



South Australia

River Murray Water Resources Report



Issue 5: 3 September 2007

Observations at a Glance

- Inflows during August 2007 were better than those received in August 2006 but still less than one quarter of the long-term average inflows.
- Although Inflows over the past three months have been better than during the same period last year, the volume of water in storage this year is much lower. Therefore, the current total water resource position is much worse than for the same time last year.
- The likelihood of above average rainfall over the next three months remains low. This is usually the period of highest inflows into the River Murray.
- Low flows across the border mean that salinity levels remain a major concern within South Australia.

Summary of Murray-Darling Basin Storages

At the end of August 2007 the volume in storage was about 2 000 GL (21% of capacity) compared to 3 610 GL (38% of capacity) at the same time last year. The long-term average storage volume for the end of August is 6 690 GL (71% of capacity). This extremely low storage volume means that the outlook for increased water availability during 2007-08 will be severely constrained. The current total water resource position (taking both storage and inflows into account) is much worse than at the same time last year.

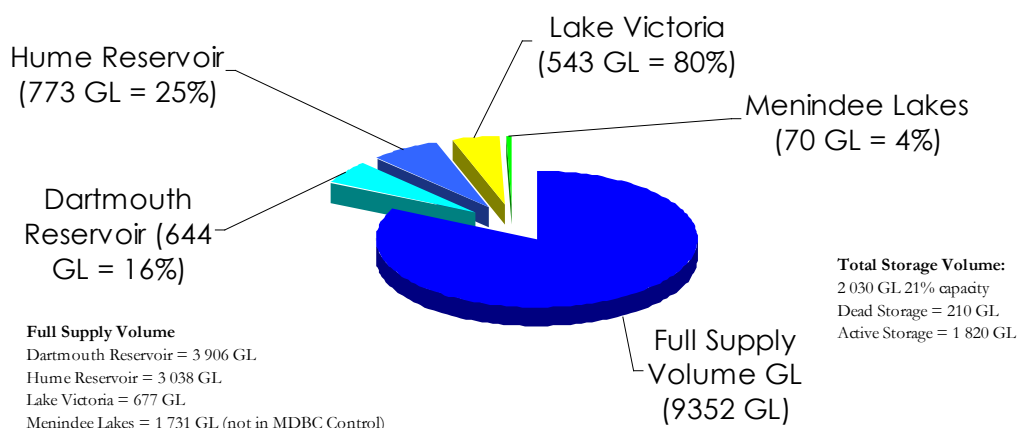
There is a high chance (about 75%) that storage levels at the end of May 2008 will be extremely low again, possibly below the level observed at the end of May 2007 when there was only 1 050 GL in storage. Significant inflows will be required during the September to October period to improve the water resource outlook.

Storage volumes continue to rise very slowly in Hume and Dartmouth Reservoirs and releases will continue at low levels for operational requirements (current release is less than 700 ML/day).

As River Murray storages take a long time to recover from drought, there is a possibility that low flows will continue throughout 2008-09.

Figure 1: Storage Levels

Storage Volumes 3 September 2007



River Murray Inflows

River Murray inflows remain extremely low because of low rainfall. Inflows so far this year have been very similar to the levels observed during 2002-03 when the total inflow into the River Murray was only 2 190 GL. A repeat of these low inflows will have implications for water resource availability because the volume in Hume and Dartmouth Reservoirs will be low.

So far during 2007-08, about 1 000 GL have flowed into the River

Murray system across the Murray-Darling Basin. While this is better than the 935 GL received across the basin for the whole of 2006-07, storage volumes remain low. This increases the severity of the situation as there is little water set aside for a drought reserve.

A total inflow of 335 GL (excluding Snowy Hydro releases) is expected during August 2007 compared to 101 GL during August 2006. This is well below the long-term average of 1 480 GL.

Inflows over the past three months have been better than at the same time last year because of continuing groundwater inflows.

Inflows over the next three months are critical for the River Murray system and also for irrigation and river maintenance within South Australia. "River maintenance" includes transmission water and water lost through evaporation. The situation remains very serious and contingency plans to save water are still in place.

Figure 2: River Murray inflows

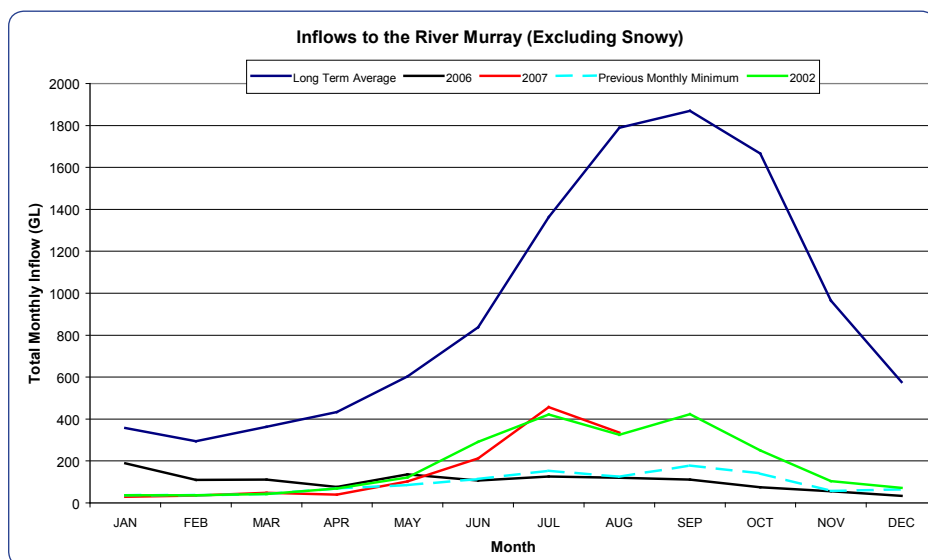


Table 1: Flow scenarios to South Australia and predicted improvement for allocation

		Predicted maximum end of month allocations		
Scenario	Predicted End June 2008 Flow to SA	October 2007 (%)	December 2007 (%)	February 2008 (%)
Worst case (extremely dry)	815 GL	16	16	16
Dry Conditions	1 250 GL	16	18	20
Average Conditions	1 370 GL	30	32	41

(This table is based on figures at the end of July 2007 provided by the Murray-Darling Basin Commission)

These figures will be updated on a monthly basis. At the end of August 2007 the water resource position is better than the worst-case scenario (of receiving 815 GL by the end of June 2008).

South Australian River Murray Water Allocations

On 23 August 2007, Minister Maywald announced that allocations would remain restricted at 13% of allocation for the 2007-08 water year, until water resource conditions improve. This level of allocation will remain in place at least until the total volume of water available reaches 1 500 GL (excluding a river maintenance requirement of 333 GL from the South Australian border to Wellington). The predicted flows outlined in Table 1 have been modeled on the revised water sharing rules currently in place.

The probabilities of improvement have been calculated based on the predicted flow to South Australia under different system inflow scenarios. These figures are dependent on several assumptions (such as securing a reserve for 2008-09).

Mount Lofty Ranges Reservoir Levels

Information about the volume of water held in the SA Water operated storages in the Mount Lofty Ranges can be accessed through the SA Water website. These levels are updated daily and include the additional water pumped during 2006-07 (60 GL) for water quality purposes. This information can be accessed at the following link: www.sawater.com.au/SAWater/WhatsNew/WaterDataUpdate/Reservoir+Levels.htm

River Flows and Water Levels

In drought years South Australia's dependence on the River Murray increases. This means requirements need to be reviewed on a month-by-month basis to ensure that flows match demands, which include water for metropolitan Adelaide and country towns; irrigation; river maintenance requirements; and stock and domestic water allocations. During August 2007 the flow to South Australia was maintained at about 1 150 ML/day, compared to the normal August entitlement flow of 4 000 ML/day.

The current River Murray operating strategy aims to keep weir pool levels immediately upstream of the Locks at the normal pool level, or as close to this as possible. There have been some challenges maintaining the pool level above Lock 6, but as the flow is scheduled to increase during September 2007 to about 2 000 ML/day, the weir pool level should start to increase towards the normal full supply level. Table 2 outlines the current water and salinity levels at selected locations along the river.

Table 2: Water and salinity levels (at 3 September 2007)

	Actual Water Levels		Full Supply Level	Variation from Pool Level	EC Level
	U/S m AHD	D/S m AHD	U/S of Weir m AHD	U/S of Weir m AHD	
Lock 6	19.17	16.23	19.25	-0.08	286
Lock 5	16.31	13.21	16.30	0.01	361
Lock 4	13.19	9.89	13.20	-0.01	494
Lock 3	9.80	6.24	9.80	0.00	611
Lock 2	6.17	3.27	6.10	0.07	670
Lock 1	3.25	0.22	3.20	0.05	607
Lake Alexandrina	0.23				2293
Lake Albert (Meningie)	0.21				2613
Goolwa					13912
Lake Alexandrina and Albert water and salinity Levels based on 5 day average					
Water levels below Lock 1 are affected by wind and will vary throughout the day					
EC Readings below Lock 1 are daily averages and will vary throughout the day					

Entitlement Flow

Until the water resource conditions significantly improve it is expected that flows to South Australia will continue to remain restricted. Table 3 shows the normal monthly Entitlement Flows compared to the reduced flows expected under a worst-case scenario of 815 GL by the end of June 2008.

Table 3: Entitlement Flow Comparisons

Month	Normal Entitlement Flow GL/Month	Reduced Flow GL/Month for 2007-08*
July	108.5	37
August	124	35
September	135	62
October	170.5	82
November	180	102
December	217	110
January	217	97
February	194	81
March	186	73
April	135	54
May	93	46
June	90	36

*Subject to change and flows may be adjusted at any time

Current River Salinity Levels

Flows in the River Murray in South Australia have been low for a number of months and travel times for water in the river have increased, leading to higher levels of salinity. For example, it is currently taking three months for water to flow from Swan Reach to Murray Bridge. Under Entitlement Flow conditions all weir pool water levels vary within their normal operating range and salinity levels remain generally constant. The salinity level at Morgan has increased from 300 EC in early March to 700 EC in late August 2007. Salinity levels at many locations along the River Murray also continue to increase. Additional water is needed for dilution flows.

As the river level below Lock 1 drops however, additional salt discharges are likely. The amount of additional salt discharging into the river is directly linked to the river level drawdown, although salt discharge is likely to lag river level drawdown.

Current Salinity and Water Level Below Lock 1

The Department of Water, Land and Biodiversity Conservation has a number of continuous salinity and water level monitoring sites that are updated on a two hourly basis. These are available live at: <http://e-nrims.dwlbc.sa.gov.au/monitoring/lakes/>

This monitoring has recently been enhanced to include additional sites upstream of the Goolwa Barrage around to Point Sturt. Additional monitoring sites within Lake Alexandrina will be installed over the next month.

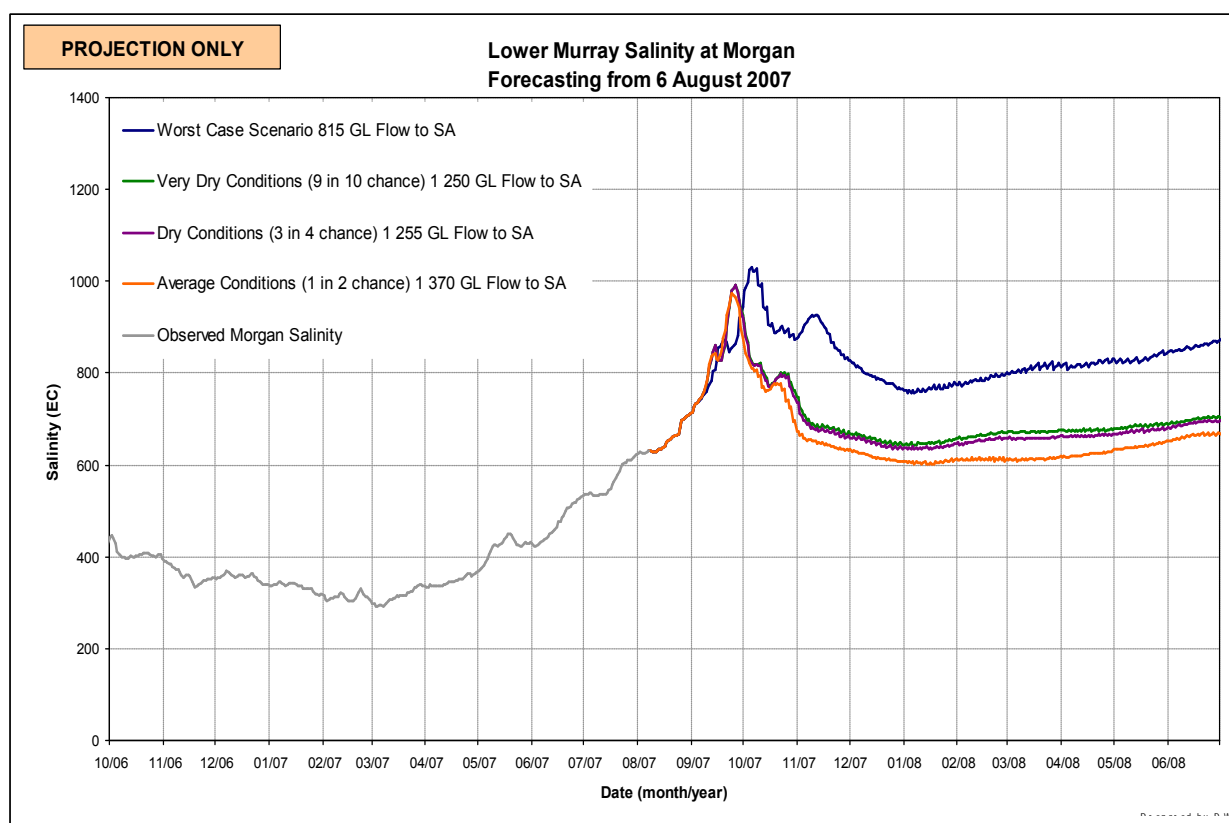
Projected Salinity and Water Levels

A simulation model has been developed to better understand possible future salinity levels at selected locations along the River Murray and for Lake Alexandrina. This modelling is very complex and is based on a number of assumptions, including flows and diversion patterns, and savings from wetland closures. Graphs of the projected salinity levels have been generated by the modelling for Morgan (Figure 4), Murray Bridge (Figure 5) and Lake Alexandrina (Figure 6).

The Department of Water, Land and Biodiversity Conservation has investigated how to best use dilution flows during 2007-08 to mitigate the effects of increasing salinity levels. The modelling provided indicates that about 750 ML per day from September until the end of June 2008 would be most effective.

Forecast water levels in Lake Alexandrina based on the predicted flows in Table 1 are outlined in Figure 7.

Figure 4: Salinity at Morgan



Bureau of Meteorology outlook - September to November 2007

In the runoff producing areas of the catchment in north-eastern Victoria, the chances of exceeding median rainfall for the period September to November 2007 is 40%-45%.

The chances for above-normal maximum temperatures are between 55% and 60% for much of the southern Murray-Darling Basin. This is a worrying prediction because it means that evaporation rates and crop water requirements will increase.

Figure 5: Salinity at Murray Bridge

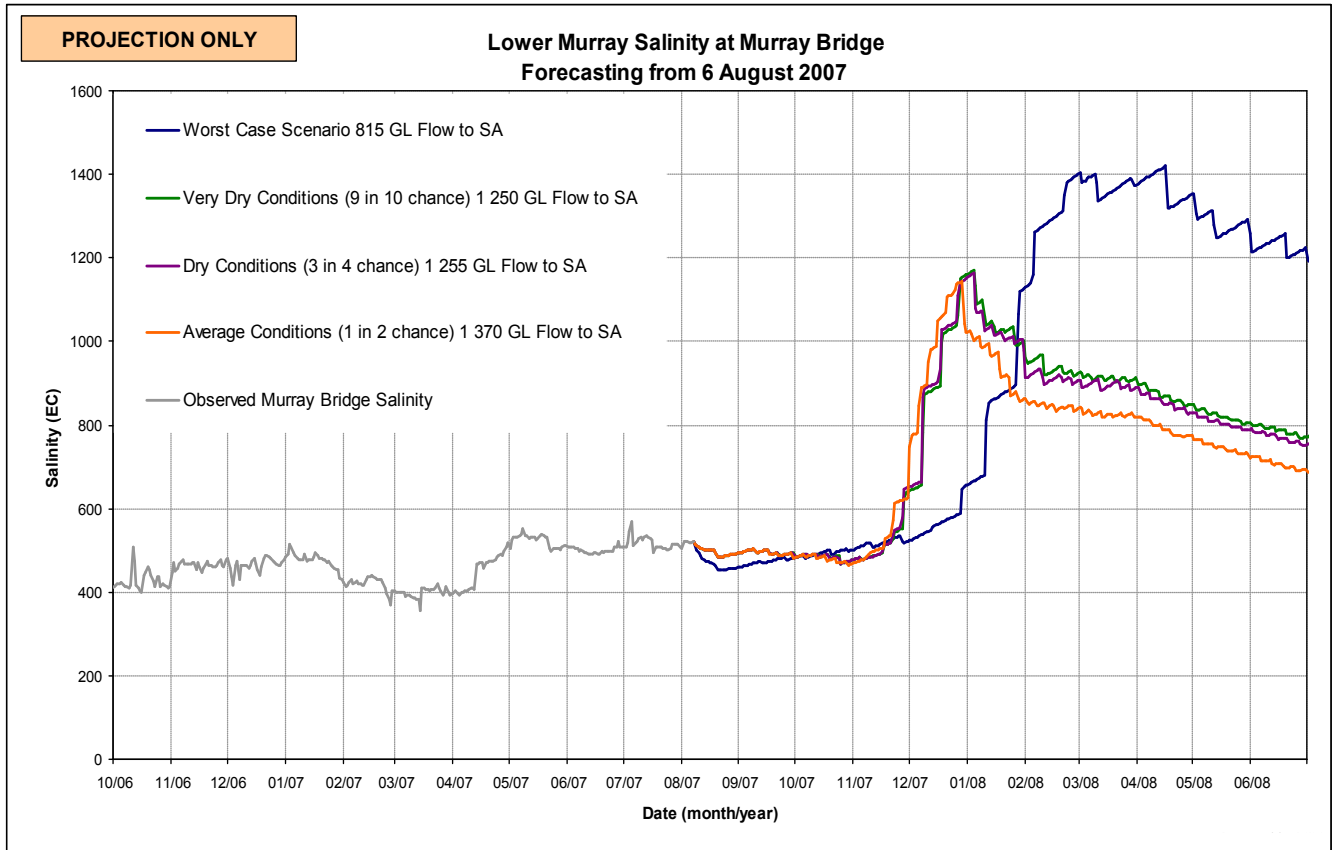


Figure 6: Salinity in Lake Alexandrina

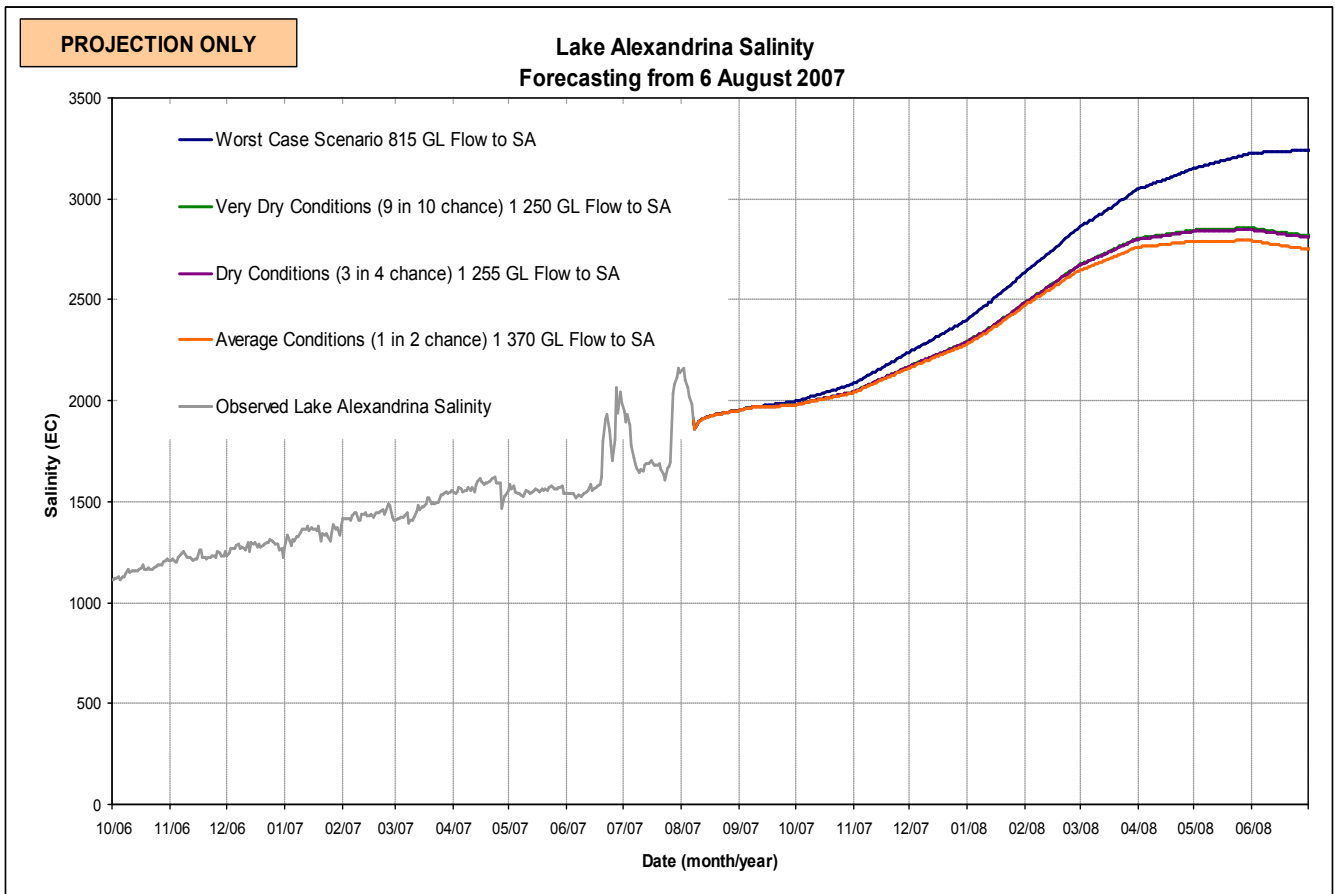
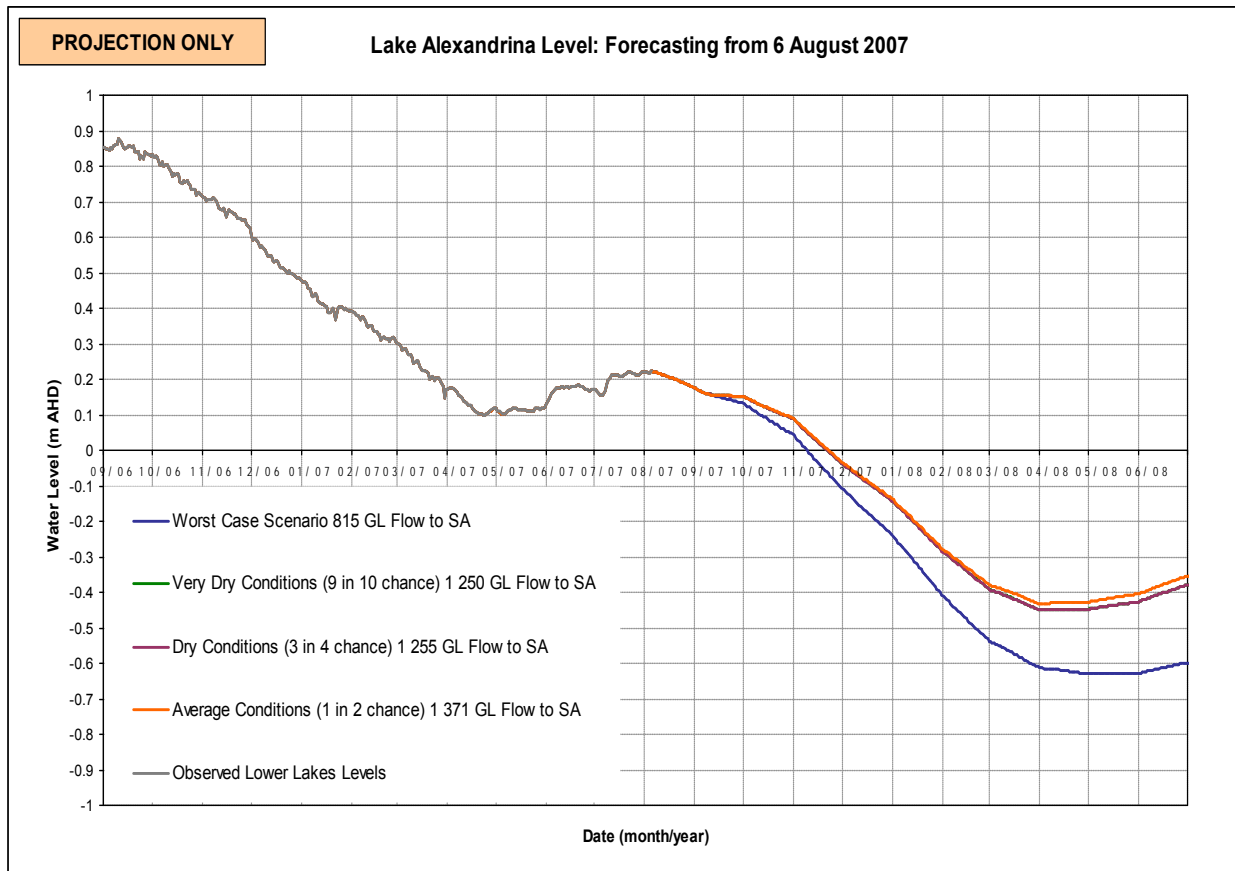


Figure 7: Water Levels in Lake Alexandrina



Further information on River Murray conditions and rainfall forecasts can be obtained from the following websites:

Department of Water, Land and Biodiversity Conservation www.dwlbc.sa.gov.au
SA Murray-Darling Basin NRM Board www.rivermurray.sa.gov.au/AWMN/awsview.php
Murray-Darling Basin Commission www.mdbc.gov.au
SA Water Daily Reports www.riverland.net.au/%7Eheinze/ex-flow-frame.htm
Bureau of Meteorology www.bom.gov.au
Queensland Department of Primary Industry www.longpaddock.qld.gov.au

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