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Submission Statutory Review Water Sharing Plan for the Macquarie and Cudgegong Regulated Rivers Water Source 2016

Introduction

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.

We welcome the opportunity to provide comment for consideration under the statutory review of the Water Sharing Plan (WSP) for the Macquarie and Cudgegong Regulated River Water Source 2016 (the Plan). IRN engaged in the development of the Macquarie-Castlereagh Water Resource Plan under the Murray-Darling Basin Plan in 2019 and have concerns that many of the high risks to the water source have not been mitigated through improved rules to achieve better environmental outcomes.

We note that the Natural Resources Commission (NRC) conducted an audit of the Macquarie-Cudgegong Regulated WSP in 2022 under requirements of the *Water Management Act 2000* (WMA). The audit concluded that 'While many of the provisions of the plans are being implemented, the Commission considers that on balance the provisions of the plans have not been given full effect in accordance with the Act.' We expect that any of the relevant recommendations not already implemented will be included in this statutory review.

The NSW Government has developed a Macquarie-Castlereagh Regional Water Strategy (RWS) released in October 2023 that considers the implications of climate change on water availability in the region based on new climate modelling developed by the NSW Government.

The Macquarie contains significant environmental values that must be protected through improved rules in a new Plan, including a lower Plan Limit for extraction.

Environmental significance of the Macquarie-Castlereagh region

The Macquarie–Castlereagh's expansive river systems, floodplains, wetlands and aquifers underpin the health of the natural environment, support threatened and endangered plants and animals and are an integral part of the broader Murray–Darling Basin. Some areas in the Macquarie Valley have also been listed as part of the Lowland Darling Endangered Ecological Community under the *NSW Fisheries Management Act 1994*, recognising the ecological value and significance of all native fish and aquatic invertebrates in these systems. As well as contributing to the wellbeing of the community and liveability of the region, these environmental assets provide recreation and tourism opportunities, support the economy and provide important ecosystem services such as water purification, managing flood risks and nutrient cycling.

The Macquarie Marshes – an internationally recognised environmental asset

The region is home to the Macquarie Marshes, one of the largest remaining inland semipermanent wetlands in south-eastern Australia, despite their extent having reduced by up to 50% since the mid-1900s.

The Marshes form the heart of the traditional country of the Wailwan people, who valued them as an important Aboriginal settlement because of their rich and reliable resources and iconic cultural values. The Marshes continue to be important for the Wailwan and other Aboriginal people. The Macquarie Marshes, a non-terminal wetland, are situated in the lower reaches of the Wambuul / Macquarie River catchment. The Marshes commence at Marebone Weir north of Warren and extend for 120 km until the many watercourses form into a single defined channel near Carinda. Approximately 19,000 ha of the Macquarie Marshes is listed as internationally significant under the Convention of Wetlands of International Importance (Ramsar). It supports threatened species, endangered ecological communities and species of conservation concern. This includes iconic water birds, fish, aquatic animals and vegetation communities. The Marshes contain the largest river red gum woodland in the northern Murray–Darling Basin (approximately 40,000 ha) and extensive areas of coolabah and black box woodland. As well as being a nationally significant breeding site for waterbirds, the Marshes are an important refuge for wildlife during dry times.

Conserving the Macquarie Marshes is a strategic priority stated in the long-term water plan for the region.

To maintain them into the future, the wetlands need a mix of regular inundation – for vegetation such as reedbeds and water couch meadows – as well as inundation provided by only the largest floods.¹

Water for the environment

Approximately 25% of licences in the regulated rivers, or 184,300 ML of water entitlements, are managed by state and Commonwealth environmental water holders. The majority of these are general security licences. In addition, there are environmental water allowances of 171,283 ML in the regulated Wambuul / Macquarie and Cudgegong Rivers.²

When formulating plans to share water, the NSW Government must take all reasonable steps to prioritise the protection of water sources and their dependent ecosystems. (Subsections 9(1)(b), 5(3)(a) and 5(3)(b) of the WMA).³

¹ DCCEEW 2023. Regional Water Strategy, Macquarie-Castlereagh p 23

² Ibid p 21

³ Ibid p 9

IRN notes that the majority of environmental water entitlements have the lowest level of security being general security licences. It is critical that rules managing environmental water allowances allow for the best possible use to maximise environmental outcomes. Timing and duration of environmental flows must not be restricted through prioritisation of other considerations.

Through the successful operation and decision-making of the Environmental Water Advisory Group (EWAG) under this plan use of both entitlements and allowances together has resulted in best possible outcomes under rule constraints. However, there are still significant trade-offs between timing and duration of flows for competing needs of native fish breeding requirements, wetland vegetation recruitment and maintaining nesting and foraging for colonial-nesting waterbirds. Maintenance of environmental values in the Effluent Creek system is another competing need. There is still insufficient environmental water available in the Plan to sustain all the environmental values supported by it.

Consideration of current rule impediments to better environmental outcomes and climate change impacts are an important factor in any replacement WSP.

Regional Water Strategy (RWS)

Macquarie-Castlereagh RWS identifies a number of key risks from climate change predictions:

[•]To maintain and improve the region's ecological assets into the future, we need to ensure that the right mix of flows are available at important times. This will become increasingly difficult under a drier future climate, where the potential for extended dry periods could increase the risk for many critical environmental assets.⁴

'There are limits on how much water can be taken from rivers and groundwater sources without causing short- and long-term impacts – such as depriving other users of reasonable access to water and permanently damaging ecosystems. Surface water and most groundwater resources in the Macquarie–Castlereagh region are fully committed and there is a risk of reduced water availability in the long term.'⁵

The RWS recommendations to improve the health and resilience of natural systems that relate to the Plan identified the need to improve connectivity with Barwon-Darling/Baaka.

Consideration of improved drought security under Action 2.3 includes a review of the water allocations framework considering options for redefining the period of lowest inflows to the water source in the Plan. ⁶ This aligns with the NRC audit recommendation 4.1. A key issue is the definition of the drought of record used in water models to predict inflows and water storage behaviour. The RWS identifies the need to update the drought of record in the Plan.⁷

Water is allocated under the Plan before it arrives in storage. This has caused consistent over allocation and threats to drought security.

⁴ DCCEEW 2023. Regional Water Strategy, Macquarie-Castlereagh Exec Summary p10

⁵ Ibid p 11

⁶ DCCEEW 2023. Regional Water Strategy, Macquarie-Castlereagh p 87

⁷ Ibid p 91

Floodplain Harvesting (FPH)

IRN has had a long time concern about the impact of FPH in the Macquarie Valley on water availability for the Ramsar listed Macquarie Marshes. We were engaged in the Healthy Floodplains Review Committee through environmental representation and raised ongoing issues with the assessment and approvals process in the Macquarie that was fast tracked through the Covid period. The outcome was that history of use of FPH in the Macquarie was fully licenced through 48,911 unit shares granted with permissible carryover of 500%. The current WSP has no unit shares allocated to FPH under Cl 25. Stronger rules in the WSP is now the only mechanism available to better manage FPH extraction above the significant wetland area. This level of FPH extraction also impacts on the environmental values in the Effluent Creek systems that rely solely on floodwaters.

1. Rainfall runoff exemption

IRN does not support the rainfall runoff exemption for FPH as identified in Cl 28 (2) a) vii) regarding the calculation of Long Term Average Annual Extraction Limit (LTAAEL). All water take should be accounted for under the LTAAEL. The rainfall runoff exemption is a net reduction of PEW.

Cl 44 (4) and Cl 55 also exempt the capture of rainfall runoff being debited from an individual FPH account. We note that these provisions do not occur in the Namoi Regulated WSP. There must be consistent provisions across all water sources.

2. Supply works

Rules for FPH supply works under Cl 43 have too many exemptions and are not directly related to the requirement under the LTAAEL based on the level of development for FPH at 1999/2000. They also provide retrospective approval for works on the floodplain not assessed for environmental impact:

- Cl 43 (5) (b) allows for approval of supply works applied for before December 2022. This is possibly a back door method of giving retrospective approval to works constructed on the floodplain without assessment (illegally).
- Cl 43 (6) allows for exemptions under subclauses 2), 3) and 4) if the work was constructed without approval on or before 12 February 2021 or if an application for amendment was made prior to 30 June 2023.

3. Carryover

IRN strongly objects to the provision for FPH licences to carryover 500% of their licence entitlement. This allows for the capture of significant volumes of floodwaters from the Lower Macquarie Valley intercepting essential flows to the Macquarie Marshes and interrupting a range of environmental triggers. It also allows for entire low and medium floods to be extracted after a long dry period in the catchment. Stronger rules are needed to better share the full range of flood flows that occur intermittently, especially from localise downpours during dry conditions.

Cl 45 (4) allows for carryover of 5ML per unit share or the take of up to 244,555 ML (two thirds the volume of Windamere Dam). FPH is opportunistic extraction of ecologically significant overland flows. There has been no assessment of the significance of the impacts of historic FPH extraction over time on downstream river health, recharge of groundwater or on

cultural values. IRN does not support the carryover of FPH entitlements that have been far too generous and do not meet the objects of the WMA.

4. Connectivity triggers

Improved protection of internal and external connectivity flows are essential for the management of FPH in the Lower Macquarie particularly flows to the Barwon-Darling/Baaka. Cl 56 must be replaced with the flow targets and triggers recommended by the Connectivity Expert Panel for the management of FPH extraction in the Macquarie Valley.

5. Active Environmental Water

Cl 57 does not sufficiently protect Planned Environmental Water, Environmental Water Allowance or Held Environmental Water from extraction through FPH. This rule does not meet the objects or priorities of the WMA.

Review Questions:

1. To what extent do you think the plan has contributed to environmental outcomes?

The Plan has contributed to environmental outcomes through the establishment of an Environmental Water Allowance (EWA) for both the Cudgegong and Macquarie Rivers. However, the Plan rules are too complex and restrict the use of the EWAs thus limiting the best possible environmental outcomes.

The establishment of an EWAG has been very productive in increasing understanding of the complexity of the water dependent environment associated with the regulated river. Decision making allowing for use of available held environmental water entitlements in conjunction with the EWAs has contributed to improved environmental outcomes.

This has enabled the achievement of multiple outcomes through environmental flow releases. However, there is not enough dedicated environmental water to adequately address competing environmental needs at different times of the year. For example flows to encourage native fish recruitment in early spring can use up most available water that may be needed to complete a waterbird breeding event successfully in late summer.

Planned environmental water (PEW) is often allocated for extraction when it is most needed. Water in the system above requirements is identified as 'surplus flows' under WaterNSW operational practices. This water should be recognised as PEW under stronger definitions and rules in the Plan.

The Plan at Cl 16 does not include the three definitions of PEW provided under the WMA. It excludes the definition 'the water that is not committed after the commitments to basic landholder rights and for sharing and extraction under any other rights have been met'. This definition is included in the Lachlan Regulated WSP. There needs to be consistency across all WSP so that all three definitions of PEW are included and protected.

The Plan objective to achieve longitudinal and lateral connectivity are not met due to the lack of connectivity rules, end of system flow targets and a Connectivity EWA.

Current rules do not enforce principles of the WMA to prioritise the ecosystem and its dependent ecosystems. The LTAAEL is based on historic water use rather than on environmental requirements and outcomes.

2. To what extent do you think the plan has contributed to social outcomes?

The Plan does not provide for water security for any water user during drought conditions, especially predicted drier scenarios under climate change. Cl 83 (1) maintains an incorrect definition of the drought of record for the Macquarie-Cudgegong catchment: '*the period of lowest accumulated inflow to the water source is identified by flow information held by the Department prior to 1 July 2004.*' This rule favours general security licence holders and threatens the ability to supply basic rights, replenishment flows and stock and domestic licences in dry times.

Access to basic rights and replenishment flows are often compromised by operational practices such as calling supplementary access events before all replenishment commitments have been met. The use of tributary inflows to fill water orders through the unreported Tributary Utlilisation practice impacts on social and cultural outcomes downstream. This also intercepts important flows at critical times for native fish recruitment events.

The Plan does not meet the water quality objective because there is no provision for a specific water quality EWA to dilute blue-green algae outbreaks or major pollution events within the river system.

Objectives relating to improvements in native fish populations for recreational and cultural purposes have not been met. The Macquarie is included in the Lowland Darling River endangered ecological community that recognises threats to native fish population, especially from river regulation. A lower LTAAEL, better protection of PEW and specific EWA allocations to enhance native fish recruitment will help to support this social and cultural outcome.

3. To what extent do you think the plan has contributed to economic outcomes?

Many of the provisions in the Plan are biased towards extractive users and contribute to economic outcomes at the expense of other objectives. Operational practices favour economic outcomes. The unreported Tributary Utilisation practice that allocates orders from tributary inflows rather than from storage releases allows for the extraction of significant natural inflows that provide essential nutrients, temperature and triggers for improved environmental outcomes. Tributary inflows should contribute to connectivity and end of system flows. The combined extraction of these natural flows through filling water orders, supplementary allocations and FPH interceptions contribute to economic outcomes at the expense of social, cultural and environmental outcomes.

IRN considers that the current Plan Limit (LTAAEL) with no volumetric description favours the economic outcomes at the expense of environmental, social and cultural outcomes. The NRC must investigate the adequacy of the LTAAEL provisions as part of this review.

Cl 86 gives channel capacity priority to water users before EWAs can be released. Consultation is to be held with water users (86 (3)) is to be undertaken prior to channel sharing arrangements are made. This is clear evidence of the bias towards extractive users and economic outcomes.

4. To what extent do you think the plan has contributed to cultural outcomes?

The cultural outcomes of the Plan are very poorly met. While there is provision for Native Title Rights under cl 20 there have been no licences granted. A successful Native Title claim across the Macquarie region was granted in August 2024 and must be recognised in a replacement plan.

The large native title claim has been recognized by the Federal Court, encompassing the land and water of the Ngemba, Ngiyampaa, Wangaaypuwan and Wayilwan Peoples, stretching from the Barwon River in the north to the Lachlan River in the south, covering a vast area of western NSW. ⁸

The specific purpose access licence provisions under cl 42 are too restrictive and do not adequately contribute to achieving cultural outcomes. None of these licences have been allocated during the life of the Plan.

5. To what extent do you think the plan has contributed to meeting its objectives?

The Plan fails to meet the broad and targeted environmental, social and cultural objectives. There is an inherent bias in the provisions to meeting the broad and targeted economic objectives.

5.1 Cl 9 Environmental objectives:

1) The broad environmental objective of this Plan is to protect and contribute to the enhancement of the ecological condition of the water source and its water-dependent ecosystems over the term of this Plan.

2) The targeted environmental objectives of this Plan are as follows—

(a) to protect and contribute to the enhancement of the following over the term of this Plan-

(i) the recorded distribution or extent, and the population structure, of target ecological populations:

- native fish including golden perch, eel-tailed catfish, Murray cod and olive perchlet,
- native vegetation including river red gum woodland and black box woodland
- high diversity hotspots and significant habitat for native fish, frogs, waterbirds and native vegetation.

(ii) the longitudinal and lateral connectivity within and between water sources to support target ecological processes:

- carbon and nutrient transport pathways, which are the connected networks of streams, riparian zones, floodplains and wetlands that transport dissolved and suspended organic material and nutrients throughout the water source
- fish movement across significant barriers.

(iii) water quality within target ranges for the water source to support water-dependent ecosystems and ecosystem functions,

⁸ Native Title determination details NCD2024/002

(b) to support environmental watering in the water source to contribute to maintaining or enhancing ecological condition in streams, riparian zones, dependent wetlands and floodplains.

Major uncontrolled large flood events have done more to maintain and enhance the ecological condition of water-dependent ecosystems in the water source than provisions in the Plan. While use of the EWA combined with held environmental entitlements has helped fill some of the mid and low range flows needed to sustain improvements, the restrictions on use and volume of available environmental water has prevented the best possible environmental outcomes.

The lack of protection of PEW has also caused failures in meeting the Plan environmental objectives.

5.2 This also applies to cl 11 Aboriginal cultural objectives and cl 12 Social and cultural objectives.

Evidence of an improvement in threatened native fish species populations is limited. The current drought security measures are insufficient to supply basic rights or to protect important water-dependent cultural values associated with the water source. Consideration should be given to a drought reserve when making annual water determinations.

6. What changes do you think are needed to the water sharing plan to improve outcomes?

6.1 Definition and protection of PEW

Cl 16 Commitment and identification of PEW must include all definitions of PEW as provided in the WMA:

(a) the physical presence of water in the water source,

(b) the long-term average annual commitment of water as planned environmental water,(c) the water that is not committed after the commitments to basic landholder rights and for sharing and extraction under any other rights have been met.

Cl 17 must include the protection of PEW that is not committed after the commitments to basic landholder rights and for sharing and extraction under any other rights have been met.

Cl 17 b) Compliance with LTAAEL is not effective way of achieving environmental outcomes because it is not based on ecosystem needs and function. The LTAAEL is based on maintaining historic water extraction and is too high.

6.2 Calculation and management of LTAAEL

The LTAAEL needs to be quantified and reduced to the level of current recorded use. The plan limit is currently too high to maintain the health of the river system. The argument from the irrigation industry that they can't access to the full plan limit is a key indicator that it is too high.

The exclusion of rainfall runoff captured by FPH activities (Cl 55) within the LTAAEL calculations is a key issue with the provisions in the Plan. All water take must be accounted for to provide the appropriate protection of PEW.

6.3 Part 10 System operation rules

This section of Plan provides the main source of PEW as described under cl 16. The volumes and restrictions to access EWAs is a key failing to meet the environmental objectives of the Plan.

6.3.1 Translucent releases from Windamere Dam & EWA

These provisions are too complex and are not based on the environmental requirements of the Cudgegong River ecosystem.

Cl 66 (7) must be changed so that when these flows enter Burrendong Dam they are protected as PEW and added to the EWA account.

Rules for release of EWA into the Cudgegong River should not be tied to storage levels. They should focus on the timing and duration required for environmental outcomes.

6.3.2 Macquarie EWA

Provisions for the use of the Macquarie EWA are too complex and need to focus on environmental requirements rather than other operational considerations. The Active and Translucent sub-account methodology (Cl 73 (3)) is based on poor concepts of the Water Planning agency staff when the Plan was first adopted in 2004. Adaptive management principles should be key to all environmental water management. The EWA account should be able to have 100% of allocation available as active water to be released when maximum environmental benefit is possible. Cl 81 must allow for 100% of allocation to be distributed to the active water sub-allowance.

6.3.3 Maintencance of water supply

Cl 83 (1) must be updated to the new drought of record for the Macquarie system and take into account climate change predictions under new modelling by DCCEEW.

6.4 Priority of delivery for access licences and EWA water

Cl 86 must give precedence to ordered EWA releases when there are competing uses for channel capacity so that timing for environmental outcomes can be met.

6.5 Connectivity flows and end-of-system targets and triggers

The in valley and downstream connectivity targets and triggers recommended by the Connectivity Expert Panel for the Macquarie Valley must be included in the Plan at gazettal in June 2026.

6.6 Dam management rules

IRN supports the protocols developed with the community to manage bulk water transfers between Windamere and Burrendong Dams. We also support the rules for managing the Flood Mitigation Zone in Burrendong Dam and strongly object to any suggestions that this zone be made available to increase storage capacity.

It is imperative that a drought reserve is maintained in Burrendong Dam to secure critical human and environmental needs over more severe climate change extreme dry events. Windamere Dam has a drought reserve mechanism under the Bulk Transfer rules.

6.7 FPH provisions

As outlined above the following provisions must be removed from the Plan:

• Cl 28 (2) a) vii), Cl 44 (4) and Cl 55 relating to rainfall runoff exemption

- Cl 45 (4) there should be no carry over of FPH entitlements
- Cl 43 (5) (b) and 6) need to be reviewed to ensure that retrospective approval of works that have not been subject to environmental assessment is not allowed.

6.8 12 Amendments of this Plan

IRN does not support the following amendment provisions and recommends that they be removed from the Plan:

6.8.1 Cl 99 (2) b)

FPH available water determinations should not be greater than 1ML per unit share because of the environmental significance of the capture of natural overland flows. The volume of FPH entitlement granted in the Macquarie Valley was not subject to an assessment of downstream environmental, social and cultural impacts. Any natural overland flow is critical for the survival of the Ramsar listed Macquarie Marshes and cannot have greater interception than already provided. This sub clause also ignores the fact that interception of rainfall runoff has been exempted from the LTAAEL.

6.8.2 Cl 99 (4)

The removal of Cl 57 and Cl 58 to protect EWA water from extraction is not consistent with objects of the WMA. These clauses need to be strengthened in the new Plan.

6.8.3 Cl 99 (5)

The long-term average annual total amount of water able to be extracted under floodplain harvesting (regulated river) access licences in the water source is already too great and has not been assessed for environmental, social and cultural impact or on connectivity with groundwater sources and downstream requirements. Sub clauses (1) and (6) are critical for addressing environmental impacts of the overallocation of FPH entitlements in the Macquarie Valley. These clauses are also critical for implementing the Connectivity Expert Panel recommendations.

6.8.4 Cl 99 (6)

Cl 56 is critical to better management of FPH impacts downstream and should not be removed from the Plan

6.8.5 Cl 99 (7)

Restrictions associated with improving rule 56 should be removed from the Plan

6.8.6 Cl 102 Other amendments (general)

IRN recommends that the following amendment provisions be removed from the Plan:

- (1) (d) the conversion of regulated river (high security) licences with share components that specify the water source to access licences with share components that specify connected upstream unregulated river water sources.
- (2) This Plan may be amended to facilitate total long-term average annual extractions reaching the long-term average annual extraction limit