



RIVER MURRAY WEEKLY REPORT

FOR THE WEEK ENDING WEDNESDAY, 28 SEPTEMBER 2016

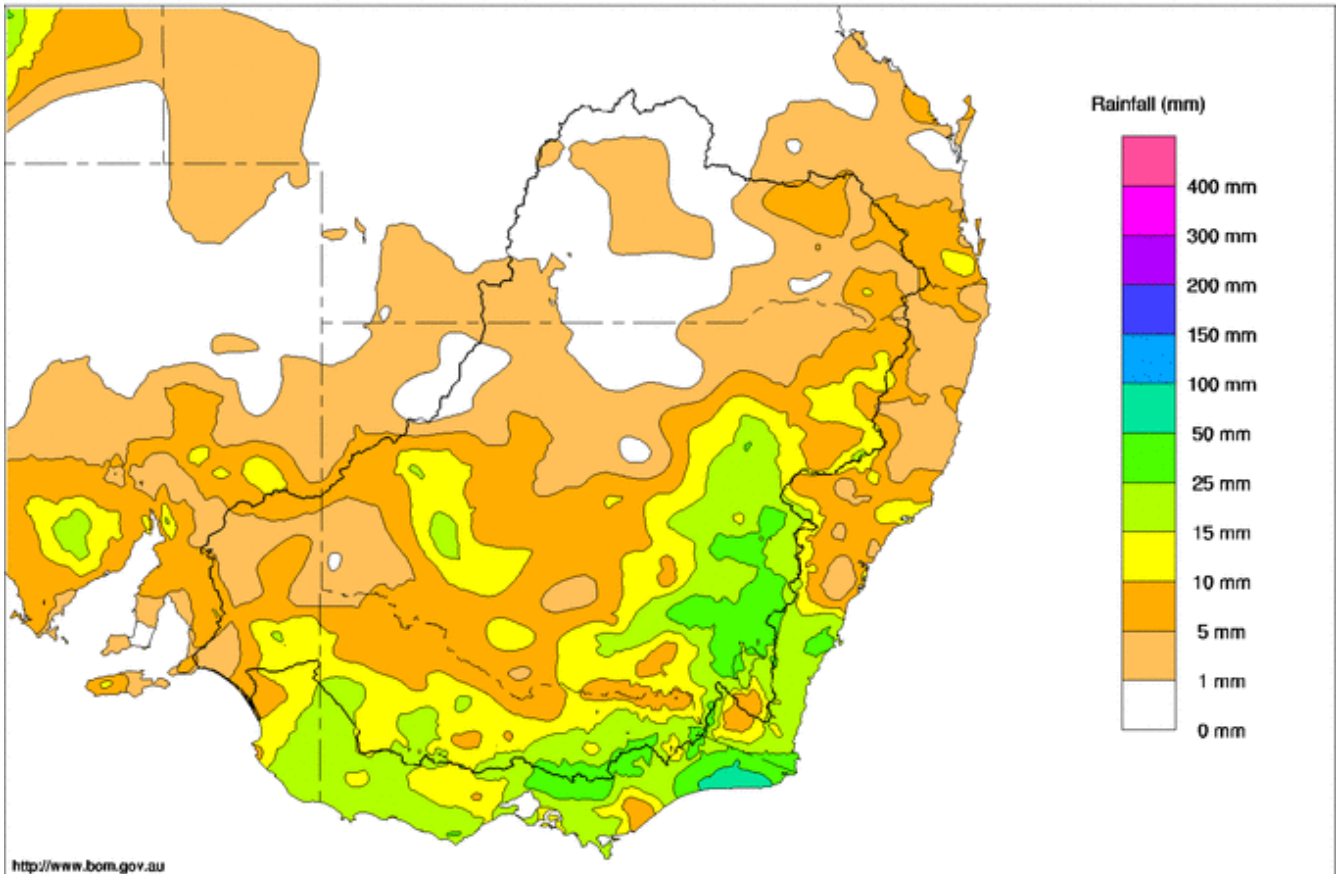
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Rainfall and inflows

Frontal activity was responsible for most of this week's rainfall in the Basin. Falls were widespread in the southern Basin, although the highest totals were generally confined to the Great Dividing Range (see Map 1). Rainfall was fairly light across Queensland while in New South Wales the highest recorded total was 49 mm at Orange. In Victoria 45 mm fell at Rocky Valley in the Kiewa River catchment while in South Australia 16 mm was recorded at Mindarie in the Murray Mallee region.

Further widespread rainfall is forecast over the southern Basin for this coming week, with 150 – 200 mm possible across areas of the Goulburn, Ovens, Kiewa, Murrumbidgee and upper Murray catchments (see Map 2).

Murray-Darling Rainfall Totals (mm) Week Ending 28th September 2016
Australian Bureau of Meteorology



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Map 1 - Murray-Darling Basin rainfall week ending 28th September 2016 (Source: Bureau of Meteorology (BoM))

Tributaries in the upper Murray catchments slowly receded throughout this week. The upper Murray at Biggara receded from 4,000 ML/day to 2,900 ML/day, whilst the downstream flow at Jingellic fell from 24,100 ML/day to near 18,500 ML/day.

Upstream of Dartmouth Reservoir, Hinnomunjie rose to 3,600 ML/day a week ago before receding to 2,400 ML/day. Downstream of Dartmouth Dam, inflows from Snowy Creek contributed to a peak flow at Tallandoon on the Mitta Mitta River of 4,100 ML/day which has since receded to 2,800 ML/day. Renewed streamflow rises are expected from the forecast rainfall.



River operations

- Hume Dam continues to spill
- Flood Watch issued for North East Victoria and NSW
- Mildura Weir removed due to high flows
- Wentworth weir pool gradually rising

MDBA total storage increased by 99 GL this week, with the active storage now 5,739 GL (68% capacity). Although inflows were once again high, total storage only rose 99 GL as Hume Reservoir is spilling and Lake Victoria is being held steady, meaning this week's increase in storage is primarily from Dartmouth and Menindee Lakes.

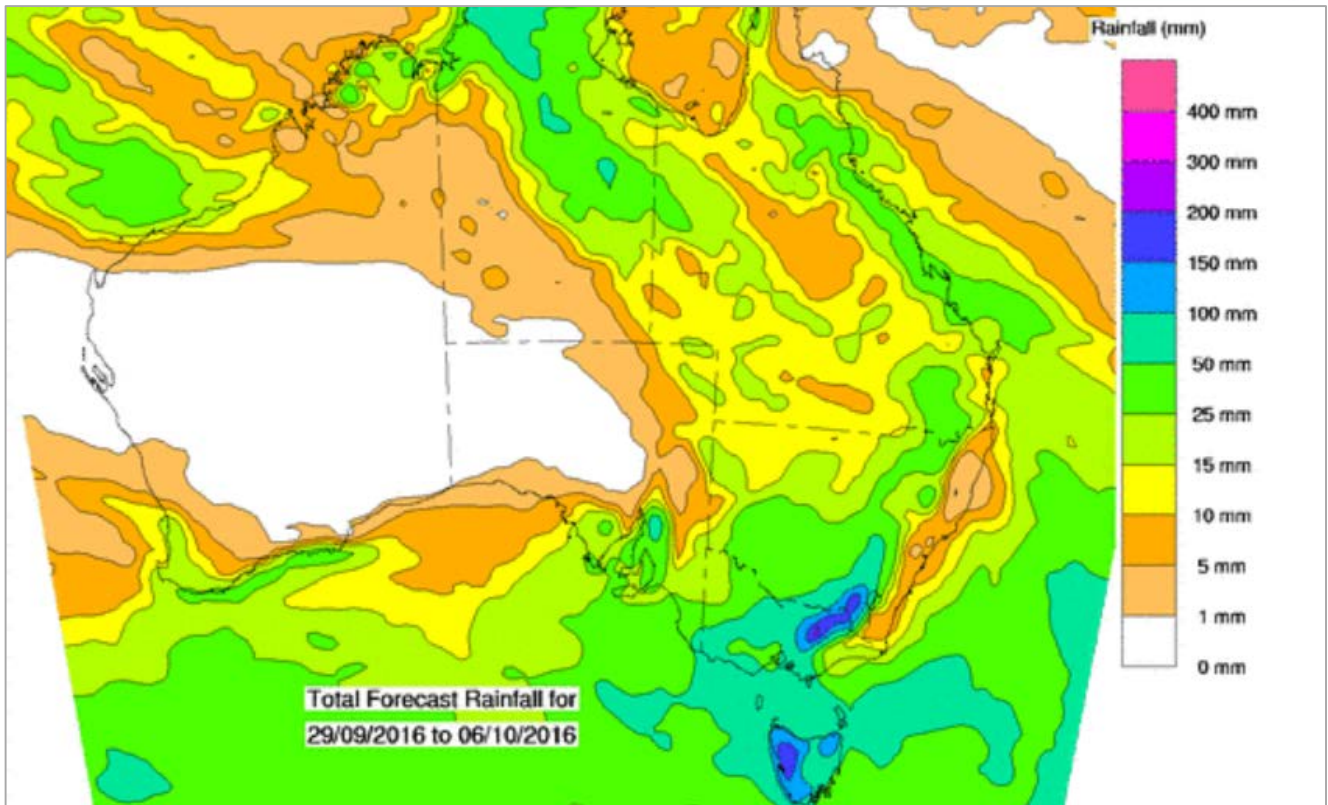
At **Dartmouth Reservoir**, the storage volume increased by 47 GL to 2,485 GL (64% capacity) and the release, measured at Colemans, continues to target the minimum flow rate of 200 ML/day.

The total storage volume at **Hume Reservoir** increased by 3 GL to 2,914 GL (97% capacity) as releases for the week were similar to inflows. Since the start of September Hume has received 1,170 GL of inflow, or almost 40% of the total storage capacity of Hume Dam.

Inflows to Hume gradually receded this week and releases were temporarily reduced during the week (see Photo 1). However, in anticipation of the forecast heavy rainfall (see Map 2) releases from Hume were increased on Wednesday 28 September to 40,000 ML/day, which is above the current inflows, in order to make additional airspace to help mitigate future high inflows. Releases can be expected to be adjusted in coming days depending on the actual rain and inflow responses in the Kiewa River and upstream of the reservoir. For example if heavy rain is observed in the Kiewa catchment, releases from Hume Dam may be temporarily reduced to manage river levels at Albury and downstream. Alternatively, heavy falls upstream of Hume may necessitate further increases in release.



Photo 1 – Releases from Hume have been increased from 28,000 ML/day (pictured) in anticipation of high inflows from the forecast rainfall. Source: Beatrix Spencer, MDBA.



Map 2 – Parts of the Murray catchments are forecast to receive between 150 – 200 mm over the next 8 days. Source: Bureau of Meteorology (BoM)

Downstream communities and landholders are reminded to keep up with the latest [Flood Watches and Warnings](#) issued by the BoM. In addition, community members living close to the river downstream of Hume Dam are reminded that they can [register](#) to the WaterNSW Early Warning Network (EWN) service. This service provides alerts 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.

Downstream of Hume, the **Kiewa River** at Bandiana gradually receded throughout the week to near 5,000 ML/day. Renewed rises are expected to begin from Thursday. Likewise, the **Ovens River** at Wangaratta receded throughout this week to 10,750 ML/day but is expected to rise significantly in the coming days on the back of heavy rainfall.

Last week the floodwaters being passed through Hume Dam combined with high inflows from the Kiewa and Ovens Rivers to deliver a peak flow downstream of **Yarrowonga Weir** of 87,000 ML/day. With upstream inflows receding this week, the release from Yarrowonga has gradually been reduced and is currently at 55,000 ML/day. The release may decrease further over the next couple of days before increasing again from rising upstream inflows. Downstream communities and landholders are reminded to keep up with the latest [Flood Watches and Warnings](#) issued by the BoM.

The flow through the Edward Offtake is 2,780 ML/day while the Gulpa Offtake is 1,200 ML/day. Return flows are continuing to enter the **Edward River** from the Millewa forest, with the downstream flow at Toonalook now 21,750 ML/day and forecast to continue rising towards 24,000 ML/day by the end of next week. The high flow in the Murray is resulting in significant volumes of water entering the Edward River downstream of Toonalook through the Bullatale (7,000 ML/day) and Tuppal Creek (15,700 ML/day), contributing to the flow at Deniliquin of 38,000 ML/day. The gates have been removed at **Stevens Weir** and the current flow of 22,410 ML/day is forecast to increase further over the next two weeks. The **Wakool River** at Kyalite is at 13,850 ML/day and will continue rising over the next few weeks.

The **Goulburn River** at McCoys Bridge peaked near 23,500 ML/day before receding to 12,230 ML/day. Renewed rises are expected from the coming rain. At **Torrumbarry Weir** the gates were lifted clear of the water last week, enabling free flow of water through the structure. The flow is currently at



45,740 ML/day and is expected to gradually recede this coming week. The high flows in the Murray are pushing water into the **Koondrook-Perricoota forest** and into the Wakool system via the Thule (3,500 ML/day) and Barbers Creek (1,800 ML/day).

The Murray at **Swan Hill** is at 23,380 ML/day and is expected rise slightly over the coming days. The **Murrumbidgee River** at Balranald is steady at 9,340 ML/day and will remain high this coming week. Downstream on the Murray at **Euston** the flow has slowly increased to 40,820 ML/day and will continue rising over the next several weeks. Euston weir pool is currently targeting a level of around 25 cm below Full Supply Level (FSL).

The **Euston Weir** is to be removed next week to make way for high flows. River vessels will still be able to navigate upstream and downstream of Euston Weir as long as they follow the navigational markers.

The **Mildura Weir** is being temporarily removed due to the high River Murray flows. The process of taking out the weir is expected to be completed by Sunday 2 October. Boat passage upstream and downstream of the weir is expected to be open no earlier than Monday 3 October. River craft will be able to bypass Lock 11 which will be closed until the weir is reinstated.

Lock 8 is also scheduled to be pulled next week to make way for high flows. This will mean that Torrumbarry Weir, Euston Weir, Mildura Weir, Lock 8 and Lock 7 will all have free flowing rivers by the end of next week.

On the Darling River at **Menindee Lakes** the storage increased 49 GL to 343 GL (20% capacity). Inflows from the Darling continue with the flow upstream at **Bourke** currently 22,800 ML/day and rising. Releases from Lake Wetherell into the lower Darling River were increased to 760 ML/day during this week. The flow downstream at **Burtundy** receded from 1,300 ML/day to 950 ML/day and may recede further this coming week. Importantly, salinity values at Burtundy have halved over the last 3 weeks going from 1000 to 500 EC units. Higher salinity values between Burtundy and Wentworth are expected to continue to decrease over this coming week.

Wentworth weir pool is currently 28 cm below FSL and is slowly being increased back towards normal levels. The temporary lowering of the weir pool aimed to assist with reducing the high salinities in the Darling arm of the weir pool. The release from Wentworth Weir is currently 37,440 ML/day and is expected to continue rising for the next three to four weeks.

At **Lake Victoria**, the total storage remained steady at 534 GL (79% capacity). In the coming week operations at Lake Victoria will be influenced by the size of inflows received in the upper catchments from the pending rain event, with the aim of filling the storage before unregulated flows cease.

The flow to **South Australia** averaged 34,000 ML/day this week and is expected to be slightly higher this coming week. High River Murray flows are enabling extensive watering of the **Chowilla** floodplain, with over 5,000 hectares of floodplain inundated (see Photo 2).



Photo 2 – Looking south onto a section of the Chowilla floodplain. Photo: Laura McCann, MDBA.



At **Lock 5** the target weir pool level is 45 cm above FSL, while the **Lock 2** weir pool is being raised by up to 75 cm above the normal pool height. This will raise Lock 2 to 6.85 m AHD.

Downstream at the **Lower Lakes**, flows through the barrages continue at high flow rates when conditions allow. Strong winds and large swells are likely to prevent substantial releases from the Lower Lakes over the next few days. When possible, 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 to 0.81 m AHD.

For media inquiries contact the Media Officer on 02 6279 0141

ANDREW REYNOLDS
Acting Executive Director, River Management



Water in Storage

Week ending Wednesday 28 Sep 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	462.25	2 485	64%	71	2 414	+47
Hume Reservoir	192.00	3 005	191.54	2 914	97%	23	2 891	+3
Lake Victoria	27.00	677	25.79	534	79%	100	434	-0
Menindee Lakes		1 731*		343	20%	(- -) #	0	+49
Total		9 269		6 276	68%	- -	5 739	+99
Total Active MDBA Storage							68% ^	

Major State Storages

Burrinjuck Reservoir	1 026	921	90%	3	918	-43
Blowering Reservoir	1 631	1 488	91%	24	1 464	+28
Eildon Reservoir	3 334	2 153	65%	100	2 053	+53

* 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 27 Sep 2016

Storage	Active Storage (GL)	Weekly Change (GL)	Diversions (GL)	This Week	From 1 May 2016
Lake Eucumbene - Total	2 022	+52	Snowy-Murray	+30	553
Snowy-Murray Component	888	-1	Tooma-Tumut	+15	216
Target Storage	1 240		Net Diversion	14	336
			Murray 1 Release	+46	806

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)	-0.7	64	Yarrowonga Main Channel (net)	0	3
Wakool Sys Allowance	0.0	0	Torrumbarry System + Nyah (net)	5.5	56
Western Murray Irrigation	0.0	1	Sunraysia Pumped Districts	0.3	3
Licensed Pumps	0.6	15	Licensed pumps - GMW (Nyah+u/s)	0	2
Lower Darling	0.1	2	Licensed pumps - LMW	5	29
TOTAL	0.0	82	TOTAL	10.8	93

* 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	237.7
Flow so far this month	974.8
Flow last month	844.8

(34 000 ML/day)

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

	Current	Average over the last week	Average since 1 August 2016
Swan Hill	180	220	130
Euston	-	-	-
Red Cliffs	150	150	140
Merbein	140	140	130
Burtundy (Darling)	500	470	1 160
Lock 9	150	180	130
Lake Victoria	180	160	160
Berri	190	170	160
Waikerie	190	190	180
Morgan	190	190	190
Mannum	200	190	210
Murray Bridge	200	200	230
Milang (Lake Alex.)	660	700	790
Poltalloch (Lake Alex.)	240	260	340
Meningie (Lake Alb.)	1 840	1 840	1 810
Goolwa Barrages	430	550	1 290



River Levels and Flows

Week ending Wednesday 28 Sep 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	-	-	-	9 250	F	9 390	9 550
Jingellic	4.0	3.12	209.64	18 530	F	21 350	29 810
Tallandoon (Mitta Mitta River)	4.2	2.11	219.00	2 790	F	3 310	4 700
Heywoods	5.5	4.25	157.88	32 880	R	31 320	46 940
Doctors Point	5.5	4.66	153.13	36 680	R	36 890	53 660
Albury	4.3	3.82	151.26	-	-	-	-
Corowa	4.6	5.31	131.33	36 030	F	47 700	51 090
Yarrowonga Weir (d/s)	6.4	5.68	120.72	60 190	F	75 260	73 560
Tocumwal	6.4	6.38	110.22	76 130	F	84 900	69 680
Torrumbarry Weir (d/s)	7.3	7.45	86.00	45 740	R	43 610	35 950
Swan Hill	4.5	3.80	66.72	23 380	S	23 050	21 450
Wakool Junction	8.8	7.44	56.56	35 120	R	33 170	29 010
Euston Weir (d/s)	9.1	5.17	47.01	39 300	R	38 460	34 730
Mildura Weir (d/s)	-	-	-	41 520	F	37 090	33 030
Wentworth Weir (d/s)	7.3	5.02	29.78	37 440	R	34 870	31 700
Rufus Junction	-	6.20	23.13	33 120	S	33 950	36 740
Blanchetown (Lock 1 d/s)	-	2.29	-	33 530	F	34 060	33 980
Tributaries							
Kiewa at Bandiana	2.8	2.88	156.11	4 980	R	5 460	6 720
Ovens at Wangaratta	11.9	10.86	148.54	10 750	F	14 220	25 750
Goulburn at McCoys Bridge	9.0	6.35	97.77	12 230	F	18 630	16 890
Edward at Stevens Weir (d/s)	5.5	6.27	86.05	22 410	S	18 530	12 150
Edward at Liewah	-	5.00	60.38	6 890	R	6 170	4 480
Wakool at Stoney Crossing	-	4.26	57.75	7 910	R	6 540	4 380
Murrumbidgee at Balranald	5.0	5.66	61.62	9 340	R	9 240	8 930
Barwon at Mungindi	6.1	3.91	-	2 460	R	1 600	1 260
Darling at Bourke	9.0	7.99	-	22 810	R	20 370	12 480
Darling at Burtundy Rocks	-	1.00	-	940	F	1 080	1 340

Natural Inflow to Hume (i.e. Pre Dartmouth & Snowy Mountains scheme)	33 830	54 520
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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	-0.19	-	No. 7 Rufus River	22.10	+1.07	+3.88
No. 26 Torrumbarry	86.05	-0.02	-	No. 6 Murtho	19.25	+0.59	+1.94
No. 15 Euston	47.60	-0.24	-	No. 5 Renmark	16.30	+0.42	+1.68
No. 11 Mildura	34.40	-0.54	+2.17	No. 4 Bookpurnong	13.20	+0.03	+2.80
No. 10 Wentworth	30.80	-0.28	+2.38	No. 3 Overland Corner	9.80	+0.02	+2.28
No. 9 Kulnine	27.40	+0.01	+1.66	No. 2 Waikerie	6.10	+0.66	+2.29
No. 8 Wangumma	24.60	+0.25	+2.46	No. 1 Blanchetown	3.20	-0.11	+1.54

Lower Lakes FSL = 0.75 m AHD

Lake Alexandrina average level for the past 5 days (m AHD)	0.81
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Barrages

Fishways at Barrages

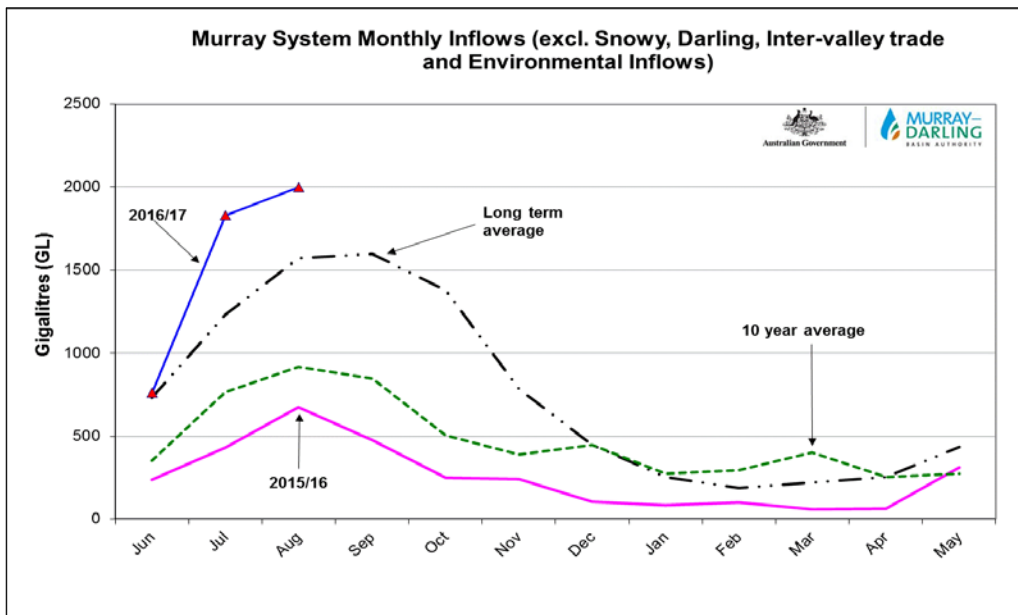
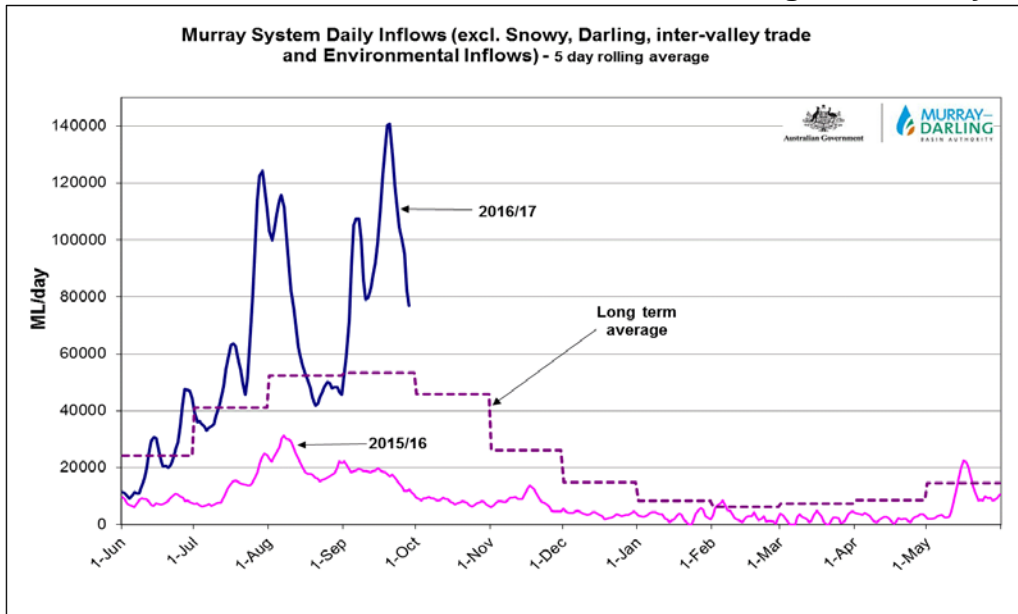
	Openings	Level (m AHD)	No. Open	Rock Ramp	Vertical Slot 1	Vertical Slot 2	Dual Vertical Slots
Goolwa	128 openings	0.83	20	-	Open	Open	-
Mundoo	26 openings	0.80	4	-	-	-	Open
Hunters Creek	-	-	-	-	Open	-	-
Boundary Creek	6 openings	-	1	-	Open	-	-
Ewe Island	111 gates	-	12	-	-	-	Open
Tauwicheere	322 gates	0.88	70	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 28 Sep 2016



State Allocations (as at 28 Sep 2016)

NSW - Murray Valley

High security	97%
General security	42%

Victorian - Murray Valley

High reliability	83%
Low reliability	0%

NSW - Murrumbidgee Valley

High security	95%
General security	61%

Victorian - Goulburn Valley

High reliability	73%
Low reliability	0%

NSW - Lower Darling

High security	100%
General security	50%

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>