

RIVER MURRAY FLOW REPORT and WATER RESOURCES UPDATE

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Report #12/2014

Issued 10:00 am 21 March 2014

This supersedes the previous flow report issued by the Department of Environment, Water and Natural Resources (DEWNR) on 14 March 2014. The next flow report will be provided on Friday, 28 March 2014.

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 February 2014, the total River Murray System inflow was approximately 95 GL, which is half the February long-term average of 190 GL. Inflow to Menindee Lakes (from the Darling System) during February 2014 was 0 GL, which is well below the February long-term average of 125 GL.

The flow to South Australia during February 2014 was approximately 203 GL (compared to 250 GL in February 2013), which comprised 194 GL of Entitlement Flow, minus deferred Entitlement Flow of 6.8 GL, plus approximately 16 GL of environmental water and allocation trade.

The flow to South Australia is currently around 6 500 ML/day, which comprises the March Entitlement Flow of 6 000 ML/day, minus deferred March Entitlement Flow of 210 ML/day, plus some April Entitlement Flow delivered early, plus environmental water. The Commonwealth Environmental Water Holder will deliver approximately 40 to 50 GL of environmental water to South Australia in March 2014.

STORAGE VOLUMES

Murray-Darling Basin storage volumes at 19 March 2014 and 19 March 2013

Storage	Full Supply Volume (GL)	19/3/2014 (GL)	19/3/2013 (GL)	Long-term average (end of March)
Dartmouth	3 856	3 471 (90%)	3 623 (94%)	
Hume	3 003	1 180 (39%)	1 551 (52%)	
Lake Victoria	677	464 (69%)	222 (33%)	
Menindee Lakes	1 731*	402**(23%)	1 020 (59%)	
TOTAL	9 267	5 517 (60%)	6 416 (69%)	5 504 (59%)

*Menindee Lakes can be surcharged to 2 015 GL

**Menindee Lakes are now under New South Wales control

MENINDEE LAKES

Under the Murray-Darling Basin Agreement, the Murray-Darling Basin Authority controls the Menindee Lakes until the storage decreases to 480 GL. The New South Wales Government assumes control of the storage at 480 GL and maintains control until the volume in storage exceeds 640 GL. On 18 February 2014, the volume in the Menindee Lakes decreased to below 480 GL and the control switched to the New South Wales Government.



RAINFALL AND TEMPERATURE OUTLOOK

The latest Bureau of Meteorology weather outlook for March to May 2014 indicates that the chances of a wetter or drier than normal season is roughly equal. Warmer days are more likely over Victoria and warmer nights are more likely over south-eastern Australia. Most climate influences are near average, including a neutral tropical Pacific Ocean.

WATER ALLOCATION OUTLOOK

South Australia will receive its full Entitlement Flow of 1 850 GL in 2013-14. As a result, South Australian River Murray Water Access Entitlement Holders will have access to 100 per cent water allocation in 2013-14. A total volume of 835 GL has been progressively reserved under the Murray-Darling Basin Agreement clause 103 (minimum reserve) to assist with supplying South Australia's Entitlement Flow in 2014-15.

SOUTH AUSTRALIA'S STORAGE RIGHT

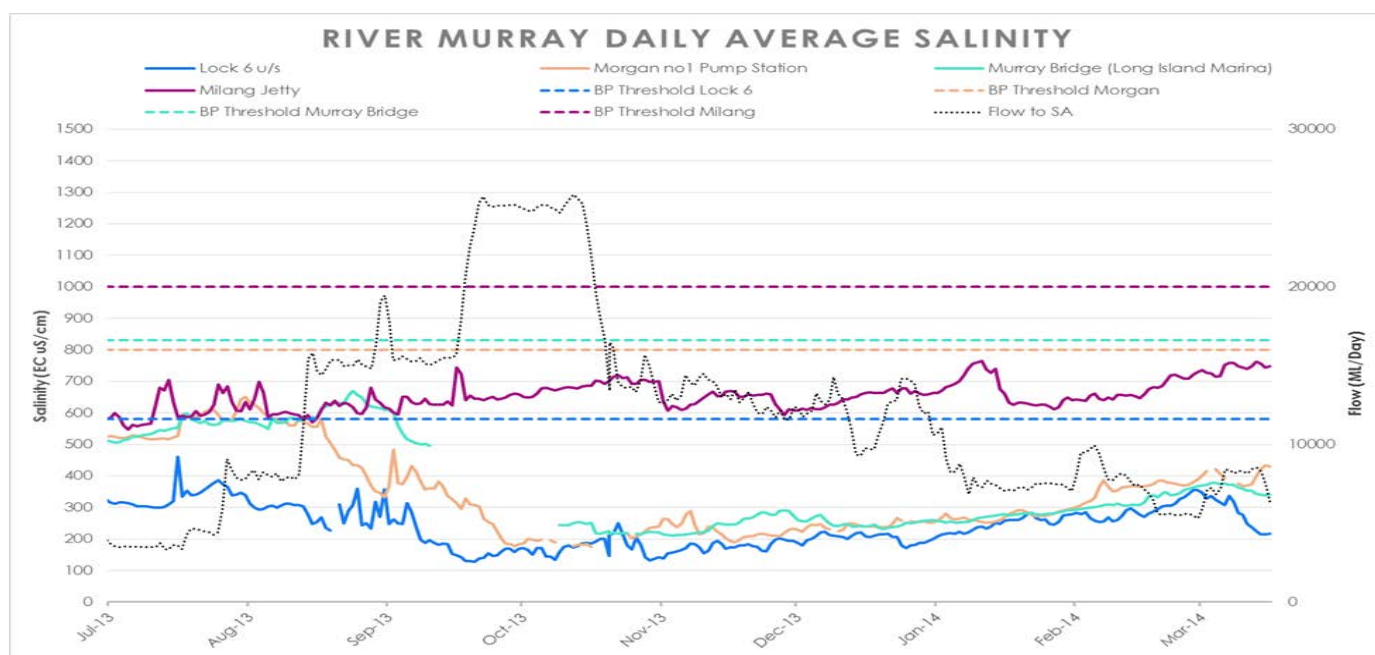
By 1 March 2014, South Australia had 30 GL of its Entitlement Flow stored in the upstream (interstate) storages for critical human water needs use in future dry years and 6.8 GL for private carryover use in future dry years. South Australia has requested that the Murray-Darling Basin Authority defer and store an additional 6.6 GL of Entitlement Flow in March 2014 for future private carryover use. Deferral of additional water for private carryover in April is currently being considered. The volume held in the upstream storages will be adjusted for net evaporation losses.

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 must not exceed these values for 95 per cent 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 from July 2013 to March 2014. The dashed-lines identify the Basin Plan thresholds for the corresponding coloured location. It confirms that salinity has not exceeded the threshold at any of these four locations during this period.



Note: Data gaps are due to technical monitoring issues experienced at the site

FLOW OUTLOOK

The flow at the South Australian border is approximately 6 500 ML/day and will decrease to around 6 000 ML/day during the coming week, depending on upstream river and storage operations, extractions, and rainfall events. The flow comprises the March Entitlement Flow of 6 000 ML/day, minus deferred March Entitlement Flow of 210 ML/day, plus some April Entitlement Flow delivered early, plus environmental water.

South Australia's March and April Entitlement Flow is being delivered in an altered daily pattern, which will result in additional water delivered in March and less in April. This is necessary due to remedial works on the Lake Victoria Outlet Regulator, which will reduce the daily volume of water able to be delivered to South Australia in April.

The Commonwealth Environmental Water Holder will deliver approximately 40 to 50 GL of environmental water to South Australia in March 2014. South Australia is working with the Commonwealth Environmental Water Holder to deliver additional environmental water in future months.

The flow over Lock 1 is approximately 6 000 ML/day and will decrease to around 5 000 ML/day 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. They may change as new gauging information becomes available, or due to rainfall events or changed operations upstream. Flow forecasts are dependent on predictions made by the Bureau of Meteorology, Murray-Darling Basin Authority and water management agencies in upstream jurisdictions. They will be revised as new information becomes available.

BARRAGE OPERATIONS AND WATER LEVELS IN THE LOWER LAKES

The water level in Lake Alexandrina is approximately 0.63 m AHD and approximately 0.62 m AHD in Lake Albert. The volume of water in the Lower Lakes is being managed to maximise water availability for continuous barrage releases during autumn. Barrage releases are being prioritised through Tauwichee and Goolwa. All fishways are in operation. SA Water will continue to operate the barrages to minimise any negative salinity impacts from reverse flow events.

To see live salinity data at various locations on the River Murray and in the Lower Lakes, please refer to the following website: <http://www.waterconnect.sa.gov.au/Systems/RTWD/SitePages/Home.aspx>

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

WATER QUALITY – Blue-Green Algae

The New South Wales Government (through Regional Algal Coordinating Committees) has issued red alert warnings for toxic blue-green algae at:

- Menindee Lakes and the Great Darling Anabranch at, and upstream of, Tara Downs, where the water is unsuitable for stock and domestic, irrigation and recreational purposes;
- Griffith and Balranald on the Murrumbidgee River, where the water is unsuitable for recreational and stock watering purposes; and
- downstream of Barren Box Swamp on the Murrumbidgee River, where the water is unsuitable for irrigation, stock and domestic purpose.

Although these toxic blue-green algal blooms pose no threat to South Australia at this stage, the Murray-Darling Basin Authority and the relevant South Australian Government agencies are regularly monitoring the situation. It is not uncommon to experience algal blooms at this time of the year.

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 in South Australia and all watercraft users should be aware of, and regularly check, the river depth.

CONSTRUCTION WORKS

River Vessel Waste Disposal Station Upgrades

Upgrade works have commenced at two River Murray waste disposal stations.

The **Mannum** River Vessel Waste Disposal Station is out of commission until 16 April 2014. Temporary pump-out facilities are available 500 metres downstream of Mannum at the Unforgettable Houseboats Marina.

The **Morgan** River Vessel Waste Disposal Station is out of commission until 28 March 2014. Temporary facilities will be available 1.5 kilometres downstream of Morgan at the Foxtale Hire Marina.

Lake Victoria Outlet Regulator

Remedial works on the Lake Victoria Outlet Regulator commenced in late February 2014 and are expected to be completed around June 2014. The works are necessary to improve the structural integrity of the regulator.

Mullaroo Creek

Remedial works in the Mullaroo Creek (located in Victoria and flows into the Lindsay River, which enters the River Murray between Lock 6 and 7) commenced last week and will be completed around June 2014. The works are necessary to improve the control of flows in this system. For public safety reasons the Mullaroo Creek will be closed to navigation at the work site during the construction period.

Lock 4

Remedial works at Lock 4 are scheduled to commence early May 2014 and be completed around early August 2014. During this period Lock 4 will be closed to navigation.

Lock 11

Pre-works for the installation of mechanised gates at Lock 11 (Mildura weir pool) is scheduled to commence in mid-June for approximately one week. The installation of the mechanised gates will commence in mid-July and is expected to be completed in early August 2014. During this period Lock 11 will be closed to navigation.

Chowilla

Construction of the Chowilla Creek Environmental Regulator and associated structures is ongoing. For public safety reasons, the Chowilla Creek remains closed to navigation at the construction site. Works are also underway to upgrade the weirs on Pipeclay Creek and Slaney Creek to improve the management of flows into the Chowilla anabranch and to enable fish passage. The weirs are closed to boat traffic during this construction program.

RIVER MURRAY WATER LEVELS

Below is a table of River Murray water levels at a number of locations from Lock 10 (near Wentworth) to Murray Bridge.

River Murray Water Levels on 19 March 2014

Location	River km	Normal Pool Level	Current Level (m AHD)	1974 Flood Level (m AHD)	1993 Flood Level (m AHD)
Lock 10	825.0	30.80	30.82	33.81	33.32
Lock 9 Kulnine	764.8	27.40	27.34	30.03	29.44
Lock 8 Wangumma	725.7	24.60	24.10	27.60	27.19
Lock 7 Rufus River	696.6	22.10	22.09	25.70	25.24
Lock 6 Murtho	619.8	19.25	19.31	21.03	20.50
Renmark	567.4	-	16.38	18.54	18.04
Lock 5	562.4	16.30	16.38	18.07	17.50
Lyrup	537.8	-	13.32	16.85	16.26
Berri	525.9	-	13.28	15.81	15.74
Lock 4	516.2	13.20	13.29	15.65	15.08
Loxton	489.9	-	10.18	15.05	14.12
Cobdogla	446.9	-	-	13.44	12.38
Lock 3	431.4	9.80	9.93	13.16	12.02
Overland Corner	425.9	-	6.47	12.73	11.58
Waikerie	383.6	-	6.49	11.26	10.24
Lock 2	362.1	6.10	6.34	10.28	9.30
Cadell	332.6	-	3.48	9.17	8.08
Morgan	321.7	-	3.40	8.85	7.65
Lock 1 Blanchetown	274.2	3.20	3.36	6.81	5.38
Swan Reach	245.0	0.75	0.67	6.06	4.51
Mannum PS	149.8	0.75	0.65	3.15	1.90
Murray Bridge	115.3	0.75	0.59	2.06	1.26

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

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FURTHER INFORMATION

The WaterConnect website is South Australia's comprehensive water information portal and can be accessed at: <http://www.waterconnect.sa.gov.au>

Up-to-date River Murray flow and water level information can be accessed at the Department of Environment, Water and Natural Resources, SA Water and Murray-Darling Basin Authority websites:

<http://www.waterconnect.sa.gov.au/Systems/RTWD/SitePages/Home.aspx>

www.sawater.com.au/SAWater/Environment/TheRiverMurray/River+Murray+Levels.htm

<http://www.mdba.gov.au/river-data/live-river-data>

The Department of Environment, Water and Natural Resources has published a series of inundation maps for the River Murray. They are available at: <http://www.waterconnect.sa.gov.au/Systems/RMIM/Pages/default.aspx>

Information on the management of acid drainage water in the Lower River Murray can be accessed online at:

http://www.epa.sa.gov.au/environmental_info/water_quality/acid_sulfate_soils_ass/lower_river_murray_reclaimed_irrigation_area_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: <http://www.bom.gov.au/vic/flood>

Information provided by the Commonwealth Environmental Water Office can be accessed at:

www.environment.gov.au/ewater/southern/murray/lower-murray.html

Information on The Living Murray can be accessed at:

<http://www.mdba.gov.au/about-basin/environmental-sites>

Information is also available from the SA Water Hotline on **08 8595 2299**

Department of Environment, Water and Natural Resources

<http://www.environment.sa.gov.au/Home>

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