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SUBMISSION

Floodplain Harvesting licence rules in the water sharing plans for NSW Border Rivers

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.

IRN welcomes the opportunity to engage in the process of regulating access to floodplain flows in the Border Rivers catchment

The management of NSW water resources is the most important responsibility of the NSW and Federal Governments. Water is a scarce resource in Australia, more than any other inhabited continent on earth.

This submission will cover a number of key concerns with the process for assessing and regulating Floodplain Harvesting (FPH) in the Border Rivers, as the first valley with information to be released for public comment.

We consider the proposed rules for managing FPH in the Border Rivers will not protect sufficient flood flows to improve connectivity with the Barwon-Darling, will not protect small or medium size flood flows and will not mitigate the damage caused by the last 30 years of free, unregulated take of FPH.

We have serious doubts about the integrity of the model used to assess the volume of FPH for licencing in the Border Rivers and consider that the process is biased towards industry outcomes rather than addressing the significant downstream social and environmental impacts.

Summary Recommendations for rules:

1.Account management

Account limit of 1 ML per unit share with no carryover

2. Available Water Determination

Initial allocation < 1ML per share unit

3. Permanent Trade

No trading

4. Access

FPH access announcements at the beginning of an event combined with 324 orders with no rule limitations

5. Protection of environmental water

Cease-to-pump rules or return to river flow rules when environmental water is released to piggy-back flood flows.

6. Amendment provisions

Amendment rules as proposed to support adaptive management

Discussion of proposed rules:

1. Account management

IRN strongly opposes the proposed account limit with a maximum of 5 ML per unit share at any time with unlimited carryover.

The account limit must be no more than 1 ML per unit share with no carryover.

[More discussion on carryover occurs later in this submission]

2. Available Water Determination

IRN strongly opposes an initial available water determination of 5 ML per unit share. This is a bonus to the irrigation industry that will deprive downstream communities and environment from access to important flood flows.

IRN supports an initial available water determination of < 1 ML per unit share.

The unit shares being proposed for licencing, 43, 000, are based on very poor data inputs to the model. This is a significant volume of water, estimated to be more than one third of all surface water take in the Border Rivers catchment.¹

The information provided in various documents released during the public consultation period outline that management of FPH take through rules will bring long term average annual use back to 38 GL, to be under the water sharing plan limit.

¹ DPIE-Water, October 2020. Draft Border Rivers Regional Water Strategy p 12

IRN considers that this outcome can only be achieved through conservative available water determinations.

IRN supports flexibility in available water determinations to ensure compliance with the extraction limit.

3. Permanent Trade

IRN does not support trading of FPH licences.

However, in implementing current water policy, we support the proposed trading restrictions into floodplain management zones A & D to protect areas of high ecological and cultural values. There needs to be more information provided about the zones under the *Floodplain Management Plan for the Border Rivers Valley Floodplain 2020*.

IRN considers that all zones on the floodplain contain important ecological and cultural values. Trading into any zone will increase the level of flood flow interception.

4. Access Rules

IRN supports FPH access announcements at the beginning of a flood event, similar to access announcements made for supplementary water licences. The circumstances in which FPH access may need to be restricted may differ from the limited circumstances in which supplementary access is restricted and should not be tied to this.

The use of 324 orders (Temporary Water Restrictions under the NSW Water Management Act) are also supported when necessary. However, IRN does not support limiting the circumstances when s324 orders may be used to the following proposed rules:

- (a) there is uncontrolled flow in one or more sections of the water source
- (b) a supplementary water announcement has been made
- (c) supplementary water access is restricted to ensure outflows help meet flow targets specified for the Barwon–Darling Unregulated River Water Source.

This proposal can be interpreted as meaning (a)+(b)+(c) must apply before an order to restrict access to floodplain flows may be issued. While the first rule is obvious, the other two parts (b & c) are too limiting.

Flood flows can occur in parts of the catchment without triggering a supplementary access announcement. It is too limiting to tie a 324 order for FPH access to the presence of a supplementary access announcement and restrictions to supplementary water access.

For example, it should be possible to use a 324 order before supplementary water announcements are made. 324 orders should be used to achieve environmental objectives other than the existing flow targets in the WSP, such as ensuring that substantial flows fill and flush through Morella Watercourse, Pungbougul and Boobera Lagoons, or flood the floodplain ecosystems of Budelah Creek and Boomi River (including Budelah Nature Reserve). Only (a) should apply.

It would be preferable that FPH access announcements are made to achieve these environmental objectives rather than relying on 324 orders.

IRN notes that the Independent Panel Assessment of the Management of the 2020 Northern Basin First Flush Event recommended a reduction in reliance on temporary water restrictions made under Section 324, to provide certainty and clarity to all water users and communities. This should be achieved by embedding protection of flows for critical water needs into the regulatory and policy framework.²

The rules described for restricting access to supplementary flows in the Border Rivers (Table 5 Community Report) do not adequately protect natural flows into the Barwon-Darling.

Adequate flow targets must be met for the entire Darling system before FPH access is announced. These include:

- A storage target for 2 years water supply in Menindee Lakes to align with NSW Government targets for providing short to medium-term water security for the Lower Darling ie a minimum of 300-480GL of water in the top two Menindee Lakes (Lakes Wetherill and Pamamaroo) for supply of critical water to the environment and communities on the Barwon-Darling and Lower Darling.
- An end- of-system flow target at Wentworth that recognises the connectivity of the Darling River to the Murray. The Darling River does not stop at Wilcannia and must have connectivity flows for the full length of the river to improve ecosystem health.

5. Protection of environmental water

IRN strongly opposes the proposal to provide no rules in the Border Rivers water sharing plan to protect environmental water. The NSW Government agreed under the Northern Basin Review toolkit measures to protect environmental water and IRN expects this agreement to be met in rules for managing FPH.

The full volume of water recovery under the Basin Plan Sustainable Diversion Limit for the Border Rivers has not yet been met. There is an outstanding volume of 5.1 GL for the NSW Border Rivers.³ This additional water will enhance the capacity of licenced environmental water to meet ecological targets.

Any use of held environmental water to support important ecological assets on the Border Rivers floodplain must be protected from extraction through cease-to-pump rules or return flows to the river from gravity capture.

The NSW Border Rivers support nationally and culturally significant wetlands on the Macintyre floodplain: Morella Watercourse, Boobera Lagoon and Pungbougul Lagoon. It is important to provide these ecosystems with adequate natural and environmental flows.

We do not support the statement that *'Neither environmental flow rules nor licensed entitlements aim to create overbank flow'*⁴

² Craik W & Claydon G. 2020. Independent Panel Assessment of the Management of the 2020 Northern Basin First Flush Event. NSW Department of Planning, Industry and Environment.

https://www.industry.nsw.gov.au/_data/assets/pdf_file/0007/321649/final-report.pdf

³ <https://www.mdba.gov.au/progress-water-recovery>

⁴ DPIE-Water, October 2020. Report to assist community consultation P 1

This ignores that fact that environmental water could be released on the back of a flood flow (piggy backing) to enhance environmental outcomes by increasing duration of overbank flows and connectivity for fish breeding and migration purposes and for waterbird breeding.

It is imperative that flexibility and adaptive management of the use of environmental water licences is not restricted through lack of rules to protect releases from extraction.

We note that DPIE-Water is proposing an amendment provision to allow for this flexibility in the future ie *'to allow flexibility should environmental flows be targeted to create overbank flow'*⁵

IRN maintains that rules to protect environmental water must be included in the initial changes to the Border Rivers water sharing plan to allow for the regulation of FPH when licences are granted.

6. Amendment provisions

IRN fully supports that other proposed amendment provisions are included in the Border Rivers water sharing plan. These are:

An amendment provision to allow for introducing access rules:

- in response to monitoring, evaluation and reporting outcomes of environmental benefits from licensing floodplain harvesting or
- in response to improved understanding of the influence of floodplain harvesting on downstream flows.

Modelling

IRN considers that the model used to calculate the volume of FPH in the Border Rivers is not fit for purpose due to lack of data.

Serious data deficiencies are identified in the Model Build Report creating a high level of uncertainty in the modelling results

The data deficiencies include lack of reliable records on actual volumes harvested, uncertainties in measurement of metered diversions, verification of rainfall runoff parameters and a number of other key parameters. This lack of data impacts on the accuracy of the modelling results.

This is a major problem for a process aimed at granting new compensable, private property rights in the form of FPH licences.

Caveats

Two caveats identified in the Model Build Report in regard to the model being suitable for entitlement estimation reinforce the above concern. These are:

⁵ Ibid p 2

1. the model is best suited to modelling at whole-of-valley and river reach scale, and increasing the spatial resolution to farm-scale requires very detailed understanding and characterisation of flow pathways and farm management at that scale; and

*2. that the lack of actual harvested volumes data reduced our ability to minimise uncertainty in the model and thus our ability to verify the accuracy of the modelling.*⁶

High level of uncertainty

The Model Build Report identifies a number of high significance uncertainties that affect the accuracy of floodplain harvesting outputs in a long-term model assessment. These include:

1. The accuracy of measurement of river diversions

Meters used to measure regulated and supplementary diversions have known uncertainties of $\pm 1-25\%$. There needs to be further meter testing and validation data through the Metering Framework

2. Sparsity of records on harvested volumes

The lack of reliable records on actual volumes harvested from overbank flow events or rainfall-runoff makes it difficult to validate both the valley total and individual variability in floodplain harvesting.

3. Rainfall-runoff parameters for within farm runoff model

It is not possible to verify and account for individual variation in irrigation practice and runoff generation due to limited data to characterise differences in runoff between undeveloped, developed and irrigated areas.

4. Relationships between river flow and overbank flow and access to that flow

In small to medium floods the actual volume harvested will be sensitive to the breakout relationship and access to this flow. More information is needed to understand this.

Landscape losses, return flows

The other key issue with the model is the lack of information about the losses in the landscape between the farm and river gauge. Analysis of on farm capacity and flow records of downstream gauges is the key tool to estimate volumes of FPH take.

The accuracy of river gauges is another key concern in this process.

There is no guarantee that unknown landscape losses and return flows are not being attributed to FPH take and will therefore be included in FPH licences.

Peer Review

IRN is concerned that only a summary of the independent review on the NSW Border Rivers Model Build, Scenarios and Environmental Outcomes reports is publicly available, and this appeared after the commencement of the public exhibition of documents.

⁶ DPIE-Water, September 2020. Building the river system model for the Border Rivers Valley regulated river system p 113.

Rainfall Runoff Exemption

IRN strongly objects to the changes to the FPH policy that allows for the exempt capture of rainfall runoff when no water is being harvested from outside the farm.

This is free, unaccounted for water that is not available to any landholder or farming business in NSW other than those with access to FPH.

All rainfall runoff should be managed under the 10% harvestable rights rule. Any capture above that volume must be licenced to ensure equity across the state.

The limited data available to model rainfall runoff and characterise differences between undeveloped, developed and irrigated areas is a key identified problem with the modelling process.

Nevertheless, the process has estimated a volume of exempt rainfall runoff:

*'The model also estimates exempt rainfall harvesting on farms that have applied for floodplain harvesting entitlements; under current conditions this has a long term average of 6.3GL/yr while under the Plan Limit it is 5.8GL.'*⁷

It is significant that this exemption is approximately equivalent to the volume of water claimed to be returned to the environment under this FPH regulatory and management process.

IRN considers that all water above the 10% harvestable right that is captured for commercial benefit must be licenced.

Environmental Outcomes

The volume of FPH in the Border Rivers regulated water sharing plan 2009 was estimated to be 3 GL. The new modelling (with many limitations) has determined FPH take to be 43.6 GL under current conditions.

This new information demonstrates that 40.6 GL that was previously accounted for as planned environmental water is now proposed to be added to the level of water extraction.

The documented process calculates the new modelled level of FPH take to be 13% above the plan limit and that this will be returned to the environment, equating to approx. an additional 5.5 GL in long term average flows.

The draft Border Rivers Regional Water Strategy (RWS) identifies that FPH makes up over 30% of all surface water take in the valley. This is a significant issue that is not addressed through this regulatory process.

The Environmental Outcomes Report demonstrates minimal in-valley improvements while the Downstream Effects Report indicates that flows to the Barwon-Darling will only improve by about 1%.

⁷ DPIE-Water, October 2020. Model Scenarios Report p 21

The process does not recognise the environmental impacts of over 30 years of unregulated FPH take and makes no effort to mitigate these impacts.

Floodplain flows have significant ecological value that has not been fully recognised or assessed in this process. The volume of extraction of ecologically important overland flows is highly significant and will not be adequately regulated under the current proposal.

There is a disconnect between the *Floodplain Management Plan for the Border Rivers Valley Floodplain 2020* and the Floodplain Harvesting Program under the banner of the Healthy Floodplains Project.

The draft Border Rivers RWS identifies 33 floodplain structures (called hotspots) that impede important flood flow regimes to areas of ecological and cultural significance. There is no discussion about these structures, whether they have been included in the FPH model and how or when they will be removed or modified.

While proposed rules suggest imposing a trade restriction into floodplain zones A & D, IRN maintains that any trade in FPH licenced access will have adverse environmental impacts and should not be permissible.

The Downstream Effects Report identifies that the Border Rivers provides on average 18% of the flows to the Barwon-Darling. The draft Border Rivers RWS states that 19% of the long term annual average flow to Menindee Lakes is provided by the Border Rivers.

The high level of connectivity between the Border Rivers and the Barwon-Darling is significant. While it is considered to be the smallest valley where the FPH Policy is being implemented⁸ the volume of connected flows from the Border Rivers is critical and more natural flood flow connection needs to be restored through the regulation of FPH extraction.

This is particularly important for small to medium sized floods after a prolonged drought.

It is interesting that a report on downstream flows has been produced when the volume of return flows is one of the key missing data inputs to the Border Rivers FPH model.

IRN considers the intention to licence a large volume of floodplain flow extraction in the Border Rivers is unsustainable and will cause the continued decline in the health of the Border Rivers, the Barwon-Darling, the Menindee Lakes and the Lower Murray.

We also note that the draft Border Rivers RWS identifies that on average 48 GL is lost to evaporation from on-farm storages. If more attention was given to managing this highly inefficient diversion and storage of water, the industry would be able to operate with current or increased crop outputs with less reliance on FPH.

Plan Limit and Cap

The information provided in the various reports regarding new plan limit and Cap scenarios is deliberately obtuse and often contradictory.

⁸ DPIE-Water, October 2020. Modelled downstream effects report p i

The 2018 FPH Policy states that *'Floodplain harvesting extractions will be managed within existing long-term average annual extraction limits.'*⁹

The long-term average annual extraction limits (LTAAEL) are based on 2001/2002 level of take in the Border Rivers regulated water sharing plan.

This is referred to as the Plan Limit in documents provided with the Border Rivers FPH public exhibition although there appears to be no reference to the level of take at 2001/2002.

The demonstrably poor modelling process has been used to update the Plan Limit and the Cap. There also appears to be no reference to the 93/94 level of take in the Border Rivers under Cap.

The information provides no evidence to substantiate the numbers described for a new Plan Limit or Cap for the NSW Border Rivers.

No access has been provided to the previous accredited Cap models to understand how the updated model has informed the process.

IRN considers the process to lack transparency and validity. We do not support that the proposed volumes of FPH can be licenced until improved data is obtained.

The explanation around Plan Limit and Cap modelling appears to be a justification for locking in a high volume of unsustainable flood water extraction and favouring the industry rather than improving ecological sustainability of water use and extraction in the Border Rivers.

Carryover

IRN objects to the use of the term carryover in the management of FPH water accounts. Volumes of water that are not available cannot be carried over. This is a misrepresentation of the term. The concept of carry over comes from actual water in licenced accounts that hasn't been used in the year it was allocated.

The FPH policy is promising water from the river system that has not yet arrived. It is proposing to commit access to an increasing share of future flood flows by up to 500% of unit shares thus putting the river and the environment in debt to the irrigation industry.

This approach is entirely unacceptable and weighted towards the irrigation industry at the expense of downstream water users, groundwater recharge and important ecological values and functions of the river system.

Consultation

IRN believes that the recent findings of the Independent Commission Against Corruption (ICAC) into management of water in NSW mirrors the deficiencies in consultation throughout the development and implementation of FPH policy.

⁹ DPIE-Water, September 2018. NSW Floodplain Harvesting Policy p 1

The ICAC recommendations concern the undue focus on irrigators' interests within water agencies and deal with the identified failures of the department.

These include a lack of transparency, balance and fairness in consultation processes undertaken by water agencies in relation to external stakeholders, and a practice of sidelining public officials undertaking environmental roles within the NSW government.

DPIE-Water staff and modellers have had regular meetings with the irrigation industry while implementing the FPH policy. There has only been one environmental stakeholder briefing during the exhibition period for the Border Rivers FPH process and one environmental group consultation with the independent model expert to discuss failings in the modelling process.

Conclusion

IRN strongly objects to the proposed very generous volume of FPH to be granted as windfall compensable, private property rights and to the proposed rules for accessing flood waters for extraction. The information provided demonstrates that the model used as the basis for these decisions is not fit for purpose.

Given the unexplained addition of a rainfall runoff exemption being the same volume as the proposed return of water to the environment in the case of the Border Rivers, IRN considers these draft rules and the current policy would in real terms mean a net zero return of water to the environment.

It stands to reason when put in context of the findings of the recent ICAC investigation into management of water in NSW, that "...a misguided effort to redress a perceived imbalance caused by the Basin Plan's prioritisation of the environment's needs" has resulted in a bias within the department towards irrigation, that the Department has more work to do to consider the needs of the environment as a stakeholder in the licencing of FPH.

The outcome of the proposed licenced volume of FPH in the Border Rivers will cause the continued decline of in-valley river health and of the Barwon-Darling and downstream connected water sources.

Yours sincerely

Brian Stevens

Secretary
Inland Rivers Network