Year

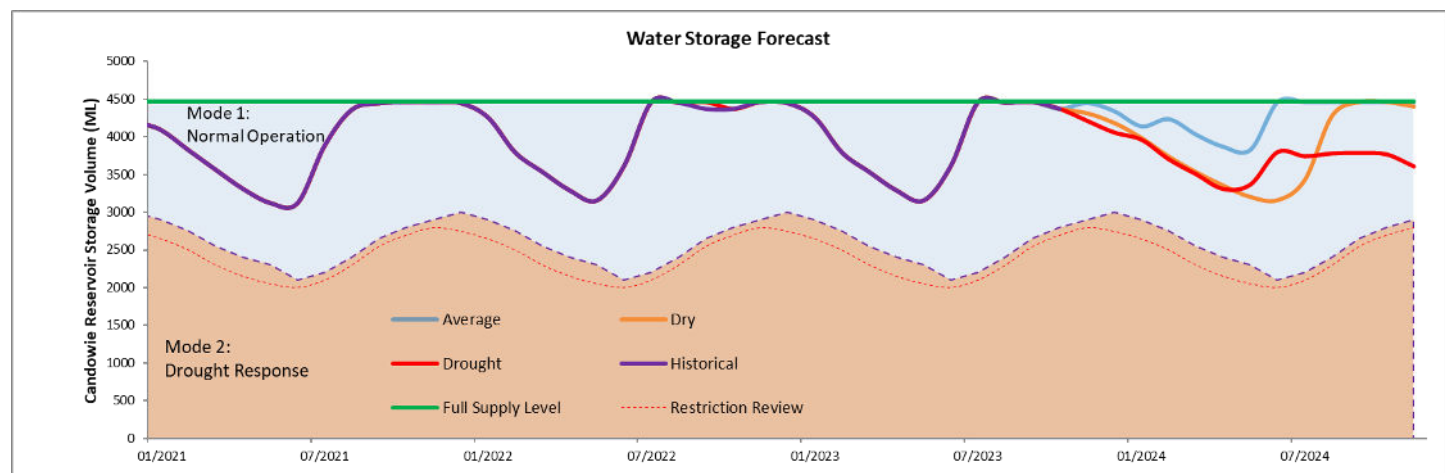


Figure 8 November 2024 Water Storage Forecast

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

Likely Status July 2023: Likelihood of restrictions very rare, remain on Permanent Water Savings Rules

Likely Status Dec 2023: Likelihood of restrictions very rare, remain on Permanent Water Savings Rules

Based on current Reservoir storage (100 per cent full at 16th October 2023) and BOM forecasts for the 42% chance of above median rainfall over the three month outlook period, Candowie Reservoir storage levels are expected to remain within the normal operating zone (Mode 1) for the next year. Inflows to the Candowie system are expected to cease soon with the reservoir not expected to fill until mid-2024. By this time next year, the water level in Candowie Reservoir is expected to remain at 100% - or close to - under the average and dry scenarios, and would only decrease under the drought scenario. Under an average scenario, Candowie Reservoir will fill to full supply level during winter 2023. Under a dry scenario, Candowie Reservoir would fill to full supply level during spring 2023.

This outlook indicates that the system will not enter the Drought Response Mode under any of the scenarios for the immediate foreseeable future. However, if climatic conditions change unexpectedly and storage level in Candowie begins trending towards Mode 2: Drought Response, WPW will activate the Drought Management Team, and actively monitor the situation and consider utilising supplementary supplies, community education and 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 Westernport Water 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 in order to avoid further action.

Short-Term Action Plan

The demand and supply indicators discussed in the previous section shows that WPW has sufficient water to meet demand for the short to medium term. However, the water balance presented is a forecast only, and the actual supply and demand balance will shift every year depending on climate, population growth and water consumption behaviours. WPW will continually monitor the supply and demand balance and undertake actions to help manage this balance. WPW also currently hold 4,395ML as carryover Greater Yarra System -Thompson River Pool Bulk Entitlement which equates to nearly 1–2 years of supply. Although we have considered the potential of trading entitlements, it is not an option we are currently considering 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 area as per the Minister's letter have been highlighted in blue.

Action	Source	Description	Timing
1	UWS, 2022	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
2	UWS, 2023	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
3	UWS, 2022	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
4	UWS, 2022	Westernport Water's aim is to provide the lowest practical cost of water to its customers while ensuring a reliable water supply.	Ongoing
5	UWS, 2022	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
6	UWS, 2022	Westernport Water will actively pursue water conservation measures, including leakage detection, education and public awareness and implementing water efficiency programs.	Ongoing
7	UWS, 2022	Westernport Water will report against the assumptions that underpin the UWS annually to monitor deviation from the demand and supply balance forecasts.	Ongoing
8	UWS, 2022	Westernport Water will report against the assumptions that underpin the UWS annually to monitor deviation from the demand and supply balance forecasts.	Ongoing
9	UWS, 2022	Westernport Water will update this UWS within five years of the submission of the strategy.	Ongoing
10	Annual Water Outlook 2023	Continue to develop an operating protocol for priority selection of water supply in light of successful commission of Melbourne Pool connection.	Ongoing