River Murray Flow Report and Water Resources Update

Government of South Australia
Department for Environment and Water

Report #2/2022

Issued 10:00 am 14 January 2022

This supersedes the previous flow report issued by the Department for Environment and Water (DEW) on 7 January 2022. The next flow report will be provided on Friday 21 January 2022.
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 December 2021, the total River Murray System inflow was approximately 1 150 GL, which is well above the December long-term average of 458 GL. During December 2021, the total Menindee Lakes inflow was approximately 293 GL, which is more than double the December long-term average of 121 GL.

The flow to South Australia during December 2021 was approximately 969 GL, which is above the December long-term average of 687 GL. The flow comprised of Entitlement Flow (including environmental water on SA licence), environmental water, trades, Additional Dilution Flow (ADF) and unregulated flow.

MANAGEMENT OF SOUTH AUSTRALIA'S DEFERRED WATER

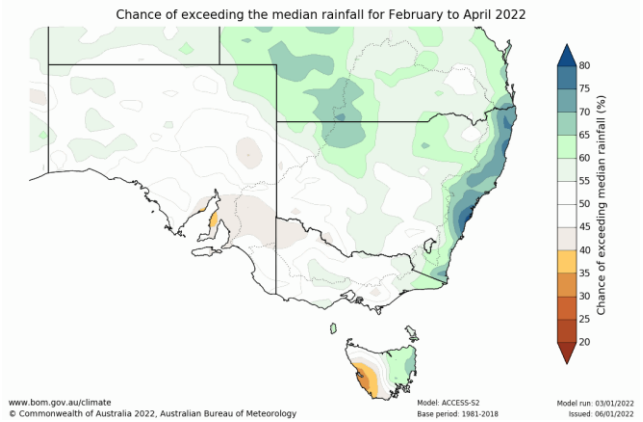
The Murray-Darling Basin Authority confirmed that on 1 January 2022 South Australia had 336.8 GL of deferred water held in storage in the Murray-Darling Basin. The following table identifies the storage in which it is held and its purpose. Volumes stored are adjusted for net evaporation losses and spills until delivered to South Australia.

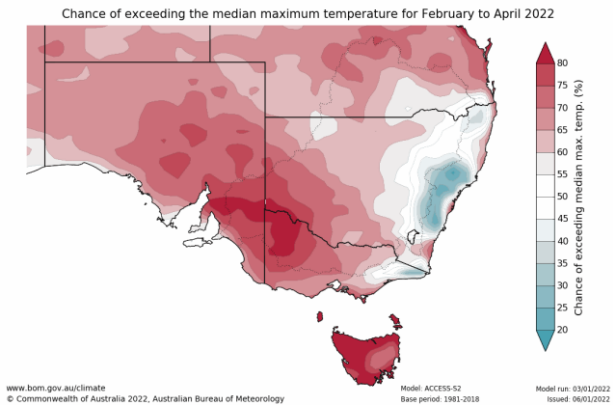
At 1 January 2022				
Purpose	**Lake Victoria (GL)**	**Hume (GL)**	**Dartmouth (GL)**	**Total (GL)**
***CHWN**	0	0	236.1	236.1
Private Carryover	0	0	100.7	100.7
Total	0	0	336.8	336.8

*Critical Human Water Needs (CHWN)

RAINFALL AND TEMPERATURE OUTLOOK

The latest Bureau of Meteorology weather outlook forecasts that rainfall from February to April 2022 will have a 40 -55% chance of exceeding the median rainfall across the Southern Connected Basin depending on location. The lowest chance of exceeding the median rainfall is over the Riverland in South Australia. Temperatures from February to April 2022 are more likely to be above median for the Southern Connected Basin and most of the Northern Basin.





The Bureau's ENSO Outlook shows that a La Nina remains in the tropical Pacific and is likely to persist until early autumn 2022. Typically La Nina events increase the chance of above average rainfall for northern and eastern Australia during spring and summer.

The Southern Annular Mode (SAM) is currently neutral but forecast to approach positive levels during the remainder of January. A positive SAM typically brings wetter conditions to eastern parts of Australia.

The latest Bureau of Meteorology outlook information can be accessed here.

STORAGE VOLUMES

Table 1: Murray-Darling Basin Storage volumes

Storage	Full Supply Volume (GL)	12/1/2022 (GL)	12/1/2021 (GL)	Long-term average (end of Jan) (GL)
Dartmouth	3 856	**3 488 (90%)**	2 396 (62%)	
Hume	3 007	**2 980 (99%)**	1 816 (60%)	
Lake Victoria	677	**528 (78%)**	399 (60%)	
Menindee Lakes	*1 731	**1 585 (92%)**	340 (20%)	
TOTAL	9 271	**8 581 (93%)**	4 951 (53%)	6 343 (68%)

*Menindee Lakes can be surcharged to 2 015 GL

WATER QUALITY - Salinity

A number of targets are identified under the Murray-Darling Basin Plan, which all Basin jurisdictions 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 and 1 000 EC at Milang.

The following graph shows the salinity at these locations and the flow to South Australia (QSA) from January 2021 to January 2022. The dashed-lines identify the Basin Plan (BP) thresholds for the corresponding colour coded location.

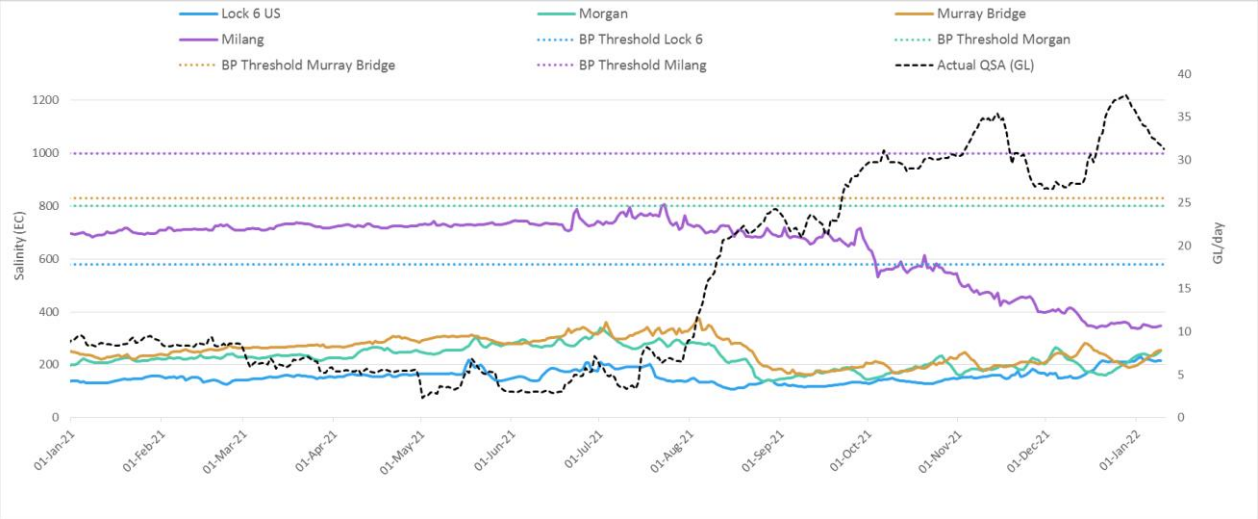


Figure *1: SA River Murray daily average salinity*

QUARTER 2 METER READINGS DUE

If you hold a water resource works approval that includes a condition that requires you to provide quarterly meter readings to the Department for Environment and Water, please be reminded that meter readings for the Quarter 2 accounting period for 2021-22 (which ended on 31 December 2021) must be recorded within the first fourteen days of January 2022 and submitted to the department by 31 January 2022.

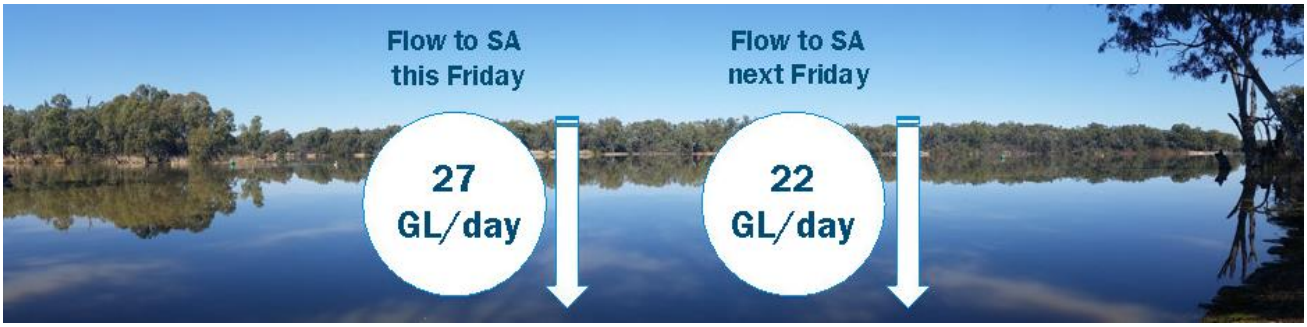
Your meter reading can be submitted via one of the following options:

- The online meter reading form at https://forms.business.gov.au/smartforms/sa-dfw/meter-reading-form/; OR
- By emailing the Department for Environment and Water at DEW.waterlicensingberri@sa.gov.au

Should you require assistance in supplying your meter reading, including how to complete the online meter reading form, please call the Berri office on (08) 8595 2053 and an officer of the department will be happy to assist you.

The department's preferred approach is to encourage and facilitate voluntary compliance. However, failure to voluntarily comply with the conditions of a water resource works approval may result in an expiation notice being issued.

FLOW OUTLOOK



The flow at the South Australian border is approximately 27 GL/day and will decrease to around 22 GL/day over the coming week. It comprises:

- full January Entitlement Flow (7 GL/day);
- plus water for the environment (see below *Environmental News*);
- interstate trade adjustments;
- Additional Dilution Flow (ADF); and
- Unregulated flow.

The flow over Lock 1 is approximately 29 GL/day and will decrease to around 23 GL/day over the coming week.

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 NEWS

Unregulated flow from rainfall in upstream catchments continues to reach South Australia as flows from the Murray, Murrumbidgee and Lower Darling combine. South Australia is also receiving water for the environment from South Australia's environmental water allocation and return flows from upstream watering.

The current flows from the River Murray and upstream tributaries, through to the Coorong, will provide a range of benefits for the environment in SA, including:

- providing 'flowing water habitat' to benefit native fish, animals and plants in the River Murray channel that have adapted to a riverine environment, including supporting conditions that favour spawning and recruitment of golden perch and Murray cod. Monitoring detected golden perch eggs and larvae at various sites throughout the Lower Murray during spring;
- providing for barrage releases to the Coorong to support a productive, food-rich environment for fish and birds and promote suitable conditions for estuarine fish to spawn and support salinities and water levels that encourage the reproduction and growth of keystone native plant *Ruppia tuberosa*;

- providing habitat for birds, frogs and threatened small-bodied native fish species in the Lower Lakes;
- maintaining good connections from the Coorong to the upstream areas of the River Murray, and its tributaries, to enable fish movement and migration;
- maintaining healthy water quality, salinity and water levels in the River Murray Channel and the Lower Lakes and Coorong;
- removing excess salt from the River Murray; and
- delivering a range of outcomes to wetlands in the Riverland via arrangements with Nature Foundation Limited, Australian Landscape Trust, Accolade Wines Ltd and the Murraylands and Riverland Landscape Board.

Figure 2: Mundic Creek on the Pike Floodplain (Brett Ibbotson, DEW)

STAY SAFE ON AND AROUND THE RIVER OVER THE NEW YEAR

Higher flows have breathed life into the River and its creeks and floodplains over recent months and it's a fantastic time to get out and explore. While out exploring people should be aware that the river is moving faster and to only swim in areas of slow flowing water, free of submerged hazards and always wear a life jacket.

If you are intending to travel on houseboats or explore quiet backwaters and creeks in smaller craft, it's strongly recommended that you get in touch with commercial boat operators for local advice.

For more information on boat safety you can visit the Marine Safety SA website at: https://www.marinesafety.sa.gov.au/

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. At 9 January 2022, a total of approximately 7 966 732 cubic metres of sand had been removed by dredging operations. Both dredges are currently operating in the Goolwa and Tauwitchere channels 24 hours a day, 5 days a week.

Barrage releases combined with dredging have helped to maintain flow connectivity of the River Murray Channel to the Murray Mouth and have assisted in exporting salt from the river system.

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 0.81 m AHD and Lake Albert is approximately 0.84 m AHD. The difference is due to wind effects.

As of Tuesday 11 January 2022, the weekly releases were approximately 132 GL. Total daily release volumes from the barrage can now be accessed via Water Data SA by searching for the gauge A4261002.

Gate openings at the barrages during the week can be seen in Table 1. Barrage releases are currently being prioritised through Tauwitchere barrage in order to maintain water levels in the Coorong.

Table 2: Number of barrage gates open each day for the week ending Tuesday 11 January 2022

Barrage (total number of gates)	**5 Jan 2022**	**6 Jan 2022**	**7 Jan 2022**	**8 Jan 2022**	**9 Jan 2022**	**10 Jan 2022**	**11 Jan 2022**	**Objective of releases**
Goolwa (120)	3	3	3	3	3	3	3	Maintain connectivity between the River Murray channel through to the Murray Mouth to support fish migration, provide some scouring of the Goolwa Channel and Murray Mouth.
Mundoo (25)	0	0	0	0	0	0	0	Provide some localised freshening conditions in the Mundoo channel and support fish passage.
Boundary Creek (5)	1*	1*	1*	1*	1*	1*	1*	Provide attractant flow adjacent the fish way to support fish passage.
Ewe Island (110)	0	0	0	0	0	0	0→12	Releases will help push fresher water down the Coorong to assist lowering salinity levels and provide habitat diversity.
Tauwitchere (319)	60	60	60→41	41	41→60	60	60	
Fishways	Fishways at all barrages and at Hunters Creek (11 in total) were open during the entire week							Provide for fish passage between the Coorong and Lower Lakes.

**Automated gate utilised to maximise delivery to Coorong and avoid reverse flows.*

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.

RIVER VESSEL WASTE DISPOSAL STATIONS

The Lock 3 River Vessel Waste Disposal Station is currently out of commission due to an infrastructure failure. Investigations are currently underway to replace the station. In the interim, river vessel users can contact Riverland Tank and Drain directly on 0412 839 392 for emptying of black and grey water in the Lock 3 area. Alternatively they can utilise the nearest alternative waste facility located at Waikerie. Normal boat waste (domestic or galley waste) can still be deposited at the Lock 3 facility at the present time.

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 to Murray Bridge.

Location	River km	Normal Pool Level (m AHD)	Current Level 12/1/2022 (m AHD)	2016 High Water Level (m AHD)
Lock 10	825.0	30.80	30.78	32.72
Lock 9 Kulnine	764.8	27.40	27.32	28.85
Lock 8 Wangumma	725.7	24.60	24.65	26.85
Lock 7 Rufus River	696.6	22.10	22.98	24.97
Lock 6 Murtho	619.8	19.25	19.24	20.19
Renmark	567.4	-	16.39	17.44
Lock 5	562.4	16.30	16.32	17.05
Lyrup	537.8	-	13.53	15.80
Berri	525.9	-	13.34	15.21
Lock 4	516.2	13.20	13.19	14.73
Loxton	489.9	-	11.17	13.54
Cobdogla	446.9	-	-	11.59
Lock 3	431.4	9.80	9.84	10.98
Overland Corner	425.9	-	7.47	10.41
Waikerie	383.6	-	6.64	9.20
Lock 2	362.1	6.10	6.12	8.32
Cadell	332.6	-	4.27	7.01
Morgan	321.7	-	3.87	6.38
Lock 1 Blanchetown	274.2	3.20	3.22	4.46
Swan Reach	245.0	0.75	1.25	3.11
Mannum PS	149.8	0.75	0.91	1.33
Murray Bridge	115.3	0.75	0.78	1.04

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

FURTHER INFORMATION

The Water Data SA website is South Australia's comprehensive water information portal. For real-time data (like salinity, water levels) go to the following page: Water Data SA.

Up-to-date River Murray salinity, flow and water level information can also be accessed at the 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:
Managing Acid Sulfate Soils Research Project

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.

Katarapko Floodplain site management

Pike Floodplain site management

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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