



River Murray System - Drought Update No. 8 June 2007

IN BRIEF

Promising early signs

Key developments since the last update in April 2007 have been:

- Rainfall across the upper River Murray has continued at about average rates.
- Catchments remained extremely dry in April - inflow for the month set a new April low of 40 GL.
- May inflow was 103 GL (less than May 2006 at 137 GL - record low for May was 75 GL in 1902).
- By early June catchments were 'wetting up' - flow rates in upper Mitta Mitta and Ovens Rivers were the highest seen since December 2005.
- June inflows are expected to be more than 180 GL - about 70 GL higher than June 2006.
- The Bureau of Meteorology reports "*an elevated chance of a La Niña event occurring in 2007*".

Partner Governments are finalising arrangements which will allow small amounts of water to be made available to the States at the opening of the 2007/08 irrigation season. It is expected that the initial volumes will be very small and further information will be provided by the relevant State authorities over coming weeks.

A long long way to go to break the drought...

Despite these welcome signs, significant persistent rainfall will be needed over coming months to improve the outlook for water availability and for the environment of the River Murray.

The end of May 2007 Murray system active storage volume of 740 GL was 380 GL below the previous lowest level of 1120 GL post-Dartmouth construction in 1983. It is estimated that streamflows would need to be in the wettest 15% of records for Hume Reservoir to spill this winter/spring. It is likely that, even with good falls of rain this year, it could take several years for storage levels to return to long-term average levels.

CURRENT SITUATION

Rainfall and Streamflows

Rainfall in recent months has brought some hope to rural communities across much of the Murray-Darling Basin. Figure 1 shows how rainfall in May 2007 compared with May 2006. There was between 25 and 100 mm more this year across much of the Basin - excluding the upper Darling catchment in southern Queensland where rainfalls have been similar to last year.

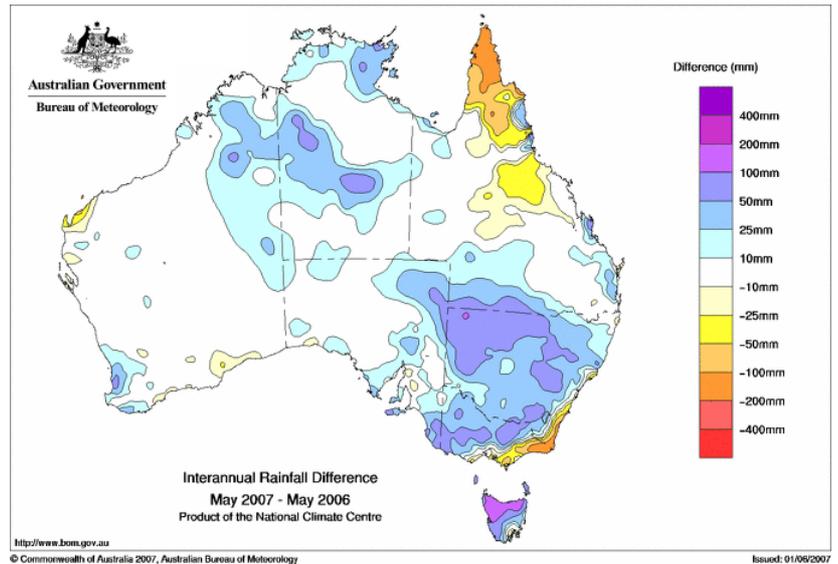


Figure 1. May Rainfall Comparison - Comparison of 2006 and 2007

Following the third moderate rain event in four weeks, surface soil layers had become sufficiently 'wetted up' by early June to result in streamflow response in the upper catchments. Total inflow to the River Murray for the year to date has begun to rise, see Figure 2, but is still behind where we were this time last year. The steeper rise in June this year indicates June inflows have been higher this year than in 2006.

Murray System Inflows Excluding Snowy (approx.) (Calendar Years; as at 25/6/2007)

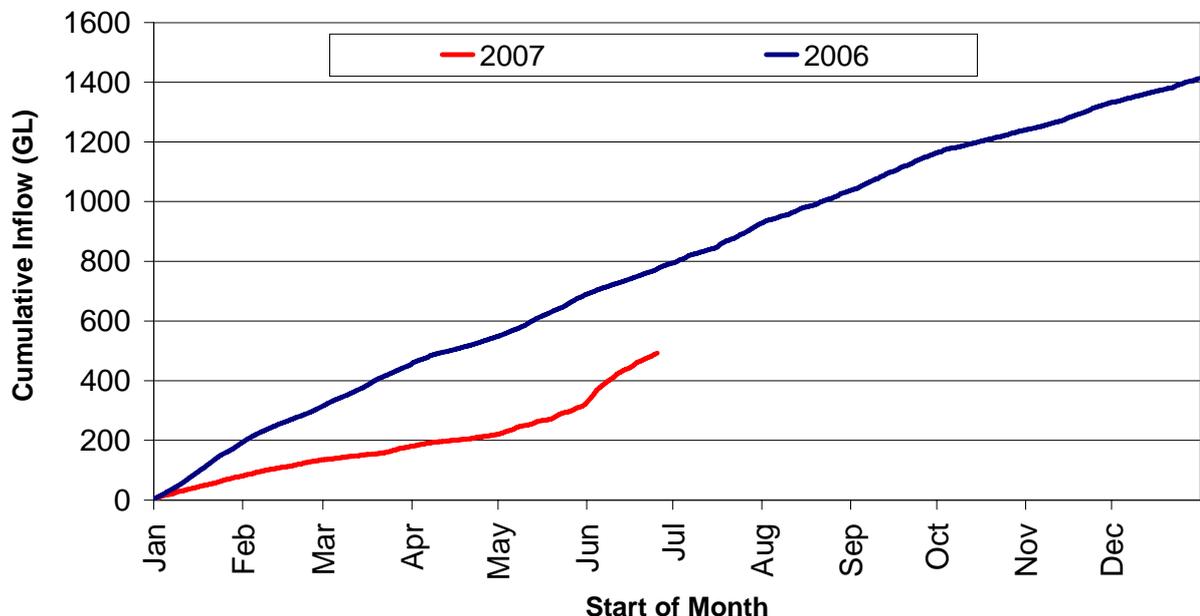


Figure 2. Cumulative Inflows to River Murray - Comparison of 2006 and 2007 (excluding Snowy Scheme releases)

Current Operations

At end May the available volume held in MDBC storages was 740 GL compared to the 'worst case' projection of 490 GL in the last Drought Update in April.

The increase in storage was due to:

- use of special arrangements by Snowy Hydro Ltd under which some water due to be released to the Murray in 2007/08 has been delivered early;
- lower evaporation and transmission losses due to the rain of recent months; and
- reduced usage of allocated water by irrigators.

As the 2006/07 irrigation season drew to a close, flows in the River Murray were reduced below normal minimum winter flow rates to conserve water upstream in Hume and Dartmouth reservoirs. The recent rainfall has boosted tributary inflows - particularly from the Kiewa and Ovens Rivers - and this rise is currently making its way downstream to be stored in Lake Victoria.

Flow to South Australia has been reduced to a target of about 950 ML/day - less than a third of the normal flow rate for this time of year and the lowest such flow since before Hume Dam was completed in 1936.

Weir pools have generally been maintained close to normal full supply levels in recent weeks. It is likely that with continuing rain the need to lower weir pools over coming months will be reduced.

By mid April the lower lakes in South Australia had fallen to about 0.10 m AHD (Australian Height Datum), close to the record low level set in March 1968. This is below sea level for most of the tide cycle. Substantial efforts to reduce leakage of sea water through, under and around the barrages have been made, but some inevitable leakage has resulted in elevated salinity levels in the reaches immediately upstream of the barrages.

Local rainfall and reduced evaporation rates have seen lake levels rise gradually over the last few weeks to about 0.20 m AHD.

A number of wetlands across the system - particularly in South Australia - have been or are planned to be temporarily disconnected from the River Murray. This is aimed at reducing evaporation losses to augment critically low water availability in 2007/08.

WATER AVAILABILITY 2007/08

By late June 2007 water availability for 2007/08 was sufficient to meet critical urban and some stock and domestic water supplies (subject to appropriate levels of restriction) with small additional volumes of water likely to be available to the States to distribute as appropriate. 'Water availability' means actual water in storage plus the minimum expected inflow used for planning (up to end May 2008) minus expected delivery and storage evaporation losses. The minimum expected inflow used for planning is based on a repeat of the inflows experienced in the 2006/07 year with further reductions to reflect expected record low releases from the Snowy Mountains Scheme and major tributaries (particularly Murrumbidgee and Goulburn) should extremely low inflows persist.

As the season progresses water availability will be reviewed at least monthly. With critical urban water needs now assured it is reasonable to expect that improvements in inflows, in excess of the minimum case, will be available to the States for allocation. The sharing of such improvements between the States has been agreed by First Ministers¹ and advice will be provided over coming weeks.

¹ The Prime Minister, Premiers of New South Wales, Victoria, South Australia and the Chief Minister of the Australian Capital Territory
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Exactly how those improvements are allocated to water users is a matter for each State. The Murray-Darling Basin Commission's role is to advise each State of the water available.

Each State then determines how much water is allocated to consumers and the method of allocation, taking account of (as applicable):

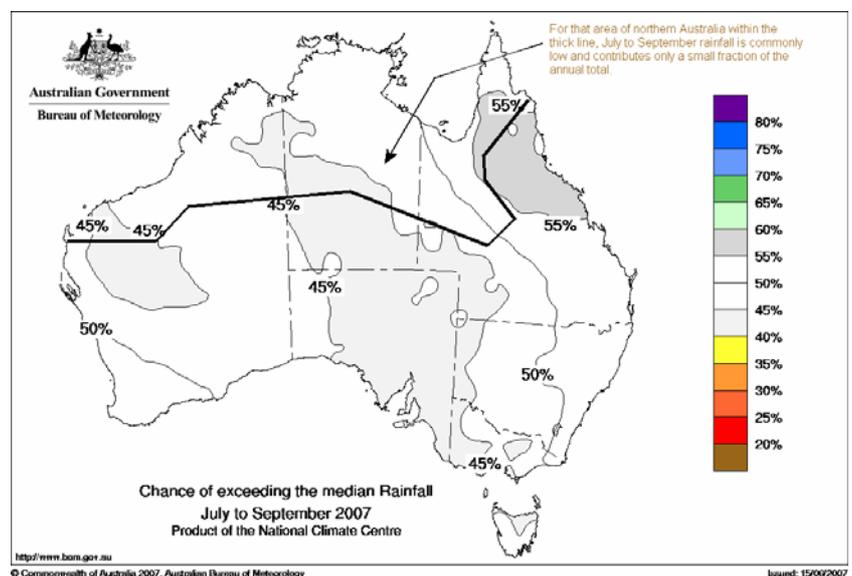
- water carry-overs (including, in NSW, water suspended in 2006/07);
- critical human and environmental requirements;
- transmission losses in major canal systems (NSW and Victoria);
- salinity dilution requirements (South Australia);
- inter-valley water trades;
- paybacks of volumes borrowed from environmental accounts; and
- paybacks of previous Snowy 'deals' (NSW).

Rainfall Outlook

In its latest rainfall outlook for July to September inclusive, the Bureau of Meteorology shows, based on current climatic indicators, the outlook for winter rain is normal - that is no strong odds towards either wet or dry conditions.

Figure 3. Chance of exceeding the median rainfall July to September 2007

(Australian Bureau of Meteorology)



However, the Bureau also advises that all six international dynamic climate computer models observed suggest that there is an elevated chance of a La Niña event occurring in 2007 - "*La Niña events bring wetter than normal conditions across much of the eastern half of Australia during the second half of the year. Furthermore, the years following El Niño usually bring average to above average rainfall to eastern and southern Australia*". Future Drought Updates will provide the latest advice from the Bureau of Meteorology.

Streamflow Outlook

Despite surface soil layers in some upper catchments now wetting up and yielding some runoff, the deeper soil profiles may remain depleted from the prolonged and extreme drought conditions. This means, whilst the outlook for rainfall is better than we have seen for some time, the potential runoff that may be yielded could be less than normally expected with the same rainfall.

For example, whilst close to average rainfall was received in the Hume Dam catchment the year following the extreme drought years of 1903 and 1945, streamflows yielded from this near-average rain was only about half of the average inflow.

Water Availability Outlook

Whilst it is a State responsibility to announce allocation information some key messages can be provided here:

1. The bulk of the water available at end June will be committed to meeting critical human needs and delivery losses. A small amount will be available for irrigation at 1 July, however increases in water availability in 2007/08 will continue to depend entirely on inflows over coming months. If inflows remain low there will be little water available for irrigation.
2. Last season - even with the extreme low inflows - a total of about 3 700 GL was able to be delivered to the States. This is because about 3 200 GL of available water was in storage at the start of 2006/07. This season starts with only 740 GL available in storage. This means that significant inflows are needed this season just to achieve similar levels of water availability to last year. *There is about a 1 in 4 chance that total River Murray system water availability in 2007/08 will be no higher than in 2006/07.*
3. The chance that conditions will be wet enough in 2007/08 to return storages to long-term average levels is very small - less than a 15% chance. Large inflows would be needed into Dartmouth Dam and Menindee Lakes to return reserves to long-term averages by end 2007/08.

Figure 4 gives a picture of potential outlooks for the coming season based on historical records.

Total Season Inflow	Chance of this inflow or higher in 2007/08*	Water Availability	Outlook for the Environment	Comment
Flood of record (> 40 000 GL)	Very unlikely	Full allocations	Major flooding across entire River Murray to the sea	Very unlikely with current conditions
Repeat of 1996/97 - the most recent good wet year (16 000 GL)	<5%	High allocations	Significant flooding in upper and mid reaches. Moderate flooding in SA	Flood flows lower than in 1996 due to refilling of major dams
Long-term Average (11 100 GL)	15%	Reasonable Allocations	Moderate flooding of Barmah-Millewa Minor flooding of lower reaches	Moderate reserves for 2008/09
Repeat of 2005/06 - a 'reasonable' inflow year (6 500 GL)	50%	Moderate Allocations	Minor flooding of Barmah-Millewa Minor Barrage releases	Low reserves at end of year as most water consumed
3500 GL	75%	Similar total availability to 2006/07	Extremely bleak for mid and lower reaches	Less water for SA & Vic than in 2006/07 - more for NSW
Repeat of 2006/07 (< 1000 GL)	High chance of exceeding	Critical Human needs - almost no irrigation	Extremely bleak for mid and lower reaches	Contingency arrangements in place

* Probability has been reduced to reflect the strong correlation between dry autumn/winters and subsequent inflows.

Figure 4. Outlook Summary for 2007/08

IMPLEMENTING CONTINGENCY PLANS FOR 2007/08

With water availability indicating that there is only a small volume more (under “worst case scenario”) than needed to meet critical human needs in 2007/08, it is prudent to continue development and implementation of Dry Inflow Contingency Plans.

The probabilities of breaking out of this extreme dry inflow scenario improve as we move into the higher inflow months of August to October.

Partner governments have been working closely on special arrangements to ensure critical human needs can be met in the event of extreme dry inflows persisting. Partner governments have developed special arrangements which will enable early season access in each State to improvements in water availability, however small they may be.

A range of contingency measures will likely need to be in place until system inflows of about 4 000 GL are reasonably assured. A fact sheet on drought contingency measures is available on the MDBC website at http://www.mdbc.gov.au/news/drought_contingency_measures_may_2007.

ADDITIONAL INFORMATION

How do I get more information?

MDBC will provide further drought updates in coming months, and will release periodic operational outlooks as the season progresses. Additional information is available at www.mdbc.gov.au and from the relevant Australian and State Government Agencies.

For media interviews with MDBC personnel, please contact:

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