

SA River Murray Flow Report

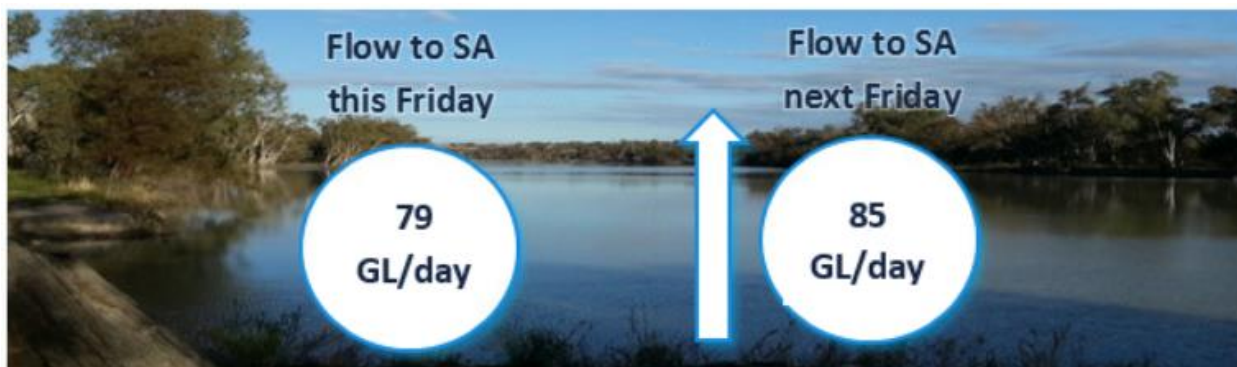


Report #41/2022

Issued 10:00 am 21 October 2022

This supersedes the previous Flow Report issued by the Department for Environment and Water (DEW) on 14 October 2022. The next Flow Report will be provided on Friday 28 October 2022.

Flow outlook



The flow at the South Australian border is approximately 79 GL/day and is forecast to increase to around 85 GL/day over the coming week. The current flow at the border comprises:

- full October Entitlement Flow (5.5 GL/day), which includes water for the environment;
- interstate trade adjustments;
- Additional Dilution Flow (ADF); and
- Unregulated flow.

The latest forecasts upstream of the South Australian border indicate that the flow to SA will continue increasing during November 2022. It is expected that the **flow to SA will reach approximately 85 GL/day around 28 October 2022. Forecasts indicate the flow will continue to rise during November and reach approximately 120 GL/day in early December.**

This forecast is based on water that is already in transit to South Australia and does not include further rainfall. Further increases are highly likely as a result of more rainfall over the Murray-Darling Basin in the coming weeks.

Flood Advice

The South Australia State Emergency Service (SASES) is the responsible agency for issuing Flood Advice for the River Murray in SA. You can view the latest advice on the SASES website: <https://www.ses.sa.gov.au/incidents-and-warnings/current-warning-list/>

Current and forecast water levels

The table below shows estimated high water levels (based on historical events and modelling) and approximate timing of those water levels if the flow reaches 120 GL/day at the SA border in the coming weeks.

Note that forecasts are based on information available at the time of preparation and may change due to rainfall events or changed operations upstream. Note also that the current forecast indicates a flat peak spanning a number of weeks, hence an approximate date range has been provided.

Location	Normal Pool Level (m AHD)	Current level at 19/10/22 (m AHD)	Water level is currently (m AHD)	Forecast water levels at ~ 120 GL/day (m AHD)	Estimated timing of peak	2016 High Water Level (m AHD)*
Lock 6	19.25	19.82	Rising	-	28 Nov – 12 Dec	20.19
Renmark	-	-	Rising	17.80		17.44
Lock 5	16.30	16.47	Rising	17.38		17.05
Lyrup	-	15.10	Rising	16.37	-	15.80
Berri	-	14.61	Rising	15.65	31 Nov – 15 Dec	15.21
Lock 4	13.20	14.19	Rising	15.05		14.73
Loxton	-	12.88	Rising	-	1 Dec – 16 Dec	13.54
Lock 3	9.80	9.91	Rising	11.98	3 Dec Nov – 18 Dec	10.98
Overland Comer	-	9.20	Rising	11.76	-	10.41
Waikerie	-	7.74	Rising	9.97	5 Dec – 20 Dec	9.20
Lock 2	6.10	7.05	Rising	9.30	6 Dec – 21 Dec	8.32
Cadell	-	5.74	Rising	-	-	7.01
Morgan	-	4.99	Rising	7.77	8 Dec – 23 Dec	6.38
Lock 1	3.20	3.42	Rising	5.63	9 Dec – 24 Dec	4.46
Swan Reach	0.75	2.17	Rising	4.84**	-	3.11
Mannum PS	0.75	0.95	Rising	2.04**	-	1.33
Murray Bridge	0.75	0.78	Rising	1.48**	15 Dec – 30 Dec	1.04

*In 2016, the peak flow was 94.6 GL/day at the SA border and 81.4 GL/day at Lock 1. The degree to which the peak flow attenuates (reduces and flattens out) as it moves down the river in South Australia varies between each event. Water level predictions in the above table are higher for 90 GL/day than the 2016 event in some locations because at this stage it has been assumed that less attenuation of the peak will occur.

** Water levels below Lock 1 are difficult to forecast due to influence of Lower Lakes water levels & barrage operations

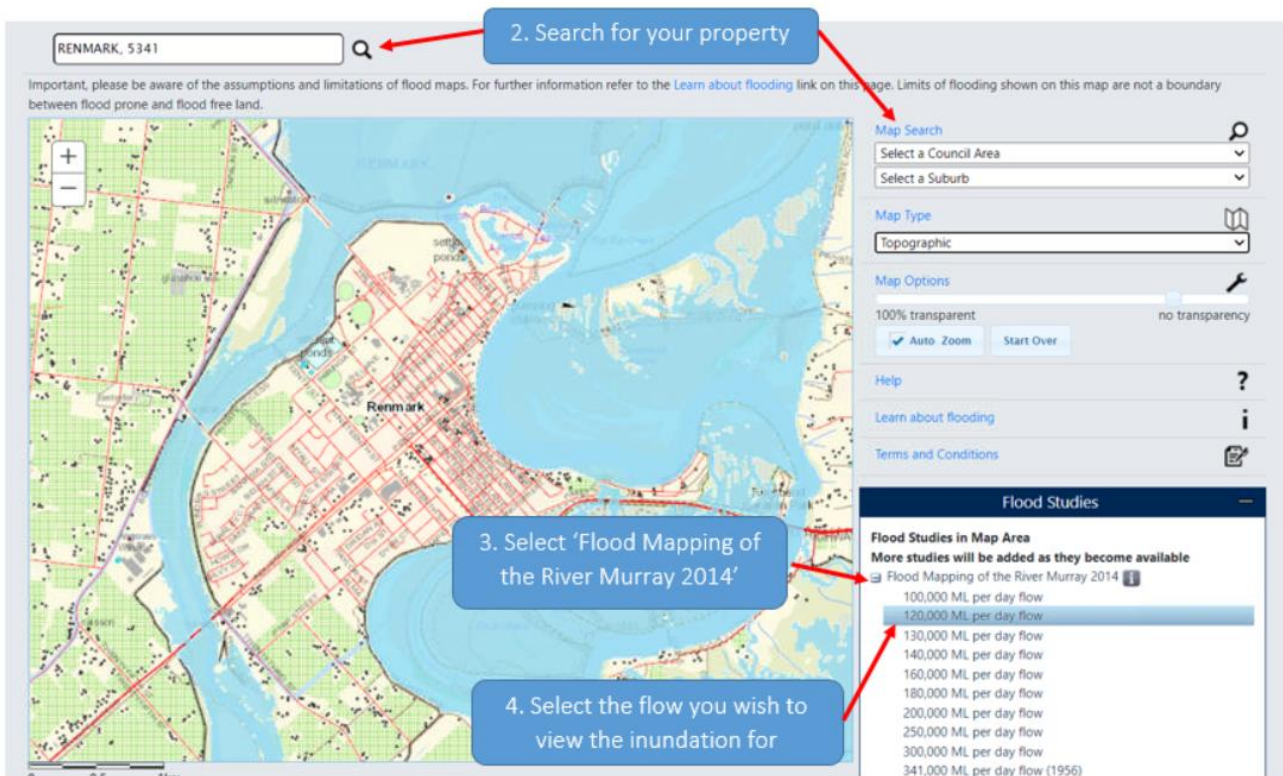
The flow over Lock 1 is approximately **57 GL/day** and will increase to around **60 GL/day** over the coming week.

Flood awareness mapping

As floods don't regularly occur in South Australia it can be hard to plan for one or even know if you are at a high risk of being affected. To help people know if they are at a greater risk of being affected by flooding, communities can use the Department for Environment and Water's [Flood Awareness Map](#).

The mapping for the River Murray shows the inundation expected at a range of flows. To see if your property is impacted at flows of 120 GL/day you can follow these steps (also seen below on the image):

1. Open the [Flood Awareness Map](#) and agree to the terms and conditions;
2. Search to your property via the search box at the top of the map or via council area or suburb drop down lists;
3. In the box titled 'Flood Studies' select 'Flood Mapping of the River Murray 2014';
4. Then select, '120,000 ML per day flow' (you can also select any of the other flow bands but this is the flow closest to the latest forecast).



What is considered a flood in South Australia?

With the flow at the South Australian border increasing it's a timely reminder to remain aware of what is considered a flood in South Australia, even if flood levels are not reached at this point in time.

When the flow at the South Australian border is forecast to exceed 40 GL/day, the Department for Environment and Water (DEW) will issue a *High Flow Advice*. This is not an emergency warning. A High Flow Advice is intended to inform the community of higher than normal river flow, velocity and water levels, as well as raise awareness and monitoring regarding potential hazards and to prompt the community to consider preventative actions to minimise any potential impacts.

If the flow at the South Australian border is forecast to exceed 60 GL/day, a *Flood Advice – River Murray Shack Areas* is issued by the South Australian State Emergency Service (SASES) as an official emergency warning product, consistent with the Australian Warning System. The River Murray Shack Areas comprises the shack communities between Cadell and Mannum, excluding the towns. Above 60 GL/day, low lying areas and floodplains become inundated and ground level flooding of the shack areas commences. For the remainder of the River Murray in South Australia, a High Flow Advice remains in place.

When the flow at the border is forecast to exceed 100 GL/day, a *Flood Advice – River Murray* is issued by the SASES for the River Murray between the SA border and Wellington. Further advice will be issued by the SASES when the flow reaches

130 GL/day at the border (*Flood Watch and Act – River Murray*) and 200 GL/day at the border (*Flood Emergency Warning – River Murray*).

Potential higher forecast water levels

Forecasting of the size and timing of flows, particularly floods, to the South Australian border is particularly challenging due to the complex interaction of flows from multiple tributaries (including the Darling, Murrumbidgee, upper Murray and Goulburn Rivers) and the attenuating effect of water spreading out over floodplains and filling wetlands on its way to the South Australian border.

The current flow forecast does not include future rainfall which may further increase the peak flow depending on where in the Basin it falls. As at 20 October 2022, there is up to 100 mm of rainfall forecast for the next 8 days in the southern Basin. While flows are currently forecast to reach 120 GL/day over the coming weeks there is a **medium probability** that the flow at the South Australian border may reach 140 GL/day and a **low probability** that flows could reach 160 GL/day.

Expected water levels at 140 GL/day and 160 GL/day are provided in the table below.

*Water levels below Lock 1 are difficult to forecast due to influence of Lower Lakes water levels & barrage operations

Location	Normal Pool Level (m AHD)	Forecast water levels at ~140 GL/day (m AHD)	Forecast water levels at ~160 GL/day (m AHD)	1974 High Water Level (m AHD)
Lock 6	19.25	-		21.01
Renmark	-	18.11	18.40	18.54
Lock 5	16.30	17.62	17.94	18.07
Lyrup	-	16.60	16.96	-
Berri	-	15.78	16.10	16.27
Lock 4	13.20	15.05	15.57	15.66
Loxton	-	-		15.04
Lock 3	9.80	12.52	13.29	13.17
Overland Comer	-	12.40	12.70	12.73
Waikerie	-	-	-	11.24
Lock 2	6.10	10.06	10.24	10.29
Cadell	-	-	-	9.16
Morgan	-	8.10	8.52	8.57
Lock 1	3.20	6.10	6.57	6.81
Swan Reach	0.75	5.34*	5.82*	6.04
Mannum PS	0.75	2.44*	2.90*	3.14
Murray Bridge	0.75	1.68*	1.98*	2.02

Decommissioning of River Murray River Vessel Waste Disposal Stations

Due to current and projected high flows currently in South Australia, we are preparing to decommission Waste Disposal Stations along the River Murray. With the predicted flow levels the infrastructure will become inundated in the near future, therefore these facilities will be unavailable during this period. We intend to decommission the Disposal Stations from 21 October 2022. Once the flows return to normal operating levels, we will look to recommission the infrastructure and will

keep you informed on timing. In the meantime, we ask that all river vessel owners and operators utilise alternative facilities to dispose waste. The Waste Disposal Stations that will be temporarily decommissioned include the following:

- Lock 6
- Renmark
- Berri
- Loxton
- Lock 3
- Waikerie
- Morgan
- Lock 1

Environmental news

Unregulated flows have been continuous to SA since July 2021 due to wetter than average conditions across much of the Murray-Darling Basin. Water for the environment is currently supplementing the unregulated flows and providing a range of benefits for the environment in SA, including:

- connecting the river with floodplains and wetlands, providing water to areas that have been dry for more than five years;
- allowing fish dispersal and movement into new habitats;
- providing 'flowing water habitat' to benefit native fish, animals and plants in the River Murray channel that have adapted to a riverine environment;
- providing for barrage releases to the Coorong to support a productive, food-rich environment for fish and birds and provide salinities and water levels that support healthy populations of keystone native plant *Ruppia tuberosa*;
- providing habitat for birds, frogs and threatened small-bodied native fish species in the Lower Lakes;
- 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 Renmark Irrigation Trust.

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 16 October 2022, a total of approximately 8 701 355 m³ of sand has been removed from the Murray Mouth. One dredge has been stood down for repairs the other is operational Monday to Friday, 12 hours per day.

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 0.73 m AHD and Lake Albert is approximately 0.76 m AHD. The difference is due to wind effects.

As of Tuesday 18 October 2022, the weekly releases were approximately 257 GL. Total daily release volumes from the barrages 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 the table below.

Barrage (total number of gates)	Goolwa (120)	Mundoo (25)	Boundary Creek (5)	Ewe Island (110)	Tauwitchere (319)	Fishways
12 Oct 2022	13→0	1*	1	58	179	Fishways at all barrages and at Hunters Creek (11 in total) were open during the entire week
13 Oct 2022	0→10→0	1*→0→1*	1	58	179	
14 Oct 2022	0	1*→0→1*→0	1	58	178	
15 Oct 2022	0	0	1	58	178	
16 Oct 2022	0	0	1	58	178	
17 Oct 2022	0→15	0→6*→2*	1	58	178→177	
18 Oct 2022	0	2*	1	58	177	
Objective of releases	Maintain connectivity between the River Murray channel through to the Murray Mouth to support fish migration.	Provide localised freshening conditions in the Mundoo channel & support fish passage.	Provide attractant flow adjacent the fish way to support fish passage.	Releases will help push fresher water down the Coorong to assist lowering salinity levels and provide habitat diversity.	Provide for fish passage between the Coorong and Lower Lakes.	

Number of barrage gates open each day for the week ending Tuesday 18 October 2022

**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.

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.

Fish kills

River Murray and Lower Lakes residents may have observed dead fish washed up on riverbanks or seen recent media coverage about fish kills. The native species in question is mainly bony bream / bony herring, which commonly has small-

moderate die-offs along the SA River Murray during colder months. Die-offs are more likely to be related to water temperature than salinity, as this species is very salt tolerant and can survive in the Coorong. Low dissolved oxygen in the main channel of the river is also an unlikely cause of death as DO levels have been adequate and relatively stable over last few months. While the die-off is being investigated, it is likely just a larger version of what is a common occurrence in the SA River Murray.

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](#). Please note that some SA River Murray surface water monitoring stations may be progressively removed as river flow increases and that data will be unavailable for those stations until they are reinstated.

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 [Flood Awareness Map and 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](#).

ID	RM-Flow-Report-20221021
Classification	Public I2 A2

Issued	21 October 2022
Authority	DEW
Master Document Location	R:\Water Group\RMO\WRO\04 Communications\Flow Advices\2022-23
Managed and Maintained by	Water Infrastructure and Operations Branch
Author	Water Infrastructure and Operations Branch
Reviewer	Director, Water Infrastructure and Operations