



River Murray Weekly Report

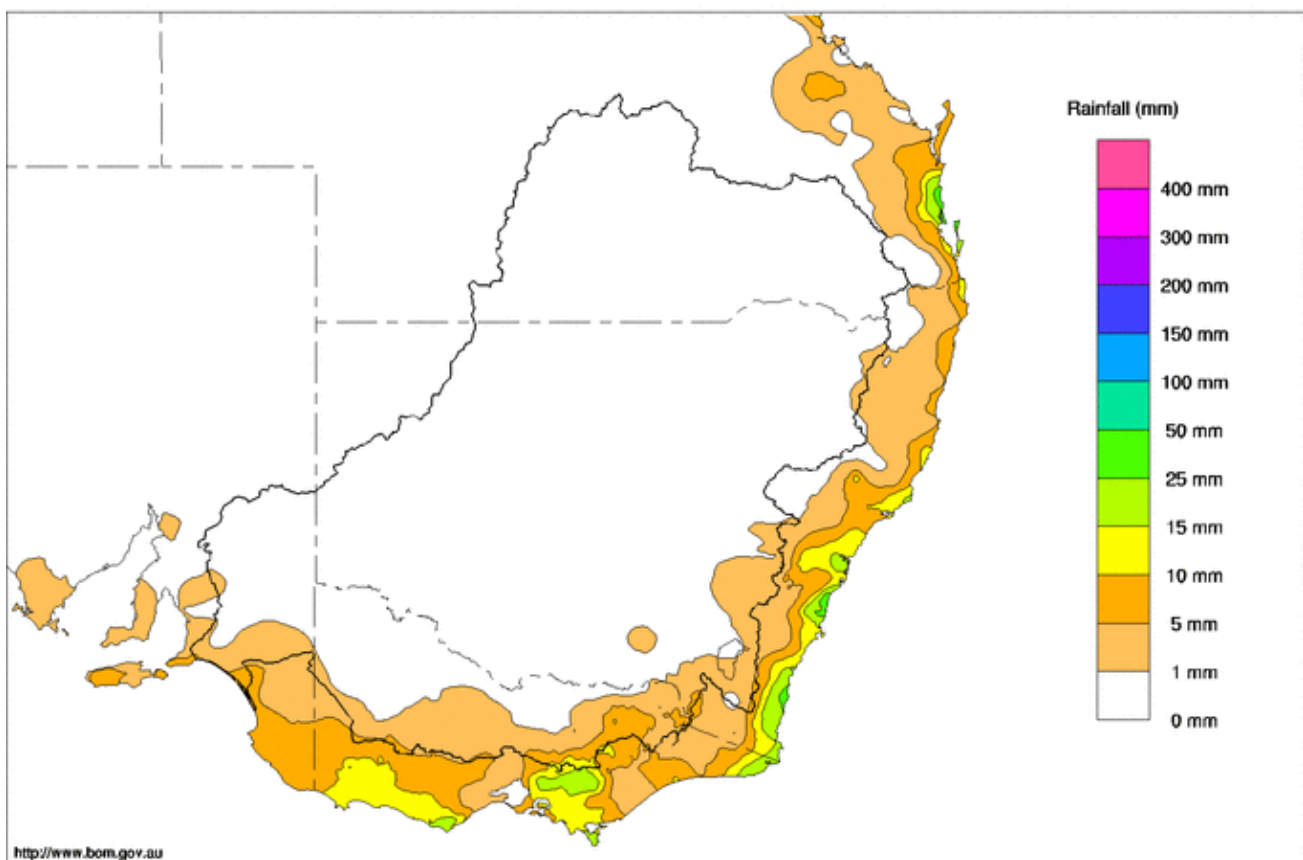
For the week ending Wednesday, 10 April 2019

Trim Ref: D19/21291

Rainfall and inflows

Conditions were dry across much of the Murray-Darling Basin this week (Map 1). Patchy rainfall was mostly light and generally confined to the southern and central slopes and ranges.

Murray-Darling Rainfall Totals (mm) Week Ending 10th April 2019
Australian Bureau of Meteorology



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Issued: 10/04/2019

Map 1 - Murray-Darling Basin rainfall map week ending 10 April 2019 (Source: Bureau of Meteorology).

Flow in the upper Murray tributaries receded this week. The flow in the upper Mitta Mitta River at Hinnomunjie Bridge reduced from 370 ML/day to 220 ML/day. The upper Murray at Biggara eased from 390 ML/day to 250 ML/day. Downstream of Hume Reservoir, inflow from the Kiewa River at Bandiana averaged 600 ML/day, with flows boosted by releases from the Kiewa hydro-electric scheme. Flow in the Ovens River at Wangaratta reduced to 270 ML/day.

In the northern Basin, flows resulting from rain over some upper catchments in recent weeks are continuing to move steadily downstream along various tributaries. The most significant flows resulted from rain over the far north of the Basin that generated flood flows along the upper Warrego River. These flows are now moving through the lower Warrego and spreading out through the large distributary network, including along the Cuttaburra Channel that connects flow across to the Paroo River. These flows are recharging wetlands and providing welcome benefits to a fairly parched region of the northern Basin, but are expected to provide little if any significant connecting flow through to the Darling River. Other flows were generated along the Namoi and Castlereagh River systems, with this

River Murray Weekly Report

water forecast to flow into the Barwon-Darling River in northern NSW over coming days. However, flow rates and potential volumes are currently expected to be very modest. Without further rain, it is *unlikely* that significant volumes from these tributaries will flow beyond Bourke or to reaches downstream towards the Menindee Lakes.

River operations

- Lock 26 remains closed for urgent repairs
- Red level warning (high alert) for blue-green algae continues at a number of Darling River sites
- Water being delivered on behalf of environmental water holders to the Lower Lakes and Coorong

System operations

Similar to the last few weeks, operations continue to focus on releasing sufficient water from storage to meet system demands and steer towards winter targets at key locations, including Lake Victoria; while also aiming to conserve water for next season.

With the busy Easter and school holiday period approaching, river users are reminded that River Murray levels downstream of Hume Dam depend on a range of factors including weather conditions and system demands. Depending on the location along the system, flows are likely to remain near current levels or ease between now and the Easter and school holiday period. More information is available from the [MDBA website](#).

With Bureau of Meteorology forecasting negligible rain over the [coming 8 days](#), flows in the Edward-Wakool system and in the Murray from Yarrawonga downstream to below Barmah are more likely to be fairly steady over Easter. Further downstream, as inflow from the Goulburn River recedes it is likely that flow in the Murray from Echuca downstream will ease between now and Easter.

River levels between Hume and Yarrawonga will depend on irrigation demands and inflows from the Ovens and Kiewa rivers. Assuming inflows remain low, Hume releases will vary based on irrigation demands from Lake Mulwala into the major irrigation offtakes.

River users are advised to maintain a close eye on conditions and keep up to date via [River Murray data](#) when planning recreational or other activities.

River operations

The **MDBA active storage** volume decreased by 57 GL this week to 2,997 GL (36% capacity).

At **Dartmouth Reservoir** the storage volume was steady at 2,446 GL (63% capacity). The release from Dartmouth, measured at Colemans, averaged 390 ML/day. The release is being managed to target 600 ML/day at Tallandoon by adjusting for variations in the inflows from Snowy Creek. The need to commence transfers from Dartmouth to Hume during autumn will continue to be reviewed and will depend on the storage trend in Hume Reservoir which is, in turn, influenced by releases from the Snowy Hydro Scheme, natural inflows as well as releases from Hume Reservoir to meet system demands.

At **Hume Reservoir**, the storage volume continued to decline, reducing by 36 GL to 547 GL (18% capacity). The release from Hume averaged 9,800 ML/day and is currently near 9,400 ML/day.

Downstream at **Lake Mulwala** the level is currently 124.81 m AHD, which is within the normal operating range (124.6 to 124.9 m AHD). The diversion to Yarrawonga Main Channel averaged around 1,000 ML/day with 120 ML/day of this flow returning to the Murray via Broken Creek. On the New South Wales side, Mulwala Canal diversion averaged 1,640 ML/day. Around 270 ML/day of this diversion is being released into the Edward River to meet Wakool Canal Diversions.



River Murray Weekly Report

The release from **Yarrowonga Weir** increased this week to target 7,800 ML/day. Continuing warm and dry conditions, a dry outlook and very low water levels in Lake Victoria make it more likely that the release will remain around rates of 8,000 ML/day over the Easter period.

Flows at the **Edward River** and **Gulpa Creek** offtakes remain around their normal regulated flow rates near 1,550 ML/day and 330 ML/day respectively. The flow downstream of **Stevens Weir** averaged 1,150 ML/day and is forecast to remain around this flow rate over the coming week.



Photo 1: Edward River at Deniliquin. (Photo courtesy Hugo Bowman, MDBA)

Inflow to the Murray from the **Goulburn River**, measured at McCoys Bridge, gradually reduced to 1,500 ML/day. The flow is expected to continue to ease to around 940 ML/day by Easter. The majority of this flow is Goulburn Valley Inter Valley Trade (IVT) water that is being delivered to help meet demands on the River Murray as a result of trade from the Goulburn to the Murray valley. A sustained call of IVT delivery from the Goulburn Valley is [likely](#) to continue during April if conditions remain dry. The total volume of IVT called during 2018-19 is expected to exceed 400 GL. This volume would not just be a record volume delivered from the Goulburn Valley, but also a record total volume of IVT delivered in a water year. Information regarding current opportunities for allocation trade between the Goulburn and Murray valleys is available at the [Victorian water register website](#).

National Channel diversions were steady around 1,950 ML/day and are likely to remain around this rate over the coming week depending on autumn irrigation demands.

At **Torrumbarry**, Lock 26 remains closed while urgent repairs are made to damaged inlet valves. This temporary closure of the lock does not affect the normal operation of Torrumbarry Weir in terms of river flow and water supply. More information can be found on the Goulburn-Murray Water [website](#). The release downstream of Torrumbarry Weir gradually reduced to around 5,000 ML/day.



River Murray Weekly Report

This week, inflows from the **Murrumbidgee River**, measured at Balranald, reached around 500 ML/day. This is above the normal end of system target flow and includes the delivery of environmental water to help improve water quality in the lower reaches of the Murrumbidgee River. Delivery of water on behalf of environmental water holders ceased at the end of the week and the flow at Balranald will target the April end of system flow rate of 180 ML/day for the remainder of the month. The [Murrumbidgee IVT balance](#) is currently only 3.0 GL, preventing the MDBA from calling water from the Murrumbidgee to help meet Murray system demands.

At **Euston**, the weir pool is targeting FSL. The downstream release averaged 6,650 ML/day and is forecast to gradually reduce over the coming weeks to around 5,000 ML/day.

A red level warning (high alert) for blue-green algae is current at a number of sites along the Darling River including Menindee Lakes. A summary of alert levels in New South Wales is available on the [WaterNSW](#) website. Current environmental conditions in the Darling System are well suited to algal growth due to persistent fine and warm weather, warm water temperatures and low or no flow conditions. More information regarding the water quality conditions of the lakes and the lower Darling is available at the WaterNSW [website](#). Information on factors that affect fish is available from NSW Department of Primary Industries [website](#). Information on drought impacts across the Murray-Darling Basin including on fish and operations is available on the [MDBA website](#).

The **Menindee Lakes** storage volume decreased to 18 GL (1% capacity). WaterNSW continues to manage the Menindee Lakes in accordance with the [Lower Darling Annual Operations Plan](#). As part of drought contingency measures within this plan, WaterNSW has installed four temporary block banks across the lower Darling upstream of Pooncarie at Court Nareen and Karoola, below Pooncarie near Jamesville and below Burtundy near Ashvale. Water held in these pools will assist in maintaining supply to domestic, stock and permanent plantings along the lower Darling. The release from **Weir 32** ceased on 12th of February. WaterNSW has advised that releases at Weir 32 are only planned to recommence when significant inflows are received into the Menindee lakes (inflows are currently zero). [Water restrictions](#) remain in place across much of New South Wales as a result of the extensive and on-going drought conditions.

At **Wentworth Weir**, operations continue to target a pool level of around 10 cm above the full supply level to assist pumpers in the upper reaches of the Darling River arm of the weir pool whilst there is no inflow from the Darling River. The downstream release averaged 5,600 ML/day and is expected to fall away over the coming weeks to around 4,000 ML/day. Water from the River Murray continues to supply Broken Hill after the successful commissioning of [the Wentworth to Broken Hill pipeline](#). The 270 km pipeline extends from the River Murray near Wentworth to Broken Hill and has the capacity to deliver up to 37.4 ML/day of water to supply Broken Hill community and businesses.

The **Lock 9** weir pool is currently near FSL. As part of the weir pool variability program Lock 8 and 7 are currently targeting 100 cm and 90 cm (respectively) below FSL.

At **Lake Victoria** the storage decreased by 21 GL to 198 GL (29% capacity). If conditions remain dry over the coming weeks, the lake level is expected to fall to around 160 GL by the end of April (Figure 2) before starting to rise again in May.



River Murray Weekly Report

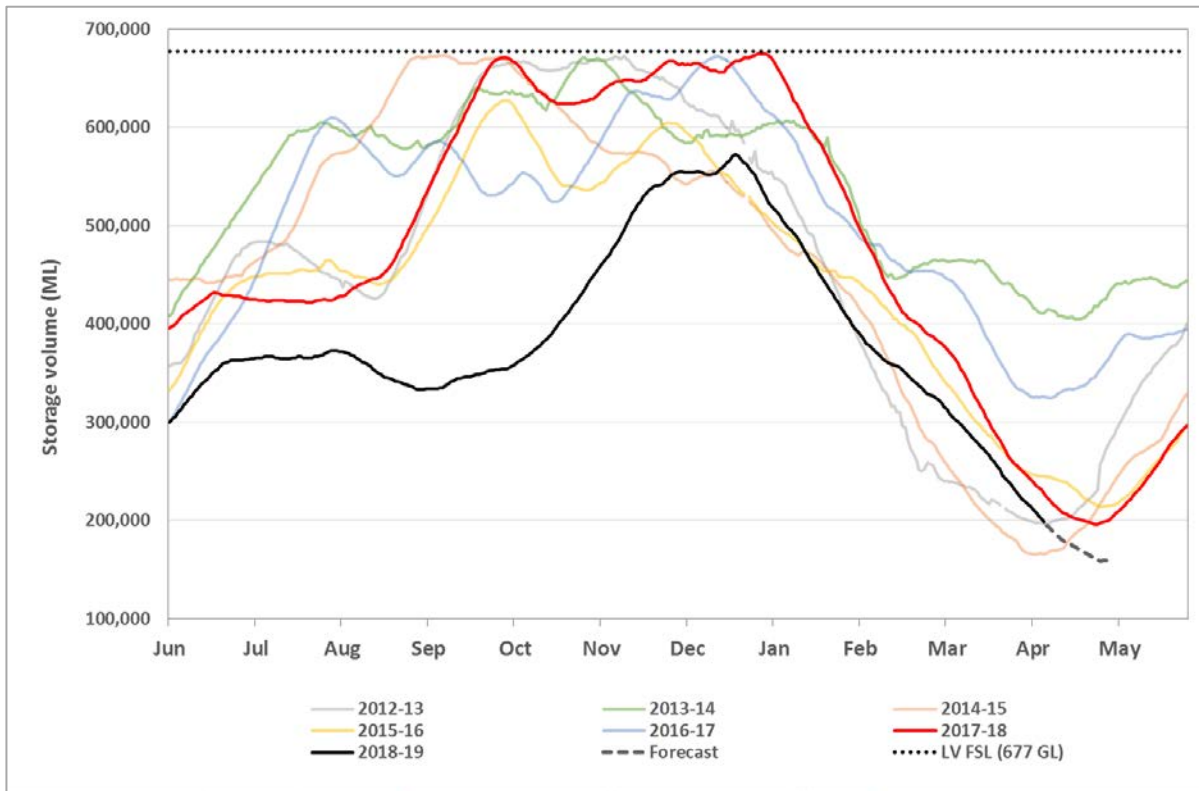


Figure 2 – Lake Victoria storage volume (and current forecast) compared with recent years



Photo 2: Rufus River channel within Lake Victoria exposed due to the low lake level. (Photo courtesy Hugo Bowman, MDBA)

River Murray Weekly Report

The flow to **South Australia** reduced to 7,100 ML/day this week and is likely to continue at this rate into the coming week. The current flow consists of entitlement flow, traded water and environmental water. Deliveries of water on behalf of environmental water holders to the Lower Lakes and Coorong are expected to continue through April.

The 5-day average water level in the **Lower Lakes** remained steady at 0.53 m AHD. Environmental water delivered to South Australia is helping to prolong small barrage releases to the Coorong. This is supporting mudflat habitat for migratory birds prior to their departure to the northern hemisphere for winter and benefiting estuarine fish species. Recent monitoring (photo 3) funded by The Living Murray program has identified a range of estuarine fish species in the Coorong. These include one year old black bream, showing that the cohort bred in summer 2017-18 have survived another year. Around 7 GL of water was released through the barrages this week. All fishways remain open to maintain a connection between the Lower Lakes and Coorong. For more information, see the South Australian Department for Environment and Water's latest [River Murray flow report](#).



Photo 3: SARDI staff sampling fish in the Coorong using a seine net (monitoring funded by The Living Murray program). (Photo courtesy Anthony Moore, CEWO)

River Murray Weekly Report



Photo 4: One year old black bream captured during monitoring, showing that the cohort bred in summer 2017-18 have survived another year. (Photo courtesy Anthony Moore, CEWO)

For media inquiries contact the Media Officer on 02 6279 0141

ANDREW REYNOLDS
Executive Director, River Management



Australian Government



River Murray Weekly Report

Water in Storage

Week ending Wednesday 10 Apr 2019

MDBA Storages	Full Supply Level (m AHD)	Full Supply Volume (GL)	Current Storage Level (m AHD)	Current Storage		Dead Storage (GL)	Active Storage (GL)	Change in Total Storage for the Week (GL)
				(GL)	%			
Dartmouth Reservoir	486.00	3 856	461.47	2 446	63%	71	2 375	+0
Hume Reservoir	192.00	3 005	174.08	547	18%	23	524	-36
Lake Victoria	27.00	677	22.47	198	29%	100	98	-21
Menindee Lakes		1 731*		18	1%	(- -) #	0	-1
Total		9 269		3 209	35%	- -	2 997	-57
Total Active MDBA Storage							36% ^	

Major State Storages

Burrinjuck Reservoir	1 026	317	31%	3	314	-1
Blowering Reservoir	1 631	422	26%	24	398	+5
Eildon Reservoir	3 334	1 272	38%	100	1 172	-29

* 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 09 Apr 2019

Storage	Active Storage (GL)	Weekly Change (GL)	Diversions (GL)	This Week	From 1 May 2018
Lake Eucumbene - Total	796	-21	Snowy-Murray	+30	709
Snowy-Murray Component	353	-28	Tooma-Tumut	+1	199
Target Storage	1 340		Net Diversions	29	511
			Murray 1 Release	+28	877

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)	10.9	347	Yarrowonga Main Channel (net)	6.6	197
Wakool Sys Allowance	1.9	49	Torrumbarry System + Nyah (net)	0.1	459
Western Murray Irrigation	0.5	24	Sunraysia Pumped Districts	1.9	114
Licensed Pumps	3.1	171	Licensed pumps - GMW (Nyah+u/s)	1	33
Lower Darling	0.1	7	Licensed pumps - LMW	4.6	379
TOTAL	16.5	598	TOTAL	14.2	1182

* 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	135.0 *	
Flow this week	52.9	(7 600 ML/day)
Flow so far this month	76.6	
Flow last month	251.4	

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

	Current	Average over the last week	Average since 1 August 2018
Swan Hill	80	80	70
Euston	100	90	-
Red Cliffs	100	100	110
Merbein	100	110	100
Burtundy (Darling)	-	-	870
Lock 9	110	100	110
Lake Victoria	140	150	160
Berri	150	160	180
Waikerie	190	190	240
Morgan	190	190	260
Mannum	240	240	300
Murray Bridge	260	270	340
Milang (Lake Alex.)	1 020	1 020	920
Poltalloch (Lake Alex.)	670	640	780
Meningie (Lake Alb.)	1 940	1 910	1 570
Goolwa Barrages	7 290	5 680	2 970

**River Levels and Flows****Week ending Wednesday 10 Apr 2019**

	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)				
River Murray							
Khancoban	-	-	-	6 580	R	5 040	2 820
Jingellic	4.0	1.75	208.27	4 840	F	4 970	3 490
Tallandoon (Mitta Mitta River)	4.2	1.41	218.30	520	S	530	630
Heywoods	5.5	2.83	156.46	9 450	R	10 100	9 450
Doctors Point	5.5	2.64	151.11	10 500	R	11 340	10 820
Albury	4.3	1.64	149.08	-	-	-	-
Corowa	4.6	2.28	128.30	9 630	F	10 190	10 390
Yarrowonga Weir (d/s)	6.4	1.32	116.36	7 560	R	7 390	7 850
Tocumwal	6.4	1.82	105.66	6 980	F	7 220	7 800
Torrumbarry Weir (d/s)	7.3	1.86	80.40	5 030	F	5 540	6 410
Swan Hill	4.5	1.17	64.09	5 730	F	6 160	6 450
Wakool Junction	8.8	2.78	51.90	6 830	F	7 140	7 260
Euston Weir (d/s)	9.1	1.36	43.20	6 690	F	6 650	6 830
Mildura Weir (d/s)	-	-	-	6 240	F	6 180	6 230
Wentworth Weir (d/s)	7.3	2.83	27.59	5 610	R	5 610	5 420
Rufus Junction	-	3.53	20.46	6 710	F	7 380	7 610
Blanchetown (Lock 1 d/s)	-	0.59	-	6 100	R	6 020	5 930
Tributaries							
Kiewa at Bandiana	2.8	0.98	154.21	470	R	600	440
Ovens at Wangaratta	11.9	7.82	145.50	270	F	310	380
Goulburn at McCoys Bridge	9.0	1.83	93.25	1 540	F	1 640	2 120
Edward at Stevens Weir (d/s)	5.5	1.30	81.07	1 040	F	1 150	1 190
Edward at Liewah	-	1.92	57.30	1 210	R	1 180	1 060
Wakool at Stoney Crossing	-	1.36	54.85	370	F	390	440
Murrumbidgee at Balranald	5.0	0.54	56.50	250	F	440	400
Barwon at Mungindi	6.1	3.15	-	30	F	30	120
Darling at Bourke	9.0	2.17	-	0	F	0	0
Darling at Burtundy Rocks	-	0.50	-	0	F	0	0

Natural Inflow to Hume	1 530	2 530
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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	-0.09	-	No. 7 Rufus River	22.10	-0.86	+1.20
No. 26 Torrumbarry	86.05	+0.00	-	No. 6 Murtho	19.25	-0.01	+0.14
No. 15 Euston	47.60	+0.00	-	No. 5 Renmark	16.30	+0.04	+0.24
No. 11 Mildura	34.40	+0.03	+0.16	No. 4 Bookpurnong	13.20	+0.06	+0.82
No. 10 Wentworth	30.80	+0.08	+0.19	No. 3 Overland Corner	9.80	+0.04	+0.29
No. 9 Kulnine	27.40	-0.02	-0.93	No. 2 Waikerie	6.10	+0.08	+0.26
No. 8 Wangumma	24.60	-0.99	-0.62	No. 1 Blanchetown	3.20	+0.07	-0.16

Lower Lakes FSL = 0.75 m AHD

Lake Alexandrina average level for the past 5 days (m AHD)	0.53
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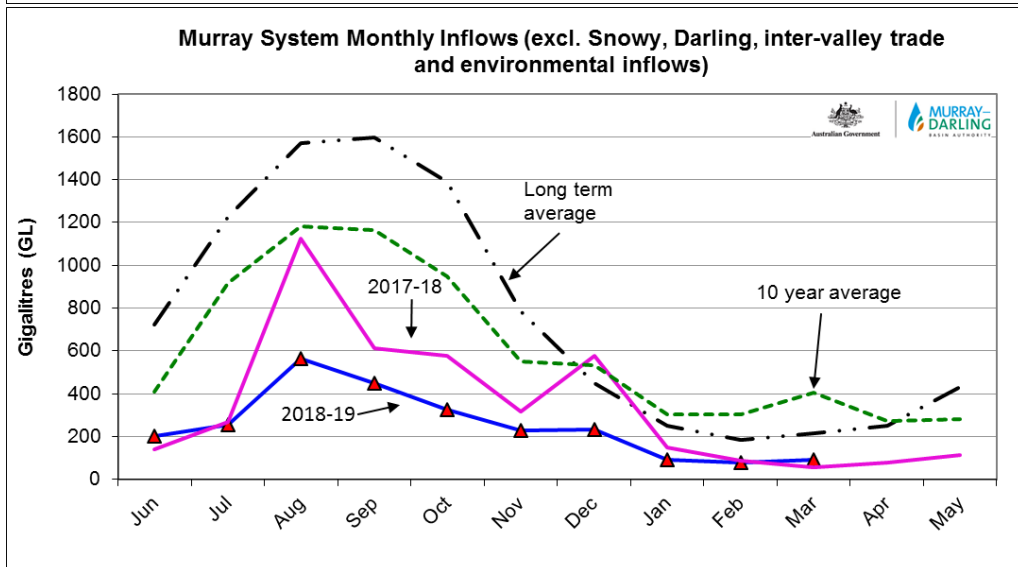
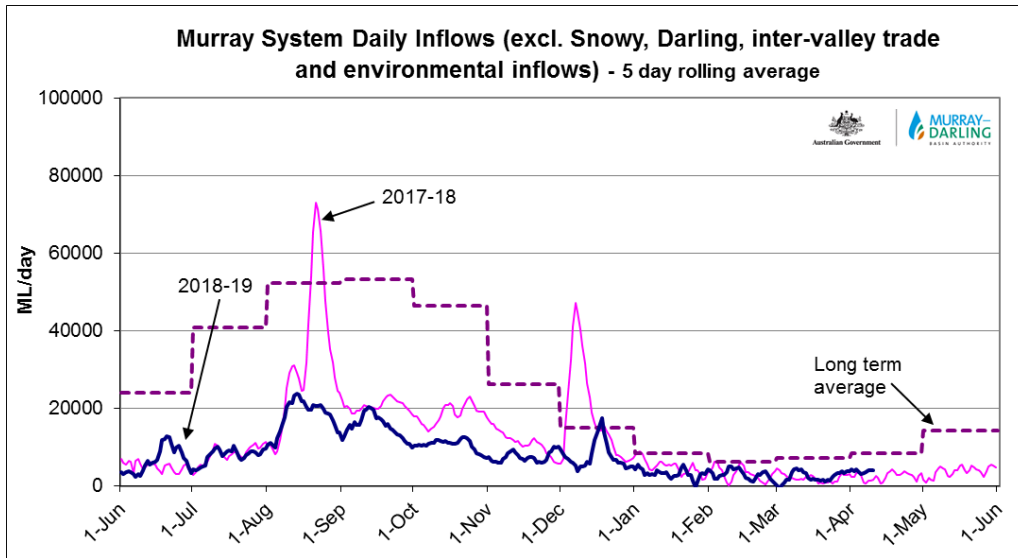
Barrages

Fishways at Barrages

	Openings	Level (m AHD)	No. Open	Rock Ramp	Vertical Slot 1	Vertical Slot 2	Dual Vertical Slots
Goolwa	128 openings	0.59	All closed	-	Closed	Open	-
Mundoo	26 openings	0.46	All closed	-	-	-	Open
Hunters Creek	-	-	-	-	Open	-	-
Boundary Creek	6 openings	-	1	-	Open	-	-
Ewe Island	111 gates	-	All closed	-	-	-	Open
Tauwichee	322 gates	0.54	All closed	Open	Open	Open	-

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





State Allocations (as at 10 Apr 2019)

NSW - Murray Valley

High security	97%
General security	0%

Victorian - Murray Valley

High reliability	100%
Low reliability	0%

NSW - Murrumbidgee Valley

High security	95%
General security	7%

Victorian - Goulburn Valley

High reliability	100%
Low reliability	0%

NSW - Lower Darling

High security	100%
General security	0%

South Australia - Murray Valley

High security	100%
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NSW : <https://www.industry.nsw.gov.au/water/allocations-availability/allocations/summary>

VIC : <http://nvrn.net.au/seasonal-determinations/current>

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

