



RIVER MURRAY WEEKLY REPORT

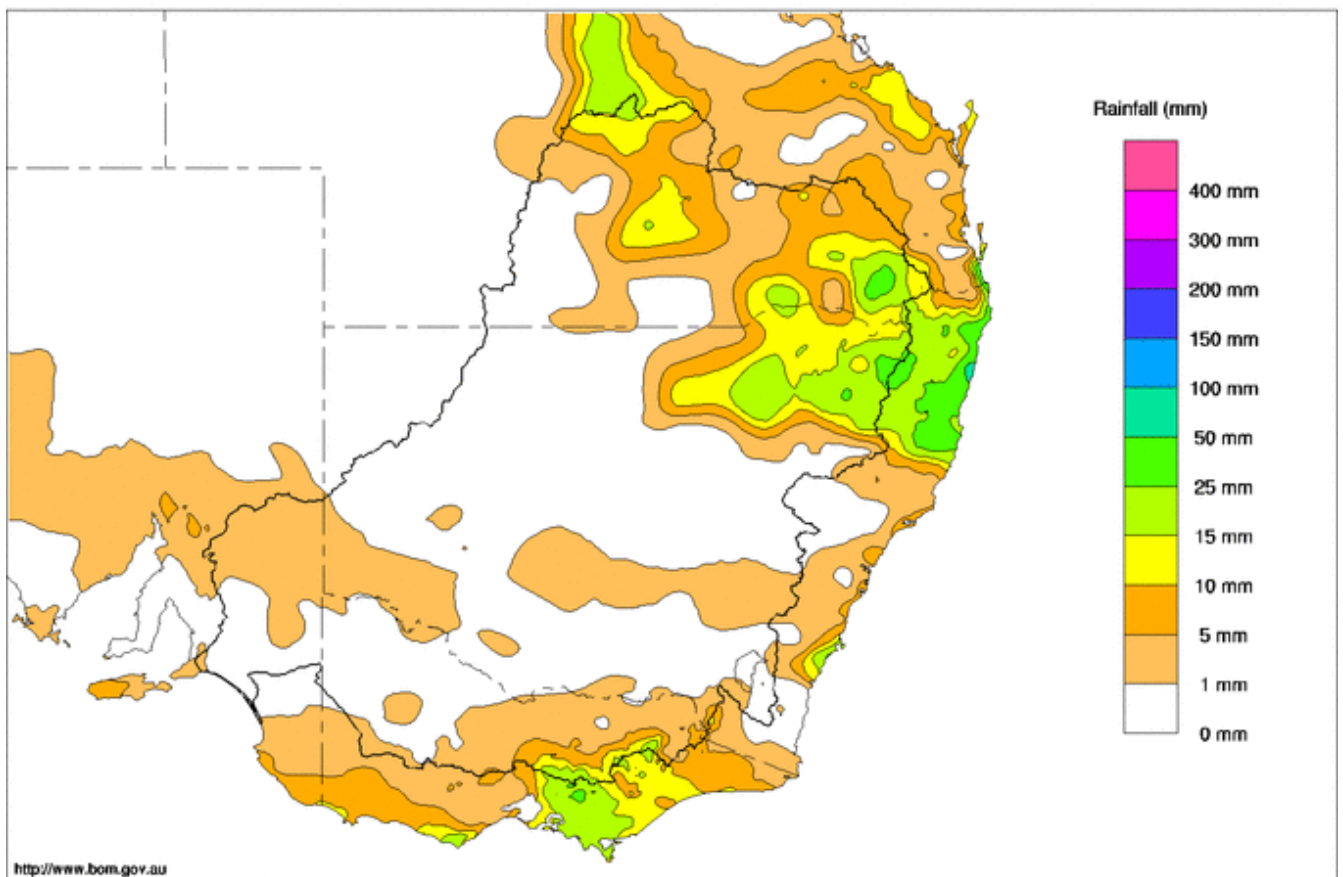
FOR THE WEEK ENDING WEDNESDAY, 13TH APRIL 2016

Trim Ref: D16/14115

Rainfall and inflows

Conditions remained relatively dry across much of the Basin this week (see Map 1). The highest recorded rainfall was in the East Darling Downs of Queensland where 50 mm fell at Clifton, with the nearby Leslie Dam receiving 25 mm. The heaviest falls in NSW were in the Northern Tablelands where 42 mm of rain fell at Glen Innes and 36 mm at Tenterfield, while on the Northwest Plains 34 mm was recorded at Wee Waa. The notable falls in Victoria were confined to the ranges, with Mt Buller receiving 23 mm while both Dohertys and Rocky Valley picked up 15 mm. South Australia was devoid of any significant rainfall.

Murray-Darling Rainfall Totals (mm) Week Ending 13th April 2016
Australian Bureau of Meteorology



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Map 1- Murray-Darling Basin rainfall week ending 13th April 2016 (Source: Bureau of Meteorology)

The lack of significant rainfall, combined with already dry catchment conditions, has resulted in flows along the upper Murray, upper Mitta Mitta and Ovens River remaining at base flow levels. On the upper Murray, Biggara has receded to below 200 ML/day, while Hinnomunjie Bridge, on the upper Mitta Mitta River, is near 130 ML/day. The Ovens River at Rocky Point remains around 160 ML/day.



River operations

- Blue-green algae red alerts extended along the Murray to now include Boundary Bend and Red Cliffs to the Lock 9 weir pool.
- Torrumbarry weir pool to be lowered by 10 cm.

Red alert warnings for blue-green algae have been extended to now include Boundary Bend and the reach between Red Cliffs and the Lock 9 weir pool. Red alerts remain in place from Hume Reservoir downstream to Murrabit and for the entire Edward-Wakool system. The alerts apply to the main channel of the river as well as many anabranches and connected lakes and wetlands. More information is available from [Goulburn Murray Water](#) and [NSW DPI](#) as well as the [MDBA website](#).

Whilst water temperatures have declined to below 20 °C at most affected locations, it is possible that a significant break down in the algae will not occur until a change to weather conditions over the Murray valley brings increased wind, cloud and rainfall.

This week the total MDBA active storage decreased by 67 GL to 2,388 GL (28% capacity).

Total storage at **Dartmouth Dam** reduced by 5 GL to 1,675 GL (43% capacity). Releases from Dartmouth, measured at Colemans, have continued at 580 ML/day and are forecast to remain near this rate over the coming week.

The storage at **Hume Reservoir** decreased by 57 GL this week to 664 GL (22% capacity). Releases from Hume were increased during the week to target 12,800 ML/day downstream at Doctors Point. This rate may be decreased over the coming week.

Diversions from **Lake Mulwala** to Mulwala Canal averaged about 2,500 ML/day this week, while diversions to Yarrowonga Main Channel reduced from close to 1,850 ML/day to 1,400 ML/day. Releases from **Yarrowonga Weir** are close to 7,000 ML/day and will be increased to 7,500 ML/day over the coming week to meet downstream needs (see Photo 1).

Of the flow released from Yarrowonga Weir, around 1,300 ML/day is being diverted into the **Edward-Wakool** system to meet demands. Around 300 ML/day is flowing into the Murray downstream of Rices Weir from the **Broken** Creek, resulting in around 6,100 ML/day at **Barmah**. The **Goulburn** River at McCoys is contributing 900 ML/day to the Murray flow, with environmental water accounting for the flow above 350 ML/day.

Around 2,900 ML/day is being diverted into the **National Channel** offtake with a flow of 3,800 ML/day remaining at Torrumbarry. Some water is lost along the river between gauges including private diversions, evaporation and seepage.

Further downstream on the Murray at **Swan Hill**, the flow is around 3,500 ML/day with a level of 0.81 metres on the local gauge. This is around 0.2 metres above the minimum target level of 0.6 m local gauge height. River heights around the current relatively low level were last experienced for extended periods in the dry years between 2004 and 2010. Similar levels were also experienced in autumn 2013 and 2014.

Given the last three years of below-average inflows, the second hottest spring on record in 2015, record March temperatures and current dry conditions, storage levels will be well below average at the end of the current season. Opening water availability for 2016-17 is almost certain to be very low and in order to maximise allocations next season, MDBA is actively trying to conserve as much water as possible in upstream storages. This will minimise evaporation losses from Lake Victoria and increase its capacity to capture tributary inflows from the Ovens, Goulburn and Murrumbidgee Rivers in winter and spring.

River levels downstream of Torrumbarry Weir can therefore be expected to remain at lower levels than were observed last year and diverters may need to adjust pump intakes accordingly. Forecasts of flows and river levels can be found on the [MDBA website](#).



Photo 1 – Looking downstream from Yarrowonga Weir. The current release of 7,000 ML/day is being used to generate hydroelectricity, and can be seen exiting the power station to the left of the above picture. (Source: Luke Cruikshank, Goulburn-Murray Water)

Torrumbarry Weir will be lowered up to 10 cm over the remainder of the month to 85.95 m AHD. This lowering is primarily to align with weir pool manipulation trials further downstream on the Murray system to introduce more variability into the river system. The lowering will contribute slight increases to downstream river levels when changes are made at the weir.

Further downstream, inflows to the Murray from the **Murrumbidgee** continue to recede due to the completion of inter-valley trade (IVT) delivery to the Murray. The flow at Balranald has declined from around 1,700 ML/day near the end of March to below 450 ML/day, and over the coming week is forecast to continue falling towards the end of system minimum target flow for April of 180 ML/day.

The receding Murrumbidgee inflows combined with reduced upstream Murray flows have resulted in the flow downstream of **Euston Weir** falling to around 5,450 ML/day. The flow is expected to drop below 4,000 ML/day later this week. As part of an on-going [weir pool variability trial](#), the weir pool level has been lowered to around 47.40 m AHD, which is 20 cm below the full supply level (FSL).

On the **Darling River**, small flows resulting from rainfall in the northern Basin during January have almost ceased, with the flow at Wilcannia now below 10 ML/day. These flows have contributed a total of around 3 to 4 GL to Lake Wetherell. The total storage volume at **Menindee Lakes** fell by 2 GL this week to a total volume of 51 GL (3% capacity).

Downstream at the confluence of the Darling and the Murray, the **Wentworth** weir pool remains 10 cm above FSL to assist water users in the Darling arm of the pool. Last week's peak of 7,100 ML/day was due to a pulse of environmental water originating from the Goulburn River. As this pulse moves further downstream the flow at Wentworth will continue to fall from the current 5,200 ML/day to around 3,000 ML/day over the coming weeks.



Both **Lock 8** and **Lock 7** are currently targeting around 25 cm below FSL as part of the continuing weir pool variability trails.

At **Lake Victoria**, the storage volume decreased by 3 GL to 243 GL (36% capacity). The flow into **South Australia** has averaged near 5,500 ML/day this week and is receding towards 5,000 ML/day as the delivery of Goulburn River environmental water decreases. These flows are expected to remain around 5,000 ML/day for most of the coming week before reducing further.

At the **Lower Lakes**, the 5-day average water level in Lake Alexandrina has increased 1 cm to 0.56 m AHD. Small releases are continuing through the Tauwitchere barrage and via the fishways.

For media inquiries contact the Media Officer on 02 6279 0141

DAVID DREVERMAN
Executive Director, River Management



Water in Storage

Week ending Wednesday 13 Apr 2016

MDBA Storages	Full Supply Level	Full Supply Volume	Current Storage Level	Current Storage		Dead Storage	Active Storage	Change in Total Storage for the Week
	(m AHD)	(GL)	(m AHD)	(GL)	%	(GL)	(GL)	(GL)
Dartmouth Reservoir	486.00	3 856	444.21	1 675	43%	71	1 604	-5
Hume Reservoir	192.00	3 005	175.43	664	22%	23	641	-57
Lake Victoria	27.00	677	22.96	243	36%	100	143	-3
Menindee Lakes		1 731*		51	3%	(- -) #	0	-2
Total		9 269		2 633	28%	--	2 388	-67
Total Active MDBA Storage							28% ^	

Major State Storages

Burrinjuck Reservoir	1 026	357	35%	3	354	-13
Blowering Reservoir	1 631	686	42%	24	662	+27
Eildon Reservoir	3 334	1 081	32%	100	981	-32

* 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 12 Apr 2016

Storage	Active Storage (GL)	Weekly Change (GL)	Diversion (GL)	This Week	From 1 May 2015
Lake Eucumbene - Total	1 530	-38	Snowy-Murray	+20	675
Snowy-Murray Component	795	-16	Tooma-Tumut	+2	167
Target Storage	1 340		Net Diversion	18	508
			Murray 1 Release	+20	872

Major Diversions from Murray and Lower Darling (GL) *

New South Wales	This Week	From 1 July 2015	Victoria	This Week	From 1 July 2015
Murray Irrig. Ltd (Net)	20.5	410	Yarrowonga Main Channel (net)	9.1	233
Wakool Sys Allowance	2.5	77	Torrumbarry System + Nyah (net)	0.1	459
Western Murray Irrigation	0.3	19	Sunraysia Pumped Districts	1.1	101
Licensed Pumps	4.6	185	Licensed pumps - GMW (Nyah+u/s)	1.1	40
Lower Darling	0.1	10	Licensed pumps - LMW	2.4	270
TOTAL	28.0	701	TOTAL	13.8	1103

* 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 the delivery of additional environmental water.

Entitlement this month	135.0 *
Flow this week	38.2
Flow so far this month	80.9
Flow last month	219.0

(5 500 ML/day)

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

	Current	Average over the last week	Average since 1 August 2015
Swan Hill	80	80	70
Euston	100	90	100
Red Cliffs	100	100	120
Merbein	100	100	120
Burtundy (Darling)	1 680	1 660	1 250
Lock 9	110	110	130
Lake Victoria	200	210	210
Berri	200	200	210
Waikerie	240	240	270
Morgan	200	210	270
Mannum	260	260	320
Murray Bridge	300	310	340
Milang (Lake Alex.)	880	870	800
Poltalloch (Lake Alex.)	770	750	680
Meningie (Lake Alb.)	2 190	2 220	2 100
Goolwa Barrages	1 500	1 510	1 220



River Levels and Flows

Week ending Wednesday 13 Apr 2016

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	-	-	-	2 230	F	2 900	1 360
Jingellic	4.0	1.46	207.98	2 510	F	2 970	1 820
Tallandoon (Mitta Mitta River)	4.2	1.47	218.36	670	S	680	710
Heywoods	5.5	3.10	156.73	11 940	S	11 250	11 550
Doctors Point	5.5	2.82	151.29	12 800	S	11 840	12 300
Albury	4.3	1.83	149.27	-	-	-	-
Corowa	4.6	2.52	128.54	10 970	R	10 940	11 610
Yarrowonga Weir (d/s)	6.4	1.25	116.29	6 980	S	6 980	7 210
Tocumwal	6.4	1.85	105.69	7 330	F	7 380	7 710
Torrumbarry Weir (d/s)	7.3	1.38	79.93	3 800	R	3 690	4 770
Swan Hill	4.5	0.81	63.73	3 460	F	3 870	5 070
Wakool Junction	8.8	2.21	51.33	4 680	F	5 190	6 610
Euston Weir (d/s)	9.1	1.18	43.02	5 450	F	5 950	7 970
Mildura Weir (d/s)	-	-	-	5 990	F	6 400	7 350
Wentworth Weir (d/s)	7.3	2.85	27.61	5 180	S	5 810	6 600
Rufus Junction	-	3.10	20.03	4 180	F	5 090	6 830
Blanchetown (Lock 1 d/s)	-	0.61	-	4 750	F	5 510	5 180
Tributaries							
Kiewa at Bandiana	2.8	0.74	153.97	180	S	190	230
Ovens at Wangaratta	11.9	7.70	145.38	140	F	170	190
Goulburn at McCoys Bridge	9.0	1.47	92.89	900	S	890	1 240
Edward at Stevens Weir (d/s)	5.5	0.78	80.55	560	F	630	700
Edward at Liewah	-	1.52	56.90	870	F	870	820
Wakool at Stoney Crossing	-	1.38	54.87	350	F	370	360
Murrumbidgee at Balranald	5.0	0.79	56.75	440	F	580	1 160
Barwon at Mungindi	6.1	3.15	-	30	S	40	60
Darling at Bourke	9.0	3.92	-	0	F	10	30
Darling at Burtundy Rocks	-	0.55	-	0	F	0	0

Natural Inflow to Hume	490	1 020
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(i.e. Pre Dartmouth & Snowy Mountains scheme)

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	-0.14	-	No. 7 Rufus River	22.10	-0.34	+0.82
No. 26 Torrumbarry	86.05	+0.00	-	No. 6 Murtho	19.25	+0.00	-0.02
No. 15 Euston	47.60	-0.20	-	No. 5 Renmark	16.30	+0.02	+0.15
No. 11 Mildura	34.40	+0.00	+0.16	No. 4 Bookpurnong	13.20	+0.01	+0.46
No. 10 Wentworth	30.80	+0.10	+0.21	No. 3 Overland Corner	9.80	+0.02	+0.16
No. 9 Kulnine	27.40	-0.01	-0.30	No. 2 Waikerie	6.10	+0.03	+0.07
No. 8 Wangumma	24.60	-0.27	-0.32	No. 1 Blanchetown	3.20	-0.09	-0.14

Lower Lakes FSL = 0.75 m AHD

Lake Alexandrina average level for the past 5 days (m AHD)	0.56
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Barrages

Fishways at Barrages

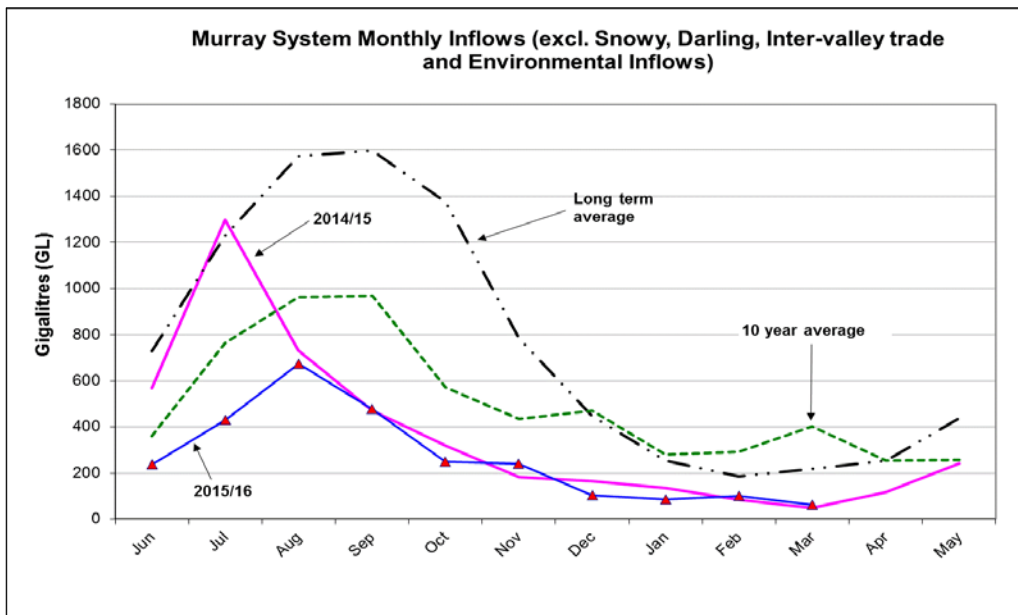
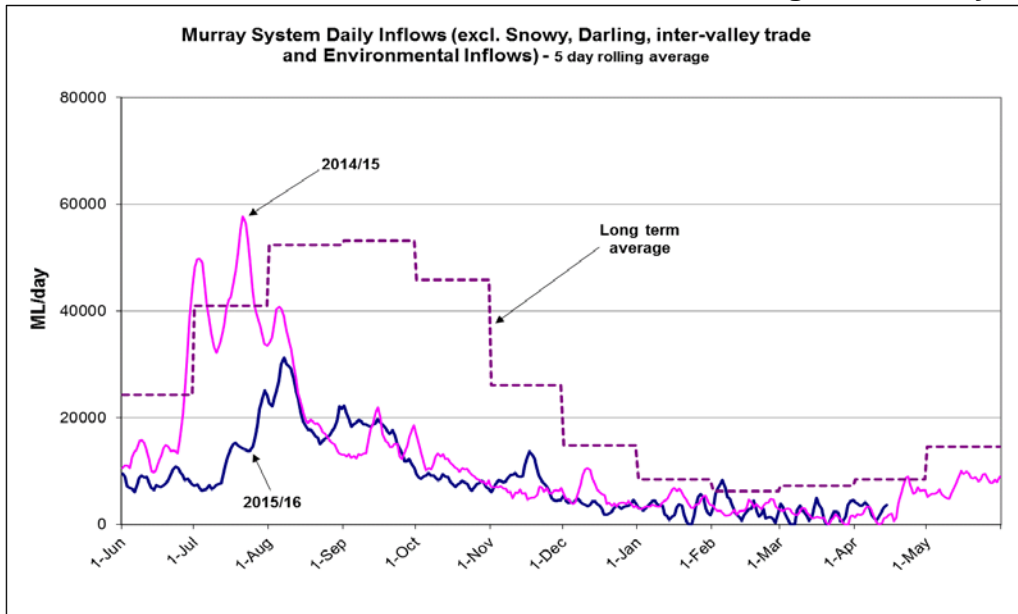
	Openings	Level (m AHD)	No. Open	Rock Ramp	Vertical Slot 1	Vertical Slot 2	Dual Vertical Slots
Goolwa	128 openings	0.61	All closed	-	Open	Open	-
Mundoo	26 openings	-	All closed	-	-	-	Open
Hunters Creek	-	-	-	-	Open	-	-
Boundary Creek	6 openings	-	All closed	-	Open	-	-
Ewe Island	111 gates	-	All closed	-	-	-	Open
Tauwichee	322 gates	0.58	2	Open	Open	Open	-

* Mundoo Barrage Dual vertical slots are currently under construction.

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



Week ending Wednesday 13 Apr 2016



State Allocations (as at 13 Apr 2016)

NSW - Murray Valley

High security	97%
General security	23%

Victorian - Murray Valley

High reliability	100%
Low reliability	0%

NSW - Murrumbidgee Valley

High security	95%
General security	37%

Victorian - Goulburn Valley

High reliability	90%
Low reliability	0%

NSW - Lower Darling

High security	80%
General security	0%

South Australia - Murray Valley

High security	100%
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NSW : <http://www.water.nsw.gov.au/Water-management/Water-availability/Water-allocations/Water-allocations-summary/water-allocations-summary/default.aspx>

VIC : <http://www.nvrn.net.au/allocations/current.aspx>

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