



River Murray System - Drought Update

STILL THE DROUGHT CONTINUES

The River Murray system is now entering its sixth consecutive year of drought, which is collectively shaping up to be the worst since that observed between 1895 and 1903. The impacts of this drought are, however, unprecedented with severe financial and social hardship among many communities and with floodplains under extreme environmental stress.

Record Low 5 Year Inflows

Inflows to the River Murray system over the five years July 2001 to June 2006 have been the lowest on record. Average inflows over this period were 4 800 GL/yr which is about 40% of the long-term average of 11 200 GL/yr. Most inflow in recent years has come from the upper Murray with the combined inflow from the Goulburn, Murrumbidgee and Darling Rivers averaging only 700 GL/yr or 15% of their long-term average.

IMPACTS OF THE DROUGHT

Water Availability

Irrigation Allocations have generally been below average levels over the last five years in NSW and Victoria. NSW Allocations averaged about 55% General Security (~1 400 GL/yr diversion) over the last 5 years compared to the long-term average of 85%. Victorian allocations averaged about 100% Water Right plus 35% Sales (~1 570 GL/yr diversion) over the same period compared to the long-term average of 100% Water Right plus 76% Sales. While starting allocation levels in South Australia have averaged 80% over the last 5 years, allocations have mostly climbed to high levels over the season

(with diversions averaging 620 GL/yr). Total flows across the SA border have remained well below average (2 050 GL/yr compared with the long-term average of 6 600 GL/yr).

On the Environment

It has now been a decade since many floodplains and wetlands along the lower reaches of the Murray last experienced a beneficial flood. Using flows at Euston as an example, **Figure 1** shows just how severe recent years have been compared to actual historical records.

While many floodplain environments recovered from the severe drought of 1895-1903, the combined impacts of the current drought and present level of development and utilisation of the river system pose a major threat to the health of vast areas of the floodplain (see **Figure 2a and 2b**).

A survey in 2004 of river red gum and black box health in the Lower Murray showed that 75% of all trees surveyed were considered to be 'stressed', 'near dead' or 'dead'¹. Only 25% of trees surveyed were considered to be in "healthy" condition. Comparing these results to a survey conducted two years earlier² showed that tree health had continued to decline over that period.

It is conceivable that without a large natural flood, or without intervention by environmental managers, that significant further numbers of trees will die or become severely stressed over coming months and years.

¹ Survey of river red gum and black box health along the River Murray in New South Wales, Victoria and South Australia 2004. <http://publications.mdbc.gov.au/>

² Preliminary investigations into observed river red gum decline along the River Murray below Euston. <http://publications.mdbc.gov.au/>

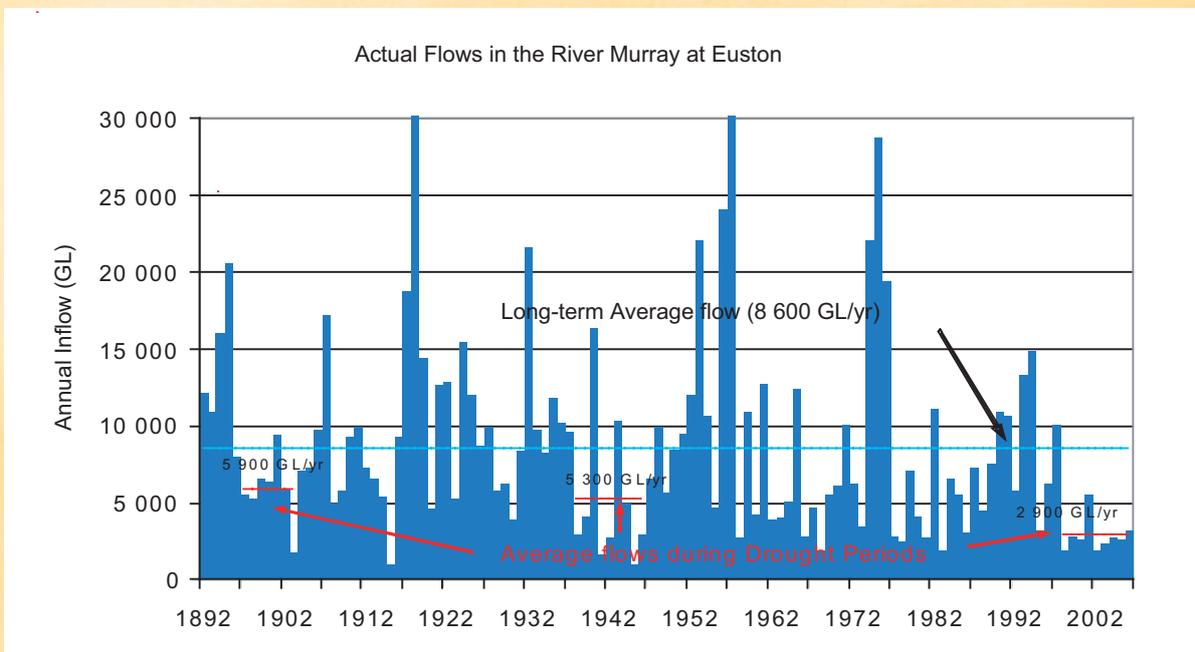


Figure 1. Historical annual flows in the Lower River Murray at Euston (1892 – 2006) comparing major droughts.

Environmental water management

Further upstream, the Barmah-Millewa Forest and parts of the Edward/Wakool system are comparatively better off. Barmah-Millewa Forest received a vital watering in spring 2005 – the first time in 5 years – enhanced considerably by using an environmental water allocation that had accumulated over that time.

In the midst of the ongoing drought, some relief occurred during spring 2005 which presented several opportunities to provide water for the environment. Localised benefits were achieved across the system using “surplus flows” (flows in excess of South Australia’s entitlement) as well as existing environmental water allocations. Water was delivered to sites by various means including weir pool manipulation, pumping/ siphoning, management of forest regulators and management of the Murray Mouth Barrages. The cumulative result of these actions was that around 36 000 Ha of River Murray floodplain was watered with the successful recovery of many trees. However, this area represents less than ~1% of the total floodplain area (as defined by the 1956 flood level) with overwhelmingly large areas remaining in desperate need of water. During 2005/06, over 700 GL of water was released from the Barrages and the fishways were open continuously. These conditions enhanced fish spawning and recruitment, and brought about localised improvements in estuarine conditions in the Coorong. However, the total release remained well below the long-term median of 3 090 GL and the ecological health of the Coorong continues to decline.

OUTLOOK

January to July 2006 was an exceptionally dry period across the Murray-Darling Basin, with large areas experiencing record low rainfall. Occasional spells of rain fell on very dry catchments yielding limited runoff. Consequently, irrigation demands remained strong until the very end of the 2005/06 season with River Murray system storage drawn down to low levels (40% capacity).

With an exceptionally dry start to the season the outlook for the 2006/07 season is grim. Historical records show the likelihood is for continuing dry or average inflow conditions. There is a very low chance of getting the ‘wet’ conditions needed to fully replenish storages and flood the lower reaches of the River Murray floodplains (Figure 3).

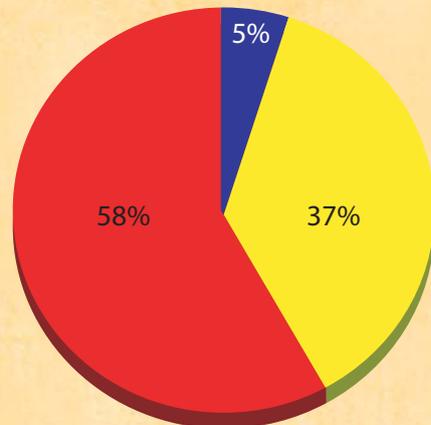


Figure 3. Relative chance of 2006/07 season inflows being in the ‘dry’ (red), ‘normal’ (yellow), or ‘wet’ (blue) ranges. (‘Dry’ means inflows < 5 000 GL. ‘Wet’ means inflows > 9 000 GL).



MURRAY-DARLING BASIN INITIATIVE

Should dry conditions persist for the 2006/07 season it should be expected that irrigation allocations, particularly NSW general security allocations, would be low. In addition, end of season reserves for the whole River Murray system could be extremely low. Only sustained heavy rain over the coming months would alter this outcome.

For the 2006/07 season it is likely that large volumes of water will need to be transferred from Dartmouth Reservoir to Hume Reservoir and from Hume Reservoir to Lake Victoria to meet consumptive requirements and to ensure that flow requirements as detailed in the Murray-Darling Basin *Agreement* are delivered.



Figure 2a. The health of vast areas of river red gum communities (like that shown in the picture above) across mid and lower reaches of the River Murray floodplain is under serious threat from the combined impacts of river regulation, the current unprecedented drought, as well as salinity in some locations. (Photo: Twin Creeks, Chowilla Floodplain. Department of Water, Land and Biodiversity Conservation).



Figure 2b. Progressive deterioration of a river red gum tree on the Chowilla Floodplain in South Australia tracked from 1992 (left), to 2001 (centre), to 2006 (right). (Photos: Left and Centre - Department of Water, Land and Biodiversity Conservation; Right - Murray-Darling Basin Commission).

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Our principles: integration; accountability; transparency; effectiveness; efficiency; full accounting; informed decision-making; learning approach.