

Lake Brewster Water Efficiency Project

Lake Brewster is a re-regulating storage on the Lachlan River, midway between Lake Cargelligo and Hillston. Being a large, shallow lake, it has been difficult to manage efficiently for water delivery operations and has suffered poor water quality resulting in frequent blue-green algae outbreaks.

An initiative of the Lachlan Valley Community, the Lake Brewster Water Efficiency Project will increase water efficiencies and improve the water quality and wetland environment within the lake. The goal is to improve the efficiency of Lake Brewster as an essential operational component of the Lachlan Valley river system.



Australian Government
Water for the Future



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LACHLAN CATCHMENT
MANAGEMENT AUTHORITY



NSW Government
Department of Water & Energy



FAST FACTS

Owner:	State Water Corporation
Location	Lake Brewster, on the Lachlan River, is 250km downstream from Forbes and 50km east of Hillston.
Local Government Area	Carrathool Shire Council.
Area of Water	6,500ha
Maximum Depth	3.5m
Type of Structure	Natural ephemeral lake. Earthfill embankment with an inlet structure (4 gates) and outlet structure (2 gates).
Storage Volume – Residual Storage	153,400 ML (Full Supply Level) 25,000 ML (unable to be managed for water delivery until project complete).
Wetland Status	Listed in the Directory of Important Wetlands In Australia (Environment Australia, 2001).

Project Partners:

- The Australian Government
- State Water Corporation
- Lachlan Catchment Management Authority (LCMA)
- Lachlan Customer Service Committee
- Lachlan Valley Water Incorporated
- Department of Water & Energy

Secured Funding:

The Australian Government:	\$ 7.5 million
State Water:	\$ 2.7 million
LCMA:	\$ 2.3 million
Department of Water & Energy:	\$ 0.5 million
Total Funding:	\$13 million

Produced by the Partners of the Lake Brewster Project

Project Background:

Lake Brewster is a natural depression lake/wetland and was developed as a storage in the 1940s and 1950s for drought proofing, irrigation, agriculture, water conservation, stock and domestic water and regional development.

The storage is filled by Lachlan River flows during winter/spring period and drained through summer to meet irrigation and riparian demands.

Lake Brewster is listed as a nationally important wetland, with value as a waterbird breeding habitat and residual pool.



Reason for the Project:

Lake Brewster operation was inefficient when water levels were below 30%. Below this level, the rate of discharge fell dramatically and the lake had high evaporation rates, especially in summer.

The lake also experienced serious water quality problems with increasing nutrients, turbidity, salinity and blue-green algae levels resulting in poor quality water being discharged back into the river.

Other factors contributing to poor water quality included the loss of aquatic vegetation, land management practices and the impacts of carp activity.

Unless operational efficiency and water quality could be improved there was a risk the lake would have been taken out of operation.

The water available to irrigated agriculture would have been reduced as a result by 35,000ML on average each year; at a cost of \$2.97 million reduction in agricultural returns annually.

Project Objectives:

- Reduce evaporation by constructing an embankment to divide the lake into two cells, thereby reducing surface area.
- Improve hydraulic efficiency within the lake and associated channels, which will increase the lake's effectiveness within the Lachlan system.
- Improve the quality of water being discharged from the lake for the benefit of the riverine environment and downstream users.
- Allow the lake to remain operational, thereby increasing supply security to water users and the environment.
- Enhance wetland function to improve water quality while maintaining a residual pool and waterbird breeding values.
- Develop and implement an operational plan to maintain the wetlands and lake environs to ensure ongoing water quality and habitat improvements.

Project Activities:

Completed:

- Outlet channels and regulators for passing design flows including the deepening and widening of a 2.5 km section of the existing outlet channel downstream of the existing outlet regulator.

- An embankment to divide the storage into two cells, the largest of which in the southern part of the lake would be used as the main storage with a capacity of approximately 98 GL.

Underway:

- Approximately 300 ha inflow wetland to filter inflows to Lake Brewster.
- Approximately 780 ha outflow wetland and associated banks and channels

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