



Gippsland
Water

Annual Water Outlook

December 2023

Table of contents

Executive summary	1
Water outlook.....	1
System Summary	3
Overview.....	7
Summary of water system characteristics	7
2023 Rainfall and Streamflows	10
Recent consumption trends	14
Other risks to water supply	19
Current water resource position	20
Climate outlook.....	22
Bureau of Meteorology (BOM) rainfall outlook	22
BOM temperature outlook.....	23
BOM streamflow outlooks	24
BOM ENSO outlook.....	25
Summary.....	25
Water resources outlook.....	26
Public green space watering.....	29
Actions	31

Executive summary

Water outlook

After three years of wetter conditions influenced by La Niña, 2023 has seen a marked decline in rainfall, with the east of our region showing a drying trend from early in the year, and July to September notably dry across our whole region. Our relatively wet catchments responded with declining soil moisture levels and reduced runoff before significant rain in early October provided much needed reprieve. Presently all our water supply systems are in a good position as we approach summer, and customers can be confident that their water supplies will remain secure over the summer season and into 2024.

Our current catchment conditions and the seasonal outlook also suggest that water restrictions are unlikely for our smaller communities without large water storages, where sudden and unforeseen changes in conditions have the potential to lead to shortages. Previous performance and drought modelling of these water systems provides further confidence that full demand can be met this summer.

On 19 September 2023 the Bureau of Meteorology (BOM) announced the commencement of El Niño, which for our region is the dry phase of the Pacific Ocean's El Niño Southern Oscillation. A positive Indian Ocean Dipole event is also currently underway. These combined conditions decrease the likelihood of above average rainfall for our region and contributes to the BOM's outlook for a higher probability of a drier and hotter than average summer. However, the odds of very dry conditions have eased in more recent outlooks as we approached summer, and with our catchments having returned to average dampness, and storages in a great position, we are confident we can meet demand without water restrictions this summer.

Latrobe Valley resources are at 100% with both Moondarra Reservoir and our capacity share of Blue Rock Reservoir being full. West Gippsland communities and industries now have the security of our new Melbourne system water entitlement as well as supply from the interconnecting pipeline between the Moe and Tarago systems.

Sale and surrounding areas retain their full access to the deep and reliable Boisdale Aquifer. Supplies for several smaller communities are in a good position due to augmentation programs that have been implemented over the last decade such as the Seaspray raw water basin and the recent Coongulla interconnection to Heyfield.

While Briagolong's existing shallow groundwater resources are in a good position to provide secure supply this summer, our work program to augment this system with groundwater from the deeper aquifer is progressing well. After two years of aquifer monitoring and hydrogeological modelling our application for licensing to extract deeper groundwater was approved in October this year. This is a major milestone in this important project to provide a more resilient supply for Briagolong.

While water restrictions are deemed unlikely this summer, permanent water saving rules apply as always. Information on these rules, and advice on how to save water, can be found at www.gippswater.com.au/savewater.

System Summary

Water system	Towns serviced	Water source	Water restriction outlook period	Water restriction outlook comments	Restriction outlook
Briagolong	Briagolong.	Wa De Lock Aquifer.	While a groundwater system, the aquifer is shallow and unconfined. It is also strongly connected to the Freestone Creek. The outlook is therefore limited to the coming summer only.	After a fall in aquifer level over the dry months of late winter and early spring, the rain of early October has resulted in a recovery to a level similar to this time last year placing this system in a secure position in the lead up to summer. While this provides confidence that water restrictions are unlikely this summer, matters outside our control such as management of the resource as well as use by others could impact this outlook.	Unlikely
Rawson	Erica, Rawson.	Trigger Creek.	A long-term outlook is not possible because this is a run-of-river system with minimal storage. The outlook is therefore limited to the coming summer.	Based on historic performance and current streamflows, the chance of water restrictions this summer is deemed unlikely.	Unlikely

Water system	Towns serviced	Water source	Water restriction outlook period	Water restriction outlook comments	Restriction outlook
Latrobe	Moe, Trafalgar, Yarragon, Darnum (north), Yallourn Nth, Morwell, Churchill, Yinnar, Boolarra, Traralgon South, Jeeralang Junction, Traralgon, Tyers, Glengarry, Rosedale, Toongabbie, Cowwarr, Thorpdale, Willow Grove.	Moondarra Reservoir, Blue Rock Reservoir, Narracan Creek.	12 months. A storage forecast chart for the next 12 months under a range of climate and demand scenarios is presented in the water resources outlook section of this report.	Current storage levels in the Latrobe system provide excellent supply security for the coming 12 months. The chance of water restrictions during the next year is deemed unlikely.	Unlikely
Mirboo North	Mirboo North	Little Morwell River (north arm)	A long-term outlook is not possible because this is a run-of-river system with minimal storage. The outlook is therefore limited to the coming summer only.	Based on historic performance and current streamflows, the chance of water restrictions this summer is deemed unlikely. While a reliable stream, supply could become restricted by a catchment water quality incident such as heavy soil runoff into the stream due to very heavy rain combined with upstream agricultural land use.	Unlikely

Water system	Towns serviced	Water source	Water restriction outlook period	Water restriction outlook comments	Restriction outlook
Sale	Sale	Boisdale Aquifer	12 months. This resource is a deep, confined aquifer. While subject to long term decline, short term trends in aquifer levels are more strongly related to usage than climate and are reasonably predictable.	The chance of water restrictions in the coming year is deemed unlikely. There is high confidence of supply meeting demand for the year ahead.	Unlikely
Seaspray	Seaspray	Merriman Creek	While the raw water basin holds up to 30 ML, enough for up to nine months' supply, Merriman Creek sometimes completely stops during summer. Restriction rules are designed to maintain a reserve in the raw water basin so the outlook is limited to three months only.	The raw water basin is currently full, providing at least 6 months' supply. Algae outbreaks in the raw water basin could lead to water restrictions, but measures to address this have been implemented so the risk is deemed unlikely.	Unlikely

Water system	Towns serviced	Water source	Water restriction outlook period	Water restriction outlook comments	Restriction outlook
Tarago	Warragul, Drouin, Rokeby, Buln Buln, Nilma, Darnum (south), Neerim South, Noojee.	Tarago River	Our Tarago River bulk entitlement has this year been augmented with a bulk entitlement in the Greater Yarra System – Thomson River pool, providing us with access to water stored in Tarago Reservoir. The expected yield from this provides confidence to provide a 12 month restriction outlook.	Our current allocations in our new bulk entitlement in the Greater Yarra System – Thomson River pool provide confidence to forecast that the chance of water restrictions over the next year is deemed unlikely. The Moe-Warragul Interconnection will also help to provide supply security for this system.	Unlikely
Thomson Macalister	Heyfield, Maffra, Stratford, Boisdale, Coongulla, Glenmaggie.	Thomson River, Macalister River, Lake Glenmaggie	The outlook period is to 30 June 2024 because we have received our full allocation for this system for the 2023-24 financial year.	With a full allocation, the chance of water restrictions for the remainder of the current financial year is deemed unlikely. Historically the supply to Coongulla was vulnerable in dry years to late summer and autumn low water levels in Lake Glenmaggie causing problems with pumping from the lake. With Coongulla now supplied from Heyfield, that vulnerability has been addressed.	Unlikely

Disclaimer: While we have considered relevant climate forecasts and taken care in presenting the information in this Annual Water Outlook, we cannot and do not guarantee any forecast outcome or event. There are many factors that could deliver a different outcome and many are beyond our control. Examples include fires and floods that lead to dirty water sources that are untreatable or that can only be treated at reduced rates, requiring water restrictions.

It is always possible that a drought could occur that is worse than any on the historic record. For instance, the 2017-19 east Gippsland drought that

affected the northeast of our region including the Briagolong supply system four years ago, was 13% drier at the Giffard rain gauge than any previous lowest rainfall three-year period in over a century. We undertook modelling in the preparation of our 2022 Urban Water Strategy to determine the resilience of our systems to extreme drought, using a method that creates a test drought event worse than experienced. The results showed that none of our systems failed to meet demand during this test drought under stage four restrictions, meaning all systems were shown to be sufficiently robust to meet critical human needs. Furthermore, modelling we undertook during the development of the 2022 Urban Water Strategy showed all our systems to be highly resilient to a repeat of the Millennium Drought (1997-2009), with only minimal water restrictions necessary to balance supply and demand.

Overview

We published our 2022 Urban Water Strategy (UWS) in September 2022 following the public release of the Central and Gippsland Region Sustainable Water Strategy. The UWS supersedes earlier Urban and Water Supply Demand Strategies and is our principal water resources planning tool. The UWS undergoes a major review every five years.

In preparing the UWS, we undertook a thorough review of all of our water resource systems, including a long term 50 year supply–demand outlook, as well as an assessment of short term drought vulnerability risks. Where we identified that a system may be at risk of supply falling short of demand, we estimated the extent and possible timing of the shortfall, leading to an action plan to maintain an adequate supply–demand level of service. The UWS is prepared at a point in time, using the best available knowledge at that time, acknowledging that new, better information will be forthcoming in the future and that we will need to be adaptable in our planning.

Our Annual Water Outlook fulfils two primary purposes, one of which is to report on changes in circumstances that have led to the need to adapt any actions set out in the UWS. The other is to provide an outlook of the water supply situation for the year ahead, with a focus on the forthcoming summer and the likelihood of water restrictions being necessary.

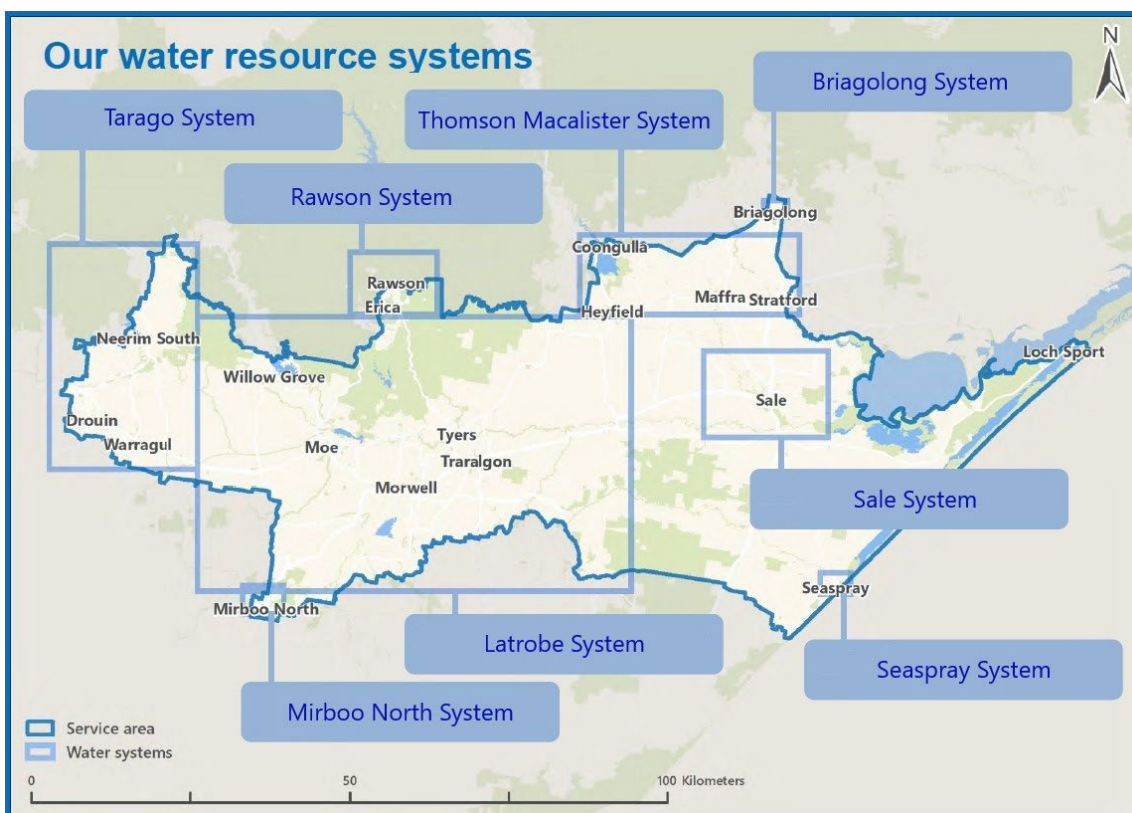
Summary of water system characteristics

The UWS contains comprehensive descriptions of each of our systems as a public record. This summary will therefore focus on aspects of each water system most relevant to preparing an outlook for the summer ahead, and beyond, where that is possible.

Water System	Brief overview of source and relevant outlook period
Briagolong	Wa De Lock Aquifer. While a groundwater system, the aquifer is shallow and unconfined. It is also strongly connected to the Freestone Creek. This source is also used for irrigation by others. While the source has a history of reliability, the short term volatility in draw down and recharge, and the potential uncertainty in use by others, means the outlook is limited to the coming summer only.
Rawson	Trigger Creek. While a historically reliable source, a long term outlook is not possible because this is a run-of-river system with minimal storage. The outlook is therefore limited to the coming summer only.
Latrobe	Moondarra Reservoir, Blue Rock Reservoir and Narracan Creek. The large storage volume, reliable minimum streamflows, and typically predictable demand from a major industry dominated customer base, means this system lends itself to a 12 month outlook. A storage forecast chart for the next 12 months under a range of climate scenarios is presented in the water resources outlook section of this report.
Mirboo North	Little Morwell River (north arm). While a historically reliable source, a long term outlook is not possible because this is a run-of-river system with minimal storage. The outlook is therefore limited to the coming summer only.
Sale	Boisdale Aquifer. While in a state of long term decline, this aquifer is relatively deep and is confined. The aquifer behaves fairly predictably with annual drawdown from urban and irrigation use, followed by a recharge that returns the aquifer to a level usually (with the exception of particularly wet years) slightly below the previous year's peak level. For short term outlook purposes, this resource allows a 12 month outlook with good confidence.
Seaspray	Merriman Creek. While the raw water basin holds up to 30 ML, enough for about nine months' supply, flow in Merriman Creek sometimes completely stops during summer. In addition to this, flows can stay quite low during autumn with higher flows due to significant rain events sometimes being unsuitable for diversion due to poor water quality. The winter fill period from July to October inclusive is then subject to a particularly high minimum passing flow before diversions can be made. Because of these constraints, water stored in the basin may be needed well beyond a summer. Restriction rules are therefore designed to be conservative and maintain a reserve in the raw water basin so the restriction outlook is limited to three months only.

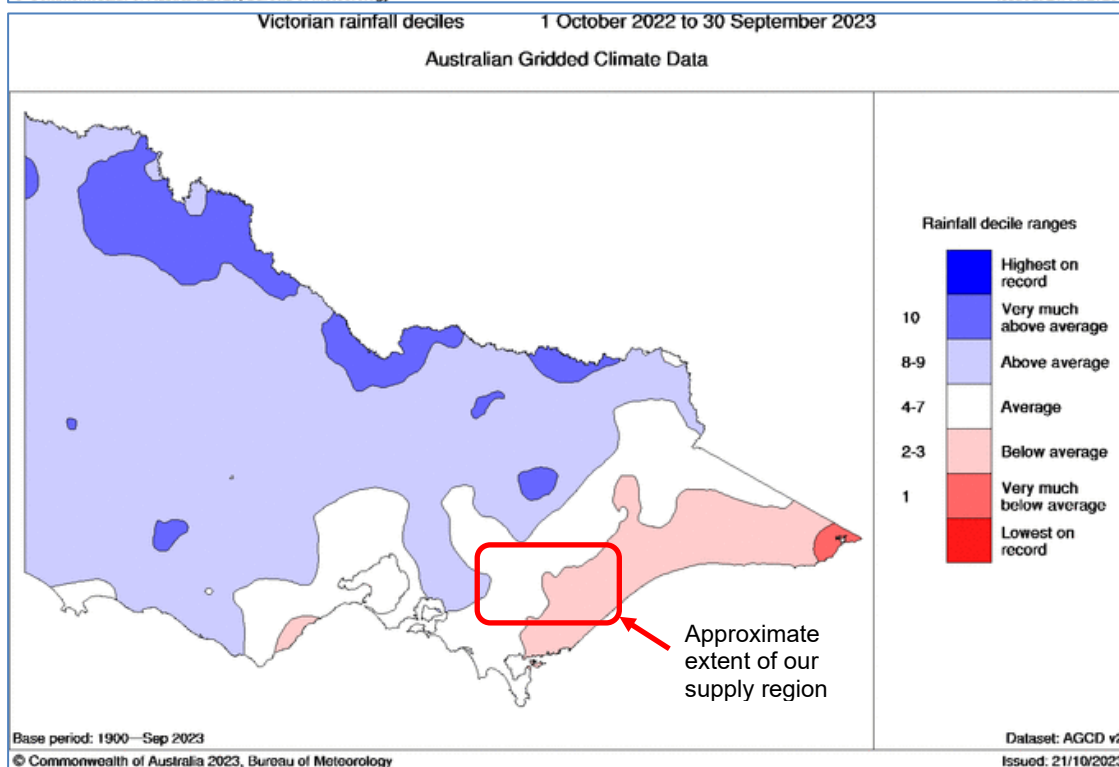
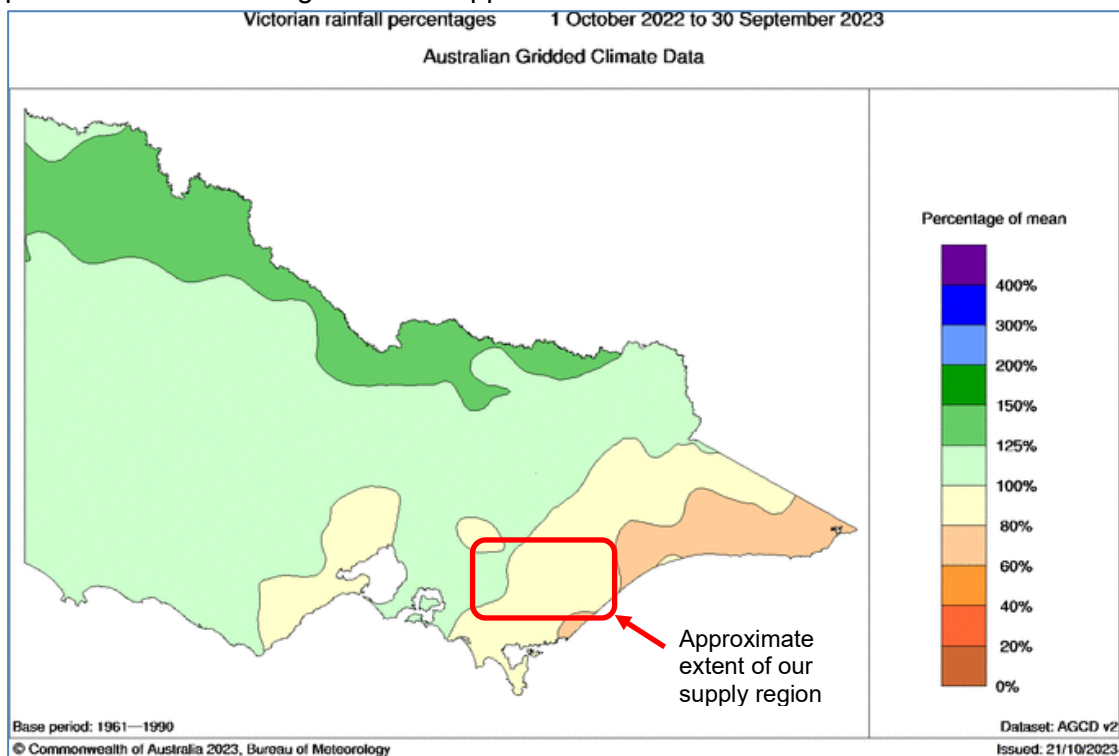
Water System	Brief overview of source and relevant outlook period
Tarago	Tarago River and Tarago Reservoir. In July 2023 we purchased a bulk entitlement to the Greater Yarra System – Thomson River pool from Yarra Valley Water. This provides us with access to water stored in the Melbourne system which we access from Tarago Reservoir. This significantly augments our Tarago River bulk entitlement, providing much greater reliability of supply to Warragul and Drouin. At October 2023 we have already been allocated over 1,000 ML, which combined with expected river flows enables us to provide an outlook of 12 months.
Thomson Macalister	Thomson River, Macalister River, Lake Glenmaggie. The outlook period is to 30 June 2024, because we have received our full allocation for this system for the 2023-24 financial year. The outlook beyond that will depend on the opening allocation and subsequent allocation progression during the 2024-25 year.

The map below shows which towns are supplied by each of our 8 water resource systems.

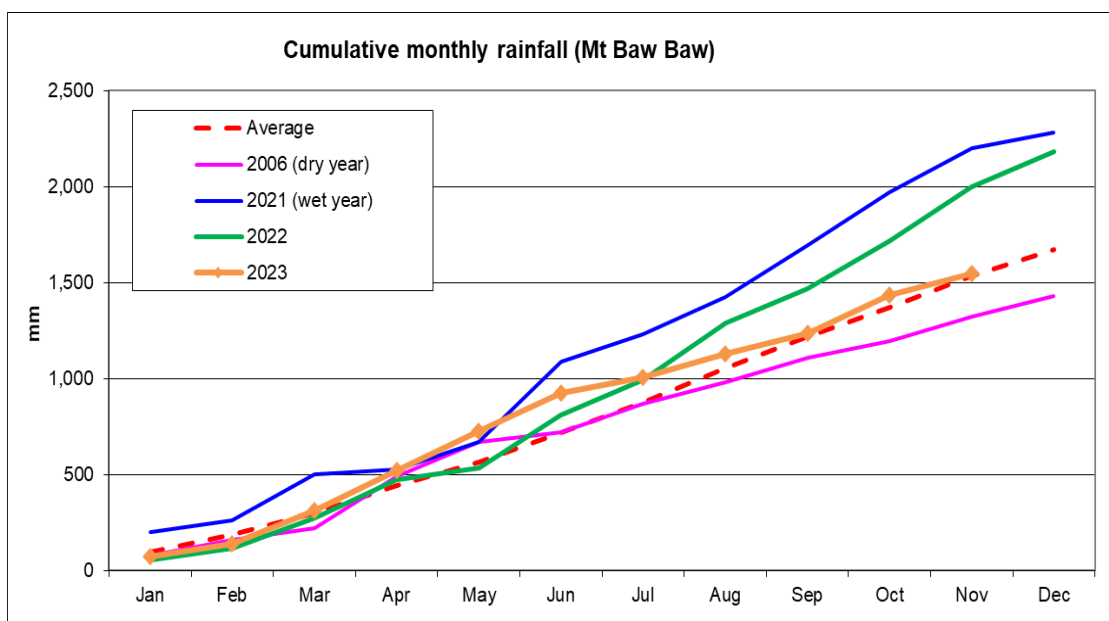


2023 Rainfall and Streamflows

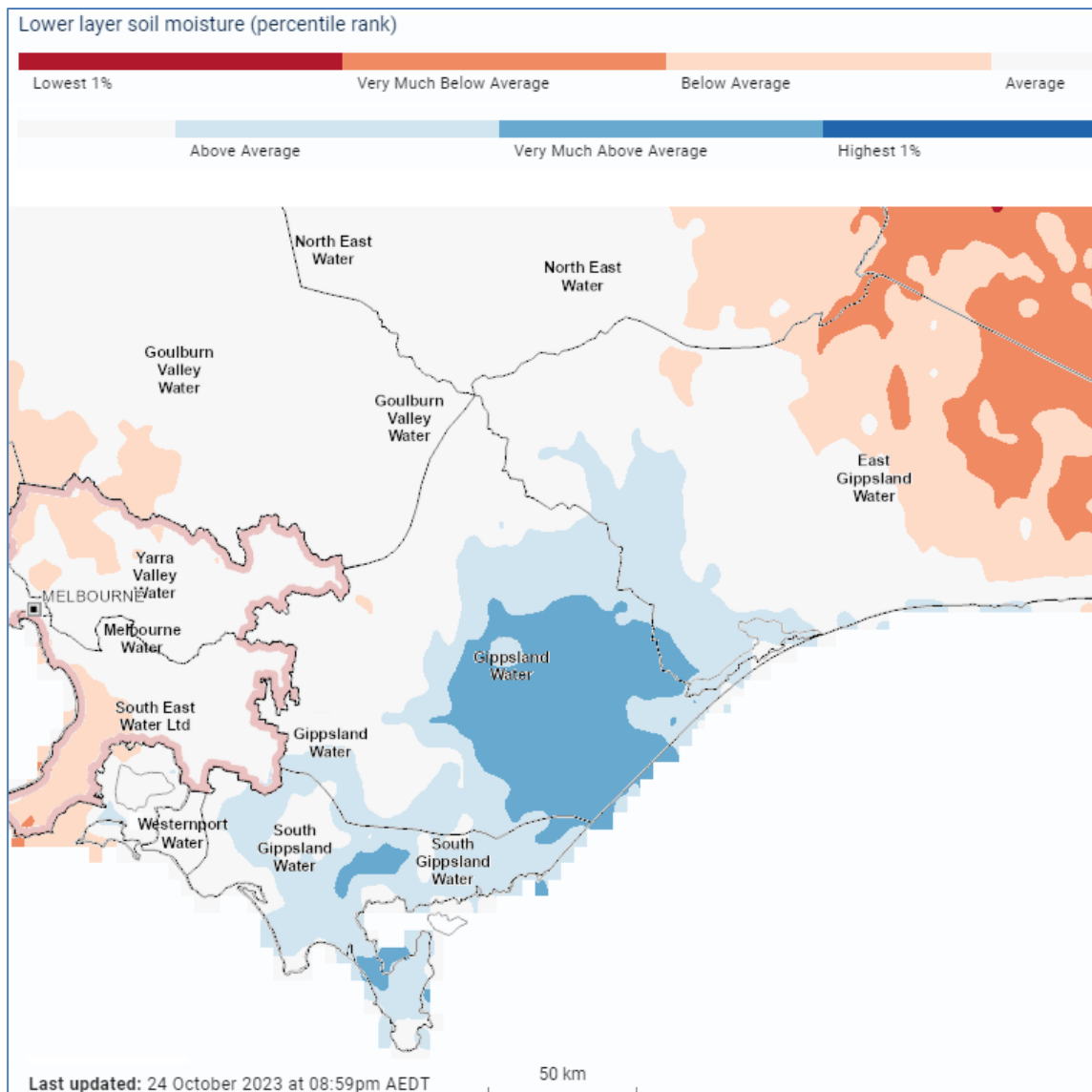
Rainfall in our region in the 12 month period up to the end of September 2023 has varied from west to east. This is a change from recent La Nina years which have delivered high rainfall in the east, marking a return to the patterns observed in the years prior to 2020 with drought in east Gippsland.



The chart below shows year to date rainfall in our main catchment, the Baw Baw plateau, compared to other years. From July to September this year rainfall was particularly low, although significant rain in early October has made up for this somewhat and kept year to date rainfall about average.



Catchments across our region were all approaching or at below average dampness levels by August, with the east of the region much drier. The rain of early October has provided some reprieve for our region, although much of this recovery is concentrated from the Macalister River valley to Ninety Mile Beach, with many of our other catchments simply returning to average dampness for now. The chart below shows lower (deeper) soil moisture levels (at 10 cm to 1 m depth), relative to average, around mid to late October.

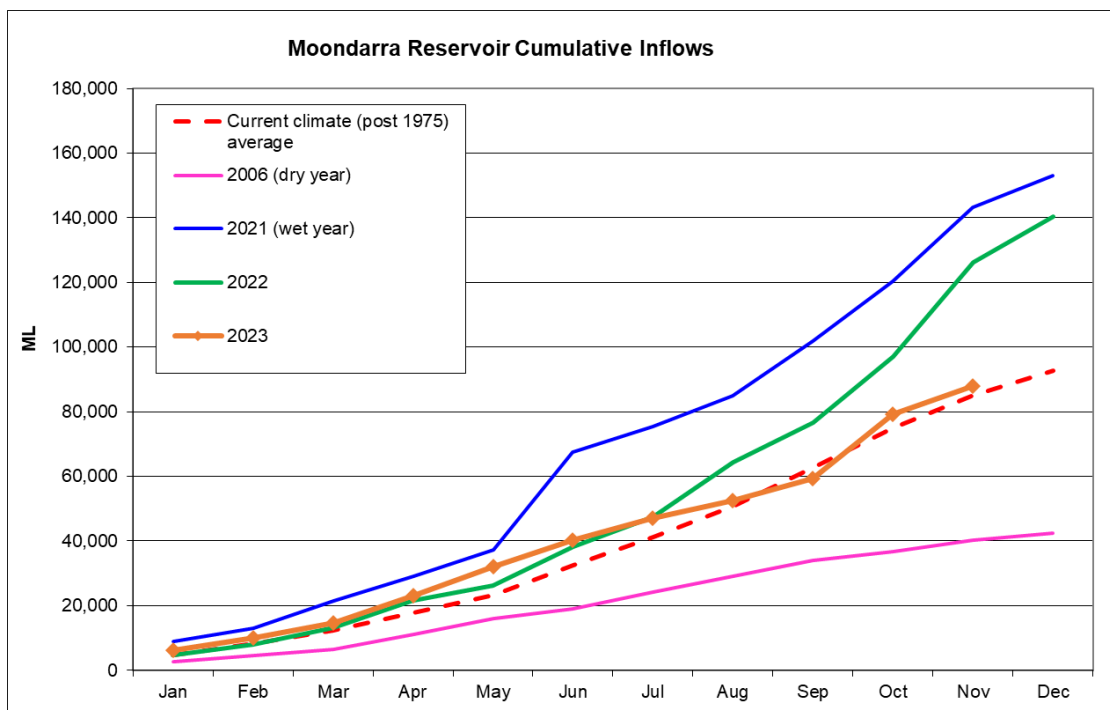


Source: Bureau of Meteorology Australian Water Outlook <https://awo.bom.gov.au/>

Above average soil moisture means less rain water is absorbed by the soil providing more runoff and streamflow. Conversely, below average dampness leads to much of the rainfall being taken up by soil and tree roots. The timing of rainfall is also important in ensuring catchments are kept damp during the “cool season” months when evaporation is lower, so that a greater proportion of rainfall converts to runoff during the typical reservoir fill times. The cumulative rainfall chart above shows that in 2006, a very dry year during the Millennium Drought when catchments were very dry, rainfall was below average by about 15-20%. The outcome for streamflow in that year can be seen in the chart below which shows a drop of more than 50%.

The current catchment conditions provide confidence that future rainfall will have a higher conversion to streamflow, but if catchments dry out again we’ll likely see low flows even when rain occurs.

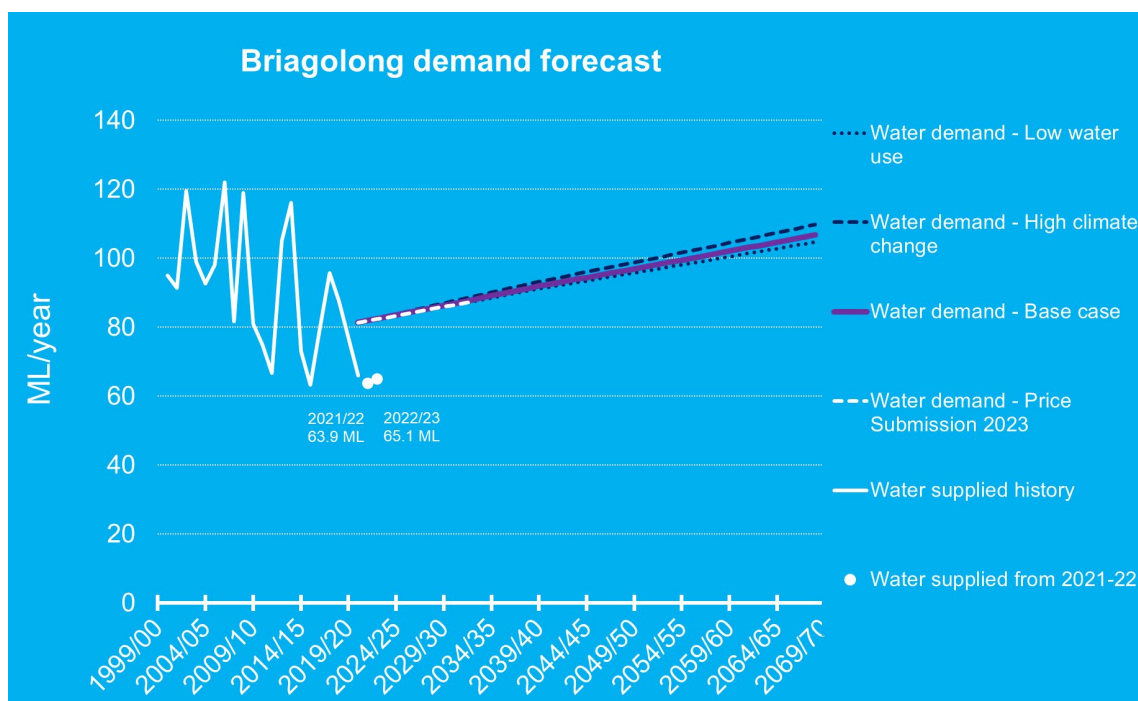
The chart below shows that 2023 was producing above average inflows to Moondarra Reservoir up to mid winter. July to September inflows however were below average, although early October saw the reservoir spill again. With our share of Blue Rock Reservoir also currently full, this provides confidence in security of supply for the Latrobe Valley region over the next 12 months.



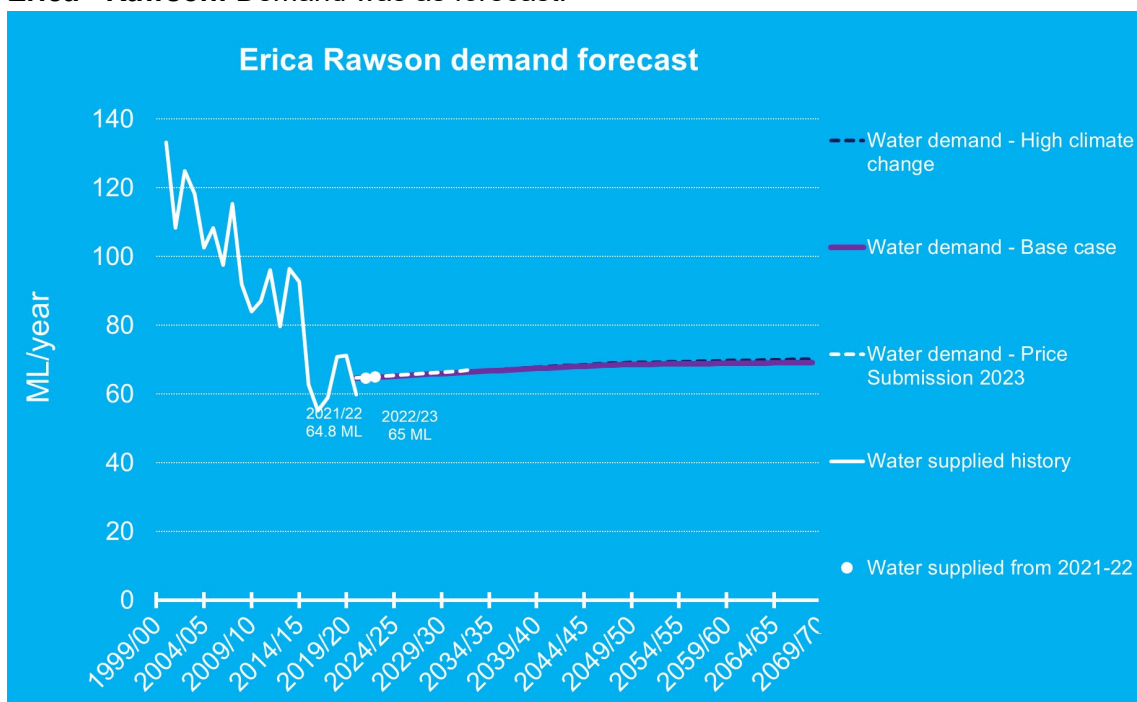
Recent consumption trends

The following charts show the 2022 UWS demand forecasts with the actual raw water consumption from 2021-22 onwards overlaid as white points. We compare this each year to ensure action can be taken to manage any evolving trends that differ from those upon which the UWS action plan was based. Demand in 2022-23 was lower than or close to the forecast for most systems, most likely a result of the cooler and wetter conditions, especially over summer.

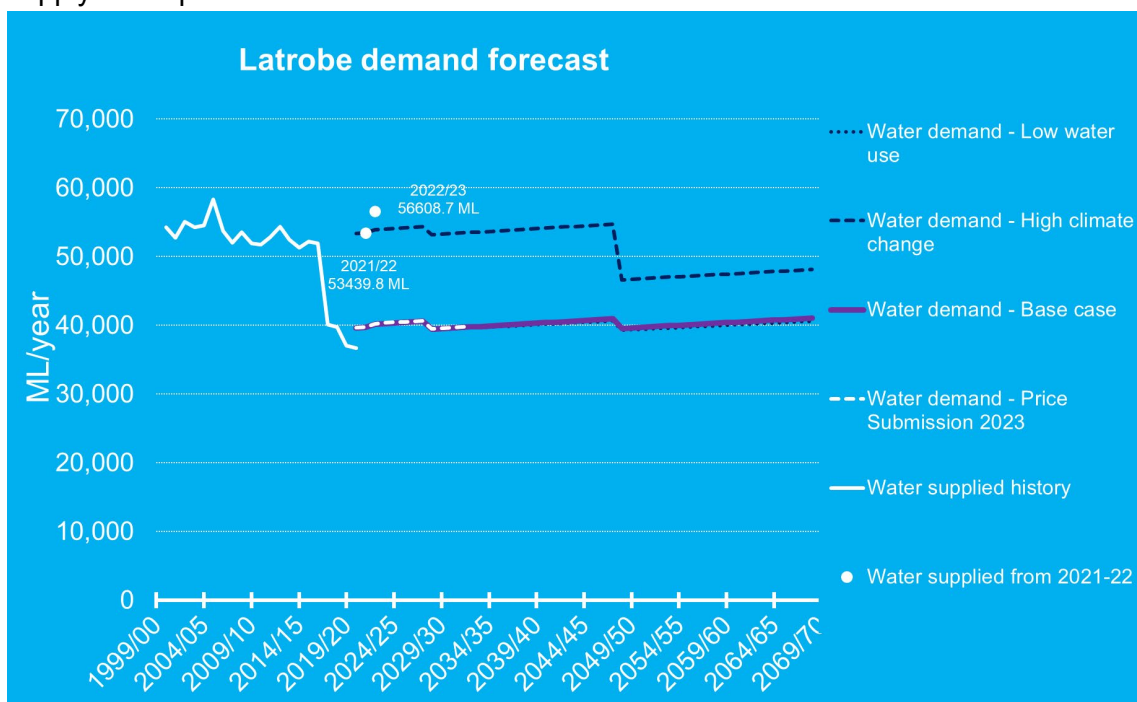
Briagolong: Demand has been significantly lower than forecast with above average rainfall and cooler conditions likely to have reduced outdoor water use.



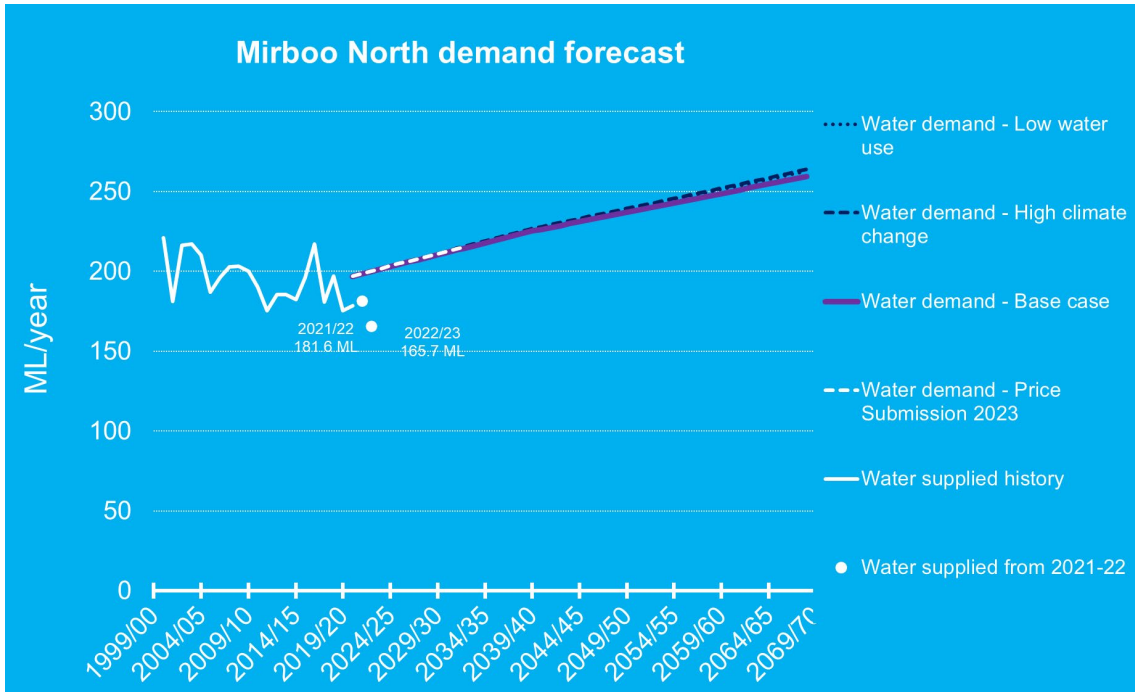
Erica - Rawson: Demand was as forecast.



Latrobe: Demand has increased considerably compared with the four years that immediately followed the closure of Hazelwood power station. This is because supply recommenced to the Hazelwood site in November 2021 to provide water supply to meet the mine operator's obligations to protect the mine from the risk of fire. Note that this supply is not part of the base demand forecast.



Mirboo North: Demand was lower than forecast with good rainfall and cooler conditions likely to have reduced outdoor water use.



Sale: Demand was close to the forecast.



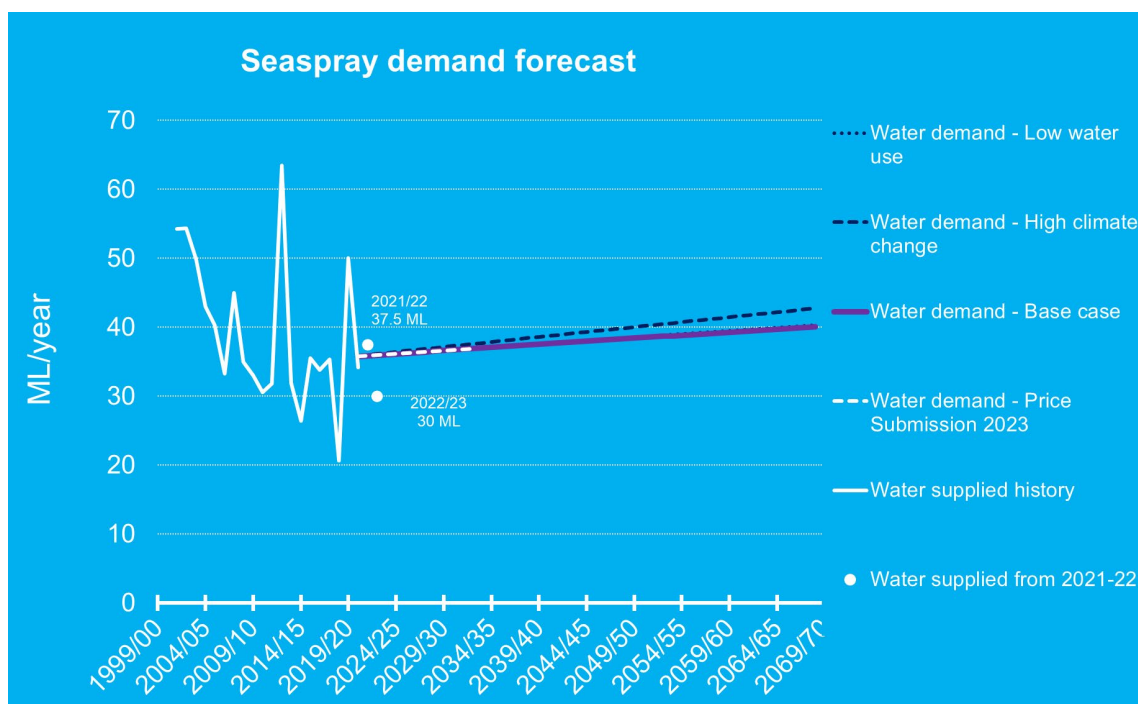
Seaspray: Demand was below the forecast but within the typical historic range.

Demand volatility over the past few years, as shown in the chart below, represents significant variations in the amount of water drawn from Merriman Creek from year to year. Usage of potable water within the town is much steadier.

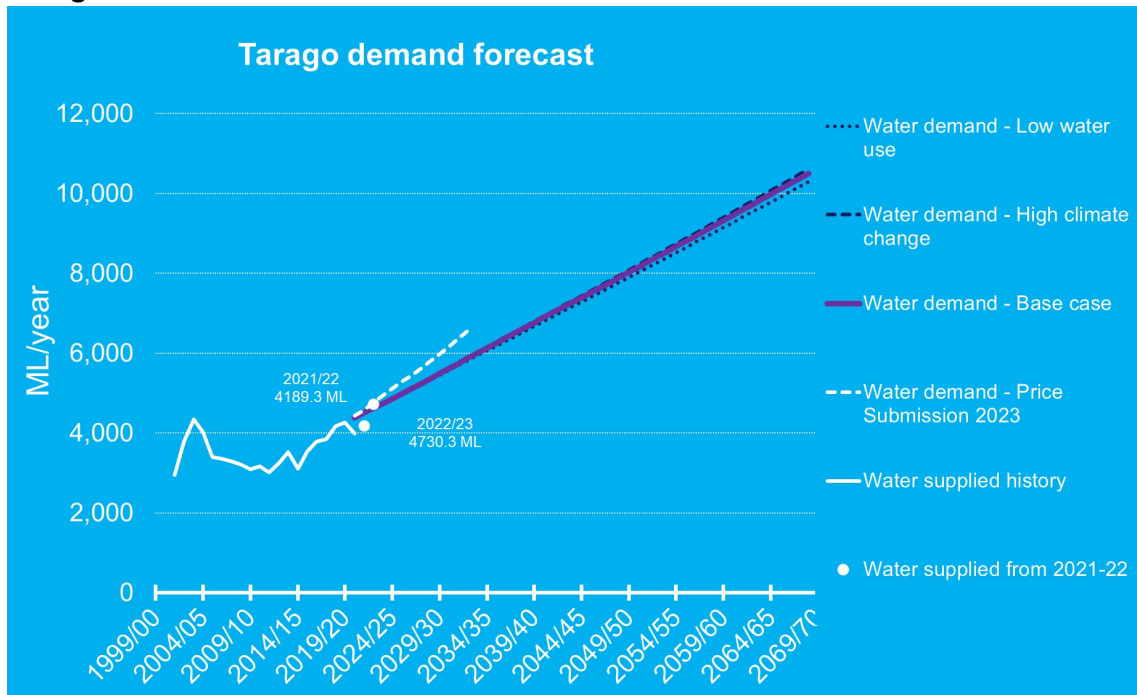
Seaspray has a 30 ML raw water basin between the Merriman Creek weir and the water treatment plant. This is a critical part of the system and helps maintain supply reliability during times of no streamflow or when the terms of our water entitlement prevent us from accessing streamflow.

A year affected by drought, 2018-19, saw extended periods when we could not divert water from the creek and we therefore drew down the basin. During 2019-20 when adequate streamflow returned, we were able to refill the basin.

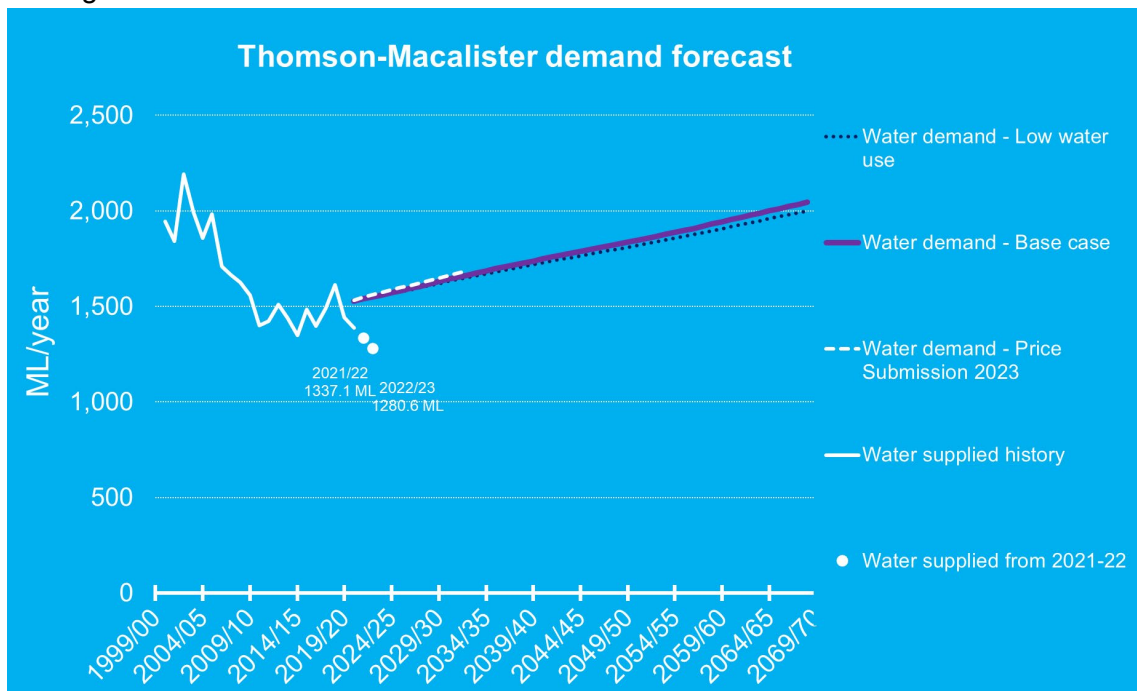
Earlier spikes from about a decade ago relate to construction water and initial basin fill for both the Seaspray sewerage treatment plant and raw water basin.



Tarago: Demand was close to forecast.



Thomson Macalister: Demand was lower than forecast with the Saputo milk factory closing.



Other risks to water supply

In addition to supply shortages and higher than expected demand, a range of other factors can impact upon our ability to meet the target supply–demand level of service. Water quality incidents such as the floods of 2007 that followed the 2006-07 Summer Great Divide Fires, which brought large amounts of suspended solids (soil) into rivers, can lead to the inability to treat water to a potable standard, or at least a reduction in the rate of treatment and the ability to meet demand. Also, Blue Green Algae outbreaks in storages can impact upon water treatment and supply reliability. Therefore even our supply systems that are secure from a water quantity perspective are not guaranteed to be immune from restrictions.

Current water resource position

Water system	Towns supplied	No. of connections (June 2023)		Major customers	Water source	Alternative water source	Current supply position	Current consumption comments
		Residential	Non-residential					
Briagolong	Briagolong.	326	22	None	Wa De Lock Aquifer.	Deeper groundwater resource being investigated.	Aquifer level is in an excellent position for November and well above restriction levels.	As expected but may increase with hot outlook.
Rawson	Erica, Rawson.	303	44	None	Trigger Creek.	None	Stream flows adequate.	As expected but may increase with hot outlook.
Latrobe	Moe, Trafalgar, Yarragon, Darnum (north) Yallourn Nth, Morwell, Churchill, Yinnar, Boolarra, Traralgon South, Jeeralang Junction, Traralgon, Tyers, Glengarry, Rosedale, Toongabbie, Cowwarr, Thorpdale, Willow Grove.	38,693	3,341	AGL Loy Yang A, Alinta Loy Yang B, Australian Char, Bega, Energy Aust. Yallourn W, Engie Hazelwood mine, Fonterra, IXOM, Jelfor Timber, Latrobe Regional Hospital, Omnia, Opal Aust. Paper.	Moondarra Reservoir, Blue Rock Reservoir, Narracan Creek.	Blue Rock Drought Reserve	Storages at 100%.	From November 2021 demand has increased to supply Hazelwood mine fire protection system. This has been partially offset by reduced demand by Australian Paper.

Water system	Towns supplied	No. of connections (June 2023)		Major customers	Water source	Alternative water source	Current supply position	Current consumption comments
		Residential	Non-residential					
Mirboo North	Mirboo North	755	84	None	Little Morwell River (north arm)	None	Stream flows adequate.	As expected but may increase with hot outlook.
Sale	Sale	7,462	874	Sale Hospital, RAAF Base, Livestock Exchange, Fulham Correctional Centre.	Boisdale Aquifer	None	Secure aquifer.	As expected but may increase with hot outlook.
Seaspray	Seaspray	351	10	None	Merriman Creek	Water carting	Raw water basin at 100%.	As expected but may increase with hot outlook.
Tarago	Warragul, Drouin, Rokeby, Buln Buln, Nilma, Darnum (south), Neerim South, Noojee.	16,871	1,326	Park Avenue Laundry, Pureharvest, Warragul Linen, Warragul Sale Yards, Warragul Hospital.	Tarago River and Reservoir	Moe-Warragul Interconnect.	Stream flows adequate. Allocation in Melbourne system over 1,000 ML.	Ongoing urban growth driving greater demand. Offset in short term by recent leak reduction work.
Thomson Macalister	Heyfield, Maffra, Stratford, Boisdale, Coongulla, Glenmaggie.	4,787	413	None	Thomson River, Macalister River, Lake Glenmaggie	Trade in Macalister Irrigation District.	2023-24 allocation 100%.	Lower than historic due to milk factory closure.

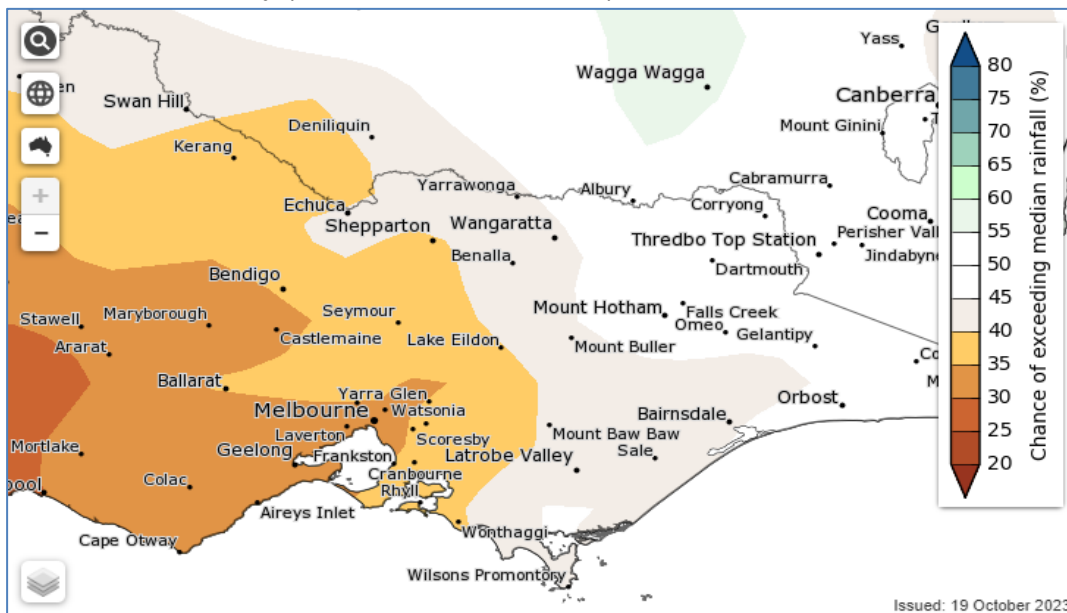
Climate outlook

Bureau of Meteorology (BOM) rainfall outlook

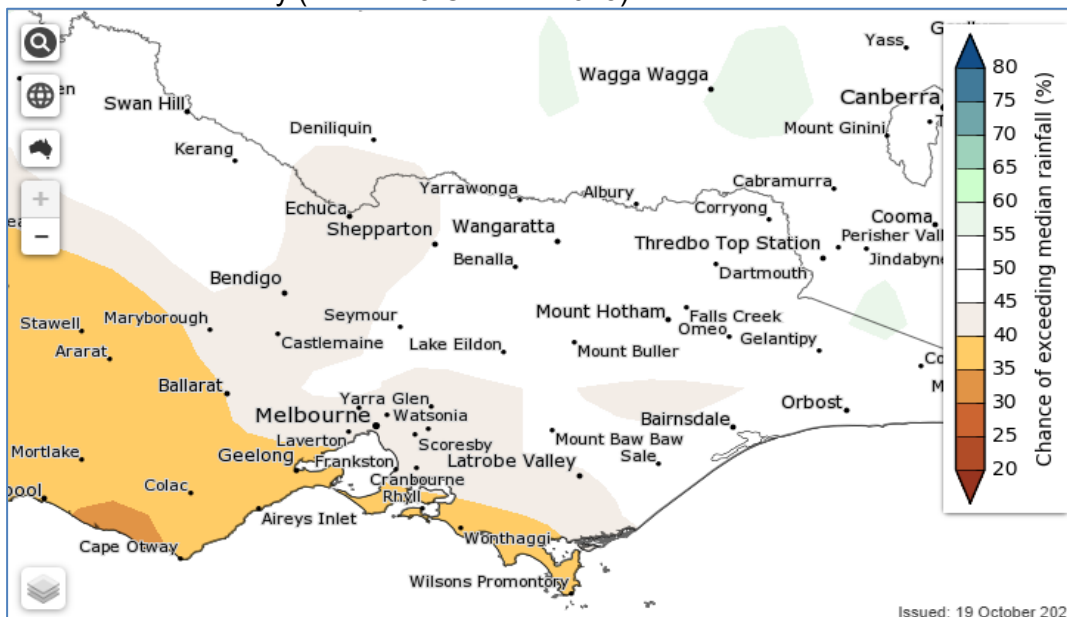
The outlook forecasts a 35-45% likelihood of rainfall for late spring and into summer being above average for our region, with these odds increasing to around 50% looking further into summer. While summer may therefore potentially be drier than average, the BOM is also not anticipating a high likelihood of extreme dry conditions in our region.

Chance of above median rainfall

November – January (issued 19 October 2023)



December – February (issued 19 October 2023)

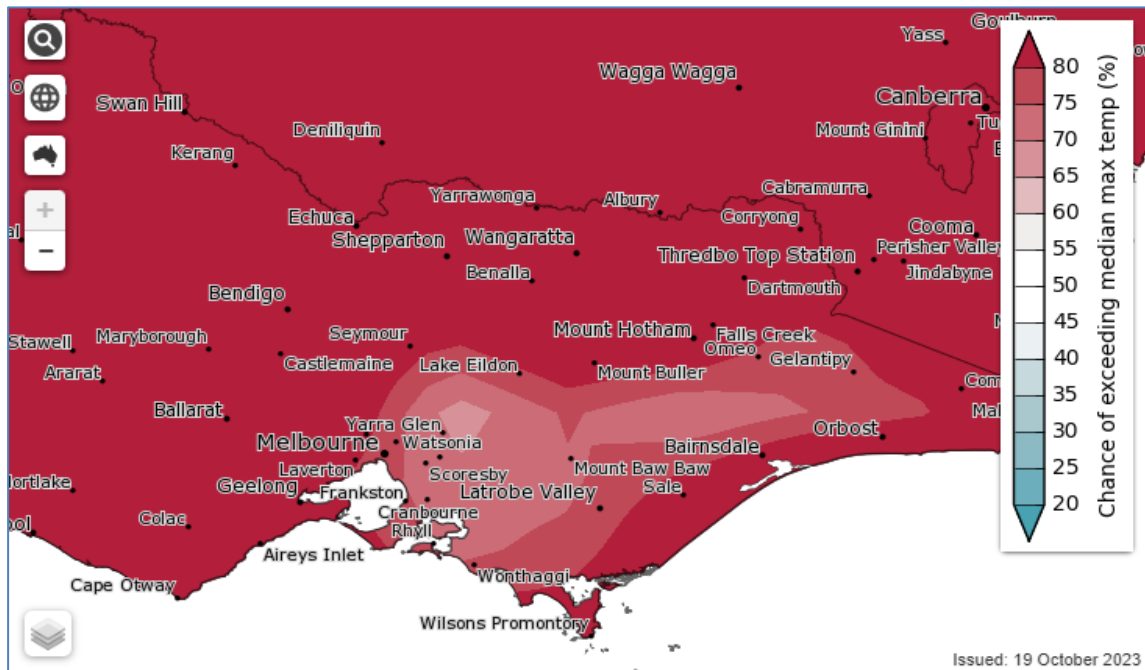


BOM temperature outlook

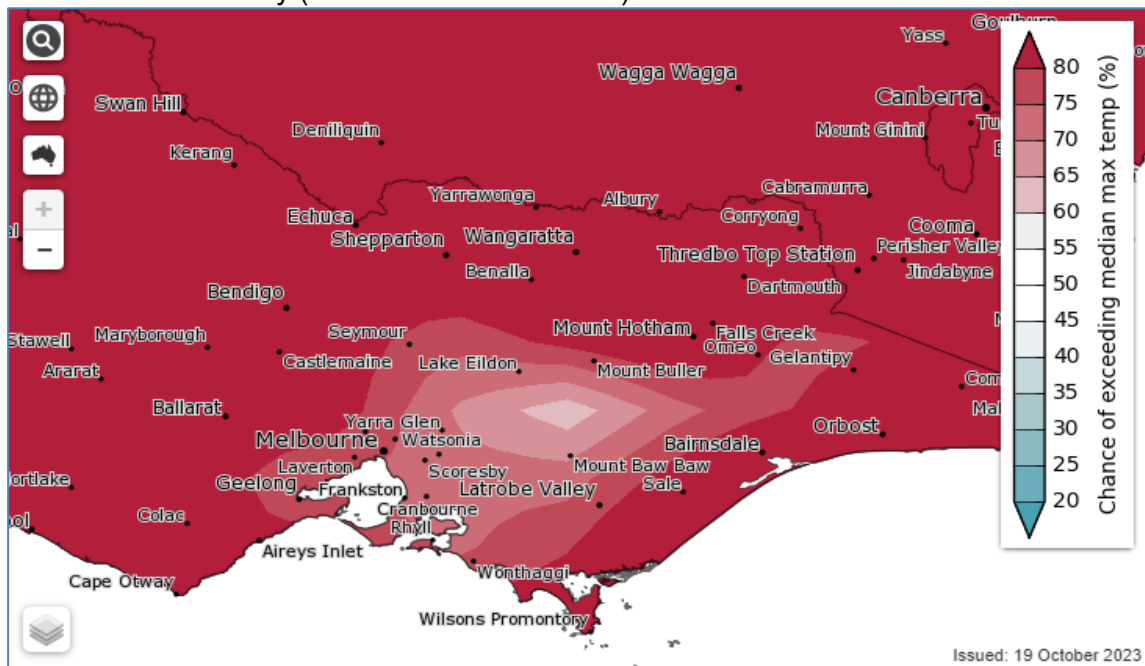
The outlook for temperature indicates a strong likelihood of hot weather for summer. Temperature outlooks can guide expectations for water demand as outside garden watering use is impacted by weather.

Chance of above median maximum temperature

November – January (issued 19 October 2023)

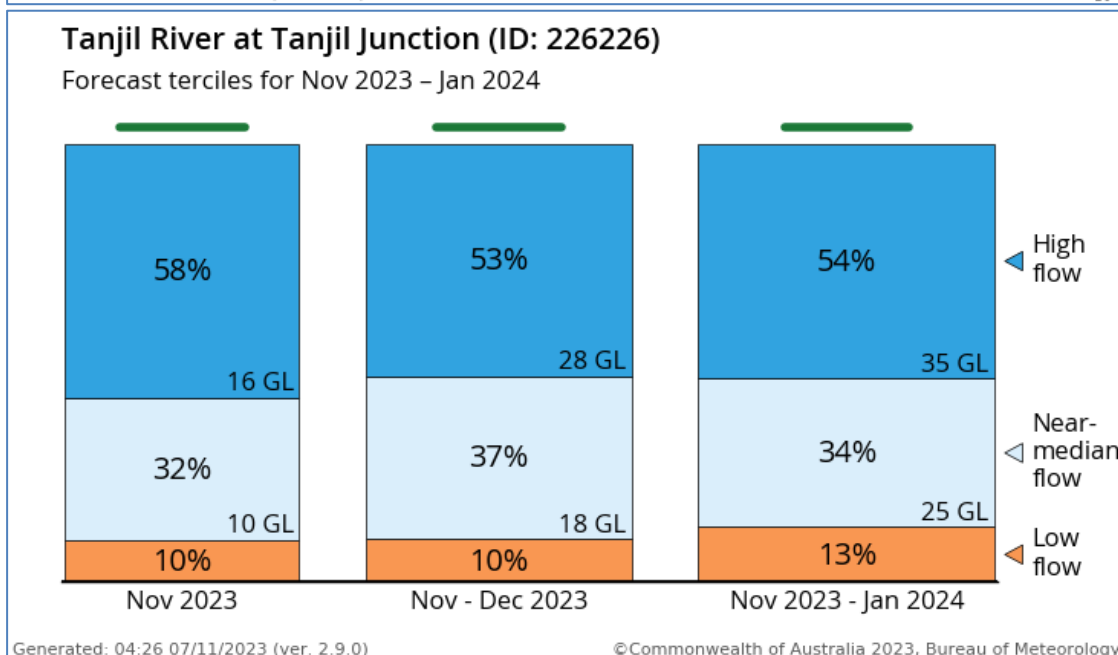
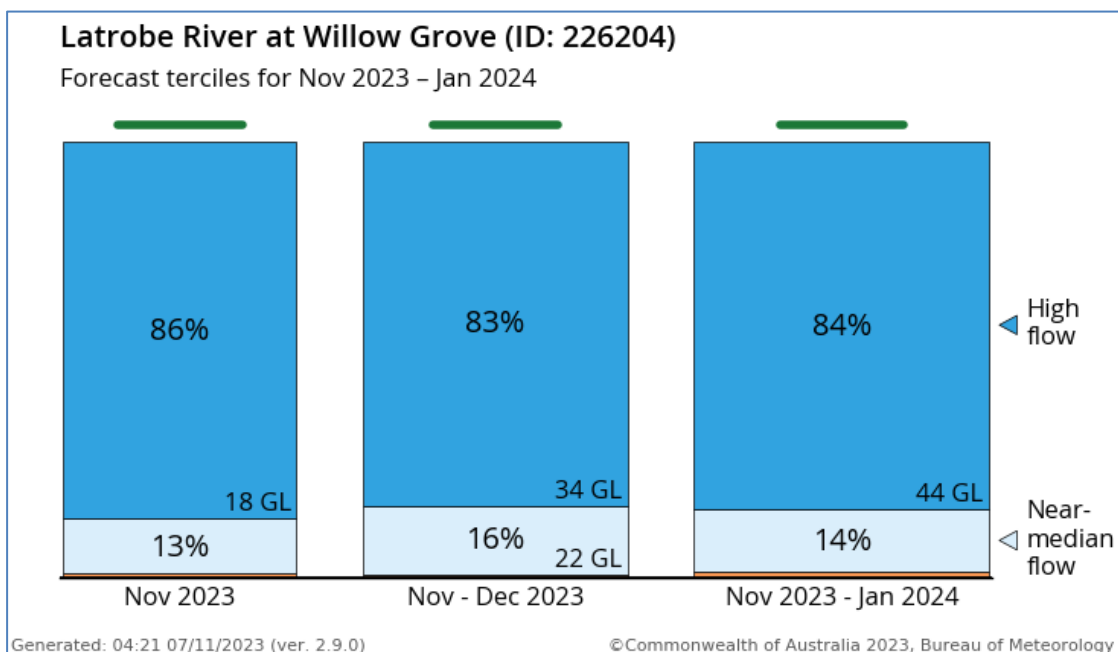


December – February (issued 19 October 2023)



BOM streamflow outlooks

The following two charts show the forecast for streamflows in two major rivers in our region. While not a source of water for our systems, we believe the Latrobe River outlook to be indicative of likely streamflows in other nearby catchments upon which we rely. This is because some of these other catchments are in relatively close proximity to the Latrobe catchment. The Tanjil River is the source of water for Blue Rock Reservoir. Both outlooks below forecast a strong likelihood of above average stream flows through December and January. This is likely a consequence of catchments having increased in dampness through October and November, combined with the summer rainfall outlook that is now predicting a low chance of drought.



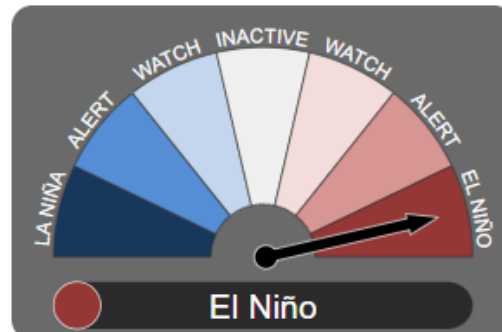
BOM ENSO outlook

Summary of ENSO Outlook 24 October 2023

Source:

<http://www.bom.gov.au/climate/enso/outlook>

Climate in our region is influenced by several cyclical weather patterns, in particular the El Niño Southern Oscillation (ENSO), the Indian Ocean Dipole (IOD) and the Southern Annular Mode (SAM). All of these have phases that contribute to wetter or drier conditions for our region, and their impact also depends on the time of year.



After three consecutive years of La Niña events, on 19 September 2023 the BOM announced the commencement of an El Niño, along with a positive IOD. The announcement was made notably later than several other major international meteorological offices, with the Australian BOM criteria for El Niño not met until the crucial coupling of oceanic and atmospheric processes in the Pacific had occurred. This coupling “locks in” and reinforces the duration and effects of El Niño.

Climate models suggest this El Niño event will likely persist through to next Autumn, while the positive IOD is forecast to continue to late Summer but its influence typically weakens after Spring. An El Niño and a positive IOD both lead to increased likelihood of lower-than-average rainfall and hotter temperatures in south eastern Australia, and when both occur concurrently can superimpose to strengthen the resulting weather outcome.

The SAM has recently been trending neutral to positive and likely to stay neutral to slightly positive over spring and into early summer, although SAM cannot be forecast accurately beyond about a month. A positive SAM during summer can bring wetter weather to our region, in particular in our east.

It is important to also note that climate change is influencing our climate, with average warming across Australia of around 1.4 °C since 1910. Furthermore, southern Australia has seen a 10–20% reduction in cool season (April–October) rainfall in recent decades.

Summary

The outlooks presented above indicate a slightly increased likelihood of lower than average rainfall during summer, with this likelihood easing towards neutral as summer progresses. The chance of drought is deemed very low. There is a high probability of above average temperatures. With our catchments currently at average or wetter than average soil dampness, and a small chance of exceptionally dry conditions, we are expecting streamflows through summer to be around average.

Water resources outlook

The following chart shows a 12-month outlook in megalitres of the combined water holdings in Moondarra Reservoir and our share of Blue Rock Reservoir under five scenarios starting from the current storage level of 100%. The scenarios present three differing outlooks for reservoir inflows:

- Post 1975 average, nominated by the Victorian Water and Climate Initiative as the 'current climate';
- Post 1997 average, recognising that Victoria's climate took a 'step change' in 1997, the commencement of the Millennium Drought, and that some climatic characteristics of this change persist despite several wetter periods; and
- Worst year on record (2006/07).

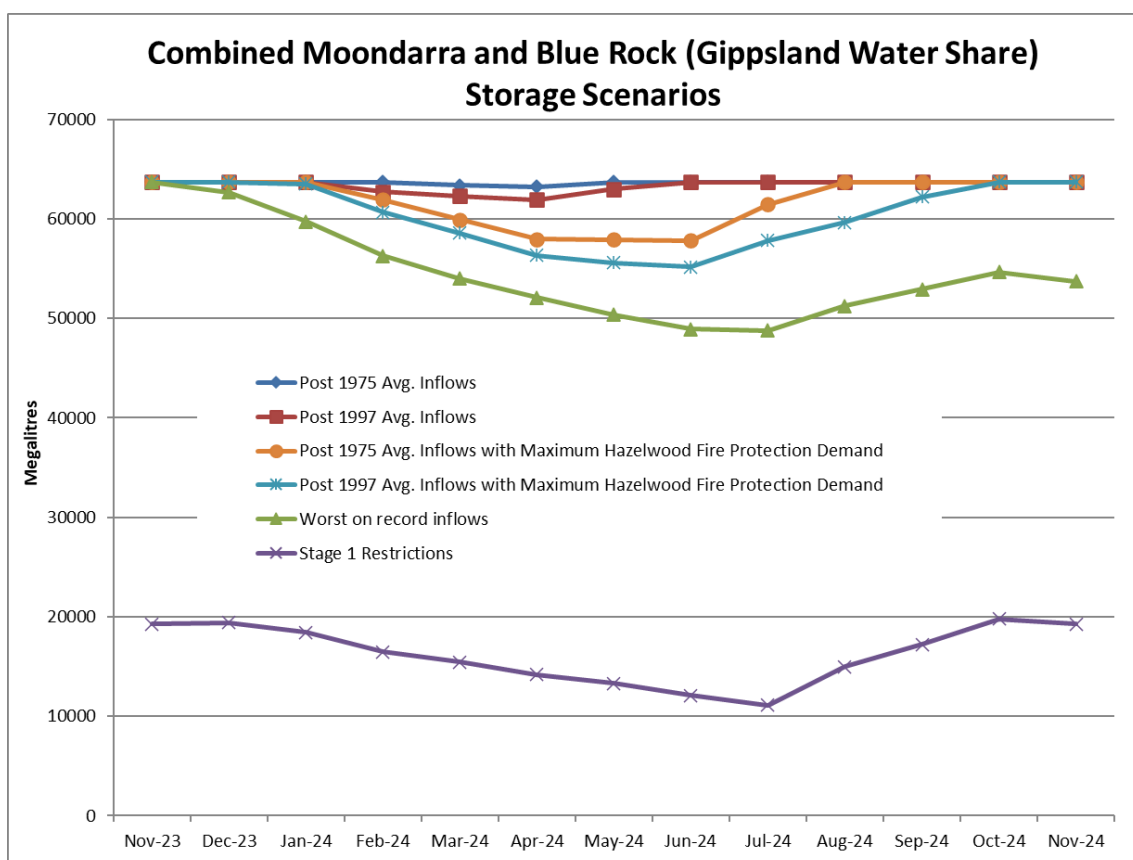
The outlook scenarios adopt typical demand levels that would be anticipated with the weather conditions likely under each inflow scenario, e.g. in a drier year inflows decrease but demand would increase with less rain leading to more garden watering.

From November 2021 the Hazelwood mine commenced drawing significant flows of water from the Latrobe system for fire risk mitigation purposes. The outlook below now includes estimates of the drawdown on storage that could result from this use under two scenarios of reservoir inflows at the average since 1975 and 1997.

We have not applied this demand to the worst on record inflow scenario as under such conditions we may consider ceasing or reducing supply to the mine as it is not a guaranteed supply and can be restricted to protect reservoir levels for residential, commercial and industrial customers. Also the outlook presented in the preceding sections suggests a low chance of such low inflows occurring this summer.

In late December 2022 Australian Paper closed its white copy paper machine after it was no longer able to source the required timber. This has resulted in a reduction in water use of about 35%. This has not been included in the outlooks in the chart below and in the short term will serve to reduce the drawdown due to mine supply. Longer term the water needs of Australian Paper remain uncertain with a range of projects being considered at the site.

The chart shows a significant buffer between both the 'worst on record' streamflow and 'maximum Hazelwood mine fire protection' demand draw downs compared with the stage one restriction review point.



The following table provides an outlook for each water system for this summer.

Water system	Supply – Demand outlook and water restriction likelihood
Briagolong	After a fall in aquifer level over the dry months of late winter and early spring, the rain of early October has resulted in a recovery to a level similar to this time last year placing this system in a secure position in the lead up to summer. The current level provides confidence that water restrictions are unlikely this summer. It should be noted that matters outside our control such as management of the resource as well as use by others could impact this outlook.
Rawson	Based on historic performance and current streamflows, the chance of water restrictions this summer is deemed unlikely.
Latrobe	Current storage levels in the Latrobe System provide excellent supply security for the coming 12 months. The chance of water restrictions during the next year is deemed unlikely as detailed in the discussion and chart above.
Mirboo North	Based on historic performance and current streamflows, the chance of water restrictions this summer is deemed unlikely. While a reliable stream, supply could become restricted by a catchment water quality incident such as heavy

Water system	Supply – Demand outlook and water restriction likelihood
	soil runoff into the stream due to very heavy rain combined with upstream agricultural land use.
Sale	The chance of water restrictions in the coming year is deemed unlikely. This resource is a deep, confined aquifer. While subject to long term decline, short term trends in aquifer levels are more strongly related to usage than climate and are reasonably predictable. There is high confidence of supply meeting and exceeding demand for the year ahead.
Seaspray	The raw water basin is currently at 100%, or at least 6 months' supply. Low flows in Merriman Creek prevented harvesting from July to September (our bulk entitlement has a high minimum passing flow during July to October). Significant rain in early October briefly provided very high flows but water quality was not suitable for harvest. The bulk entitlement minimum passing flow rules ease each year from November to June and the basin was able to be refilled before summer. The chance of water restrictions for the coming summer is deemed to be unlikely. While algae outbreaks in the raw water basin could lead to water restrictions, measures to address this have been implemented so the risk is deemed unlikely.
Tarago	Our current allocations in our new bulk entitlement in the Greater Yarra System – Thomson River pool provide confidence to forecast that the chance of water restrictions over the next year is deemed unlikely. The Moe-Warragul Interconnection will also help to provide supply security for this system.
Thomson Macalister	With a full allocation, the chance of water restrictions for the remainder of the current financial year is deemed unlikely. Historically the supply to Coongulla was vulnerable in dry years to late summer and autumn low water levels in Lake Glenmaggie causing problems with pumping from the lake. With Coongulla now supplied from Heyfield, that vulnerability has been addressed.

While water restrictions are deemed unlikely this summer, permanent water saving rules apply as always. Information on these rules, and advice on how to save water, can be found at www.gippswater.com.au/savewater.

It is always possible that a drought could occur that is worse than any on the historic record. For instance, the 2017-19 east Gippsland drought that affected the northeast of our region including the Briagolong supply system four years ago, was 13% drier at the Giffard rain gauge than the previous lowest rainfall three year period in over a century. We undertook modelling in the preparation of our 2022 UWS to determine the resilience of our systems to extreme drought, using a method that creates a test drought event worse than experienced. The results showed that none of our systems failed to meet demand during this test drought under stage four restrictions, meaning all systems were shown to be sufficiently robust to meet critical human needs.

Furthermore, modelling we undertook during the development of the 2022 UWS showed all of our systems to be highly resilient to a repeat of the Millennium Drought (1997-2009), with only minimal water restrictions necessary to balance supply and demand.

Actual performance during the Millennium Drought is no longer relevant for many of our systems due to augmentations undertaken over the last decade, these include:

- Connecting Boolarra to the Latrobe system;
- Constructing a 30 ML water storage for Seaspray;
- Purchasing an increased share of Blue Rock Lake;
- Permanent carting of potable water to Thorpdale;
- Moe to Warragul Interconnect;
- Connection of Coongulla to Heyfield; and
- Purchase of a bulk entitlement in the Greater Yarra System – Thomson River pool for Warragul and Drouin.

Disclaimer: While we have considered relevant climate forecasts and taken care in presenting the information in this Annual Water Outlook, we cannot and do not guarantee any forecast outcome or event. There are many factors that could deliver a different outcome and many are beyond our control. Examples include fires and floods that lead to dirty water sources that are untreatable or that can only be treated at reduced rates, requiring water restrictions.

Public green space watering

In the 2017 UWS, we committed to collaborating with our local councils and communities to identify priority public green spaces and plan for their maintenance during drought periods. This was reaffirmed in our 2022 UWS. This could mean providing water restrictions exemptions or assisting with alternative water resources. A preliminary list of priority reserves is published in the UWS. It is important to note also that limitations on watering of public reserves are not limited to drought and other constraints also exist such as the cost of potable water which may not be the most suitable source. We will consider requests for restriction exemptions, although as stated above, the chance of restrictions this summer is deemed unlikely.

We regularly engage with councils through the Gippsland Integrated Water Management (IWM) Forum that commenced in May 2018. The Forum, a Water for Victoria action, provides a platform for addressing some of the challenges in maintaining public green space. During 2022, we collaboratively renewed our Strategic Directions Statement, a public document, outlining our shared vision for IWM and projects we've committed to collaboratively pursue.

Baw Baw Shire, Wellington Shire, and Latrobe City Councils have all developed municipal IWM plans outlining priority projects for alternative water supply to recreation facilities. This year, we've been working with them on the delivery of several actions. In particular, our Forum has been successful in attracting Victorian Government funding

for projects in Morwell, Traralgon and Stratford on which we are working with our council and other IWM partners. South Gippsland Shire Council is currently developing their municipal IWM plan and we are supporting that project. We have also agreed with other Forum members to recruit and host an IWM officer, a role that will be jointly funded by Forum members and the Victorian Government, to support the delivery of key IWM projects and initiatives.

Actions

Our Urban Water Strategy 2022 set 18 actions for the 2023-28 price submission period. Progress against these is shown in the table below. In acknowledging submission of our UWS, the Minister for Water highlighted particular interest in the progress of three key actions (Actions 10, 11 and 14). These are noted in the first column of the table.

Action / Theme or System	Description	Timeframe	Progress
Action 1 / Partnering with our Traditional Owners	Develop and implement a Moondarra On-Country Plan, which focuses on Traditional Owner access to land and water, increasing opportunities to realise objectives for cultural values and uses, building the cultural awareness of our staff and the community.	To be progressed during the 2022-27 Urban Water Strategy period	We are continuing to explore opportunities to increase Traditional Owner access to land and water, where it aligns to Traditional Owner priorities. GLaWACs Cultural Fire team is actively involved in planning for application of traditional practices in upcoming ecological burning activities on land we manage at Dutson. In addition, we are supporting the Federation University Aboriginal Education Centre to integrate excursions to Moondarra in to their student activity program.
Action 2 / Partnering with our Traditional Owners	Provision of reticulated water to Knob Reserve, a significant meeting place for the Gunaikurnai Community. Reticulated water will support cultural events at the site and support sustainable use of water and health outcomes for Community.	To be progressed during the 2022-27 Urban Water Strategy period	On-site values assessments have now been completed and informed the finalised detailed design. The water fountains have been procured and Traditional Owner artwork has been applied. Installation is on schedule for completion prior to the end of the 2023 calendar year.

Action / Theme or System	Description	Timeframe	Progress
Action 3 / Partnering with our Traditional Owners	Pilot the application of the 'Multiple Benefits Of Ownership And Management Of Water By Traditional Owners Framework' on key projects.	To be progressed during the 2022-27 Urban Water Strategy period	GLaWAC is leading the assessment and we are preparing to ensure suitable resources are available to actively contribute to upon commencement.
Action 4 / Partnering with our Traditional Owners	Integrate the 'Multiple Benefits Of Ownership And Management Of Water By Traditional Owners Framework' into our planning frameworks to ensure quadruple bottom line assessments are integrated into business decisions.	To be progressed during the 2022-27 Urban Water Strategy period	This has not commenced and will follow on from learnings from Action 3.
Action 5 / Engaging with our stakeholders	Build on our existing close relationship with West Gippsland Catchment Management Authority (WGCMA) to better identify opportunities to collaboratively achieve outcomes that benefit each other's objectives and values, and to foster an enhanced mutual understanding of our respective challenges.	Ongoing	In addition to our existing collaborative arrangements, we are participating in three WGCMA environmental watering advisory groups for the Latrobe and Thomson basins. We are also working closely with WGCMA, SRW and GLaWAC on Central and Gippsland Region Sustainable Water Strategy Action 4-15.
Action 6 / Engaging with our stakeholders	Continue to work with local councils and government to embed better water conservation planning for greenfield development.	Ongoing	These initiatives are being developed through a working group formed through the Central and Gippsland Region SWS. Our managing director is a founding member of that group and a number of associated work streams are progressing through the Integrated Water Management Forums.

Action / Theme or System	Description	Timeframe	Progress
Action 7 / Water efficiency and conservation	Continue to deliver our Non-revenue Water Action Plan	Ongoing	Our Non-revenue Water Action Plan has progressed significantly with significant leaks found and rectified. The plan has developed further to focus on automated monitoring and reporting of flow deviations that could be leaks, further developing our bulk water metering asset management plan, as well as reviewing potential losses associated with use of hydrants and fire services.
Action 8 / Water efficiency and conservation	Expand our activities that support the government's Target Your Water Use program including continuing with the Schools Water Efficiency program, facilitating any applicable grant schemes for water efficiency improvements in homes and businesses, and expanding our community education programs.	Ongoing	<p>We have continued to support the Target Your Water Use program in our community education activities.</p> <p>Our face-to-face education sessions on water efficiency reached 536 students from 12 schools and kindergartens in the region.</p> <p>We have continued to work with local schools to support their ongoing commitment to improving water efficiency. 28 schools from our region are actively involved in the Schools Water Efficiency Program.</p> <p>We included water efficiency messaging within two newsletters that have accompanied our bills, and regularly incorporated water conservation messaging in social media posts across the year.</p> <p>We've also developed a water conservation campaign, 'Reduce Your Use', which will be rolled out in early 2024.</p>

Action / Theme or System	Description	Timeframe	Progress
Action 9 / Engaging with our stakeholders	Continue to work closely with our Gippsland Integrated Water Management (IWM) Forum partners to identify and deliver feasible IWM initiatives that benefit the security of our water resources, the liveability of our urban landscapes and the health of our waterways and the broader environment.	Ongoing	Our Forum has been successful in attracting Victorian Government funding for projects in Morwell, Trafalgar and Stratford on which we are working with our council and other IWM partners. South Gippsland Shire Council is currently developing their municipal IWM plan and we are supporting that project. We have also agreed with other Forum members to recruit and host an IWM officer, a role that will be jointly funded by Forum members and the Victorian Government, to support the delivery of key IWM projects and initiatives.
Action 10 / Briagolong water Key action noted by Minister for Water	Drill a production bore in the deeper aquifer at Briagolong, buy a water license and upgrade the water treatment process at our Briagolong water treatment plant.	2023/24	Following a three year period of aquifer monitoring and testing, two years of which included detailed hydrogeological work to support our application to extract deeper groundwater, in October this year we received approval to proceed to drill a production bore and acquire a 120 ML/y groundwater licence. This is a major milestone in this important project to provide a secure supply for Briagolong.

Action / Theme or System	Description	Timeframe	Progress
Action 11 / Latrobe water Key action noted by Minister for Water	Continue working with the Department of Environment, Land, Water and Planning (DELWP) and other agencies to plan and deliver on directions for the Latrobe basin set by the Central and Gippsland Region Sustainable Water Strategy (CGRSWS) and the Latrobe Valley Regional Rehabilitation Strategy.	Ongoing – subject to regulator timeframes	The Central and Gippsland Region SWS was finalised and publicly released in September 2022. An appendix in the SWS details accountability for delivery of actions with timeframes. In particular, we commenced work with WGCMA, VEWH, SRW and GLaWAC on Action 4-15, Developing a vision and plan for the water future of the Latrobe Valley.
Action 12 / Sale water	Continue to work with Southern Rural Water (SRW) and DELWP to better understand the Boisdale aquifer and its future sustainable use.	Ongoing – subject to regulator timeframes	This action is being progressed through the Groundwater 2030 program. A commitment has been made by the Victorian Government through this program to complete a sustainable yield assessment of the Boisdale Aquifer by 2024.
Action 13 / Seaspray water	Explore alternative flow sharing arrangements for the Merriman Creek Bulk Entitlement.	2022/23	This action will be undertaken collaboratively with local water sector partners GLaWAC, WGCMA and SRW. All of these organisations have accepted our invitation to work with us on exploring alternative arrangements that work for all needs. During 2023 we undertook preliminary hydrologic modelling work to support this process.

Action / Theme or System	Description	Timeframe	Progress
Action 14 / Tarago water Key action noted by Minister for Water	Acquire a 2 GL yield Bulk Entitlement to the Yarra-Thomson Pool to secure Warragul and Drouin's future water.	2023/24	The Central and Gippsland Region SWS, publicly released in September 2022, has endorsed this as SWS Action 4-5. On 1 July 2023 we purchased a 3.33 GL/y bulk entitlement in the Greater Yarra System – Thomson River pool, completing this action.
Action 15 / Heyfield sewage	Develop an augmentation strategy for servicing future growth at the Heyfield sewage treatment plant.	2026/27	We have made provision in our Corporate Plan for budget to deliver this by the required timeframe. No other progress has occurred since our UWS release.
Action 16 / Mirboo North sewage	Deliver project for additional irrigation capacity at the Mirboo North sewage treatment plant site to allow greater re-use by our agribusiness operation.	2023/24	This project is budgeted for delivery in 2023-24 and is on track.
Action 17 / Neerim South sewage	Develop an augmentation strategy for servicing future growth at the Neerim South sewage treatment plant.	2026/27	We have made provision in our Corporate Plan for budget to deliver this by the required timeframe. No other progress has occurred since our UWS release.
Action 18 / Warragul sewage	Plan and deliver augmentations to increase Warragul sewage treatment plant capacity.	First stage by 2026/27	Our Major Infrastructure Projects team has commenced functional design and we are on track for delivery as scheduled with a business case submitted to our Board in October 2023.



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Water**

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