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Comments on Draft Murray 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 Murray Alluvium Water Resource Plan (draft WRP).

Background

IRN submitted substantial comments to the Status and Issues Paper on the Murray Alluvium Water Resource Plan released in 2017.

We noted with concern the major problems with rising salinity levels in the groundwater sources of the Murray.

We also that recovered groundwater levels have declined from the pre-development levels and that rules for reducing extraction in the Lower Murray Deep Alluvium were possibly not being met.

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

We also highlighted the fact that the long-term average annual extraction limits (LTAAEL) for the Upper Murray Alluvium was raised from 11,976 ML to 14,109 ML during the making of the WSP. The annual average recharge of the alluvium is estimated at 15,300 ML.

¹ Murray Alluvium Status and Issues Paper p 21

This issue has not been addressed in the draft WRP although raised as an issue of significance in the management of this water source.

The draft WRP is based primarily on the attempt to match water sharing plan rules with the requirements of the Basin Plan without recognising the level of historic impacts such as the permanent decline from the pre-development levels of groundwater in some places and high salinity in rising water tables.

IRN considers that the proposed introduction of a ‘variable’ rule for annual permitted take in the Upper Murray and Lower Murray groundwater sources will cause the continued decline in recovery of groundwater levels and water quality in these aquifer systems. This is not sustainable water management.

The draft WRP states that the LTAAEL specified in the Murray Alluvium Water Sharing Plan (WSP) *represents a fraction of this water in these groundwater sources*.²

However, this does not explain why there has been a permanent drawdown of the water levels in the Murray Alluvium caused by over-extraction.

The fact that the Sustainable Diversion Limit (SDL) in the Basin Plan for the Murray Alluvium is equal to the LTAAEL in the WSP requires a strong set of management rules to prevent further permanent drawdown of the groundwater sources and loss of planned environmental water (PEW).

As noted above the close relationship between the annual average recharge of the Upper Murray Alluvium and the LTAAEL/SDL does not reflect a sustainable limit and has caused a reduction in available environmental water from previous water sharing arrangements. This is a high risk approach to groundwater management.

We note that the all groundwater sources in the Murray Alluvium have a volume of held environmental water (HEW). The presence of HEW in this WRP area also requires clear rules for its protection.

IRN does not support the conclusion in the draft WRP that there will be no ‘net’ reduction in PEW.³

Groundwater Dependent Ecosystems (GDEs)

The Murray Alluvium has been assessed to support high and very high value GDEs.

The very high values are due to the extent of internationally significant Ramsar wetlands and wetlands listed under the Directory of Important Wetlands in Australia (DIWA) that support habitat for a large number of threatened species.

The Murray alluvium is dominated by the groundwater dependent communities of river red gum woodland wetlands, lignum wetlands, freshwater wetlands, black box-lignum, black box and yellow box woodlands. These communities are generally characterised by having a high number of threatened species, endangered ecological communities, an extensive connected riparian corridors and basin target vegetation species (MDBA 2014) of black box, lignum and river red gums. The riparian

² Murray Alluvium Water Resource Plan p 35

³ Ibid p 36

communities are expected to provide vital habitat to nesting species and contributes to ecosystem function of instream ecosystems.

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

The 'variable' rule will impact on PEW near GDEs during dry times. This may have long term impacts on the health and resilience of these significant ecosystems.

Connectivity

The Murray Alluvium water sources are highly connected to surface water and to each other.

*'Recharge to the Lower Murray Shallow Alluvium occurs through rainfall, leakage from irrigation, and the Murray River. Groundwater inflow to the underlying Lower Murray Deep Alluvium is primarily through downward leakage from overlying shallow alluvium. Recharge to Upper Murray and Billabong Creek Alluvium occurs from rainfall and leakage from the Murray River and Billabong Creek respectively.'*⁴

It is understood that there is a lag time for groundwater pumping impacts on connected surface water sources. Therefore, the groundwater sources are managed separately from the river. The LTAAEL is considered to manage these impacts.

IRN has major concerns that the proposed 'variable' rule for increased groundwater take during dry times will not adequately manage the impacts of delayed and/or subdued impacts on surface water sources.

The groundwater resources along the border region of Victoria and NSW are variously contained within shared or common aquifers. It is very concerning that despite common hydrological characteristics of much of the border region, there is no policy or statutory imperative for addressing the impacts of groundwater extraction in one state, on other uses across the border.

The impact of the 'variable' permitted annual take in the NSW draft WRP needs to be considered in regard to impacts on Victorian water users and the significant GDEs supported by the Murray Alluvium.

This proposed new groundwater management rule also needs to be considered in the context of delayed impacts on surface water PEW and the use of HEW to achieve improved environmental outcomes

IRN is concerned that this proposed rule change will not protect groundwater PEW and HEW, connected surface water PEW or the use of HEW through hydraulically connected systems.

⁴ Murray Alluvium Status and Issues Paper p12

Risk Assessment

The risk assessment outcomes for potential risks to GDEs associated with groundwater extraction causing drawdown were medium and high in the Murray Alluvium.

Other high risks include groundwater extraction inducing connection with poor quality aquifers in the Lower Murray Shallow and Lower Murray, risk of local drawdown reducing access by consumptive users in the Upper Murray, Lower Murray Shallow and Lower Murray, growth in basic rights and reduced recharge in Upper Murray.

The high risk of reduced recharge in the Upper Murray is significant in regard to the issues raised about the volume of LTAAEL/SDL raised earlier.

Medium risk to structural integrity of the aquifers in the Upper and Lower Murray Alluvium is also a key concern.

IRN does not support the risk assessment that climate change will have a low impact on reducing recharge and groundwater availability to GDEs and instream ecological values.

The draft WRP states that the LTAAEL has been determined with consideration of historic extraction and groundwater levels, rainfall and groundwater connectivity to streams.⁵

It states that ‘Compliance with these limits should ensure that, under similar conditions, sufficient water will remain in the aquifer to maintain groundwater dependent environmental assets, the structural integrity of the aquifer and connectivity to surface water.’⁶

Climate change will cause different conditions than historic rainfall levels. NSW is now experiencing worse drought conditions than the 1902 drought, considered to be the worst drought on record in Australia.

The proposed ‘variable’ rule does not reserve all water above the LTAAEL for the environment as PEW.

IRN does not consider these risks to be tolerable because the proposed mitigation measures and proposed rules in the WSP are not consistent with the objects of the Basin Plan.

The impacts of over-extraction of the Murray Alluvium must be recognised and mitigated in the WRP.

Water Quality

The high levels of salinity in the Murray Alluvium is a significant issue that has not been adequately addressed in the draft WRP.

⁵ Murray Alluvium Water Resource Plan p 35

⁶ Ibid

Salinity levels of up to 60,000 uS/cm in the Lower Deep Alluvium and a median of 25,000 uS/cm in the Lower Shallow Alluvium is a high risk to high ecological value GDEs and cultural values.

We note access licences with a combined volume of 21,501 ML/year to manage salinity and rising water tables. However, we do not consider the salt interception schemes to be an adequate response to the ongoing risk of high salinity levels in the Murray system.

The Water Quality assessment identifies that the Lower Murray Shallow and Lower Murray Deep Alluvium are at high risk of extraction causing a change in the beneficial use category, while the Billabong Creek and Upper Murray are at medium risk.

The measure for mitigating this risk is to limit seasonal drawdown in high risk areas.

A water management action and mechanism is to reserve all water above the LTAAEL for the environment as PEW.

The proposed 'variable' rule will achieve neither of these measures.

Many of the salinity mitigation measures are referred off to other land use practice processes rather than recognising that the irrigation industry has been a key source of rising water tables over time.

We note there is a knowledge gap for management of nutrient mobilisation, pesticides and other contaminants including pathogens entering the groundwater source. There are no measures identified in the WRP to improve knowledge of these key water quality issues.

Water Sharing Plan Objectives

IRN supports the broad environmental objective of the Murray Alluvial Groundwater Sources WSP to protect the condition of the groundwater sources and their groundwater-dependent ecosystems over the term of the plan.

This support 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

The Fact Sheet on proposed changes to the Murray Alluvium WSP indicates that:

‘In the Upper Murray and Lower Murray groundwater sources the annual permitted take will be the sustainable diversion limit (again equal to the long-term average annual extraction limit) modified each year, based on rainfall at Albury and Denilquin. The amount of actual rainfall is compared to average annual rainfall at each of those locations and used to vary the annual permitted take by up to 20% of the sustainable diversion limit. In general, extraction exceeds the sustainable diversion limit in dry years and is below it in wet ones, and the variation aims to manage this effect.’

IRN understands that this rule change will allow for 115% of SDL to be extracted in dry years and 80% of SDL to be extracted in wet years.⁷

However, this proposed new rule does not appear to be included in the draft Murray Alluvium WSP on public exhibition for comment.

This proposed rule change occurred in Part 6 under the clause titled ‘Assessment of compliance with Basin Plan long-term annual diversion limit’, in the draft Murrumbidgee Alluvium WSP, draft Lachlan Alluvium WSP, draft Gwydir Alluvium WSP and the draft Macquarie-Castlereagh Alluvium WSP.

IRN has objected to this complex arrangement of climate adjusted annual permitted take because we consider it is not in keeping with the concept of LTAAEL and SDL and the protection of PEW.

The proposed rule change that does not seem to appear in the draft Murray Alluvium WSP, allows for a greater level of extraction during dry times, an action that paves the way for further permanent drawdown in the water source.

The draft WRP claims that rules in the water sharing plan will manage high and medium risks in the Alluvium⁸. However, permanent drawdown of the water source is a direct reduction in PEW.

This risk will not be managed through the implementation of the ‘variable’ rule in the Murray Alluvium.

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

This proposed rule also has implications on the protection of HEW in this water source. An increase in take by 115% of SDL is either reducing PEW or reducing HEW, or both. This impact has not been recognised in the draft WRP.

As noted above, the Murray Alluvium has a significant number of high risks and medium risks including structural integrity, induced connection with poor quality aquifers and local drawdown impacted on consumptive users, GDEs and instream ecological values.

The measure for mitigating the risk of a change in the beneficial use category is to limit seasonal drawdown in high risk areas. The proposal to increase extraction beyond the SDL during dry times is counter to this mitigating measure.

⁷ Ibid Table 5-4 p 52

⁸ Murray Alluvium Water Resource Plan Table 3-2 p 33

The 'variable' rule will also 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 Murray Alluvium. The water is generally not needed in wet years but must be shared carefully in dry years.

The application of the variable rule in the Murray Alluvium is likely to increase a range of identified high risks, as outlined above and cause a 'net' reduction in PEW.

IRN strongly objects to this proposed climate-adjusted annual permitted take because it will not meet objectives to protect environmental water or the integrity of the aquifers.

The annual permitted take for the entire Murray Alluvium water source must remain at the SDL.

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 parts of the Murray Alluvium has been impacted by a permanent drop in water levels heightens the importance of protecting recharge. The actual volume of PEW has already decreased in these groundwater systems.

The protection of recharge in the Upper Murray is of particular importance.

The timing of the availability of PEW 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

The Murray Alluvium has a high level of risk across a number of criteria and needs to be monitored for compliance to rules more regularly, not less.

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.⁹

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

4. Compliance triggers

IRN does not support the current triggers for requiring action to ensure compliance with the LTAAEL:

10% or more for the Billabong Creek Alluvial Groundwater Source,
5% or more for the Lower Murray Groundwater Source,
10% or more for the Lower Murray Shallow Groundwater Source,
10% or more for the Upper Murray Groundwater Source.

The trigger should be 5% in all water sources to ensure compliance with the SDL.

Conclusion

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

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

For more information please contact:

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⁹ Frequently Asked Questions Fact Sheet p 2