**Submission No 19**

# IMPACTS OF THE WATER AMENDMENT (RESTORING OUR RIVERS) ACT 2023 ON NSW REGIONAL COMMUNITIES

**Organisation:** Healthy Rivers Lower Murray

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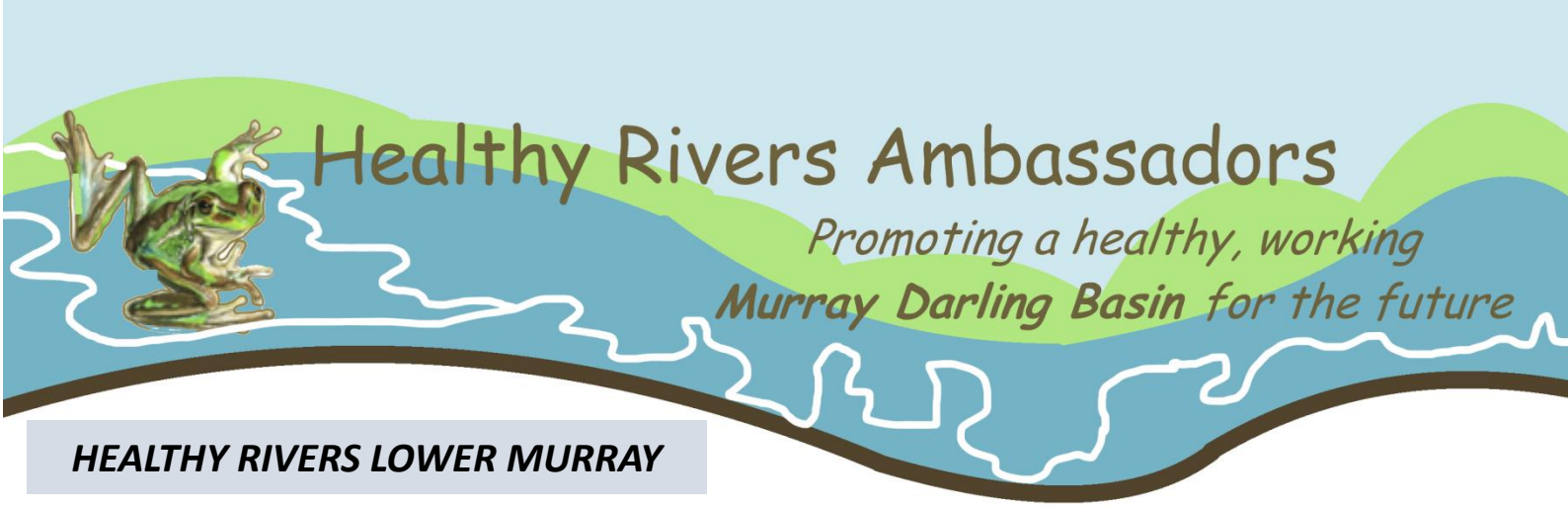


**HEALTHY RIVERS LOWER MURRAY**

Mr Roy Butler, MP
Chair
Investment, Industry and Regional Development Committee
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21 March 2025

Dear Mr Butler

**RE: Impacts of the Water Amendment (Restoring Our Rivers) Act 2023 on NSW regional communities**

Thank you for the opportunity to present a submission to this enquiry.

The Murray-Darling Basin Plan set out to reduce over-allocation of water beyond sustainable limits. It has not yet achieved even the compromised targets that were set, and the Restoring Our Rivers Bill is our best hope of achieving at least those minimum targets within extended deadlines. We support the intent of the Restoring Our Rivers Bill and its accompanying programs, to get the Basin Plan back on track delivering essential outcomes to manage sustainably the finite water resources of the Basin.

As representatives of downstream communities, we are very concerned about ongoing misinformation from upstream groups, including claims that water flowing to downstream communities is misused and wasted, and that water would be used more productively if diverted to upstream irrigators. It is essential for the well-being of all Basin communities that all users manage limited water resources sustainably and share them equitably.

We stress the importance of ensuring sufficient flows through all Basin river valleys, to keep the rivers flowing from source to sea, to deliver water to downstream communities, to maintain water quality, to export pollutants and to support river and floodplain ecosystems. Everyone who depends on Basin water resources should be supported into the future, not just those lucky enough to be located in upstream regions.

We offer the following comments in response to your Terms of Reference, and conclude with issues of concern to downstream communities.

## Impact of Reintroducing Buybacks

Voluntary and fully compensated buybacks are much less costly than infrastructure upgrades to obtain a target volume of environmental water (Grafton & Wheeler 2018, Wheeler *et al.* 2018). Buybacks are a relatively efficient means of increasing environmental water flows and are much cheaper than upgrades. Purchase of water through buy-backs costs half as much as water recovered through engineering works (Wittwer & Dixon 2013, Wheeler *et al.* 2020a) Payments to willing sellers tend to stay in their local communities, and the majority of sellers retain a portion of their water licence and continue to live in the region.

The Basin Plan is not the primary driver in social and economic decline of Basin communities, there are multiple other drivers (Wittwer 2020, Schirmer & Mylek 2020, Wheeler *et al.* 2020b). Buybacks have wrongly blamed for

causing adversity in the Basin which has actually been due to water trading and other factors including remoteness, population size, economic diversity and high dependence on agriculture of any type.

Buy-backs from willing sellers have been shown repeatedly to be the fairest, most efficient and effective way to recover water, compared to expensive infrastructure upgrades and on-farm savings. Public spending on health, education and other services in the Basin could create 3-4 times as many jobs in the Basin as spending on infrastructure upgrades (Wittwer & Dixon 2013, Wittwer 2020). Critically, buy-backs must be supported by funding to support social services in affected communities, and the Restore our Rivers package includes $300 million to do just that in the Sustainable Communities Program. This is a very positive feature of the legislation.

## Risks to achieving legislative outcomes, such as reducing unlicensed take of water

It is critical that unlicensed take is brought under control before predicted significant reductions in water availability due to climate change become reality. The Basin Plan aimed to install or upgrade effective water measurement and monitoring but this is yet to be achieved in every sub-catchment. Concerns about water theft have led to the establishment of the NSW NRAR and the MDB Inspector-General, and these initiatives need to be maintained and strengthened to ensure the declining water resources are shared fairly and sustainably, and that conditions on licences continue to be enforced. As water allocations reduce under climate change, all extractions must comply with the specified volume, especially in times of restricted availability. The capacity to enforce allocation rules must be maintained at an effective level into the future.

Water sharing plans for sub-catchments must include a requirement for end-of-system flows to the next downstream community. There must also be sufficient flow provided to maintain water quality within the WSP area. Environmental water is too small a volume to fix water quality issues, and environmental water is needed for other priorities to achieve ecological outcomes. In recent years there have been very serious consequences of over-extraction from MDB rivers, with massive fish kills, blue-green algal blooms and salinisation of floodplains (Dula *et al.* 2024). The solution is ensuring provision of minimum flows to prevent stratification and de-oxygenation. Water Sharing Plans must maintain minimum flows to prevent algal blooms, re-oxygenate water or disperse blackwater events.

Looking ahead, it is predicted that there will be even less water available due to changed climate patterns, so it is critical to get over-allocation under control. Seasonal rainfall patterns are changing with less rainfall from April to October in south-eastern Australia. Climate models by the CSIRO predict a 20% to 40% reduction in average annual runoff in the Murray-Darling Basin by mid-century. The models also suggest droughts could occur twice as frequently. These predictions are based on limiting global average warming to 2°C, but current warming trends indicate that warming could reach 2.5 to 3.5°C by the end of the century (MDBA 2024, BOM 2024).

## Impact of environmental water rules and rules-based changes in NSW

River ecosystems are continuing to decline under present conditions, now exacerbated by ongoing drought on floodplains in the lower reaches. Adherence to environmental water rules and rules-based changes are essential to maintain even minimum flows, and to protect environmental flows from extraction.

If the rivers of the Basin continue to decline, as they will do without further water recovery and compliance with rules and licence conditions, this will undermine the base on which community economies are built. Recreation, tourism and amenity will go first, but then water quality will decline without sufficient flows, leading to algal blooms, fish kills and accumulation of nutrients, litter and salt on floodplains. When the river finally floods, the first flush will be too toxic to use and will need to be flushed right out of the system into the ocean.

Water recovery is needed to minimise these negative impacts and to support Basin communities and river health in the long term. Water recovery benefits all communities, and should not be slowed any more than it already has been. What is needed urgently is much more economic and social support for communities adjusting to a future with less water. The best way to do this is through buybacks accompanied by increased social support services (Wittwer, 2020). There is strong evidence that buy-backs accompanied by investment in social support are the

most effective means of water recovery with best outcomes for local communities (Bjornlund *et al.* Murray-Darling Declaration 2018). The Sustainable Communities Program under the Revive our Rivers Bill does this.

We are also very concerned about the impacts of recent licences issued for floodplain harvesting in New South Wales, which will result in significantly increased take from upstream reaches, particularly in low flows. The provision for licence holders to take up to 500% of their entitlement in one year means that minor floods and flushes could be entirely removed from river systems, leaving their floodplains in drought and key flow pulses missing which are needed to maintain water quality and landscapes.

All unlicensed take should be measured and monitored to ensure that extractions remain within ecologically sustainable levels of take and under the 1994 Cap. The case for maintaining minimum flows through connected river systems is made very clearly for the Northern Basin with extensive scientific support in the Connectivity Expert Panel Report (Dula *et al.* 2024).

## Options to improve government programs aimed at offsetting the impacts of buybacks

As noted above, the Revive our Rivers legislative package includes additional funding for the Sustainable Communities Program, which is designed to support social adjustment in affected communities. Communities should be encouraged to apply for this funding to support re-training, diversification and community services in the process of diversifying regional income sources.

It has been shown in reputable studies and refereed papers that such support can provide positive benefits and counteract the multiple drivers causing economic decline in regions. Investment in Basin communities is fundamental, including funding for wellbeing monitoring, human health, cultural values, liveability, household distress and mental health issues (Wittwer 2020, Schirmer & Mylek 2020). What is desperately needed are better regional health services, police, schools and digital infrastructure. Increases in public funding of human services within Basin regions will create many more regional jobs than upgrades.

During the initial stages of the Basin Plan, insufficient assistance was provided to communities during the process of developing and implementing the Plan to facilitate the difficult process of adjustment to change. The result has been massive concerted push-back from irrigation communities, including reports claiming significant economic and social damage has been caused by the Plan. Copies of the Plan were burnt in Griffith at the height of the community anger amid claims that the Plan would put the irrigation community out of business. This view has become entrenched in the irrigation communities but the opposite has been true, with regional productivity being maintained throughout the initial 12 year operation of the Basin Plan (Aither 2022). Ironically, Griffith was named in 2020 as the most vibrant community in regional New South Wales.

In addition to buybacks, there needs to be a stronger focus on the public benefits of constraints management to complement buybacks. Infrastructure projects such as lifting bridges and road crossings will benefit the community during times of natural flood. Likewise, the acquisition of flood easements will allow for delivery of ecologically important small overbank flows that provide nutrient sources, recharge groundwater systems and deposit alluvial soils thus increasing productivity for environmental outcomes and river communities, with both private and public benefits. These are short-term minor watering events, with minimal disruption to landholders. It has been widely and wrongly claimed that environmental watering will lead to extensive damaging flooding, but volumes of environment water are much too low to create any flooding. At best, environmental water can be used to supplement natural high flows to increase ecological benefits at specific locations by extending duration or increasing the area inundated.

Water allocation rules that manage water in each Basin state should be reviewed and adjusted in an attempt to better secure town water supplies, as a matter of critical priority. The Southern Connected Basin Environmental Watering Working group is achieving very significant results with coordinated spring pulses through as many as seven river valleys, with environmental water being applied to multiple wetlands along its flow path from upstream to the Coorong and Murray Mouth. Similar coordination should be developed for the Northern Basin as soon as possible.

## The Case for Minimum Flows for the Whole MDB

For the information of the Committee, we would also like to draw your attention to our downstream reality and our reasons for urging effective and urgent implementation of the Basin Plan and the packages supported by the Restore our Rivers Bill. It is urgent to speed up full water recovery while assisting regional communities to adjust to having less water in the future. Minimum flows to downstream reaches must be secured and delivered, particularly to the Lower Darling and the Lower Murray.

Water delivered to the Lower Murray is essential for the future well-being of the state of South Australia, as well as river communities and industries:

- 75% of South Australia's population is reliant on the Murray River for its domestic water supplies. In 'normal' years, about 40% of supply comes from the River but in drought years, up to 90% comes from the River. The desalination plant, our insurance policy, is already in full production (100 GL / annum) in this drought year of 2025. Water supplies for Adelaide and multiple regional towns are reliant on the barrages keeping seawater out of the River and maintaining freshwater at all the pipeline offtake points.
- The South Australian share represents <10% of water taken from the Murray-Darling Basin, and SA has kept within its minimum entitlement of 1850 GL ever since 1968, while upstream states have greatly increased their take. New South Wales takes the largest share, at 43%, with Victoria taking 37%.
- Evaporation losses from the Lower Lakes come from within South Australia's minimum entitlement and that water is also used to provide transport and flow throughout the 680 km of mainstream channel in South Australia, delivering water to 16 towns and 50,000 ha of irrigated agriculture, before it reaches the barrages.
- Lower Lakes communities were unable to use their water sources for stock and domestic uses for five months in 2024 due to an ongoing bloom of a tropical algae, previously unknown to this area, which persisted much longer than expected due to low inflows and high nutrient loads.

Rivers die from the mouth up. It is happening in major river systems worldwide, such as the Colorado River in the US and the Mekong River in South East Asia. Maintaining minimum flows to the Lower Murray reach is critical to providing water of sufficient quality for the survival of dependent communities and industries.

The consequences of over-allocation combined with the Millenium Drought were devastating for the end of the Murray-Darling system. River Murray flows reached historically low levels, Lakes Alexandrina and Albert were no longer connected and previously submerged aquatic habitat was colonised by terrestrial species. Sulphate soils became toxically acid and aquatic species in the estuarine habitats were unable to complete their life cycles. The Millenium Drought is still having a very long-lasting impact in the Lower Murray Valley and some species have still not recovered from that event. Tens of thousands of mature trees died on floodplains and turtle and mussel populations in the Lower Lakes were decimated.

During recent years of heavy rainfall in the upstream catchments, flows to the downstream reaches were restricted and did not overflow onto floodplains in the first two years of high flows. When the river finally flooded the Lower Murray Valley in the third wet year, the peak was too short and rose and fell too quickly to provide any lasting benefits to Lower Murray ecosystems. Post-flood, positive growth in vegetation occurred for about three months before plants began again to show signs of stress, floodplains dried out and salt started evaporating from floodplain surfaces through capillary action from highly saline groundwater. Research by the Goyder Institute found that the immediate environmental response in the Katarapko and Pike floodplain areas included reduced shallow groundwater salinities, with some saline groundwater discharging from the floodplains into the river at specific locations. Dissolved oxygen levels did not reduce to critical levels and any low oxygen events that did occur came into South Australia from further upstream (Goyder Institute 2024).

During extended dry periods and low flows, the only water passing the barrages to reach the Coorong and keep critical habitats and species alive is environmental water. The greater volume of the environmental water reaching the Lower Murray Valley and Lakes Alexandrina and Albert has already benefitted all upstream users

along its passage from upstream reaches. Water is reused as it flows for hundreds of kilometres down the rivers to sustain a healthy system across the entire Basin.

Long periods of low flows led to extended toxic algal blooms affecting Lake Alexandrina and the Goolwa Channel lasting from March to July 2024. This event triggered a human Health Alert warning not to ingest and to avoid contact with this water. This water was also unusable for stock and irrigation and caused significant economic losses due to curtailed recreational water activities, coinciding with a usually busy tourist period for the area through school holidays, Easter and Anzac Day.

Ongoing lack of river flows since the flood means that expensive dredging must continue at the Murray Mouth because there is not sufficient outward flow to counteract coastal sand being driven in by tides and storms (Prof N Harvey pers comm. 2025). With sea level rise this problem will increase.

We are aware of ongoing misinformation in upstream communities that removal of the barrages at the Murray Mouth would return the Lower Lakes and estuary to a 'natural' condition and release additional water that could be transferred to upstream irrigators. There is extensive information to refute this view, and highlighting the very serious consequences to downstream communities if the barrages were removed. The Lower Lake Independent Science Review by CSIRO for the MDBA (Chiew *et al.* 2020) found that the Lower Lakes are largely fresh prior to European settlement. This finding was based on palaeoecological evidence, water balance estimates, hydrological and hydrodynamic modelling, traditional knowledge of the Ngarrindjeri People and anecdotal evidence of early explorers and colonists.

The pre-development long term average annual inflow from the Murray River was more than 13,000 GL. Upstream development has reduced the river inflow by about half, resulting in more frequent incursion of seawater into the Lower Lakes. The Estuary could only be returned to a 'natural' condition if all upstream storages were removed to restore natural river flows, before removing the barrages. If the barrages were removed but all upstream storages remained in place, the Lower Lakes would rapidly become entirely marine, killing all freshwater species. There are modelled estimates that saline water would reach the Adelaide pipeline offtakes within a few weeks.

Without the barrages, water supplies to towns, irrigators and farmers around the Lower Lakes cannot be maintained. Without the barrages, water supplies to 75% of South Australia's population, agriculture and industries cannot be maintained. Without the barrages, the freshwater values in the Lower Lakes cannot be maintained. This would significantly change the ecological character of the Ramsar listed site, which is a wetland of international importance that Australia has an international obligation to maintain. This would also impact traditional owner values and other socio-economic values such as tourism that are reliant on a healthy Coorong, Lower Lakes and Murray Mouth system.

Removing the barrages would not result in any water savings, as the evaporated volume is included in the minimum entitlement for South Australia. This volume of water is required to transport and deliver water to all communities and licensed irrigators along the 680 km valley and around the Lower Lakes, and to supply critical water supplies to Adelaide and most regional areas in South Australia, which only has limited water storage capacity due to lack of suitable dam sites. These flows are also essential to export accumulated salt, nutrients, algae and organic matter out of the Basin.

With climate change, management of the Lower Lakes, Coorong and Murray Mouth will become more challenging. Sea level rise would cause more seawater to flow into the Lower Lakes while catchment runoff in the southern Murray-Darling Basin is projected to decline under a changing climate. A key concern is likely step changes as critical thresholds are breached, with sudden shifts in ecological condition and processes which may be irreversible (IPCC 2023). There are significant gaps in knowledge of the biophysical impact under a changing climate.There is a need to develop adaptation options to manage the social, environmental and economic vulnerabilities, not just for the Lower Murray Valley, but for the whole Murray Darling Basin system.

## Concluding Statement

In conclusion, we support the measures in the Restore our Rivers Bill and urge your committee to promote the benefits of the social adjustment package, as well as the credible evidence that all communities will be better off with functioning river systems and compliant management of water take along the full length of the river valleys. Everyone in the Basin has to adjust to declining water availability and the need to keep Basin ecosystems healthy enough to support us all.

The Lower Murray is currently in severe drought, while the headwaters of the Basin are being deluged with record-breaking rains. Going forward, it will be necessary for all water users in the Basin to adjust and to find ways to survive and thrive using less water.

The Basin Plan requires less water to be extracted so that all communities in the Basin can survive. If the trajectory of ecological collapse is not challenged, the rivers will collapse, and with them all life and economy of the Basin. That is the reason John Howard began the water reform process, because losing the rivers of the Basin was not an acceptable outcome.

We know what the Basin Plan is supposed to do, to reduce over-allocation and to sustain healthy rivers in order to support dependent human communities and industries. It is time now to accelerate action to achieve these overdue outcomes.

We are happy to supply more information.


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| Dr Anne Jensen<br>Healthy Rivers Ambassador (2016)<br>River Fellow (2017)<br>[redacted] | Bob Newman<br>River Fellow (2018)<br>Healthy Rivers Ambassador<br>[redacted] | Kate McBride<br>River Fellow (2017)<br>Healthy Rivers Ambassador<br>[redacted] | Charlotte Nitschke<br>River Campaigner<br>[redacted] | Janette Brooks<br>Secretary, River Lakes and Coorong Action Group<br>[redacted] |


***For Healthy Rivers Lower Murray***

*Healthy Rivers Lower Murray is a group of Healthy Rivers Ambassadors and River Fellows who live along the Lower Murray Valley from the Darling Junction to the Murray Mouth, in western NSW, north-west Victoria and in South Australia. They also live in communities outside the Basin which depend on Murray River water, including Adelaide. Members of the group have been active since 2016.*

## References


Aither Consulting (2022). *Murray-Darling Basin Social and Economic Conditions Report*. For the Murray-Darling Basin Authority, Canberra.

BOM (2024). State of the Climate 2024. http://www.bom.gov.au/state-of-the-climate/2024/

Chiew FHS, Hale J, Joehnk KD, Reid MA and Webster IT (2020). Independent review of Lower Lakes science informing water management. Report for the Murray-Darling Basin Authority, 79 pp. https://www.mdba.gov.au/water-management/infrastructure/lower-lakes-barrages/lower-lakes-independent-science-review

Dula, A, Duncan, P, Sheldon, F, Smith, C, Southwell, M & Townsend, P. (2024). *Connectivity Expert Panel Final Report.* For NSW Government Department of Climate Change, Energy, the Environment and Water.

Goyder Institute (2024). *Murray-Darling Basin 2022-23 flood environmental response in the Coorong*. Goyder Institute for Water Research, Adelaide. https://goyderinstitute.org/new-research-highlights-environmental-response-of-the-south-australian-lower-river-murray-to-the-third-largest-flood-on-record/

Grafton, R.Q. & Wheeler, S.A. (2018). 'Economics of water recovery in the Murray-Darling Basin, Australia'. *Annual Review of Resource Economics*, **10**, 487–510.

IPCC (2023). Climate Change Report 2023. https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_LongerReport.pdf

MDBA (2024). Basin Plan Review: Early Insights Paper. Murray–Darling Basin Authority Canberra. CC BY 4.0

Schirmer, J & Mylek, M (2020). Thriving, surviving, or declining communities: socioeconomic change in Murray-Darling Basin communities. For the Panel for the Independent Assessment of Social and Economic Conditions in the Murray-Darling Basin. University of Canberra, Canberra, Australia.

Wheeler, S.A., Xu, Y., Zuo, A., 2020b. Modelling the climate, water and socio-economic drivers of farmer exit in the Murray-Darling Basin. Clim. Change 158, 551–574. https://doi.org/10.1007/s10584-019-02601-8.

Wheeler, S.A., Connor, J., Grafton, Q.R., Crase, L., Quiggin, J., 2018. Submission to The Murray-Darling Basin's Royal Commission. Murray-Darling Basin Royal Commission, Adelaide, Australia.

Wheeler, S.A., Carmody, E., Grafton, R.Q., Kingsford, R.T., Zuo, A., 2020a. The rebound effect on water extraction from subsidising irrigation infrastructure in Australia. *Resour. Conserv. Recycl.* **159**, 104755. https://doi.org/10.1016/j. resconrec.2020.104755.

Wittwer, G. (2020). Modelling variants of the Murray-Darling Basin Plan in the context of adverse conditions in the Basin. Centre of Policy Studies, Victoria University, Melbourne, Australia.

Wittwer, G., Dixon, J., 2013. Effective use of public funding in the Murray-Darling Basin: a comparison of buybacks and infrastructure upgrades. Aust. J. Agric. Resour. Econ. 57, 399–421. https://doi.org/10.1111/1467-8489.12001.