

Greater Sydney Operations Plan

February 2019

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1. Highlights

As of 18 February 2019, Sydney's dam levels are at 58.6%, a decrease of 3.7% since the previous CAG Meeting Report in November. Whilst the last few months has seen a return to average rainfall over the Sydney area the frequent heatwave conditions in between events have quickly dried out the catchments. The result was despite some water being available for Shoalhaven Transfers there has been a gradual decline in storage levels.

The 60% total storage level was reached on 27 January 2019, which is a trigger under the Metropolitan Water Plan to initiate the restart of the Sydney Desalination Plant. The plant is expected to begin producing water within three or four months, although it may take up to eight months for it to reach its maximum capacity of 250ML/D. This desalinated water enters directly into Sydney's drinking water system, which is administered by Sydney Water Corporation.

The 50% drought trigger may be reached in July assuming drought conditions continue.

Whilst parts of the system are showing signs of recovery, drought conditions remain throughout the Sydney catchments.

The current BoM outlook indicates no strong tendency towards either a wetter or drier than average autumn. ENSO outlook status is currently at El-Nino WATCH.

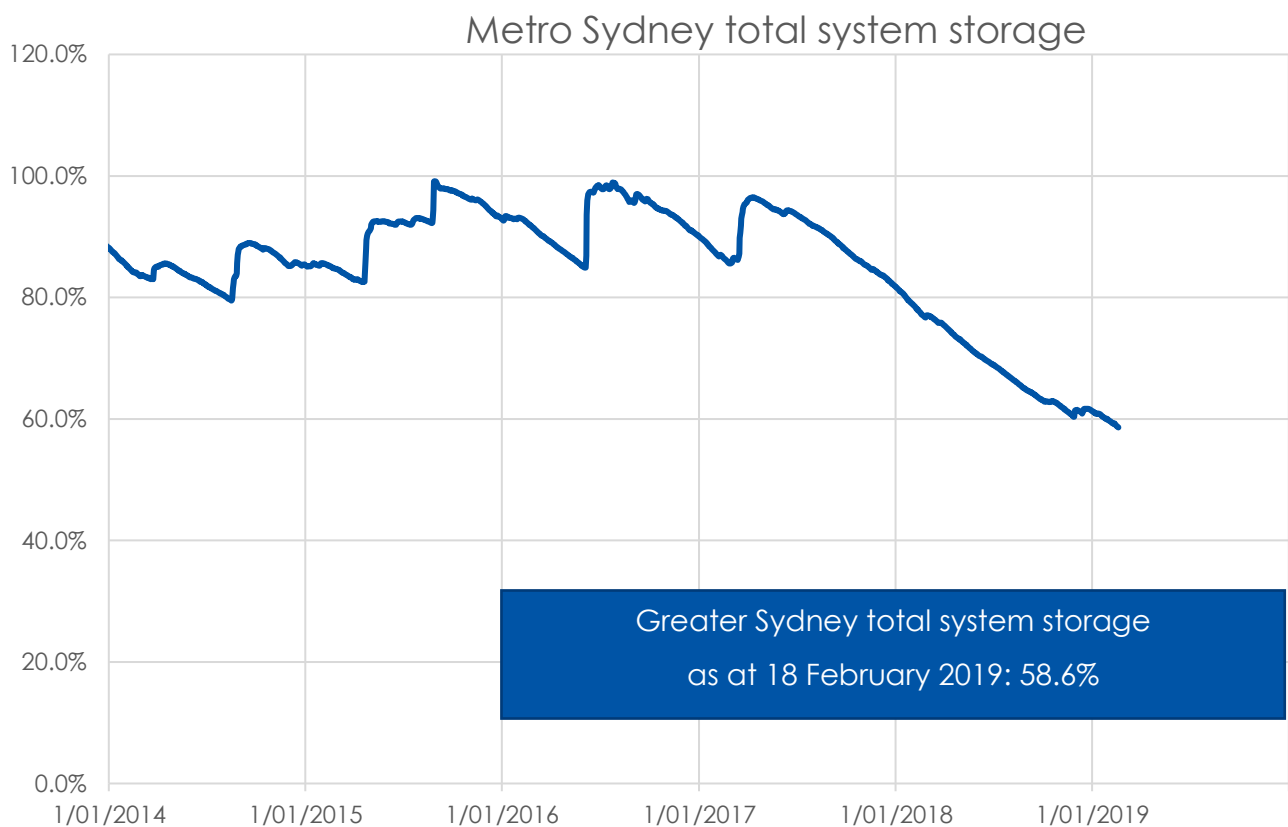
From 1 November 2018 until 31 January 2019, WaterNSW has transferred 26 GL from the Shoalhaven system into the Metro system, which accounts for 17% of Sydney's total demand for this period. More than 32 GL has been transferred since reaching the trigger to commence transfers in April 2018.

At this stage, Oberon Council is the only LWU in the Greater Sydney area of operations with restrictions in place.

2. Dam storage

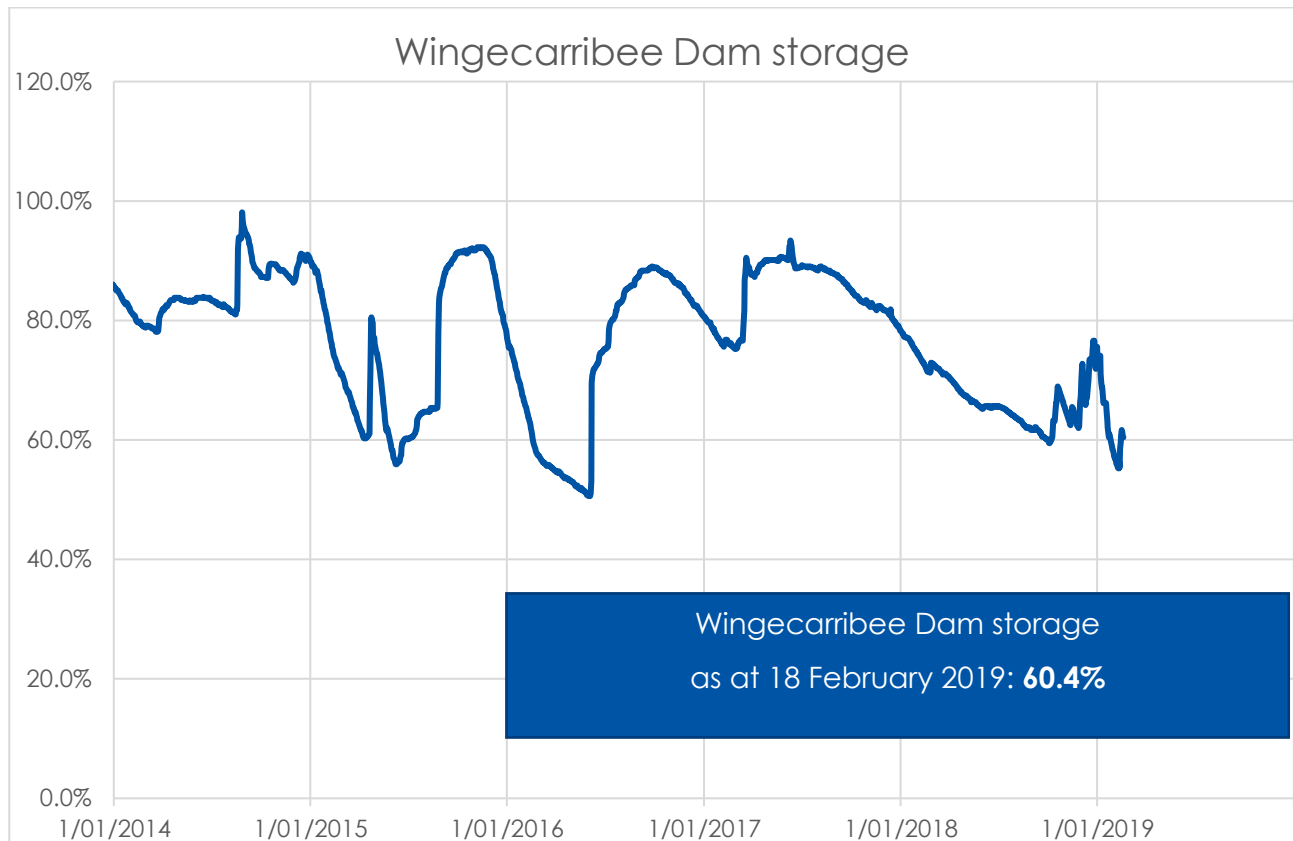
2.1 Greater Sydney total system storage

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 18 February 2019 is 58.6%.



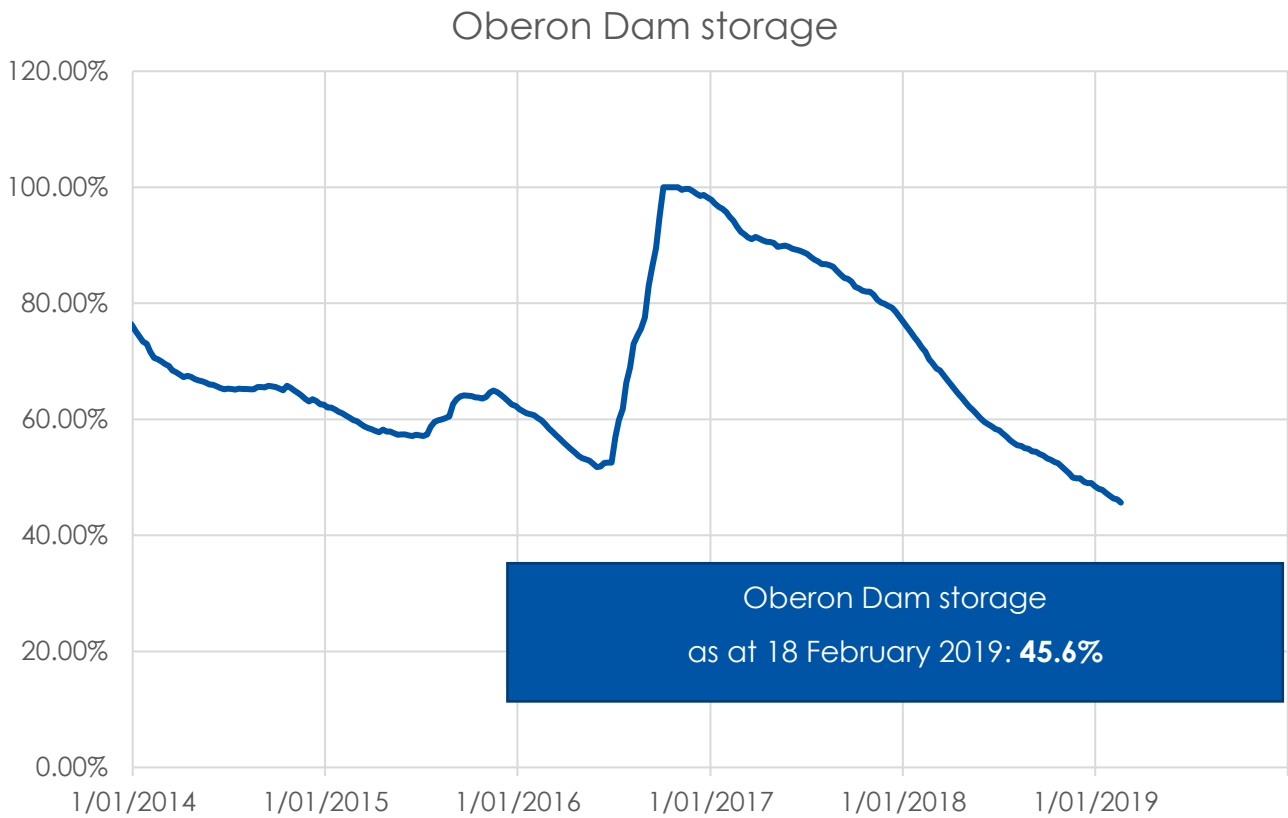
2.2 Wingecarribee Dam storage

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 18 February 2019 is 60.4%.



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 18 February 2019 is 45.6%.



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. With warmer weather, metropolitan storages without artificial destratification systems are thermally stratified.

Warmer weather is contributing to increasing algal activity and associated issues such as filter clogging potential, taste and odour and in some cases potential toxin producing species. ASU (a measure of algal biovolume and filter clogging potential) remains elevated in Macarthur raw water due to large populations of diatoms. Increased monitoring for geosmin (a potential odour causing substance), is continuing in Upper Cascades lake.

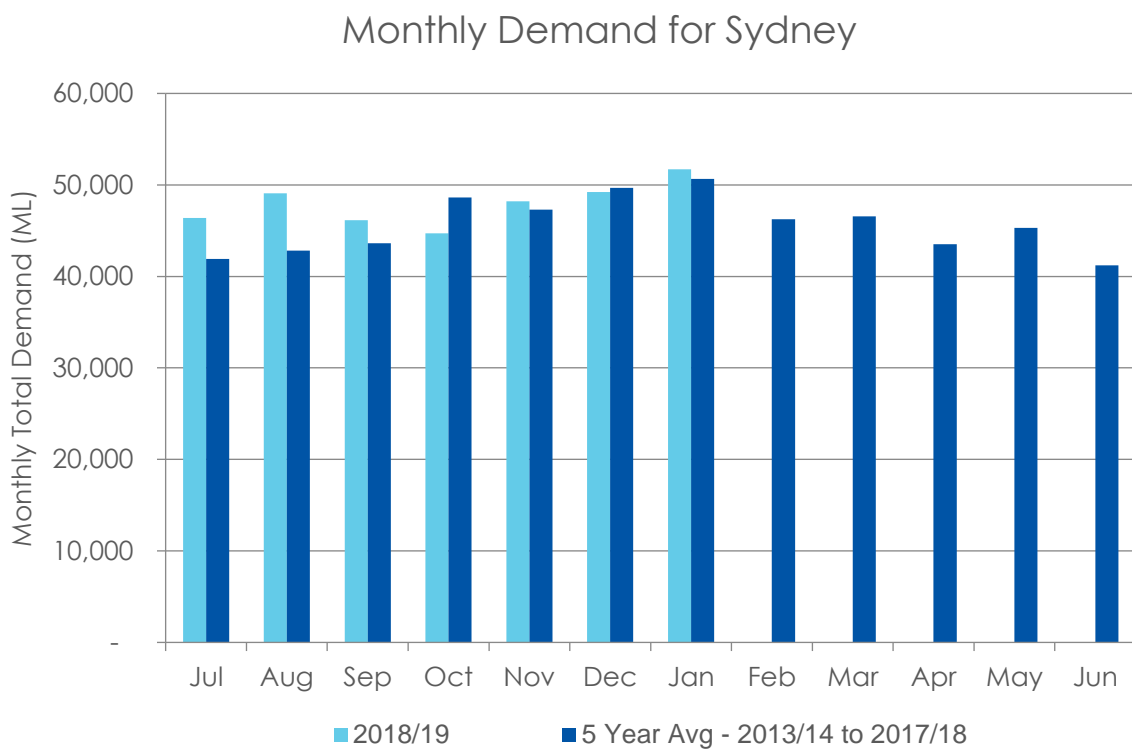
Biovolumes of potential toxin producing algal species are exceeding incident trigger levels in Wingecarribee Reservoir and toxins have been detected in raw water. Wingecarribee water treatment plant continues to use powdered activated carbon and treated water is within Australian Drinking Water Guidelines. Elevated biovolumes of potential toxin producing algae were noted in Kangaroo Walley and Nepean raw water in late 2018 with no effect on treatment plants.

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

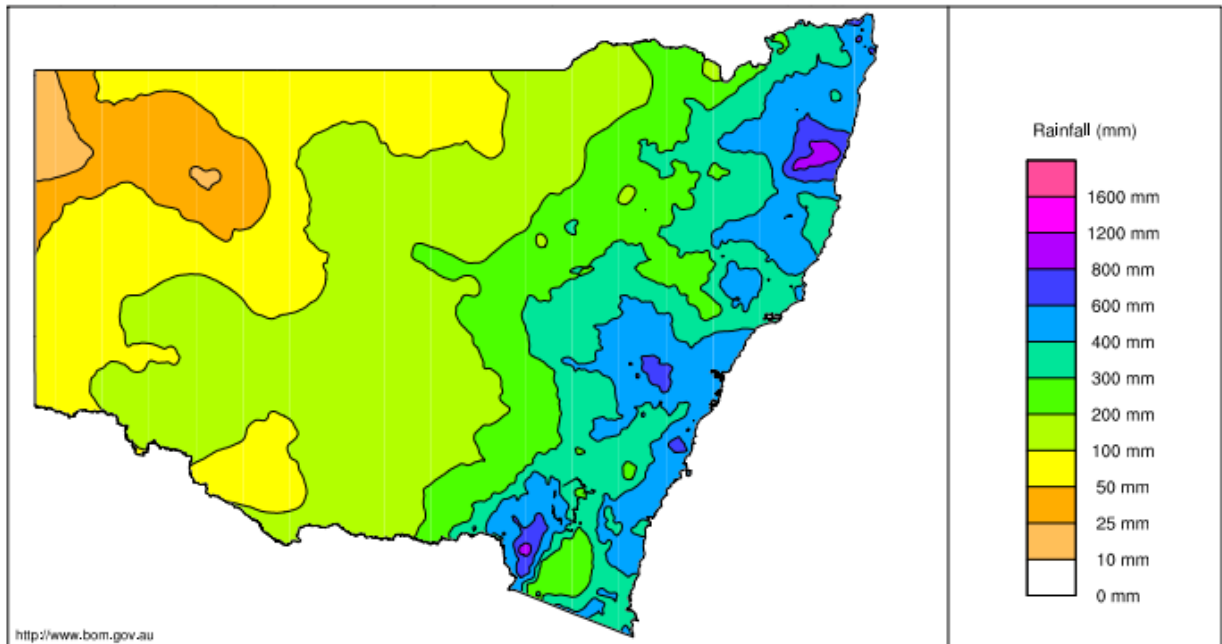
Water supplied for Sydney was higher than the 5-year average for November, slightly lower for December, and again higher for January. Sydney Water Corporation have commenced a media campaign encouraging people not to waste water. The 60% drought trigger was reached on 27 January 2019, and although this does not bring any new formal restrictions in place other than the existing 'water wise' rules, the increase in public awareness may influence demand in the coming months.



5. NSW rainfall

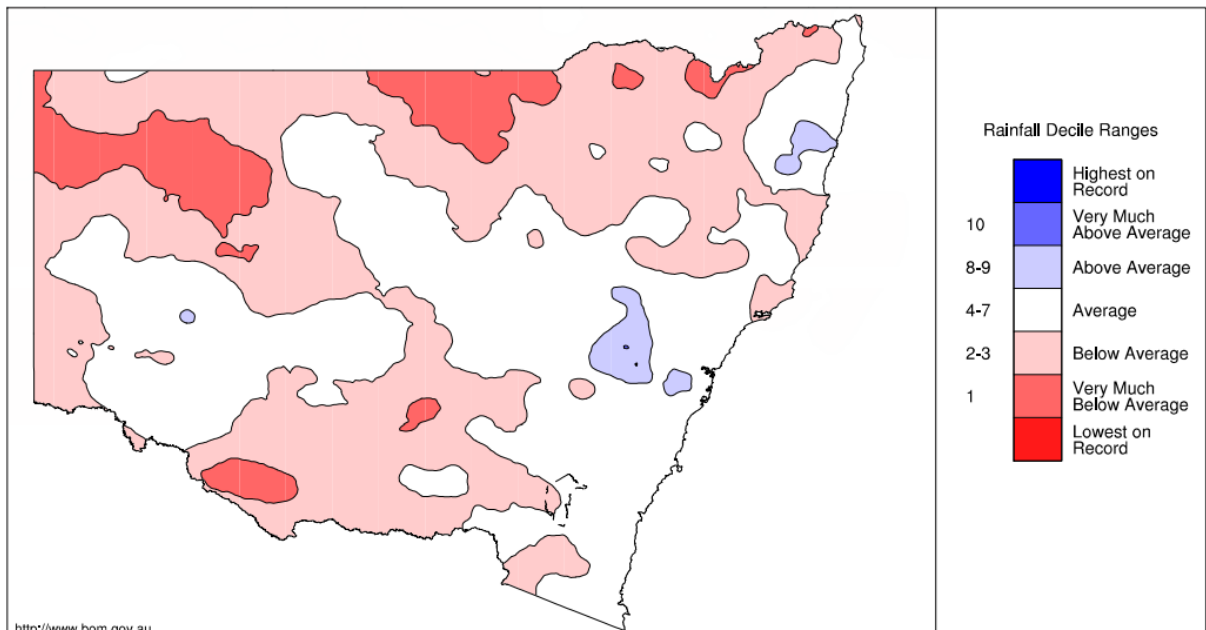
5.1 6-month rainfall

New South Wales Rainfall totals (mm) 1 August 2018 to 31 January 2019
 Australian Bureau of Meteorology



<http://www.bom.gov.au>
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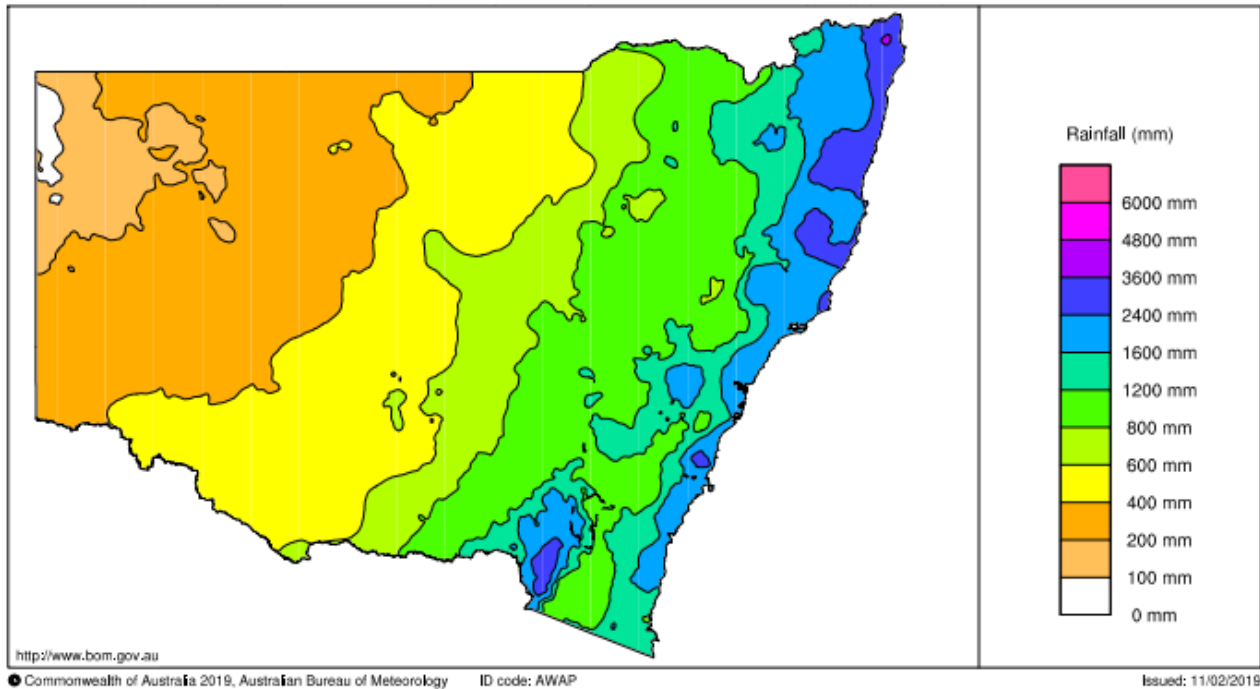
New South Wales Rainfall Deciles 1 August 2018 to 31 January 2019
 Distribution Based on Gridded Data
 Australian Bureau of Meteorology



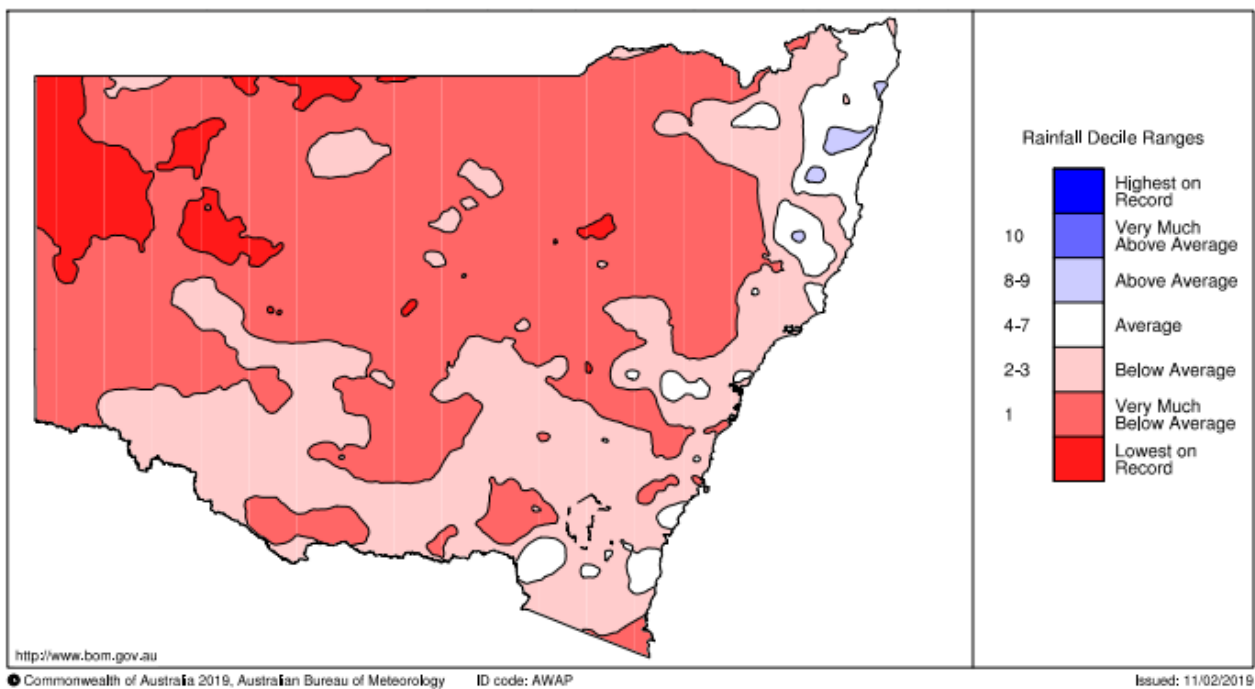
<http://www.bom.gov.au>
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5.2 24-month rainfall

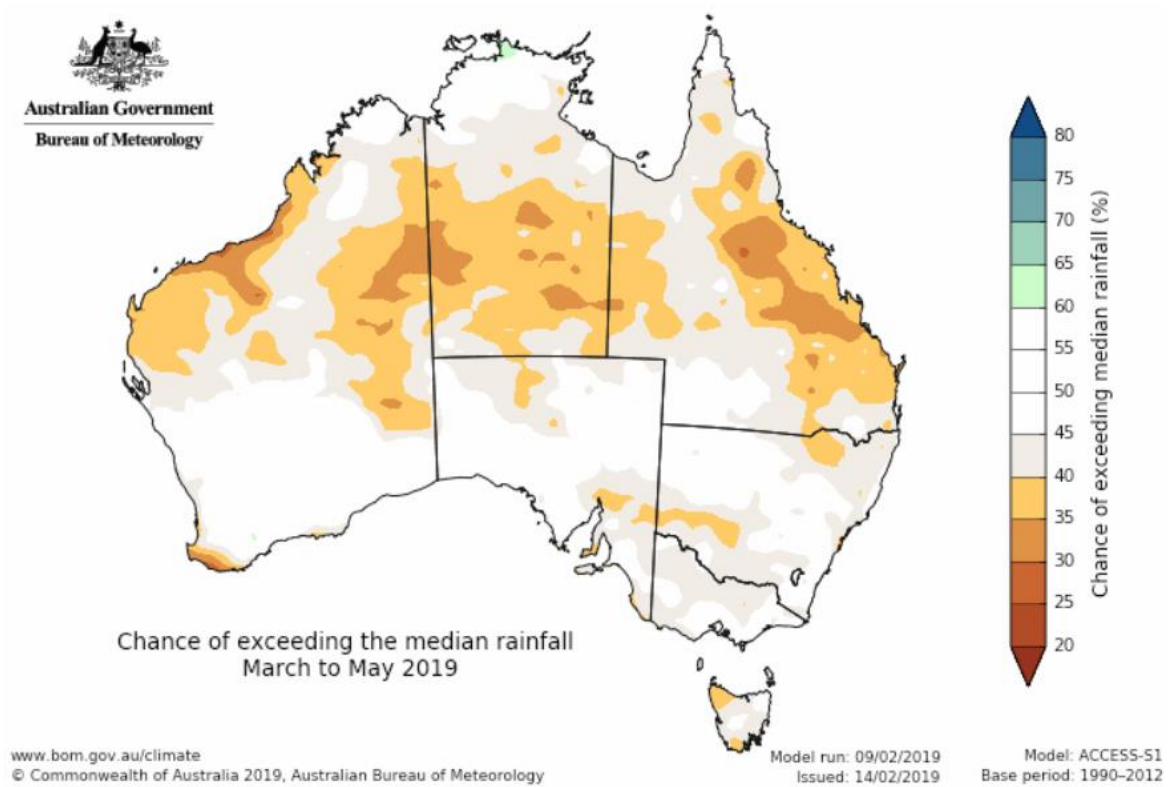
New South Wales Rainfall totals (mm) 1 February 2017 to 31 January 2019
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Distribution Based on Gridded Data
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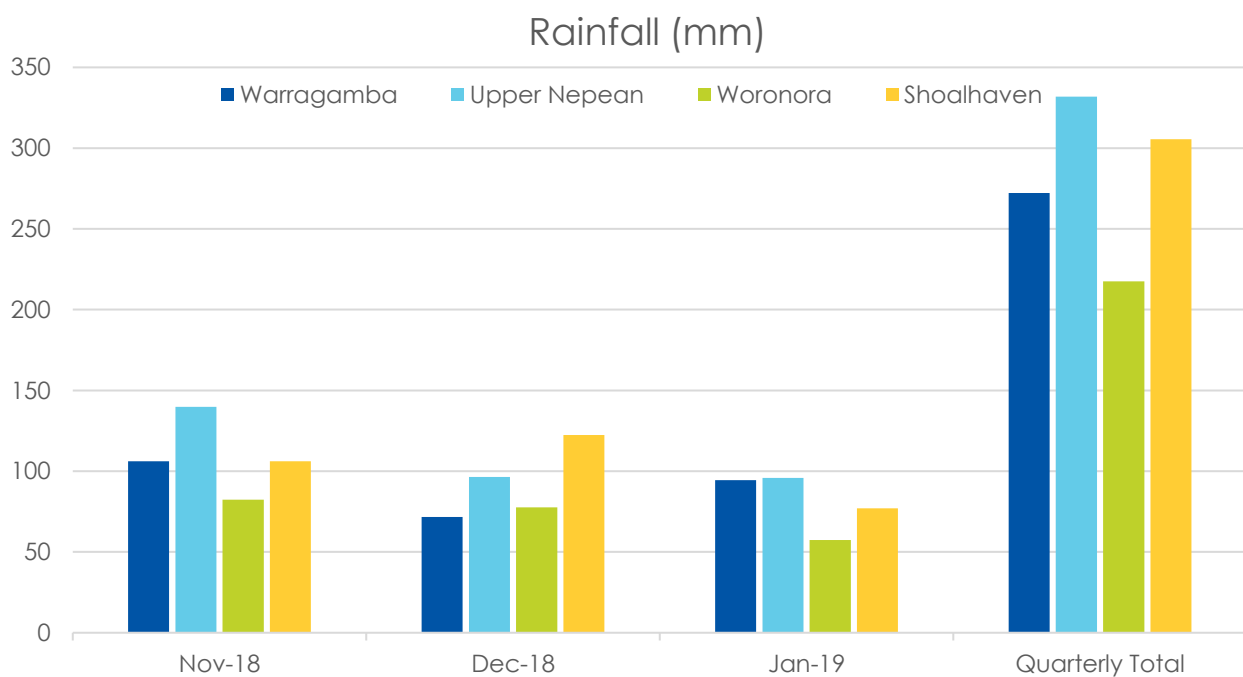
5.3 Rainfall outlook



6. Sydney catchment area rainfall

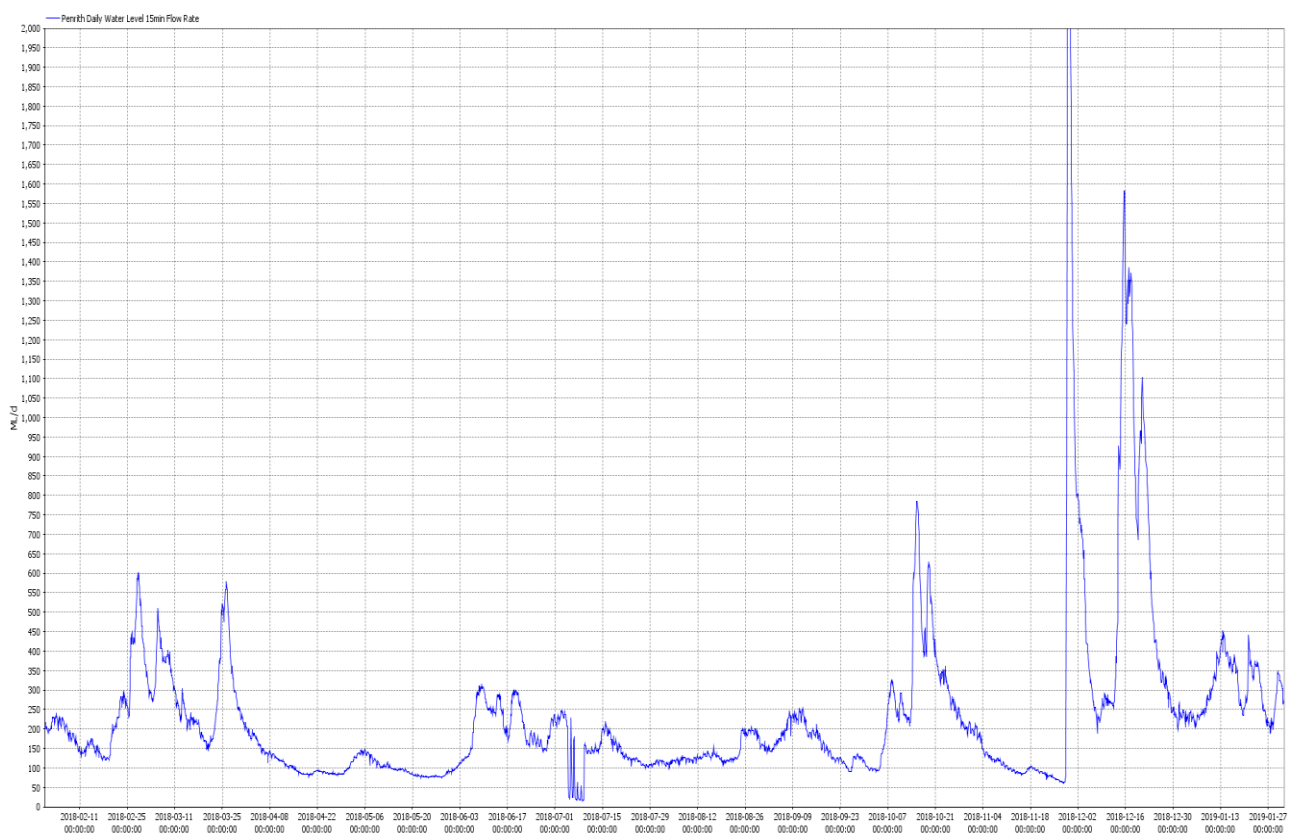
6.1 Rainfall recorded within the Sydney catchments - 01/11/18 to 31/01/19

Month	Warragamba	Upper Nepean	Woronora	Shoalhaven
Nov-18	106	140	82	106
Dec-18	72	96	78	123
Jan-19	94	96	58	77
Quarterly Total	272	332	217	306



7. Flow at Penrith weir

Flows at Penrith weir for the past 12 months are shown below, with a reading of approximately 350 ML/D on the 31 January 2019. Flows peaked at approximately 4 400 ML/D on 29 November 2018 following a significant rainfall event the day before. A follow up rain event that occurred mid December 2018 increased flows to 1600 ML/D.

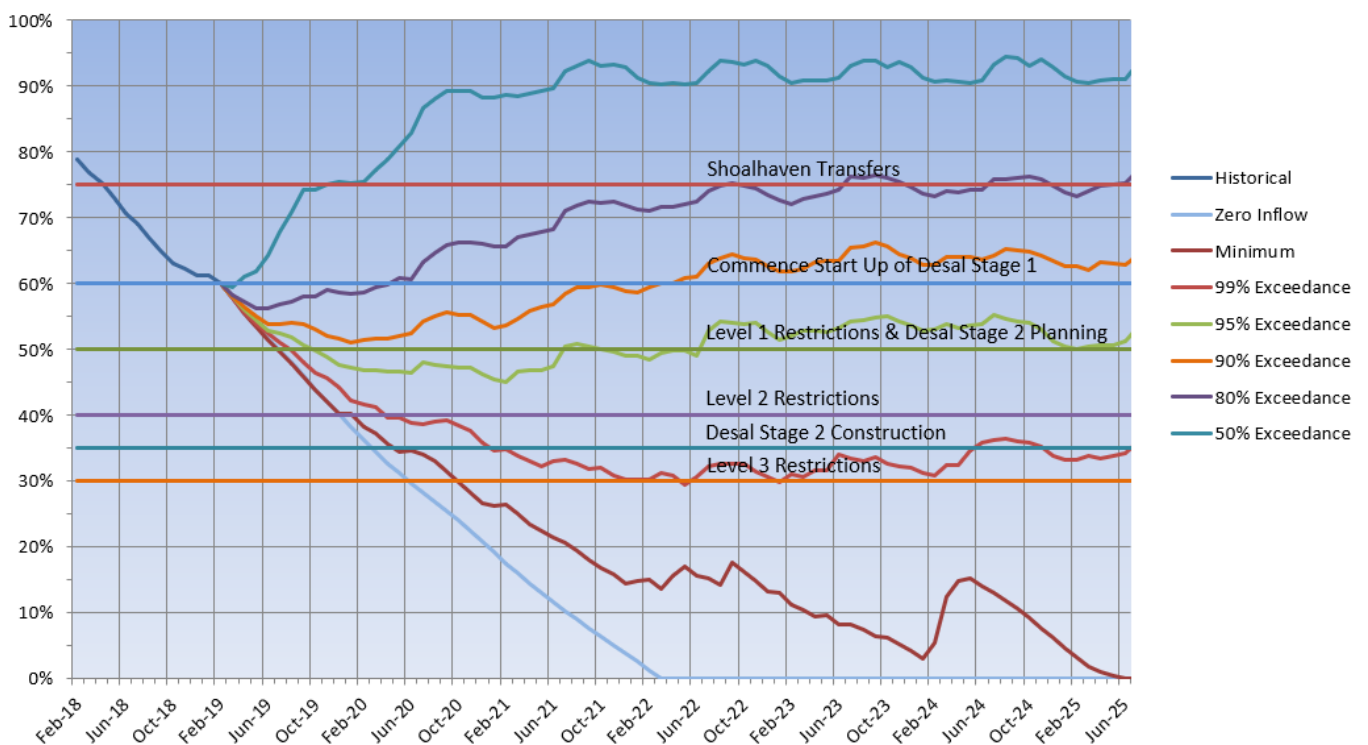


8. Storage forecast

Greater Sydney system - total system storage projections February 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
The Upper Canal	4 March – 5 June	The Upper Canal will be off-line from 4 March until 5 June to facilitate important upgrade works. During this period, Prospect WFP will be supplied from the Warragamba pipelines.
Nepean Tunnel	6 May – 28 May	The Nepean Tunnel will be offline for approximately three weeks during the Upper Canal outage to facilitate concrete work for the housing of the new isolating gate. Macarthur WFP to be supplied solely from Cataract Dam.
Warragamba Pipeline Valve Upgrade	17 June - 28 August	Each pipeline will receive separate outages to facilitate a staged and scheduled replacement of major isolation valves and cross connection valves in several locations. During this time, Sydney will be supplied by the Upper Canal and the Prospect raw water pumping station, as well as the Sydney Desalination Plant (if it is producing water at this time)
Warragamba DWPS Commissioning	2 September - 6 September	Testing of the Deep Water Pumping Station will require reconfiguration of Warragamba pipelines, but supply will remain online.
Shoalhaven System – Bendeela Pumping Station and Kangaroo Valley Power Station	Dates TBC	Origin Energy will require an outage for the Bendeela Pumping Station as well as the Kangaroo Valley Power Station to complete major maintenance works. Dates are yet to be set for this work.

More information

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