



River Murray Weekly Report

For the week ending Wednesday, 16 January 2019

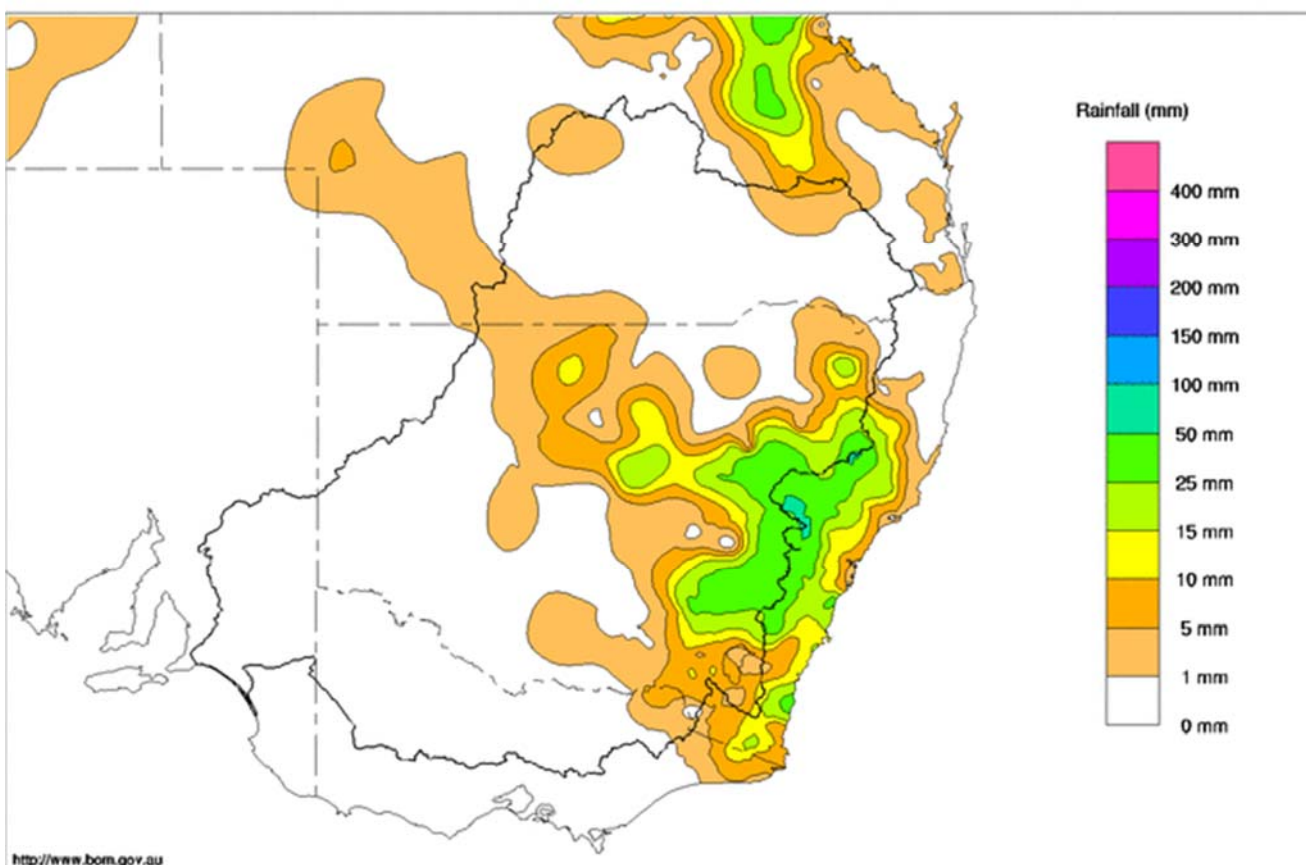
Trim Ref: D19/2397

Rainfall and inflows

Rainfall this week was mostly confined to around central and eastern parts of New South Wales (Map 1). The highest rainfall totals were recorded along the western slopes and tablelands and included 49 mm at Goulburn airport AWS and 46 mm at Young airport AWS in the south, 42 mm at Dunedoo on the central western slopes and 25 mm at Inverell on the northern tablelands. Further west, 12 mm was recorded at Bourke airport AWS. Little or no rain was recorded in the Basin within Queensland, Victoria or South Australia.

Murray-Darling Rainfall Totals (mm) Week Ending 16th January 2019

Australian Bureau of Meteorology

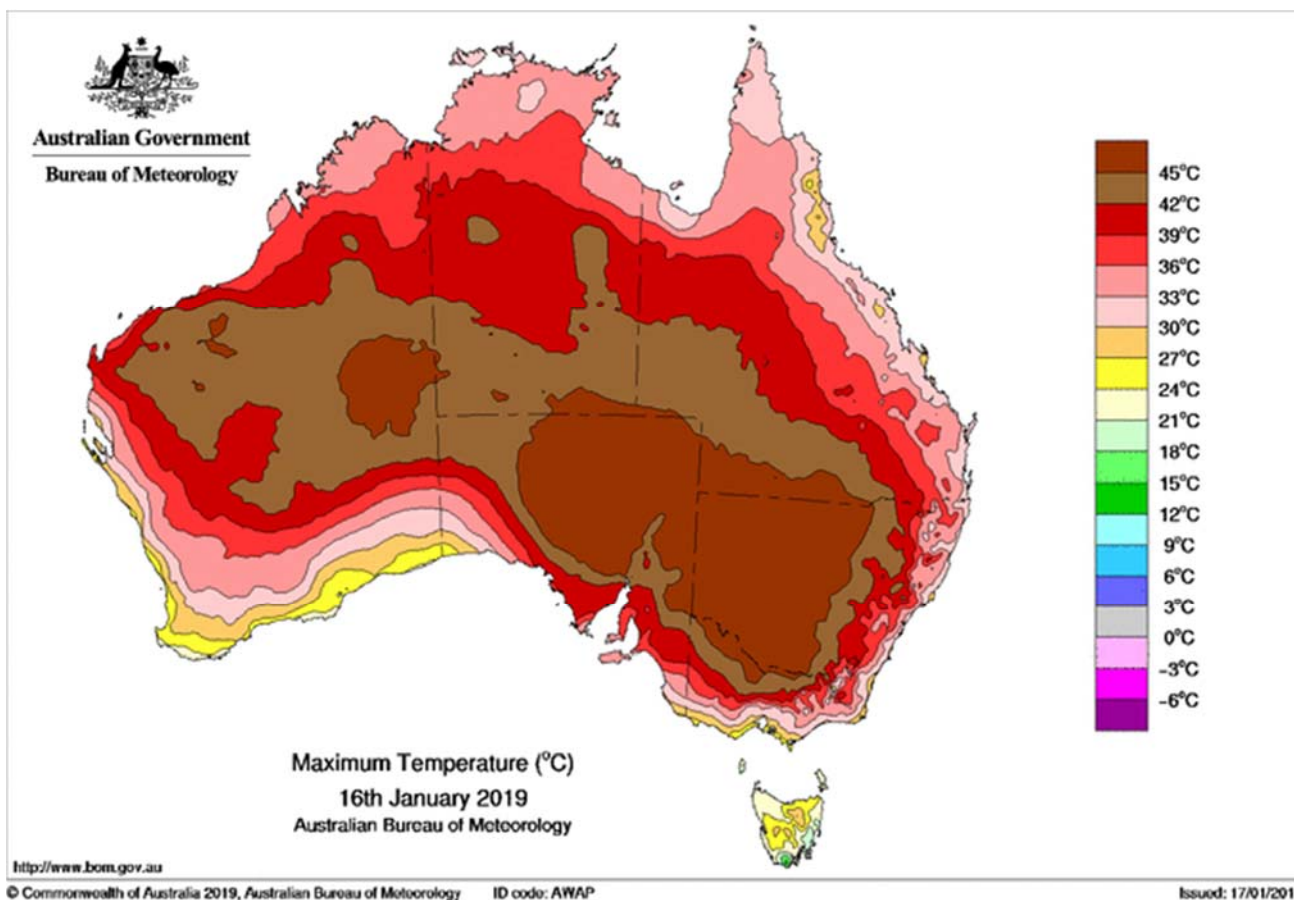


Map 1 - Murray-Darling Basin rainfall map week ending 16 January 2019 (Source: Bureau of Meteorology).

Heatwave conditions across much of the Basin were responsible for very hot temperatures this week. Over recent days temperatures have exceeded 45 C across large areas of northern Victoria, central and western New South Wales, southwestern Queensland and the eastern parts of South Australia’s Riverland (Map 2). The Bureau of Meteorology (BoM) are [forecasting](#) very hot temperatures to continue into the coming week.



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Map 2 – Maximum temperatures recorded on 16 January 2019 (Source: Bureau of Meteorology).

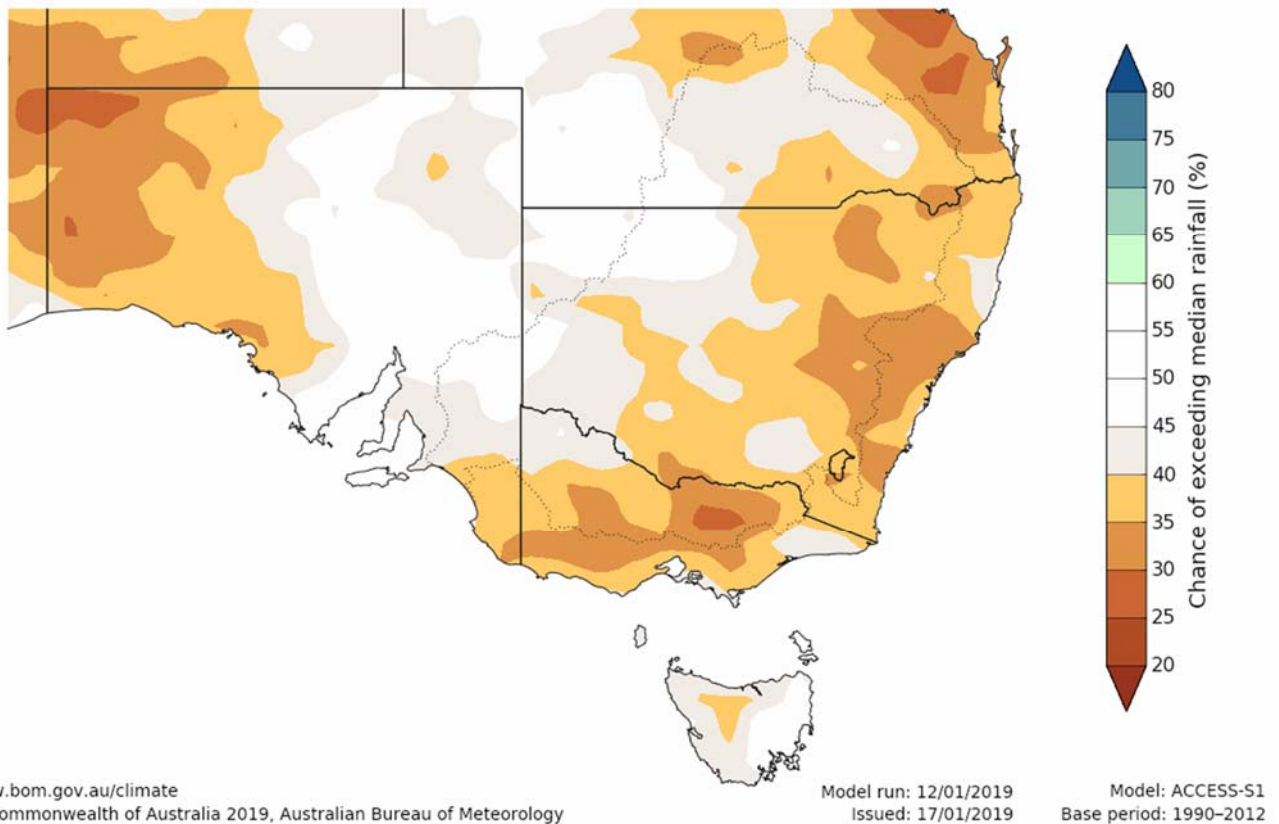
Stream flows in upper Murray tributaries mostly receded following the rainfall last week and the significant increase in temperatures this week. Upstream of Dartmouth Dam, on the Mitta Mitta River, flow at Hinnomunjie reduced from 460 to 180 ML/day. The flow in the upper Murray at Biggara fell from 550 to 230 ML/day. On the Kiewa River the flow at Bandiana increased to 1,000 ML/day due to higher releases from the [Kiewa hydroelectric scheme](#) to meet electricity demands due to the very hot weather. On the Ovens River at Wangaratta, stream flows eased from around 500 to 370 ML/day.

3 month temperature and rainfall outlook

Bureau of Meteorology (BoM) have issued their [climate outlook](#) for the three month period February to April. Conditions are more likely to be drier and warmer than average across the Basin (Map 3 and Map 4).

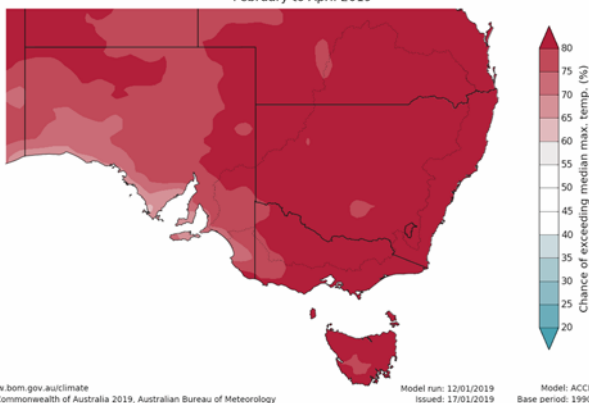
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Chance of exceeding the median rainfall
February to April 2019

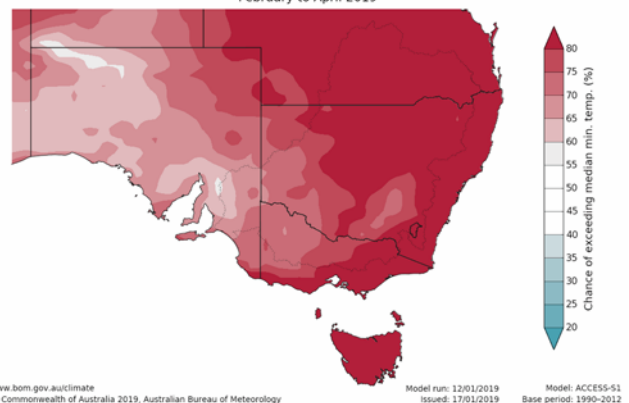


Map 3 - Chance of exceeding the median rainfall for the 3 month period February to April 2019 (Source: Bureau of Meteorology).

Chance of exceeding the median maximum temperature
February to April 2019



Chance of exceeding the median minimum temperature
February to April 2019



Map 4 - Chance of exceeding the median maximum and minimum temperatures for the 3 month period February to April 2019 (Source: Bureau of Meteorology).

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River operations

- Red alerts for blue-green algae at several locations
- Transfers from Dartmouth Reservoir to Hume Reservoir continue
- Significant volumes of IVT water likely to continue to be delivered from the Goulburn in coming months driven by continued trade from the Goulburn to the Murray Valley.

River operations

MDBA active storage volume decreased by 118 GL this week to 3,990 GL (47% capacity).

Ongoing transfers from **Dartmouth Reservoir** to Hume reservoir have decreased the storage volume by 34 GL this week to 2,660 GL (69% capacity). Water stored in Dartmouth Reservoir is generally maintained as the system's drought reserve and is called upon in dry seasons when the downstream storages have insufficient water to meet demands. Given the continuing dry conditions and low stream flows, substantial calls on water from Dartmouth are expected to continue.

This week, the release from Dartmouth, measured at Colemans gauge, remained around 5,000 ML/day. Flows are planned to be slowly reduced from Friday 18 January to about 3,800 ML/day over the Australia Day long weekend, before returning to around 5,000 ML/day. Without rainfall, these releases are expected to deliver January river levels at Tallandoon between 2.65 m and 2.40 m. More information can be found in the MDBA [flow advice](#).

At **Hume Reservoir**, the storage volume continued its steady decline reducing by 55 GL to 1,057 GL (35% capacity). Higher releases to meet downstream system demands this week were offset by increased inflows from Snowy Mountains Hydro-electric Scheme via the Murray 1 power station (reaching around 8,000 ML/day). The release from Hume averaged around 14,200 ML/day.

Downstream at **Lake Mulwala** the level is currently 124.80 m AHD, which is within the normal operating range (124.6 to 124.9 m AHD). Diversions to Yarrowonga Main Channel averaged near 900 ML/day. On the New South Wales side, Mulwala Canal diversion increased to around 4,000 ML/day. Of the diversion to Mulwala Canal, approximately 2,200 ML/day is water being diverted around the Barmah Choke through Murray Irrigation Limited (MIL) infrastructure and released into the River Murray (Perricoota escape), Wakool River (Wakool escape), Edward River (Edward escape) and Billabong Creek (Finley escape). Similarly, on the Victorian side around 120 ML/day continues to travel through Yarrowonga Main Channel and into the Broken Creek, again to meet demands downstream of the Barmah Choke.

The release from **Yarrowonga Weir** is currently targeting 9,200 ML/day which equates to a flow close to the channel capacity of the Barmah Choke when the Barmah-Millewa forest regulators are all closed, as they are now. Over the next few weeks the release is likely to vary between around 8,800 ML/day and 9,200 ML/day.

Flows at the **Edward River** and **Gulpa Creek** offtakes are currently around their normal summer regulated flow rates of 1,600 ML/day and 350 ML/day. Earlier in the week the flow at **Gulpa Creek** offtake was reduced from 450 ML/day after it had been increased last week as a temporary measure to manage the water level in the River Murray at Picnic Point. Downstream on the Edward River the flow at Toonalook is levelling out around 1,800 ML/day indicating return flows from the Millewa Forest have ceased. Flow in the Edward River continues to be supplemented by releases from the Edward Escape of around 1,900 ML/day, to boost deliveries downstream of the Barmah Choke.

Diversion into Wakool Main Canal averaged 110 ML/day, and Wakool, Yallakool and Colligen offtakes are passing around 50, 420 and 430 ML/day respectively. The flow in the Edward River downstream of Stevens Weir continues to target up to 2,700 ML/day, which is the approximate channel capacity.

Inflow to the Murray from the **Goulburn River**, measured at McCoys Bridge, averaged around 2,900 ML/day. 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 the trades from the Goulburn to the Murray valleys. The flow at McCoys is expected to fluctuate between 2,500 ML/day and 3,000 ML/day during January while temperatures are hot and River Murray demands remain high. Over coming months, significant volumes of IVT water are [likely to continue](#) to

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be delivered. 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 around 2,500 ML/day for much of the week, but have now returned to 2,000 ML/day. The release from **Torrumbarry Weir** averaged 7,500 ML/day and is expected to remain at or above 7,000 ML/day for the remainder of January.

Inflow from the **Murrumbidgee River**, measured at Balranald, averaged 200 ML/day. The [Murrumbidgee IVT balance](#) is currently 1.7 GL, restricting the MDBA from calling water from this valley to help meet Murray system demands.

At **Euston**, the weir pool is targeting 20cm above the full supply level (FSL). If required, the additional volume stored in the Euston weir pool will be used to boost downstream flows during hot and dry periods when irrigation demands are high. The downstream release reduced to 8,000 ML/day and is expected to ease further to around 7,500 ML/day in the coming week given the hot and dry conditions.

In the **Sunraysia** region, the very hot temperatures are taking their toll on crops such as oranges and grapes with trees and vines stressed and fruit suffering sunburn (Photo 1). To help protect against the sun damage some growers are using a kaolin clay based 'sunscreens' (Photo 2).



Photo 1 Stressed orange trees with sunburnt fruit (Photo courtesy: Lower Murray Water)

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Photo 2 Citrus sprayed with clay based 'sunscreen' (Photo courtesy: Nutrano Produce Group)



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In addition, warmer water temperatures are contribution to conditions that help promote blue-green algal blooms. A [red level warning \(high alert\) for blue-green algae](#) is current for the Mildura Weir Pool (Photo 3) from Lock 11 to Karadoc and for the Wentworth weir pool from Wentworth to Lock 11.



Photo 3 Blue-green algal bloom in Mildura weir pool (Photo courtesy: Lower Murray Water)

The **Menindee Lakes** storage volume decreased by 9 GL to 52 GL (3% 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 below Pooncarie near Jamesville, below Burtundy near Ashvale, and upstream of Pooncarie at Court Nareen and Karoola. 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 reduced from 200 ML/day to around 90 ML/day this week. [WaterNSW](#) estimates it can deliver a minimum of 50 ML/day to properties between Weir 32 and the first block bank at Karoola in the upper stretch of the Lower Darling until the end of January. [Water restrictions](#) remain in place across much of New South Wales as a result of the extensive and on-going drought conditions.

A red level warning (high alert) for blue-green algae is current for Lake Wetherell, Lake Pamamaroo, Copi Hollow, Lake Cawndilla and the Darling River at Menindee and Tolarno. The poor water quality conditions in the river has led to a [large fish kill event](#) in the lower Darling River with native fish including Golden Perch, Murray Cod and Bony herring affected. This event is being [managed by NSW](#). 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](#).

At **Wentworth Weir**, operations continue to target a pool level of around 10 cm above the Full Supply Level (FSL) to assist pumpers in the upper reaches of the Darling River arm of the weir pool. As discussed previously, a red level warning (high alert) for blue-green algae is current for the Wentworth weir pool. The downstream release is currently near 5,000 ML/day and is expected to reduce toward 4,000 ML/day in the coming week.

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The **Lock 9** weir pool is currently targeting around 10 cm below FSL and at **Lock 8**, the weir pool is targeting 50 cm below FSL. The **Lock 7** weir pool is targeting 10 cm below FSL and will vary between FSL and 20 cm below FSL during January. During February, the weir pool levels at Lock 8 and Lock 7 will be further lowered to around 60 cm and 50 cm (respectively) below FSL.

At **Lake Victoria** the storage reduced by 29 GL to 467 GL (69% capacity). The flow to **South Australia** is currently targeting around 8,000 ML/day and will reduce to around 7,500 ML/day for the coming week. The flow to South Australia this week consists of entitlement flow, traded water and environmental water. Deliveries of environmental water are expected to continue through summer.

The 5-day average water level in the **Lower Lakes** decreased 1 cm this week to 0.69 m AHD. Environmental water delivered to South Australia is helping slow the rate of fall at the Lower Lakes to prolong small barrage releases and maintain connectivity between Lake Alexandrina and the Coorong estuary. These barrage releases may also provide suitable salinity gradient for Black Bream spawning. Barrage releases have been prioritised for Tauwitchere, Boundary Creek and Goolwa and all fishways remain open. For more information see the South Australian Department for Environment and Water's latest [River Murray flow report](#).

For media inquiries contact the Media Officer on 02 6279 0141

JOSEPH DAVIS
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Approved on behalf of

ANDREW REYNOLDS
Executive Director, River Management



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Water in Storage

Week ending Wednesday 16 Jan 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	465.66	2 660	69%	71	2 589	-34
Hume Reservoir	192.00	3 005	179.34	1 057	35%	23	1 034	-55
Lake Victoria	27.00	677	25.18	467	69%	100	367	-29
Menindee Lakes		1 731*		52	3%	(- -) #	0	-9
Total		9 269		4 236	46%	- -	3 990	-128
Total Active MDBA Storage							47% ^	

Major State Storages

Burrinjuck Reservoir	1 026	426	42%	3	423	-9
Blowering Reservoir	1 631	591	36%	24	567	-47
Eildon Reservoir	3 334	1 752	53%	100	1 652	-55

* 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 15 Jan 2019

Storage	Active Storage (GL)	Weekly Change (GL)	Diversions (GL)	This Week	From 1 May 2018
Lake Eucumbene - Total	889	-12	Snowy-Murray	+14	519
Snowy-Murray Component	513	-13	Tooma-Tumut	+2	179
Target Storage	1 520		Net Diversion	11	340
			Murray 1 Release	+18	671

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)	10.5	251	Yarrowonga Main Channel (net)	5.3	139
Wakool Sys Allowance	0.0	25	Torrumbarry System + Nyah (net)	12.5	321
Western Murray Irrigation	1.5	14	Sunraysia Pumped Districts	6.5	73
Licensed Pumps	5.8	113	Licensed pumps - GMW (Nyah+u/s)	1	17
Lower Darling	0.2	6	Licensed pumps - LMW	4.6	232
TOTAL	18.0	409	TOTAL	29.9	782

* 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	217.0 *	
Flow this week	61.1	(8 700 ML/day)
Flow so far this month	155.9	
Flow last month	264.4	

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

	Current	Average over the last week	Average since 1 August 2018
Swan Hill	80	80	70
Euston	70	70	-
Red Cliffs	100	100	110
Merbein	90	90	110
Burtundy (Darling)	1 010	990	810
Lock 9	90	90	110
Lake Victoria	160	160	160
Berri	150	150	200
Waikerie	180	180	260
Morgan	190	190	280
Mannum	280	290	320
Murray Bridge	340	340	360
Milang (Lake Alex.)	980	970	900
Poltalloch (Lake Alex.)	820	810	750
Meningie (Lake Alb.)	1 170	1 390	1 500
Goolwa Barrages	1 730	1 810	2 630



River Levels and Flows

Week ending Wednesday 16 Jan 2019

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	-	-	-	6 650	F	3 380	880
Jingellic	4.0	1.95	208.47	6 530	R	3 090	1 440
Tallandoon (Mitta Mitta River)	4.2	2.65	219.54	5 150	S	5 170	4 830
Heywoods	5.5	3.00	156.63	14 330	F	14 210	12 590
Doctors Point	5.5	2.98	151.45	14 910	F	14 750	13 180
Albury	4.3	2.00	149.44	-	-	-	-
Corowa	4.6	3.13	129.15	15 080	R	13 540	12 510
Yarrowonga Weir (d/s)	6.4	1.58	116.62	9 310	R	8 930	9 250
Tocumwal	6.4	2.12	105.96	8 780	S	8 600	9 280
Torrumbarry Weir (d/s)	7.3	2.51	81.06	7 400	R	7 460	8 010
Swan Hill	4.5	1.44	64.36	7 640	F	8 010	8 670
Wakool Junction	8.8	3.46	52.58	9 690	F	9 880	11 140
Euston Weir (d/s)	9.1	1.57	43.41	8 000	F	8 290	10 440
Mildura Weir (d/s)	-	-	-	7 030	F	7 460	9 860
Wentworth Weir (d/s)	7.3	2.77	27.53	5 060	F	5 990	8 180
Rufus Junction	-	3.67	20.60	7 590	F	8 260	9 640
Blanchetown (Lock 1 d/s)	-	0.75	-	5 160	F	5 580	7 270
Tributaries							
Kiewa at Bandiana	2.8	1.41	154.64	1 040	R	580	480
Ovens at Wangaratta	11.9	7.89	145.57	370	F	410	530
Goulburn at McCoys Bridge	9.0	2.47	93.89	2 810	F	2 890	2 610
Edward at Stevens Weir (d/s)	5.5	2.41	82.19	2 660	F	2 600	2 640
Edward at Liewah	-	2.79	58.17	2 220	S	2 230	2 230
Wakool at Stoney Crossing	-	1.61	55.10	670	S	670	710
Murrumbidgee at Balranald	5.0	0.53	56.49	240	R	200	210
Barwon at Mungindi	6.1	2.96	-	0	F	20	50
Darling at Bourke	9.0	2.67	-	0	F	0	0
Darling at Burtundy Rocks	-	0.62	-	10	R	0	0

Natural Inflow to Hume	1 210	980
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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	-0.10	-	No. 7 Rufus River	22.10	-0.12	+1.36
No. 26 Torrumbarry	86.05	+0.00	-	No. 6 Murtho	19.25	-0.02	+0.17
No. 15 Euston	47.60	+0.18	-	No. 5 Renmark	16.30	+0.02	+0.23
No. 11 Mildura	34.40	+0.01	+0.15	No. 4 Bookpurnong	13.20	+0.02	+0.81
No. 10 Wentworth	30.80	+0.09	+0.13	No. 3 Overland Corner	9.80	+0.00	+0.24
No. 9 Kulnine	27.40	-0.07	-0.41	No. 2 Waikerie	6.10	+0.01	+0.18
No. 8 Wangumma	24.60	-0.45	-0.03	No. 1 Blanchetown	3.20	+0.01	+0.00

Lower Lakes FSL = 0.75 m AHD

Lake Alexandrina average level for the past 5 days (m AHD)	0.69
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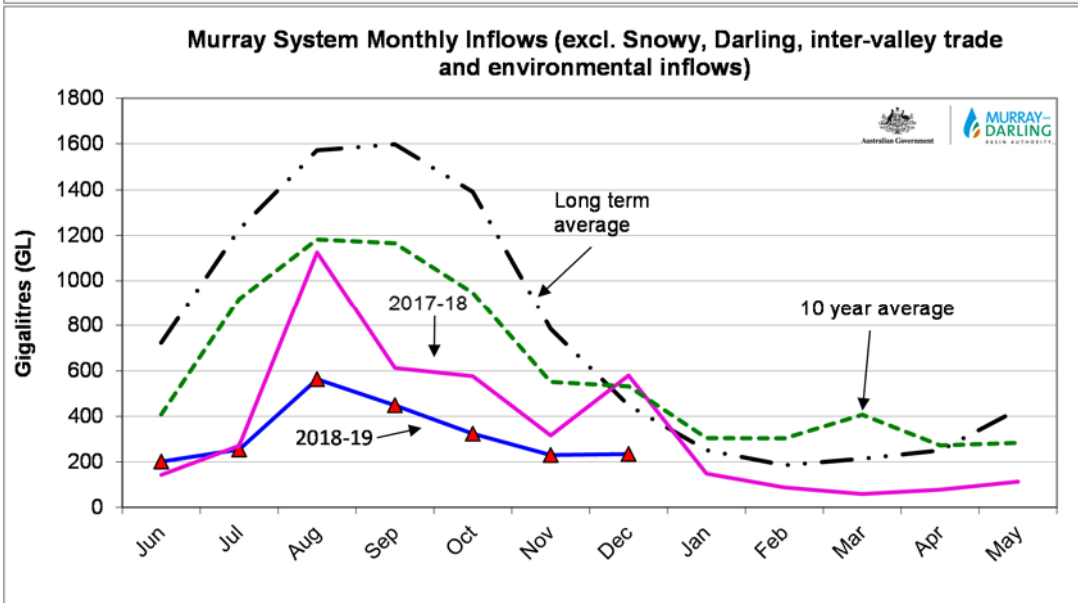
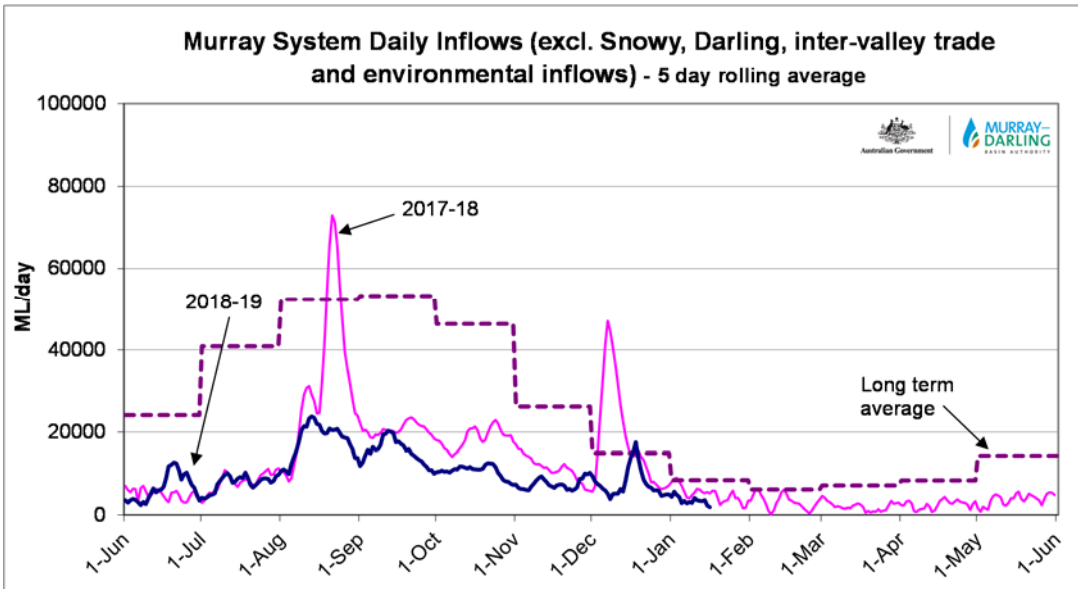
Barrages

Fishways at Barrages

	Openings	Level (m AHD)	No. Open	Rock Ramp	Vertical Slot 1	Vertical Slot 2	Dual Vertical Slots
Goolwa	128 openings	0.67	1	-	Open	Open	-
Mundoo	26 openings	0.60	All closed	-	-	-	Open
Hunters Creek	-	-	-	-	Open	-	-
Boundary Creek	6 openings	-	1	-	Open	-	-
Ewe Island	111 gates	-	All closed	-	-	-	Open
Tauwichee	322 gates	0.62	2	Open	Open	Open	-

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





State Allocations (as at 16 Jan 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	94%
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>

