

# Border Rivers Operations Plan

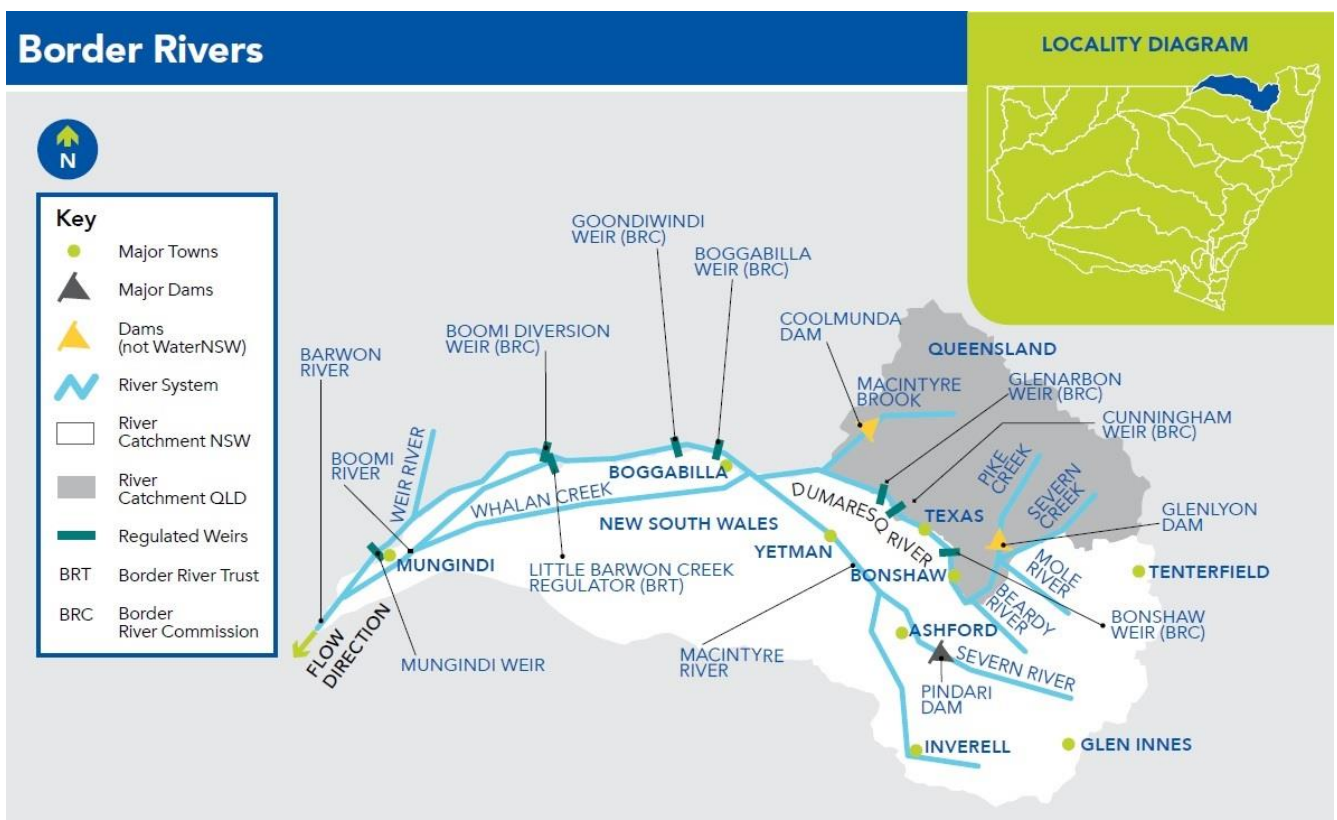
July 2019

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# 1. Highlights

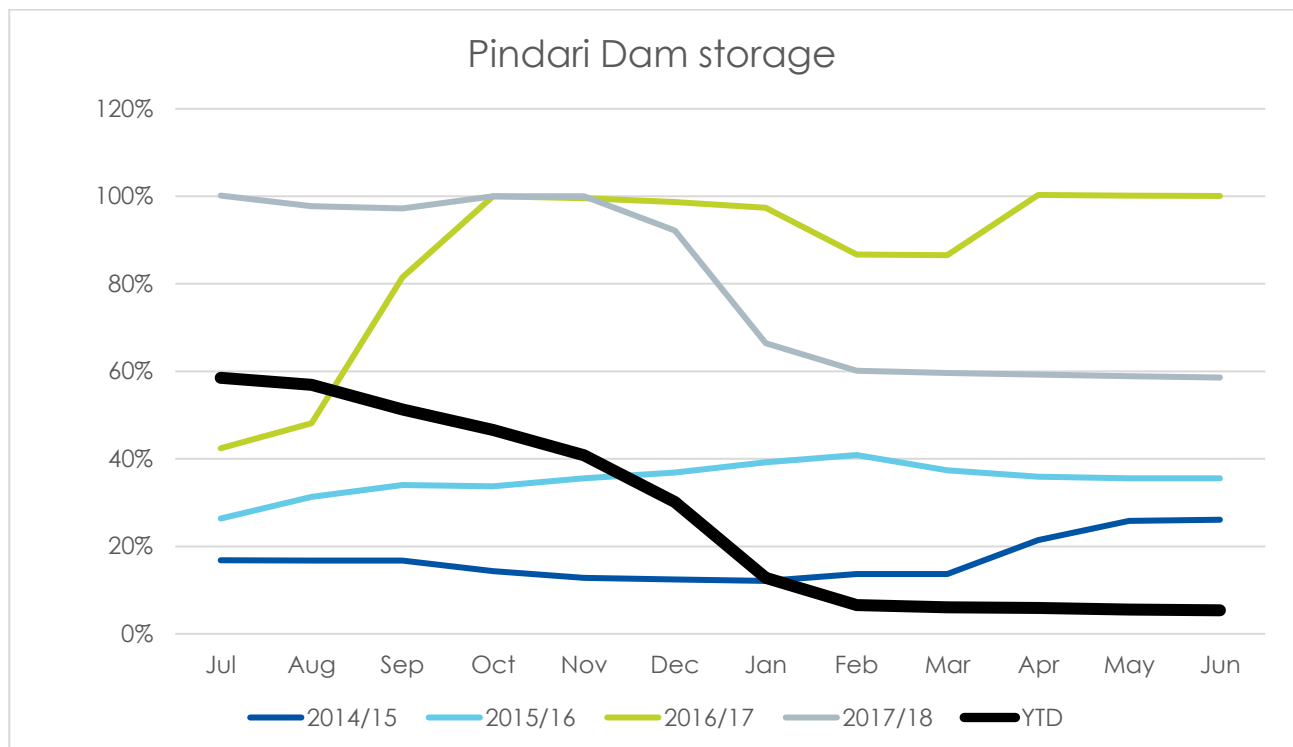
- Dry conditions continue with low inflows since February 2018.
- 7.4GL of Environmental water was released from Glenlyon Dam for the Barwon Darling fish flow event.
- Opening General Security allocation is zero for 2019/20 water year and carryover is restricted to 50% until inflow conditions improve.
- Local Water Utility, High security and Stock and Domestic received 100% allocation for 2019/20.
- Releases will be made to ensure supplies for towns including Goondiwindi and Boggabilla, however releases are not able to be made to supply Mungindi.
- There are deliverability constraints along the river sections. For non-critical human needs, access is most likely to be available from tributary inflows not from dam releases. For full details, refer to the [operations update](#).
- Replenishment flow to Boomi River will be limited to water from tributary inflows
- Under a minimum inflow sequence conditions are forecast to improve prior to cessation of supply.



## 2. Dam storage

### 2.1 Pindari Dam storage

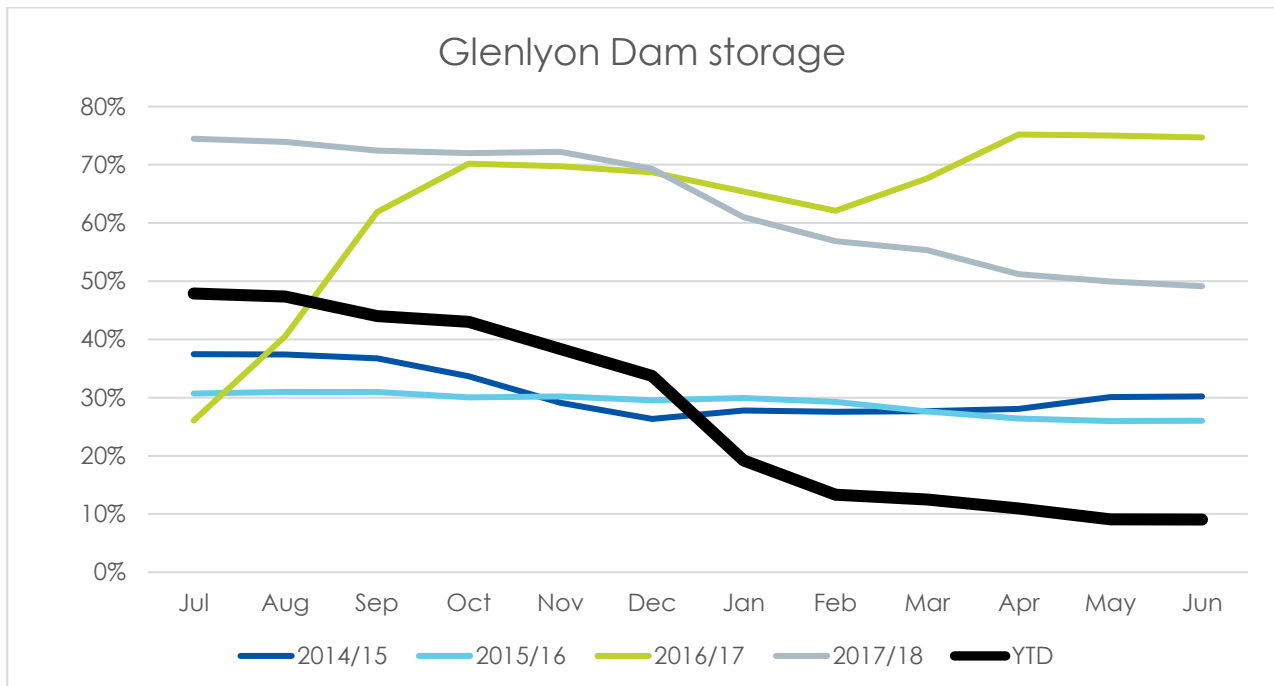
The below figure shows the Pindari Dam behaviour for the 2018-19 water year compared to the last four water years.



The dam was 59% full in July 2018 and reduced to 5% over the last twelve months. No significant inflow has arrived at the dam this water year, so the storage shows a continuous decreasing trend. Releases have been made for irrigation orders and Boomi River replenishment flows.

## 2.2 Glenlyon Dam storage

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



Glenlyon Dam volume was around 48% at the start of the current water year and it is now around 9%. No significant inflow has occurred from February 2018.

## 3. Supplementary access

### 3.1 Commentary

No supplementary events occurred in the 2018-19 water year. There were two supplementary events in the Border Rivers during 2017/18 water year; July 2017 and October 2017.

### 3.2 Explanation

In the Border Rivers, 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 accounts for Border Rivers

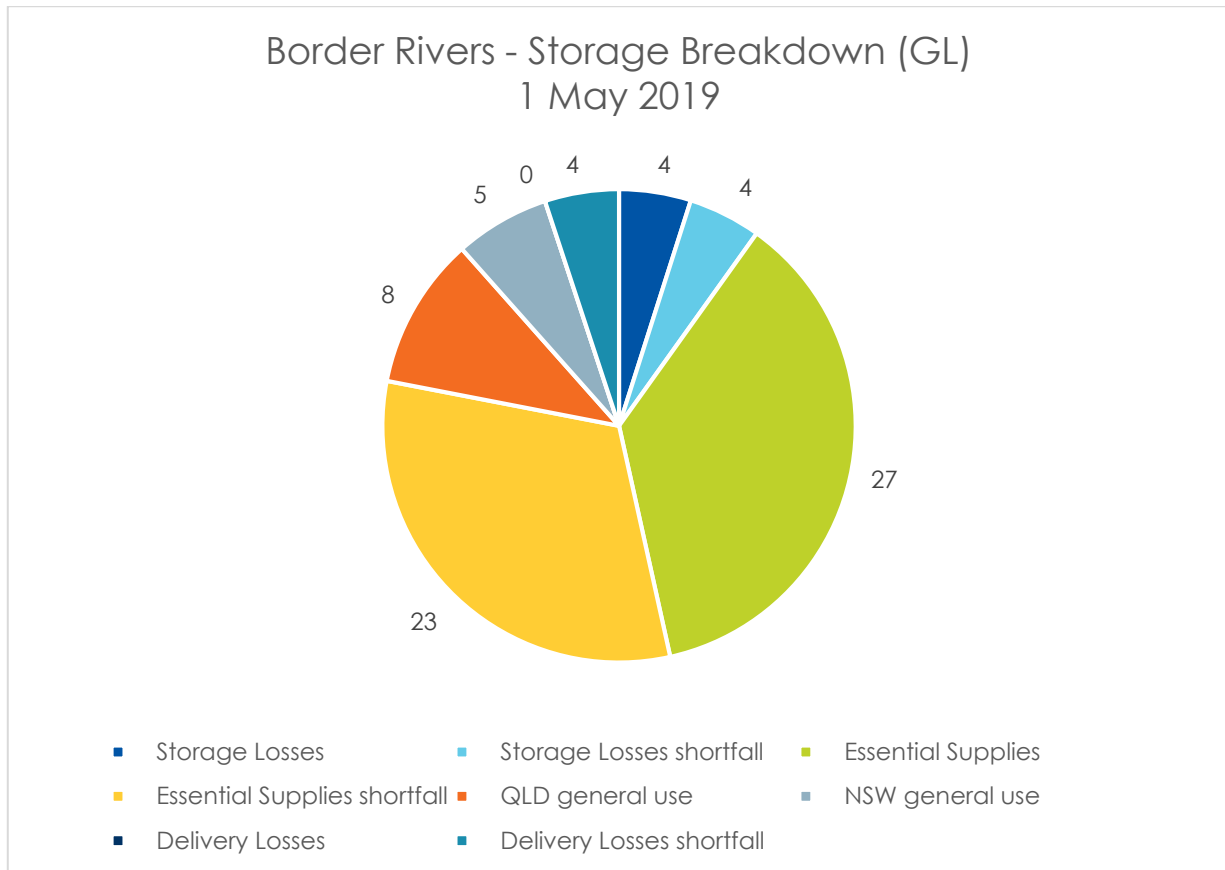
This information was current as 15 July 2019 based on provisionally closed account for 2018/19.

| Licence category                     | Share component | Carryover in  | AWD volume    | Allocation assignments in | Allocation assignments out | Usage         | Balance       |
|--------------------------------------|-----------------|---------------|---------------|---------------------------|----------------------------|---------------|---------------|
| Domestic and stock                   | 850             | 0             | 850           | 0                         | 0                          | 740           | 103           |
| Domestic and stock (domestic)        | 51              | 0             | 51            | 0                         | 0                          | 3             | 48            |
| Domestic and stock (stock)           | 100             | 0             | 100           | 0                         | 0                          | 25            | 70            |
| Local water utility                  | 640             | 0             | 640           | 0                         | 0                          | 467           | 173           |
| Regulated river (general security A) | 22007           | 588           | 7220          | 170                       | 1124                       | 6421          | 296           |
| Regulated river (general security B) | 241211          | 139881        | 0             | 7372                      | 10625                      | 132214        | 4351          |
| Regulated river (high security)      | 1500            | 0             | 1500          | 0                         | 400                        | 1038          | 46            |
| Supplementary water                  | 120001          | 0             | 120001        | 2044                      | 2044                       | 0             | 120001        |
| Interstate trade                     | 0               | 0             | 0             | 4658                      | 50                         | 4608          | 0             |
| <b>Grand total</b>                   | <b>386360</b>   | <b>140469</b> | <b>130362</b> | <b>14244</b>              | <b>14244</b>               | <b>145515</b> | <b>125088</b> |

## 4.2 Water allocations 2019/2020

- The Available Water Determinations (AWD) for 2019-20 is 100% for towns and high security.
- The Available Water Determinations (AWD) for 2019-20 is 0% for General Security A and B class.
- General security carryover is restricted to 50% until the inflow situation is improved.
- Full allocation details is available in [DPI-water website](#).

### 4.3 Resource assessment



#### 4.3.1 Significance of this resource assessment

The last BRC approved resource assessment at 1 May 2019 indicates that there is a shortfall of 31 GL. Therefore, a minimum 31 GL of inflow is required before any AWD announcement is possible.

#### 4.3.2 Resource assessment process

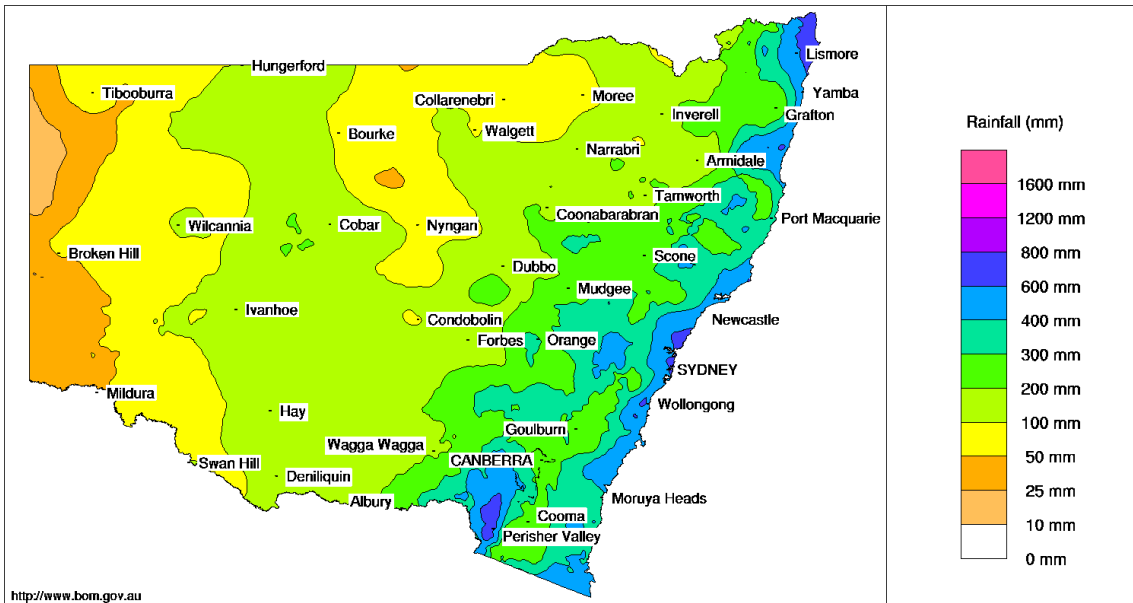
Resource Assessment is the process of calculating how much water is available based on the water sharing rules. This is done periodically during the year, typically at the end of the month and when any significant inflow event happens. The planning horizon for this resource assessment is 24 months. This resource assessment is from May 2019 to April 2021. The minimum inflow sequence also considers the period from May 2019 to April 2021. At the 1<sup>st</sup> of May, the total resource available is the sum of the Pindari storage volume, NSW's share of Glenlyon storage and the minimum expected inflow over the planning horizon. Commitments for the planning horizon are subtracted to find the remaining available resource for AWD announcements. Currently the total commitment is higher than the available resource and the shortfall is about 31 GL. No significant inflow was recorded since the last assessment. Therefore, no additional allocation is possible.



# 5. Rainfall

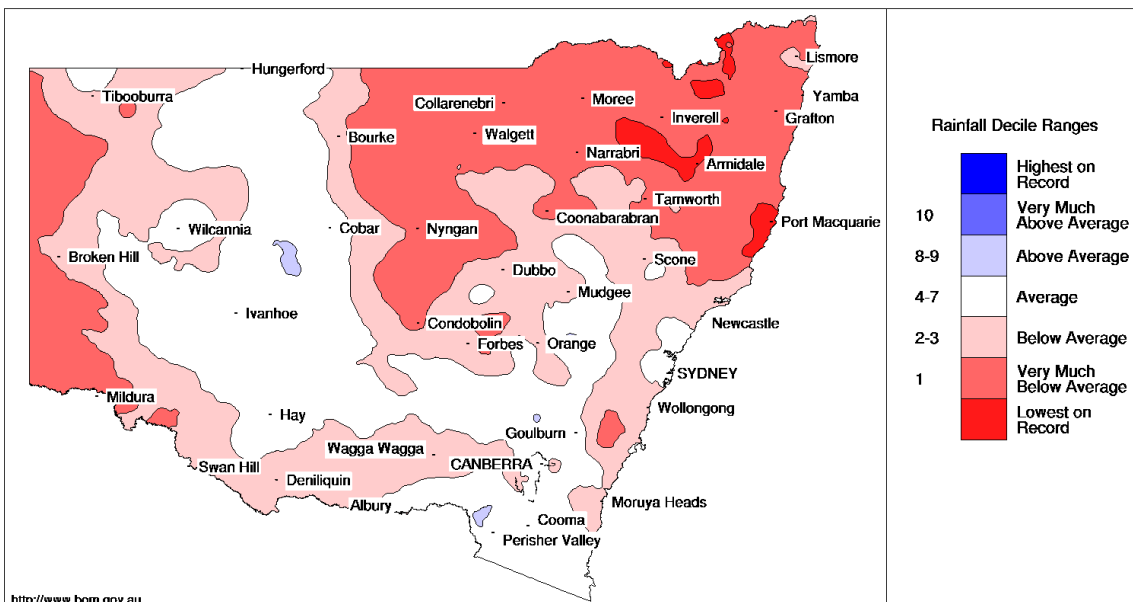
## 5.1 6-month rainfall

New South Wales Rainfall totals (mm) 1 January to 30 June 2019  
Australian Bureau of Meteorology



http://www.bom.gov.au © Commonwealth of Australia 2019, Australian Bureau of Meteorology ID code: AWAP Issued: 11/07/2019

New South Wales Rainfall Deciles 1 January to 30 June 2019  
Distribution Based on Gridded Data  
Australian Bureau of Meteorology

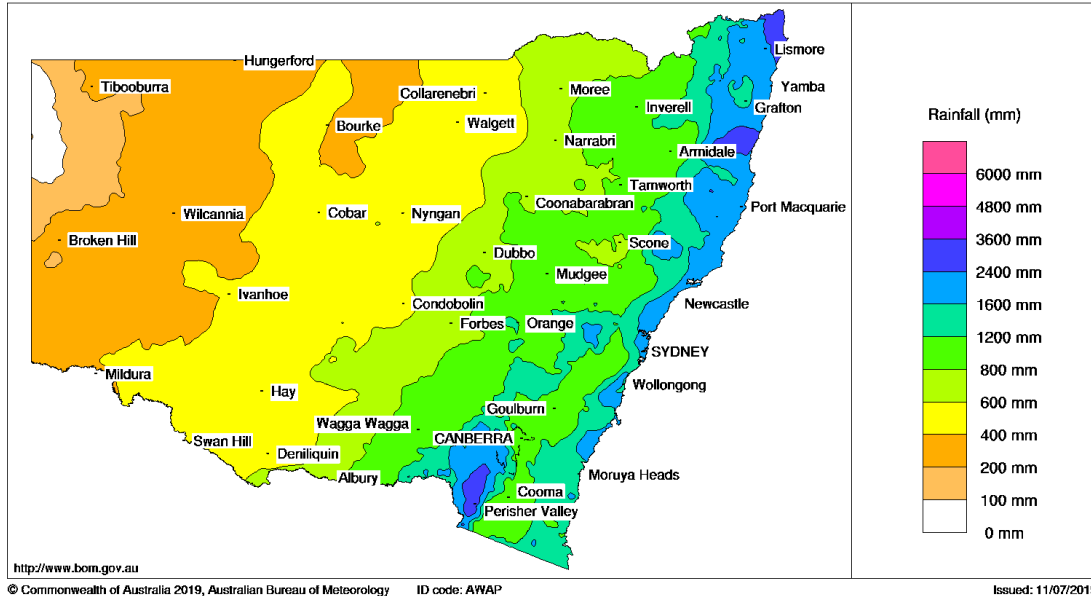


http://www.bom.gov.au © Commonwealth of Australia 2019, Australian Bureau of Meteorology ID code: AWAP Issued: 11/07/2019

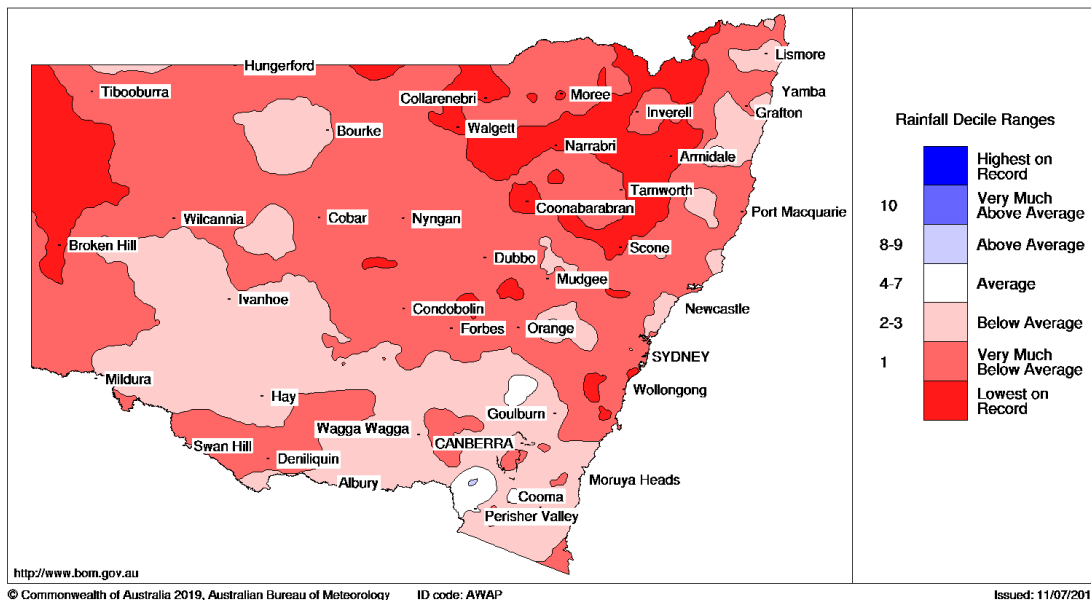
The above figures indicate that rainfall varies across the catchment. During last 6-months, total rainfall lies in the range of 50 to 200mm which is very much below average.

## 5.2 24-month rainfall

New South Wales Rainfall totals (mm) 1 July 2017 to 30 June 2019  
Australian Bureau of Meteorology



New South Wales Rainfall Deciles 1 July 2017 to 30 June 2019  
Distribution Based on Gridded Data  
Australian Bureau of Meteorology

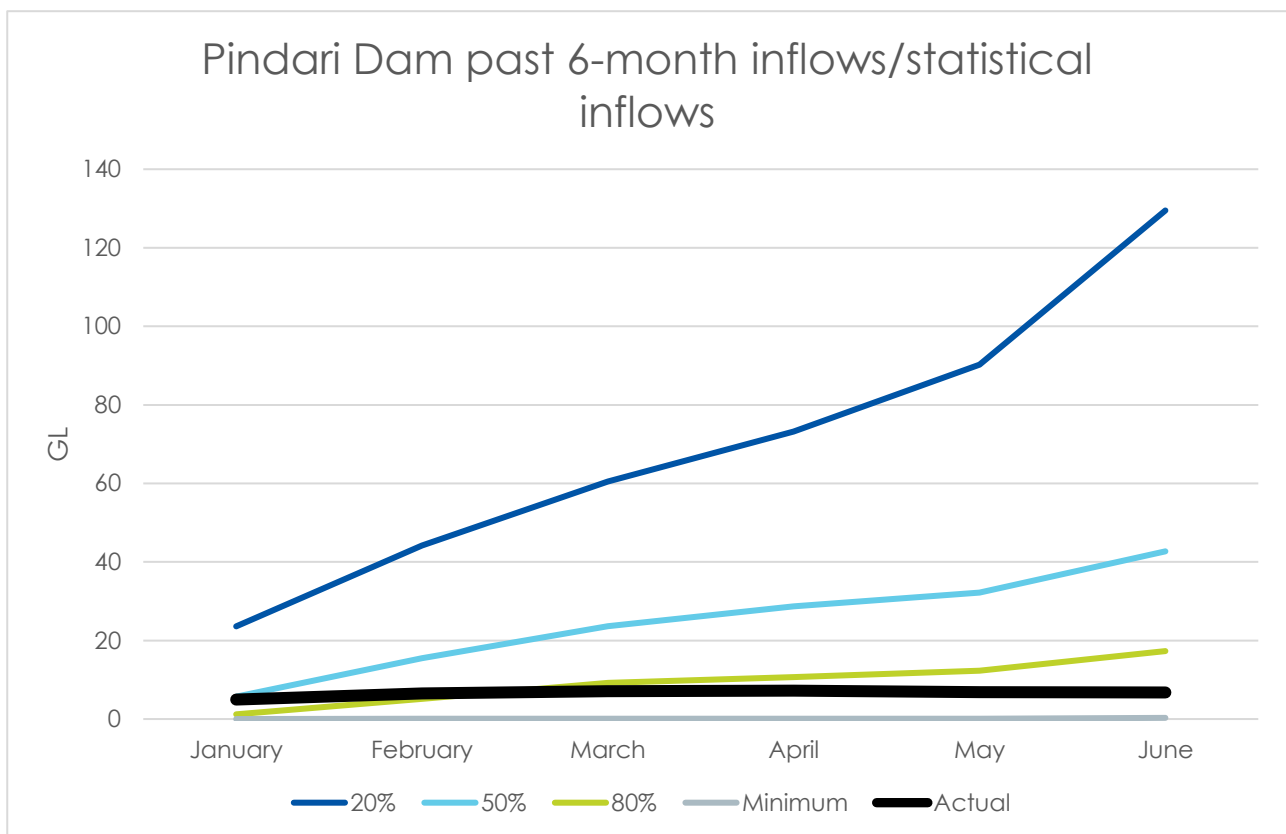


During the last 24-months, total rainfall lies in the range of 600 to 1200mm which is very much below average and lowest on record for several locations.

## 6. Inflows

### 6.1 Pindari Dam inflows

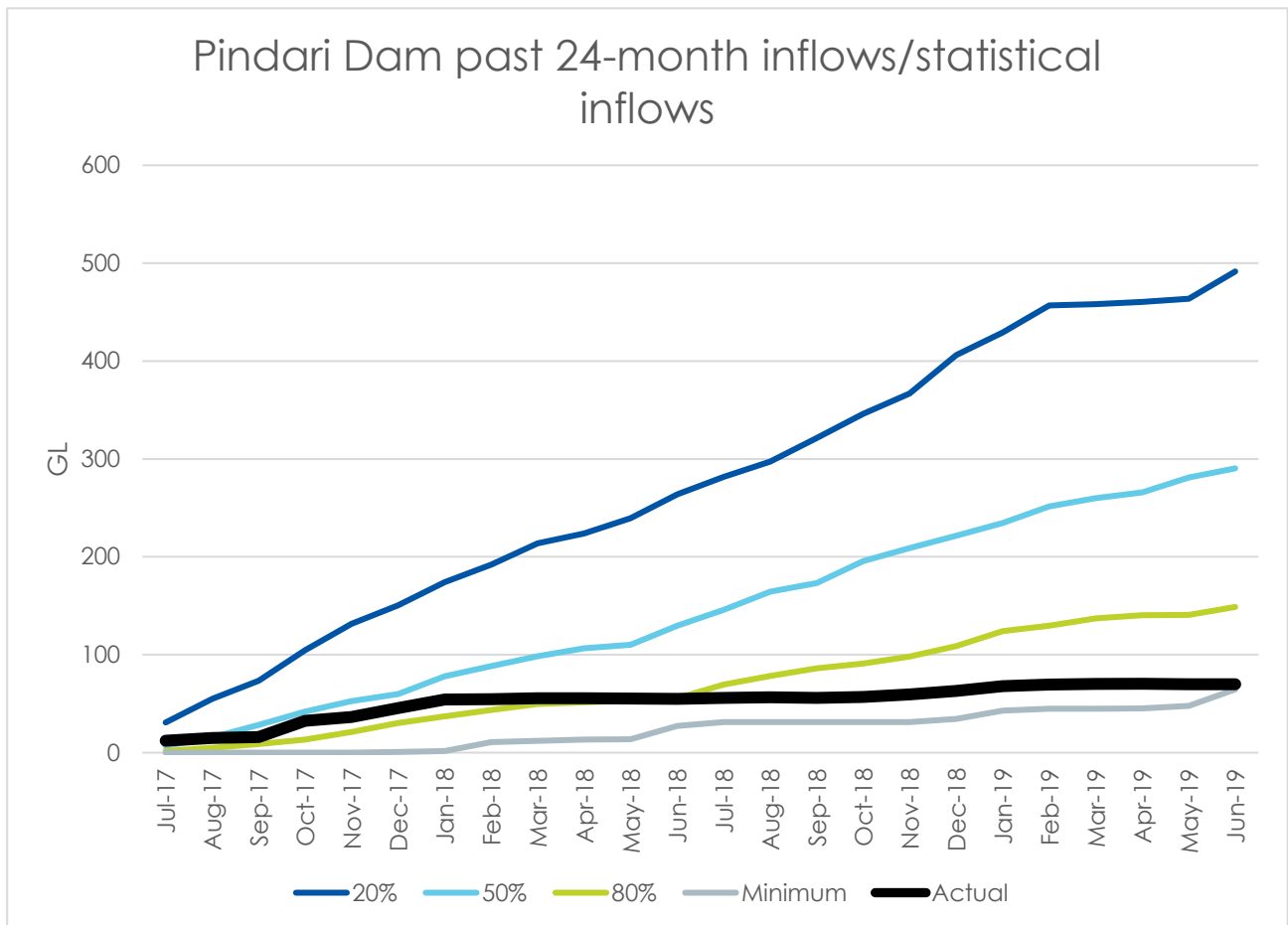
#### 6.1.1 Pindari Dam past 6-month inflows/statistical inflows



Above figure shows the last 6 months inflow to the Pindari Dam compared to statistical inflows. The estimated inflow for the last 6 months is around 6.7 GL<sup>1</sup> which is close to 95<sup>th</sup> percentile inflow (5.7 GL). The minimum recorded inflow for a 6-month period starting from January is 0.3 GL.

<sup>1</sup> Inflows are estimated based on a standard water balance formula using storage volume differences, evaporations and releases. Upstream gauge flow and rainfall indicate that there is very little to no inflow into the dam during last few months. WaterNSW is currently reviewing the calculation procedures to identify the source of recent overestimated inflow figures.

### 6.1.2 Pindari Dam past 24-month inflows/statistical inflows

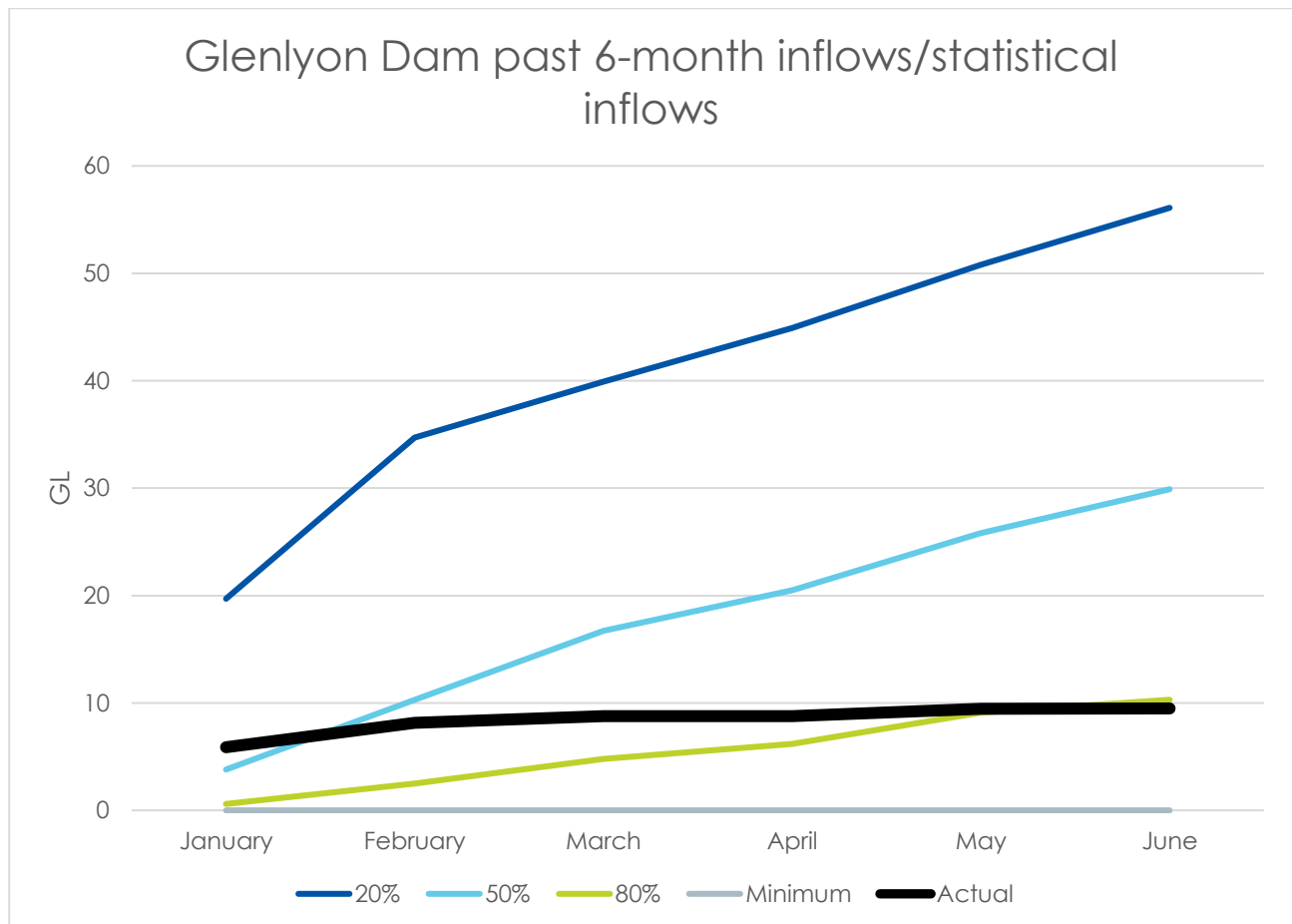


Above figure shows the last 24 months inflow to the Pindari Dam compared to statistical inflows. Estimated inflow for the last 24 months is 70 GL<sup>2</sup> which is close to the minimum inflow (64.6 GL).

<sup>2</sup> Inflows are estimated based on a standard water balance formula using storage volume differences, evaporations and releases. Upstream gauge flow and rainfall indicate that there is very little to no inflow into the dam during last few months. WaterNSW is currently reviewing the calculation procedures to identify the source of recent overestimated inflow figures.

## 6.2 Glenlyon Dam inflows

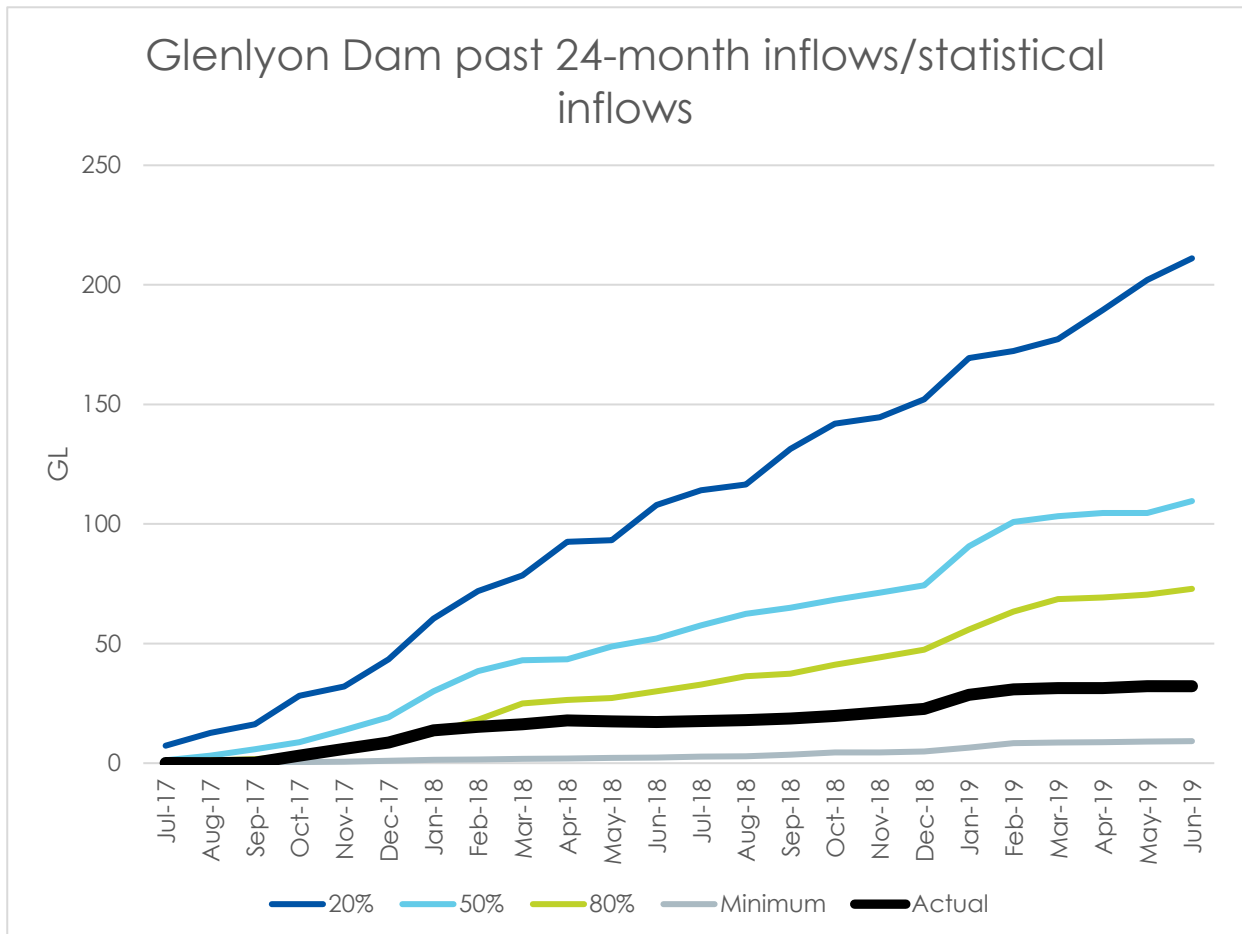
### 6.2.1 Glenlyon Dam past 6-month inflows/statistical inflows



Above figure shows the last 6 months inflow to the Glenlyon Dam compared to statistical inflows. Estimated inflow for the 6 months is around 9 GL<sup>3</sup> which is below the 80th percentile inflow (10.3 GL) while minimum is 0 GL.

<sup>3</sup> Inflows are estimated based on a standard water balance formula using storage volume differences, evaporations and releases. Upstream gauge flow and rainfall indicate that there is very little to no inflow into the dam during last few months. WaterNSW is currently reviewing the calculation procedures to identify the source of recent overestimated inflow figures.

### 6.2.2 Glenlyon Dam past 24-month inflows/statistical inflows



Above figure shows the last 24 months inflow to the Glenlyon Dam compared to statistical inflows. Estimated inflow for the 24 months is around 32 GL<sup>4</sup> which is below the 95th percentile inflow (47.9 GL); while the minimum is 9.2 GL.

### 6.3 Downstream tributary inflows

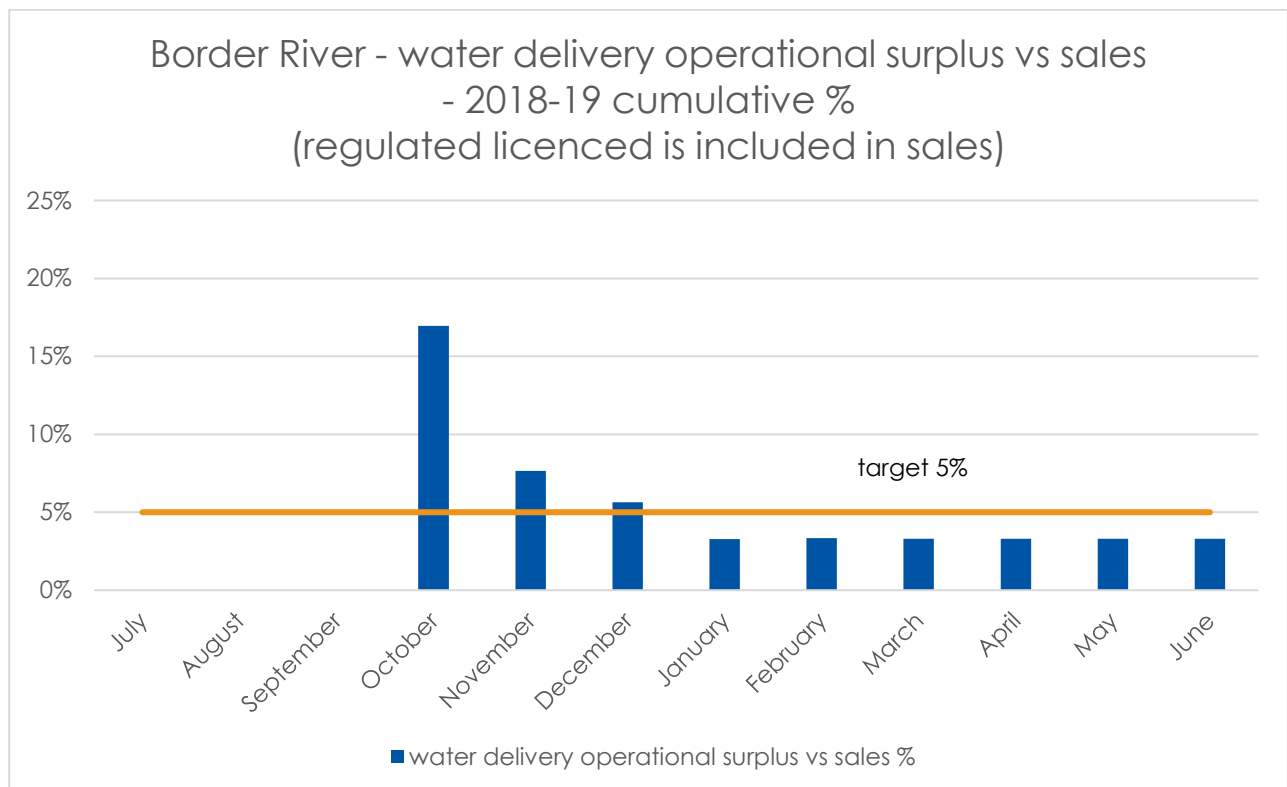
No significant downstream tributary inflows have been recorded during this water year (July 2018 to June 2019). The total amount of tributary flow recorded during this time is about 3.7 GL

<sup>4</sup> Inflows are estimated based on a standard water balance formula using storage volume differences, evaporations and releases. Upstream gauge flow and rainfall indicate that there is very little to no inflow into the dam during last few months. WaterNSW is currently reviewing the calculation procedures to identify the source of recent overestimated inflow figures.

## 7. Operational surplus

### 7.1 Operational surplus 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 the Border Rivers catchment, the last extraction point is Mungindi.



### Border cumulative totals

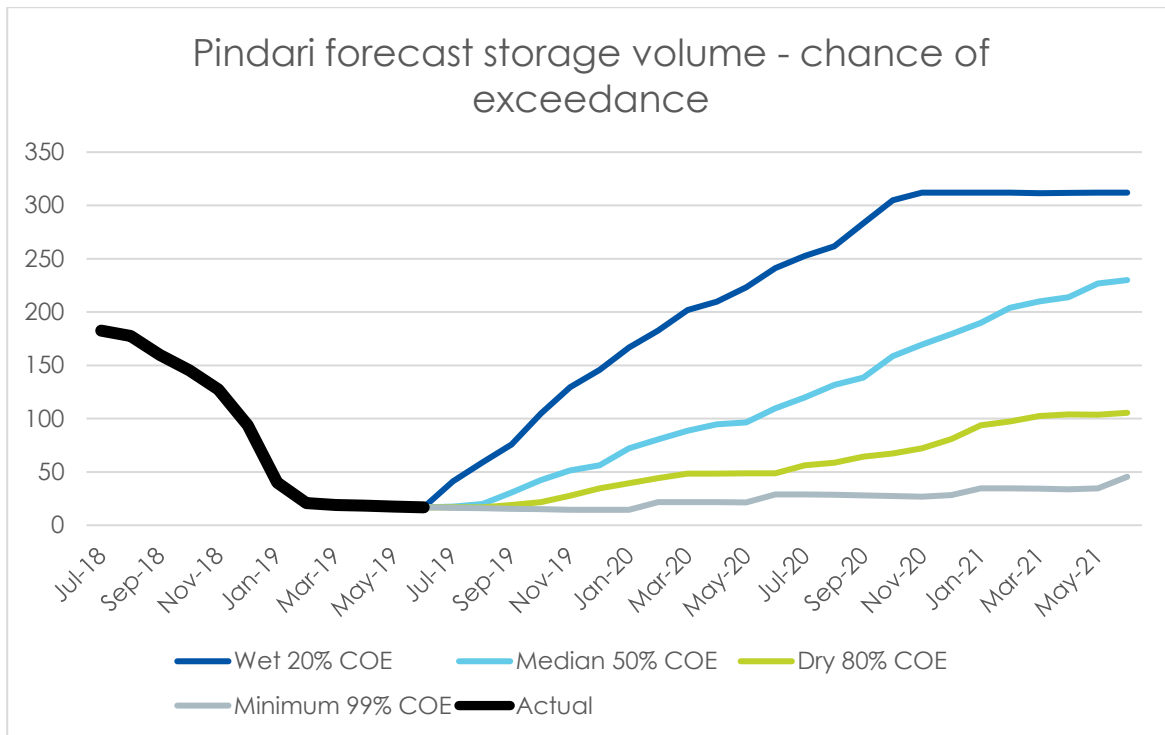
| Dates      | Sales +<br>environmental<br>delivery (ML) | Cumulative<br>Operational<br>surplus<br>(ML) | Actual Monthly<br>Operational<br>Surplus | Target Monthly<br>Operational<br>Surplus |
|------------|---|--|--|--|
| July       | 100                                       | 0  | 0%                                       | 5%                                       |
| July-Aug   | 2,617                                     | 0  | 0%                                       | 5%                                       |
| July-Sep   | 4,516                                     | 0  | 0%                                       | 5%                                       |
| July-Oct   | 18,516                                    | 3,139  | 17%                                      | 5%                                       |
| July-Nov   | 43,030                                    | 3,291  | 8%                                       | 5%                                       |
| July-Dec   | 62,700                                    | 3,533  | 6%                                       | 5%                                       |
| July – Jan | 117,368                                   | 3,846  | 3%                                       | 5%                                       |
| July – Feb | 135,810                                   | 4,527  | 3%                                       | 5%                                       |
| July – Mar | 137,410                                   | 4,527  | 3%                                       | 5%                                       |
| July – Apr | 137,413                                   | 4,527  | 3%                                       | 5%                                       |
| July – May | 137,413                                   | 4,527  | 3%                                       | 5%                                       |
| July – Jun | 140,600                                   | 4,527  | 3%                                       | 5%                                       |

## 8. Storage forecast

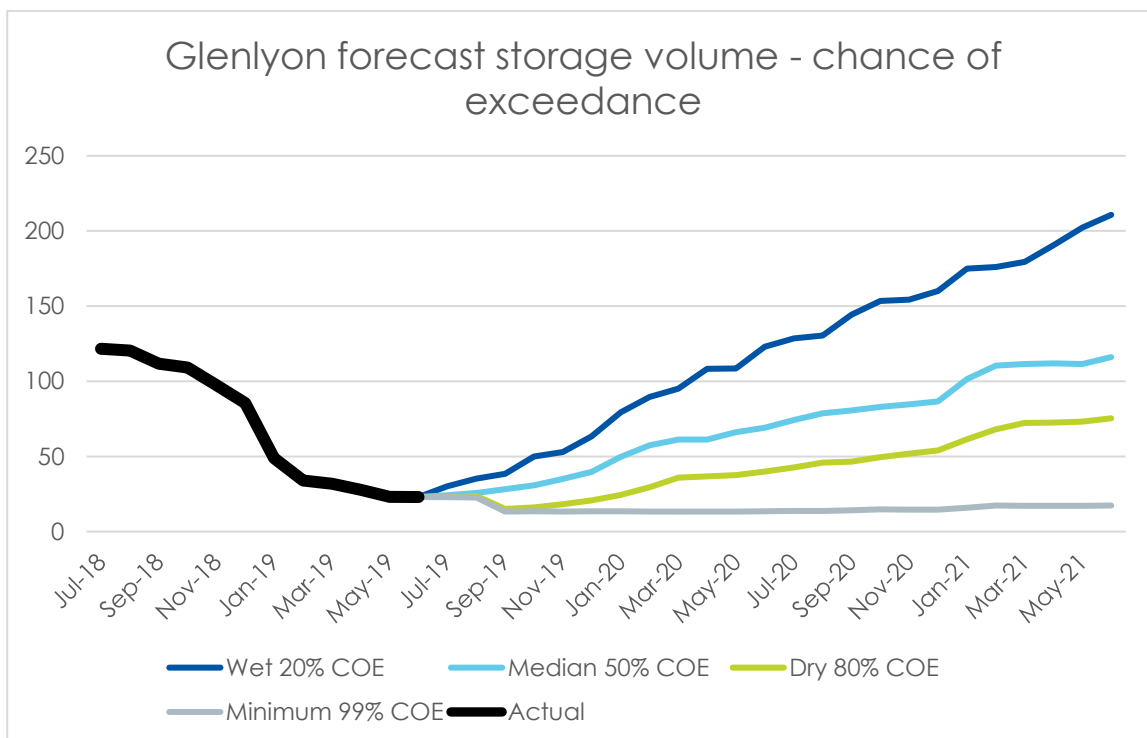
The storage of Pindari is solely for NSW users and the storage of Glenlyon Dam is shared between New South Wales and Queensland in the ratio 57:43 respectively. The below figure demonstrates the possible scenarios for Pindari and Glenlyon Dam until June 2021. The scenarios are based on different expected inflow conditions. For example, with the 20<sup>th</sup> percentile inflow, Pindari Dam may be full (100%) at the end of Nov 2020. The Chance of Exceedance (COE) in the figure refers to the chance of exceeding inflows and storage levels in the time frame. For example, the wet 20% COE indicates that there is only a 20% of chance that the dam volume will be greater than the projected volume, and there is an 80% chance that the dam volume will be less than the projected volume.



### 8.1 Pindari storage forecast



### 8.2 Glenlyon storage forecast



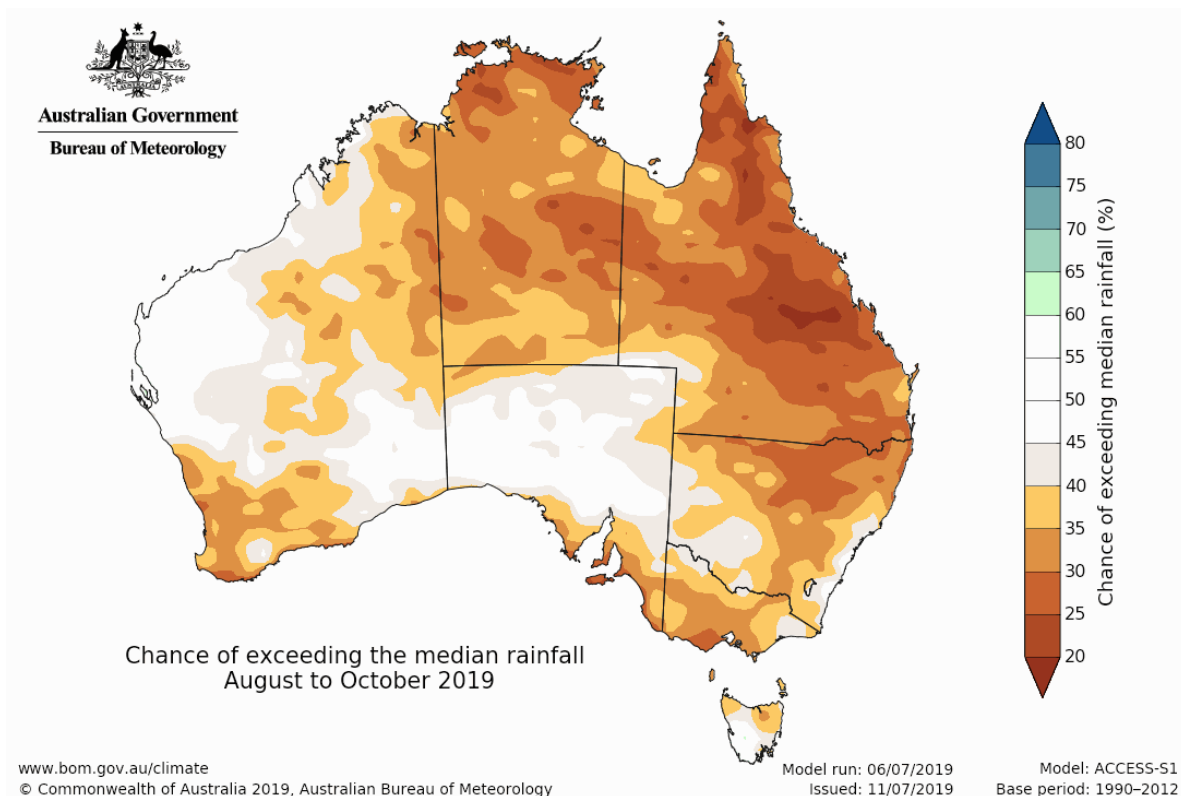
## 9. Outage planning

| Item            | Time                  | Description        |
|-----------------|-----------------------|--------------------|
| Pindari Dam     | Details to be advised | Valve replacements |
| Glenlyon Dam    | N/A                   | None               |
| Boggabilla weir | N/A                   | None               |

## 10. Prognosis

Possible General Security Allocations based on different inflow scenarios are as follows:

|  | Extremely dry<br>(minimum<br>inflows) | Dry (80 <sup>th</sup> percentile<br>inflows) | Average (50 <sup>th</sup><br>percentile inflows) | Wet (20 <sup>th</sup> percentile<br>inflows) |
|--|---------------------------------------|--|--|--|
| 3-month forecast to<br>30-Sep -19      | 0%                                    | 0%   | 0%   | 15.7%  |
| 6-month forecast to<br>31-December -19 | 0%                                    | 0.6%   | 11.6%  | 43.7%  |



The inflows for last 6 months were below the 95<sup>th</sup> percentile for Pindari and below the 80<sup>th</sup> percentile for Glenlyon. Under the minimum inflow sequence and 80<sup>th</sup> percentile sequence, no additional AWD is likely for the next 6 months. If the catchment receives 50<sup>th</sup> percentile inflow, there is a chance of a 11.6% AWD by the end of September 2019. With high inflow conditions (i.e. 20<sup>th</sup> percentile inflow), an AWD of 15.7% can be expected within the next 3 months or a 43.7% AWD by the end of December 2019.

## More information

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