

# MANAGING THE MENINDEE LAKES IN 2003-04

February 2004

Information Paper No. 9

---

## INTRODUCTION

This is the ninth information paper prepared during the current drought to provide information about the on-going management of the Menindee Lakes. This paper differs from the previous papers as its release coincides with good inflows passing into Lake Wetherell from rainfall that fell throughout northern NSW and southern Queensland in January.

The resulting flows from those rainfall events are expected to reach the Menindee Lakes in the coming weeks. The forecast inflows will provide sufficient water to secure Broken Hill and Menindee town water supply for a minimum of 18 months, allow restrictions on irrigation diversions to be relaxed and to enable releases to the Lower Darling River downstream of Menindee that will improve water supply and water quality.



**Fig 1: Lower Darling River at Lethro Picnic Ground - 3<sup>rd</sup> February 2004, between Pooncarie and Burtundy**

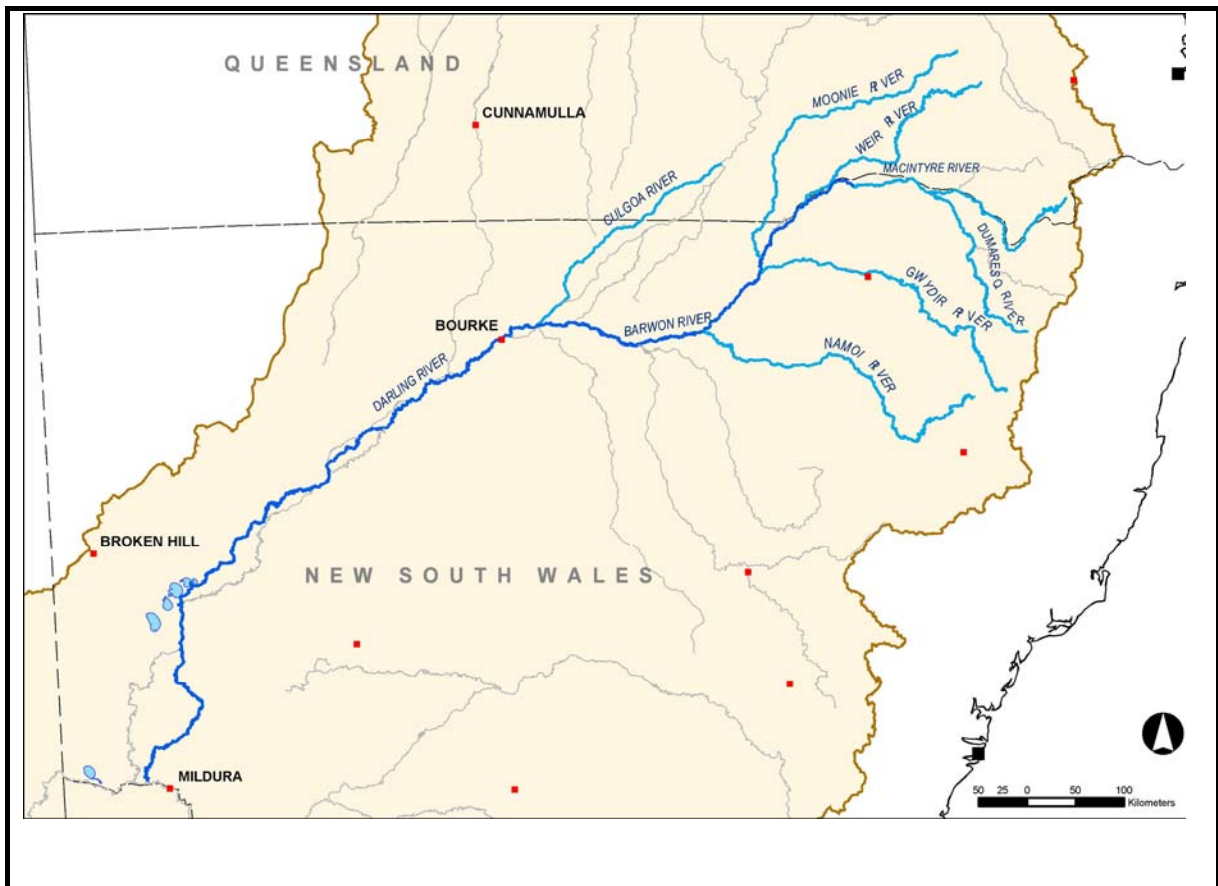
## OVERVIEW

- ❑ An estimated minimum of 350,000 ML will reach the Menindee Lakes in the coming 6 weeks.
- ❑ Town water supply for Broken Hill and Menindee is secured for at least 18 months.
- ❑ Stock and domestic supply in the Darling River downstream of Menindee is secured for at least 18 months.
- ❑ Restrictions on high security irrigation entitlements in the Menindee area and Lower Darling River will be relaxed at the end of February when the flows reach Menindee.
- ❑ High security entitlements will be available in 2004-05.
- ❑ Access will be available to general security irrigators after flows reach Menindee and higher flows are released downstream.
- ❑ Temporary transfer of general security entitlements will not be permitted, protecting water availability for higher priority users.
- ❑ An environmental-dilution flow will be made to improve water quality and to replenish the Lower Darling River downstream of Menindee.
- ❑ Lake Wetherell will be filled and, depending on the volume that reaches the Menindee Lakes, some water may be diverted into Lake Pamamaroo.
- ❑ There is not sufficient water to enable water to be diverted to Lake Menindee or Lake Cawndilla
- ❑ Flows downstream of Weir 32 will not be high enough to pass into the Great Darling Anabranch.

## FLOW MANAGEMENT

### i. Flows in the Barwon-Darling River upstream of Menindee

Recent flows have passed into the Barwon-Darling River, with most water coming from the Border Rivers (Dumaresq, Macintyre, Weir and Moonie), with lesser flows coming from the Gwydir, Namoi and Culgoa Rivers. All extractions from the unregulated Darling River (above Menindee Lakes influence) are being managed to ensure target volumes into Menindee are achieved. Irrigation access upstream of Menindee has been restricted to ensure priority for Broken Hill town water supply.

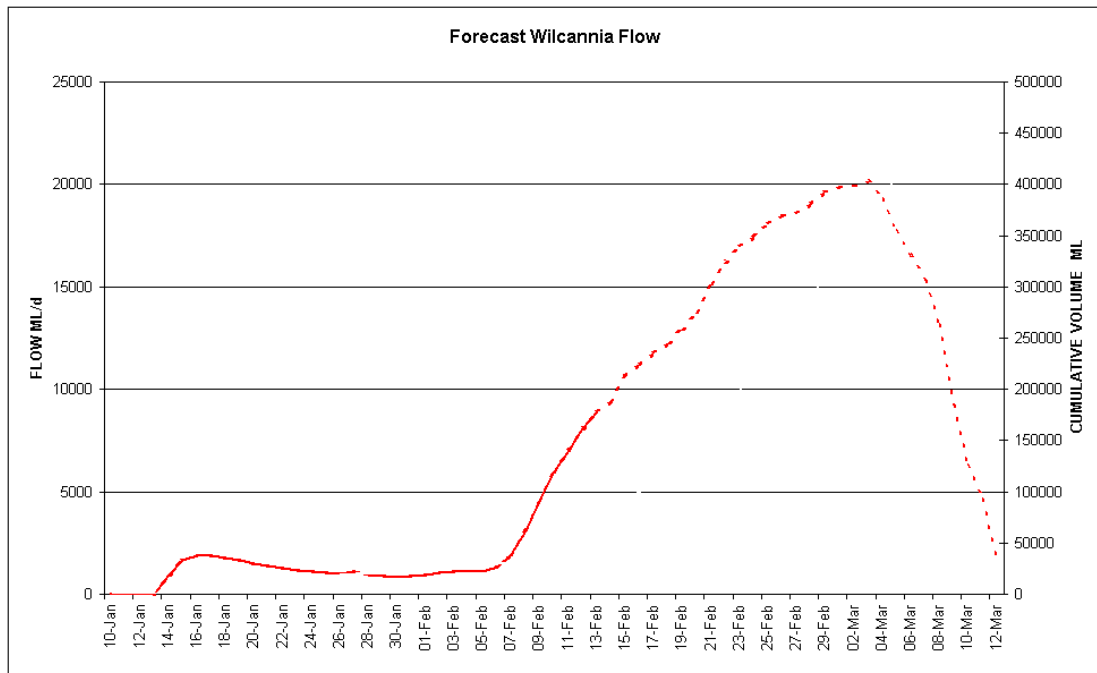


**Fig 2: Darling River tributaries**

The flow peaked in Walgett at 32,400 megalitres per day (ML/day) on 4<sup>th</sup> February. As at 12<sup>th</sup> Feb, 540,000 ML has passed Walgett, with the final expected volume passing Walgett about 570,000 ML.

Flows at Wilcannia have started to increase slowly with 1,130 ML/day and 1,310 ML/day on 5<sup>th</sup> and 6<sup>th</sup> February respectively. Flows are currently around 9,000 ML/day, with flows expected to peak at about 20,000 ML/day on 3<sup>rd</sup> March.

Flows at Wilcannia take about 5 days to reach Lake Wetherell. The forecast flows at Wilcannia are shown in the graph below.



**Fig 3: Forecast inflows at Wilcannia**

**ii. Flows into the Menindee Lakes**

A preliminary estimate of the volume that will reach the Menindee Lakes is between 350,000 and 400,000 megalitres. The final volume will depend on the losses that occur along the river, especially downstream of Wilcannia.

Flows exceeding 1,000 ML/day commenced into Lake Wetherell on 11<sup>th</sup> February and are expected to peak at about 17,000 ML/day by the second week of March.

**iii. Flows downstream of Menindee**

Flows to the Lower Darling River downstream of Menindee ceased on 31<sup>st</sup> December 03, to protect town water supply for Broken Hill and Menindee.

On 31<sup>st</sup> January 04 after the rainfall events in northern NSW and southern Queensland, flows over Weir 32 were recommenced at 150 ML/day to provide stock and domestic supplies from Menindee to Ashvale and to protect the remaining water in residual pools. On 6<sup>th</sup> February, the releases were increased to 300 ML/day and increased again on 17<sup>th</sup> February to 700 ML/day. This may be increased further when fresher water from inflows arrives.

The water currently being released to the Lower Darling River is relatively saline, greater than 2,000 EC, and is being managed so that it doesn't adversely effect better quality water in the lower parts of the Darling River, upstream of Wentworth.

When the water quality improves in Lake Wetherell from the forecast inflows, more substantial releases will be made to the Lower Darling from the Menindee Lakes. This is expected later in February.

Lake	Jun 03	Jul 03	Aug 03	Sep 03	Oct 03	Nov 03	Dec 03	Jan 04
Wetherell	52	50	60	75	127	105	134	76*

\* Flows were released for Broken Hill & Menindee town water and irrigation demand in the Menindee area

**Table 1: Average daily releases from the Menindee Lakes – Jun 2003 to Jan 2004 (in megalitres per day - ML/day)**

Lake	Jun 03	Jul 03	Aug 03	Sep 03	Oct 03	Nov 03	Dec 03	Jan 04
Wetherell	56,230	64,570	66,010	65,145	59,890	53,696	39,472	32,224

**Table 2: Lake Wetherell volumes – Jun 2003 to Jan 2004 (in megalitres)**

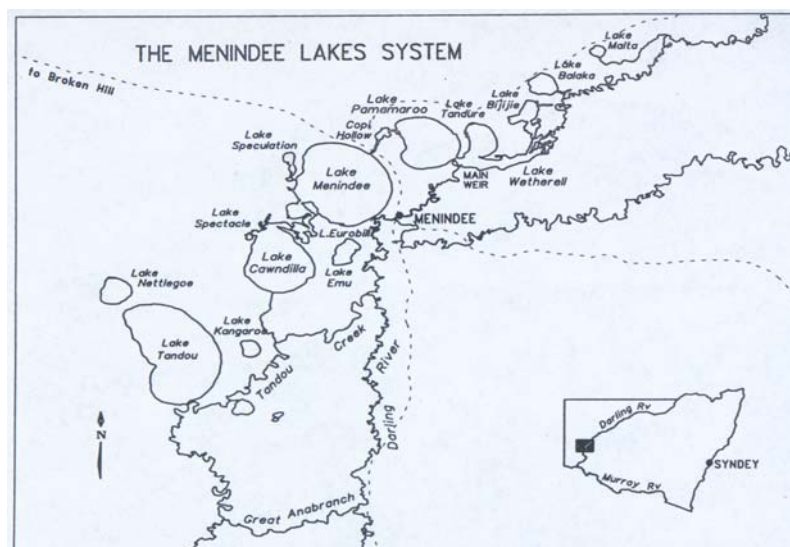
#### iv. Anabranch Replenishment

The expected inflow is well below that required to divert sufficient water into Lake Cawndilla to enable diversions to the Great Darling Anabranch. Similarly, flows downstream of Menindee will not reach 10,000 megalitres per day that is needed before water passes naturally into the Great Anabranch from the Darling River.

Before water can be diverted from Lake Cawndilla to the Anabranch, sufficient volumes must be stored in Lake Wetherell, Lake Pamamaroo, Lake Menindee and Lake Cawndilla to raise levels to about 56 metres above sea level. This is equivalent to a minimum volume of about 840,000 megalitres, and does not include the additional volumes needed to meet high seepage losses when water first passes onto dry lake beds.

#### v. Storage of water within the Menindee Lakes

The water passing into the Menindee Lakes will be preferentially stored in Lake Wetherell. When the total volume that will pass into the lakes is known, a decision will be made whether water should be diverted into Lake Pamamaroo.



**Fig 4: The Menindee Lakes system**

If, after an environmental-dilution flow to the Darling River downstream of Weir 32 is accounted for, the remaining volume is not sufficient to put enough water into Lake Pamamaroo to fill that lake above its residual pool, then it is unlikely that water will be diverted to Lake Pamamaroo. In this case, additional water may be diverted downstream to provide environmental and water quality improvements. There is potential for this water to be stored in Lake Victoria to meet downstream demand later.

#### vi. Environmental-Dilution Flows

The quality of water in Lake Wetherell, in the Menindee weir pool and in the remaining pools of the Darling River downstream is saline.

When the bulk of the forecast inflows passes into Lake Wetherell, it will provide a significant dilution effect, reducing the high salinities that have persisted over the past year.

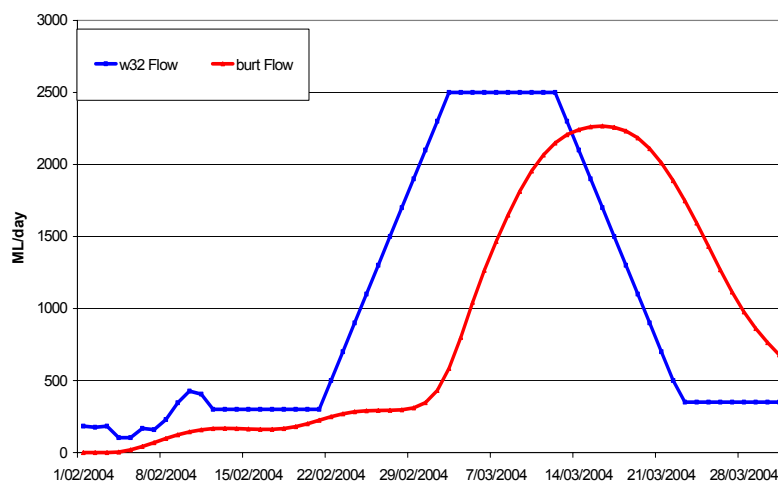
An environmental-dilution flow of a minimum of 40,000 ML is proposed to be released from Lake Wetherell to improve the river environment and water quality downstream. The pattern of releases will be done to maximise environmental and water quality benefits. These benefits include dilution and flushing of saline water, reducing algae blooms, providing fish passage over Pooncarie and Burtundy weirs and attracting native fish from the Murray River into the Darling River.

The proposed environmental dilution flow includes:

- a rate of rise of 5 cm/day, approximately 200 ML/day, for 10 to 11 days;
- a peak flow of up to 2,500 ML/day for 10 days; and
- a rate of fall of 5 cm/day to ‘normal’ flows of 350 ML/day in March and 300 ML/day in April.

The ‘normal’ flow rates will be constantly reviewed and reduced if considered that there is no environmental or water quality reason for these to be maintained.

**Menindee Environmental Releases Flow Forecast**



**Fig 5: Release pattern for environmental-dilution flow at Weir 32 and Burtundy**

## WATER QUALITY

The water quality of the Lower Darling River is currently poor with increasing high salinity. A high blue green algae alert currently applies to Lake Wetherell and the Lower Darling River downstream of Weir 32.

### **Salinity**

On 10<sup>th</sup> February, salinity in the Lower Darling ranged from 481 EC at Ellerslie up to 4,000 EC at Burtundy.

Salinity of surface water in the lower reaches of the Darling River may increase in the short term, particularly near the influence of Murray River and the Ellerslie area.

The Department is managing flows so that the chance of more saline water impacting on relatively fresh water in the Ellerslie area is minimised. However, irrigators should also be closely monitoring water quality on site.

DIPNR staff will provide assistance to irrigators with advice on sampling and analysis.

### **Blue-Green Algae**

The Department is continuing its algae monitoring program and will provide advice when necessary.

Recent monitoring has detected blue green algae within the Menindee Lakes with a high alert level issued for Lake Wetherell. Also, there is currently a high alert level issued in the Lower Darling River downstream of Weir 32.

It is expected that potential for algae blooms will be minimised, particularly with the environmental-dilution flow downstream of Weir 32. However, it is important to be aware of, and to avoid drinking, cooking or being in contact with discoloured water or water which has a musty odour.

## FURTHER INFORMATION

Information regarding the management of the Menindee Lakes is available from the offices of the **NSW Department of Infrastructure, Planning and Natural Resources** at:

Buronga      Enterprise Way      Phone 03 50219400  
                  Buronga, NSW, 2739      Fax 03 50213328

Albury      Dean Street      Phone 02 60416777  
                  Albury, NSW, 2640      Fax 02 60414223

Deniliquin      Edwardes Street      Phone 03 58819200  
                  Deniliquin, NSW, 2710      Fax 03 58813465

or at the office of **State Water** at:

Menindee      Candilla Street      Phone 08 80914401  
                  Menindee, NSW, 2879      Fax 08 80914265



Darling River downstream of Pooncarie, 3<sup>rd</sup> Feb 2004



Department of  
**Infrastructure, Planning and Natural Resources**  
Murray-Murrumbidgee Region