

# RIVER MURRAY FLOW REPORT and WATER RESOURCES UPDATE

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Report #51/2014

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**This supersedes the previous flow report issued by the Department of Environment, Water and Natural Resources (DEWNR) on 12 December 2014. There will be no flow report issued between Christmas and New Year. The next flow report will be provided on Friday, 9 January 2015.**

In this report, for ease of representation, large volumes of water are expressed in gigalitres (GL), while smaller volumes are expressed in megalitres (ML). One GL is equal to 1 000 ML.

## WATER RESOURCES UPDATE

During November 2014, the total River Murray System inflow was approximately 210 GL, which is around a quarter of the November long-term average of 800 GL. Inflow to Menindee Lakes (from the Darling System) during November 2014 was 0 GL, which is well below the November long-term average of 170 GL.

The flow to South Australia during November 2014 was approximately 300 GL (compared to 375 GL in November 2013 and the November long-term average of 900 GL). The flow comprised:

- 180 GL of November Entitlement Flow; and
- approximately 120 GL of environmental water from *The Living Murray* program and Commonwealth Environmental Water Holder.

## STORAGE VOLUMES

**Murray-Darling Basin storage volumes at 17 December 2014 and 17 December 2013**

Storage	Full Supply Volume (GL)	17/12/2014 (GL)	17/12/2013 (GL)	Long-term average (end of December)
Dartmouth	3 856	3 306 (86%)	3 731 (97%)	
Hume	3 003	1 862 (62%)	2 309 (77%)	
Lake Victoria	677	551 (81%)	591 (87%)	
Menindee Lakes	1 731*	206** (12%)	814 (47%)	
<b>TOTAL</b>	<b>9 267</b>	<b>5 925 (64%)</b>	<b>7 445 (80%)</b>	<b>6 871 (74%)</b>

\*Menindee Lakes can be surcharged to 2 015 GL

\*\*Menindee Lakes are now under New South Wales control

## MENINDEE LAKES

Under the Murray-Darling Basin Agreement, the Murray-Darling Basin Authority controls the Menindee Lakes until the stored water volume decreases to 480 GL. The New South Wales Government assumes control of the storage at 480 GL and maintains control until the volume in storage exceeds 640 GL. On 18 February 2014, the volume in the Menindee Lakes decreased to below 480 GL and control switched to the New South Wales Government.

Given Menindee Lakes remain under New South Wales control, there is less flexibility in the way water can be delivered to South Australia in 2015, unless the storage position improves significantly.



## RAINFALL AND TEMPERATURE OUTLOOK

The latest Bureau of Meteorology weather outlook for December 2014 to February 2015 indicates a drier than normal season is more likely for eastern, northern and central Australia with temperatures likely to be warmer than normal.

The climate influences include El Niño-like conditions in the tropical Pacific Ocean and average to cooler waters surrounding northern Australia.

For the latest forecast on the likelihood of El Niño establishing in 2015, please refer to the following website:

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

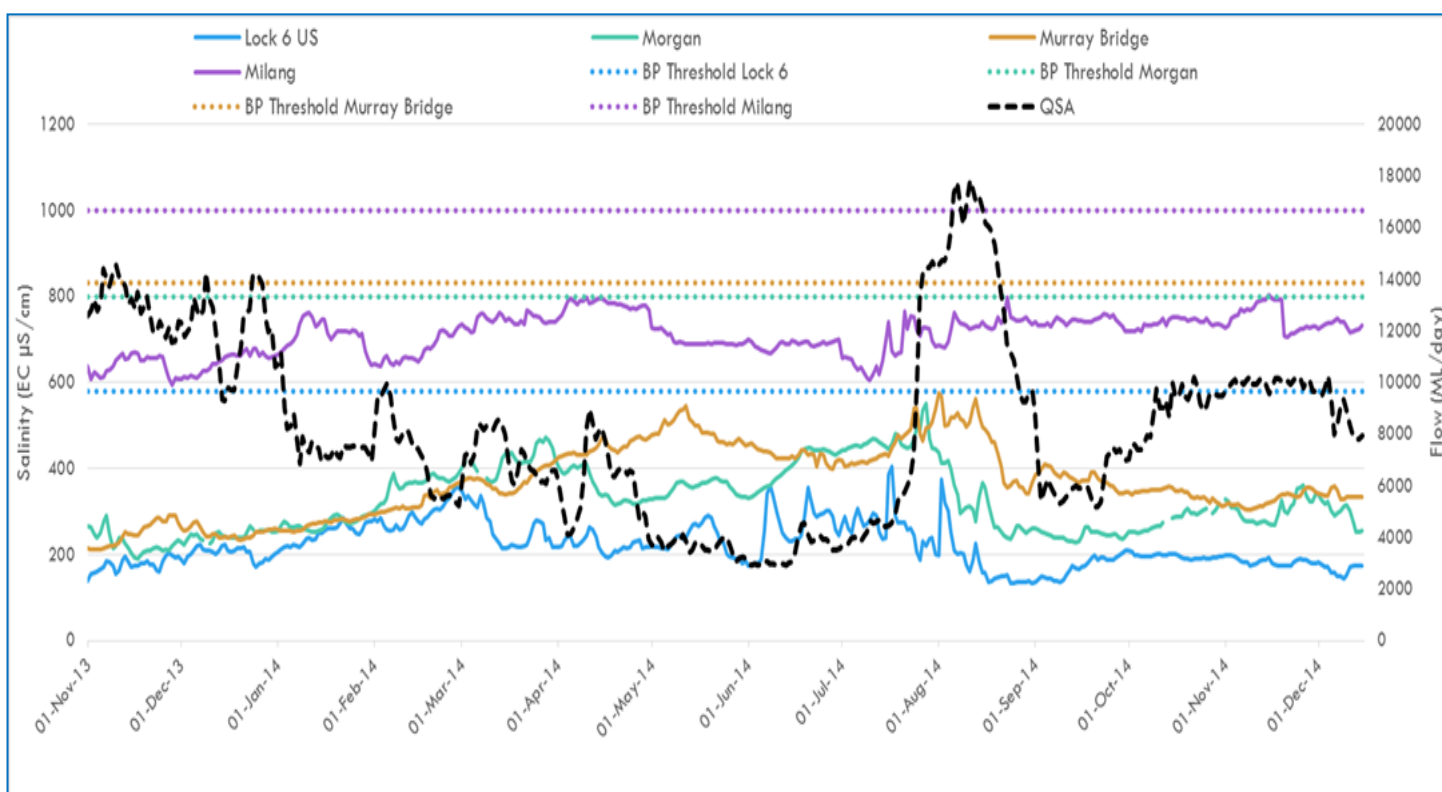
## WATER QUALITY - Salinity

A number of targets are identified under the Basin Plan, which all Basin States must have regard to in managing River Murray flows. The targets for real-time salinity are identified below. Salinity must not exceed these values for 95 per cent of the time:

- 580 EC at Lock 6
- 800 EC at Morgan
- 830 EC at Murray Bridge
- 1 000 EC at Milang

The following graph shows the salinity at these locations and the flow to South Australia from November 2013 to December 2014. The dashed-lines identify the Basin Plan thresholds for the corresponding colour coded location. It confirms that salinity has not exceeded the threshold at any of these four locations during this period.

SA River Murray Daily Average Salinity



## FLOW OUTLOOK

The flow at the South Australian border is approximately 8.0 GL/day and will decrease to around 7.5 GL/day during the coming week, depending on upstream river and storage operations, extractions, and rainfall events. The flow comprises the normal December Entitlement Flow of 7 GL/day plus environmental water from the Murray-Darling Basin Authority's *The Living Murray* and Commonwealth Environmental Water Holder. The environmental water is being delivered to provide in-channel, Lower Lakes and Coorong environmental benefits and assist in maintaining an open Murray Mouth. South Australia is working with the Commonwealth Environmental Water Holder to seek further opportunities to deliver environmental water during summer.

The flow over Lock 1 is approximately 5.0 GL/day and will reduce to around 4.8 GL/day during the coming week, depending on weather conditions and extractions.

It is important to note that flow forecasts in this advice are based on the information available at the time of preparation. They may change as new gauging information becomes available, or due to rainfall events or changed operations upstream. Flow forecasts are dependent on predictions made by the Bureau of Meteorology, Murray-Darling Basin Authority and water management agencies in upstream jurisdictions. They will be revised as new information becomes available.

## MANAGEMENT OF SOUTH AUSTRALIA'S DEFERRED WATER

The Murray-Darling Basin Authority advised that on 1 December 2014, South Australia had 42.8 GL of water deferred and stored in Dartmouth (29.5 GL for critical human water needs and 13.3 GL for private carryover use in future dry years). Volumes stored are adjusted for net evaporation losses until delivered to South Australia.

DEWNR is investigating opportunities to defer additional Entitlement Flow during 2014-15 given the latest dry climate outlook provided by the Bureau of Meteorology.

## MURRAY MOUTH

Recent monitoring of Murray Mouth sand volume and bathymetry (a measurement of depth) confirms that the condition of the Mouth is approaching that experienced in 2002 when dredging was commenced.

On 5 December 2014, the Minister for Water and the River Murray, Ian Hunter, and Commonwealth Parliamentary Secretary, Senator Simon Birmingham, advised that a decision has been made to commence dredging the Murray Mouth in the near future to remove sand build-up. Exclusion Zones will be established around the dredging operations to ensure public safety. For more information refer to the Notice to Mariners at [http://webapps.transportsa.com.au/news/templates/dtei\\_template2010.aspx?articleid=2865&zoneid=15](http://webapps.transportsa.com.au/news/templates/dtei_template2010.aspx?articleid=2865&zoneid=15). There will also be signage and flyers advising of Exclusion Zones at appropriate locations.

Any boats navigating through the Murray Mouth region should proceed with caution due to sandbars being present at shallow depth. Boats equipped with 'echo sounders' are strongly encouraged to regularly check depths.

## BARRAGE OPERATIONS AND WATER LEVELS IN THE LOWER LAKES

The water level in Lake Alexandrina and Lake Albert is approximately 0.66 m AHD. When conditions are favourable, barrage releases will be prioritised through Tauwichee and Goolwa (approximately 70:30 ratio), adjacent to the fishways, targeting a volume of approximately 2 GL/day. SA Water will continue to operate the barrages to minimise any negative salinity impacts from reverse flow events. All fishways are operating.

To see live salinity data at various locations on the River Murray and in the Lower Lakes, please refer to the following website: <http://www.waterconnect.sa.gov.au/Systems/RTWD/SitePages/Home.aspx>

Water levels and barrage operations are monitored closely by various agencies of the South Australian Government, Murray-Darling Basin Authority and Commonwealth Environmental Water Office.

### **WEIR POOL OPERATIONS**

The Lock 1 and Lock 2 weir pool raising event is complete. Lock 1 is 0.10 m below normal pool level to enable investigations to be undertaken at the weir.

### **NAVIGATION ISSUES**

Sandbars in the vicinity of the Murray Mouth may cause navigation hazards. Mariners are advised to navigate with caution when operating in the area. Sandbars are also present along sections of the River Murray, downstream of Lock 7 and 8 and in South Australia. All watercraft users should be aware of the risk of submerged navigation hazards, and should regularly check river depth.

### **WATER TRADE**

On 28 October 2014, the Murray-Darling Basin Authority announced that trade from above the Barmah Choke to below the Barmah Choke (downstream trades) will be restricted immediately. A downstream trade can only occur if an upstream trade of the same or greater volume has already occurred. Entitlement holders can still trade upstream.

### **CONSTRUCTION WORKS**

#### *Yatco Lagoon*

Work is underway to relocate pump offtakes from Yatco Lagoon and install new pump offtakes on the River Murray. The construction work is expected to be completed by early 2015.

#### *Lock 7 – advanced notice*

Remedial works at Lock 7 are expected to commence after the Australia Day long weekend in January 2015 and take around 12 weeks to complete. The works are necessary to maintain the structural integrity of the Lock chamber. During this period Lock 7 will be closed to navigation.

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## RIVER MURRAY WATER LEVELS

Below is a table of River Murray water levels at a number of locations from Lock 10 (near Wentworth) to Murray Bridge.

### River Murray Water Levels on 17 December 2014

Location	River km	Normal Pool Level	Current Level (m AHD)	1974 Flood Level (m AHD)	1993 Flood Level (m AHD)
Lock 10	825.0	30.80	30.89	33.81	33.32
Lock 9 Kulnine	764.8	27.40	27.46	30.03	29.44
Lock 8 Wangumma	725.7	24.60	24.63	27.60	27.19
Lock 7 Rufus River	696.6	22.10	22.10	25.70	25.24
Lock 6 Murtho	619.8	19.25	19.25	21.03	20.50
Renmark	567.4	-	-	18.54	18.04
Lock 5	562.4	16.30	16.30	18.07	17.50
Lyrup	537.8	-	13.27	16.85	16.26
Berri	525.9	-	13.23	15.81	15.74
Lock 4	516.2	13.20	13.22	15.65	15.08
Loxton	489.9	-	10.09	15.05	14.12
Cobdogla	446.9	-	9.86	13.44	12.38
Lock 3	431.4	9.80	9.80	13.16	12.02
Overland Corner	425.9	-	6.25	12.73	11.58
Waikerie	383.6	-	6.24	11.26	10.24
Lock 2	362.1	6.10	6.13	10.28	9.30
Cadell	332.6	-	3.21	9.17	8.08
Morgan	321.7	-	3.15	8.85	7.65
Lock 1 Blanchetown	274.2	3.20	3.10	6.81	5.38
Swan Reach	245.0	0.75	0.95	6.06	4.51
Mannum PS	149.8	0.75	0.73	3.15	1.90
Murray Bridge	115.3	0.75	0.65	2.06	1.26

Note that the above water levels may be affected by local wind conditions.

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## FURTHER INFORMATION

The WaterConnect website is South Australia's comprehensive water information portal and can be accessed at: <http://www.waterconnect.sa.gov.au>

Up-to-date River Murray flow and water level information can be accessed at the Department of Environment, Water and Natural Resources, SA Water and Murray-Darling Basin Authority websites:

<http://www.waterconnect.sa.gov.au/Systems/RTWD/SitePages/Home.aspx>

[www.sawater.com.au/SAWater/Environment/TheRiverMurray/River+Murray+Levels.htm](http://www.sawater.com.au/SAWater/Environment/TheRiverMurray/River+Murray+Levels.htm)

<http://www.mdba.gov.au/river-data/live-river-data>

The Department of Environment, Water and Natural Resources has published a series of inundation maps for the River Murray. They are available at: <http://www.waterconnect.sa.gov.au/Systems/RMIM/Pages/default.aspx>

Information on the management of acid drainage water in the Lower River Murray can be accessed online at:

[http://www.epa.sa.gov.au/environmental\\_info/water\\_quality/acid\\_sulfate\\_soils\\_ass/lower\\_river\\_murray\\_reclaimed\\_irrigation\\_area\\_lmria](http://www.epa.sa.gov.au/environmental_info/water_quality/acid_sulfate_soils_ass/lower_river_murray_reclaimed_irrigation_area_lmria)

Details of river height and rainfall information in the River Murray within Victoria and New South Wales are available at the Bureau of Meteorology website: <http://www.bom.gov.au/vic/flood>

Information provided by the Commonwealth Environmental Water Office can be accessed at:

[www.environment.gov.au/ewater/southern/murray/lower-murray.html](http://www.environment.gov.au/ewater/southern/murray/lower-murray.html)

Information on The Living Murray can be accessed at:

<http://www.mdba.gov.au/about-basin/environmental-sites>

Department of Environment, Water and Natural Resources

<http://www.environment.sa.gov.au/Home>

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