RIVER MURRAY WEEKLY REPORT

FOR THE WEEK ENDING WEDNESDAY, 28TH OCTOBER 2015

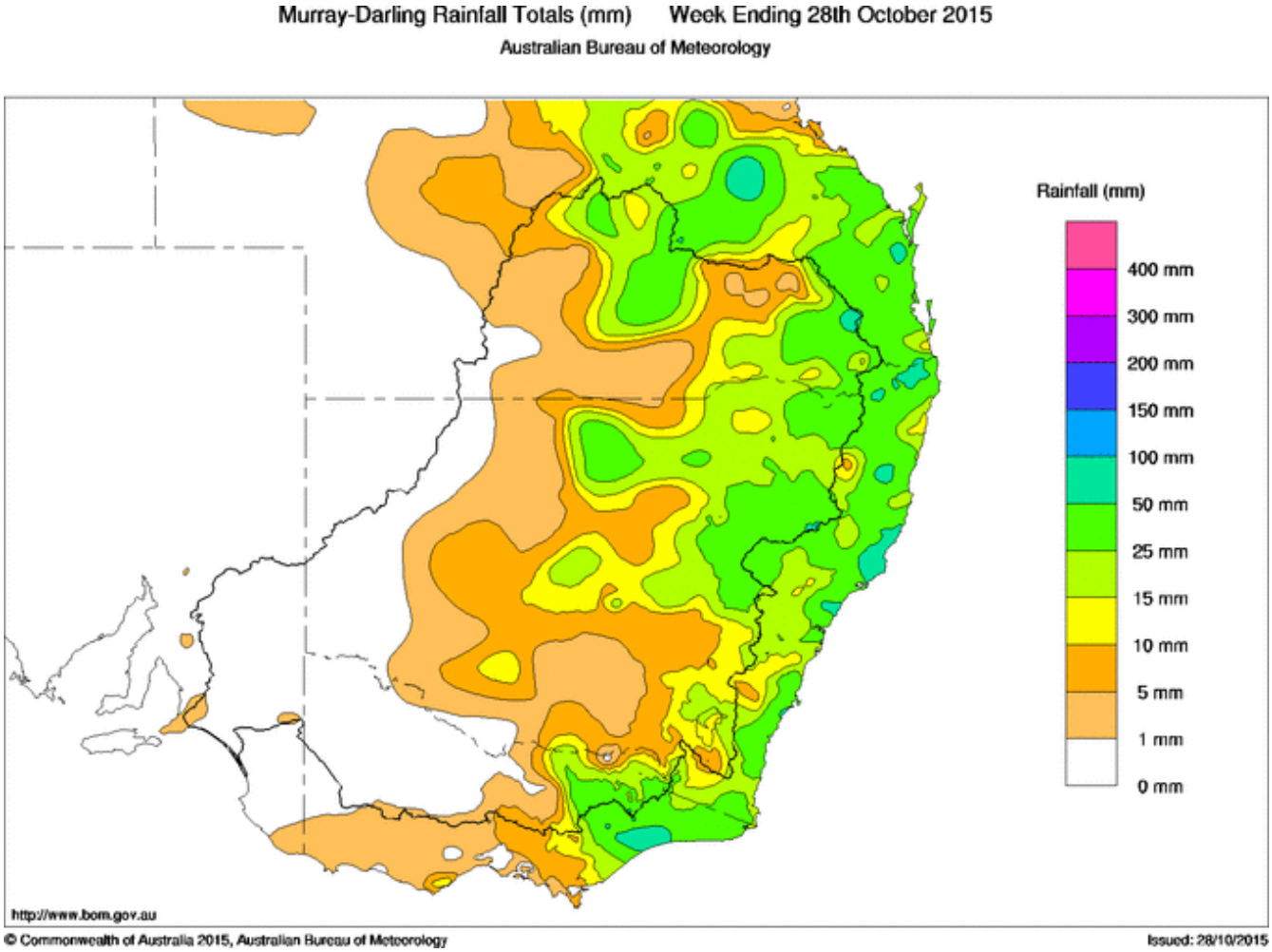
Trim Ref: D15/82350

Rainfall and inflows

Rainfall was widespread across much of the Murray–Darling basin this week. The highest totals were mainly recorded in the east along the slopes and ranges, whilst rainfall in the west was mostly light (Map 1).

In Queensland, highest totals included 70 mm at Oakey and 55 mm at Toowoomba airport in the Darling Downs, 46 mm at Injune in the Maranoa catchment and 45 mm at Lochinvar in the Warrego catchment. In New South Wales, highest totals included 64 mm at Warialda, 61 mm at Glen Innes airport AWS, 49 mm at Nundle, 48 mm at Wallangra and 47 mm at Hill End in the north and central slopes and ranges, and 34 mm at Brewarrina in the upper west. In Victoria, highest totals were recorded in the northeast and included 50 mm at Harris Lane and 49 mm at Mount Buffalo.

At this stage, the Bureau of Meteorology (BoM) is indicating the potential for some further wet weather across the Basin during the coming week. BoM has also issued its climate outlook for November 2015 –January 2016.



Map 1- Murray-Darling Basin rainfall week ending 28th October 2015 (Source: Bureau of Meteorology)

Due to the dry state of the catchments, the rain over the upper Murray produced only small stream flow rises. On the Mitta Mitta River the flow at Hinnomunjie bridge briefly peaked at 1,080 ML/day before receding to 510 ML/day. On the upper Murray, the flow at Biggara peaked at 1,140 ML/day and is

currently flowing at 560 ML/day. On the Ovens River, the flow at Wangaratta peaked at 1,330 ML/day and is now receding (currently 790 ML/day).

River operations

- BoM forecasting wet weather across the basin in the coming week;
- Pumping to Hattah Lakes ceases;
- Locks 2, 5, 8 and 15 weir pool levels to be lowered in coming weeks.

MDBA total storage decreased by 61 GL this week, with the active storage now 4,066 GL (48% capacity).

At **Dartmouth** reservoir, the storage volume decreased by 44 GL to 2,379 GL (62% capacity). The release, measured at Colemans, is currently 6,700 ML/day.

Hume storage decreased by 7 GL and is now 1,345 GL (45% capacity). Releases from Hume averaged 13,000 ML/day, and varied by only a small amount during the week in accordance with downstream demand requirements.

Over the weekend a 'Horsepower on the Hume' power boat race was held on Hume reservoir (photo 1). The race was run from the Hume Boat Club at Bellbridge in Victoria and included 18 boats, some of which travelled from as far-a-field as Taree and Tocumwal.

Photo 1 – *Yarrawonga 2000* (Tim Oliver - Yarrawonga) and *Tijuana* (Jaysen Cook - Sydney) competing in a 'Horsepower on the Hume' power boat race held on Hume Reservoir over the weekend (photo courtesy of Quinno's Quick Snaps).

At **Lake Mulwala**, the pool level is 124.75 m AHD. Diversions to Mulwala Canal and the Yarrawonga Main Channel remained relatively steady throughout the week and averaged about 2,000 ML/day and 1,250 ML/day respectively. The flow downstream of Yarrawonga was slowly reduced over the week from a peak of 14,000 ML/day to 12,000 ML/day. Unless there is a return to significant wet weather, the flow is expected to continue to recede slowly towards channel capacity over the coming week.

During October as water temperatures have been steadily warming, the release downstream of Yarrawonga weir has been varied to include two small rises as cues to encourage native fish to breed. Monitoring undertaken by Victoria's Department of Environment, Land, Water and Planning has detected both golden perch and silver perch spawning during this period of variable flow.

Also during October, increased numbers of native fish have been observed moving upstream using the fish lock at Yarrawonga weir. Over the month, 165 golden perch, 17 silver perch and 50 Murray cod have travelled upstream, including 11 cod which were over one metre in length (photo 2). The fish lock, adjoining the weir, is approximately 10 metres long by 3.5 metres wide and 9 metres high. When fish swim into the lock, the entrance is closed and the lock chamber is filled to the upstream pool level. The floor of the lock is then slowly raised so that the fish are able to exit to the upstream weir pool.

Photo 2 – Murray cod, including some over a metre long, have been observed moving upstream using the fish lock at Yarrawonga weir (photo courtesy of Luke Cruikshank)

In the **Edward-Wakool** system, flows through the Edward and Gulpa offtakes remained steady at 1,550 ML/day and 850 ML/day respectively. Over the coming weeks, the flow at Gulpa off-take will be gradually reduced to around 500 ML/day where it is expected to remain for the remainder of the year in order to maintain water levels in adjacent wetlands to support waterbird breeding. The flow at Toonalook continued to slowly increase and is currently 3,300 ML/day. At Stevens Weir, releases are currently targeting the downstream channel capacity rate (2,700 ML/day). Additional water from Mulwala Canal (released via the Edward Escape) is being used, as necessary, to help transfer water to Lake Victoria to meet system demands in coming months.

On the **Goulburn** river, the flow at McCoys bridge continues to recede steadily and is currently 1,260 ML/day. On the **Campaspe** river, a small pulse of environmental water is expected to reach a peak of around 1,000 ML/day for two days at Rochester during the coming week.

At **Torrumbarry** Weir, diversions to National Channel eased to around 2,000 ML/day. The release from Torrumbarry Weir reduced to 8,800 ML/day.

Further downstream, inflow to the Murray from the **Murrumbidgee** river at Balranald was steady at 1,600 ML/day and is expected to remain around this rate during the coming week. This flow rate is above the October end of system target of 1,030 ML/day due to the delivery of inter valley trade (IVT) water. At **Euston**, the pool level is 62 cm above the full supply level (FSL) of 47.6 m AHD. The pool level is expected to be gradually reduced to 40 cm above FSL starting in early November. The downstream release peaked at around 14,300 ML/day and will fall away in the coming week.

At the **Hattah Lakes**, pumping of environmental water ceased during the week. A small volume of environmental water was used to top up the water levels in the lakes to help improve the health and resilience of this ecosystem in order to provide a valuable refuge should conditions remain dry over the coming year.

At **Menindee Lakes**, the storage volume decreased by 5 GL to 88 GL (5% capacity). The release, measured at Weir 32, averaged around 240 ML/day. Downstream on the lower Darling river at Burtundy, there remains no measurable flow. For the latest information on the management of the Menindee lakes and flows in the lower Darling river, see the NSW Department of Primary Industries' community information communique issue 19.

At **Wentworth** weir on the Murray, the pool level is being held around 10 cm above FSL to assist pumpers on the Darling river within the influence of the Wentworth weir pool. The release increased to 10,400 ML/day and is expected to remain above 10,000 ML/day for the next two weeks.

At **Lock 8**, the pool level reduced to 58 cm above FSL. The pool level is expected to gradually fall during the coming weeks to around 50 cm below FSL by mid-November.

At **Lake Victoria**, the storage volume decreased 5 GL to 536 GL (79% capacity). The flow to South Australia averaged 10,900 ML/day and includes a component of additional environmental water delivered from releases upstream. The flow is expected to reduce to 9,800 ML/day during the coming week.

At **Lock 5** (Renmark) and **Lock 2** (Waikerie) the weir pools have been maintained at around 16.75 m AHD (45 cm above FSL) and 6.60 m AHD (50 cm above FSL) respectively. These water levels will be maintained until early November 2015, before being lowered in small daily increments to the top of their normal operating ranges. For more information see South Australia's latest River Murray flow report.

At the **Lower Lakes**, the five-day average water level in Lake Alexandrina was steady at 0.82 m AHD. Higher lake levels over winter and spring have provided further dilution and resulted in the average weekly salinity at Lake Albert falling below 2,000 EC for the first time since 2005 (Figure 1). Favourable tide and swell conditions enabled a barrage release (estimated at between 1,000 and 2,000 ML/day) to continue throughout the week.

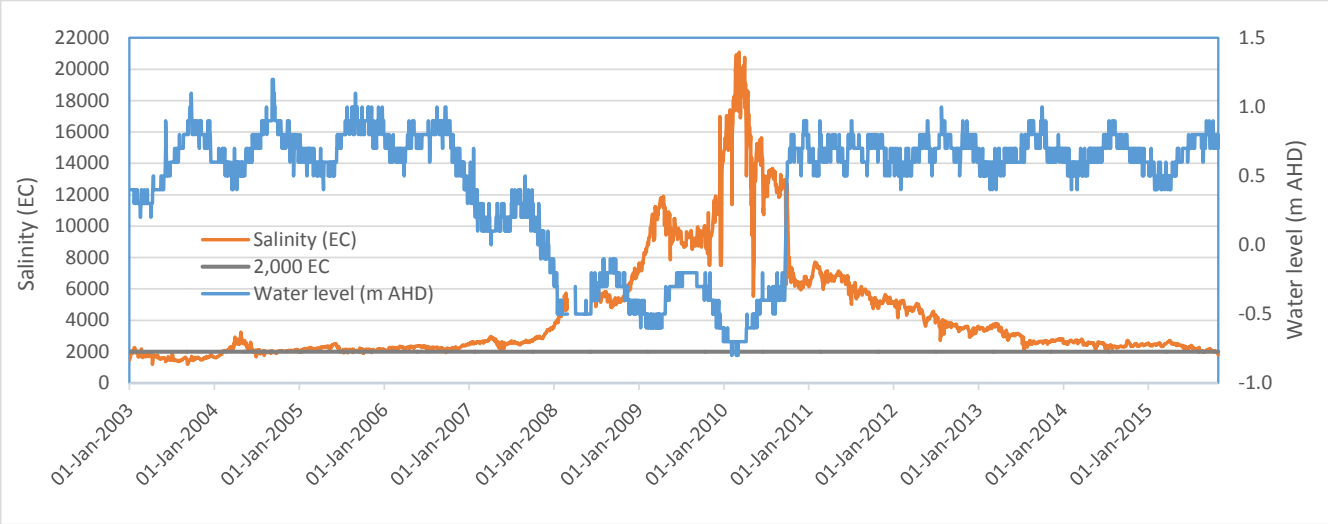


Figure 1 –Water levels and salinity measured at Lake Albert.

For media inquiries contact the Media Officer on 02 6279 0141

DAVID DREVERMAN
Executive Director, River Management

Water in Storage

Week ending Wednesday 28 Oct 2015

MDBA Storages	Full Supply Level (m AHD)	Full Supply Volume (GL)	Current Storage Level (m AHD)	Current Storage (GL)	Current Storage %	Dead Storage (GL)	Active Storage (GL)	Change in Total Storage for the Week (GL)
Dartmouth Reservoir	486.00	3 856	460.12	2 379	62%	71	2 308	-44
Hume Reservoir	192.00	3 005	181.76	1 345	45%	23	1 322	-7
Lake Victoria	27.00	677	25.80	536	79%	100	436	-5
Menindee Lakes		1 731*		88	5%	(- -) #	0	-5
Total		**9 269**		**4 348**	**47%**	**- -**	**4 066**	**-61**
Total Active MDBA Storage							48% ^	

Major State Storages

Burrinjuck Reservoir	1 026		724	71%	3	721	+1
Blowering Reservoir	1 631		700	43%	24	676	-30
Eildon Reservoir	3 334		1 799	54%	100	1 699	-31

* 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 27 Oct 2015

Storage	Active Storage (GL)	Weekly Change (GL)	Diversion (GL)	This Week	From 1 May 2015
Lake Eucumbene - Total	2 329	-1	Snowy-Murray	+12	244
Snowy-Murray Component	1 123	-1	Tooma-Tumut	+2	124
Target Storage	1 400		Net Diversion	10	120
			Murray 1 Release	+16	397

Major Diversions from Murray and Lower Darling (GL) *

New South Wales	This Week	From 1 July 2015	Victoria	This Week	From 1 July 2015
Murray Irrig. Ltd (Net)	11.3	175	Yarrawonga Main Channel (net)	7.7	88
Wakool Sys Allowance	0.0	21	Torrumbarry System + Nyah (net)	13.2	172
Western Murray Irrigation	0.5	-1	Sunraysia Pumped Districts	2.7	21
Licensed Pumps	4.3	47	Licensed pumps - GMW (Nyah+u/s)	1.8	10
Lower Darling	0.3	3	Licensed pumps - LMW	6.2	54
TOTAL	**16.4**	**245**	**TOTAL**	**31.6**	**345**

* 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	170.5 *
Flow this week	76.6
Flow so far this month	298.4
Flow last month	263.0

(10 900 ML/day)

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

	Current	Average over the last week	Average since 1 August 2015
Swan Hill	60	60	80
Euston	80	90	120
Red Cliffs	130	120	140
Merbein	110	120	140
Burtundy (Darling)	960	1 040	930
Lock 9	140	160	150
Lake Victoria	250	250	220
Berri	230	230	230
Waikerie	220	220	280
Morgan	220	220	280
Mannum	270	280	330
Murray Bridge	320	340	350
Milang (Lake Alex.)	760	780	750
Poltalloch (Lake Alex.)	570	540	570
Meningie (Lake Alb.)	1 800	1 910	2 060
Goolwa Barrages	1 190	1 130	1 010

River Levels and Flows

Week ending Wednesday 28 Oct 2015

River Murray	Minor Flood Stage (m)	Gauge Height local (m)	Gauge Height (m AHD)	Flow (ML/day)	Trend	Average Flow this Week (ML/day)	Average Flow last Week (ML/day)
Khancoban	-	-	-	1 410	F	2 890	3 220
Jingellic	4.0	1.47	207.99	2 620	F	4 080	4 670
Tallandoon (Mitta Mitta River)	4.2	2.93	219.82	6 760	F	7 770	7 940
Heywoods	5.5	3.03	156.66	13 740	R	12 960	15 980
Doctors Point	5.5	2.93	151.40	14 100	R	13 650	16 680
Albury	4.3	1.97	149.41	-	-	-	-
Corowa	4.6	2.85	128.87	13 180	S	14 550	16 510
Yarrawonga Weir (d/s)	6.4	1.88	116.92	12 030	F	12 810	13 100
Tocumwal	6.4	2.55	106.39	12 470	F	13 410	13 330
Torrumbarry Weir (d/s)	7.3	2.81	81.36	8 800	F	10 140	12 800
Swan Hill	4.5	1.79	64.71	10 030	F	11 180	11 280
Wakool Junction	8.8	4.17	53.29	13 480	F	13 880	12 380
Euston Weir (d/s)	9.1	2.49	44.33	14 280	S	14 000	11 920
Mildura Weir (d/s)		-	-	13 170	F	12 200	8 500
Wentworth Weir (d/s)	7.3	3.21	27.97	10 420	R	9 840	5 780
Rufus Junction	-	4.21	21.14	11 300	R	10 630	9 430
Blanchetown (Lock 1 d/s)	-	0.93	-	8 660	S	8 220	7 900
Tributaries							
Kiewa at Bandiana	2.8	1.12	154.35	700	S	980	950
Ovens at Wangaratta	11.9	8.08	145.76	790	F	1 000	720
Goulburn at McCoys Bridge	9.0	1.68	93.10	1 260	F	2 070	5 480
Edward at Stevens Weir (d/s)	5.5	2.43	82.20	2 690	F	2 670	2 720
Edward at Liewah	-	2.97	58.35	2 530	R	2 390	1 910
Wakool at Stoney Crossing	-	1.61	55.10	900	S	860	820
Murrumbidgee at Balranald	5.0	1.98	57.94	1 600	S	1 590	1 510
Barwon at Mungindi	6.1	3.15	-	30	S	30	60
Darling at Bourke	9.0	4.03	-	130	R	130	230
Darling at Burtundy Rocks	-	0.62	-	0	F	0	0

Natural Inflow to Hume	3 720	4 800

(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
Yarrawonga	124.90	-0.15	-	No. 7 Rufus River	22.10	+0.41	+1.87
No. 26 Torrumbarry	86.05	+0.00	-	No. 6 Murtho	19.25	+0.02	+0.63
No. 15 Euston	47.60	+0.62	-	No. 5 Renmark	16.30	+0.44	+0.41
No. 11 Mildura	34.40	+0.05	+0.50	No. 4 Bookpurnong	13.20	+0.02	+1.16
No. 10 Wentworth	30.80	+0.10	+0.57	No. 3 Overland Corner	9.80	-0.00	+0.72
No. 9 Kulnine	27.40	-0.14	+0.69	No. 2 Waikerie	6.10	+0.48	+0.27
No. 8 Wangumma	24.60	+0.58	+0.77	No. 1 Blanchetown	3.20	-0.09	+0.18

Lower Lakes FSL = 0.75 m AHD

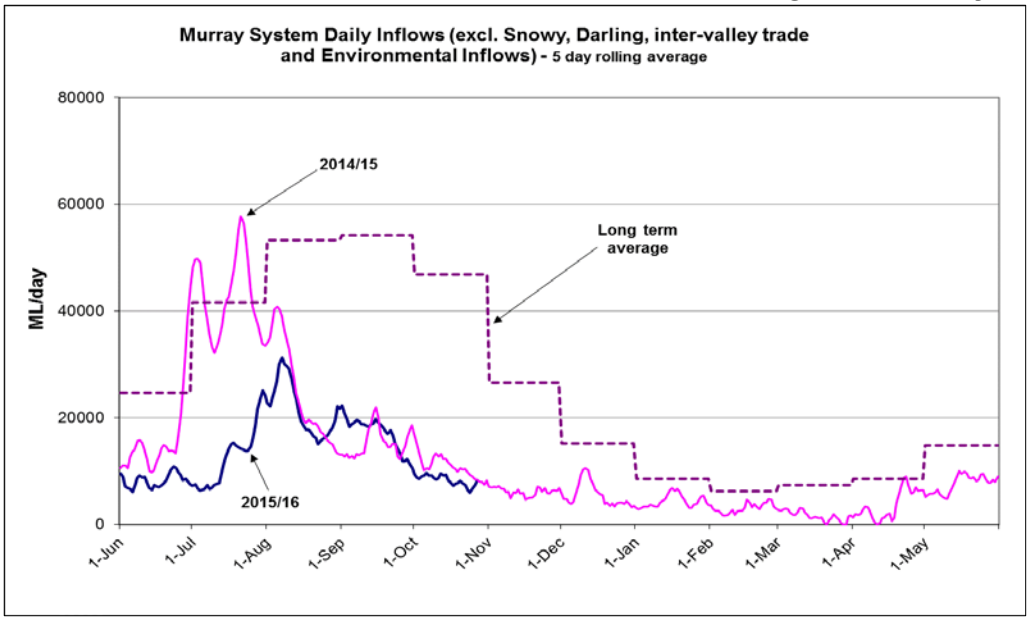
Lake Alexandrina average level for the past 5 days (m AHD)	0.82

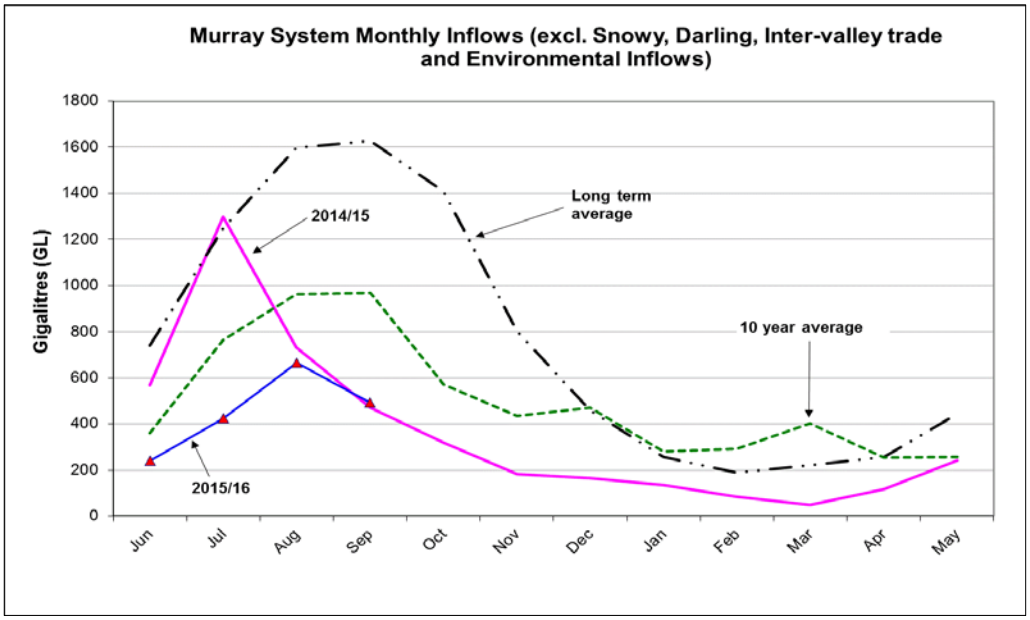
Barrages

	Openings	Level (m AHD)	Fishways at Barrages: No. Open	Rock Ramp	Vertical Slot
Goolwa	128 openings	0.79	1	-	Open
Mundoo	26 openings	0.85	All closed	-	-
Boundary Creek	6 openings	-	0.1	-	-
Ewe Island	111 gates	-	All closed	-	-
Tauwitchere	322 gates	0.82	4	Open	Open

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

Week ending Wednesday 28 Oct 2015





State Allocations (as at 28 Oct 2015)

NSW - Murray Valley

High security	97%
General security	12%

Victorian - Murray Valley

High reliability	82%
Low reliability	0%

NSW – Murrumbidgee Valley

High security	95%
General security	29%

Victorian - Goulburn Valley

High reliability	72%
Low reliability	0%

NSW - Lower Darling

High security	20%
General security	0%

South Australia – Murray Valley

High security	100%

NSW : http://www.water.nsw.gov.au/Water-management/Water-availability/Water-allocations/Water-allocations-summary/water-allocations-summary/default.aspx
VIC : http://www.nvrm.net.au/allocations/current.aspx
SA : http://www.environment.sa.gov.au/managing-natural-resources/river-murray