

Annual Water Outlook for Victoria

December 2018



Aboriginal Acknowledgement

The Victorian Government proudly acknowledges Victoria's Aboriginal community and their rich culture and pays respect to their Elders past and present.

We acknowledge Aboriginal people as Australia's first peoples, and as the Traditional Owners and custodians of the land and water on which we rely. We recognise and value the ongoing contribution of Aboriginal people and communities to Victorian life and how this enriches us. We embrace the spirit of reconciliation, working towards the equality of outcomes and ensuring an equal voice.

Other Acknowledgements

DELWP kindly acknowledges the efforts of the urban water corporations and rural water corporations of Victoria.

DELWP is grateful for the input of the Victorian Environmental Water Holder and the provision of data by the Australian Bureau of Meteorology.

Cover photograph: Craig Moodie

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Foreword

2018 has been a dry year. Parts of east and central Gippsland that support dryland agriculture are currently experiencing drought conditions. There has been below average rainfall in northern and north western Victoria and farmers are exposed to the effects of drought conditions in New South Wales and Queensland.

Although storage levels and streamflows across the state are generally lower compared to last year, storages remain relatively healthy. All irrigation districts have reasonable seasonal allocations and no Victorian towns are currently on water restrictions. Rainfall deficiencies will however, impact unregulated waterway systems across much of the state and licence holders in many unregulated waterways are expected to face restrictions in order to effectively manage irrigation, domestic and stock, and downstream demands across summer and autumn.

Over recent decades Victoria has experienced warmer and drier seasons. This trend is expected to continue over the coming years and the Victorian Government is working with water corporations to ensure we have secure water supplies across the state.

We recognise the need to plan for the short and long-term water needs of our communities, especially to meet the challenges of climate change and population growth. Water corporations have been regularly consulting and engaging with their communities about their needs and views on the best ways to use our water resources. As part of this, I request water corporations to provide an annual water outlook to keep the community informed about the status of water supplies, expected demand and projections for the year ahead. This *Annual Water Outlook for Victoria* brings these together and presents the state-wide outlook over the next year, including the impact of short-term climate trends on water sources.

We are continuing to mitigate and reduce the effects of drier conditions by developing and making best use of Victoria's water grid including the desalination plant, supporting water saving and efficiency activities across both the urban and rural landscape and promoting the use of stormwater and recycled water. As a result, urban, rural regulated and groundwater supplies are well placed for the year ahead. All cities and towns across the state can be confident that our water resources will be sufficient

to cope with demand, with water restrictions unlikely under average climate conditions. Planning is in place to mitigate the impact of dry conditions on water supplies and reduce the likelihood that water restrictions are required within the coming 12 months.

As we move into summer and for the year ahead, each of us can contribute to Victoria's water security by being smart about our household, business and on-farm water use. Smart water use helps secure our water supplies and allows more water to be used to create greener and more liveable communities now and for the future.



The Hon. Lisa Neville MP
Minister for Water



Contents

Foreword	3
About this document	5
Snapshot for 2018-19	6
Key messages	8
Metro and urban water corporations	8
Rural water systems	10
Climatic conditions	12
Current state of Victoria's water storages	14
The year ahead	16
Urban systems	16
Rural systems	18
Environmental water	23
Securing our water supplies	24
The Victorian Water Grid	24
Urban water efficiency measures	24
Long-term urban water planning	25
Rural water supplies	25
Further information	26



Image courtesy of Mallee Catchment Management Authority

About this document

The aim of the *Annual Water Outlook for Victoria* (the Outlook) is to keep Victorians informed about the state's water supplies for the coming year. It also outlines the contingency plans being put in place to cope with any water shortages that may arise. The state-wide Outlook is a compilation of the annual water outlooks prepared by all Victorian urban and rural water corporations as of December 2018.

Due to the highly variable nature of Victoria's climate, 'average', 'dry' and 'worst on record' scenario climate modelling is used to identify potential water security risks and understand the vulnerabilities of each system. The water corporations' annual water outlooks present this information and report on the current condition of each water supply system, predict future water availability where possible and outline strategies to meet customer demand.

The Outlook takes this information and provides a state-wide overview of the conditions that can be expected this year. It considers the seasonal conditions already experienced in 2018 and the short and long-range forecasts into 2019. The Outlook also summarises environmental water security across the state.

URBAN



Victoria is prepared to meet urban water needs in 2018-19.

Melbourne, Geelong, Bendigo, Ballarat and **all major towns have enough water** to meet demand for the coming year.

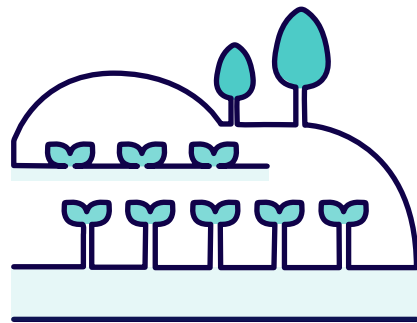
Melbourne is not expected to face water restrictions in the coming year.

Continuing to use water wisely and water from the Desalination Project are important ways to keep Melbourne's supply secure.

Regional urban water corporations are not expecting water restrictions under average forecast conditions.

If Victoria experiences dry or worst on record conditions this summer, water restrictions may be necessary in some towns in regional Victoria.

RURAL



In regulated systems, water shareholders have 24 – 100 per cent of their high-reliability water shares.

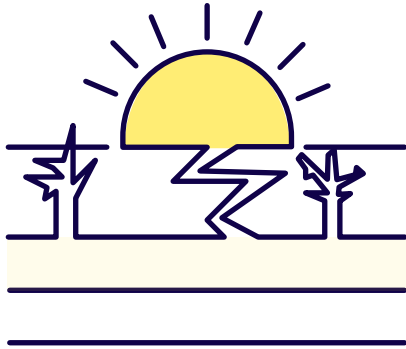
Licence holders in unregulated systems in the east and centre of the state may expect some level of restrictions, especially over summer.

Licence holders in a number of unregulated systems in the Gippsland, Goulburn-Murray and greater Melbourne regions are already on restrictions.

Most groundwater licence holders will not be affected by restrictions this year.

However continued declines may see more areas restricted in 2019/2020.

CLIMATE



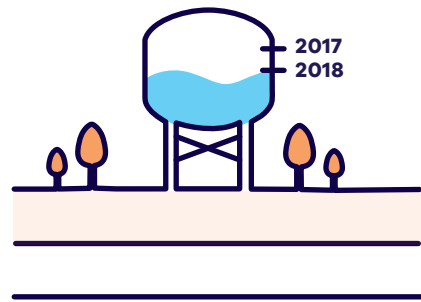
Warmer temperatures and average rainfall are predicted for Victoria this summer.

Using water efficiently is everyone's responsibility to help secure water supplies.

Permanent Water Use (Saving) Rules remain in place throughout the state to ensure continued sensible water use.

The Victorian Government is working **in partnership with the water sector** including water corporations and the community to help secure water supplies for current and future generations.

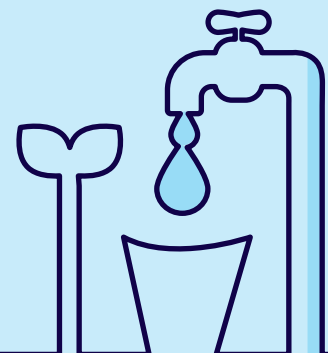
STORAGE LEVELS



A poorer than expected filling season occurred for most major storages in Victoria due to drier than average conditions across most of the state, especially in the northern and eastern parts.

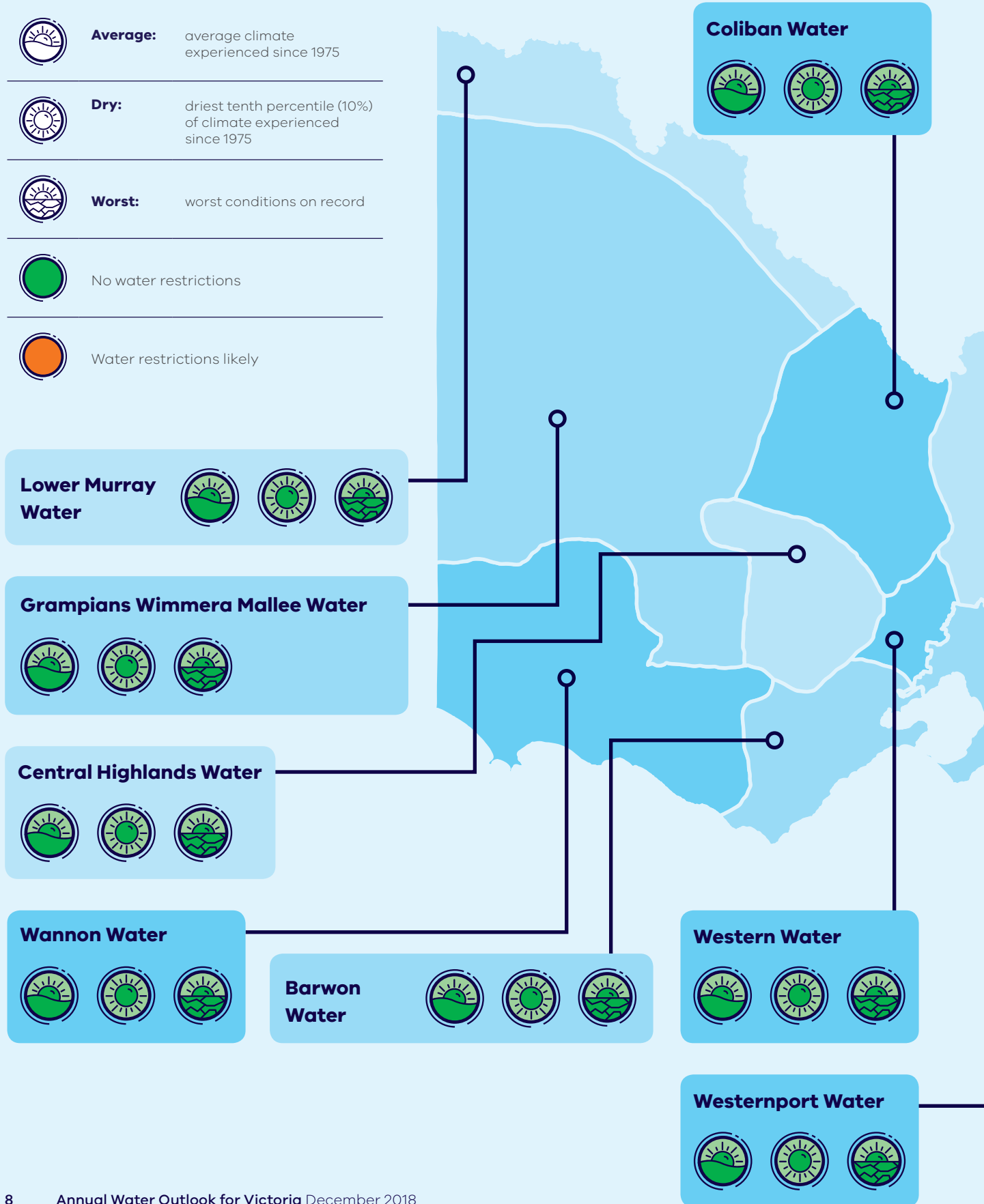
Storage levels across Victoria's major water storages are 13 per cent lower than at the same time for November last year.

Despite this, our storage levels remain well placed.



Key messages

Metro and urban water corporations



Goulburn Valley Water



Under a dry climate scenario, Stage 1 water restrictions could be triggered in Nine Mile Creek (servicing Longwood) within six months, and Seven Creeks (servicing Euroa and Violet Town) within 12 months.

Under a worst on record climate scenario, water restrictions could be triggered in an additional two systems (Steavenson River and Delatite) by May 2019.

North East Water



Under a dry climate scenario, Stage 2 water restrictions are likely for the King Water Supply System.

Under a worst on record scenario, Stage 2 water restrictions could be triggered in four systems (Bright, Harrietville, Wangaratta, Yackandandah) within the next 12 months, while Stage 3 or 4 could be triggered in four systems (Beechworth, Benalla, Myrtleford, King) in March 2019.

East Gippsland Water



Under a worst on record scenario, Stage 4 water restrictions could be triggered in the Mitchell River System by May 2019, while in the Buchan system there is the potential for low flows. If this happens, water carting will be used.

Construction and repairs to a number of storage tanks in 2018 has led to greater security of water supplies and reduced potential water quality issues across the region.

Gippsland Water



Some towns only have a three-month outlook and will be monitored through the 12-month period.

South Gippsland Water



Under a dry climate scenario, water storage levels for the Ruby Creek System (servicing Leongatha) are expected to be close to Stage 1 water restriction triggers between February and April 2019.

Under a worst on record scenario, Stage 1 water restrictions could be triggered in the Battery Creek and Ruby Creek systems in January 2019, while Stage 4 water restrictions could be triggered in Agnes River by March 2019.

Melbourne Water Supply System



South East Water, Yarra Valley Water, City West Water

Melbourne's water supplies are secure for the coming year.

Per capita consumption for 2017-18 is steady at 161 litres per person per day. This is approximately 35% lower than before the Millennium Drought.

While storage levels are likely to remain secure (above 60%) at November 2018, it will be important to maintain security of supply for the coming years. Continuing to use water wisely and water from the Desalination Project are important ways to keep Melbourne's supply secure.

Key messages

Rural water systems

Wimmera Mallee

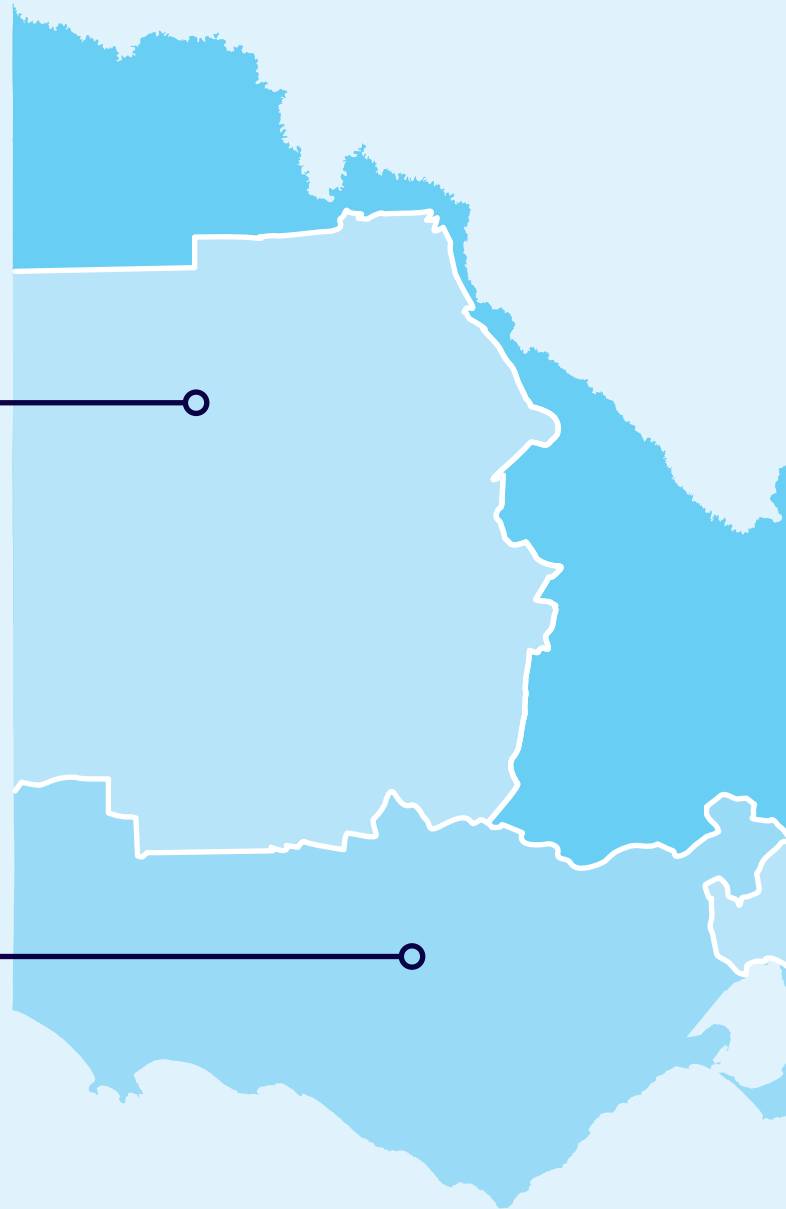
Rural pipeline customers remain secure and water restrictions are not expected for the next 12 months.

Western

For the Werribee system it is unlikely seasonal determinations will increase significantly from the current 30% high reliability water shares (HRWS) until autumn at the earliest.

For licence holders in unregulated waterways, restrictions are likely in some western areas of the state.

Most groundwater levels are normal for this time of year except for the shallow Deutgam aquifer in Werribee South which is lower than the full allocation level. Deutgam licence holders have been restricted to 50% of licence volume to protect the aquifer. This is the same as last year.



Northern Victoria

By mid-February 2019, if inflows continue to follow a dry climate scenario, 93% HRWS is expected in the Goulburn system and 100% HRWS is expected in the Murray system.

For regulated systems, dry inflow contingency measures are not expected for 2019-20 in the Murray, Goulburn, Campaspe and Loddon systems, and carryover should be able to be delivered at the start of the season. If conditions are extremely dry, opening seasonal determinations are likely to be zero or very low.

For licence holders, with dry conditions experienced in spring 2018, numerous unregulated waterway systems started the 2018-19 water year on restrictions or bans, and a number have since been implemented. Even with average climate conditions, significant restrictions or bans are likely. The seasonal rainfall and temperature outlooks suggest unregulated waterway licence holders should anticipate some level of restriction or bans over the summer and autumn period.

Groundwater levels will continue to decline in 2018-19 without significant rainfall. The areas most likely to face restrictions in the 2019-20 season are the Katunga Water Supply Protection Area (WSPA), and some parts of the Lower Campaspe Valley WSPA and Loddon Highlands WSPA.

Central Region

Some level of restriction or bans for unregulated waterways licence holders is anticipated over the coming summer until autumn for the Yarra, Maribyrnong and Dandenong Basins. With restrictions and bans more likely under dry conditions.

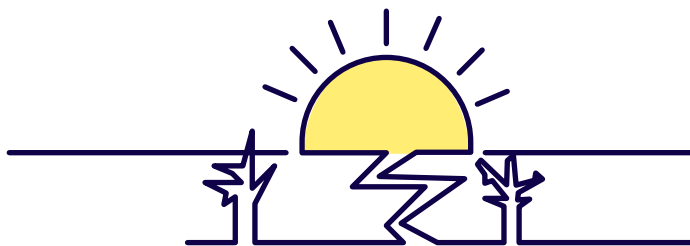
Unregulated waterways licence holders in minor tributaries in the Maribyrnong and Yarra Basins are expected to be on bans from December to April 2019. Under dry conditions, bans could continue through to May 2019 and include all streams.

Gippsland

Seasonal determinations in the Thomson-Macalister system reached 100% against HRWS on 28 August 2018. If Lake Glenmaggie does not spill, then irrigators can expect a seasonal determination against low reliability water shares to be announced on 15 December.

For unregulated waterways licence holders in central and east Gippsland experiencing the extended dry conditions, some unregulated waterways have reached ban or restriction levels with further restrictions likely by early December.

Climatic conditions



Temperature and rainfall influence water use. This is especially true during summer periods when water is used in urban areas – for watering gardens, parks and sportsgrounds – and for agricultural uses including irrigation and stock. Water corporations are continually monitoring storage conditions and use. They forecast demand using short-term seven-day forecasts and the Bureau of Meteorology’s (BOM) seasonal climate outlooks, updated twice a month.

Long-term trends

Victoria’s climate has shown a warming and drying trend over recent decades, and this trend is expected to continue. In comparison to historical conditions we are already experiencing:

- higher temperatures;
- reductions in autumn and winter rainfall, and in some locations, increases in rainfall during the warmer months; and
- in many catchments, a shift in the streamflow response to rainfall, with less streamflow generated for the same amount of rain.

Although there will still be a lot of variability in Victoria’s climate, the chances of experiencing warmer conditions and less streamflow is now higher than in past decades. The BOM seasonal climate outlooks build in the influence of changes in climate that have already occurred.

Recent conditions:

Parts of Victoria are in drought with below-average rainfall experienced across the east of the state.

During the past 12 months, most of Victoria experienced warmer than average temperatures. Over the same period, the north-west of Victoria and East Gippsland regions experienced below average rainfall with some parts in East Gippsland experiencing the lowest on record.

Last summer, average daytime and night-time temperatures were very much above average across much of the state. Nights were especially warm with Victoria’s third warmest summer on record for minimum temperatures. After the record wet start to summer, the season ended with drier than average conditions in February. After a very warm and dry autumn, the north and east of the State experienced a dry and mild winter, while in the southwest and south it was generally close to average rainfall. Overall spring conditions have been generally drier and warmer than average. Victoria posted its second

driest September, collecting just a third of its typical September rain. October was also drier than average, continuing a run of ten consecutive months of drier than average conditions for the State. This was mostly felt in the south and east, while the north and northwest regions received close to average rainfall.

December to February outlook:

The BOM Seasonal Outlook prepared for summer 2018-19 indicates that warmer than average days and nights are likely across Victoria, with a 55 to 80 per cent chance of exceeding average maximum temperatures over the next three months (see [Figure 1](#)). There will be no strong push towards a wetter or drier than average season, with a 50 per cent chance of exceeding the median rainfall across the State ([Figure 2](#)).

Climate influences

The El Niño Southern Oscillation (ENSO) and the Indian Ocean Dipole (IOD) are important influences of temperature and rainfall variability in Australia.

- The ENSO Outlook remains at El Niño ALERT and models suggest El Niño is likely at least through the summer months. El Niño typically results in below-average spring rainfall for northern and eastern Australia, and warmer days for southern parts of the country continuing into summer.
- A positive IOD event has dominated Australia’s weather and climate patterns throughout spring, but as is typical of its cycle, is expected to decay before summer and is not expected to affect the climate during December to April. A positive IOD during spring typically reduces rainfall across much of the eastern and southern parts of Australia but has little role to play over summer.

Figure 1: Chance of exceeding median maximum temperature for December 2018 to February 2019

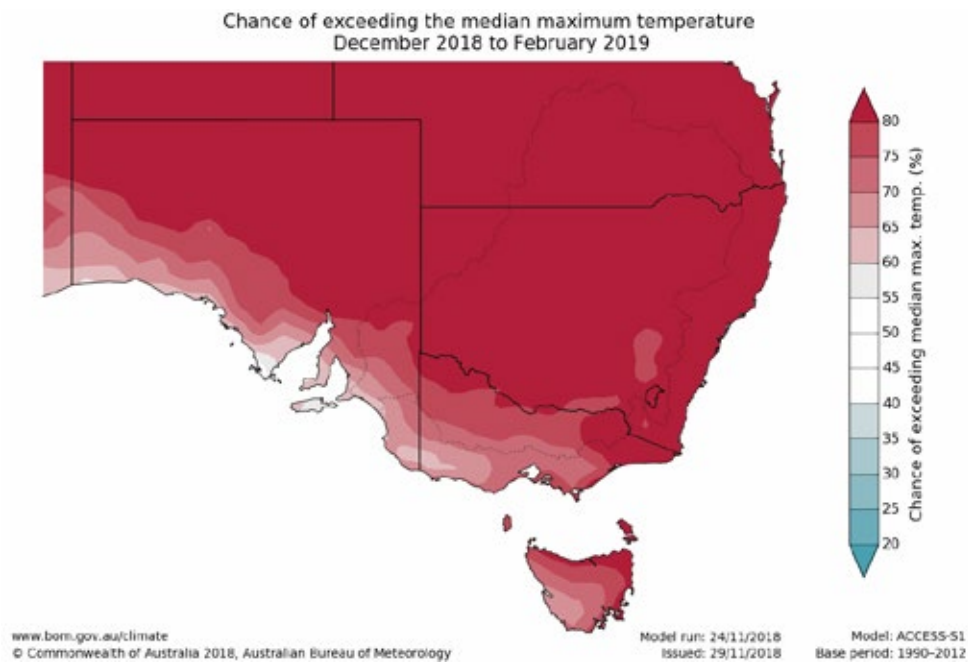
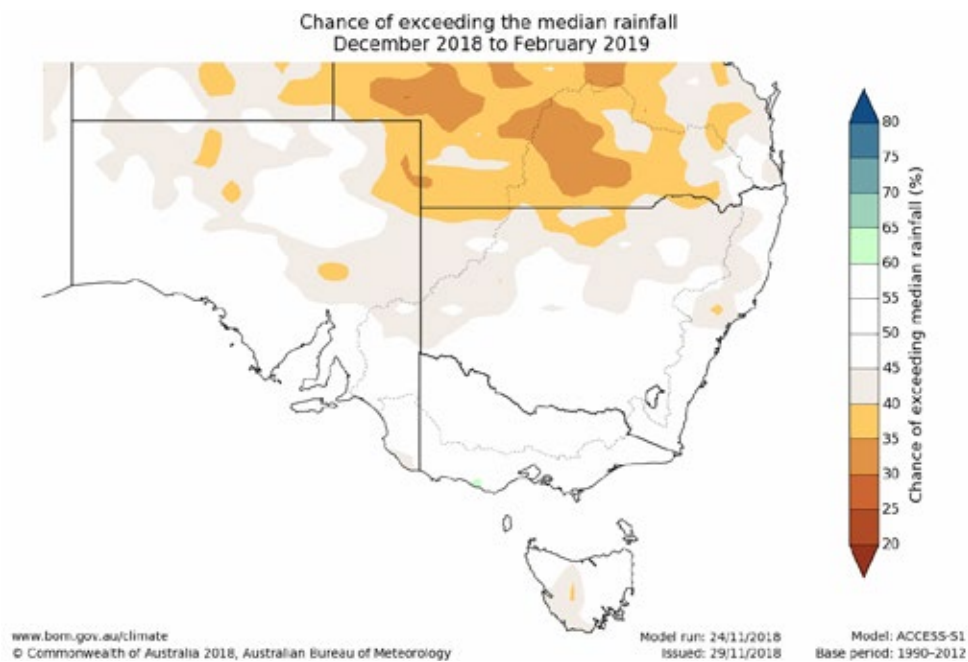


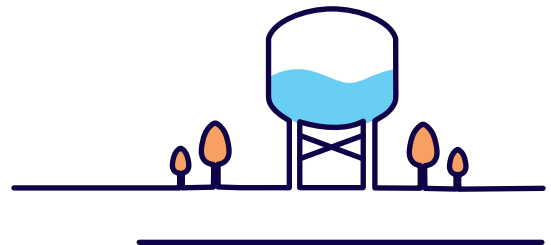
Figure 2: Chance of exceeding median rainfall for December 2018 to February 2019





Photographer:
Craig Moodie

Current state of Victoria's water storages

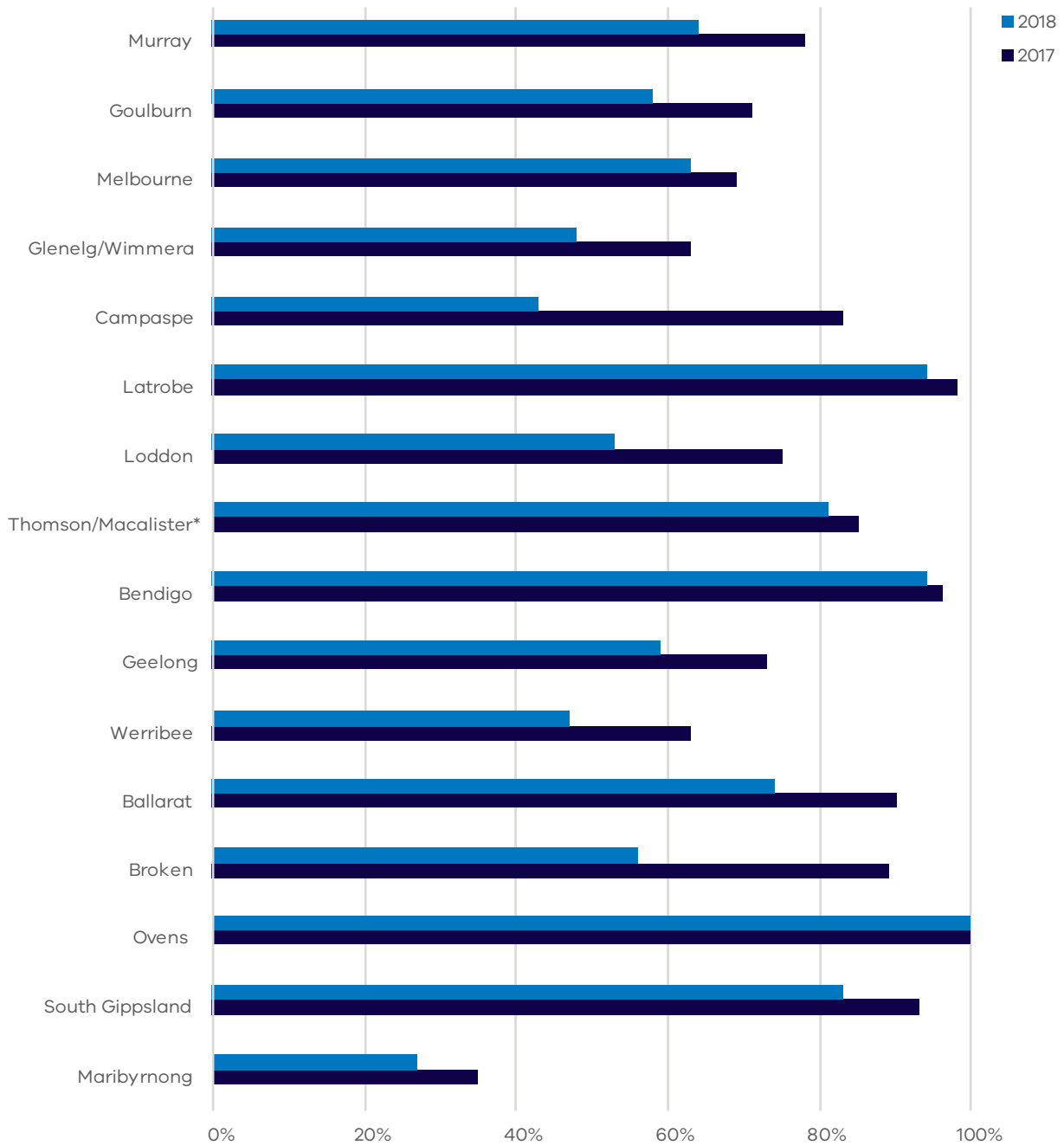


Drier than average conditions across most of the state, especially in the northern and eastern parts have resulted in a poorer than expected filling season for most major storages in Victoria. However, despite all major storages holding less than at the same time last year, the state's water supplies are in a generally good position and are adequate to meet forecast urban, rural regulated and groundwater demands under an average climate scenario. **Figure 3** shows the state of Victorian storages as at 30 November 2018 in comparison to 2017.

As of 30 November 2018, the total volume of water held in Victoria's major storages was 62 per cent of storage capacity, less than the 75 per cent at the same time last year.

Melbourne storages are holding less water than the same time last year, ending the month at 63 per cent compared to 68.5 per cent. Victoria's regional storages are holding 61.5 per cent compared to 77.2 per cent in 2017.

Figure 3: The state of Victorian storages as at 30 November 2018 and 2017.



Storages are shown in order of largest to smallest

*Southern Rural Water share only

The year ahead



Urban systems

Individual urban water corporations assess water supplies on a system by system basis. They determine the best ways to manage supplies and avoid the need for water restrictions. There are 100 systems that supply urban reticulated water to Victorian towns. The water corporations have identified that no water restrictions are expected under average climate conditions.

Under a dry climate scenario, water restrictions may be required in four systems supplying eight towns. **Table 1**, on the next page, contains detailed information for these five water supply systems showing their current water levels, their outlook for the summer and autumn and the short-term measures available to help affected communities and improve supply security.

Under a worst on record scenario, a number of urban water corporations are expecting to be at risk of facing water restrictions. A worst on record scenario would happen if conditions are similar to the extremely dry conditions that occurred during the peak of the millennium drought in 2006-07. However, water corporations are now better prepared to manage water shortages than before.

Water storage systems can also be susceptible to water quality events due to bushfire. The Bemm River system supplying Bemm River in East Gippsland has been specifically identified as being at risk of restrictions in the event of bushfires.

Climate scenarios explained

A climate scenario is a plausible and possible representation of the future climate.



Average: based on average climate experienced since 1975



Dry: based on the driest tenth percentile (ten per cent) of climate experienced since 1975



Worst on record: similar to the extremely dry conditions experienced during the peak of the Millennium Drought in 2006-07

Water restrictions are not expected in Melbourne or any other major urban centre over summer.

Last year versus this year

Last year Korumburra in South Gippsland was identified at risk of water restrictions under an average climate scenario. South Gippsland Water announced Stage 2 restrictions for Korumburra on 15 March 2018 and Stage 3 restrictions on 3 May 2018. These remained in place until July 2018.

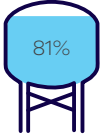
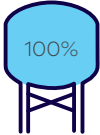
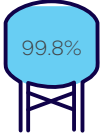
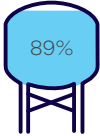
In September 2018, Korumburra was connected to the state's water grid as part of the Lance Creek Water Connection project. As a result, no water restrictions are expected for Korumburra this summer.

Table 1: Victorian towns facing potential water restrictions in outlook period

Under an average climate scenario

No water restrictions are expected across any system under an average climate scenario.


Under a dry climate scenario

Water Corporation	Water System	Towns Supplied	Storage levels	Current condition, outlook and risks	Mitigation actions
Goulburn Valley Water	Seven Creeks	Euroa, Violet Town	 81%	Stage 1 water restrictions could be triggered in the next 12 months under a dry climate scenario.	New raw water storage projects at Euroa are currently in progress and programmed to be completed between 2018 and 2022. These will increase capacity by 300ML and improve supply reliability to the townships.
Goulburn Valley Water	Nine Mile Creek System	Longwood	 100%	Stage 1 water restrictions could be triggered in the next 12 months under a dry climate scenario.	Continued monitoring of storage inflows will be undertaken to reduce uncertainty and demand management options will be assessed.
North East Water	King Water Supply System	Moyhu, Oxley, Whitfield	 99.8%	Inflows to the storage as at 30 September 2018 are lower than average for this time of year. Stage 2 restrictions could be required by February 2019 under a dry climate scenario.	North East Water will continue promoting demand management and will look to use water markets to source additional water.
South Gippsland Water	Ruby Creek System	Leongatha, Koonwarra	 89%	Water restrictions are not forecast over the coming months, however storage levels are expected to be close to Stage 1 water restriction triggers between February and April 2019.	Supplementary options have been identified to address reduced storage levels. South Gippsland Water will continue promoting demand management activities and actions to reduce leaks and wastage.

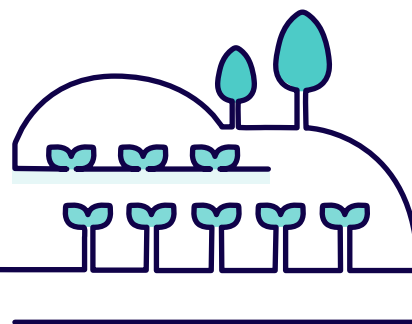

Under a worst on record scenario

Worst on record conditions are not expected to occur this year. However, if they were to occur, a number of urban water corporations have identified restrictions may be required (up to 16 systems). If this scenario occurs, the annual water outlooks will be updated accordingly and urban water corporations will implement their Drought Preparedness Plan to minimise the effect of any water restrictions.

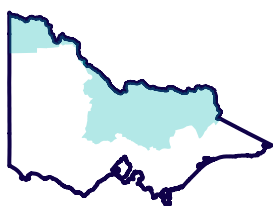

Under a water quality event scenario

Water Corporation	Water System	Towns Supplied	Storage levels	Current condition, outlook and risks	Mitigation actions
East Gippsland Water	Bemm River System	Bemm River	60%	Bushfires may temporarily render Bemm River water quality unusable.	A new 500kL water storage tank has recently been installed at Bemm River and will be filled prior to the start of summer, providing approximately three months of supply.

Rural systems



Northern Victoria:



Following a dry year in 2017-18, northern Victoria also experienced a dry first quarter in 2018-19. Inflows into storages were below average but opening seasonal determinations were possible because of the water available from the previous year.

The 2018-19 water year began with seasonal determinations for high-reliability water shares (HRWS) available in the Murray system (41 per cent), Goulburn system (32 per cent), Campaspe system (100 per cent), and Loddon system (32 per cent). However, the Bullarook system started at zero per cent for HRWS. The Broken system opened the 2018-19 water year with zero per cent HRWS available, but there was sufficient water in reserve to deliver carryover water to customers.

As at 30 November 2018, seasonal determinations in northern Victoria were: Murray system 94 per cent HRWS; Goulburn and Loddon systems 88 per cent HRWS; Bullarook system 100 per cent HRWS and 100 per cent low-reliability water shares (LRWS); Campaspe system 100 per cent HRWS; Broken system 24 per cent HRWS (see [Figure 4](#)).

Water resource improvements will contribute to seasonal determination improvements in the Goulburn, Loddon, Murray and Broken through the rest of the 2018-19 season. By mid-February 2019, if inflows follow a dry scenario, 93 per cent HRWS is expected in the Goulburn and Loddon systems, and 100 per cent HRWS is expected in the Murray system. In the Broken system, wet inflows are required for 100 per cent HRWS by mid-February 2019.

For the 2019-20 season, it is expected that there will be enough water in system reserves to deliver carryover from the start of the season in the Murray, Goulburn, Loddon and Campaspe systems. The Broken system and Bullarook systems are annual systems, so the system reserves and ability to delivery carryover at the start of the 2019-20 season

will depend on this year's usage and inflows during the rest of 2018-19. If conditions remain dry the opening seasonal determinations for 2019-20 will likely be zero or very low.

Entitlement holders in the Ovens system are unlikely to be subject to restricted diversion access in 2018-19 if storages are still full in January, however restrictions are possible under dry conditions.

For the remainder of 2018-19, groundwater licence holders have access to 100 per cent of their entitlement except for the Newlyn Zone of the Loddon Highlands Water Supply Protection Area (WSPA) which is currently at 75 per cent. In most areas, groundwater levels and recharge are likely to decline in 2018-19, with the largest impacts likely to be in the western catchments and Katunga WSPA. For 2019-20, groundwater licence holders are likely to have access to below 100 per cent of their entitlements in the Lower Campaspe Valley WSPA and Loddon Highlands WSPA.

For unregulated waterways, with dry conditions experienced in late 2017-18, numerous systems started the 2018-19 water year on restrictions or bans for licence holders, and a number have since been implemented. Even with average conditions, further restrictions or bans for licence holders are likely. The seasonal rainfall and temperature outlooks suggest unregulated waterway licence holders should anticipate some level of restriction or bans over the summer and autumn period.

Water shares explained...



A water share is an ongoing entitlement to a share of water available in a declared water system. It gives you a right to a share of water in the dams. The volume of a water share is defined as the maximum amount of allocation that can be made against it each year.

Water shares are classed by their reliability, which is defined by how often full season allocations are expected to be available. There are two types, **high-reliability water shares (HRWS)** and **low-reliability water share (LRWS)**.

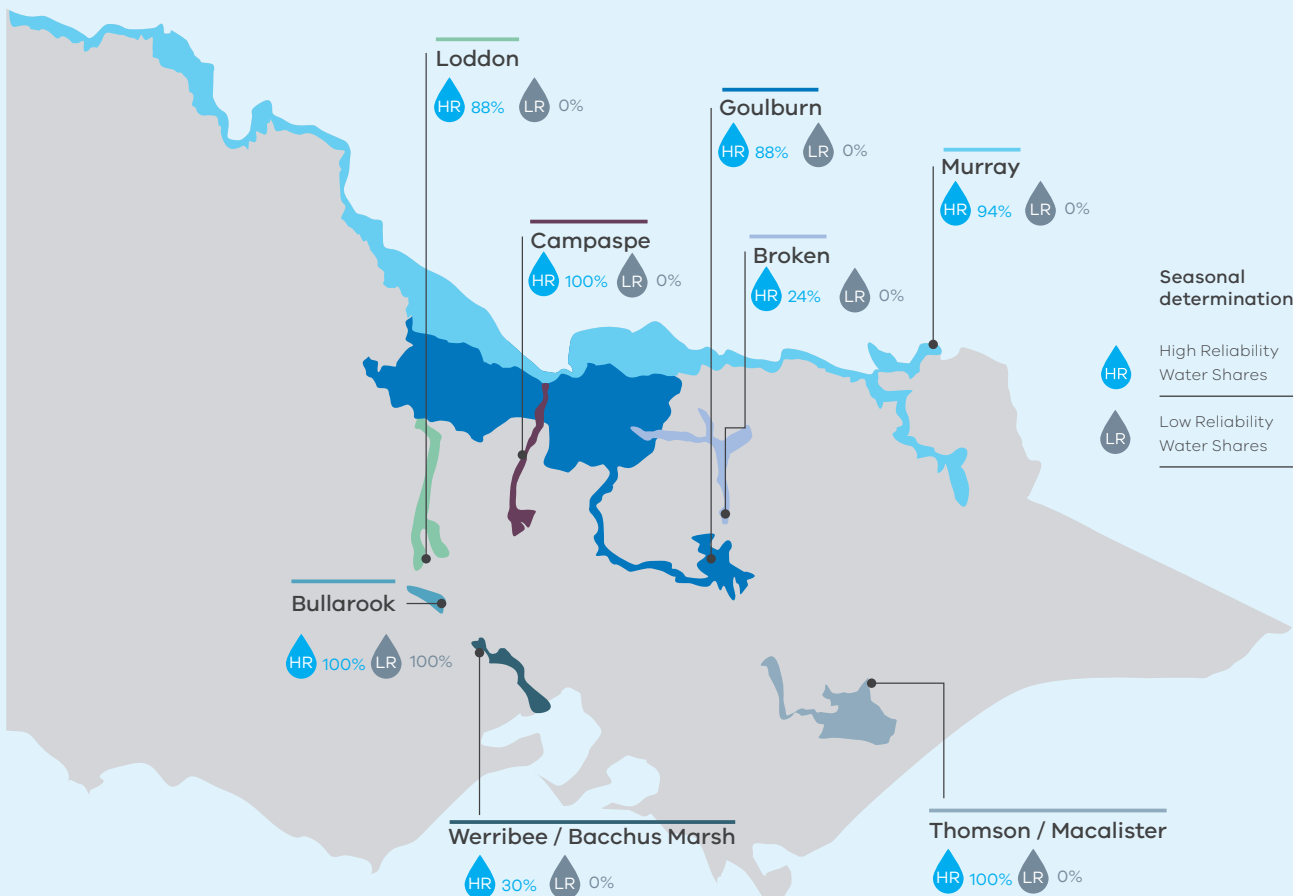
Allocations are made to high-reliability water shares before low-reliability shares.



Photographer: Craig Moodie

Figure 4: Seasonal determinations in declared systems in Victoria as at 30 November 2018

- 1 Water year – 1 July to 30 June
- 2 Water shares can be high or low-reliability. Seasonal determinations are made to high-reliability water shares before low-reliability shares.





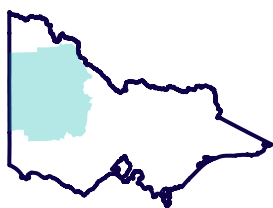
Murray-Darling Basin:

The Murray-Darling Basin Authority (MDBA) is responsible for overseeing the sharing of water in the Murray system between the states and directing system operations to manage the flow and delivery of the water. If there is water available in the dams which cannot be supplied when it is required (i.e. when demand spikes and there is not enough time to release more water from dams, or when the physical channel capacity of the rivers limits the amount of water that can be delivered) the MDBA will announce a delivery shortfall. A delivery shortfall has always

been more likely downstream of the Barmah Choke during summer and autumn.

Preliminary forecasts used in the MDBA's [Annual Operating Plan](#) for the River Murray system show that 2018-19 could be another challenging year with potentially high summer flows through the Barmah Choke and lower Goulburn. Despite this, no delivery shortfalls are currently forecast under any scenario. The MDBA will update its Annual Operating Plan with more information about system operations and likelihood of a shortfall during summer and autumn in early December.

Wimmera-Mallee:



Winter and spring rainfall in the Wimmera-Mallee has been below average to very much below average. The 2018-19 water year started with storages holding 46 per cent of the total capacity, increasing to just over 53 per cent of capacity by early September. From mid-September, the collective volume in storages began to decrease through a combination of low inflows, evaporation losses and water releases. Currently storages are holding 49 per cent (as at 21 November).

As of 8 November 2018, Grampians-Wimmera Mallee Water (as storage manager for the Wimmera-Glenelg system) has made allocations of 43 per cent against the Wimmera-Mallee Pipeline Product and one per cent against the Glenelg compensation flow. No allocation has been made against the recreation entitlement, wetlands entitlement or Commonwealth environmental entitlement. However, recreational lakes including Green Lake near Sea Lake received water from other entitlements. Supplies for rural water customers from the Wimmera-Mallee Pipeline and Northern-Mallee Pipeline are secure this season.

Groundwater supplies remain relatively unaffected by recent conditions and sufficient volumes of water are available to meet demands.

So far this year, irrigation triggers have not been satisfied for the Wimmera River or Avoca River, and irrigation diversion is not currently permitted. Irrigation triggers for these rivers are unlikely to be satisfied this season under the current rainfall outlook.

Western Victoria:



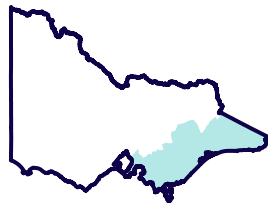
There are two irrigation districts in western Victoria - Werribee and Bacchus Marsh – both of which are supplied from the Werribee and Lerderderg catchments via the Werribee system. Rainfall in the 2017-18 irrigation season was below average which resulted in low inflows into the storages. Rainfall in the 2018 winter and early spring was close to average but a very dry September dried the catchments and inflows into the reservoirs has been low. Consequently, the storages are significantly lower than this time last year.

Due to low inflows and storage levels, the seasonal determination is currently 30 per cent HRWS for Werribee and Bacchus Marsh Irrigation Districts. It is unlikely that the seasonal determination will increase significantly from the current 30 per cent HRWS until autumn at the earliest. Despite the dry conditions, there is enough allocation available, including the water carried over, to meet irrigation demand.

Most groundwater levels are normal for this time of year except for the shallow Deutgam aquifer in Werribee South which is lower than the full allocation level. Deutgam licence holders have been restricted to 50 per cent of licence volume to protect the aquifer. This is the same as last year.

For unregulated waterways, the below average rain during spring has led to a rapid decline in flows leading to restrictions on licence holders in smaller streams and tributaries. It is possible the major streams could have restrictions on licence holders in place by late December to early February under current conditions.

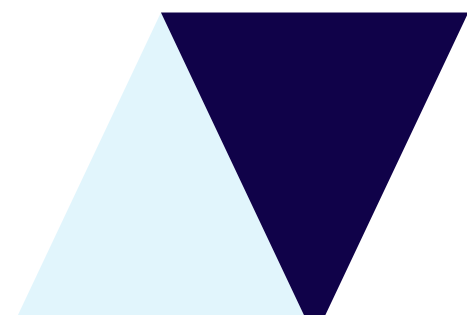
Gippsland:



Rainfall across the Gippsland region was below average during the 2017-18 season. A dry start to winter 2018 meant that the opening seasonal determination for the 2018-19 water year in the Macalister Irrigation District (MID) was 40 per cent against HRWS.

Inflows into the catchment were steady during July and August, allowing Southern Rural Water to increase the allocation to 100 per cent for HRWS by 28 August. From 28 August until 30 November 2018, customers have not had access to supplementary spill entitlement. There will be no further seasonal determination until 15 December 2018, when Southern Rural Water may announce the first allocation for low-reliability water share (LRWS) for the system. If there is a significant rain event which causes Lake Glenmaggie (a primary source of water for the MID) to spill prior to 15 December, then all water previously used by customers will be reclassified as spill entitlement and allocation against HRWS will be reset to 100 per cent. If Lake Glenmaggie does not spill, then Southern Rural Water anticipates making a seasonal determination against LRWS.

While only a small number of unregulated systems, such as the Tarra River have already reached restriction or ban levels for licence holders, conditions are generally similar or drier than at the same time last year. Up to 1 November, the Avon River system had already faced 80 days of restrictions and only 43 days of unrestricted access since 1 July this year. Restrictions on licence holders in other unregulated waterways such as Cann River, Swifts Creek and Mitchell River are likely from early December. Groundwater systems do not have any restrictions and have sufficient water availability to meet unrestricted demand.





Photographer:
Craig Moodie

Central:



Rainfall has been less than average within the central region so far this water year and as a result, unregulated streamflows are significantly lower than previous years.

Forward predictions are for higher than average temperatures and below average rainfall for the November – January period which is likely to result in licence holders on restrictions or bans in many areas. Average streamflow in the Dandenong Creek is significantly lower than last year and further reductions in rainfall may lead to restrictions or bans for licence holders. Under average conditions, licence holders in minor tributaries in the

Maribyrnong and Yarra catchments are expected to be on restrictions from December 2018 to April 2019. Under dry conditions, restrictions could continue through to May 2019 and include all streams. Restrictions are not expected for licence holders on the Yarra River under average conditions but may occur under dry conditions. Local weather conditions will dictate the actual timing and length of any restrictions or bans.



Image courtesy of Mallee Catchment Management Authority

Environmental water

‘Water for the environment’ is water managed to protect and maintain rivers, wetlands and lakes and the native species that rely on them. It is critical in keeping waterways – and the life within and around them – healthy. This has ongoing social and recreational benefits for local communities as well as the homes and farms that rely on healthy, functioning rivers.

The Victorian Environment Water Holder (VEWH) holds and manages water entitlements and receives water allocations that can be used for environmental purposes. The VEWH also works with its federal government counterparts, the Commonwealth Environmental Water Holder and the Murray-Darling Basin Authority (Living Murray program), on the prioritisation and use of Commonwealth-held environmental water in northern Victoria and parts of western Victoria.

In planning for environmental watering each year, the VEWH and its partner waterway managers consider a range of possible climate and water availability scenarios to determine environmental watering actions that might be taken under different conditions.

The VEWH’s annual Seasonal Watering Plan identifies the scope of the environmental watering activities that could occur in waterways across Victoria under different climate scenarios. The Plan can be accessed at www.vevh.vic.gov.au.

Climate conditions across Victoria over the past year have been quite dry. However, the VEWH planned ahead and, where possible carried water over into 2018-19. The carryover water available has enabled local waterway managers to deliver the important

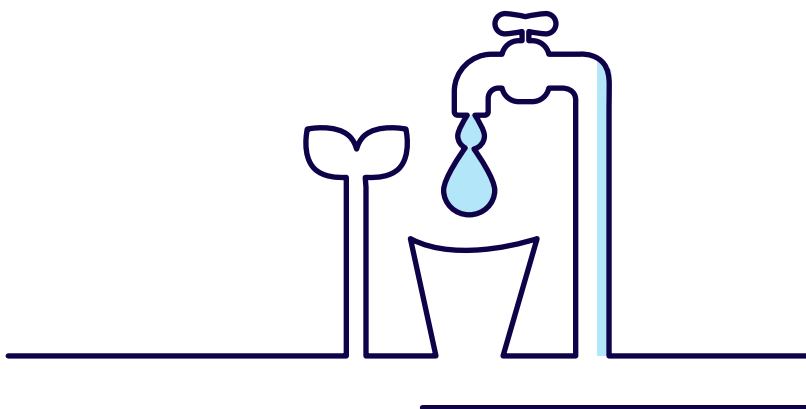
environmental flows needed to support the health of our rivers and wetlands and help maintain resilience in a dry season. Environmental watering this year has been critical to build resilience that will help protect our important sites in case the dry conditions become prolonged drought.

The VEWH and its partners will continue to monitor weather conditions, environmental water requirements and water availability. The VEWH is planning for dry conditions for the rest of 2018-19 and potentially drought conditions if spring inflows to water storages remain low.

If 2018-19 continues to be dry, the VEWH will look to carry over water where possible to ensure that sufficient water is available to help meet the critical environmental requirements of our waterways in 2019-20.

The VEWH may also consider buying or selling water for the environment where it is important for meeting an environmental objective. The VEWH’s annual *Water Allocation Trading Strategy* covers the trading activity that the VEWH may undertake in each region depending on priority environmental water needs, weather conditions and other factors: www.vevh.vic.gov.au/watering-program/trading.

Securing our water supplies



With the impact of population growth and climate change, we need to stay focused on both water supply and demand.

The Victorian Water Grid

The Victorian Water Grid provides reliable, affordable supply of high-quality water when and where communities, industries, agriculture and the environment need it. Approximately \$7 billion has been invested in the water grid since 2006, and further extensions to the water grid are underway. The Lance Creek Water Connection was recently completed, providing greater water security. As well as extending the grid, work has been done to modernise it through projects such as the Connections project in the Goulburn Murray Irrigation District, Werribee and Bacchus Marsh and Macalister irrigation districts. The Water Grid Partnership has recently been established to oversee the grid and realise opportunities to maximise community benefit, water affordability and water security across the State. The partnership consists of water corporations, catchment management authorities and the Victorian Environmental Water Holder, and also integrates perspectives from the broader water industry.

Urban water efficiency measures

Target 155 is a voluntary water efficiency program to encourage metropolitan Melbourne householders to limit their consumption to 155 litres per person per day. The program applies to the Melbourne metropolitan water corporations and Western Water customers. Since 2016, Melbourne users have averaged 161 litres per person per day.

Target Your Water Use is a similar program for Regional Victoria. The Target Your Water Use program recognises the wide variation of water use across Victoria. This program links to the Target 155 program and focuses on efficient water use for each region. As with the Target 155 program, the regional program is rolled out locally by each regional urban water corporation. Water customers can see how much water they have used compared to previous months and years on their bill. Armed with this information they can make more informed choices about when and how to use water more efficiently.

The urban water corporations have been working collaboratively with DELWP on a program of initiatives for residential and non-residential customers, including:

- **Permanent water saving rules** to encourage sensible water use even when water restrictions are not in place
- **Community Water Rebate Program** for customers who are vulnerable or facing hardship
- **Community Housing Retrofit Pilot Program** for not-for-profit organisations that provide housing for vulnerable and hardship customers and refugees.
- **Schools Water Efficiency Program** enabling schools to track their water usage using data loggers to help identify leaks, faulty appliances and inefficient water practices
- **Smart Water Advice** provides water corporations, customers and councils with a range of educational, interactive water saving resources - www.smartwatermark.org/Victoria



Photographer: Keith Ward

Long-term urban water planning

Each urban water corporation produced an Urban Water Strategy in 2017. They identify the best mix of measures to provide water services in towns and cities now and into the future. Along with these strategies, Drought Preparedness Plans that set out how the water corporation will respond to water shortages if they arise to reduce the need for and impact of water restrictions.

Through a range of initiatives, including Integrated Water Management Forums, water corporations have engaged with councils and other public open space managers, to identify and assess which important liveability assets, such as sporting facilities, public gardens and street trees, would be impacted under water restrictions. Options to use alternative water sources, such as stormwater and recycled water are being pursued. Urban water corporations will also consult with customers regarding important community assets that may require water to be made available during periods of shortages.

Rural water supplies

Rural water infrastructure is vital to support agriculture and its future growth. Successive governments have invested in modernising irrigation districts with a focus on reducing the amount of water required to operate the irrigation systems and enabling increased value of agricultural production. Governments have partnered with communities to build modern stock and domestic supply systems in drier parts of the State to ensure maximum efficiency. The Wimmera-Mallee supply system is the largest of these systems.

Climate change will increase the need for existing infrastructure to be more efficient. New infrastructure that enables access to water via the expansion of the water grid is also a consideration. The Victorian Government, the Federal Government and local communities are investing in the South West Loddon Rural Water Supply project which will provide a secure stock and domestic water supply to Wedderburn and the surrounding region. Construction continues on the modernisation of the Werribee, Bacchus Marsh and Macalister irrigation districts with all projects on schedule to be completed within agreed timeframes. However, at this time the Werribee and Bacchus Marsh modernisation projects remain only two thirds funded and the final one third of funding is currently being sought from the Commonwealth government. A business case for the final phase of the modernisation of the Macalister Irrigation District (Phase 2) is currently nearing completion. Private landholders and the Federal Government have co-invested in upgrades to existing open channels outside of the Sunraysia irrigation district, which is due to commence in 2019.

In addition, the Victorian government is seeking Commonwealth government funding contributions towards the construction of two stock and domestic pipeline projects to which the Victorian government has already committed capital funding contributions. These are the Mitiamo and District Reticulated Water Supply Project and East Grampians Water Supply Project.

Further information

More information about sustainable water management and how we manage in dry conditions can be found at:

- Department of Environment, Land, Water and Planning - www.water.vic.gov.au

More information about your local conditions and how water corporations manage in dry conditions can be found at:

- Barwon Water - www.barwonwater.vic.gov.au
- Central Highlands Water - www.chw.net.au
- City West Water - www.citywestwater.com.au
- Coliban Water - www.coliban.com.au
- East Gippsland Water - www.egwater.vic.gov.au
- Gippsland Water - www.gippswater.com.au
- Goulburn-Murray Water - www.g-mwater.com.au
- Goulburn Valley Water - www.gvwater.vic.gov.au
- Grampian Wimmera Mallee Water - www.gwmwater.org.au
- Lower Murray Water - www.lmw.vic.gov.au
- Melbourne Water - www.melbournwater.com.au
- North East Water - www.newater.com.au
- South East Water - www.southeastwater.com.au
- South Gippsland Water - www.sgwater.com.au
- Southern Rural Water - www.srw.com.au
- Wannon Water - www.wannonwater.com.au
- Western Water - www.westernwater.com.au
- Westernport Water - www.westernportwater.com.au
- Yarra Valley Water - www.yvw.com.au

More information about long-term climate changes and water resources can be found at:

- www.water.vic.gov.au/climate-change

More information about environmental water can be found at:

- Victorian Environmental Water Holder - www.vewh.vic.gov.au

More information about forecast rainfall and temperatures can be found at:

- Australian Bureau of Meteorology - www.bom.gov.au/climate/ahead

More information about using water efficiently can be found at:

- Smart Water Advice - www.smartwatermark.org/Victoria/

More information on water restrictions can be found at:

- www.water.vic.gov.au/liveable/water-restrictions



Image courtesy of Melbourne Water

