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Submission to Review of the *Water Sharing Plan for the NSW Murray and Lower Darling Regulated Rivers Water Sources 2016*

Lifeblood Alliance consists of 17 environmental, First Nation and community groups committed to keeping the rivers, wetlands and aquifers of the Murray-Darling Basin healthy for the benefit of current and future generations.

We would like to provide comments on the *Water Sharing Plan for the Murray-Lower Darling Regulated Water Source 2016* (the Plan) and current management arrangements for Menindee Lakes.

Need to Secure Low Flows

The Darling-Baaka River was a naturally permanently flowing river, reducing to low flows in drought but it still maintained a connected mainstream and connection to the Murray River. It was only after European settlement and increasing water extraction that it dried down to separated pools. The often-quoted evidence of rivers running dry in drought occurred post-irrigation developments as a result of increasing extraction. The early irrigators had a motto of 'running the rivers dry' and did in fact do so in times of low flow. This effect has been greatly increased in recent decades with greatly accelerated rates of extraction in upstream reaches.

Fish biologists have provided evidence that the Darling and Murray Rivers did not dry down to separated remnant pools in drought (Mallen-Cooper & Zampatti, 2018). Minimum flows kept the rivers connected at all times, otherwise the large native fish species like Murray Cod and Callop could not have survived. As Mallen-Cooper and Zampatti state, '*The mythology of the Murray River in Australia is that over 100 years ago, it naturally "dried to a series of pools" in drought; therefore, the biota are flexible and adapted to hydrological variability and lentic (*still*) habitats. Analysis of historical and modelled hydrology and hydrodynamics, however, demonstrates that: (a) cease-to-flow events were not natural and were instead caused by multiple small-scale irrigation diversions; and (b) the Murray River had widespread perennial lotic (*flowing*) habitats*.'

We consider that it is absolutely critical to secure minimum flows in the Darling-Baaka system, right through to the junction with the Murray River, to sustain permanent connectivity and adequate water quality to support critical native fish nurseries, as well as supporting human river communities and industries along the full length of the river system.

Critical Importance for Native Fish Populations

The Lower Darling river reach is significant for breeding and recruitment by iconic species such as Murray cod and golden perch, threatened species including silver perch and freshwater catfish, and a suite of small native fish species (MDB Native Fish Recovery Strategy, https://www.mdba.gov.au/basin/plants-and-wildlife/fish/priorities-fish). The Menindee Lakes have been recognised as a significant nursery habitat for native fish breeding that populates many other Basin rivers. It is critical that inflows to the Lakes are improved through better management of upstream extraction in the Northern Basin. Water levels in the Lakes must be maintained through adaptive management to support this important ecosystem service. https://finterest.au/native-fish-recovery-strategy/recovery-reaches/lower-darling-baaka-recovery-reach/

Fish Kills and Review Recommendations

Following the fish kills of 2019 and 2020, two independent scientific reviews identified lack of minimum river flows as a major contributing factor (Australian Academy of Science 2019, Vertessey *et al.* 2019). Both reviews found that the fish kills were caused by a combination of drought, low flows and rapid temperature changes which led to stratification, which then depleted oxygen in the restricted water bodies, at a time of increased fish numbers due to previous major fish breeding events which had been triggered by earlier floods.

The Vertessey panel noted that releases from the Lakes through 2017-18 were lower than the minimum advised under the Lower Darling Water Sharing Plan. The panel made 27 recommendations it considered vital to protect native fish populations in the Murray-Darling Basin. The first three are:

- protection of low flows in drier conditions and of the first flow after significant rainfall
- supporting connectivity for fish movement through flow management and removal of barriers, and
- improving the Menindee Lakes operating procedures.

The Academy of Science panel found that the root cause of the fish kills is that there is not enough water in the Darling system to avoid catastrophic decline of condition through dry periods. They found that failure to act resolutely and quickly on the fundamental cause—insufficient flows—threatens the viability of the Darling, the fish, and the communities that depend on it for their livelihoods and wellbeing, including the Traditional Owners, who have recognised rights and responsibilities.

The Academy of Science panel recommended that sufficient flows be secured urgently to prevent stratification and blue-green algal blooms. They also recommended a Menindee Lakes project, to determine sustainable management and operation of the lakes system and the Lower Darling and Darling Anabranch. They further recommended an independent scientific panel to review progress in implementing their recommendations.

These recommended actions need to be fast-tracked and incorporated into the Murray-Lower Darling Water Sharing Plan wherever applicable.

Connectivity

The Darling-Baaka River is significant as the connecting stream between the Northern and Southern Basin. It was originally the source of northern summer rainfall events that flowed through to the Murray Mouth, providing fish passage and freshes through the system, enhancing estuarine processes and floodplain function. It is critical that the Water Sharing Plan recognises this connectivity by improving flexibility in the management of the Menindee Lakes. The implementation of translucency rules could provide for more natural flow events into the Lower Darling across all climate scenarios.

First Nations Cultural Engagement

The Darling-Baaka River and Menindee Lakes are culturally significant for the Barkandji people and other First Nations groups. The provision of native title water rights and cultural flows is long overdue. It is essential that action be accelerated to address these issues, including provisions for improved water sharing arrangements and more effective engagement.

Murray-Darling Water-sharing Agreement and Management of Menindee Lakes

We strongly recommend that the Murray-Darling Water-sharing Agreement be reviewed urgently in relation to management of Darling-Baaka water and the Menindee Lakes. The sharing of management responsibility between MDBA and NSW needs to be reviewed, to determine whether the management sharing arrangements around the 640/480 GL rule are still appropriate.

This Agreement was established back in 1963 under very different conditions. The declining condition of the river system, the much greater scale of extraction and the impacts of climate change mean that the key issues around the Darling-Baaka system are very different and the Water-sharing Agreement needs to be upgraded to secure an ecologically sustainable water regime for the rivers.

This review should also include recent changes, particularly the decision to reduce the reserve volume in the lakes to 195 GL. This volume is totally insufficient to prevent further fish kills, or disperse algal blooms or blackwater events. The community is calling for a minimum of 400 GL as the minimum reserve required, as a more viable option for environmental, social and cultural outcomes. Floodplain harvesting must be halted much sooner during dry times, to leave sufficient minimum reserve to allow survival of ecosystems.

The current operating rules, in particular, prevent a more flexible approach for adaptive management to suit current conditions. An example occurred during 2023 when an important environmental fish-breeding flow was threatened by a standard operational release of water under rules established in the past for downstream salinity management but not actually needed in that instance, as downstream salinity was much lower than the maximum target. The release from Menindee Lakes was then abruptly halted under a different rule relating to expected inflows from upstream in the catchment. The release of too much water and then an abrupt halt to flows six days later could have totally negated the value of the environmental flow.

These types of operational rules need to be reviewed to consider if they are still appropriate, or necessary. Better coordination of flow management is needed to ensure that operating rules are coordinated to avoid negative environmental effects in future.

Increased flexibility in releases from Menindee Lakes to allow small overbank flows in between larger flood events, especially on the Lower Darling and Lower Murray floodplains, would provide a very significant environmental benefit and improved ecosystem health.

Protection of Held Environmental Water

All Held Environmental Water (HEW) entering NSW from Queensland and entering Menindee Lakes must be protected from extraction and allowed to flow into the Lower Darling and further downstream. The use of this water from Menindee Lakes should be prioritised to enhance connectivity for the Lower Darling, improve downstream water quality and provide fish passage at critical times. It can also be critical for management of potential algal blooms, low dissolved oxygen or blackwater events. Access to HEW for environmental benefit must not be restricted by operational rules under the current Murray-Darling Water-sharing Agreement.

Conclusion

Lifeblood Alliance welcomes this opportunity to highlight key issues for the Darling-Baaka system and trusts that recommendations from this review will be implemented in the revised Water Sharing Plan for the critical Lower Darling catchment. This is a very important opportunity to secure the minimum flows required to sustain crucial ecosystems which are currently under serious threat.

Lifeblood Alliance also supports the recommendations submitted by Inland Rivers Network and Healthy Rivers Lower Murray, two of our member organisations.

For more information, contact [redacted]

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Lifeblood Alliance Member Groups
Australian Conservation Foundation, NSW Nature Conservation Council, Conservation Council of South Australia, Environment Victoria, Queensland Conservation Council, Murray Lower Darling Rivers Indigenous Nations, Northern Basin Aboriginal Nations, River Lakes and Coorong Action Group, Inland Rivers Network, National Parks Association of NSW, Goulburn Valley Environment Group, Healthy Rivers Dubbo, Central West Environment Council and Healthy Rivers Lower Murray

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