

Submission from: The Upper Murrumbidgee Catchment Network

To the: Draft Murrumbidgee Regional Water Strategy

NSW Department of Planning and Environment - Water

## Upper Murrumbidgee Catchment Network

The Upper Murrumbidgee Catchment Network (UMCN) is a strong and diverse community-based network of individuals and agency/group representatives taking a coordinated approach to creating quality natural resource management (NRM) outcomes for the Upper Murrumbidgee catchment. The UMCN (and its predecessor organisation) has been operating for three decades, in recognition that NRM issues do not stop at State or Council boundaries. The UMCN values knowledge sharing, networking, collaboration and inclusion, and is the regional leader in facilitating communication between the community, NGOs and government agencies.

Our membership comprises community groups (including Landcare, catchment groups and other NGOs), government (local and state), individuals (or households) and corporations. During the 2021-2022 financial year there were 11 community groups, four government, seven individual, and three corporate memberships.

## Issues in the Upper Murrumbidgee Region

The UMCN takes an integrated system-scale approach to the Upper Murrumbidgee catchment. This includes considering the complex interactions between activities on the land and water quantity/quality, surface water and groundwater, and the range of different uses for economic, social, environmental and cultural purposes. We are pleased to see that the regional water strategies are similarly taking a broad and integrated systems-based approach.

One of our fundamental concerns is that to date, despite the Upper Murrumbidgee River having been substantially modified, it has remained relatively untouched by the water reforms in NSW and the broader Murray-Darling Basin. When the river ceased to flow for the first time in its recorded history during the summer of 2019/20, this was a major red flag for communities all along the river. Many of our members are keen to understand why this occurred, why the Tantangara Dam releases haven't been effective during dry periods, and are grappling with the extremely complex administrative arrangements across multiple jurisdictions.

Based on discussions at our 18 May 2022 General meeting and a survey of our membership, the UMCN proposes to highlight three main issues in water management in the Upper Murrumbidgee region:

- 1) Coordination of cross-jurisdictional water management,
- 2) Management of water in drought, fire and under climate change, and
- 3) Environmental releases from Upper Murrumbidgee storages.

## 1) Coordination of cross-jurisdictional water management

The UMCN plays an important role in facilitating conversations between organisations involved in water and natural resource management issues in the region. However, it is extremely difficult to incorporate and properly understand all the relevant agencies involved in water management. Given the size of our nearby population and the unique ecology of our region, the water strategy needs to more adequately reflect these specific water management challenges and possible solutions.

We are in the process of developing an interactive map to assist our members with this, in consultation with the Murray-Darling Basin Authority. We believe that the NSW government has an important role to play too. This is particularly true at this time, given that the NSW Natural Resources Commission has commenced a review of the Murrumbidgee Unregulated Water Sharing Plan and the Snowy Water Licence is also subject to its first full review.

Currently, all these instruments and consultation arrangements appear to operate in isolation from one another. The Regional Water Strategy is an opportunity to consider a holistic picture and better integrate these arrangements for the more effective management of this important and highly modified river system.

## 2) Management of water in drought, fire and under climate change

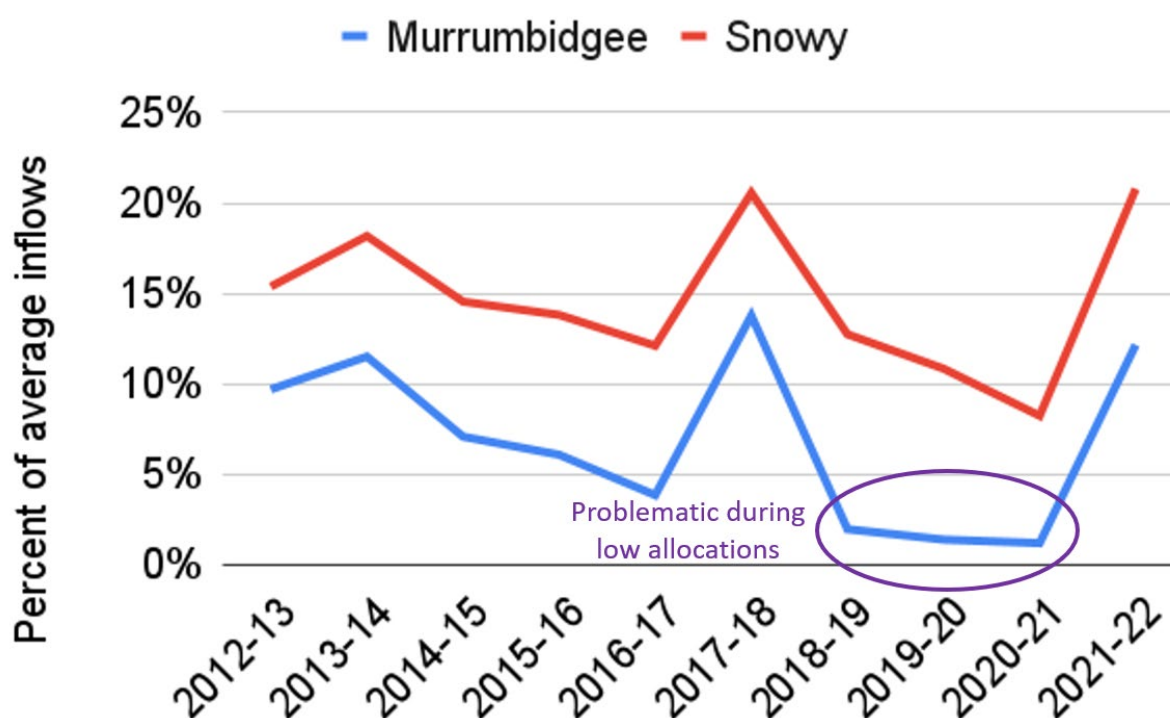
During the period 2017-2020, NSW experienced its most severe drought on record. Persistent low rainfall combined with high temperatures to create severe water shortages and unprecedented bushfires. Climate modelling indicates that these conditions are likely to be experienced more regularly into the future.

In the Murrumbidgee catchment, conditions were dry, however relatively less severe than in other parts of NSW. Allocations to regulated rivers in southern NSW were low, but high priority needs were still assured.

In the Upper Murrumbidgee however, flows ceased for the first time in recorded history during the summer of 2019/20. This led to widespread water quality problems, including blue-green algae outbreaks and disconnected pools exacerbated by high sedimentation within the river channel. The water supplies to Tharwa could no longer be provided from the river. Widespread bushfires and the associated runoff from heavy rainfall in 2020 further depleted the water quality.

The NSW *Water Management Act 2000* prioritises critical human and environmental water needs – these needs were clearly not met in the Upper Murrumbidgee River during the summer of 2019/20. Serious consideration needs to be given to a reset of these arrangements, in light of this drought and future conditions under climate change.

Allocations under the Snowy Water Licence for the Snowy Montane Releases need to be explored further, alongside a review of the Snowy Water Inquiry Outcomes Implementation Deed (SWIOID). As shown in Figure 1, the Upper Murrumbidgee River is much more vulnerable than the Snowy River to low allocations. During the period 2018/19 to 2020/21, only 1-2 percent of average inflows was being provided downstream of Tantangara Dam (compared to about 10 percent in the Snowy downstream of Jindabyne Dam). More sustainable baseflows should be provided from the Snowy Scheme to support the critical needs of the Upper Murrumbidgee River and its communities.



**Figure 1.** Percentage of annual inflows released from Snowy storages into the Upper Murrumbidgee and Snowy Rivers since 2012/13

### 3) Environmental releases from Upper Murrumbidgee storages

Despite the Snowy Water Initiative of the early 2000s, the Snowy Scheme today captures more than 90 percent of average inflows to Tantangara Dam, diverting this water inland and away from the Upper Murrumbidgee River. Natural inflows are estimated to average 260 gigalitres per year, but the total release over the last ten years has summed to only 179 gigalitres.

Figure 2 illustrates the substantial reduction of flows resulting from the construction of Tantangara Dam. While a small improvement to flows was observed from Snowy Montane Releases during the wetter period from 2011-2017, the most recent drought demonstrates that the river is still highly vulnerable to low allocations and these persistently low flows.

This has resulted in a range of impacts on the health of the Upper Murrumbidgee River, with their ongoing social, cultural and environmental costs:

- Ecosystem health rated in very poor condition, with the fish community rated as poor to extremely poor (Sustainable Rivers Audit 2008).
- Significant sand slugs have created barriers to connectivity and reducing habitat for a range of species, including fish and platypus.
- Periodic flushing flows are infrequent and totally ineffective in some reaches downstream of the dam, meaning that sediment and bacteria cannot be cleaned out.

Despite this, the river still retains areas of high ecological significance, with critical aquatic habitat for several nationally threatened species, including Macquarie Perch & Murray Cod. These issues are summarised in the infographic developed by the UMCN and shown at Figure 3.

A number of specific actions should be undertaken to fulfil the intent of the SWIOID and improve the effectiveness of environmental releases. These are summarised under Option 41 below.

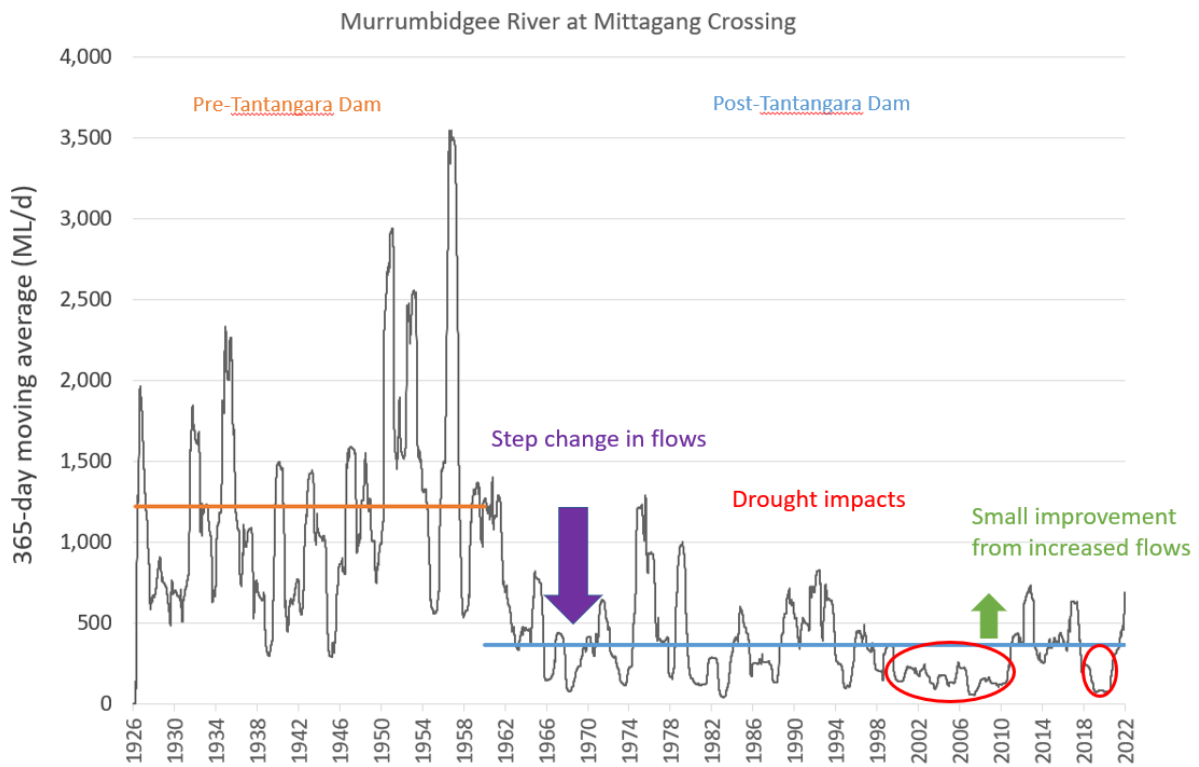


Figure 2. Flows in the Upper Murrumbidgee River at Mittagang Crossing

### UMCN Priorities from the Draft Strategy

From the 53 ‘Murrumbidgee long list of options’ in the draft Regional Water Strategy, the UMCN has identified a ‘short list’ of 18 options that we believe should be prioritised in the Upper Murrumbidgee region. We asked our members which were most important to them:

Options from The Draft Strategy	Importance Rating
1 7. Support long-term participation of local Aboriginal people in water-related matters.	★★★★☆
2 8. Incorporate Aboriginal history of water and culture in the southern Basin into water data.	★★☆☆☆
3 9. Review drought rules for the Murrumbidgee region.	★★★★☆
4 14. Investigate land use change and population growth impacts on water resources.	★★★★☆
5 15. Strengthen inter-jurisdictional water management.	★★★★☆
6 16. Develop climate risk evidence base to inform the next Snowy Water Licence Review.	★★★★☆
7 18. Review impediments to water recycling projects.	★★☆☆☆
8 23. Improve protection of groundwater dependent ecosystems.	★☆☆☆☆
9 25. Improve flows to important ecological sites.	★☆☆☆☆
10 26. Develop a river and catchment recovery program for the Murrumbidgee region.	★★★★☆
11 27. Investigate water quality improvement measures.	★★★★☆
12 28. Manage groundwater salinity.	★☆☆☆☆
13 30. Review environmental water arrangements.	★★★★★
14 31. Re-establish threatened fish species through habitat restoration and conservation restocking.	★★★★★
15 41. Change environmental releases from Murrumbidgee storages.	★★★★★
16 47. Develop targeted education and capacity building programs.	★★★★☆
17 48. Investigate water availability in the Murrumbidgee region.	★★☆☆☆
18 53. Consider hydrological processes in bushfire management.	★★☆☆☆

## UMCN Feedback

We present here a list of actions from our membership with reference to the above short list of priorities in the Upper Murrumbidgee region. We welcome the opportunity to continue this conversation with the NSW Government about ways to improve the social, environmental and cultural outcomes without compromising our region's economic opportunities.

### **Inadequate water management framework to meet the needs and aspirations of Aboriginal people.** (Options 7 & 8)

- Involve Aboriginal participation in water planning and co-design to incorporate cultural insights into water management.
- Establish NSW-ACT Community Advisory Panel for the upper Murrumbidgee which includes standing Indigenous representatives.
- Increase Aboriginal engagement to understand cultural values and learn how a healthier flow regime can support cultural values and create positive outcomes for Aboriginal people.
- Provide support to facilitate Aboriginal participation and engagement.

### **Current water sharing arrangements based on 120 years of data.** (Option 9)

- Review drought rules for the Upper Murrumbidgee for critical human water needs, water quality, and threatened species.
- Focus on lessons learned from 2019 (cease to flow) and base water management on the latest climate modelling.

### **Insufficiently integrated land and water planning and management.** (Options 14, 15 & 16)

- Strictly manage and monitor development to avoid pressure on groundwater, surface water and riparian zones.
- Provide resources to create better partnerships between DPE Water and DPE Environment, then expanded to ACT Government.
- Establish an Upper Murrumbidgee interjurisdictional government working group with Indigenous representatives.
- Re-consider the economics of water provision/diversion in terms of demand management, in line with the National Water Reform Framework and Agreements and their underlying principles of efficiency and equality of water use. Full cost pricing of water diversions can generate environment levies with revenue to be directed to environmental works.
- Engage community for consumers and producers to understand the full value of water, including environmental and cultural values.
- Provide the river and catchment recovery programs with adequate funding and resources. It should be informed by and integrated with the work of existing programs (e.g. UMDR, Landcare, ACT Government, Rivers of Carbon).

### **Vulnerability of town water supplies and amenity.** (Options 18 & 23)

- Invest in sustainable, self-sufficient water systems in new developments, e.g. larger lots, recycling, composting toilets. The riparian eco-system should not be placed under additional pressure.
- Prioritise water supply to towns, with the understanding that water quality, i.e. the presence of blue green algae, bacteria and suspended solids, is as important a consideration as water quantity, when considering impacts on amenity and supply.

- Review release volumes from Tantangara Dam to better prioritise base flows for critical human and environmental needs.

**Degradation of riverine and floodplain ecosystems.** (Options 25, 26, 27, 28, 30 & 31)

- Identify upstream causes of turbidity following high rainfall events and create plans for remediation in runoff areas.
- Establish an Upper Murrumbidgee River and Catchment Recovery program with adequate funding. This needs cross-jurisdictional governance (in line with option 16).
- Establish an audit of ecological, cultural and social values and assets for the Upper Murrumbidgee- significant knowledge gaps need to be filled to inform strategies.
- Include contingencies to manage ecological assets in drought and from major disturbance events such as bushfire. Protection of ecological refuges will be key in these times.
- Protect the health of the Upper Murrumbidgee to protect water quality and support cultural values, amenity and suitability of water to be used for water supply.
- Provide strategic and sustained financial support for programs which support private landholders on whose land works will take place e.g. land degradation in riparian zones and small tributaries.
- Invest in education programs to manage riverbank grazing to improve river ecosystem function.

**Limitations of existing water infrastructure, delivery and operations.** (Option 41)

- Protect releases out of Tantangara Dam from extraction under the Murrumbidgee unregulated river water sharing plan.
- Allow for water allocations to be carried over in the Snowy Scheme between water years.
- Review the way allocations are made to the Snowy montane rivers, which can involve difficult trade-offs between rivers.
- Increase flexibility of environmental flow management in the upper Murrumbidgee River. Currently flows are planned one year in advance, which means that releases cannot be adjusted to coincide with and/or complement natural events.
- Ensure that environmental flow allocations do not contribute to passing baseflows released from Tantangara Dam, so that critical human and basic riverine needs are met first.
- Increase the outlet capacity of Tantangara Dam to allow scouring flows above the current maximum of 1,500 ML/day.
- Increase environmental allocations from Tantangara Dam to the Upper Murrumbidgee.

**Limits to water availability in times of a changing climate.** (Options 47, 48 & 53)

- Use the latest information to plan for extreme events.
- Learn from the recent black summer about the importance of refuge pools for town firefighting protection.
- Investigate water availability in a changing climate with predicted increased demand due to population growth.
- Calculate a sustainable diversion limit for the Upper Murrumbidgee.
- Manage flows to maintain ecological refuges in a changing climate - lack of refuges can wipe out fish in one event.
- Considering hydrological processes under the combined effects of fire and drought. Both can contribute to faster runoff, less soil infiltration, rapid erosion, pollution and sedimentation.



# Towards a Healthy Upper Murrumbidgee River

## Issues Overview



- Communities are concerned about the impacts of water and land management on environmental, cultural and social values.
- Upper Murrumbidgee River aquatic ecosystems are in poor health due to impaired flow, historical land clearing, pesticides and development pressure.
- Improving outcomes in the region requires enhanced water releases from Tantangara Reservoir, water management rules that protect flows and complementary natural resource management activities.

Upper Murrumbidgee Catchment Network

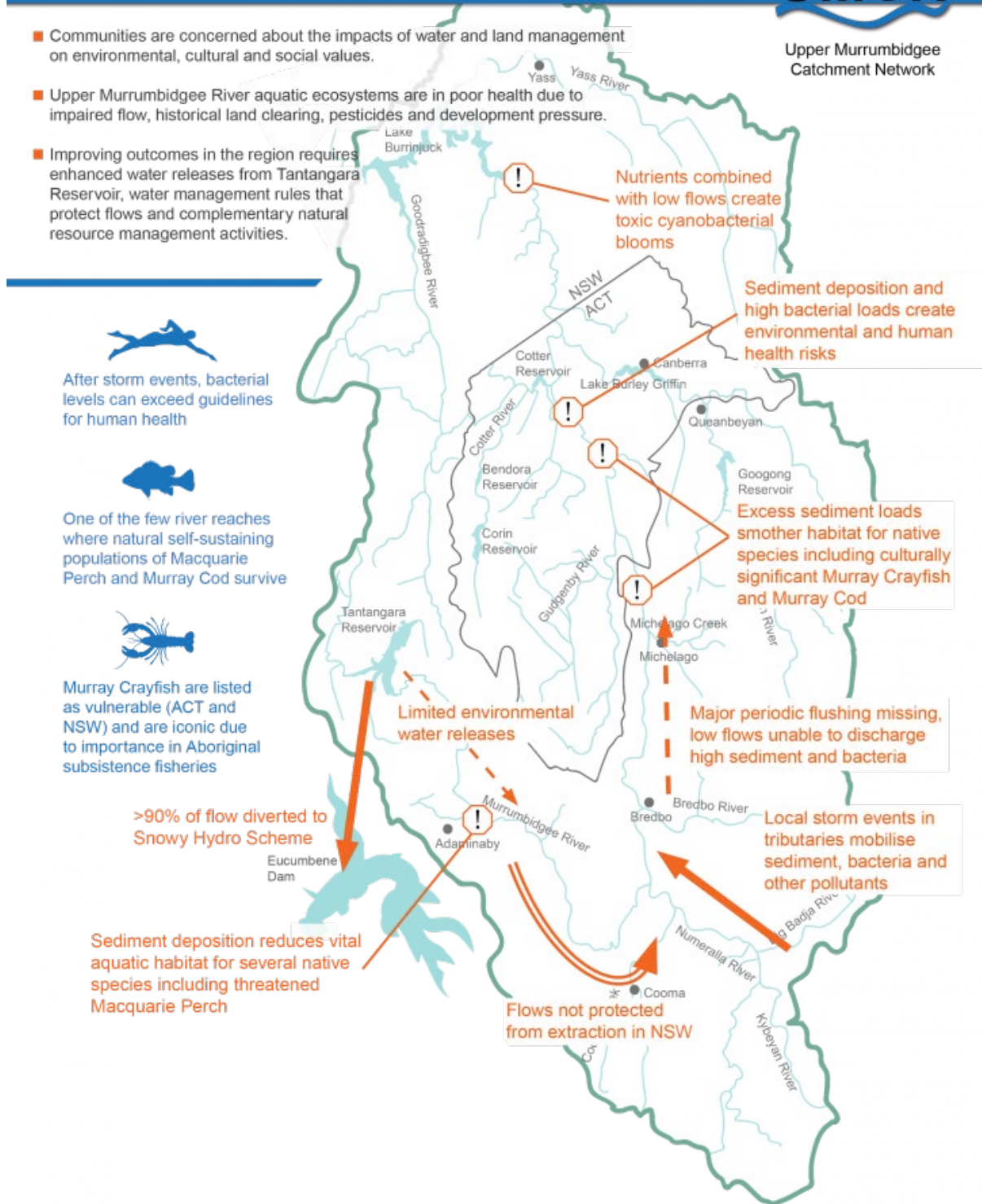


Figure 3. Overview of water issues in the Upper Murrumbidgee River