



# RIVER MURRAY WEEKLY REPORT

FOR THE WEEK ENDING WEDNESDAY, 24<sup>TH</sup> AUGUST 2016

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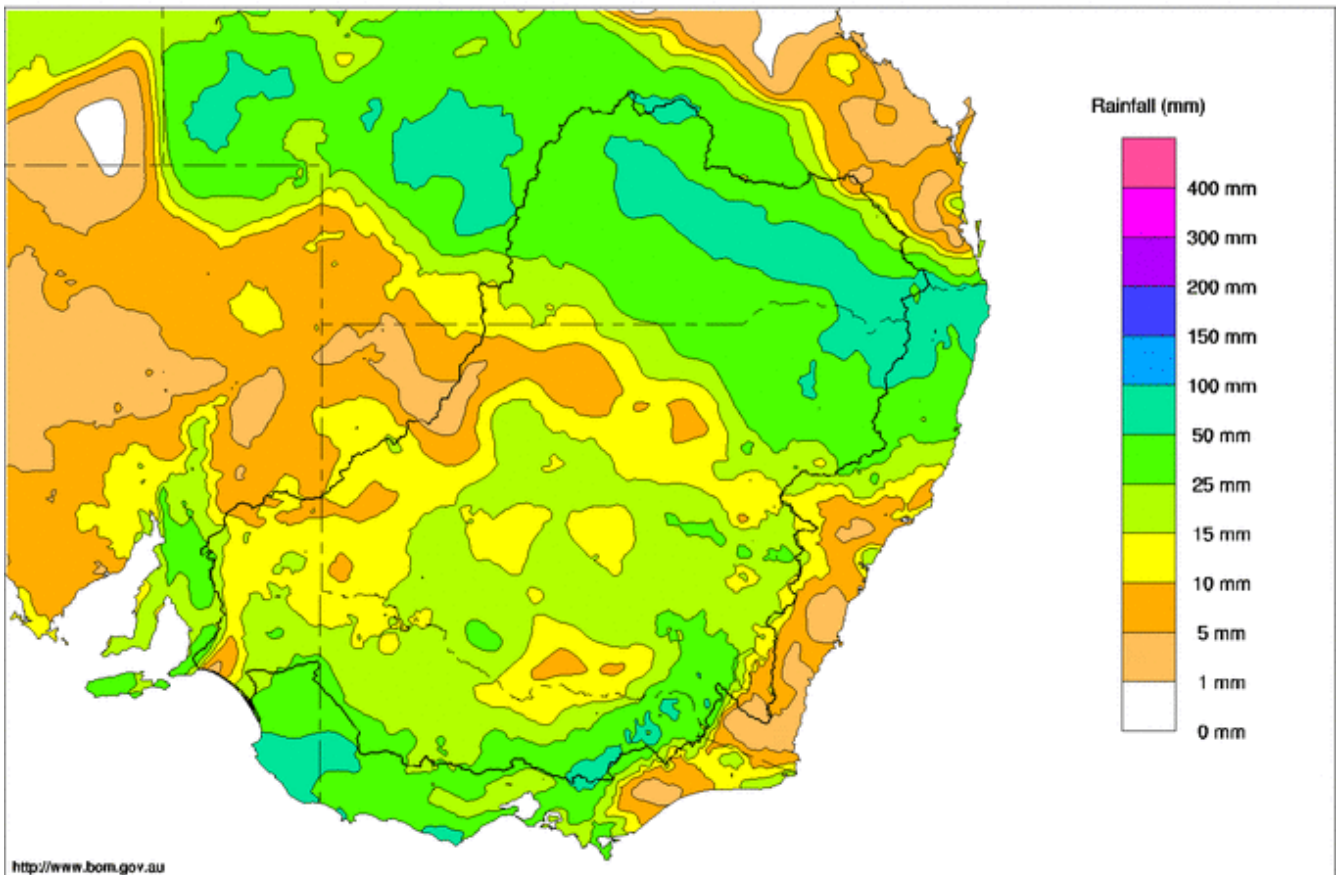
## Rainfall and inflows

Last week a series of troughs moving across the north of the Basin produced widespread rainfall in excess of 25 mm across southern Queensland and northeast New South Wales (see map 1). In Queensland the highest weekly total was 89 mm at Dalveen in the East Darling Downs while in the Maranoa catchment Springfield recorded 77 mm. The highest recorded value in New South Wales was in the Northern Tablelands with 89 mm at Glenn Innes.

In the southern Basin, rainfall was primarily due to a cold front which delivered falls over the weekend. Perisher Valley received 52 mm while in Victoria the highest totals were in the upper ranges with 134 mm recorded at Mt Buller. In South Australia, 34 mm fell at Pinnaroo.

Over the coming 8 days the Bureau of Meteorology is forecasting in excess of 25 mm for much of the Basin with some regions forecast to receive over 50 mm.

Murray-Darling Rainfall Totals (mm) Week Ending 24th August 2016  
Australian Bureau of Meteorology



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Map 1 - Murray-Darling Basin rainfall week ending 24th August 2016 (Source: Bureau of Meteorology (BoM))

Rainfall over the weekend increased stream flows in the upper Murray tributaries. Hinnomunjie, on the Mitta Mitta River, rose from 1,400 ML/day up to a peak near 3,500 ML/day before receding to a current flow around 2,200 ML/day. On the upper Murray, the flow at Biggara reached 2,600 ML/day and is now around 2,150 ML/day.



The Kiewa River at Bandiana has risen from 3,000 ML/day up to around 5,000 ML/day and has continued around this rate over the last few days. This flow is expected to remain relatively stable for the next couple of days before gradually receding. On the Ovens River, the flow at Wangaratta increased to 12,400 ML/day and is forecast to peak in the next day or so before gradually receding.

Significant streamflow rises could be expected if the rainfall forecast by the BoM eventuates.

## River operations

- Unregulated flows continue in the Murray system
- Environmental water releases from Hume cut back

Unregulated flows (that is those flows unable to be captured in Lake Victoria) are currently available in the Murray and Edward River systems downstream of Hume Reservoir. Forecast rain may permit an extension of unregulated flows in the Murray downstream of Hume. The unregulated flows are providing extra opportunities for environmental watering along the Murray. Environmental managers and system operators are working closely to achieve the best possible overall environmental outcomes from the Barmah-Millewa Forest down to the Coorong.

MDBA total storage increased by 165 GL this week, with the active storage now 5,133 GL (61 % capacity).

At **Dartmouth Reservoir**, the storage volume increased by 27 GL to 2,177 GL (56% capacity). The release from Dartmouth was around 1,200 ML/day due to the release of AGL entitlement water for hydroelectricity generation, but has now been reduced back to the minimum release of 200 ML/day.

At **Hume Reservoir**, the storage volume increased by 121 GL to 2,596 GL (86 % capacity). MDBA may soon commence 'airspace management' releases aimed at providing a measure of flood protection, balanced against ensuring Hume fills to maximise water availability prior to demand emerging.

In recent weeks, by capturing significant inflow events, Hume Dam has provided considerable flood protection to communities downstream. However, as the storage approaches its full supply level (3,005 GL), the dam will have reduced capacity to mitigate future floods. Further details about flood management at Hume Dam are available on the [MDBA website](#). Regular updates on Hume storage levels and releases will be provided in future weekly reports, however communities are reminded that all [Flood Watches and Warnings](#) are issued by the Bureau of Meteorology. In addition, community members living close to the river downstream of Hume Dam are reminded of the WaterNSW Early Warning Network (EWN) service. This service alerts people when the River Murray increases to relatively high levels in the stretch downstream of Hume Dam to Albury via SMS, email or voice message notifications. More information including how to register are provided on the [WaterNSW website](#).

Environmental water releases from Hume Reservoir have been supplementing inflows from the downstream Kiewa and Ovens rivers to enable releases from Yarrawonga Weir to target a maximum downstream Tocumwal height of 3.0 m. This maximum target at Tocumwal is aimed at maintaining low level inundation of the downstream Barmah-Millewa forest. The release of environmental water from Hume is being ceased as weekend rainfall increased the inflows from the Kiewa and Ovens rivers. These natural inflows may result in the level at Tocumwal increasing above 3.0 m in the coming days. Releases of environmental water from Hume may be restarted later in the week if the forecast height at Tocumwal falls below 3.0 m.

Releases from **Yarrawonga Weir** have fluctuated around 15,000 ML/day this week and are currently near 15,900 ML/day. The release is expected to remain around this rate over the coming days.

On the **Edward River**, the flow through the Edward Offtake has gradually receded to 1,850 ML/day while the Gulpa Offtake has receded to 650 ML/day. Downstream at Toonalook, the flow has fallen from around 10,000 ML/day down to 5,200 ML/day this week and is forecast to continue receding this coming week.

At **Stevens Weir**, the gates are being reinstalled and the downstream flow has dropped to around 4,200 ML/day. Over the coming week the flow is expected to further reduce. Downstream on the Edward River at Moulamein the flow is at 6,600 ML/day and close to a peak, while small returns from the natural





flooding of the Koondrook-Perricoota Forest are entering the **Wakool River** through Thule and Barbers Creeks. The Wakool at Stoney Crossing continues to rise and is expected to peak this coming week. At Kyalite the flow is 11,100 ML/day and rising, with a peak expected in the coming days.

Inflows to the Murray from the **Goulburn River** receded this week to 3,700 ML/day at McCoys Bridge before increasing to 4,300 ML/day and are expected to rise to around 4,500 ML/day. On the Murray at **Torrumbarry Weir**, the weir pool is currently 85.80 m AHD (25 cm below FSL) and will be raised to 85.90 m AHD next week before returning to Full Supply Level (FSL) in the coming weeks. The downstream flow has receded to 22,300 ML/day and will continue to fall away this week.

**Gunbower** and **Koondrook-Perricoota Forest** have been naturally inundated since early August due to the high flows at Torrumbarry. Inundation of these sites would have been significantly higher without regulation.

At Balranald on the **Murrumbidgee River** (see Photo 1), the flow has reduced from 8,400 ML/day to 7,600 ML/day and is expected to remain close to this rate over the coming week. Downstream on the Murray at **Euston**, the flow has increased to 35,600 ML/day and is expected to peak this week. Euston weir pool is currently around 20 cm below FSL but may be increased closer to FSL in the next couple of weeks.



**Photo 1 – A near-full Murrumbidgee River looking upstream towards the Balranald Weir. Photo: Sophie Gatacre - WaterNSW**

On the Darling River at **Menindee Lakes** the storage increased 21 GL to 182 GL (11% capacity).

Releases from Lake Wetherell into the lower Darling River commenced 29 July. Flows at Weir 32 are currently near 150 ML/day. Further downstream, the flow at Burtundy peaked at 1,200 ML/day last week before reducing to the current rate of 650 ML/day. The flows from the lower Darling have now reached the Murray at Wentworth (see Photo 2). Given the high flows in the Murray, only a minor and short-lived rise in salinity is expected as the flow front from the Darling passes downstream into South Australia.





**Photo 2 – Flows from the lower Darling have reached the Murray at Wentworth. Photo courtesy of NSW Department of Primary Industries.**

On the Murray at **Lock 9** the weir pool is currently 12 cm above FSL and at **Lock 8** the weir pool is 50 cm above FSL. The river is flowing freely through **Lock 7** as the stop logs have been fully removed. The higher flows are resulting in the current river height being around 80 cm above FSL. The gates at the **Mullaroo** offtake regulator have been laid flat to maximise the flow into the Mullaroo Creek.

The total storage at **Lake Victoria** was reduced by 4 GL this week to 554 GL (82% capacity). MDBA has lowered Lake Victoria over the last month to minimise disturbance to Aboriginal cultural heritage material. MDBA operates in accordance with the Lake Victoria Operating Strategy (LVOS), which requires the period of time that the water level in Lake Victoria is held high to be minimised in order to limit erosion and allow for revegetation to protect important cultural heritage. The MDBA has now reduced the outflows from, and begun increasing the inflows to, Lake Victoria in order to fill the lake by the end of the current unregulated flow event. If forecast rainfall does eventuate then it is possible that unregulated flows may extend which would further delay the filling of Lake Victoria. MDBA will continue to assess the upstream inflows to determine operations at Lake Victoria.

The flow to **South Australia** averaged 29,300 ML/day this week and is expected to be slightly lower over the coming week.

**Lock 6** will be progressively raised by up to 50 cm to ensure flow through the Chowilla anabranch is maintained. This raising of the Lock 6 water level is important for the management of water quality and protection of important habitat for native fish.



Downstream at the **Lower Lakes**, flows through the barrages continue, albeit at lower rates than last week. Releases are being made to help improve water quality in Lake Albert and the Coorong, and to assist in scouring sand from the Murray Mouth. The 5-day average water level in Lake Alexandrina increased this week to 0.82 m AHD.

Periodic reductions in the water level in Lake Alexandrina enables the higher salinity water of Lake Albert to drain out. Subsequent raising of Lake Alexandrina allows fresher water to then flow back into Lake Albert. The current lake level cycling operation has been made possible by favourable tidal and weather conditions combined with the assurance of high unregulated flows passing over the SA border which enables the Lower Lakes to be raised again in the future. Salinity levels at Lake Albert have already decreased significantly in recent months, down from an average of around 2,250 EC ( $\mu\text{S}/\text{cm}$ ) in April 2016 to current levels of around 1,800 EC ( $\mu\text{S}/\text{cm}$ ). It is anticipated that there could be further reductions in Lake Albert salinity levels as a result of current operations.

**For media inquiries contact the Media Officer on 02 6279 0141**

ANDREW REYNOLDS  
Acting Executive Director, River Management





**Water in Storage**

**Week ending Wednesday 24 Aug 2016**

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	455.88	2 177	56%	71	2 106	+27
Hume Reservoir	192.00	3 005	189.88	2 596	86%	23	2 573	+121
Lake Victoria	27.00	677	25.96	554	82%	100	454	-4
Menindee Lakes		1 731*		182	11%	(- -) #	0	+21
<b>Total</b>		<b>9 269</b>		<b>5 509</b>	<b>59%</b>	<b>--</b>	<b>5 133</b>	<b>+165</b>
Total Active MDBA Storage							61% ^	

**Major State Storages**

Burrinjuck Reservoir	1 026	907	88%	3	904	+8
Blowering Reservoir	1 631	1 299	80%	24	1 275	+20
Eildon Reservoir	3 334	1 832	55%	100	1 732	+74

\* 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 23 Aug 2016

Storage	Active Storage (GL)	Weekly Change (GL)	Diversions (GL)	This Week	From 1 May 2016
Lake Eucumbene - Total	1 707	+33	Snowy-Murray	+32	411
Snowy-Murray Component	864	-13	Tooma-Tumut	+10	152
Target Storage	1 190		Net Diversion	21	259
			Murray 1 Release	+46	578

**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)	8.1	54	Yarrowonga Main Channel (net)	1.5	2
Wakool Sys Allowance	0.0	0	Torrumbarry System + Nyah (net)	4	32
Western Murray Irrigation	0.0	0	Sunraysia Pumped Districts	0.3	2
Licensed Pumps	1.2	7	Licensed pumps - GMW (Nyah+u/s)	0.1	1
Lower Darling	0.1	1	Licensed pumps - LMW	1	8
<b>TOTAL</b>	<b>9.4</b>	<b>62</b>	<b>TOTAL</b>	<b>6.9</b>	<b>45</b>

\* 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 higher than normal for this month due to unregulated flows.

Entitlement this month	124.0 *
Flow this week	204.9
Flow so far this month	655.7
Flow last month	322.0

(29 300 ML/day)

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

	Current	Average over the last week	Average since 1 August 2016
Swan Hill	90	100	100
Euston	110	110	130
Red Cliffs	130	140	140
Merbein	120	130	140
Burtundy (Darling)	1 080	1 660	1 640
Lock 9	130	130	130
Lake Victoria	170	160	160
Berri	170	170	180
Waikerie	190	200	190
Morgan	200	210	200
Mannum	210	210	240
Murray Bridge	220	220	260
Milang (Lake Alex.)	840	870	850
Poltalloch (Lake Alex.)	390	360	450
Meningie (Lake Alb.)	1 810	1 830	1 760
Goolwa Barrages	1 130	1 870	2 060



**River Levels and Flows**

**Week ending Wednesday 24 Aug 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	-	-	-	9 410	F	7 190	5 810
Jingellic	4.0	2.97	209.49	16 620	R	13 690	12 550
Tallandoon ( Mitta Mitta River )	4.2	2.01	218.90	2 280	F	2 550	3 180
Heywoods	5.5	1.72	155.35	1 690	F	2 020	690
Doctors Point	5.5	2.22	150.69	6 060	F	5 700	4 430
Albury	4.3	1.25	148.69	-	-	-	-
Corowa	4.6	1.87	127.89	7 220	R	5 400	5 080
Yarrowonga Weir (d/s)	6.4	2.35	117.39	15 910	R	14 740	17 880
Tocumwal	6.4	2.82	106.66	14 860	F	15 800	23 080
Torrumbarry Weir (d/s)	7.3	5.63	84.18	22 320	F	25 180	30 270
Swan Hill	4.5	3.44	66.36	20 920	S	20 810	19 770
Wakool Junction	8.8	6.72	55.84	29 740	R	28 610	25 700
Euston Weir (d/s)	9.1	4.75	46.59	35 630	R	34 340	30 700
Mildura Weir (d/s)	-	-	-	33 990	F	32 640	29 270
Wentworth Weir (d/s)	7.3	4.73	29.49	32 170	R	30 910	27 290
Rufus Junction	-	5.96	22.89	28 960	S	29 280	28 340
Blanchetown (Lock 1 d/s)	-	1.93	-	27 470	S	27 450	25 640
<b>Tributaries</b>							
Kiewa at Bandiana	2.8	2.89	156.12	5 140	R	4 280	4 390
Ovens at Wangaratta	11.9	11.14	148.82	12 340	R	9 090	9 370
Goulburn at McCoys Bridge	9.0	3.23	94.65	4 310	R	4 570	8 250
Edward at Stevens Weir (d/s)	5.5	3.15	82.92	4 180	S	6 960	9 950
Edward at Liewah	-	4.66	60.04	5 870	R	5 330	4 380
Wakool at Stoney Crossing	-	3.42	56.91	5 810	R	5 020	3 190
Murrumbidgee at Balranald	5.0	5.23	61.19	7 580	S	7 890	8 400
Barwon at Mungindi	6.1	3.43	-	590	S	690	370
Darling at Bourke	9.0	4.95	-	7 260	F	7 840	6 350
Darling at Burtundy Rocks	-	0.89	-	540	F	830	350

Natural Inflow to Hume	20 170	19 390
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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	-0.24	-	No. 7 Rufus River	22.10	+0.81	+3.62
No. 26 Torrumbarry	86.05	-0.25	-	No. 6 Murtho	19.25	+0.13	+1.74
No. 15 Euston	47.60	-0.39	-	No. 5 Renmark	16.30	+0.33	+1.45
No. 11 Mildura	34.40	-0.01	+1.81	No. 4 Bookpurnong	13.20	+0.07	+2.45
No. 10 Wentworth	30.80	+0.00	+2.09	No. 3 Overland Corner	9.80	+0.01	+1.85
No. 9 Kulnine	27.40	+0.12	+1.56	No. 2 Waikerie	6.10	+0.34	+1.88
No. 8 Wangumma	24.60	+0.50	+2.11	No. 1 Blanchetown	3.20	-0.08	+1.18

**Lower Lakes FSL = 0.75 m AHD**

Lake Alexandrina average level for the past 5 days (m AHD)	0.79
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**Barrages**

**Fishways at Barrages**

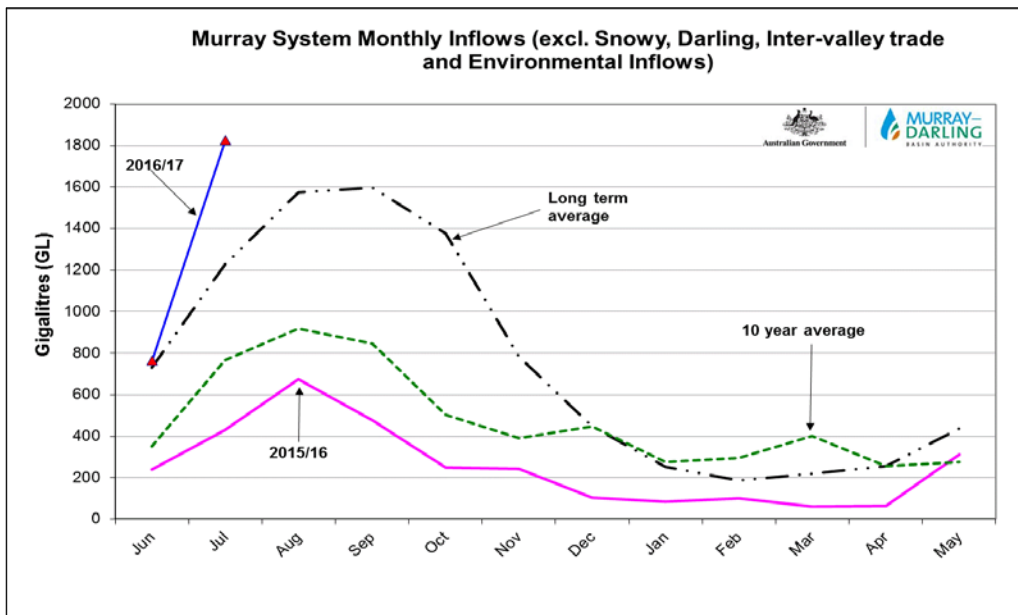
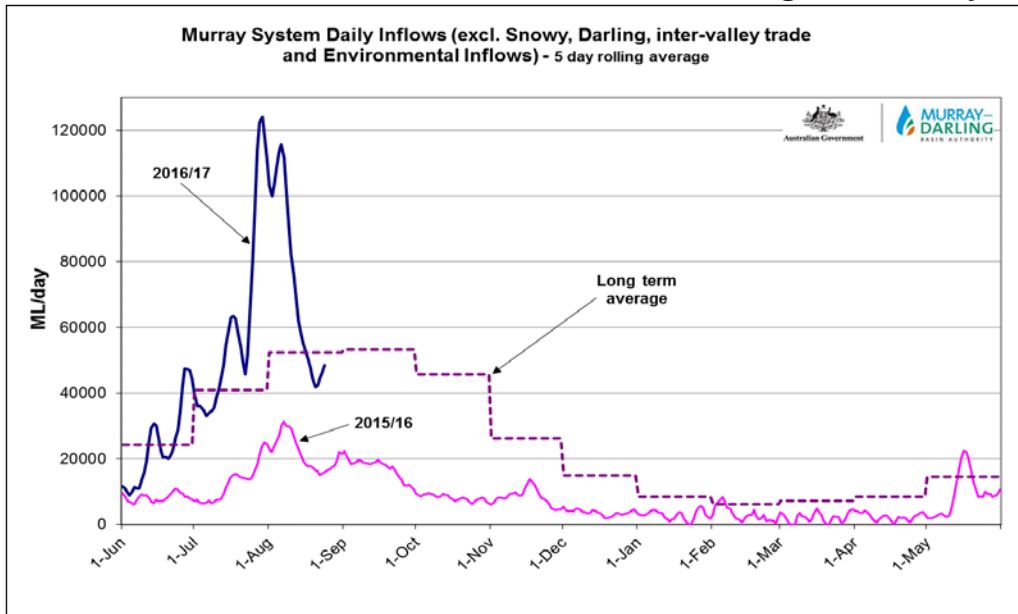
	Openings	Level (m AHD)	No. Open	Rock Ramp	Vertical Slot 1	Vertical Slot 2	Dual Vertical Slots
Goolwa	128 openings	0.85	5	-	Open	Open	-
Mundoo	26 openings	0.84	1	-	-	-	Closed
Hunters Creek	-	-	-	-	Open	-	-
Boundary Creek	6 openings	-	1	-	Open	-	-
Ewe Island	111 gates	-	6	-	-	-	Open
Tauwichee	322 gates	0.86	15	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 24 Aug 2016



State Allocations (as at 24 Aug 2016)

NSW - Murray Valley

High security	97%
General security	25%

Victorian - Murray Valley

High reliability	51%
Low reliability	0%

NSW - Murrumbidgee Valley

High security	95%
General security	50%

Victorian - Goulburn Valley

High reliability	46%
Low reliability	0%

NSW - Lower Darling

High security	40%
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>  
 VIC : <http://nvrn.net.au/seasonal-determinations/current>  
 SA : <http://www.environment.sa.gov.au/managing-natural-resources/river-murray>