# Greater Sydney Operations Plan

November 2019

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# Contents

# 1. Highlights

As of 15 October 2019, Sydney's dam levels are at 48.5%, a decrease of 3.5% since the previous CAG Meeting Report in July. Whilst the last few months have seen isolated rainfall events, the dry conditions in between events have quickly dried out the catchments. Despite some water being available for Shoalhaven Transfers and the Sydney Desalination Plant being online, there has been a gradual decline in storage levels, and drought conditions remain throughout the Sydney catchments. Rainfall across the Sydney catchment over the last 24 months has been below to very much below average. The current BoM outlook indicates a drier than average summer, with daytime temperatures likely to be warmer than average.

The 60% total storage level was reached on 27 January 2019, which is a trigger under the Metropolitan Water Plan (MWP) to initiate the restart of the Sydney Desalination Plant. The plant began producing water in March and are now running at full capacity of approximately 250ML/D. This desalinated water enters directly into Sydney's drinking water system (which is administered by Sydney Water Corporation) and directly reduces supply to Sydney from WaterNSW.

In response to continuing drought the NSW Government decided to pre-emptively implement Level 1 water restrictions on June 1, 2019 when total system storage was at 53.2% (the MWP trigger is 50%, which was reached on 18 August 2019). The MWP drought trigger of 45% total system storage for commencement of detailed planning for Stage 2 Desalination Plant is estimated to be reached in December 2019. The MWP drought trigger of 40% for implementation of level 2 water restrictions is estimated to be reached in March 2020. Both are assuming drought conditions continue.

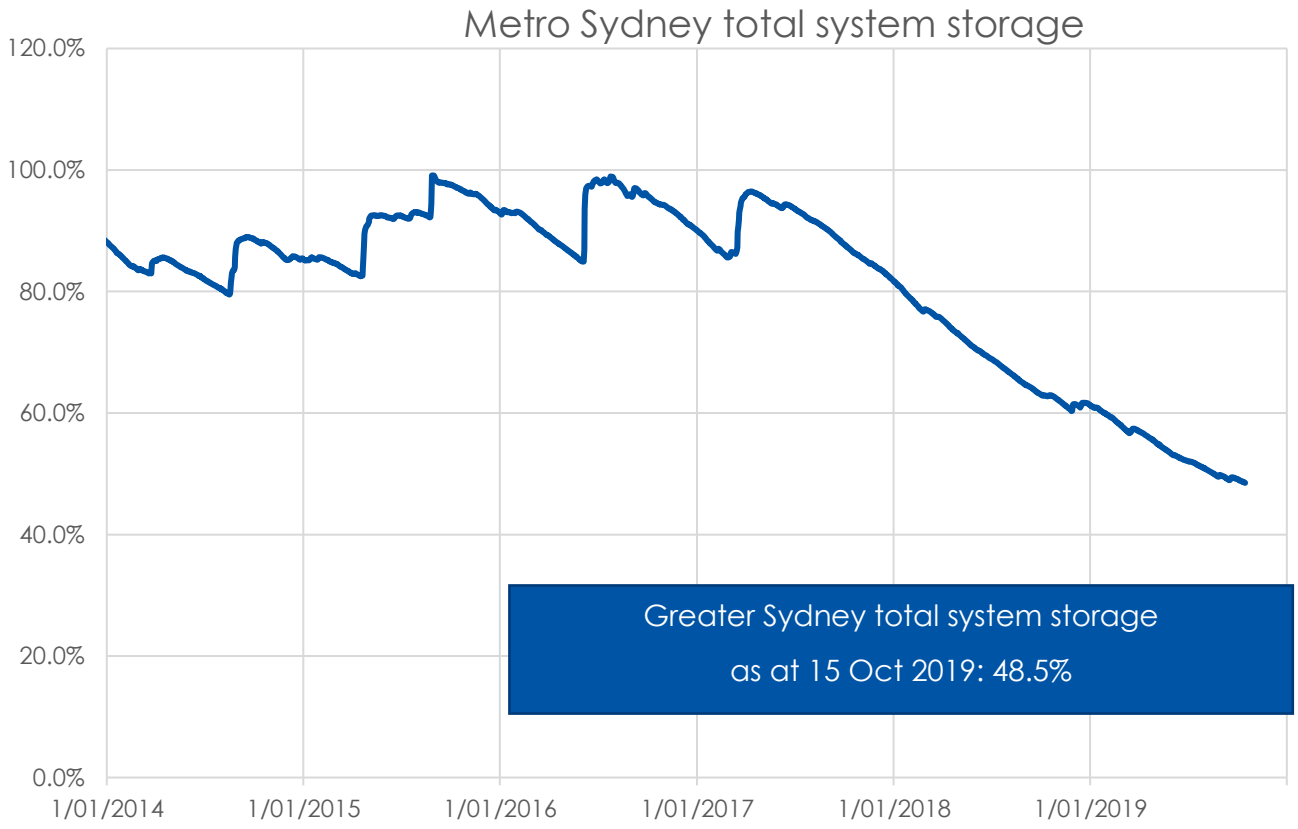
On 27 August 2019 the Natural Resources Access Regulator (NRAR) amended the MWP and Licence to allow WaterNSW to access an additional 14.5GL in Tallowa Dam. This will allow WaterNSW to capture more water during inflow events without significantly impacting water supply or energy security in the Illawarra/Shoalhaven regions. More than 45 GL has been transferred since reaching the trigger in April 2018. A further 17GL is available in Tallowa for transfer over the next few weeks.

In the Fish River Water Scheme (FRWS), the trigger to implement Level 2 Water Restrictions was reached on 11 February. The restrictions have not impacted current operation of the system as customer usage is below the restricted amount. The scheme is projected to reach Level 3 Restriction storage trigger in the next 2 to 3 months, depending on demand. WaterNSW extracted water from Duckmaloi Weir for a week in early October whilst inflows were available and water quality was within agreed limits. Drought planning meetings commenced at FRWS on 22 October.

# 2. Dam storage

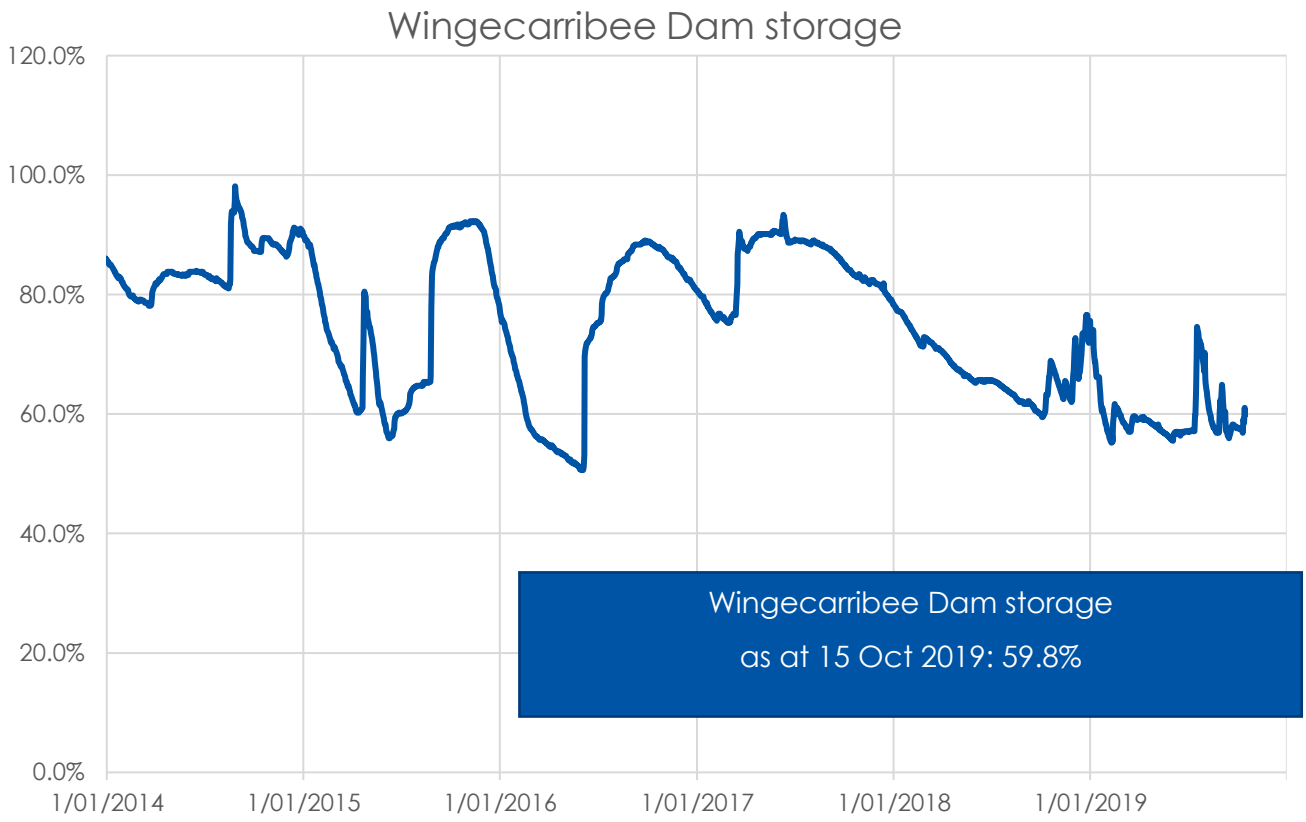
## 2.1 Greater Sydney total system storage

The figure below shows the Greater Sydney total system storage level, with historical perspective, comparing levels since 1 January 2014. The current total system storage as at 15 October 2019 is 48.5%.



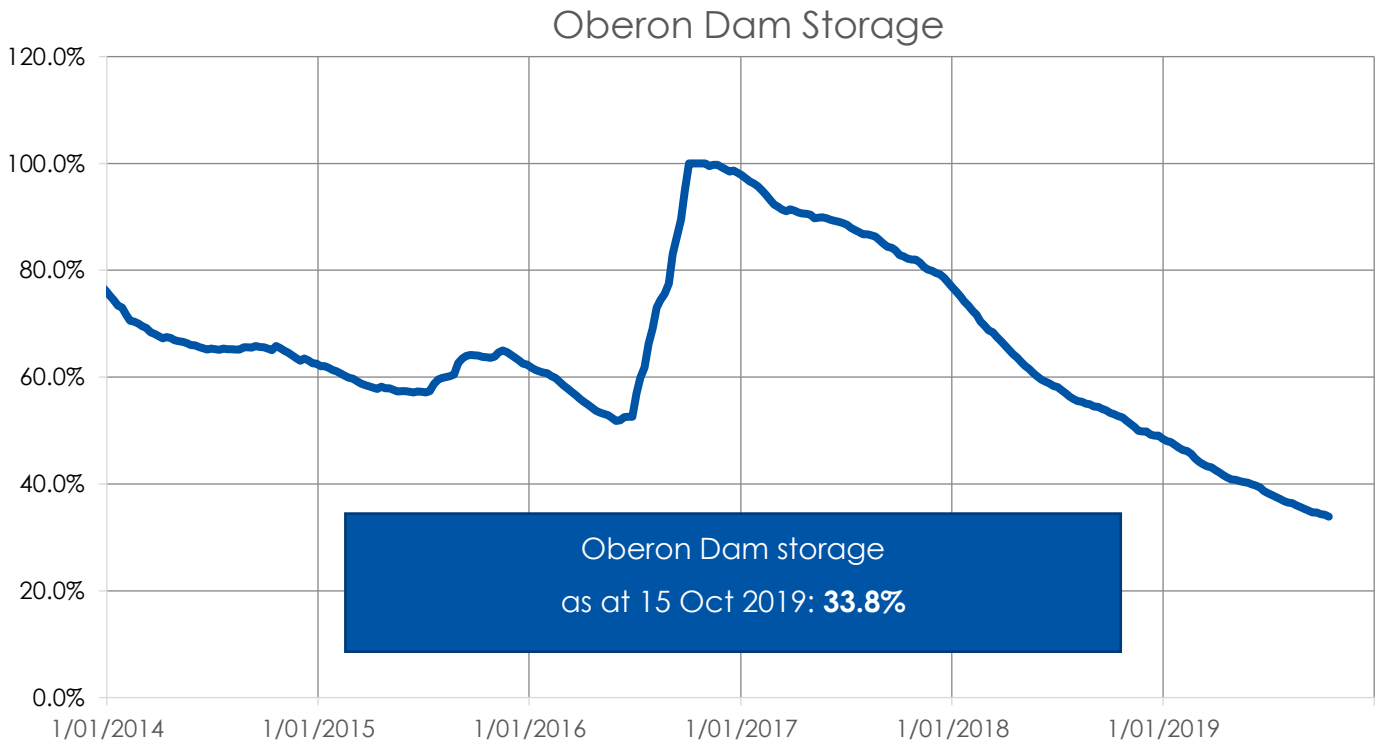
## 2.2 Wingecarribee Dam storage

The figure below shows the Wingecarribee Dam storage level, with historical perspective, comparing levels since 1 January 2014. The current total system storage as at 15 October 2019 is 59.8%.



## 2.3 Oberon Dam storage

The figure below shows the Oberon Dam storage level, with historical perspective, comparing levels since 1 January 2014. The current total system storage as at 15 October 2019 is 33.8%.



# 3. Water quality

Ongoing drought conditions have contributed to generally good, stable water quality. Turbidity is generally low and within operational ranges and colour continues to decline. Destratification systems have been activated where available but thermal stratification is strengthening in other storages such as Lake Burragorang. The supply outlet (at Warragamba Dam) has been moved lower to avoid impacts of variable water quality around the thermocline. A deeper offtake depth is also preferable over summer when algal activity may increase.

ASU (a measure of algal biovolume and filter clogging potential) has been elevated in Macarthur and Cascades raw water through late winter and spring. Potential toxin producing algal species have declined with cooler weather and the incident at Wingecarribee Reservoir has been closed. Algae are expected to increase over the next few months.

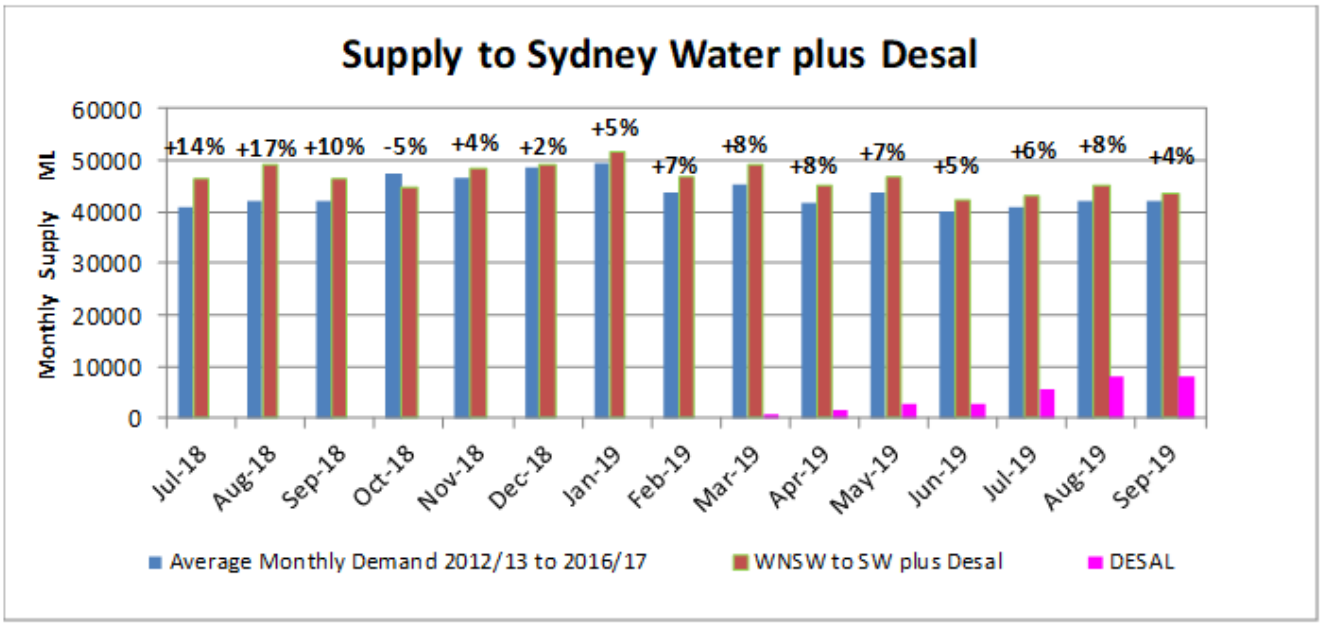
Drought conditions are generally typified by good water quality as there are no large inflows bringing turbid water and contaminants into the storages. Conversely, declining storage levels mean less options for reconfiguring supplies to avoid poor quality water during an event.

# 4. Demand

## 4.1 2018/19 Demand vs five-year average

Water supplied for Sydney was higher than the 5-year average for July to September, with supplementary water also being supplied by the Sydney Desalination Plant (SDP). The SDP are now at full capacity in August producing approximately 250ML/D.

Sydney Water Corporation have commenced a media campaign encouraging people not to waste water. Level 1 water restrictions were brought in on June 1, 2019 when total system storage was at 53.2% (normally brought in at 50%). The 45% drought trigger is estimated to be reached in December 2019 and this is when detailed planning for Stage 2 Desalination Plant will commence which will double the plant's capacity. The 40% drought trigger is estimated to be reached in March 2020, with level 2 water restrictions are implemented (assuming drought conditions continue).

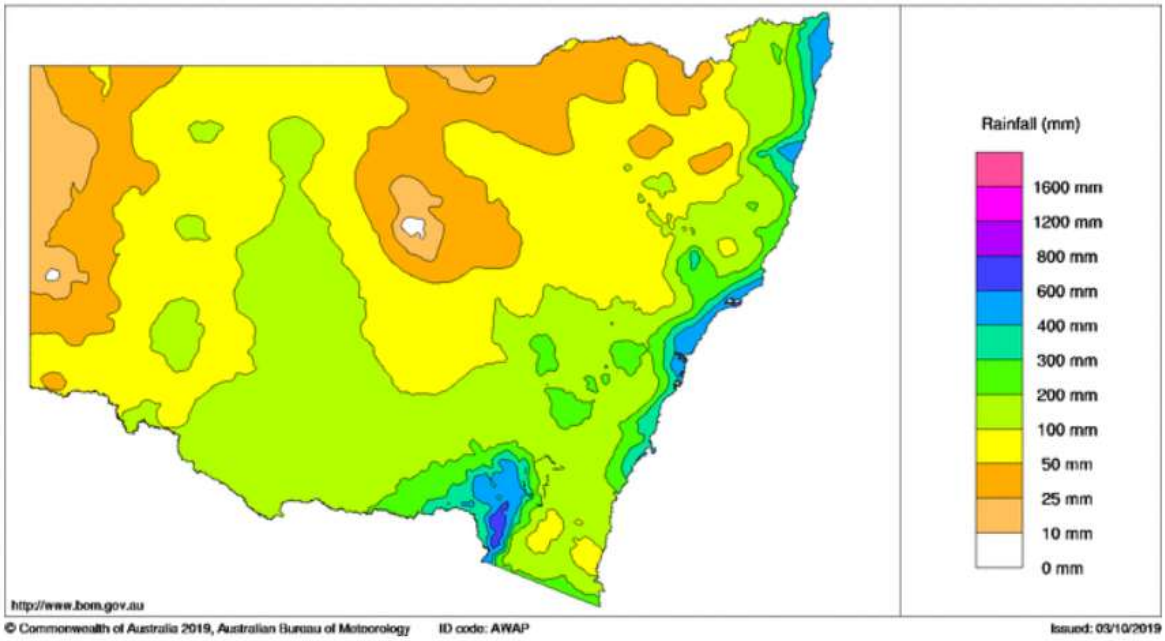


# 5. NSW rainfall

## 5.1 6-month rainfall

New South Wales Rainfall totals (mm) 1 April to 30 September 2019

Australian Bureau of Meteorology

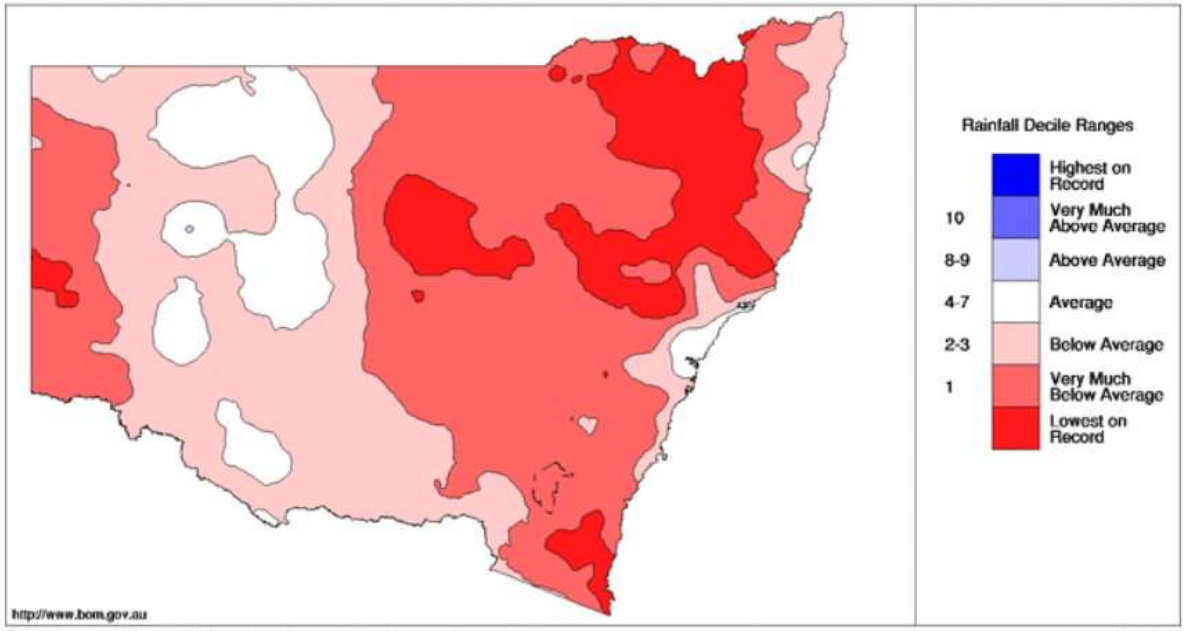



 ID code: AWAP Issued: 03/10/2019

New South Wales Rainfall Deciles 1 April to 30 September 2019

Distribution Based on Gridded Data

Australian Bureau of Meteorology

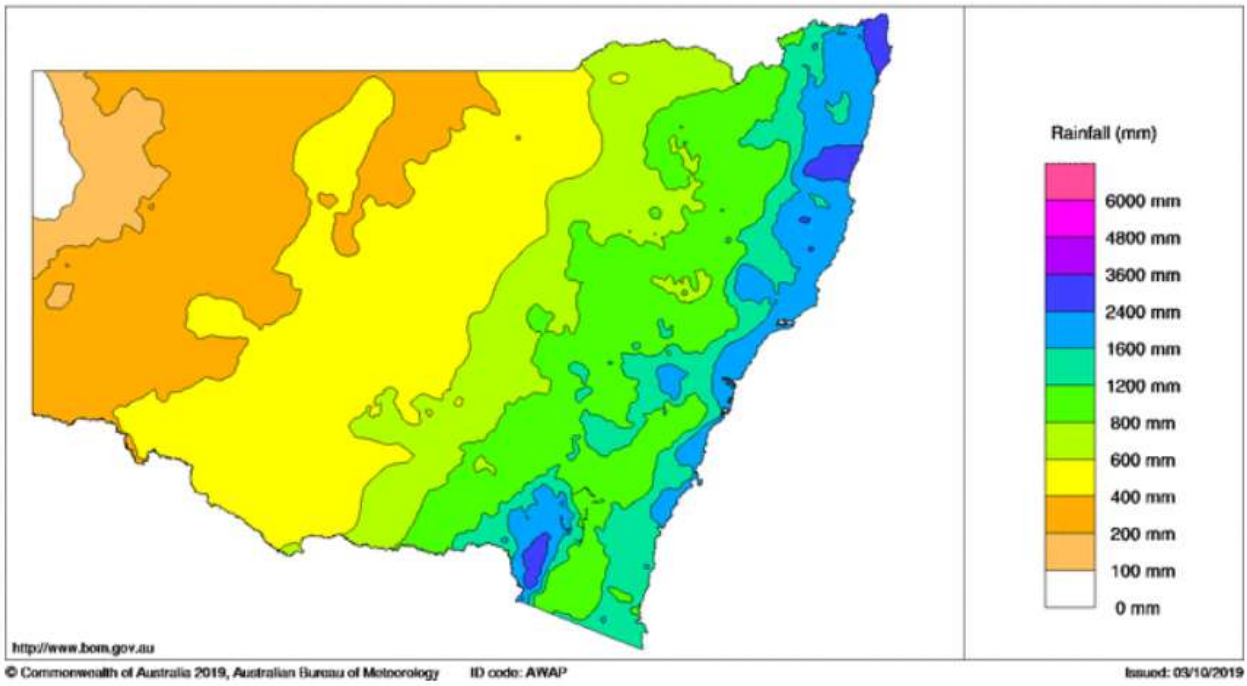



 ID code: AWAP Issued: 03/10/2019

## 5.2 24-month rainfall

New South Wales Rainfall totals (mm) 1 October 2017 to 30 September 2019

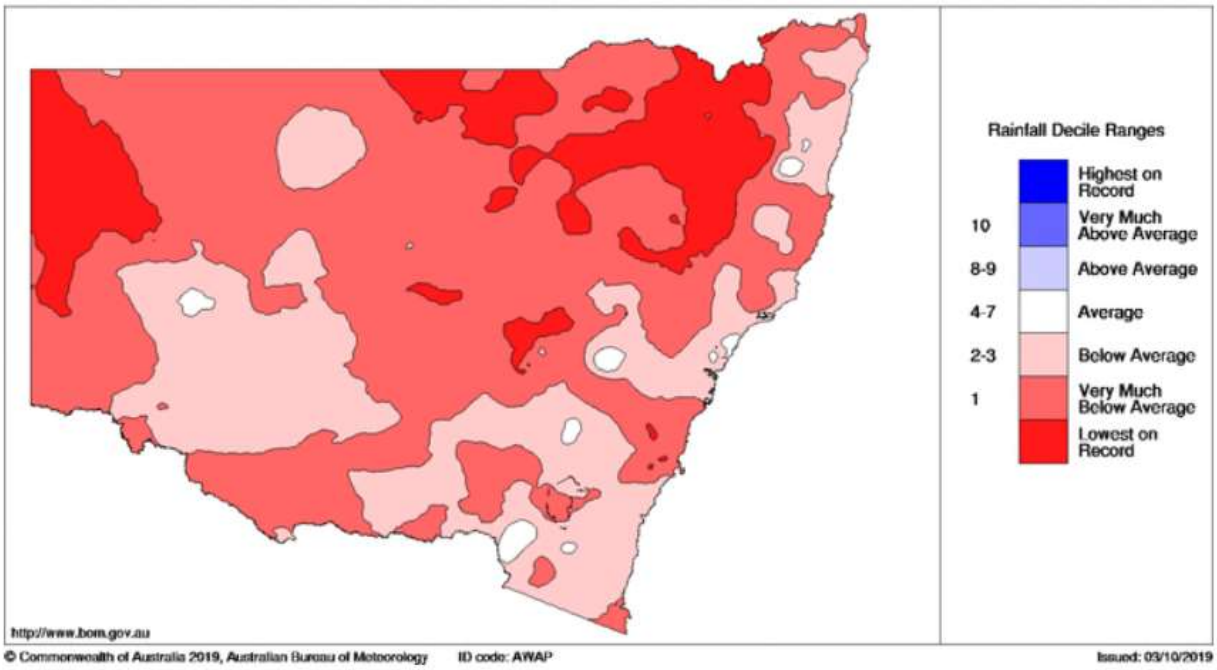
Australian Bureau of Meteorology




New South Wales Rainfall Deciles 1 October 2017 to 30 September 2019

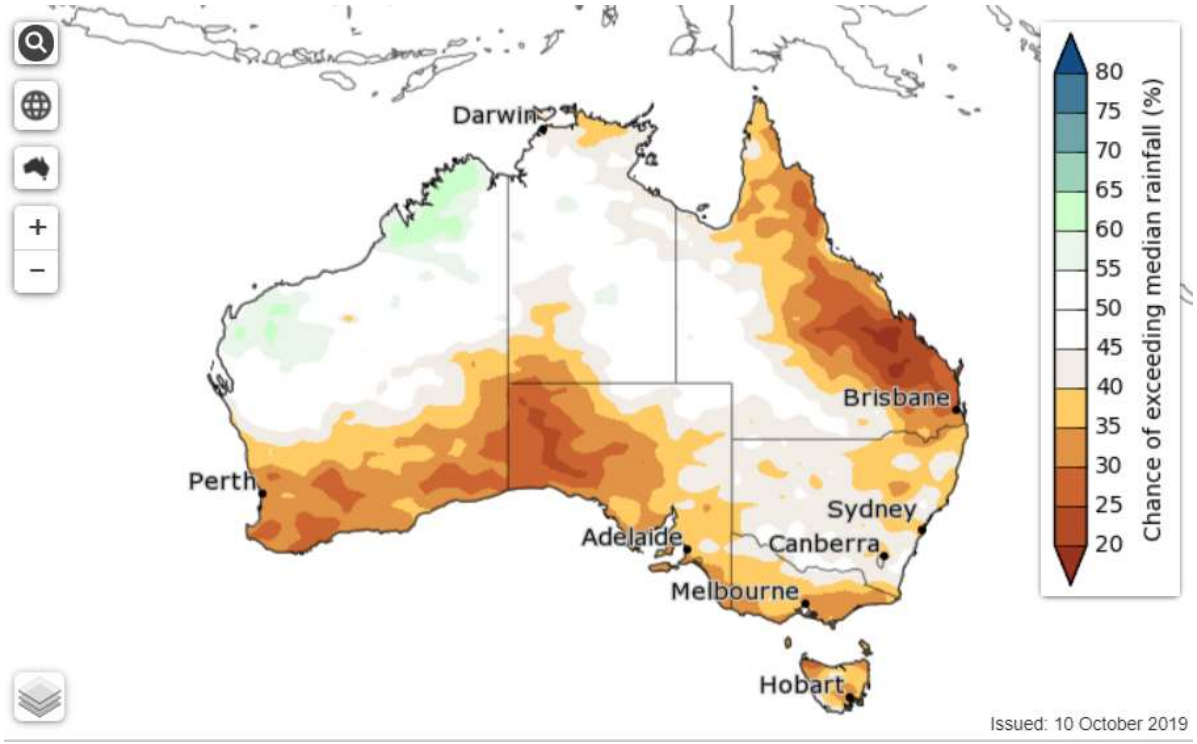
Distribution Based on Gridded Data

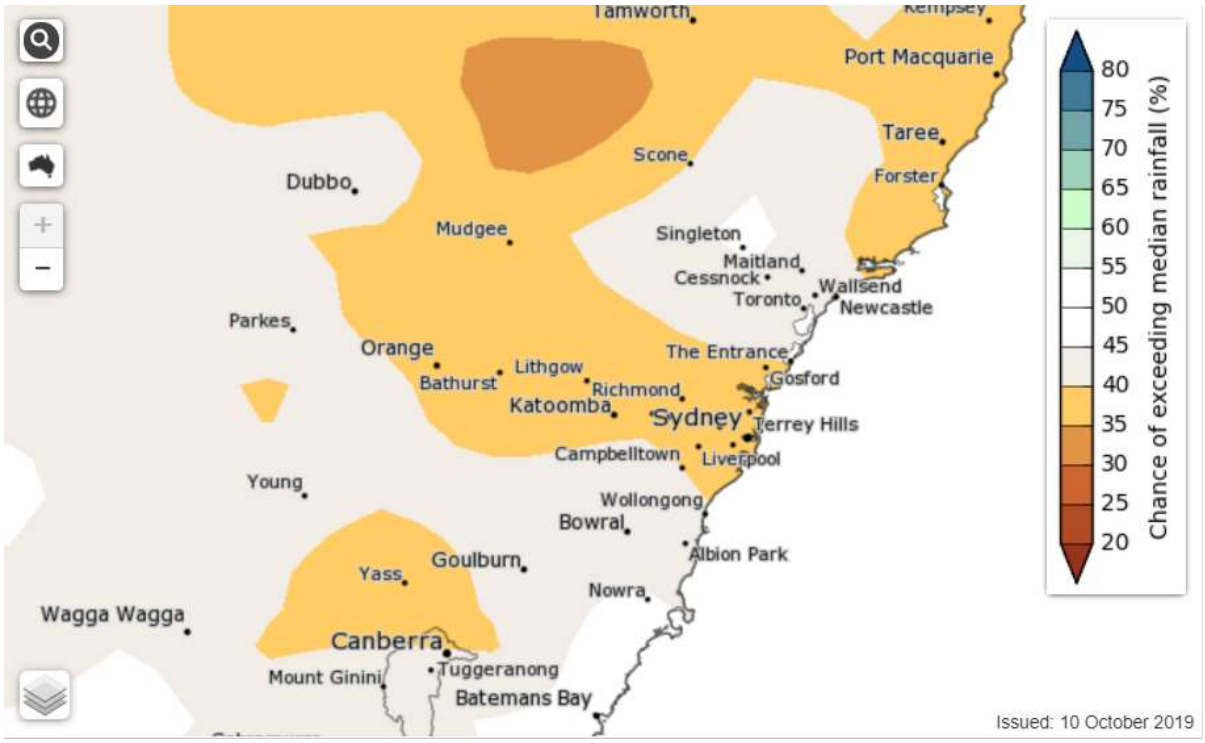
Australian Bureau of Meteorology



## 5.3 Rainfall outlook

The Bureau of Meteorology maps below show the chance of exceeding median rainfall from November 2019 to January 2020.

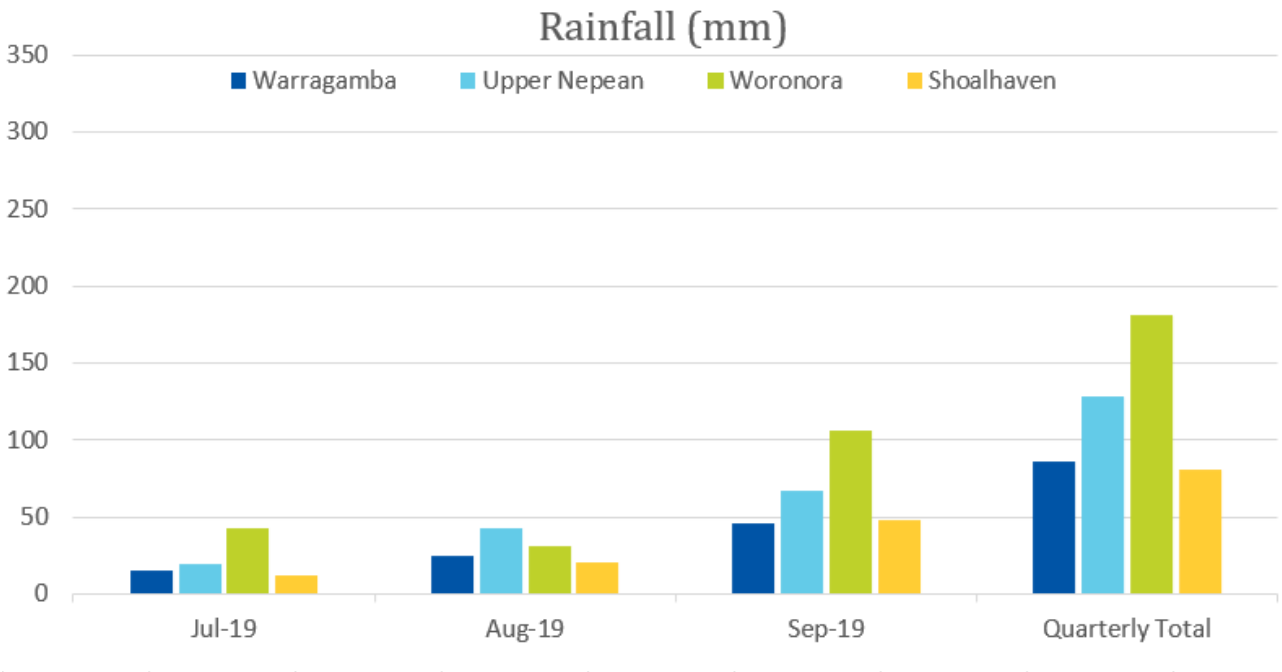


# 6. Sydney catchment area rainfall

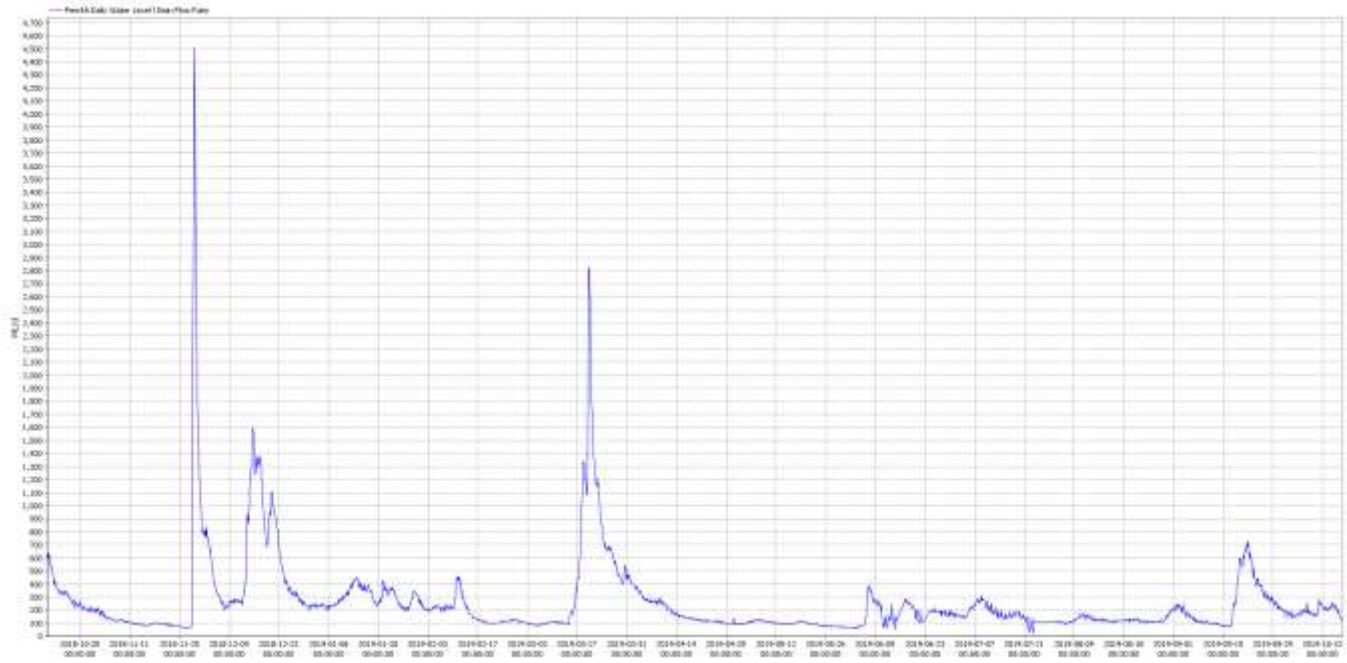
## 6.1 Rainfall recorded within the Sydney catchments - 01/07/19 to 30/09/19

| Month | Warragamba | Upper Nepean | Woronora | Shoalhaven |
|---|---|---|---|---|
| Jul-19 | 15 | 20 | 43 | 13 |
| Aug-19 | 25 | 42 | 32 | 20 |
| Sept-19 | 46 | 67 | 107 | 48 |
| **Quarterly Total** | **86** | **129** | **182** | **81** |



# 7. Flow at Penrith weir

Flows at Penrith weir for the past 12 months are shown below, with a reading of approximately 750 ML/D on the 21 September 2019 following a rainfall event. Flows have otherwise been low due to current drought conditions.

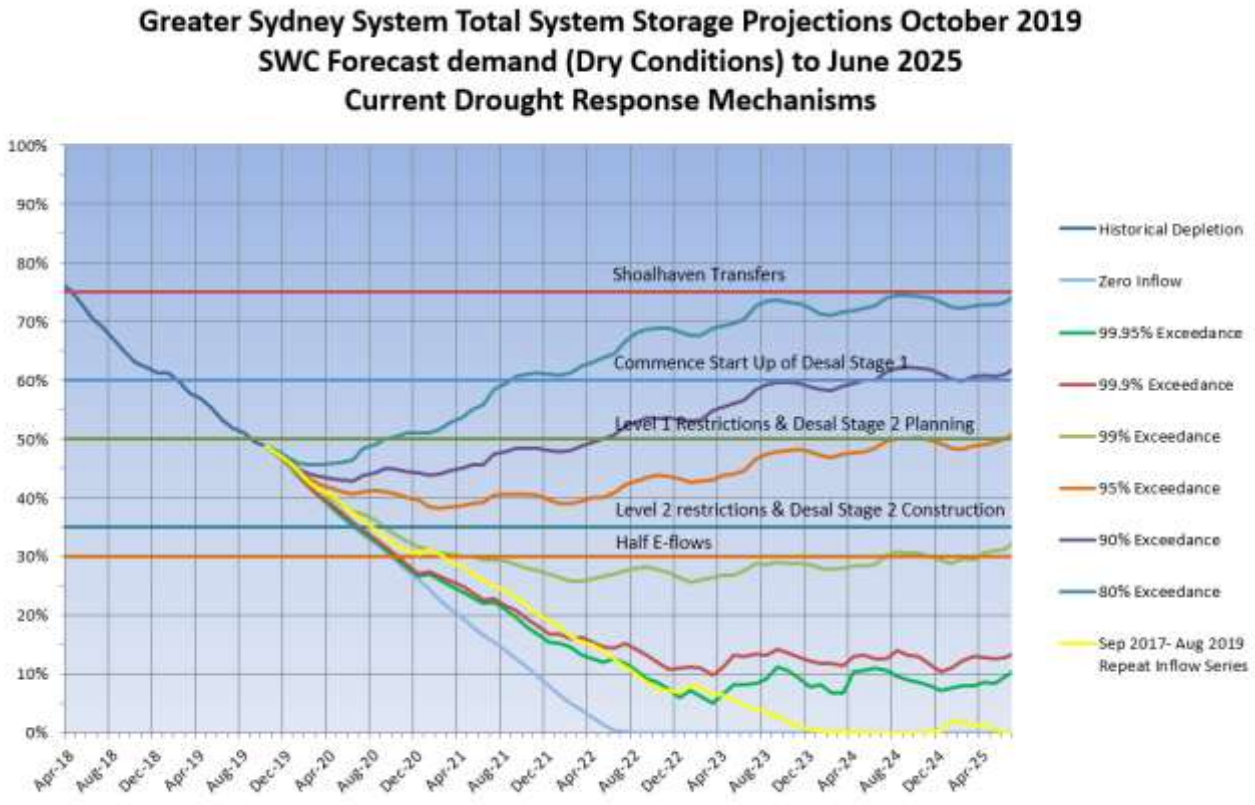


# 8. Storage forecast

## Greater Sydney system - total system storage projections October 2019

This model assumes:

- SWC forecast demand (dry conditions) to June 2025
- Metro Water Plan (MWP) drought response mechanisms



# 9. Outage planning

| Item | Time | Description |
|---|---|---|
| Warragamba Pipeline Valve Upgrade | Complete | Both pipelines will be available from Monday 21 October, with commissioning of Valve 6 to be completed on Thursday 24 October. |
| Warragamba DWPS Commissioning – Stage 1 | 18 November - 23 November | Testing of the Deep Water Pumping Station will require reconfiguration of Warragamba Pipelines, but will not interrupt supply. |
| Shoalhaven System – Kangaroo Valley Power Station | 11 November – 29 November | The Shoalhaven Scheme will be taken offline as Origin Energy and WaterNSW complete maintenance works on Kangaroo Valley Power Station and Pipeline. |

## More information

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