



RIVER MURRAY WEEKLY REPORT

FOR THE WEEK ENDING WEDNESDAY, 14 SEPTEMBER 2016

Trim Ref: D16/30780

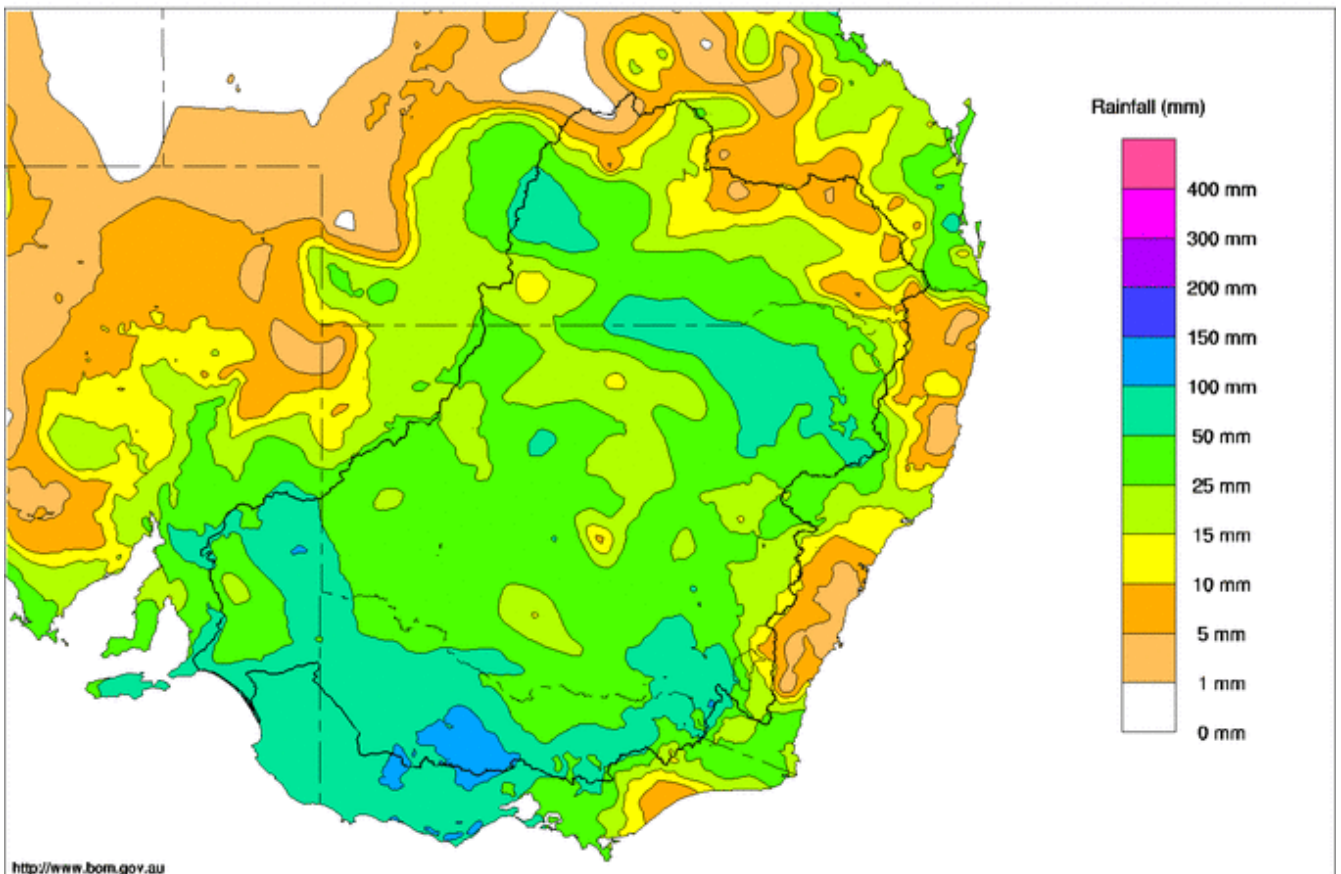
Rainfall and inflows

During the week, a cold front and associated low pressure system tracked across southern Australia. This deepened and developed into a complex low while moving through eastern parts of the South before continuing across Bass Strait. The system connected to a surface trough extending northward, which tracked through Central Australia into eastern Queensland as the system progressed. The complex low and troughs brought moderate to locally heavy rainfall to southeastern South Australia, much of New South Wales and Victoria and into southern Queensland, see map 1.

Rainfall totals between 50 and 100 mm were recorded in an area of the northeast pastoral district and in the southeast of South Australia; southwest, central and northeastern Victoria; in the Snowy Mountains in New South Wales; and in isolated pockets of the east coast of Queensland.

Murray-Darling Rainfall Totals (mm) Week Ending 14th September 2016

Australian Bureau of Meteorology



<http://www.bom.gov.au>

© Commonwealth of Australia 2016, Australian Bureau of Meteorology

Issued: 14/09/2016

Map 1 - Murray-Darling Basin rainfall week ending 14 September 2016 (Source: Bureau of Meteorology (BoM))

Significant rainfall occurred on Friday night and into Saturday and was heavier on the NSW side of the upper Murray catchment. The upper Murray at Biggara peaked at only 6,500 ML/day while the Tooma River at Pinegrove peaked at over 18,000 ML/day. This is a significant flow for a small catchment and an indication of just how wet the upper Murray catchments are. As a result, the flow at Jingellic peaked at around 45,000 ML/day on Sunday evening.



In the Dartmouth catchment, the Mitta Mitta at Hinnomunjie peaked at over 7,000 ML/day on the weekend. More rain fell on Tuesday night and Wednesday which is likely to boost inflows once again.

The long-term average Murray system inflow for September is around 1,600 GL. Half way though the month, inflows are already 1,400 GL. With more rainfall forecast in the next 8 days and catchments very wet it is likely that September inflows will be significantly above the long-term average.

River operations

- Hume Dam continues to spill
- Wentworth Weir has been lowered

Irrigation allocations increased in NSW and Victoria on 15 September, see page 8. In Victoria the Murray High Reliability Water Share has increased to 83%. In NSW the Murray general security allocation has increased by 12% to 42%. With average general security carryover of around 27%, the equivalent general security availability is now 69% in NSW.

Murray allocations in Victoria and NSW are not yet at 100% as storage in Dartmouth Dam is only around 60% and because water is not yet available to the Murray from Menindee Lakes (16% capacity). In the months, any water demands which are met from tributary inflows downstream of Hume Dam will reduce the reliance on water held in storage and therefore may allow NSW and Victoria to further increase allocations.

MDBA total storage increased by 70 GL this week, with the active storage now 5,649 GL (67% capacity). Whilst inflows were large, total storage only rose 70 GL this week, as Hume reservoir is spilling and Lake Victoria is being temporarily lowered, offsetting gains in Dartmouth and Menindee Lakes.

At **Dartmouth Reservoir**, the storage volume increased by 62 GL to 2,366 GL (61% capacity) and the releases, measured at Colemans, continue to target the minimum flow rate of 200 ML/day.

The total storage volume at **Hume Reservoir** decreased by 8 GL to 2,913 GL (97% capacity) as Hume releases have almost matched inflows. MDBA began airspace management releases on 29 August and operations at Hume have now transitioned to flood operations with high inflows and storage levels. Releases last week were 45,000 ML/day but were reduced to 41,400 ML/day on Sunday to limit river levels at Albury and downstream while the Kiewa River was rising. With further inflows forecast, releases have been maintained at this rate to hold some 'airspace' in the reservoir ahead of the further wet weather. As the storage approaches 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 continue to be provided in future weekly reports. Although MDBA manages operations at Hume Dam during flood events, we **do not issue public flood forecasts** or warnings for the River Murray. This is the responsibility of the Bureau of Meteorology (BoM). To ensure the full range of factors affecting downstream flood events are considered, our operators work closely with the BoM's flood forecasters to exchange information about rainfall, inflows (including from tributaries downstream of Hume), forecasts and dam operations. The BoM compile all this information to develop forecasts of river flows and then, when appropriate, issue flood warnings.

With further rainfall forecast and catchments saturated, renewed inflows into Hume Dam are likely. 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** contributed around 7,000 ML/day to the Murray over the weekend before receding to the current flow at Bandiana near 5,700 ML/day. Downstream of the Kiewa and Murray junction, the Albury river level has exceeded the minor flood level of 4.3 m. Increases in inflows upstream of Hume or further rises in the Kiewa River will result in an increase in the level at Albury and downstream.



The **Ovens River** at Wangaratta reached 13,000 ML/day on Sunday night and has since receded to 9,600 ML/day but stream rises are expected across the Ovens catchment due to recent rainfall.

The releases from Hume and the responses from the Ovens and Kiewa Rivers have combined to give a release downstream of **Yarrowonga Weir** of 68,500 ML/day on Thursday 15 September 2016, see photo below. Increases in Hume dam releases or renewed responses from the Ovens or Kiewa Rivers would see a rise in Yarrowonga releases. Downstream communities and landholders are reminded to keep up with the latest [Flood Watches and Warnings](#) issued by the Bureau of Meteorology.



Photo 1- Yarrowonga releases at 68,500 ML/day on 15 September 2016 (Source: Brad Mouat GMW)

On the **Edward River**, the flow through the Edward Offtake is 2,300 ML/day while the Gulpa Offtake is 900 ML/day. Return flows continue to enter the Edward River from the Millewa forest, with the downstream flow at Toonalook now 10,300 ML/day and forecast to continue rising to around 12,000 ML/day by the end of next week. The flow is rising through Bullatale and Tuppal Creeks at 4,400 and 80 ML/day respectively contributing to the flow at **Stevens Weir** of 9,500 ML/day. At Stevens Weir the gates have been removed and the flow is forecast to rise over the coming week.

Downstream of Stevens Weir water is still entering Werai Forest and inundation is likely to increase as flows rise. Further down the Edward, the **Billabong Creek** is starting to rise as is the flow at Moulamein which is currently 4,200 ML/day. On the **Wakool** the flow at Kyalite is 7,200 ML/day and forecast to rise over the coming weeks with returns through Millewa and Koondrook forests.

Inflows to the Murray from the **Goulburn River** are currently 11,500 ML/day but rainfall over the last couple of days has seen increases in tributary inflows. The Goulburn River at McCoys is likely to rise over the coming week. The flow from the Goulburn will add to the flows on the Murray at **Barmah** which are currently 17,000 ML/day and rising. The flow at **Torrumbarry** is currently 21,800 but forecast to exceed 30,000 ML/day with increases from the Goulburn River. With these higher flows the gates at Torrumbarry weir are expected to be lifted from the river next week resulting in a modest lowering of water levels immediately upstream. Inundation of the **Gunbower** and **Koondrook-Perricoota Forests** will continue at these high flow rates.

On the **Murrumbidgee River** the flow at Gundagai has peaked at over 50,000 ML/day for the second week in a row. At Balranald at the bottom end of the **Murrumbidgee River**, the flow has risen to 8,500 ML/day and is expected to remain between 8-9,000 ML/day for the coming week. Downstream on the Murray at **Euston**, the flow is currently 33,000 ML/day and forecast to rise slowly this week. **Euston** weir pool is currently targeting a level of around 25 cm below FSL.



On the Darling River at **Menindee Lakes** the storage increased 36 GL to 270 GL (16% capacity). Inflows from the Darling continue with the flow upstream at **Bourke** currently around 8,000 ML/day. Releases from Lake Wetherell into the lower Darling River continue at 700 ML/day and are forecast to decrease over the coming week. The flow downstream at Burtundy is currently 1,100 ML/day. The higher flow passing Burtundy will help accelerate the passage of saline water down the Darling. Given the high flows in the Murray, only a minor and short-lived rise in salinity is expected downstream of Wentworth. The MDBA is temporarily lowering **Wentworth** weir pool to try to reduce high salinity levels in the Darling River arm of the weir pool. By Thursday 15 September, the level of the pool had been lowered 0.4 m below full supply level. The attached media release provides further details on the lowering and river users are advised to be vigilant of the impacts of the lower river levels as we strive to minimise the impacts of high salinities in the Darling arm of the weir pool.

On the Murray at **Lock 9** the weir pool is currently targeting a pool level of 5 cm below FSL. At **Lock 8** the weir pool is 50 cm above FSL and the river is flowing freely through **Lock 7** as the stop logs have been fully removed.

At **Lake Victoria** the total storage decreased by 20 GL to 564 GL (83% capacity). The MDBA increased the outflows from Lake Victoria this week to lower Lake Victoria and minimise the time that Lake Victoria is held at Full Supply Level in order to reduce the disturbance to Aboriginal cultural heritage material. The lake will be filled to FSL by the conclusion of unregulated flows.

Operations to further test the **Chowilla** Regulator and ancillary structures commenced on 10 August 2016 and are anticipated to extend until December 2016, provided flow conditions remain favourable. Testing involves progressively placing stop logs between the concrete piers at the Chowilla Regulator to raise the water level behind the structure. Currently the water level at the Chowilla Regulator is 19.45 m AHD (3.15 m above normal pool level) and will be increased over the coming week.

As water levels are raised behind the Chowilla Regulator, the **Lock 6** water level has been progressively raised, at a rate of approximately 0.05 m/day, up to the current level of 19.75 m AHD (0.5 m above FSL). Raising the Lock 6 water level is important to manage water quality and protect important habitat for native fish. This event will enable further testing of the environmental watering structures and provide inundation across the floodplain to improve the condition of floodplain vegetation and habitat for wildlife.

The flow to **South Australia** averaged 36,700 ML/day this week and is expected to reach higher levels when upstream flows arrive at South Australia. Further details will be provided in coming weeks.

At **Lock 5** the current target weir pool level is 45 cm above FSL, while the **Lock 2** weir pool is being raised by up to 0.75 m above the normal pool height. This will raise Lock 2 to 6.85 m AHD.

Weir pool manipulations aim to reinstate some of the natural variability of water levels in the River Murray system, which has been lost due to river regulation. The manipulations will assist to improve lateral connectivity, health, resilience and biodiversity of the river channel, floodplain and wetlands. Weir pool manipulations are now a routine part of river operations along the Murray.

Downstream at the **Lower Lakes**, flows through the barrages continued at high flow rates. 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** is to 0.86 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 14 Sep 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	459.85	2 366	61%	71	2 295	+62
Hume Reservoir	192.00	3 005	191.54	2 913	97%	23	2 890	-8
Lake Victoria	27.00	677	26.05	564	83%	100	464	-20
Menindee Lakes		1 731*		270	16%	(- -) #	0	+36
Total		9 269		6 113	66%	--	5 649	+70
Total Active MDBA Storage							67% ^	

Major State Storages

Burrinjuck Reservoir	1 026	1 001	98%	3	998	-32
Blowering Reservoir	1 631	1 399	86%	24	1 375	+34
Eildon Reservoir	3 334	2 005	60%	100	1 905	+59

* 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 13 Sep 2016

Storage	Active Storage (GL)	Weekly Change (GL)	Diversion (GL)	This Week	From 1 May 2016
Lake Eucumbene - Total	1 894	n/a	Snowy-Murray	+10	491
Snowy-Murray Component	881	n/a	Tooma-Tumut	+15	184
Target Storage	1 240		Net Diversion	-5	307
			Murray 1 Release	+37	713

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)	1.5	65	Yarrowonga Main Channel (net)	0	3
Wakool Sys Allowance	0.0	0	Torrumbarry System + Nyah (net)	2.8	45
Western Murray Irrigation	0.0	1	Sunraysia Pumped Districts	0.2	3
Licensed Pumps	1.2	13	Licensed pumps - GMW (Nyah+u/s)	0.1	2
Lower Darling	0.1	1	Licensed pumps - LMW	5	19
TOTAL	2.8	80	TOTAL	8.1	72

* 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	256.9
Flow so far this month	478.8
Flow last month	848.5

(36 700 ML/day)

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

	Current	Average over the last week	Average since 1 August 2016
Swan Hill	150	150	110
Euston	-	-	-
Red Cliffs	120	120	130
Merbein	120	120	130
Burtundy (Darling)	860	920	1 340
Lock 9	120	110	120
Lake Victoria	150	160	160
Berri	150	140	170
Waikerie	150	160	180
Morgan	160	160	190
Mannum	180	190	220
Murray Bridge	210	210	240
Milang (Lake Alex.)	850	750	810
Poltalloch (Lake Alex.)	260	250	370
Meningie (Lake Alb.)	1 860	1 870	1 800
Goolwa Barrages	680	690	1 500



River Levels and Flows

Week ending Wednesday 14 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	-	-	-	9 270	F	8 830	9 140
Jingellic	4.0	3.57	210.09	24 270	F	26 780	28 130
Tallandoon (Mitta Mitta River)	4.2	2.24	219.13	3 340	F	4 060	4 370
Heywoods	5.5	4.66	158.29	40 370	S	43 140	20 730
Doctors Point	5.5	5.23	153.70	44 720	F	47 300	29 000
Albury	4.3	4.38	151.82	-	-	-	-
Corowa	4.6	6.04	132.06	46 950	R	39 310	18 050
Yarrowonga Weir (d/s)	6.4	5.80	120.84	63 100	R	52 300	33 630
Tocumwal	6.4	5.83	109.67	53 460	R	49 490	26 760
Torrumbarry Weir (d/s)	7.3	5.56	84.11	21 880	R	21 040	17 480
Swan Hill	4.5	3.30	66.22	20 040	R	18 910	17 690
Wakool Junction	8.8	6.37	55.49	27 280	R	26 730	29 590
Euston Weir (d/s)	9.1	4.53	46.37	33 320	S	33 610	36 960
Mildura Weir (d/s)	-	-	-	32 190	F	33 910	36 290
Wentworth Weir (d/s)	7.3	4.71	29.47	32 170	S	33 170	34 000
Rufus Junction	-	6.42	23.35	37 370	F	36 850	31 700
Blanchetown (Lock 1 d/s)	-	2.25	-	34 390	R	31 700	26 820
Tributaries							
Kiewa at Bandiana	2.8	2.93	156.16	5 650	F	6 120	6 960
Ovens at Wangaratta	11.9	11.52	149.20	14 960	F	15 070	19 120
Goulburn at McCoys Bridge	9.0	6.14	97.56	11 620	R	7 330	7 870
Edward at Stevens Weir (d/s)	5.5	4.88	84.65	9 480	F	7 030	4 080
Edward at Liewah	-	3.85	59.23	3 980	R	4 020	5 030
Wakool at Stoney Crossing	-	2.87	56.36	3 430	R	3 390	4 730
Murrumbidgee at Balranald	5.0	5.49	61.45	8 580	R	8 080	7 410
Barwon at Mungindi	6.1	3.66	-	1 560	R	790	250
Darling at Bourke	9.0	5.06	-	8 080	R	6 400	6 250
Darling at Burtundy Rocks	-	1.06	-	1 150	R	690	180

Natural Inflow to Hume	48 940	62 010
------------------------	--------	--------

(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	-0.29	-	No. 7 Rufus River	22.10	+1.38	+4.11
No. 26 Torrumbarry	86.05	+0.00	-	No. 6 Murtho	19.25	+0.54	+2.17
No. 15 Euston	47.60	-0.27	-	No. 5 Renmark	16.30	+0.47	+1.91
No. 11 Mildura	34.40	-0.03	+1.71	No. 4 Bookpurnong	13.20	+0.15	+3.00
No. 10 Wentworth	30.80	-0.30	+2.07	No. 3 Overland Corner	9.80	+0.07	+2.38
No. 9 Kulnine	27.40	+0.04	+1.66	No. 2 Waikerie	6.10	+0.64	+2.31
No. 8 Wangumma	24.60	+0.47	+2.44	No. 1 Blanchetown	3.20	-0.02	+1.50

Lower Lakes FSL = 0.75 m AHD

Lake Alexandrina average level for the past 5 days (m AHD)	0.86
--	------

Barrages

Fishways at Barrages

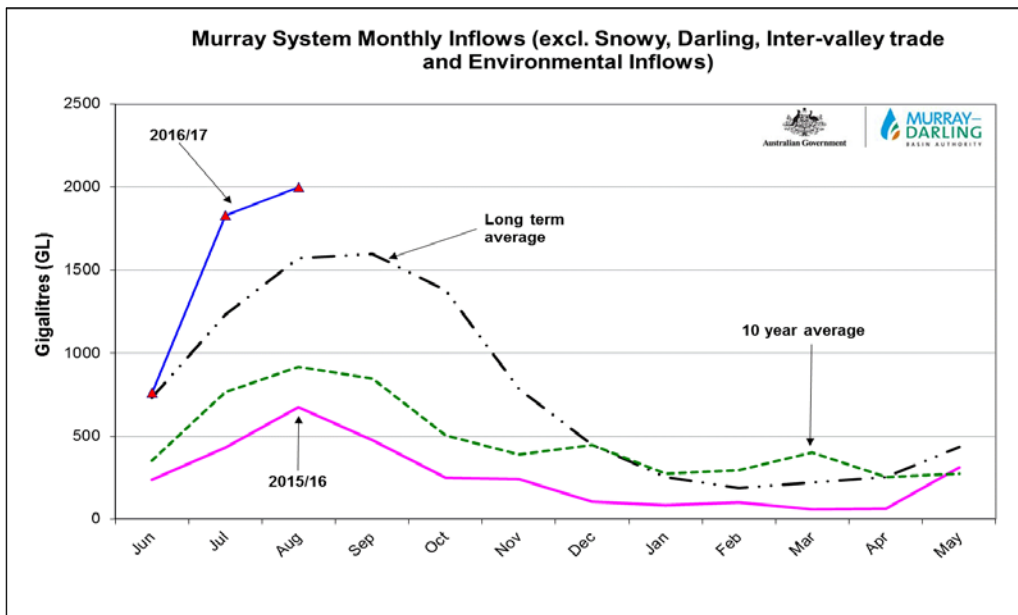
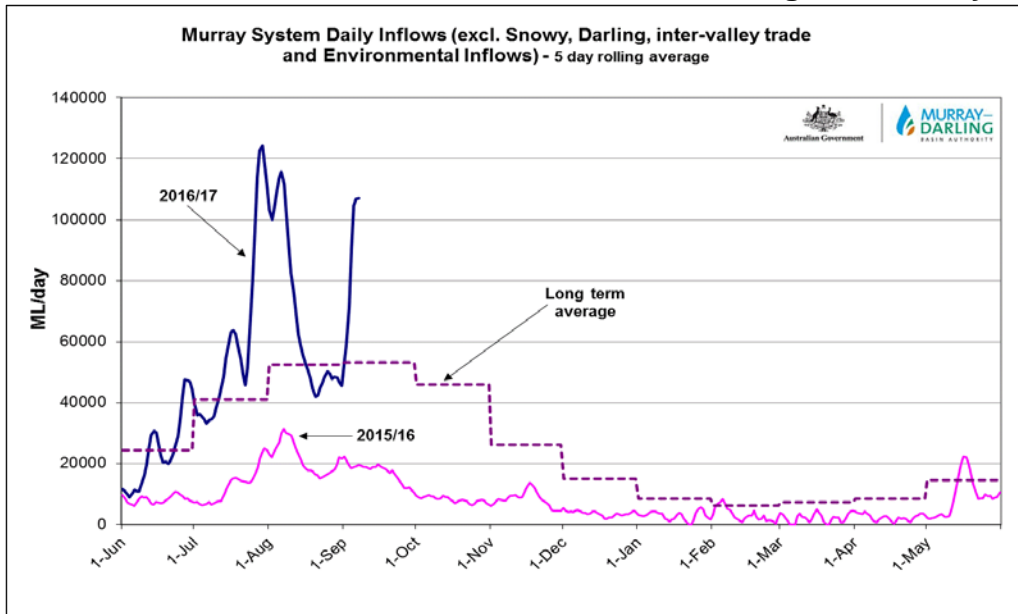
	Openings	Level (m AHD)	No. Open	Rock Ramp	Vertical Slot 1	Vertical Slot 2	Dual Vertical Slots
Goolwa	128 openings	0.66	All closed	-	Open	Open	-
Mundoo	26 openings	0.47	All closed	-	-	-	Open
Hunters Creek	-	-	-	-	Open	-	-
Boundary Creek	6 openings	-	1	-	Open	-	-
Ewe Island	111 gates	-	50	-	-	-	Open
Tauwicheere	322 gates	0.48	21	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 14 Sep 2016



State Allocations (as at 15 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	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>

16 September 2016

Wentworth weir pool continues to be lower than usual

People along the Murray and Darling rivers near Wentworth are reminded that the Lock 10 weir pool is lower than usual, as efforts continue to reduce high salinity levels in the Darling River.

The acting Executive Director of River Management, Andrew Reynolds, said it was important that boat operators, holiday makers, river pumpers, stock owners and others along the River Murray and Darling River upstream of Wentworth adjust their activities as necessary.

“The weir pool is currently at 30.4 metres, or 0.4 of a metre below full supply level. Over the weekend minor variations are possible, before a further assessment is done next week,” Mr Reynolds said.

“We appreciate the feedback and cooperation of people in the area as we take this step in an attempt to speed the flow of highly saline water in the Darling River into the River Murray channel, where it will be diluted.

“The salinity peak appears to have moved at a faster rate in recent days but monitoring will continue to best understand the situation.

“The success of the operation will be based on a combination of factors, including the effect of higher quality water travelling down the Darling, the influence of the River Murray in the Darling arm of the weir pool and lowering the weir pool.

“We are mindful of the timing of this action, before higher flows arrive in the Murray and before the irrigation season proper kicks in, but also taking into account school holidays.

“The MDBA is conducting this work in cooperation with WaterNSW, DPI Water, Goulburn-Murray Water and other Victorian agencies. NSW water authorities are also monitoring the progress of a pulse of water released last week from the Menindee Lakes storage to improve water quality in the Lower Darling.”

Mr Reynolds said the lowering is most noticeable close to the weir and in the Darling arm. The flows currently passing Mildura Weir are helping to limit the fall of water levels near Mildura.

Lock 10 remains open to traffic, however the MDBA will provide an update if low water levels require the lock to close temporarily.

Forecasts of River Murray flows and salinity will be provided on the MDBA's website at <http://www.mdba.gov.au/river-data/current-information-forecasts>

ENDS

For more information, contact the MDBA Media office at media@mdba.gov.au or 02 6279 0141

Follow @MD_Basin_Auth on Twitter: twitter.com/MD_Basin_Auth

Find us on Facebook: facebook.com/MDBAuth