



MURRAY-DARLING BASIN INITIATIVE

Ref 06/25089
December 2006

River Murray System – Drought Update No.5*

THE DEEPENING DROUGHT

Rainfall over the nine months March to November has been in the lowest 10% of records for large areas of the Murray-Darling Basin and at record low levels for parts of the steeper high yielding catchments (**Fig. 1**).

Murray Darling Rainfalls Deciles 1 March to 30 November 2006
Distribution Based on Gridded Data
Product of the National Climate Centre

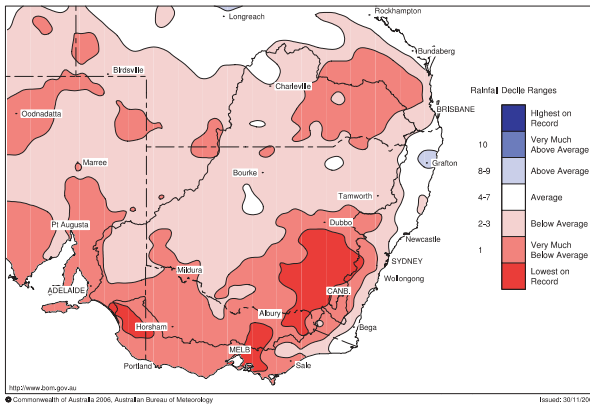


Figure 1. Murray-Darling Basin Rainfall Deciles 1 March to 30 November 2006 (Australian Bureau of Meteorology)

With higher than average temperatures and catchments remaining exceptionally dry, inflows to the River Murray remain at record low levels (**Fig. 2**).

Inflows for the season to date (six months June to November) have been only 610 GL which is 56% of the previous recorded minimum of 1090 GL observed in 1902 and only 7% of the long-term average of 8400 GL for the same period.

WATER AVAILABILITY THIS SEASON

Reduced Snowy Release

With similar extreme conditions being observed across the Snowy Mountains, Snowy Hydro has advised that its system inflows have also been at record low levels (67% of the previous lowest on record to the end of October). Storage levels in the Snowy Scheme are now lower than ever observed since the completion of the scheme in 1973. Snowy Hydro advised that releases from the Scheme over the remainder of the season and in 2007/08 may be well below previous targets if dry conditions persist.

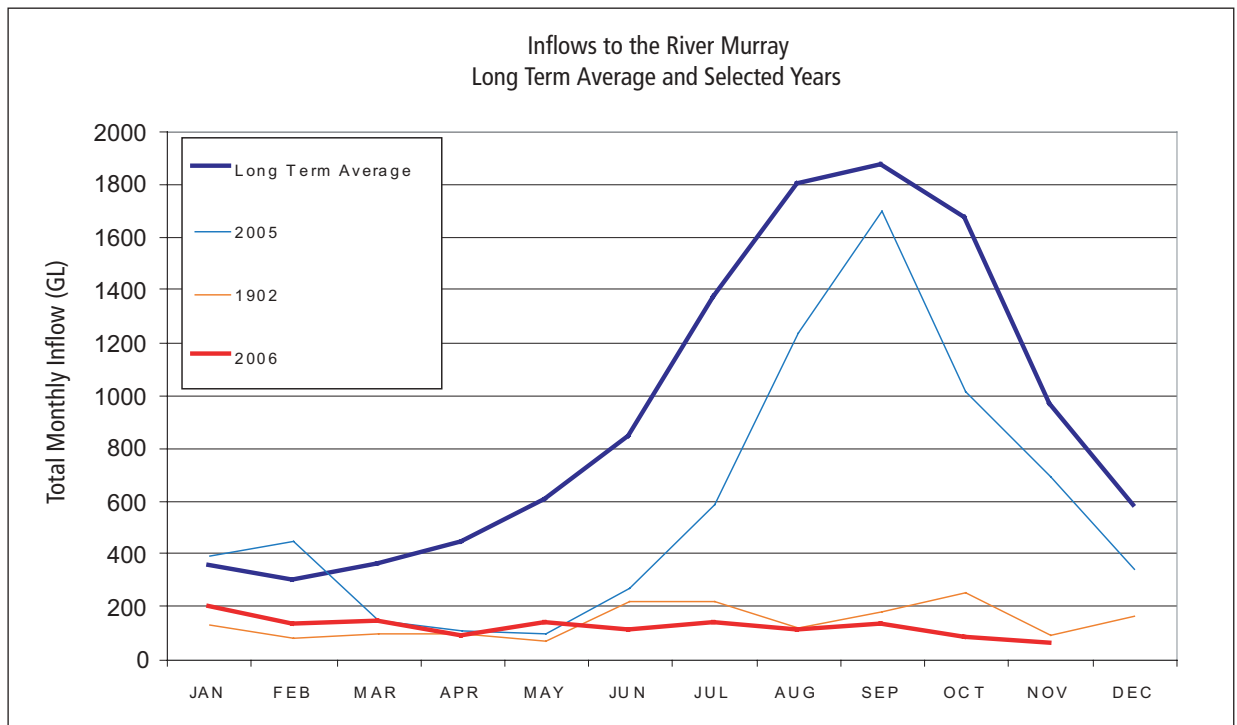


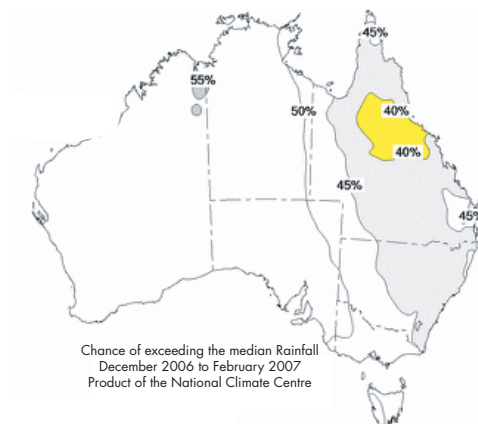
Figure 2. River Murray Inflows — Long-term Average and Selected Years (excluding Snowy Releases)

Our values: courage, inclusiveness, commitment, respect and honesty, flexibility, practicability, mutual obligation

Hope for improved rainfalls

The Bureau of Meteorology has advised that the El Niño continues to strengthen and responds to the question "What does this mean in Australia?" with "Generally speaking the main impact on rainfall is during winter and spring, with a switch towards wetter conditions having been common in January or February during previous El Niño events."

Such a switch to wetter conditions is not guaranteed, however, and this is reflected in the near-neutral rainfall outlook for the 3 months December to February 2006 (Fig. 3).



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State Allocations

In response to the worsening situation, the States of NSW and South Australia have had to significantly reduce allocations. Victoria, which has adopted a different strategy in water allocation, has not reduced allocations.

Goulburn-Murray Water's announced allocation for the Victorian Murray has remained at 95% Water Right and 0% Sales since 16 October.

The NSW Government announced on 10 November it had "reduced both high security and carry over accounts by another 32%". This was after an initial reduction of account volumes of 20% announced on 17 October.

The South Australian Minister for the River Murray advised on 2 November that River Murray water allocations in that State "will be reduced from 70 per cent to 60 per cent as widespread drought continues in the Murray-Darling Basin". This followed an earlier reduction in mid October from 80 to 70%.

Figure 3. Chance of exceeding the median rainfall December 2006 to February 2007
(Australian Bureau of Meteorology)

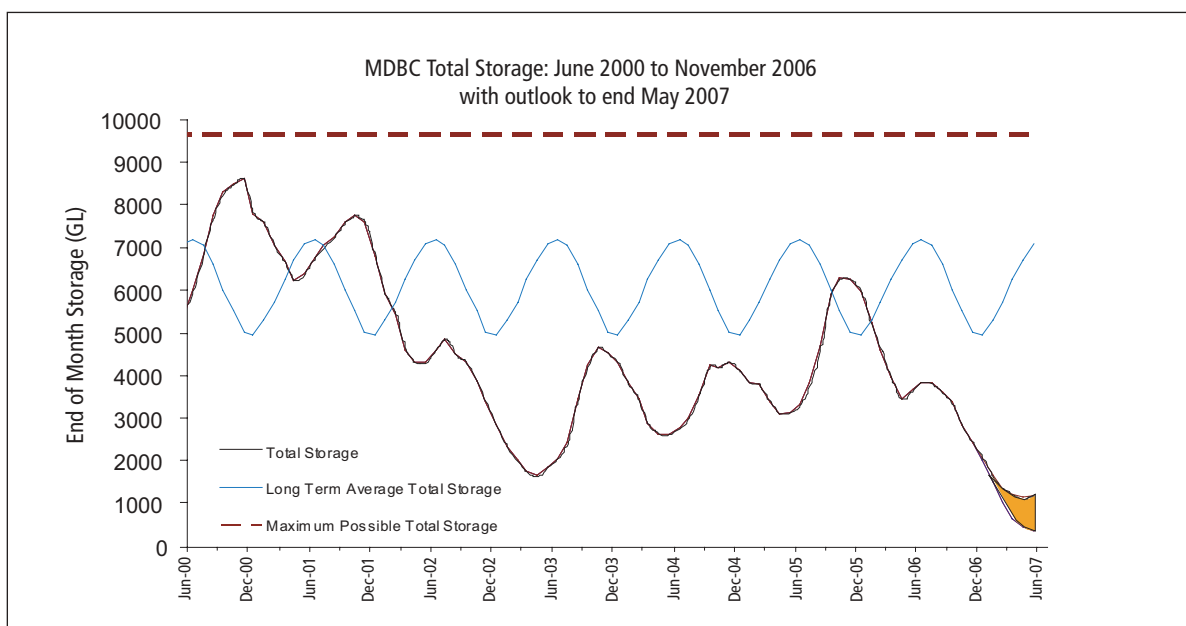


Figure 4. MDBC Total Storage — Actual flows to end November 2006 — most likely range forecast shown in tan Note: A gigalitre (GL) is one thousand megalitres (ML)

Our principles: integration, accountability, transparency, effectiveness, efficiency, full accounting, informed decision making, learning

THE RIVER MURRAY – THIS SEASON

How will the river system behave over the remainder of this season (until end May 2007)? A series of questions and answers is provided below.

Why are we running the river so high?

The high flows in the reaches between Yarrowonga Weir and Lake Victoria are needed to supply each State's water orders. Almost all of this water must come from Dartmouth and Hume Reservoirs as no water is available to the Murray from Menindee Lakes, and tributary inflows from the Goulburn and Murrumbidgee Rivers are very low.

Will the Dams empty?

Under continuing extreme dry conditions it is likely that the Commission's three major storages Dartmouth Reservoir, Hume Reservoir and Lake Victoria will be drawn down to very low levels by the end of May 2007 (**Fig. 4**). This does not mean, however, that no water will be available for next year as any future releases from the Snowy Scheme and catchment inflows would still be available, albeit at very low levels if current dry conditions continue.

Will the Murray run dry?

No — certainly not this season. Currently, there is sufficient water in storage, including weir pools, to ensure the river continues to flow until next winter.

Can existing allocations be delivered?

With storages falling to very low levels the operation of the River Murray remains on a 'knife edge'. There is, therefore, a risk that temporary rationing of irrigation diversions may need to be implemented — particularly if severe hot weather conditions occur. RMW is working closely with State agencies to plan measures, including the potential lowering of weirpools, to limit and hopefully remove the need for such rationing.

Could allocations reduce further?

RMW's latest assessment which advises each State of its bulk share of water, was specifically designed to be a 'realistic worse case' for the remainder of the season. Whilst there are no guarantees, it is expected that State water shares

should not reduce further. However it is each State's responsibility to consider appropriate allocation levels and further advice on these should be sought from the relevant State agencies.

Can we get more water from the Snowy Scheme?

Storage levels in the Snowy Scheme are also at record low levels which limits the prospects of significant additional releases.

Is climate change to blame?

According to the Bureau of Meteorology *"Australia and the globe are experiencing rapid climate change. Since the middle of the 20th century, Australian temperatures have, on average, risen by about 1°C with an increase in the frequency of heatwaves and a decrease in the numbers of frosts and cold days. Rainfall patterns have also changed — the northwest has seen an increase in rainfall over the last 50 years while much of eastern Australia and the far southwest have experienced a decline."*

It should be noted, however, that inflows in the first half of the twentieth century were generally less than in the second half and average inflows to the Murray in the last decade have been similar to the Federation and 1940's droughts.

MDBC is collaborating with the Bureau and other agencies in a three year \$7 million project looking at the potential impacts of climate change on the Murray-Darling Basin.

Should the environment still get water?

Irrigation communities and the natural environment are both hurting. The volume of water allocated to the environment this season is about 35 GL which is about 1% of the total available for diversion this year. This water is earmarked to provide small but critical refuge areas for plants and animals to survive until drought conditions improve. It will prevent irreparable damage to River Red Gums in these refuge areas at Hattah Lakes and on the Chowilla floodplain and Lindsay-Walpolla Islands and will protect native fish species by enabling the operation of fishways at the Lower Lakes barrages. A further 110 GL of water in Murrumbidgee Environmental Water accounts has recently been reserved by the NSW Government to help support NSW Murray and Murrumbidgee water supplies.

OUTLOOK FOR 2007/08

What about next season?

Water availability next year will be very much reliant on inflows received for the rest of this and next year including releases from the Snowy Scheme.

Under dry conditions next season the impacts on irrigators will vary from state to state and would also depend on the water entitlement held. Impacts could again possibly extend to high security water products. Under extreme dry conditions, for example a repeat of 2006/07 conditions, it is possible that sustaining flows for the full length of the River Murray could be a challenge. A repeat of 2006/07 next year is extremely unlikely in statistical terms looking at historical inflows. However the possibility of its occurrence is not being ignored and contingencies are being investigated.

How might the river be operated?

The big challenge in operating the River Murray under extreme dry conditions will be to minimise evaporation and transmission losses to make optimum use of available water.

A range of operational measures is being considered including the temporary lowering of weirpools, reduction of minimum flow targets and temporary disconnection of Lake Victoria during months with high rates of evaporation.

Could towns not even have drinking water?

It is possible that under extreme conditions normal access to water from the River Murray could be at risk in some locations, particularly those

supplied via irrigation channels, and contingency arrangements are being investigated and will be implemented if needed.

Whilst the chance of having extreme conditions two years in a row is extremely remote it is prudent that we take all practicable steps to safeguard against such a possibility.

Who's looking at the risks?

The State governments are individually striving to fulfill their responsibilities with respect to drought measures and water management. The MDBC's operational division, River Murray Water, is working closely with the partner governments to plan for all possibilities in 2007/08. A broad range of operational and policy options continues to be developed to best manage what water will be available next season and beyond. Decisions on use of these options will be influenced by future inflows and storage levels.

In addition, as a result of the Prime Minister's Water Summit a group of high-level officials drawn from the partner Governments and the office of the Murray-Darling Basin Commission are urgently developing contingency plans to secure urban and town supplies during 2007-08, if extreme drought conditions continue.

How do I get more information?

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

For further information:

www.mdbc.gov.au or call 02 6279 0100

For the previous drought update:

www.mdbc.gov.au/__data/page/20/September2006-Drought-update.pdf

The River Murray Water Weekly Report:

www.mdbc.gov.au/rmw/river_information_centre

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www.bom.gov.au