

RIVER MURRAY FLOW REPORT

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Report #48/2015

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This supersedes the previous flow report issued by the Department of Environment, Water and Natural Resources (DEWNR) on 27 November 2015. The next flow report will be provided on Friday, 11 December 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.

FLOW OUTLOOK

The flow at the South Australian border is approximately 6.5 GL/day and will remain around this rate during the coming week. It comprises the normal December Entitlement Flow of 7 GL/day less deferred Entitlement Flow. South Australia is receiving environmental water but as this water is held on South Australian Licences, it is included in South Australia's Entitlement Flow.

The flow over Lock 1 is approximately 3 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. The forecasts will be revised as new information becomes available.

MURRAY-DARLING BASIN AUTHORITY ANNUAL OPERATING PLAN

The Murray-Darling Basin Authority recently updated its River Murray System Annual Operating Plan (AOP) 2015-16, which provides the context and descriptions of how the River Murray system may be operated under a range of assumed scenarios. Importantly, the AOP provides information on the individual storage outlooks under a range of scenarios for the remainder of 2015-16. The AOP highlights that dry conditions have been experienced across the River Murray System and this continues to impact on the storage outlook. Based on a dry scenario for the remainder of 2015-16, the combined storage volume at the end of 2015-16 will be low, limiting water availability at the start of 2016-17. The AOP can be accessed at:

<http://www.mdba.gov.au/media-pubs/publications/river-murray-system-annual-operating-plan-end-oct-2015-update>

ENVIRONMENTAL WATER

During December 2015, the Commonwealth Environmental Water Holder (CEWH) and the Murray-Darling Basin Authority's *The Living Murray* are providing environmental water to South Australia. The environmental water will provide in-channel, Chowilla anabranch, Lower Lakes and Coorong environmental and water quality benefits.

South Australia and the CEWH have agreed on an environmental watering schedule to deliver environmental water to the Lower Lakes, Coorong and Murray Mouth in 2015-16. The bulk of the environmental water will be delivered before January 2016.



MANAGEMENT OF SOUTH AUSTRALIA'S DEFERRED WATER

The Murray-Darling Basin Authority confirmed that on 1 December 2015, South Australia had 117.8 GL of deferred water in storage. Of this total, 68 GL is stored for critical human water needs and 49.8 GL for private carryover use in future dry years. Volumes stored are adjusted for net evaporation losses until delivered to South Australia.

DEWNR will continue to pursue opportunities to defer additional Entitlement Flow during 2015–16.

Opportunities to defer and store water are considered on the basis of how Entitlement Flow is managed, plus operational flow objectives for water quality and weather conditions.

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 operating in the Tauwitschere and Goolwa Channels, however there are some challenges with seaweed blockages. At 29 November 2015, a total of approximately 914 300 cubic metres of sand had been removed. Routine monitoring confirms 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 and Lake Albert is approximately 0.76 m AHD. During the week ending 1 December 2015, total barrage releases were approximately 4 GL. On 25 November 2015, barrage releases were reduced to a minimum. Under minimum release conditions, all barrage gates are closed, but all fishways remain open to provide a critical connection for fish passage between the Lakes and Coorong. The reason for reducing barrage releases is to maintain water levels in the Lower Lakes above 0.4 m AHD during summer, which is predicted to be hot and dry.

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 5 weir pool was raised slowly during the past months to 16.75 m AHD, which is the maximum water level for this weir pool raising event. This level was maintained until 4 November 2015, when it started to be lowered in small daily decrements to the normal operating range (16.40 m AHD). The level is now being held at 16.40 m AHD for a short period before being lowered to the normal pool level (16.30 m AHD) in conjunction with Chowilla Creek operations in mid-December 2015.

The Lock 2 weir pool was raised slowly during the past months to 6.60 m AHD, which is the maximum water level for this weir pool raising event. This level was maintained until 4 November 2015, when it started to be lowered in small daily decrements to the normal pool level (6.10 m AHD). The level is now back to the normal pool level.

The CEWH provided approximately 6 GL towards weir pool raising events.

The aim of weir pool raising events is to mimic a degree of the historic natural water level variability, which has been largely lost through river regulation. The objective is to promote a range of ecological benefits. For further information please refer to the following website: www.naturalresources.sa.gov.au/weirpools

The Lock 1 weir pool remains approximately 0.1 m below the normal pool level of 3.2 m AHD to enable engineering investigations to be undertaken at the weir.

CHOWILLA OPERATIONS

The Chowilla Creek environmental regulator is being operated from 6 October to mid-December 2015 to achieve an in-channel, low water level raising. On 22 October 2015, the water level behind the Chowilla regulator reached 17.8 m AHD, which is the maximum level for this event. The level was held between 17.8 m AHD and 17.6 m AHD for a period, and is now being lowered in small daily decrements to the normal pool level (16.30 m AHD). This event increased water levels within channels in the anabranch, and connected some low level wetland areas. Flows will remain in-channel throughout the event. The in-channel rise aims to provide important outcomes including the freshening of soils adjacent to the watercourses, supporting the growth of existing seedlings and saplings and other riparian vegetation. Lock 6 will be operated within the normal operating range throughout the event.

Boating access past the Chowilla regulator will not be possible during the operation. The creeks and waterways above and below the regulator **will be open** to boating.

The event is being undertaken in conjunction with using the upgraded Pipeclay and Slaney Creeks weirs to pulse flows to the new fishways. Pumping water to three wetlands that were not watered during 2014 is also being undertaken.

The Murray-Darling Basin Authority's *The Living Murray* provided environmental water to support the Chowilla operation and environmental watering.

NAVIGATION ISSUES

Due to elevated water levels above Locks 2 and 5, vessels should navigate with caution when in the vicinity of, or travelling under bridges, and when navigating near the river banks, as elevated water levels may increase the width of shallows and submerge hazards near the banks in some places.

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 Locks 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.

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 2 December 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	30.90	33.81	33.32	32.28
Lock 9 Kulnine	764.8	27.40	27.31	30.03	29.44	28.80
Lock 8 Wangumma	725.7	24.60	24.07	27.60	27.19	26.79
Lock 7 Rufus River	696.6	22.10	22.61	25.70	25.24	24.92
Lock 6 Murtho	619.8	19.25	19.26	21.03	20.50	20.11
Renmark	567.4	-	-	18.54	18.04	17.38
Lock 5	562.4	16.30	16.40	18.07	17.50	17.05
Lyrup	537.8	-	13.24	16.85	16.26	15.68
Berri	525.9	-	13.19	15.81	15.74	15.16
Lock 4	516.2	13.20	13.20	15.65	15.08	14.75
Loxton	489.9	-	10.02	15.05	14.12	13.42
Cobdogla	446.9	-	9.82	13.44	12.38	11.52
Lock 3	431.4	9.80	9.80	13.16	12.02	10.93
Overland Corner	425.9	-	6.19	12.73	11.58	10.27
Waikerie	383.6	-	6.23	11.26	10.24	9.06
Lock 2	362.1	6.10	6.09	10.28	9.30	8.25
Cadell	332.6	-	3.20	9.17	8.08	6.82
Morgan	321.7	-	3.18	8.85	7.65	6.20
Lock 1 Blanchetown	274.2	3.20	3.12	6.81	5.38	4.42
Swan Reach	245.0	0.75	-	6.06	4.51	3.09
Mannum PS	149.8	0.75	0.84	3.15	1.90	1.46
Murray Bridge	115.3	0.75	0.77	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 salinity, 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:

<https://www.waterconnect.sa.gov.au/Systems/RTWD/Pages/Default.aspx>

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

<http://livedata.mdba.gov.au/>

The Department of Environment, Water and Natural Resources has published a series of inundation maps for the River Murray. They are available at:

<https://www.waterconnect.sa.gov.au/Systems/RMIM/SitePages/Home.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/programs/acid_sulfate_soils/lower_river_murray_rec_laimed_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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