



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

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PO Box 528, PYRMONT NSW 2009  
ph 0428 817 282  
email [inlandriversnetwork@gmail.com](mailto:inlandriversnetwork@gmail.com)  
web [inlandriversnetwork.org](http://inlandriversnetwork.org)  
ABN 34 373 750 383

Natural Resources Commission  
GPO Box 5341  
Sydney NSW 2000  
[nrc@nrc.nsw.gov.au](mailto:nrc@nrc.nsw.gov.au)

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**Submission to Review of the *Water Sharing Plan for the Namoi and Peel Unregulated Water Sources 2012***

The Inland Rivers Network (IRN) is a coalition of environment groups and individuals concerned about the degradation of the rivers, wetlands and ground waters 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; Colong Foundation for Wilderness and Healthy Rivers Dubbo.

**Introduction**

IRN welcomes the opportunity to participate in the Natural Resources Commission (NRC) review of the *Water Sharing Plan for the Namoi and Peel Unregulated Water Sources 2012* (the WSP).

We note that review of the *Water Sharing Plan for the Peel Valley Regulated, Unregulated, Alluvium and Fractured Rock Water Sources 2010* was conducted by NRC in 2019 with several key recommendations in relation to the Peel unregulated water source.

It is unclear whether these recommendations are being implemented.

The response letter from the Minister for Water in February 2021 refers only to recommendations that have priority by July 2020. There are significant recommendations to be completed by July 2022 that will have a bearing on changes to the WSP under review. There is no apparent evidence that these are being implemented.

We also note the reference to the Namoi Regional Water Strategy that is now in a drafting stage. NRC recommendations for improved Peel River management have not been clearly identified in that process, to date.

New climate modelling for the Namoi region demonstrates an increasing challenge in the future to share water between extractive users and the needs of healthy river ecology.

### **Context to the water plan's area**

The unregulated streams in the Peel and Namoi Rivers provide base flows and opportunities for supplementary licence take in the regulated Peel and Namoi Rivers. They also provide tributary utilisation flows, used by WaterNSW to fill water orders in regulated systems to retain more water in the main storages: Keepit Dam, Split Rock Dam and Chaffey Dam.

The protection of tributary flows in the unregulated system to maintain water quality during extreme dry periods is critically important for downstream requirements to meet critical human water needs for basic landholder rights during such time. Coordination of rules with the regulated WSP is important during these extreme events especially given the regulated WSP appears to lack strong rules to manage access licences during low flow periods which creates a risk to all Namoi water sources.

The Namoi River system is highly connected to the Barwon-Darling River and provides an estimated 23.5%<sup>1</sup> of downstream flow. The WSP needs to take full account of downstream environmental watering requirements and include strong rules to meet these requirements and an identified responsibility for co-ordination with the Environmental Water Advisory Group.

There is high connectivity between surface water and groundwater sources in the Namoi Valley.

We understand that the study of connectivity between surface and groundwater in the Cockburn River in the Peel valley is currently underway.

The Namoi Water Resource Plan identified a high risk to water for the environment to meet environmental watering requirements for base and fresh flows in the Cockburn River. Current rules in all water sharing plans for the Namoi and Peel demonstrate insufficient regard for connected water resources and fail to manage these specific risks as identified in the Cockburn River.

While there are objectives in the WSP relating to connectivity between water sources specific rules are needed to better protect longitudinal, lateral and groundwater recharge connectivity.

The review of the WSP also needs to consider its context within the implementation of the Murray Darling Basin Plan and how the rules for management and access of water in the WSP contribute to keeping water take within the constraints of the Basin Plan.

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<sup>1</sup> MDBA 2011

Namoi waters meet downstream water requirements and the rules and objectives of the WSP must be able to take account of these needs. The WSP must facilitate precise measurement of consumptive take under licence, the protection of all environmental water and the effective monitoring of all environmental assets including the capacity to make adjustments to meet any changes in environmental watering requirements.

The review of all WSPs in the Namoi by the MDBA has indicated some anomalies and inconsistencies between WSPs within this SDL resource unit. How the subject WSP contributes to these identified inconsistencies should be considered as part of this review and corrected to achieve consistency in objectives and outcomes for the catchment. In this regard the subject WSP makes its own important incremental contribution to the improved health of all basin waters.

In particular how classes of access rights from unregulated waters for special additional high flow and floodplain harvesting is incorporated into the WSP to ensure best estimates of long-term annual average measurement of take including any growth in use.

## **Environmental Health**

### **Key environmental assets and ecosystem functions <sup>2</sup>**

The Namoi water resources support significant aquatic ecological values including:

- approximately 2,770 small lagoons, wetlands and billabongs totalling 46,398 ha in the Namoi River basin predominantly downstream of Narrabri. Of these, 1,829 are identified as natural wetlands. Twenty-one natural wetlands have wetland-dependent threatened species within a 500 m radius (Welsh et al. 2014)

Lake Goran, a wetland of national importance, is a large internal drainage basin south of Gunnedah, covering more than 60 km<sup>2</sup>. Although the lake is rarely full, when flooded, it provides a habitat for waterbirds and is listed as a wetland of national significance

- native aquatic species listed as threatened in NSW, the River Snail, Freshwater Catfish, Silver Perch, Olive Perchlet, and Purple Spotted Gudgeon. The Murray Cod is nationally listed under the *Environmental Protection and Biodiversity Conservation (EPBC) Act (1999)* as vulnerable
- habitat for threatened frog species such as Sloane's Froglet, Booroolong Frog, and Davie's Tree Frog
- habitat for eighteen threatened bird species (NSW) including Magpie Goose, Australasian Bittern, Brolga, Black-necked Stork, Australian Painted Snipe, Black-tailed Godwit, Blue-billed Duck, Freckled Duck and Grey Falcon
- the Namoi River forms part of the Darling River Endangered Ecological Community (NSW *Fisheries Management Act 1994*). The community occurs in lowland riverine environments with meandering channels and provides a variety of aquatic habitats including deep channels and pools, wetlands, gravel beds and floodplains

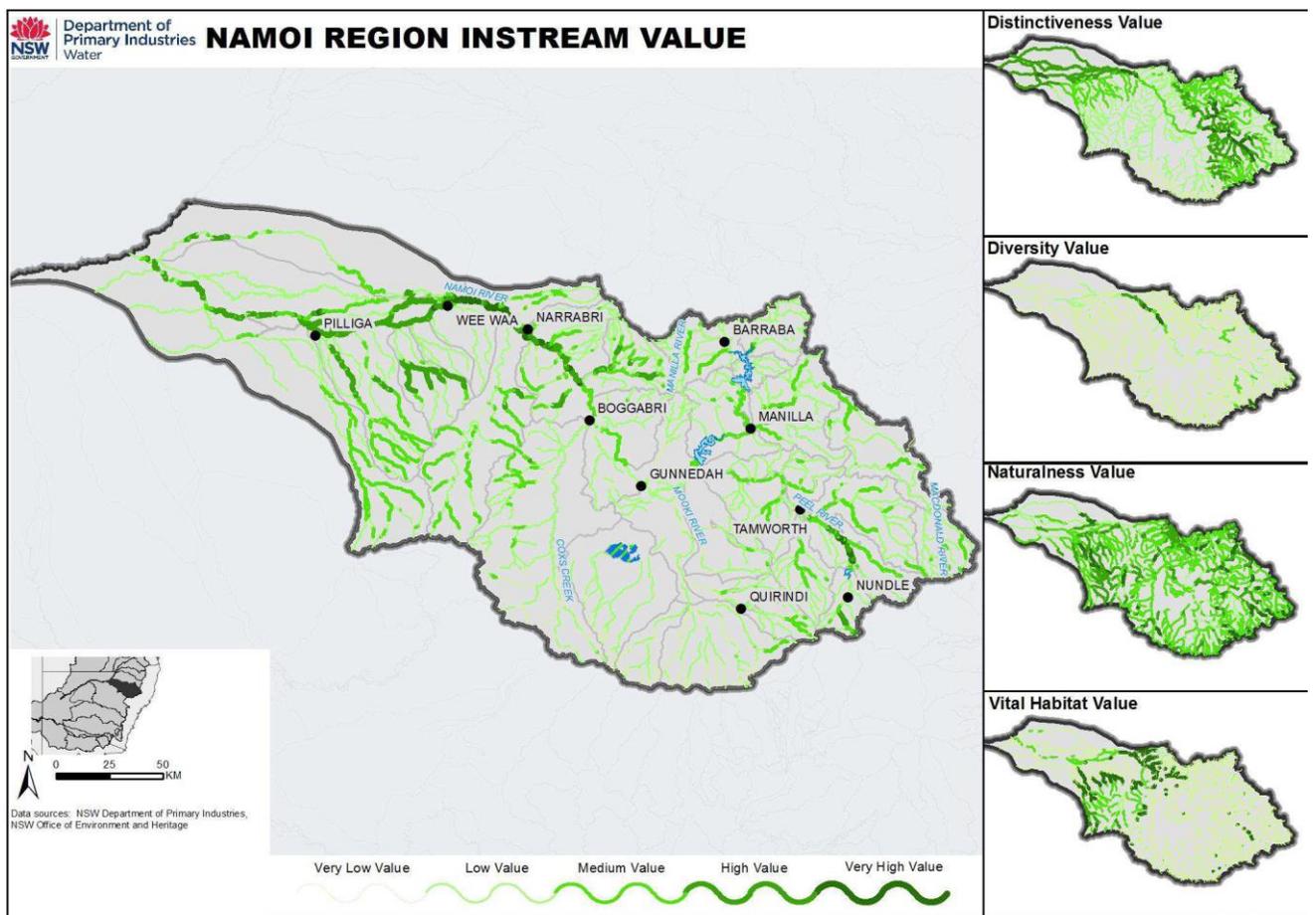
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<sup>2</sup> DPIE -Water 2017. Status and issues paper: Namoi surface water

- within the river channel and floodplain areas of River Red Gum, Coolibah and Black Box woodland provides a wide range of habitats, such as pools, riffles and billabongs, for fish (e.g. Murray Cod and Silver Perch), insects, crustaceans and snails

Areas of regional ecological significance include:

- Gulligal Lagoon, near Gunnedah – a semi-permanent wetland, that is connected to the Namoi River, filling during flood events and from surface flows. The lagoon is a 4.2km long channel that is dominated by River Red Gum (*Eucalyptus camaldulensis*) woodlands and provides important habitat for native fish species including Olive Perchlet. This lagoon acts as a drought refuge in the mid-Namoi region and was restocked with breeding pairs of Purple Spotted Gudgeon in late 2009 as part of the Namoi Demonstration Reach project
- the reach of the Namoi River between Boggabri and Narrabri is characterised by a number of long, narrow lagoons that represent prior channels of the Namoi River. Barbers Lagoon, a major anabranch of this reach, covers approximately 134 ha and is about 22 km long



**Map of HEVAE (High Ecological Value Aquatic Ecosystem) assessment outcomes for the Namoi Water Resource Plan area.**

This map demonstrates the ecological significance of many of the unregulated streams.

Rules to protect and improve environmental health, such as cease to pump rules, must be more specific and regularly monitored for compliance.

## Current river health

The overall ecosystem health of the Namoi region is poor and the region's fish community is in very poor health.<sup>3</sup>

The Namoi unregulated streams were found to have high and medium risks to ecological values in all four hydrological characteristics - base flows, fresh flows, high/infrequent, and zero flow in the Namoi Water Resource Plan risk assessment.<sup>4</sup>

The Environmental Watering Strategy for the Namoi Water Resource Plan aims to achieve the following outcomes:

### a) River flows and connectivity

Improved overall flow - 10% more into the Barwon–Darling

Improved connectivity with bank-full and/or low floodplain flows - by 10–20%

### b) Vegetation

Maintain the current extent of river red gum, black box, coolibah forest and woodlands and existing large communities of lignum; and non-woody communities near or in wetlands, streams and on low-lying floodplains.

Maintain condition of lowland floodplain forests and woodlands of river red gum, black box and coolabah

### c) Water birds

Maintain current species diversity of all current Basin waterbirds

Increased abundance: 20–25% increase in waterbirds by 2024

Improved breeding:

up to 50% more breeding events for colonial nesting waterbird species

a 30–40% increase in nests and broods for other waterbirds

### d) Fish

Improved distribution of key short- and long-lived fish species

Improved breeding success for:

- short-lived species (every 1–2 years)
- long-lived species in at least 8/10 years at 80% of key sites

Improved populations of:

- short-lived species (numbers at pre-2007 levels)
- long-lived species (with a spread of age classes represented)
- Murray cod and golden perch (10–15% more mature fish at key sites)

Improved movement - more native fish using fish passages

Improved flow management in unregulated streams will help in achieving these outcomes.

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<sup>3</sup> DPIE -Water, March 2021. Draft Namoi Regional Water Strategy

<sup>4</sup> DPIE-Water, September 2019. Risk Assessment for the Namoi Water Resource Plan Area (SW14)

## **Namoi Long Term Water Plan (LTWP)**

The Namoi LTWP notes that in the unregulated streams in the catchment:

- cease to flow periods have been highly altered and occur more frequently
- low flows and base flows have been highly altered and occur more frequently

The LTWP identifies management strategies for each unregulated stream that must inform the remake of the WSP.

The objectives and outcomes in the WSP must have improved alignment with the LTWP management strategies for access to all water sources including supplementary access for the Lower Namoi.

### **Research into significance of drought refuge for aquatic species:**

The following links provide reports on studies into turtle and other species populations in the Macdonald River during and after the 2018-2020 drought. These studies demonstrate the importance of protecting in river pools as drought refugia.

<https://www.dropbox.com/s/g4qsg9k1fs57ryp/SUMMARY%20OF%20BOOROOLONG%20FROG%20SURVEYS%20NOV-DEC%202019.pdf?dl=0>

<https://www.dropbox.com/s/xk0uad68g7x0yik/Bells%20Turtle%20monitoring%20surveys%20in%20Macdonald%20River%20Nov%202019%20to%20Mar%202020.pdf?dl=0>

<https://www.dropbox.com/s/hfr0l36nco7zwh3/Phils%20Summary%20of%20turtle%20trapping%20results%20Nov%20-%20Dec%202020.pdf?dl=0>

### **Floodplain Harvesting (FPH)**

A significant volume of FPH occurs in the unregulated Namoi water source. It is concerning that the assessment of FPH volumes and regulation has not included the cumulative environmental impact of the structures on the floodplain. The process has also not assessed the more localised impacts of FPH extraction on environmentally and culturally significant lagoons, billabongs and other off-river pools in the landscape.

FPH has major impacts on all downstream locations as well as the local landscape. It significantly reduces high or medium flows and prolonged or repeated flows needed by ecosystems and people along the Barwon or Darling/Baaka. It can sometimes times reduce the duration of low flows in the Darling/Baaka, affecting survival of flow-dependent species and salinity below Bourke. FPH has therefore contributed to these rivers both missing out on “normal” conditions and experiencing drought-like conditions more often and for longer.

The take of FPH directly after prolonged droughts is a key issue for downstream connectivity, recharging groundwater and re-saturating the landscape.

There appears to be a high level of disconnect between the purpose of the Namoi Floodplain Management Plan and the regulation of Namoi FPH under the NSW Government Healthy Floodplains Project.

First flush flow protection and other rules for FPH are critical in a new WSP.

### **Cease to pump rules (CtP)**

The Namoi Unregulated Water Sources rules summary<sup>5</sup> describes the mostly generic CtP rules across all unregulated streams with a few exceptions.

Access rules for rivers and creeks:

Pumping is not permitted from natural pools when the water level in the pool is lower than its full capacity.

Notes:

- Full capacity can be approximated by the pool level at the point where there is no visible flow into and out of that pool
- Natural pools include in-river pools found within the channels of rivers and creeks and off-river pools located on floodplains and effluents eg lakes, lagoons and billabongs
- For pumps not within a natural pool, the cease to pump rule is when there is no visible flow at the pump site.

Access rules for natural off-river pools:

Pumping is not permitted when the water level in that natural off-river pool is lower than its full capacity.

Notes:

- ‘Full capacity’ can be approximated by the pool water level at the point when there is no visible flow into or out of that pool
- Off-river pools include those natural pools located on flood runners or floodplains, or an effluent that only commences during high flow

Exceptions to these rules include:

- Gulligal Lagoon can be pulled down to less than 80% capacity
- Lake Goran when the flow at the reference gauge is less than or equal to 294.7 m AHD
- Eight sub catchments within the Namoi Valley have more specific CtP rules
- Five sub catchments in the Peel Valley also have more specific CtP rules

These access rules do not apply to:

- Local Water Utilities or unregulated (town water supply) access licences
- Stock and Domestic (Domestic) licences
- Water taken under a licence listed under clause 47(18) and the associated clause 1 of Schedule 3
- The taking of water from existing dams. Any existing licence conditions associated with a dam will be carried forward under the plan.
- For the first 5 years of the plan to water taken for stock watering by stock and domestic access licences

Also, these access rules do not apply if the existing *Water Act 1912* entitlement had more stringent access licence conditions. These existing conditions will be carried forward under the plan and are included in clause 47(7) and the associated Appendix 3

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<sup>5</sup> DPIE -Water, 2020

IRN has major concerns that the range of CtP rules and the various exemptions are not adequate to protect the ecological values in the Namoi & Peel unregulated streams. These streams experience prolonged drought conditions and all need a first flush CtP rule.

The genuine protection of environmental water from consumptive take across all connected water sources is fundamental to the WSP making its contribution to NSW's commitment to the Basin Plan. Strong CtP rules are part of a suite of rules that protect environmental water, and these should be well co-ordinated within and across a water source to properly achieve the purpose of environmental water to meet well-defined environmental watering requirements.

CtP rules need to take full account of identified risks to all environmental assets especially future risks associated with a changing climate.

#### **Aquifer Interference from Mining and CtP rules:**

IRN notes that there are significant coal mining operations in the Namoi unregulated streams catchment. Conditions of approval often require the purchase of surface water licences to mitigate volumes of groundwater and surface water intercepted through mining operations.

The exemption to the mining industry from CtP rules in unregulated water licences purchased to mitigate mining interception is a key issue for the long-term management of riverine ecology in these areas. (Cl 47 (1) ). This clause should be removed or modified so that replacement flows are a provision.

Replacement flows should be a recommended requirement in the conditions of approval for all mining operations.

IRN understands that this aquifer interference exemption has been removed from the new draft Hunter Unregulated WSP.

#### **Response to Review Questions**

##### **1. To what extent do you feel the plan has contributed to environmental outcomes?**

The implementation of CtP and trading rules in Namoi and Peel unregulated streams has commenced the process of recognising the need to protect river health. However, the current ecosystem health of water sources in the region is poor and more targeted rules are needed to achieve improved environmental outcomes and to meet the WSP environmental objectives.

The definition of Planned Environmental Water (WSP Part 4 cl 16 (c) )'by reference to 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 ' demonstrates that water for environmental health of the river system has the lowest priority in the WSP.

The management of FPH extraction is particularly important for the health of this water source. There has been no assessment of the impact of FPH on environmental health in specific Namoi unregulated streams.

The impact of FPH on downstream lagoons and other off-river pools has not been assessed.

The risk assessment for the Namoi WRP SW 14 identified high risk of elevated turbidity, elevated phosphorus and increased dissolved oxygen. The WSP does not have clear rules to manage for improved water quality.

Schedule 3 and Schedule 4 of the WSP demonstrate that quite a few licences in the WSP area had a previous *Water Act 1912* entitlement with more stringent access licence conditions.

This demonstrates that the rules in the WSP are not as stringent as previous water access rules and are, in fact, a backward step.

Many of the important environmental assets in the Namoi, eg frogs, 18 bird species and fish such as the Olive Perchlet are floodplain dependent species. There is currently no rule to stimulate breeding opportunities such as an aligned 'first flush no take' rule.

## **2. To what extent do you feel the plan has contributed to social outcomes?**

The WSP has failed to meet the vision to provide for *the spiritual, social, customary and economic benefits of surface water to Aboriginal communities*.

No native title determinations have been achieved, no cultural water licences have been allocated and fish populations are in very poor health.

It is unclear how First Nation peoples' views about cultural flows have been incorporated into the WSP and where this has been defined in the WSP. Cultural objectives should not be conflated with environmental objectives. There is need for greater regard of the views of First Nations in the management of cultural flows within all of the Namoi waters and management of unregulated waters is important to protect and maintain cultural flows for the social benefit of First Nation peoples.

Gulligal Lagoon and other lagoons, billabongs and off-river natural pools have significant Aboriginal cultural value. These provide important drought refuge for many native species and are not fully protected from water extraction in dry times.

The protection of basic landholder rights requires more recognition.

The lack of protection of flows for downstream use has caused a failure to achieve social outcomes.

The ongoing risk of poor water quality also impacts social outcomes.

### **3. To what extent do you feel the plan has contributed to economic outcomes?**

The WSP has clear trading rules and aims to provide certainty for all water users. Most of the WSP rules are tailored to large extractions for inefficient flooding of cotton crops in the Namoi and for low value lucerne crops in the Peel.

This is mainly at the expense of secure town water supply, stock & domestic access and basic rights access.

The economic value of irrigated agriculture must be assessed against the environmental and social costs associated with unhealthy rivers. The long-term sustainability of water extraction under newly modelled climate change scenarios must be a key consideration for the WSP review. Current Long-term annual average diversions limits were not set with climate change impacts under consideration. The environmental health of the river is likely to be the key victim of unchanged water sharing arrangements in a drying climate.

The economic value of town water supply, water-related tourism and recreational fishing and community well-being must be included in consideration of economic outcomes.

### **4. To what extent do you feel the plan has contributed to meeting its objectives?**

The lack of clear monitoring and reporting requirements to demonstrate the meeting of objectives and performance indicators is a failure of the plan.

The ongoing high risks to ecosystem health and water quality, the lack of allocation of Aboriginal cultural water licences, and the failure to protect downstream connectivity, and integrity of significant off-pools, particularly as drought refuge demonstrates that the WSP is not able to meet its objectives.

The lack of rules to stimulate breeding opportunities for important floodplain dependent species is a failure to meet the targeted environmental objective of the WSP.

#### **5. What changes do you feel are needed to the water sharing plan to improve outcomes?**

- Specific rules to improve connectivity between water sources to better protect longitudinal, lateral and groundwater recharge connectivity. The rule changes outlined in the Namoi LTWP must be considered in the new WSP.
- Rules to protect and improve environmental health, such as CtP rules, must be more specific and regularly monitored:
  - For extraction from instream flows, all reaches must have a very low flow class attached to a gauge and, as an interim measure until very low flow classes are established, standard conditions should not permit pumping unless there has been visible flow past the pump for at least the previous 24 hours. The current rule for CtP when there is no visible flow at the pump site does not protect downstream connectivity.
  - For extraction from in-river and off-river pools, pumping should be prohibited unless there has been visible outflow from the pool for at least 24 hours and unless there is both visible inflow **and** visible outflow from the pool.

- Extraction from Gulligal Lagoon must have the same CtP rule as all other natural pools
- All sub-catchments must have a CtP rule that protects the first flows after prolonged drought and active management to protect these flows for environmental, social and cultural benefits of instream flow as far downstream as possible.
- FPH must be managed through specific rules that limit diversion or harvesting to times when it is clear that **all** downstream needs have been or are sure to be met
- FPH rules must include and not be limited to specific first flush flow protection rules and specific first flush flow protection rules and rules to ensure frequent downstream connectivity.
- The exemption from CtP rules in unregulated water access licences owned by mining companies must be mitigated through a requirement in conditions of approval to provide replacement flows into the associated unregulated streams of water with high quality and the timing needed to maintain and restore the aquatic ecosystems. This must also be a rule in the WSP.
- Volumes for some classes of water licences permitted under the WSP need to be checked for consistency with the requirements of the Basin Plan to reduce over-extraction of basin waters.
- No new or enlarged in-river dams on stream orders 3 or higher should be permitted without public exhibition of an environmental impact statement.

## Conclusion

IRN looks forward to recommendations from the NRC that will inform the making of new WSPs for the Unregulated Namoi and Peel water sources. Improved water sharing rules will help ecosystem function and health to improve in this stressed and poor condition catchment.

For more information about this submission please contact:

Bev Smiles

[inlanddriversnetwork@gmail.com](mailto:inlanddriversnetwork@gmail.com)

0428 817 282