

Border Rivers Operations Plan

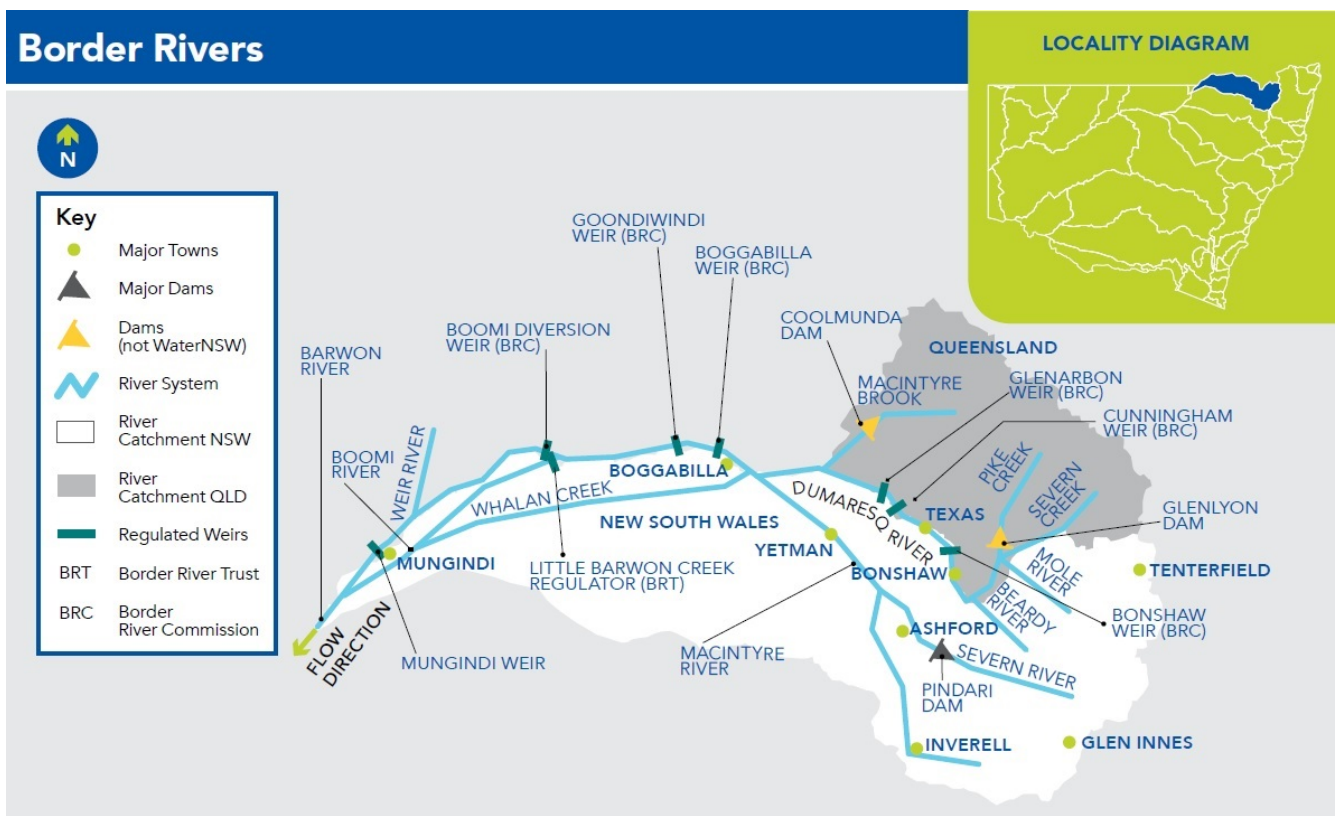
November 2018

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1. Highlights

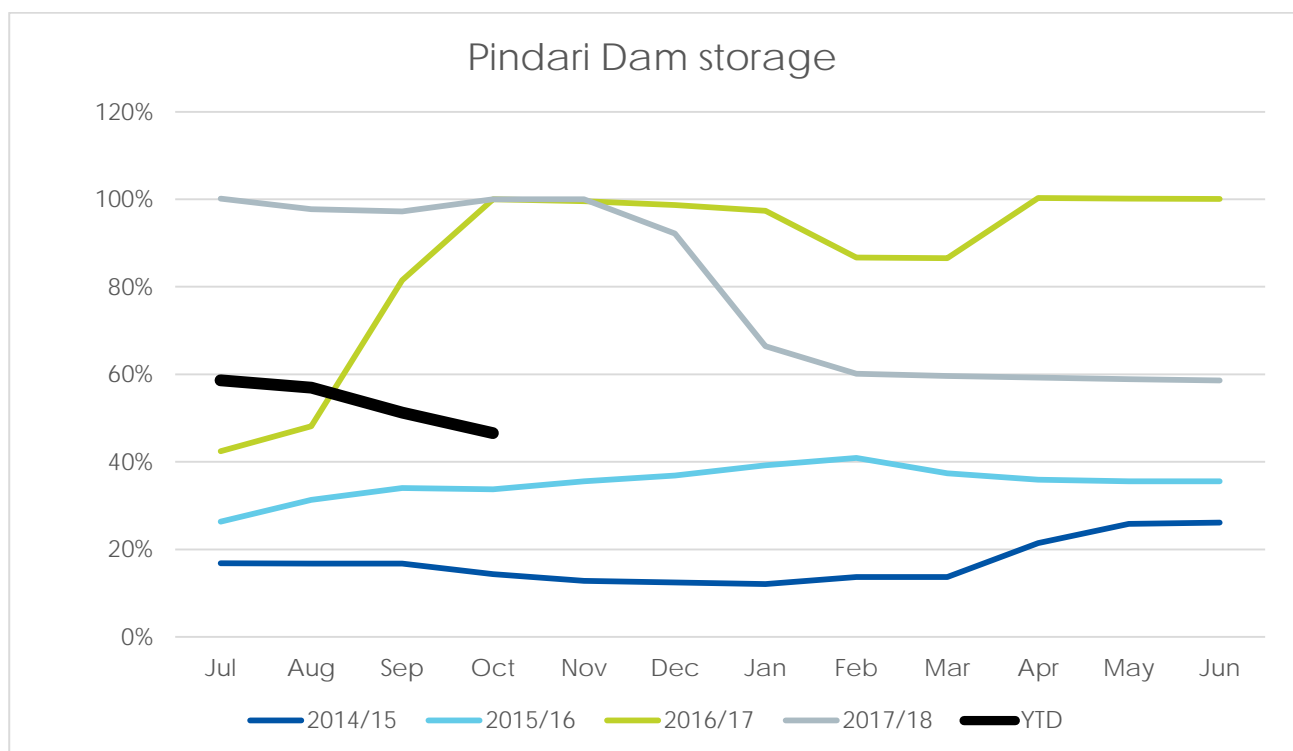
- Dry conditions continue with no significant inflow since February 2018.
- If conditions remain dry, deliveries west of Boomi will be undertaken in distinct blocks throughout 2018/19. First delivery of orders were completed in October and orders are expected to increase during the first week of December.
- Supply on demand will be available to the customers upstream of Boomi, though final deliveries may be bought forward in February 2019
- Expected deliveries of 170 GL in 2018/19 summer irrigation season from both Glenlyon and Pindari, assumes some supplementary access is made available throughout the year.
- A total of 2.9 GL was delivered over August and September for the bi-annual Boomi replenishment flow. Future Boomi replenishment deliveries are secure under a minimum inflow sequence.
- Under a minimum inflow sequence conditions are forecast to improve prior to cessation of supply.



2. Dam storage

2.1 Pindari Dam storage

The below figure shows the Pindari Dam behaviour for the 2018-19 water year compared to the last five water years.

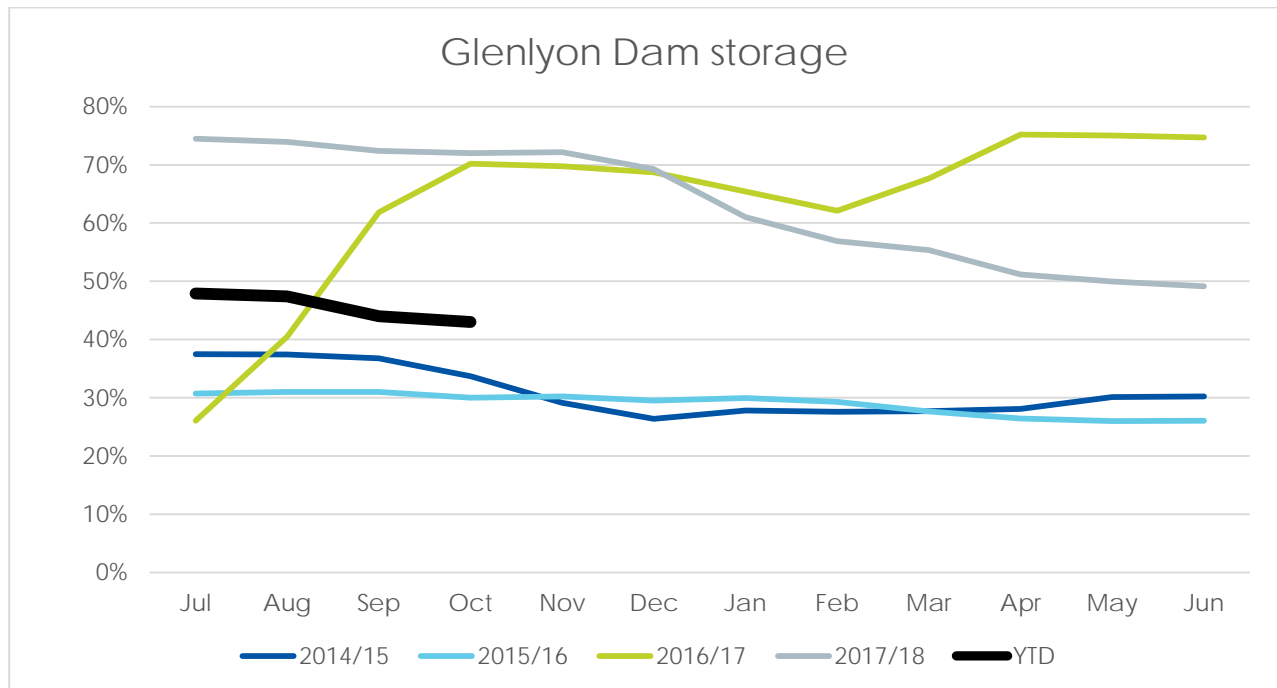


The dam was 59% full in July 2018 and reduced to 47% over last four months. No significant inflow has arrived at the dam this water year and there have been some releases for Boomi River replenishment and initial irrigation orders therefore the line shows continuous decreasing trend.

Pindari Dam storage volume is expected to reduce to close to empty volume at the end of next irrigation season unless significant inflow occurs.

2.2 Glenlyon Dam storage

The below figure shows the Glenlyon Dam behaviour for the 2018-19 water year compared to the last five water years.



Glenlyon Dam volume was around 48% at the start of the current water year and it is now close to 43%. No significant inflow has occurred since February 2018.

3. Supplementary access

3.1 Commentary

There were two supplementary events in the Border Rivers during 2017/18 water year; July 2017 and October 2017. No supplementary events to date in this current (2018-19) water year.

3.2 Explanation

In the Border River valley, supplementary events commence when the flow volume entering, or expected to enter this water source over a two-day period at Goondiwindi is a minimum of 10,000 ML. No such events have occurred since October 2017.

4. Water availability

4.1 2018/2019 water availability for Border Rivers

This information was current as 31 October 2018.

Licence category	Share component	Carryover in	AWD volume	Allocation assignments in	Allocation assignments out	Usage	Balance
Domestic and stock	850	-0.4	850	0	0	86.6	763
Domestic and stock (domestic)	51	0	51	0	0	0	51
Domestic and stock (stock)	100	0	100	0	0	9.5	90.5
Local water utility	640	0	640	0	0	86.2	553.8
Regulated river (general security A)	22,007	588.1	7,219.6	0	147.3	742.1	6,782.2
Regulated river (general security B)	241,211	139,881.2	0	437.4	830.3	23,920.5	11,5131
Regulated river (high security)	1,500	0	1,500	0	340	656	504
Supplementary water	12,0001	0	120,001	1,880.4	1,880.4	0	12,0001
Interstate trade	0	0	0	0	0	0	0
Grand total	386,360	140,468.9	130,361.6	2,317.8	3,198	25,500.9	24,3876.5

General security available water determination

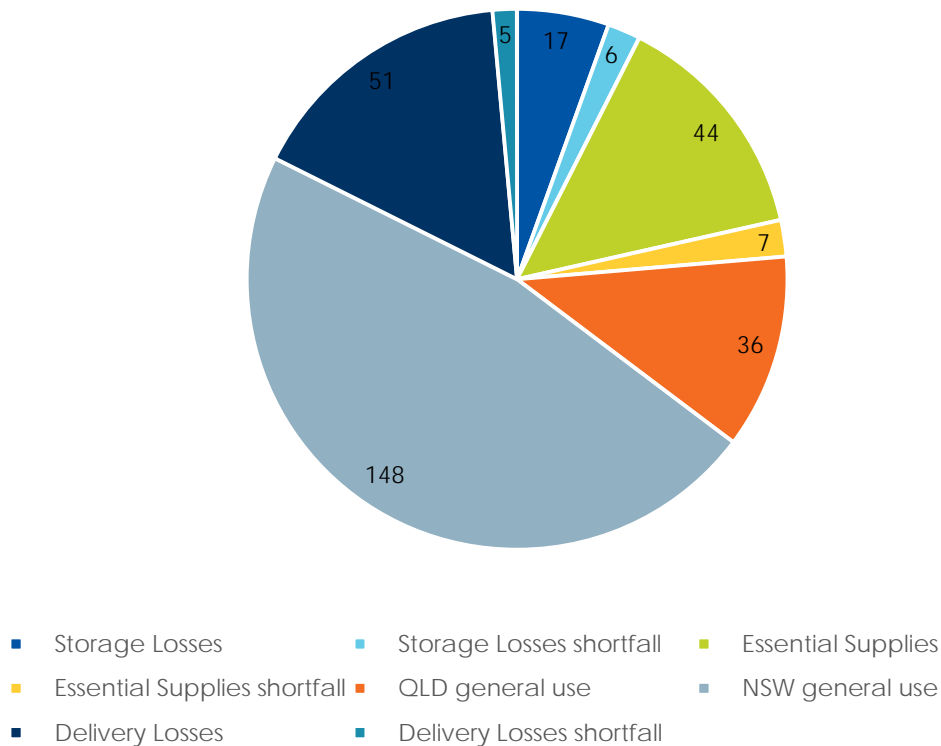
Date	AWD (ML/share)	Total GS A Class (%)	Total GS (%)
01/07/2018	0.23*	23.0	1.8
10/10/2018	0.098*	32.8	2.7

*General Security A only

- From the last water year 2017-18, 140,469 ML of water has been carried over in General Security accounts (combined A and B). In this current water year (2018-19), total water usage till 31 October 2018 is 25,501 ML of which 23,921 ML is GS usage.
- In this current water year, a 23% Available Water Determination (AWD) has been announced on 1st July 2018 for general security A which is equivalent to 1.8% of total general security shares. No allocation has been made for General Security B. For other water users (e.g. high security and town water supply), the AWD is 100%.
- General security (A class) access licences increased by 9.8 per cent on 10 October 2018, bringing the total for the 2018/19 water-year to 32.8 per cent of entitlement for General Security (A class) access licences. This takes total general security allocation to 2.7%.

4.2 Resource assessment

Border Rivers - Storage Breakdown (GL)
1 September 2018



4.2.1 Significance of this resource assessment

Last BRC approved resource assessment at 1 September 2018 indicates that there is a shortfall of 17.5 GL. Therefore, a minimum 17.5 GL of inflow is required to make any AWD announcement.

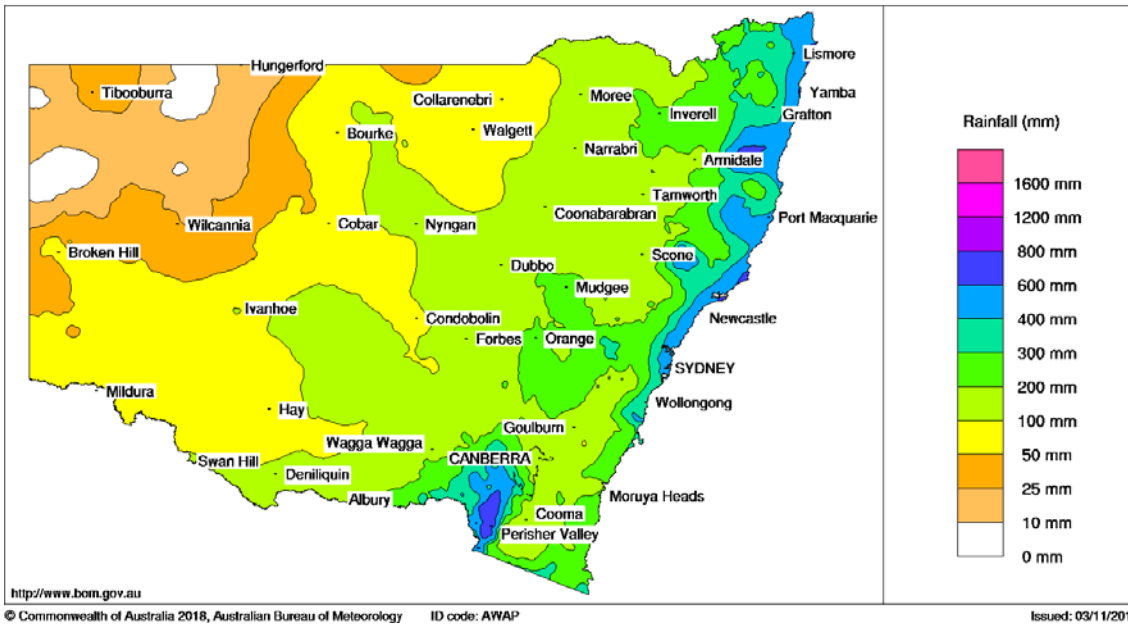
4.2.2 Resource assessment process

Resource Assessment is the process of calculating how much water resource is available based on the rules of the Water Sharing Plan (WSP) and work approvals. This is done periodically during the year, typically at the end of the month and when any significant inflow event happens. Planning horizon for this resource assessment is 24 months. This resource assessment is from September 2018 to August 2020. The minimum inflow sequence also considers the period from September 2018 to August 2020. At the 1st of September, total resource available is the sum of Pindari storage volume, NSW share at Glenlyon storage volume and the minimum expected inflow over the planning horizon. Commitments for the planning horizon are subtracted to find the remaining available resource for AWD announcement. Currently the total commitment is higher than the available resource and the shortfall is about 17.5GL. No inflow was recorded since the last assessment. Therefore, no additional allocation is possible.

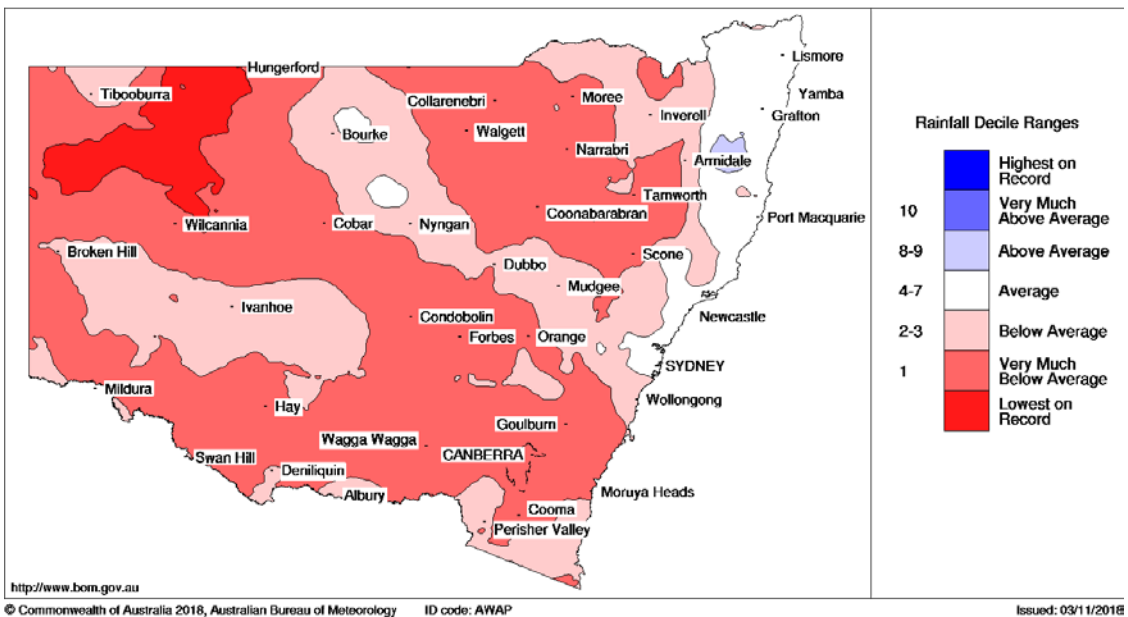
5. Rainfall

5.1 6-month rainfall

New South Wales Rainfall totals (mm) 1 May to 31 October 2018
 Australian Bureau of Meteorology



New South Wales Rainfall Deciles 1 May to 31 October 2018
 Distribution Based on Gridded Data
 Australian Bureau of Meteorology

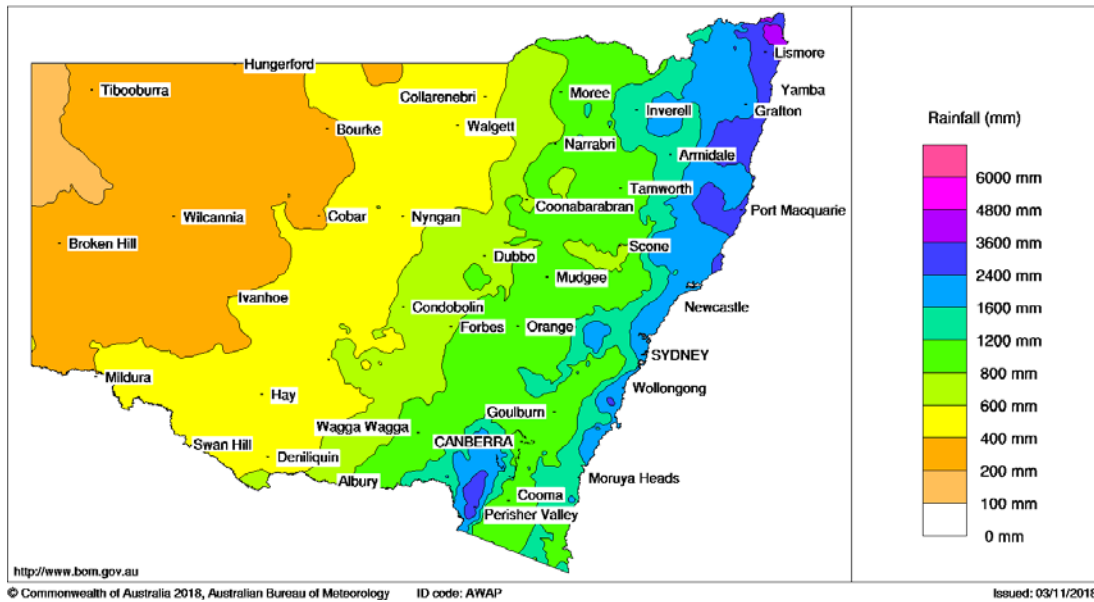


Above figures indicate that rainfall varies across the catchment. During last 6-months, total rainfall lies in the range of 100 to 300mm is below to very much below average.

5.2 24-month rainfall

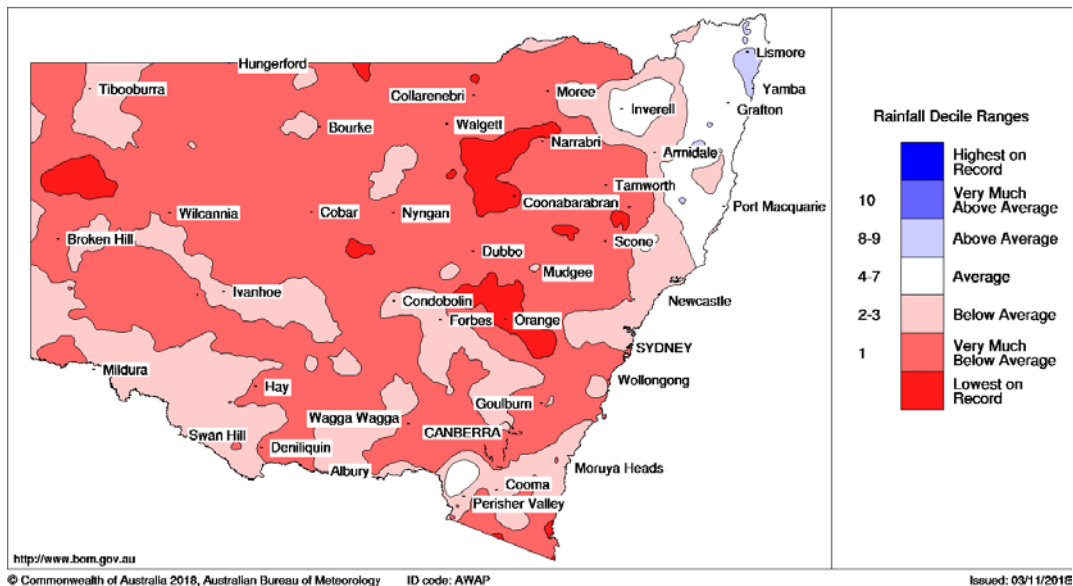
New South Wales Rainfall totals (mm) 1 November 2016 to 31 October 2018

Australian Bureau of Meteorology



New South Wales Rainfall Deciles 1 November 2016 to 31 October 2018

Distribution Based on Gridded Data
Australian Bureau of Meteorology

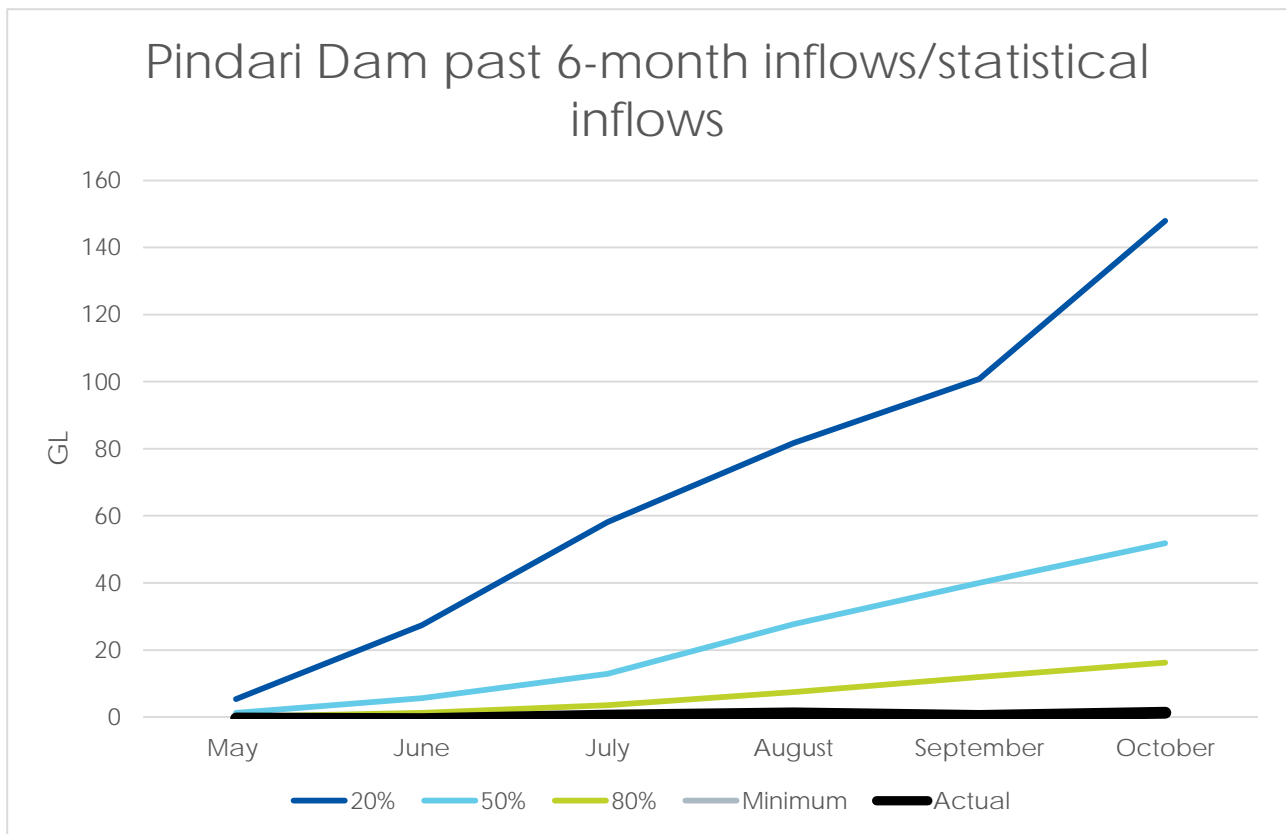


During last 24-months, total rainfall lies in the range of 600 to 1600mm which is below to very much below average.

6. Inflows

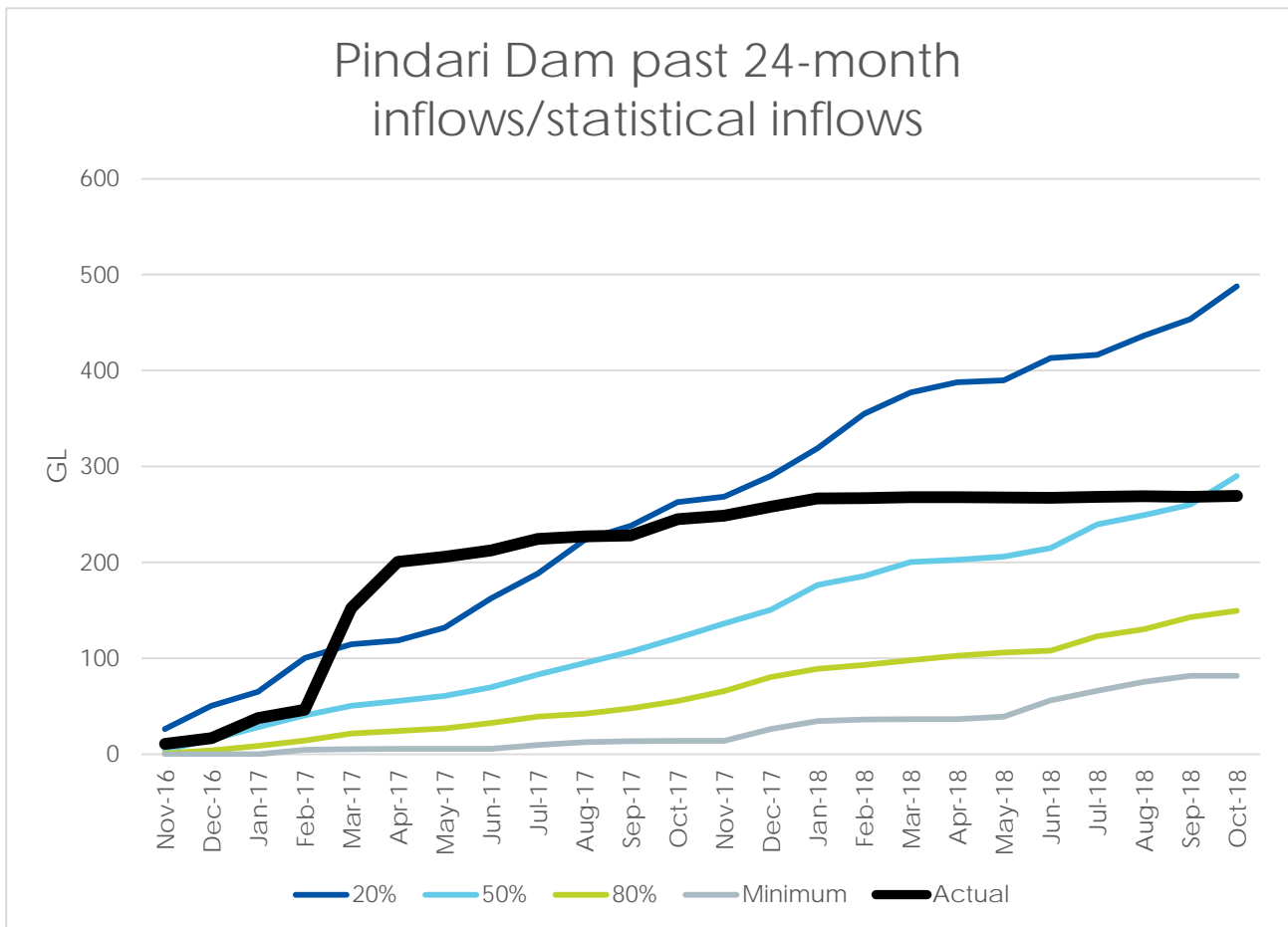
6.1 Pindari Dam inflows

6.1.1 Pindari Dam past 6-month inflows/statistical inflows



Inflows are consistent with rainfall over the past 6-month period. Actual inflow for the 6 months is 1.3 GL which is just above the lowest recorded inflow (0.5 GL).

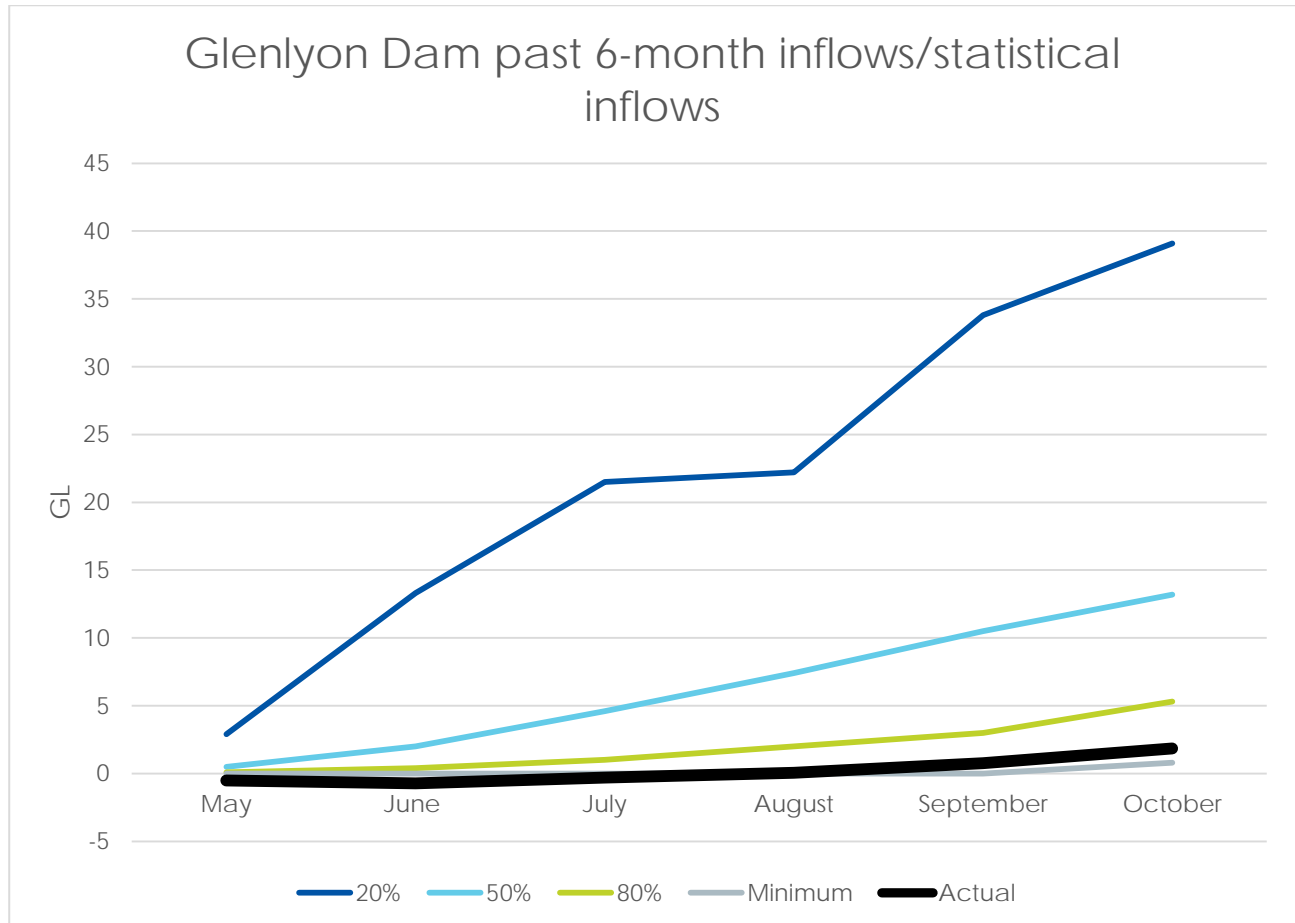
6.1.2 Pindari Dam past 24-month inflows/statistical inflows



Inflows are consistent with rainfall over the past 24-month period. Actual inflow for the 24 months is 269 GL below the 50th percentile inflow while the minimum is 82GL.

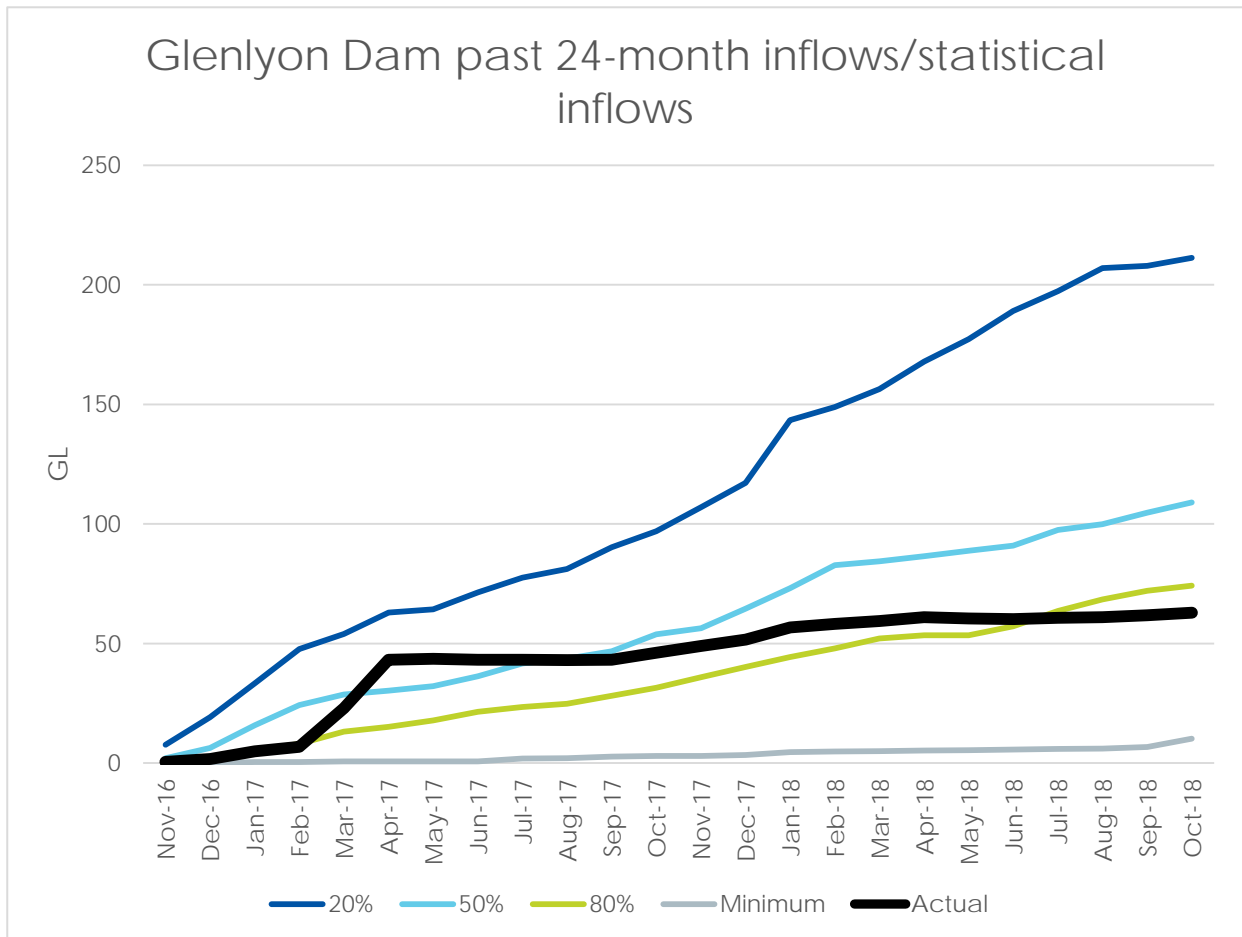
6.2 Glenlyon Dam inflows

6.2.1 Glenlyon Dam past 6-month inflows/statistical inflows



Inflows are consistent with rainfall over the past 6-month period. Actual inflow for the 6 months is 1.8 GL which is just below the 95th percentile inflow (2 GL) while minimum is 0.8GL.

6.2.2 Glenlyon Dam past 24-month inflows/statistical inflows



Inflows are consistent with rainfall over the past 24-month period. Actual inflow for the 24 months is 63 GL which is close to the 90th percentile inflow (57GL); while the minimum is 10GL.

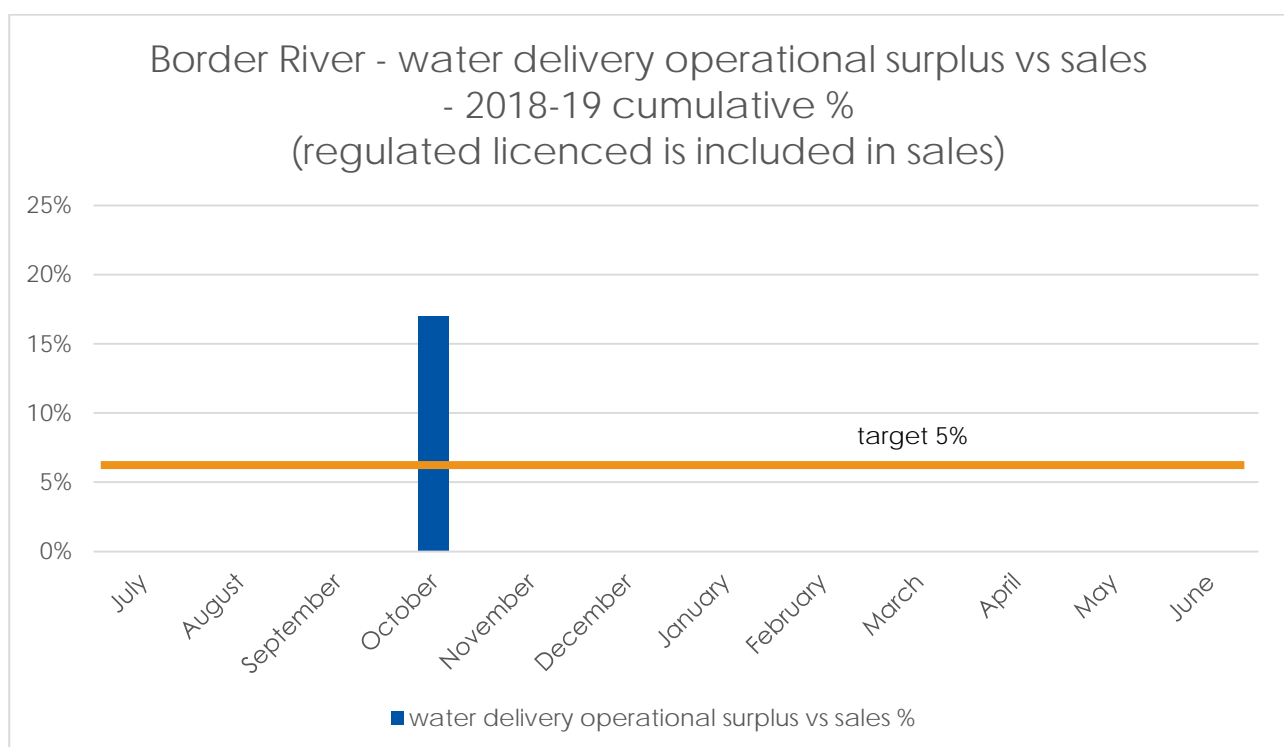
6.3 Downstream tributary inflows

No significant downstream tributary inflows have been recorded during this water year (July 2018 to October 2018). The total amount of tributary flow recorded during this time is about 3.4 GL.

7. Operational losses

7.1 Operational losses for 2018-19

Operational loss is water above that which could reasonably be expected to pass the last extraction point on each given river/creek being supplied with regulated flow (dam releases and controlled tributary inflows – not supplementary flows). For Border river catchment, last extraction point is Mungindi.



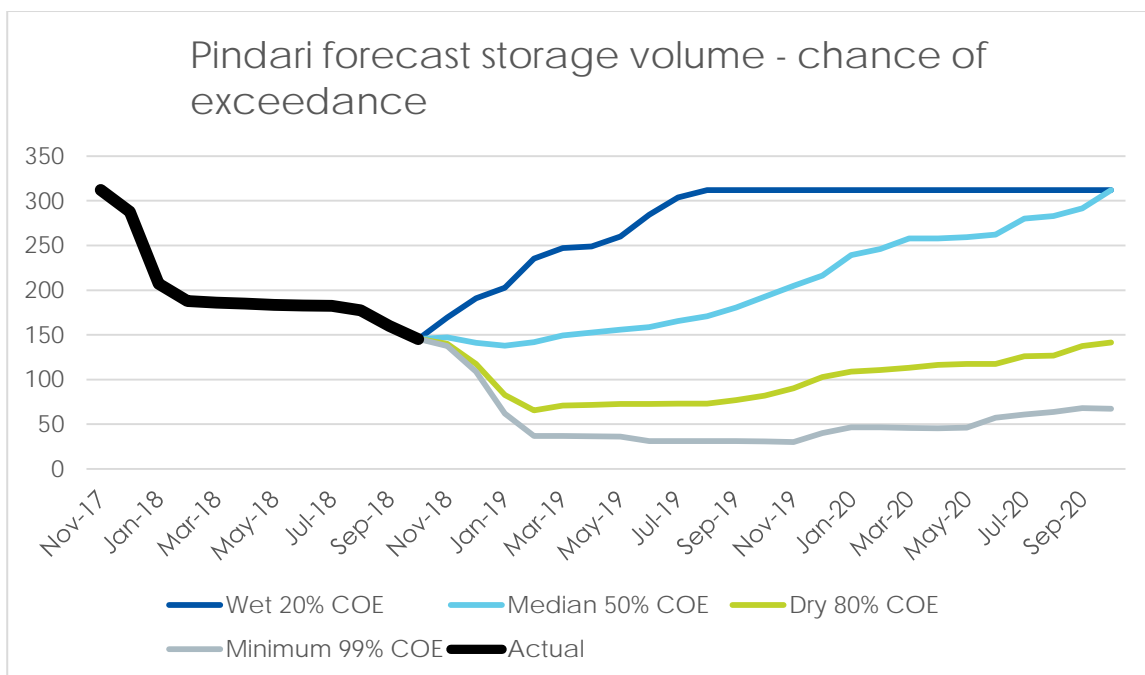
Border cumulative totals

Dates	Sales + environmental delivery (ML)	Operational surplus (ML)	Actual	Target
July	100	0	0%	5%
July-Aug	2,617	0	0%	5%
July-Sep	4,516	0	0%	5%
July-Oct	18,516	3,139	17%	5%

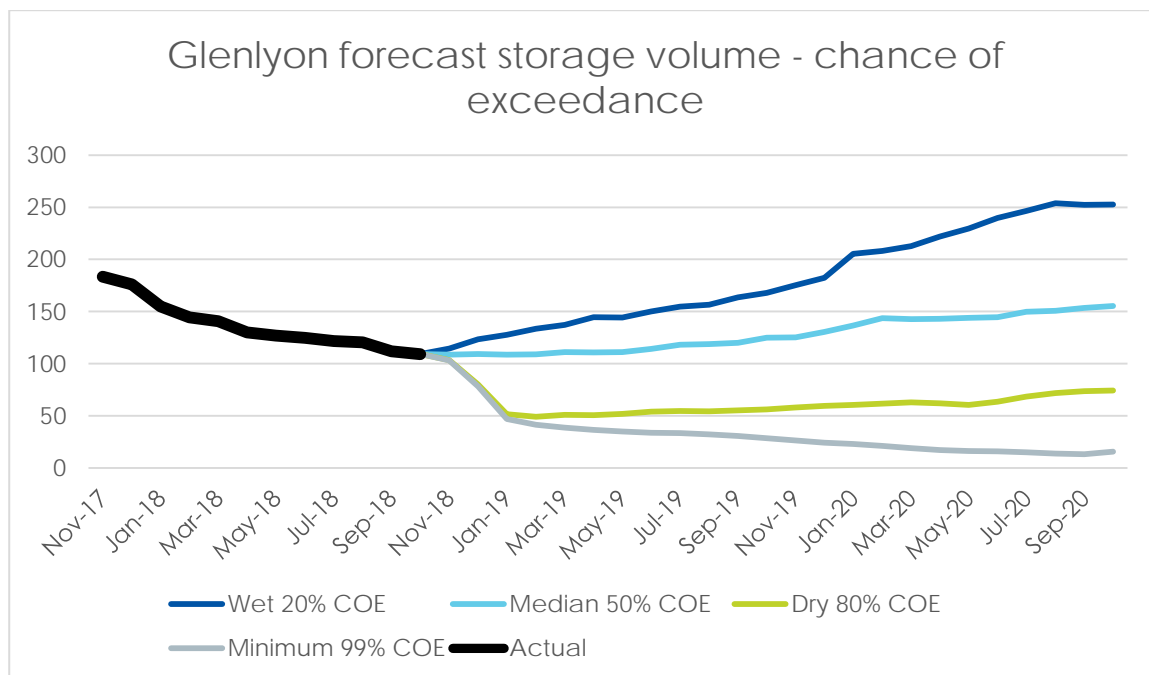
8. Storage forecast

The storage of Pindari is solely for NSW users and the storage of Glenlyon Dam is shared between New South Wales and Queensland in the ratio 57:43 respectively. Below figure demonstrates the possible scenarios for Pindari and Glenlyon Dam until July 2020. The scenarios are based on different expected inflow conditions. For example, with 20th percentile inflow, the Pindari Dam may be full (100%) at the end of Aug 2019. The Chance Of Exceedance (COE) in the figure refers to the chance of exceeding inflows and storage levels in the time frame. For example, Wet 20% COE indicate that there is only a 20% of chance that the dam volume will be greater than the projected volume, and there is 80% chance that the dam volume will be less than the projected volume.

8.1 Pindari storage forecast



8.2 Glenlyon storage forecast



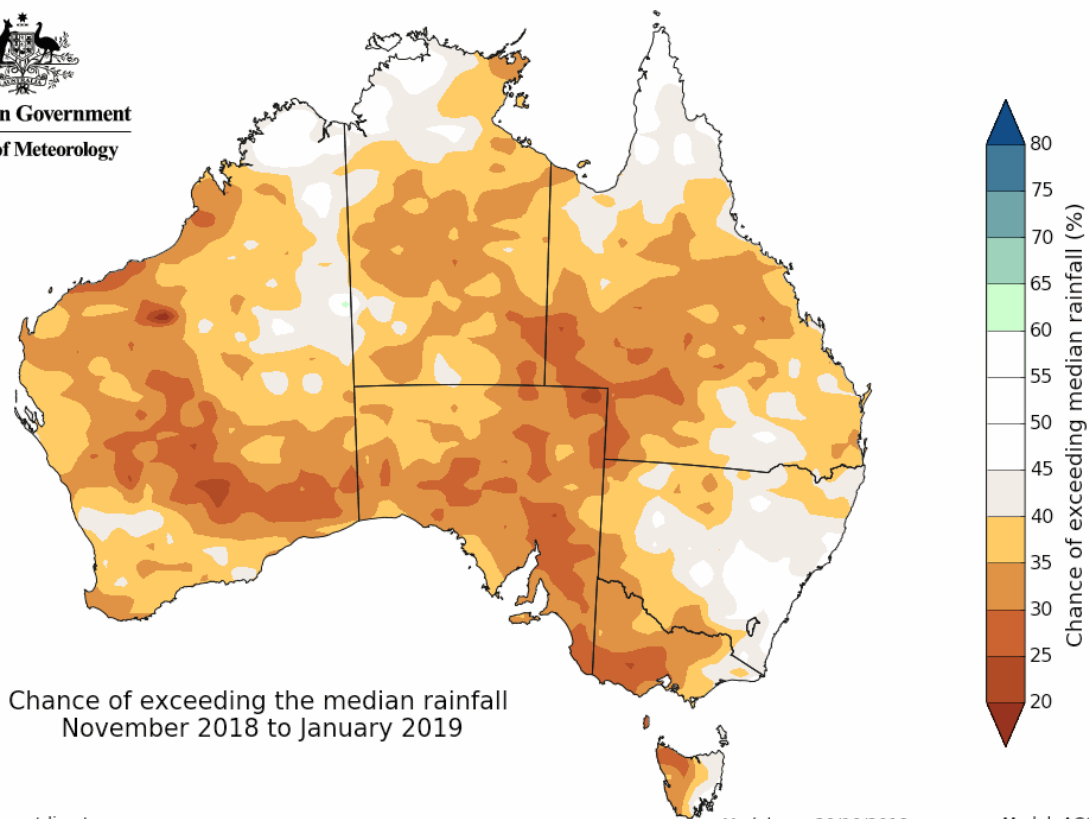
9. Outage planning

Item	Time	Description
Pindai Dam	N/A	None
Glenlyon Dam	N/A	None
Boggabilla weir	N/A	None

10. Prognosis

The chances of improved General Security Allocation, based on different inflow scenarios are as follows:

	Extremely dry (minimum inflows)	Dry (80 th percentile inflows)	Average (50 th percentile inflows)	Wet (20 th percentile inflows)
3-month forecast to 31-Jan -19	0%	0%	7%	21.4%
6-month forecast to 30-Apr -19	0.5%	5%	17.3%	42.5%



Chance of exceeding the median rainfall
November 2018 to January 2019

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Model run: 20/10/2018
Issued: 25/10/2018

Model: ACCESS-S1
Base period: 1990–2012

The inflows for last 6 months were just above the minimum recorded inflows for both for Pindari and Glenlyon. With minimum inflow sequence, no additional AWD will be available for the next 6 months. If the flow condition is better than 50th percentile, then there is a chance of 7% AWD within next 3 months and 17.3% AWD at the end of April 2019. With high inflow conditions (i.e. 20th percentile flow), 21.4% AWD can be expected within next 3 months which can be increased to 42.5% at the end of April 2019.

More information

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