

# **Water Outlook** 2018 - 2019



# WATER OUTLOOK 2018-19

AT A GLANCE

# LOWER MURRAY WATER

### SEASONAL ALLOCATION 90%AS AT 15 NOVEMBER 2018 **LEVEL 2 WATER** RESTRICTIONS DARTMOUTH DAM STORAGE **LEVEL 1 WATER LEVEL 3 WATER** 77% STORAGE RESTRICTIONS RESTRICTIONS 2,953 GL / 3,857 GL 20/11/2018 13:00 HUME DAM STORAGE PERMANENT **LEVEL 4 WATER** WATER RESTRICTIONS 44% STORAGE **SAVING RULES** 1,325 GL / 3,005 GL 20/11/2018 12:30

# DEMAND IS SET TO INCREASE OVER TIME



# **USAGE IS MOSTLY RESIDENTIAL**



| Strategy                              | LMW actions to balance supply and demand   |
|---------------------------------------|--|
| Purchase additional water entitlement | <ul> <li>Maintain 50% buffer between annual usage and water entitlement held</li> </ul>  |
| Reduce demand for potable water       | <ul> <li>Target Your Water Use campaign</li> <li>Deliver Schools Education Program</li> <li>Sponsorship of Community Refill Stations</li> <li>Deliver the Community Water Rebates Program</li> <li>Deliver the Community Housing Retrofit Program</li> </ul> |
| Improve use of existing supplies      | <ul> <li>Invest in metering and analytics to better understand water usage</li> <li>Manage carryover of water to maximise system reliability</li> </ul>  |
| Alternative water sources             | <ul> <li>Identify opportunities to utilise alternative water through the Integrated<br/>Water Management Forum</li> </ul>  |

# LOW LIKELIHOOD OF WATER RESTRICTIONS

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# INTRODUCTION

## About this document

Lower Murray Water (LMW) prepares this document to inform our community about the status of urban water supplies, expected demand and projections for the year ahead. It is a short-term outlook of the security of our water supplies and is developed in consideration of LMW's Urban Water Strategy, which is a 50-year supply and demand balance for our urban water resources.

This Water Outlook focuses on the December 2018-June 2019 period, given that the River Murray system will begin a new season following the initial seasonal determination at the beginning of July.

## LMW's water supply systems

LMW provides numerous services across the north-west of Victoria but our core business is centred on providing:

- Potable drinking water to the urban and regional centres
- Urban wastewater treatment services
- Irrigation water and irrigation drainage services
- Untreated domestic and stock water supply to rural areas
- Reuse water.



LMW depends on the Murray River for approximately 97% of its urban water supply. Climatic conditions in the Murray-Darling Basin have been very dry and warm for 2018 to date. Rainfall in the catchment for the January to October period has been the third-lowest on record since 1900.

The impacts of low rainfall have been exacerbated by above average maximum temperatures, with New South Wales experiencing its warmest January-October period on record and Victoria having its equal-warmest period.<sup>1</sup> These weather patterns have meant that the catchment of the Murray River is very dry in 2018.



Blooms of blue-green algae are a challenge to water treatment processes and the risk is increased by warm and dry climatic conditions. LMW monitors the Murray River for blue-green algae and informs customers of its potential impact on our water supply.

## Snapshot of 2017-18

LMW is securing our community's water supply through the following actions:

- Maintaining a 50% buffer above annual urban water usage to ensure water availability is adequate to meet demand
- Engaging with the Integrated Water Management Forum to identify opportunities to provide liveability benefits and to balance supply and demand
- Improving the use of existing water supplies through upgraded metering to reduce system losses and through managing water carryover between seasons
- Upgrading urban water assets, including an automation upgrade of the Murrabit Water Treatment Plant
- Delivering the *Target Your Water Use* water efficiency program in our region to reduce demand for water.

<sup>&</sup>lt;sup>1</sup> Commonwealth of Australia, 2018, <u>http://www.bom.gov.au/climate/drought/</u>, accessed 20 November 2018.

# **OUR CURRENT POSITION**

# Our water supply systems

The systems LMW uses to deliver water to our customers, including their source of supply, are summarised at a high level in the table below.

| Primary source of supply                    | Supply system | Towns supplied   | No. of customers |
|---|---------------|--|------------------|
|   | Mildura       | <ul> <li>Mildura &amp; district</li> <li>Merbein</li> <li>Irymple</li> </ul>                 | 21 145           |
|   | Swan Hill     | <ul> <li>Swan Hill</li> <li>Nyah / Nyah West</li> <li>Lake Boga</li> <li>Woorinen</li> </ul> | 7063             |
| Murray River                                | Red Cliffs    | Red Cliffs   | 1710             |
|   | Robinvale     | Robinvale  | 984              |
|   | Piangil       | Piangil  | 117              |
|   | Koondrook     | Koondrook  | 499              |
| Murray River<br>Loddon River<br>GMW channel | Kerang        | Kerang   | 2131             |
| Murray River<br>GMW irrigation channel      | Murrabit      | Murrabit   | 55               |

# Status of water supplies

The Murray River's key water storages - Dartmouth Dam and Hume Dam - were at 76% and 44% capacity on 21 November 2018, as compared with 87% and 77% at the same time last year.<sup>2</sup>

Seasonal allocations began at 41% for the Murray system on 2 July 2018. On 15 November 2018, the Northern Victorian Resource Manager increased the seasonal allocation for high-reliability water shares in the Murray system from 89% to 90%. The Resource Manager has declared a low risk of spill this season, making water in spillable accounts available for use or trade.<sup>3</sup>

# Potential impact on water supply

Water resource storages are lower than at the same time last year, with demand expected to steadily increase.

# Forecast water use

LMW holds an Urban Bulk Entitlement and additional water shares to ensure access to enough water to meet demand for urban water in the towns we service. A summary of LMW's water entitlements over time is shown below.

<sup>2</sup> Goulburn-Murray Water, 2018, <u>https://www.g-mwater.com.au/water-</u>

resources/catchments/storage-levels, accessed 22 November 2018.

<sup>&</sup>lt;sup>3</sup> Resource Manager Northern Victoria, 2018, <u>https://nvrm.net.au/seasonal-determinations/current</u> and <u>https://nvrm.net.au/risk-of-spill/current-risk-of-spill</u>, accessed 19 November 2018.



LMW modelling shows that demand for water is expected to increase as shown in the graph below.



The distribution of usage between customer types is described in the chart below.



# FUTURE CLIMATE OUTLOOK

### The season ahead

The Bureau of Meteorology *Climate Outlook* for December 2018 to February 2019 forecasts warmer than average temperatures across Victoria, particularly in northern and coastal areas. Predictions show no strong tendency towards a wetter or drier summer in northern Victoria, with eastern and central NSW and eastern Victoria likely to be wetter than average in December. Mostly low streamflows are expected this season.

## Potential impact on water supply

These weather patterns are expected to result in high demand for water in the northwest of Victoria.



## Chance of exceeding median maximum temperature - December 2018 to February 2019

Commonwealth of Australia, 2018, Bureau of Meteorology, <u>http://www.bom.gov.au/climate/outlooks/#/overview/summary/</u>, accessed 19 November 2018.



## Chance of exceeding median rainfall - December 2018 to February 2019

Commonwealth of Australia, 2018, Bureau of Meteorology, <u>http://www.bom.gov.au/climate/outlooks/#/overview/summary/</u>, accessed 19 November 2018.

# WATER RESOURCES OUTLOOK

### Water resource scenarios

LMW has modelled a range of demand and supply scenarios to predict the security of our urban water supply. The graph below plots LMW's current water entitlements (red line) against the forecast demand for urban water (green line, with high and low demand variants above and below) and the modelled supply levels under high, median and low climate change scenarios (blue lines).

Our modelling shows that demand for urban water will fall within supply levels until 2023 in the worst scenario without LMW taking actions to decrease demand or increase supply.

# Potential impact on water supply

There is a low likelihood of water restrictions this season, with Permanent Water Saving Rules continuing.



# Baseline supply-demand balance for the total system

Lower Murray Water, Urban Water Strategy 2017-2066, pg. 31.

### Water restrictions

LMW recognises that water is vital for the health and wellbeing of the communities we serve. As such, we minimise community disruption by planning to impose Level 1 Water Restrictions no more than 1 year in 25.

The graph below shows the level of seasonal allocation at which LMW considers imposing water restrictions, with the blue line representing allocations for Drought Response Trigger 1, meaning that LMW would consider imposing Level 1 Water Restrictions. Given that allocations are set at 90% in November and Drought Response Trigger 1 is at 63% allocation at the beginning of December, it is highly unlikely that LMW will need to impose water restrictions this season.



### Drought response trigger curves

Lower Murray Water, Urban Water Strategy 2017-2066, Drought Preparedness Plan, pg. 60.

# SHORT TERM ACTION PLAN

# Water entitlements

In consultation with customers, LMW determined to secure adequate supply to meet demand through the purchase of additional water entitlements to maintain a 50% buffer above annual usage. This will ensure water availability is adequate to meet demand in years when seasonal determinations are low. The graph below shows LMW calculations for maintaining the 50% buffer.



# Purchasing of water entitlements

Lower Murray Water, Urban Water Strategy 2017-2066, pg. 38.

# Other actions

LMW is also pursuing the actions described in the table below to balance supply and demand.

| Strategy                           | Action   |
|------------------------------------|--|
| Reduce demand for<br>potable water | <ul> <li>Deliver Target Your Water Use campaign in our region:</li> <li>Deliver Schools Education Program - including participating in World Environmental Day, National Water Week and tours of the Mildura Water Treatment Plant</li> <li>Refill Station Program - schools and organisations can apply for a grant towards a refill station to encourage drinking tap water over bottled water</li> <li>Community Rebate Program - hardship customers are eligible to apply for funding to help replace items such as shower heads and taps</li> <li>Community Housing Retrofit Program - not-for-profit businesses can apply for a water use issues can be addressed</li> </ul> |
| Improve use of existing supplies   | <ul> <li>Invest in metering and analytics to better understand<br/>water usage</li> <li>Manage carryover of water to maximise system reliability</li> </ul>  |
| Alternative water sources          | <ul> <li>Identify opportunities to utilise alternative water through<br/>the Integrated Water Management Forum</li> </ul>  |



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