



I N L A N D  
R I V E R S  
N E T W O R K

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PO Box 528, PYRMONT NSW 2009  
ph 0428 817 282  
email [inlandriversnetwork@gmail.com](mailto:inlandriversnetwork@gmail.com)  
web [inlandriversnetwork.org](http://inlandriversnetwork.org)  
ABN 34 373 750 383

Department of Industry – Water  
GPO Box 5477  
Sydney NSW 2001

[murrumbidgee.gw.wrp@dpi.nsw.gov.au](mailto:murrumbidgee.gw.wrp@dpi.nsw.gov.au)

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## **Comments on Draft Murrumbidgee Alluvium Water Resource Plan**

The Inland Rivers Network (“IRN”) is a coalition of environment groups and individuals that has been advocating for healthy rivers, wetlands and groundwater in the Murray-Darling Basin since 1991.

IRN welcomes the opportunity to provide comments on the Draft Murrumbidgee Alluvium Water Resource Plan (draft WRP).

### **Background**

IRN submitted substantial comments to the Status and Issues Paper on the Murrumbidgee Alluvium released in 2017.

One of the key concerns we outlined was the permanent drawdown of the Lower Murrumbidgee Alluvium over the 10 years of extraction under the current water sharing plan rules.

A permanent drop of over 3 metres in the highest extraction area of the Lower Murrumbidgee is a significant issue that has not been addressed in the development of the WRP. This permanent loss of water in the aquifer is a reduction of planned environmental water that has not been addressed.

The decision that ‘*groundwater levels can stabilise at a lower level under a new pumping equilibrium*’<sup>1</sup> has not been explained in the draft WRP.

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<sup>1</sup> DPI Water April 2017 Murrumbidgee Alluvium Water Resource Plan *Status and Issues Paper* p 17

The draft WRP is based primarily on the attempt to match water sharing plan rules with the requirements of the Basin Plan without recognising that groundwater levels in some places have already permanently declined from the pre-development levels.

The draft WRP states that ‘*The long-term average annual extraction limits specified in the Water Sharing Plan for the Murrumbidgee Alluvial Groundwater Sources 2019 represents a fraction of this water in these groundwater sources*’.<sup>2</sup> However, this does not explain why there has been a permanent drawdown of the water levels in the Lower Murrumbidgee Alluvium caused by over-extraction.

The fact that the Sustainable Diversion Limit (SDL) in the Basin Plan for the Murrumbidgee Alluvium is equal to the Long-term Annual Average Extraction Limit (LTAAEL) in the water sharing plan requires a strong set of management rules to prevent further permanent drawdown of the groundwater sources and loss of planned environmental water.

### **Groundwater Dependent Ecosystems (GDEs)**

The Murrumbidgee Alluvium underlays a significant area of very high value GDEs including Ramsar wetlands listed on the Directory of Important Wetlands of Australia, endangered ecological communities (EECs), threatened species, vegetation, and base flow ecosystems.

We do not support the direction being taken with proposed rule changes in the water sharing plan. These will not protect the level of groundwater in the aquifer system identified as environmental water or prevent drawdown near high priority GDEs.

### **Connectivity**

Varying degrees of connectivity throughout the Murrumbidgee Alluvium are identified in the WRP at Section 2.2 *Regard to other water sources*.

The Lower Murrumbidgee Shallow Alluvium, the Lower Murrumbidgee Deep Alluvium and the Mid Murrumbidgee Alluvium are hydraulically connected.<sup>3</sup>

The Status and Issues paper identified that recharge to the Lower Murrumbidgee Shallow Alluvium and the Mid Murrumbidgee Alluvium is through leakage from the river and its various tributaries and anabranches. The Lower Murrumbidgee Deep Alluvium is recharged through leakage from the shallow alluvium.<sup>4</sup> This demonstrates a high level of connectivity between surface water and groundwater in the system.

Therefore the management of groundwater extraction is critical for the health of all Murrumbidgee water sources and their associated GDEs.

### **Risk Assessment**

We note that there is a high risk of groundwater use causing local drawdown and impacting on GDEs in the Mid Murrumbidgee Zone 3 Alluvial and the Lower Murrumbidgee Shallow.

There is also a high risk to instream ecological values in the Gundagai Alluvial – Jugiong Management zone, Mid Murrumbidgee Zone 3 Alluvial and the Lower Murrumbidgee Shallow.

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<sup>2</sup> Murrumbidgee Alluvium Water Resource Plan p 33

<sup>3</sup> Ibid p 22

<sup>4</sup> Murrumbidgee Alluvium Status and Issues Paper p 11

Also of note is the high risk of basic landholder rights reducing groundwater availability in the Gundagai Alluvial, Wagga Wagga Alluvial and Mid Murrumbidgee Zone 3 Alluvial.<sup>5</sup>

IRN considers that the proposed rules in the water sharing plan will not reduce these high risks. In fact, some proposed rule changes will increase the risk. Therefore, we do not support the rationale behind the tolerable high risk ranking because the strategies and additional critical mechanisms described in the risk assessment report will not manage the impacts of the rule changes.

IRN does not support the outcome of the assessment of the risk of climate change reducing recharge and groundwater availability impacting on GDEs and instream ecological values. The risk assessment claims there is a low risk at Section 6.5.

However, this is counter intuitive to the findings of Section 5.3 where the risk of climate change reducing recharge and groundwater availability is found to be high in the Lower Murrumbidgee Shallow, Lower Murrumbidgee Deep, Wagga Wagga Alluvial and Mid Murrumbidgee Zone 3 Alluvial.

The argument that this high risk is tolerable because of *'the intention of utilising some of the large storage volume component of the groundwater system during low recharge periods. This strategy addresses seasonal variation in recharge'*.<sup>6</sup>

This approach does not protect the water source from the high risk. It, in fact, increases the risk by increasing extraction levels when recharge is low. The high intensity extractive areas of the Lower Murrumbidgee Alluvium have already been permanently drawn down under existing rules.

The high risk to these alluvial systems from climate change are also a direct high risk to GDEs and instream ecology because of the level of hydraulic connectivity. GDEs and instream ecology are already at high risk from localised drawdown as outlined above. This can only be exacerbated by reduced recharge through longer and more severe droughts caused by climate change.

## **Water Quality**

The Murrumbidgee Alluvium Water Quality Management Plan (WQMP) notes that Mid Murrumbidgee Alluvium has areas with high salinity readings of over 1,500  $\mu\text{S}/\text{cm}$  while the Lower Murrumbidgee Alluvium has some areas of extremely high salinity in the order of 32,800  $\mu\text{S}/\text{cm}$ .

These high levels of salinity need to be better managed through limiting extraction at times when recharge levels are low, not by increasing extraction.

The risk assessment identifies a high risk of extraction in the Lower Murrumbidgee Deep inducing connection with poor quality aquifers. We would suggest this is also likely in some of the other groundwater sources.

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<sup>5</sup> Murrumbidgee Alluvium Water Resource Plan Table 3-1 Risk outcomes

<sup>6</sup> Murrumbidgee Alluvium Risk Assessment p vi

The proposed objectives in the WQMP will not be met if the proposed changes to water sharing plan rules are adopted.

### **Water Sharing Plan Objectives**

The broad environmental objective of the Murrumbidgee Alluvial Groundwater Sources water sharing plan is to protect the condition of the groundwater sources and their groundwater-dependent ecosystems over the term of the plan.

This includes the targeted objective to protect the extent and condition of high priority groundwater-dependent ecosystems that rely on the groundwater sources. Also to maintain salinity levels and protect the structural integrity of the aquifers.

The performance measures need to include the maintenance of the structural integrity.

A targeted objective to contribute to the maintenance of the structural integrity of the aquifer should also be included in the economic, social and cultural objectives.

### **Proposed Rule Changes**

#### 1. Variable rule

IRN objects to the proposed variable rule for the Murrumbidgee Alluvium as described in the draft water sharing plan Part 6 Cl 30 (3) and (4). This complex system of climate adjusted annual permitted take makes a mockery of the concept of LTAAEL and SDL.

This proposed rule change allows for a greater level of extraction during dry times that paves the way for further permanent drawdown in the Lower Murrumbidgee Alluvium and possibly the other alluvial systems in the WRP area.

The draft WRP claims that rules in the water sharing plan will manage high and medium risks in the Alluvium<sup>7</sup>. However, permanent drawdown of the water source is a direct reduction in planned environmental water.

This risk will not be managed through the implementation of the ‘variable’ rule in the Lower Murrumbidgee Deep Alluvium and the Mid Murrumbidgee Alluvium.

This proposed rule change has major implications on the availability of planned environmental water to support GDEs during dry times.

This proposed rule will not manage the risk of climate change. If there are an increasing number of dry years, the extraction of SDL plus increased take will become more the norm than the exception.

This rule relates entirely to irrigator behaviour between wet and dry years and has no role in managing risk or protecting planned environmental water in the Lower Murrumbidgee Deep and Mid Murrumbidgee Alluvium.

We note that the Water Quality Management Plan has an objective to limit seasonal drawdown in high risk areas.<sup>8</sup> The Lower Murrumbidgee Deep Alluvium is a high risk area and therefore should not be subject to the variable rule. We do not agree with the assessment

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<sup>7</sup> Murrumbidgee Alluvium Water Resource Plan Table 3-2 p 31

<sup>8</sup> Ibid Table 6-1 p 59

that the Mid Murrumbidgee Alluvium has a medium risk of poor water quality and consider that the variable rule will increase the risk of increased salinity levels for that water source.

The application of the variable rule in the Murrumbidgee Alluvium is likely to increase a range of identified high risks, as outlined above.

The accompanying fact sheet on the relationship between water resource plan and water sharing plan explains that for the Lower Deep and Mid Murrumbidgee Alluvium the sustainable diversion limit will be varied each water year, based on the deviation of actual annual rainfall in that water year from the average annual rainfall, measured at Coleambally and Wagga Wagga respectively.<sup>9</sup>

IRN strongly objects to this proposed climate-adjusted annual permitted take because in dry years extraction will generally exceed the sustainable diversion limit, and in wet years it will be less. The water is not needed in wet years but must be shared carefully in dry years.

The variation rule will not meet objectives to protect environmental water or the integrity of the aquifers.

The annual permitted take for the Lower Murrumbidgee shallow groundwater source and the Bungendore alluvial groundwater source will be equivalent to the SDL or LTAAEL.

IRN supports that this rule be maintained for the entire water source. The variable rule is insupportable.

## 2. Removal of protection of recharge

IRN does not support the proposed rule change for the protection of planned environmental water. The protection of recharge inflows to alluvial aquifers was a subject of great importance when the first water sharing plans were being developed.

The fact that the Lower Murrumbidgee Alluvium has been impacted by a permanent drop in water levels heightens the importance of protecting recharge. The actual volume of planned environmental water has already decreased in these groundwater systems.

The timing of the availability of planned environmental water is critical during dry periods and the protection of a percentage of recharge is an important factor in protecting the integrity and water levels in alluvial aquifer systems. It is also critical for supporting high priority GDEs.

## 3. Increase in time period for LTAAEL compliance

IRN does not support the proposal to increase the time period over which compliance to the LTAAEL is assessed, to provide consistency across water sources. It is proposed to increase the compliance period from three years to five years in the Lower Murrumbidgee Shallow and Deep. These water sources have a high level of risk across a number of criteria and need to be monitored for compliance to rules more regularly, not less.

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<sup>9</sup> Murrumbidgee Alluvium Water Resource Plan Fact Sheet. *Relationship between the water resource plan and water sharing plan* p 2

This proposal is particularly concerning in light of the proposed variable rule.

IRN considers that consistency of compliance to LTAAEL should be a three year rolling average across all water sources.

This will give much greater assurance that planned environmental water is protected.

We do not support the Department of Industry proposal that LTAAEL compliance be standardised to a five-year rolling average period in all Murray–Darling Basin water sharing plans.<sup>10</sup>

This should be standardised to a three-year rolling average period.

#### 4. Rules for supply works located near GDEs

IRN does not support the proposed rule change for basic rights bores to be within 100m of high priority GDEs. The identified high risk of basic rights bores causing a reduction in groundwater availability in some sections of the Mid Murrumbidgee Alluvium is of great concern.

The current rule is 200m or greater distance from GDEs for all bores. This must be retained if the high risk to GDEs is to be managed in the WRP.

### **Conclusion**

IRN does not consider that the draft Murrumbidgee Alluvium WRP will meet the requirements of the Basin Plan.

The proposed changes to water sharing plan rules will not protect planned environmental water, achieve management of risk, or improve water quality.

For more information please contact:

Bev Smiles  
President  
Inland Rivers Network  
0428 817 282  
[inlandriversnetwork@gmail.com](mailto:inlandriversnetwork@gmail.com)

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<sup>10</sup> Frequently Asked Questions Fact Sheet p 2