

River Murray Flow Report and Water Resources Update



Report #49/2019

Issued 10:00 am 20 December 2019

This supersedes the previous flow report issued by the Department for Environment and Water (DEW) on 13 December 2019. The next flow report will be provided on Friday 3 January 2020. The next Water Resources Update will be provided on Friday 17 January 2020.

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 RESOURCES UPDATE

During November 2019, the total River Murray System inflow was approximately 194 GL, which is approximately 24% of the November long-term average of 803 GL. There was no inflow to Menindee Lakes (from the Darling System) during November 2019, compared to the November long-term average of 125 GL.

The flow to South Australia during November 2019 was approximately 190 GL, which is about 21% of the November long-term average of approximately 898 GL. The flow comprised of Entitlement Flow (includes environmental water on SA licence) and environmental water.

CONSULTATION ON UPDATED CARRYOVER POLICY IN SOUTH AUSTRALIA

The South Australian Murray-Darling Basin Natural Resources Management Board (the Board), in partnership with the Department for Environment and Water (DEW), is considering potential amendments to the Private Carryover Policy included in the River Murray Water Allocation Plan.

The Board has heard that improvements can be made to the Private Carryover Policy after implementation of the policy in the 2019-20 water use year.

The Board intends to prepare an amendment to the River Murray Water Allocation Plan incorporating changes to the policy, with consultation on a draft plan scheduled to begin in January 2020.

Consultation in early 2020 will ensure that any changes, if supported by the community, are in place by the first opening water allocation announcement due to be made in April 2020.

Information sessions will be held at the following locations to discuss the changes proposed:

Loxton

Location: Loxton Research Centre, Bookpurnong Road, Loxton

Date: Tuesday 4 February 2020

Time: 11.00 am – 1.00 pm

Murray Bridge

Location: Murray Bridge Golf Club, 1 Ritter Road, Murray Bridge

Date: Thursday 6 February 2020

Time: 11.00 am – 1.00 pm

If you are unable to make these information sessions, there will be other opportunities to discuss the changes and provide feedback.

The start of the two month consultation period will be announced in early January 2020. Further information outlining the changes will be provided on the Natural Resources SA Murray-Darling Basin [website](#) when consultation commences. Keep an eye on the website for consultation details early in 2020.

PUMP SURVEY

DEW, in partnership with Ardal Water Solutions, is currently undertaking a pump survey in the Lock 5-6 area. The purpose of the pump survey is to assist DEW to identify the current capacity of pumps under a range of water levels. To determine this information, a visit by a representative from Ardal Water Solutions may be required.

During the next few months, many pump operators/owners in the Lock 5-6 area will receive a letter informing them of the pump survey and that a representative from Ardal Water Solutions may call to arrange a suitable time to visit to discuss their pump infrastructure. If you have any questions about this pump survey, please call Eva Dec on (08) 8204 1139 or send an email to eva.dec@sa.gov.au.

RIVER MURRAY PENALTY RATES

Penalty rates for the River Murray have increased for this quarter (October to December 2019) in response to the drought and water market conditions being experienced across the Basin. Penalty rates are calculated based on market value and take into account the risk to the resource if water theft occurs.

This quarter (and the last one) has seen an increasing trend in the water prices for the River Murray. Simultaneously the water theft risk category was reassessed as part of the annual review (increasing from a Category 3 to 3A). This reflects the potential for the current demand to exceed supply.

For category definitions and more detail about the risk-based compliance approach please see the [National Framework for Compliance and Enforcement Systems for Water Resource Management](#).

WATER ALLOCATIONS

Water allocations for South Australian River Murray Class 3 water access entitlement holders are 100%.

For more information on South Australia's water allocations visit the [DEW website](#) or email DEWRiverMurrayOps@sa.gov.au

For information on Victoria's water allocations visit [Victorian Water Allocations](#)

For information on NSW water allocations visit [NSW Water Allocation Statements](#).

MANAGEMENT OF SOUTH AUSTRALIA'S DEFERRED WATER

The Murray-Darling Basin Authority confirmed that on 1 December 2019 South Australia had 341.6 GL of deferred water held in storage. The table below identifies the storage in which it is held and the purpose.

At 1 December 2019				
Purpose	Lake Victoria (GL)	Hume (GL)	Dartmouth (GL)	Total (GL)
*CHWN	0.0	0.0	239.1	239.1
Private Carryover	0.0	0.0	102.0	102.0
Total	0.0	0.0	341.1	341.1

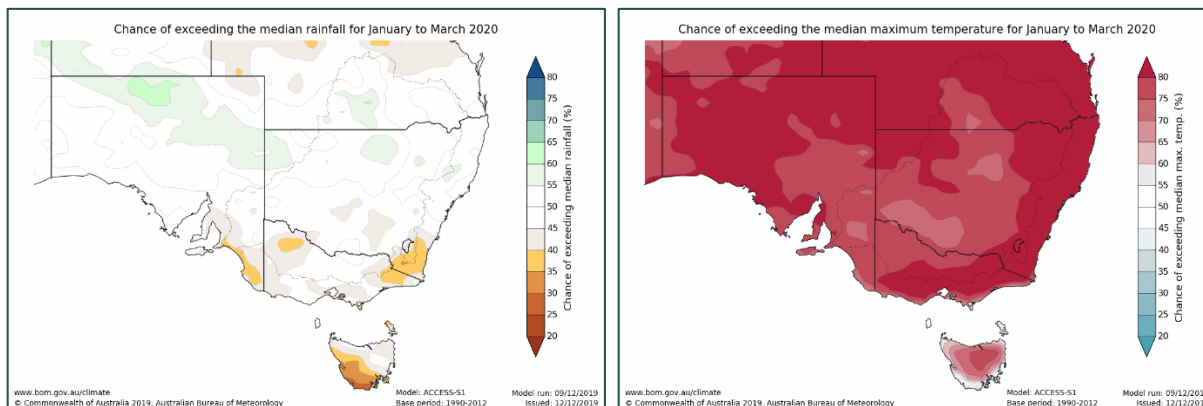
*Critical Human Water Needs (CHWN)

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

RAINFALL AND TEMPERATURE OUTLOOK

The latest Bureau of Meteorology weather outlook for Murray-Darling Basin from January to March 2020 indicates:

- most of the area is expected to receive average rainfall with small areas of below average rainfall and small areas of above average rainfall; and
- warmer than average temperatures.



The outlook is being influenced by a positive Indian Ocean Dipole (IOD). A positive IOD usually brings below average rainfall, with above average temperatures to Southern Australia.

The Southern Annular Mode (SAM) is experiencing a negative phase, which is expected to persist into January 2020. A negative SAM during summer tends to bring drier and warmer conditions to parts of eastern Australia.

The El Niño-Southern Oscillation (ENSO) is currently neutral, which means the Australian climate is not being influenced by El Niño nor La Niña.

The latest Bureau of Meteorology outlook information can be accessed [here](#).

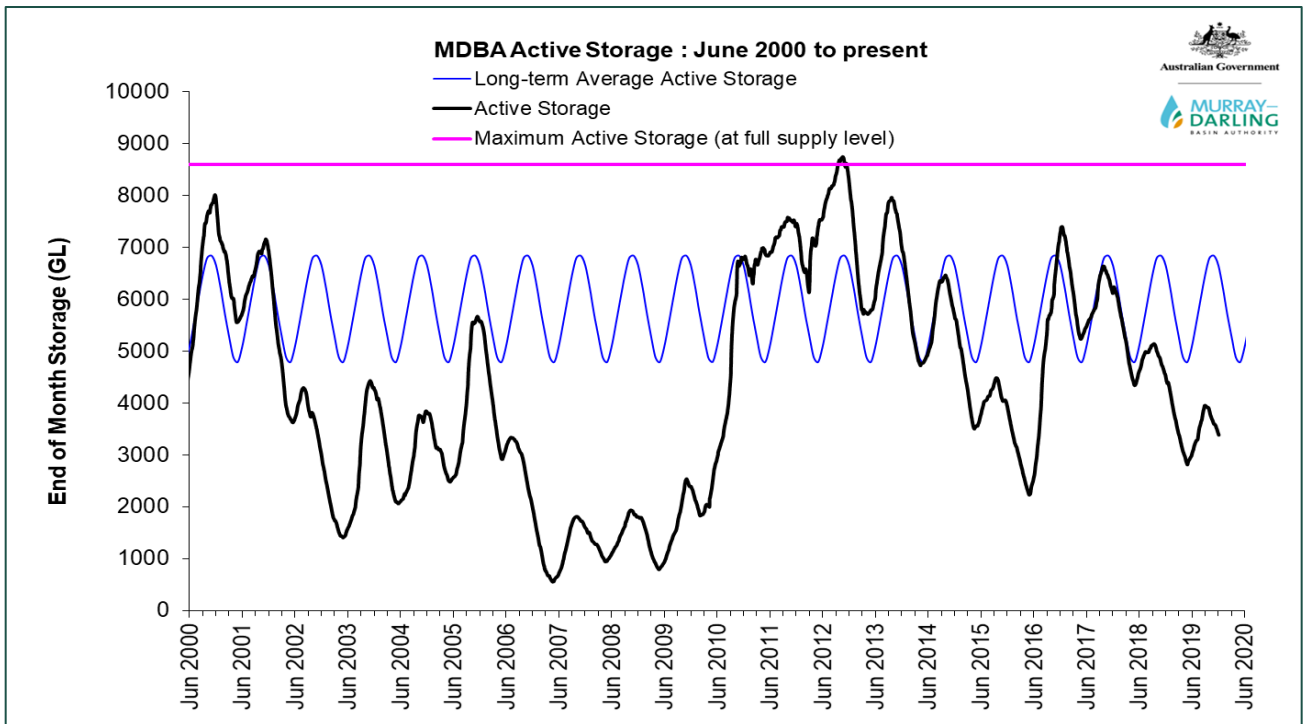
STORAGE VOLUMES

Murray-Darling Basin Storage Volumes

Storage	Full Supply Volume (GL)	18/12/2019 (GL)	18/12/2018 (GL)	Long-term average (end of December) (GL)
Dartmouth	3 856	2 026 (53%)	2 778 (72%)	
Hume	3 003	895 (30%)	1 254 (42%)	
Lake Victoria	677	490 (72%)	564 (83%)	
Menindee Lakes	*1 731	8 (0%)	85 (5%)	
TOTAL	9 267	3 419 (37%)	4 681 (51%)	6 871 (74%)

*Menindee Lakes can be surcharged to 2 015 GL

The following graph has been provided by the Murray-Darling Basin Authority. The graph shows the volume of water held in the Murray-Darling Basin storages from June 2000 to now and the long-term average storage for the same period.



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 December 2018 to December 2019. The dashed-lines identify the Basin Plan (BP) thresholds for the corresponding colour coded location.

SA River Murray Daily Average Salinity



WATER QUALITY – Blue-Green Algae

A red alert has been issued for blue-green algae from Red Cliffs to Mildura (Lock 11) and from Mildura to Wentworth. An amber alert has been issued at Lock 8.

At this stage there is no threat to South Australia. The situation will be closely monitored by SA Water and the Department for Environment and Water.

All water users are encouraged to continue with their plans to visit the River Murray during summer but to be mindful of water that looks discoloured or has a visible scum on the surface.

FLOW OUTLOOK

The minimum volume of Entitlement Flow available to South Australia during 2019-20 (at 10 December 2019) is 1 560 GL. As water resource conditions improve across the Murray-Darling Basin, this volume will increase. Full Entitlement Flow is 1 850 GL.

The flow at the South Australian border is approximately 7.3 GL/day and will increase to around 7.8 GL during the coming week. It comprises:

- reduced December Entitlement Flow of 6.05 GL/day;
- water for the environment (see below *Water for the Environment*); and
- interstate trade adjustments.

Due to the dry water resource conditions across the Murray-Darling Basin, South Australia is currently receiving reduced monthly Entitlement Flow. During December 2019, South Australia will receive a reduced Entitlement Flow of 187.6 GL, compared to the full December Entitlement Flow of 217 GL. It is likely that reduced Entitlement Flow will continue during 2019-20 unless the water resource conditions improve enough to provide South Australia with close to its full Entitlement Flow. In addition to the reduced Entitlement Flow, South Australia will receive water for the environment.

The flow over Lock 1 is approximately 3.5 GL/day and will increase to around 3.7 GL 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.

WATER FOR THE ENVIRONMENT

Water for the environment is currently being used to:

- provide for barrage releases to the Coorong to protect estuarine habitat refuge for fish and birds in the North Lagoon;
- maintain connections through open fishways (at a minimum) between the Coorong, Lower Lakes and the River Murray to enable fish movement;
- maintain water quality and salinity levels below critical thresholds in the River Murray channel, Lower Lakes and Coorong; and
- deliver a range of outcomes to wetlands in the Riverland via arrangements with South Australian Murray-Darling Basin Natural Resources Management Board, Renmark Irrigation Trust, Banrock Station and Nature Foundation South Australia.

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.

One dredge is operating between the Goolwa and Tauwiche channels 24 hours a day, 7 days a week. Dredging operations will cease on public holidays during the Christmas New Year period.

At 15 December, a total of approximately 5 150 747 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 is approximately 0.68 m AHD and Lake Albert is approximately 0.72 m AHD. The difference in water level is due to wind effects.

Water for the environment is enabling barrage releases to be undertaken for a longer period during spring and summer. As of Tuesday 17 December 2019, the weekly barrage releases were approximately 1.4 GL. As of 17 December 2019 only the 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.

SA RIVERLAND FLOODPLAINS INTEGRATED INFRASTRUCTURE PROGRAM CONSTRUCTION WORKS

Katarapko

Construction works on the Katarapko Floodplain 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.elftheriadis2@sa.gov.au

Pike

Although work on the regulating structures and blocking bank on the Pike Floodplain is now complete, other works continue in this area. Vessels and persons other than those participating in the works are still 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 18/12/2019 (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	27.43	30.03	29.44	28.85
Lock 8 Wangumma	725.7	24.60	23.95	27.60	27.19	26.85
Lock 7 Rufus River	696.6	22.10	21.48	25.70	25.24	24.97
Lock 6 Murtho	619.8	19.25	19.27	21.03	20.50	20.19
Renmark	567.4	-	16.30	18.54	18.04	17.44
Lock 5	562.4	16.30	16.30	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	-	10.02	15.05	14.12	13.54
Cobdogla	446.9	-	9.86	13.44	12.38	11.59
Lock 3	431.4	9.80	9.81	13.16	12.02	10.98
Overland Corner	425.9	-	6.22	12.73	11.58	10.41
Waikerie	383.6	-	6.23	11.26	10.24	9.20
Lock 2	362.1	6.10	6.11	10.28	9.30	8.32
Cadell	332.6	-	3.34	9.17	8.08	7.01
Morgan	321.7	-	3.28	8.85	7.65	6.38
Lock 1 Blanchetown	274.2	3.20	3.22	6.81	5.38	4.46
Swan Reach	245.0	0.75	0.67	6.06	4.51	3.11
Mannum PS	149.8	0.75	0.69	3.15	1.90	1.33
Murray Bridge	115.3	0.75	0.63	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](#)

ID	RM-Flow-Report 20191220
Classification	Public I2 A2
Issued	20 December 2019
Authority	DEW
Master Document Location	R:\Water Group\RMO\WRO\04 Communications\Flow Advices\2019-20
Managed and Maintained by	Water Infrastructure and Operations Branch
Author	Water Infrastructure and Operations Branch
Reviewer	Director, Water Infrastructure and Operations