

# Paterson Operations Plan

February 2019

# Contents

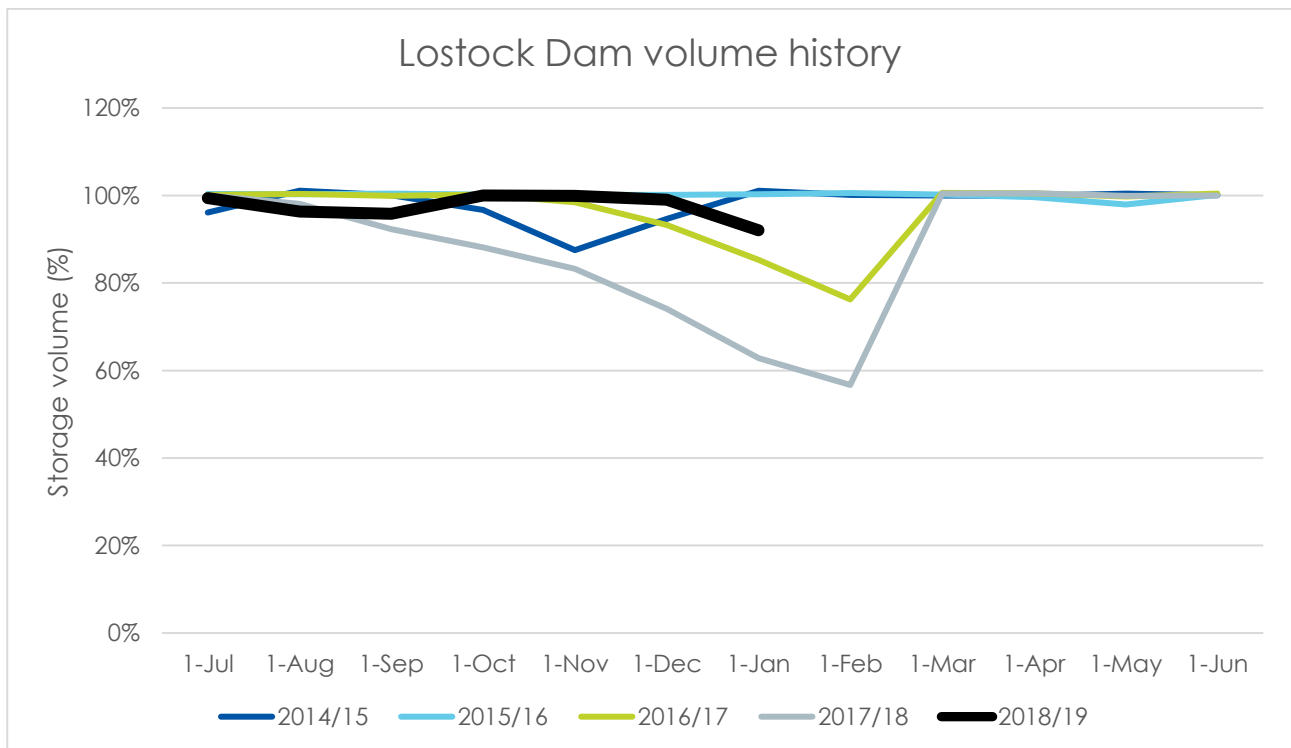
<b>1. Highlights</b>	<b>3</b>
<b>2. Dam storage</b>	<b>4</b>
2.1 Lostock Dam storage	4
<b>3. Supplementary access</b>	<b>5</b>
3.1 Commentary	5
3.2 Explanation	5
<b>4. Water availability</b>	<b>6</b>
4.1 2018/2019 water availability for Paterson	6
4.2 Resource assessment	7
<b>5. Rainfall</b>	<b>10</b>
<b>6. Inflows</b>	<b>12</b>
<b>7. Operational surplus</b>	<b>15</b>
<b>8. Storage forecast</b>	<b>15</b>
<b>9. Outage planning</b>	<b>16</b>
<b>10. Prognosis</b>	<b>16</b>



## 2. Dam storage

### 2.1 Lostock Dam storage

The below figure shows the Lostock Dam behaviour for the 2018/19 water year compared to the last four water years. The dam was around 100% full at the start of the current water year (2018 -19), by the end of September it had dropped to 95% before spilling in October. Since then it has continued to drop and is currently 92% full.



## 3. Supplementary access

### 3.1 Commentary

In the Paterson River, there have been three supplementary events declared in this current water year.

System	Commence	Cease	Volume pumped (ML)
Paterson	1/07/2018	4/07/2018	0
Paterson	8/10/2018	23/10/2018	0
Paterson	17/12/18	26/12/2018	0

### 3.2 Explanation

In the Paterson River taking of water under the supplementary water access licences is only permitted when flows at Gostwyck are twice the planned environmental water requirements of the Water Sharing Plan, and the flows downstream of Lostock Dam are greater than 40 ML/day for at least 12 hours. Access to supplementary water access licenses is from tributary inflows and spills from Lostock Dam.

## 4. Water availability

### 4.1 2018/2019 water availability for Paterson

This information was current as 1 February 2019.

Licence category	Share component	Carryover in AWD	AWD volume	Allocation assignments in	Allocation assignments out	Usage	Balance
Domestic and stock	42	0	42	0	0	0	42
Domestic and stock (domestic)	2	0	2	0	0	0	2
Domestic and stock (stock)	5	0	5	0	0	0	5
Regulated river (high security Town)	75	0	75	0	0	36	38
Regulated river (general security)	9,565	871	9,565	0	0	1,074	9,361
Regulated river (high security)	190	0	190	0	0	3	187
Supplementary water	756	0	756	0	0	20	736
<b>Grand total</b>	<b>10,635</b>	<b>871</b>	<b>10,635</b>	<b>0</b>	<b>0</b>	<b>1,134</b>	<b>10,371</b>

Note: Volumes in the table are in ML.

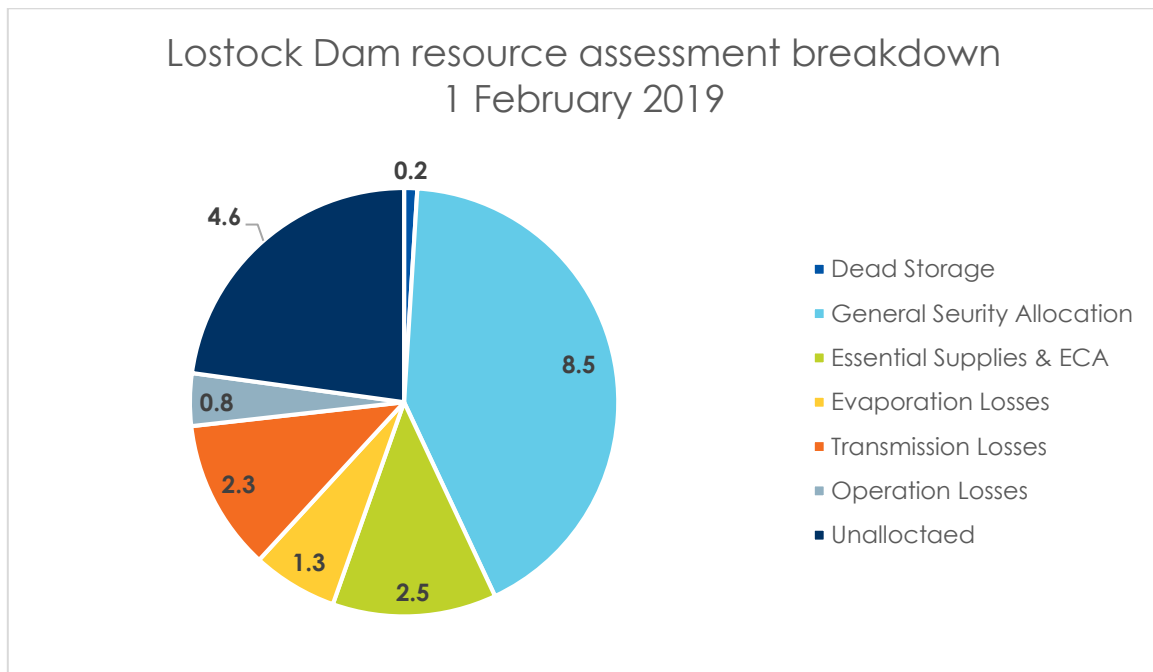
#### General security available water determination

Date	AWD (ML/share)	Total
------	----------------	-------

1-Jul-18	1	100%
----------	---	------

In the current water year (2018-19), 100% Available Water Determination (AWD) has been announced on 1<sup>st</sup> July 2018 for all water users including General Security (GS), High Security (HS) and Domestic and Stock (D&S). GS accounts can also carryover up to 10% of share component, and this year a volume of 871ML (9% of share component) has been carried over into 2018-19.

#### 4.2 Resource assessment



Note: Volumes in the pie chart are in GL.

Resource Assessment	Feb 2018	Jan 2018	Dec 2018	Nov 2018	Oct 2018	Sept 2018	August 2018	June 2018
Storage Volume	18.60	20.01	20.1	20.2	19.5	19.5	20.1	19.7
Plus minimum inflows (storage and d/s)	1.6	1.3	1.3	2.2	3.4	4.6	7.3	11.3
Less dead storage	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Less storage & operation loss	2.1	2.4	2.8	3.2	3.6	4	2.8	3
Less essential supplies	0.5	0.6	0.6	0.7	0.8	0.8	0.7	0.8
Less transmission loss	2.3	2.8	3.2	3.7	4.1	5.1	6.8	7.3
Less ECA	2	2	2	2	2	2	2	2
Less General Security	8.49	9.1	9.1	10.4	10	10.4	10.4	10.4
Allocation %	100%	100%	100%	100%	100%	100%	100%	100%

Note: Volumes in the table are in GL.

#### 4.2.1 Significance of this resource assessment

Resource assessment at 1<sup>st</sup> of February 2019 indicates there is sufficient water to deliver all remaining allocations including the 100% AWD announced on 1 July 2018, and it will remain same over the current water year. Combined minimum inflows are expected to be around 1.6 GL till June 2019.

Storage loss and operation loss is estimated at 2.1 GL on 1<sup>st</sup> February 2019 for the remaining months of the current water year. Transmission losses are the conservative estimate of the volume required to run the river under dry conditions through to June 2019 to meet all demands, which is estimated at 2.3 GL for the remaining months in the current water year. This mostly comprises natural transmission losses as water evaporates and soaks into the river bed.



Essential supplies are estimated at 0.5 GL at 1<sup>st</sup> of February for this current water year, which includes town water, high security licenses, and S&D. Environmental Contingency Allowance (ECA) is considered 2GL for the year.

#### **4.2.2 Resource assessment process**

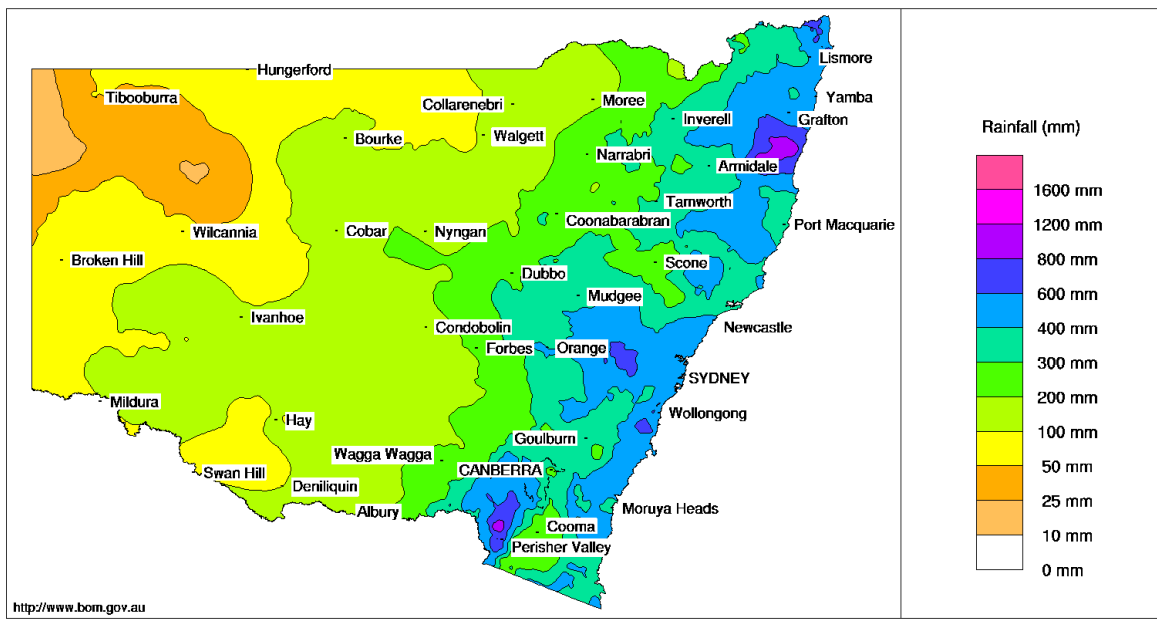
Resource Assessment is the process of calculating how much water resource is available based on the rules of the Water Sharing Plan and work approvals. This is reviewed periodically during the year, typically at the end of the month and when any significant inflow event happens.

From the above resource assessment summary table, the latest resource assessment has been done on 1<sup>st</sup> of February 2019. Planning horizon for this resource assessment is February 19 to June 19. For this current water year, total resource available is the sum of Lostock storage volume and the minimum expected inflow over remainder of the year. From the resource assessment summary table, it can be seen that total available resource is  $18.6 + 1.6 = 20.2$  GL. The sum of commitments for the current water except GS from the above summary table is  $0.2 + 2.1 + 0.5 + 2.3 + 2 = 7.1$  GL. Therefore, the amount of water available for GS users is  $20.2 - 7.1 = 13.1$  GL, which is higher than the GS share entitlements plus any carryover for this year, which indicate the system has sufficient water to supply 100% AWD announced for the current water year.

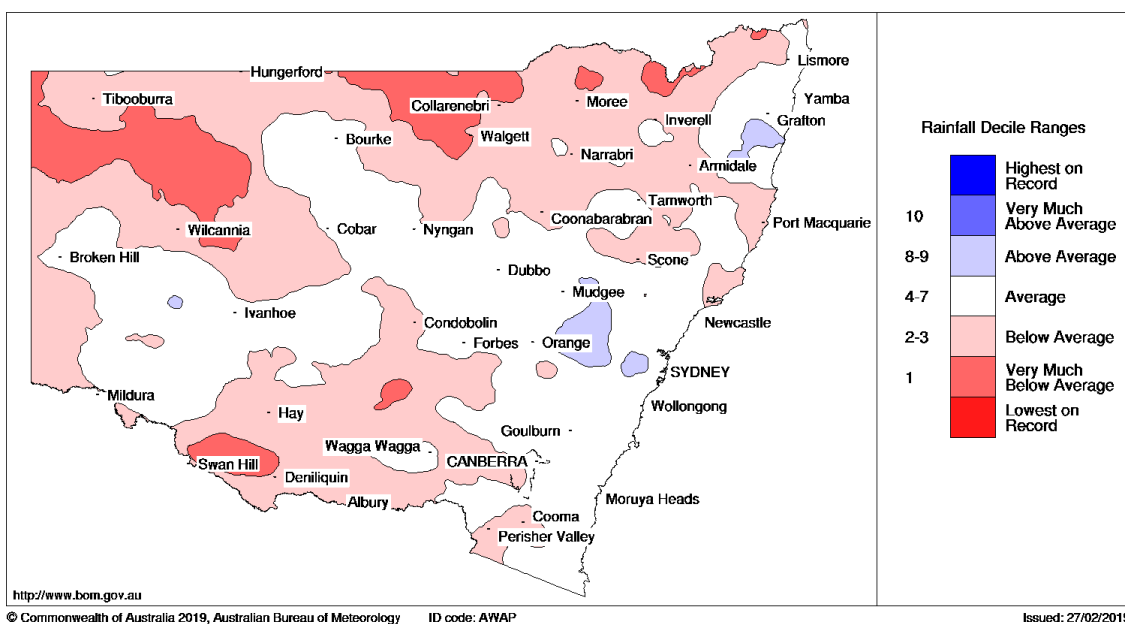
# 5. Rainfall

## 5.1 6-month rainfall

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



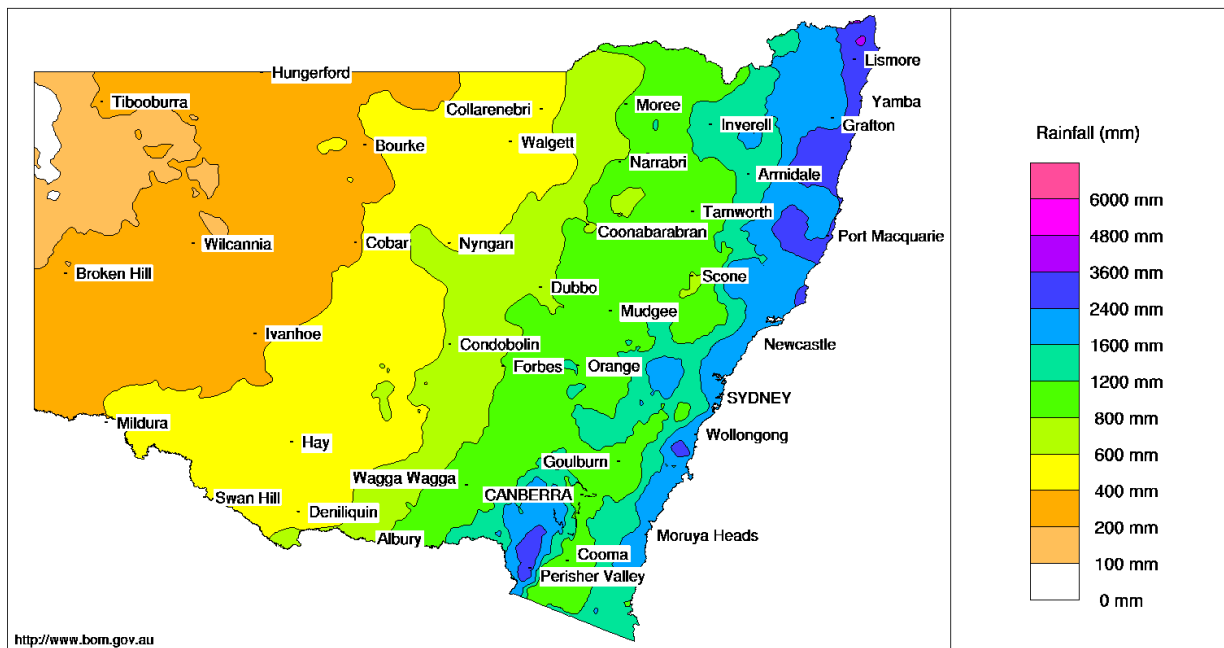
New South Wales Rainfall Deciles 1 August 2018 to 31 January 2019  
Distribution Based on Gridded Data  
Australian Bureau of Meteorology



From the above figures the last 6-month total rainfall lies in the range of 300 to 600 mm, which is in the average range.

### 5.2 24-month rainfall

New South Wales Rainfall totals (mm) 1 February 2017 to 31 January 2019  
Australian Bureau of Meteorology



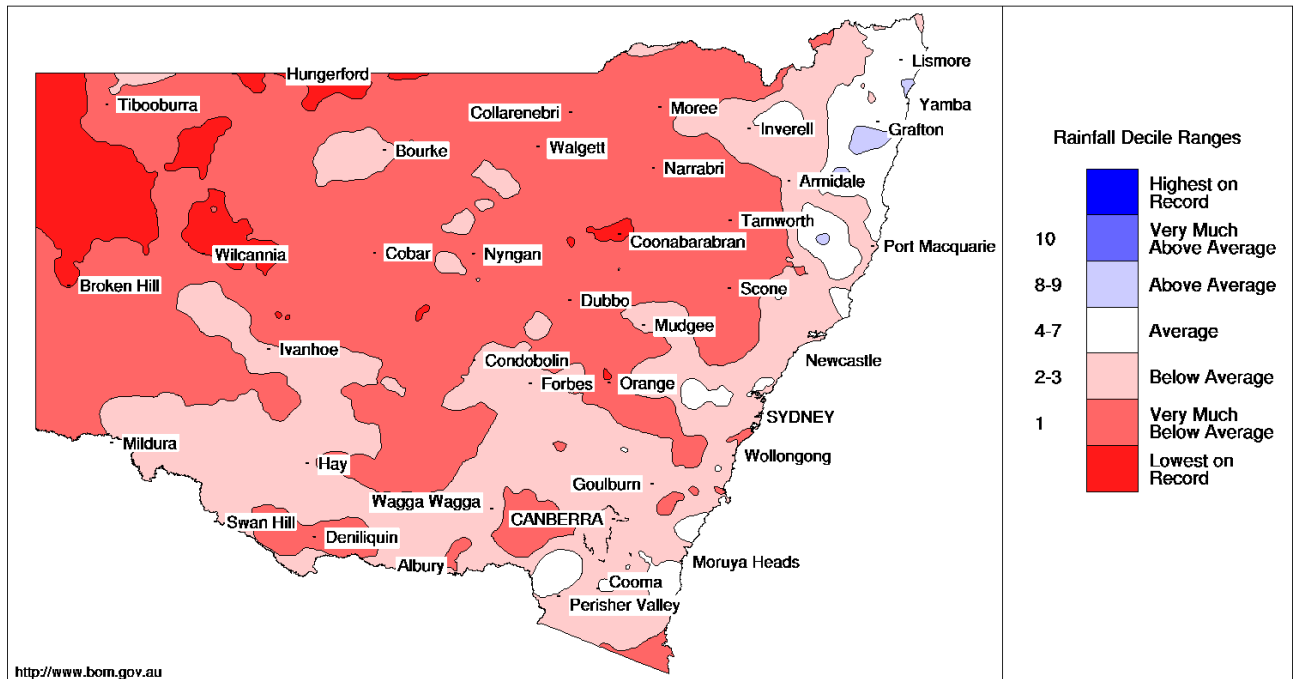
<http://www.bom.gov.au>

© Commonwealth of Australia 2019, Australian Bureau of Meteorology ID code: AWAP

Issued: 27/02/2019

New South Wales Rainfall Deciles 1 February 2017 to 31 January 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

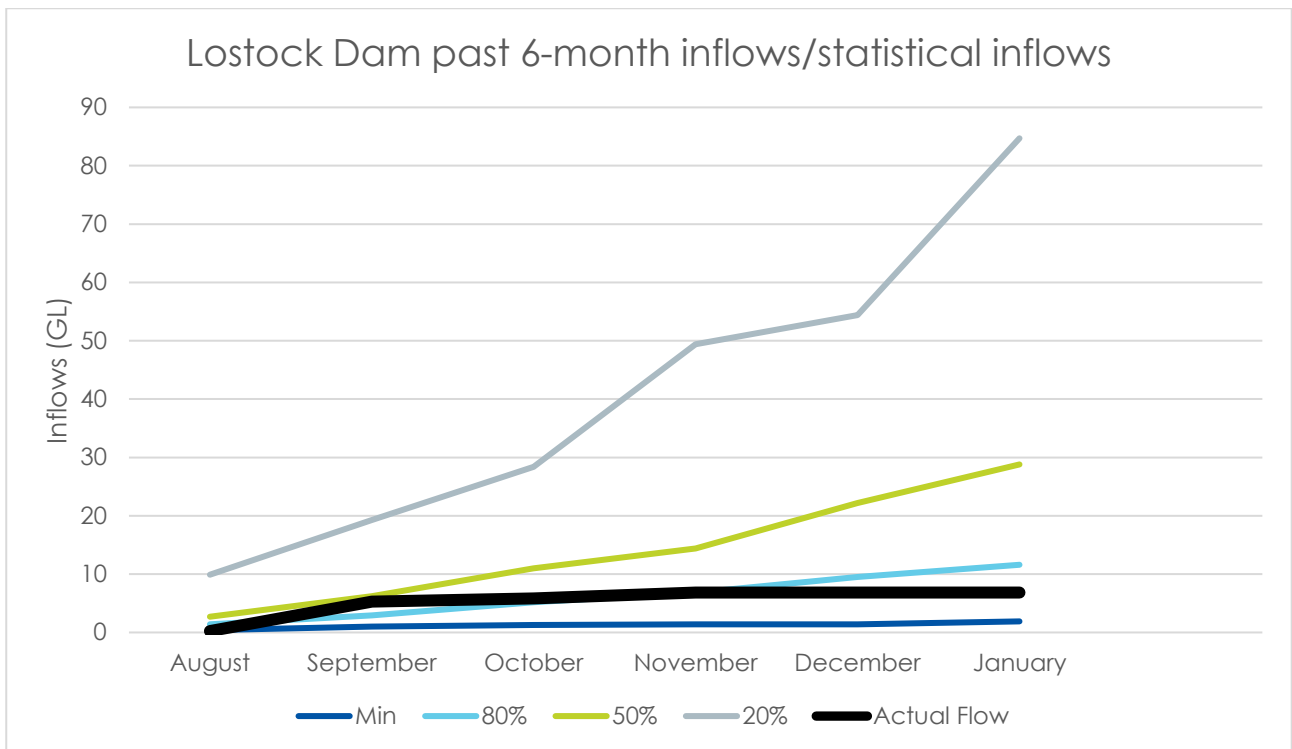
Issued: 27/02/2019

From the above figures the last 24-month total rainfall lies in the range of 1600 to 2400mm, which is below average.

## 6. Inflows

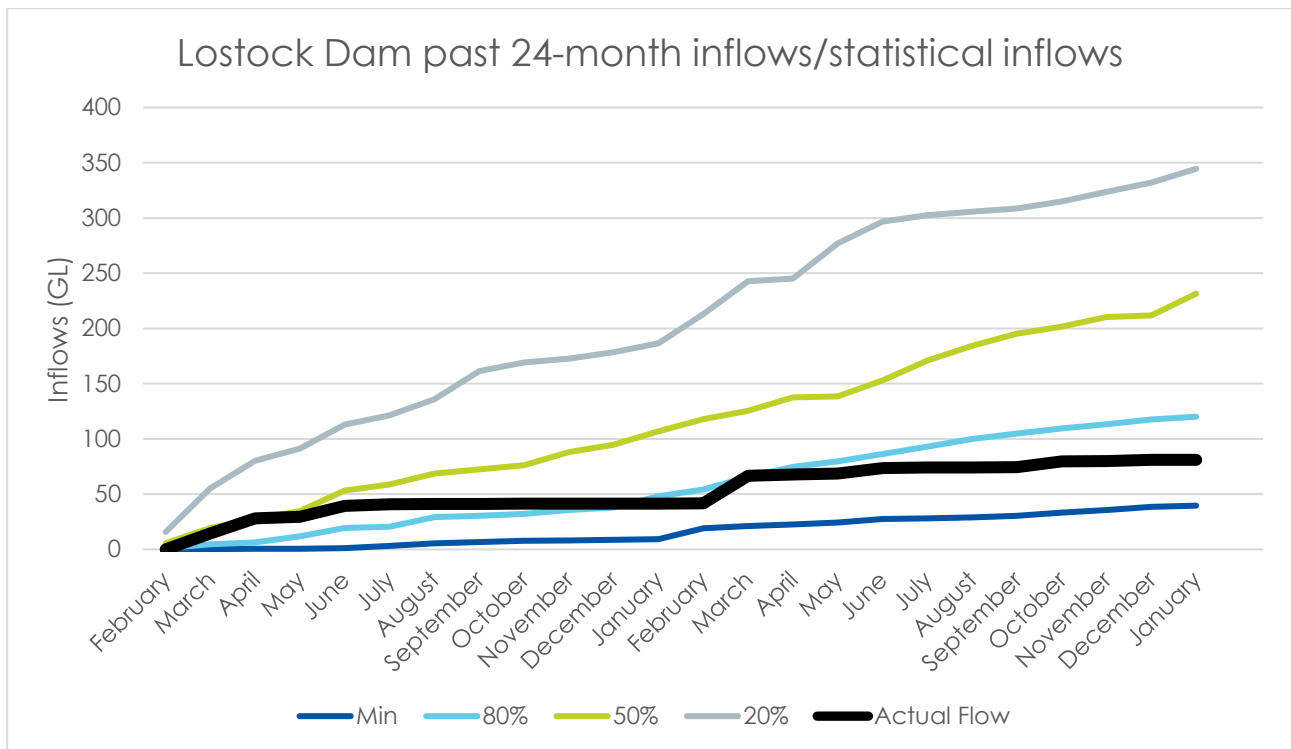
### 6.1 Lostock Dam inflows

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



Inflows are consistent with rainfall over the past 6-month period. Actual inflow for 6 months is around 6.8 GL, between the minimum and 80<sup>th</sup> percentiles.

### 6.2.2 Lostock 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 80 GL, between the minimum and 80<sup>th</sup> percentiles.

### 6.3 Downstream tributary inflows

There have been no significant downstream tributary inflows in this current year (2018 – 19).

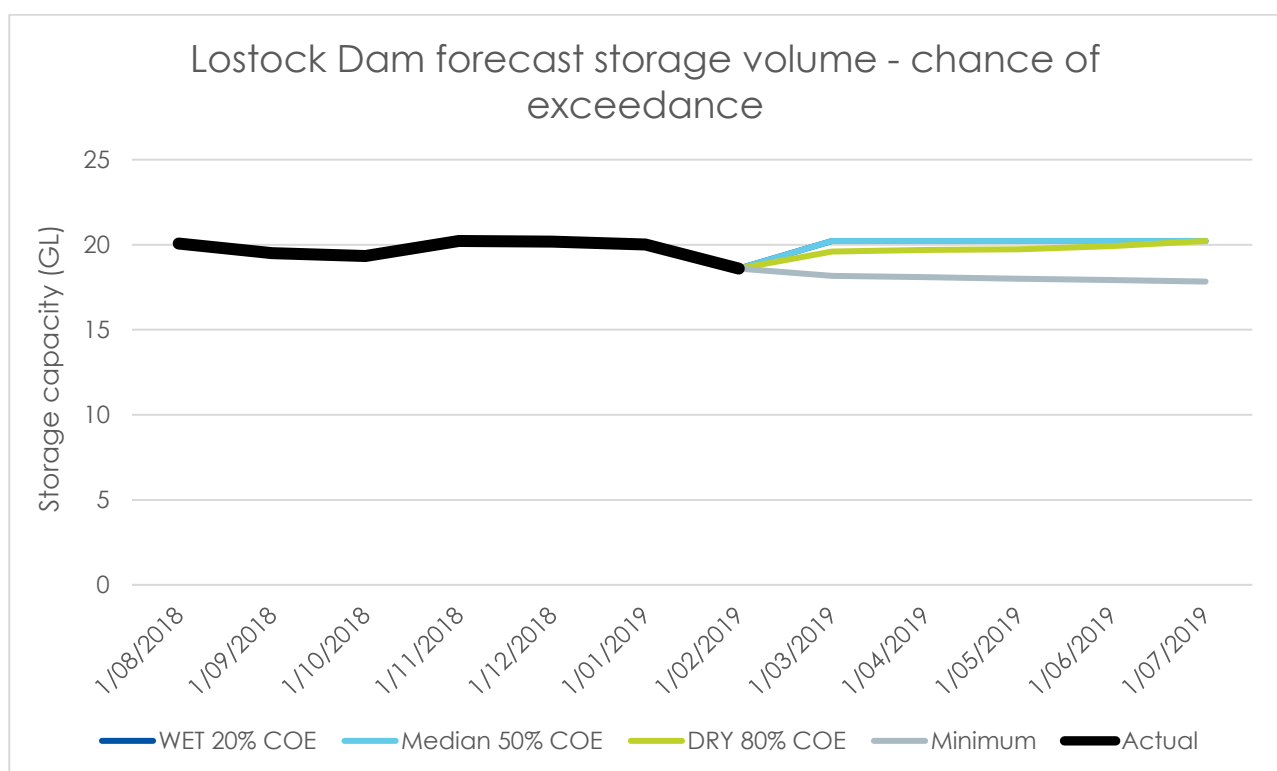
## 7. Operational surplus

### 7.1 Operational surplus for Lostock Dam

N/A

## 8. Storage forecast

### 8.1 Lostock storage forecast



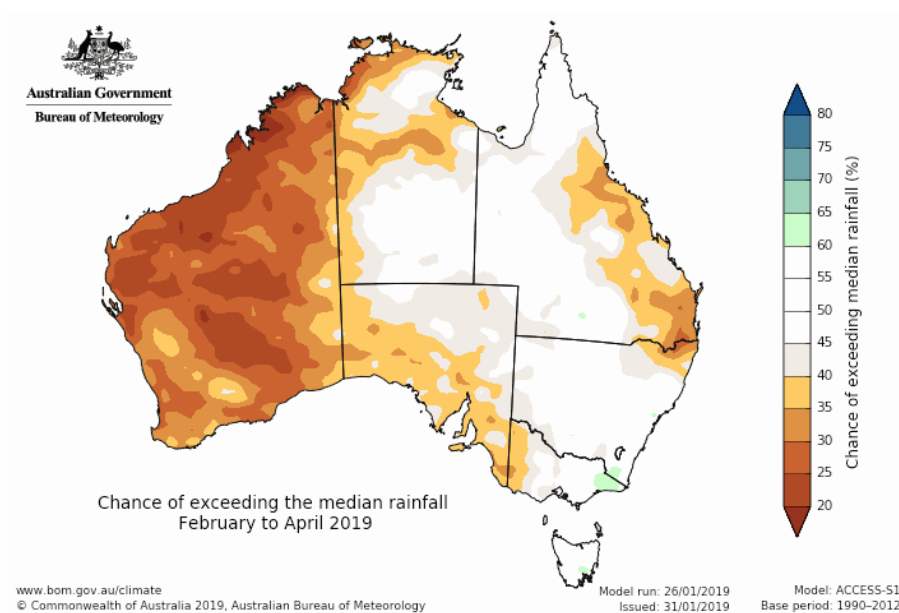
Above figure demonstrate the possible scenarios of Lostock Dam until end of June 2019. The scenarios are based on different expected inflow conditions. With the minimum inflow conditions, the dam would be around 17 GL by June 2019. The minimum inflow condition assumes that all remaining general security allocations would be used by the end of the water year. 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 level, and there is 80% chance that the dam volume will be less than the projected level.

## 9. Outage planning

Item	Time	Description
Lostock Dam	N/A	None

## 10. Prognosis

All licence category available water determinations have reached their limit of 100%.



The above figure shows an increased likelihood of drier than average rainfall over the next three months.

### More information

Visit our website to view our water operations reports at [waternsw.com.au/operations](http://waternsw.com.au/operations).

Subscribe to our customer information (weekly water availability reports, e-newsletters, etc.) at [waternsw.com.au/subscribe](http://waternsw.com.au/subscribe).