



RIVER MURRAY WEEKLY REPORT

FOR THE WEEK ENDING WEDNESDAY, 03 DECEMBER 2014

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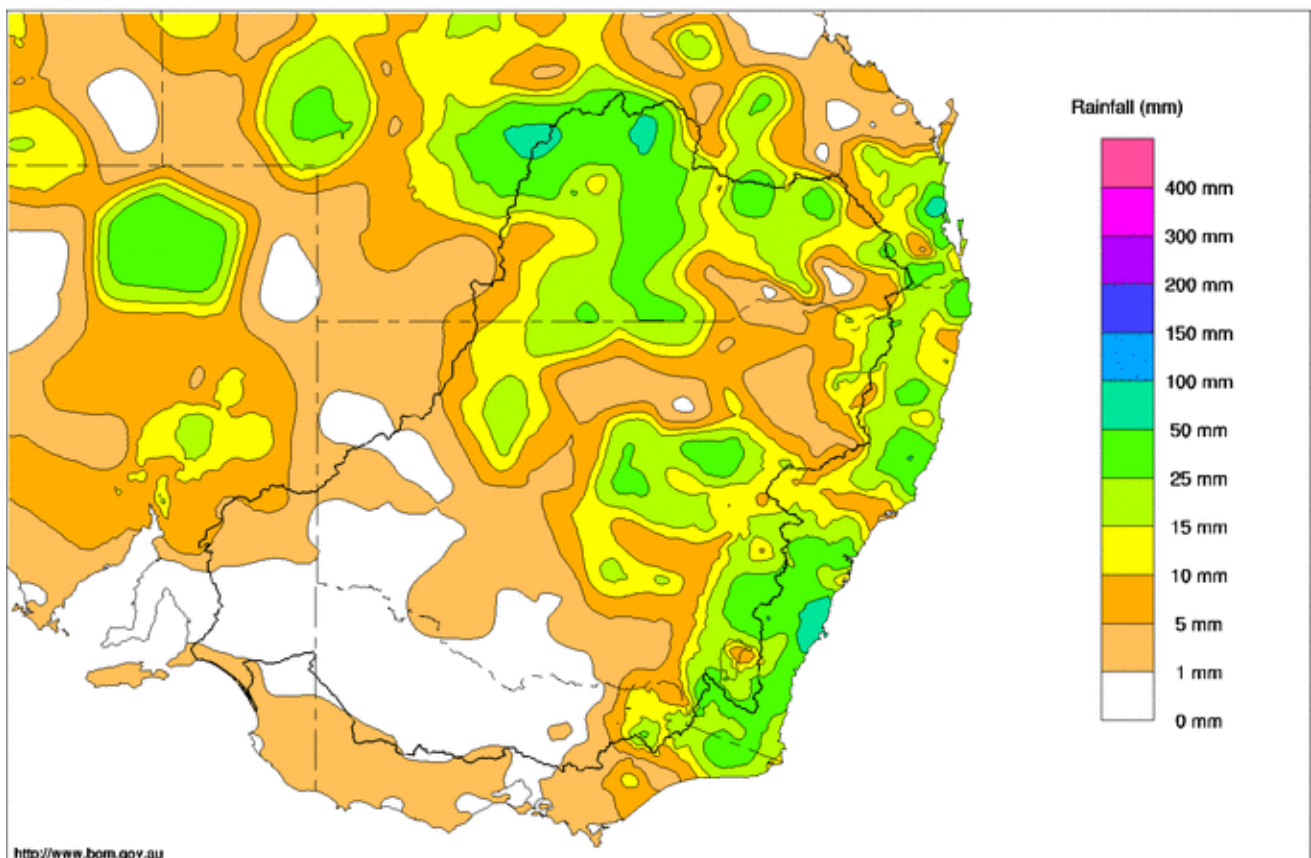
Rainfall and Inflows

Warm and unsettled weather developed this week, with showers and thunderstorms bringing patchy rainfall across eastern and northern parts of the Murray-Darling Basin (Map 1). High moisture levels and persistent low pressure are expected to result in similar conditions over the coming days.

Notable weekly rain totals included 56 mm at The Head and 46 mm at Augathella in Queensland; 37 mm at Gunning and 33 mm at Come by Chance in NSW; and in Victoria, there was 21 mm at Omeo in the upper catchment of the Mitta Mitta River.

There were small responses in the upper Murray system tributaries following the rain. On the Mitta Mitta River, the flow at Hinnomunjie Bridge increased from 300 to 550 ML/day. On the Ovens River, the flow peaked at 650 ML/day with an average flow around 500 ML/day for the week.

Murray-Darling Rainfall Totals (mm) Week Ending 3rd December 2014
Australian Bureau of Meteorology



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Issued: 03/12/2014

Map 1 - Murray-Darling Basin rainfall week ending 3 December 2014 (Source: Bureau of Meteorology).

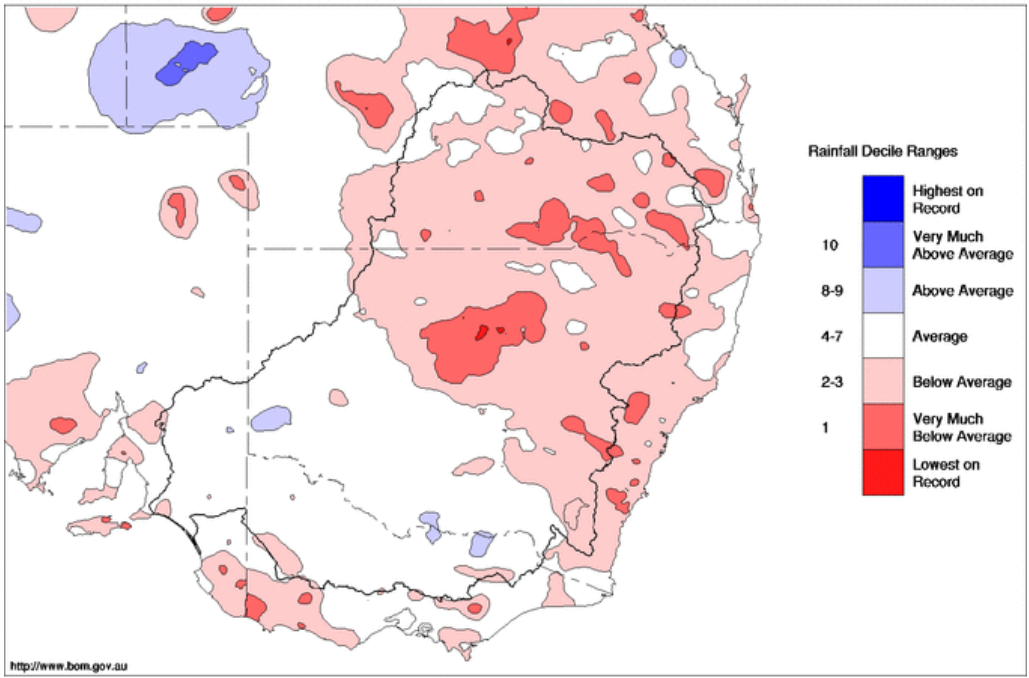
November and Spring 2014 Summary

The northern part of the Basin was drier in November than in the south which had average rainfall (see Map 2). Bureau of Meteorology (BoM) has reported that overall rainfall for the Basin was 51% below the long-term mean, with an area-averaged total of 19.5 mm - the 25th lowest November rainfall on record. BoM reports that spring area-average rainfall for the Murray-Darling Basin was also 51% below the mean which was equal 10th lowest on record.



Murray-Darling Rainfall Deciles November 2014

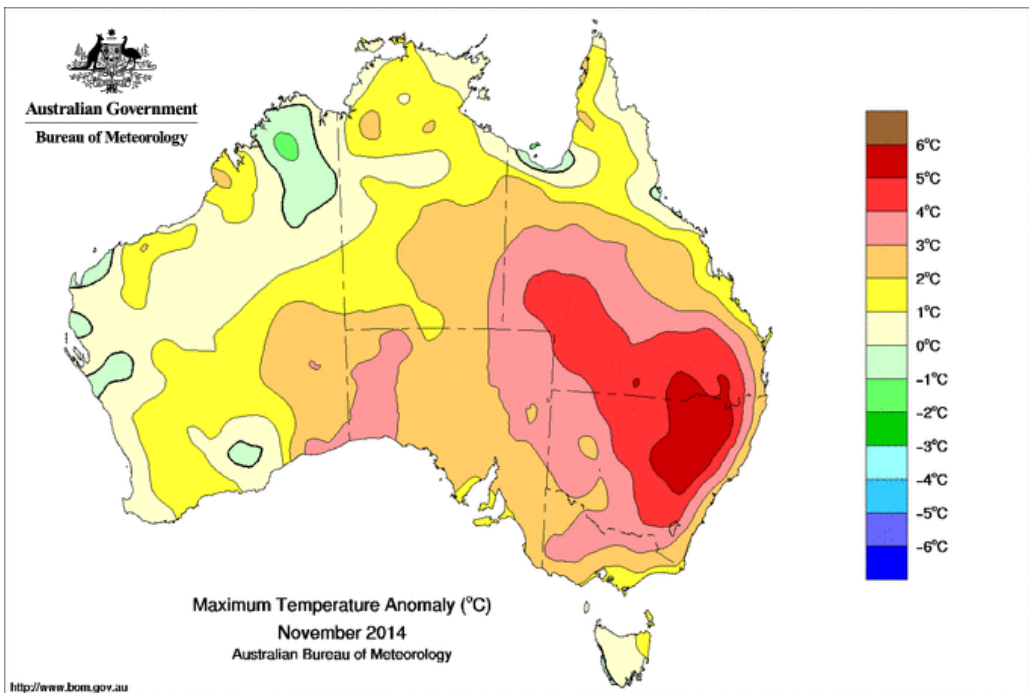
Distribution Based on Gridded Data
Australian Bureau of Meteorology



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

Maximum temperatures for November were above average across almost all of Australia, including the Murray Darling-Basin (see map 3). Spring 2014 was the warmest on record for Australia for the second year in a row. NSW and South Australia recorded their highest maximum temperature anomaly in spring (+3.20 and +2.74 degrees Celsius respectively) while Victoria recorded their 2nd highest (+2.63 degrees Celsius).



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Map 3 - Murray-Darling Basin maximum temperature anomaly for November 2014 (Source: Bureau of Meteorology).

High temperatures and below-average rainfall meant low inflows for November. Monthly inflows (excluding Snowy and Darling and environmental inflows) decreased from around 320 GL in October to



around 180 GL during November (see the graph on page 7) which is in the lowest 13% of records for the month of November.

Below is a table showing MDBA storage evaporation. Menindee Lakes recorded the highest evaporation volume for November at approximately 40 (GL) even though it currently holds the least volume of any MDBA storage. Menindee Lakes has high evaporation rates because of its semi - arid climate, large surface area and shallow depth.

Table 1: Monthly evaporation figures for MDBA storages

Storage	Approximate Evaporation in November 2014 (GL)	November average storage volume (GL)
Dartmouth	7	3470
Hume	25.5	2050
Menindee	40	250
Lake Victoria	22.5	570

Despite the dry and hot conditions of spring, the last few weeks have seen reasonable rainfall in the upper catchments (for example, over 100mm at Mongans Bridge in the Kiewa Valley). Improvements to inflows are possible with some stronger follow up rain.

River Operations

- Rainfall ‘rejection’ leads to above-channel capacity releases downstream of Yarrawonga
- Locks 8 and 9 commenced lowering to Full Supply Level

MDBA total storage decreased by 113 GL this week, with the active storage now 5,653 GL (66% capacity). At **Dartmouth** Reservoir, the storage volume has decreased by 43 GL to 3,375 GL (88% capacity). The release, measured at Colemans, remained steady this week and is expected to continue at around 7,000 ML/day, until the end of December, under dry conditions. These releases are bulk transfers to ensure Hume can meet downstream demands this water year.

At **Hume Reservoir**, the storage volume decreased by 39 GL to 1,930 GL (64% capacity). Releases were cut at the beginning of the week from 14,000 ML/day to 11,500 ML/day before being increased to 18,000 ML/day by the end of the week.

This week, a rainfall event on 24 and 25 November resulted in a minor ‘rain rejection’ event (a cancellation of irrigation orders) at **Yarrawonga** Weir. This increased the weir pool level which was expected to exceed full supply level (124.9m AHD) without intervention. At the time Yarrawonga releases were already at channel capacity to provide transfers to Lake Victoria and there was a second rain event forecast within days.

In response, Hume releases were reduced at maximum rates and Yarrawonga releases were increased above channel capacity to 12,000 ML/day for three days. Flows continued to be diverted through the Edward escape to keep the weir pool down and provide water to Lake Victoria.

There was ongoing communications between NSW, Victoria and the MDBA agencies regarding higher Yarrawonga releases to manage flows through the Barmah-Millewa forest. NSW and Victorian agencies cooperated to share the water in excess of channel capacity to limit the effect on the forest.

On the **Edward** River system, the combined inflow through the Edward and Gulpa off-takes was around 1,900 ML/day. Diversions into the Wakool Main Canal have slowly increased this week and have averaged around 600 ML/day. The flow downstream of Stevens Weir remains close to channel capacity at around 2,300 ML/day.

On the **Goulburn** River, the flow at McCoys Bridge receded to around 1000 ML/day and is forecast to hover around 940 ML/day until the end of December under dry conditions. The average monthly minimum flow for December is 350 ML/day at McCoys. The flow in addition to the 350 ML/day minimum is Inter-Valley Trade (IVT) water and environmental water.



At **Torrumbarry Weir**, diversions through the National Channel continued at 2,000 ML/day. The flow downstream in the Murray has fallen to 7,600 ML/day. Further downstream at Swan Hill, the flow peaked at around 11,800 ML/day on Saturday and is now falling.

On the lower **Murrumbidgee River**, flow at Balranald has averaged around 1,500 ML/day. Flows are expected to remain around 1,500 ML/day until the New Year with the addition of IVT water. On the River Murray at **Euston Weir**, the flow increased to around 12,900 ML/day today as a result of flows from the Goulburn more than a week ago. The flow is expected to remain around this height until about Friday before receding.

On the Darling River, total storage in **Menindee Lakes** decreased by 11 GL to the current volume of 227 GL (13% capacity). Releases at Weir 32 averaged around 140 ML/day and flows at Burtundy 100 ML/day.

On the **Murray**, lowering of the Lock 8 and 9 weir pools back to FSL (24.60m AHD and 27.4m AHD respectively) commenced this week and will be completed over the coming days.

At **Lake Victoria**, the storage volume decreased by 21 GL to 542 GL (80% capacity). The flow to South Australia is targeting 8,800 ML/day over the coming week and currently remains above the normal South Australian entitlement due to the delivery of additional traded environmental water.

At the **Lower Lakes**, the 5-day average level for Lake Alexandrina is 0.70 m AHD. Flow into the Coorong through the Barrages is currently around 2,000 ML/day.



Photo – Recently baled hay near Hindmarsh Island (Source Alisha Caldwell November 2014).

For media inquiries contact the Media Officer on 02 6279 0141

DAVID DREVERMAN
Executive Director, River Management



Water in Storage

Week ending Wednesday 03 Dec 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	478.36	3 375	88%	71	3 304	-43
Hume Reservoir	192.00	3 005	185.95	1 930	64%	23	1 907	-39
Lake Victoria	27.00	677	25.86	542	80%	100	442	-21
Menindee Lakes		1 731*		227	13%	(-) #	0	-11
Total		9 269		6 074	66%	- -	5 653	-113
Total Active Storage							67% ^	

Major State Storages

Burrinjuck Reservoir	1 026	741	72%	3	738	-7
Blowering Reservoir	1 631	679	42%	24	655	-62
Eildon Reservoir	3 334	2 662	80%	100	2 562	-19

* 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 02 Dec 2014

Storage	Active Storage (GL)	Weekly Change (GL)	Diversions (GL)	This Week	From 1 May 2014
Lake Eucumbene - Total	2 236	+8	Snowy-Murray	+0	202
Snowy-Murray Component	1 045	-1	Tooma-Tumut	+3	180
Target Storage	1 510		Net Diversion	-3	22
			Murray 1 Release	+5	423

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)	14.5	370	Yarrowonga Main Channel (net)	6.7	125
Wakool Sys Allowance	0.0	24	Torrumbarry System + Nyah (net)	12.1	325
Western Murray Irrigation	1.0	9	Sunraysia Pumped Districts	4.5	42
Licensed Pumps	5.4	110	Licensed pumps - GMW (Nyah+u/s)	2.5	22
Lower Darling	2.3	26	Licensed pumps - LMW	6	160
TOTAL	23.2	539	TOTAL	31.8	674

* 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 additional environmental water.

Entitlement this month	217.0 *
Flow this week	68.1
Flow so far this month	28.8
Flow last month	299.2

(9 700 ML/day)

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

	Current	Average over the last week	Average since 1 August 2014
Swan Hill	100	110	90
Euston	-	-	110
Red Cliffs	110	120	130
Merbein	110	120	130
Burtundy (Darling)	860	800	790
Lock 9	120	120	140
Lake Victoria	220	220	200
Berri	210	200	220
Waikerie	330	340	300
Morgan	320	330	280
Mannum	340	340	330
Murray Bridge	330	350	370
Milang (Lake Alex.)	740	730	740
Poltalloch (Lake Alex.)	570	540	570
Meningie (Lake Alb.)	2 460	2 360	2 300
Goolwa Barrages	980	980	1 140



River Levels and Flows

Week ending Wednesday 03 Dec 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	-	-	-	430	F	1 330	770
Jingellic	4.0	1.42	207.94	2 660	F	2 350	2 550
Tallandoon (Mitta Mitta River)	4.2	2.99	219.88	7 130	F	7 190	7 230
Heywoods	5.5	3.25	156.88	17 900	R	13 950	14 640
Doctors Point	5.5	3.27	151.74	17 950	R	14 090	15 190
Albury	4.3	2.31	149.75	-	-	-	-
Corowa	3.8	3.21	129.23	15 420	R	13 790	14 640
Yarrowonga Weir (d/s)	6.4	1.59	116.63	9 520	F	10 840	10 210
Tocumwal	6.4	2.26	106.10	9 480	F	10 360	9 780
Torrumbarry Weir (d/s)	7.3	2.39	80.94	7 000	F	9 530	10 370
Swan Hill	4.5	1.76	64.68	9 600	F	10 970	8 380
Wakool Junction	8.8	4.18	53.30	13 260	F	12 820	10 100
Euston Weir (d/s)	8.8	2.35	44.19	12 890	R	11 730	9 350
Mildura Weir (d/s)	-	-	-	11 690	F	11 690	-
Wentworth Weir (d/s)	7.3	3.30	28.06	12 030	R	9 890	9 430
Rufus Junction	-	3.93	20.86	9 330	R	9 000	9 300
Blanchetown (Lock 1 d/s)	-	0.75	-	6 410	F	7 710	8 960
Tributaries							
Kiewa at Bandiana	2.7	0.96	154.19	470	R	460	750
Ovens at Wangaratta	11.9	8.01	145.69	650	R	650	760
Goulburn at McCoys Bridge	9.0	1.54	92.96	1 040	F	1 950	5 310
Edward at Stevens Weir (d/s)	-	2.24	82.01	2 360	F	2 610	2 650
Edward at Liewah	-	2.98	58.36	2 550	S	2 530	2 370
Wakool at Stoney Crossing	-	1.57	55.06	760	S	750	770
Murrumbidgee at Balranald	5.0	1.78	57.74	1 330	F	1 530	1 500
Barwon at Mungindi	-	2.53	-	0	F	0	0
Darling at Bourke	-	3.94	-	10	F	20	30
Darling at Burtundy Rocks	-	0.68	-	70	S	80	70

Natural Inflow to Hume	650	3 570
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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	-0.23	-	No. 7 Rufus River	22.10	+0.08	+1.62
No. 26 Torrumbarry	86.05	+0.00	-	No. 6 Murtho	19.25	+0.01	+0.20
No. 15 Euston	47.60	+0.21	-	No. 5 Renmark	16.30	+0.07	+0.36
No. 11 Mildura	34.40	+0.00	+0.37	No. 4 Bookpurnong	13.20	+0.00	+0.93
No. 10 Wentworth	30.80	+0.05	+0.66	No. 3 Overland Corner	9.80	+0.02	+0.33
No. 9 Kulnine	27.40	+0.19	+0.44	No. 2 Waikerie	6.10	+0.14	+0.25
No. 8 Wangumma	24.60	+0.31	+0.39	No. 1 Blanchetown	3.20	-0.00	-0.00

Lower Lakes FSL = 0.75 m AHD

Lake Alexandrina average level for the past 5 days (m AHD)	0.70
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Barrages

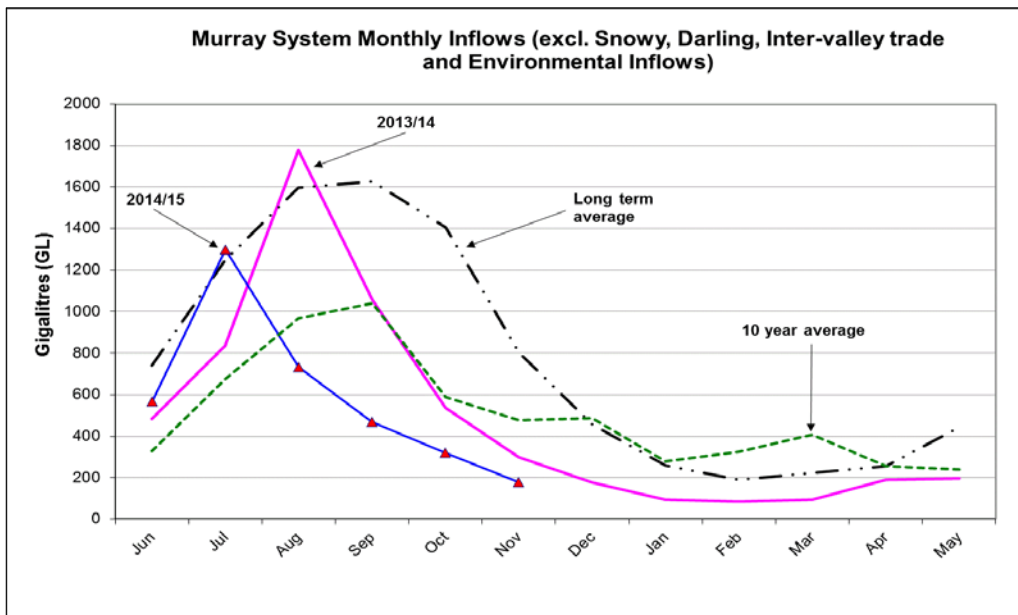
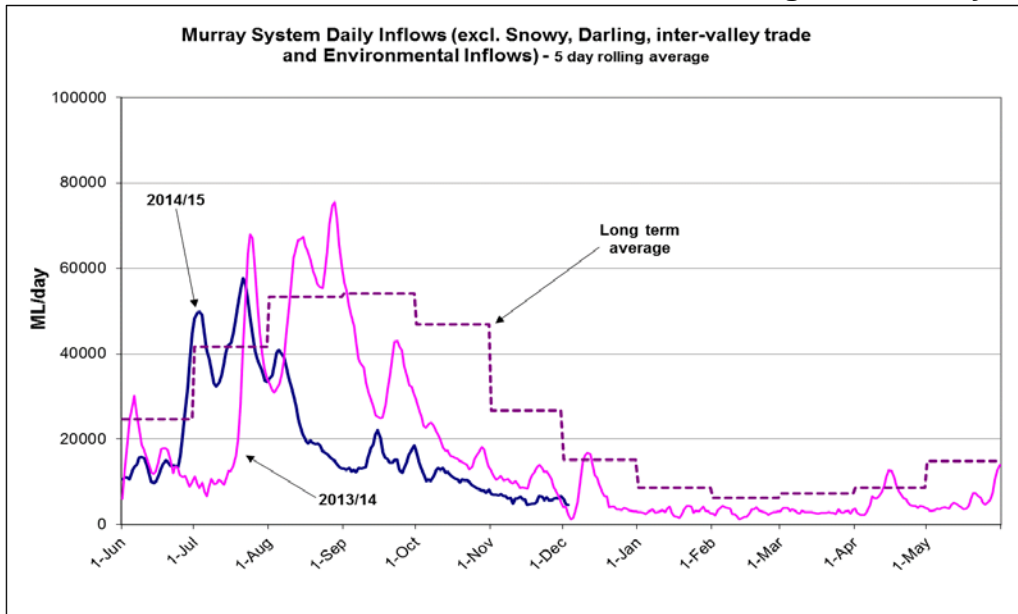
Fishways at Barrages

	Openings	Level (m AHD)	No. Open	Rock Ramp	Vertical Slot
Goolwa	128 openings	0.75	3	-	Open
Mundoo	26 openings	0.71	All closed	-	-
Boundary Creek	6 openings	-	0.1	-	-
Ewe Island	111 gates	-	All closed	-	-
Tauwichee	322 gates	0.77	5	Open	Open

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



Week ending Wednesday 03 Dec 2014



State Allocations (as at 03 Dec 2014)

NSW - Murray Valley

High security	97%
General security	45%

Victorian - Murray Valley

High reliability	100%
Low reliability	0%

NSW - Murrumbidgee Valley

High security	95%
General security	40%

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.nvrn.net.au/allocations/current.aspx>
 SA : <http://www.environment.sa.gov.au/managing-natural-resources/river-murray>