

April 2007

River Murray System - Drought Update No. 7 April 2007

IN BRIEF

Latest developments

Key developments since the last update (early February 2007) have been:

- improved rainfall over the southern Murray-Darling Basin with falls near average over the January to March quarter, but very little flow has been generated because catchments are still quite dry;
- despite the rain, inflows to the River Murray System in both February and March (although better than for January 2007) set new minimum records for each of these months;
- higher projected MDBC water storage reserves have resulted from:
 - higher than expected release from the Snowy Mountains Scheme in recent months; and
 - reduced river evaporation losses as a result of rain and cooler conditionsthe projected active reserve for end May 2007 is 490 GL (or 5.7% of active capacity) - although this is better than previously anticipated, it is still a record low; and
- the Bureau of Meteorology has announced that the 2006/07 *El Niño* event has ended, and there is an increased chance of a *La Niña* event developing in 2007 - so there is now a better chance of improvement in rainfall in winter/spring 2007.

Factors which have not changed

- inflows to the River Murray remain at record low rates;
- MDBC storage reserves remain at very low levels;
- weir pools along the River Murray are being maintained near full for as long as possible; and
- water availability for 2007/08 is projected to be extremely low unless there is a significant increase in inflow.

Summary

While rainfall has improved, inflows to the River Murray remain at record low levels and storage reserves are very low. Catchments are now wetter on the surface than at the same time last year and the *El Niño* event has ended.

LOW RUN-OFF

Despite near average rainfall in the River Murray system in January, February and March 2007, streamflow in the River Murray and tributaries showed only a limited response. While rainfall over the three months was generally significantly better than in 2006, the system inflow in each month was significantly less than in 2006 due to extremely low inflows from groundwater systems. In early 2006, inflows from groundwater systems were still reflecting the benefits of near average rainfall over the previous winter/spring of 2005.

Average Rain for January to March 2007

Rain in the three month period January to March 2007 across most of the southern part of the Murray-Darling Basin was near average as shown below (Fig. 1).

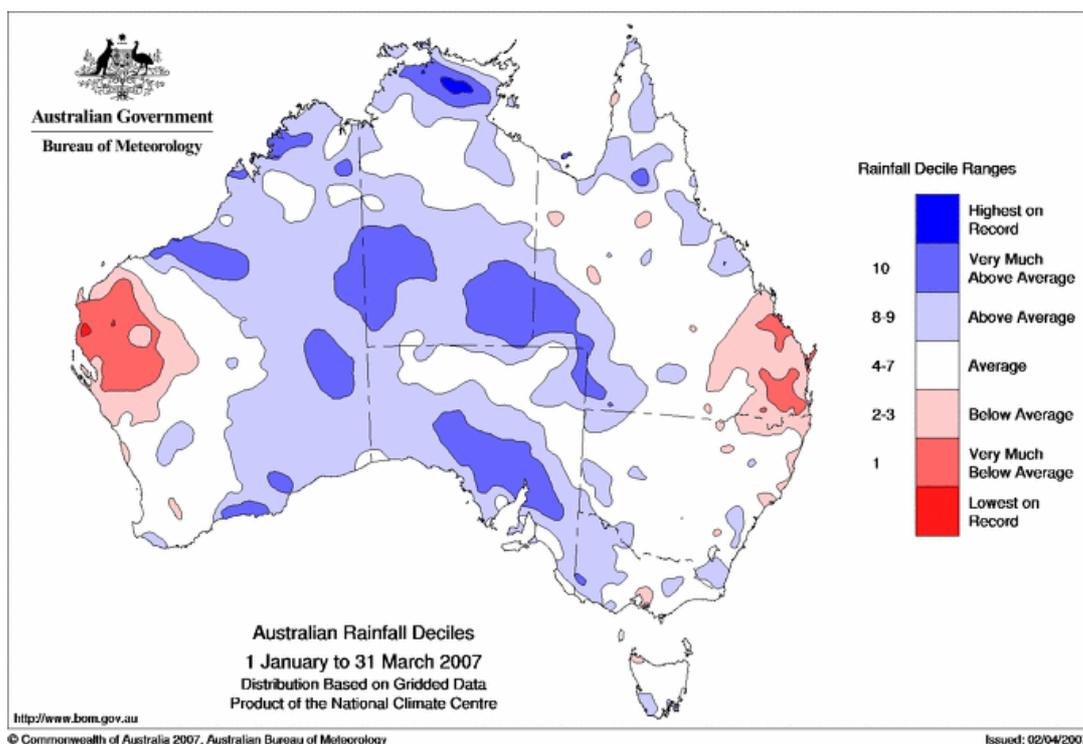


Figure 1. Murray-Darling Basin Rainfall Deciles January to March 2007

(Australian Bureau of Meteorology)

Inflows to the River Murray for February and March 2007 (excluding Snowy Scheme releases and inflows to Menindee Lakes) compared with 2006 are as follows:

	January inflow (GL)	February inflow (GL)	March inflow (GL)
Year 2007	30	35	48
Year 2006	190	86	87
Previous minimum on record [year]	52 [1983]	62 [2003]	54 [1915]

The new record low for March 2007 is the tenth consecutive month of record low inflow. River Murray inflow for the 10 month period June 2006 to March 2007 inclusive was 770 GL, which is less than 60% of the previous minimum of 1 350 GL in 1982/83.

Rain for 12 months to end February 2007

Rainfall in much of the upper Murray catchment in the 12 months to end of February 2007 was either very much below average or the lowest on record (see Figure 2). Much of the higher yielding alpine catchments along the Great Dividing Range had record low rainfall.

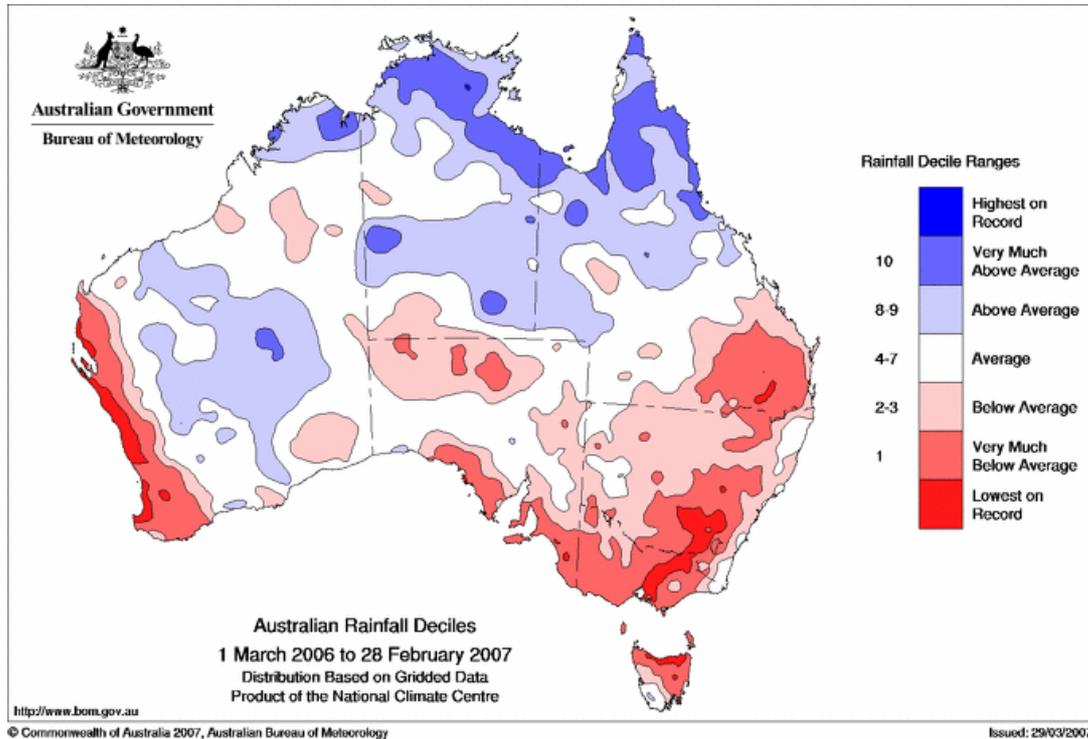


Figure 2. Murray-Darling Basin Rainfall Deciles March 2006 to February 2007

(Australian Bureau of Meteorology)

Cumulative inflow volumes for the first part of 2007 are compared with 2006 in Figure 3.

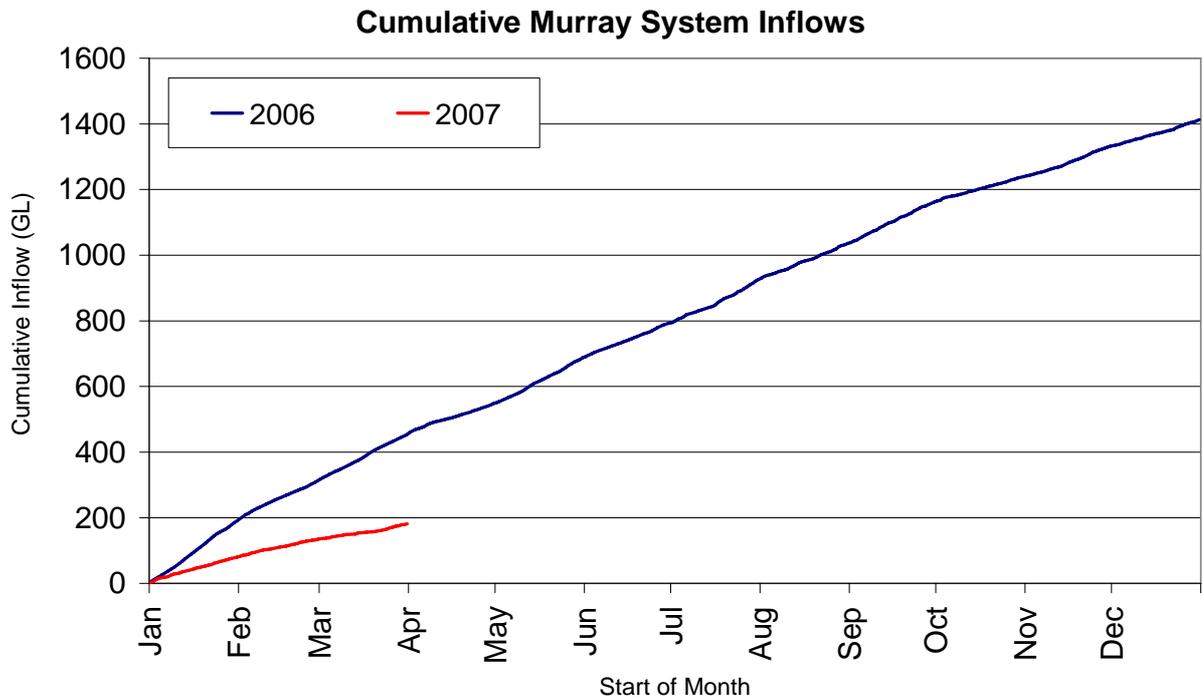


Figure 3. Cumulative Inflows to River Murray -- Comparison of 2006 and 2007 (excluding Snowy Scheme releases and Menindee Lakes inflows)

Recent monthly inflows are compared with 2005, 2006 and the long term average in Figure. 4

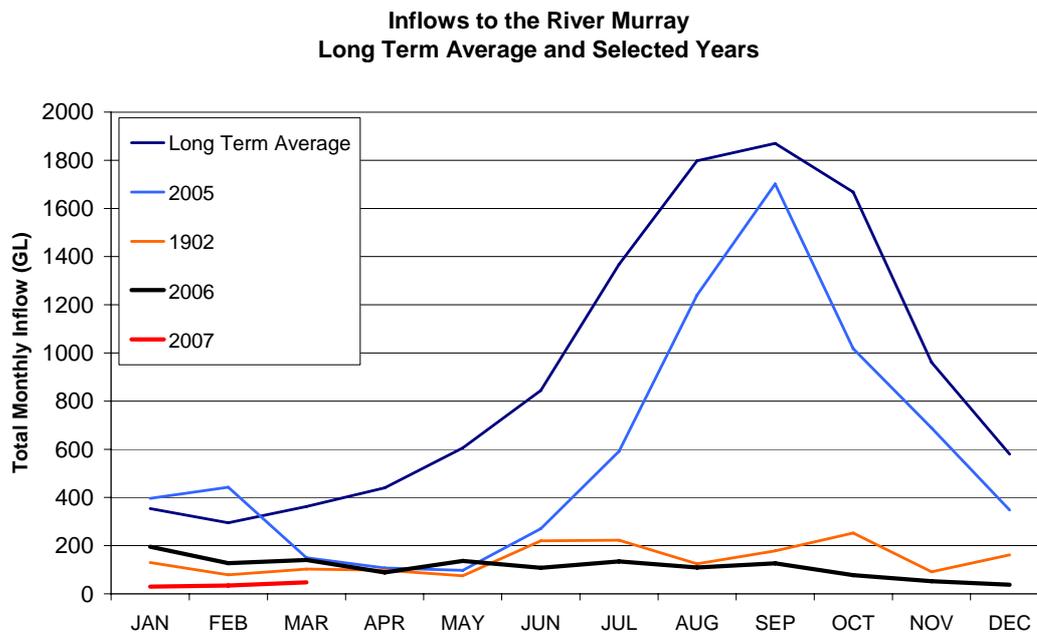


Figure 4. River Murray Inflows -- Long-term Average and Selected Years (excluding Snowy Scheme releases, and excluding Menindee Lakes inflows)

CURRENT CONDITIONS

Projected total MDBC storage volume has improved in recent months due to:

- rain and cooler conditions leading to reduced river losses including evaporation; and
- release from the Snowy Mountains Scheme being higher than anticipated

However, as this extra release from the Snowy Scheme was due to be released next season as part of the 2007/08 release, it does not increase water availability for the Murray for 2006/07 or 2007/08.

Active MDBC storage at 31 March 2007 was 672 GL (7.8 % of active capacity). Without further significant rain, the projected MDBC active storage reserve for end May 2007 is about 490 GL (or 5.7% of active capacity). Whilst this is significantly higher than previously anticipated in December 2006, it is a record low volume for the post-Dartmouth period. The two previous lowest active storage volumes were:

- 1 134 GL in April 1983 (post-Dartmouth period); and
- 489 GL in April 1968 (pre-Dartmouth period)

Forecast total MDBC gross storage to end May 2007 is shown at Figure 5.

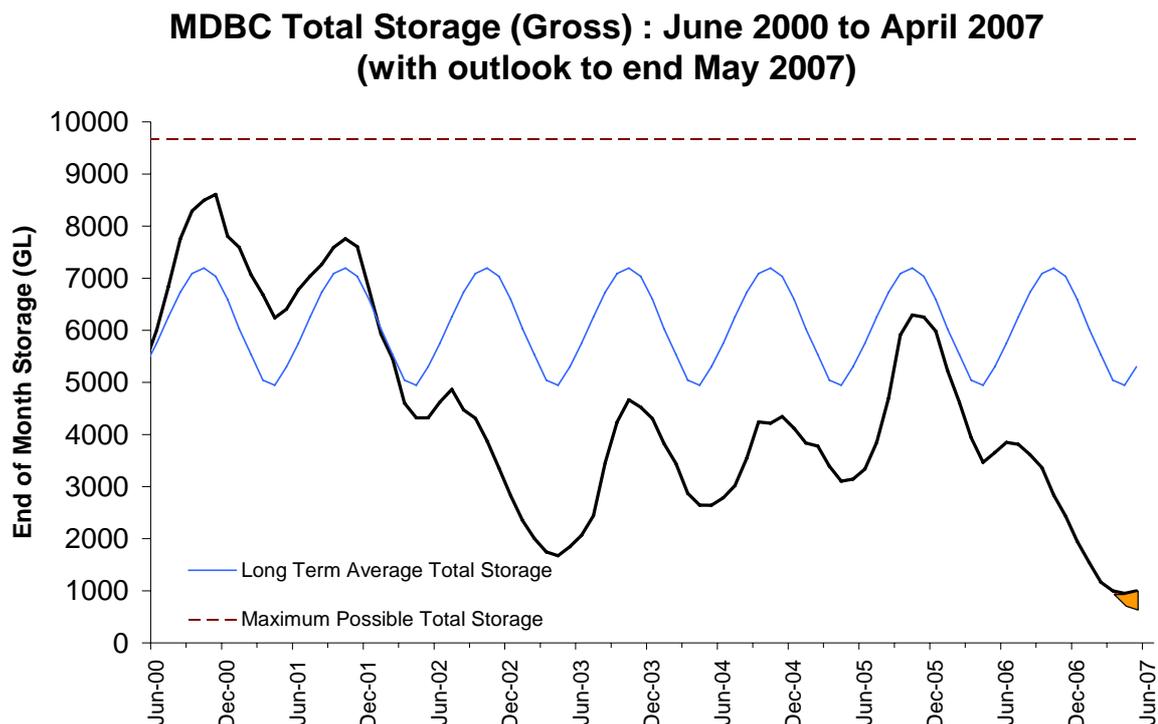


Figure 5. MDBC Total Storage – Actual flows to end March 2007 – most likely range forecast shown in tan.

Note: A gigalitre (GL) is one thousand megalitres (ML). [One megalitre (one million litres) is roughly equivalent to volume in an Olympic swimming pool.]

Active storage is that storage available above the minimum outlet level, and gross storage includes dead storage which is below the minimum outlet level and which cannot easily be accessed in the usual manner.

The diagram above illustrates the important and valuable role provided by storages in recent years, but particularly that of Dartmouth Reservoir (capacity 3 900 GL) as a drought reserve storage which has been drawn upon through the current drought to meet most of the Murray’s water supply requirements. Dartmouth Reservoir (commissioned in 1979) also played a crucial role in providing water through the severe droughts of 1982/83 and 2002/03. However, under dry conditions, active storage in Dartmouth is projected to fall to about 390 GL (10% of active capacity) by end of May 2007. Dartmouth Reservoir cannot be relied upon heavily in 2007/08, and it will take a number of years for the storages to recover to long term average levels.

With the irrigation season almost over, it is now unlikely that there will be any temporary rationing of irrigation diversions required as a result of system operating constraints this irrigation season.

OUTLOOK FOR NEXT THREE MONTHS

Rainfall Outlook : April to June

In its latest rainfall outlook for April to June inclusive, the Bureau of Meteorology has indicated that for the southern part of the Murray-Darling Basin, there is about a 50% chance that rainfall would be above the median (see Fig. 6 below). This is a slightly lower chance than was announced for the three month outlook for February to April 2007 inclusive.

The Bureau has announced in recent weeks that the 2006/07 *El Niño* event has ended, and there is an increased chance of a *La Niña* event developing in 2007. The Bureau has noted that the confidence level in the Rainfall Outlook from the computer models is low in autumn months (for eastern and northern Australia), but improves between July and January.

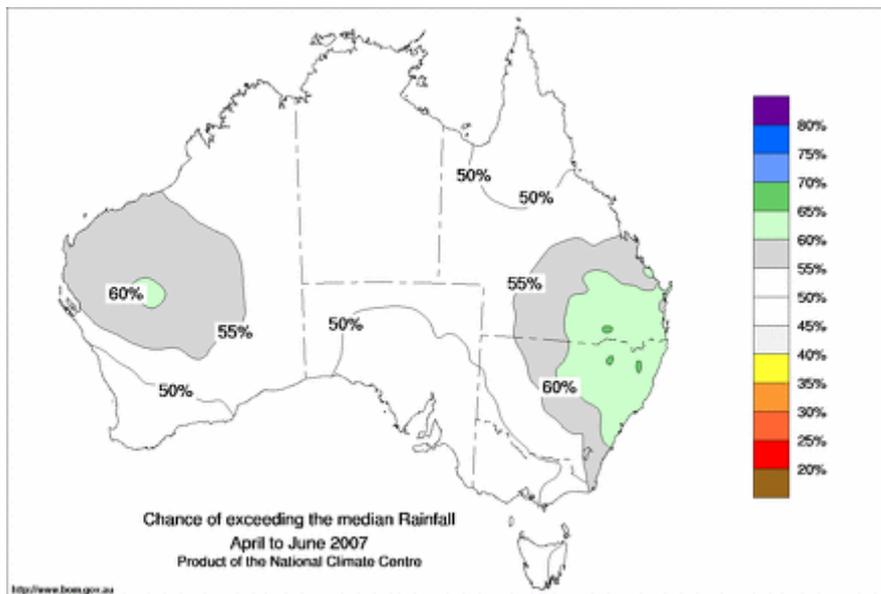


Figure 6. Chance of

exceeding the median rainfall April to June 2007

(Australian Bureau of Meteorology)

Despite recent rain and some wetting of catchments, with current catchment conditions it is likely that rainfall would need to be well in excess of average in order to produce average inflows to upper Murray storages in the next three months (about 1800 GL).

Long term average rainfall for April to June inclusive in the upper Murray varies from 185 mm at Hume Dam to around 600 mm in the upper catchment.

How is navigation affected along the River Murray?

River levels at Yarrowonga, Torrumbarry, Euston, and from Mildura to Blanchetown are maintained by a series of weirs. Because we have experienced record low inflows to the River Murray system, and system reserves are very low, flow rates in the river are now less than usual. Every effort is being made to maintain weir pools at or close to their normal full supply levels. However, it may be necessary to draw on the weir pools upstream of South Australia to assist in meeting water supply requirements for short periods of time. It is normal during winter when flow rates are low for there to be some shallow sections in the upper reaches of weir pools, which may impact on deeper draught vessels. Lock staff will be pleased to advise skippers of local conditions.

With extreme dry conditions persisting into April 2007, there will be some increases in local impacts due to very low flows in the River. The very low flow rates are lower than usually seen in April due to the early end of the irrigation season and flows are being reduced to rates less than usual target minimums in order to conserve water in storage. Without significant rain, flows in May and June 2007 are likely to be reduced to rates below the usual winter minimum rates.

OUTLOOK FOR 2007/08

While system inflows remain at record low levels, the outlook for water availability for 2007-08 remains grim.

With low storage reserves currently forecast for the end of May 2007, irrigation in 2007/08 is much more dependent on rain and run-off, than in any previous year since Dartmouth Dam was completed in 1979.

Even if very dry conditions are experienced in 2007/08 (similar to 2006/07), it is expected that Murray catchment inflows, together with any future contributions from the Snowy Mountains Scheme, would be sufficient to meet basic human, stock and domestic requirements (subject to appropriate levels of restriction).

Inflow conditions throughout 2007/08 would have to be at a level exceeded in only about one year in ten (over the long term) that is, very wet conditions, in order to raise storage levels to near average levels.

Recent announcements by relevant State water agencies have indicated that opening irrigation allocations for the River Murray for 2007/08 would be zero unless there is a significant change in inflow conditions before the start of the irrigation season.

Contingency Plans for 2007/08

The 12 month period ending March 2007 is the driest 12 month period for the River Murray in 115 years of historical inflow record. A repeat of the same rainfall pattern for another 12 months would result in even lower inflows due largely to reduced inflows from groundwater systems. This trend is evident for the last three months, as previously shown in Fig. 3. If the Snowy Mountains Scheme continues to experience record low inflows in 2007/08, then releases from the Scheme to the Murray would also be less than the record low releases in 2006/07. Under this scenario, contingency measures would need to continue to ensure that there would be enough water in the Murray to meet evaporative losses and critical water needs of all the towns and cities that rely on the Murray from Albury to Adelaide and beyond, as well as other domestic and stock requirements. Under that extreme scenario, there would be no water available for irrigation or the environment.

Although the probability of this extreme scenario eventuating is very low, and has never been experienced in our records, it is nevertheless prudent that contingency planning and implementation continue until such time that there is sufficient rain and inflow to give confidence that the water crisis has passed. Inflows in the first three months of 2007 are only slightly in excess of inflows incorporated in the worst case planning scenario, reflecting the continuation of the record low inflow sequence experienced since mid 2006.

A group of senior officials, drawn from the partner Governments and the Murray-Darling Basin Commission, has been meeting on a regular basis to develop and implement a Contingency Plan for operation of the River Murray in the event of low inflows in the 2007/08 season.

The Contingency Plan covers a range of measures a number of which have already been initiated, including:

- conserving as much water in upstream storages as possible;
- adopting a very low target reserve for storage in Lake Victoria for end May 2007;
- reduced targets for minimum flow along the River Murray;
- early pumping of water to Mt. Lofty storages in South Australia; and
- temporarily disconnecting selected permanent wetlands from the River Murray.

Planning is continuing for other measures which would be implemented if extremely dry conditions persist.

QUESTIONS AND ANSWERS

Q. If dry conditions occur in 2007/08, will the River Murray flow reduce to zero ?

It is possible that flows may need to be reduced to zero only in extreme, but very low probability, circumstances of inflow conditions being significantly lower than the record dry of 2006/07. Under those circumstances, it is possible that flows may need to be temporarily suspended in the River Murray over summer of 2007/08. Temporary measures would be needed to access deeper pools for those towns not already connected to weir pools or natural deep pools.

Q. At what point would irrigation allocations be made in 2007/08?

With record low inflows continuing into April 2007, and system water reserves at record low levels, it is reasonable to expect that any significant improvement in water availability will not arise until the onset of significant rains in winter/spring. When the first significant rain does occur, it is expected that the initial streamflow response would be slow until catchments become significantly wetter and groundwater contributions increase.

Under continuing dry conditions, opening irrigation allocations are likely to be zero or very low. State water agencies will provide announcements on irrigation allocations through the normal channels as the season progresses. Seasonal improvement in irrigation allocations will very much depend on rainfall up to the end of spring. Summer/autumn rainfall is generally much lower than winter/spring rainfall, and increases in allocations after November are usually relatively small.

ADDITIONAL INFORMATION

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 and State Government Agencies.

For media interviews with MDBC personnel, please contact:

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