



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

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### **Comments on Draft Draft Macquarie-Castlereagh 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 Macquarie-Castlereagh Alluvium Water Resource Plan (draft WRP).

#### **Background**

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

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

A permanent drop of greater than 3 metres in some parts of the Lower Macquarie Alluvium and greater than 1.5m in the Upper Macquarie Alluvium 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 February 2017 Macquarie-Castlereagh Alluvium Water Resource Plan *Status and Issues Paper* p 18

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 have declined already from the pre-development levels.

The draft WRP states that ‘*The long-term average annual extraction limits specified in the WSP 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 aquifers caused by over-extraction.

The fact that the Sustainable Diversion Limit (SDL) in the Basin Plan for the Macquarie-Castlereagh 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 Macquarie-Castlereagh Alluvium underlays a significant area of very high value GDEs including wetlands, 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 Macquarie-Castlereagh Alluvium are identified in the draft WRP at Section 2.2 *Regard to other water sources*

Sections of the Upper Macquarie Alluvium are considered to be highly connected to unregulated tributaries of the Macquarie River and the Cudgegong Alluvium is highly connected to the regulated river. The Lower Macquarie Alluvium is losing-connected upstream from Narromine and considered to be a largely hydraulically disconnected through the rest of the system.

The permanent drawdown of groundwater levels in the Macquarie-Castlereagh Alluvium is a critical issue in regard to protection of environmental water and health of GDEs. Improved management of groundwater extraction is needed to prevent further decline.

### **Risk Assessment**

We note there is a significant number of high risks identified in the Macquarie-Castlereagh Alluvium. These include high risk to the integrity of the aquifer system in the Lower and Upper Alluvium, high risk of groundwater extraction inducing connection with poor water quality, high risk of localised drawdown in bores, high risk of climate change reducing recharge in the Bell and Cudgegong Alluvium, high risk of basic landholder rights reducing groundwater availability in most systems, high risk of local water utilities reducing groundwater availability and a high risk of improved efficiencies and delivery reducing recharge in the Upper Macquarie and Cudgegong Alluvium.

IRN does not support the assessment result that all these high risks of water use will not cause high risk to GDEs and ecological values of the water source. We also do not support the

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<sup>2</sup> Macquarie-Castlereagh Alluvium Draft Water Resource Plan p33

conclusion that only the Bell Alluvium has a high risk of climate change reducing recharge and groundwater availability.

The Macquarie River system is now in the third drought of record since the commencement of rainfall records, the last two record droughts occurring within the last 10 years. We consider that climate change is a high risk for all water sources in this WRP and must be taken into account.

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.

### **Water Quality**

The Macquarie-Castlereagh Alluvium Water Quality Management Plan (WQMP) notes groundwater quality varies in the WRP area.

The Upper Macquarie Alluvium has salinity levels up to 1,500  $\mu\text{S}/\text{cm}$ , the Lower Macquarie salinity levels are up to 2,000  $\mu\text{S}/\text{cm}$  and the deep alluvium can be brackish with levels over 4,000  $\mu\text{S}/\text{cm}$ .

The Upper Macquarie Alluvium has been assessed to have a high risk of change to the beneficial use category. The measure to manage this risk is to limit seasonal drawdown.

We note that the seasonal drawdown in the Upper Macquarie Alluvium has been over 1.5m in some years.<sup>3</sup> This Alluvium has already had a permanent drawdown in some areas.

The proposed objectives in the WQMP will not be met if the proposed ‘variable’ rule change to water sharing plan rules is adopted.

### **Water Sharing Plan Objectives**

The broad environmental objective of the draft Macquarie-Castlereagh 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.

The proposed ‘variable’ rule will not support the environmental objectives.

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<sup>3</sup> Status and Issues Paper p 17

## Proposed Rule Changes

### 1. Variable rule

IRN objects to the proposed variable rule for the Macquarie-Castlereagh Alluvium. This locks in the 20% limit of change to the SDL as a right.

It also paves the way for further permanent drawdown of the Upper and Lower Alluvium and increases the risk to all GDEs in the Macquarie-Castlereagh Alluvium.

The draft WRP claims that rules in the water sharing plan will manage high and medium risks in the Alluvium<sup>4</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 Macquarie-Castlereagh Alluvium. This 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 20% take will become more the norm than the exception.

It has been stated that parts of the Lower Macquarie Alluvium is disconnected from surface water.

Therefore, the variation of pumping levels between wet years and dry years will have no direct relationship to the impact of regular over-extraction in parts of the Alluvium. The sections of the Alluvium with permanent decline in water levels are not likely to be well recharged during wet years if it is disconnected from surface flows.

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 Macquarie-Castlereagh Alluvium.

The application of the variable rule is also likely to increase the risk of poor water quality.

The accompanying fact sheet on the relationship between water resource plan and water sharing plan states that for the Macquarie-Castlereagh Alluvium ‘*The annual permitted take volume will not be more than 120% or less than 80% of the sustainable diversion limit.*’<sup>5</sup>

The fact sheet also states that: ‘*Non-compliance with the long-term average annual extraction limit occurs when this calculated average annual extraction exceeds the long-term average annual extraction limit by (either) 5% the Castlereagh alluvium and Lower Macquarie groundwater sources, or 10% in the Bell alluvial, Cudgegong alluvial, Talbragar alluvial and Upper Macquarie groundwater sources.*’<sup>6</sup>

There is no apparent discussion in the draft WRP about the relationship between the SDL non-compliance and the LTAAEL non-compliance or how this may relate to the variable rule.

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<sup>4</sup> Macquarie-Castlereagh Alluvium Water Resource Plan Table 3-2 p 23

<sup>5</sup> Macquarie-Castlereagh Alluvium Water Resource Plan Fact Sheet. *Relationship between the water resource plan and water sharing plan* p 3

<sup>6</sup> Ibid

## 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 Macquarie-Castlereagh 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 this groundwater system that supports high value GDEs. 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.

## 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 from three years to five years in the Lower Macquarie Alluvium to provide consistency across water sources.

This 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>7</sup>

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

## **Conclusion**

IRN does not consider that the draft 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.

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<sup>7</sup> Frequently Asked Questions Fact Sheet p 5