

# RIVER MURRAY FLOW REPORT and WATER RESOURCES UPDATE

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Report #2/2019

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This supersedes the previous flow report issued by the Department for Environment and Water (DEW) on 11 January 2019. The next report will be provided on Friday 25 January 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.

## RIVER MURRAY SYSTEM WATER DELIVERY SHORTFALL RISKS

Water delivery shortfalls are rare but occur when available water cannot be delivered to users when they want it. For example, it could happen when demand exceeds the physical capacity of rivers and channels or when demand for water unexpectedly spikes and there's not enough time to release additional water from upstream reservoirs to meet the demand.

Water holders along the River Murray, especially downstream of the Barmah Choke (which is located upstream of Echuca in Victoria and Deniliquin in NSW), need to understand the risk of a water delivery shortfall and take it into account in business planning and investment decisions. For more information about water delivery shortfall see the factsheet on the Murray-Darling Basin Authority's website [RM water delivery shortfall risk factsheet](#)

The risk of a shortfall being experienced in South Australia during 2018-19 is extremely low. In any event, there is no risk to South Australian River Murray Entitlement Holders receiving their full 100% water allocation.

## MANAGEMENT OF SOUTH AUSTRALIA'S DEFERRED WATER

The Murray-Darling Basin Authority confirmed that on 1 January 2019 South Australia had 308.2 GL of deferred water held in storage. The table below identifies the storage in which it is held and the purpose.

At 1 January 2019				
Purpose	Lake Victoria (GL)	Hume (GL)	Dartmouth (GL)	Total (GL)
*CHWN	15.6	0.0	190.0	205.6
Private Carryover	0.0	0.0	102.6	102.6
<b>Total</b>	15.6	0.0	292.6	308.2

\*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 December 2018, the total River Murray System inflow was approximately 264 GL, which is approximately 58% of the December long-term average of 458 GL. There was no inflow to Menindee Lakes (from the Darling System) during December 2018, compared to the December long-term average of 121 GL.

The flow to South Australia during December 2018 was approximately 264 GL, which is about 38% of the December long-term average of approximately 687 GL. The flow comprised:

- 217 GL of Entitlement Flow (includes environmental water on SA licence);
- plus 60 GL of environmental water;
- plus 2.9 GL of trade into South Australia;
- less 15.7 GL of deferred water.



## RAINFALL AND TEMPERATURE OUTLOOK

The latest Bureau of Meteorology weather outlook for January to March 2019 indicates drier than average to 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)	16/1/2019 (GL)	16/1/2018 (GL)	Long-term average (end of January) (GL)
Dartmouth	3 856	2 660 (69%)	3 439 (89%)	
Hume	3 003	1 055 (35%)	1 969 (66%)	
Lake Victoria	677	467 (69%)	602 (89%)	
Menindee Lakes	*1 731	54 (3%)	398 (23%)	
<b>TOTAL</b>	<b>9 267</b>	<b>4 236 (46%)</b>	<b>6 408 (69%)</b>	<b>6 343 (68%)</b>

\*Menindee Lakes can be surcharged to 2 015 GL

## WATER QUALITY – Blue-green algae

There is a blue-green algal bloom and major fish kill in the lower Darling River. This is a result of dry conditions, low flows and high temperatures. There is no risk of this algal bloom and fish kill having an impact on South Australia. This is because there is no flow from the Darling River into the River Murray and flowing to South Australia.

On 14 January 2019, a blue-green algal alert was issued for the Wentworth (Lock 10) to the Mildura (Lock 11) weir pool on the River Murray.

It is reasonably common for algal blooms to be reported at this time of the year. There is an increasing risk of an algal bloom developing in the South Australian section of the River Murray due to the extreme high temperatures, weather patterns, reducing flows, abundant sunlight, sufficient levels of nutrients and observations upstream.

The relevant South Australian Government agencies are regularly monitoring the situation. Currently, there is no evidence of elevated blue-green algae in the South Australian section of the River Murray. If the situation changes, advice will be provided.

## 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 January 2018 to January 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 February, March, April and July 2018 are due to biofouling at the EC sensor.

There could be a problem at the Milang gauge during December 2018 and January 2019. In the coming months, this information will be verified and may be modified to account for any discrepancies.

### FLOW OUTLOOK

The flow at the South Australian border is approximately 7.5 GL/day and will remain around this rate during the coming week. It comprises:

- normal January Entitlement Flow of 7 GL/day;
- less deferred water;
- plus environmental water; and
- interstate trade adjustments.

The flow over Lock 1 is approximately 4.5 GL/day and will decrease to around 4.3 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.

### ENVIRONMENTAL WATER

During January, environmental water will be delivered to South Australia for:

- a range of outcomes at wetlands in the Riverland via arrangements with the Nature Foundation SA, SA Murray-Darling Basin Natural Resources Management Board and at 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;
  - provide conditions to support a Black bream spawning event (for further details see *Barrage Operations and Water Levels in the Lower Lakes* section).

## 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 13 January 2019, a total of approximately 3 881 000 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 0.68 m AHD. When possible, water levels are being managed to achieve a target water level of between 0.6 m AHD and 0.7 m AHD by the end of January 2019.

During the week ending 15 January 2019 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.

## 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.

## 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 around the end of March to April 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.

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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 to Murray Bridge.

**River Murray Water Levels**

Location	River km	Normal Pool Level (m AHD)	Current Level 16/1/2019 (m AHD)	1974 Flood Level (m AHD)	1993 Flood Level (m AHD)	2016 High Water Level (m AHD)
Lock 10	825.0	30.80	30.89	33.81	33.32	32.72
Lock 9 Kulnine	764.8	27.40	27.33	30.03	29.44	28.85
Lock 8 Wangumma	725.7	24.60	24.15	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	19.23	21.03	20.50	20.19
Renmark	567.4	-	16.32	18.54	18.04	17.44
Lock 5	562.4	16.30	16.31	18.07	17.50	17.05
Lyrup	537.8	-	13.25	16.85	16.26	15.80
Berri	525.9	-	13.22	15.81	15.74	15.21
Lock 4	516.2	13.20	13.22	15.65	15.08	14.73
Loxton	489.9	-	10.08	15.05	14.12	13.54
Cobdogla	446.9	-	9.84	13.44	12.38	11.59
Lock 3	431.4	9.80	9.80	13.16	12.02	10.98
Overland Corner	425.9	-	6.26	12.73	11.58	10.41
Waikerie	383.6	-	6.27	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	-	3.28	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	0.74	6.06	4.51	3.11
Mannum PS	149.8	0.75	0.71	3.15	1.90	1.33
Murray Bridge	115.3	0.75	0.65	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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