RIVER MURRAY FLOW REPORT and WATER RESOURCES UPDATE

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Report #16/2018
Issued 10:00 am 20 April 2018

This supersedes the previous flow report issued by the Department for Environment and Water (DEW) on 13 April 2018. The next report will be provided on Friday 27 April 2018.

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 ALLOCATIONS AND CARRYOVER 2018-19

On 16 April 2018, Minister Speirs announced that South Australian River Murray water access entitlement holders (Class 3a, 3b, 4, 7 and 8) will be granted a 100% water allocation in 2018-19. Private carryover will not be made available in 2018-19 due to the water resource availability outlook and the risk of spill from the Murray-Darling Basin controlled storages. Private Carryover is made available for use in dry years.

MANAGEMENT OF SOUTH AUSTRALIA'S DEFERRED WATER

The Murray-Darling Basin Authority confirmed that on 1 April 2018 South Australia had 250.3 GL of deferred water held in storage. The table below identifies the storage in which it is held and the purpose.

At 1 April 2018				
Purpose	**Lake Victoria (GL)**	**Hume (GL)**	**Dartmouth (GL)**	**Total (GL)**
***CHWN**	36.1	33.0	81.4	150.5
Private Carryover	14.6	25.9	59.3	99.8
Total	50.7	58.9	140.7	250.3

*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 2017-18 and 2018-19.

WATER RESOURCES UPDATE

During March 2018, the total River Murray System inflow was approximately 67 GL, which is approximately 30% of the March long-term average of 221 GL. There was no inflow to Menindee Lakes (from the Darling System) during March 2018, compared to the March long-term average of 187 GL.

The flow to South Australia during March 2018 was approximately 206 GL, which is about 72% of the March long-term average of approximately 286 GL. The flow comprised:

- 186 GL of Entitlement Flow (includes environmental water on SA licence); less
- 19.2 GL of deferred water; less
- 7.2 GL trade out of SA; plus
- 46.5 GL of environmental water.

RAINFALL AND TEMPERATURE OUTLOOK

The latest Bureau of Meteorology weather outlook for May to July 2018 indicates average rainfall with warmer than average temperatures across the Murray-Darling Basin. The outlook is influenced by El Niño Southern Oscillation (ENSO) in the Pacific Ocean and Indian Ocean Dipole (IOD), both of which are neutral.

STORAGE VOLUMES

Murray-Darling Basin Storage Volumes

Storage	Full Supply Volume (GL)	18/4/2018 (GL)	18/4/2017 (GL)	Long-term average (end of April) (GL)
Dartmouth	**3 856**	**3 420 (89%)**	**3 001 (78%)**	
Hume	**3 003**	**1 018 (34%)**	**1 783 (59%)**	
Lake Victoria	**677**	**205 (30%)**	**333 (49%)**	
Menindee Lakes	***1 731**	**243 (14%)**	**817 (47%)**	
TOTAL	**9 267**	**4 886 (53%)**	**5 934 (64%)**	**5 423 (59%)**

*Menindee Lakes can be surcharged to 2 015 GL

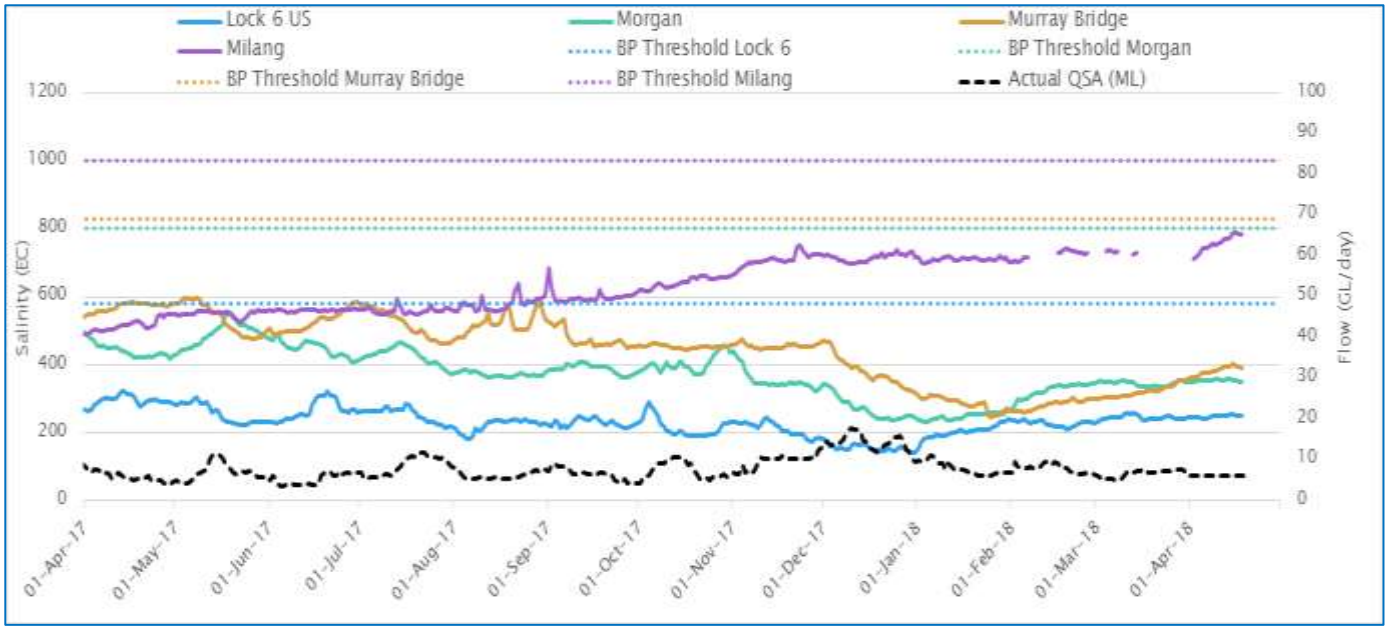
WATER QUALITY - Salinity

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 April 2017 to April 2018. The dashed-lines identify the Basin Plan (BP) thresholds for the corresponding colour coded location.

SA River Murray Daily Average Salinity



Note: Missing Milang salinity readings periodically during February, March and April 2018 are due to biofouling at the EC sensor

FLOW OUTLOOK

The flow at the South Australian border is approximately 6 GL/day and will decrease to around 5 GL/day during the coming week. It comprises:

- normal April Entitlement Flow of 4.5 GL/day;
- less deferred water;
- plus environmental water; and
- interstate trade adjustments.

The flow over Lock 1 is approximately 4 GL/day and will decrease to around 3 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

Environmental water is being provided by the Commonwealth Environmental Water Holder to support continuous barrage releases to protect water quality (salinity) in the Coorong while also enabling a managed partial drawdown of water levels in the Lower Lakes, to provide benefits for fringing vegetation and improve habitat for threatened frogs and fish by creating more natural wetting and drying conditions. Environmental water is being delivered to the South Australian border at a rate of 2 GL/day to ensure water levels in the Lower Lakes remain within the normal operating range during the partial drawdown and barrage releases continue.

DEW is continuing discussions regarding environmental water to be delivered during 2018.

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.

Two dredges are operating 24/7 in the Goolwa and Tauwitchere channels. At 15 April 2018, a total of approximately 2 847 400 cubic metres of sand had been removed by dredging operations.

There are a number of shallow zones in and adjacent to the Murray Mouth. Mariners should use caution when traversing the mouth area, follow all directions, reduce speed and avoid travelling at low tide. Boats equipped with echo sounders should check depths regularly. 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 Notice 42

There is a partial park closure in place for the northern tip of the Coorong National Park. For more information visit Coorong partial park closure notice

BARRAGE OPERATIONS AND WATER LEVELS IN THE LOWER LAKES

The water level in Lake Alexandrina is approximately 0.52 m AHD and Lake Albert is approximately 0.49 m AHD. The difference in water levels is due to wind effects. When possible, water levels are being managed to achieve a target water level of between 0.5 m AHD and 0.6 m AHD during April.

During the week ending 17 April 2018 total barrage releases were approximately 2.5 GL. All fishways remain open. 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 the South Australian Government, the Murray-Darling Basin Authority and the Commonwealth Environmental Water Office.

WATER QUALITY - ALGAL BLOOM

An algal bloom has been detected on the River Murray near the South Australian border. The water may appear bright green and have an odour. It does not pose a threat to the use of River Murray water for irrigation. As a precautionary measure, the public are encouraged to avoid direct contact with visibly discoloured patches of water. Some people may develop a skin rash. If this occurs, it is advisable to wash the rash with freshwater.

The Department for Health, DEW and SA Water are working closely to monitor the situation.

WEIR POOL OPERATIONS

The Normal Pool Level (NPL) and Normal Operating Range (NOR) for the South Australian locks and weirs are identified in the table below.

Weir	Normal Pool Level (NPL) m AHD	Normal Operating Range (NOR) m AHD
Lock 6 - Murtho	19.25	19.17 - 19.50
Lock 5 - Renmark	16.30	16.22 - 16.43
Lock 4 – Bookpurnong	13.20	13.16 - 13.50
Lock 3 - Overland Corner	9.80	9.77 - 10.02
Lock 2 – Waikerie	6.10	6.02 - 6.40
Lock 1 – Blanchetown	3.20	3.10 - 3.50

Weir and Lock 1

Remedial works to fix the seepage issue at the Lock 1 embankment have been completed. The Lock 1 water level has been reinstated to the NPL of 3.20 m AHD. Monitoring is being undertaken to ensure the structure is sound and no seepage is detected.

Weirs and Locks 6, 5 and 2

Weir pool lowering trials are being considered for:

- Lock 6 weir pool by a maximum of 0.2 m below NPL to 19.05 m AHD (1 May to 20 June);
- Lock 5 weir pool by a maximum of 0.15 m below NPL to 16.15 m AHD (28 May to 2 August); and
- Lock 2 weir pool by a maximum of 0.25 m below NPL to 5.85 m AHD (23 July to 31 August).

Timing of these actions may be subject to change depending on river conditions. Water level changes will be undertaken in stages, at a rate of approximately 0.02 m/day.

For further information on the proposed lowerings please click on Fact Sheet and scroll down to related links or you can contact Ms Jodie Woof on (08) 8595 2141 or jodie.woof@sa.gov.au

RIVERINE RECOVERY CONSTRUCTION WORKS

The Riverine Recovery Project will construct environmental regulators to manage a number of wetlands between Mannum and Murtho. Construction is expected to take up to nine months to complete (February to October 2018). Construction works have commenced at Big Bend, Sugar Shack, Pyap and Murtho-Wiela wetlands. During the coming months work will commence at North Caurnamont, Teal Flat, Teal Flat Hut, Silverlea, Goat Island Paringa Paddock and Woolenook Bend wetlands.

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 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.

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 18/4/2018 (m AHD)	1974 Flood Level (m AHD)	1993 Flood Level (m AHD)	2016 High Water Level (m AHD)
Lock 10	825.0	30.80	30.92	33.81	33.32	32.72
Lock 9 Kulnine	764.8	27.40	27.30	30.03	29.44	28.85
Lock 8 Wangumma	725.7	24.60	24.34	27.60	27.19	26.85
Lock 7 Rufus River	696.6	22.10	22.00	25.70	25.24	24.97
Lock 6 Murtho	619.8	19.25	19.30	21.03	20.50	20.19
Renmark	567.4	-	16.35	18.54	18.04	17.44
Lock 5	562.4	16.30	16.35	18.07	17.50	17.05
Lyrup	537.8	-	13.30	16.85	16.26	15.80
Berri	525.9	-	13.28	15.81	15.74	15.21
Lock 4	516.2	13.20	13.27	15.65	15.08	14.73
Loxton	489.9	-	10.08	15.05	14.12	13.54
Cobdogla	446.9	-	9.91	13.44	12.38	11.59
Lock 3	431.4	9.80	9.87	13.16	12.02	10.98
Overland Corner	425.9	-	6.22	12.73	11.58	10.41
Waikerie	383.6	-	6.26	11.26	10.24	9.20
Lock 2	362.1	6.10	6.11	10.28	9.30	8.32
Cadell	332.6	-	3.24	9.17	8.08	7.01
Morgan	321.7	-	3.30	8.85	7.65	6.38
Lock 1 Blanchetown	274.2	3.20	3.21	6.81	5.38	4.46
Swan Reach	245.0	0.75	0.49	6.06	4.51	3.11
Mannum PS	149.8	0.75	0.51	3.15	1.90	1.33
Murray Bridge	115.3	0.75	0.44	2.06	1.26	1.04

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

FURTHER INFORMATION

The WaterConnect website is South Australia's comprehensive water information portal and can be accessed at Home page

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

- Water allocation and carryover announcements
- River Murray real-time water data
- SA Water River Murray info - levels, flows etc
- Murray-Darling Basin real-time water data

The latest news, information and announcements about the River Murray and Basin Plan are available at River Murray Update.

The Department for Environment and Water has published a series of inundation maps for the River Murray. They are available at River Murray Inundation Maps

Information on the management of acid drainage water in the Lower River Murray can be accessed at Acid drainage water 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
Victoria rainfall and river conditions
NSW rainfall and river conditions

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

Information on The Living Murray can be accessed at MDBA TLM

Chowilla Floodplain Icon Site management Chowilla-floodplain

Department for Environment and Water Home page

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 Boating and marine

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