

MANAGING THE MENINDEE LAKES IN 2003

May 2003

Information Paper No. 5

INTRODUCTION

This is the fifth information paper prepared in 2002-03 to explain the on-going management of the Menindee Lakes during the continuing drought.

Since the last information paper was distributed in February 2003, flows have recommenced in the Darling River upstream of Menindee. While the flows have contained some water of very high salt concentration, the extra water will secure Broken Hill water supply through 2003 and 2004.

In the past months Broken Hill water supply has been diverted from both Copi Hollow and from the Darling River at Menindee.

Water pumped from Lake Cawndilla has maintained flows in the Lower Darling throughout the period. However, water can no longer be diverted to the Lower Darling from Lake Cawndilla and future water supply will depend on flows into the Menindee Lakes.

WATER MANAGEMENT SINCE FEBRUARY 2003

1. Flows

Flows in the Darling River upstream of the Menindee Lakes ceased in early September 2002 and no flow was recorded until the 5th April 2003.

It is expected that the inflows will deliver approximately 70,000 ML to Lake Wetherell by the end of June. So far flows of 56 GL have been recorded having passed Wilcannia.

For comparison, average flows into the Menindee Lakes from October to March is 600,000 ML.

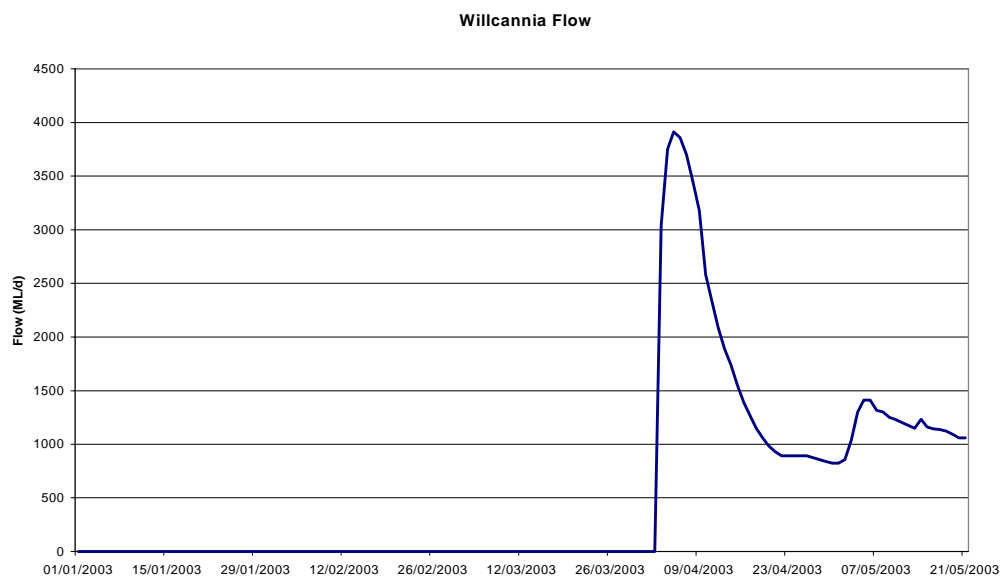


Figure 1 – Hydrograph of Flows Wilcannia January 2002 to May 2003

2. Diversions

From 1st November 2002 to 30th April 2003, diversions have been from Lakes Wetherell and Lake Cawndilla

Lake	Nov 02	Dec 02	Jan 03	Feb 03	Mar 03	Apr 03
Wetherell	4,550	4,650	1,860	1,052	462	1,330
Cawndilla	21,000	7,600	7,600	9,255	8,010	3,200

Table 1: Diversions from the Menindee Lakes as at 30th April 2003

Since January, water has been diverted to the Lower Darling River from Lake Cawndilla, water supply for Broken Hill has been provided from Copi Hollow, and water for Menindee township and users immediately downstream has come from Lake Tandure.

3. Remaining Volumes

The estimated volume in Copi Hollow is currently at 4,500 ML. Although Lake Cawndilla has a residual pool of 13,451 ML, southerly winds blow this water away from the pump intakes and it can no longer be diverted to the Darling River.

Lake	Est. Volume at 21.05.03	% capacity
Lake Wetherell	64,276 ML	33%
Lake Pamamaroo	empty	0%
Copi Hollow	4,500 ML	38%
Lake Menindee	empty	0%
Lake Cawndilla	13,451 ML	2%
Total	82,227 ML	5.09 %

Table 2: Storage levels of the Menindee Lakes as at 15th May 2003

SECURING WATER SUPPLY

Since the emergency works to secure Broken Hill’s water supply were completed in January, additional works were undertaken to provide water for users in the Lower Darling downstream of Menindee. This included the enlargement of the channel between the Darling River and Lake Cawndilla and works at Lake Tandure to divert water from Lake Tandure into Lake Wetherell.

Pumping has now ceased as water levels in Lake Cawndilla have dropped and inflows to Menindee have enabled releases from Lake Wetherell to supply the immediate needs in the Lower Darling River.

Pumps from the Lake Cawndilla works will be removed and the site at Lake Cawndilla will be rehabilitated.



Figure 2: Pipe discharge to the Darling River



Figure 3: Excavated channel from Lake Cawndilla to the Darling River

The work carried out on the bed of Lake Tandure has been rehabilitated. The spoil from the channel construction and dredging has been levelled.

Figure 4: Constructed channel at Lake Tandure



The Copi Hollow block bank is still in place and will remain until water supply for Broken Hill is more secure. Some work will be done so that when it is appropriate to remove the bank, it will only be a relatively small job.

MANAGEMENT OF FUTURE INFLOWS

Based on flow records for the Darling River, there is a very high probability of further flows in the Darling River and inflows to the Menindee Lakes during the coming year. Management of these flows will depend on the volumes and duration of flow events.

Now that the security of supply to Broken Hill has been met, the priority for flow management in the Lower Darling River will be:

1. Basic river health, town water at Pooncarie and stock and domestic use;
2. Water to keep high security crops alive
3. High security entitlements
4. General security entitlements

If flows are sufficient it may be possible to divert saline water downstream. This option will depend on flows in the Darling and Murray River systems.

Management of flows within the Menindee Lakes

- ❑ Inflows will be stored preferentially in Lake Wetherell then Lake Pamamaroo. The bank at Copi Hollow will be removed when volumes are estimated to fill Lake Wetherell.
- ❑ Only when these lakes are full, or the estimated inflows are guaranteed to fill these lakes will water be diverted into Lake Menindee and Lake Cawndilla.

WATER QUALITY

The water quality of the Lower Darling River is currently poor with high salinity and blue-green algae present.

Blue-Green Algae

As the drought continues, blue-green algae blooms have persisted in the Darling River and the Menindee Lakes storage.

The Department of Sustainable Natural Resources has increased its water quality monitoring and reporting program. Since February, algal blooms at high alert levels have been recorded in the upstream section of Lake Wetherell and in Copi Hollow with blooms at medium alert levels in Lake Cawndilla.

Given the current low water levels within the lakes, algae blooms may continue into the cooler months and people need to remain vigilant and exercise caution if they suspect there is blue-green algae in the water.

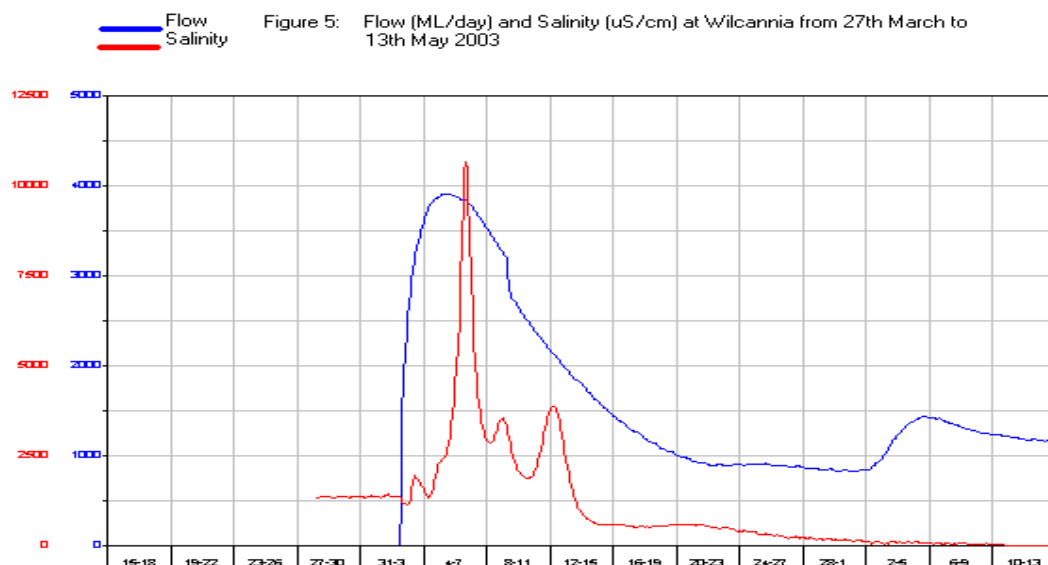
Water treatment

It is possible for water supply authorities to remove blue-green algae and associated toxins from raw water by dosing with activated carbon. This is done by Australian Inland in Broken Hill and Menindee and Wentworth Shire Council in Pooncarie.

Boiling water or chlorination **will not** remove blue-green algae or any toxins that may be present.

Salinity

The continuing dry weather, falling levels in the Menindee Lakes and the poor quality of water passing into the Menindee Lakes has caused surface water salinity levels to rise.



As the saline water has passed into and through Lake Wetherell the salinity at the Main Weir has increased.

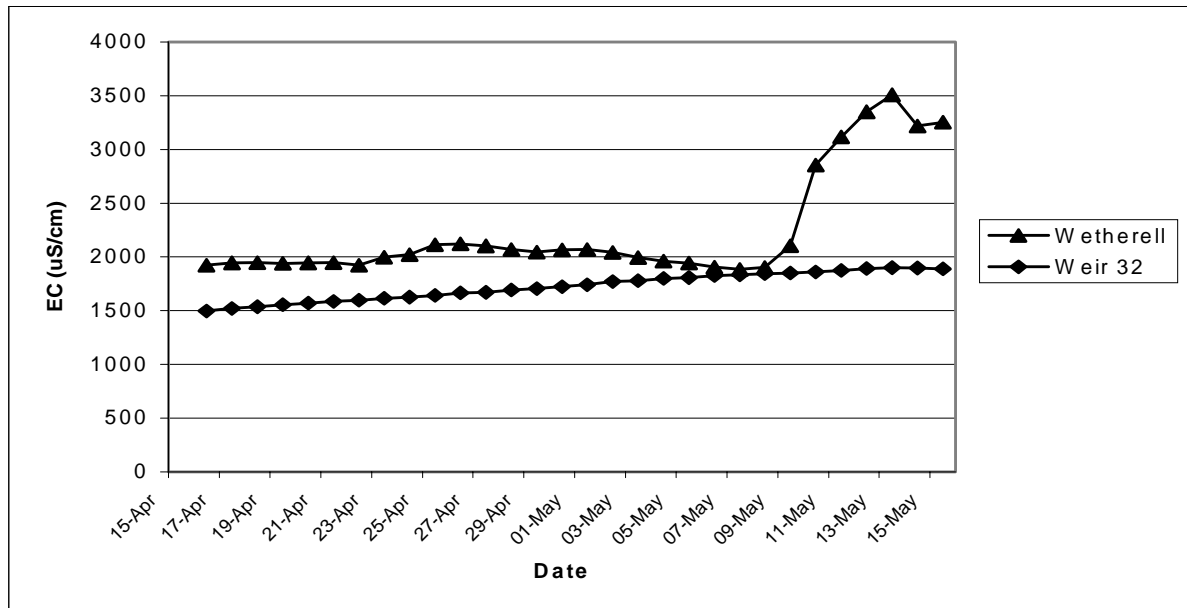


Figure 6: Salinity in Darling River at Lake Wetherell (Main Weir).

Water in Copi Hollow currently has the lowest salinity, around 1,700 EC but this is expected to increase in the coming months.

Irrigators and other water users should be aware of the current water quality, as crops and soils may be affected by higher than usual salinity levels.

Use	Noticeable Salt Concentration Threshold (EC)	Desirable maximum Salt Concentration Threshold (EC)
Sensitive Horticulture/ Viticulture	400	800
General Irrigation	800	1500
Stock	8,000 cattle 17,000 sheep	15,000 cattle 21,000 sheep

Table 3: Salt concentration sensitivities for water use in the Lower Murray Darling catchment

(For additional information, contact Jeremy Giddings at NSW Department of Agriculture, Silver City Highway, Dareton, Phone: 03 50274409, Fax: 03 50274319)

Salt concentrations of over 2,000 EC become increasingly unpalatable for human consumption, but the salt present does not pose a health risk to healthy people.

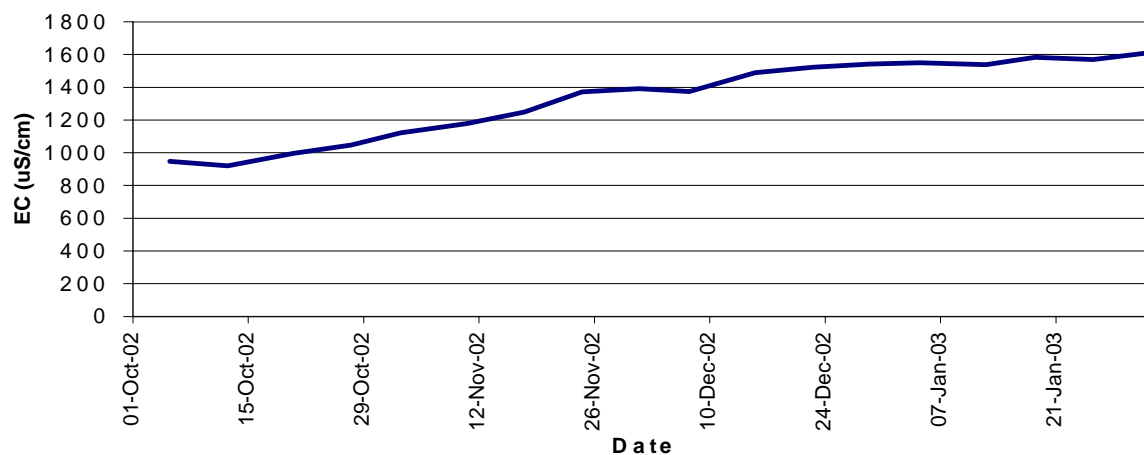


Figure 7: Salinity at Copi Hollow

Water Quality Forecast

Blue Green Algae

It is anticipated that with inflows to the lakes system and given the current weather trends, blue-green algae counts should be reducing. Also, the rate of algae growth should slow with cooler water temperatures. However, it is important to be aware and to avoid drinking, cooking or being in contact with discoloured water or water which has a musty odour.

Salinity

It is expected that the salinity of water released to the Lower Darling River is expected to exceed 4,000 EC until fresher inflows occur.

NATIVE FISH MANAGEMENT

As the lake levels have reduced, commercial fishing has ceased in the lakes.

Inspection of the lakes by State Water, Department of Sustainable Natural Resources and NSW Fisheries have not reported any extensive native fish kills.

A number of smaller fish kills were observed in Lake Tandure and a report of a larger fish kill at Lake Pamamaroo was made by a commercial fisherman although access to this area was extremely difficult.

Extensive fish kills of carp were reported at Lake Malta. At Lake Menindee, NSW Fisheries and DSNR staff removed several tonnes of live carp from a residual pool adjacent to the Lake Menindee lookout.

FURTHER INFORMATION

Information regarding the management of the Menindee Lakes is available from the offices of the NSW Department of Sustainable Natural Resources at:

Buronga	Enterprise Way Buronga, NSW, 2739	Phone 03 50219400 (Mike Erny) Fax 03 50213328
Albury	Dean Street Albury, NSW, 2640	Phone 02 60416777 (David Harriss) Fax 02 60414223
Deniliquin	Edwardes Street Deniliquin, NSW, 2710	Phone 03 58819200 (Digby Jacobs) Fax 03 58813465

or at the office of State Water in Menindee:

Menindee	Candilla Street Menindee, NSW, 2879	Phone 08 80914401 (Mike Arandt) Fax 08 80914265
----------	--	--

Further information regarding salinity and irrigation management is available from the office of NSW Agriculture at:

Dareton	Silver City Highway Dareton, NSW, 2717	Phone 03 50274409 (Jeremy Giddings) Fax 03 50274319
---------	---	--



Department of Sustainable
Natural Resources

MURRAY REGION