

SECURING NSW's WATER FUTURE

NSW Government Approach to Menindee Lakes

March 2017

The NSW Government has been working over a number of years to identify appropriate solutions for Menindee Lakes that balances local needs, while improving the water efficiency and management of the Lakes. As part of this work, the Department of Primary Industries Water (DPI Water) has undertaken investigations to identify potential solutions to better manage this important resource.

The NSW Government will not be decommissioning the Menindee Lakes as they are an instrumental part of the Murray Darling Basin water supply system, important for Lower Darling Water supplies and a significant environmental area in their own right. There are a range infrastructure and management options that will allow us to better manage and use the Lakes to achieve a triple bottom line outcome.

The Menindee Lakes are a significant natural, cultural and economic resource for Australia; NSW is committed to improving the management of the Lakes system to optimise these objectives.

As a significant part of improved management arrangements, the NSW Government will look to move Menindee management towards outcome based operating rules, rather than the simple triggers based approach, to ensure management and water delivery are aligned to results and improved water management, appropriate for current conditions.

NSW has explored a basic scope of works and operational changes that could allow the lakes to be operated in a way that achieves significant water savings, in line with a triple-bottom line approach. A focus will be ensuring access to Lake Menindee storage is improved, to reduce the pressure on the upper storages for releases to meet water demands and optimise the storage to meet local needs. As part of this approach, the NSW Government is developing a supply measure proposal for the Menindee Lakes project. This includes:

- new regulators at Morton-Bulka (to separate the management of Lakes Menindee and Cawndilla), and Cawndilla Creek (to enable managed use of Lake Cawndilla as a storage option, reducing evaporative losses from this Lake)
- potential for revised trigger levels in relation to shared management arrangements and operational rules to complement the structural works
- recognition of additional inflows that are expected to flow into Menindee Lakes under the operation of the Basin Plan
- allowing operation of Lake Menindee independently of Lake Cawndilla, and enabling more efficient operations through the creation of a new regulator

Consultation and ongoing discussions with water users and the community around the Menindee Lakes and Lower Darling, as well as with other state jurisdictions is required before any proposal for the Lakes can be developed.

NSW Government Approach

NSW is committed to improving the management of the Lakes system to optimise these objectives. There has been significant public interest and debate about the need to improve the management arrangements of the Menindee Lakes the outcome of the investigation and consultation must recognise the enormous water supply benefits to NSW, Victoria and South Australia, and the natural environmental values of the Menindee Lakes.

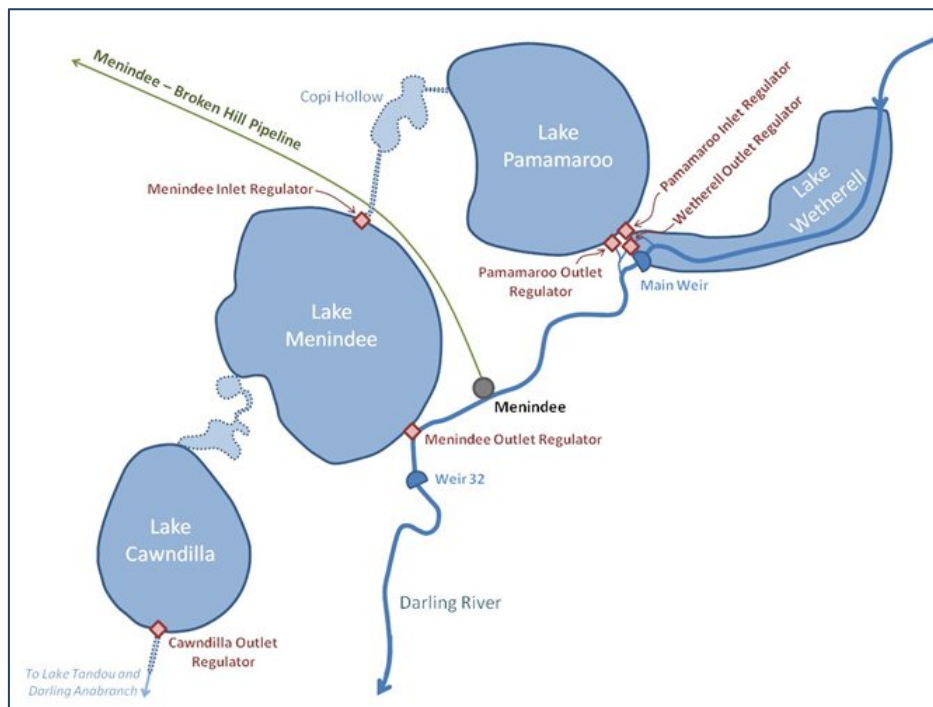
The NSW Government has allocated a \$500 million investment package to secure Broken Hill's water supplies – representing the largest investment into regional water security on record. The centrepiece of this investment package is the construction of a 270km Murray River to Broken Hill pipeline.

The Menindee Lakes were modified during the 1950s and 1960s to provide Broken Hill with a reliable water supply and to supply water for irrigation to NSW, Victoria and South Australia. However, on average 426 gigalitres (GL) of water is lost in evaporation from the lakes system each year.

A series of investigations has been undertaken by the NSW Government to identify potential structural works and management changes to improve the efficiency of the Menindee Lakes and to reduce evaporation losses. This also takes into account the increased flows of approximately 150 gigalitres annually from the Northern Basin water recovery under the Basin Plan.

Improving water management efficiency is a priority for the NSW Government, to assist in meeting Basin Plan objectives, in line with the NSW approach to recover water for the environment through infrastructure investment, efficiency savings and operational improvements. This work will result in reduced evaporation and the saved water will help meet the environmental water required under the Basin Plan and reduce the impact of the Basin Plan on irrigation communities.

Current Lakes Infrastructure



Infrastructure and Operational changes

A significant shift in approach to management of the Menindee Lakes system is the NSW proposal to move from a simple rules based approach to an outcomes based approach, for improved ability to better synchronise water management with climatic conditions in the Basin.

The Menindee Water Saving Project seeks to make evaporative water savings by:

- allowing operation of Lake Menindee independently of Lake Cawndilla, and reducing the volume of water stored in Lake Cawndilla;
- accessing the residual pool in Lake Menindee by constructing a drainage channel in the bed of the Lake;
- enabling more efficient drawdown of Lake Menindee by enlarging the outlet structure; and
- potential for changed operational rules to complement the structural works.

These infrastructure improvements will assist to increase the frequency of higher volumes of being stored in Lakes Wetherell and Pamamaroo, as well as increasing the frequency of higher volumes of water being stored in Lake Menindee, though, under certain conditions, decreasing the volume of water stored in Lake Cawndilla, to improve the management of Lake Cawndilla as an environmental asset and a flood mitigation buffer.

This requires the following structure to deliver the evaporative water savings:

- Morton Boolka Regulator for separation of Lake Menindee and Lake Cawndilla at a point within Lake Menindee near the upstream end of Cawndilla Creek
- Enlarged Lake Menindee Outlet Regulator including outlet channel and consideration of related benefits of a potential Weir 32 lowering
- Lake Menindee residual pool drainage channel connecting to the enlarged outlet regulator

As part of the above approach, the NSW Government is developing a supply measure proposal for the Menindee Lakes project, which enables improved environmental outcomes, resulting in a reduced impact on communities through the reduction in water recoveries required to meet Basin Plan outcomes. This will be achieved as a result of:

- improved water management for environmental outcomes, as a result of relaxing existing flow constraints from 9,000 to 14,000 ML/day
- recognition of the additional inflows to Menindee Lakes under the Basin Plan¹ potential additional evaporative savings from improved access for the environment to these additional inflows and improved management arrangements, subject to third party impacts.

In 2013, the Commonwealth and NSW governments agreed to further investigate a scope of infrastructure works and potential changes to the Murray-Darling Basin Agreement aimed at realising evaporative water savings, whilst recognising the water supply benefits to NSW, Victoria, and South Australia, the natural environmental values of the Lakes, and the recreational and social amenity the Lakes provide for the region. The Commonwealth has reserved funding for a Menindee water savings project.

Additional to the Menindee Lakes proposal, the NSW Government has also made a commitment to provide an enduring solution for water security for Broken Hill, with up to \$500 million available to build a pipeline from the Murray River to Broken Hill. The NSW Government commitment, together with this savings proposal, recognises the ongoing importance of Broken Hill and the Menindee Lakes to the region and NSW.

Water Management and Storage Improvements

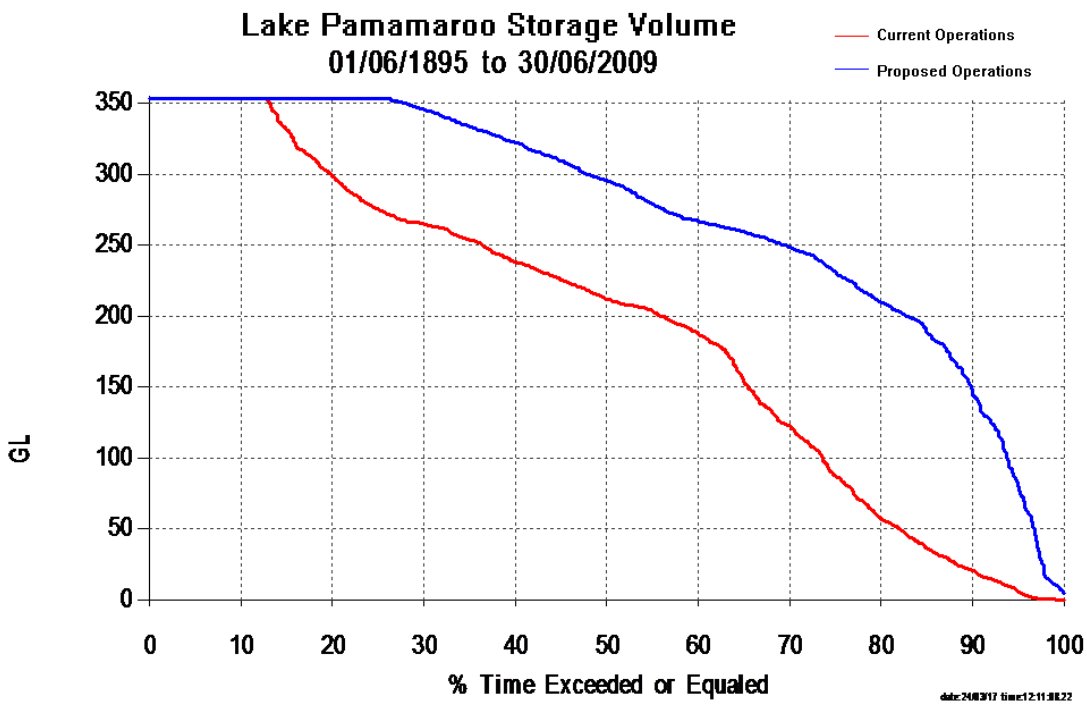
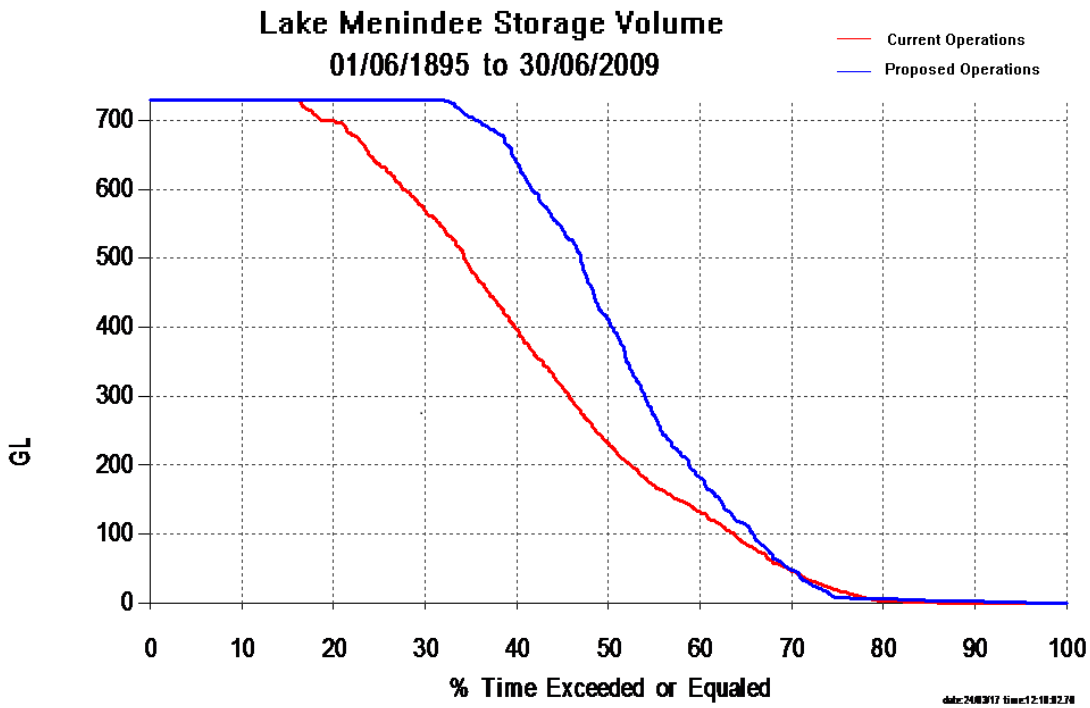
The Menindee Lakes are a significant natural, cultural and economic resource for Australia; NSW is committed to improving the management of the Lakes system to optimise these objectives. The NSW Government will not be decommissioning the Lakes as part of the proposed approach to the improved Menindee Lakes management.

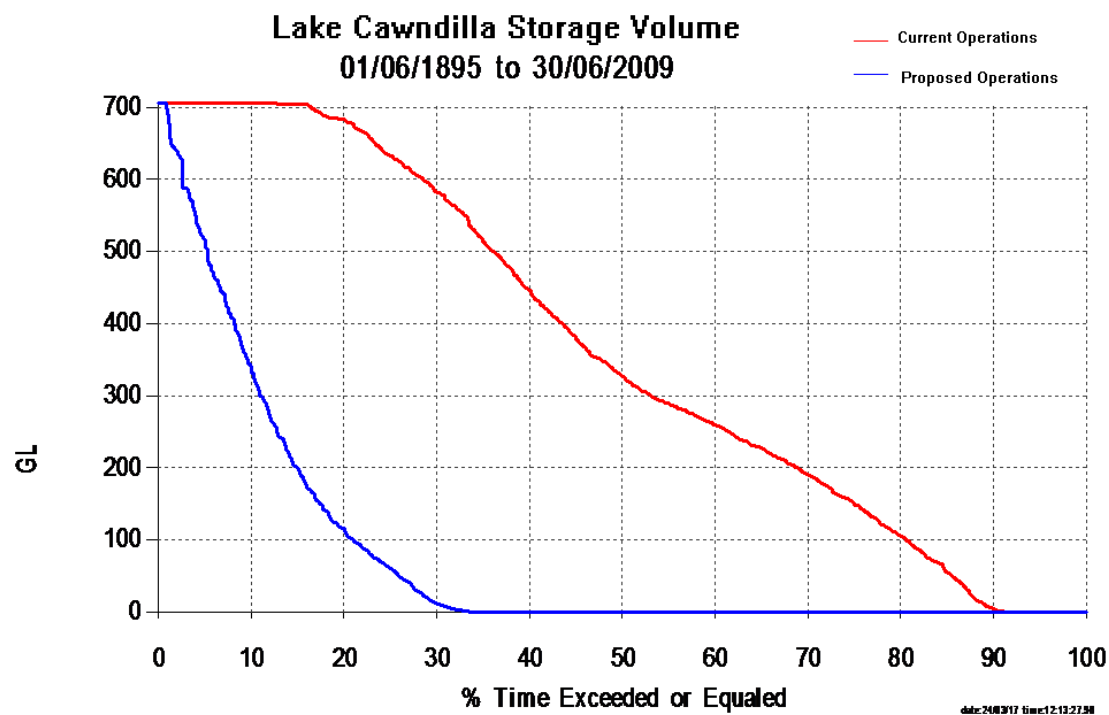
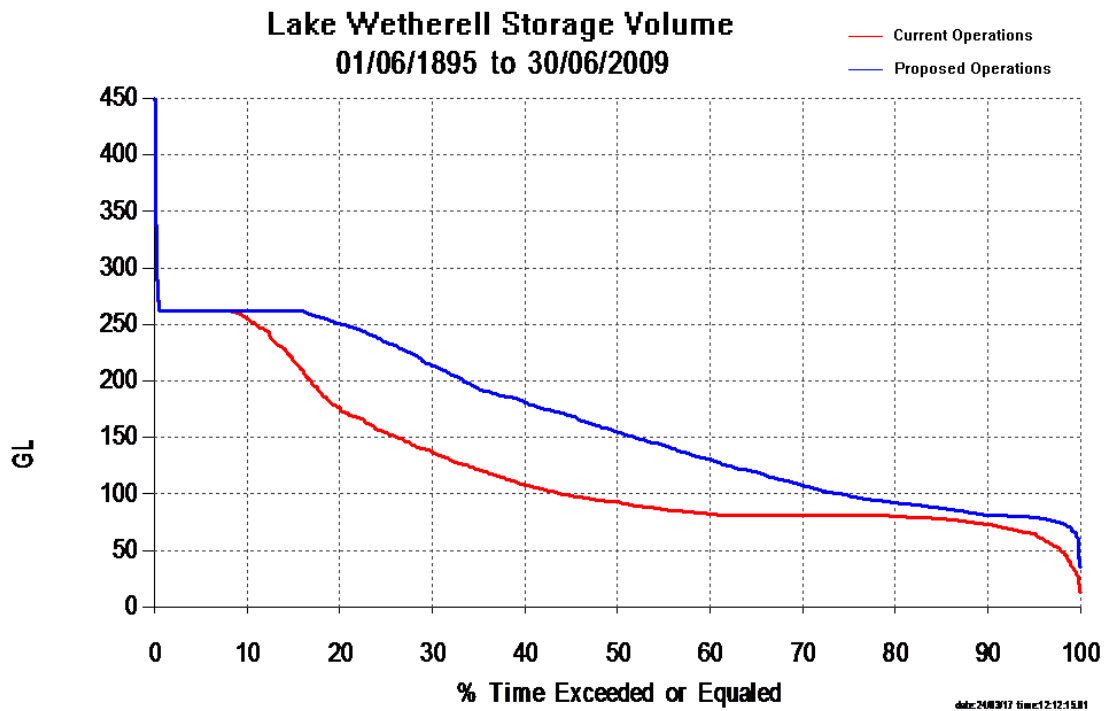
The NSW Government will manage the water in the Lake system in order to reduce evaporation, optimise the significant natural, cultural and economic of the Lakes, and the continued use of the Lakes for recreational and tourism purposes. The below graphs show the capacity of the Lakes using historic inflows and data from 1895 to 2009, as an illustration of the likely improved outcomes achieved and ability to achieve the triple bottom line objectives for the management of the Lakes, through the operational and infrastructure changes under consideration as part of the NSW Government Menindee Lakes Water Savings project.

The graphs of Lakes Wetherell and Pamamaroo show that water is being held preferentially in the upper two lakes, enhancing water availability and accessibility, particularly during drier periods. The graphs of Lakes Menindee and Cawndilla show the changes in management to focus on Lake Menindee as an active

¹ Final inflows are subject to the Northern Basin Review of Sustainable Diversion Limits being undertaken by the MDBA.

storage, and Lake Cawndilla with an improved environmental focus and outcome that better translates to natural conditions.





Environmental Assets

The Menindee Lakes system contains a broad diversity of both terrestrial and aquatic habitats.

The health and composition of vegetation both within and surrounding the lakes is influenced by the current hydrology (i.e. post regulation).

The Lakes contain a number of important environmental assets as described by MDBA (2012). These include:

- Menindee Lakes— a system of lakes covering an area of 45,000 ha
- Lower Darling River — the main channel, and adjacent billabongs and wetlands

- Great Darling Anabranch— a series of lakes and floodplains adjacent to the anabranch channel

What happens next?

The Menindee Lakes recently experienced the lowest inflows on record; as such the NSW government focused on working with the community to implement a range of contingency measures to ensure that critical supplies can be maintained for the region. Accordingly, stakeholder and community consultation was focused on these activities and the development of a long-term solution for Broken Hill's water security.

Now that critical water supply matters have been addressed for Broken Hill and surrounding communities, it is now time for the detailed consultation with the community on the path forward to address the economic, social and environmental aspects of the Lakes for its future. The NSW Government will be working with water users, the community, the Commonwealth, Victorian and South Australian Governments to finalise a proposal for the Menindee Lakes management by the end of 2017.

The NSW Government will manage the stakeholder consultation process. No final decisions will be made on infrastructure or operational changes to the lakes until the outcomes of the further work and stakeholder consultation has been finalised.

Sustainable Diversion Limit Adjustment Mechanism in Context

The Basin Plan sets a sustainable diversion limit (SDL) for each catchment and aquifer in the Basin, as well as an overall limit for the Basin as a whole. In order to meet the new limits, 2,750 GL of water needs to be recovered Basin-wide. NSW's share of this "SDL gap" is 1,312 GL, with approximately 899 GL of water recovered to date.

For the remaining recovery, NSW is pursuing investment by the Australian government in a range of projects and programs, with infrastructure projects being prioritised over water buybacks.

Two key areas are being progressed by the NSW government for reducing the gap between the Basin Plan limit and those in existing water sharing plans.

In April 2016, the Ministerial Council agreed to continue to progress a package of 36 projects (<https://www.mdba.gov.au/publications/mdba-reports/sdl-adjustment-proposals>) to deliver on the SDL Adjustment Mechanism; Ministers confirmed at the March 2017 Ministerial Council meeting that these projects continued to represent a credible pathway forward, but further work would be required to refine these projects.

More information

DPI Water is the lead agency for the implementation of the Basin Plan agreements within NSW. The following reports can be obtained from: <https://www.dpi.nsw.gov.au>

Acknowledgments



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