

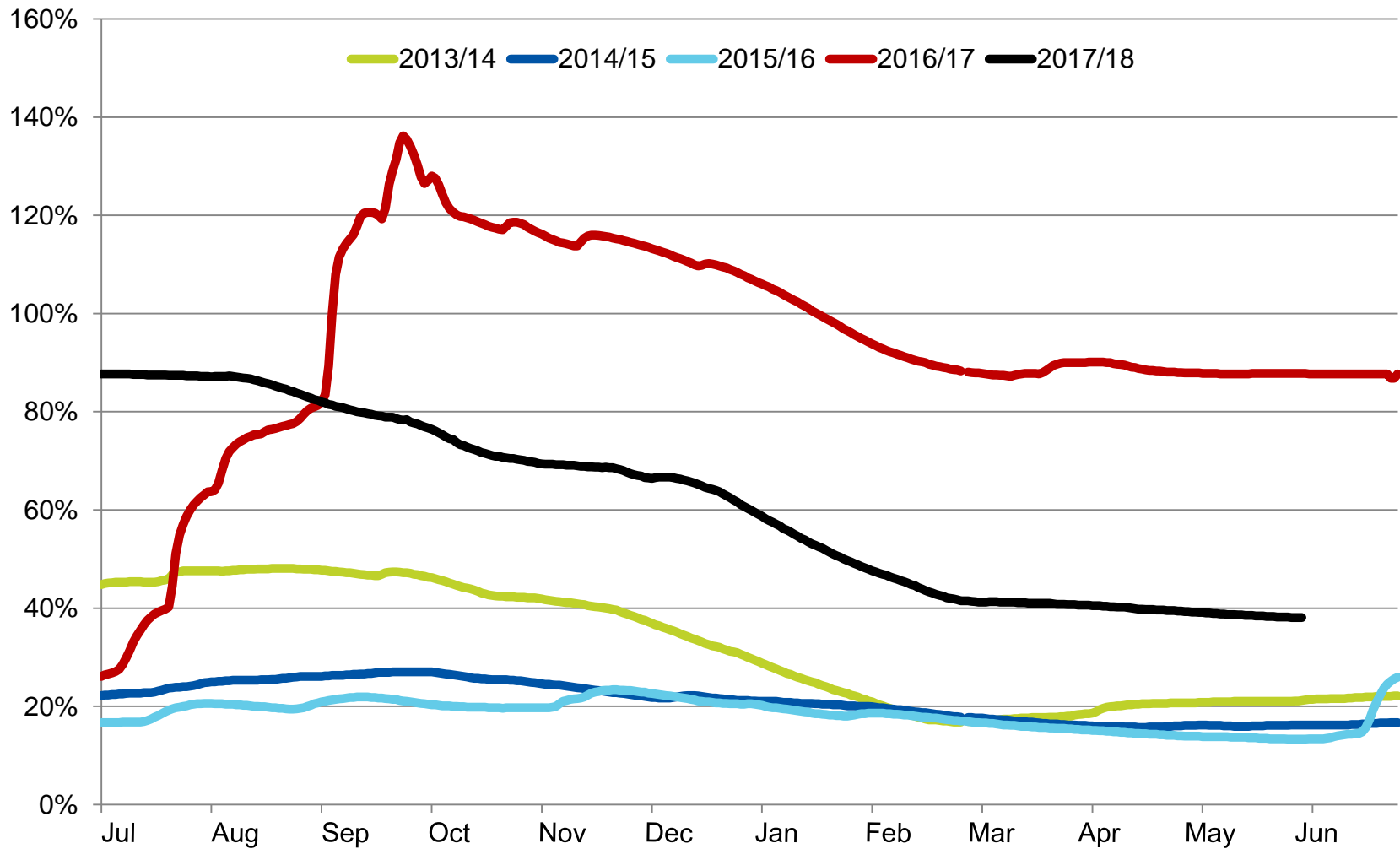
# WaterNSW

# Water Operations Report

Macquarie-Cudgegong  
June 2018

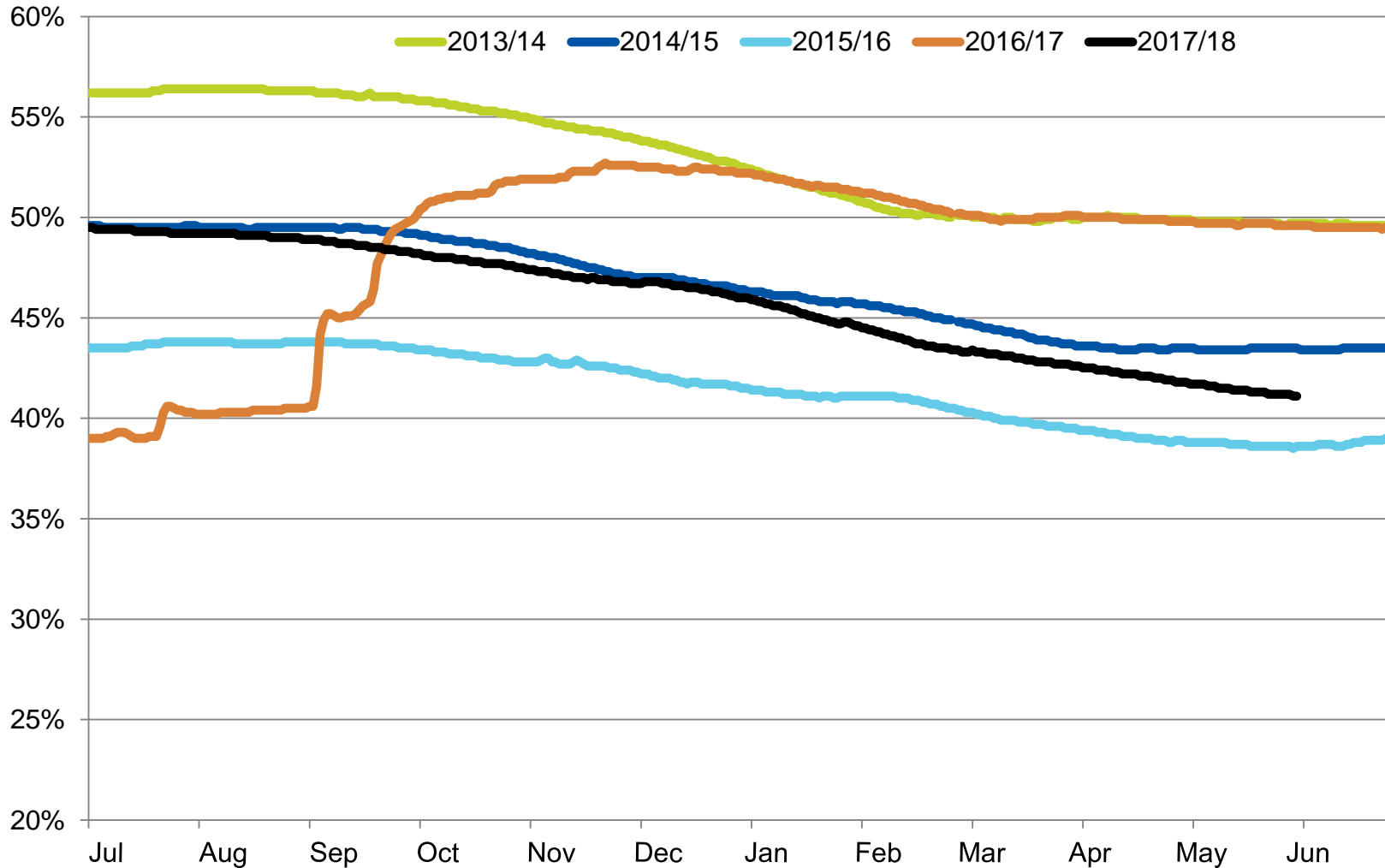
# Dam storages

## Burrendong Dam Storage



# Dam storages

## Windamere Dam Storage



# Supplementary access



No supplementary events in the Macquarie-Cudgegong since the start of 2017/18.

# 2017/18 water availability for Macquarie



Licence category water availability as of 31 May 2018	Sum of share component	Sum of account balance	Sum of available water	Sum of AWD volume	Sum of carryover in	Sum of allocation assignments in	Sum of allocation assignments out	Sum of usage
DOMESTIC AND STOCK	4,307	3,197	3,167	4,299	-	-	-	1,110
DOMESTIC AND STOCK [DOMESTIC]	790	787	787	788	-	-	-	1
DOMESTIC AND STOCK [STOCK]	170	136	136	170	-	-	-	34
LOCAL WATER UTILITY	16,205	2,351	1,588	16,205	-	-	-	13,854
REGULATED RIVER (GENERAL SECURITY)	439,683	206,645	206,402	165,412	323,348	100,989	83,964	295,460
REGULATED RIVER (GS-ENVIRONMENT)	173,532	111,800	111,800	65,942	119,468	73,627	74,427	70,145
REGULATED RIVER (HIGH SECURITY)	8,416	918	615	8,416	-	145	647	6,996
REGULATED RIVER (HIGH SECURITY) [RESEARCH]	4,044	1,620	1,620	4,044	-	-	-	2,424
REGULATED RIVER (HIGH SECURITY) [TOWN WATER SUPPLY]	40	40	40	40	-	-	-	-
SUPPLEMENTARY WATER	48,687	48,587	48,587	48,303	-1	9,302	9,278	-
<b>GRAND TOTAL</b>	<b>695,873</b>	<b>372,884</b>	<b>374,742</b>	<b>313,618</b>	<b>442,815</b>	<b>184,062</b>	<b>168,315</b>	<b>390,023</b>

General security available water determination		
Date	AWD ML/share	Total %
1-Jul-17	0.36	36%
14-Aug-17	0.02	38%

No additional AWD has been announced since 14 August 2017.

# 2017/18 water availability for Cudgegong

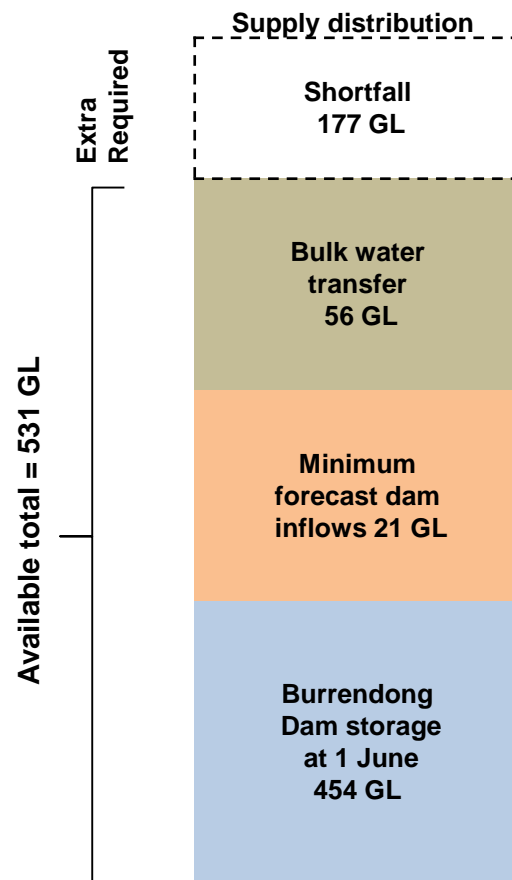
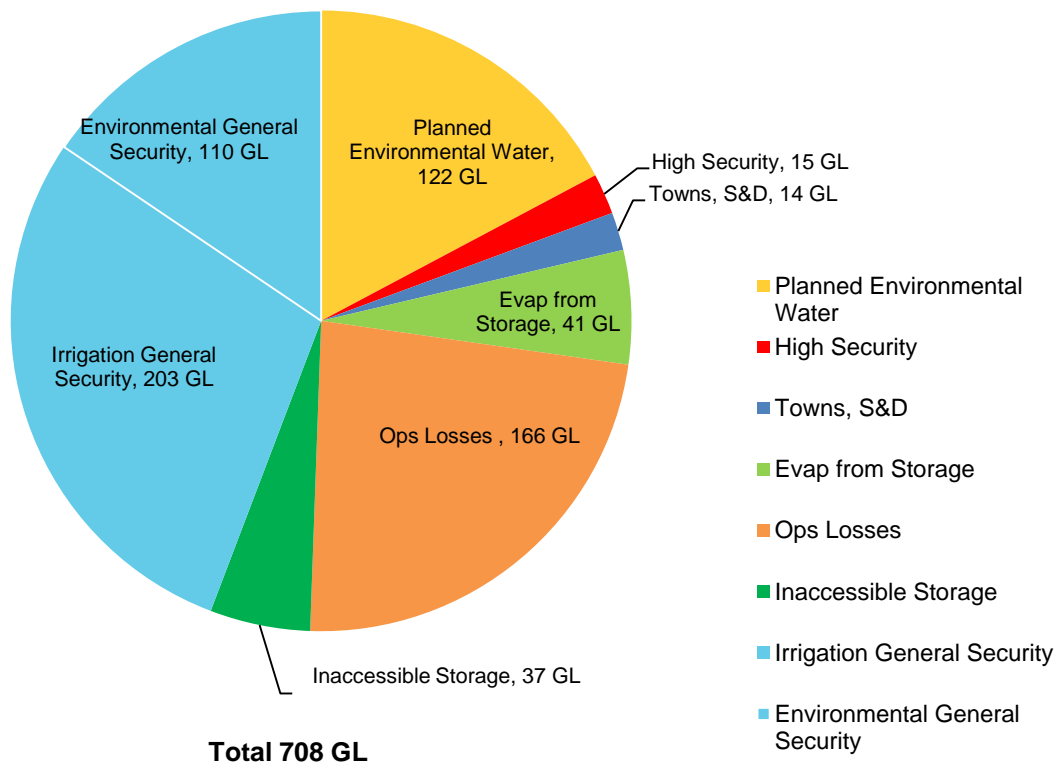


Licence category water availability as of 31 May 2018	Sum of share component	Sum of account balance	Sum of available water	Sum of AWD volume	Sum of carryover in	Sum of allocation assignments in	Sum of allocation assignments out	Sum of usage
DOMESTIC AND STOCK	672	304	303	672	-	-	-	368
DOMESTIC AND STOCK [DOMESTIC]	19	19	19	19	-	-	-	-
DOMESTIC AND STOCK [STOCK]	15	15	15	15	-	-	-	-
LOCAL WATER UTILITY	2,600	843	800	2,600	-	-	-	1,757
REGULATED RIVER (GENERAL SECURITY)	19,252	21,248	21,102	7,299	29,029	704	11,295	3,817
REGULATED RIVER (HIGH SECURITY)	5,412	684	669	5,175	-	-	4,273	456
REGULATED RIVER (HIGH SECURITY) [RESEARCH]	1	-	-	1	-	-	-	1
SUPPLEMENTARY WATER	1,312	1,312	1,312	1,248	-	-	-	-
<b>GRAND TOTAL</b>	<b>29,283</b>	<b>24,424</b>	<b>24,219</b>	<b>17,029</b>	<b>29,029</b>	<b>704</b>	<b>15,568</b>	<b>6,399</b>

General security available water determination		
Date	AWD ML/Share	Total %
1-Jul-17	0.36	36%
14-Aug-17	0.02	38%

# Current resources breakdown

**Macquarie resource distribution  
Jun 2018 to May 2019**



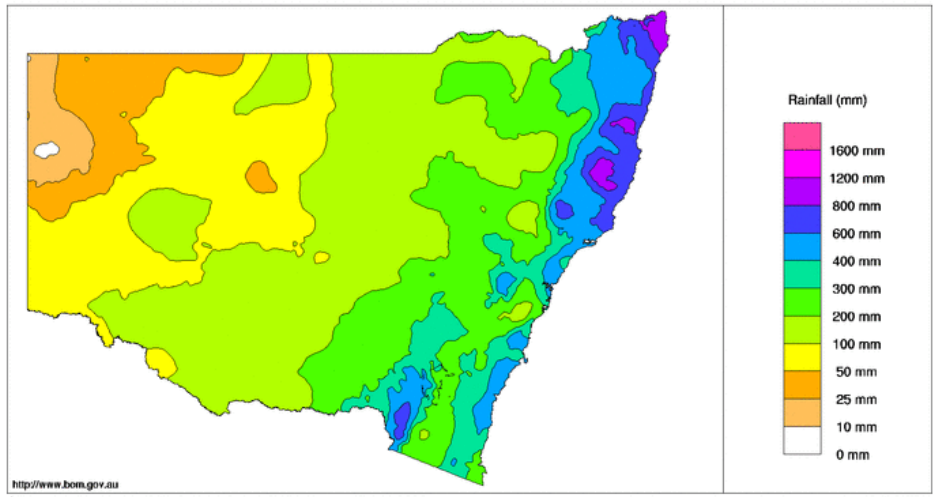
# Resource assessment

Macq Cudge resource assessment - Burrendong Dam	1-Aug-17	1-Sep-17	1-Oct-17	1-Nov-17	1-Dec-17	1-Jan-18	1-Feb-18	1-Mar-18	1-Apr-18	1-May-18	1-Jun-18
Planning horizon (drought sequence)	Aug 17- May 19	Sep 17- May 19	Oct 17- May 19	Nov 17- May 19	Dec 17- May 19	Jan 18- May 19	Feb 18- May 19	Mar18- May 19	Apr18- May 19	May18- May 19	Jun18- May 19
AWD announcement date	1-Sep-17	1-Oct-17	1-Nov-17	1-Dec-17	1-Jan-18	1-Feb-18	1-Mar-18	1-Apr-18	1-May-18	1-Jun-18	1-Jul-18
Min inflow sequence	Sep 17- May 19	Oct 17 - May 19	Nov 17 - May 19	Dec 17 - May 19	Jan 18 - May 19	Feb 18 - May 19	Mar 18 - May 19	Apr 18 - May 19	May 18 - May 19	Jun 18 - May 19	Jul 18 - May 19
	GL										
Opening storage volume	1035	974	910	826	791	707	573	494	483	468	454
Plus volume available through Bulk Water Transfer	62	62	62	62	62	63	61	61	61	56	56
Plus minimum expected inflow sequence over planning horizon	130	96	89	43	29	26	26	26	26	24	21
Less amount of dead storage	-34	-34	-34	-34	-34	-34	-34	-34	-34	-34	-34
Less evaporation allowance	-103	-104	-98	-93	-83	-72	-63	-55	-48	-44	-41
Less remaining essential requirements	-346	-331	-318	-314	-302	-273	-244	-219	-210	-207	-195
Less unallocated storage volume	-4	-2	-1	-2	-2	-1	-2	-3	-2	-2	-3
Less volume remaining in irrigator accounts	-480	-460	-474	-429	-417	-353	-265	-221	-214	-206	-203
Less volume remaining in environmental accounts	-370	-338	-276	-239	-227	-235	-234	-234	-232	-232	-232
Amount available for allocation (+ve) / Amount of inflow required before new allocation can be made (-ve)	<b>-110</b>	<b>-137</b>	<b>-140</b>	<b>-180</b>	<b>-183</b>	<b>-172</b>	<b>-182</b>	<b>-185</b>	<b>-170</b>	<b>-177</b>	<b>-177</b>
<b>Allocation %</b>											



# 6 month rainfall and inflow

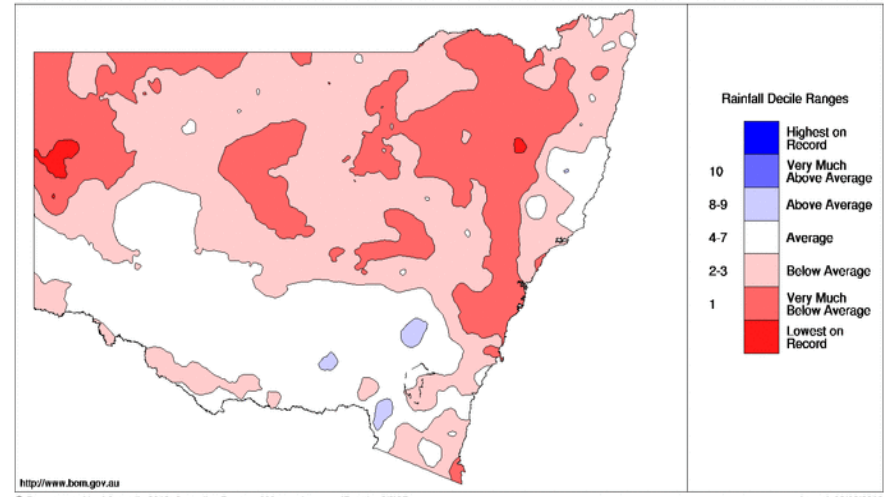
New South Wales Rainfall totals (mm) 1 December 2017 to 31 May 2018  
Australian Bureau of Meteorology



<http://www.bom.gov.au>  
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Issued: 03/06/2018

New South Wales Rainfall Deciles 1 December 2017 to 31 May 2018  
Distribution Based on Gridded Data  
Australian Bureau of Meteorology

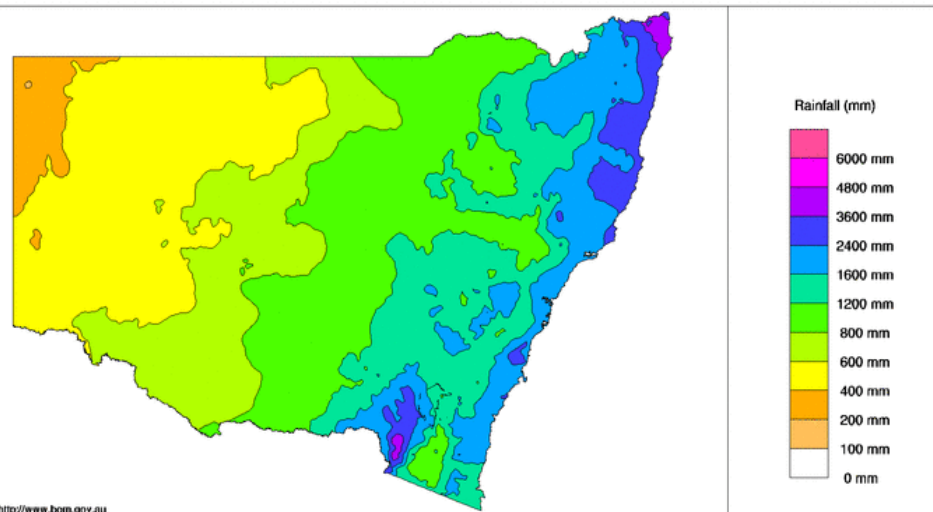


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# 24 month rainfall and inflow

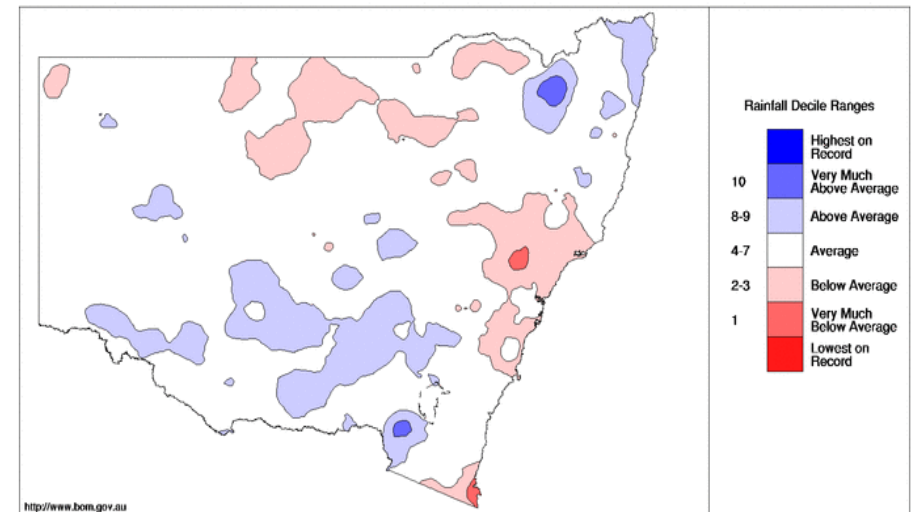
New South Wales Rainfall totals (mm) 1 June 2016 to 31 May 2018  
Australian Bureau of Meteorology



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New South Wales Rainfall Deciles 1 June 2016 to 31 May 2018  
Distribution Based on Gridded Data  
Australian Bureau of Meteorology



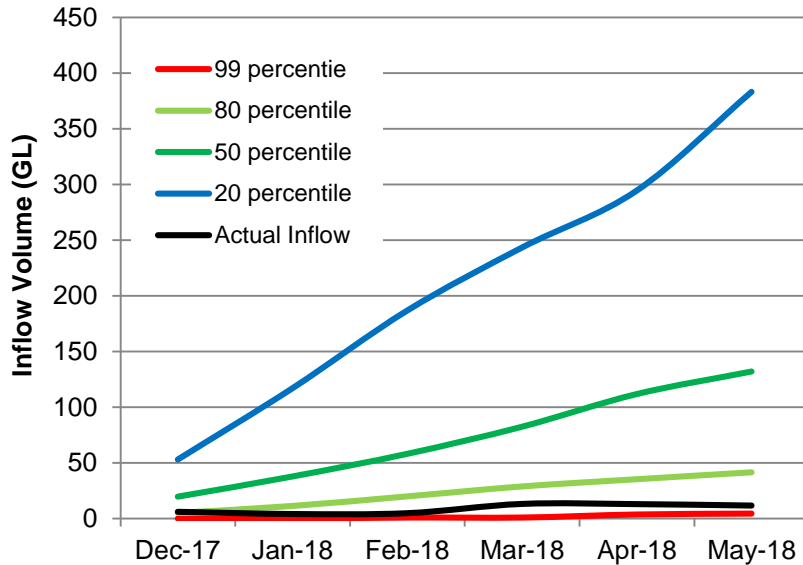
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# Rainfall and inflow (dam)



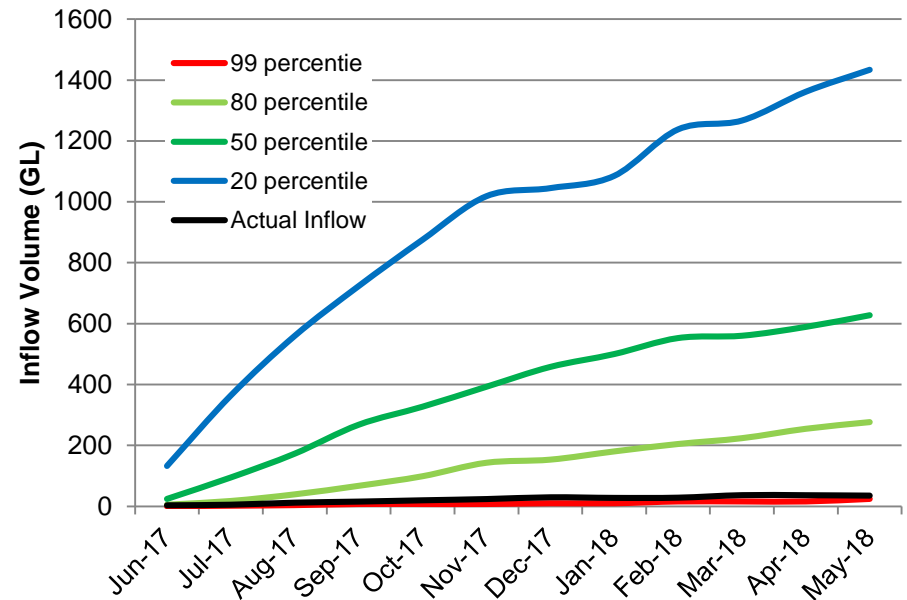
### Burrendong Dam - 6 month inflows/statistical inflows



Inflows are consistent with rainfall over the past 12 months. Due to dry conditions in the last 12 months only 35 GL of inflows were recorded, which is around the 99<sup>th</sup> percentile inflow condition.

Inflows are consistent with rainfall over the past 6 month period. Actual inflows for last 6 months were only around 11 GL which is slightly better than 99<sup>th</sup> percentile inflows.

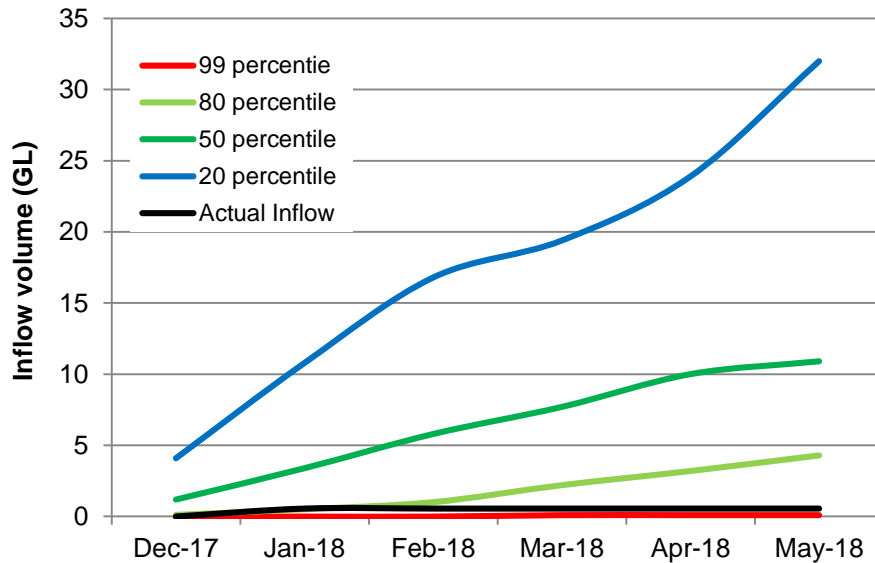
### Burrendong Dam - 12 month inflows/statistical inflows



# Rainfall and inflow (dam)



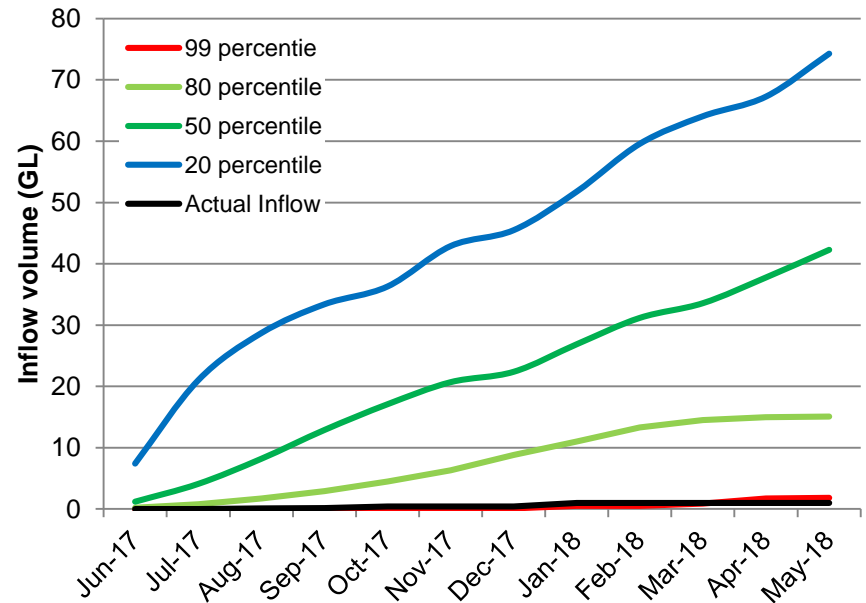
**Windamere Dam - 6 month inflows/statistical inflows**



Dry condition throughout has resulted in negligible inflows into Windamere dam over the past 12 month period, were around 1 GL which is less than 99<sup>th</sup> percentile inflow conditions.

Inflows are consistent with rainfall over the past 6 months. Actual inflows for the last 6 months were around 0.5GL which was slightly above 99<sup>th</sup> percentile inflow conditions.

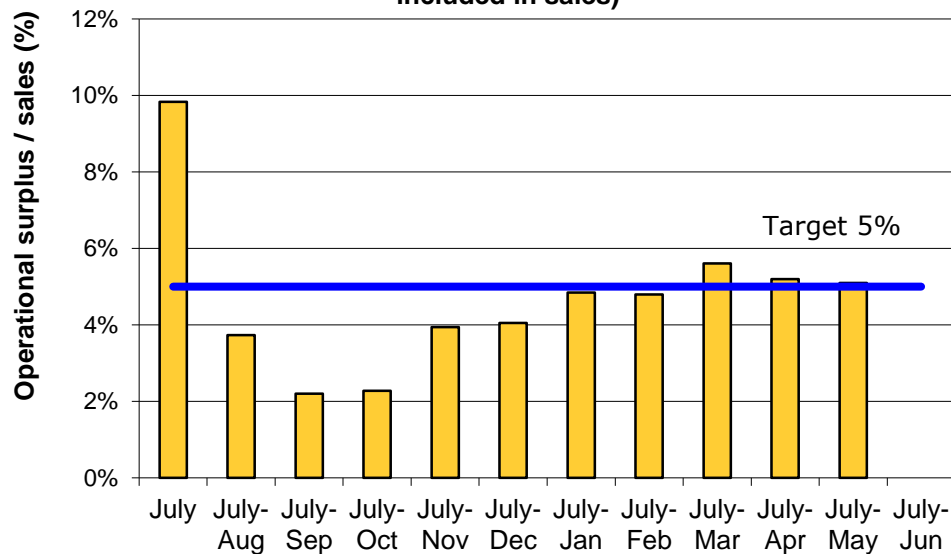
**Windamere Dam - 12 month inflows/statistical inflows**



# Operational loss

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*)

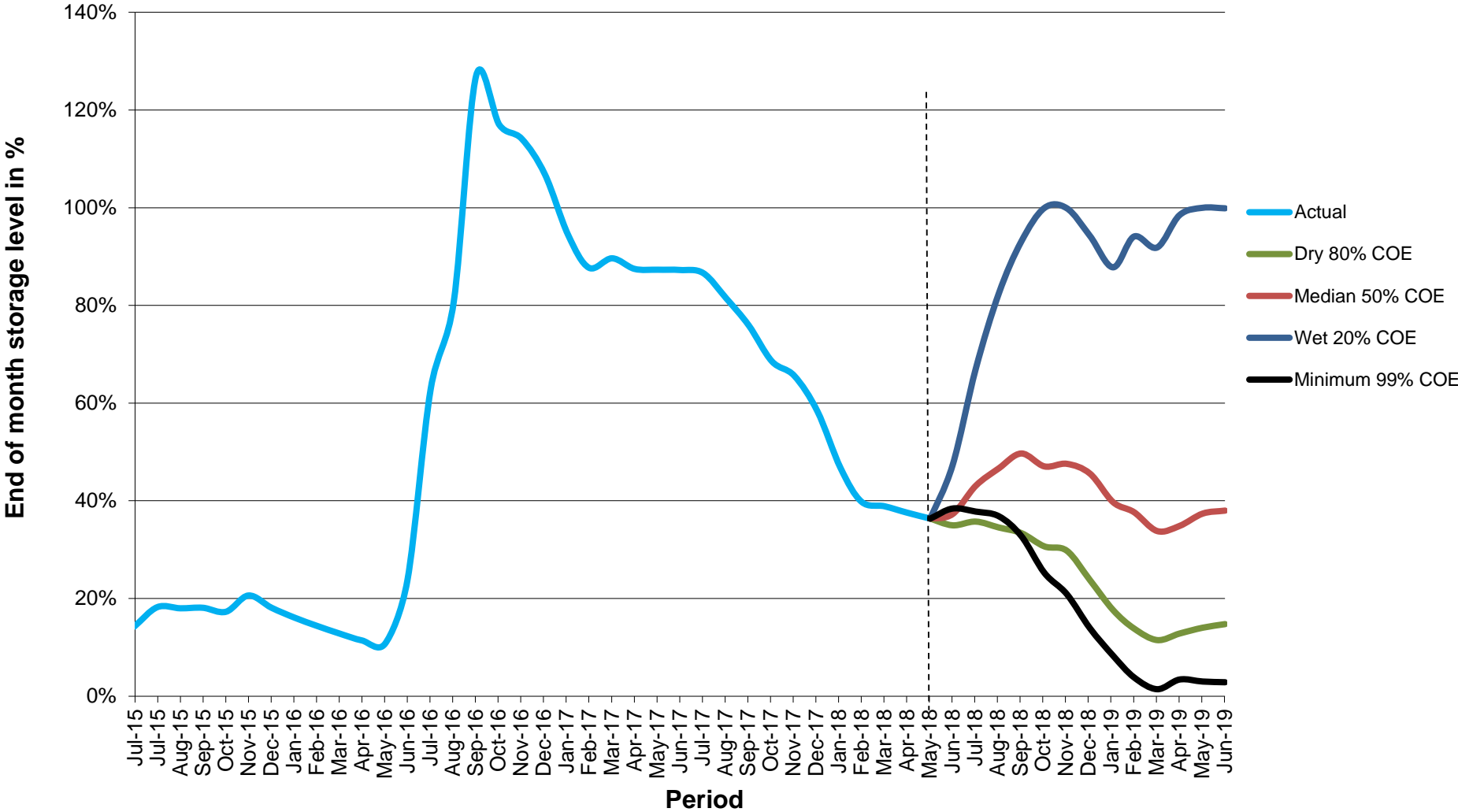
**Macquarie River - water delivery operational surplus vs sales - 2017-18 cumulative %**  
(regulated licenced and discretionary env. flow delivery is included in sales)



Macquarie cumulative totals				
	Sales + environmental delivery (excluding supplementary)	Operational surplus	Actual	Target
July	7,170	705	10%	5%
July-Aug	37,066	1,383	4%	5%
July-Sep	94,229	2,073	2%	5%
July-Oct	189,139	4,307	2%	5%
July-Nov	218,388	8,606	4%	5%
July-Dec	278,886	11,293	4%	5%
July-Jan	371,712	18,001	5%	5%
July-Feb	424,826	20,382	5%	5%
July-Mar	441,890	24,785	6%	5%
July-Apr	450,363	23,410	5%	5%
July-May	454,817	23,174	5%	5%
July-Jun			0%	5%

# Storage forecast

**Burrendong Dam forecast storage levels  
(assessment done end of May 2018)**



# System operations plan

- Forecast usage in 2018-19, including environmental watering plans, is deliverable from the stored water currently in Burrendong and Windamere Dams, in combination with minimum inflows. General security usage beyond the current forecast volume will be subject to receiving minimum or better inflows over the forecast period.
- Conditions will be closely monitored and a bulk water transfer from Windamere Dam may be required, commencing in November 2018, if conditions remain dry.
- Under very dry conditions, deliveries in 2018-19 will require water conservation initiatives to reduce losses. This may involve implementation of water order debiting and, where feasible, block releases of irrigation orders in lower parts of the Macquarie River.
- Delivery of S&D replenishment flows into Marra Creek is underway and likely to be completed before end of June 2018. Replenishment flows to Lower Bogan are planned to start in mid-June. Lower Macquarie S&D flows are likely to be delivered in late July/August 2018.

# System outage plan

## Dam maintenance impacting supply

- Planned outage – none.

## Weirs

- Planned outage – none.

## Regulators

- Planned outage – maintenance works on Marebone Break including replacing dropboards will be carried out in mid June. The works may take about three weeks to complete. A minimum flow may be maintained in Bulgeragar Creek during this outage.



# Prognosis

## Chances of improvement

The chances of improved general security allocation, based on different inflow scenarios are as follows:

Potential inflow conditions		Macquarie	
		Total general security AWD (%)	
		1-Nov-18	1-Feb-19
Dry	(80% inflows: 4 chances in 5)	0% and carryover from 2017-18	0% and carryover from 2017-18
Average	(50% inflows: 1 chances in 2)	2% and carryover from 2017-18	17% and carryover from 2017-18
Wet	(20% inflows: 1 chances in 5)	70% and remaining carryover from 2017-18	92% and remaining carryover from 2017-18  Likely spilling of some carryover allocation due to dam spill

