

RIVER MURRAY FLOW REPORT and WATER RESOURCES UPDATE

Public I2 A2

Report #3/2017

Issued 10:00 am 20 January 2017

This supersedes the previous flow report issued by the Department of Environment, Water and Natural Resources (DEWNR) on 13 January 2017. The next report will be provided on Friday 27 January 2017.

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

WATER ALLOCATIONS AND CARRYOVER

2016-17

South Australian River Murray water access entitlement holders (Class 3a, 3b, 4, 7 and 8) are being provided with 100% water allocation in 2016-17. Eligible water access entitlement holders (Class 3a, 3b, 4 and 7) will also have access to private carryover.

2017-18

Due to the forecast risk of spill in Dartmouth during 2017-18 being greater than 10%, private carryover will not be granted in 2017-18. This is in-line with the private carryover policy. For more information on private carryover please refer to the DEWNR website www.environment.sa.gov.au/managing-natural-resources/river-murray/water-allocation-and-trade

MANAGEMENT OF SOUTH AUSTRALIA'S DEFERRED WATER

The Murray-Darling Basin Authority confirmed that on 1 January 2017, South Australia had 141.6 GL of deferred water held in storage. The table below identifies the storage in which it is held and the purpose.

At 1 January 2017				
Purpose	Lake Victoria (GL)	Hume (GL)	Dartmouth (GL)	Total (GL)
*CHWN	0.0	0.0	82.0	82.0
Private Carryover	0.0	0.0	59.6	59.6
Total	0.0	0.0	141.6	141.6

*Critical Human Water Needs (CHWN)

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

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

WATER RESOURCES UPDATE

During December 2016, the total River Murray System inflow was approximately 630 GL, which is above the December long-term average of 460 GL. Inflow to Menindee Lakes (from the Darling System) during December 2016 was approximately 250 GL, which is about double the December long-term average of 120 GL.

The flow to South Australia during December 2016 was approximately 1 919 GL, which is nearly three times the December long-term average of approximately 690 GL. The flow comprised:

- 217 GL of Entitlement Flow (includes environmental water on SA licence);
- 93 GL of additional dilution flow;
- 163 GL of environmental water;
- 1 445 GL of unregulated flow; and
- 1 GL of trade into South Australia.



River Murray Flow Report and Water Resources Update

STORAGE VOLUMES

Murray-Darling Basin storage volumes

Storage	Full Supply Volume (GL)	18/1/2017 (GL)	18/1/2016 (GL)	Long-term average (end of January) (GL)
Dartmouth	3 856	3 017 (78%)	1 865 (48%)	
Hume	3 003	2 642 (88%)	1 136 (38%)	
Lake Victoria	677	545 (80%)	464 (71%)	
Menindee Lakes	*1 731	1 391 (80%)	66 (4%)	
TOTAL	9 267	7 595 (82%)	3 531 (38%)	6 343 (68%)

*Menindee Lakes can be surcharged to 2 015 GL

RAINFALL AND TEMPERATURE OUTLOOK

The latest Bureau of Meteorology weather outlook for January to March 2017 indicates average to drier than average rainfall with warmer than average temperatures across the Murray-Darling Basin. The outlook is influenced by the Southern Annular Mode (SAM), which is currently negative. A negative SAM usually results in reduced rainfall and higher temperatures during the summer months.

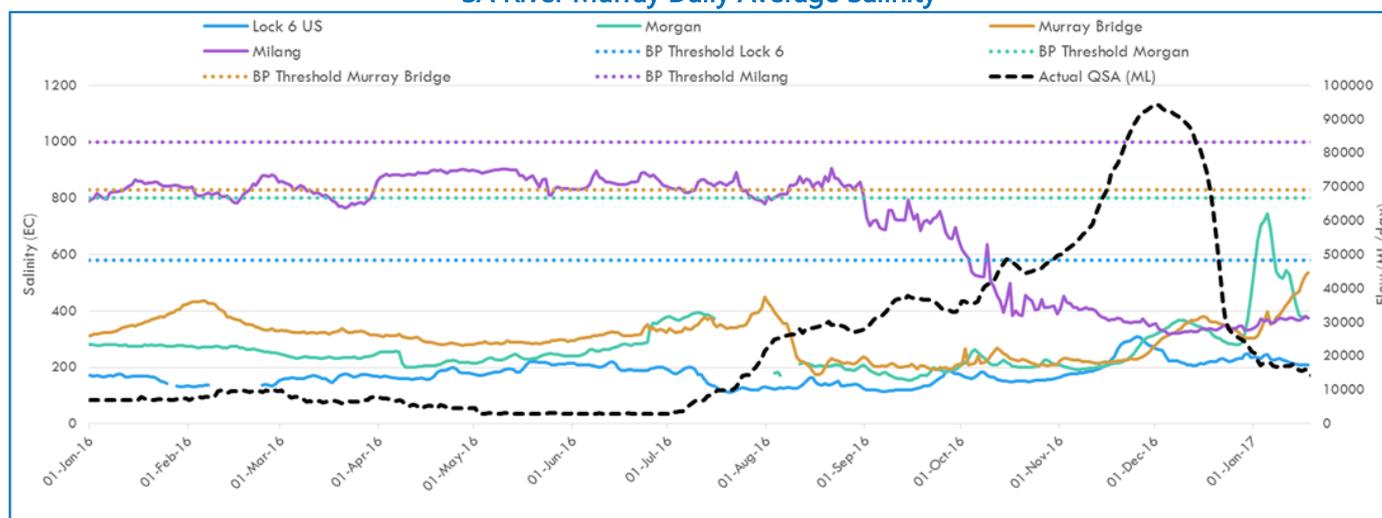
WATER QUALITY - Salinity

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

SA River Murray Daily Average Salinity



Note: Missing Lock 6 salinity readings from 8-23 February 2016 are due to a faulty EC sensor.
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 15 GL/day and will decrease to around 11 GL/day during the coming week. It comprises:

- normal January Entitlement Flow 7 GL/day;
- plus additional dilution flow 3 GL/day;
- plus environmental water;
- minus deferred water; and
- interstate trade adjustments.

The flow over Lock 1 is approximately 13 GL/day and will decrease to around 10 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.

RIVER HAZARDS

Due to the rapid fall in water levels (to around normal pool level), some riverbanks may have become unstable and susceptible to slumping. Signs of bank instability include cracks or leaning trees. Caution should be exercised when near riverbanks. Anyone with concerns about the safety of a particular riverbank should contact their local council. In the event of an emergency call 000.

If you intend to engage in high speed activities, ensure that the area of water is safe prior to commencing the activity. Power boat wash should be kept to a minimum if operating in the vicinity of shacks and other structures.

WATER QUALITY - Salinity

The recent high flow event mobilised salt from wetlands, backwaters and floodplains, causing salinity to increase in the main River Murray channel as river levels decreased. Salinity levels have now declined in most areas upstream of Swan Reach, with similar trends expected below Swan Reach in the coming days and weeks. Information on near real-time salinity levels can be accessed at www.waterconnect.sa.gov.au/Systems/RTWD/Pages/Default.aspx

ENVIRONMENTAL WATER

During January, approximately 50 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 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.

The dredging operations combined with recent substantial barrage releases have improved conditions at the Murray Mouth. As the unregulated flow event has now ceased, the dredging program is being reviewed to determine if dredging should continue. The review is expected to be completed by mid-February. One dredge is currently operating in the Goolwa and Tauwitche channels. At 15 January 2017, a total of approximately 1 756 500 cubic metres of sand had been removed by dredging operations since commencement.

Mariners are advised that there are still a number of shallow zones in and adjacent to the Murray Mouth and should follow all directions in the area and reduce their speed. Boats equipped with echo sounders should

River Murray Flow Report and Water Resources Update

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 0.81 m AHD and Lake Albert approximately 0.74 m AHD. The difference in water levels is due to wind effects. Water levels are being actively managed to achieve a target water level greater than 0.5 m AHD by the end of March 2017.

Barrage releases being prioritised at Tauwitchere barrage. All fishways are operational to provide fish passage between Lake Alexandrina and the Coorong. During the week ending 17 January 2017 total barrage releases were approximately 57.

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.

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

LOXTON RIVER VESSEL WASTE DISPOSAL STATION

On 16 January 2017, works to recommission the Loxton River Vessel Waste Disposal Station were completed and the station is now fully operational.

NAVIGATION ISSUES

Sandbars in the vicinity of the Murray Mouth may cause navigation hazards. Boaters 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 Flow Report and Water Resources Update

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 18/01/2017 (m AHD)	1974 Flood Level (m AHD)	1993 Flood Level (m AHD)	2016 High Water Level (m AHD)
Lock 10	825.0	30.80	30.83	33.81	33.32	32.72
Lock 9 Kulnine	764.8	27.40	27.42	30.03	29.44	28.85
Lock 8 Wangumma	725.7	24.60	24.53	27.60	27.19	26.85
Lock 7 Rufus River	696.6	22.10	21.98	25.70	25.24	24.97
Lock 6 Murtho	619.8	19.25	19.26	21.03	20.50	20.19
Renmark	567.4	-	16.38	18.54	18.04	17.44
Lock 5	562.4	16.30	16.36	18.07	17.50	17.05
Lyrup	537.8	-	13.33	16.85	16.26	15.80
Berri	525.9	-	13.27	15.81	15.74	15.21
Lock 4	516.2	13.20	13.24	15.65	15.08	14.73
Loxton	489.9	-	10.46	15.05	14.12	13.54
Cobdogla	446.9	-	9.95	13.44	12.38	11.59
Lock 3	431.4	9.80	9.88	13.16	12.02	10.98
Overland Corner	425.9	-	6.74	12.73	11.58	10.41
Waikerie	383.6	-	6.49	11.26	10.24	9.20
Lock 2	362.1	6.10	6.26	10.28	9.30	8.32
Cadell	332.6	-	3.48	9.17	8.08	7.01
Morgan	321.7	-	3.32	8.85	7.65	6.38
Lock 1 Blanchetown	274.2	3.20	3.10	6.81	5.38	4.46
Swan Reach	245.0	0.75	1.07	6.06	4.51	3.11
Mannum PS	149.8	0.75	0.88	3.15	1.90	1.33
Murray Bridge	115.3	0.75	0.82	2.06	1.26	1.04

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

River Murray Flow Report and Water Resources Update

FURTHER INFORMATION

Please tell us what you value about the Coorong and Lower Lakes, and what threats you think need to be managed. Your input will help us write the updated Ramsar Management Plan. Find out more at www.environment.sa.gov.au/coorongvalues

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/Home

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

ID	RM-Flow-Report 20170120
Classification	Public I2 A2
Issued	20 January 2017
Authority	DEWNR
Master Document Location	Q:\OMP\RM REM\02 RM Ops\04 Communications\Flow Advices\2016-17
Managed and Maintained by	River Murray Operations
Author	River Murray Operations
Reviewer	Director River Murray Operations, Strategy and Advice