RIVER MURRAY FLOW REPORT and WATER RESOURCES UPDATE

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Report #45/2018
Issued 10:00 am 09 November 2018

This supersedes the previous flow report issued by the Department for Environment and Water (DEW) on 2 November 2018. The next report will be provided on Friday 16 November 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.

MANAGEMENT OF SOUTH AUSTRALIA'S DEFERRED WATER

The Murray-Darling Basin Authority confirmed that on 1 November 2018 South Australia had 280.1 GL of deferred water held in storage. The table below identifies the storage in which it is held and the purpose.

At 1 November 2018				
Purpose	**Lake Victoria (GL)**	**Hume (GL)**	**Dartmouth (GL)**	**Total (GL)**
***CHWN**	10.8	0.0	166.6	177.4
Private Carryover	0.0	0.0	102.7	102.7
Total	10.8	0.0	269.3	280.1

*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 2018-19.

WATER RESOURCES UPDATE

During October 2018, the total River Murray System inflow was approximately 325 GL, which is approximately 23% of the October long-term average of 1 414 GL. There was no inflow to Menindee Lakes (from the Darling System) during October 2018, compared to the October long-term average of 169 GL.

The flow to South Australia during October 2018 was approximately 227 GL, which is about 23% of the October long-term average of approximately 994 GL. The flow comprised:

- 170.5 GL of Entitlement Flow (includes environmental water on SA licence);
- less 10.9 GL of deferred water;
- plus 68 GL of environmental water.

RAINFALL AND TEMPERATURE OUTLOOK

The latest Bureau of Meteorology weather outlook for November 2018 to January 2019 indicates below average rainfall with warmer than average temperatures across most of Australia, including the Murray-Darling Basin. The outlook is influenced by an El Niño Alert and the Bureau have stated that an El Niño is likely to develop by the end of the year. El Niño conditions usually bring drier than normal conditions across the Murray-Darling Basin.

STORAGE VOLUMES

Murray-Darling Basin Storage Volumes

Storage	Full Supply Volume (GL)	07/11/2018 (GL)	07/11/2017 (GL)	Long-term average (end of November) (GL)
Dartmouth	**3 856**	**3 049 (79%)**	**3 354 (87%)**	
Hume	**3 003**	**1 397 (46%)**	**2 502 (83%)**	
Lake Victoria	**677**	**474 (70%)**	**644 (95%)**	
Menindee Lakes	***1 731**	**124 (7%)**	**551 (32%)**	
TOTAL	**9 267**	**5 044 (54%)**	**7 051 (76%)**	**7 308 (79%)**

*Menindee Lakes can be surcharged to 2 015 GL

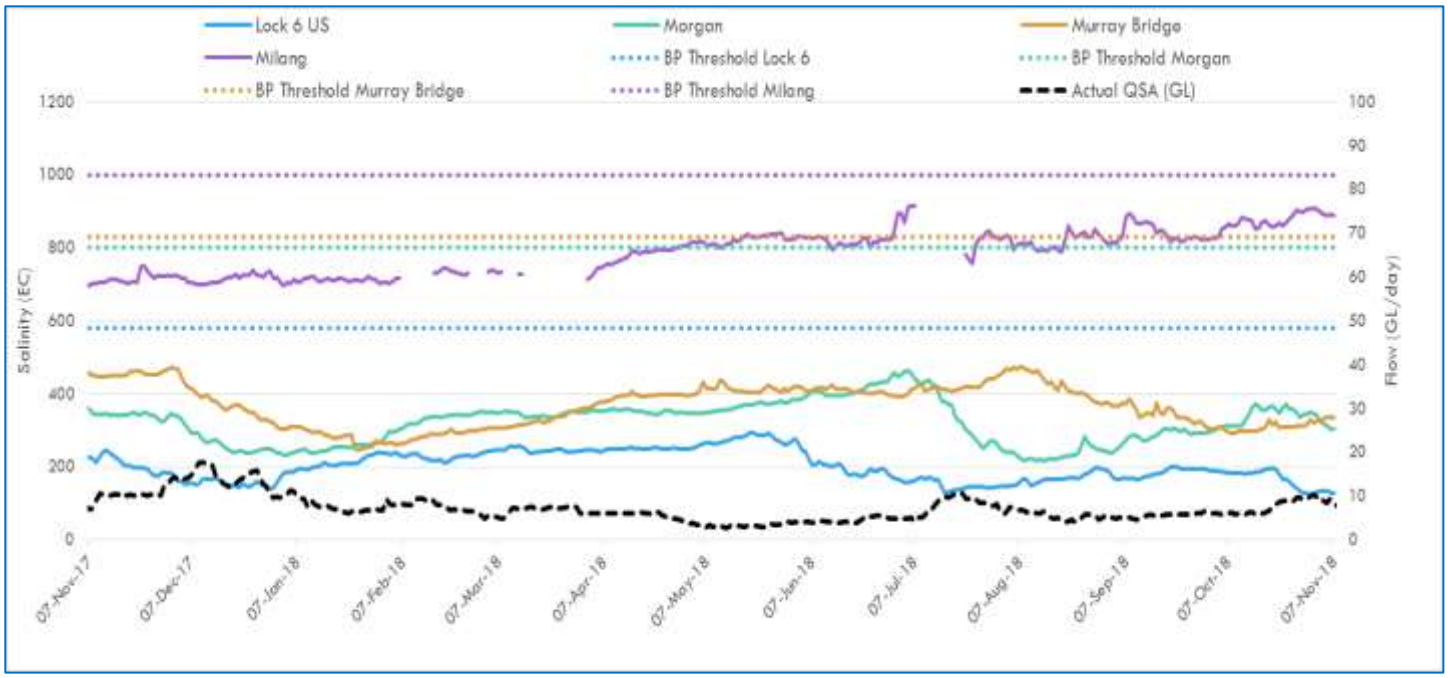
WATER QUALITY - Salinity

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% 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 November 2017 to November 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, April and July 2018 are due to biofouling at the EC sensor

FLOW OUTLOOK

The flow at the South Australian border is approximately 6.5 GL/day and will decrease to around 5.6 GL/day during the coming week. It comprises:

- normal November Entitlement Flow of 6 GL/day;
- less deferred water;
- plus environmental water; and
- interstate trade adjustments.

The flow over Lock 1 is approximately 6 GL/day and will decrease to around 3.5 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 delivered to South Australia to meet specific environmental watering objectives. Environmental water is being delivered:

- to wetlands in the Riverland via arrangements with Renmark Irrigation Trust, Nature Foundation SA and the SA Murray-Darling Basin Natural Resources Management Board; and
- to the Lower Lakes for barrage releases to maintain connectivity between Lake Alexandrina and the Coorong estuary and to store water for watering actions in warmer months (for further details see *Barrage Operations and Water Levels in the Lower Lakes* section).

During October, a shortheaded lamprey was caught by SARDI Aquatic Sciences in the Lower Murray as part of The Living Murray annual barrage fishway monitoring. This species is related to the pouched lamprey and has not been detected since monitoring in 2011/2012. Detecting this species highlights the need for ongoing environmental water delivery to the Coorong.

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 4 November 2018, a total of approximately 3 655 920 cubic metres of sand had been removed by dredging operations. Recent barrage releases combined with dredging have helped to maintain connectivity of the Murray Mouth.

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. Mariners equipped with echo sounders should check depths regularly. Navigation through the Murray Mouth is only permitted during daylight hours. 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 0.78 m AHD and Lake Albert is approximately 0.77 m AHD. The difference in water level is due to wind effects. When possible, water levels are being managed to achieve a target water level of between 0.75 m AHD and 0.85 m AHD by the end of November.

During the week ending 6 November 2018 total barrage releases were approximately 8.5 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, Murray-Darling Basin Authority and Commonwealth Environmental Water Office.

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

Chowilla Regulator and Weir and Lock 6

The water level at the Chowilla Regulator and in the Lock 6 weir pool was raised to wet creek banks, low lying flow paths and wetlands. The water level has commenced being lowered at a rate of approximately 0.02 to 0.05 m/day until the water level reaches NPL, which is expected to be around early December.

Boat access in Chowilla Creek through the Chowilla Regulator will be closed for the period of the regulator operation. Access is still available upstream and downstream of the regulator – for more information see Chowilla Floodplain then scroll down to *related links* – Chowilla Operations 2018.

Weir and Lock 5

The water level in the Lock 5 weir pool was raised to a target water level of 16.65 m AHD (0.35 m above NPL). The water level has been now lowered back to NPL.

Weir and Lock 2

The water level in the Lock 2 weir pool was raised to a target water level of 6.60 m AHD (0.50 m above NPL). The water level has now been lowered back to NPL.

To receive real-time SMS updates on weir pool manipulation actions please text or call DEW River Murray Operations on 0438 539 271 and indicate what weir pool reach you are interested in receiving updates for. If you have questions relating to river operations generally, please also use this mobile number.

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.

BERRI RIVER VESSEL WASTE DISPOSAL STATION

The Berri River Vessel Waste Disposal Station upgrade works are now complete and the station is open for use.

RIVERINE RECOVERY CONSTRUCTION WORKS

The Riverine Recovery Project is in the process of constructing environmental regulators to manage a number of wetlands between Mannum and Murtho. Construction is expected to be completed by the end of February 2019.

SOUTH AUSTRALIAN RIVERLAND FLOODPLAINS INTEGRATED INFRASTRUCTURE PROGRAM (SARFIIP) CONSTRUCTION WORKS

The construction of regulating structures and a blocking bank on the Pike Floodplain has commenced. The works are expected to be completed by December 2019. The works will enable:

- a portion of the floodplain to be inundated more regularly to improve ecological health; and
- fish to move freely between the River Murray and the floodplain.

During the construction period, for safety reasons, vessels and persons other than those participating in the works are prohibited from entering the Pike River near the Rumpagunyah Creek and Tanyaca Creek junction, downstream of the Mundic Creek junction.

RIVER MURRAY WATER LEVELS

Below is a table of River Murray water levels at a number of locations from Lock 10 to Murray Bridge.

River Murray Water Levels

Location	River km	Normal Pool Level (m AHD)	Current Level 07/11/2018 (m AHD)	1974 Flood Level (m AHD)	1993 Flood Level (m AHD)	2016 High Water Level (m AHD)
Lock 10	825.0	30.80	30.90	33.81	33.32	32.72
Lock 9 Kulnine	764.8	27.40	27.34	30.03	29.44	28.85
Lock 8 Wangumma	725.7	24.60	24.10	27.60	27.19	26.85
Lock 7 Rufus River	696.6	22.10	22.42	25.70	25.24	24.97
Lock 6 Murtho	619.8	19.25	19.39	21.03	20.50	20.19
Renmark	567.4	-	16.35	18.54	18.04	17.44
Lock 5	562.4	16.30	16.34	18.07	17.50	17.05
Lyrup	537.8	-	13.28	16.85	16.26	15.80
Berri	525.9	-	13.23	15.81	15.74	15.21
Lock 4	516.2	13.20	13.23	15.65	15.08	14.73
Loxton	489.9	-	10.13	15.05	14.12	13.54
Cobdogla	446.9	-	9.87	13.44	12.38	11.59
Lock 3	431.4	9.80	9.81	13.16	12.02	10.98
Overland Corner	425.9	-	6.31	12.73	11.58	10.41
Waikerie	383.6	-	6.29	11.26	10.24	9.20
Lock 2	362.1	6.10	6.12	10.28	9.30	8.32
Cadell	332.6	-	3.38	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	0.90	6.06	4.51	3.11
Mannum PS	149.8	0.75	0.87	3.15	1.90	1.33
Murray Bridge	115.3	0.75	0.80	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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