



RIVER MURRAY WEEKLY REPORT

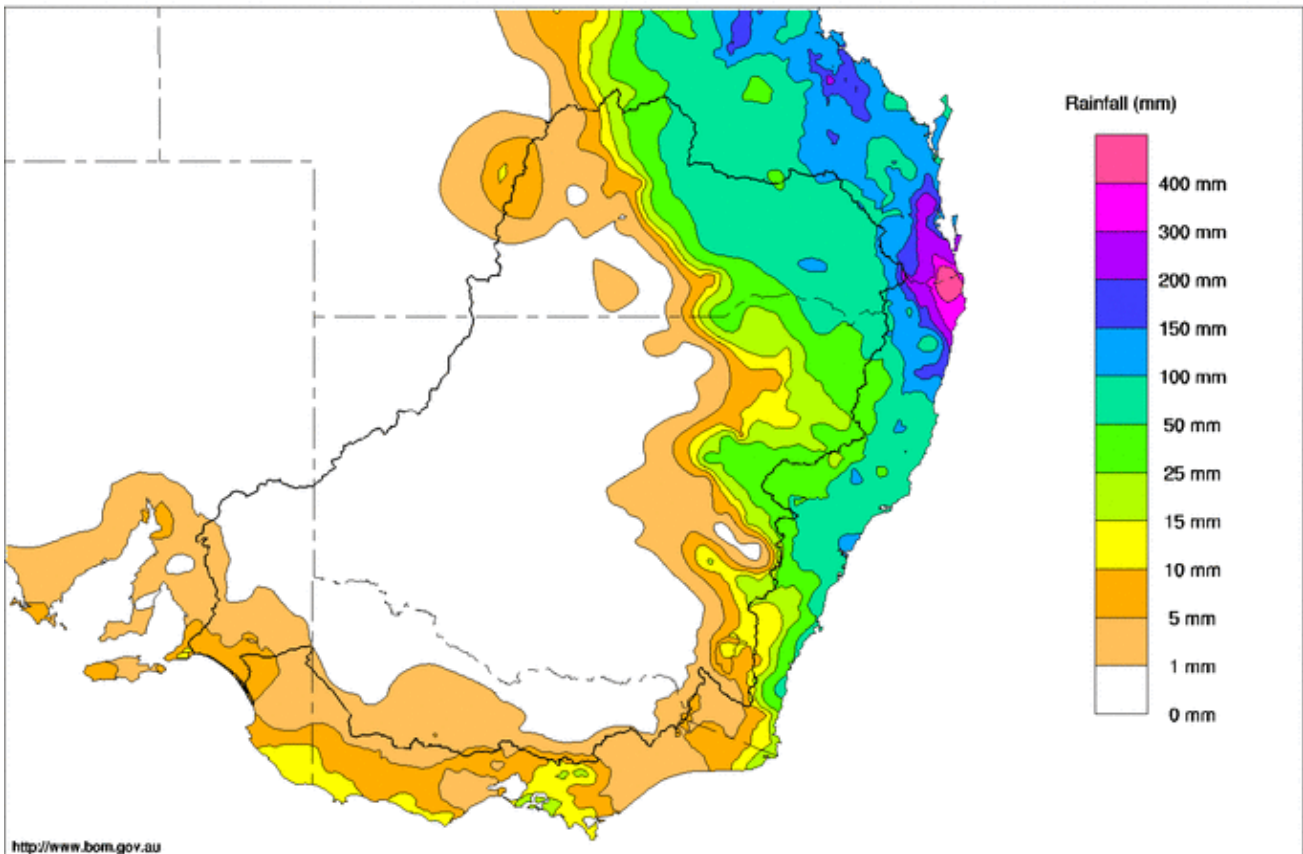
FOR THE WEEK ENDING WEDNESDAY, 5TH APRIL 2017

Trim Ref: D17/15210

Rainfall and inflows

Most rainfall this week was confined to the north east of the Basin in the wake of ex-tropical cyclone Debbie which tracked southwards across the Queensland-New South Wales border (Map 1). This resulted in heavy rainfall within Queensland's Condamine-Balonne catchment with a weekly total of 169 mm recorded outside of Dalby and 138 mm in Maryvale. Less rainfall reached the Basin in New South Wales where a top of 63 mm was recorded at both Glenn Innes and Deepwater in the northern tablelands. The ex-tropical cyclone has since moved offshore. There was no significant rainfall in Victoria or South Australia, with only 6mm recorded in the southern reaches of the Basin. Very little rainfall was recorded over the River Murray itself.

Murray-Darling Rainfall Totals (mm) Week Ending 5th April 2017
Australian Bureau of Meteorology



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Issued: 05/04/2017

Map 1 - Murray-Darling Basin rainfall week ending 5 April 2017 (Source: Bureau of Meteorology)

At the beginning of the week, stream flows in the upper Murray tributaries were receding following last week's rain but they have since steadied. On the Mitta Mitta River, the flow at Hinnomunjie Bridge averaged 200 ML/day. On the upper Murray at Biggara the flow averaged around 280 ML/day. Downstream of Hume Reservoir both the Kiewa River at Bandiana and the Ovens River at Wangaratta



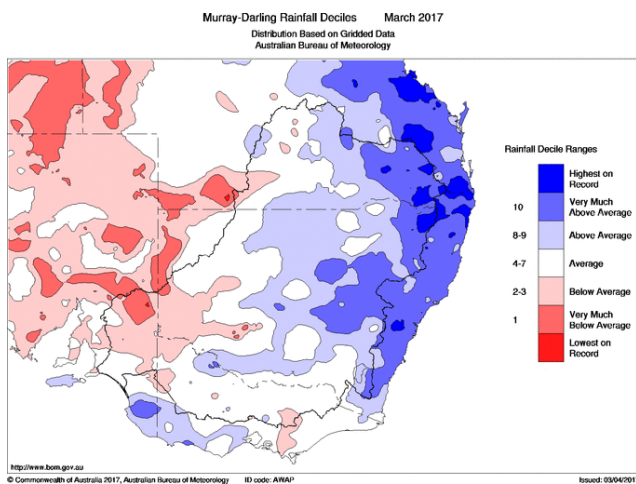
receded by about 200 ML/day this week and are currently around 330 ML/day and 530 ML/day respectively.

In the northern Basin, recent heavy rain associated with ex-Tropical Cyclone Debbie fell mainly over coastal catchments. However, significant rainfall also made its way across the divide into the upper catchments of several Barwon-Darling tributaries - including the Condamine, Moonie, Weir, Dumaresq and Macintyre Rivers - and resulted in significant flow responses. River levels exceeded the major flood level at several locations and a number of Bureau of Meteorology warnings for minor to moderate flooding remain current. It is too early at this stage to estimate the volumes of water likely to flow into the Barwon-Darling River from this event, however significant loss and diversion is likely to reduce the volume as it moves downstream. Further updates will be provided in the Weekly Report during the coming weeks.

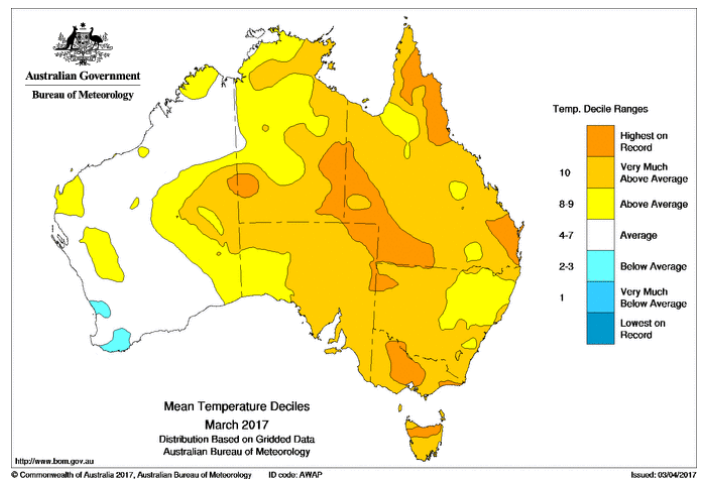
March 2017 Summary

March was a wet month in some parts of the Basin with above-average rainfall in much of New South Wales and Queensland (Map 2). Numerous locations in the north east of the Basin had their highest total March rainfall on record. In contrast, much of South Australia received below average rainfall. Close to average rainfall was recorded for most of Victoria.

The Basin experienced an exceptionally warm month with temperatures very much above average (Map 3). Some parts of north central Victoria recorded highest on record mean March temperatures with an anomaly of 2.83 °C above the long-term average. The Loddon-Avoca catchment was particularly warm with Kerang recording a mean temperature of 23.8 °C.



Map 2 - Murray-Darling Basin rainfall deciles for March 2017 (Source: Bureau of Meteorology)



Map 3 - Murray-Darling Basin temperature deciles for March 2017 (Source: Bureau of Meteorology)

River Murray System inflows during March (excluding Snowy Scheme, Darling River and managed environmental flows) totalled around 90 GL, which is below the month's long-term average of about 216 GL (see graph on page 9). In comparison with the historical record since 1891, only about 18% of previous monthly totals for March have been lower than the inflows observed in March 2017.

Estimated evaporation losses from MDBA storages for March 2017 are reported in Table 1. Evaporation is estimated by multiplying the surface area of the storage by the net evaporation. Net evaporation is derived by subtracting the rainfall recorded at the storage from this calculated evaporation. Recent warmer than average conditions have contributed to evaporation within the Basin.



Table 1 - Monthly evaporation figures for MDBA storages

Storage	*Approximate (net) evaporative loss in March 2017 (GL)	Average storage volume in March 2017 (GL)	Percentage net evaporative loss in March 2017
Dartmouth	4.5	2994	0.2
Hume	11	2118	0.5
Lake Victoria	16	402	4.0
Menindee Lakes	78	982	7.9

* Evaporative loss from storage = surface area of the storage x net evaporation.

River operations

- River Murray flows variable in the lead up to Easter
- Goulburn River flows recede

System Operations

Similar to the last few weeks, operations continue to focus on releasing sufficient water from storage to meet system demands and steer towards targets at key locations, including Lake Victoria; while also aiming to conserve water for next season.

Low and variable flows are projected along the mid-reaches of the River Murray during coming weeks, [including the Easter period](#). River users are therefore advised to maintain a close eye on conditions and keep up to date via the MDBA Weekly Report when planning recreational or other activities.

River Operations

Total MDBA storage decreased by 145 GL this week, with active storage now 5,418 GL (63% capacity).

The storage volume at **Dartmouth Reservoir** has not changed this week, remaining at 2,994 GL (78% capacity). The release from Dartmouth, measured at Coleman’s, averaged 300 ML/day. The release will be increased for this weekend to 1,000 ML/day, see attached flow advice.

Storage in **Hume Reservoir** decreased this week by 85 GL and is currently 1,909 GL (64% capacity). Releases from Hume were as high as 17,000 ML/day at the beginning of the week before falling to 12,000 ML/day due to fluctuating demand and losses in the Hume to Lake Mulwala reach. The release now sits at 14,000 ML/day.

Diversions from **Lake Mulwala** remained high this week. Diversion to Mulwala Canal has seen an increase to almost 5,000 ML/day, whereas diversion to Yarrawonga Main Channel has remained relatively constant, averaging 2,300 ML/day. After dropping to 124.64 m AHD last Thursday, the water level at Lake Mulwala is now sitting at 124.84 m AHD. The releases downstream of **Yarrawonga Weir** have averaged around 8,000 ML/day.

Inflows to the **Edward-Wakool** system have remained fairly steady through the week with very similar flows as last week. Flows through the Edward River off-take have remained around 1,600 ML/day while the Gulpa Creek off-take has remained around 330 ML/day. Diversions from the **Stevens Weir** pool into the Wakool Main Canal are considerably lower than in previous months and are currently



around 900 ML/day. Downstream of Stevens Weir the flow has been relatively steady averaging almost 800 ML/day.

On the **Goulburn River**, the flow at McCoys Bridge has continued to recede as anticipated, falling from 2,000 ML/day to 1,000 ML/day. This reduction in flow was due to the cessation of IVT from the Goulburn and reduction in environmental water from the Goulburn. Delivery of IVT from the Goulburn for April and May will depend on system demands and weather.

Diversion from **Torrumbarry Weir** pool to National Channel has remained steady at around 3,200 ML/day. Due to diminished upstream inflows and relatively high irrigation demands, the release downstream of the weir has receded from 5,000 ML/day at the beginning of the week to just under 2,500 ML/day. Further downstream at Swan Hill the flow also receded this week, from around 5,500 ML/day to 3,600 ML/day. The flow at Swan Hill is forecast to recede further to around 2,500 ML/day this coming week (this corresponds with a level of around 0.67 m which is above the minimum target level of 0.6 m local gauge height)

A significant increase in flow is being experienced on the **Murrumbidgee River** at Balranald. As projected last week, the arrival of environmental water has seen an increase from around 900 ML/day at the beginning of the week to around 3,430 ML/day on Wednesday. These are the highest recorded flows since the beginning of January.

At **Euston Weir**, the pool level is currently 47.42 m AHD (18 cm below full supply level) see photo 1. As part of the weir pool variability program it is expected that this level will vary to around 20 cm below FSL over the coming days. The flow rate downstream of the weir has continued to rise gradually and is now around 6,200 ML/day.



Photo 1– Looking upstream at Euston Weir. The weir pool is currently being varied to manage downstream flows whilst erosion control measures are being undertaken. (Source: Phil Cocks, Water NSW)



On the **Darling River**, total storage volume in the **Menindee Lakes** fell by 45 GL, to the current volume of 863 GL (50% capacity). The release from Menindee Lakes into the lower Darling River has been steady this week around 1,400 ML/day but is now targeting 1,000 ML/day. This is significantly lower than in previous months and can be attributed to a decrease in downstream demand. Releases over the remainder of April and May will depend on system demands. For almost the third week in a row, releases from **Lake Cawndilla** have remained at around 1,000 ML/day as environmental flows are provided to the Great Darling Anabranch. So far around 49 GL of environmental water has been released which is slowly making its way downstream and is likely to reach the Murray by the end of the month.

At the junction of the Darling and Murray rivers at **Wentworth**, flows have averaged around 6,500 ML/day and on Wednesday increased to 6,970 ML/day.

Weir pool variability continues at **Locks 7** and **8** which are 51 cm and 64 cm below FSL respectively. Over the coming weeks Lock 7 will be gradually lowered to around 90 cm and Lock 8 will be lowered up to one metre below FSL.

Lake Victoria storage decreased by 15 GL this week to a storage volume of 326 GL (48% capacity). The flow to **South Australia** is currently around 7,800 ML/day and is projected to decrease over the coming weeks. Downstream at **Lock 1** flows have eased to around 5,000 ML/day.

At the **Lower Lakes**, the 5-day average water level in Lake Alexandrina increased by 1 cm to 0.59 m AHD. Barrages were closed at the beginning of the week because of large swells and high tides. Releases reached around 2,800 ML/day toward the end of the week.

For media inquiries contact the Media Officer on 02 6279 0141

DAVID DREVERMAN
Executive Director, River Management



Water in Storage

Week ending Wednesday 05 Apr 2017

MDBA Storages	Full Supply Level	Full Supply Volume (GL)	Current Storage Level	Current Storage		Dead Storage (GL)	Active Storage (GL)	Change in Total Storage for the Week (GL)
	(m AHD)		(m AHD)	(GL)	%			
Dartmouth Reservoir	486.00	3 856	471.82	2 994	78%	71	2 923	+0
Hume Reservoir	192.00	3 005	185.82	1 909	64%	23	1 886	-85
Lake Victoria	27.00	677	23.81	326	48%	100	226	-15
Menindee Lakes		1 731*		863	50%	(480 #)	383	-45
Total		9 269		6 092	66%	- -	5 418	-145
Total Active MDBA Storage							63% ^	

Major State Storages

Burrinjuck Reservoir	1 026	687	67%	3	684	-11
Blowering Reservoir	1 631	1 085	67%	24	1 061	-18
Eildon Reservoir	3 334	2 235	67%	100	2 135	-21

* Menindee surcharge capacity – 2050 GL

** All Data is rounded to nearest GL **

NSW has sole access to water when the storage falls below 480 GL. MDBA regains access to water when the storage next reaches 640 GL.

^ % of total active MDBA storage

Snowy Mountains Scheme

Snowy diversions for week ending 04 Apr 2017

Storage	Active Storage (GL)	Weekly Change (GL)	Diversions (GL)	This Week	From 1 May 2016
Lake Eucumbene - Total	1 796	-8	Snowy-Murray	+6	1 013
Snowy-Murray Component	779	-7	Tooma-Tumut	+0	335
Target Storage	1 340		Net Diversion	6	678
			Murray 1 Release	+8	1 424

Major Diversions from Murray and Lower Darling (GL) *

New South Wales	This Week	From 1 July 2016	Victoria	This Week	From 1 July 2016
Murray Irrig. Ltd (Net)	32.8	826	Yarrowonga Main Channel (net)	15.2	212
Wakool Sys Allowance	1.9	26	Torrumbarry System + Nyah (net)	21.4	381
Western Murray Irrigation	0.4	22	Sunraysia Pumped Districts	1.8	90
Licensed Pumps	8.2	218	Licensed pumps - GMW (Nyah+u/s)	1	28
Lower Darling	7.9	65	Licensed pumps - LMW	2.5	271
TOTAL	51.2	1157	TOTAL	41.9	982

* Figures are derived from actual and estimates where data is unavailable. Please note that not all data may have been available at the time of creating this report.

** All data above is rounded to nearest 100 ML for weekly data and nearest GL for cumulative data**

Flow to South Australia (GL)

* Flow to SA will be greater than normal entitlement for this month due to unregulated flows.

Entitlement this month	135.0 *
Flow this week	54.5
Flow so far this month	37.3
Flow last month	289.2

(7 800 ML/day)

Salinity (EC) (microSiemens/cm at 25° C)

	Current	Average over the last week	Average since 1 August 2016
Swan Hill	70	70	120
Euston	-	-	-
Red Cliffs	160	170	170
Merbein	170	180	170
Burtundy (Darling)	550	540	590
Lock 9	280	300	220
Lake Victoria	270	220	200
Berri	380	370	260
Waikerie	440	450	330
Morgan	460	480	330
Mannum	560	560	330
Murray Bridge	390	390	300
Milang (Lake Alex.)	500	500	500
Poltalloch (Lake Alex.)	560	540	360
Meningie (Lake Alb.)	1 800	1 820	1 760
Goolwa Barrages	1 970	2 610	1 050



River Levels and Flows

Week ending Wednesday 05 Apr 2017

River Murray	Minor Flood Stage (m)	Gauge Height		Flow (ML/day)	Trend	Average Flow this Week (ML/day)	Average Flow last Week (ML/day)
		local (m)	(m AHD)				
Khancoban	-	-	-	970	F	1 080	2 450
Jingellic	4.0	1.26	207.78	1 520	F	1 850	3 350
Tallandoon (Mitta Mitta River)	4.2	1.40	218.29	600	F	610	670
Heywoods	5.5	3.07	156.70	14 000	R	14 080	10 580
Doctors Point	5.5	2.98	151.45	14 500	R	14 500	11 610
Albury	4.3	1.99	149.43	-	-	-	-
Corowa	4.6	2.84	128.86	13 080	S	14 650	10 380
Yarrowonga Weir (d/s)	6.4	1.40	116.44	8 210	F	7 910	8 670
Tocumwal	6.4	2.09	105.93	7 320	R	6 980	7 870
Torrumbarry Weir (d/s)	7.3	1.09	79.64	2 430	F	3 560	6 190
Swan Hill	4.5	0.84	63.76	3 660	F	4 690	5 360
Wakool Junction	8.8	2.55	51.67	5 400	F	5 800	5 500
Euston Weir (d/s)	9.1	1.40	43.24	6 190	R	5 870	5 310
Mildura Weir (d/s)	-	-	-	6 540	F	6 130	5 420
Wentworth Weir (d/s)	7.3	2.88	27.64	6 970	R	6 420	5 910
Rufus Junction	-	3.57	20.50	6 960	F	7 330	9 570
Blanchetown (Lock 1 d/s)	-	0.59	-	5 170	F	6 580	7 470
Tributaries							
Kiewa at Bandiana	2.8	0.86	154.09	330	F	420	470
Ovens at Wangaratta	11.9	7.96	145.64	530	S	590	700
Goulburn at McCoys Bridge	9.0	1.53	92.95	1 000	F	1 300	2 390
Edward at Stevens Weir (d/s)	5.5	1.14	80.91	810	F	790	960
Edward at Liewah	-	1.84	57.22	1 140	R	1 010	590
Wakool at Stoney Crossing	-	1.55	55.05	750	F	730	630
Murrumbidgee at Balranald	5.0	3.41	59.37	3 430	R	2 200	850
Barwon at Mungindi	6.1	3.42	-	590	F	670	170
Darling at Bourke	9.0	4.11	-	410	S	390	800
Darling at Burtundy Rocks	-	1.09	-	1 270	R	1 380	1 780

Natural Inflow to Hume (i.e. Pre Dartmouth & Snowy Mountains scheme)	580	1 020
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Weirs and Locks Pool levels above or below Full Supply Level (FSL)

Murray	FSL (m AHD)	u/s	d/s		FSL (m AHD)	u/s	d/s
Yarrowonga	124.90	-0.06	-	No. 7 Rufus River	22.10	-0.51	+1.24
No. 26 Torrumbarry	86.05	+0.00	-	No. 6 Murtho	19.25	+0.03	+0.13
No. 15 Euston	47.60	-0.18	-	No. 5 Renmark	16.30	+0.06	+0.19
No. 11 Mildura	34.40	-0.02	+0.11	No. 4 Bookpurnong	13.20	+0.04	+0.66
No. 10 Wentworth	30.80	+0.04	+0.24	No. 3 Overland Corner	9.80	+0.00	+0.23
No. 9 Kulnine	27.40	-0.06	-0.52	No. 2 Waikerie	6.10	+0.01	+0.14
No. 8 Wangumma	24.60	-0.64	-0.20	No. 1 Blanchetown	3.20	-0.07	-0.16

Lower Lakes FSL = 0.75 m AHD

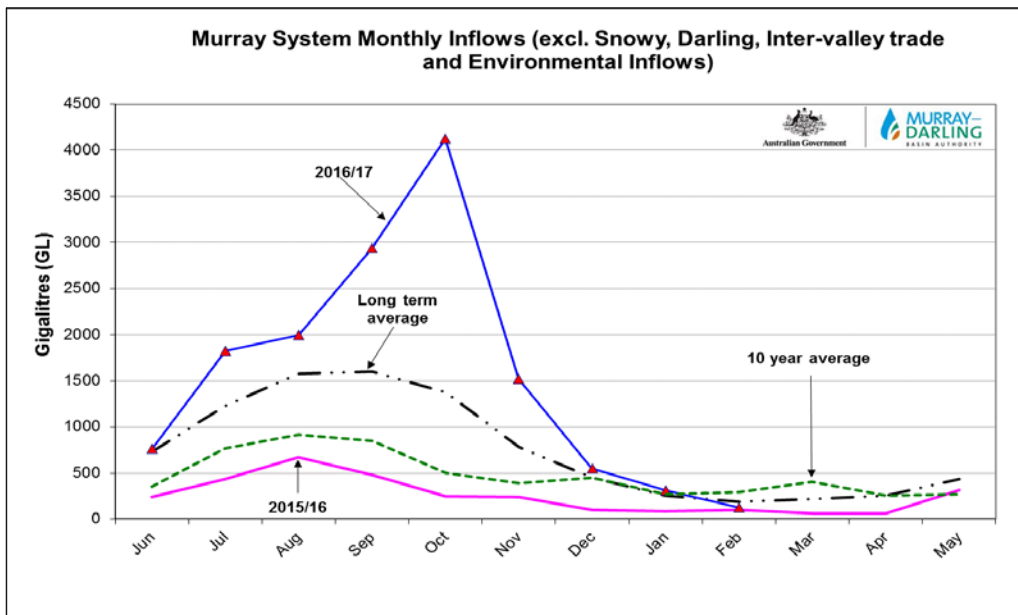
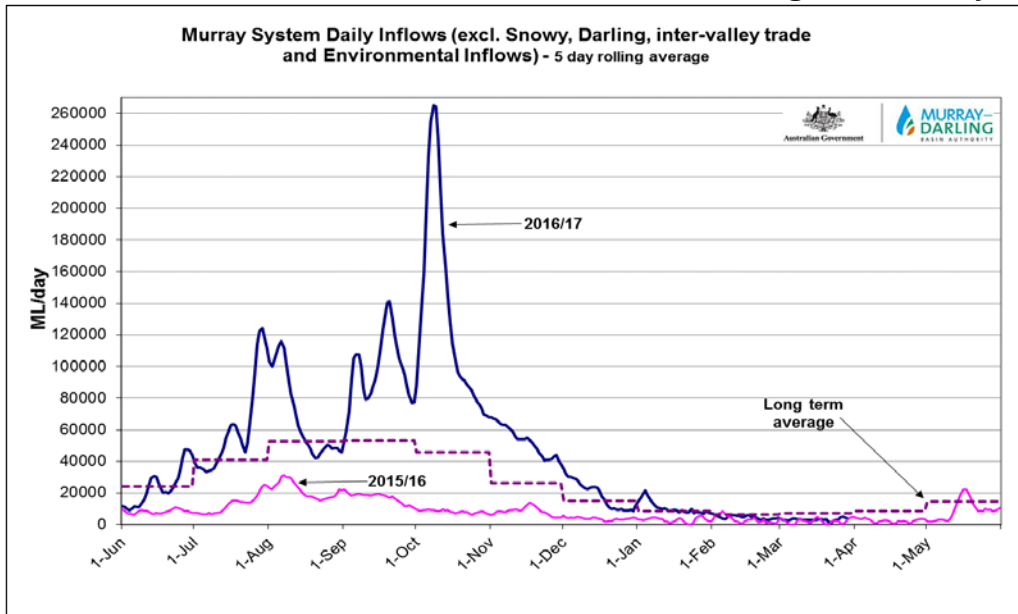
Lake Alexandrina average level for the past 5 days (m AHD)	0.59
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Barrages

Fishways at Barrages

	Openings	Level (m AHD)	No. Open	Rock Ramp	Vertical Slot 1	Vertical Slot 2	Dual Vertical Slots
Goolwa	128 openings	0.59	2	-	Open	Open	-
Mundoo	26 openings	0.56	1	-	-	-	Open
Hunters Creek	-	-	-	-	Open	-	-
Boundary Creek	6 openings	-	1	-	Open	-	-
Ewe Island	111 gates	-	All closed	-	-	-	Open
Tauwitchere	322 gates	0.60	5	Open	Open	Open	-

AHD = Level relative to Australian Height Datum, i.e. height above sea level



State Allocations (as at 05 Apr 2017)

NSW - Murray Valley

High security	100%
General security	100%

Victorian - Murray Valley

High reliability	100%
Low reliability	5%

NSW - Murrumbidgee Valley

High security	100%
General security	100%

Victorian - Goulburn Valley

High reliability	100%
Low reliability	0%

NSW - Lower Darling

High security	100%
General security	100%

South Australia - Murray Valley

High security	100%
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NSW : <http://www.water.nsw.gov.au/water-management/water-availability>

VIC : <http://nvrn.net.au/seasonal-determinations/current>

SA : <http://www.environment.sa.gov.au/managing-natural-resources/river-murray>

Flow advice



4 April 2017

Flow pulse planned for the Mitta Mitta

Landholders and river users, including pumpers, on the Mitta Mitta River are advised to take into account forecast changes in the release of water from Dartmouth Dam and make any necessary adjustment to their river activities.

On Friday 7 April, releases will be increased from 300 megalitres per day (ML/day) to 1,000 ML/day.

Releases will start being reduced on Sunday 9 April, and will return to 300 ML/day by Monday 10 April.

This pulse in the Mitta Mitta River will be of benefit to the local environment, by varying river height.

The releases from Dartmouth Dam may vary from those forecast and flows on the Mitta Mitta may increase at any time if rain falls in the catchment downstream of the dam.

Forecast Mitta Mitta flows

Time and Date	Releases from Dartmouth Dam	Colemans Gauge		Tallandoon Gauge	
		Flow (ML/day)	Height (m)	Flow (ML/day)	Height (m)
0800 hrs Friday 7 April	Flows increasing	300	1.00	600	1.40
1200 hrs Friday 7 April	Flow steady	1,000	1.40	700	1.44
1400 hrs Sunday 9 April	Flows decreasing	1,000	1.40	1,100	1.62
1000 hrs Monday 10 April	Flows steady	300	1.00	740	1.46
0800 hrs Tuesday 11 April	Flows steady	300	1.00	600	1.37

A further flow advice will be issued when there is a significant change to releases.

Landholders and river users on the Mitta Mitta are advised to regularly check the information on releases from Dartmouth Dam and current flows and forecasts on the MDBA website:

www.mdba.gov.au/river-information/storage-volumes-releases

River data for Dartmouth Dam, the Mitta Mitta and other sites on the Murray system can be seen at: <http://livedata.mdba.gov.au>.

Further details are available in the latest River Murray [Weekly Report](#).

ENDS

For more information, contact the MDBA Media office at media@mdba.gov.au or 02 6279 0141

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