

Community update on response to fish deaths in Menindee and Lower Darling

Current situation

The risk of further large-scale fish deaths is still a possibility, with the chances increasing as the weather starts to warm.

This is particularly the case for Bony Herring and Carp in the river reach between Lake Pamamaroo and Weir 32, which boomed during the recent floods and many may now be in poor condition and more susceptible to environmental stresses.

Our water quality monitoring is showing dissolved oxygen levels in the Darling River at Menindee are remaining above the critical thresholds for fish health. The release of oxygenated water from lakes Pamamaroo and Menindee, combined with the cooler water temperatures over winter, provided an opportunity for dissolved oxygen levels to recover. These circumstances are all helpful to the survival of fish.

Water releases from the lakes are being adjusted, where required, to mix water layers before the differences in temperature and dissolved oxygen becomes too pronounced. Flows from Lake Pamamaroo were increased from 200ML/day to 500ML/day on 12th October to address stratification.

From 16 October we reverted to 200ML/day from Pamamaroo and 350ML/day from Menindee given destratification was less than expected and with DO not going below critical levels. Additionally, forecast daytime temperatures over the coming 1-2 weeks are not going to be continuously hot at Menindee.

From 20 October, flows will be reduced at Lake Pamamaroo from 200ML/day to 100ML/day to conserve drought reserve in the top lakes given we have received expert advice that the risk of stratification is low at the moment (due to low temperatures and forecast winds). Flows will be increased from Lake Menindee to 450ML/day.

WaterNSW monitoring crews will be on the ground Tuesday 24 October to monitor, and all water agencies will continue to regularly assess the situation and adjust flows to balance the need to maintain water quality and manage drought reserves in the top lakes.

Blue-green algae also remains a cause for concern. The most recent results indicate a red alert warning for recreational use in Lake Cawndilla and the Darling River at Burtundy, Ellerslie and Tapio, with algal numbers at most sites in the Menindee Lakes area remaining in the amber alert range for recreational use.

What are the key challenges?

We face challenges from the reduction of dissolved oxygen levels caused by:

- temperature increases

- the enormous population of Carp and Bony Herring that boomed during the last three years due to flood events
- further algal blooms
- the impacts of agriculture
- increased demand for water downstream during the hotter months
- several weirs which affect flows and fish migration (fish are trapped between Main Weir and Weir 32).

What is being done?

Water releases from the lakes

Planned increased releases by the MDBA from Lake Menindee of 3000 megalitres (ML)/day scheduled to commence in early October were paused following heavy rainfall and tributary inflows into the Murray River from the upper Murray catchment. These unregulated flows will meet downstream Murray River water needs in the short-term.

Releases from Lake Pamamaroo were increased on Thursday 12 October after data showed there were signs of stratification in the water column. These releases from Lake Pamamaroo were then reduced back to 200 ML/day while water released from Lake Menindee was increased to 350 ML/day on 16 October, after data showed the water column was mixing.

From 20 October, flows will be reduced at Lake Pamamaroo from 200ML/day to 100ML/day to conserve drought reserve in the top lakes. A corresponding 100ML/day increase from Lake Menindee will be made to 450ML/day.

The total of these flow rates will also support the recovery of native fish populations in the lower Darling-Baaka that were hard-hit by hypoxic conditions in Autumn 2023. The environmental flows have been specifically timed to support Murray cod breeding. Releases from Lake Pamamaroo will also assist with disrupting thermal stratification and limiting algal growth in the Weir 32 weir pool.

Commonwealth environmental water has been released from Lake Cawndilla to maintain connectivity through the Great Darling Anabranch to provide a pathway for juvenile golden perch to migrate from the Basin's north to the south. The flow is also of benefit to vegetation, waterbirds, bush birds, aquatic bugs, frogs, yabbies and other animals that live on the floodplain.

Are there reports of fish deaths currently?

DPI Fisheries has received reports of dead large Murray cod in the Lower Darling-Baaka near Menindee. Less than 10 fish combined have been reported over separate incidents in multiple locations over the last week.

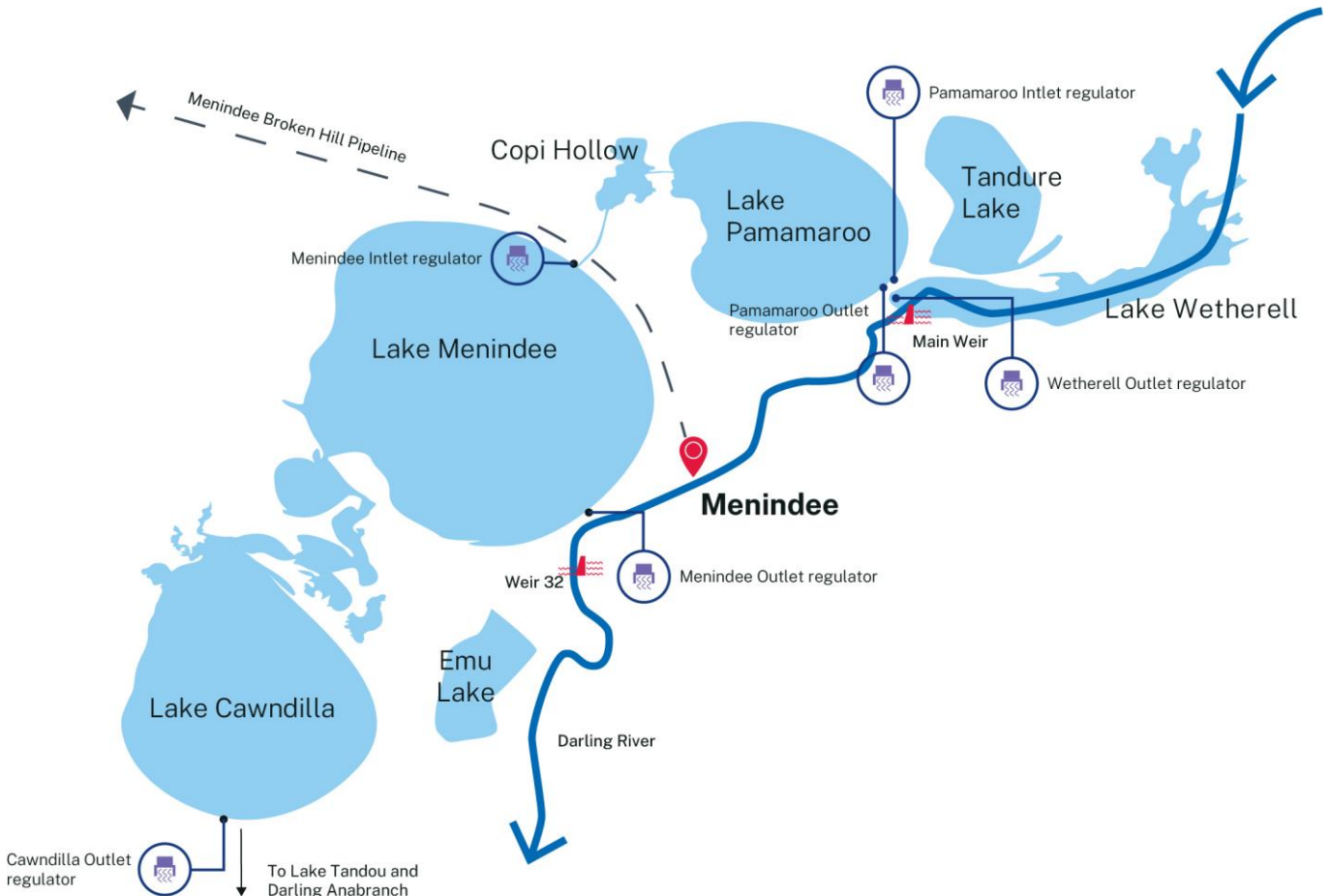
The cause of mortality is currently unknown. DPI Fisheries, in conjunction with other agencies, will continue to investigate the matter, with extensive water quality monitoring being undertaken by NSW Government in the area.

Fish deaths in Menindee

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To report any incidents of dead fish, fish struggling or starting to gasp at the water surface, please call the Fishers Watch Phonenumber on 1800 043 536 or complete a fish kill protocol and report form at: <https://www.dpi.nsw.gov.au/fishing/habitat/threats/fish-kills>

Map of Menindee Lakes system



How will the Lakes and water quality be managed during the coming summer?

We need to balance the requirement to deliver water to all Basin States as per the Murray Darling Basin Agreement with the need to maintain fish health, as well as conserving water in the top lakes at Menindee as we move into summer and dryer conditions as a result of the El Nino event. It is a balancing act.

We know there is still a large number of fish, predominantly Bony Herring and Carp, between Pamamaroo outlet and Weir 32, so releases will continue from Lakes Pamamaroo and Menindee in order to disrupt stratification and minimise algal growth in the weir pool between Main Weir and Menindee Creek

These releases will be closely monitored in order to make any necessary changes to flow rates as a result of water quality, changes in weather conditions that affect the MDBA's call for water, or the need to conserve water in the top lakes. The Murray-Darling Basin Authority (MDBA) have paused

their call on water following substantial rainfall over the catchment in early October which meant adequate water was available further south.

Will water take from the northern basin be restricted?

Section 324 of the *Water Management Act 2000* (the Act) allows the Minister or a delegate to direct, by order, that temporary water restrictions within a water source(s) have effect for a specified period, if these restrictions are determined to be in the public interest.

Applying this order would require there to be enough water upstream of Menindee, and other towns on the Darling-Baaka, to ensure those towns critical water supply is not impacted.

What other actions are being considered?

We have welcomed the findings of the Independent Review by the Office of the NSW Chief Scientist & Engineer. We are getting on with actioning those recommendations, including investigating immediate and long-term solutions like:

- Change infrastructure and remediate fish barriers so fish are not trapped and can move away from poor quality water in extreme events.
- Embed water restrictions in water sharing plans to provide certainty around when licence holders upstream will be restricted for downstream critical needs.
- Invest in land management and rehabilitate riverbanks and floodplains that can help reduce the risk of pollutants and sediments entering water ways.
- Fill data gaps to make sure the best decisions are made with the best available information in future events.
- Establish accountability and responsibility for water quality in NSW so there is a sustained focus on improving water quality with clear accountabilities (currently running as incident response).
- Viability of recirculating pumps being investigated.
- Pulsed releases (already used as a tool).
- Exploring funding options with the Commonwealth for fish passage projects.
- Improving river connectivity through actions identified in the Western Regional Water Strategy.
- Established an Expert Panel on connectivity in the Barwon-Darling River, commenced 4 September 2023, report draft due November 2023 and final March 2024.

Menindee old town weir

The Department of Planning and Environment's Water Group has postponed the planned work to remove the remaining sections of Menindee's old town weir to the level of the natural riverbed. The removal was planned for October 2023. However, following a review of current river conditions in consultation with the community, it has now been determined that delaying the removal of the Old Town Weir to winter 2024 is a lower risk option.

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The NSW Government remains committed to removing the remaining sections of the weir when conditions allow for it to be safely completed and environmental risks, such as potential fish deaths, can be reduced. The removal of the weir builds on the work previously undertaken to remove parts of the weir in 2020, which independent experts have confirmed significantly improved fish passage and boat safety. The Government will continue to engage with the community as the project progresses.

Programs to benefit native fish, such as improving fish passage and habitat restoration to provide conditions conducive to fish breeding and population growth, are ongoing. These works are vital and provide an environment where fish populations can bounce back from low oxygen events.

Where else can I find information?

Information about the monitoring, management and maintenance of water quality, including detailed community updates from the Department of Planning and Environment, is available online: www.industry.nsw.gov.au/water/allocations-availability/droughts-floods/drought-update/managing-drought-recovery/blackwater

www.water.dpie.nsw.gov.au/menindee/community-updates-and-frequently-asked-questions

Observations of changes to water, including struggling fish or deaths can be reported directly to DPI Fisheries on 1800 043 536.

For more information about fish kills, as well as recent reports of observations and causes, visit: www.dpi.nsw.gov.au/fishing/habitat/threats/fish-kills

These types of events can be distressing to members of the community, and anyone who requires health, welfare or other support can contact local community support services. A comprehensive list of services can be located online: www.service.nsw.gov.au/transaction/customer-support-service-infoxchange-service-seeker