RIVER MURRAY FLOW REPORT and WATER RESOURCES UPDATE

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Report #14/2019
Issued 10:00 am 12 April 2019

This supersedes the previous flow report issued by the Department for Environment and Water (DEW) on 5 April 2019. Due to Good Friday, the next report will be provided on Thursday 18 April 2019.

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.

NEW REQUIREMENTS FOR WATER METERS INSTALLED AFTER 1 JULY 2019

Water licence holders are encouraged to familiarise themselves with upcoming changes to metering licensed water use. These changes mean that **from 1 July 2019 new or replacement meters** must comply with national metering standards for meter selection, installation and maintenance. The requirement is for meters installed after 1 July 2019 to be:

- pattern approved;
- validated following installation by a certified person; and
- maintained in accordance with national metering standards.

Existing **meters (installed prior to 1 July 2019) do not need to comply** with the new metering requirements. These meters must continue to comply with the *South Australian Licensed Water Use Meter Policy and Specification*. For further details, next steps and links to key documents and Frequently Asked Questions visit New metering requirements or contact the Berri Water Licensing Office on (08) 8595 2053.

MANAGEMENT OF SOUTH AUSTRALIA'S DEFERRED WATER

The Murray-Darling Basin Authority confirmed that on 1 April 2019 South Australia had 341.8 GL of deferred water held in storage. The table below identifies the storage in which it is held and the purpose.

At 1 April 2019				
Purpose	**Lake Victoria (GL)**	**Hume (GL)**	**Dartmouth (GL)**	**Total (GL)**
***CHWN**	6.4	0.0	233.2	239.6
Private Carryover	0.0	0.0	102.2	102.2
Total	6.4	0.0	335.4	341.8

*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 March 2019, the total River Murray System inflow was approximately 72 GL, which is approximately 33% of the March long-term average of 221 GL. There was no inflow to Menindee Lakes (from the Darling System) during March 2019, compared to the March long-term average of 187 GL.

The flow to South Australia during March 2019 was approximately 251 GL, which is about 88% of the March long-term average of approximately 286 GL. The flow comprised:

- 186 GL of Entitlement Flow (includes environmental water on SA licence);
- plus 52 GL of environmental water;
- plus 19.7 GL of trade into South Australia (mostly environmental water);
- less 6.5 GL of deferred water.

RAINFALL AND TEMPERATURE OUTLOOK

The latest Bureau of Meteorology weather outlook for April to June 2019 indicates average, to drier than average, rainfall with warmer than average temperatures across most of the Murray-Darling Basin. The outlook is influenced by an El Niño Alert. 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)	10/4/2019 (GL)	10/4/2018 (GL)	Long-term average (end of April) (GL)
Dartmouth	**3 856**	**2 446 (63%)**	**3 416 (89%)**	
Hume	**3 003**	**546 (18%)**	**1 083 (36%)**	
Lake Victoria	**677**	**198 (29%)**	**227 (34%)**	
Menindee Lakes	***1 731**	**18 (1%)**	**251 (15%)**	
TOTAL	**9 267**	**3 208 (35%)**	**4 977 (54%)**	**5 424 (59%)**

*Menindee Lakes can be surcharged to 2 015 GL

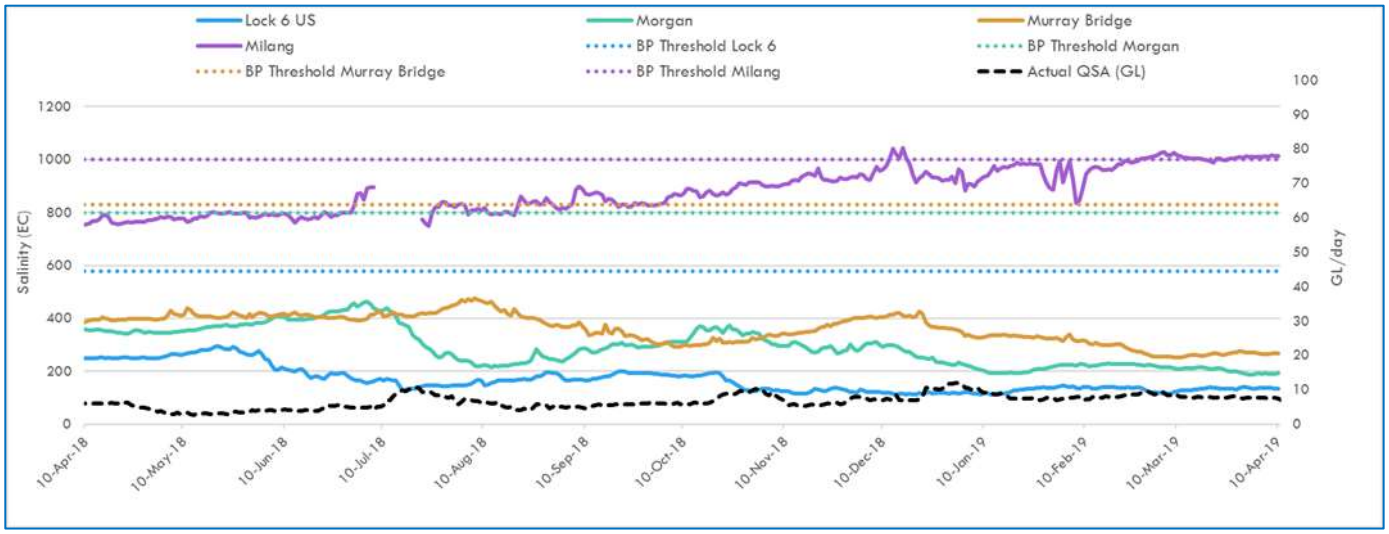
WATER QUALITY - Salinity

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 should 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 April 2018 to April 2019. 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 July are due to biofouling at the EC sensor..

FLOW OUTLOOK

The flow at the South Australian border is approximately 7.1 GL/day and will decrease to around 4.8 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 6 GL/day and will decrease to around 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.

ENVIRONMENTAL WATER

Environmental water is being provided to South Australia for:

- a range of outcomes at wetlands, mostly in the Riverland via arrangements with the Nature Foundation SA, SA Murray-Darling Basin Natural Resources Management Board, Renmark Irrigation Trust, Ngarrindjeri Regional Authority, Calperum Station and Banrock Station; and
- the Lower Lakes and Coorong to:
    - improve salinity and water quality;
    - manage lake water levels while providing for ongoing releases to the Coorong to support fish condition (see picture below), enhance foodweb productivity and provide a food source for migratory waterbirds prior to their departure for winter;
    - maintain a connection between the Lower Lakes and Coorong to allow for fish movement (for further details see *Barrage Operations and Water Levels in the Lower Lakes* section).

SARDI staff netting fish as part of the monitoring program in the Coorong last week (funded by The Living Murray)

One year old black bream captured during the monitoring, showing that the cohort bred during summer 2017-18 have survived (photos: Anthony Moore, CEWO)

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 7 April 2019, a total of approximately 4 233 121 cubic metres of sand had been removed by dredging operations. 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 and Lake Albert is approximately 0.54 m AHD. Where possible, water levels are being managed to maintain a water level of above 0.55 m AHD by the end of April 2019.

During the week ending 9 April 2019 total barrage releases were approximately 7.1 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.

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.

WALKER FLAT RIVER VESSEL WASTE DISPOSAL STATION

Maintenance work on the Walker Flat River Vessel Waste Disposal Station has been completed and the station is now operational.

RIVERINE RECOVERY CONSTRUCTION WORKS

The Riverine Recovery Project is constructing environmental regulators to manage a number of wetlands between Mannum and Murtho. Construction is expected to be completed around June 2019.

SA RIVERLAND FLOODPLAINS INTEGRATED INFRASTRUCTURE PROGRAM CONSTRUCTION WORKS

Katarapko

Construction works on the Katarapko Floodplain and are expected to be completed by mid-2020. As a result, some parts of the Murray River National Park will be temporarily closed for camping and other recreational activities. See the link for temporary park closure map Caring for Katarapko

For safety reasons, the following water access restrictions apply to river vessels and people (other than authorised personnel) until late March 2020:

1. Sawmill Creek, the entire length between Katarapko Creek and Eckert's Creek; and
2. Eckert's Creek, for 1.3 kilometres upstream of the confluence point with Katarapko Creek (ie *The Splash*).

The construction works will enable over 1120 hectares of floodplain to be inundated more regularly to improve ecological health and resilience. For more information, or to receive regular updates, about the Katarapko Floodplain Project please contact the Department for Environment and Water's Engagement Officer, Ms Ellee Eleftheriadis on 8595 2148 or email ellee.eleftheriadis2@sa.gov.au

Pike

Following the success of the recent Pike community tour, a second tour has been arranged for those who missed out. It will be held on **Sunday, 19 May 2019 from 2 pm until 5pm, leaving from Bert Dix Park**. To register please phone Ellee Eleftheriadis on 8595 2148 or email Ellee.eleftheriadis2@sa.gov.au

The construction of regulating structures and a blocking bank on the Pike Floodplain is expected to be completed by December 2019. 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. 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.

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 10/4/2019 (m AHD)	1974 Flood Level (m AHD)	1993 Flood Level (m AHD)	2016 High Water Level (m AHD)
Lock 10	825.0	30.80	30.87	33.81	33.32	32.72
Lock 9 Kulnine	764.8	27.40	27.38	30.03	29.44	28.85
Lock 8 Wangumma	725.7	24.60	23.61	27.60	27.19	26.85
Lock 7 Rufus River	696.6	22.10	21.24	25.70	25.24	24.97
Lock 6 Murtho	619.8	19.25	19.24	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	-	13.30	16.85	16.26	15.80
Berri	525.9	-	13.26	15.81	15.74	15.21
Lock 4	516.2	13.20	13.26	15.65	15.08	14.73
Loxton	489.9	-	10.11	15.05	14.12	13.54
Cobdogla	446.9	-	9.88	13.44	12.38	11.59
Lock 3	431.4	9.80	9.84	13.16	12.02	10.98
Overland Corner	425.9	-	6.33	12.73	11.58	10.41
Waikerie	383.6	-	6.28	11.26	10.24	9.20
Lock 2	362.1	6.10	6.18	10.28	9.30	8.32
Cadell	332.6	-	3.42	9.17	8.08	7.01
Morgan	321.7	-	3.35	8.85	7.65	6.38
Lock 1 Blanchetown	274.2	3.20	3.27	6.81	5.38	4.46
Swan Reach	245.0	0.75	0.55	6.06	4.51	3.11
Mannum PS	149.8	0.75	0.54	3.15	1.90	1.33
Murray Bridge	115.3	0.75	0.46	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. For real-time data (like salinity, water levels) go to the following page:
WaterConnect Real-time water data

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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