

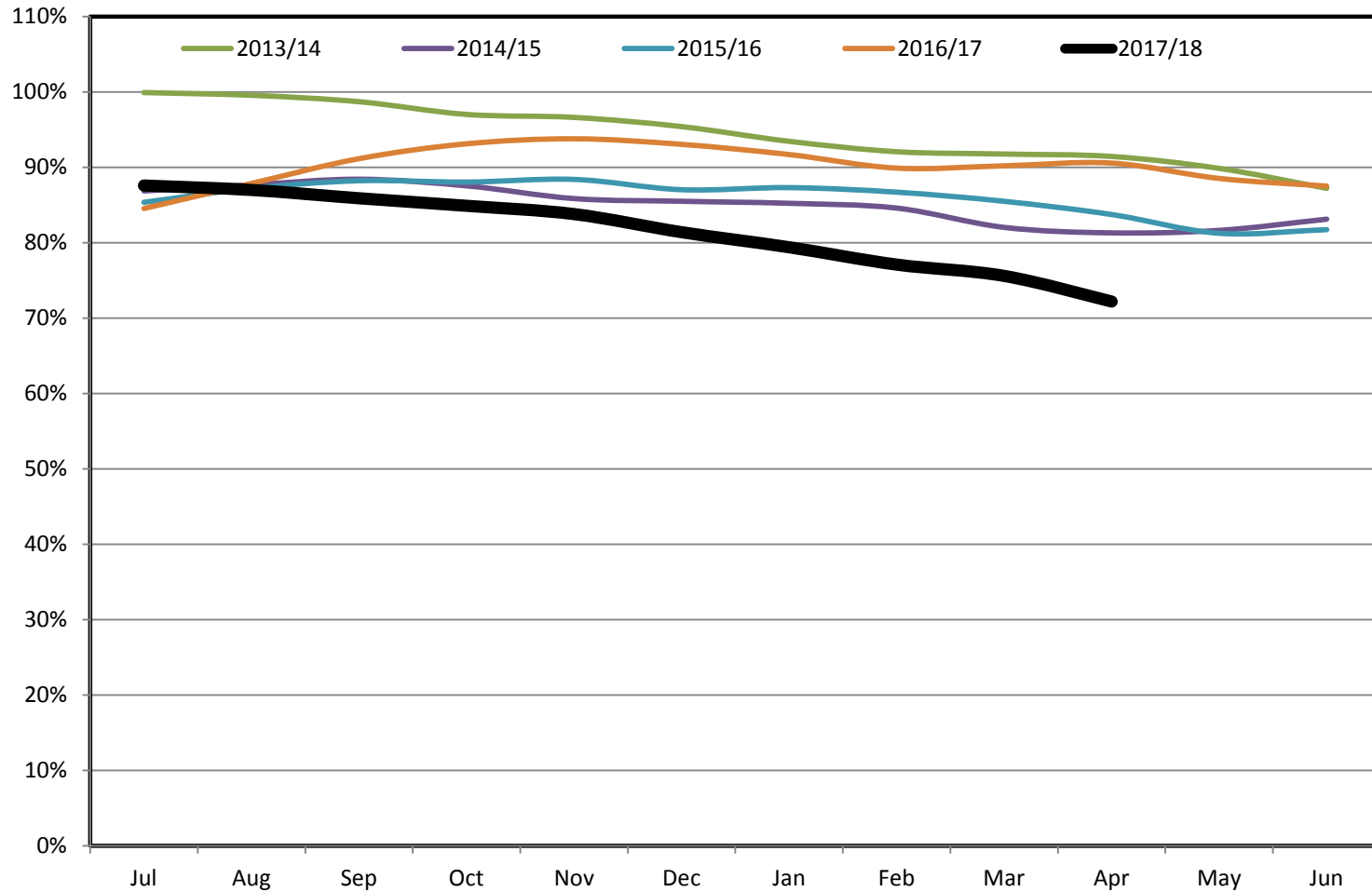
Water Operations Report

Hunter/Coastal Valleys

June 2018

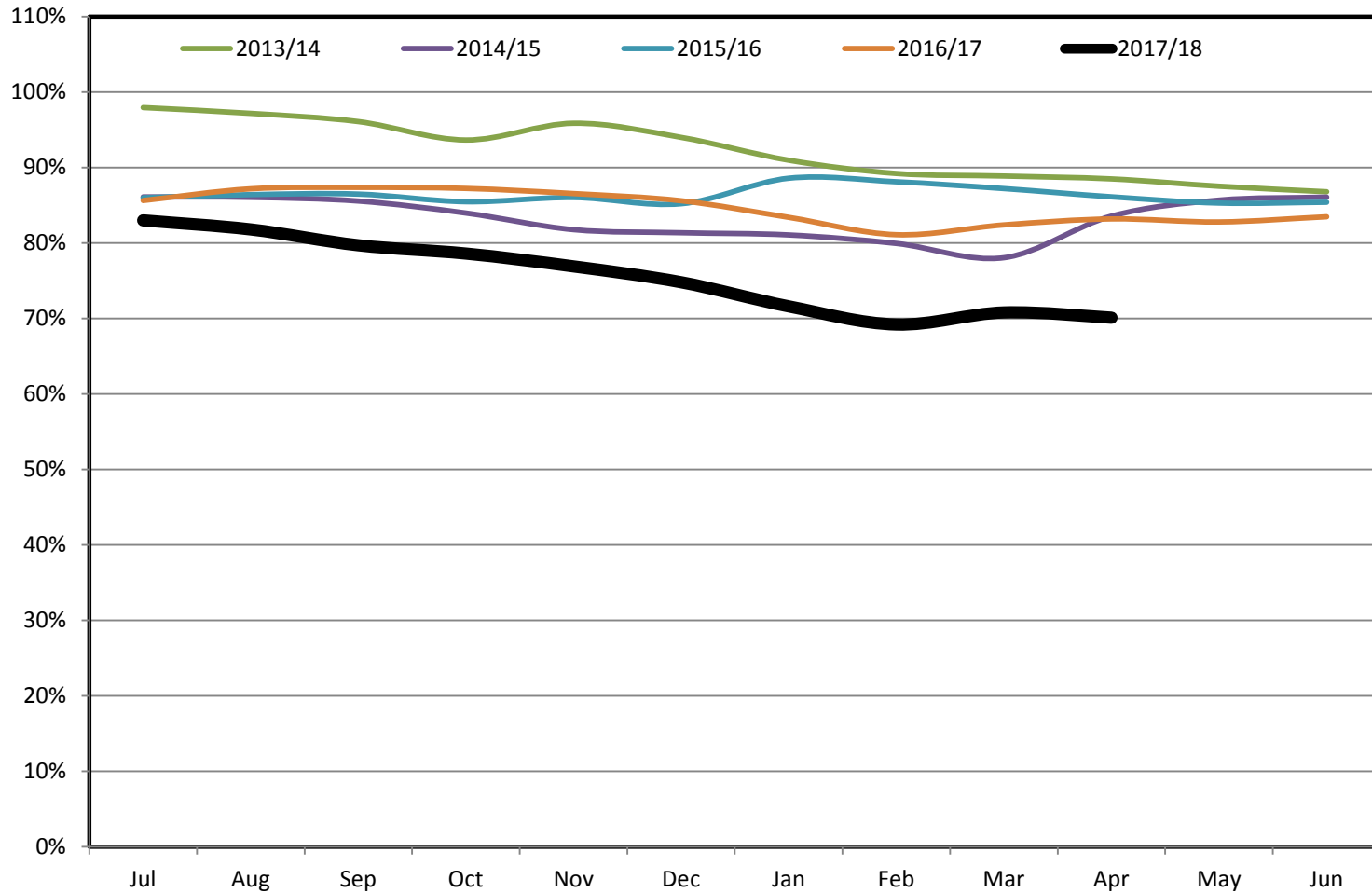
Dam Storages

Glenbawn Dam Storage



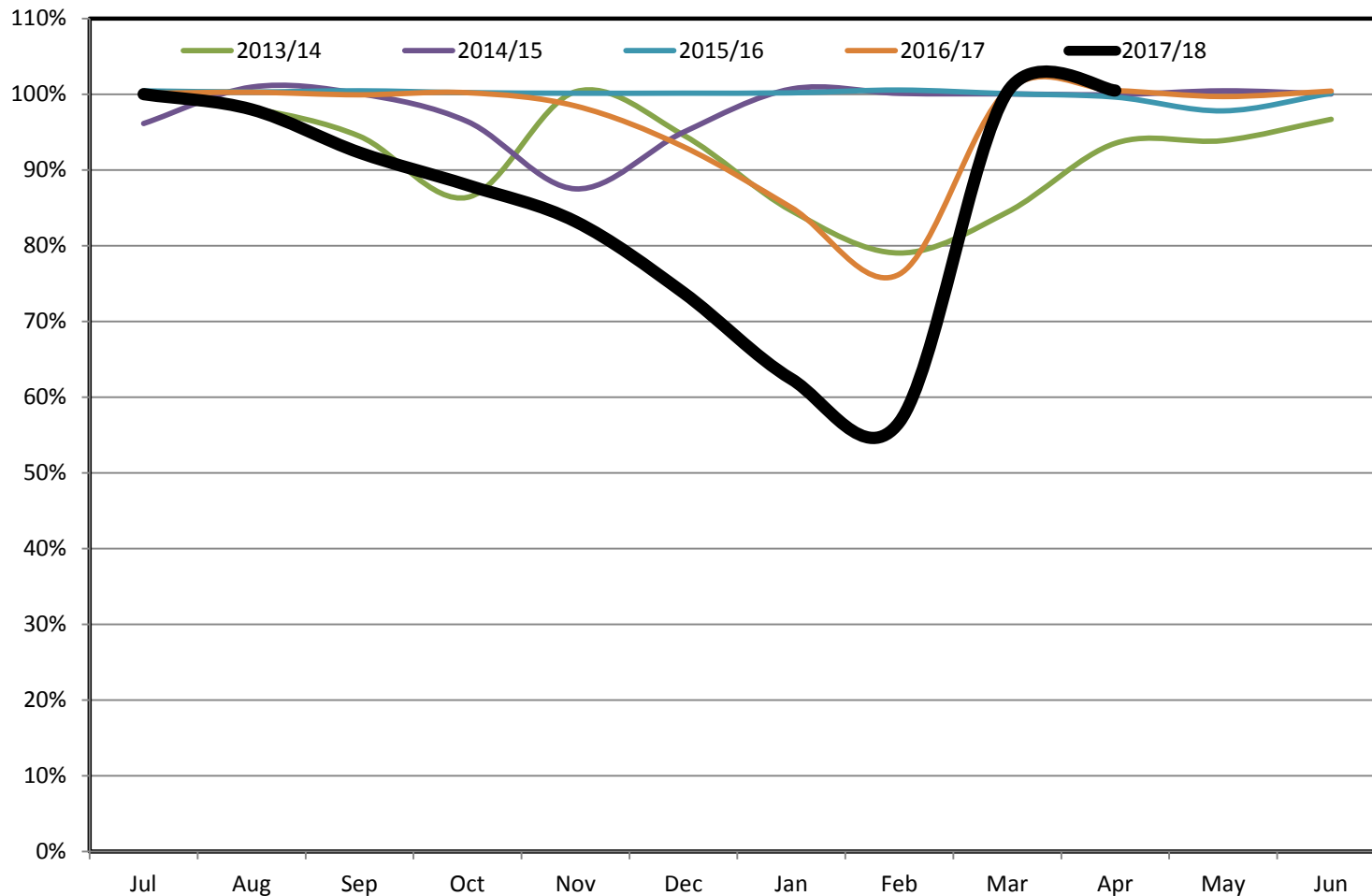
Dam Storages

Glennies Creek Storage



Dam Storages

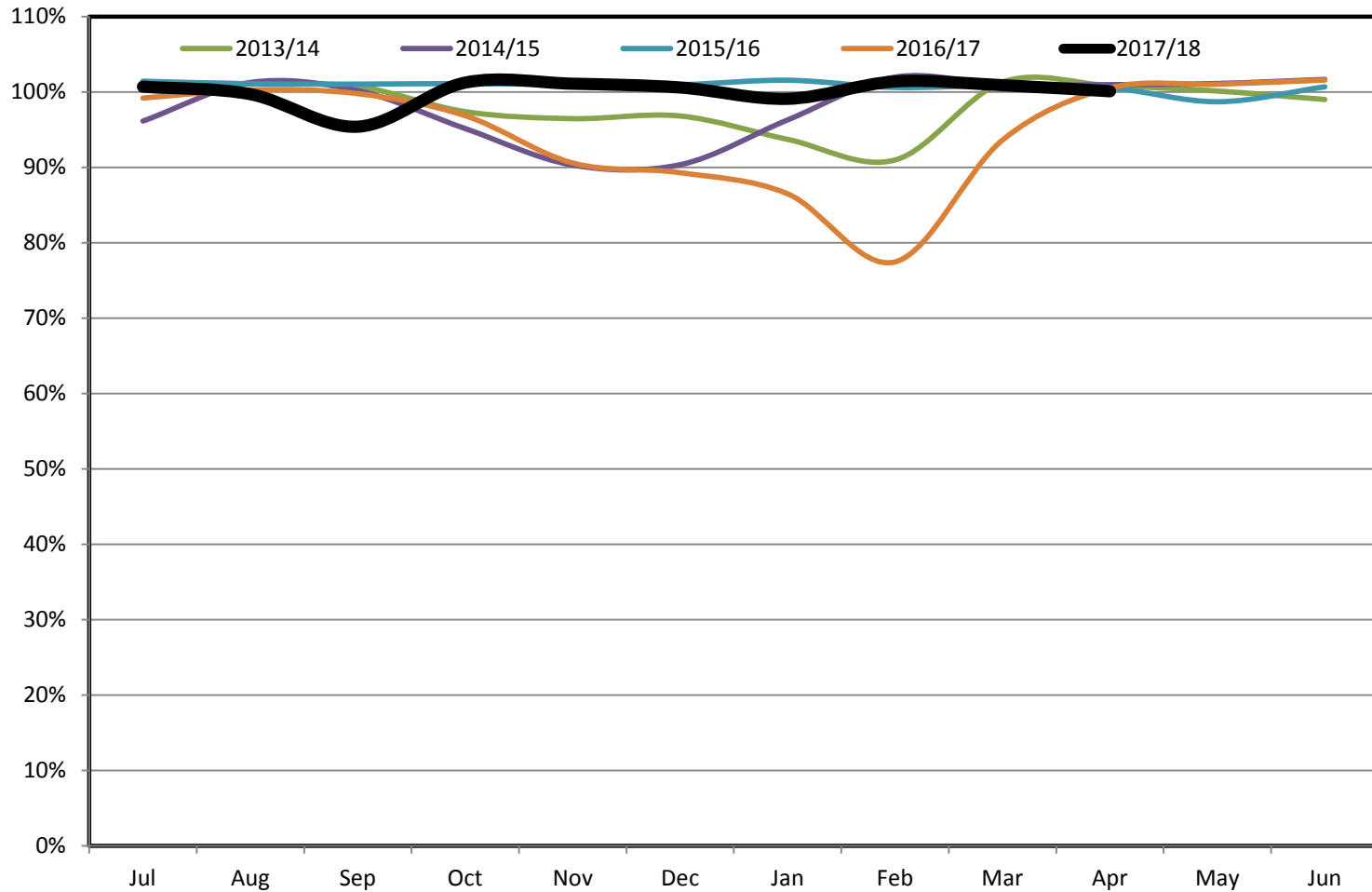
Lostock Dam Storage



Hunter and Coastal Valleys Water Operations Report - June 2018

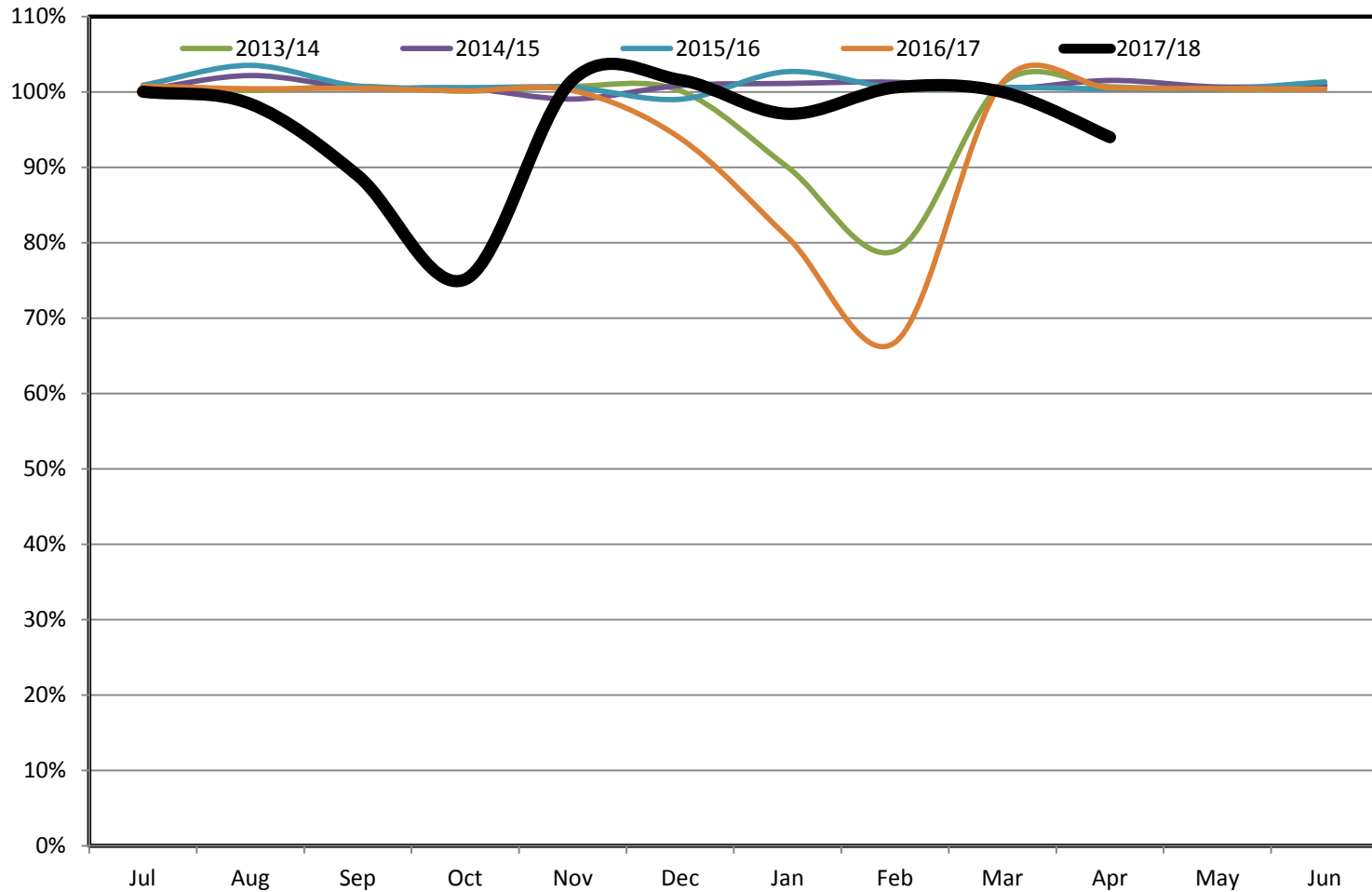
Dam Storages

Toonumbar Dam Storage



Dam Storages

Brogo Dam Storage



Supplementary Access

System	Commence	Cease	Volume pumped
Hunter	01/07/17	24/7/17	0 ML
	23/3/18	25/3/18	15 ML
Paterson	01/07/17	14/07/17	0 ML
	23/03/18	26/03/18	0 ML
	28/04/18	07/05/18	0 ML
Bega Brogo	01/07/17	21/07/17	0 ML
	02/08/17	14/08/17	71 ML
	07/11/17	13/11/17	0 ML
	20/11/17	20/01/18	151 ML
	01/03/18	12/03/18	0 ML

Water Availability

Hunter River 2017/18



Licence Category	Share Component	Balance	AWD Volume	Carryover In	Allocation Assignments In	Allocation Assignments Out	Usage
DOMESTIC AND STOCK	1,545	1,413.1	1,545	0	0	0	166.9
DOMESTIC AND STOCK [DOMESTIC]	145	144.9	145	0	0	0	0.1
DOMESTIC AND STOCK [STOCK]	98	94	98	0	0	0	9
LOCAL WATER UTILITY	10,832	3,854	10,832	0	0	0	6,978
MAJOR UTILITY [POWER GENERATION]	36,000	38,223.7	36,000	32,400	0	0	30,176.3
REGULATED RIVER (GENERAL SECURITY)	127,023	102,249.5	126,790	30,663.6	11,048.1	11,055.7	57,827.6
REGULATED RIVER (HIGH SECURITY)	21,740	15,849.6	21,740	5,137.3	2,007.6	2,000	5,900.4
SUPPLEMENTARY WATER	48,519.2	48,504.1	48,519.1	0	0	0	15
GRAND TOTAL	245,902.2	210,332.9	245,669.1	68,200.9	13,055.7	13,055.7	101,073.3

General Security Available Water Determination		
Date	AWD ML/Share	Total %
1-Jul-17	1	100%

Water Availability

Paterson River 2017/18



Licence Category	Share Component	Balance	AWD Volume	Carryover In	Allocation Assignments In	Allocation Assignments Out	Usage
DOMESTIC AND STOCK	42	42	42	0	0	0	0
DOMESTIC AND STOCK [DOMESTIC]	2	2	2	0	0	0	0
DOMESTIC AND STOCK [STOCK]	5	5	5	0	0	0	0
REGULATED RIVER (GENERAL SECURITY)	9,565	9,369.3	9,565.1	951.1	150	200	1,055.9
REGULATED RIVER (HIGH SECURITY)	190	237	190	0	50	0	3
REGULATED RIVER (HIGH SECURITY)[TOWN WATER SUPPLY]	75	75	75	0	0	0	0
SUPPLEMENTARY WATER	755.9	755.9	755.9	0	0	0	0
GRAND TOTAL	10,634.9	10,486.2	10,635	951.1	200	200	1,058.9

General Security Available Water Determination		
Date	AWD ML/Share	Total %
1-Jul-17	1.0	100%

Water Availability

Richmond Regulated River

2017/18



Licence Category	Share Component	Balance	AWD Volume	Carryover In	Allocation Assignments In	Allocation Assignments Out	Usage
DOMESTIC AND STOCK [DOMESTIC]	6	6	6	0	0	0	0
DOMESTIC AND STOCK [STOCK]	8	8	8	0	0	0	0
REGULATED RIVER (GENERAL SECURITY)	9,231	8,846.1	9,231	0	0	0	384.9
REGULATED RIVER (HIGH SECURITY)	123	113	123	0	0	0	10
GRAND TOTAL	9,368	9,072.2	9,368	0	0	0	394.9

General Security Available Water Determination		
Date	AWD ML/Share	Total %
1-Jul-17	1.0	100%

Water Availability

Bega/Brogo River 2017/18



Licence Category	Share Component	Balance	AWD Volume	Carryover In	Allocation Assignments In	Allocation Assignments Out	Usage
DOMESTIC AND STOCK	32	26	32	0	0	0	6
DOMESTIC AND STOCK [DOMESTIC]	16.5	10.5	16.5	0	0	0	6
DOMESTIC AND STOCK [STOCK]	5	5	5	0	0	0	0
REGULATED RIVER (GENERAL SECURITY)	13,883	7,511.7	9,718.1	0	0	0	3,043.5
REGULATED RIVER (HIGH SECURITY)	421.5	314.5	421.5	0	0	0	107
REGULATED RIVER (HIGH SECURITY)[TOWN WATER SUPPLY]	700	442.6	700	0	0	0	257.4
SUPPLEMENTARY WATER	1,300	1,078	1,300	0	0	0	222
GRAND TOTAL	16,358	9,388.3	12,193.1	0	0	0	3,641.9

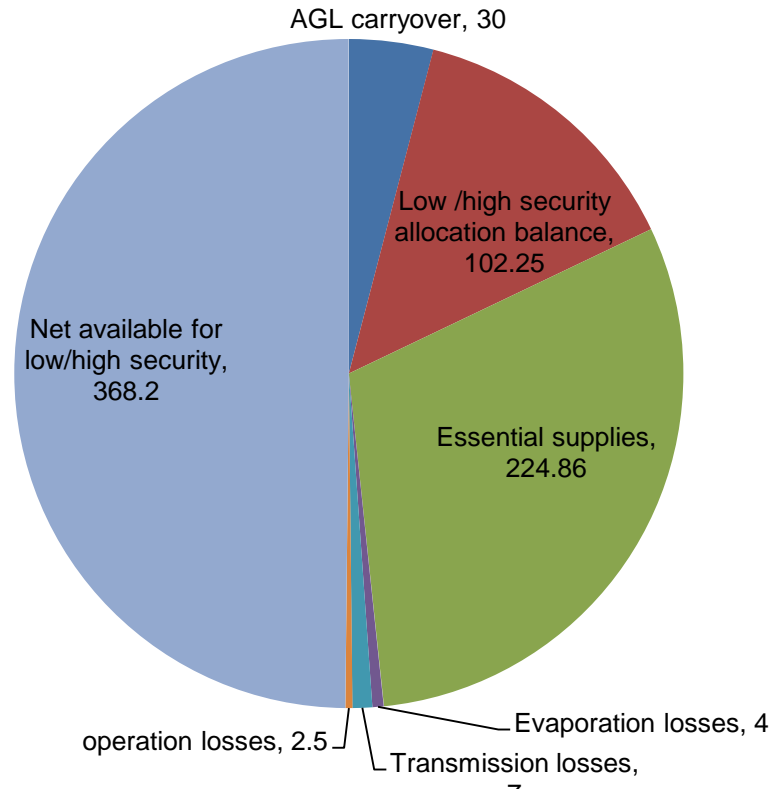
General Security Available Water Determination		
Date	AWD ML/Share	Total %
1-Jul-17	0.45	45%
7-Dec-17	0.25	70%
9-Feb-18	0.05	75%

Hunter and Coastal Valleys Water Operations Report - June 2018

Water Availability

Hunter River system 2017/18

Hunter Valley Resource Assessment breakdown 1 May 2018



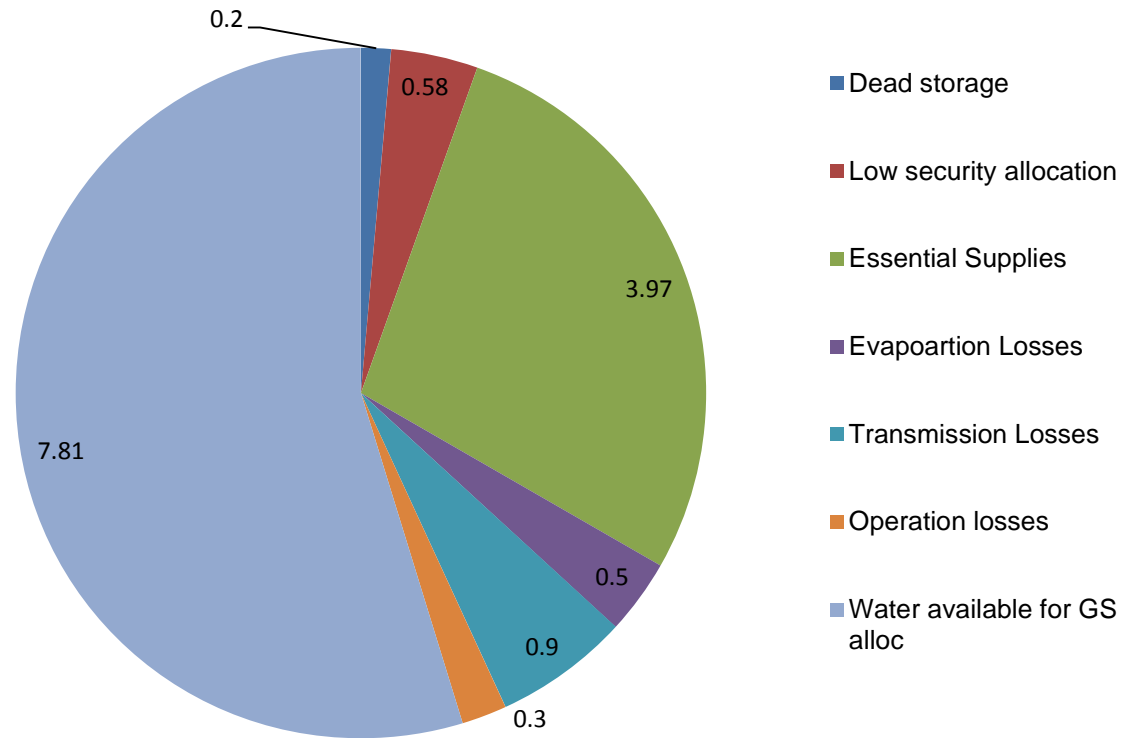
Hunter and Coastal Valleys Water Operations Report - June 2018

Water Availability

Lostock system 2017/18



Lostock Dam Resource assessment breakdown 1 May 18



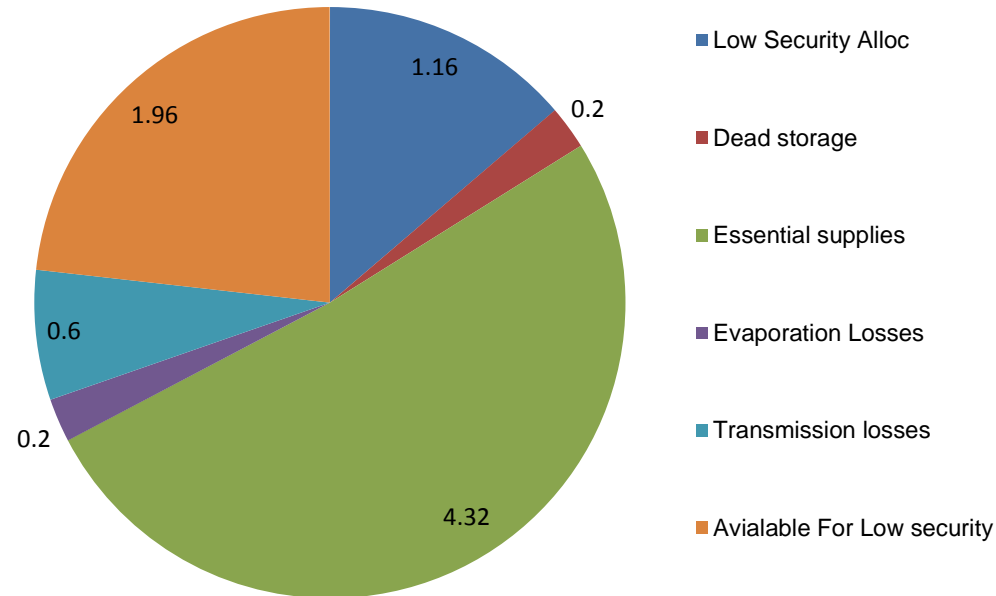
Water Availability

Bega/Brogo system 2017/18



Brogo Dam Resource Assessment breakdown

1 May 2018



Resource Assessment

Hunter Resource Assessment	1/05/2018	1/04/2018	1/03/2018	1/02/2018	1/01/2018	1/12/2017	1/11/2017	1/10/2017	1/09/2017	1/08/2017	1/07/2017	1/06/2017
Storage Volume	739.5	766.2	774.4	797.6	821.9	879.0	859.4	869.7	883.8	891.6	892.8	871.8
plus Minimum Inflows	1.2	2.3	2.4	2.6	4.5	10.6	10.6	13.6	26.4	24.5	26.9	2.4
less Dead Storage	2	2	2	2	2	2	2	2	2	2	2	2
less Storage loss	4.2	6.3	8.3	10.4	12.5	16.7	17.0	19.0	19.4	22.9	25.0	2.0
less Essential Supplies	224.9	216.4	191.6	193.7	197.3	206.1	206.1	209.2	213.6	219.1	219.1	207.8
less delivery loss	7.0	10.5	14.0	17.5	21.0	28.0	31.0	32.7	47.5	52.3	57.0	18.5
less General Security	127.3	127.3	127.3	127.3	127.3	127.3	127.4	127.4	127.4	127.4	127.4	127.4
Allocation %	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Resource Assessment

Paterson Resource Assessment	1/05/2018	1/03/2018	1/02/2018	1/01/2018	1/12/2017	1/11/2017	1/10/2017	1/09/2017	1/08/2017	1/07/2017	1/06/2017	1/05/2017
Storage Volume	11.7	11.7	14.9	14.9	16.7	17.7	18.7	19.8	20.2	20.3	19.8	20.3
plus Minimum Inflows	2.6	5.4	5.5	6.3	2.2	2.2	3.4	4.6	7.3	11.3	3.4	2.4
less Dead Storage	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
less Storage loss	0.5	1.0	1.3	1.5	2.0	2.0	2.3	2.5	2.8	3.0	0.3	0.5
less Essential Supplies	4.0	5.9	6.9	7.9	9.9	9.9	10.9	11.9	1.4	1.5	0.6	3.6
less delivery loss	0.9	1.8	2.3	2.8	3.7	4.9	5.5	6.1	6.7	7.3	0.7	1.2
less ECA	2	2	2	2	2	2	2	2	2	2	2	2
less General Security	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
Allocation %	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Resource Assessment



Richmond Resource Assessment	1/05/2018	1/04/2018	1/03/2018	1/02/2018	1/01/2018	1/12/2017	1/11/2017	1/10/2017	1/09/2017	1/08/2017	1/07/2017	1/06/2017
Storage Volume	11.1	11.2	11.2	10.9	11.2	11.2	11.2	10.5	11.0	11.1	11.2	11.1
plus Minimum Inflows	1.4	2.1	3.3	4.6	6.1	7.3	7.3	10.1	14.6	16.5	17.2	6.3
less Dead Storage	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
less Storage loss	0.2	0.3	0.4	0.5	0.6	0.7	0.7	0.8	0.9	1.0	1.1	1.1
less Essential Supplies	1.6	1.9	2.3	2.6	2.9	3.5	3.5	3.8	4.0	4.3	3.8	2.3
less delivery loss	0.1	0.2	0.2	0.3	0.4	0.5	0.4	0.6	0.8	1.0	1.2	3.5
less General Security	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2
Allocation %	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

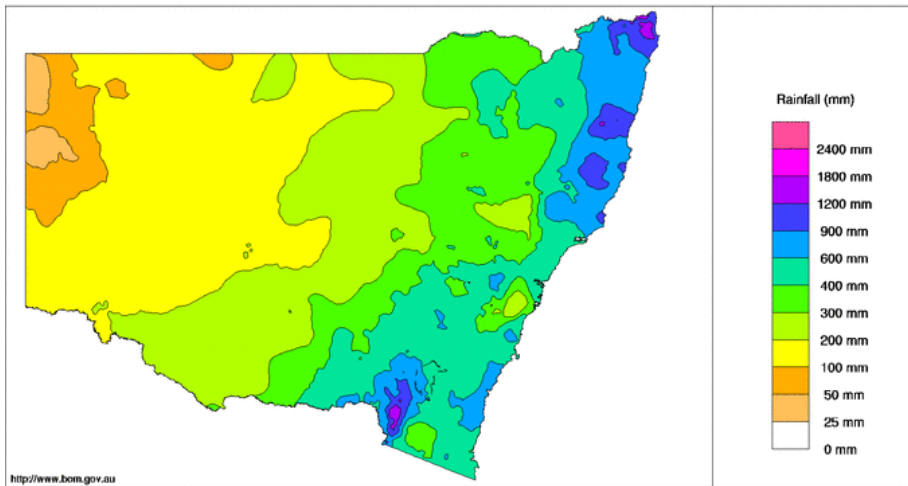
Resource Assessment



Bega/Brogo Resource Assessment	1/05/2018	1/04/2018	1/03/2018	1/02/2018	1/01/2018	1/11/2017	1/10/2017	1/09/2017	1/08/2017	1/07/2017	1/06/2017
Storage Volume	8.4	9.0	9.0	8.7	9.0	6.6	7.9	8.9	9.0	9.0	9.0
plus Minimum Inflows	0.0	0.1	0.2	0.4	0.9	2.0	2.1	2.4	2.9	2.8	0.3
less Dead Storage	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
less Storage loss	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	0.3
less Essential Supplies	4.3	4.6	3.9	2.9	3.5	2.2	2.5	2.7	2.6	4.9	0.5
less delivery loss	0.6	0.9	1.2	1.5	1.8	1.6	1.9	2.1	2.3	2.5	0.2
less General Security	1.2	2.0	5.1	5.3	7.6	6.3	6.3	6.3	6.3	6.3	9.8
Allocation %	75%	75%	75%	75%	70%	45%	45%	45%	45%	45%	70%

9 Month Rainfall

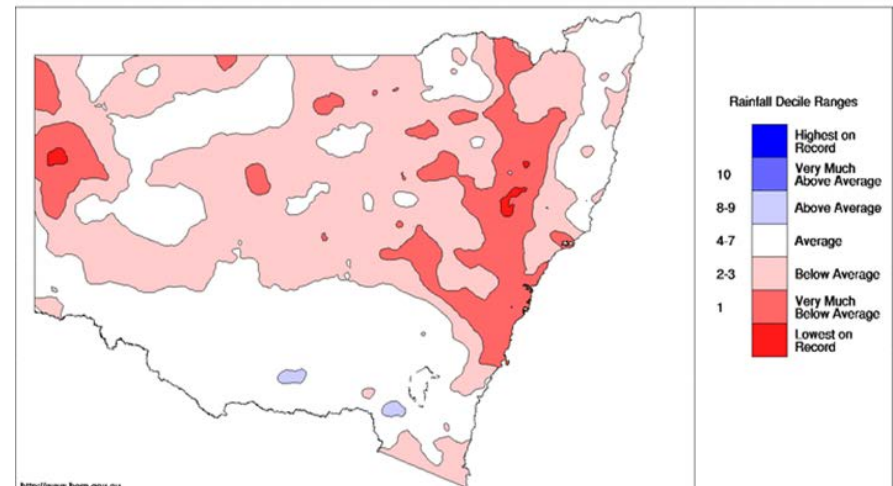
New South Wales Rainfall totals (mm) 1 July 2017 to 31 March 2018
Australian Bureau of Meteorology



<http://www.bom.gov.au>
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Issued: 27/04/2018

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



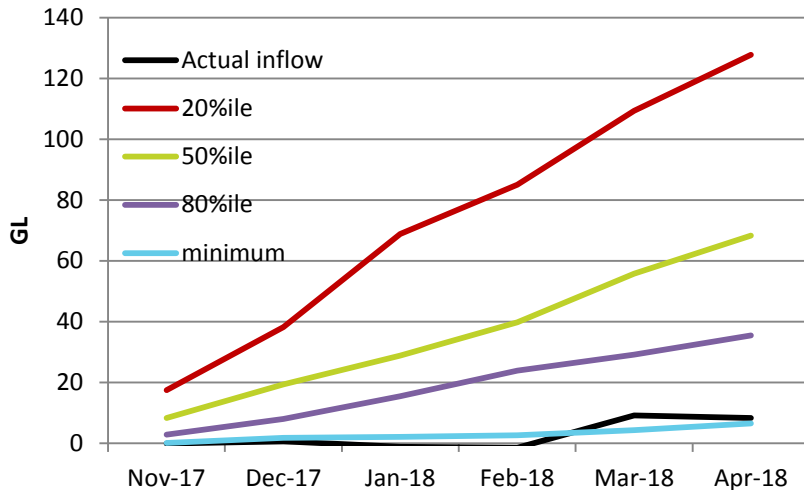
<http://www.bom.gov.au>
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Hunter Dam Inflows



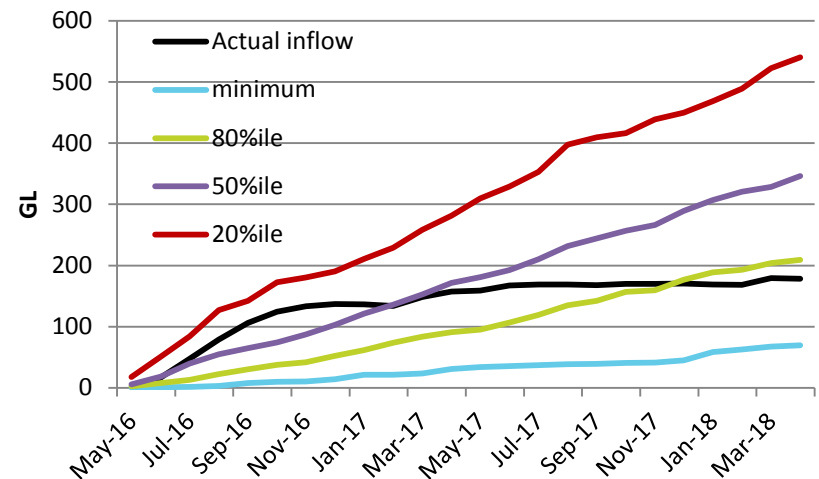
Glenbawn/Glennies past 6 months cumulative inflow/statistical inflows



Inflows are consistent with rainfall over the past 6 month period. Actual inflow for the 6 months is 8.3 GL: while the minimum is 6.6 GL.

Inflows are consistent with rainfall over the past 24 month period. Actual inflow for the 24 months is 179 GL just below the 90th percentile(166 GL): while the minimum is 70 GL.

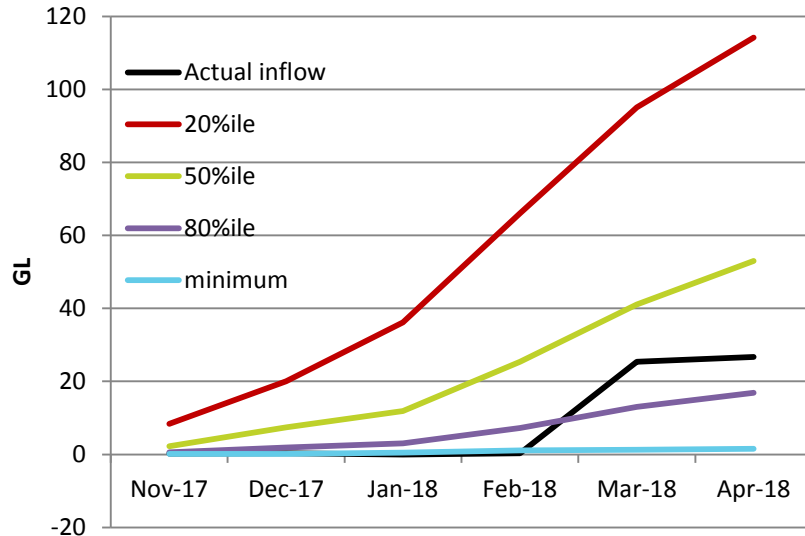
Glenbawn/Glennies past 24 months cumulative inflow/statistical inflows



Lostock Dam inflows



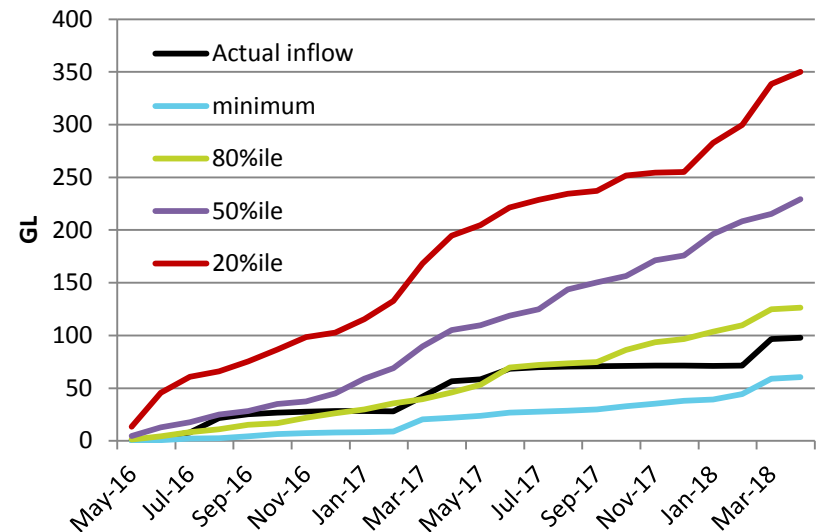
Lostock past 6 months cumulative inflow/statistical inflows



Inflows are consistent with rainfall over the past 6 month period. Actual inflow for the 6 month period is 27 GL just below 70th percentile of 29 GL.

Inflows are consistent with rainfall over the past 24 month period. Actual inflow for the 24 months is 97.9 GL just above 90th percentile (95.9 GL): while the minimum is 61 GL.

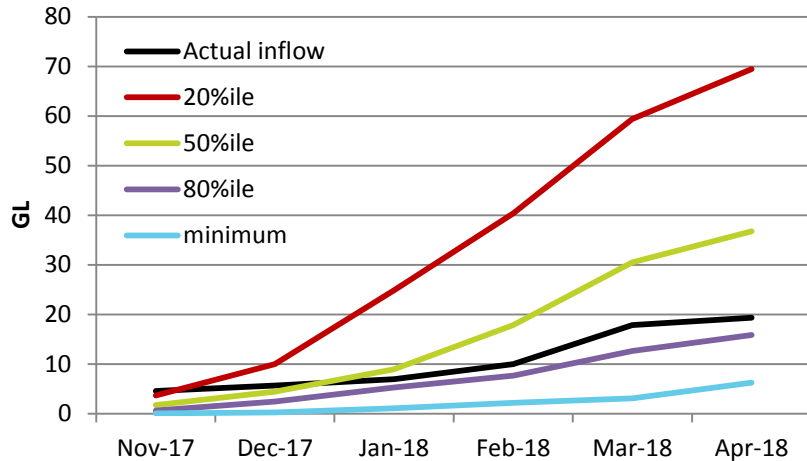
Lostock past 24 months cumulative inflow/statistical inflows



Toonumbar Dam Inflows



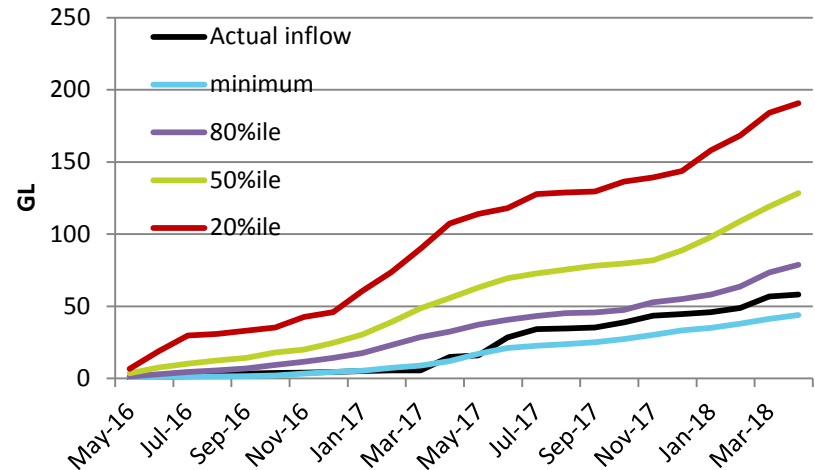
Toonumbar past 6 months cumulative inflow/statistical inflows



Inflows are consistent with rainfall over the past 6 month period. Actual inflow for the 6 months is 19 GL in line with the 50th percentile inflows (18 GL); while the minimum is 2 GL.

Inflows are consistent with rainfall over the past 24 month period. Actual inflow for the 24 months is 58 GL, just above 95th percentile inflows (55 GL); while the minimum is 44 GL.

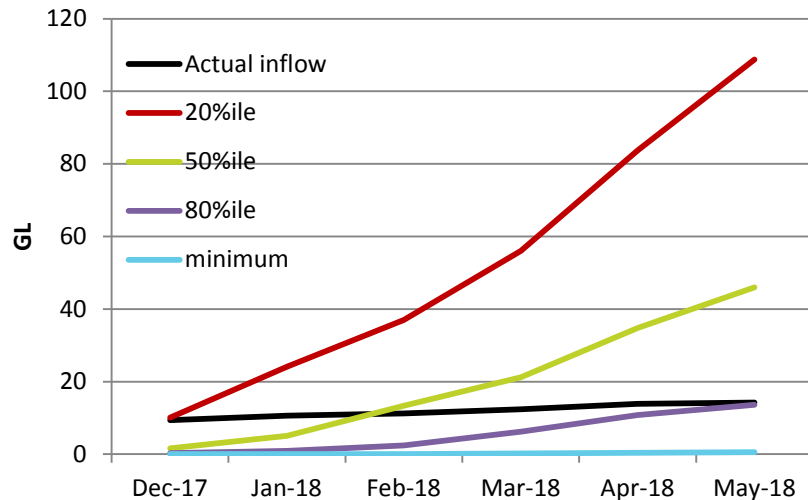
Toonumbar past 24 months cumulative inflow/statistical inflows



Brogo Dam Inflows



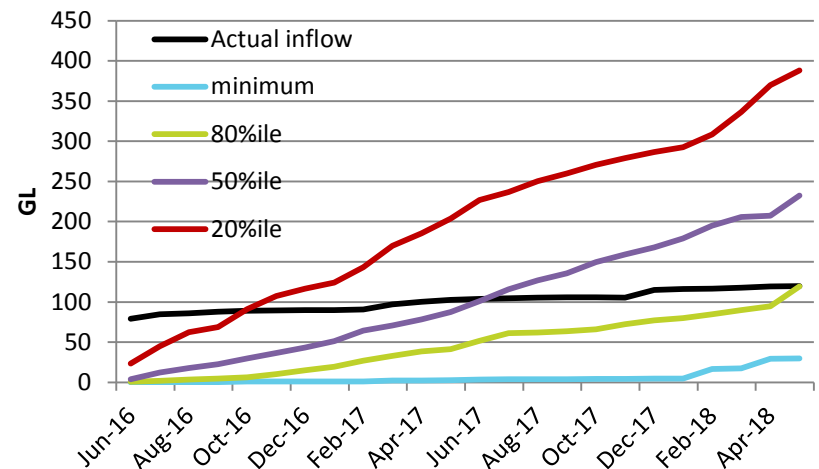
Brogo past 6 months cumulative inflow/statistical inflows



Inflows are consistent with rainfall over the past 24 month period. Actual inflow for the 6 months is 14 GL just above 80th percentile (13.6 GL), while the minimum is 0.6 GL.

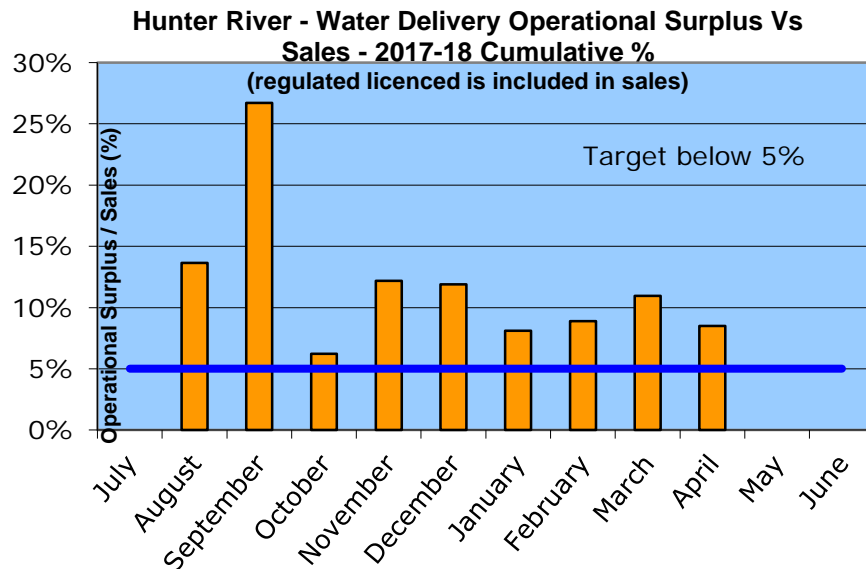
Inflows are consistent with rainfall over the past 24 month period. Actual inflow for the 6 months is 14 GL just above 80th percentile (13.6 GL), while the minimum is 0.6 GL.

Brogo past 24 months cumulative inflow/statistical inflows



Operational Loss

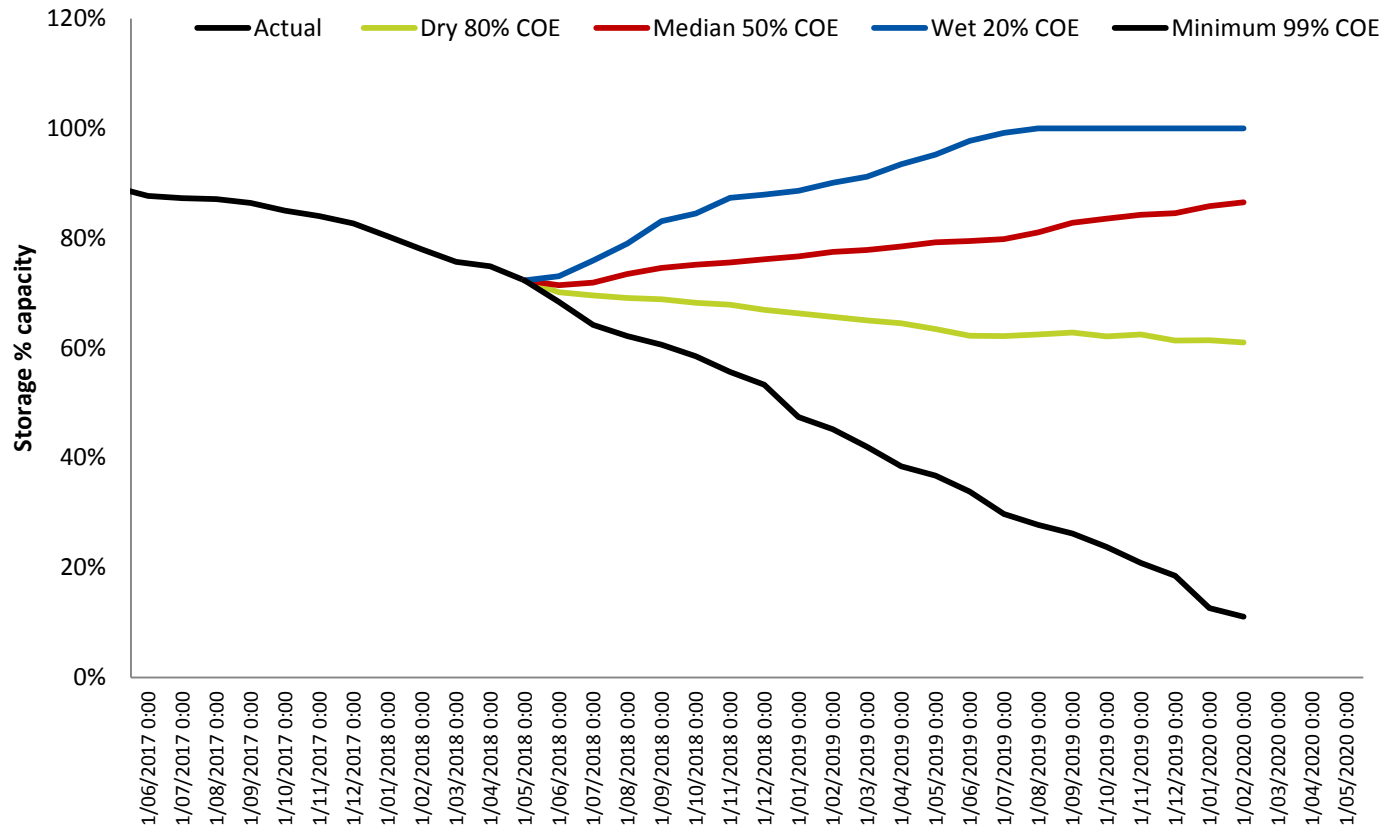
Operational surplus is water above that which could reasonably be expected (*flow about 20 ML/day*) to pass the last extraction point on each given river/creek being supplied with regulated flow (*dam releases and controlled tributary inflows – not supplementary flows*).



Hunter Cumulative Totals				
	Sales + Environmental delivery	Operational Surplus	Actual	Target
July	1,551	0	0%	5%
July-Aug	2,772	378	14%	5%
July-Sep	3,479	929	27%	5%
July-Oct	19,400	1,209	6%	5%
July-Nov	20994	2,560	12%	5%
July-Dec	33297	3,963	12%	5%
July-Jan	51413	4,163	8%	5%
July-Feb	61675	5,485	9%	5%
July-Mar	73733	8,076	11%	5%
July-Apr	94944	8,076	9%	5%
July-May			0%	5%
July-Jun			0%	5%

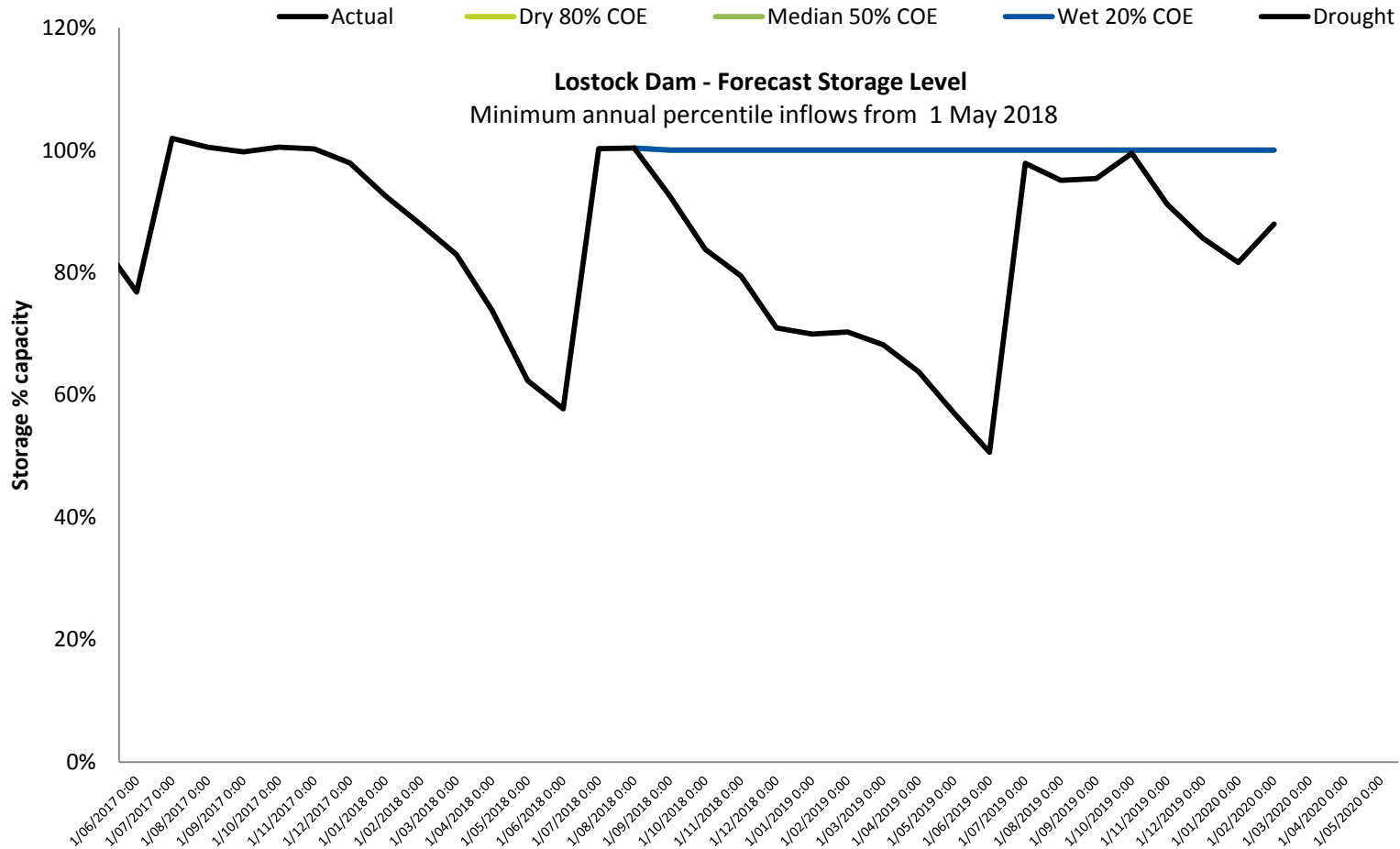
Storage Forecast

Hunter Dams - Forecast Storage Levels %



Expected deliveries of 120 GL throughout 2017/18 under minimum conditions.

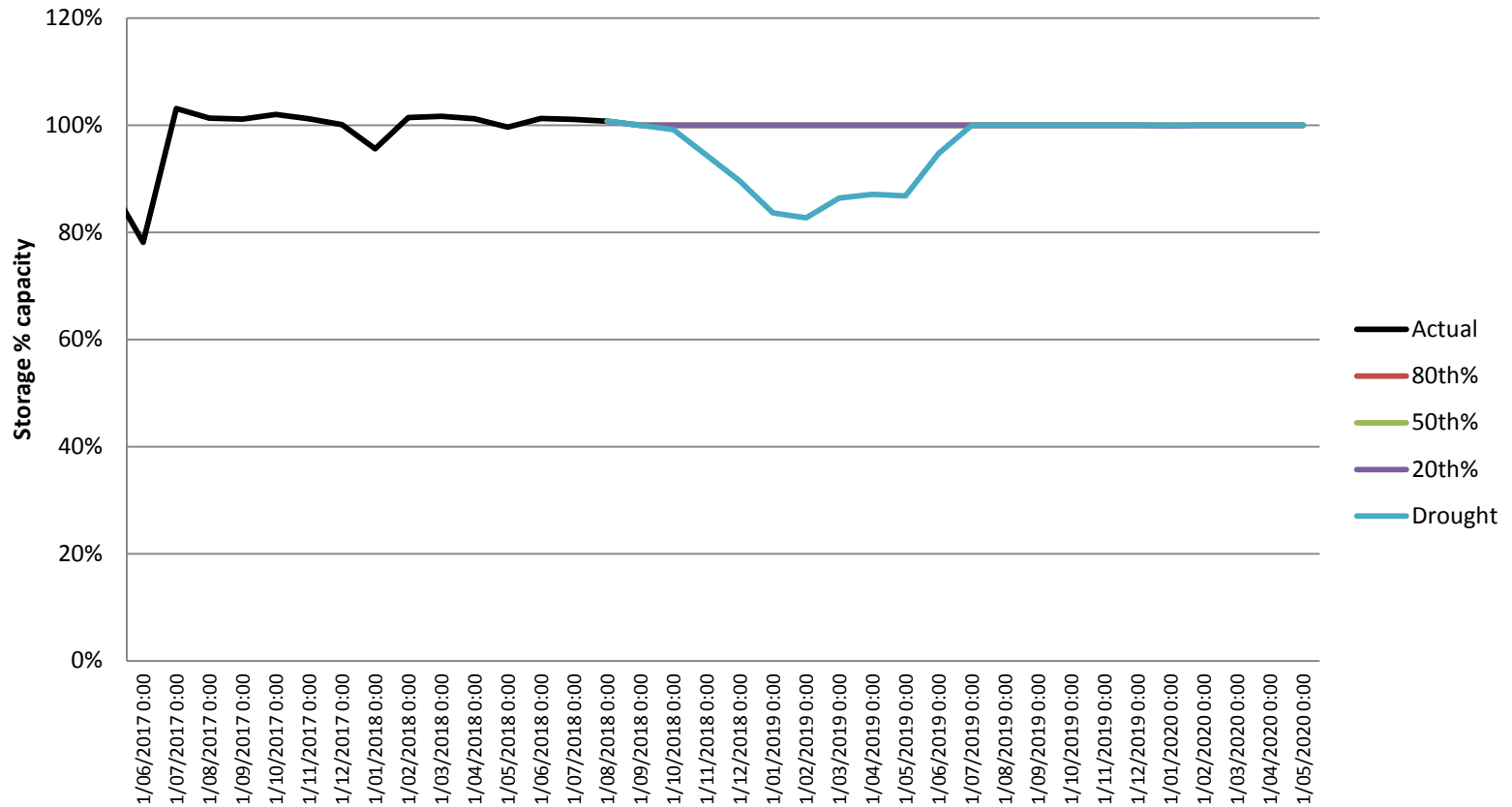
Storage Forecast



Expected deliveries of 4GL

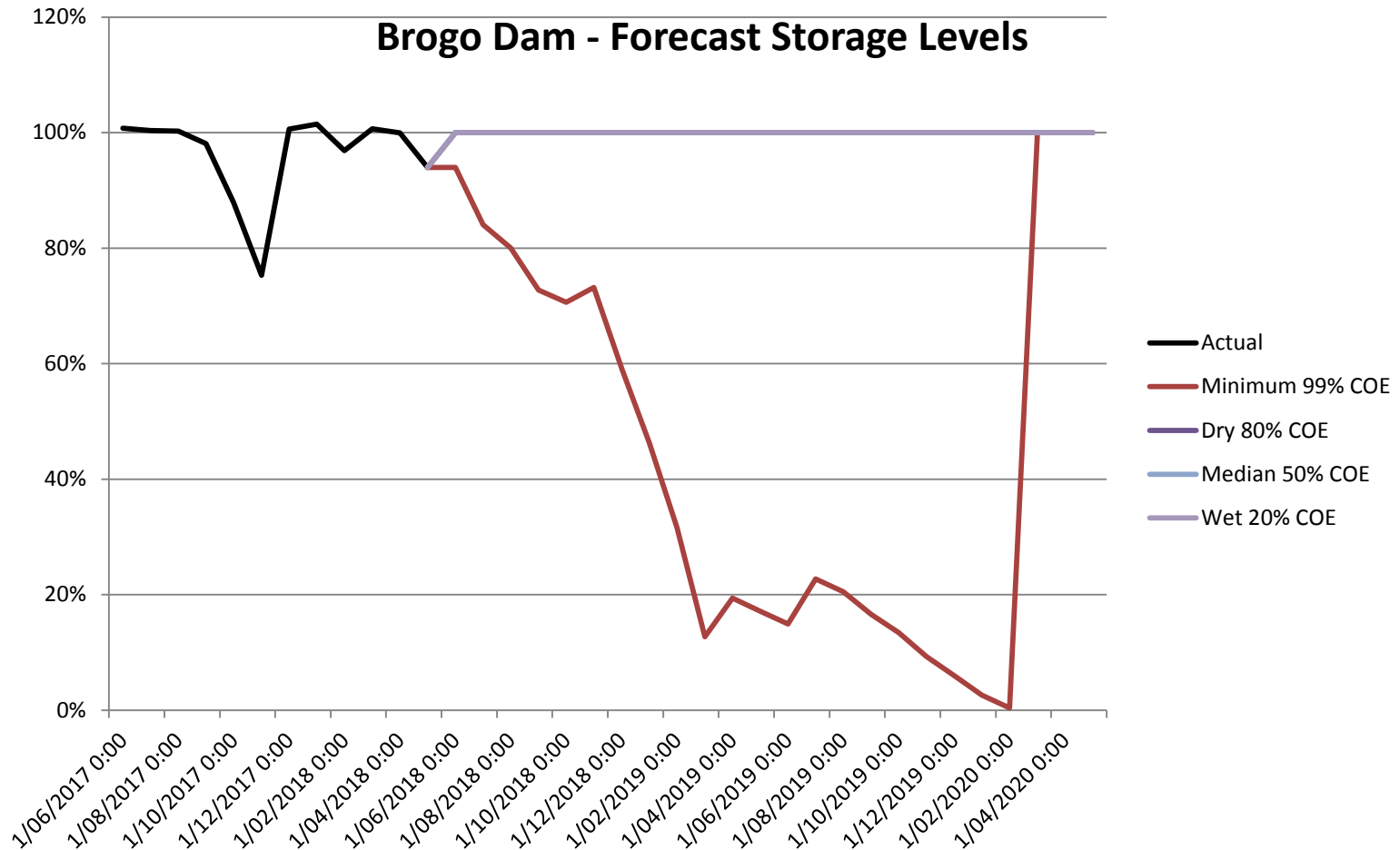
Storage Forecast

Toonumbar Dam- Forecast Storage Level
 Minimum annual percentile inflows from 1 May 2017



Expected deliveries of 0.8 GL throughout 2017/18 under minimum and dry conditions.

Storage Forecast



Expected deliveries of 5 GL throughout 2017/18 under minimum and dry conditions.

System Operations Plan



- Hunter Valley (Glenbawn/ Glennies)
 - Continue to reduce operational surplus and implement water order strategy otherwise operations as normal, though lower river conditions may be present. 100% allocation.
- Lostock
 - Operations as normal. 100% allocation. Dry conditions, continue to reduce operational surplus.
- Richmond
 - Operations as normal. 100% allocation
- Brogo/Bega
 - Operations as normal. 75% allocation. Have been dry conditions, but recently have seen some improvement. Continue to reduce operational surplus.

Prognosis

Chances Of Improvement

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

Potential Inflow Conditions	General Security AWD (%)							
	Hunter		Paterson		Richmond		Bega/Brogo	
	1-Mar-18	1-Jul-18	1-Mar-18	1-Jul-18	1-Mar-18	1-Jul-18	1-Mar-18	1-Jul-18
Extremely Dry (99% inflows: 99 chances in 100)	100	100	100	80	100	100	75	11
Dry (80% inflows: 80 chances in 100)	100	100	100	100	100	100	75	45
Average (50% inflows: 50 chances in 100)	100	100	100	100	100	100	75	45
Wet (25% inflows: 25 chances in 100)	100	100	100	100	100	100	75	45

