

RIVER MURRAY FLOW REPORT and WATER RESOURCES UPDATE

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Report #20/2017

Issued 10:00 am 19 May 2017

This supersedes the previous flow report issued by the Department of Environment, Water and Natural Resources (DEWNR) on 12 May 2017. The next report will be provided on Friday 26 May 2017.

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.

2017-18 WATER ALLOCATIONS AND CARRYOVER

South Australian River Murray water access entitlement holders (Class 3a, 3b, 4, 7 and 8) will receive a 100% water allocation in 2017-18. Private carryover will not be made available in 2017-18 due to the positive water resource availability outlook and the risk of spill from the Murray-Darling Basin controlled storages.

WATER TRADE

Interstate trade between New South Wales and South Australia, and between New South Wales and Victoria, for the 2016-17 season has closed.

The final date for South Australian River Murray water access entitlement holders to receive guaranteed processing and determining of River Murray water allocation trade applications for the 2016-17 water year is Friday, 16 June 2017. The final date is always the third Friday in June.

MANAGEMENT OF SOUTH AUSTRALIA'S DEFERRED WATER

The Murray-Darling Basin Authority confirmed that on 1 May 2017 South Australia had 216.7 GL of deferred water held in storage. The table below identifies the storage in which it is held and the purpose.

At 1 May 2017				
Purpose	Lake Victoria (GL)	Hume (GL)	Dartmouth (GL)	Total (GL)
*CHWN	34.4	0.0	81.7	116.1
Private Carryover	41.1	0.0	59.5	100.6
Total	75.5	0.0	141.2	216.7

*Critical Human Water Needs (CHWN)

Volumes stored are adjusted for net evaporation losses and spills until delivered to South Australia.

An interstate rainfall event in late April reduced irrigation demands and River Murray System losses. This event was upstream of Lake Victoria. The Lake Victoria Operating Strategy requires the water level in Lake Victoria to be at a maximum of 24.5 m (350 GL) by the end of May. As a result, Lake Victoria is currently being managed to meet this target. Water released from Lake Victoria, or bypassing Lake Victoria, to enable this target to be met is deemed to have spilled. In accordance with Schedule G of the Murray-Darling Basin Agreement, the first water to spill from a storage is South Australia's deferred water. Approximately 60 GL of South Australia's deferred water is likely to spill from this event. The short-term forecast weather conditions are likely to provide conditions that will spill South Australia's remaining water stored in Lake Victoria. A principle requirement in Schedule G is that private carryover spills before water for critical human water needs. The spill will have no impact on 2016-17 or 2017-18 water allocations or private carryover. The spilled water will assist in scouring sand from the Murray Mouth.

South Australia is seeking opportunities to defer and store water during the remainder of 2016-17 and into 2017-18.



WATER RESOURCES UPDATE

During April 2017 the total River Murray System inflow was approximately 210 GL, which is about 80% of the April long-term average of 260 GL. Inflow to Menindee Lakes (from the Darling System) during April 2017 was approximately 5 GL, which is well below the April long-term average of 225 GL.

The flow to South Australia during April 2017 was approximately 173 GL, which is about half the April long-term average of approximately 306 GL. The flow comprised:

- 129.5 GL of Entitlement Flow (135 GL less deferred water of 5.5 GL) this includes environmental water on SA licence;
- plus 76 GL of environmental water,
- minus 32.8 GL of trade out of South Australia.

STORAGE VOLUMES

Murray-Darling Basin Storage Volumes

Storage	Full Supply Volume (GL)	17/5/2017 (GL)	17/5/2016 (GL)	Long-term average (end of May) (GL)
Dartmouth	3 856	3 003 (78%)	1 700 (44%)	
Hume	3 003	1 875 (62%)	654 (22%)	
Lake Victoria	677	385 (57%)	249 (37%)	
Menindee Lakes	*1 731	793 (46%)	49 (3%)	
TOTAL	9 267	6 056 (65%)	2 652 (29%)	5 728 (62%)

*Menindee Lakes can be surcharged to 2 015 GL

RAINFALL AND TEMPERATURE OUTLOOK

The latest Bureau of Meteorology weather outlook for May to July 2017 indicates drier than average rainfall with warmer than average temperatures across the Murray-Darling Basin. The outlook is influenced by a neutral El Niño-Southern Oscillation, warming of tropical Pacific Ocean, and cooler eastern Indian Ocean.

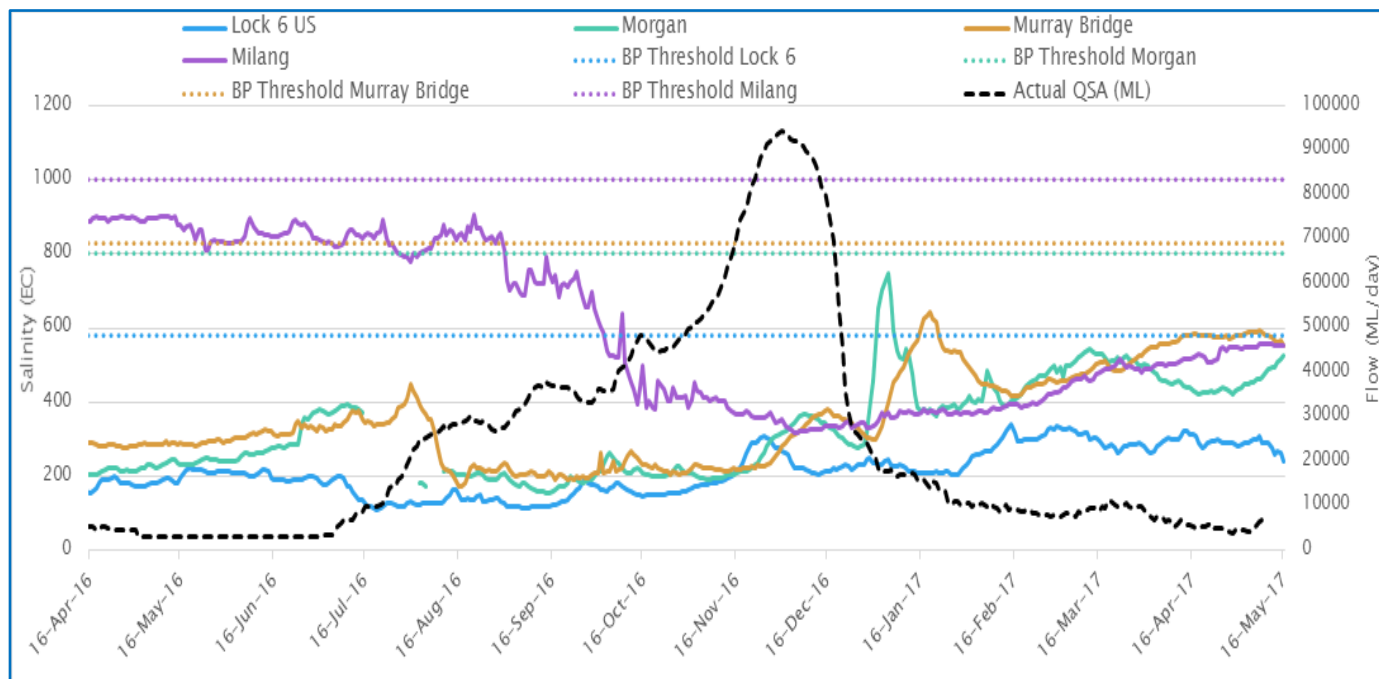
WATER QUALITY - Salinity

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 (QSA) from May 2016 to May 2017. The dashed-lines identify the Basin Plan (BP) thresholds for the corresponding colour coded location.

SA River Murray Daily Average Salinity



Note: Missing Morgan salinity readings from 16-11 August 2016 are due to a faulty EC sensor

FLOW OUTLOOK

The flow at the South Australian border is approximately 7 GL/day and will decrease to around 6 GL/day during the coming week. It comprises:

- normal May Entitlement Flow 3 GL/day;
- plus Lake Victoria spill (portion of South Australia’s Storage Right)
- plus environmental water; and
- interstate trade adjustments.

The current increased flow to South Australia is a result of an interstate rainfall event in late April, which reduced irrigation demands and River Murray System losses. This event was upstream of Lake Victoria and caused Lake Victoria to spill.

The flow over Lock 1 is approximately 10 GL/day and will decrease to around 7 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. Advice may change as new gauging information becomes available, or due to rainfall events or changed operations upstream. The forecasts will be revised as new information becomes available.

ENVIRONMENTAL WATER

During May, approximately 65 GL of environmental water will be delivered to South Australia. The environmental water will provide in-channel, Lower Lakes and Coorong environmental and water quality benefits.

DEWNR is continuing discussions regarding environmental water to be delivered during the remainder of 2016-17.

MURRAY MOUTH

Dredging operations at the Murray Mouth commenced on 9 January 2015 to maintain connectivity (exchange of water) between the Coorong and the Southern Ocean.

One dredge is operating in the Goolwa and Tauwitchere channels (currently operating in Goolwa channel). At 14 May 2017, a total of approximately 1 958 700 cubic metres of sand had been removed by dredging operations since commencement.

As a result of Lake Victoria spilling, additional water is being delivered to the Murray Mouth between 18 and 23 May to provide scouring flows.

Mariners are advised that there are still a number of shallow zones in and adjacent to the Murray Mouth. They should follow all directions in the area and reduce their speed. Boats equipped with echo sounders should regularly check depths and avoid travelling at low tide. Mariners are reminded that navigation through the Murray Mouth is only permitted during daylight hours and that Exclusion Zones established around the dredging operations are in place to ensure public safety. Refer to Notice to Mariners No 42 of 2016 www.dpti.sa.gov.au/news?a=287322

There is a partial park closure in place for the northern tip of the Coorong National Park. For more information visit www.environment.sa.gov.au/parks/Safety/Park_closures/141219-coorong-national-park.

BARRAGE OPERATIONS AND WATER LEVELS IN THE LOWER LAKES

The water level in Lake Alexandrina is approximately 0.65 m AHD and Lake Albert is approximately 0.68 m AHD. Water levels are being managed to achieve a target water level of at least 0.6 m AHD by the end of June 2017.

During the week ending 16 May 2017, total barrage releases were approximately 17 GL. Between 18 and 23 May barrage releases will increase to assist in scouring the Murray Mouth.

When conditions are favourable, releases are being prioritised at Tauwitchere and Goolwa Barrages. During adverse weather conditions SA Water will operate the barrages to minimise the risk of seawater entering Lake Alexandrina, therefore minimising any negative salinity impacts from reverse flow events. All fishways are operational and providing fish passage between Lake Alexandrina and the Coorong.

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

WEIR POOL OPERATIONS (*current*)

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

WEIR POOL OPERATIONS (*Potential*)

DEWNR is considering a number of weir pool manipulations during 2017. The manipulations are likely to occur from early winter to early summer. Further details of the proposed manipulations will be communicated in the coming weeks.

NAVIGATION ISSUES

Mariners need to be aware that barrage releases will increase between 18 and 23 May. Water will flow faster in the Goolwa and Tauwitchere Channels and at the Murray Mouth during this period.

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 Mariners should be aware of the risk of submerged navigation hazards, and should regularly check river depth.

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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

Location	River km	Normal Pool Level (m AHD)	Current Level 17/5/2017 (m AHD)	1974 Flood Level (m AHD)	1993 Flood Level (m AHD)	2016 High Water Level (m AHD)
Lock 10	825.0	30.80	30.79	33.81	33.32	32.72
Lock 9 Kulnine	764.8	27.40	27.41	30.03	29.44	28.85
Lock 8 Wangumma	725.7	24.60	24.30	27.60	27.19	26.85
Lock 7 Rufus River	696.6	22.10	21.92	25.70	25.24	24.97
Lock 6 Murtho	619.8	19.25	19.26	21.03	20.50	20.19
Renmark	567.4	-	-	18.54	18.04	17.44
Lock 5	562.4	16.30	16.36	18.07	17.50	17.05
Lyrup	537.8	-	13.35	16.85	16.26	15.80
Berri	525.9	-	13.32	15.81	15.74	15.21
Lock 4	516.2	13.20	13.30	15.65	15.08	14.73
Loxton	489.9	-	10.29	15.05	14.12	13.54
Cobdogla	446.9	-	9.93	13.44	12.38	11.59
Lock 3	431.4	9.80	9.87	13.16	12.02	10.98
Overland Corner	425.9	-	6.43	12.73	11.58	10.41
Waikerie	383.6	-	6.30	11.26	10.24	9.20
Lock 2	362.1	6.10	6.11	10.28	9.30	8.32
Cadell	332.6	-	3.31	9.17	8.08	7.01
Morgan	321.7	-	3.22	8.85	7.65	6.38
Lock 1 Blanchetown	274.2	3.20	3.12	6.81	5.38	4.46
Swan Reach	245.0	0.75	0.58	6.06	4.51	3.11
Mannum PS	149.8	0.75	0.56	3.15	1.90	1.33
Murray Bridge	115.3	0.75	-	2.06	1.26	1.04

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 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

- www.environment.sa.gov.au/managing-natural-resources/river-murray/water-allocation-and-trade/water-allocations-and-announcements
- www.waterconnect.sa.gov.au/Systems/RTWD/Pages/Default.aspx
- www.sawater.com.au/SAWater/Environment/WaterProofingAdelaide/TheRiverMurray/RMOU/Dailyflow.htm
- <http://livedata.mdba.gov.au/>

The latest news, information and announcements about the River Murray and Basin Plan are available at [River Murray Update](#).

The Department of Environment, Water and Natural Resources has published a series of inundation maps for the River Murray. They are available at 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 at www.epa.sa.gov.au/environmental_info/water_quality/programs/acid_sulfate_soils/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 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 www.mdba.gov.au/managing-water/environmental-water/delivering-environmental-water/living-murray-program

Chowilla Floodplain Icon Site management www.environment.sa.gov.au/Chowilla-floodplain

Department of Environment, Water and Natural Resources www.environment.sa.gov.au

Information provided by the Department of Planning, Transport and Infrastructure on boat licences, registering motor boats, owning and operating water craft, and boat and marine safety can be accessed at www.sa.gov.au/boatingmarine

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