

Annual Water Outlook

1 December 2023

 Barwon Water



We proudly acknowledge the Traditional Custodians of the land on which we work and live, and on the water on which we rely. We pay our respects to their Elders, past and present.

We recognise Aboriginal and Torres Strait Islander peoples as the First Peoples of this Nation. We value their continuing cultures and contributions to our community, and their ongoing connection to the land, water and skies for over tens of thousands of years. By facilitating the development and implementation of Healthy Country Plans, we are dedicated to empowering Traditional Custodians on their journey to self-determination.

Through our partnerships with Wadawurrung and Eastern Maar, and guided by our Reconciliation Action Plan, we commit to identifying and realising meaningful opportunities to contribute to the preservation of Healthy Country.

We will be guided by our Traditional Custodians in decisions about sourcing and moving water on Country, with a strong collaboration to further integrate cultural values and goals under the framework of Healthy Country Plans into all the work we do.

Barwon Water service region and key infrastructure



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2023 in review

Water storages for the Geelong, Golden Plains, Bellarine and Surf Coast system were 93 per cent of capacity at the start of 2023. However, below average rainfall in winter and spring have caused local storages to steadily decline to 76 per cent (as of 27 November 2023).

The Colac, Lorne and Apollo Bay water storages are all close to full (as of 27 November 2023).

**Driest
September on
record for our
region since
1900 (BOM).**

A hot dry summer ahead

The Bureau of Meteorology recently declared an El Niño event underway, which will bring hot and dry conditions. This forecast, issued on 20 November 2023, predicts that rainfall in our region will be average for the next three months, while maximum temperatures will be above average.

El Niño event underway

We are already seeing the impacts of El Niño on rainfall – the West Barwon Reservoir, which typically supplies most of Geelong’s water, received 50 per cent less rainfall over the winter months when compared to the 10-year average.

Demand across our systems have increased by nearly 20 percent in September and October 2023, compared to the five-year average. For example, drier conditions have seen an increase in outdoor water use.

Should dry conditions persist

Victoria’s climate and streamflow is highly variable, but within this variability we have experienced a warming and drying trend over recent decades. More information on the observed changes and longer-term future climate and water projections can be found at

www.water.vic.gov.au/our-programs/climate-change-and-victorias-water-sector

Based on current storages, we expect water restrictions to be very rare for the Geelong, Golden Plains, Bellarine and Surf Coast, Colac and Gellibrand systems over the next two years, even under worst climatic conditions. Our coastal systems – Lorne and Apollo Bay – are also secure, with water restrictions predicted to be rare.

Our community recognises water is a precious resource and shouldn’t be wasted. The permanent water saving rules (PWSR) are a set of simple, common-sense rules to make sure we all use water wisely.

Small water savings steps to make a big difference



Limit your shower to 4-minutes or less



Turn off your tap when you brush your teeth

Fit a trigger nozzle on your hand-held hose



Use a timer to water your garden after 6pm or before 10am



Look for leaks and fix any you find

Storages can fall quickly in dry conditions

The Melbourne-to-Geelong Pipeline will supplement local surface water supplies over the summer of 2023–24. Local storage levels will be closely monitored and the rate of water supplied from our share in the Melbourne pool will be adjusted if required.

The Anglesea Borefield is not currently supplying water and will stay in ‘standby’ mode. However, should prolonged dry conditions lead to a further decline in local storage levels, even with additional water coming from the Melbourne-to-Geelong Pipeline in full operation, Anglesea Borefield may be brought online.

It is important to note that the El Niño climate pattern will increase the chances of a hot and dry summer, and heighten the risk of dangerous bushfires. If bushfires were to occur, we may not be able to guarantee continuity of supply.

Enough water for the future

Our region is growing

Geelong’s population is growing second fastest out of Australia’s largest 20 cities, experiencing the second highest 5-year growth rate in 2021–22. With the population expected to double to 670,000 by 2065, pressure on our water supplies is going to increase significantly.

Our climate is changing

Our drying climate means less water is flowing into rivers and being captured in storage. Since the Millennium Drought (1996 to 2010), inflows to our water storages have reduced. Since 1997, there has been a ‘step change’ reduction of between 25 to 60 per cent in average annual inflows compared to the long-term average.

Case study: How climate influences water storages

We are also seeing changes in rainfall seasonality, for example conditions in the Otway Coast area over the summer of 2015–16 were unlike anything ever experienced before, with nowhere more severe than around Lorne. The Allen Reservoir, which services the Lorne community, was almost 100 per cent full heading into summer, however, by early 2016 it had dropped to its lowest level on record due to historically low rainfall. This triggered Stage 3 water restrictions and, for the first time ever, water had to be carted from the Greater Geelong system to top up dwindling local supplies. In 2018 we completed dam safety works at Allen Reservoir, which increased its storage capacity by 19 million litres or close to 10%. This allows for the ability to store more water to meet peak summer demand.



Balancing urban, environmental, and cultural needs

We recognise the need to support Traditional Owner access to water for their self-determined use.

Rivers across southern Victoria are flow-stressed and need additional water to not only prevent further deterioration, but also to protect cultural and environmental values in and around waterways. The Moorabool River, which is critical for supplying our customers in the Geelong, Golden Plains and Surf Coast system, is also recognised as one of the most flow-stressed rivers in Victoria.

How we will secure enough water

Storages are high now, but we need more water from new supplies in the future.

Our 2022 Urban Water Strategy: Water for our Future sets out how we will respond to the many challenges facing our water supplies, both now and in coming decades. The strategy aims to balance urban, environment and cultural needs.

Our adaptive plan will deliver an average of one billion extra litres of water every year for the next 50 years. With a hotter drier climate likely, we will gradually shift to more climate resilient sources to ensure that there is enough water to support the prosperity and liveability of our region.

Finding more water

By 2025, we will extend the reach of the Melbourne-to-Geelong Pipeline so that it can meet growing demand for water in areas serviced by the Geelong, Bellarine and Surf Coast system, and also return water to the Moorabool River for Traditional Owner self-determined cultural values and environmental needs.

In the longer-term, we will gradually transition to more climate-resilient manufactured water sources, such as fit-for-purpose recycled water, stormwater, and desalinated seawater.

Our community understands that the most cost-effective way to achieve water security is by accessing a share of the State's next large-scale augmentation, and we are working with the Victorian Government and Melbourne metropolitan water authorities to help us prepare for this.

The Lorne: Water your say program was launched in May 2023 to ensure plans for the long-term water security of Lorne align with the community's values and priorities.

We will also begin working with the Apollo Bay community in 2024 to identify solutions for long-term water security.



Smarter water use

Through our sustainable water use program, we will continue to work with customers to encourage water efficient behaviour and use of alternative water sources that will help reduce dependence on precious drinking water. We expect to save 200 million litres of water every year from this program.

For more information, our Urban Water Strategy can be found at www.barwonwater.vic.gov.au/water-and-waste/water-for-our-future

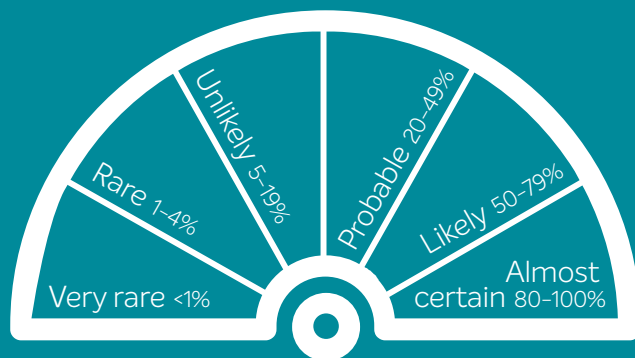
Two year outlook for our systems



Restrictions likelihood explained

The outlook for each of our water supply systems indicates the likelihood of water restrictions being applied within the next two years.

The scale of likely water restrictions runs from very rare to almost certain, as shown here.

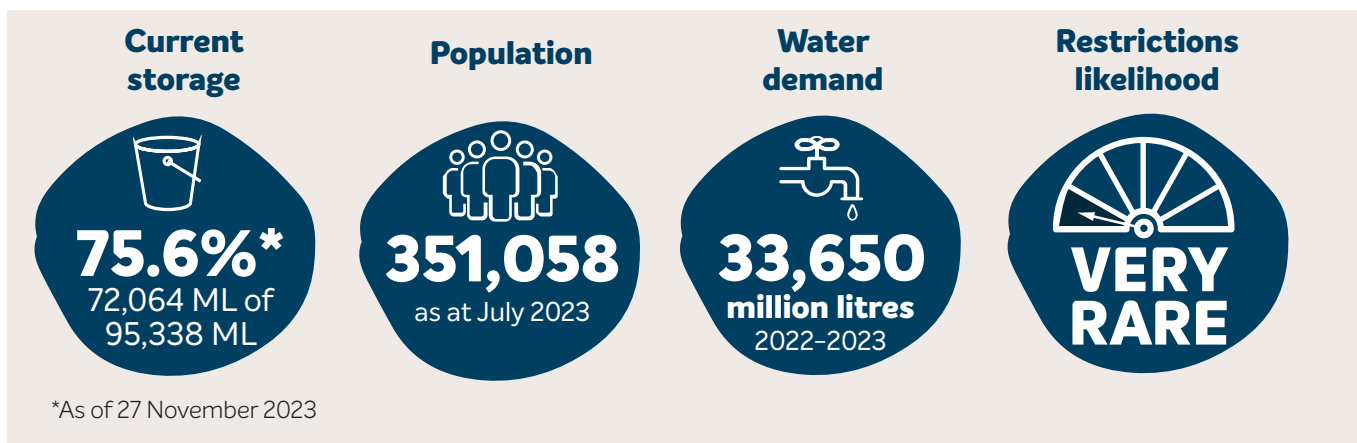


Geelong, Golden Plains, Bellarine and Surf Coast system



This system services more than 90 per cent of our customers. Drinking water is sourced from catchments on the upper Barwon and Moorabool rivers and an entitlement to take water from Melbourne’s Yarra-Thomson catchment, via the Melbourne-to-Geelong Pipeline. While the system is also able to draw groundwater from the Anglesea Borefield, this is only required when demand exceeds supply.

As part of this system, we also operate two Class A recycled water plants – the Northern Water Plant and the Black Rock Recycled Water Plant. Recycled water is used for non-drinking purposes, such as garden watering, and commercial, industry and agriculture uses.



Storage outlook

The short-term storage outlook for the Geelong, Golden Plains, Bellarine and Surf Coast system shows that, even under the worst climatic conditions, water restrictions will not be necessary for the next two years – to December 2025.

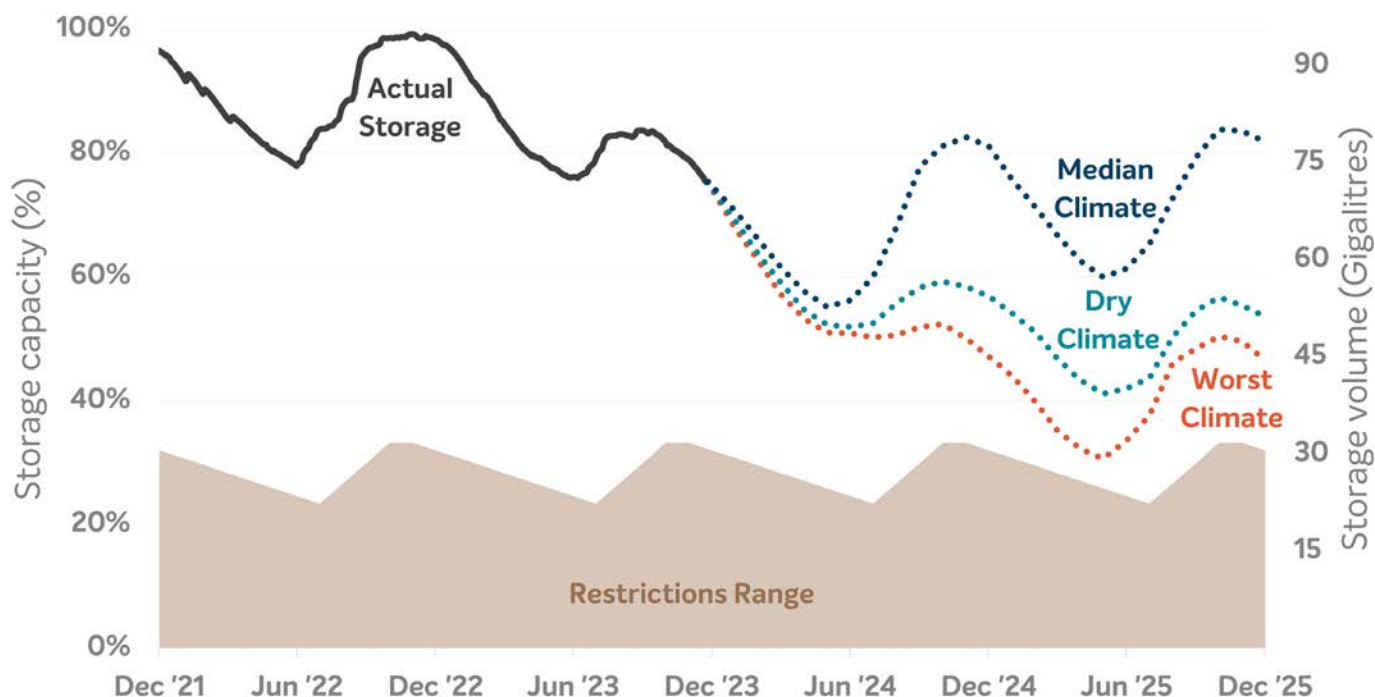


Figure 1: Projected two-year water supply for the Geelong, Golden Plains and Surf Coast system







Wurdee Boluc Water Treatment Plant

Short-term actions

Action	Status
GG1 Extend the reach of the Melbourne–Geelong Pipeline so that it can supply growing demand for residential, business, industry and agriculture in Geelong, Bellarine and the Surf Coast, and allow for water to be returned to the Moorabool River for Traditional Owner cultural values and environmental needs	On track
GG2 Put more recycled water to productive use	On track
GG3 Continue to investigate and increase our readiness to implement long-term actions, to help inform our 2027 Urban Water Strategy	On track
GG4 Work with customers to save water through our sustainable water use program	Ongoing
GG5 Expand our use of smart technology to help reduce costs and save water across our networks and in our homes and businesses	On track
GG6 Maintain efforts to continually optimise our system, so that we can make best use of available water resources and entitlements. For example: This includes investigations to inform a review of the Anglesea groundwater bulk entitlement to be submitted to the Minister in 2024	On track
GG7 Start delivery of the integrated water management plan for the new Northern and Western Geelong Growth Areas, including construction of a ‘purple pipe’ network to supply Class A recycled water	On track
GG8 Work with the City of Greater Geelong, Golden Plains Shire, Surf Coast Shire and Borough of Queenscliffe to progress localised integrated water management opportunities	Ongoing
GG9 Support improved flows and waterway health on the Barwon River by undertaking complementary river rehabilitation works	On track
GG10 Investigate the feasibility of a large-scale alternative water grid to distribute recycled water and stormwater for beneficial uses to boost water supply for agriculture and primary industries	On track

Colac system

Colac’s water supply is sourced from the West Gellibrand and Olangolah Reservoirs, which are located in the Gellibrand River catchment of the Otway Ranges. During dry periods, we can draw water from the Geelong, Golden Plains, Bellarine and Surf Coast system via a pipeline connection.

Current storage	Population	Water demand	Restrictions likelihood
 <p>98.0%* 2,579 ML of 2,631 ML</p>	 <p>14,852 as at July 2023</p>	 <p>3,120 million litres 2022–2023</p>	 <p>VERY RARE</p>

*As of 27 November 2023

Storage outlook

The short-term storage outlook for the Colac system shows that, even under the worst climatic conditions, water restrictions will not be necessary for the next two years (to December 2025).

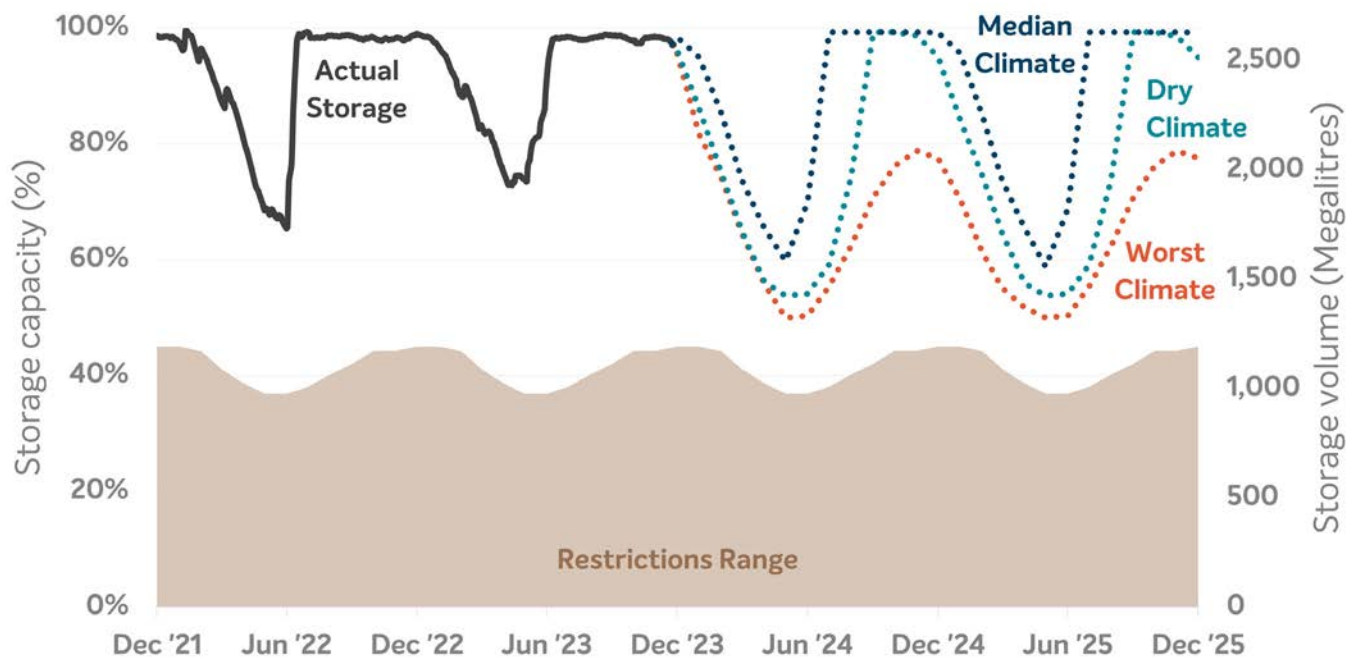


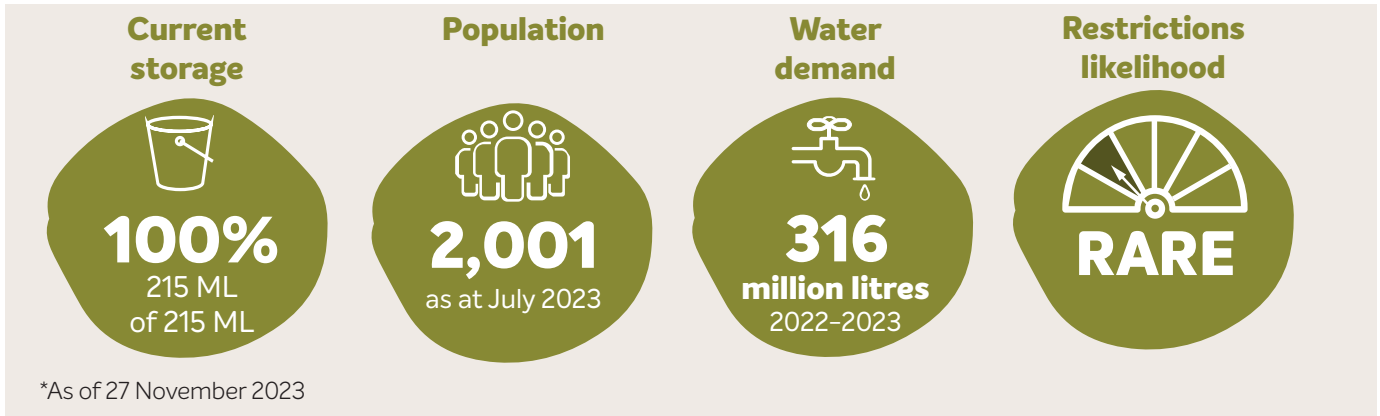
Figure 2: Projected two-year water supply for the Colac system

Short-term actions

Action	Status
C1 Work with customers to help them use water more efficiently	Ongoing
C2 Build a new underground pipeline to connect Birregurra to the Colac system	On track
C3 Work with Colac Otway Shire to progress localised integrated water management opportunities	Ongoing

Lorne system

The Lorne water supply system is a standalone system, which means it relies solely on water sourced from the Allen Reservoir (located on the St George River). Water is treated before being supplied to customers.



Storage outlook

The Allen Reservoir typically fills over the winter period due to good rainfall and streamflow.

Over the summer period, the system can be vulnerable to conditions outside a 'normal' climate range. Additionally, Lorne experiences an influx of visitors over the summer period that temporarily increases the population from approximately 2,000 to over 20,000. As such, water restrictions may be required if rainfall is low, or if demand is much greater than expected.

While the likelihood of water restrictions being applied to the Lorne system has been rated as 'rare', restrictions may be required should worst-case climate or demand scenarios eventuate.

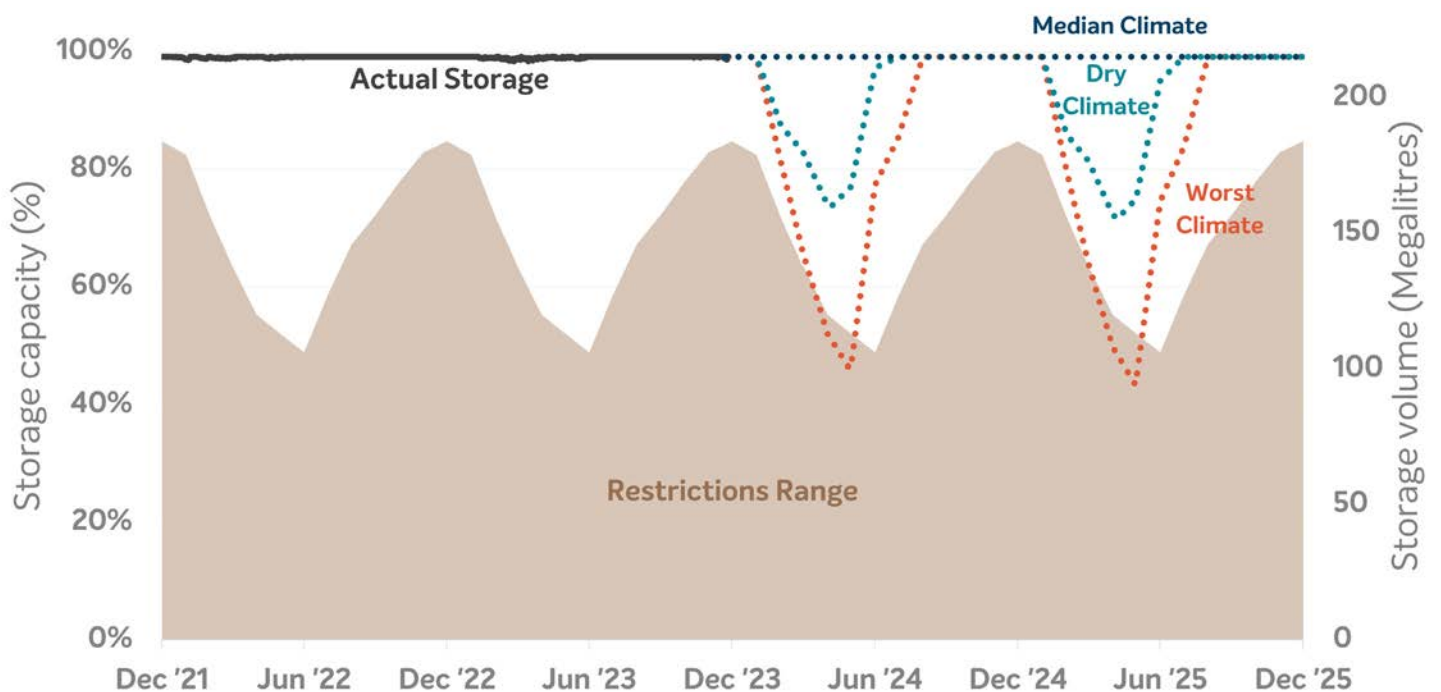


Figure 3: Projected two-year water supply for the Lorne system



Allen Reservoir

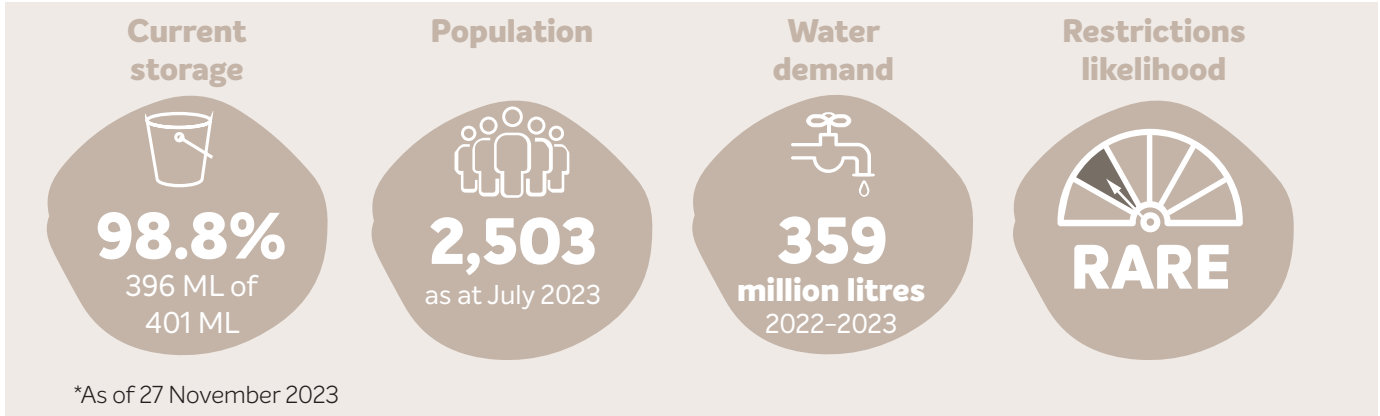
Short-term actions

While the existing Lorne system will continue to meet demand in the short-term, we will need to act within the next decade to maintain a reliable supply of water over the longer term. As such, we are working on minor upgrades to make the best use of our current system, improving the overall efficiency of our water treatment plant.

Action	Status
L1 Engage with the Lorne community to help identify a preferred long-term option, so we can continue planning and be ready to implement when required	On track
L2 Pursue greater efficiency at our water treatment plant	On track
L3 Explore potential water treatment upgrades to maximise the efficient use of water in storage	On track
L4 Work with customers to help them use water smarter	Ongoing
L5 Work with Surf Coast Shire to progress localised integrated water management opportunities and support uptake of alternative water sources, where efficient	Ongoing

Apollo Bay system

The communities of Apollo Bay, Skenes Creek and Marengo rely solely on the Barham River for water supply. Water harvested from the river during high-flow periods, during winter and spring and is stored in two basins – Marengo Basin (125 ML) and Apollo Bay Basin (276 ML) – before it is treated and supplied to customers.



Storage outlook

Apollo Bay storages typically fill over the winter period, due to good rainfall and streamflow. However, the system can be vulnerable to conditions outside a ‘normal’ range during summer, such as low rainfall or greater than expected demand.

While the likelihood of water restrictions being required for the Apollo Bay system has been rated as ‘rare’, restrictions may be required should worst-case climate or demand scenarios eventuate.

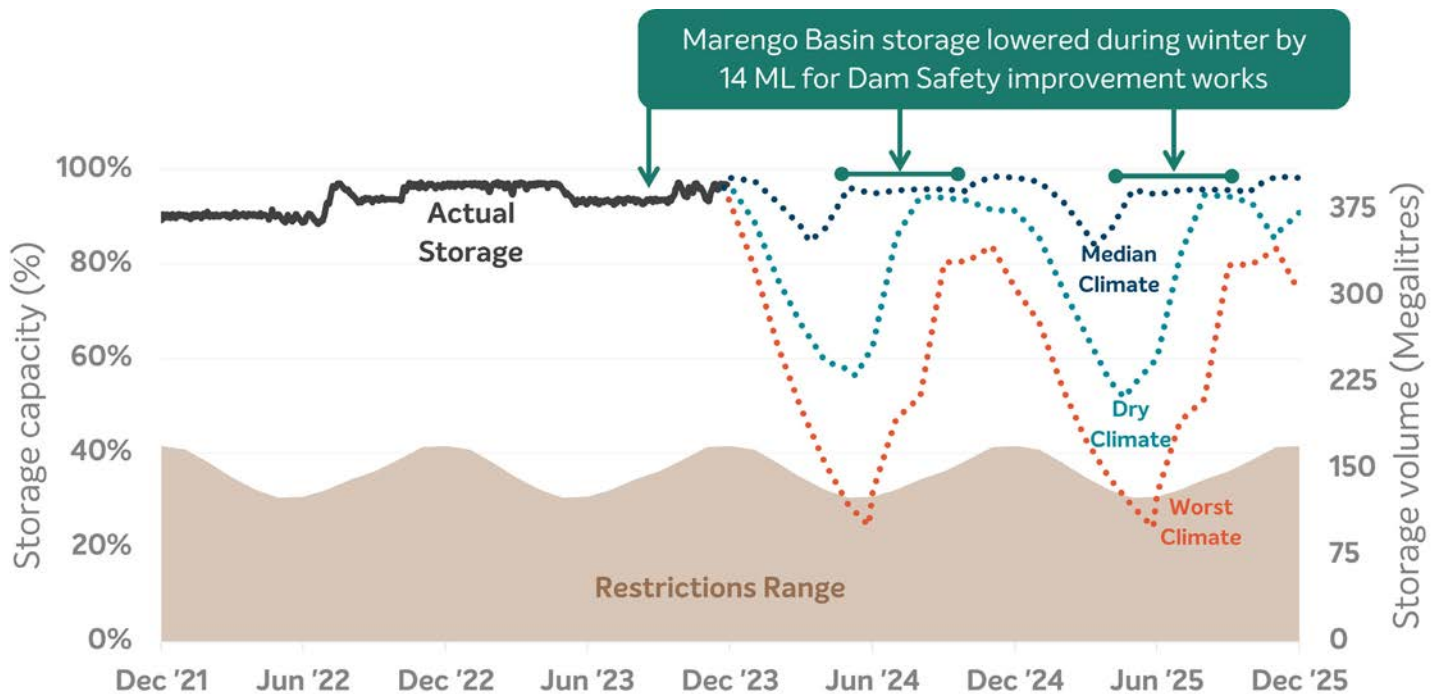


Figure 4: Projected two-year water supply for the Apollo Bay system



Short-term actions

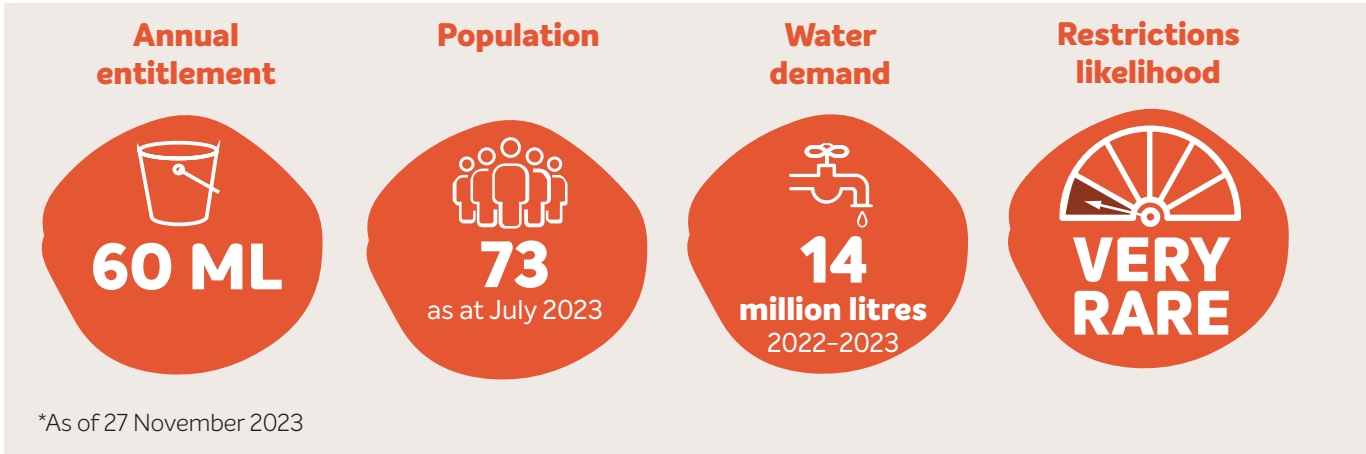
While the existing Apollo Bay system will continue to meet demand in the short-term, we will need to act within the next decade to maintain a reliable supply of water over the longer term.

Marengo Basin is undergoing planned maintenance to improve dam safety. During this time, the capacity of the basin will be reduced by 14 million litres between May and September 2024, until the works are completed. Our supply graph reflects the impacts of this temporary change.

Action	Status
AB1 Engage with the Apollo Bay community about a preferred long-term option, as part of planning to be ready to implement it when required	Starting 2024
AB2 Upgrade our infrastructure to maximise efficient production and storage of water	Complete
AB3 Research use of modular floating covers to reduce evaporation losses	On track
AB4 Work with customers to help them use water smarter, such as digital meters to target leakage reduction, and minimise leakage across our network	On track
AB5 Work with Colac Otway Shire to progress localised integrated water management opportunities and support uptake of alternative water sources, where efficient	Ongoing

Gellibrand system

Gellibrand is located approximately 25 kilometres south of Colac and supplies less than 100 properties. Water is harvested from Lardners Creek and then pumped to the Gellibrand Water Treatment Plant prior to being gravity-fed to customers.



Supply outlook

The short-term supply outlook shows that, even under the worst climatic conditions, water restrictions for the Gellibrand system will not be necessary in the next two years (to December 2025).

Water is harvested directly from the river to service the Gellibrand township. The graph below shows that river flows are far in excess compared to demand.

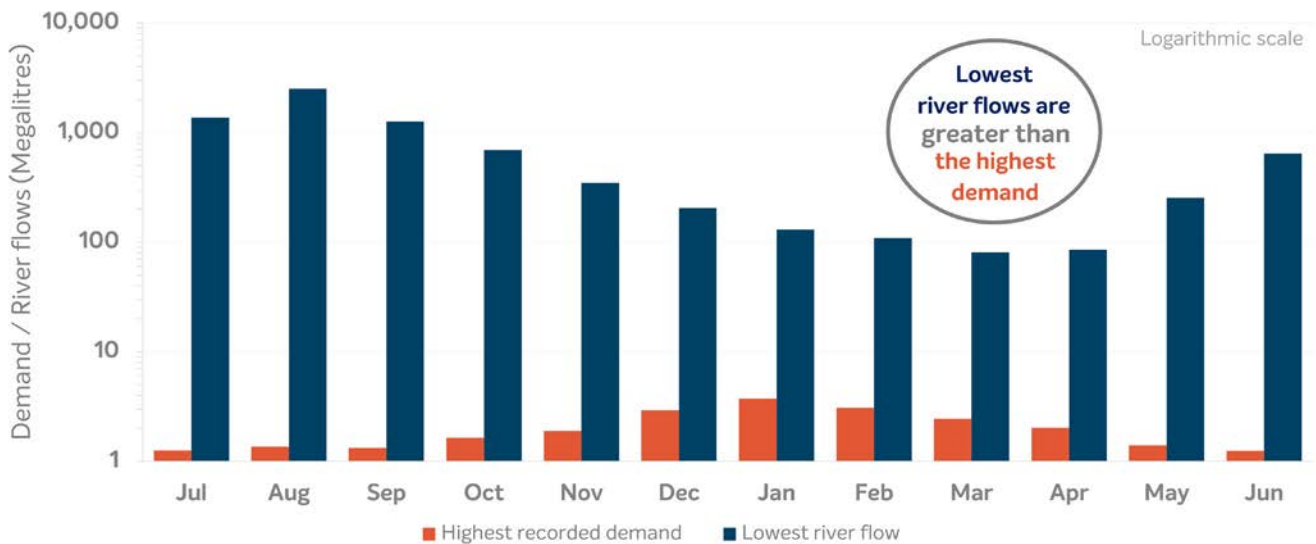


Figure 5: Projected water supply for the Gellibrand system

Short-term actions

Our ongoing operational processes and monitoring of supply conditions will ensure water restrictions remain very rare for the Gellibrand water supply system.



Bostock Reservoir



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The supply of recycled water to agricultural and horticultural customers now extends to the Bellarine Peninsula.