

# RIVER MURRAY FLOW REPORT and WATER RESOURCES UPDATE

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Report #8/2014

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This supersedes the previous flow report issued by the Department of Environment, Water and Natural Resources (DEWNR) on 14 February 2014. The next flow report will be provided on Friday, 28 February 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 January 2014, the total River Murray System inflow was approximately 170 GL, which is well below the January long-term average of 260 GL. Inflow to Menindee Lakes (from the Darling System) during January 2014 was 0 GL, which is also well below the January long-term average of 300 GL.

The flow to South Australia during January 2014 was approximately 240 GL (compared to 330 GL in January 2013), which comprised 217 GL of Entitlement Flow, minus deferred Entitlement Flow of 10 GL, plus approximately 33 GL of environmental water and allocation trade.

The flow to South Australia is currently around 5 500 ML/day, which comprises the February Entitlement Flow of 6 929 ML/day, minus the February Entitlement Flow that was delivered early in the month, minus deferred Entitlement Flow of 240 ML/day, plus environmental water. The Commonwealth Environmental Water Holder will deliver approximately 10 GL of environmental water to South Australia in February 2014.

## STORAGE VOLUMES

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

| Storage        | Full Supply Volume<br>(GL) | 19/2/2014<br>(GL)  | 19/2/2013<br>(GL)  | Long-term<br>average<br>(end of<br>February) |
|----------------|----------------------------|--------------------|--------------------|--|
| Dartmouth      | 3 856                      | 3 517 (91%)        | 3 698 (96%)        |  |
| Hume           | 3 003                      | 1 529 (51%)        | 1 692 (56%)        |  |
| Lake Victoria  | 677                        | 447 (66%)          | 296 (44%)          |  |
| Menindee Lakes | 1 731*                     | 478**(28%)         | 958 (55%)          |  |
| <b>TOTAL</b>   | <b>9 267</b>               | <b>5 971 (64%)</b> | <b>6 644 (72%)</b> | <b>5 922 (64%)</b>                           |

\*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 February to April 2014 indicates that south-eastern Australia has an equal chance of a wetter or drier than normal season. The far southeast of NSW and eastern corner of Victoria are likely to receive warmer temperatures with the rest of south-eastern Australia receiving an equal chance of warmer or cooler temperatures.

Most of the 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.

Menindee Lakes changing to New South Wales Government control will have no impact on South Australian water allocations in 2013-14.

## SOUTH AUSTRALIA'S STORAGE RIGHT

By 1 February 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. South Australia has requested that the Murray-Darling Basin Authority defer and store an additional 6.8 GL of South Australia's Entitlement Flow in February 2014 for private carryover use in future dry years. Deferral of additional water in March is currently being considered.

The volume held in the upstream storages will be adjusted for net evaporation losses.

## WATER QUALITY - Salinity

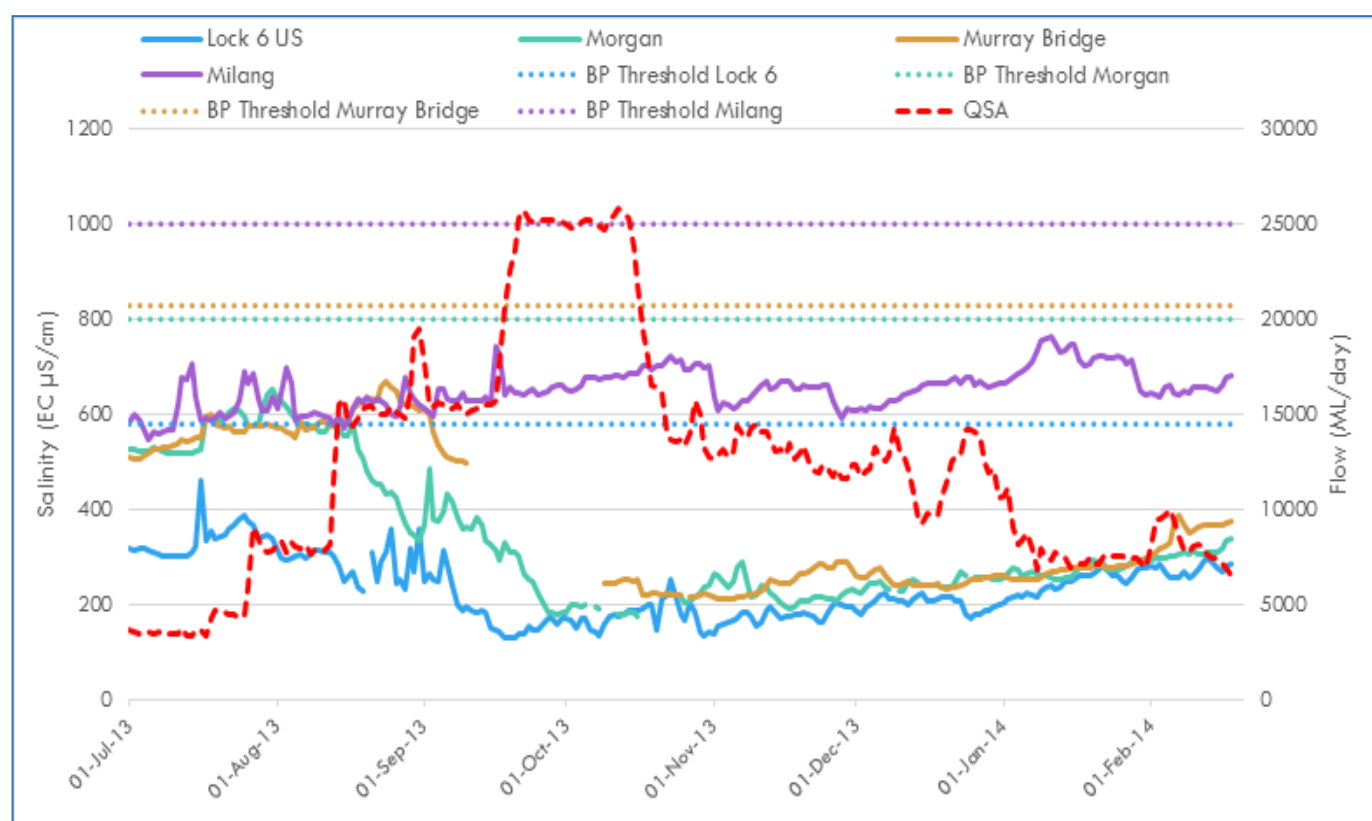
A number of targets are identified under the Basin Plan, which all Basin States must have regard to in managing River Murray flows. The targets for real-time salinity are identified below. Salinity must not exceed these values for 95 per cent of the time:

- 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 (QSA) from July 2013 to February 2014. The dotted 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.

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## 2013-14 River Murray Daily Average Salinity and Flow to SA (QSA)



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

### RAINFALL EVENT

Last week a significant rainfall event was experienced in the Riverland and just upstream of the South Australian border. As a result, extractions and evaporation losses reduced and the water level in all weir pools increased above the normal pool level.

### FLOW OUTLOOK

The flow at the South Australian border is approximately 5 500 ML/day and will remain around this rate during the coming week, depending on upstream river and storage operations, extractions, and rainfall events. The flow comprises the February Entitlement Flow of 6 929 ML/day, minus February Entitlement Flow that was delivered early in the month, minus deferred Entitlement Flow of 240 ML/day, plus environmental water.

South Australia's February Entitlement Flow is being delivered in an altered daily pattern. This pattern delivered additional water in the first half of the month and will deliver less water in the second half. This is necessary as remedial works on the Lake Victoria Outlet Regulator are expected to commence in late February 2014, which will reduce the daily volume of water able to be delivered to South Australia. Early works on the regulator will require the water level between Lock 6 and Lock 7 to be decreased by 0.5 m and then recover over a 24-hour period. This daily cycle has been delayed by a few days due to the rainfall event experienced last week. It is now likely to commence on 24 February and expected to continue over about four days.

The Commonwealth Environmental Water Holder will deliver approximately 10 GL of environmental water to South Australia in February 2014. South Australia is working with the Commonwealth Environmental Water Holder to seek opportunities to deliver additional environmental water in March and April 2014.

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The flow over Lock 1 is approximately 5 000 ML/day and will decrease to around 4 000 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 and Lake Albert is approximately 0.61 m AHD. The volume of water in the Lower Lakes is being managed to maximise water availability for continuous barrage releases during the remainder of summer. Barrage releases are being prioritised through Tauwichee. 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 domestic, irrigation and recreational purposes; and
- Griffiths and Balranald on the Murrumbidgee River, where the water is unsuitable for recreational and stock watering purposes.

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**

#### *Lake Victoria Outlet Regulator*

Remedial works on the Lake Victoria Outlet Regulator are expected to commence in late February 2014 and be completed around June 2014. The works are necessary to improve the 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) will commence in late February 2014 and 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 this 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*

Installation of mechanised gates at Lock 11 (Mildura weir pool) is scheduled to commence in mid-late May 2014 and be completed in June 2014. The installation is expected to take about three weeks. During this period Lock 11 will be closed to navigation.

### *Currency Creek*

The Commonwealth Government has confirmed, under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth), that water-based works to remove the Currency Creek Regulator are now complete and the site has been returned as close as practicable to pre-construction bathymetry. Disposal of the stockpile of rock material that was removed from the regulator has commenced.

### *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 February 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             | 30.86                 | 33.81                    | 33.32                    |
| Lock 9 Kulnine     | 764.8    | 27.40             | 27.50                 | 30.03                    | 29.44                    |
| Lock 8 Wangumma    | 725.7    | 24.60             | 24.59                 | 27.60                    | 27.19                    |
| Lock 7 Rufus River | 696.6    | 22.10             | 22.34                 | 25.70                    | 25.24                    |
| Lock 6 Murtho      | 619.8    | 19.25             | 19.38                 | 21.03                    | 20.50                    |
| Renmark            | 567.4    | -                 | -                     | 18.54                    | 18.04                    |
| Lock 5             | 562.4    | 16.30             | 16.42                 | 18.07                    | 17.50                    |
| Lyrup              | 537.8    | -                 | -                     | 16.85                    | 16.26                    |
| Berri              | 525.9    | -                 | 13.39                 | 15.81                    | 15.74                    |
| Lock 4             | 516.2    | 13.20             | 13.33                 | 15.65                    | 15.08                    |
| Loxton             | 489.9    | -                 | 10.20                 | 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    | -                 | 6.53                  | 12.73                    | 11.58                    |
| Waikerie           | 383.6    | -                 | 6.29                  | 11.26                    | 10.24                    |
| Lock 2             | 362.1    | 6.10              | 6.36                  | 10.28                    | 9.30                     |
| Cadell             | 332.6    | -                 | 3.30                  | 9.17                     | 8.08                     |
| Morgan             | 321.7    | -                 | 3.44                  | 8.85                     | 7.65                     |
| Lock 1 Blanchetown | 274.2    | 3.20              | 3.38                  | 6.81                     | 5.38                     |
| Swan Reach         | 245.0    | 0.75              | 0.70                  | 6.06                     | 4.51                     |
| Mannum PS          | 149.8    | 0.75              | 0.66                  | 3.15                     | 1.90                     |
| Murray Bridge      | 115.3    | 0.75              | 0.63                  | 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.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](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](http://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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