

SA River Murray Flow Report



Report #09/2023

Issued 3:30 pm 3 March 2023

This supersedes the previous Flow Report issued by the Department for Environment and Water (DEW) on 24 February 2023. The next Flow Report will be provided on Friday 10 March 2023.

Current water levels

Over the last week SA Water has completed installation of locks and weirs 1 – 6 in SA. All of these lock reaches have now returned, or are very close, to normal pool level.

The table below shows current water levels at key points along the river system.

Location	Normal Pool Level (m AHD)	Current level at 3/03/23 (m AHD)	Status of water level	Highest water level during 2022-23 flood (m AHD)
Lock 6	19.25	19.27	Normal pool level	21.32
Renmark Pump Stn	16.30	-	-	19.04
Lock 5		16.32	Normal pool level	18.65
Lyrup	13.20	13.71	-	17.54
Berri		13.44	-	16.50
Lock 4		13.20	Normal pool level	15.90
Loxton	9.80	11.57	-	15.35
Cobdogla		-	-	14.34 (est.)
Lock 3		9.87	Normal pool level	13.99
Overland Corner	6.10	7.95	-	13.58
Waikerie		-	-	12.06
Lock 2		6.21	Normal pool level	11.18
Morgan	3.20	4.28	-	9.62
Lock 1		3.27	At or around normal pool level	7.54
Swan Reach [^]	1.61	6.99		
Walker Flat	1.16	5.26		
Mannum PS	0.82	3.29*		
Murray Bridge	0.80	2.34*		
Wellington	0.75	0.68		1.74*
Meningie (Lake Albert)		0.62*		1.20*
Milang (Lake Alexandrina)		0.74*		1.40*
Clayton Bay (Lake Alexandrina)		0.70*		1.16*
Goolwa & Hindmarsh Island marina (Lake Alexandrina)		0.56*		0.99*

[^]Wind and/or tide affected

Notes

Gigalitre (GL) = 1,000,000,000 litres

mAHD = elevation in metres above Australian Height Datum (approximately equivalent to sea level)

Some things to consider –

- These updated flow and height tables should be used in conjunction with other information sources available at sa.gov.au/floods
- The locations included in the table have been chosen because they are monitored sites (either current or historical).

Peak water level and flow in SA

The flow to South Australia is continuing to fall. The most recent modelling predicts that the flow at the border will reach approximately 30 GL/day by mid-March and remain there until early April. Following this another decline in flow is forecast as it drops back to normal entitlement flow over the coming months.

The calculated flow at the border today is approximately 35 GL/day at the border and falling. The current flow over Lock 1 is approximately 40 GL/day and falling.

Lake Bonney & salinity

Increased salinity levels are common during flood recessions. The Department is closely monitoring elevated salinity levels throughout the River Murray in South Australia. In general, salinity levels across the River Murray in SA are approximately 500-600 EC which is still within acceptable limits but elevated compared to when the river is within channel. It is understood that some irrigators have recorded higher salinity readings at isolated locations. These higher readings are more likely to be observed at the bottom of the water column.

An increase in salinity levels occurred in the river downstream of Lake Bonney as the water entered the main channel from the Lake. A salinity peak of around 989 EC was observed on 21 February 2023. On Friday, 3 March the reading at Lock 3 was 556 EC.

Rises in salinity at Lock 3 are common during flood recessions and is a result of the normally higher salinity water held in Lake Bonney being drawn into the river with falling water levels. There are a number of factors which influence the volume and timing of saltier water entering the main river channel, including the amount of mixing that occurs between fresher and saltier water within Lake Bonney upon re-opening, and the actual rate at which water levels fall in the river.

Observations also indicate that the most saline water is not mixing through the entire river channel immediately downstream of Lake Bonney. It appears to be remaining close to the banks of the river. The downstream gauge, [Upstream Overland Corner A4260652](#), has not had a spike in salinity but a gradual increase, indicating that the water is mixing more, with higher flows providing more dilution the further it moves downstream.

Downstream irrigators are encouraged to monitor the [daily salinity levels](#) provided by SA Water as part of their business operations.

PIRSA has provided salinity management advice for irrigators on its website: https://www.pir.sa.gov.au/emergencies_and_recovery/storms_and_floods/river_murray_flood_2022

Upstream flows

The higher flows experienced in the main channel of the Darling have now entered the Murray and have not caused a significant rise in water levels at Wentworth. The water level at Wentworth is now falling and is not forecast to increase again for this event.

However, additional flow is expected to occur via the Great Darling Anabranh which enters the River Murray downstream of Wentworth. The peak flow down the Anabranh is currently predicted to be around 18 GL/day (an increase from previous forecasts) arriving at the SA border during April. Based on these predictions, **the arrival of the Darling River flood peak is forecast to only result in a “flattening” of the flow recession and not a second flood peak in the Murray.**

In recent weeks pre-releases have been made from Dartmouth Dam in order to create additional airspace should further rain fall in the catchment in the future. These releases have all been captured in Hume Dam and will not result in additional flow to South Australia.

Hume Dam is currently at 97% capacity and is releasing water to meet downstream orders only, no pre-releases have been required at this stage. Should further rainfall occur then pre-releases may be necessary.

Pre-releases from the upper dams to create airspace does not necessarily equate to an increase in flow at the SA border. There are a number of factors which influence how much water will reach the South Australian border, including how wet or dry the catchments are, how much water is used (and how high demands are), and how full other storages are (such as Lake Victoria) between the storage and the border.

More information on upstream conditions and forecasts can be found in the Murray-Darling Basin Authority's *Weekly Flow Report* here: <https://www.mdba.gov.au/water-management/regular-reports-murray-data-storages/weekly-reports>

Safety on and around the River Murray in SA

Restrictions for various activities on the River, implemented under the *Emergency Management Act 2004* for users of the River Murray during the flood event, are continuing to be lifted. The latest details of current restrictions can be found here: <https://www.marinesafety.sa.gov.au/river-murray-flood-event-marine-safety-advice>

Water users are advised to check restrictions for their area prior to accessing the River for any purpose. **Where permitted**, water users should be mindful of the following:

- Operating watercraft and swimming in the main River Murray channel can be more hazardous during and after a high flow. Submerged objects, debris and the force of the current can present a risk to public safety.
- People operating watercraft, swimming, canoeing or participating in other activities on the main River Murray channel are advised to be aware of the risk of high flow, and take precautions to protect life and property.
- When operating a boat on the floodplain or near inundated river banks, be aware of submerged obstacles such as trees and fence lines.
- While swimming, do not jump or dive into the river when you do not know what is below the surface.
- If camping ensure that you are on higher ground away from the river bank.

The following precautions still remain:

- Don't drive, ride or walk through flood-affected causeways or roads.
- Be aware that significant debris has been carried downstream and may pose a hazard to water-based activities.
- **The hazards associated with riverbank collapse still exist in some areas so be aware of the signs - such as cracked riverbanks and leaning trees and keep away from fenced or sign-posted affected areas.**
- Always wear a personal floatation device on the river.
- Supervise children at all times and do not allow them to play in or near fast-flowing river water.
- If in doubt, stay out.
- Listen and take action on any instructions from the emergency services - the SASES, SA Police and the CFS.
- Tune to ABC local radio for community safety information.

Requests for assistance for on-water incidents or inundation of property should be directed to the SA State Emergency Service (SASES) on 132 500.

For life threatening emergencies call 000.

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 0.64 m AHD.

Over the last two weeks barrage gates have been gradually closed to prevent water levels in the Lower Lakes dropping to lower water levels than normal for this time of year. As floodwaters continue to recede in the coming weeks, more barrage gates will be gradually reinstated in order to maintain an appropriate water level in the Lower Lakes for this time of year. More information will be provided as it becomes available.

Barrage releases are normally calculated using water levels from upstream and downstream of the barrages which are entered into equations to determine the volume of flow through each of the five barrages and the fishways. The existing methodology for calculating barrage releases is not accurate with the very high flow and water levels currently being experienced. Analysis will be undertaken following the flood event to develop a flow record of barrage releases throughout the flood.

It is also possible that wind, tide and wave action may temporarily result in higher levels in some locations. This local weather based variation is consistent with the variation seen on the Lakes outside of the current event.

Water levels and barrage operations are monitored closely by the South Australian Government, Murray-Darling Basin Authority and Commonwealth Environmental Water Office.

Murray Mouth

Bathymetric survey of the width and depth of the Murray mouth has shown that the mouth is continuing to scour as a result of the high flows, which will assist in increasing the volume of water that is able to be released from the barrages. A wider and deeper Murray Mouth will have positive environmental benefits following the flood through enabling better exchange of water between the ocean and the Murray estuary and Coorong.

River Murray River Vessel Waste Disposal Stations

As water levels recede, DEW will recommission each disposal station when it is deemed safe and possible to do so. The process to recommission includes regaining safe access to the site, inspecting the infrastructure for any damage, repairing any damaged infrastructure, reinstating equipment, and the reconnection and testing of services. Since the flood waters have receded, Berri River Vessel Waste Disposal Station has been recommissioned.

As at 23 February, River Vessel Waste Disposal Stations at Berri and Goolwa are online and operational.

The other stations have been initially assessed for damage and repair works required. Based on initial assessments, indicative timeframes for recommissioning of the remaining stations is as follows:

- | | |
|-----------------------------------|------------------|
| • Lock 6, Renmark, Blanchetown | Mid March 2023 |
| • Loxton, Morgan, Murray Bridge | Late March 2023 |
| • Swan Reach, Walker Flat, Mannum | Early April 2023 |
| • Waikerie | TBC |

**Note – these times may be subject to change dependent on further damage being identified, reconnection to services etc. Information will be updated as further information becomes available.*

Until the river vessel waste disposal stations can be recommissioned, commercial options remain available for businesses to utilise temporarily at houseboat owners and operators' expense while the disposal stations are closed.

If you have any questions, please contact the DEW Engagement Team on DEW.WIOCommunications@sa.gov.au

Levee embankments

With the River Murray flood situation now in the recovery phase, the re-establishment of the levee network and dewatering process is the highest priority for producers in the Lower Murray region. Whilst the planning process is already underway, recovery of the Lower Murray Reclaimed Irrigation Areas (LMRIA) will be a complex process to assess and undertake the works required.

The key priority in the initial stages is stabilisation of the levees to allow dewatering to occur, get farmers back on their land and to protect the land against potential flows over the coming winter period. DEW is working with each irrigation area individually to determine any levee works required to enable dewatering to occur. In some areas where damaged sections of levee are no longer below the level of the water, dewatering has now commenced.

LiDAR surveys have now commenced to determine the extent of damage caused by the recent floods. Structural integrity testing will shortly be underway. Work is also being undertaken with Local Councils to determine what access is available via local roads, to enable structural works on the levees to be undertaken.

PIRSA is leading the process of recovery planning for the LMRIA as part of the State Recovery Plan. Should you have any questions in relation to dewatering and recovery of the agricultural areas post-flood, please contact PIRSA on the Recovery Hotline on 1800 931 314.

Engaged levee banks along the Lower Murray from Mannum to Wellington currently remain closed in accordance with [Emergency Services \(River Murray\) \(No 6\) Direction 2023](#) which came into effect at 8:20 am on 28 February 2023.

Any Local Irrigation Trust members and contractors still accessing the levees for emergency response or maintenance works are encouraged to take all necessary precautions when working on the levees, particularly during or following wet weather.

If you have any questions, contact the DEW Engagement Team on DEW.WIOCommunications@sa.gov.au

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. High flows and environmental water provide a range of benefits for the environment in SA, including:

- connecting the river with floodplains and wetlands, inundating areas that have been dry for many years;
- allowing fish dispersal and movement into new habitats and throughout the Murray-Darling Basin;
- 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 spawning and recruitment of large native fish. Golden perch have been detected spawning in the South Australian Murray in recent weeks;
- improving water quality and productivity in the Coorong, providing a food-rich environment for fish and birds including healthy populations of keystone native plant *Ruppia tuberosa*;
- providing habitat for birds, frogs and threatened small-bodied native fish species in the Lower Lakes;
- removing excess salt from the River Murray.

Blackwater

Blackwater occurs naturally when floods wash leaves, grass and cropping material off riverbanks and floodplains into waterways. High levels of organic matter in waterways, combined with warm weather, can cause oxygen levels in the water to drop. This is known as hypoxic (low oxygen) blackwater, which can have a blackish colour and a strong, unpleasant smell.

There is currently no hypoxic blackwater present in the South Australian section of the River Murray.

PIRSA, with support from DEW, SA Water and the Murray-Darling Basin Authority and other relevant government agencies, continues to closely monitor blackwater events upstream and plan mitigation measures should it reach South Australia.

When dissolved oxygen levels in water drop below critical levels, it can cause fish and crustaceans to die. To report sightings of large numbers of dead or distressed fish, please contact the 24-hour Fishwatch hotline on 1800 065 522.

Water quality alerts issued by SA Health to inform the community about water quality safety for domestic use and recreational activities can be found at this website:

<https://www.sahealth.sa.gov.au/wps/wcm/connect/public+content/sa+health+internet/public+health/water+quality/water+quality+alerts>

Further information

All information regarding the 2022/23 River Murray flood event and information on recovery, relief and financial assistance (including that of partner agencies) can be accessed via the following link: <http://www.sa.gov.au/topics/emergencies-and-safety/river-murray-flood>.

Information for flood recovery can be accessed at <https://www.sa.gov.au/topics/emergencies-and-safety/river-murray-flood/recovery>

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 surface water monitoring stations were removed as river flow increased 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:

- [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](#).

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](#)

Department for Environment and Water [Home page](#).

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