



RIVER MURRAY WEEKLY REPORT

FOR THE WEEK ENDING WEDNESDAY, 6 AUGUST 2014

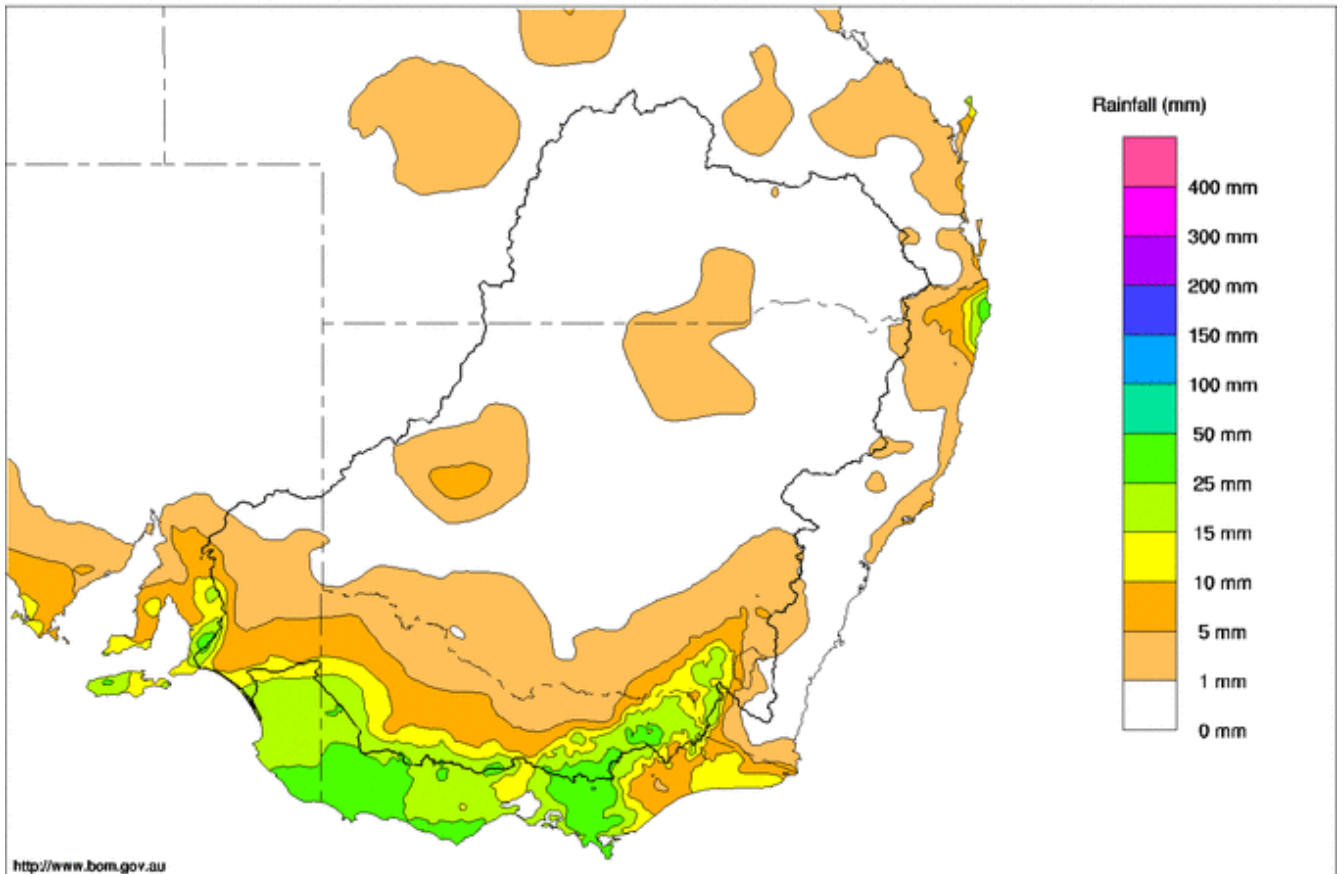
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Rainfall and Inflows

A strong cold front crossed south-eastern Australia early in the week, bringing moderate rainfall to the Victorian Alps and elevated parts of southern New South Wales (Map 1). This was followed by a large high-pressure system that positioned itself over the Basin, generating clear, calm weather with moderate to severe frosts across many regions. The highest weekly rainfall totals were recorded in Victoria, including 66 mm at Cheshunt, 53 mm at Rocky Valley and 47 mm at Woods Point. Other notable totals throughout the Basin included 21 mm at Mount Barker in South Australia and 14 mm at Burrinjuck Dam in NSW.

Murray-Darling Rainfall Totals (mm) Week Ending 6th August 2014

Product of the National Climate Centre



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

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Issued: 06/08/2014

Map 1- Murray-Darling Basin rainfall for the week ending 6 August 2014 (Source: Bureau of Meteorology)

Stream flows in the upper Murray tributaries are slowly receding following rainfall earlier in the week. On the Mitta Mitta River at Hinnomunjie, the flow has reduced from 4,100 ML/day to 1,500 ML/day. On the upper Murray, the flow at Biggara has fallen from 2,300 ML/day to 1,500 ML/day. On the Ovens River, the flow at Wangaratta rose to 10,000 ML/day over the weekend and has now receded to 7,800 ML/day.



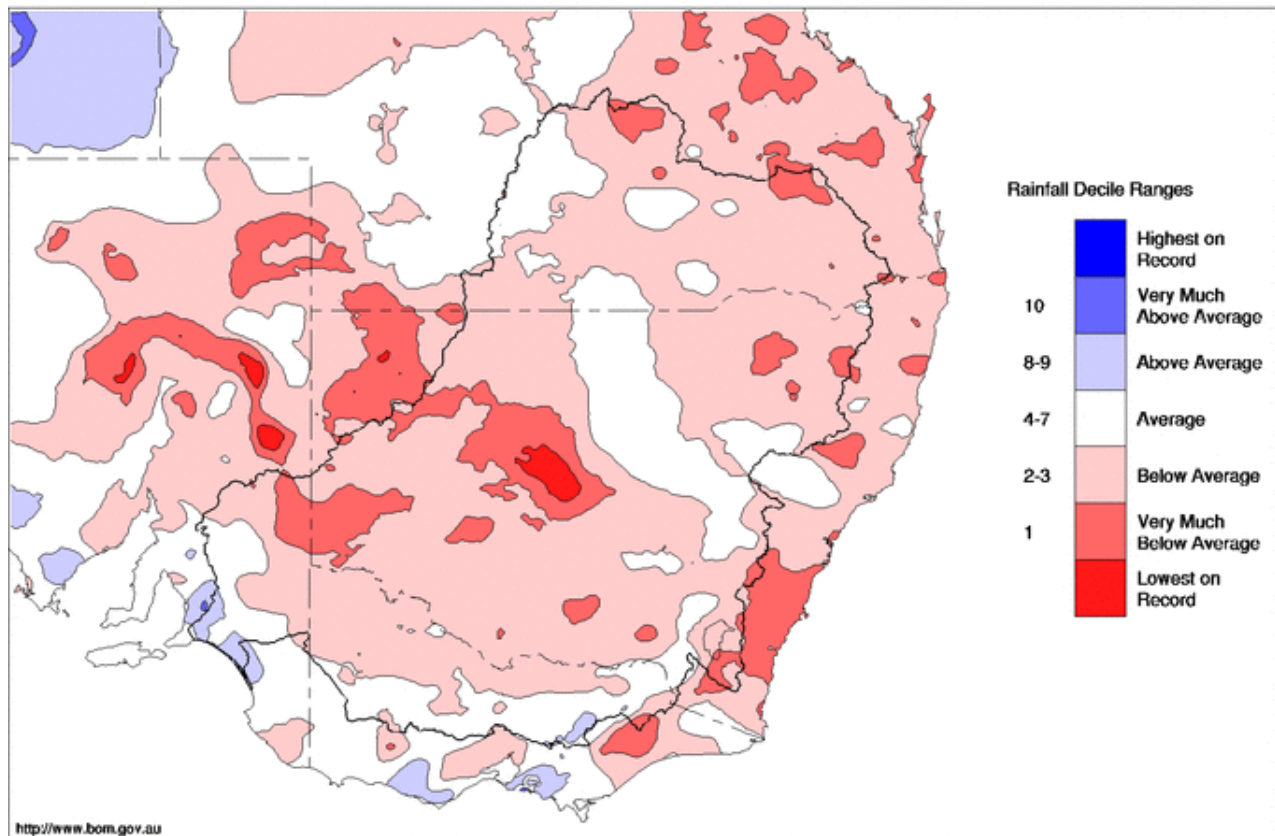
July 2014 Summary

It was mainly dry across the Murray-Darling Basin during July, with widespread below average rainfall recorded in most areas. Across the Basin as a whole, the Bureau of Meteorology has reported area-averaged rain totalling just 17.3 mm, which is 56% below the long-term mean and the 16th driest July in 115 years of record.

There were patches of very much below average rain in the far north, the far south-east — including parts of the upper Murrumbidgee and upper Mitta Mitta River catchments — and through western NSW where some gauges received no rain at all for the month. Rainfall was closer to average or above average over southern South Australia and along much of the southern Great Dividing Range (Map 2). Notably, this included most of the Victorian Alps and NSW Snowy Mountains where the passage of multiple winter cold fronts provided regular rain, alpine snow and a considerable boost to stream flows in the upper Murray catchments over the past few weeks.

The generally clear and dry conditions also resulted in above-average daytime temperatures across the Basin during July, despite several significant cold weather events affecting the south. However, the clear skies also contributed to cold overnight temperatures, heavy frosts in some areas and below average minimum temperatures for most of the Basin.

Murray-Darling Rainfall Deciles July 2014
Distribution Based on Gridded Data
Product of the National Climate Centre



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Map 2 - Murray-Darling Basin rainfall deciles for July 2014 (Source: Bureau of Meteorology).

River Murray System inflows (excluding Snowy Scheme, Darling River and managed environmental inflows) increased considerably during July with a total volume of around 1,300 GL. These inflows were partly due to saturated soils following good rainfall throughout the upper catchments in June. The relatively higher flows of recent weeks have taken the inflow volume above the long-term monthly average (around 1,250 GL for July) for the first time since August 2013. The total is also well above the inflow volume for July 2013 of 840 GL.



River Operations

- Much of the River Murray remains unregulated.
- Mildura weir pool is being refilled following completion of trestle upgrade works.
- Euston and Locks 9 and 8 weir pools are raised above Full Supply Level.

Good tributary inflows have continued entering the River Murray System over the past week, enabling the continuation of unregulated flows in the River Murray from Barmah through to the South Australian border (including the Edward River). However, with no significant rain forecast and the irrigation season soon to commence, operators continue to monitor the timing of a potential shift back into regulated conditions.

MDBA total storage rose by 121 GL this week, with the active storage now 6,157 GL (73% capacity).

At **Dartmouth** Reservoir, the storage volume increased by 28 GL to 3,632 GL (94% capacity). The release is steady at 200 ML/day. A short flow pulse may be released in the coming week to manage water quality and ecosystem functions in the Mitta Mitta River. A flow advice will be issued if this operation proceeds.

Inflows into **Hume** Reservoir over the past week averaged 14,000 ML/day, increasing the storage by 93 GL to 2,141 GL (71% capacity). The release remains at the minimum rate of 600 ML/day. Inflows from the Kiewa River downstream of Hume maintained the flow in the Murray at Doctors Point at an average of 4,000 ML/day.

At **Lake Mulwala**, the major irrigation offtakes continue to prepare for the coming irrigation season. Mulwala Canal has been diverting 1,500 ML/day, whilst Yarrowonga Main Channel is expected to recommence channel filling next week. The release from Yarrowonga Weir is steady at around 11,500 ML/day, however it will be lowered over the coming week as inflows from the Ovens River recede. Once the release falls below the downstream channel capacity of the Barmah Choke (around 10,600 ML/day), regulators currently diverting water into Barmah-Millewa Forest are planned to be closed.

In the **Edward-Wakool** system, flows through the Edward and Gulpa River offtakes are 1,500 ML/day and 500 ML/day respectively. Both these offtakes are fully open, with their flow varying in response to the water level in the Murray at Picnic Point. Flows through these offtakes are likely to marginally increase next week, as the closing of the Barmah-Millewa Forest regulators is expected to raise the water level in the main Murray channel. On the Edward River at Toonalook, the flow is 4,000 ML/day and receding, whilst downstream at Stevens Weir the release is around 3,000 ML/day.

On the **Goulburn** River, the flow at McCoys Bridge is 7,500 ML/day. The flow at McCoys Bridge has been fluctuating around 6,000-8,000 ML/day over the past fortnight due to tributary inflows entering the Goulburn downstream of Eildon Dam. Typically some of these flows would be diverted into Waranga Basin – an off-river storage connected to Goulburn Weir – however the storage currently has limited airspace. On the **Campaspe** River, environmental water released from Lake Eppalock is currently passing Rochester with a peak of 1,650 ML/day. This flow will gradually reduce over the coming week.

At **Torrumbarry** Weir, diversions at National Channel increased this week from 1,650 ML/day to 3,300 ML/day. Of this volume, around 700 ML/day is being diverted into Gunbower Forest and 400 ML/day is passing down Gunbower Creek. The remainder is being directed into Kow Swamp, one of the Victorian mid-Murray storages.

On the **Murrumbidgee** River, the flow at Balranald peaked this week at 5,000 ML/day and has now reduced to 4,200 ML/day. The flow at Balranald is expected to continue receding to around 1,500 ML/day over the next week. Back on the Murray at **Euston**, the weir pool is currently 40cm above the Full Supply Level (FSL) of 47.6 m AHD. The flow downstream of Euston is at a peak of 24,000 ML/day, and forecast to remain above 20,000 ML/day over the coming week.

Downstream of Euston, environmental water is continuing to be pumped into **Hattah Lakes**. Water has now progressed throughout the majority of the Lakes system, including up to the most northern bank of Lake Bitterang (the top left lake on Figure 1). This is only the second time Lake Bitterang has



received water since the 1970's. Water will continue to be pumped into the Lakes for about another four weeks, and then will be held for a period of time before returning back to the Murray.

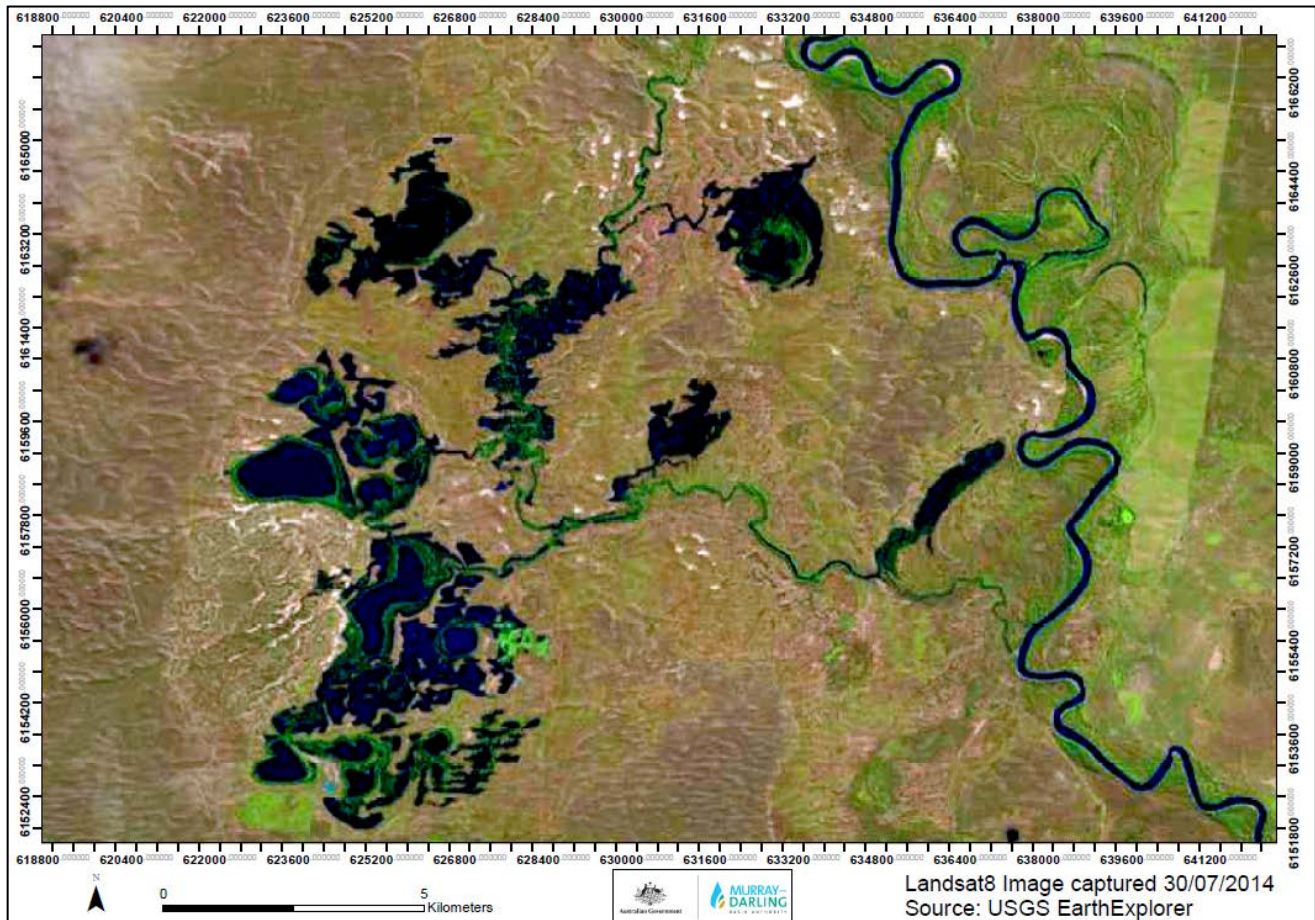


Figure 1 – Satellite image of Hattah Lakes taken on 30 July 2014 (Source: U.S. Geological Survey).

At **Mildura Weir**, the pool level is currently 8 cm below FSL and gradually refilling following the completion of trestle upgrade works. Storage in **Menindee Lakes** decreased by 7 GL this week to 363 GL (21% capacity). The release at Weir 32 remains at a minimum flow of 200 ML/day. A spike in salinity has been observed slowly progressing down the lower Darling since early June. The salinity at Burtundy is forecast to reach 1,000 EC in the coming fortnight before returning back to around 700 EC. This is expected to have minimal impact on salinity levels in the Murray.

At **Wentworth Weir**, the downstream flow is 21,000 ML/day and rising. A peak flow past Wentworth of around 23,500 ML/day is forecast for next week. At Weirs and **Locks 9** and **8**, the pool levels are being raised to around 15 cm and 40 cm above FSL. This is part of a trial to introduce variations in the weir pool levels to achieve a more natural wetting and drying cycle for the riverine environment.

At **Lake Victoria**, the storage volume increased by 6 GL to 578 GL (85% capacity). Inflows into Lake Victoria are planned to be gradually increased over the coming week to ensure the storage is full when unregulated flows cease. Flow to South Australia is currently 18,000 ML/d and forecast to remain above 15,000 ML/day for the coming week.

At the **Lower Lakes**, the 5-day average water level in Lake Alexandrina is currently 0.82 m AHD. The release from the barrages is estimated to be around 2,000 ML/day.

For media inquiries contact the Media Officer on 02 6279 0141

DAVID DREVERMAN
Executive Director, River Management



Water in Storage

Week ending Wednesday 06 Aug 2014

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	482.52	3 632	94%	71	3 561	+28
Hume Reservoir	192.00	3 005	187.27	2 141	71%	23	2 118	+93
Lake Victoria	27.00	677	26.17	578	85%	100	478	+6
Menindee Lakes		1 731*		363	21%	(-) #	0	-7
Total		9 269		6 714	72%	--	6 157	+121
Total Active MDBA Storage							73% ^	

Major State Storages

Burrinjuck Reservoir	1 026	759	74%	3	756	+10
Blowering Reservoir	1 631	1 151	71%	24	1 127	+17
Eildon Reservoir	3 334	2 788	84%	100	2 688	+79

* Menindee surcharge capacity – 2050 GL

** All Data is rounded to nearest GL **

NSW takes control of Menindee Lakes when storage falls below 480 GL, and control reverts to MDBA when storage next reaches 640 GL

^ % of total active MDBA storage

Snowy Mountains Scheme

Snowy diversions for week ending 05 Aug 2014

Storage	Active Storage (GL)	Weekly Change (GL)	Diversions (GL)	This Week	From 1 May 2014
Lake Eucumbene - Total	1 731	n/a	Snowy-Murray	+11	159
Snowy-Murray Component	842	n/a	Tooma-Tumut	+12	103
Target Storage	1 190		Net Diversions	-1	56
			Murray 1 Release	+28	249

Major Diversions from Murray and Lower Darling (GL) *

New South Wales	This Week	From 1 July 2014	Victoria	This Week	From 1 July 2014
Murray Irrig. Ltd (Net)	12.1	13	Yarrowonga Main Channel (net)	0.1	1
Wakool Sys Allowance	0.0	2	Torrumbarry System + Nyah (net)	17.6	28
Western Murray Irrigation	0.1	0	Sunraysia Pumped Districts	0.3	2
Licensed Pumps	0.5	3	Licensed pumps - GMW (Nyah+u/s)	0	0
Lower Darling	0.1	1	Licensed pumps - LMW	1.2	5
TOTAL	12.8	19	TOTAL	19.2	36

* Figures derived from estimates and monthly data. 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 the delivery of unregulated flows.

Entitlement this month	124.0 *	
Flow this week	108.8	(15 500 ML/day)
Flow so far this month	94.4	
Flow last month	214.5	

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

	Current	Average over the last week	Average since 1 August 2014
Swan Hill	90	100	100
Euston	110	120	120
Red Cliffs	110	120	120
Merbein	120	140	140
Burtundy (Darling)	820	780	780
Lock 9	150	160	160
Lake Victoria	220	230	230
Berri	350	250	250
Waikerie	330	390	390
Morgan	360	410	400
Mannum	470	460	460
Murray Bridge	520	530	530
Milang (Lake Alex.)	750	710	710
Poltalloch (Lake Alex.)	620	610	630
Meningie (Lake Alb.)	2 100	2 140	2 130
Goolwa Barrages	4 490	4 270	4 710



River Levels and Flows

Week ending Wednesday 06 Aug 2014

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	-	-	-	5 210	F	6 010	3 730
Jingellic	4.0	2.30	208.82	9 470	F	10 670	9 370
Tallandoon (Mitta Mitta River)	4.2	1.70	218.59	1 260	S	1 400	1 470
Heywoods	5.5	1.30	154.93	600	S	600	600
Doctors Point	5.5	1.94	150.41	3 840	F	3 970	3 120
Albury	4.3	1.02	148.46	-	-	-	-
Corowa	3.8	1.36	127.38	4 830	F	4 060	4 150
Yarrowonga Weir (d/s)	6.4	1.86	116.90	11 570	R	11 180	16 690
Tocumwal	6.4	2.49	106.33	10 980	R	10 980	18 660
Torrumbarry Weir (d/s)	7.3	4.60	83.15	15 620	F	16 250	16 620
Swan Hill	4.5	2.82	65.74	16 720	S	16 720	15 850
Wakool Junction	8.8	5.52	54.64	20 950	R	20 520	18 080
Euston Weir (d/s)	8.8	3.66	45.50	24 280	R	22 610	18 290
Mildura Weir (d/s)	-	-	-	21 420	F	20 960	-
Wentworth Weir (d/s)	7.3	3.93	28.69	20 980	R	18 830	17 210
Rufus Junction	-	4.92	21.85	16 960	R	14 560	12 330
Blanchetown (Lock 1 d/s)	-	1.17	-	14 310	R	14 230	10 470
Tributaries							
Kiewa at Bandiana	2.7	2.52	155.75	3 120	F	3 530	2 480
Ovens at Wangaratta	11.9	10.21	147.89	7 830	F	8 890	8 690
Goulburn at McCoys Bridge	9.0	4.61	96.03	7 540	R	6 820	7 390
Edward at Stevens Weir (d/s)	-	2.60	82.37	3 000	S	4 040	4 400
Edward at Liewah	-	3.07	58.45	2 680	R	2 640	2 440
Wakool at Stoney Crossing	-	2.09	55.59	2 690	F	2 560	2 070
Murrumbidgee at Balranald	5.0	4.02	59.98	4 210	F	4 470	2 400
Barwon at Mungindi	-	3.11	-	0	F	0	0
Darling at Bourke	-	3.99	-	30	F	50	70
Darling at Burtundy Rocks	-	0.74	-	120	S	120	140

Natural Inflow to Hume (i.e. Pre Dartmouth & Snowy Mountains scheme)	16 620	14 640
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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	-0.17	-	No. 7 Rufus River	22.10	+0.11	+2.56
No. 26 Torrumbarry	86.05	-0.01	-	No. 6 Murtho	19.25	-0.00	+0.78
No. 15 Euston	47.60	+0.40	-	No. 5 Renmark	16.30	+0.02	+0.73
No. 11 Mildura	34.40	-0.08	+1.03	No. 4 Bookpurnong	13.20	+0.02	+1.60
No. 10 Wentworth	30.80	-0.01	+1.29	No. 3 Overland Corner	9.80	+0.02	+0.83
No. 9 Kulnine	27.40	+0.15	+0.76	No. 2 Waikerie	6.10	+0.03	+0.85
No. 8 Wangumma	24.60	+0.25	+1.05	No. 1 Blanchetown	3.20	+0.03	+0.42

Lower Lakes FSL = 0.75 m AHD

Lake Alexandrina average level for the past 5 days (m AHD)	0.80
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Barrages

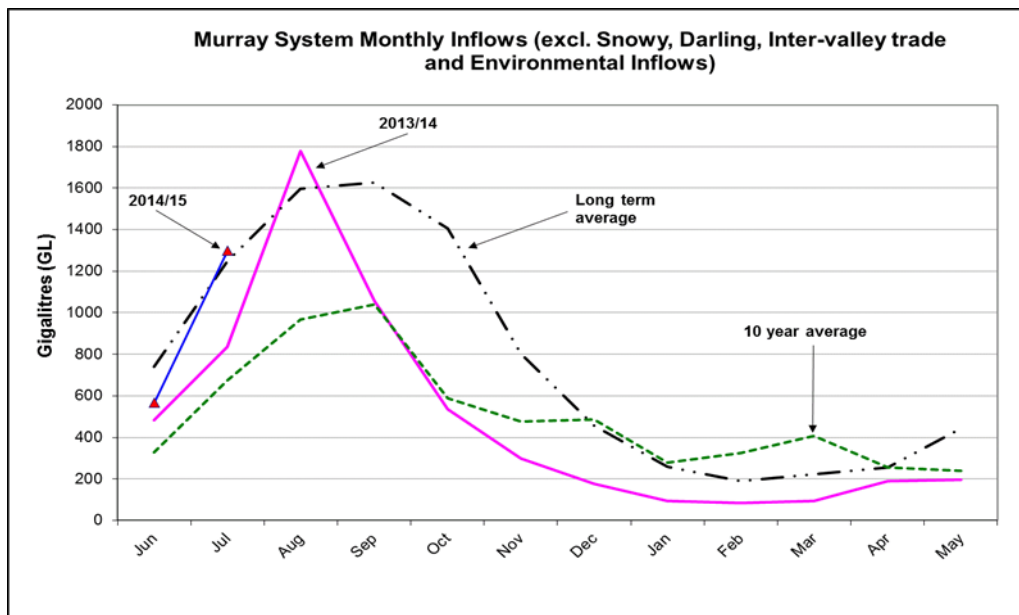
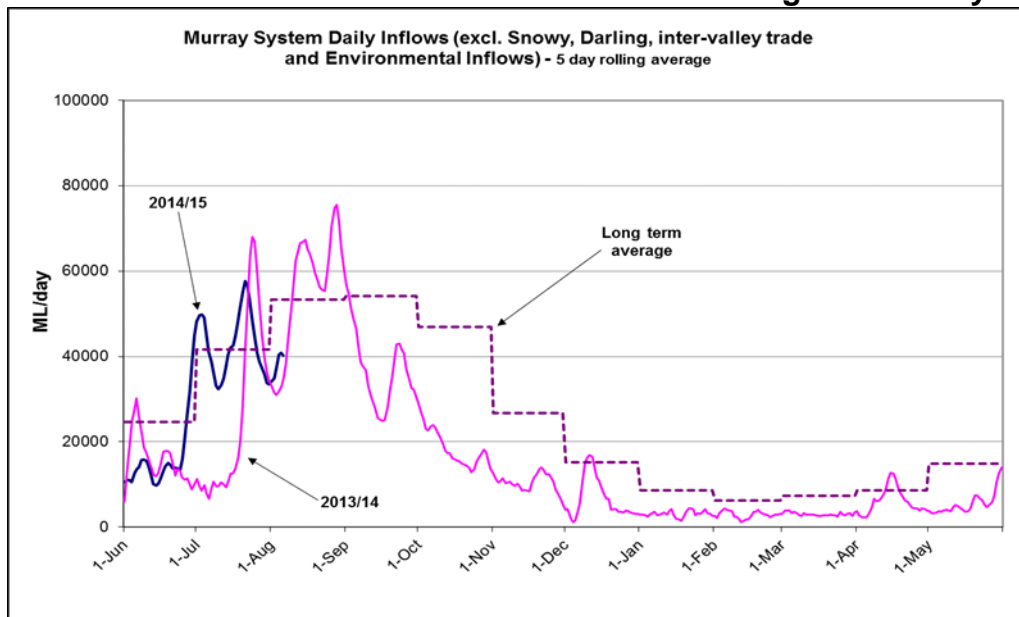
Fishways at Barrages

	Openings	Level (m AHD)	No. Open	Rock Ramp	Vertical Slot
Goolwa	128 openings	0.85	5	-	Open
Mundoo	26 openings	0.83	All closed	-	-
Boundary Creek	6 openings	-	0.1	-	-
Ewe Island	111 gates	-	All closed	-	-
Tauwitchere	322 gates	0.85	4	Open	Open

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



Week ending Wednesday 06 Aug 2014



State Allocations (as at 06 Aug 2014)

NSW - Murray Valley

High security	97%
General security	12%

Victorian - Murray Valley

High reliability	84%
Low reliability	0%

NSW - Murrumbidgee Valley

High security	95%
General security	24%

Victorian - Goulburn Valley

High reliability	100%
Low reliability	0%

NSW - Lower Darling

High security	100%
General security	100%

South Australia - Murray Valley

High security	100%
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NSW : <http://www.water.nsw.gov.au/Water-management/Water-availability/Water-allocations/Water-allocations-summary/water-allocations-summary/default.aspx>
 VIC : <http://www.g-mwater.com.au/water-resources/allocations/current.asp>
 SA : <http://www.environment.sa.gov.au/managing-natural-resources/river-murray>