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# RIVER MURRAY UPDATE

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DEPARTMENT FOR  
WATER



Government of South Australia  
Department for Water

## Rainfall and inflow summary

River Murray system inflow remains above average due to the previous heavy rainfall events that occurred over the already wet catchments of a number of key Murray-Darling tributaries and in southern Queensland.

The total inflow from 1 June 2010 to the end of February 2011 was approximately 15,470 GL, compared to the long-term average for the same period of approximately 8,015 GL.

The inflow for February 2011 was approximately 2,100 GL, which is the highest River Murray system inflow on record for the month of February. This is well above the long-term February average of approximately 170 GL.

Significant inflow to Menindee Lakes is expected during the remainder of March and into April 2011 as floodwaters from southern Queensland continue to flow through the Barwon-Darling River system. Although there was substantial floodwater in southern Queensland, high flows from the northern Murray-Darling Basin typically incur high transmission and evaporative losses. Releases from Menindee Lakes are currently at 32,000 ML/day and will reduce over the coming weeks.

The total flow to South Australia from 1 June 2010 to date is more than 10,200 GL. Approximately 7,980 GL of this was unregulated flow and unregulated flow conditions are expected to continue until the end of May 2011.

Based on the current flow conditions across the Murray-Darling Basin, the total flow to South Australia in 2010-11 could exceed 13,350 GL. This will be the highest flow since 1993-94, when 13,382 GL flowed across the border.

This high flow event has provided the first opportunity in many years to water areas of the floodplain, flush creeks, backwaters and reconnect wetlands that have all suffered ecological decline as a result of the worst drought on record.

While the River Murray system inflow has greatly improved, sustained high inflow is required for full recovery of all water storages and the riverine environment from the drought conditions of recent years.

The Department for Water has distributed a weekly high flow advice since late 2010 in order to provide timely and accurate information on the flow projections to South Australia. This advice will continue while the flow remains high. The flow advice is available from the Department's website:

<http://www.waterforgood.sa.gov.au/news-info/publications/river-murray-flow-advice/>

**The following table shows Murray-Darling Basin storages at 14 March 2011.**

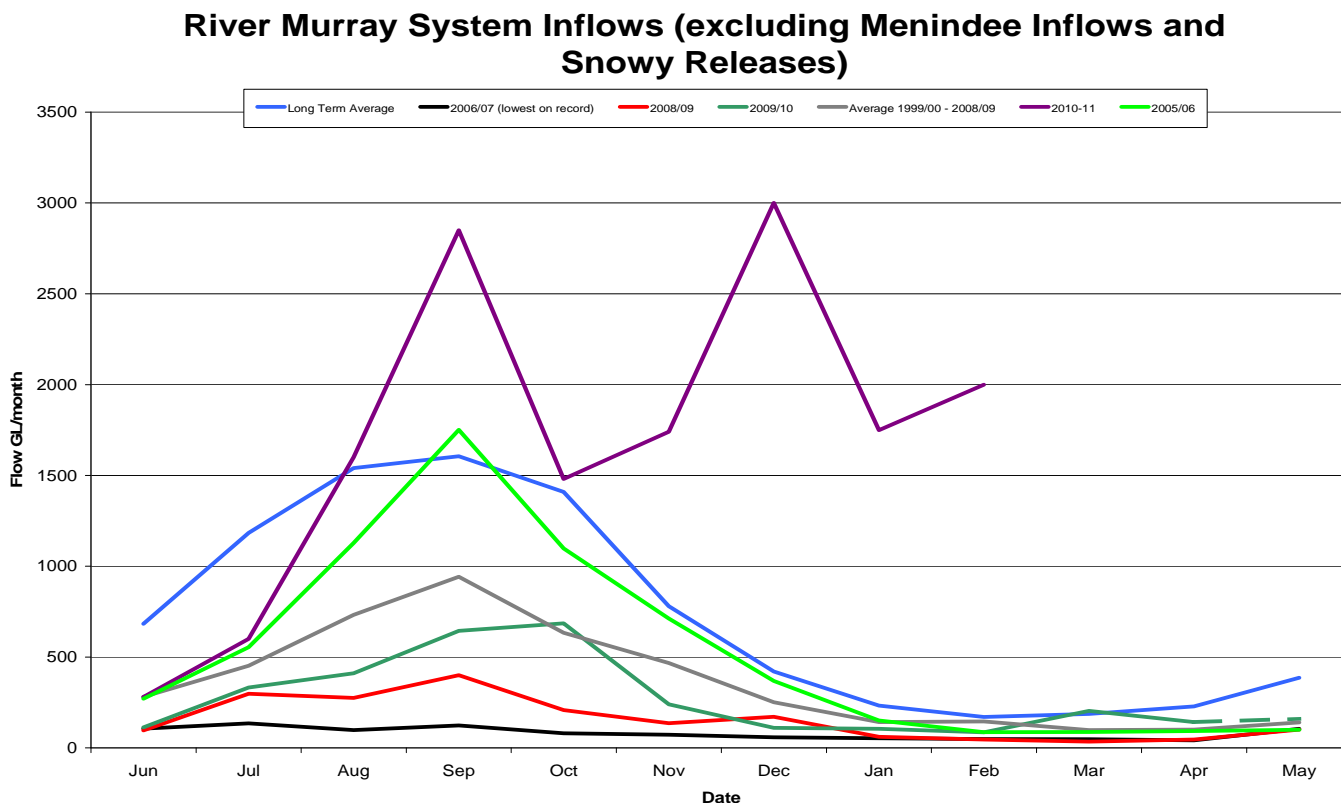
Storage @ 14 March	Full Supply Volume	Current volume and % (GL)	Volume and % at this time last year (GL)	Change in volume from this time last year (GL)
Hume Dam	3,003	2,903 (97%)	538 (18%)	(+ 2,365)
Dartmouth Dam	3,856	2,372 (62%)	1,203 (31%)	(+ 1,169)
Lake Victoria	677	465 (69%)	481 (71%)	(-16)
Menindee Lakes	1,731	1,603 (93%)	590 (34%)	(+ 1,013)
<b>Total volume</b>	<b>9,267</b>	<b>7,343 (79%)</b>	<b>2,812 (30%)</b>	<b>(+ 4,531)</b>

\*The water currently held in storage includes water held in reserve for 2011-12.

With high volumes of water in storage, the outlook for South Australia for 2011-12 has improved. The MDBA has indicated that South Australia will receive its full normal minimum Entitlement Flow of 1,850 GL again in 2011-12.

## Inflow graph

The following graph shows River Murray system inflows (excluding Menindee and Snowy inflows) in various years.



## River Murray operations in South Australia

South Australia continues to receive high flow at the border of around 76,000 ML/day, but this will steadily reduce over the week ending 18 March to the range of 70,000 ML/day to 75,000 ML/day. There are no further flow peaks currently in transit upstream of South Australia, with flow to South Australia now receding at a slow rate.

Based on known flows in transit and current river operations, flow at the South Australian border is now expected to be in the order of 60,000 ML/day to 65,000 ML/day by the end of March 2011. It is predicted that flow will then reduce to around 20,000 ML/day by the end of April 2011. This is subject to any further rainfall or changed river operations upstream of South Australia.

The flow at Lock 1 (Blanchetown) is currently 78,000 ML/day and will also progressively recede over the coming weeks. The flow peak is currently passing Murray Bridge and is expected to reach the Lower Lakes in the next five days.

The current flow is well within the normal historical flow range (i.e. many similar events of flows within this range have been experienced in previous years) for the River Murray in South Australia. No populated areas are at risk of flooding but some shacks, roads, campsites and causeways located on floodplains may be inundated.

While this is a great time to visit the river and its environs, all people travelling along the River Murray are reminded to exercise caution at all times when navigating through the navigable passes at the lock and weirs, and to be mindful of partially submerged infrastructure such as jetties and floating debris. The higher flow may present a hazard to watercraft with low-horsepower engines.

People also need to be aware of the changing water levels and should take any necessary actions to modify irrigation infrastructure, pontoons and moorings.

Water levels immediately downstream of Lock 1 remain high – currently at 4.22m AHD. The water level in the Lower Lakes is currently around 0.74m AHD. Barrage outflow is being maintained to lower the lakes to at least 0.7m AHD or lower, depending on downstream (Coorong) levels. This is being undertaken to draw high salinity water from Lake Albert.

The peak flow for the current event is expected to reach the Lower Lakes within the next five days. This flow will likely raise water levels again to approximately 0.8m AHD. Once the flow peak has passed, the intention is to use barrage operations over the coming months to again lower and raise water levels to further freshen Lake Albert and remove salt from the Lower Lakes.

Currently it is difficult to release large volumes of water through the barrages due to the Coorong being surcharged. Even at low tides the capacity to release water through the barrages is restricted.

In order to decrease and increase water levels in both lakes, it is necessary for some of the gates/bays at the barrages to be opened and closed to maintain the desired water level target. Water levels and barrage operations are being continually monitored by the Department for Water, SA Water and the Department of Environment and Natural Resources.

### Navigating high River Murray flows

The Department for Water has collated information on a range of man-made structures – including fences, fence posts, gates, pumps, pipes, culverts, monitoring equipment and earthen walls – that could present a risk to the safety of recreational boat users. Some of the information has been obtained from a survey of structures completed by the SA Murray-Darling Basin Natural Resources Management Board in 2010.

An interactive map showing structures on the River Murray floodplain, wetlands and creeks that could now be partially or fully submerged has been created to help boat users stay safe while navigating during the current period of high river flow.

Not all sites identified on the map pose a hazard, and not all are submerged. Although the current flow is well within the normal historical range, some recreational boat users might not have experienced these conditions and need to exercise caution while on the river.

The map is available at [www.waterconnect.sa.gov.au](http://www.waterconnect.sa.gov.au). The map has GPS marks for structures and, where available, it also includes photographs and design drawings of the structures so people using the river know what to expect when boating. The map complements the River Hazards information published by the Department for Transport, Energy and Infrastructure (DTEI), published at: [www.transport.sa.gov.au/safety/marine/rec\\_boating/emerging\\_hazards.asp](http://www.transport.sa.gov.au/safety/marine/rec_boating/emerging_hazards.asp)

People planning to visit the River Murray are advised to check the DTEI and DFW websites for the latest information on the area they plan to visit.

### Water Quality

Due to the high flow through the Murray-Darling system, extensive forest and floodplain environments are being inundated for the first time in many years, resulting in a large amount of organic matter entering the river system. Water with a very low dissolved oxygen level continues to adversely affect the main channel of the River Murray downstream of the Barmah-Millewa and Koondrook-Perricoota forests; however, the effect is not as pronounced as in the previous weeks. Currently more than 1,400 km of the River Murray is affected by this event.

Water with very low dissolved oxygen, generally less than 1mg/L, is being received from numerous creeks and floodplains, leading to fish deaths. There have been a number of reports of cod deaths around the Mildura area and some of these fish may float downstream. Some fish deaths in South Australia have been reported to SA Water and PIRSA. To report fish deaths in South Australia contact Fishwatch on: 1800 065 522.

SA Water and interstate water authorities are regularly monitoring water quality. At this point, this event does not pose an immediate threat to the River Murray in South Australia. The Murray-Darling Basin Authority publishes black water information on its website, including regularly updated bulletins and maps, at <http://mdba.gov.au/water/blackwater>.

When the flow starts to reduce there is a high possibility of salt being mobilised from the floodplain, wetlands and backwaters into the main channel and this may present a risk to some irrigators. South Australia will continue to receive Unregulated Flow until the end of May 2011 and Additional Dilution Flow of 3,000 ML/day until mid September 2011, which will help to mitigate in river salinity. Water users are encouraged to regularly monitor salinity levels, particularly towards then end of March 2011, as flows start to reduce.

Regularly updated daily water quality information can be found at the following websites:

#### **SA Water**

[www.sawater.com.au/SAWater/Environment/TheRiverMurray/River+Murray+Levels.htm](http://www.sawater.com.au/SAWater/Environment/TheRiverMurray/River+Murray+Levels.htm)

#### **Department for Water**

<http://www.waterconnect.sa.gov.au/RMWD/Pages/default.aspx>

### **Environmental benefits of high flows to South Australia**

The large volume of water flowing through the River Murray has resulted in much of the wide river floodplains being inundated. Exchange between the floodplain and the river promotes nutrient cycling from the river into the floodplain, and salt export from the floodplain into the river. Many native species that live in the main river channel use floodplains to source food, as spawning grounds and for shelter from predators. Some areas of South Australia's major floodplain wetland systems, such as the Chowilla, Pike, Gurra and Katarapko regions, are now becoming inundated (without the need for pumping interventions) for the first time since the 1990s.

The current increased flow not only provides enhanced habitat for native plants and animals on the floodplains and in wetlands, but also provides downstream transport opportunities, especially for invertebrates, seeds and eggs. This allows for species dispersal and colonisation into new areas.

The current overbank flows are expected to produce the next generation of red gums along the floodplain. Over the next 12 months seedlings will germinate and mature in these areas, and will eventually replace many of the mature trees that were lost during the drought. In the last few years during drought conditions, many river red gum seedlings germinated in dry wetlands, which have now become inundated. Other aquatic plant species such as reeds, sedges and rushes, which have been relegated to the river's edge during the drought, are now able to colonise the entire area of the floodplain, providing habitat for native animals.

Wetlands and floodplains that have recently been flooded provide ideal feeding habitat for waterbirds. The complex wetland food-web of aquatic plants, invertebrates and fish attracts many species of birds for feeding including grey teal, pink-eared duck, straw-necked ibis and egrets. Many of these species also use these habitats for breeding, with flooding inducing breeding for the majority of Australian waterbird species.

### **Salinity and water levels**

Salinity levels have significantly improved over the past six months due to increased flow and the subsequent recovery of water levels. As the high flow recedes, some areas will notice increased river salinities.

Salinity levels in Lake Alexandrina vary significantly depending upon the location. Salinity in Lake Albert (Meningie) remains high at about 6,750 EC. The average water level in Lake Alexandrina, Lake Albert and the Goolwa Channel is currently about plus 0.74m AHD

The following table shows the current water levels and salinity at selected locations.

	Actual Water Levels at 16/3/11		Full Supply Level	Current EC level
	U/S m AHD	D/S m AHD	U/S of Weir m AHD	
Lock 6	19.90	19.74	19.25	301
Lock 5	16.86	16.67	16.30	309
Lock 4	14.59	14.32	13.20	320
Lock 3	10.83	10.64	9.80	340
Lock 2	8.18	8.02	6.10	390
Lock 1	4.37	4.22	3.20	307
Lake Alexandrina (average)	0.74			470
Lake Albert (Meningie)	0.74			6,750
Goolwa	0.74			505
Water levels below Lock 1 are affected by wind and will vary throughout the day EC Readings below Lock 1 are averages and will vary throughout the day				

## Climate outlook

The Bureau of Meteorology has advised that Australia continues to feel the effects of one of the strongest La Niña events on record although there are clear signs the event has passed its peak. During La Niña events, the number of tropical cyclone events is typically higher than normal during the November to April period, while summer daytime temperatures are often below average, particularly in areas experiencing excess rainfall.

According to the Bureau of Meteorology, during March to May 2011, the chances of receiving above median rainfall across the southern Murray-Darling Basin are between 40 per cent and 55 per cent. The chance of exceeding median maximum temperatures ranges between 45 percent and 60 percent. Information on the seasonal outlook can be accessed online at [www.bom.gov.au](http://www.bom.gov.au)

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