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Wednesday 21 August 2019

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SUBMISSION

Draft Darling Alluvium Water Resource Plan
GW7 Water Resource Plan Area

The Inland Rivers Network ("IRN") is a coalition of environment groups and individuals concerned about the degradation of the rivers, wetlands and groundwaters of the Murray-Darling Basin. It has been advocating for the conservation of rivers, wetlands and groundwater in the Murray-Darling Basin since 1991.

IRN appreciates the opportunity to comment on the draft Darling Alluvium Water Resource Plan (draft WRP).

Background

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

We noted the significance of Groundwater Dependent Ecosystems (GDEs) in the groundwater source, particularly in the Paroo.

The importance of connectivity between surface flows in the unregulated river systems and groundwater was raised, as was the issue of salinity management.

We note that there is significant hydrological connectivity between surface water sources and the alluvium in this groundwater source.

We also raised the need to reduce the high limits of extraction and provide maximum protection for GDEs though rules in the Water Sharing Plan (WSP).

There is a key concern in regard to the lack of monitoring and measurement of take in this groundwater source.

We raised the importance of consultation with First Nations people and are concerned that consultation has occurred with only one First Nations group of the 6 with country in the WRP area. The draft WRP should not be on exhibition for comment with this significant gap in consultation and information.

IRN does not support the draft WRP and accompanying Water Sharing Plan (WSP) because of the information gaps and failure to adequately protect the environmental values supported by this groundwater source.

Protection of Groundwater Dependent Ecosystems (GDEs)

The Darling Alluvium is dominated by the vegetation GDE communities of River Red Gum woodland wetlands, Lignum wetlands, freshwater wetlands, Black Box woodlands, Canegrass swamps, Coolabah-River Coobah-Lignum woodland wetlands and chenopod shrublands. These communities are characterised by having endangered ecological communities, DIWA/Ramsar wetlands (Paroo wetlands and associated Menindee wetlands), extensive connected riparian corridors and basin target vegetation species of Black Box, Lignum and River Red Gums.

With significant hydrological connectivity of this groundwater source to surface waters it is important to have rules in the WSP that protect GDEs, including base flows and riparian vegetation, and instream ecological values during times of low surface flow and drought.

IRN does not support that the proposed rules in the WSP will protect high value GDEs in this groundwater source. Some rules for protecting GDEs in current WSPs will be significantly changed.

The current rules are:

a) For Upper and Lower Darling Alluvium:

Rules to protect environmentally sensitive areas include:

- 100 m for basic landholder rights bores,
- 200 m for bores nominated by access licences,
- Greater 200 m if likely to cause more than minimal drawdown to a high priority GDE
- 40 m from the top of the high bank of a river or stream.

b) For Paroo and Warrego Alluvium:

Rules to protect environmentally sensitive areas include:

- 2 km for basic landholder rights bores and for bores nominated by access licences,
- Greater than 2 km if likely to cause more than minimal drawdown to a high priority GDE

- 40 m from the top of the high bank of a river or stream.

The proposed new rules in the Darling Alluvium WSP remove some of these protections for high priority GDEs.

Cl 41

1) For water supply works (with exceptions):

(a) 40 metres of the top of the high bank of a river,
(b) 200 metres of any other high priority groundwater-dependent ecosystem shown on the High Priority Groundwater-Dependent Ecosystem Map.

For the Upper and Lower Darling this rule change removes the current rule for greater than 200m distance if more than minimal drawdown is likely. IRN maintains that there should be no allowable drawdown on GDEs because this will impact on their resilience during prolonged drought.

For the Warrego and Paroo Alluvium, this rule change is significant and will threaten the protection of significant GDEs in these groundwater sources.

The fact that no groundwater-dependent ecosystems had been identified for inclusion in the previous Schedule of groundwater–dependent ecosystems, is more a result of lack of assessment than lack of GDEs and is no reason for reducing the minimum set back provisions.

The proposed schedule of potential high priority groundwater-dependent ecosystems identifies extensive areas in the Paroo and Warrego alluvial groundwater sources. These areas need to be protected by the current set back rules.

The proposed new WSP rules do not provide greater protection of environmental assets in these groundwater sources.

Cl 41 (2) (d): IRN does not support this rule change that allows location of the water supply work at a lesser distance than that specified in subclause (1) would on any high priority groundwater-dependent ecosystem shown on the High Priority Groundwater-Dependent Ecosystem Map. IRN maintains that there should be no allowable drawdown on GDEs because this will impact on their resilience during prolonged drought.

Cl 41 (3): IRN does not support this rule change. It is highly contradictory because a high priority GDE has been mapped because it has groundwater dependence. This clause is a threat to the protection of GDEs.

Cl 43 (1): While this clause remains the same for the Upper and Lower Darling, IRN does not support the rule for 100m minimum setback for basic rights bores.

We support a state-wide standardisation of 200m setback to protect GDEs from basic rights extraction with the exception described below. This is because basic rights bores are unlicensed and unmetered and there are no restrictions on the number of basic rights bores. Basic rights is the largest user of water in the Darling Alluvium groundwater source.

This rule is a significant change for the Warrego and Paroo Alluvium threatening the protection of significant GDEs in these groundwater sources. We support the retention of the 2km protection zone for GDEs in these SDL resource units.

Cl 43 (2) & (3): IRN rejects these sub clauses as a threat to the protection of GDEs and loss of planned environmental water.

Cl 44: all replacement bores should be at least 200m from high priority GDEs

We do not consider that the proposed rules in the WSP will protect the GDEs in the Darling Alluvium water source.

Discussion of the risk assessment, water quality management, the importance of connectivity and recharge protection is provided further in this submission in regard to protection of GDEs in this groundwater source.

Connectivity

Surface water in the Paroo, Warrego and Darling Rivers is hydraulically connected to the Darling Alluvium. Large river flow or flood events recharge the shallow aquifers and in some areas or during low river flow, groundwater discharges to the channel.

There is significant hydrologic connection between the groundwater of the Lower Darling Alluvium and the surface water resources of the Lower Darling.

Connectivity with the Lower Darling is highly impacted by surface water management. The draft WRP identifies that low flows have been observed to result in impervious clay layers lining the river bed, partially disconnecting the river from the underlying alluvium. Aquifer recharge is prevented until high flow scours the channel.

We note that water cannot be extracted from the Lower Darling unless the river is in a cease-to-flow state. There are 928 unit shares of aquifer access licences and 739 ML/yr basic rights in this resource unit. We presume this rule does not apply to basic rights. The issue of drawdown while there is no access to recharge through river flow is a significant issue for this resource unit.

The risk assessment identifies a medium risk of growth in use of basic rights in the Lower Darling.

The proposed rules in the WSP do not protect the planned environmental water in the Darling Alluvium water source or the GDEs including base flows, riparian vegetation and instream ecological values.

This groundwater source is at high risk of poor management of surface water flows in the Darling River. The significance of flush flows and floods to improve connectivity and provide vital aquifer recharge to the Darling Alluvium must be recognised.

The impact of floodplain harvesting on surface inflows to the Darling River from the NSW Border Rivers, Gwydir, Namoi, Macquarie and Barwon-Darling catchments must be assessed. This is a significant issue that must be addressed while calculating final volumes for licensing and in improving the management of floodplain harvesting in these river systems.

Improved connectivity between the Darling River and the Darling Alluvium must be a priority of the WRP.

We also note that there is significant hydrologic connection in common aquifers with Victoria and Queensland. This requires cooperative management and equitable sharing of those resources to guard against undue depletion or degradation.

It is disappointing 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 draft WSP includes provisions to give effect to any future arrangements, however, IRN considers that the WRPs for these adjoining water sources should include these arrangements to provide security for water users and for the protection of surface water priority environmental assets and priority ecosystem functions that may also be groundwater-dependent.

Recharge

The draft WRP states that groundwater sources generally store large volumes of water, often accumulated over thousands of years, and this stored water is also replenished from time to time by rainfall, river and flood flows, and through flow from other groundwater sources.

It also states that limits to extraction have been determined with consideration of historic extraction and groundwater levels, rainfall and groundwater connectivity to streams.

The hydraulic connectivity of the Darling Alluvium to surface flows needs to be protected so that the aquifer system is recharged to protect GDEs, prevent further deterioration of water quality and to maintain the structural integrity.

IRN strongly opposes the proposed removal of the protection of recharge by changing the definition of planned environmental water as specified in WSP.

Protection of recharge is integral to maintaining the health of GDEs and instream ecological values.

This includes the protection of low flows, first flush flows and floodwater inflows into the Darling River.

Risk Assessment

IRN has some concerns about the risk management assessment for this groundwater source.

We do not agree that the risk of climate change reducing recharge and groundwater availability and impacting on GDEs and instream ecological value is low.

Climate change is already causing a major reduction in rainfall and surface flows that provide recharge to the Darling Alluvium. This assessment of risk needs to be re-examined.

IRN notes that many risks are assessed qualitatively. This indicates major information gaps that need to be filled. We do not support that many of the risks are Nil or Low.

A medium risk of growth in basic rights extraction has been assessed in the Lower Darling reducing groundwater availability. This is a direct loss in protection of planned environmental water.

This growth in groundwater use could cause local drawdown impacting GDEs and instream ecological values in the Lower Darling.

We also do not agree with the risk assessment that risk of poor water quality to the environment is low. The salinity levels in the groundwater source, particularly in the Lower Darling are elevated. The reliance on salt interceptions schemes does not take into account the prolonged impacts of water extraction from the Darling River and its hydrological connectivity or the future impact of climate change.

The risk of growth in mining has been assessed qualitatively as being low. However, the risk assessment was based on the Bioregional Assessments of coal and coal seam gas when the main mining activities in western NSW are for minerals and sand. This risk has not been adequately assessed.

The draft WRP states that '*Risk assessments have been undertaken to consider the risks of insufficient water being available for the environment including GDEs and instream ecological values. The risk assessment outcomes for potential risks to GDEs associated with groundwater extraction causing drawdown were medium and high in the Darling Alluvium*.'[1]

IRN considers that this is most likely, particularly with the risk of climate change. However, the above statement is at odds with the reporting on the risk assessment for the Darling Alluvium.

We do not consider that the draft WRP has adequately assessed the risks to environmental assets in the groundwater source or that the WSP will adequately manage the risks to environmental assets.

Water Quality

The Darling Alluvium has significant issues with high salinity levels in the Upper and Lower Darling resource units. These are currently managed through interception and salinity management licences.

The WSP has a 3,300 ML/yr share component in the Upper Darling for salinity and water table management access licences. We note that this is more than half the LTAAEL/SDL for this resource unit.

[1] Draft WRP p 32

Groundwater EC in the Lower Darling Alluvium ranges from a fresh value of about 150 mg/L to a hypersaline value of around 70,000 mg/L. Groundwater EC in the Upper Darling Alluvium ranges from a fresh value of about 192 mg/L to saline. (around 33,300 mg/L).

The Bourke Salt Interception Scheme located downstream of Bourke reduces the influx of saline groundwater into the Darling River and provides in-stream water quality benefits downstream of the site.

In this area a strong upward pressure gradient causes saline water to enter the Darling River when river levels are low. The volume of saline inflows increase substantially as low flow conditions persist. This problem could be better managed through improved management of surface flows in the Darling River.

The Curlwaa Salt Interception Scheme manages saline groundwater near Wentworth. Under this scheme groundwater is pumped into a salt management basin to control water table elevations and reduce the risk of salinisation to the irrigation district.

The connectivity with the Darling River and recharge of fresh water into the aquifer needs to be better managed through improved management of upstream extraction and interception of floodplain infiltration through floodplain harvesting.

IRN notes that the Water Quality Management Plan (WQMP) identifies salinity targets for the Darling Alluvium in Table 7 to protect freshwater dependent ecosystems.

These are:

Zone 1	900 EC
Zone 2	<3,000 EC

IRN does not consider that the strategies in Table 6 of the WQMP will assist in achieving these targets.

There is an over-reliance on the salt interception schemes and the risk assessment of poor water quality has been inadequate for this groundwater source.

The draft WRP and rule changes in the WSP will not assist in the protection of GDEs and ecological values in the Darling Alluvium from high salinity levels.

Water Sharing Plan Objectives

IRN supports the broad environmental objective of the Darling Alluvial Groundwater Sources WSP.

This is 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, to contribute to the maintenance of salinity levels within water quality target ranges and to 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 and improved salinity levels should also be included in the economic, social and cultural objectives.

Proposed WSP Rule Changes

1. Minimum distance rules

As stated above, IRN does not support the proposed standardisation of minimum distance rules for water supply works.

The current rules in the Paroo and Warrego resource unit must be maintained because the ecosystems in these catchments are among the healthiest in the Murray-Darling Basin. These high environmental values must be protected by maintaining the existing minimum distance rules.

2. Increase in time period for LTAAEL compliance

IRN does not support the proposal to increase the time period over which compliance with the LTAAEL is assessed from three years to five years in the Lower Darling.

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

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

3. Compliance triggers

IRN does not support the current 10% trigger in the Lower Darling for requiring action to ensure compliance with the long-term average annual extraction limit.

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

4. 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 this groundwater source is critical for the reasons outlined above.

We do not agree that this proposed change '*will not alter the actual volume of planned environmental water or the timing of its availability to the environment'*.[2]

The protection of recharge to the Darling Alluvium must be maintained.

Conclusion

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

[2] Fact Sheet: Proposed changes to groundwater sharing plans

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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