



River Murray Weekly Report

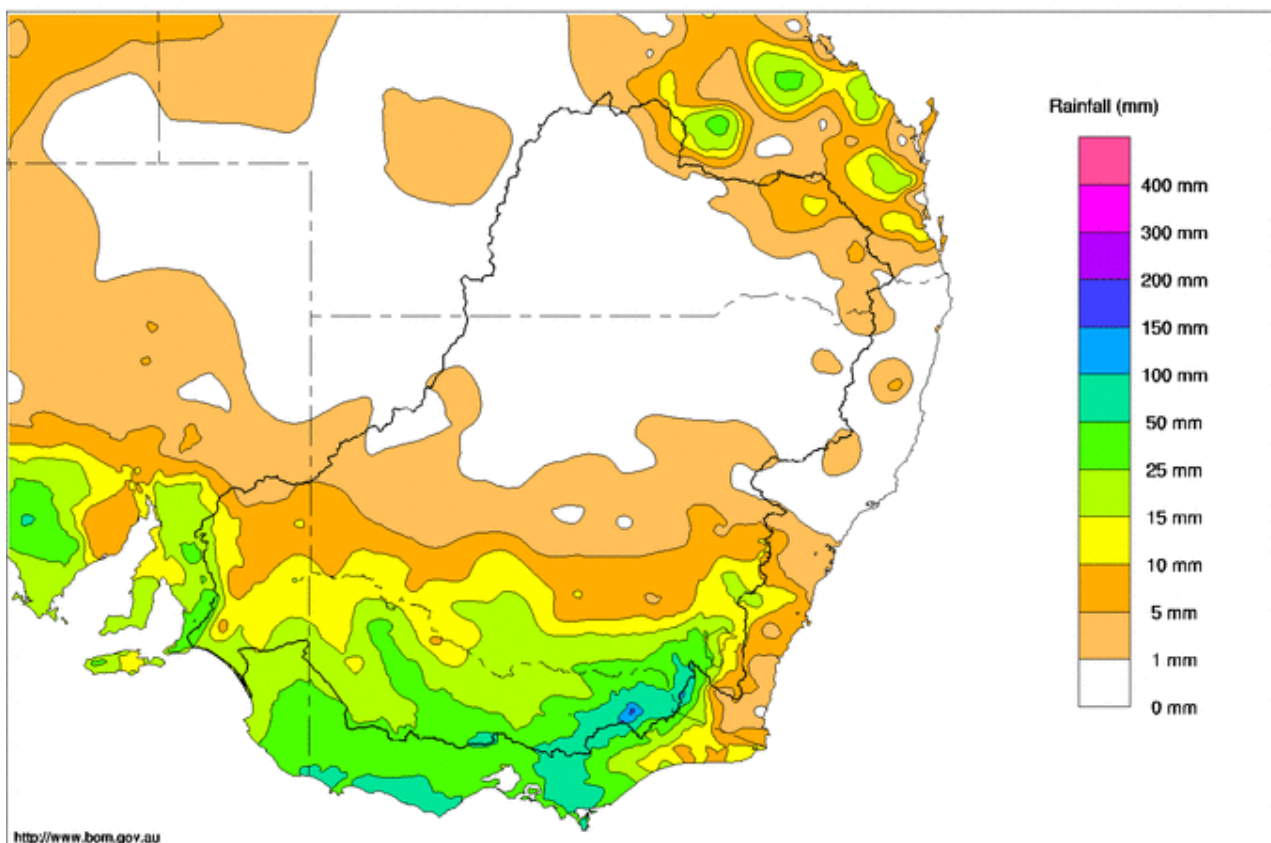
For the week ending Wednesday, 23 November 2022

Trim Ref: D22/32011

Rainfall and inflows

In the northern Murray-Darling Basin drier conditions were experienced across much of this week, while in the southern Murray-Darling Basin rainfall continued across the southern slopes and ranges (Map 1). In Victoria, significant rainfall totals included 105 mm at Mt Buffalo in the Upper Ovens River catchment, 119 mm at Falls Creek, 114 mm at Mt Hotham in the Victorian Alps, and 70 mm at Gibbo Park upstream of Dartmouth Dam. In New South Wales, notable rainfall totals included 36 mm at Khancoban in the Upper Murray, 62 mm at Cabramurra in the south-west slopes, 28 mm at Deniliquin in the Riverina and 31 mm at Albury.

Murray-Darling Rainfall Totals (mm) Week Ending 23rd November 2022
Australian Bureau of Meteorology



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Issued: 23/11/2022

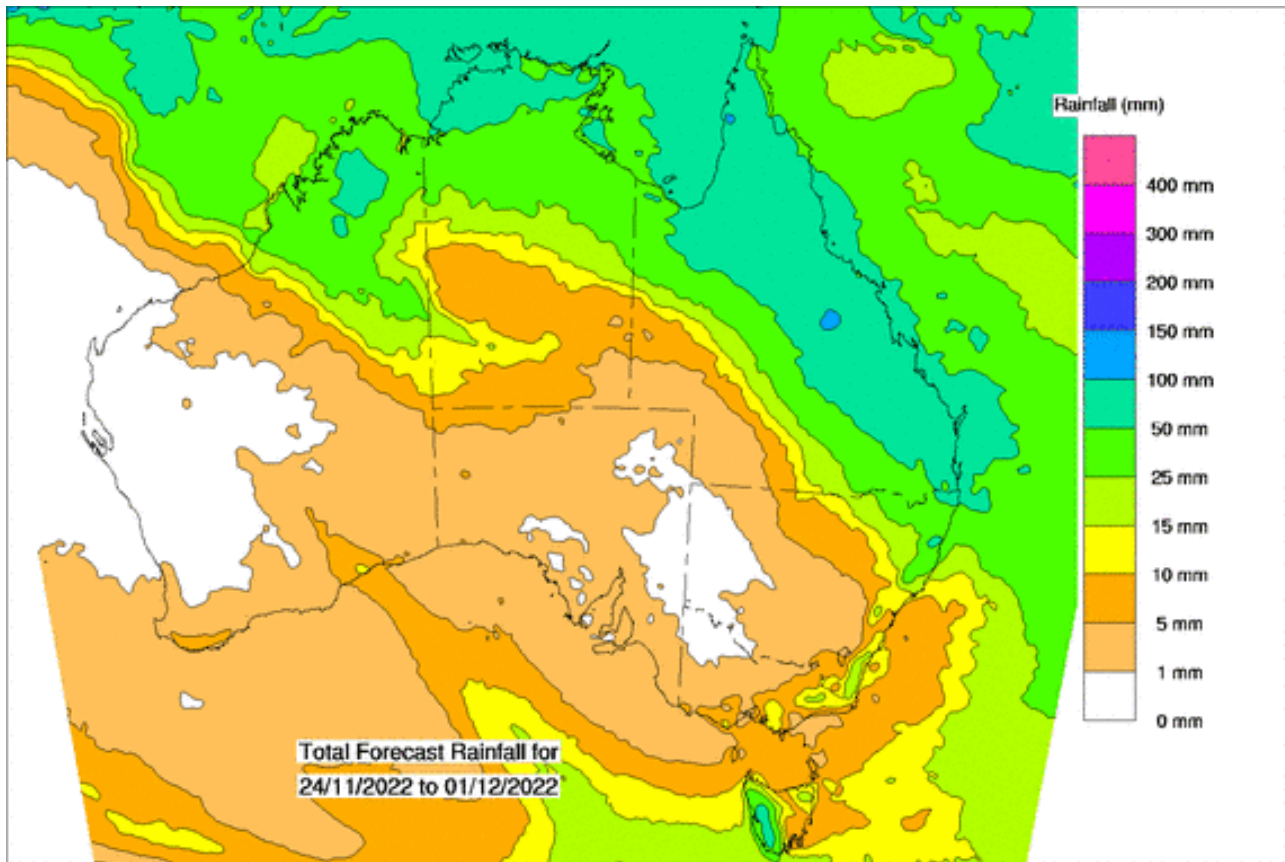
Map 1: Murray-Darling Basin rainfall for the week ending 23 November 2022. Source: Bureau of Meteorology.

Streamflow rises were observed once again across the upper Murray catchments following this week's rain, however with generally more modest rainfall compared to recent weeks, peak flows were considerably lower. Upstream of Hume Dam, the Murray at Jingellic peaked at around 25,000 ML/day and is now receding slowly. On the Mitta Mitta River, a slight increase to spill from Dartmouth Dam caused flows at Tallandoon to increase from a low of 18,000 ML/day to a peak around 22,000 ML/day before receding to the current flow of 20,000 ML/day

Over the coming week, the Bureau of Meteorology (Bureau) [8-day rainfall outlook](#) indicates fairly dry conditions for the south-eastern Basin (Map 2), with up to 15 mm forecast across the ranges. The Bureau [climate outlook](#) suggests that rainfall from December 2022 to February 2023 is likely to be above median for the eastern half of Australia.



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Map 2: 8-day rainfall forecast for 24 November to 1 December 2022. Source: Bureau of Meteorology.

Specific information about flows at key locations can be found at the MDBA's [River Murray data](#) webpage. Up-to-date river data for sites in the Basin can also be found on:

- Bureau of Meteorology [website](#)
- WaterNSW's WaterInsights [website](#)
- Victoria's DELWP water monitoring [website](#)
- South Australia's Water Data [website](#)
- Queensland's [Water Monitoring Information Portal](#)

River operations

- Airspace management continues at Hume Dam
- Significant flooding continues across large parts of the Basin
- A small respite from rainfall with the Bureau of Meteorology forecasting 1-10 mm over the next 8 days.

Our thoughts are with all those people impacted by the current flooding crisis, including those living in the Murray–Darling Basin.

Bureau of Meteorology national warning system

Several [flood warnings](#) have been issued by the Bureau. With flooding continuing in many parts of the basin in the coming week, please refer to the Bureau [national warnings](#) system and [Rainfall and River Conditions](#) for up to date information on riverine conditions and flood levels.



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The Bureau is responsible for forecasting river heights during flood events. The MDBA does not provide forecasts for locations where flooding is occurring or imminent.

*If you live along the floodplain downstream of Hume Dam you can [subscribe](#) to **WaterNSW's Early Warning Network** to be notified by SMS, email or landline about dam activities during periods of flooding or high releases.*

Hume Dam operations update

Recent operations at Hume Dam have focused on careful airspace management to help mitigate, where possible, the passage of any flood events that occur upstream.

At the beginning of the week Hume dam releases were close to 70,000 ML/day as inflows receded from two peaks late in the previous week in excess of 100,000 ML/day. The weekend's rain maintained inflows to Hume dam in the range 50,000 to 65,000 ML/day during recent days. With the Bureau 8-day forecast showing fairly limited rain, the release has been progressively stepped down and was 40,000 ML/day by Wednesday 23 November whilst the storage level has steadily risen across the week. Flow responses along the Kiewa River were also much less significant. As a result, flows at Albury have receded steadily and are now back at minor flood level.

Unregulated flows

Flows continue to remain unregulated in the River Murray between Hume and the South Australian border and along the lower Baaka/Darling system. System wide, unregulated flows are due to spills from Dartmouth Dam, airspace management releases from Hume Dam and significant inflows from tributaries downstream of Hume including the Kiewa, Ovens, Goulburn and Murrumbidgee Rivers and the Baaka/Darling system.

River operators will continue to monitor rainfall forecasts, tributary inflows and system demands and provide updated advice on unregulated flows. Information on access to Murray supplementary water licences in NSW is available from [WaterNSW Water insights](#). General information on River Murray unregulated flows can be accessed on the MDBA [webpage](#).

Water quality impacts

Flooding across the Basin and warming water temperatures are resulting in the widespread occurrence of [low oxygen blackwater](#). Water quality data for sites across the Basin within NSW is available on the WaterNSW [website](#). Water quality alerts for sites are also available at [Water quality | Murray-Darling Basin Authority](#).

Blackwater occurs naturally when water flows across the floodplain drowning out accumulated leaf litter, bark, grasses, organic cropping material and other vegetation. The affected water appears darker, often similar to the colour of black tea. Bacteria in the water break down this organic matter, encouraged by warmer water temperatures. In breaking down large amounts of organic matter, bacteria use up a lot of the oxygen in the water, so there is less (or no) oxygen for fish and other aquatic organisms to breathe. This is known as low oxygen (or hypoxic) blackwater. More information about [blackwater](#) is available from the MDBA website.

WaterNSW advise that a **red** and **amber alerts** for **blue-green algae** are current for parts of Hume dam. Amber alerts are also current for several other locations along the river Murray system. Information about blue-green algae, including alert locations, is available through [Goulburn-Murray Water](#), [WaterNSW](#) and [Water quality | Murray-Darling Basin Authority](#).

River operations

MDBA **active storage** is 8,481 GL (99% capacity). The active storage volume remains around its maximum volume with Dartmouth Dam, Hume Dam, Menindee Lakes, and Lake Victoria all effectively full (i.e., whilst Hume and Lake Victoria storages are currently being managed below their full supply levels (FSL), there are enough stream flows forecast to re-fill them before downstream demands exceed inflows).

At **Dartmouth Reservoir**, during the week the [storage](#) decreased by 10 GL to 3,926 GL (102% capacity). The storage remains above the FSL with [water flowing over the spillway](#) at around 15,500 ML/day (as of Wednesday



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23 November) following a peak storage inflow of around 19,000 ML/day due to renewed rain across the weekend. Spillway flows are forecast to reduce over the coming week as inflows recede further. Communities, landholders, and river users along the Mitta Mitta River are encouraged to monitor water levels in the coming weeks, as wet weather continues. To receive additional information on planned flow changes in the Mitta Mitta River, subscribe to receive the MDBA's flow advices [here](#).



Photo 1: Dartmouth Reservoir and Murphy from the dam wall (Photo: Georgina Beasley).

Storage at [Hume Reservoir](#) is currently 2,875 GL or 96% capacity and has risen steadily across the week. The release has been stepped back across the week from 70,000 to 40,000 ML/day as very high inflows from heavy rain in the previous week receded.

At **Lake Mulwala** the diversion to Mulwala Canal reduced this week to the current rate of 900 ML/day and there are no diversions to Yarrowonga Main Channel. At the beginning of the week, the release from Yarrowonga Weir peaked at 178,000 ML/day, which is just below the downstream major flood level. This was the third highest release at Yarrowonga weir since the record peak of October 1975. Since 15 November the release has receded fairly quickly, dropping to 100,000 ML/day as of Wednesday 23 November. This flow rate is now back under the moderate flood level and will recede further over coming days.

Downstream of Yarrowonga Weir, all weirs along the River Murray and Kolety/Edward River have been removed from the water due to the high river levels, allowing free flowing conditions to the Lower Lakes in South Australia. At the offtakes to the **Kolety/Edward River** and **Gulpa Creek**, the regulator gates are clear of the water and the diversion is varying in response to the water level in the Murray at Picnic Point. The flows into the Kolety and Gulpa Creek are currently around 3,400 ML/day and 1,700 ML/day respectively, well above their regulated capacities of 1,600 ML/day and 250 ML/day. Further downstream on the Kolety at Deniliquin, flows increased to the current flow of 102,400 ML/day (with [moderate flooding](#)) owing to large volumes of water moving through Millewa forest and the Bullatale and Tuppall creeks. At Moulamein [major flooding](#) is occurring. At **Stevens Weir**, the gates are clear of



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the water while downstream of Stevens Weir the river may peak close to the [major flood level](#). Currently the high river level is diverting around 6,300 ML/day into the Wakool River, 6,900 ML/day is entering into Yallakool Creek and 24,600 ML/day into Colligen Creek. On the Kolety near Moulamein, inflows from the Billabong Creek (measured at Darlot) increased this week to around 9,300 ML/day. This is in response to continuing wet conditions in the Murrumbidgee catchment (the Kolety is connected to the Murrumbidgee River via the Yanco/Colombo/Billabong Creek system).

On the **Goulburn River**, Lake Eildon releases reduced to 8,700 ML/day with airspace management continuing. Information on Goulburn-Murray Water storages can be found [here](#). Goulburn inflows to the Murray, measured at [McCoys Bridge](#), continued reducing slowly to 31,800 ML/day. Flows are forecast to decrease over the coming days. Inflows to the Murray are also continuing from the **Campaspe River** with the flow (measured at Rochester Syphon) increasing to around 4,500 ML/day following weekend rain. Information regarding opportunities for allocation trade between the Goulburn and Murray systems is available at the Victorian water register [website](#) and the [Goulburn-Murray Water website](#).

At **Torrumbarry Weir**, the [diversion](#) to **National Channel** has remained steady averaging near 500 ML/day. This volume includes water that is being delivered to Gunbower Creek on behalf of environmental water holders. The flow at the weir remained relatively steady at around 54,500 ML/day. At these higher flow rates an increasing volume of water spills out onto the Perricoota and Gunbower Forest floodplains.

In response to rainfall and rising flows upstream, inflows to the Murray from the **Murrumbidgee River**, measured at [Balranald](#), increased this week. The flow is around 47,400 ML/day and expected to slowly rise over the coming week as flood waters continue arriving from upstream. Further downstream on the Murray at **Euston**, the flow has continued to increase over the past week and is currently just around 200,000 ML/day.

At **Menindee Lakes**, the storage reduced by 49 GL and is at 1,787 GL (103% capacity). Releases from the Menindee Lakes to the lower Baaka/Darling River (measured at Weir 32) have increased to 31,800 ML/day during the week (targeting around 9.6 m at the Menindee town gauge). This operation aims to limit local impacts whilst managing airspace within the storages so that forecast peak inflows can be partially mitigated. Updated advice on forecast inflows and operations at Menindee Lakes is available from the WaterNSW WaterInsight [website](#). Downstream on the lower Darling at Burtundy, the flow increased slightly to near 17,500 ML/day.

At **Wentworth Weir**, inflows from the **Baaka** are boosting the flow in the River Murray where flows are currently near 177,000 ML/day and continuing to rise.

The [storage](#) at **Tar-ru/Lake Victoria** decreased by 17 GL this week to 567 GL (84% capacity). Inflows to Lake Victoria remain shut off to help maintain a refuge of well oxygenated water in Frenchman's Creek, due to blackwater conditions in the Murray. Outflows from Tar-ru are currently targeting 1,500 ML/day.

The flow to **South Australia** exceeded 123,000 ML/day this week and is expected to continue increasing over the coming weeks as flood waters continue to arrive from upstream. With the flow rate at the South Australian border remaining above 40,000 ML/day, South Australia's Department for Environment and Water continue to update their River Murray High Flow Advice weekly. This advice is available on their [website](#)



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Photo 2: High flows on the River Murray at Lock 4 (Photo: Jamie Walker).

Additional Dilution Flow (ADF) to South Australia continues to be triggered. The current unregulated flows into South Australia mean that no additional releases from storage are needed to meet ADF. For information on ADF and the ADF triggers refer to [Objectives and Outcomes for River Operation in the River Murray System](#) (pages 79-80).

Downstream of the South Australian border, the **Lower Lakes** 5-day average water level is 0.86 m AHD. Significant barrage releases are continuing to pass unregulated flows to the Coorong and out to the Southern Ocean. For further information about water levels, flow rates and barrage operations along the River Murray in South Australia see the South Australian Department for Environment and Water weekly [River Murray Flow Report](#) and the [Water Data SA](#) website.

For media inquiries contact the Media Officer on 02 6279 0141

ANDREW REYNOLDS
Executive Director, River Management



Australian Government



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Water in Storage

Week ending Wednesday 23 Nov 2022

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	487.05	3 926	102%	71	3 855	-10
Hume Reservoir	192.00	3 005	191.34	2 875	96%	23	2 852	+39
Lake Victoria	27.00	677	26.08	567	84%	100	467	-17
Menindee Lakes		1 731*		1 787	103%	(480 #)	1 307	-49
Total		9 269		9 155	99%	--	8 481	-37
Total Active MDBA Storage							99% ^	

Major State Storages

Burrinjuck Reservoir	1 026	980	96%	3	977	-37
Blowering Reservoir	1 631	1 675	103%	24	1 651	-6
Eildon Reservoir	3 334	3 250	97%	100	3 150	+15

* 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 22 Nov 2022

Storage	Active Storage (GL)	Weekly Change (GL)	Diversions (GL)	This Week	From 1 May 2022
Lake Eucumbene - Total	2 676	n/a	Snowy-Murray	+0	538
Snowy-Murray Component	1 095	n/a	Tooma-Tumut	+14	267
Target Storage	1 450		Net Diversion	-14	272
			Murray 1 Release	+7	852

Major Diversions from Murray and Lower Darling (GL) *

New South Wales	This Week	From 1 July 2022	Victoria	This Week	From 1 July 2022
Murray Irrig. Ltd (Net)	5.6	134	Yarrowonga Main Channel (net)	0.2	11
Wakool Sys Allowance	0.0	0	Torrumbarry System + Nyah (net)	0	129
Western Murray Irrigation	0.1	2	Sunraysia Pumped Districts	0.3	7
Licensed Pumps	1.1	30	Licensed pumps - GMW (Nyah+u/s)	n/a	7
Lower Darling	10.7	275	Licensed pumps - LMW	3.2	35
TOTAL	17.5	441	TOTAL	3.7	189

* 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	180.0 *
Flow this week	797.8
Flow so far this month	2,267.3
Flow last month	2,282.9

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

	Current	Average over the last week	Average since 1 August 2022
Swan Hill	290	270	150
Euston	-	-	-
Red Cliffs	-	-	110
Merbein	210	220	190
Burtundy (Darling)	350	350	340
Lock 9	240	240	190
Lake Victoria	170	170	160
Berri	290	270	200
Waikerie	280	280	230
Morgan	290	280	220
Mannum	300	300	240
Murray Bridge	310	310	240
Milang (Lake Alex.)	350	330	360
Poltalloch (Lake Alex.)	320	330	250
Meningie (Lake Alb.)	1 070	1 000	1 120
Goolwa Barrages	1 000	1 450	840



River Levels and Flows

Week ending Wednesday 23 Nov 2022

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	-	-	-	3 530	F	4 740	9 660
Jingellic	4.0	3.44	209.96	21 590	F	24 590	30 970
Tallandoon (Mitta Mitta River)	4.2	4.77	221.66	19 660	F	21 670	18 910
Heywoods	5.5	4.73	158.36	46 350	F	55 710	80 730
Doctors Point	5.5	5.56	154.03	56 350	F	69 680	91 730
Albury	4.3	4.69	152.13	-	-	-	-
Corowa	4.6	6.87	132.89	65 100	F	77 310	97 820
Yarrowonga Weir (d/s)	6.4	6.73	121.77	99 790	S	121 370	120 330
Tocumwal	6.4	6.82	110.66	101 630	F	131 300	102 750
Torrumbarry Weir (d/s)	7.3	7.81	86.36	53 750	S	53 890	53 710
Swan Hill	4.5	4.54	67.46	29 320	S	29 600	29 830
Wakool Junction	8.8	11.70	60.82	164 350	S	164 920	164 450
Euston Weir (d/s)	9.1	10.12	51.96	198 180	R	191 120	158 310
Mildura Weir (d/s)	-	-	-	163 810	F	151 660	112 450
Wentworth Weir (d/s)	7.3	8.92	33.68	174 820	R	158 930	121 440
Rufus Junction	-	8.35	25.28	123 310	R	113 480	97 080
Blanchetown (Lock 1 d/s)	-	4.43	-	71 890	F	80 000	75 740
Tributaries							
Kiewa at Bandiana	2.8	2.97	156.20	6 740	F	8 020	13 630
Ovens at Wangaratta	11.9	12.14	149.82	23 690	R	24 650	25 580
Goulburn at McCoys Bridge	9.0	9.22	100.64	31 860	F	34 100	34 360
Edward at Stevens Weir (d/s)	5.5	6.58	86.36	46 960	S	43 860	38 210
Edward at Liewah	-	8.03	63.41	23 360	S	22 970	22 420
Wakool at Stoney Crossing	-	10.81	64.30	126 700	F	126 920	130 700
Murrumbidgee at Balranald	5.0	7.27	63.23	47 440	R	42 090	32 840
Barwon at Mungindi	6.1	5.83	-	6 900	F	12 080	22 240
Darling at Bourke	9.0	13.94	-	208 980	R	190 290	137 780
Darling at Burtundy Rocks	-	7.16	-	17 540	S	17 500	17 350

Natural Inflow to Hume	55 700	77 720
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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	-0.31	-	No. 7 Rufus River	22.10	-31.10	-28.25
No. 26 Torrumbarry	86.05	+0.34	-	No. 6 Murtho	19.25	+1.25	+4.16
No. 15 Euston	47.60	+2.54	-	No. 5 Renmark	16.30	+1.17	+4.10
No. 11 Mildura	34.40	+3.33	+7.08	No. 4 Bookpurnong	13.20	-22.20	-18.80
No. 10 Wentworth	30.80	-39.80	+6.28	No. 3 Overland Corner	9.80	+1.47	+5.10
No. 9 Kulnine	27.40	+2.24	-33.60	No. 2 Waikerie	6.10	-15.10	-12.20
No. 8 Wangumma	24.60	-33.60	-31.10	No. 1 Blanchetown	3.20	+1.15	+3.68

Lower Lakes FSL = 0.75 m AHD

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

Fishways at Barrages

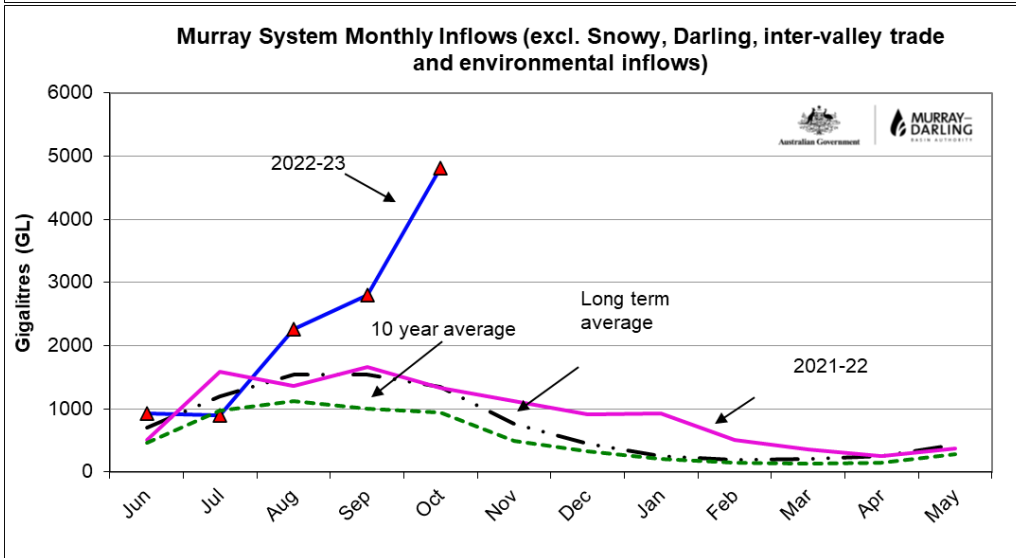
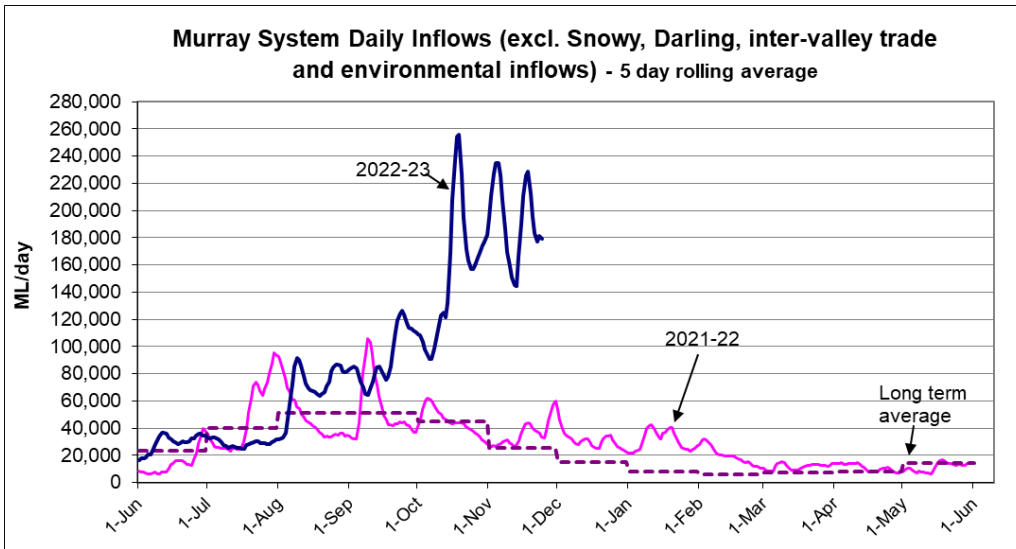
	Openings	Level (m AHD)	No. Open	Rock Ramp	Vertical Slot 1	Vertical Slot 2	Dual Vertical Slots
Goolwa	128 openings	0.71	All closed	-	Open	Open	-
Mundoo	26 openings	-	All closed	-	-	-	FALSE
Hunters Creek	-	-	-	-	Open	-	-
Boundary Creek	6 openings	-	1	-	Open	-	-
Ewe Island	111 gates	-	105	-	-	-	Open
Tauwichee	322 gates	0.90	295	Open	Open	Open	-

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





Week ending Wednesday 23 Nov 2022



State Allocations (as at 23 Nov 2022)

NSW - Murray Valley

High security	97%
General security	110%

Victorian - Murray Valley

High reliability	100%
Low reliability	100%

NSW – Murrumbidgee Valley

High security	95%
General security	55%

Goulburn- Murray Valley

High reliability	100%
Low reliability	77%

NSW - Lower Darling

High security	100%
General security	100%

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 : [Department for Environment and Water | Current allocations](http://www.environment.sa.gov.au/department-for-environment-and-water/current-allocations)

