

RIVER MURRAY FLOW REPORT and WATER RESOURCES UPDATE

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Report #19/2015

Issued 10:00 am 15 May 2015

This supersedes the previous flow report issued by the Department of Environment, Water and Natural Resources (DEWNR) on 8 May 2015. The next flow report will be provided on Friday, 22 May 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 April 2015, the total River Murray System inflow was approximately 100 GL, which is well below the April long-term average of 260 GL. Inflow to Menindee Lakes (from the Darling System) during April 2015 was 0 GL, which is well below the April long-term average of 230 GL.

The flow to South Australia during April 2015 was approximately 185 GL (compared to 185 GL in April 2014 and the April long-term average of 305 GL). The flow comprised:

- 129 GL of April Entitlement Flow (135 GL minus 6 GL of deferred and stored Entitlement Flow); and
- approximately 56 GL of environmental water from the Commonwealth Environmental Water Holder.

STORAGE VOLUMES

Murray-Darling Basin storage volumes at 13 May 2015 and 13 May 2014

Storage	Full Supply Volume (GL)	13/05/2015 (GL)	13/05/2014 (GL)	Long-term average (end of May)
Dartmouth	3 856	2 913 (76%)	3 431 (89%)	
Hume	3 003	604 (20%)	1 168 (39%)	
Lake Victoria	677	265 (39%)	445 (66%)	
Menindee Lakes	1 731*	**63 (4%)	395 (23%)	
TOTAL	9 267	3 845 (42%)	5 439 (59%)	5 278 (62%)

*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 dropped to below 480 GL and control switched to the New South Wales Government.

Given that the 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 May to July 2015 indicates wetter than normal conditions with warmer temperatures across the Murray-Darling Basin. This is important as key catchments in the River Murray system have been relatively dry in 2015. Substantial rainfall during this period will be required to wet-up catchments sufficiently to provide inflows into storages. Without increased inflows into the storages, there would be limited improvements to the storage volume and this affects the sharing of water between New South Wales, Victoria and South Australia. The improved short-term outlook is occurring because of a warmer than average Indian Ocean dominating the outlook.

However, the Bureau of Meteorology's El Niño-Southern Oscillation (ENSO) Tracker has been raised from 'Alert' to full 'El Niño' status due to a steady trend towards El Niño levels. El Niño is often associated with below-average winter and spring rainfall over eastern Australia, and above-average daytime temperatures over the southern half of the country. Historical El Niño events have been shown to adversely affect water resources availability. Should a moderate to strong El Niño event develop in 2015, the chances of improvements in water resource availability will be suppressed. DEWNR is currently assessing the implications of the forecast. 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/>

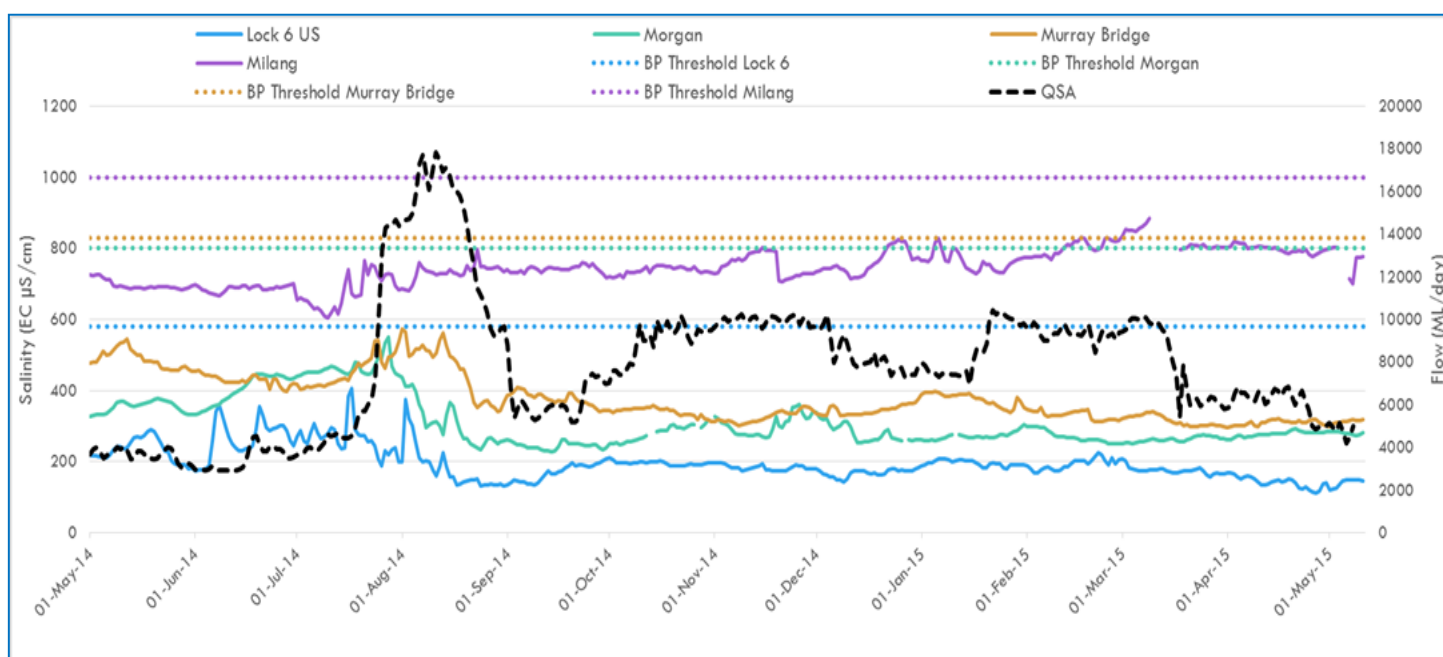
WATER QUALITY - Salinity

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 May 2014 to May 2015. 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



Note: Milang salinity readings from 10-17 March and 3-8 May were invalid due to an issue with the recording instrument.

FLOW OUTLOOK

The flow at the South Australian border is approximately 4.7 GL/day and will remain around this rate during the coming week. It comprises the normal May Entitlement Flow of 3.0 GL/day plus environmental water from the Commonwealth Environmental Water Holder (CEWH). The environmental water is being delivered to provide in-channel, Lower Lakes, and Coorong environmental and water quality benefits. South Australia is working with the CEWH to identify further opportunities to deliver environmental water in the coming months.

The flow over Lock 1 is approximately 3.2 GL/day and will remain around this rate 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 May 2015, South Australia had 48.7 GL of water deferred (42.7 GL in Dartmouth and 6.0 GL in Lake Victoria, the latter stored in the last few days of April). Of this total, 35.5 GL is stored for critical human water needs and 13.2 GL for private carryover use in future dry years. Volumes stored are adjusted for net evaporation losses until delivered to South Australia.

DEWNR is continuing to investigate opportunities to defer additional Entitlement Flow during 2014-15.

MURRAY MOUTH

Dredging operations at the Murray Mouth commenced on 9 January 2015 to maintain connectivity (exchange of water) between the river and the Southern Ocean. Dredges are currently operating in the Tauwitchere and Goolwa Channels. At 3 May 2015, a total of approximately 372 600 cubic metres of sand had been removed. Recent monitoring has confirmed an improvement in the condition of both channels as a result of dredging.

Mariners are reminded that navigation through the Murray Mouth is only permitted during daylight hours and that Exclusion Zones established around the dredging operations remain in place 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

There is also a partial park closure in place for the northern tip of the Coorong National Park. For more information refer to the following:

http://www.environment.sa.gov.au/parks/Safety/Park_closures/141219-coorong-national-park

Signage has been installed at appropriate locations and flyers distributed advising of Exclusion Zones.

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

BARRAGE OPERATIONS AND WATER LEVELS IN THE LOWER LAKES

The water level in Lake Alexandrina is approximately 0.55 m AHD and Lake Albert is approximately 0.52 AHD. Barrage releases are being prioritised through Tauwitchere and Goolwa, adjacent to the fishways. In the week 6 to 12 May 2015, total barrage releases were 1.3 GL (barrages were closed most of the week due to poor weather conditions). 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 and water level 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>

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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

Lock 1 is approximately 0.1 m below the normal pool level of 3.2 m AHD to enable engineering 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.

CONSTRUCTION WORKS

Lock 11 (advanced notice)

Remedial works at Lock 11 (Mildura) are expected to commence on 20 May 2015. Repairs to the concrete structure on the riverbed and installation of new mechanised trestles will require the weir pool to be gradually lowered (over about 7-9 days) to around 3.6 metres below full supply level for up to 10 weeks. River salinity may increase during the water level drawdown, depending on flow rates at the time. This will be monitored closely.

Remedial works on the lock chamber are expected to commence on 20 May 2015 and take up to 16 weeks to complete. Lock 11 will be closed to navigation during this period.

Renmark River Vessel Waste Disposal Station (RVWDS)

Works to upgrade the Renmark RVWDS commenced on 8 April 2015. The station will not be available for use until works are completed around the end of June 2015. A temporary pump-out site is available for river vessel operators, free-of-charge, for the duration of the construction works. This temporary site is at the Jane Eliza Landing, Renmark, approximately 3 km upstream of the existing Renmark RVWDS. Signage at the Renmark RVWDS displays details of the temporary site.

Pike Floodplain

Construction works are underway at Banks B and C on the Pike Floodplain to reinstate fish passage and hydraulic connectivity between the River Murray and Mundic Creek. Works are expected to be completed by July 2015. This activity will not cause restrictions to navigation on the main channel of the River Murray. Mundic Creek Road will be closed while works are underway.

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 mid-2015.

Katarapko Floodplain, Murray River National Park

Construction works are continuing on the Katarapko Floodplain. Road and waterway access restrictions are in place at Eckert Creek Log Crossing. The construction works will improve water flow and movement of native fish through Eckert Creek. Eckert Creek Bridge and South Arm Road Crossing will be completed by the end of May 2015. Eckert Creek Log Crossing is due for completion by mid-June 2015. For further information on the Katfish Reach Project please refer to the following website: <http://katfish.org.au/>

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 13 May 2015

Location	River km	Normal Pool Level	Current Level (m AHD)	1974 Flood Level (m AHD)	1993 Flood Level (m AHD)	2011 High Water Level (m AHD)
Lock 10	825.0	30.80	30.83	33.81	33.32	32.28
Lock 9 Kulnine	764.8	27.40	27.40	30.03	29.44	28.80
Lock 8 Wangumma	725.7	24.60	24.31	27.60	27.19	26.79
Lock 7 Rufus River	696.6	22.10	22.16	25.70	25.24	24.92
Lock 6 Murtho	619.8	19.25	19.25	21.03	20.50	20.11
Renmark	567.4	-	-	18.54	18.04	17.38
Lock 5	562.4	16.30	16.31	18.07	17.50	17.05
Lyrup	537.8	-	13.25	16.85	16.26	15.68
Berri	525.9	-	13.24	15.81	15.74	15.16
Lock 4	516.2	13.20	13.21	15.65	15.08	14.75
Loxton	489.9	-	10.01	15.05	14.12	13.42
Cobdogla	446.9	-	9.85	13.44	12.38	11.52
Lock 3	431.4	9.80	9.80	13.16	12.02	10.93
Overland Corner	425.9	-	6.20	12.73	11.58	10.27
Waikerie	383.6	-	6.23	11.26	10.24	9.06
Lock 2	362.1	6.10	6.11	10.28	9.30	8.25
Cadell	332.6	-	3.22	9.17	8.08	6.82
Morgan	321.7	-	3.16	8.85	7.65	6.20
Lock 1 Blanchetown	274.2	3.20	3.14	6.81	5.38	4.42
Swan Reach	245.0	0.75	0.81	6.06	4.51	3.09
Mannum PS	149.8	0.75	0.75	3.15	1.90	1.46
Murray Bridge	115.3	0.75	0.64	2.06	1.26	1.21

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>

<http://www.sawater.com.au/SAWater/Environment/WaterProofingAdelaide/TheRiverMurray/RMOU/Dailyflow.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

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

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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