

# MANAGING THE MENINDEE LAKES IN 2002



June 2002

Information Paper No. 2

## INTRODUCTION

This is the second information paper prepared in 2002 explaining the management of the Menindee Lakes as dry climatic conditions period continues, flows into the lakes remain low and the water levels continue to fall.

Since the last paper was distributed in early March, inflows to the Menindee Lakes have remained low. Releases from the lakes to meet consumptive demand, together with evaporation losses has meant that outflows have exceeded inflows and the water levels in the lakes have continued to fall.

## HOW MUCH WATER IS IN THE LAKES NOW ?

At 31 May 2002, the total volume of water stored in the Menindee Lakes was 410,659 megalitres. This is approximately 24.4% of capacity at full supply level.

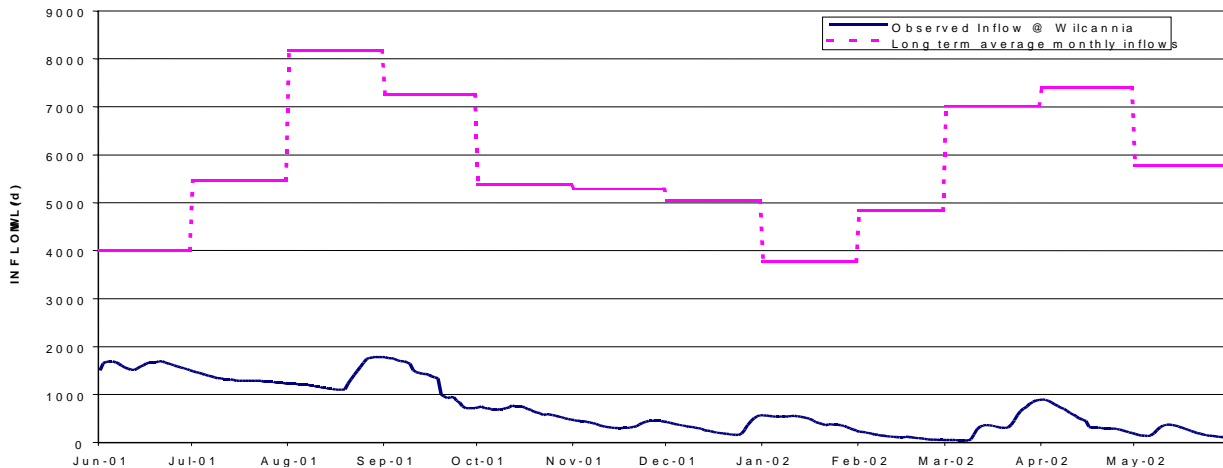
Lake	Volume at 5.3.02	% of capacity	Volume at 31.5.02	% of capacity	Change since 5.3.02 Vol. (ML)	%
Wetherell	116,660 ML	43%	122,820	46%	+ 6,160	+2
Pamamaroo	20,720	7%	23,263	9%	+ 2,543	+1
Menindee	110,690	16%	54,035	8%	-56,655	-10
Cawndilla	252,190	45	210,541	39%	-41,649	-7
<b>Total</b>	<b>500,260 ML</b>	<b>29.8%</b>	<b>410,659</b>	<b>24.4%</b>	<b>-89,601</b>	<b>-5.4%</b>

Figure 1: Storage levels in the Menindee Lakes.

## WATER MANAGEMENT SINCE MARCH

### □ Inflows

Since March, inflows to the Menindee Lakes have remained below average.



**Figure 2 : Monthly inflows June 2001 to May 2002 (actual versus average)**

During April a small inflow (fresh) of about 26,000 megalitres passed into the Lakes. As previously agreed this water was allowed to flow through Lake Wetherell and be diverted into Lake Pamamaroo.

After spilling into some low-lying areas of Lake Wetherell, the flows have slowly passed into Lake Pamamaroo. While not providing any significant improvement in the total volume stored in Lake Pamamaroo, it has compensated for losses by evaporation during the last couple of months.



**Figure 3: Daily flows at Wilcannia**

□ **Water use from the lakes since March 2002**

- Releases to meet interstate requirements ceased on the 13<sup>th</sup> of March.
- Releases from Lake Cawndilla to the Great Anabranh ceased on the 9<sup>th</sup> of March
- Subsequent releases have been made to meet NSW demand, including irrigation, town water supply to Broken Hill, Menindee and Pooncarie and to maintain water quality in the Darling River downstream of Menindee.
- Further losses due to evaporation and seepage have also occurred.

Water use (megalitres)	Use since June 2001	Use between 5 March – 31 May 2002
For MDBC purposes	1,115,000	25,000
For NSW purposes	105,000	17,000
Loss (evaporation & seepage)	593,000	81,000
<b>Total water use from lakes</b>	<b>1,813,000</b>	<b>123,000</b>
<b>Total inflows into lakes</b>	<b>264,000</b>	<b>33,000</b>

Figure 4 : Menindee Lakes water balance (approximate figures)

□ **Current releases**

Minimum flows are currently being released to the Darling River downstream of Menindee.

About 100 megalitres per day is passing from the Lake Menindee outlet regulator.

□ **Immediate future demand**

No immediate increase in demand is likely until irrigation demand increases in the spring.

It is proposed that the annual replenishment to the Great Anabranh will commence in the coming winter months. Up to 500 megalitres per day will be diverted from Lake Cawndilla to the Anabranh for this purpose.

## □ Who is managing the lakes ?

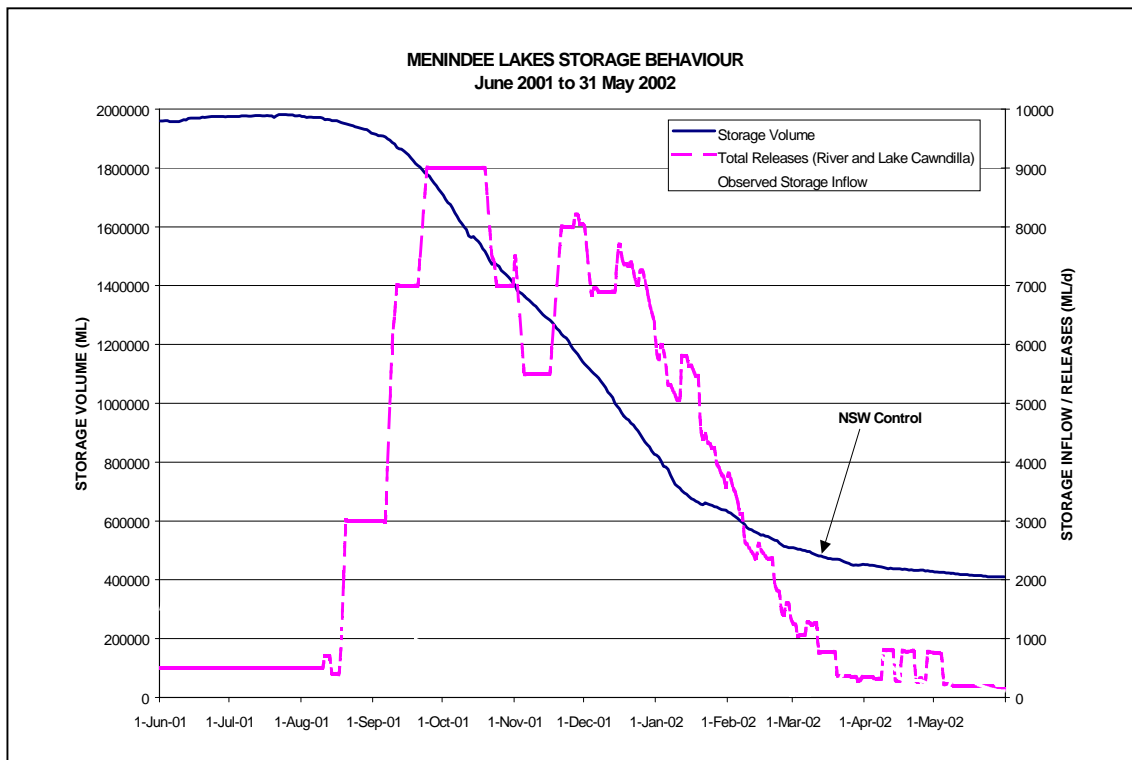
The Menindee Lakes water storage scheme is managed by the NSW Department of Land and Water Conservation (DLWC) on behalf of the Murray-Darling Basin Commission (MDBC) in accordance with the Murray-Darling Basin Agreement.

The Agreement provides for the protection of the water supply needs of New South Wales during extended dry periods.

When the total volume of water in the Menindee Lakes falls below 480,000 megalitres, which is 28.6% of full supply capacity, DLWC manages the water in the Lakes for NSW purposes only.

**The total volume in the Menindee Lakes reduced below 480,000 megalitres in mid March. Since then DLWC has managed inflows and releases for NSW purposes only.**

The MDBC cannot call on water from the Lakes to meet interstate needs until the total volume increases to 640,000 megalitres, or 38.1% of full supply capacity.



**Figure 5 : Menindee Lakes inflows, releases and storage volumes**

## HOW WILL THE REMAINING WATER BE MANAGED ?

DLWC will use the remaining water to meet NSW requirements in 2002-2003 including;

- town water supply to Broken Hill, Menindee, Sunset Strip and Pooncarie
- stock and domestic supply
- irrigation demand in the Lower Darling valley and Tandou
- the annual replenishment flow to the Great Anabranche will be provided in winter 2002

Every month the DLWC will review the inflows and assess any restrictions to consumptive use that may be required.

## FUTURE INFLOWS

While high flows in the Darling River may occur at any time, it is more common for these to happen in summer and autumn as a result of the summer rain pattern that influences upstream catchments.

Unfortunately that period has passed with below average rainfall in the catchments and equally low inflows to the lakes.

As a result, there is no reason to change the management arrangements that were advised in March 2002.

- ❑ Any inflows passing into the Menindee Lakes in the coming months will be stored in Lake Wetherell and Lake Pamamaroo.
- ❑ Only if inflows are forecast to exceed the full supply capacity of these lakes will water be diverted into Lake Menindee and Cawndilla.

## WHAT IS THE PROBABILITY OF FUTURE INFLOWS ?

During any extended dry period, it may be expected that some flows will pass into the Menindee Lakes.

Since the probability of the lakes filling was last determined by the MDBC in early March 2002, there has been little inflow. Consequently, those probabilities are now less likely.

At the end of May 2002, the MDBC has determined the probability of inflows into the Menindee Lakes until the end of October 2002 is;

- 40% chance of capacity increasing to 640,000 megalitres (approx 40% of capacity)
- 25% chance of capacity increasing to 1,200,000 megalitres (approx 70% of capacity)
- 10% chance of capacity increasing to 1,998,000 megalitres (maximum surcharge)

## WATER QUALITY AND ENVIRONMENTAL ISSUES

As the lakes dry, salinity will increase. Similarly, the potential for development of algae blooms may also increase. These may not be a major problem to native species that are adapted to these conditions, they are significant issues for town water supply, irrigation, recreation and tourism.

Salinity, algae blooms and protection of native fish are important issues that will be closely monitored and carefully managed.

Similarly, under natural conditions as the lakes dried native fish would have moved back to the river. However, when the Menindee Lakes storage scheme was built there was no provision made for fish passage. Those fish remaining in Lake Pamamaroo, Menindee and Cawndilla cannot move back to the river and may become trapped.

Drying of lakes and rivers in inland Australia is natural. Native plants and animals have evolved under these conditions and the intermittent wetting and drying cycles are important components of maintaining a healthy and productive river system.

#### □ **Salinity management**

As flows upstream have reduced, so has the salinity of the surface water flowing into the lakes increased. The flow from the lakes to the Lower Darling River is from Lake Menindee, where the salinity is lower.

	Wilcannia	Burtundy
March 2002	1,285 EC	573 EC
April 2002	1,428	776
May 2002	2,077	830

Figure 6: Average Surface Water Salinity

The salinity in the Darling River downstream of the Menindee Lakes is currently averaging around 850 EC which is 'moderately saline' for irrigation (700-1,300EC). Without fresh inflows it is likely to rise to 'highly saline' (1,300-3,000EC) in the coming year and will require careful irrigation management, including;

- ✓ Avoid using overhead sprinklers
- ✓ Irrigate at night and avoid irrigating on hot windy days
- ✓ Increase the leaching fraction to avoid salt build up in the soil, but being careful not to cause water logging
- ✓ Seek advice from the NSW Agriculture

#### □ **Blue-green algae blooms**

Since February 2002, high alert levels of blue-green algae have been detected in Lake Menindee, Lake Wetherell and Lake Cawndilla as well as at Weir 32, downstream of Menindee township.

These high levels have persisted in Lake Menindee and at Weir 32, while at Lake Wetherell and Lake Cawndilla, the levels have declined.

Low levels of blue-green algae have been monitored throughout the year at Menindee town (AIE&W pumps), and at Copi Hollow.

Without significant inflows to the lakes during the coming winter and spring, the potential for the development of extensive blue-green algae blooms throughout the Menindee Lakes next summer will be high.

□ **Native fish management**

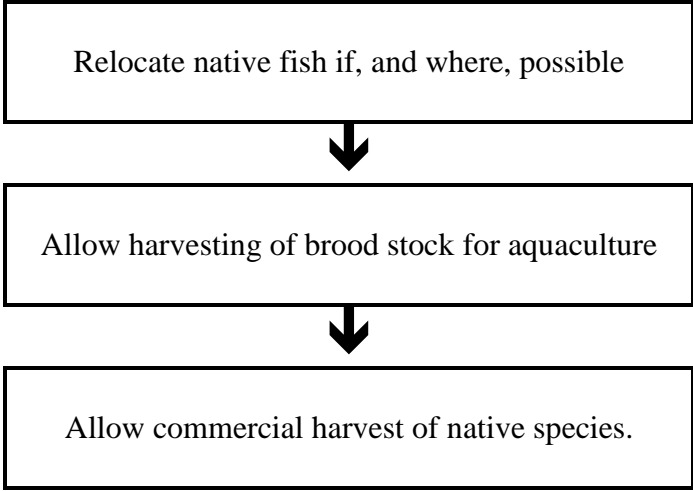
Should the water levels within the main lakes within the Menindee Lakes storage scheme continue to reduce, the potential for fish kills will increase.

Depth surveys have been undertaken by DLWC staff in Lake Pamamaroo, Lake Menindee and Lake Cawndilla.

There is sufficient water in each of these lakes to maintain fish populations through to Spring 2002

The Department of Land and Water Conservation is working with NSW Fisheries to manage native fish populations remaining in the Menindee Lakes.

If the potential for fish kills occurring increases over the winter and spring, then the following management options will be considered.



At all times there is no restriction on recreational fishing, providing all licensing and fishing regulations are followed.



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