



RIVER MURRAY WEEKLY REPORT

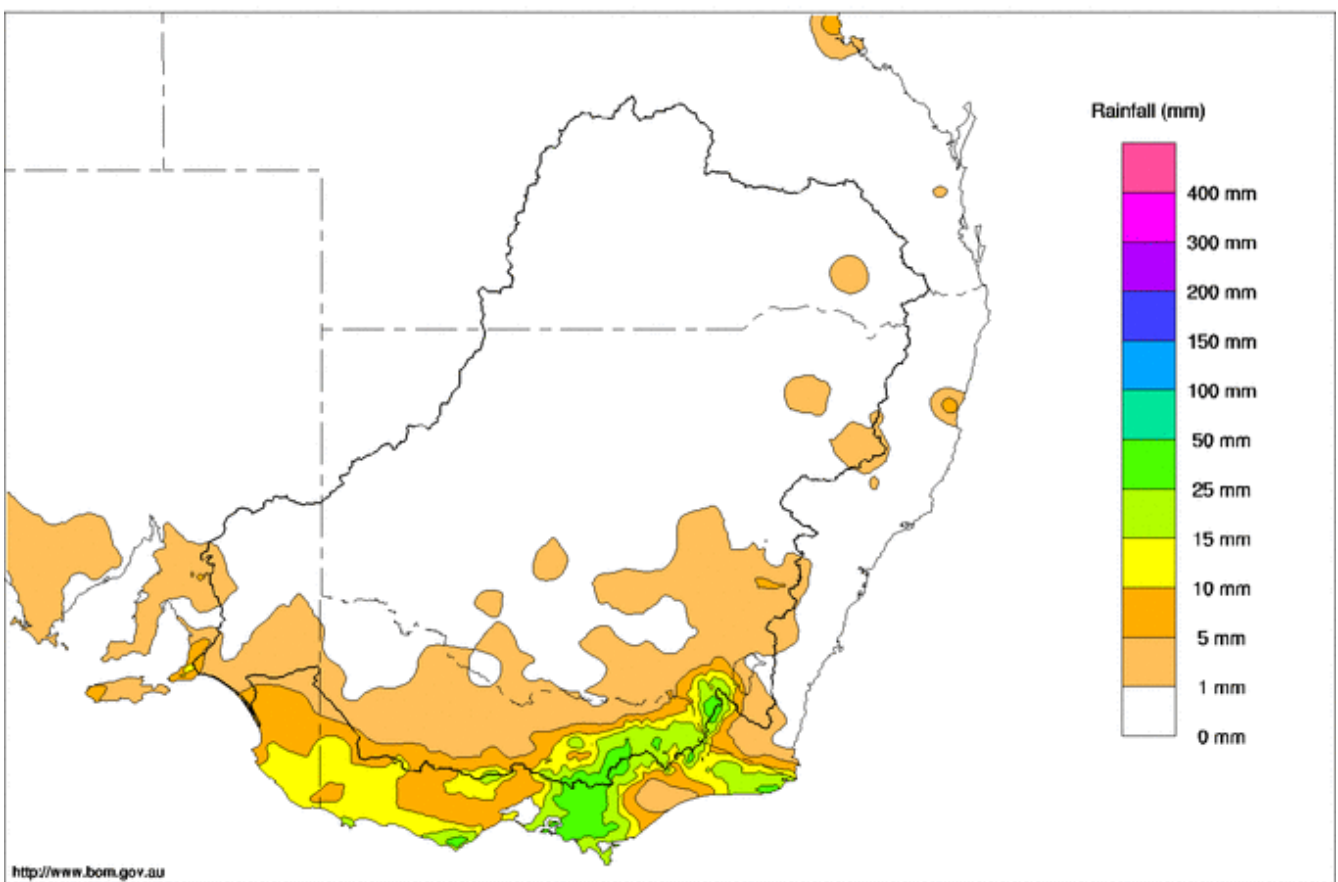
FOR THE WEEK ENDING WEDNESDAY, 26 JULY 2017

Trim Ref: D17/26960

Rainfall and inflows

Rainfall was scarce across the northern Basin this week. In the south, weak cold fronts delivered rainfall that was mostly confined to the Victorian and southern New South Wales ranges (Map 1). In Victoria, 49 mm fell at Mt Buller and 47 mm at Mt Buffalo, whilst 27 mm was recorded at Cabramurra in New South Wales.

Murray-Darling Rainfall Totals (mm) Week Ending 26th July 2017
Australian Bureau of Meteorology



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Map 1 - Murray-Darling Basin rainfall map week ending 26 July 2017. Source: Bureau of Meteorology

This week's rainfall provided only minor streamflow responses in the upper Murray tributaries. The upper Mitta Mitta River at Hinnomunjie averaged around 500 ML/day, while the upper Murray at Biggara averaged close to 700 ML/day. These flow rates are quite low for this time of year, reflecting the below average rainfall experienced in June and so far in July.

Downstream of Hume Reservoir, inflow from the Kiewa River to the Murray was 1,500 ML/day, while in the Ovens, the flow at Wangaratta increased slightly from 1,750 ML/day at the start of the week to close to 2,350 ML/day.



River operations

- Winner of Senator J S Collings trophy announced
- Dry outlook for August
- Transfers to begin from Hume to Lake Victoria

Over the last fortnight, the Executive Director of River Management and the General Manager of Assets completed the annual inspection of the major water assets in the River Murray System. Following the inspection, the Senator J S Collings trophy was awarded to the most effectively maintained asset - Dartmouth Dam (see Photo 1). Congratulations to the team at Dartmouth who continue to develop and implement innovative engineering solutions to maintain or replace a range of asset components.



Photo 1 – The team at Dartmouth Reservoir have been crowned winners of this year’s Senator J S Collings trophy. Source: Goulburn-Murray Water.

MDBA total storage rose by 35 GL this week, with the active storage now 5,805 GL (68% capacity).

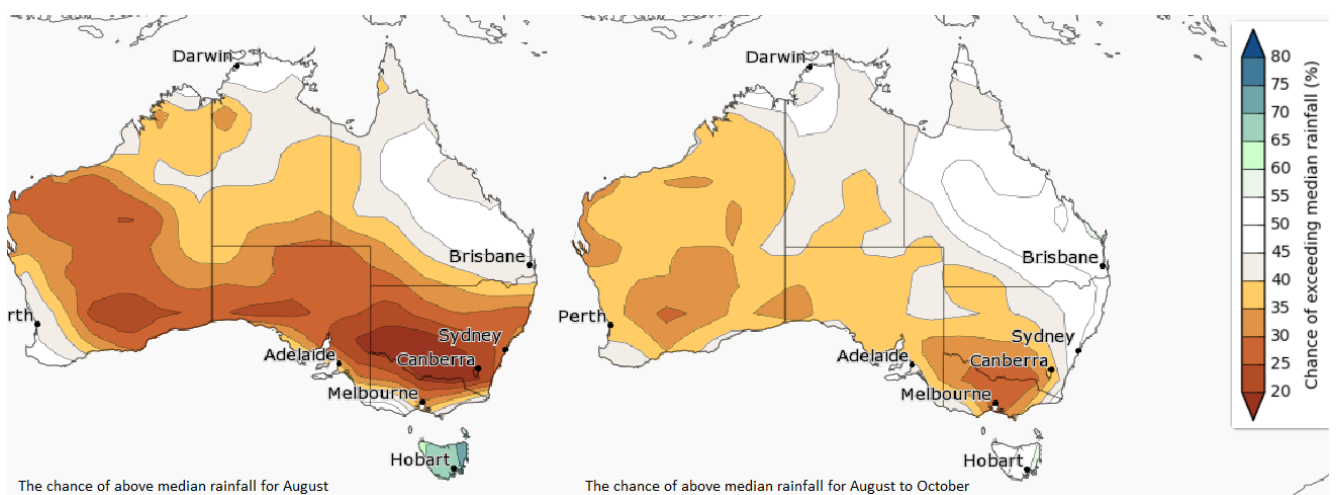
At **Dartmouth** Reservoir, the storage volume increased by 3 GL to 3,031 GL (79% capacity). Releases from Dartmouth, measured at Colemans gauge, increased from 200 ML/day to 700 ML/day for hydroelectricity generation purposes using AGL entitlement. Releases are expected to remain around this rate for the coming week.

At **Hume** Reservoir (Photo 2), the storage increased by 36 GL to 2,265 GL (75% capacity). Increases to Hume storage are continuing to be driven by the consistently high releases from the Snowy Hydro Scheme. The release from Hume peaked at 6,000 ML/day this week before reducing to 5,000 ML/day. Releases have been providing for environmental targets downstream of Yarrawonga and to meet increasing downstream demands.



Photo 2 – The Mitta Mitta arm of Hume Reservoir slowly filling. Source: Hugo Bowman, MDBA.

Given the dry conditions experienced in June and July, MDBA is planning to commence transfers from Hume to Lake Victoria in the next week. Doing so will ensure Lake Victoria has sufficient volume to supplement downstream demands during the peak of the irrigation season. If conditions turn wet, transfers from Hume may be reduced. The latest Bureau of Meteorology rainfall outlook (Map 2) suggests drier than average conditions over the coming months.



Map 2 – The latest Bureau of Meteorology rainfall outlooks show a reduced chance of above median rainfall across the Murray catchments in August (left) and from August to October (right). Source: Bureau of Meteorology.

At **Yarrowonga Weir**, releases have followed the estimated natural flow and were increased to 7,500 ML/day before reducing to 7,200 ML/day. The additional releases to protect winter base flows downstream in the River Murray have been made on behalf of environmental water holders. Releases of this magnitude are likely to be sustained over the coming weeks as transfers from Hume to Lake



Victoria commence. Diversions to Yarrowonga Main Channel remained low this week. Diversions to Mulwala Canal are expected to commence next week in anticipation of early season irrigation demands.

Downstream of Yarrowonga Weir, the regulators into the Barmah-Millewa forest remain open to facilitate a winter watering of the forest. This watering action will benefit native fish and improve the transfer of valuable nutrients from the floodplain to the river to increase ecosystem productivity. Water used in the forest is being debited from water accounts held by the environmental water holders.

On the **Edward** River system, the gates at Edward and Gulpa Offtakes remain clear of the water. Flows through the Edward and Gulpa offtakes are currently near 1,000 ML/day and 300 ML/day respectively and may continue to vary over the winter period in response to river level fluctuations in the Murray at Picnic Point. At **Stevens Weir**, the pool level has remained around 4.0 m (local gauge) with the downstream release averaging 750 ML/day.

The environmental pulse in the **Goulburn River** continues to recede. The flow at McCoy's bridge has fallen to around 1,300 ML/day and is expected to decrease to 1,000 ML/day over the coming days. The environmental flows in the Goulburn River were planned by the Goulburn Broken CMA. More information can be found on the GMW [factsheet](#) and the Goulburn Broken CMA [website](#).

The **Torrumbarry** weir pool level is 85.96 m AHD and will be raised to 86.0 m AHD (5 cm below full supply level (FSL)) in the coming days. The current flow over the weir is around 5,000 ML/day, and is expected to average a similar rate over the coming week. Diversions into National Channel remain around 450 ML/day to maintain winter base flows along **Gunbower Creek** for the benefit of native fish. Next week diversions to National Channel are expected to increase to 1,500 ML/day in order to fill irrigation channels and storages within the irrigation district in readiness for the start of the irrigation season.

The flow in the **Murrumbidgee River** at Balranald averaged just under 1,200 ML/day and is likely to remain relatively steady over the coming week. Around mid-August the flow at Balranald is expected to increase as a 'river fresh' is delivered along the Murrumbidgee targeting a flow rate of 20,000 ML/day upstream at Wagga Wagga. The aim of the fresh is to improve the health of wetlands along the mid-Murrumbidgee River as well as deliver instream benefits throughout the mid and lower Murrumbidgee River system. This event is expected to deliver significant inflows, at within-channel rates, to the Murray in August. Further environmental benefits will accrue as the flows are passed down the Murray to South Australia. Further information is available on the [NSW Office of Environment & Heritage](#) website.

At **Euston weir**, the pool level is currently 47.36 m AHD (24 cm below FSL). The pool level is expected to be varied over the coming weeks as part of the weir pool variability program. The downstream release has continued to reduce this week and is now below 10,500 ML/day and will recede towards 8,000 ML/day in the coming days.

On the **Darling River**, the total storage volume in the **Menindee Lakes** decreased by 6 GL to 759 GL (44% capacity). Inflows to the lakes continue at low rates, with the upstream flow at Wilcannia around 300 ML/day. Releases from Menindee Lakes to the Lower Darling River at Weir 32 continue to target 400 ML/day. This release is above the minimum release for this time of year (200 ML/day) due to the release of environmental water to benefit native fish in the lower Darling.

At the junction of the Darling with the Murray, releases from **Wentworth** weir peaked at 12,000 ML/day before decreasing to 10,500 ML/day. The flow will continue to recede over the next week as the peak from the Goulburn pulse travels further downstream. Small flows continue to enter the Murray from the Great Darling Anabranch.

Lock 9 remains close to FSL while **Lock 8** is almost 100 cm below FSL and **Lock 7** around 25 cm below FSL. Varying pool levels helps restore a more natural wetting and drying cycle to riverbanks and adjacent wetlands within the influence of the weir pool.



At **Lake Victoria**, the storage volume increased by 2 GL to 424 GL (63% capacity). Over the coming months MDBA will manage the filling of Lake Victoria in line with the Lake Victoria Operating Strategy. The strategy aims to maximise water security whilst minimising the impact on vegetation and aboriginal cultural heritage sites around the lake.

The flow to **South Australia** reached 11,500 ML/day a week ago influenced by environmental water from the Goulburn pulse event. Flow has since decreased to around 10,000 ML/day. Further recessions of flows are expected to continue into August.

At the Lower Lakes, the 5-day average water level in Lake Alexandrina increased by 4 cm to 0.75 m AHD. Releases through the barrages were managed to avoid intrusion of seawater during high swells and tides, whilst providing an attractant flow for [pouched lamprey](#) which characteristically migrate upstream at this time of year to breed.

For media inquiries contact the Media Officer on 02 6279 0141

ANDREW REYNOLDS
General Manager, River Management



Water in Storage

Week ending Wednesday 26 Jul 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	472.48	3 031	79%	71	2 960	+3
Hume Reservoir	192.00	3 005	188.01	2 265	75%	23	2 242	+36
Lake Victoria	27.00	677	24.78	424	63%	100	324	+2
Menindee Lakes		1 731*		759	44%	(480 #)	279	-6
Total		9 269		6 479	70%	--	5 805	+35
Total Active MDBA Storage							68% ^	

Major State Storages

Burrinjuck Reservoir	1 026	638	62%	3	635	-9
Blowering Reservoir	1 631	1 311	80%	24	1 287	+15
Eildon Reservoir	3 334	2 046	61%	100	1 946	-10

* 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 25 Jul 2017

Storage	Active Storage (GL)	Weekly Change (GL)	Diversion (GL)	This Week	From 1 May 2017
Lake Eucumbene - Total	1 241	n/a	Snowy-Murray	+35	441
Snowy-Murray Component	534	n/a	Tooma-Tumut	+4	28
Target Storage	1 170		Net Diversion	31	413
			Murray 1 Release	+40	476

Major Diversions from Murray and Lower Darling (GL) *

New South Wales	This Week	From 1 July 2017	Victoria	This Week	From 1 July 2017
Murray Irrig. Ltd (Net)	0.0	0	Yarrawonga Main Channel (net)	0.1	1
Wakool Sys Allowance	1.6	4	Torrumbarry System + Nyah (net)	0.9	4
Western Murray Irrigation	0.1	0	Sunraysia Pumped Districts	0.4	1
Licensed Pumps	0.5	3	Licensed pumps - GMW (Nyah+u/s)	1	1
Lower Darling	1.3	2	Licensed pumps - LMW	4.6	4
TOTAL	3.5	9	TOTAL	7	11

* 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	108.5 *
Flow this week	76.9
Flow so far this month	222.3
Flow last month	159.2

(11 000 ML/day)

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

	Current	Average over the last week	Average since 1 August 2016
Swan Hill	110	80	110
Euston	-	-	-
Red Cliffs	150	170	170
Merbein	-	180	170
Burtundy (Darling)	640	640	600
Lock 9	160	180	220
Lake Victoria	270	600	220
Berri	300	320	300
Waikerie	380	400	370
Morgan	420	430	370
Mannum	470	450	390
Murray Bridge	470	480	360
Milang (Lake Alex.)	550	550	520
Poltalloch (Lake Alex.)	560	560	410
Meningie (Lake Alb.)	1 600	1 600	1 760
Goolwa Barrages	2 390	2 920	1 270



River Levels and Flows

Week ending Wednesday 26 Jul 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	-	-	-	5 520	F	6 700	4 730
Jingellic	4.0	2.04	208.56	7 320	F	7 860	6 440
Tallandoon (Mitta Mitta River)	4.2	1.64	218.53	1 130	S	980	590
Heywoods	5.5	2.14	155.77	5 250	S	3 980	2 080
Doctors Point	5.5	2.25	150.72	6 200	F	5 090	3 010
Albury	4.3	1.25	148.69	-	-	-	-
Corowa	4.6	1.45	127.47	5 060	R	4 410	3 910
Yarrowonga Weir (d/s)	6.4	1.33	116.37	7 770	R	6 690	5 230
Tocumwal	6.4	1.82	105.66	6 190	R	5 380	4 770
Torrumbarry Weir (d/s)	7.3	1.87	80.42	5 050	F	6 010	10 030
Swan Hill	4.5	1.25	64.17	5 970	F	7 530	10 230
Wakool Junction	8.8	3.29	52.41	8 530	F	9 720	11 240
Euston Weir (d/s)	9.1	2.10	43.94	10 470	F	11 230	11 810
Mildura Weir (d/s)	-	-	-	10 300	F	11 650	11 280
Wentworth Weir (d/s)	7.3	3.12	27.88	10 530	F	11 500	11 010
Rufus Junction	-	4.04	20.97	10 100	F	10 650	10 020
Blanchetown (Lock 1 d/s)	-	0.91	-	9 690	F	11 250	8 930
Tributaries							
Kiewa at Bandiana	2.8	1.23	154.46	860	R	1 150	940
Ovens at Wangaratta	11.9	8.74	146.42	2 330	R	1 990	1 190
Goulburn at McCoys Bridge	9.0	1.70	93.12	1 310	F	1 910	5 110
Edward at Stevens Weir (d/s)	5.5	1.24	81.01	910	F	740	510
Edward at Liewah	-	1.40	56.78	770	R	710	510
Wakool at Stoney Crossing	-	1.55	55.04	720	R	680	610
Murrumbidgee at Balranald	5.0	1.62	57.58	1 130	R	1 170	1 360
Barwon at Mungindi	6.1	3.38	-	490	S	560	760
Darling at Bourke	9.0	4.12	-	450	S	460	370
Darling at Burtundy Rocks	-	0.80	-	300	S	300	320

Natural Inflow to Hume	4 820	3 430
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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	-0.20	-	No. 7 Rufus River	22.10	-0.25	+1.73
No. 26 Torrumbarry	86.05	-0.07	-	No. 6 Murtho	19.25	-0.07	+0.30
No. 15 Euston	47.60	-0.24	-	No. 5 Renmark	16.30	-0.09	+0.38
No. 11 Mildura	34.40	+0.09	+0.30	No. 4 Bookpurnong	13.20	+0.01	+1.21
No. 10 Wentworth	30.80	+0.00	+0.48	No. 3 Overland Corner	9.80	+0.02	+0.42
No. 9 Kulnine	27.40	-0.02	-0.52	No. 2 Waikerie	6.10	-0.10	+0.40
No. 8 Wangumma	24.60	-0.97	+0.24	No. 1 Blanchetown	3.20	-0.09	+0.16

Lower Lakes FSL = 0.75 m AHD

Lake Alexandrina average level for the past 5 days (m AHD)	0.75
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Barrages

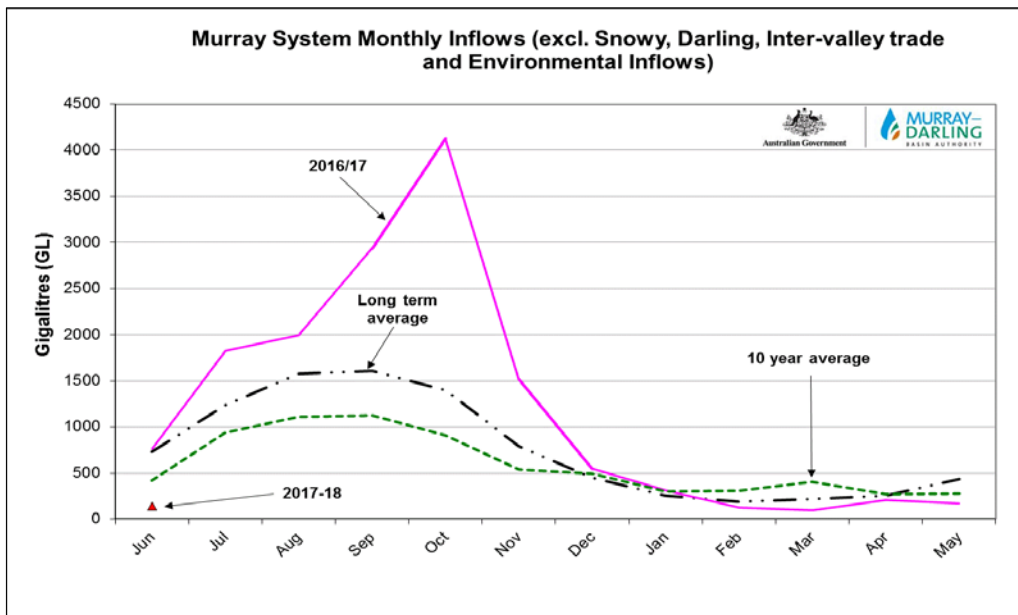
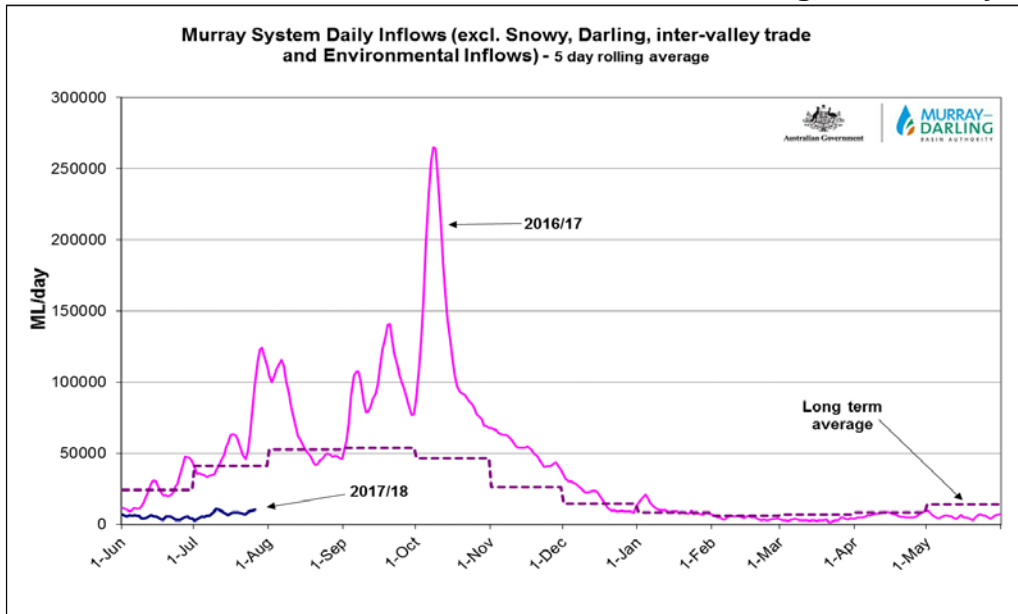
Fishways at Barrages

	Openings	Level (m AHD)	No. Open	Rock Ramp	Vertical Slot 1	Vertical Slot 2	Dual Vertical Slots
Goolwa	128 openings	0.71	2	-	Open	Open	-
Mundoo	26 openings	0.68	1	-	-	-	Open
Hunters Creek	-	-	-	-	Open	-	-
Boundary Creek	6 openings	-	1	-	Open	-	-
Ewe Island	111 gates	-	All closed	-	-	-	Open
Tauwichee	322 gates	0.74	21	Open	Open	Open	-

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



Week ending Wednesday 26 Jul 2017



State Allocations (as at 26 Jul 2017)

NSW - Murray Valley

High security	97%
General security	13%

Victorian - Murray Valley

High reliability	66%
Low reliability	0%

NSW - Murrumbidgee Valley

High security	95%
General security	20%

Victorian - Goulburn Valley

High reliability	36%
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>