RIVER MURRAY FLOW REPORT and WATER RESOURCES UPDATE

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Report #37/2014
Issued 10:00 am 12 September 2014

This supersedes the previous flow report issued by the Department of Environment, Water and Natural Resources (DEWNR) on 5 September 2014. The next flow report will be provided on Friday, 19 September 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 August 2014, the total River Murray System inflow was approximately 730 GL, which is less than half the August long-term average of 1 590 GL. Inflow to Menindee Lakes (from the Darling System) during August 2014 was 0 GL, which is well below the August long-term average of 180 GL.

The flow to South Australia during August 2014 was approximately 440 GL (compared to 390 GL in August 2013 and the August long-term average of 860 GL). The flow comprised:

- 124 GL of August Entitlement Flow;
- plus approximately 316 GL of unregulated flow.

While there were reasonable inflows during the first half of August, there has been a rapid shift in rainfall and inflow patterns and this trend is continuing into September. Lower rainfall is leading to a high increase in irrigation demands across New South Wales and Victoria.

STORAGE VOLUMES

Murray-Darling Basin storage volumes at 10 September 2014 and 10 September 2013

Storage	Full Supply Volume (GL)	10/9/2014 (GL)	10/9/2013 (GL)	Long-term average (end of September)
Dartmouth	**3 856**	**3 664 (95%)**	**3 788 (98%)**	
Hume	**3 003**	**2 222 (74%)**	**2 972 (99%)**	
Lake Victoria	**677**	**670 (99%)**	**597 (88%)**	
Menindee Lakes	**1 731***	**345**(20%)**	**1 222 (71%)**	
TOTAL	**9 267**	**6 901 (74%)**	**8 579 (93%)**	**7 458 (80%)**

*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 stored water volume 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 control switched to the New South Wales Government.

The New South Wales Office for Water has issued a community information communiqué advising that the current resource assessment shows Broken Hill's forecast water supply has fallen below the critical 18 month target. Contingency measures for the Lower Darling River will be implemented to extend access to critical water supply needs. Given Menindee Lakes remain under New South Wales control, there will be less flexibility with the way in which water can be delivered to South Australia in 2015, unless the storage position improves significantly.

RAINFALL AND TEMPERATURE OUTLOOK

The latest Bureau of Meteorology weather outlook for September to November 2014 indicates a drier than normal season with warmer temperatures likely for south-eastern Australia.

For the latest forecast on the likelihood of El Niño establishing in 2014, please refer to the following website: http://www.bom.gov.au/climate/enso/

WATER ALLOCATION OUTLOOK

South Australia will receive its full Entitlement Flow of 1 850 GL in 2014-15.

MANAGEMENT OF SOUTH AUSTRALIA'S DEFERRED WATER

The Murray-Darling Basin Authority advised that on 1 September 2014, South Australia had 42.9 GL of water deferred and stored in Dartmouth (29.6 GL for critical human water needs and 13.3 GL for private carryover use in future dry years). Volumes stored are adjusted for net evaporation losses until delivered to South Australia. South Australia is not proposing to defer any water while Lake Victoria is full as the water cannot be stored.

DEWNR is investigating opportunities to defer additional Entitlement Flow during 2014-15.

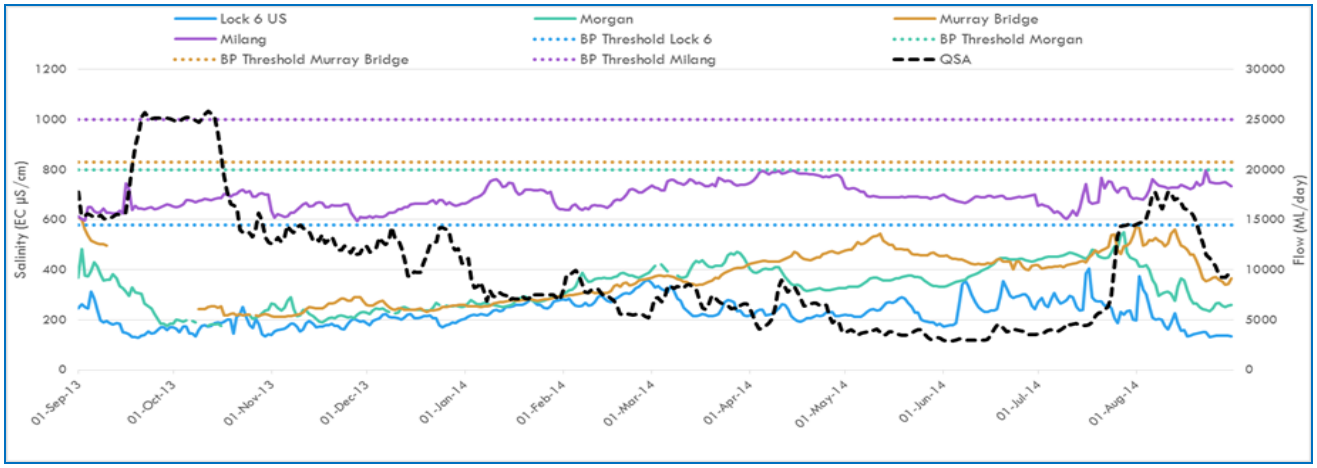
WATER QUALITY - Salinity

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 September 2013 to September 2014. The dashed-lines identify the Basin Plan thresholds for the corresponding colour coded location. It confirms that salinity has not exceeded the threshold at any of these four locations during this period.

SA River Murray Daily Average Salinity



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

FLOW OUTLOOK

The flow at the South Australian border is approximately 5.5 GL/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 normal September Entitlement Flow of 4.5 GL/day plus environmental water from the Murray-Daring Basin Authority's The Living Murray initiative. The environmental water is being delivered to test the Chowilla environmental regulator. South Australia is working with the Commonwealth Environmental Water Holder to seek opportunities to deliver environmental water during Spring.

The flow over Lock 1 is approximately 4 GL/day and will remain around this rate 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.

WEIR POOL OPERATIONS

The water levels in the Lock 1 and 2 weir pools have been raised slightly but maintained within their normal operating range (up to 0.3 m above full supply level). It is anticipated that in early October 2014, these weir pools will be raised, using environmental water, up to 0.5 m above full supply level, or 0.2 m above the maximum normal operating range. The water levels will be raised in two phases, up to 0.10 m above the maximum normal operating range, then an assessment of the action will be undertaken before raising the water levels an additional 0.10 m. The rate of rise will be approximately 0.02 m/day. Raising the water levels in this way is being done to mimic historic natural water level variability, which will promote a range of benefits, specifically restoration of ecological function.

If you would like to be kept informed on how the project is tracking, including when dates are confirmed to raise and lower the water levels, please send your name, address and email details to:
RiverineRecovery@sa.gov.au
Alternatively, you may call the Contact Officer, Ms Wendy Georganas on (08) 8463 3918.

CHOWILLA OPERATIONS

Testing of the new environmental water management infrastructure on the Chowilla Floodplain commenced on 8 September 2014 and will continue until early December 2014. Testing will involve use of the Chowilla Creek Environmental Regulator and ancillary structures. The testing will involve progressively raising the Lock 6 weir pool level up to a maximum of 0.40 m above normal pool level over a period of about eight weeks from late September through to mid-November, reaching the target height of 19.65 m AHD for about two weeks during mid-October. Raising water levels at Lock 6 will require ongoing structural inspections. Testing of the other water management infrastructure will require engineering checks to ensure that the structures can be operated as designed. It is expected that environmental outcomes will also be achieved. More information can be found at: www.environment.sa.gov.au/chowilla-floodplain

BARRAGE OPERATIONS AND WATER LEVELS IN THE LOWER LAKES

The water level in Lake Alexandrina is approximately 0.72 m AHD and approximately 0.83 m AHD in Lake Albert. The main reason for the difference between the water levels is wind effect. The levels are being maintained at a target of 0.75 m AHD. When conditions are favourable, barrage releases will be prioritised through Tauwitchere and Goolwa, targeting a volume of approximately 2 GL/day. SA Water will continue to operate the barrages to minimise any negative salinity impacts from reverse flow events. All fishways are in operation.

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 a red alert warning for toxic blue-green algae at Balranald on the Murrumbidgee River, where water is unsuitable for recreational and stock watering purposes.

Although 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.

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 Lock 7 and 8 and in South Australia. All watercraft users should be aware of the risk of submerged navigation hazards, and should regularly check river depth.

CONSTRUCTION WORKS

Yatco Lagoon

Work is underway to relocate pump offtakes from Yatco Lagoon and install new pump offtakes on the River Murray. The construction work is expected to be completed by early 2015.

Deep Creek (Pike Floodplain)

Work to replace the Deep Creek inlet structure and construct a vertical slot fishway is underway. Deep Creek flow will be maintained throughout the construction period via a temporary diversion pipe. Construction is expected to be completed by mid-December 2014. Traffic conditions on the Lock 5 Road will be changed during this period.

Lake Victoria Outlet Regulator

Remedial works on the Lake Victoria Outlet Regulator have been completed.

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 10 September 2014

Location	River km	Normal Pool Level (m AHD)	Current Level (m AHD)	1974 Flood Level (m AHD)	1993 Flood Level (m AHD)
Lock 10	825.0	30.80	30.78	33.81	33.32
Lock 9 Kulnine	764.8	27.40	27.54	30.03	29.44
Lock 8 Wangumma	725.7	24.60	25.21	27.60	27.19
Lock 7 Rufus River	696.6	22.10	22.10	25.70	25.24
Lock 6 Murtho	619.8	19.25	19.27	21.03	20.50
Renmark	567.4	-	-	18.54	18.04
Lock 5	562.4	16.30	16.37	18.07	17.50
Lyrup	537.8	-	13.31	16.85	16.26
Berri	525.9	-	13.21	15.81	15.74
Lock 4	516.2	13.20	13.20	15.65	15.08
Loxton	489.9	-	10.05	15.05	14.12
Cobdogla	446.9	-	9.88	13.44	12.38
Lock 3	431.4	9.80	9.83	13.16	12.02
Overland Corner	425.9	-	6.51	12.73	11.58
Waikerie	383.6	-	6.53	11.26	10.24
Lock 2	362.1	6.10	6.41	10.28	9.30
Cadell	332.6	-	3.60	9.17	8.08
Morgan	321.7	-	3.58	8.85	7.65
Lock 1 Blanchetown	274.2	3.20	3.50	6.81	5.38
Swan Reach	245.0	0.75	-	6.06	4.51
Mannum PS	149.8	0.75	0.78	3.15	1.90
Murray Bridge	115.3	0.75	0.74	2.06	1.26

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

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

ID	RM-Flow-Report 20140912
Classification	Public I2 A2
Issued	12 September 2014
Authority	DEWNR
Master Document Location	Q:\OMP\RM REM\02 RM Ops\04 Communications\Flow Advices\2014-15
Managed and Maintained by	River Murray Operations
Author	River Murray Operations
Reviewer	Director River Murray Operations and Major Projects