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Annual Water Outlook

1 December 2022



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, present and future.

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 and water over tens of thousands of years.

We want to support our Traditional Owners in the development and implementation of their Country Plans and in their journey for self-determination.

Through our partnerships with Wadawurrung and Eastern Maar, and our Reconciliation Action Plan, we commit to identifying and realising tangible opportunities to contribute to Healthy Country.

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



Barwon Water service region and key infrastructure





Even though storage levels are healthy today, our region is growing rapidly and we are seeing a long-term shift towards a hotter, drier climate. Our priority is to deliver a secure water future through actions that transition us to more climate resilient manufactured water, embrace integrated water management opportunities and facilitate smarter water use.

Snapshot of current water supplies

Above average rainfall for three consecutive years in most catchments has resulted in water storages servicing Geelong, Golden Plains, Bellarine and Surf Coast system peaking at 99.6 % on 28 Oct 2022 – the highest in over 27 years (since November 1995). Spills happen most years in our smaller reservoirs, however this year, due to high inflows, spills have occurred at West Barwon, Korweinguboora, Bostock, Lal Lal, West Gellibrand, Olangolah and Allen reservoirs.

Minimal top-up of water was required from Melbourne via the Melbourne to Geelong Pipeline in 2021/22. The Anglesea Borefield was used for a pumping test during 2022, the test is now complete and the Borefield is on 'standby' operation mode. These two sources supplied eight percent of the demand for the Geelong, Golden Plains, Bellarine and Surf Coast system in 2021/22.

The Colac, Lorne and Apollo Bay water storages are all close to full.

Our outlook shows that water restrictions are expected to be very rare¹ for the Geelong, Golden Plains, Bellarine, Surf Coast, Colac and Gellibrand systems over the upcoming two years. Our coastal systems, Lorne and Apollo Bay are also secure, with water restrictions predicted to be rare¹. Permanent Water Savings Rules still apply in our region to make sure we all use water wisely.

Whilst storages are currently in a healthy position, this can change quickly during dry periods. History tells us that without good inflows our water storage levels can fall to low levels within three years. Victoria's climate and streamflow is highly variable, and within this variability, we have experienced a warming and drying trend over recent decades. Coupled with a rapidly growing population, with Geelong being the fastest growing of Australia's largest 20 cities², we need to be ready to respond to these challenges.

In September 2022, we released our 50-year Urban Water Strategy: Water for our Future, which outlines actions we will take to ensure a safe, secure water supply for all of our customers and community. Short-term water security actions from the strategy are shown in the system outlook sections of this document.

Our Urban Water Strategy can be found at www.waterfuture.barwonwater.vic.gov.au/

Three-month climate outlook

The Bureau of Meteorology forecast (issued on 24 November 2022) indicates that rainfall in our region is expected to be above average, with higher-than-average maximum temperatures for the next three months.

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/research/vicwaci

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

2 Geelong's population is growing fastest out of Australia's largest 20 cities, experiencing the highest five-year and one-year growth rates in 2019-20, 2020-21 and 2021-22.

Source: https://blog.id.com.au/2022/population/population-trends/the-50-largest-cities-and-towns-in-australia-pandemic-edition/

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% of our customers, whose drinking water is sourced from catchments on the upper Barwon and Moorabool rivers, groundwater from the Anglesea borefield and an entitlement to take water from Melbourne's Yarra Thomson catchment via the Melbourne to Geelong Pipeline. We also operate two Class A recycled water plants, the Northern Water Plant and the Black Rock Recycled Water Plant, for non-drinking purposes such as garden watering, commercial, industry and agriculture.



Storage outlook

The short-term storage outlook shows that even under the worst climatic conditions, water restrictions will not be necessary for the next two years, to December 2024.







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	Not started
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	Not started



Colac system

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



Storage outlook

The short-term storage outlook shows that even under the worst climatic conditions, water restrictions will not be necessary for the next two years, to December 2024.



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. However over the summer period, the water supplies can be vulnerable to conditions outside a 'normal' climate range.

Water restrictions may be required if low rainfall is experienced, or if demand is much greater than expected. While rated as 'rare', under a worst-case climate scenario, water restrictions may be required over the summer period when the town experiences an influx of visitors, temporarily increasing the population from approximately 1,500 to nearly 21,000.







Short-term actions

While the existing Lorne system can continue to meet service levels in coming years, we will need to act within the next decade to maintain a reliable supply of water over the long-term. In the short-term, we are working on minor upgrades to make the best use of our current system by improving efficiency at 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	Not started
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 in the winter and spring is stored in two basins – Marengo Basin (125ML) and Apollo Bay Basin (276ML) before being treated and supplied to customers.



Storage outlook

Apollo Bay storages typically fill over the winter period due to good rainfall and streamflow. However, over the summer period, the water supplies can be vulnerable to conditions outside a 'normal' climate range. Water restrictions may be required if we experience low rainfall, or if demand is much greater than expected.

While rated as 'rare', under a worst-case climate scenario, water restrictions may be required over the summer period when the town experiences an influx of visitors, temporarily swelling the population tenfold to around 20,000.







Short-term actions

While the existing Apollo Bay system can continue to meet service levels in coming years, we will need to act within the next decade to maintain a reliable supply of water over the long-term. This year, minor works were completed at the Apollo Bay Basin to increase storage capacity by 26 million litres. While this has incrementally improved water security for Apollo Bay, the need for a further upgrade in the next five to ten years remains.

Marengo Basin is undergoing planned maintenance to improve dam safety. During this time, the capacity of this basin will be reduced by 14 million litres per year between May and September, until the works are completed. Our supply graph reflects this reduction in how much water we can store in the short term.

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	Not started
AB2 Upgrade our infrastructure to maximise efficient production and storage of water	Complete
AB3 Research use of modular floating covers to reduce evaporation losses	Not started
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	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 will not be necessary in the next two years, to December 2024.



Short-term actions

Beyond our ongoing operational processes to monitor conditions and maintain supplies, there are no specific actions for the Gellibrand water supply system.



Rivers and catchments

Water for the environment is essential for healthy and resilient waterways and for the survival of native fish, platypus populations and other species. Healthy flowing waterways support recreation, tourism, Traditional Owner culture and the liveability of communities, as well as supporting the delivery of consumptive water¹.

Case Study: Balancing urban and environmental needs

Our region is growing rapidly and our climate is changing.

Geelong's population is growing fastest out of Australia's largest 20 cities, experiencing the highest five-year and one-year growth rates in both 2019–20 and 2020–21². The region also supports over 100,000 jobs with an annual economic output of \$34.8 billion³.



A hotter drier climate means our catchments are already receiving much less rainfall. The amount of water available in the Moorabool River basin has declined by 19 per cent since 2005⁴. In practice, we can see the impacts of climate on river flows in our region, where low flow and even cease to flow events are happening more often. Careful management of environmental flow releases will become even more important in future.

The combination of extraction to meet growing urban demand and climate change has impacted on the Moorabool, making it one of the most flow stressed rivers in Victoria.

To support regional prosperity and improve river health, we are increasing the capacity of the Melbourne-Geelong Pipeline to assure urban water security for the long-term and return 3,700 million litres per year of long-term average equivalent water entitlement to the Moorabool, to be shared between the environment and the Wadawurrung for their self-determined use.

This water will be a combination of water for the West branch of the Moorabool River, held in Lal Lal Reservoir (3,000 million litres/year) and water for the East branch of the Moorabool River, held in Bostock Reservoir (700 million litres/year). Like our existing entitlement, the newly created entitlement/s will be subject to annual streamflows into the reservoirs, meaning the water that is available from year to year will depend on how much it rains.

The Melbourne Geelong Pipeline capacity will increase from 16,000 million litres to 22,000 million litres per year and is scheduled for completion by 2025.

Together, these actions will reduce the system's current reliance on the Moorabool River, the most flow stressed river in the State.

¹ https://www.water.vic.gov.au/planning/long-term-assessments-and-strategies/central-gipps-sws

² https://blog.id.com.au/2022/population/population-trends/the-50-largest-cities-and-towns-in-australia-pandemic-edition/

³ https://app.remplan.com.au/geelong/economy/summary?state=b2rRFdkabH53BPDf4YImwQC4hYhAYJ

⁴ DELWP, 2020. Long-Term Water Resource Assessment for Southern Victoria. The State of Victoria Department of Environment, Land, Water and Planning (available at https://www.water.vic.gov.au/ data/assets/pdf file/0025/457126/DELW0146 LTWRA Overview Report.pdf)

Recycled water

Residential use of recycled water for garden watering, car washing and toilet flushing will reduce demand on our potable water supplies by around 300 million litres per year.

We will also support existing agricultural and industrial customers to increase their productive use of recycled water, and explore new opportunities for agricultural or industrial use of Class A recycled water. Together, we expect we will be able to put an extra 1,000 million litres of recycled water to productive use in the next five years.

Case Study: Stead Park recycled water project

Stead Park is an active open space with playground facilities, and provides for multiple sports users such as baseball, softball, hockey, soccer and lawn bowls.

In partnership with the City of Greater Geelong, recycled water infrastructure has been installed to connect to our nearby Northern Water Plant, which once operational will supply approximately 25 million litres of recycled water per year. These initiatives will promote a healthy green space for the community, drought-proof the facilities by providing a more climate resilient alternative water source, and help reduce demand on our drinking water supplies.

Water efficiency and improving our systems

We supplied 37,000 million litres of water across our region in 2021–22. We will continue our efforts to improve community understanding and awareness about the importance of water efficiency.

We also plan to continue improving how we manage our systems to make best use of current water resources.

Case Study: Sustainable water use program

Through our sustainable water use program, we are continuing to work with customers to encourage water efficient behaviour to help save our precious drinking water. Savings from this program is expected to total 1,000 million litres of water over the next five years.

The sustainable water use program across our service region will focus on a variety of initiatives, including:

- Increasing automation and digital monitoring for customers to identify and fix leaks.
- Encouraging businesses and residents to participate in our grant and rebate programs to implement water efficiency improvements.
- Upscaling our community education activities to create a stronger awareness about the value of and need to save water.

Our sustainable water use program will complement the work we do to promote and encourage Permanent Water Savings Rules. More information on our Permanent Water Savings Rules can be found at <u>https://www.barwonwater.vic.gov.au/water-and-waste/permanent-water-saving-rules</u>





Case study: Apollo Bay system improvement

Prior to recent works, Apollo Bay's storages had a total capacity of 375 million litres, meaning there wasn't capacity to store water for multiple years of annual demand of about 390 million litres.

The limited storage capacity in the system means that it is highly dependent on seasonal climate patterns. Each year, the amount of water available to meet peak summer demand in Apollo Bay depends on the reliability of rainfall and flows in the river the preceding winter and spring.

In 2021, our long-term forecast indicated that under a worst-case scenario of high population growth and high climate change, Apollo Bay would need an augmentation by 2028. This does not mean that Apollo Bay will run out of water, but that there is a higher probability of more frequent, severe, and longer water restrictions.

In response, we explored innovative ideas for optimisation of the storage capacity of Apollo Bay Basin. With some small changes, were able to increase storage capacity by 26 million litres. Paired with our demand management initiatives, we have improved our water security position so that we will need our next upgrade around 2033 to cater for growth and potential climate change scenarios.

While a major augmentation may not be required by 10 years, we need to start planning and engaging now. Options for a further upgrade are relatively few, will have different trade-offs, and will all take many years to prepare for and deliver.

To ensure we are ready to implement a further upgrade when it is required, we will focus on engagement with the Apollo Bay community to identify a preferred long-term solution.





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55-67 Ryrie Street PO Box 659 Geelong Victoria 3220

└ 1300 656 007 | info@barwonwater.vic.gov.au

barwonwater.vic.gov.au

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