



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

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NSW Legislative Council  
Select Committee  
Parliament House  
Macquarie St Sydney 2000

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### **SUBMISSION**

Inquiry into NSW Government's management of Floodplain Harvesting

#### **Introduction**

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.

Member groups include the Australian Conservation Foundation; the Nature Conservation Council of NSW; the National Parks Association of NSW; Friends of the Earth; Central West Environment Council; and Healthy Rivers Dubbo.

IRN welcomes the opportunity to submit evidence to the Select Committee Inquiry into the NSW Government's management of Floodplain Harvesting (FPH).

IRN has been closely engaged in this issue since a limit to growth of FPH works was announced on 3 July 2008, a draft FPH Policy Framework was released for comment in 2008, and the first draft FPH policy was released for public consultation by the NSW ALP Government in 2010.

We are very concerned that the current NSW FPH Policy 2018 has moved away from protecting the environment and has focussed on locking in history of use through a range of mechanisms. This is contrary to the priorities of the *Water Management Act 2000* (WMA).

The unregulated diversion and capture of flood waters from the NSW Northern Basin has had a significant impact for a period of over 30 years on flows in the Barwon-Darling/Baaka to Menindee Lakes, the Lower Darling and connectivity to the Murray River and South Australia.

This has impacted on the viability of downstream communities, industry, cultural values and environment health. The free access and use of flood flows in the five NSW Northern Basin Valleys has caused a shift of wealth creation from downstream to upstream communities that has never been assessed.

The cumulative loss of important low and medium flood flows to the river ecology has been significant and part of the cause of the degradation of important wetlands, native fish populations, cultural values and floodplain health. The cumulative effects of upstream extraction during or following droughts even reduces base flows in the Barwon-Darling/Baaka.

The relationship between structures on floodplains, the interception and capture of floodwaters, and the redirection of important flood flow paths have not been adequately assessed. The Healthy Floodplains Project has not been successful in adequately connecting the assessment of FPH entitlement and approvals to Floodplain Management Plans (FMPs).

NSW has been very slow at meeting the requirements of the Murray-Darling Basin Plan through the development of Water Resource Plans.

FPH Policy and implementation has been a very concerning moving feast of change. IRN believes that much of this change is due to pressure from sectors of the irrigation industry.

The delay in assessing FPH capability and the resultant final rush to have implementation completed by 30 June 2021 have caused significant difficulties in the process and poor management of a very complex issue.

**FPH diversions must be brought back to the 1993/94 level of development under the Murray-Darling Basin Cap agreement.**

IRN has welcomed the disallowance of FPH regulations and the establishment of an Upper House Select Committee Inquiry to enable a more thorough consideration of the impacts of the FPH policy implementation.

**Key issues covered in submission:**

The main Terms of Reference for the Inquiry are covered under issues 5 - 7

1. Lack of assessment of cumulative impact of FPH prior to regulation (p 3)

**Recommendation 1:** Conduct a thorough assessment of downstream environmental, cultural and social needs prior to finalising the volume of FPH entitlement in each valley.

2. FPH Policy & Implementation – locking in history of use (p 4)

**Recommendation 2:** Improve FPH policy to include full environmental assessment of all works, and increase transparency and certainty concerning implementation procedures.

3. Healthy Floodplains Project and relationship to Floodplain Management Plans (p 7)

**Recommendations 3:** Identify all illegal floodplain works and a process to remove them from the landscape.

Assess the existing environmental impacts of each and all floodplain works with FPH capability for before inclusion in FPH licences.

4. Assessment methodology for determining FPH access entitlement (p 9)

**Recommendation 4:** Establish an expert panel coordinated by the NSW Natural Resources Commission to determine models that are fit for purpose and include new climate modelling, and to conduct a more rigorous assessment for proposed unregulated FPH licence entitlements.

5. Legality under Water Management Act 2000 (p 10)

**Recommendation 5:** Implement a Section 324 order under the WMA to prevent any FPH extraction until the practice is fully licenced, metered and regulated by rules in water sharing plans

6. April 2021 Regulations (p 11)

**Recommendation 6:** That the amendments to the *Water Management (General) Regulation 2018* are not made until:

- Improvements are made to the assessment of regulated and unregulated licence share components
- Water supply works have undergone a transparent environmental impact assessment.

And the amendments do not include:

- An exemption from licencing rainfall runoff captured in tailwater drains on irrigated land.

7. Rules to manage FPH (p 13)

**Recommendation 7:** Implement water sharing plan rules that protect longitudinal and lateral connectivity flows within valley and in downstream valleys.

## **Issues:**

### **1. Lack of assessment of cumulative impact of FPH prior to regulation**

It is imperative that environmental impacts of the current level of floodplain diversions are fully assessed prior to granting FPH entitlements.

The entire focus of the NSW Government has been to assess the level of existing FPH take by developing a property level model for the Border Rivers, Gwydir, Namoi, Macquarie and Barwon-Darling/Baaka water sources. This has involved intensive engagement with the irrigation industry and individual property owners who have FPH capability across the 5 NSW Northern Basin river valleys.

There has not been the same level of attention given to assessing the environmental condition and needs of floodplain environments and connectivity in these catchments.

The assessment of environmental and downstream social and cultural impacts has been undertaken at the last minute, as an afterthought, rather than identifying, as a pre-requisite, the current downstream environmental condition and its requirements.

This is particularly important for longitudinal and lateral connectivity needs of the Barwon-Darling/Baaka; Macquarie and Gwydir Ramsar listed wetlands; billabongs, lagoons and wetlands in the Border Rivers and Namoi; floodplain condition; and groundwater recharge.

There has been no systematic review of scientific literature or input from local ecologists, no input from local traditional owners or recognition of cultural knowledge and no identification of the social and economic losses caused by free access to FPH over at least the past 30 years.

The environmental reports for each valley, produced after the assessment of FPH entitlement volumes, are based purely on modelling scenarios and not on ground-truthing, as has occurred in great detail on individual FPH properties.

The lack of assessment of the impact on floodplain works and structures on critical native fish and other freshwater aquatic species habitat, on floodplain vegetation and wetland areas, and on groundwater recharge is a key failing in the FPH regulation process.

This is particularly evident in the proposed outcomes of the Macquarie valley FPH assessment. The decision to fully licence all current levels of FPH extraction ignores the impact on the Ramsar listed Macquarie Marshes.

The majority of FPH extraction in the Macquarie occurs directly upstream of the Marshes in critical flow paths that supply floodwaters to the wetlands, eg Bulgeraga Creek.

The NSW and Commonwealth Governments agreed and committed to protect the values of this and other Ramsar wetlands when they were nominated, yet the values have been declining. Substantial reduction of the level of diversions would enable at least partial recovery and is essential to limit or prevent further loss of values and to meet our international obligations.

**Recommendation 1:**

**Conduct a thorough assessment of downstream environmental, cultural and social needs prior to finalising the volume of FPH entitlement in each valley.**

**2. FPH Policy & Implementation – locking in history of use**

IRN is concerned that the ongoing changes to FPH policy and implementation have resulted in expanding entitlements for FPH and proposed rules in water sharing plans that favour the irrigation industry above all other considerations, including the priorities of the WMA.

The NSW FPH Policy has changed significantly since the ALP draft policy was released for comment in 2010.

There have been ongoing changes to policy and implementation guidelines, on the run, throughout the last eight years since the NSW Coalition Government finalised a NSW FPH Policy in 2013.

The issue of rainfall runoff as a form of FPH has been highly contentious and its inclusion has greatly increased the volume of entitlement without recognising the value of rainfall runoff to floodplains, rivers and streams, and to groundwater recharge.

There have also been amendments to the WMA awarding compensable rights to FPH licences.

Modelling developed for the assessment of FPH entitlements has significant data gaps. The rushed approach to finalising FPH capability assessments is a significant issue.

## 2.1 Changes to Policy

IRN considers that the ongoing changes to FPH policy while implementation is underway has led to greater benefits to the irrigation industry at the expense of the environment, cultural values and downstream communities and industries.

### 2.1.1 Environmental assessment

i) The draft policy in 2010 included environmental assessment:

*Eligible works engaged in or capable of floodplain harvesting activities and eligible applications for such works will undergo environmental review and be assessed to determine their capability to harvest floodplain water.<sup>1</sup>*

ii) The final policy in 2013 removed the requirement for environmental assessment of works:

*Works with a Part 2 or Part 8 or Water Management Act 2000 approval which will be operated within the terms of that approval will not undergo an environmental assessment.<sup>2</sup>*

There was no requirement under Part 2 or Part 8 of the *Water Act 1912* to assess the environmental impact of works on the floodplain.

Therefore, under this policy criteria, there will be no environmental assessment of old works capable of harvesting flood waters before licences are granted.

Environmental impacts occur locally through blocking or diversion of flow as well as from the cumulative effects of reductions in flow to distant areas. There are creeks and wetlands that relied on relatively local runoff and now rarely receive significant flows

The loss of water flows to neighbouring properties was also not assessed. This has caused significant social and economic impacts that have not been considered. There has not been a process in place where approval of floodplain works can be contested.

### 2.1.2 Carry over

i) The draft policy in 2010 had a restriction on carry over, similar to rules for unregulated licences:

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<sup>1</sup> NSW Office of Water, April 2010. *NSW Floodplain Harvesting Policy*. Draft for community consultation

<sup>2</sup> Dept of Primary Industries Office of Water, May 2013. *NSW Floodplain Harvesting Policy*

*the total volume of water credited to the account cannot exceed an amount equal to twice the share component. In addition, average annual use over any three-year sequence will be limited to three times the share component.*

ii) The final policy in 2013 introduced the concept of 500% carry over for FPH licences:

*Floodplain harvesting licences will be able to carry over any unused water allocations from one water year to the next. However, total use in any one water year cannot exceed an amount equal to 500 percent of the individual share component (plus any water traded into the account).*

iii) The changed policy in 2018 gives very limited reference to carry over.

### 2.1.3 Compensation

i) The draft policy in 2010 did not allow for compensation:

*The holder of a floodplain harvesting licence would not have a right to compensation if their water allocations were reduced by changes to the bulk access regime.*

ii) The final policy in 2013 introduced compensation:

*It is intended to amend the Water Management (General) Regulation 2011 so that the holder of a floodplain harvesting access licence would have a right to compensation under the Water Management Act 2000 if their water allocations were reduced by changes to the bulk access regime after the first water sharing plan. This amendment occurred in 2014.*

### 2.1.4 Rainfall Runoff

i) The draft policy in 2010 did not allow for rainfall runoff to be classed as FPH:

*Harvesting of on-farm rainfall runoff is not included within the definition of floodplain harvesting.*

*All rainfall runoff harvesting must be in accordance with the Harvestable Rights Order by which the area is constituted as provided for under Chapter 3, Part 1, Division 2 of the Water Management Act 2000.*

ii) The final policy in 2013 did not specifically address rainfall runoff, as such. In the definition of FPH it excluded:

*runoff of irrigation water and stormwater which is subsequently captured in tailwater return systems or other means*

Reference to harvestable rights did not change

iii) The 2018 Policy brought in significant changes to the consideration of rainfall runoff:

*Floodplain harvesting is the collection, extraction or impoundment of water flowing across floodplains, including rainfall runoff and overbank flow,*

*Rainfall runoff is also included in the definition of floodplain harvesting without regard to which land the rainfall runs off.*

The definition of FPH excludes used irrigation water.

## 2.2 Changes to FPH policy implementation guidelines

There have been at least 3 versions of the FPH policy implementation guidelines. One published in August 2019, one published June 2020 and the most recent version published in September 2020.

IRN is concerned about the lack of transparency involved in these updates and changes. The guidelines state that:

*This guideline details the implementation process for the NSW Floodplain Harvesting Policy. We may amend it in the future to reflect the progress of implementation.*<sup>3</sup>

It has been very difficult for the community to follow the amendments to FPH implementation. There has been no community consultation or notice of changes that updated versions of the guidelines have been published.

IRN is very concerned about the FPH policy implementation, on the run, with inadequate consultation, other than with the irrigation industry.

This has led to a great deal of uncertainty and confusion in the broader community. The gravity of licensing the diversion and exclusive use of vast volumes of water by a relatively small number of businesses, to the detriment of other people and the environment, under legislation that makes compensation payable if that volume is reduced other than in limited circumstances, necessitates well-informed broad community discussion and effective input.

### **Recommendation 2:**

**Improve FPH policy to include full environmental assessment of all works, and increase transparency and certainty concerning implementation procedures.**

## **3. Healthy Floodplains Project and FPH relationship to Floodplain Management Plans**

A clear process of assessment and removal of works that intercept critical flow paths to important wetlands and areas of cultural significance is needed before FPH works are licenced through the FPH program.

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<sup>3</sup> DPIE, September 2020. *Guideline for the implementation of the NSW Floodplain Harvesting Policy.*

The Healthy Floodplains Project is described in a recent fact sheet as: ‘*the aim of the NSW Healthy Floodplains Project has been to drive reform in water management across the northern Basin floodplains. This includes managing development in floodplain areas and bringing water extractions from floodplains into the water licensing framework*’.<sup>4</sup>

The project is made up of two key elements: Floodplain Management Plan development program and FPH assessment and entitlement program.

The purpose of Floodplain Management Plans is to minimise risks and changes to flood flow-paths and to support flood dependent ecosystems.<sup>5</sup>

There is considerable concern that the Floodplain Management Plan program has failed to identify illegal or ‘unapproved’ structures on the floodplain and a clear process for their removal.

This is significant in the context of the FPH modelling, capability assessment and entitlement process. Most works on the floodplain have not undergone environmental assessment.

The policy criteria for assessing works capable of FPH is based on Part 2 and Part 8 approvals under the *Water Act 1912*. The three criteria for works considered eligible are works capable of floodplain harvesting that, on or before 3 July 2008, were:

1. constructed on a floodplain in accordance with an approval granted pursuant to Part 2 or Part 8 of the *Water Act 1912* or the WM Act
2. subject to a pending application for an approval to construct the work on a floodplain under Part 2 or Part 8 of the *Water Act 1912* or WM Act
3. constructed on a floodplain and for which it can be established, to the satisfaction of the Minister for Water, that the department did not require an approval under Part 2 or Part 8 of the *Water Act 1912*. In submitting an ROI relating to this category, the person submitting the ROI should provide evidence that the department did not require an approval for the works in question.<sup>6</sup>

There was no environmental assessment required under the *Water Act 1912* approvals process.

The inclusion of ‘unapproved’ works in the FPH modelling process and consideration of retrospective approval of floodplain structures is a key failure in the achievement of the aims of the Floodplain Management Plan program.

Floodplain Management Plans are based on hydraulic models to identify flood flow paths. It is unclear how these models considered ‘unapproved’ or illegal works.

The support of flood dependent ecosystems requires a full assessment of all works currently on the floodplain, including those extracting flood flows through FPH capability.

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<sup>4</sup> DPIE, February 2021. *NSW Health Floodplains project*

<sup>5</sup> <https://www.industry.nsw.gov.au/water/plans-programs/healthy-floodplains-project>

<sup>6</sup> NSW Dept of Industry, September 2018, *NSW Floodplain Harvesting Policy*

### **Recommendations 3:**

**Identify all illegal floodplain works and a process to remove them from the landscape  
Assess the existing environmental impacts of each and all floodplain works with FPH  
capability for before inclusion in FPH licences.**

#### **4. Assessment methodology for determining FPH access entitlement**

IRN is concerned that under the current process of assessing and granting new entitlements, it is highly likely that FPH, in the future, could access a larger volume of annual average flows than the modelling and assessment indicates.

IRN does not support the use of the volumetric conversion process previously used for unregulated rivers to determine FPH entitlements for properties with unregulated and/or groundwater licences.

##### **4.1 Modelling for regulated FPH access licences and Barwon-Darling unregulated**

IRN has significant concerns about the quality of models developed to assess the share components for issuing regulated FPH licences to access water from the floodplains of regulated rivers. The modelling reports published for the Border Rivers, Gwydir and Macquarie valleys indicate a high level of uncertainty because of the lack of measured data.

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

- The accuracy of measurement of river diversions
- Sparsity of records on harvested volumes
- Rainfall–runoff parameters for within farm runoff model
- Relationships between river flow and overbank flow and access to that flow

The models do not include return flows and, as such, **are not fit for purpose** for identifying either environmental outcomes or downstream effects.

Models need to be peer reviewed in a transparent manner and, to comply with Basin Plan requirements, be accredited by the Murray-Darling Basin Authority. The establishment of an expert panel coordinated by the NSW Natural Resources Commission is needed to ensure that model assumptions and parameters are fit for purpose and that licence determinations will restrict extractions to legal limits.

##### **4.1.1 Failure to consider climate change impacts on rainfall and runoff into the future**

Water management in NSW has been based on historical data and observations going back to the 1890s. This has provided a limited understanding of extreme events. The NSW Government has invested in new climate datasets and modelling to develop a more sophisticated depiction of long-term streamflow and climatic conditions.<sup>7</sup>

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<sup>7</sup> DPIE, September 2020. *Draft Regional Water Strategy: Macquarie-Castlereagh*

The new climate models have been developed for Regional Water Strategies in NSW to assist with better water planning. It is critical that these new datasets are used in the models to assess FPH access and entitlements in each Northern Basin valley.

The new modelling demonstrates that rainfall and runoff will decrease while evaporation will increase in the future. This is significant for the integrity of rivers and floodplain ecosystems.

IRN is concerned that under the current process of assessing and granting new entitlements, it is highly likely that FPH, in the future, could access a larger volume of annual average flows than the modelling and assessment indicates.

New climate modelling must be included in the FPH assessment models developed for each valley

#### 4.2 Assessment of unregulated and groundwater properties

It is proposed to issue FPH (unregulated) access licences to irrigators with FPH works that are away from regulated rivers and/or have licences to access water from unregulated streams, but not regulated rivers, or from groundwater

IRN does not support the use of the volumetric conversion process previously used for unregulated rivers to determine FPH entitlements for properties with unregulated and/or groundwater licences.

This methodology is highly subjective based on satellite imagery of cropped areas. It does not include evidence of rainfall records, presence of overland flows or storage capability in the assessment of FPH access.

This approach has allowed irrigators to use their maximum cropping area between the years 1993-1999 to determine their licence share, rather than using the Cap baseline year of 1993/94 level of development. It also allows for creating new floodplain harvesting licences based on historic take from groundwater sources.

#### **Recommendation 4:**

**Establish an expert panel coordinated by the NSW Natural Resources Commission to determine models that are fit for purpose and include new climate modelling, and to conduct a more rigorous assessment for proposed unregulated FPH licence entitlements**

#### **5. Legality under Water Management Act 2000 (WMA)**

IRN does not believe that FPH practices are currently legal under the WMA because they are not licenced.

The attempt by the NSW Government to establish a regulation to exempt FPH extraction until such time as it is licenced, appears to substantiate this.

The uncertainty is described in documents providing feedback on the disallowance of the proposed transitional arrangements.

*'Because the transitional exemption was disallowed, the lawfulness of floodplain harvesting once again become unclear.*

*The department acknowledges that since the transitional exemption was disallowed, there is continuing need to clarify the legal nature of floodplain harvesting in this period before licensing begins.'*<sup>8</sup>

IRN agrees that a transitional exemption not be in place. We also consider that the NSW Minister Water has powers under Section 324 of the WMA to prevent FPH extraction until such time as it is fully licenced.

There is concern that FPH extraction is still continuing in the 5 NSW Northern Basin valleys without regulation and without legal standing.

Extraction of overland and overbank flows prior to the finalisation of the regulatory process should be prevented through a permanent Section 324 order.

**Recommendation 5:**

**Implement a Section 324 order under the WMA to prevent any FPH extraction until the practice is fully licenced, metered and regulated by rules in water sharing plans**

## **6. April 2021 Regulations**

IRN notes the feedback provided by the NSW Government on the submissions lodged during consultation on the draft regulations proposed in November 2020.

### **6.1 Transitional exemption**

IRN agrees that a transitional exemption is not in place and has been removed from the proposed amendments to the *Water Management (General) Regulation 2018*.

### **6.2 Licencing and Measurement**

While IRN supports that a Floodplain Harvesting Access Licence Regulation and a Floodplain Harvesting Measurement Regulation need to be in place, there are a number of issues that must be addressed, as outlined in this submission, prior to access licences being granted.

The floodplain works eligibility criteria in the FPH policy is not supported and needs to include a full environmental impact assessment prior to licencing.

IRN has major concerns about the modelling process used to determine regulated and Barwon-Darling unregulated share components for FPH access licences.

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<sup>8</sup> DPIE, April 2021. *Legislative amendments: Floodplain harvesting transitional exemption*

IRN does not support a repeat of the volumetric conversion process previously used for unregulated rivers to determine share components for unregulated FPH access licences.

All water supply works nominated on the FPH access licence must have undergone a transparent environmental impact assessment.

### 6.3 Tailwater drain exemption

All water captured in tailwater drains must be measured and accounted for under licence provisions or under the 10% harvestable rights rule.

IRN notes that the *Water Management (General) Amendment (Exemption for Rainfall Run-off Collection) Regulation 2020* was renamed as the Tailwater drain exemption in April 2021.

The issue of rainfall runoff interception and measurement during the implementation of the FPH policy has been highly contentious and subject to ongoing changes in policy position.

The feedback document released by the NSW Government demonstrates the ongoing uncertainty surrounding this issue.

*'it is not yet resolved whether all or part of the rainfall runoff water collected in irrigation tailwater systems constitutes a diversion. The department has committed to the development of a state-wide policy for assessing and managing the growth in runoff collected through tailwater drain that will also consider the response that other Basin States are taking. This will then be managed as an interception activity through water resource plans.'*<sup>9</sup>

The exemption proposes that all irrigation properties, regardless of capability for FPH, will be granted free access to rainfall runoff from land developed for irrigation.

IRN does not support this exemption. All other landholders in NSW only have access to 10% of rainfall runoff under harvestable rights.

The tailwater drain exemption is giving free access to unlicensed water to the irrigation industry. More efficient water use for crop irrigation would generate less excess water.

#### **Recommendation 6:**

**That the amendments to the *Water Management (General) Regulation 2018* are not made until:**

- **Improvements are made to the assessment of regulated and unregulated licence share components**
- **Water supply works have undergone a transparent environmental impact assessment.**

**And the amendments do not include:**

- **An exemption from licencing rainfall runoff captured in tailwater drains on irrigated land.**

<sup>9</sup> DPIE, April 2021. *Legislative amendments: Tailwater drain exemption*

## 7. Rules to manage FPH

The rules proposed by the NSW Government to manage FPH through water sharing plans are not sufficient to protect the environment, cultural values or downstream water users.

It is imperative that water sharing plan rules protect first flush flows, provide end of system flow targets and downstream connectivity - both longitudinal connectivity of the rivers and lateral connectivity with billabongs, natural lakes and other wetlands. This is particularly important to restore the health of the Barwon-Darling/Baaka, native fish habitat, groundwater recharge and the resilience of floodplain wetlands as well as all cultural heritage values.

Most of the targets in existing water sharing plans were developed several decades ago and are grossly inadequate. They include the targets in the Interim Unregulated Flow Management Plan for the North West which was released in 1992. It was developed in response to a 1000 km long blue-green algal bloom in the Barwon-Darling/Baaka river, the severe shortage of water due to drought and diversions and concerns about the consequences of fish being unable to swim over weirs. A process was initiated to use scientific expertise to develop broader targets but this did not result in replacement of the interim plan. This process related to providing habitat needs for the river's ecosystem to be productive and resilient, as identified by a geomorphologist and freshwater ecologists. The breadth of experience available now should be used to produce targets for ecological and cultural sustainability – before FPH access licences are granted.

The release of Commonwealth Held Environmental Water and NSW Environmental Water Allowances must be protected from extraction through FPH.

FPH access must be managed through announcements, in a similar manner to supplementary licence announcements.

FPH access should have a lower order of priority than other water access licences.

The initial available water determination (AWD) must not be above 1 ML per unit share. There should be no carryover of unused FPH.

Trade of FPH licences should not be permitted.

All monitoring and metering must be in place prior to granting FPH extraction and works licences.

### **Recommendation 7:**

**Implement water sharing plan rules that protect longitudinal and lateral connectivity flows within valley and in downstream valleys.**