




Annual Water Outlook

2024

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1 Introduction

This Annual Water Outlook has been prepared, as required under Part 4-2 of the Statement of Obligations (General) 2015. It is prepared to inform our customers, stakeholders and the community on:

- a. the current water resource position
- b. the outlook for our water resources over the coming year under a range of plausible climate scenarios
- c. our ability to meet agreed levels of service; and
- d. actions to improve system performance, if required, to meet agreed levels of service.

2 Region overview

The regional map (Figure 1) displays all the customer service zones within Wannon Water and the services provided to each particular zone. It includes the major centres of Warrnambool, Portland and Hamilton.



Figure 1 - Wannon Water Region

2.1 Supply systems summaries

Wannon Water supplies drinking water to an estimated population of 89,000 people, which is divided into 34 drinking water localities and various non-drinking water regions. Our water supply comes from a diverse range of water sources, including surface water catchments, deep geothermal and shallow groundwater aquifers. A breakdown of water sources for each locality is represented in Table 1.

Table 1 - Water supply systems and towns supplied

Water system	Supply sources	Towns supplied	Likelihood of restrictions for 2024	Current Storage level (%) As of Nov 2023	Supply (transfer) measures planned for dry scenario (to December 2024)
Otways	<ul style="list-style-type: none"> Arkins Creek catchment Gellibrand River catchment Supplemented by groundwater and roof water. 	<ul style="list-style-type: none"> Allansford Camperdown Cobden Derrinallum Glenormiston Koroit Lismore Mortlake Noorat Purnim Simpson Terang Warrnambool 	Very rare (<1%)	90%	None
Grampians	<ul style="list-style-type: none"> Little Tea Tree Creek and Glenelg River tributaries (Grampians National Park) Rocklands Reservoir 	<ul style="list-style-type: none"> Balmoral Cavendish Dunkeld Hamilton Tarrington 	Very rare (<1%)	97%	Water to be pumped from Rocklands Reservoir
Glenthompson	<ul style="list-style-type: none"> Yuppekiar Creek Mt William Creek Grampians bores 	<ul style="list-style-type: none"> Glenthompson 	Very rare (<1%)	88%	Booster pump to transfer water from the Willaura system
Groundwater systems	<ul style="list-style-type: none"> Otway lower aquifers Bridgewater formation aquifer Newer volcanic aquifers 	<ul style="list-style-type: none"> Portland Port Fairy Heywood Dartmoor Macarthur Port Campbell Peterborough Timboon Casterton Coleraine Sandford Merino Penshurst Caramut Darlington 	Very rare (<1%)	N/A	None
Konong-wootong	<ul style="list-style-type: none"> Den Hills Creek 	<ul style="list-style-type: none"> None (rural customers only) 	N/A	N/A	None

2.2 Water consumption overview 2023

Our customer water usage for the 2022/23 period was 9,584 megalitres, which is broken down into demand type in Figure 2. Residential customers are the largest consumers by bulk volume.

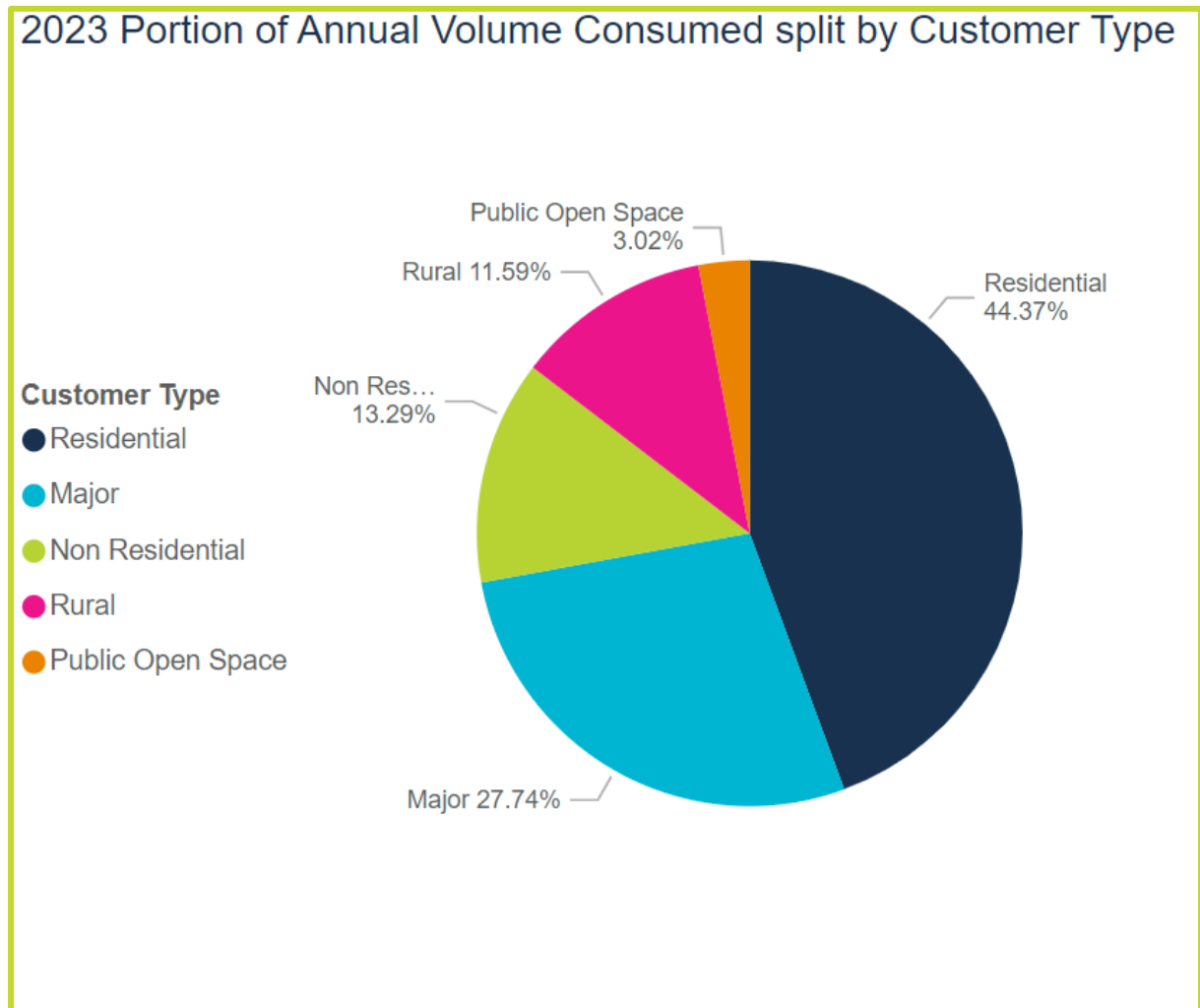


Figure 2 - Water consumption by Customer Type (%) 2022-23

Figure 3 shows the long-term customer demand trend over recent years as well as non-revenue water trends. Non-revenue water is water lost through leaks, bursts and water theft. Water consumption has decreased when compared to the previous year which can be linked to wet climate conditions experienced over Summer. Our overall demand has remained fairly consistent over recent years.

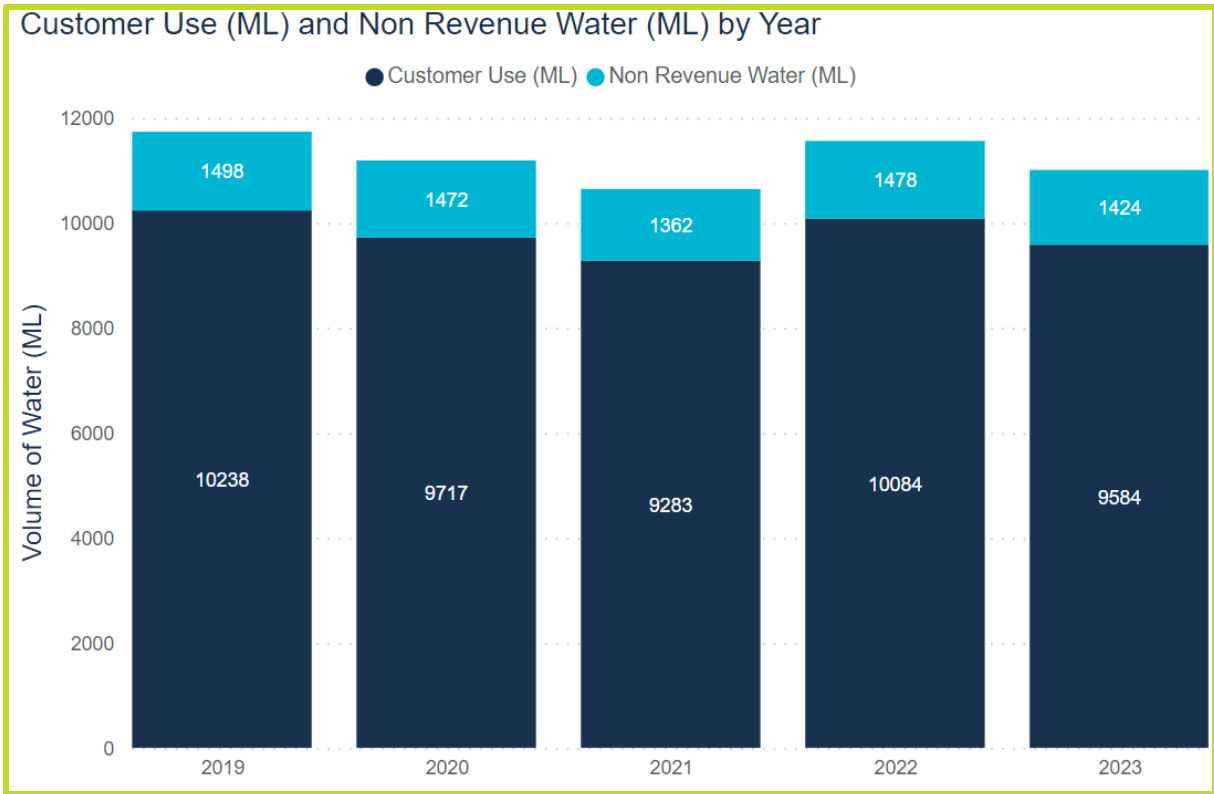


Figure 3 - Water Customer Consumption & NRW breakdown (ML)

3 Our Regional Climate

3.1 Rainfall outlook

The latest BoM rainfall outlook (issued on 16 November 2023) indicates that rainfall in our region is expected to have between 35% and 50% chance of exceeding median rainfall between December 2023 and February 2024. This means we will likely experience average to dry conditions within our catchments.



Figure 4 - Bureau of Meteorology rainfall outlook, December 2023 – February 2024

3.2 Temperature outlook

The temperature outlook issued on 16 November 2023 by BoM indicates that there is a >80% chance of exceeding median maximum temperatures for our region over December to February. This means we are expecting a warmer than average Summer.

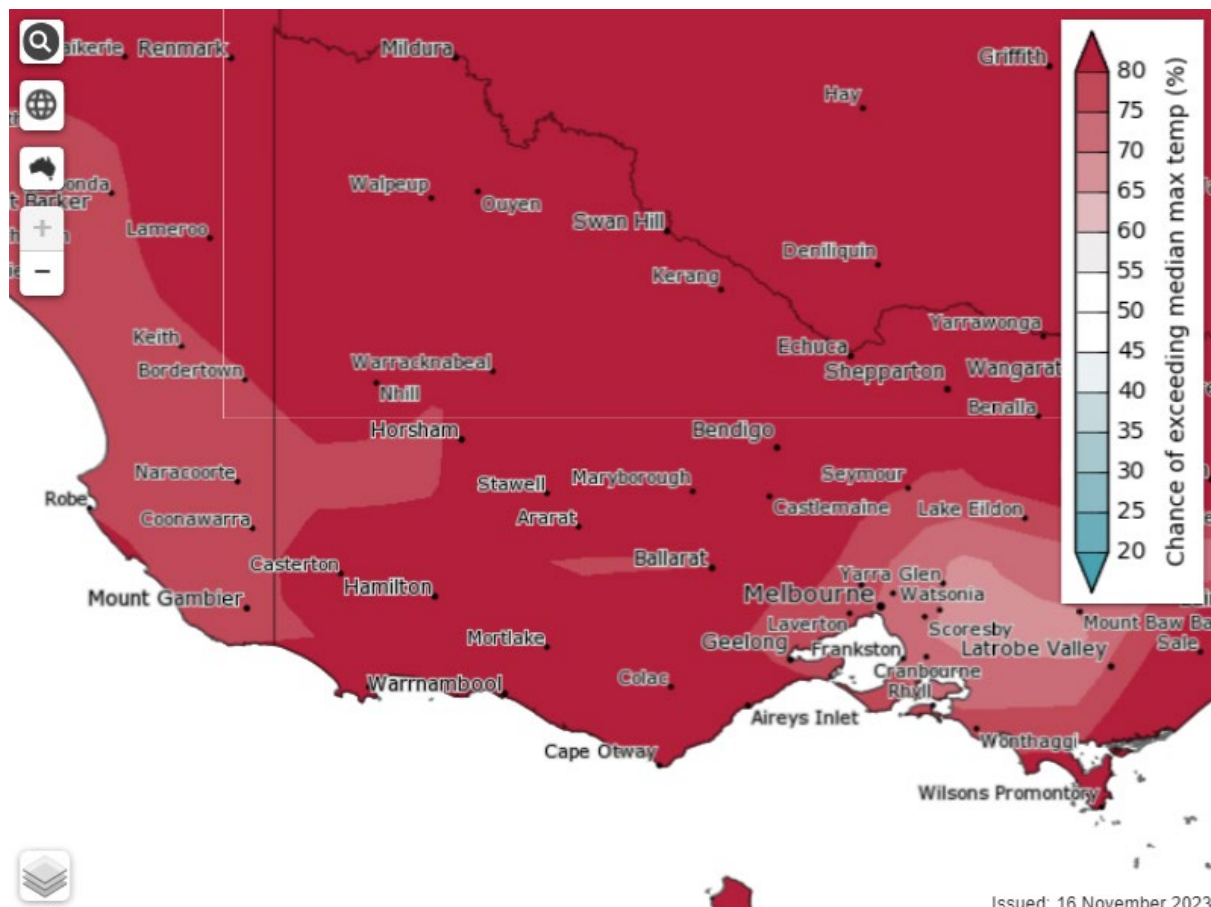


Figure 5- Bureau of Meteorology temperature outlook, December 2020 – February 2023

Issued: 16 November 2023

3.3 Victoria’s 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>

4 What we achieved in 2023

We have had a busy year working through multiple projects for our water and sewer services. Some key highlights include:



Key -

This is a general action that improves our water and sewer services

This is a key Urban Water Strategy Action identified as important by the Minister for demand reduction, capacity building or supply augmentation

5 Water supply systems outlooks

5.1 Otways System

5.1.1 System summary

The Otways System is the largest water supply system within our service area, supplying water to just over 24, 000 customers. The system sources water from:

- Two locations on the Gellibrand River in the Otway Ranges
- Three tributaries in Arkins Creek catchment within the Great Otway National Park
- Two groundwater bores at Carlisle River
- Two groundwater bores to supplement Mortlake's water supply
- Three groundwater bores to supplement Warrnambool's supply
- An emergency bore located near Curdievale which is to be used under drought conditions
- Warrnambool's roof water harvesting project collects rainwater from new housing developments which accounts for up to 1% of Warrnambool's water supply



Figure 6 - Otways System Supply Schematic



Figure 7 - Otways System summary

5.1.2 Supply and Demand

Every five years, we review climate and population data for each of our systems. This data feeds into the Urban Water Strategy (UWS) which is a key planning document that outlines what actions are required in order to maintain adequate levels of service for the community.

Figure 7 below shows how bulk water usage is tracking against what was predicted for the Otways System in our recently published 2022 UWS. We are tracking against the lower side of our 2022 demand projections which includes allowances for non-revenue water and system losses. This indicates that we are in a comfortable, low risk water resource position as we plan our water supply around a high demand water consumption scenario.

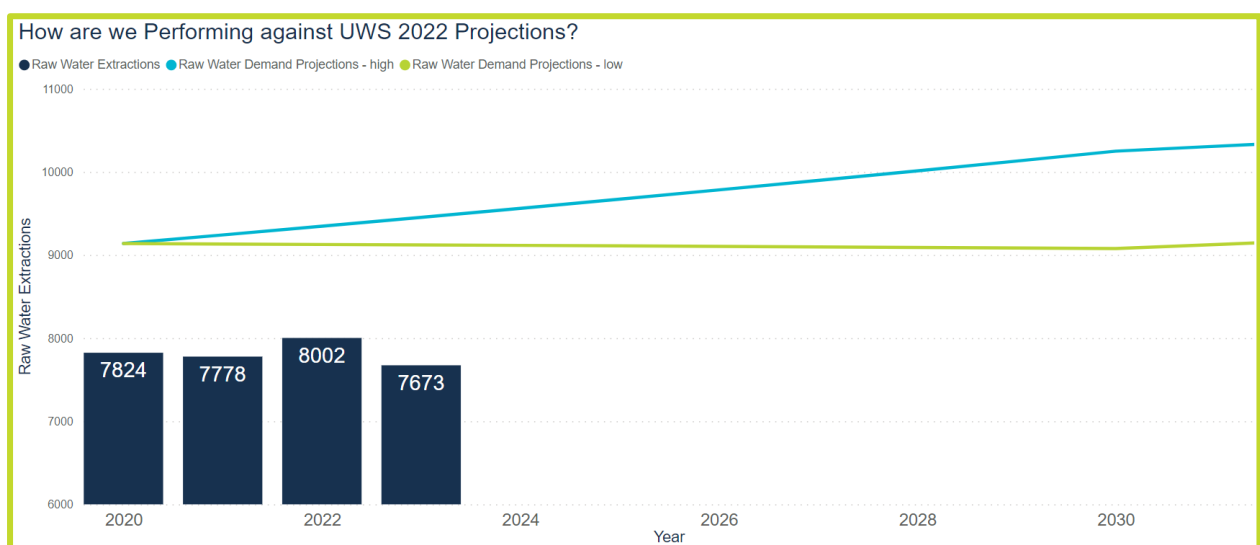


Figure 8 - Otways System Bulk Water Usage versus 2022 UWS Demand Projections

5.1.3 Storage levels and 2024 outlook

The Otways System has reliably supplied water to meet its required demands for 40 years with a consistent streamflow pattern. Our storage forecast in Figure 8 below has been calculated through considering the effects of climate, customer demand and operational factors that will impact storage levels. During 2023 we entered the heightened awareness zone due to some embankment works occurring on Camperdown’s raw water storage (Donald’s Hill Service Basin). Following the completion of these works, we have returned to the general monitoring zone. We are going to reach our storage forecast line in the coming month, so we are well-prepared for a warm Spring-Summer. We are likely to stay within the general monitoring period throughout 2024.

Note: A worst case scenario projection hasn’t been depicted for the Otways System due to it being a run of river system with multiple balancing storages that increase the security of supply. The Otways System hasn’t experienced restrictions since mandatory state-wide restrictions were put in place by the government in the early 1980s. During this time, the Otways System was still performing with consistent and secure supply.

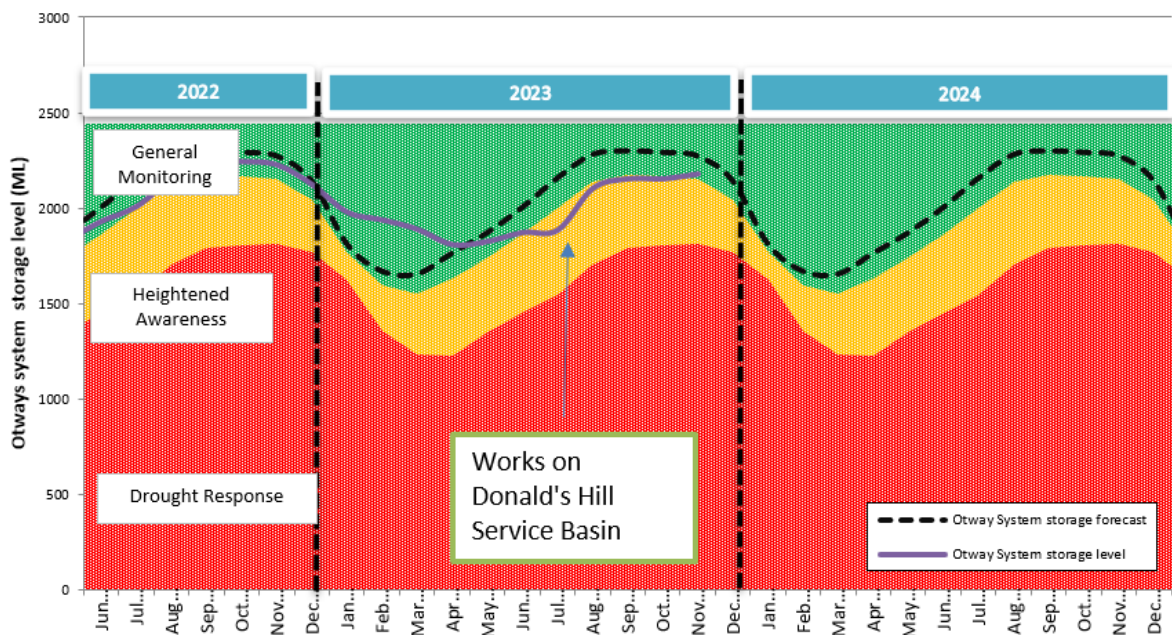


Figure 9 - Otways System Storage Level Outlook

5.2 Grampians System

5.2.1 System summary

Water is harvested from various streams and groundwater bores located in the Grampians National Park. The water is piped and stored in three major basins located to the north of Hamilton. The three reservoirs are Hayes Reservoir, Cruckoor Reservoir and Harwich's Reservoir. The water supplied to Hamilton and district is treated at the Hamilton Water Treatment Plant (WTP). Following treatment at Hamilton, water is also piped to Tarrington (nine kilometres) and Dunkeld (30 kilometres). Upstream of the Hamilton WTP the water is diverted to the Cavendish system where it is disinfected prior to delivery to customers in Cavendish.



Figure 10 - Grampians System Supply Schematic



Figure 11 - Grampians System Summary

5.2.2 Supply and demand

Every five years, we review climate and population data for each of our systems. This data feeds into the Urban Water Strategy (UWS) which is a key planning document that outlines what actions are required in order to maintain adequate levels of service for the community.

Figure 11 below shows how customer demand is tracking against what was predicted for the Grampians System in the 2017 UWS. We are tracking between the high and low demand projections which means we are comfortable in our current supply options for the Grampians System.

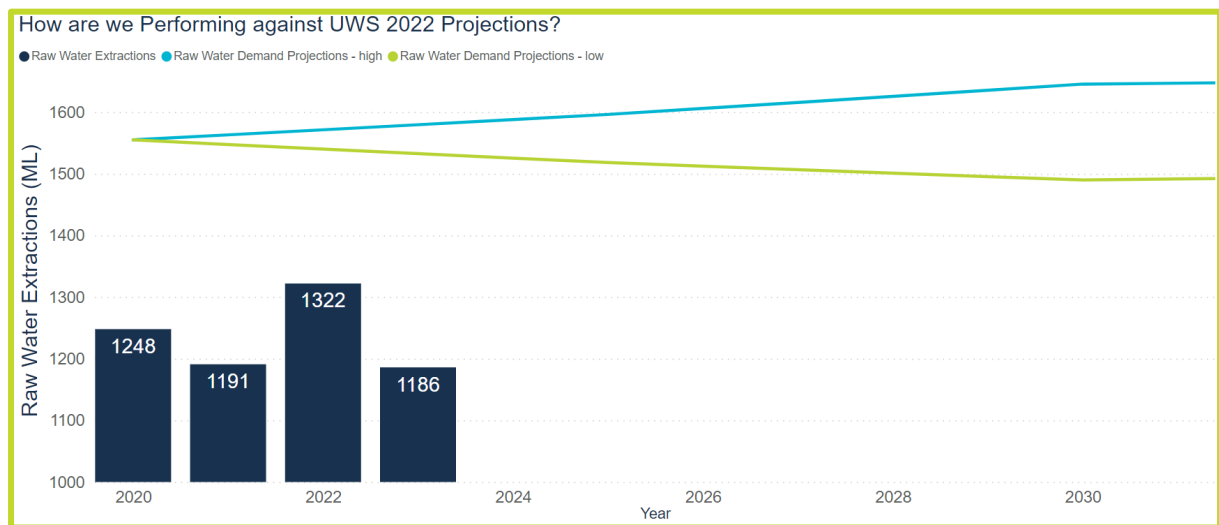


Figure 12 - Grampians System Usage versus 2022 UWS Projected Demands

5.2.3 Storage levels and 2024 outlook

The Grampians System has a high level of supply security as it has many different supply options with spare capacity. This is reflected in our storage levels in Figure 12 below which shows our storage levels are sitting comfortably within the general monitoring section. We have experienced high levels of rainfall in the recent past which means our storages are currently close to capacity heading into the summer months. The storage levels will be reviewed as we head into and during Summer to monitor whether or not pumping from Rocklands Reservoir is needed in Spring of 2024 to bolster our supply.

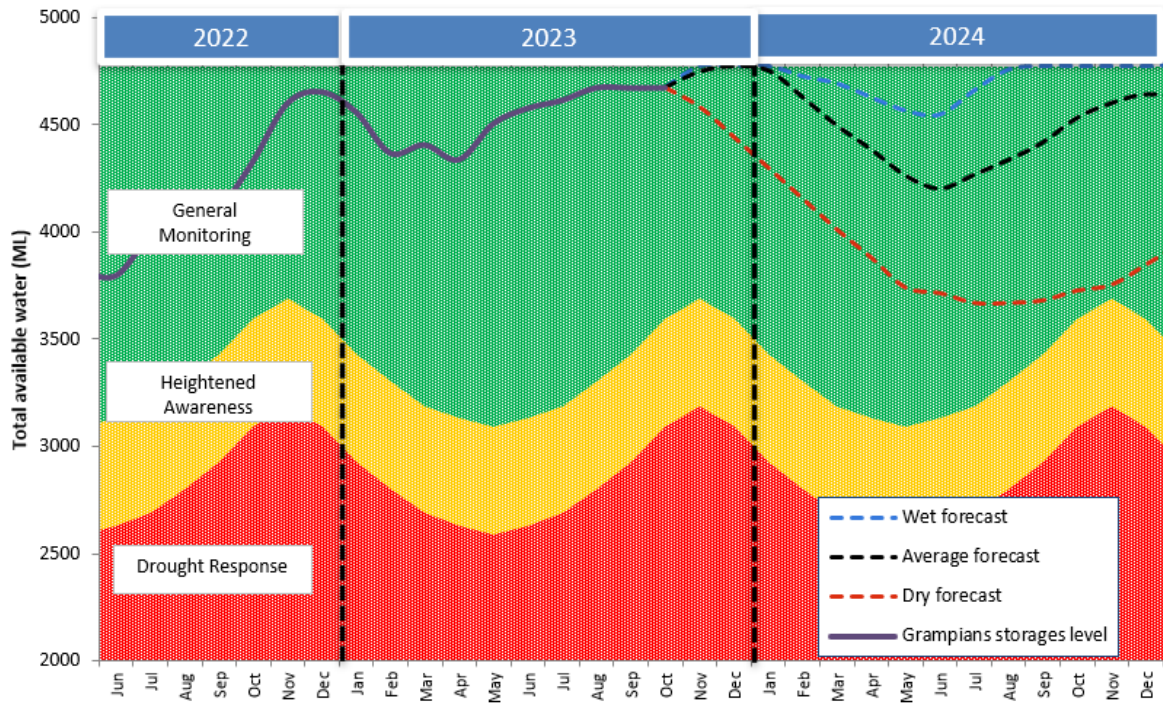


Figure 13 - Grampians System Storage Levels and Outlook

5.3 Glenthompson System

5.3.1 System summary

Water is harvested from two farmland catchment areas located to the south of the Glenthompson township and is stored in the Glenthompson Reservoir. This reservoir is on Yuppeckiar Creek which is characterised by low inflows into the system. Thus, the water supply is supplemented through a pipeline connection to the Willaura System, which is managed by Grampians Wimmera Mallee Water and sources water from Mt William Creek and bores in the Grampians National Park.

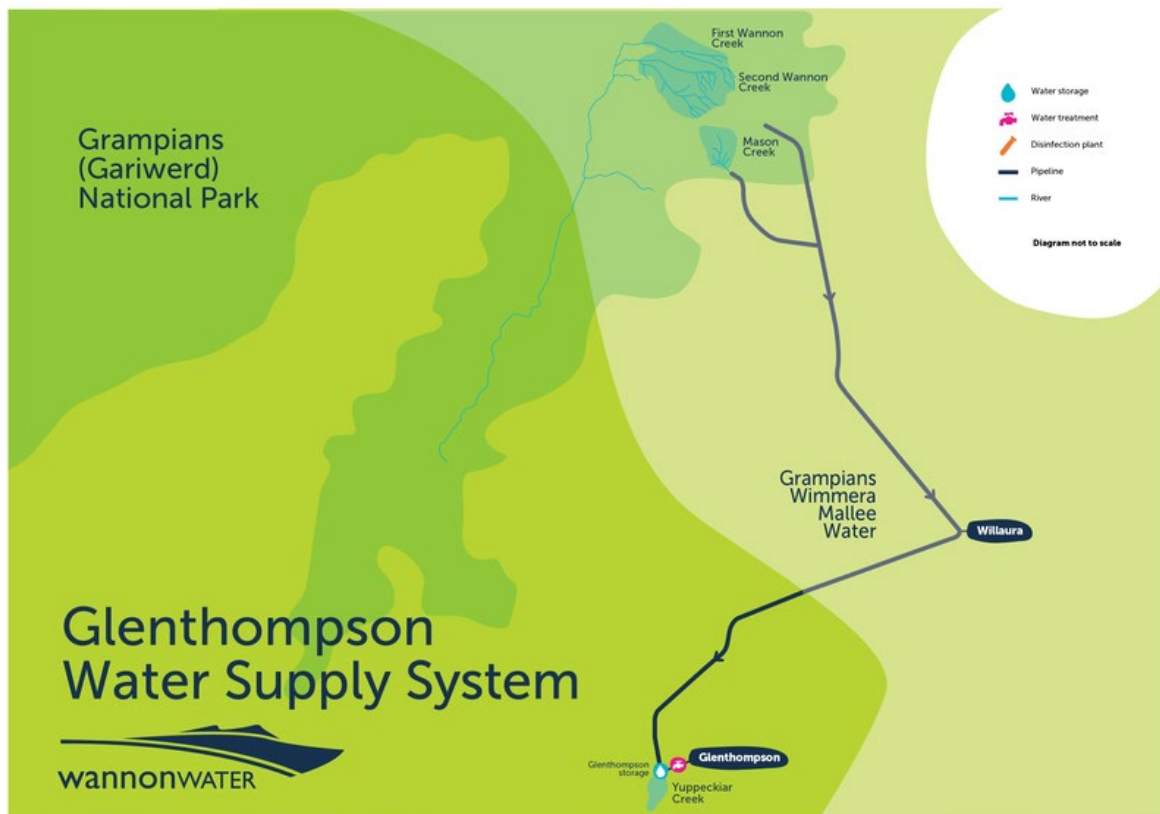


Figure 14 - Glenthompson Water Supply Schematic



Figure 15 - Glenthompson System Summary

5.3.2 Supply and Demand

Every five years we review climate and population data for each of our systems. This data feeds into the Urban Water Strategy (UWS) which is a key planning document that outlines what actions are required in order to maintain adequate levels of service for the community. Figure 17 below shows how customer demand is tracking against what was predicted for the Glenthompson System in our 2022 UWS. We are sitting in a comfortable water resource position and tracking along the low demand forecast line.

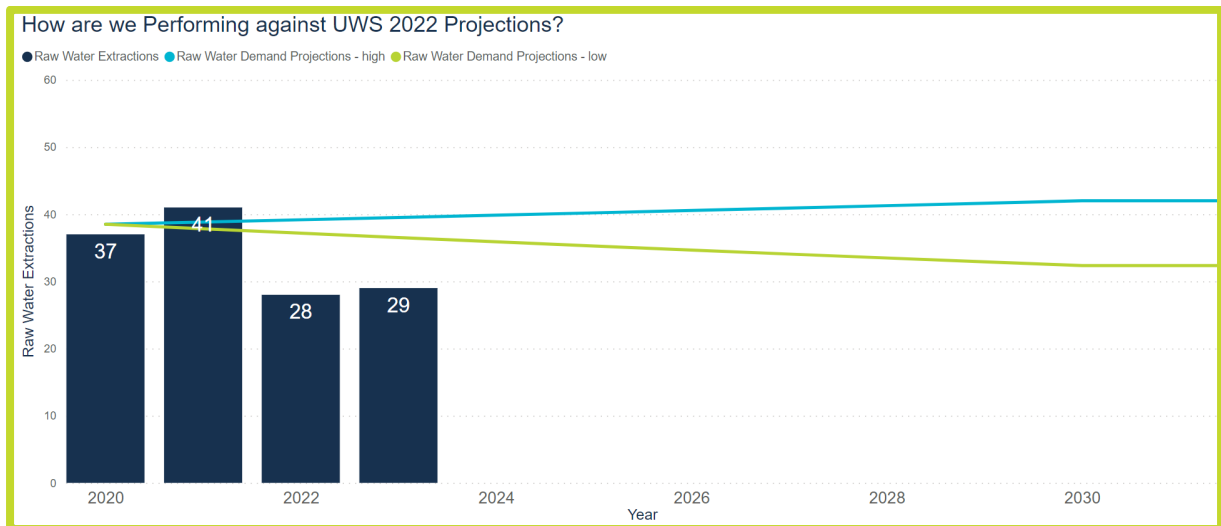


Figure 16 - Glenthompson System Demand versus 2022 UWS Forecasted Demands

5.3.3 Storage levels and 2024 outlook

Glenthompson experienced a wet climate for the first half of 2023 which has meant the raw water storage is in a good water resource position. Below average rainfall is predicted for the coming months where we are likely to track along the dry forecast

line shown in figure 17. Storage levels in the basin will be monitored throughout Spring and Summer to determine the timing of pumping additional water from the Willaura system in Spring. Glenthompson is likely to stay in the general monitoring zone indicating a safe water resource position with no restrictions likely for 2024.

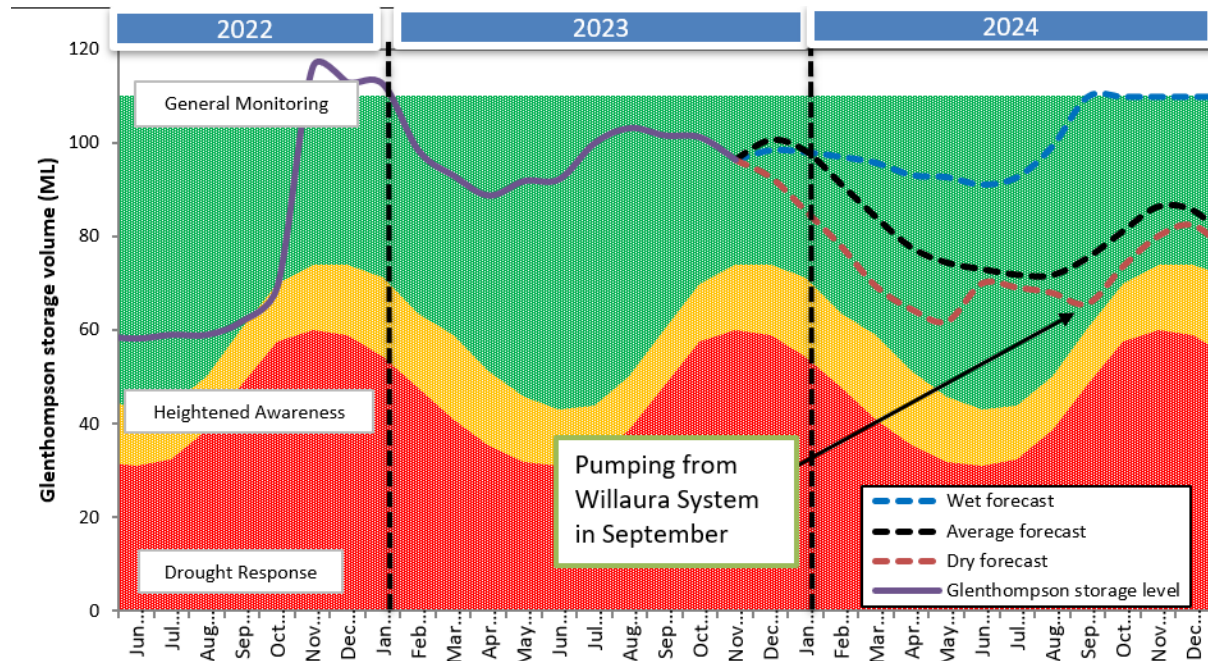


Figure 17 - Glenthompson storage levels and outlook

5.4 Groundwater systems

5.4.1 System summary

We have 10 groundwater supply systems which were secure through the Millennium Drought and are expected to remain secure into the future. Water restrictions are not normally part of the management of these systems.



Figure 18 - Groundwater Systems Likelihood of Restrictions

5.4.2 Security of groundwater supply

For each of our groundwater systems, we have a groundwater licence which dictates the amount of water we can extract. Figure 19 below represents how our extractions are performing against the capacity of our licences. The section in navy represents the volume extracted from the previous year and the light blue is spare capacity. There is plenty of capacity within our groundwater systems heading into 2024.

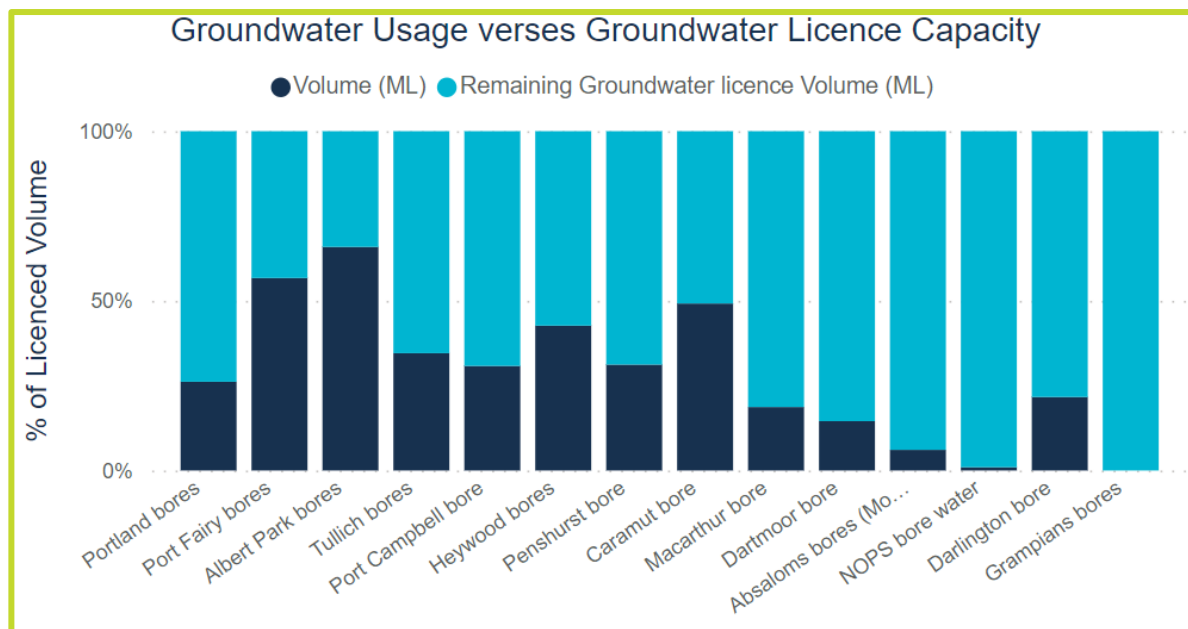


Figure 19 - Groundwater Usage versus Capacity (2022-2023)

Note:

- Tullich supplies to Casterton, Coleraine, Sandford and Merino townships
- Carlisle, Curdievale, Mortlake and Albert Park bores are a part of the Otway system.
- Port Campbell supplies to Port Campbell, Timboon and Peterborough

6 Our Action Plan

The next 12 months

- Finalising the system losses investigation and summarising findings into a report.
- Rolling out the WaterSmart campaign for some non-residential customers
- Identify water efficiency strategic drivers for Wannon Water
- Gellibrand Summer Flows education campaign through the Sustainable water use working group.
- Development of project management plan for the Ewen's hill augmentation.
- Warrnambool STP upgrade.
- Construct Albert Park Roof Water Harvesting Works.
- Quality Water for Wannon Project - commencing work in Port Fairy, Portland and Heywood following confirmation of funding

Key -

This is a key Urban Water Strategy Action identified as important by the Minister for demand reduction, capacity building or supply augmentation

This is more a general action that improves our water and sewer services



What's on the horizon

- Investigation into groundwater resources available for the Grampians system to improve drought resilience
- Authority wide storage performance review - diving deeper to understand evaporation and seepage at our storages.