



We're undertaking a survey of Weekly Report readers. Through this survey the MDBA is seeking your feedback regarding the content and layout of the River Murray Weekly Report including any improvements you might like to see. Participation in this research is voluntary. You can decide to stop at any time. Your answers will only be used for the purposes of the research and you can remain anonymous.

The survey should only take about 5 minutes to complete. The survey closes on Wednesday 8 August 2018. To participate please click here <https://www.surveymonkey.com/r/RMWRsurvey>

If you have any questions or require further information about the survey, please contact the MDBA Engagement Team on P: 1800 230 067 or E: [Engagement@mdba.gov.au](mailto:Engagement@mdba.gov.au)

# RIVER MURRAY WEEKLY REPORT

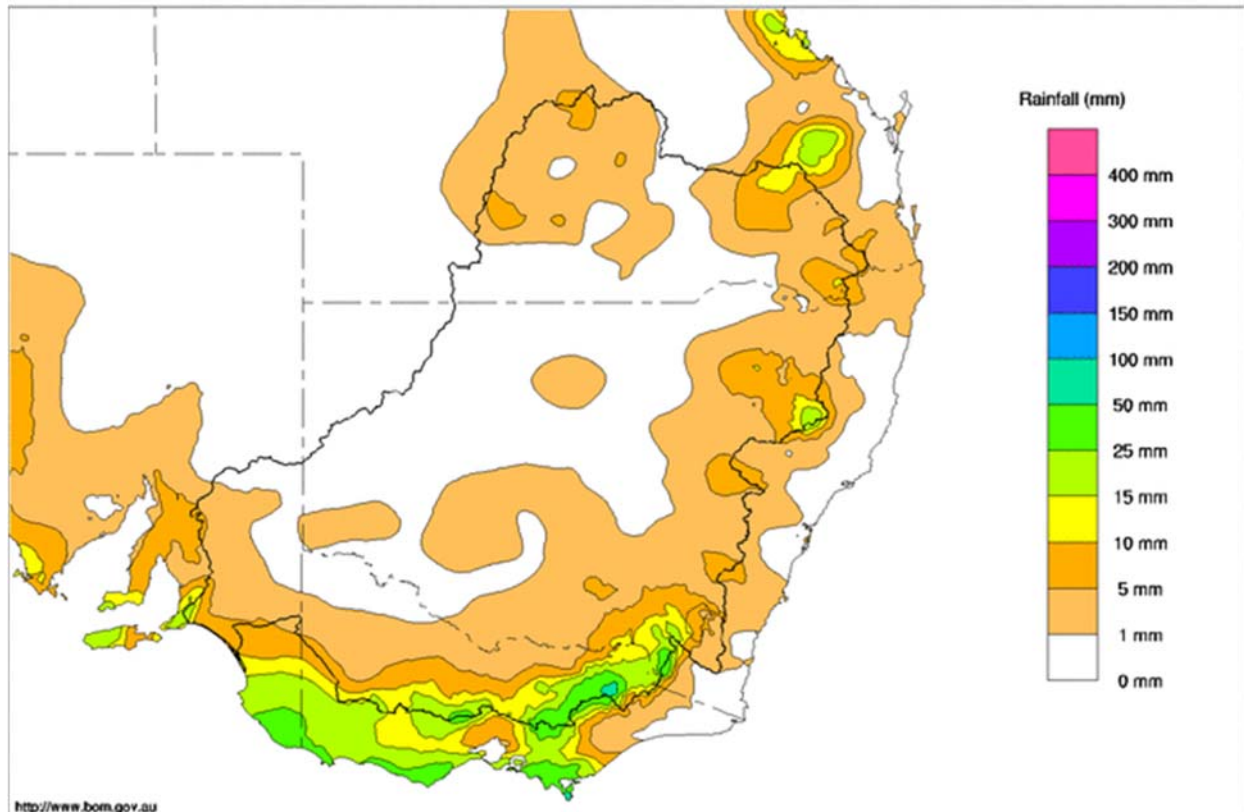
FOR THE WEEK ENDING WEDNESDAY, 1<sup>ST</sup> AUGUST 2018

Trim Ref: D18/37713

## Rainfall and inflows

Little to no rain fell across the majority of the central and northern Basin this week. Only light rainfall was observed in central and western Victoria, and south-eastern South Australia. Moderate falls were observed along the southern end of the Great Dividing Range attributed mainly to a low pressure system that formed over southern central New South Wales (NSW) (Map 1).

Murray-Darling Rainfall Totals (mm) Week Ending 1st August 2018  
Australian Bureau of Meteorology



Map 1 - Murray-Darling Basin rainfall map week ending 1 August 2018 (Source: Bureau of Meteorology).



Highest rainfall totals for the week included 52 mm at Mount Buffalo in upper north-east Victoria, 19 mm at Cabramurra in NSW southwestern slopes and 11 mm at Dalveen and Ballandean in East Darling Downs Queensland.

Flow in the upper Murray tributaries rose briefly over the weekend following rainfall before receding towards the end of the week. On the Mitta Mitta River at Hinnomunjie Bridge, flow peaked around 1,500 ML/day before gradually receding to the current flow of 1,160 ML/day. At Biggara, flow increased to 860 ML/day before reducing to the current flow of 650 ML/day.

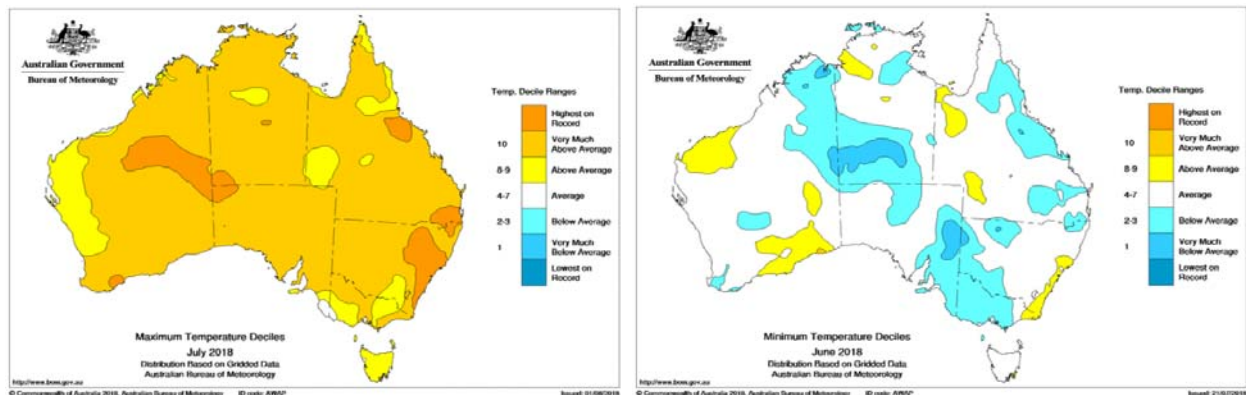
Downstream of Hume Reservoir, inflows from the Kiewa River measured at Bandiana remained steady averaging 1,250 ML/day. Streamflow responses from the Ovens River where longer lived with the flow at Wangaratta still rising from 2,700 ML/day earlier in the week to the current flow of around 3,300 ML/day (Photo 1).



Photo 1: Bend in the Ovens River at Bright, upstream of Wangaratta (Photo courtesy of Alisha Caldwell, MDBA).

### July 2018 Summary

The Bureau of Meteorology (BoM) reported that for Australia as a whole, day-time temperatures for July were the second-warmest on record (Map 2). Across each Basin state, the mean-maximum temperatures were within the six warmest July's on record. Overnight minimum temperatures were below average across eastern South Australia (SA) and western NSW and Victoria.



Map 2 – Maximum and minimum temperature declines for July 2018 (Source: Bureau of Meteorology).

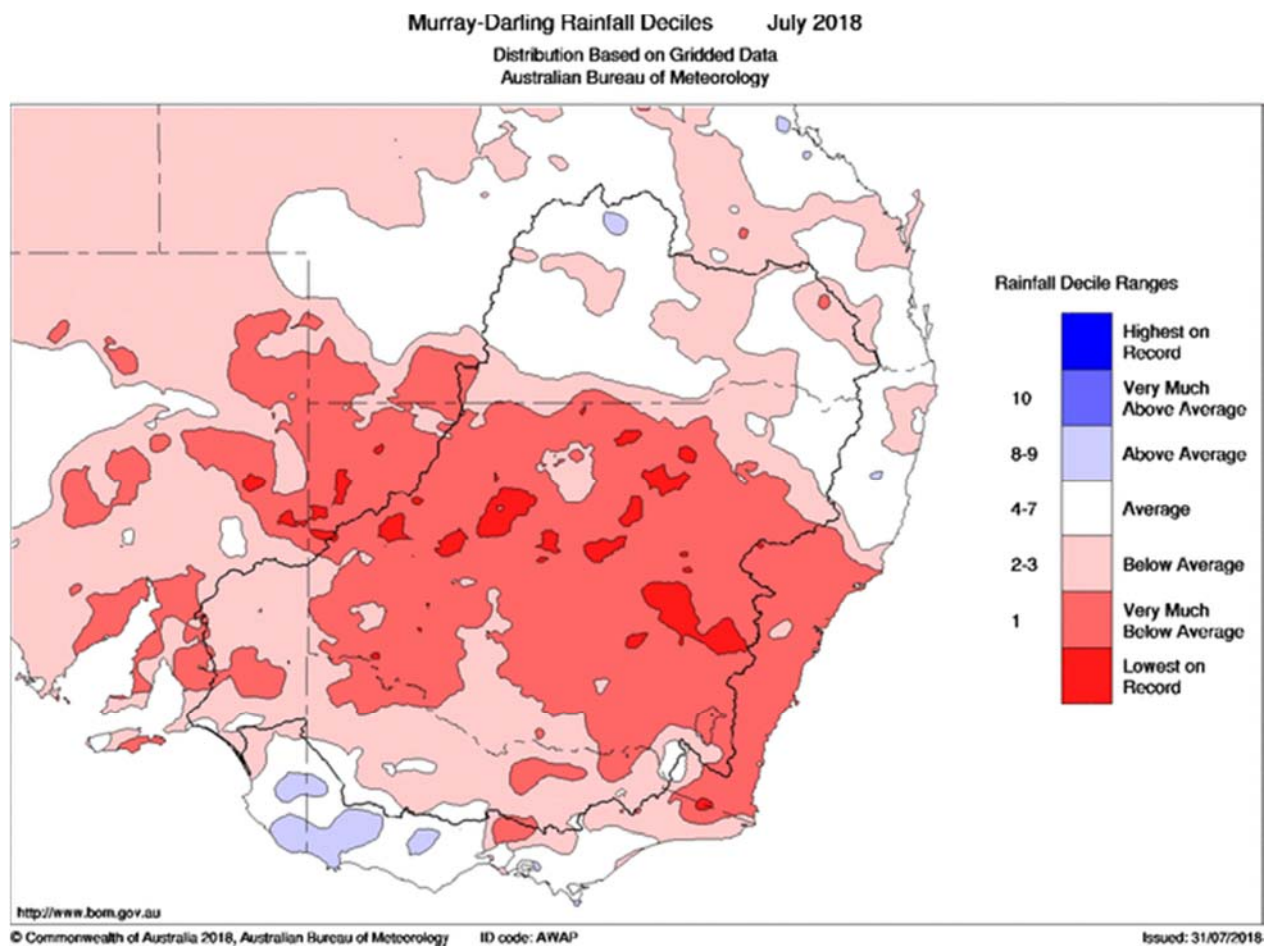




Regarding rainfall, for Australia as a whole, July was the driest since 2002 with below average rainfall recorded over all mainland Australia. Across the Basin, rainfall for Victoria and SA was below average to very much below average. NSW was mostly very much below average with patches of lowest on record rainfall across central and northern NSW (Map 3). Areas such as Parkes and Dubbo recorded their lowest July rainfall on record.

The BoM reported the area-average rainfall for the Murray-Darling Basin in July was 12.6 mm, which is 68% below the average and ranked 12<sup>th</sup> driest out of 119 years of historical record. July 2018 saw NSW record the fifth driest July on record, continuing a run of seven consecutive months of below average rainfall for NSW and is the state’s driest January to July period since 1965.

River Murray System inflows for the month of July totalled around 254 GL. This is in the lowest 5 percent on record for July. For comparison the long term median inflow for July is 868 GL.



Map 2 - Murray Darling Basin rainfall deciles for July 2018 (Source: Bureau of Meteorology).

Estimated evaporative losses from the MDBA storages for the month of July 2018 are reported in Table 1. The volume of evaporative loss is estimated by multiplying the surface area of the storage by the net evaporation depth. The net evaporation depth is derived by subtracting the rainfall recorded at the storage from the evaporation depth, with the evaporation depth determined using Class A pan factors and measured pan evaporation. At Dartmouth rainfall resulted in modest net gains (negative evaporative loss). Evaporation exceeded rainfall at Hume Reservoir, the Menindee Lakes and Lake Victoria resulting in a net loss in storage volume.



Table 1: Monthly evaporation figures for MDBA storages

Storage	Net evaporation depth in July 2018 (mm)	*Approximate (net) evaporative loss in July 2018 (GL)	Average storage volume in July 2018 (GL)	Percentage net evaporative loss in July 2018 (%)
Dartmouth	-30.2	-1.8	3,433	-0.1
Hume	3.6	0.4	1,359	0.0
Lake Victoria	38.0	3.9	367	1.1
Menindee Lakes	63.5	10.0	201	5.0

\*Evaporative loss from storage = surface area of the storage x net evaporation depth. Net evaporation depth = measured evaporation depth (using a 'pan' instrument) minus rainfall. For this table, a positive value indicates a loss of water, a negative value indicates a gain in water.

## River operations

- Flow to South Australia to continue to recede
- Lake Mulwala refilled by early next week
- Torrumbarry Weir and Stevens weir pools continue to be raised to normal operating level

MDBA active storage decreased by 2 GL this week to 4,980 GL (59% capacity).

The storage volume at **Dartmouth Reservoir** (Photo 2) increased by 8 GL to 3,443 GL (89% capacity). This week, the release measured at Colemans gauge averaged 1,000 ML/day and was being made for hydroelectricity generation. Baseflows will remain around 1,000 ML/day into the coming week. A flow pulse released from Dartmouth Dam to benefit water quality in the lower Mitta Mitta River is planned to commence this weekend on the 4th of August with a peak of approximately 3,000 ML/day. To subscribe to future information on Mitta Mitta flow pulses, visit <https://www.mdba.gov.au/river-murray-system/flow-advice>.



Photo 2: Dartmouth Dam Reservoir (Photo courtesy of Hugo Bowman, MDBA)





The storage volume at **Hume Reservoir** decreased by 10 GL this week to 1,359 GL (45% capacity). The release from Hume reduced from 8,500 ML/day to the current release of 7,000 ML/day and is likely to remain at this rate over the coming days. The release from Hume continues to provide for demands downstream of Yarrowonga Weir and the refill of Lake Mulwala after this year's winter drawdown to control the invasive waterweed *Egeria densa*.

At **Lake Mulwala** the level has risen about 1.1 metres since last week. The level is expected to reach the normal operating level of 124.7 m AHD by next week. Diversions into the Mulwala Canal and Yarrowonga Main Channel have commenced to fill irrigation channels ahead of the start of the irrigation season.

This week the release from **Yarrowonga Weir** was increased from around 5,000 ML/day to 5,500 ML/day (Photo 3). Transfers from Hume Reservoir to Lake Victoria have commenced at low rates consistent with the drier scenarios in the MDBA Annual Operating Plan (AOP). The AOP is available on the [MDBA website](#). If conditions remain dry, releases downstream of Yarrowonga will continue to gradually increase throughout early August as water is transferred to Lake Victoria in readiness for higher system demands later in the season.



*Photo 3: River Murray at Barmah, downstream of Picnic Point (Photo courtesy of Hugo Bowman, MDBA)*

Regulators in the Barmah-Millewa forest remain open to provide connectivity between the river and the forest floodplain in winter and into spring when river flows are below channel capacity. This action will benefit native fish and improve the transfer of valuable nutrients from the floodplain to the river to increase ecosystem productivity. The small additional water loss associated with this action is being debited from environmental water holder's accounts.

The **Edward River** and **Gulpa Creek** offtakes are currently passing 900 ML/day and 275 ML/day respectively with all gates raised clear of the water to improve fish passage. Inflows to the Edward-Wakool system through the Edward and Gulpa offtakes will continue to fluctuate over winter in response to flow changes in the River Murray downstream of Yarrowonga Weir.



Downstream on the Edward River, WaterNSW has [commenced refilling Stevens Weir](#) pool following the completion of maintenance works on the weir and at the offtake regulators. The flow downstream of Stevens Weir has reduced to around 500 ML/day as the weir level increases.

Inflow to the Murray from the **Goulburn River** steadily declined this week as the delivery of the Goulburn ended. Flow at McCoys Bridge has fallen to the current flow of 1,000 ML/day, and will continue to slowly recede over the coming week. Given the continuing dry conditions, transfers of Inter-Valley Trade water from the Goulburn system to the Murray system are being considered by the MDBA with small volumes potentially commencing this month.

River users in the **Echuca** district and downstream should be aware that water levels are expected to continue to decrease over the coming week with river flows receding. The impact of receding flows will be reduced by the gradual re-raising of the **Torrumbarry Weir** pool. The pool level is currently 85.95 m AHD (10 cm below Full Supply Level) and will continue to be slowly raised towards FSL over the next week ahead of the upcoming irrigation season. More information is available on the [MDBA website](#). This week the flow downstream of Torrumbarry Weir receded from 4,900 ML/day to around 3,300 ML/day and will fall further over the coming days before beginning to slowly rise again.

The diversion to National Channel averaged 1,350 ML/day this week. Diversions will increase to 1,500 ML/day early next week. This water is being delivered to the Gunbower Creek, Gunbower Forest and to refill the irrigation network within Torrumbarry. More information on the Gunbower Forest watering can be found on the [North Central Catchment Management Authority \(NCCMA\) website](#).

Inflow from the **Murrumbidgee River**, measured at Balranald, averaged around 1,000 ML/day and is expected to remain steady.

At **Euston**, the weir pool is being varied to target between 20cm and 30cm below FSL. Whilst previously at 40 cm below FSL, the pool was recently raised 10cm to reconnect river pumpers on the weir pool as demands commence. Lowering Euston Weir is part of the [weir pool variability program](#) which aims to help restore a more natural wetting and drying regime for river banks and wetlands. The downstream release decreased from 9,000 ML/day to the current flow near 6,700 ML/day and is expected to continue to gradually decline over the coming weeks.

The **Menindee Lakes** (Photo 4) storage volume decreased by 4 GL to 195 GL (11% capacity). WaterNSW continues to manage the Menindee Lakes in accordance with the [Lower Darling Annual Operations Plan](#). As part of drought contingency measures, WaterNSW has installed two temporary block banks across the lower Darling to assist in maintaining supply to domestic, stock and permanent plantings along the lower Darling. The release from Weir 32 has increased to 230 ML/day to gradually fill these block banks.

On the Murray at **Wentworth Weir**, the release decreased from 10,000 ML/day to the current flow of around 6,600 ML/day and is expected to continue to ease over the coming week.

The **Lock 7** and **9** weir pools continue to target a water level 10 cm below FSL and will vary between FSL and 10 cm below FSL over the coming weeks. The **Lock 8** weir pool is targeting 30 cm below FSL.

At **Lake Victoria**, the storage volume increased by 4 GL to 372 GL (55% capacity). Flow to **South Australia** averaged 7,600 ML/day and is expected to remain around 7,000 ML/day over the coming week.





*Photo 4: Pelicans in Lake Pamamaroo, a part of the Menindee Lakes Scheme (photo courtesy of Rob Wilson, MDBA)*

Downstream at **Lock 3 (Overland Corner)**, the lock remains [temporarily closed for a major refurbishment](#) which commenced in mid-June. These works are expected to take approximately another 7 weeks to complete.

The 5-day average water level in the **Lower Lakes** has risen to 0.78 m AHD, and lake levels are expected to continue to gradually rise over the coming weeks. When conditions allow, environmental water is to be released from the barrages into the Coorong and Murray Mouth in planned 'pulses'. These pulsed releases of water will provide a freshening flow into the Coorong and also aim to enhance the upstream migration and spawning of pouched lamprey, a primitive eel-like fish. All fishways remain open. This week, releases from the barrages were prioritised at Tauwitchere, Goolwa and Mundoo.

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

ANDREW REYNOLDS  
Executive Director, River Management



**Water in Storage**

**Week ending Wednesday 01 Aug 2018**

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	479.48	3 443	89%	71	3 372	+8
Hume Reservoir	192.00	3 005	181.86	1 359	45%	23	1 336	-10
Lake Victoria	27.00	677	24.27	372	55%	100	272	+4
Menindee Lakes		1 731*		195	11%	(- -) #	0	-4
<b>Total</b>		<b>9 269</b>		<b>5 369</b>	<b>58%</b>	<b>--</b>	<b>4 980</b>	<b>-2</b>
Total Active MDBA Storage							59% ^	

**Major State Storages**

Burrinjuck Reservoir	1 026	415	40%	3	412	+0
Blowering Reservoir	1 631	1 187	73%	24	1 163	+12
Eildon Reservoir	3 334	1 834	55%	100	1 734	+22

\* 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 31 Jul 2018

Storage	Active Storage (GL)	Weekly Change (GL)	Diversions (GL)	This Week	From 1 May 2018
Lake Eucumbene - Total	567	-29	Snowy-Murray	+18	392
Snowy-Murray Component	260	-11	Tooma-Tumut	+5	44
Target Storage	1 190		Net Diversion	13	349
			Murray 1 Release	+21	451

**Major Diversions from Murray and Lower Darling (GL) \***

New South Wales	This Week	From 1 July 2018	Victoria	This Week	From 1 July 2018
Murray Irrig. Ltd (Net)	7.2	7	Yarrowonga Main Channel (net)	1.6	2
Wakool Sys Allowance	0.5	1	Torrumbarry System + Nyah (net)	0	30
Western Murray Irrigation	0.2	1	Sunraysia Pumped Districts	0.9	2
Licensed Pumps	0.9	4	Licensed pumps - GMW (Nyah+u/s)	1	0
Lower Darling	0.1	1	Licensed pumps - LMW	4.6	7
<b>TOTAL</b>	<b>8.9</b>	<b>14</b>	<b>TOTAL</b>	<b>8.1</b>	<b>41</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 greater than normal entitlement for this month due to environmental flows.

Entitlement this month	124.0 *	
Flow this week	53.5	(7 600 ML/day)
Flow so far this month	6.1	
Flow last month	239.7	

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

	Current	Average over the last week	Average since 1 July 2018
Swan Hill	90	90	90
Euston	-	-	-
Red Cliffs	120	120	120
Merbein	-	110	-
Burtundy (Darling)	710	710	710
Lock 9	120	120	120
Lake Victoria	200	200	200
Berri	170	170	170
Waikerie	230	240	230
Morgan	250	260	250
Mannum	420	440	420
Murray Bridge	460	440	460
Milang (Lake Alex.)	830	830	830
Poltalloch (Lake Alex.)	590	620	590
Meningie (Lake Alb.)	1 550	1 530	1 550
Goolwa Barrages	6 610	7 560	6 610





**River Levels and Flows**

**Week ending Wednesday 01 Aug 2018**

	Minor Flood Stage	Gauge Height		Flow	Trend	Average Flow this Week	Average Flow last Week
		local (m)	(m AHD)				
<b>River Murray</b>	(m)			(ML/day)		(ML/day)	(ML/day)
Khancoban	-	-	-	3 080	F	3 830	4 220
Jingellic	4.0	1.74	208.26	4 780	F	5 270	5 170
Tallandoon ( Mitta Mitta River )	4.2	1.81	218.70	1 570	S	1 530	1 770
Heywoods	5.5	2.36	155.99	7 000	S	7 610	8 300
Doctors Point	5.5	2.49	150.96	9 500	F	9 840	10 550
Albury	4.3	1.51	148.95	-	-	-	-
Corowa	4.6	2.14	128.16	8 800	R	9 440	9 490
Yarrowonga Weir (d/s)	6.4	1.00	116.04	5 520	F	5 500	6 150
Tocumwal	6.4	1.58	105.42	5 560	R	5 370	6 110
Torrumbarry Weir (d/s)	7.3	1.37	79.92	3 350	F	4 050	5 540
Swan Hill	4.5	0.94	63.86	4 210	F	5 080	6 890
Wakool Junction	8.8	2.50	51.62	5 710	F	6 360	8 830
Euston Weir (d/s)	9.1	1.36	43.20	6 660	F	7 660	10 300
Mildura Weir (d/s)	-	-	-	7 460	F	8 630	10 820
Wentworth Weir (d/s)	7.3	2.86	27.62	6 560	F	8 430	10 640
Rufus Junction	-	3.33	20.26	5 510	F	7 260	9 250
Blanchetown (Lock 1 d/s)	-	0.81	-	5 510	F	7 270	9 470
<b>Tributaries</b>							
Kiewa at Bandiana	2.8	1.58	154.81	1 300	F	1 250	1 310
Ovens at Wangaratta	11.9	9.04	146.72	3 320	F	3 160	2 120
Goulburn at McCoys Bridge	9.0	1.53	92.95	1 020	F	1 260	2 460
Edward at Stevens Weir (d/s)	5.5	0.81	80.58	510	F	740	810
Edward at Liewah	-	1.26	56.64	670	R	700	910
Wakool at Stoney Crossing	-	1.27	54.76	210	F	220	240
Murrumbidgee at Balranald	5.0	1.53	57.49	1 030	S	960	940
Barwon at Mungindi	6.1	2.98	-	0	F	0	0
Darling at Bourke	9.0	3.97	-	30	F	40	60
Darling at Burtundy Rocks	-	0.68	-	60	F	20	10

Natural Inflow to Hume	5000	3 380
------------------------	------	-------

(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	-0.78	-	No. 7 Rufus River	22.10	-0.08	+1.02
No. 26 Torrumbarry	86.05	-0.10	-	No. 6 Murtho	19.25	+0.01	+0.18
No. 15 Euston	47.60	-0.33	-	No. 5 Renmark	16.30	+0.12	+0.19
No. 11 Mildura	34.40	+0.00	+0.17	No. 4 Bookpurnong	13.20	+0.03	+0.75
No. 10 Wentworth	30.80	+0.04	+0.22	No. 3 Overland Corner	9.80	+0.00	+0.31
No. 9 Kulnine	27.40	-0.05	-0.28	No. 2 Waikerie	6.10	+0.12	+0.19
No. 8 Wangumma	24.60	-0.31	+0.04	No. 1 Blanchetown	3.20	+0.01	+0.06

**Lower Lakes FSL = 0.75 m AHD**

Lake Alexandrina average level for the past 5 days (m AHD)	0.78
--	------

**Barrages**

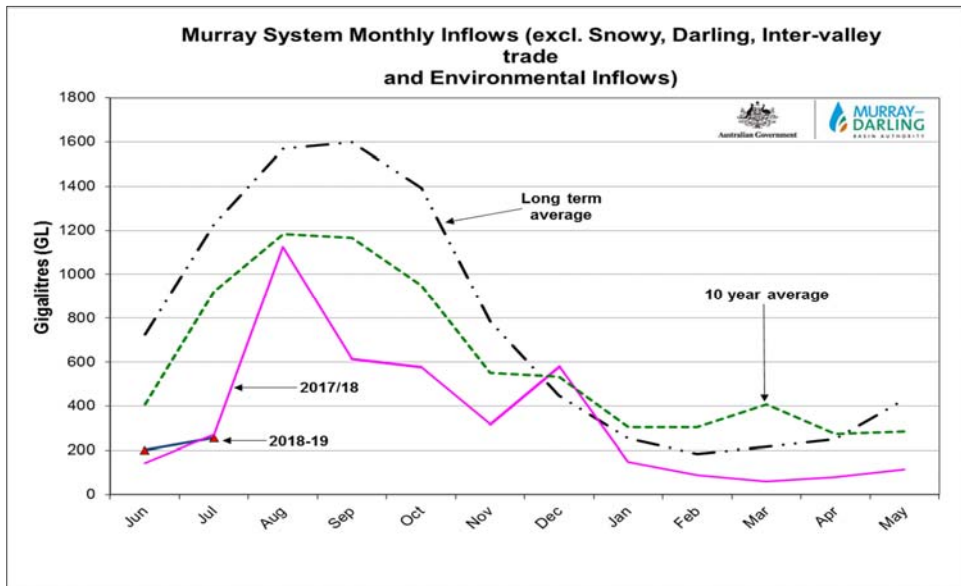
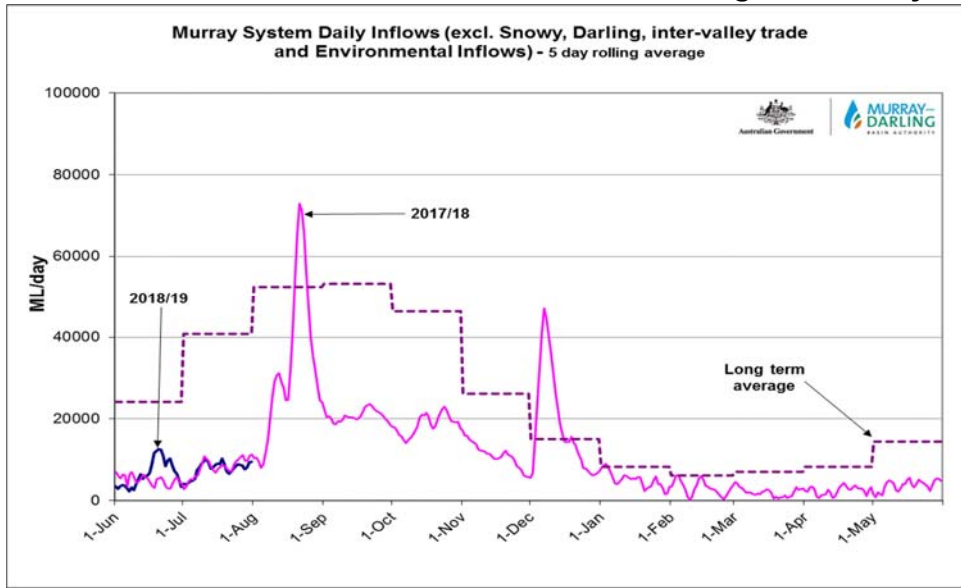
**Fishways at Barrages**

	Openings	Level (m AHD)	No. Open	Rock Ramp	Vertical Slot 1	Vertical Slot 2	Dual Vertical Slots
Goolwa	128 openings	0.80	All closed	-	Open	Open	-
Mundoo	26 openings	0.79	All closed	-	-	-	Open
Hunters Creek	-	-	-	-	Open	-	-
Boundary Creek	6 openings	-	All closed	-	Open	-	-
Ewe Island	111 gates	-	All closed	-	-	-	Open
Tauwitchere	322 gates	0.80	All closed	Open	Open	Open	-

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



Week ending Wednesday 01 Aug 2018



State Allocations (as at 01 Aug 2018)

NSW - Murray Valley

High security	97%
General security	0%

Victorian - Murray Valley

High reliability	49%
Low reliability	0%

NSW - Murrumbidgee Valley

High security	95%
General security	6%

Victorian - Goulburn Valley

High reliability	37%
Low reliability	0%

NSW - Lower Darling

High security	100%
General security	0%

South Australia - Murray Valley

High security	100%
---------------	------

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>