



## RIVER MURRAY WEEKLY REPORT

FOR THE WEEK ENDING WEDNESDAY, 27 JULY 2016

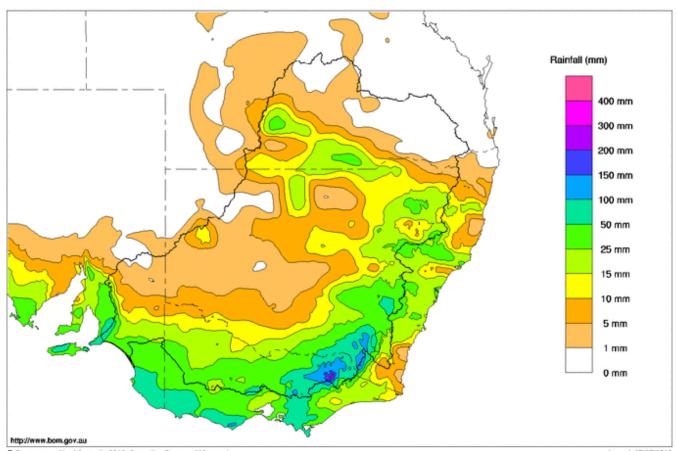
Trim Ref: D16/25228

#### Rainfall and inflows

A series of cold fronts tracked across southern Australia over the past week bringing widespread rain to south-east Australia (Map 1). Weekly rainfall totals exceeding 100 mm were recorded in elevated areas of the Victorian Alps and the Snowy Mountains in NSW, with isolated higher totals greater than 200 mm recorded at Rocky Valley (265 mm) and Perisher Valley (244 mm). Due to the relatively warm temperatures throughout the week the majority of precipitation in elevated areas was experienced as rain, not snow, and contributed to significant stream flow rises in the upper catchments. Moderate rainfall was also recorded at major storages in the southern Basin including 98 mm at Dartmouth Dam, 60 mm at Hume Dam, 69 mm at Burrinjuck Dam and 58 mm at Lake Eildon. In South Australia, there were notable falls in the Mt Lofty Ranges where many locations received 50 to 100 mm for the week.

Murray-Darling Rainfall Totals (mm) Week Ending 27th July 2016

Australian Bureau of Meteorology



Commonwealth of Australia 2016, Australian Bureau of Meteorology

Issued: 27/07/2016

 $Map\ 1 - Murray-Darling\ Basin\ rainfall\ week\ ending\ 27th\ July\ 2016\ (Source:\ Bureau\ of\ Meteorology)$ 

Given the already wet catchments, the recent rain provided a significant streamflow response in the upper Murray tributaries, with several locations exceeding minor and moderate flood levels over the weekend. Further rainfall is forecast for the coming week which may lead to renewed streamflow rises. For the latest flood warnings and flood watches see the <u>Bureau of Meteorology</u> (BoM) website.

At Hinnomunjie on the Mitta River upstream of Dartmouth Reservoir, the flow increased from 3,000 to a brief peak of 27,000 ML/day, before receding to 4,000 ML/day. On the upper Murray upstream of Hume Reservoir, the flow at Jingellic rose from 15,000 to 47,000 ML/day due to a combination of local





inflows and upstream releases from the Snowy scheme. The flow at Jingellic is currently 30,000 ML/day and receding slowly.

On the Ovens River, the flow at Rocky Point rose from 7,000 ML/day to a peak of 23,600 ML/day on Saturday, then remained around 20,000 ML/day in the days following due to persistent rainfall. Downstream at Wangaratta, the flow peaked at 40,000 ML/day, and has since remained above 30,000 ML/day.

#### River operations

- MDBA active storage increases by 401 GL
- BoM advises increased risk of flooding
- River Murray System annual operating plan for 2016-17 published
- Release from Yarrawonga Weir peaking at 42,000 ML/day.

MDBA total storage increased by 443 GL this week. MDBA active storage, which currently excludes Menindee Lakes and inaccessible (dead) storage in Dartmouth, Hume and Lake Victoria increased by 401 GL to a volume of 4,264 GL (51% capacity).

This week MDBA published the River Murray System annual operating plan for 2016-17 on its <u>website</u>. This plan provides context and describes how the River Murray system may be operated under a number of inflow scenarios from June 2016 to May 2017.

At **Dartmouth Reservoir**, the storage volume increased by 104 GL to 1,947 GL (52% capacity). MDBA advises that Dartmouth Dam would only fill this season if extremely wet conditions are observed. The release is steady at a minimum flow of 200 ML/day. On the Mitta River downstream of Dartmouth, inflows from Snowy Creek contributed to a peak flow at Tallandoon throughout the week of 7,000 ML/day. The flow at Tallandoon is currently 5,600 ML/day and receding.

At **Hume Reservoir**, the storage volume increased over the past week by 266 GL to 1,833 GL (61% capacity). Hume has now increased 1,280 GL since the start of May 2016, rising from a storage capacity of around 18% to its current volume. The release from Hume remains at a minimum flow of 600 ML/day.

With the catchments saturated and the BoM <u>climate outlook</u> favouring wetter conditions, there is now a strong chance that Hume will spill in coming months. If inflows continue at current levels Hume Reservoir could spill in September. If, however, heavy rain occurs in coming weeks then a spill in August is even a possibility. In their latest <u>Climate and water outlook video</u>, BoM also advises of an increased risk of flooding across parts of Australia. MDBA strongly recommends that communities downstream of Hume Dam, and even those afforded some flood protection by levee systems, commence their flood preparations. <u>NSW</u> and <u>Victoria</u> State Emergency Service websites provide information on preparing for floods, and further details about flood management at Hume Dam is available on the <u>MDBA website</u>.

Whilst regular updates on Hume storage levels will be provided in future weekly reports, communities are reminded that all <u>Flood Watches and Warnings</u> are issued by BoM.

Downstream of Hume, inflows from the **Kiewa River** have averaged around 10,000 ML/day for the week, whilst the **Ovens River** at Wangaratta has averaged 23,000 ML/day. Peak inflows from these two tributaries arrived at Lake Mulwala at approximately the same time, resulting in the release from **Yarrawonga Weir** being increased to 42,000 ML/day on Tuesday night for approximately 20 hours. The release has since been reduced to 38,000 ML/day and is expected to continue being gradually decreased. However, with rain forecast next week renewed rises are possible. The latest information on flows downstream of Yarrawonga and other sites along the River Murray can be found on MDBA's <u>live river data</u>. The weir pool level at Lake Mulwala is currently being managed around 124.70 m AHD. Diversions through Mulwala Canal began this week in order to fill Murray Irrigation Limited's channel network and are currently 2,000 ML/day.

Downstream of Yarrawonga, flow through the Barmah Choke has been above channel capacity for over a month. Regulators situated along this river reach are open, allowing the passage of water from the main river channel into the **Barmah-Millewa** Forest.





The default policy of no net trade from above the Barmah Choke to downstream remains in place. As of 29 July 2016, the **Barmah Choke trade balance** was 0 ML. Further information on trade across the Choke and the latest balance can be found on the MDBA website.

On the **Edward River**, the flow at Toonalook is 4,950 ML/day, in large part due to returning flows from the Millewa Forest. The gates at Stevens Weir have been re-instated, and the weir pool is being raised towards its Full Supply Level (FSL). Downstream of Stevens Weir, the flow is around 3,700 ML/day, which is greater than channel capacity so that flow is passing through **Werai Forest** and into the Niemur River system. Inflows from Billabong Creek are around 1,600 ML/day, which is contributing to a flow on the Edward River at Moulamein of 3,900 ML/day.

On the **Goulburn River**, recent rain has increased the flow at McCoys Bridge from 2,750 to 7,750 ML/day. On the Murray at **Torrumbarry** Weir, the downstream flow is 11,800 ML/day and forecast to rise in the coming week to around 18,000 ML/day. Following a winter drawdown Torrumbarry weir pool is now being gradually raised to 85.80 m AHD (25 cm below FSL). In coming weeks the pool level will be further raised close to FSL.

At Balranald on the **Murrumbidgee** River, the flow is steady at 7,400 ML/day. Downstream on the Murray at **Euston**, the flow has risen from 20,500 to 24,000 ML/day. Euston weir pool has been 20 cm above FSL since the start of July and is currently being lowered to around 10 cm below FSL. Downstream of Euston weir, water has commenced to flow into Chalka Creek South, the primary inflow point to **Hattah Lakes** (Figure 1). At present water has not proceeded far down Chalka Creek. However given forecast rising river levels, water will likely extend further down Chalka Creek and into the Hattah Lakes system in coming weeks.



Figure 2 – Water has commenced to flow into Chalka Creek South. Rising river levels are forecast in coming weeks, which will likely extend flows further down Chalka Creek and into the Hattah Lakes system (Source: Roly Miller, Goulburn Murray Water).





On the Darling River, flows continue entering **Menindee Lakes**, where the storage volume increased during the week by 42 GL to 136 GL (8% capacity). A release from Menindee Lakes into the lower Darling River is due to commence Thursday 28 July (see attached media release). The release from Lake Wetherell will commence at around 400 ML/day at Weir 32, and is expected to be gradually increased up to a maximum rate of 1,500 ML/day before tapering off to approximately 150 to 200 ML/day to prolong the flow for as long as possible. The release from Menindee Lakes as currently planned by NSW water managers is unlikely to be of sufficient volume to provide connection to the River Murray, however this forecast will be reviewed as the flow makes its way down the lower Darling.

Further downstream at the junction of the lower Darling and Murray, the flow at **Wentworth** is 20,400 ML/day and gradually rising. **Lock 9** is currently 18 cm above FSL, **Lock 8** is 6 cm above FSL and **Lock 7** is 14 cm above FSL. Information on the planned management of these and other River Murray weir pools for 2016-17 is available on the MDBA website and in the attached media release. The most significant changes are expected at locks 7 and 8, however some changes will also be seen at Lock 9, Euston and Torrumbarry weir pools.

The total storage at **Lake Victoria** increased during the week by 31 GL to 607 GL (90% capacity). A critical consideration that influences the use of Lake Victoria is that it must be operated and managed 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. With high flows in the River Murray likely to persist for several weeks at least, MDBA plans to lower the level of Lake Victoria from its current volume then re-fill it back to FSL as late as possible. The extent to which the storage is lowered and the timing on when it is re-filled will be dependent on the duration of high upstream inflows.

As the **flow to South Australia** is forecast to remain higher than South Australia's current entitlement for at least the next few weeks, unregulated flows are available in the Murray and Edward River systems downstream of Hume Reservoir. The flow to South Australia averaged 14,000 ML/day this week, and is currently 16,500 ML/day and rising. Flows across the border are forecast to rise above 20,000 ML/day over the coming week. Whilst it is unusual, it is not unprecedented to see such unregulated flows at a time when water allocations remain low. The unregulated flows are due to inflows from Murray tributaries downstream of Hume Dam at a time when active storage is still only 51%. As inflows are captured in Dartmouth and Hume in coming months it can be expected that the allocations announced by States will steadily rise. However, until such time as significant flows are seen in the Darling River, total MDBA storage will remain well below capacity.

Downstream at the **Lower Lakes**, the current 5-day average water level at Lake Alexandrina is 0.78 m AHD. Unfavourable wind and tidal conditions have limited the capacity for barrage releases over the past week. The current release through the barrages into the Coorong is estimated to be around 3,000 ML/day, but will increase when tide levels allow higher releases.

For media inquiries contact the Media Officer on 02 6279 0141

DAVID DREVERMAN
Executive Director, River Management





#### Water in Storage

#### Week ending Wednesday 27 Jul 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	452.36	2 018	52%	71	1 947	+104		
Hume Reservoir	192.00	3 005	185.32	1 833	61%	23	1 810	+266		
Lake Victoria	27.00	677	26.42	607	90%	100	507	+31		
Menindee Lakes		1 731*		136	8%	() #	0	+42		
Total		9 269		4 594	50%		4 264	+443		
Total Active MDBA Storage	Total Active MDBA Storage 51% ^									

#### **Major State Storages**

Burrinjuck Reservoir	1 026	795	78%	3	792	+109
Blowering Reservoir	1 631	1 189	73%	24	1 165	+21
Eildon Reservoir	3 334	1 479	44%	100	1 379	+134

<sup>\*</sup> Menindee surcharge capacity – 2050 GL

**Snowy Mountains Scheme** 

Snowy diversions for week ending 26 Jul 2016

	-	and the state of t					
Storage	Active Storage (GL)	Weekly Change (GL)	Diversion (GL)	This Week	From 1 May 2016		
Lake Eucumbene - Total	1 503	+91	Snowy-Murray	+15	305		
Snowy-Murray Component	895	+70	Tooma-Tumut	+7	102		
Target Storage	1 170		Net Diversion	8	203		
			Murray 1 Release	+44	431		

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

			<u> </u>		
New South Wales	This Week	From 1 July 2016	Victoria	This Week	From 1 July 2016
Murray Irrig. Ltd (Net)	9.9	10	Yarrawonga Main Channel (net)	0	0
Wakool Sys Allowance	0.0	0	Torrumbarry System + Nyah (net)	3.8	19
Western Murray Irrigation	0.0	0	Sunraysia Pumped Districts	0.1	0
Licensed Pumps	n/a	1	Licensed pumps - GMW (Nyah+u/s)	0	0
Lower Darling	0.1	0	Licensed pumps - LMW	1.1	4
TOTAL	10.0	11	TOTAL	5	23

<sup>\*</sup> 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 and the delivery of additional environmental water

Entitlement this month	108.5 *	
Flow this week	98.2	(14
Flow so far this month	240.9	
Flow last month	85.2	

4 000 ML/day)

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

Cannity (EG) (Interest	-		
	Current	Average over the last week	Average since 1 August 2015
Swan Hill	90	90	70
Euston	-	-	-
Red Cliffs	120	120	120
Merbein	110	120	120
Burtundy (Darling)	1 590	1 610	1 340
Lock 9	130	120	120
Lake Victoria	160	160	200
Berri	140	150	220
Waikerie	230	300	280
Morgan	360	360	270
Mannum	400	370	310
Murray Bridge	390	360	330
Milang (Lake Alex.)	800	840	810
Poltalloch (Lake Alex.)	580	600	670
Meningie (Lake Alb.)	1 840	1 770	2 090
Goolwa Barrages	5 330	3 120	2 490

<sup>\*\*</sup> All Data is rounded to nearest GL \*\*

<sup>#</sup> 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





#### **River Levels and Flows**

#### Week ending Wednesday 27 Jul 2016

	Minor Flood Stage	Gauge	Height	Flow	Trend	Average Flow this Week	Average Flow last Week
River Murray	(m)	local (m)	(m AHD)	(ML/day)		(ML/day)	(ML/day)
Khancoban	-		-	9 100	F	11 130	8 410
Jingellic	4.0	4.13	210.65	32 580	R	27 710	17 170
Tallandoon ( Mitta Mitta River )	4.2	2.75	219.64	5 670	F	4 710	2 260
Heywoods	5.5	1.43	155.06	600	S	600	600
Doctors Point	5.5	2.63	151.10	10 660	R	8 010	4 700
Albury	4.3	1.67	149.11	-	-	-	-
Corowa	4.6	2.77	128.79	12 610	R	7 720	5 260
Yarrawonga Weir (d/s)	6.4	4.71	119.75	42 050	R	22 460	18 260
Tocumwal	6.4	3.66	107.50	22 730	R	19 030	17 270
Torrumbarry Weir (d/s)	7.3	3.55	82.10	11 830	R	11 670	12 040
Swan Hill	4.5	1.98	64.90	11 250	F	11 790	10 000
Wakool Junction	8.8	4.93	54.05	18 010	S	17 070	14 300
Euston Weir (d/s)	9.1	3.63	45.47	24 140	R	22 190	19 310
Mildura Weir (d/s)		-	-	21 540	F	20 280	17 990
Wentworth Weir (d/s)	7.3	3.92	28.68	20 420	R	19 540	18 060
Rufus Junction	-	4.80	21.73	15 900	R	13 530	9 410
Blanchetown (Lock 1 d/s)	-	1.17	-	14 350	R	12 210	8 930
Tributaries							
Kiewa at Bandiana	2.8	3.04	156.27	13 330	F	10 980	5 570
Ovens at Wangaratta	11.9	12.31	149.99	31 130	S	23 090	12 960
Goulburn at McCoys Bridge	9.0	4.70	96.12	7 780	R	3 290	4 570
Edward at Stevens Weir (d/s)	5.5	2.98	82.76	3 800	F	3 730	4 000
Edward at Liewah	-	3.72	59.10	3 710	S	3 670	3 360
Wakool at Stoney Crossing	-	1.83	55.33	1 670	R	1 210	280
Murrumbidgee at Balranald	5.0	5.39	61.35	7 470	S	7 390	7 270
Barwon at Mungindi	6.1	3.53	-	920	F	1 010	540
Darling at Bourke	9.0	4.35	-	1 800	F	3 310	4 260
Darling at Burtundy Rocks	-	0.56	-	0	F	0	0

Natural Inflow to Hume	55 110	26 240	1

<sup>(</sup>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
Yarrawonga	124.90	-0.23	1	No. 7 Rufus River	22.10	+0.14	+2.50
No. 26 Torrumbarry	86.05	-0.28	-	No. 6 Murtho	19.25	+0.01	+0.75
No. 15 Euston	47.60	+0.09	-	No. 5 Renmark	16.30	+0.10	+0.63
No. 11 Mildura	34.40	+0.06	+1.04	No. 4 Bookpurnong	13.20	-0.04	+1.81
No. 10 Wentworth	30.80	+0.02	+1.28	No. 3 Overland Corner	9.80	+0.06	+0.95
No. 9 Kulnine	27.40	+0.18	+0.60	No. 2 Waikerie	6.10	+0.29	+0.78
No. 8 Wangumma	24.60	+0.06	+0.98	No. 1 Blanchetown	3.20	-0.08	+0.42

#### Lower Lakes FSL = 0.75 m AHD

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

Barrages Fishways at Barrages

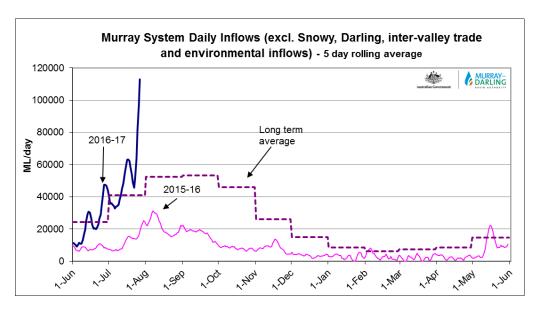
-aag				r ionnayo at Banagoo				
	Openings	Level (m AHD)	No. Open	Rock Ramp	Vertical Slot	Vertical Slot 2	Dual Vertical Slots	
Goolwa	128 openings	0.63	All closed	-	Open	Open	-	
Mundoo	26 openings	0.65	All closed	-	-	-	Closed	
Hunters Creek	-	-	-	-	Open	-	-	
Boundary Creek	6 openings	=	All closed	-	Open	-	-	
Ewe Island	111 gates	-	All closed	-	-	-	Open	
Tauwitchere	322 gates	0.69	12	Open	Open	Open	-	

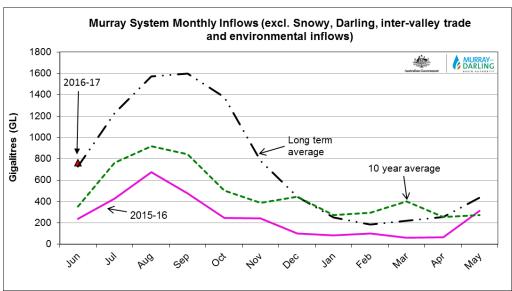
<sup>\*</sup> Mundoo Barrage Dual vertical slots are currently under construction.

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



#### Week ending Wednesday 27 Jul 2016





#### State Allocations (as at 29 Jul 2016)

**NSW - Murray Valley** 

·····	
High security	97%
General security	4%

**NSW - Murrumbidgee Valley** 

High security	95%
General security	33%

**NSW** - Lower Darling

High security	20%
General security	0%

**Victorian - Murray Valley** 

High reliability	24%
Low reliability	0%

Victorian - Goulburn Valley

High reliability	25%
Low reliability	0%

South Australia – Murray Valley

Lliab acquirity	000/
High security	89%

NSW: <a href="http://www.water.nsw.gov.au/Water-management/Water-availability/Water-">http://www.water.nsw.gov.au/Water-management/Water-availability/Water-</a>

allocations/Water-allocations-summary/water-allocations-summary/default.aspx

VIC: <a href="http://www.nvrm.net.au/allocations/current.aspx">http://www.nvrm.net.au/allocations/current.aspx</a>

SA: <a href="http://www.environment.sa.gov.au/managing-natural-resources/river-murray">http://www.environment.sa.gov.au/managing-natural-resources/river-murray</a>



## Media release

### Lower Darling releases to commence Thursday

25 July 2016

WaterNSW will begin releasing up to 35,000 megalitres of water from Menindee Lakes into the lower Darling River from Thursday (28 July) to benefit landholders and the township of Pooncarie.

The first of approximately 80 properties downstream of the Menindee lakes' system can expect to start receiving increased flows from early next week, with water arriving at Pooncarie in early August.

Current estimates are that up to 100 gigalitres is flowing into the lakes as a result of significant recent rain events in catchments in the state's central west that feed into the Darling River.

Releases from Lake Wetherell will increase over the following days up to a maximum rate of 1,500 megalitres (ML) daily, to flush the river and bring environmental benefit, before tapering off to approximately 150-200ML per day to prolong the flow for as long as possible.

The current water level upstream of weir 32 is 0.97m and at the peak forecast flow of 1,500ML/day that water level will rise to 1.95m. WaterNSW is advising landholders and customers to be vigilant and make plans to manage pump locations and other infrastructure.

The significant inflows into the lakes mean that the short term water security project being undertaken by WaterNSW on behalf of the NSW Government in the lakebed of Lake Menindee has been suspended.

As a result of the inflows, Essential Water customers in Broken Hill and Menindee will continue to be serviced by treated surface water, which should now be sufficient to meet supply needs until early 2018.

There is every likelihood that rain events in mid-July could eventually add to the volume of water making its way to the Darling River and downstream to Menindee Lakes.

Media contact - Tony Webber - 0428 613 478.

WaterNSW PO Box 1018, Dubbo NSW 2830
7 Commercial Avenue, Blue Ridge Estate Dubbo NSW 2830
P: 1300 662 077 F: 1300 871 447
www.waternsw.com.au
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# Australian Government



#### **MEDIA RELEASE**

29 July 2016

#### Managing Murray weir pool levels 2016-17

Landholders and river users along the River Murray are reminded to take into account changes to weir pool levels over the coming year, and to adjust their activities, pumps and moorings accordingly. Boat owners should also note they are responsible for the safety of their vessels.

The most significant changes are expected at locks 7 and 8. Some changes will also be seen at Lock 9 near Cullulleraine, Lock 15 at Euston and at Lock 26 at Torrumbarry. However, levels could vary at any weir along the river and at various times during the year.

The river has historically been managed in a way that maintains the weir pools at a relatively constant level. In recent times, however, weir pool levels have been varied to restore a more natural wetting and drying cycle. Over the coming year, weir pool levels will continue to vary and are generally more likely to be higher during winter and spring and lower during summer and autumn.

The ranges within which weir pool levels will vary are detailed in the table below.

Maximum expected range in pool levels

	Upper level	Lower level
Lock 7 (FSL=22.1m)	FSL +0.5m	FSL -0.9m
Lock 8 (FSL=24.6m)	FSL +0.8m	FSL -1m
Lock 9 (FSL=27.4m)	FSL +0.24m	FSL -0.1m
Lock 15 (FSL=47.6m)	FSL +0.6m	FSL -0.2m September-April,
		FSL -0.4m May-August
Lock 26 (FSL=86.05m)	FSL	FSL September-April,
		FSL -0.4m May-August

The weir pool levels will continue to be managed for key needs including irrigation diversions, infrastructure maintenance, navigation and recreation. The MDBA will support, whenever possible, major recreational events such as the Robinvale Ski Classic and Southern 80 ski race.

If wet conditions continue, some weirs may need to be removed in the event of high river flows.

River users are advised to keep up to date with current weir pool levels using live river data at <a href="http://livedata.mdba.gov.au">http://livedata.mdba.gov.au</a> and can keep in touch with upcoming changes by subscribing to the River Murray <a href="https://www.weekly.report">weekly report</a>.

The MDBA will issue further advice if there are any significant changes to the above.

River users wanting more information can contact the MDBA on (02) 6279 0100.

**ENDS** 

Contact the MDBA Media office at <a href="media@mdba.gov.au">media@mdba.gov.au</a> or 02 6279 0141

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