Australian Government

MURRAY–DARLING BASIN AUTHORITY

RIVER MURRAY SYSTEM

Drought Update

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In Brief

During June 2009, Murray System inflows were 110 GL, which was only slightly above the historic low of 100 GL (in June 2008). However, good rainfall in early July provided the best response in streamflows since September 2008. As a result, Murray System inflows for July were about 330 GL which is well above the historic minimum of 130 GL (in July 2006), but is still only about 30 % of the long term average (1,170 GL). The two month total for June – July is tracking as the 11th driest in 118 years of records.

MDBA active (useable water) storage at the end of July was 1,470 GL or 17 % of capacity. This is similar to this time last year (1,480 GL) but well below the long term average for July of 5,610 GL. MDBA active storage has now been below average since early 2002.

Initial 2009-10 allocations announced by the States for River Murray irrigators are zero or very low. The prospect for improved allocations this season remains highly dependent on future rainfall and system inflows.

For south-eastern Australia, the latest rainfall outlook from the Bureau of Meteorology shows a moderate shift towards drier conditions across the western half of the Murray-Darling Basin. An El Niño event looks to be developing across the Pacific, and current predictions indicate that it will reach peak intensity late in the year. El Niño events are usually (but not always) associated with below average rainfall in the second half of the year across large parts of southern and inland eastern Australia.

Overall; despite the small improvement in July system inflows, the current outlook for the 2009-10 water year remains poor, and is similar to the previous two years.

Murray–Darling Basin Authority

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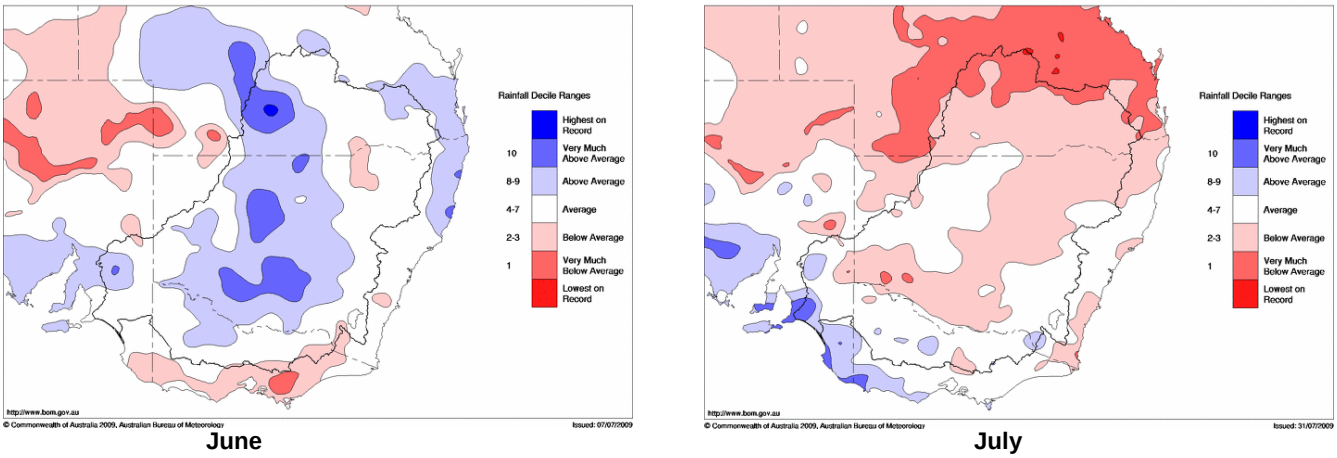
Rainfall and System Inflows

After experiencing a dry autumn, most regions across the southern Murray-Darling Basin received average or above average rainfall during June (see Figure 1). However, the upper reaches of the high yielding catchments in the Victorian Alps and Snowy Mountains received below average rainfall. This, combined with the severe longer term rainfall deficits that already existed (Figure 2), resulted in Murray System inflows (excluding Darling and Snowy inflows) for June of about 110 GL, which was only slightly above the historic low of 100 GL in June 2008 (see Figure 3 and Table 1).

In early July, north-eastern Victoria received good falls of rain and the response in streamflows was the best since September 2008. As a result, Murray System inflows for July were about 330 GL which was well above the historic minimum of 130 GL in July 2006, but is still only about 30 % of the long term average (1,170 GL). The two month total for June - July is tracking as the 11th driest in 118 years of records. Monthly inflows are only likely to approach long term averages after a sustained period of above average rainfall.



June **July**

Figure 1. Rainfall deciles for the Murray-Darling Basin, June and July 2009 (source: Bureau of Meteorology)

Table 1. Murray System Inflows (excluding Snowy and Menindee inflows)

	2009-10	**Historic Minimum**	**Long term average**
June	110 GL	100 GL (2008)	680 GL
July	330 GL	130 GL (2006)	1,170 GL
2 month total (June –July)	440 GL	230 GL (2006)	1,850 GL

The last good rainfall in the northern Basin was in late May and early June (Figure 1). Although this produced small streamflow responses in the Moonie and MacIntyre Rivers, much of this water naturally dissipated as it slowly moved up to 1,500 km downstream along the Barwon-Darling River system. A very small volume of water (about 40 GL) finally reached Menindee Lakes in July, and increased storage by less than 2 %.

Although not quite as severe as in the southern Basin, large areas of the northern Basin have also suffered from rainfall deficits over the past 8 years (Figure 2).

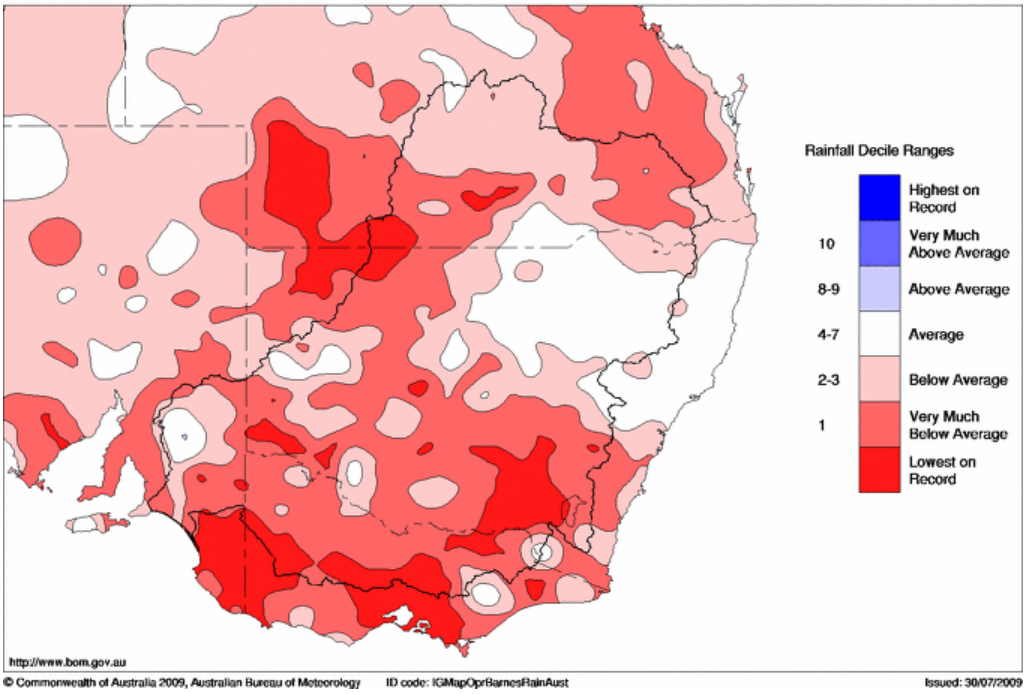


Figure 2. Rainfall deciles for the Murray-Darling Basin, for 8 years from 1st July 2001 to 30th June 2009. (source: Bureau of Meteorology)

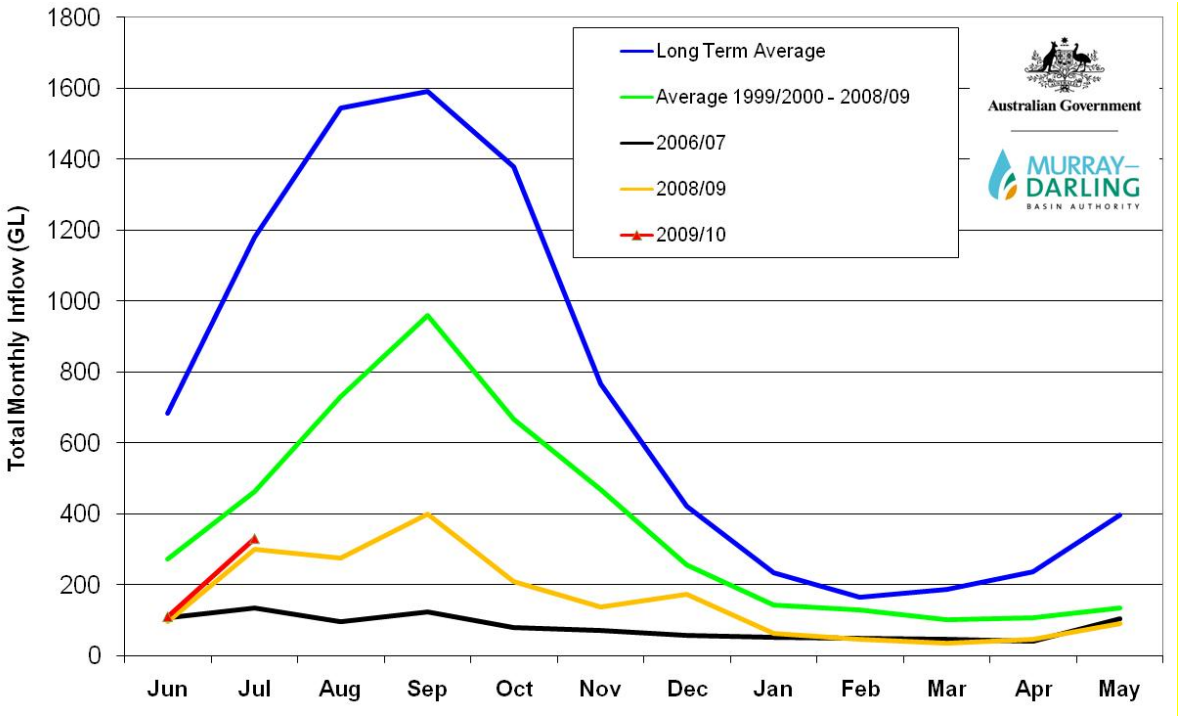


Figure 3. Murray System inflows (excluding Snowy and Menindee inflows)

Murray System Storage

MDBA active (useable water) storage at the end of July was 1,470 GL or 17 % of capacity (Figure 4). This is similar to this time last year (1,480 GL) but well below the July long term average of 5,610 GL. MDBA active storage has now been below average since early 2002. There was also about 245 GL in Menindee Lakes, which remain under NSW control, and 340 GL in the Murrumbidgee and Goulburn Valley Accounts (due to water traded out of these systems last season) which is available for use in the Murray.

Elsewhere in the Basin, storage levels also remain low. The total volume of water in all Basin storages managed by the MDBA or by State governments, has increased by only 900 GL over the last two months, to 4,800 GL, or 21 % of capacity.

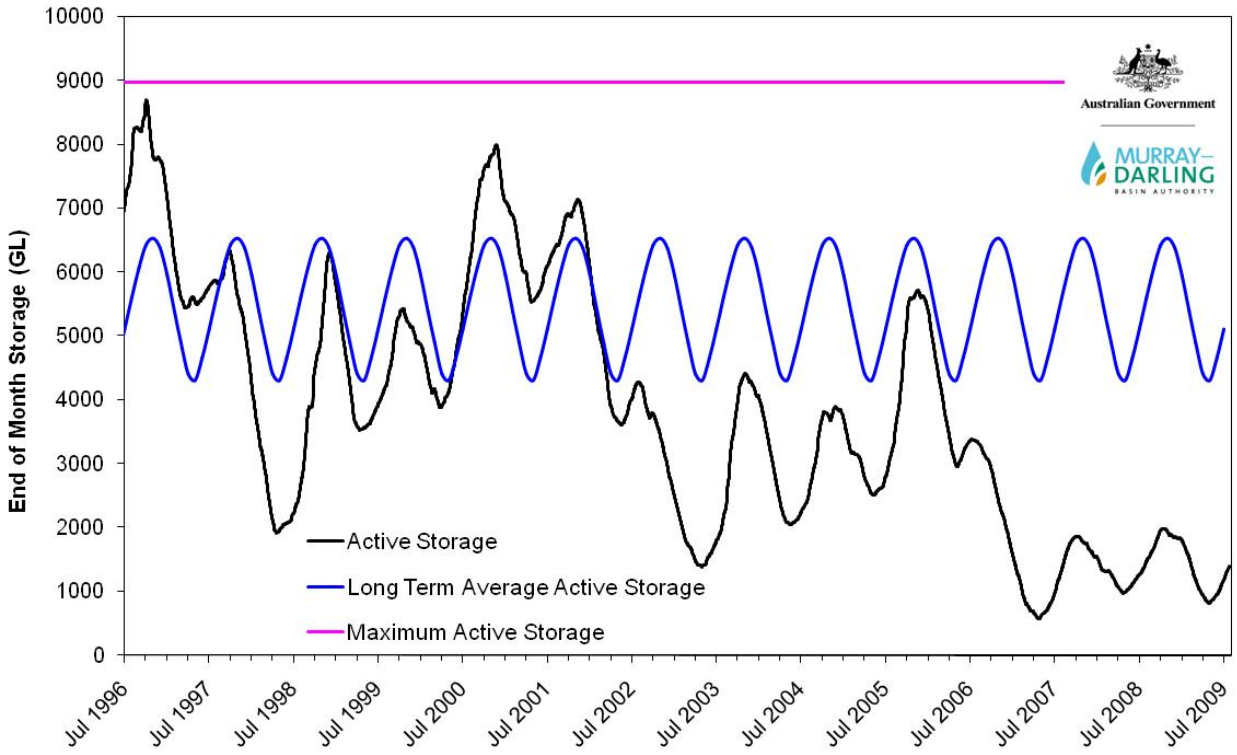


Figure 4. MDBA active storage, July 1996 to July 2009

Murray System Diversions in 2008-09

The combined effect of low storage levels and low inflows, resulted in another year of low diversions across the River Murray System for 2008-09 (Figure 5). The total amount of water diverted (for all purposes) was about 1,700 GL, which was slightly higher than 2007-08 (1,500 GL) but only about a third of a 'non-drought' water year.

In Victoria, the high reliability irrigation allocation for the Murray reached 35% which was the lowest on record. Similarly, in South Australia the Murray irrigation allocation reached 18% which was also a record low. In NSW the high security allocation for the Murray reached 95% but the general security allocation (which covers most of entitlements) was only 9%.

Temporary water trading has again been an important source of supplementary water, particularly from the Murrumbidgee Valley which provided about 390 GL.

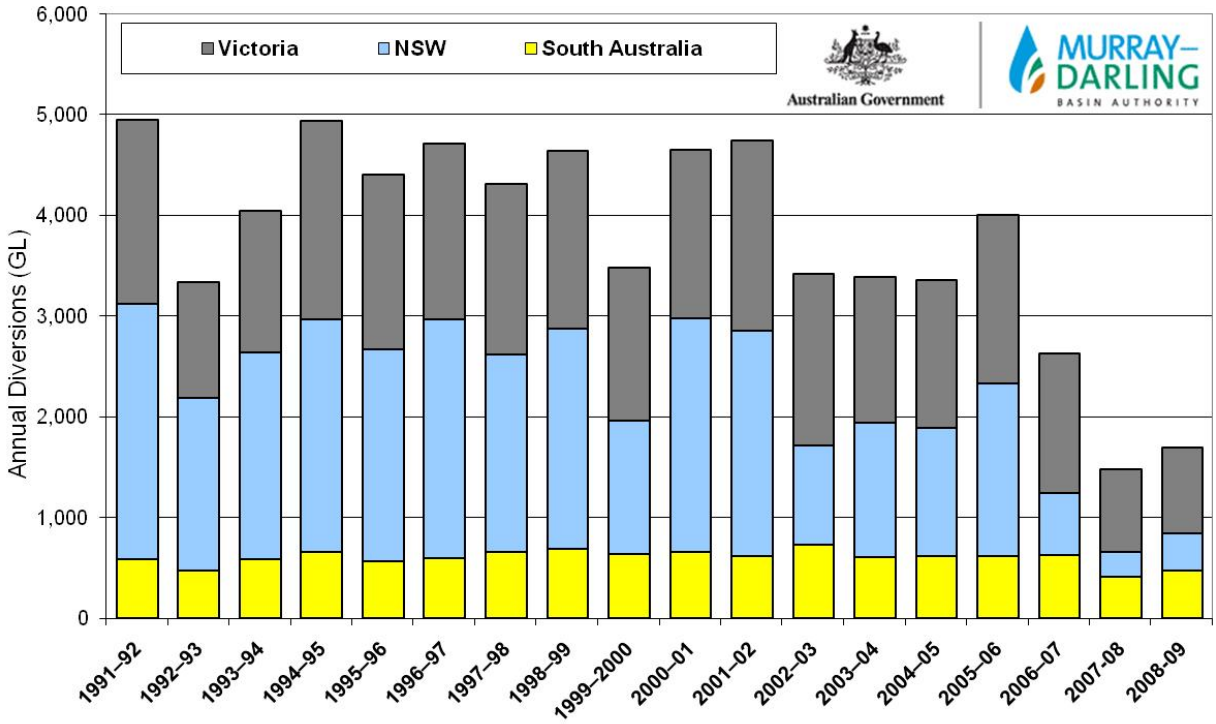


Figure 5. State Diversions for the Murray system (including lower Darling, and not adjusted for trade)

Murray Operations Update

Due to the protracted water scarcity across the Murray System, the overall objective of river operations will continue to focus on maximising water availability by reducing evaporative and transmission losses. With this objective in mind, the releases from Dartmouth and Hume Reservoirs have been reduced during winter to maximise the capture of inflows, while maintaining sufficient flow downstream for riparian and in stream environmental needs. The minimum release from Dartmouth Reservoir is 200 ML/day and from Hume Reservoir is 600 ML/day.

Lake Mulwala drawdown

During June and July, Lake Mulwala was fully lowered to the original river channel (Figure 6). This will help control the spread of *Egeria densa*, an invasive aquatic weed, by allowing it to dry out and also by exposing it to frosts. Refilling of the lake commenced in mid-July, and took advantage of a rise in tributary inflows from the Ovens and Kiewa Rivers. By the end of July, the water level had increased from 119.5 m AHD (or 4.9 m

below Full Supply Level) to 123.4 m AHD (1.5 m below FSL), and will continue to be refilled during August. To assist with the initial refilling of the Lake, the release from Yarrawonga Weir was reduced, for about one week, to 1,500 ML/day which is below the normal minimum of 1,800 ML/day. This winter drawdown of Lake Mulwala should provide recreational and tourism benefits for a number of years into the future.

Figure 6. Lake Mulwala was fully lowered in June-July 2009 to help control *Egeria densa*, an invasive aquatic weed. (photo courtesy of Pat Doyle, Goulburn-Murray Water)

Lake Victoria and flow to South Australia

During the last two months, storage in Lake Victoria has increased by 140 GL to 290 GL (or 43 % capacity). This is slightly lower than this time last year (307 GL) and significantly lower than the July long term average of 630 GL. During July, the target flow to South Australia was 1,800 ML/day compared with a normal entitlement rate of 3,500 ML/day. Flow to South Australia has now been below normal entitlement rates for more than 2 ½ years and can be expected to remain so until there is a significant improvement in water resource availability.

Lower Lakes

The water level in Lake Alexandrina reached a record low in April 2009 of -1.04 m AHD (or 1.79 m below Full Supply Level). During the past 3 months, the water level has been gradually rising, and at the end of July was about -0.81 m AHD. This was due to a number of factors, including; local rainfall and inflows (particularly during July), lower evaporative losses, and inflows from the River Murray. Under a dry scenario, the lake level is likely to remain fairly constant for the remainder of winter, and then, similar to the last 2 years, continue to gradually fall during the spring and summer months as evaporative losses increase. An assessment of historical data shows there has only been one year in the past ten years when Murray System inflows might have been sufficient to refill the Lower Lakes from its present level.

Local rainfall, and the pumping of water from Lake Alexandrina, increased the water level in Lake Albert from about -0.5 m AHD in March 2009 to about -0.2 m AHD at the end of June, when the pumping was stopped. The South Australian Government has commenced a major bioremediation program for Lake Albert, which

includes the use of micro-fine limestone and the planting of shallow-rooted cover crops to mitigate the risks of acidification.

The South Australian Government has also commenced the construction of temporary embankments in the Goolwa Channel and Currency Creek. These will help with the raising of water levels in Goolwa Channel and associated tributaries, limiting the exposure of acid sulfate soils to the air. The main regulator in the Goolwa Channel near Clayton is a sand-fill embankment about 400m long and 40m wide, and should be completed by early August 2009.

The salinity in Lake Alexandrina at Milang increased to 6,000 EC in April 2009 and is currently about 5,500 EC, which is significantly higher than the long term average (see Figure 7). Upstream of the Goolwa Barrage, the salinity increased to 32,000 EC in March 2009 and is now about 20,000 EC (compared with seawater salinity of about 50,000 EC). The salinity in Lake Albert is about 9,000 EC.

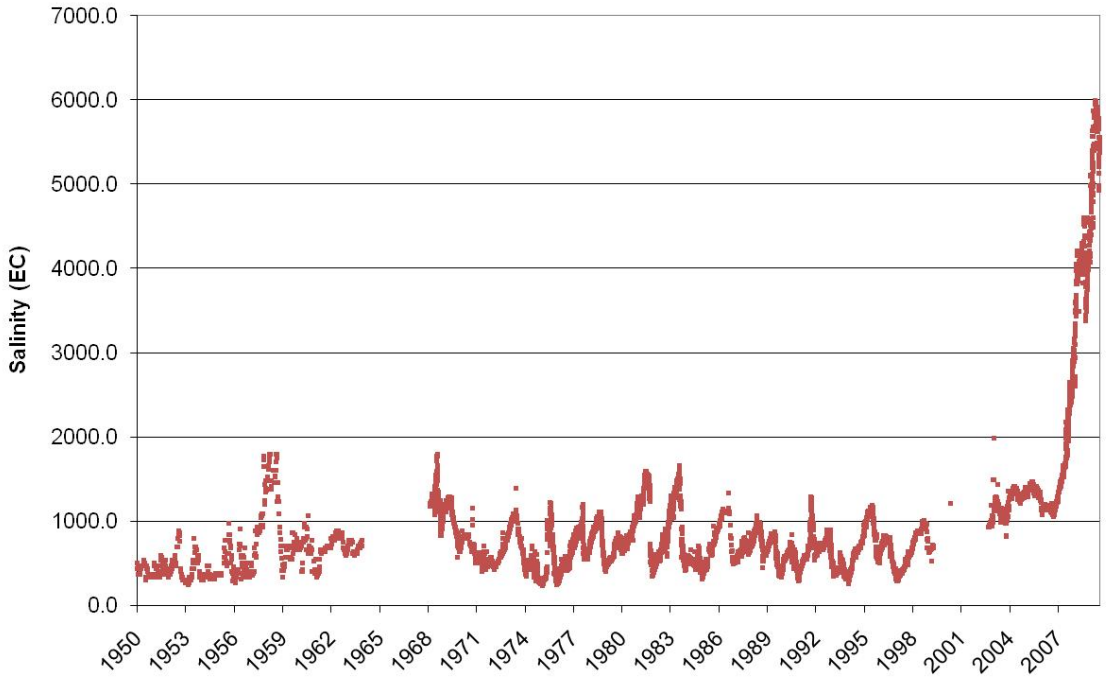


Figure 7. Salinity of Lake Alexandrina at Milang, 1950 to July 2009

The Murray-Darling Basin Authority will continue to review its operational plans over the coming months and more details will be provided via media releases and weekly reports which can be found at www.mdba.gov.au.

Outlook

For south-eastern Australia, the latest rainfall outlook from the Bureau of Meteorology shows a moderate shift towards drier conditions across the western half of the Murray-Darling Basin (see Figure 8). An El Niño event appears to be developing across the Pacific, and the latest outputs from computer models predict that it will reach peak intensity towards the end of 2009. El Niño events are usually (but not always) associated with below average rainfall in the second half of the year across large parts of southern and inland eastern Australia.

There is now sufficient water resources for all carryover water from 2008-09 to be available, however it may not be deliverable in some areas. The initial 2009-10 allocations announced by the States for River Murray

irrigators are either zero or very low. The prospect for improved allocations this season remains highly dependent on future rainfall and system inflows. Overall, the outlook for the 2009-10 water year remains poor, and is similar to the situation at this time during the last two years.

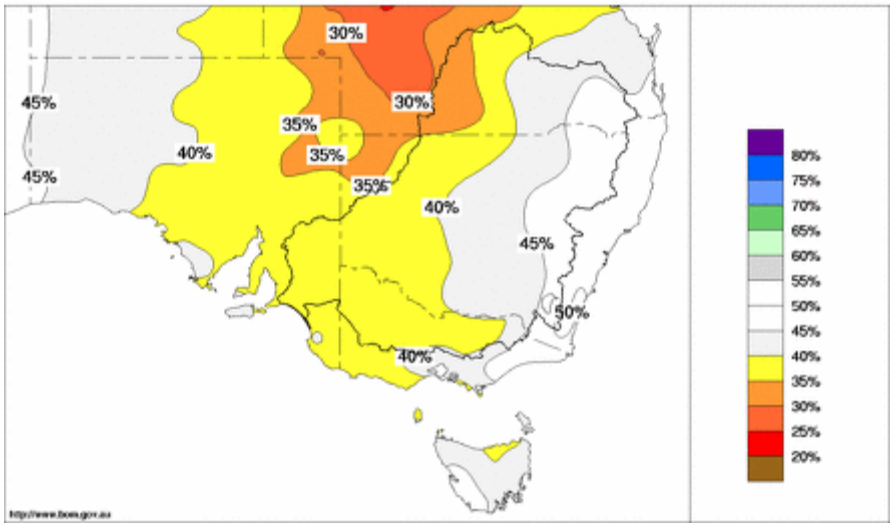


Figure 8. Chance of exceeding the median rainfall: August to October 2009 (source: Bureau of Meteorology)

Additional Information

Additional information is available at www.mdba.gov.au and also from the relevant Australian and State Government Agencies. For media interviews with MDBA personnel, please contact Sam Leone, MDBA Media Liaison, telephone 0407 006 332.

Acknowledgements

Front cover photo: Hume Reservoir dropped to 3% of storage capacity in April 2009. Photo courtesy of Brian Graham, NSW DECCW.