



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

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[REDACTED]  
ph [REDACTED]  
email [REDACTED]  
web [inlandriversnetwork.org](http://inlandriversnetwork.org)  
ABN 34 373 750 383

## **Submission**

### **Draft Border Rivers Regional Water Strategy**

#### **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 developing a Regional Water Strategy for the Border Rivers catchments.

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.

We consider that the most appropriate approach to improving water management in NSW is to develop a State Water Strategy first, to provide the principles and guidelines for Regional Water Strategies. This should include the principle of involvement of the whole community in the planning process and guidelines for this, not weighted towards the irrigation industry as the NSW Independent Commission Against Corruption (ICAC) recently identified as a major flaw in water planning and management for at least the past decade.

Either the Barwon-Darling and associated intersecting streams should be the first inland region considered, or the NSW part of the Murray Darling Northern Basin should be treated as one region. The current approach of considering the major tributaries independently and leaving the Darling to get what little attention and water as is left is totally unacceptable.

IRN strongly objects to the Mole River Dam proposal being identified as a prior commitment in the list of options on exhibition for the Border Rivers. This creates a bias in decision-making process and influences the outcomes. The opportunities to package a suite of sustainable options are diminished by this approach.

The objectives of the Regional Water Strategy process appear to be weighted towards fostering growth in water dependency rather than focussing on the sustainable use of limited available water resources.

The new climate modelling indicates that available water resources will diminish significantly into the future. The Chief Scientist review of the new climate modelling has not been released.

The process appears to counter the objectives of the NSW *Water Management Act 2000* that prioritises environmental health of water sources.

We note that the draft Regional Water Strategy identifies that the overall ecological health of the Border Rivers is threatened by existing infrastructure and regulation.

IRN acknowledges the improved consultation with First Nations groups in this process. We are concerned that there were no meetings in towns downstream from Mungindi to find out what the people who depend on the Barwon River for either their income or as the focus of their quality of life think of the proposal.

We recommend that the proposal should be re-exhibited, along with those for the Gwydir, Namoi and Macquarie-Castlereagh, when the draft Strategy for the Barwon-Darling region is published, and more submissions sought at that time.

### **Key Issues:**

This submission will concentrate on the following issues:

1. Proposed instream infrastructure
2. Options to improve environmental health
3. Options to reduce water demand
4. Options to support First Nations cultural interests
5. Options causing environmental harm
6. Missing options

## **Background**

### **1. Climate change predictions**

IRN commends the Water Division of the Department of Planning, Industry and Environment (DPIE-Water) for the work undertaken to improve climate change predictive modelling for water availability in regional NSW.

We would prefer that the Chief Scientist independent review of the new modelling process was available with the release of the predictions for each region.

While the draft Regional Water Strategy claims that the climate projections provided are ‘worst case dry scenario’, other sources of climate modelling prediction could indicate that these scenarios are closer to future reality.

Whatever the case, it is imprudent for the NSW Government to be fostering growth in water use and dependency under these scenarios.

A primary issue that must be addressed is that the Border Rivers Region remains over-allocated under current climate conditions. The Sustainable Diversion Limits under the Basin Plan have not yet been met in this catchment.

### **2. Current Water Source Condition**

The Status and Issues Paper released by DPIE-Water in 2017 for the development of the Border Rivers Water Resource Plans under the Murray-Darling Basin Plan produced useful

information in regard to the status of each water source. Maps included High Ecological Value Aquatic Ecosystems (HEVAE) in the surface water source and changes in water levels in the major groundwater or aquifer systems the catchment.

IRN considers that this information would have been useful as background to the draft Regional Water Strategy process. An understanding of current condition will assist in making decisions about the resilience of the water sources.

There is an obvious relationship between surface water and groundwater sources and an overlap between HEVAE and Groundwater Dependent Ecosystems (GDEs).

The protection of the condition of high ecological values and groundwater levels must be taken into account when considering options for increasing water use and water security in the region. This is particularly important when considering increased dependence on groundwater for town water supply and industry during drought.

IRN has concerns that the draft Water Sharing Plan for groundwater sources allows for a 10% increase in use over a 5 year period before triggering the plan limit. This could further impact on the integrity of aquifer systems over time. There is high connectivity between surface water and aquifers in some parts of the catchment. We are following the MDBA accreditation process of Water Resource Plans very closely.

The Border Rivers catchment has a number of key issues that must be taken into account when considering options in the final Regional Water Strategy.

The draft Strategy acknowledges that the native fish population was assessed as being moderate in 2015 but the impacts of the drought and 2019/20 bushfires and therefore, current condition, is unknown.

A significant number of constraints are identified that affect the Border Rivers region's ability to meet environmental watering objectives and delivery of flows to the Barwon-Darling.

It is estimated that the Border Rivers provide 19% of average annual flows to Menindee Lakes. This is a significant issue that is not clearly addressed in the draft Strategy, particularly when the full volume of water for the environment under the Sustainable Diversion Limit has not yet been recovered in this catchment.

The Macintyre River floodplain is significantly impacted by loss of flows.

The draft Strategy also identifies that *Analysis of long-term changes indicates that groundwater levels have declined in response to groundwater extraction upstream of Keetah Bridge* (p 60)

This area overlays the Great Artesian Basin Eastern Recharge Water Source that also has a significant number of high yielding irrigation bores. Recharge and connectivity to this important water source must also be taken into account.

The Border Rivers has areas of HEVAE that also overlap in many places as GDEs. At the same time, the groundwater maps indicate a permanent drawdown of water levels in the major productive aquifer systems, greater than 15m in the Dumaresq River Alluvium.

The draft Strategy acknowledges that under the climate change scenarios *increased demand for groundwater (especially during drought) can put pressure on groundwater resources due to less recharge from surface water, which can result in declining water tables.*(p 89)

Additional infrastructure, regulation and increased use of Border River water sources is highly likely to compound problems and cause ongoing irreparable harm to the health of the Border

River system and associated groundwater sources while reducing connectivity to the Barwon-Darling.

See Appendix 1 for maps from the Status and Issues Paper for the Border Rivers

### **3. Reliability**

The draft Strategy fails to discuss the issue of declining reliability of water supply to existing water licences. The over allocation of water in the context of declining inflows must to be addressed so that long term water security can be better managed.

## **Key Issues**

### **1. Proposed instream infrastructure**

Any increase in water capture in the Border Rivers will impact on connectivity flows to the Barwon-Darling and decrease the contribution of annual average flows to Menindee Lakes that currently stands at 19%.

#### **1.1 Mole River Dam**

IRN strongly objects to the proposal to build a 100 – 200 GL dam on the unregulated Mole River. This will degrade an identified HEVAE stream with important habitat values for threatened native fish and cause a loss of recharge opportunities for groundwater sources.

We note that the Government commitment in the draft Border Rivers options paper refers only to the business case for this project. We also note the long list of considerations including costs-benefits, environmental impacts and commitments under various State and Federal legislation.

This project must be considered in the context of other better options to improve water security while maintaining or improving the condition of HEVAE and GDEs, native fish habitat and resilience of groundwater sources.

The climate change predictions for the Border Rivers catchment indicate a loss of up to 53% of flows in the Mole River (p 67). This project may become a stranded asset due to the loss of future rainfall runoff.

There is no demonstrable need for the Mole River Dam in regard to town water supply. The risk analysis for town water supply (p 90 Table 3) shows Tenterfield town water supply to be at low risk under climate change scenarios. Also the NSW Water Supply (Critical Needs) Act 2019 does not list Tenterfield as Critical Town or Locality Water Supply under Schedule 1 or Schedule 2.

The draft Strategy notes that Tenterfield is looking to the Mole River Dam proposal to increase security of supply to grow industries. (p 56). IRN considers this aim to be impractical and counter to both the objects of the NSW *Water Management Act 2000* and the Basin Plan.

The draft Strategy also notes that ‘*The proposal for the Mole River Dam may help to improve town water security but may have implications for environmental outcomes and water availability downstream of the dam and beyond the Border Rivers region*’. (p 36)

IRN strongly disagrees with the position that Mole River Dam will:

- *improve water security and reliability and support the development and growth of the regional economy by securing more water in flood sequences for use in drier times*

- *provide potential benefits for the downstream Barwon-Darling system through increased flow reliability and associated environmental health outcomes (p 55)*

This is a glaring contradiction to the previous quote from the draft Strategy. By capturing more water in flood sequences Mole River Dam will cause a decrease in natural flows in the system, impact on natural connectivity flows to the Barwon-Darling and cause environmental harm to important threatened native fish habitat.

Under the climate change predictions it is highly inappropriate for regions to seek to expand water dependent industries. Other forms of regional development and economic diversification should be encouraged.

### 1.2 Raising Pindari Dam

IRN strongly objects to Option 2, increasing water capture in Pindari Dam. This will further regulate and alter the natural flow regime of rivers in the valley, impacting native species and ecosystems.

We note that the considerations for this proposal are significant and include:

- impacts on the environment, dependent ecosystems and dependent biota including threatened species from altered hydrology and surface water availability, such as reduced flow variability, reduced flushing of the river from spills, reduced in-channel habitat, reduced connectivity, reduced fish passage (downstream and upstream of the dam) and cold water pollution
- destruction of part of Severn River Nature Reserve. The previous eightfold enlargement of Pindari Dam permanently destroyed part of the Nature Reserve. Further raising of the dam wall, and therefore both the full supply level and the flood level, will permanently destroy more of the Nature Reserve and would be contrary to the gazetted purposes of the Reserve.
- impact of reduced flooding on floodplain habitats
- impacts or benefits to Aboriginal people's water rights, interests and access to water (including cultural heritage)

Pindari Dam has a significant problem with blue-green algae blooms in summer months causing cold water to be released downstream. Increasing the dam inundation area is likely to further exacerbate this problem.

Climate change predictions indicate that overall inflows to Pindari Dam could decline by 45%. This could cause a larger storage area to become a stranded asset.

### 1.3 Raising Mungindi Weir

IRN strongly objects to Option 3, increasing water capture in Mungindi Weir. This will further regulate and alter the natural flow regime of rivers in the valley, impacting native species and ecosystems.

This proposal will capture important connectivity flows to the Barwon-Darling.

The draft Strategy notes that no towns in the Border Rivers ran out of water and allocations for towns and domestic users were 100% for the 2019/20 water year. (p 12).

Mungindi has a secure secondary groundwater source for critical human needs.

IRN supports the consideration of off-stream storage options, managed to minimise evaporation coupled with demand management and recycling, for improved town water supplies rather than increasing the regulation and alteration of natural flows.

Fish passage past Mungindi should be enabled but this is not a reason to enlarge the weir. There may be good reasons to enable management of the level of water held back but this should involve an option of lowering the level to reduce the pooled volume in some flow conditions

## **2. Options to improve environmental health**

IRN strongly supports the options proposed to improve the environmental health of river systems. The options to improve habitat, provide better migration opportunities and remove some of the threats to native fish populations are highly recommended.

We note that there are at least 11 fishways across NSW that are outstanding commitments of WaterNSW as offset provisions for previously approved infrastructure augmentation. These projects must be constructed as a matter of urgency, some of them being 10 years overdue.

Additional fishways will improve native fish passage to and from breeding and feeding grounds.

The removal of structures from floodplains that hinder flood flows, downstream connectivity, groundwater recharge, the transfer of nutrients and fish breeding opportunities must be given a high priority. Connectivity between rivers and floodplains is a key function for river system health.

Border Rivers support nationally and culturally significant wetlands on the Macintyre floodplain: Morella Watercourse, Boobera Lagoon and Pungboulal Lagoon. It is important to provide these ecosystems with adequate natural and environmental flows. It is essential that full water recovery is achieved in the Border Rivers under the Basin Plan sustainable diversion limits and that environmental water allocations are sufficient to provide these benefits.

Options to improve knowledge of groundwater sources is critical for future water management and must be adequately funded prior to any further dependence on groundwater for water security purposes. This work is long overdue and should have been a focus for investment many years ago. Current condition of the main productive aquifers in this catchment is demonstrating stress.

We note that several of the options are current commitments under the Northern Basin Review toolkit measures and should be identified as such. These include the protection of environmental flows and active management rules.

It is critical that options to improve environmental health are given a high priority in the final Regional Strategy to mitigate current impacts and provide resilience to withstand climate change.

IRN strongly supports the following options to improve environmental health:

- Option 10 : fish passage strategy. Mungindi Weir should be added to the list of 10 priority weirs. Where appropriate, weir removal is the best means of enabling fish passage and concurrently increases the flowing habitat required by several threatened fish species. See 6.6 below.
- Option 11: screening pumps to protect fish from being sucked out of the river
- Option 12: fixing cold water pollution

- Option 13: restore water quality
- Option 9, 14, 35, 36, 37, 40, 41: groundwater - managing salinity, monitoring, sustainable access, research, cross-border management, fractured rock aquifers
- Option 15: managing structures on floodplains
- Option 16 & 17: private land incentives and riparian restoration
- Option 19: protecting environmental flows. This project is a Northern Basin toolkit measure and should be identified as a commitment.
- Option 20: Improve benefits of Planned Environmental Water
- Option 21: active management to protect environmental water - should be identified as a commitment under the Northern Basin toolkit measures
- Option 22: Improved management of unregulated rivers
- Option 23: improve connectivity with Barwon-Darling
- Option 24: protecting groundwater dependent ecosystems

### **3. Options to reduce water demand**

IRN recommends that high priority be given to options that reduce water demand. The climate change scenarios for the next 40 years predict lower rainfall runoff. This means less water in the system than currently available.

The draft Strategy fails to recognise that current levels of water allocation cannot be supplied with any reliability.

Any increase in population or water dependent industries must rely on less water supply. The social impacts of changes in industry water use (eg moving to corporate models rather than family farms in the irrigation industry) has a flow on effect in regional communities and economies.

It is essential for the NSW Government to prioritise demand management over supply when climate predictions demonstrate that supply will diminish over time.

We note that a number of options to improve water use efficiency have been missed in the options papers. These are outlined under Issue 6.

IRN strongly supports the following options to improve water use efficiency:

- Option 18: impacts of land use change
- Option 26: Reuse, recycle and stormwater harvesting
- Option 27: water efficiency opportunities – this option must include managing high evaporation rates from on farm storage.
- Option 30: review drought of record and allocation process in water sharing plan
- Option 38, 39: extend cap and pipe the bores program, manage Great Artesian Basin

### **4. Options to support First Nations cultural interests**

IRN congratulates DPIE-Water for improving consultation with First Nations people. We fully support the options included in the draft Strategy that recognise cultural knowledge, water rights and interests. These include the option of establishing an Aboriginal River Ranger program and securing flows for cultural sites (Options 42 – 51)

## **5. Options that will cause environmental harm**

Besides the infrastructure options outlined under Issue 1, IRN considers that a number of other options will cause environmental harm to rivers.

Proposals to divert water from eastern flowing river systems eg the Clarence River, have significant implications on coastal and estuary processes that influence the resilience and viability of marine life.

It is also inappropriate to consider piping water from the Great Artesian Basin to other regions.

IRN strongly objects to the following options that will cause environmental harm:

- Option 4 – piping S&D to Boomi
- Option 7 – inter regional pipelines
- Option 8 - Inland diversions from the east
- Option 29 – New drought operational rules. Cutting the river off is not a good option

## **6. Missing options**

The draft Strategy fails to identify a number of important options that will improve environmental health and water use efficiency.

### **6.1 Full water recovery under Basin Plan**

There is an outstanding volume of 5.1GL to be recovered in the NSW Border Rivers.

The final Regional Water Strategy must identify the best options to recover the full amount of held environmental water as required under the Border Rivers sustainable diversion limit. This volume was due in June 2019 when the Basin Plan came into effect.

The draft Strategy recognises that the existing small volume of held environmental water causes a challenge for delivery of environmental flows to the end of system in the Border Rivers. (p 36)

It is critical that the full volume of environmental water recovery be met in a timely manner.

### **6.2 Floodplain hotspots**

The Healthy Floodplain Project has identified 33 existing floodwork structures (hotspots) that have most significantly altered the flow of floodwaters in the Border Rivers, causing social, economic, ecological and cultural impacts. (p 58)

An option to fast track the removal or modification of these structures is critical for improved water sharing and availability in the region.

### **6.3 Structures on the Macintyre floodplain**

The Macintyre River floodplain supports the nationally & culturally significant Morella Watercourse, Boobera Lagoon and Pungboulal Lagoon. A DPIE webpage<sup>1</sup> says Boobera Lagoon “is considered to be the most important Aboriginal site in south-eastern Australia.

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<sup>1</sup> <https://www.industry.nsw.gov.au/water/basins-catchments/snapshots/border-rivers>

There are also several other lagoons, high-flow creeks and valuable areas of native floodplain or riparian ecosystems that depend on outflows from the Macintyre River including in Budelah Nature Reserve.

The draft Strategy identifies that the volume and average frequency of flows that connect anabranches and billabongs of the Macintyre River floodplain has decreased by about 22% due to water storage in dams & weirs (p 65). This may be an underestimate if floodplain harvesting impacts have not been correctly included.

Some of the options being considered, including raising of Mungindi Weir which is likely to involve blocking of more natural 'breakouts', may further decrease flows into anabranches, billabongs and into adjacent riparian and groundwater-dependent ecosystems, in either NSW or Queensland. The cumulative effects of all riverine and floodplain structures, and of their management, must be reduced.

The final Regional Water Strategy requires an objective and specific option to restore some of the volume and flow frequency to the environment of the Macintyre River and floodplain. It should also have an objective of providing a flow regime into the Barwon River system that includes appropriate volume, height and frequency of flow to meet the needs of ecosystems along the Barwon River and floodplain.

#### 6.4 On farm storage evaporation and seepage

The draft Strategy identifies that 26% of total storage capacity or around 48 GL is lost annually over a long-term period through on farm storage evaporation and seepage (p 58). This is a significant loss that must be addressed **before** any other infrastructure options are considered.

The poor efficiency of on farm storages is putting pressure on the rest of the Border Rivers including environmental health and critical human needs.

Control of evaporation rates and seepage from on farm storages is a key action needed to improve water use efficiency and decrease demand.

The application of a number of innovations would help to solve the evaporation problem. Modular floating covers are one technology being developed to prevent evaporation at a best cost/efficiency ratio <sup>2</sup>

Another innovative solution to control on farm storage evaporation is a floating solar farm that provides the double benefit of a renewable energy source.

Improved lining of on farm storages will better manage seepage problems.

This issue needs a specific option in the final Regional Water Strategy.

#### 6.5 Floodplain Harvesting

The draft Strategy identifies that floodplain harvesting is estimated to make up 30% of water use in the Border Rivers region. We suspect that this may be an underestimate. 30% is

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<sup>2</sup> <https://stopevaporation.com/>, <https://www.awtti.com/>

significant and the Healthy Floodplains Project has failed to adequately assess the environmental impacts of this longterm unregulated water extraction.

To date the process for licencing and regulating floodplain harvesting in the NSW Northern Basin has failed to assess the cumulative impact of this extraction on downstream river health, groundwater recharge and water security of downstream communities.

This is a critical piece of work that must be undertaken to have a full understanding of the impacts prior to the granting of new, compensable, private property rights.

IRN does not support the current modelling approach to assess the volume of floodplain harvesting to be licenced in the Border Rivers. We consider that a much larger portion of the take must be returned to meet the Cap limit as at 1993/94 for the Border Rivers.

#### 6.6 Removal of weirs

The identification and removal of weirs that do not provide essential services, are in poor repair or cannot support functional fishways will provide improved environmental benefits. The removal of Cunningham Weir was proposed in a weir review process two decades ago yet has not occurred. Removal of Bonshaw and Glenarbon weirs as well as Cunningham has been proposed by a number of riparian landholders from this reach of the river, supported by recreational fishing enthusiasts and Aboriginal people, rather than building fishways. We are not aware of whether this proposal<sup>3</sup> as MDBA Toolkit Activities is proceeding. If removal of the three weirs does not proceed with MDBA funds they should be undertaken soon by NSW and Queensland. There are probably other weirs that could also be removed. In USA large dams are removed in preference to adding fishways.

#### 6.7 Floor in major storages

The benefits of maintaining a water level in storages to provide long term water security for critical human and industry needs provides a buffer for climate change impacts.

#### 6.8 Drinking water for remote communities

Investment in SOURCE Hydropanels<sup>4</sup> would provide stand-alone drinking water supplies for remote communities on unregulated river systems. This option could also replace the many pipeline projects proposed across all regions. Combined with water tanks this option would provide better water security with less disturbance while creating local jobs.

#### 6.9 Flood irrigation

Moving to more efficient water delivery options, such as subsurface irrigation or drip irrigation will decrease water demand across intensive cotton production areas.

#### 6.10 Community involvement and representation

To avoid continuation of the undue focus on irrigators' interests within water agencies, as identified by the ICAC this week, the Strategy should include processes to involve both the

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<sup>3</sup> Letter from [REDACTED], Southern Queensland Landscapes, contractors who developed toolkit proposals for the Dumaresq River, which we can provide if requested.

<sup>4</sup> <https://www.source.co/>

broad community and representatives of diverse interests, including downstream interests, in further planning and implementation of the Border Rivers Strategy.

## Contact

For more information about this submission contact:

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

## Appendix 1 – Current condition maps

Environmental values:

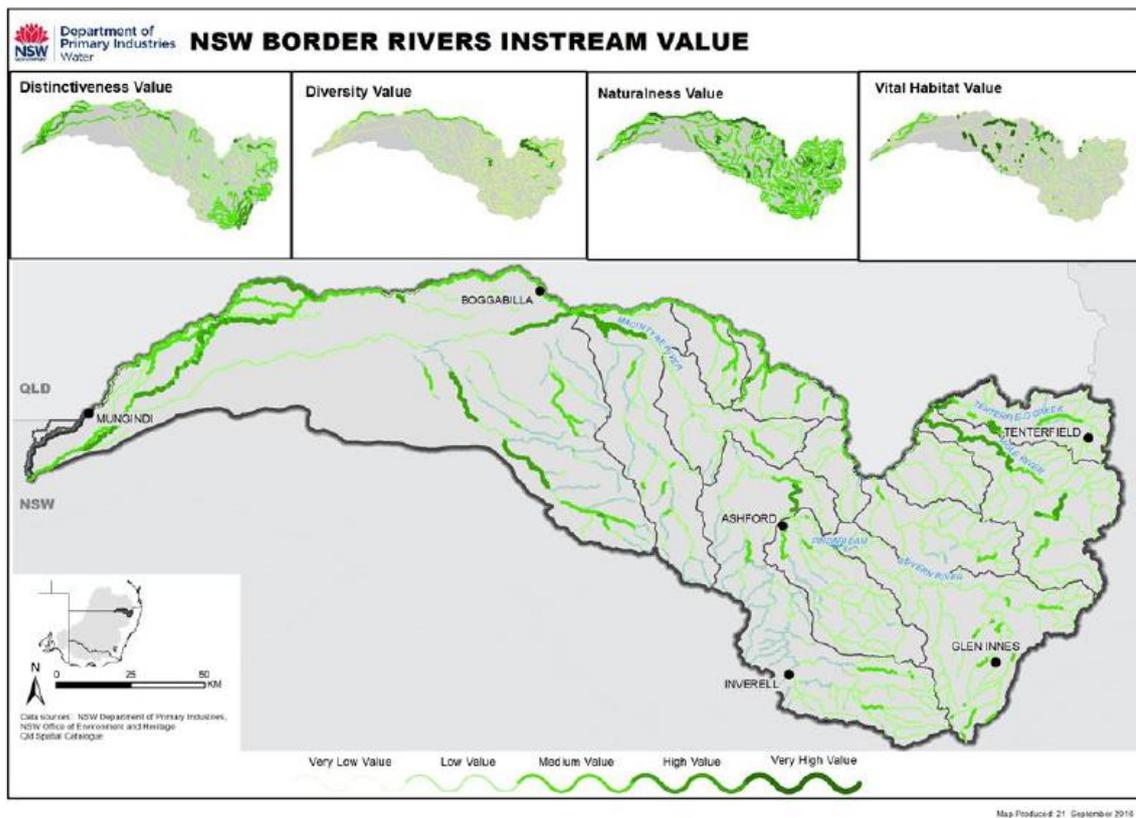


Figure 2: Map of HEVAE assessment outcomes for the NSW Border Rivers Water Resource Plan area.

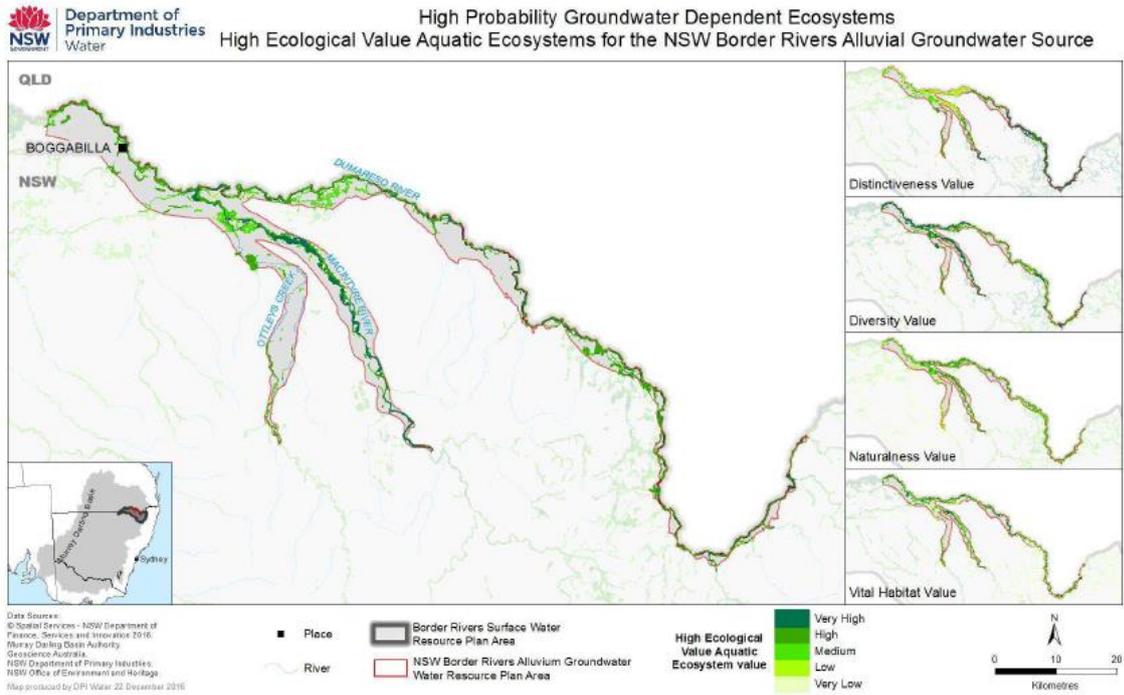


Figure 9: GDE ecological value for the NSW Border Rivers Alluvium Water Resource Plan area.

### Status of productive groundwater sources

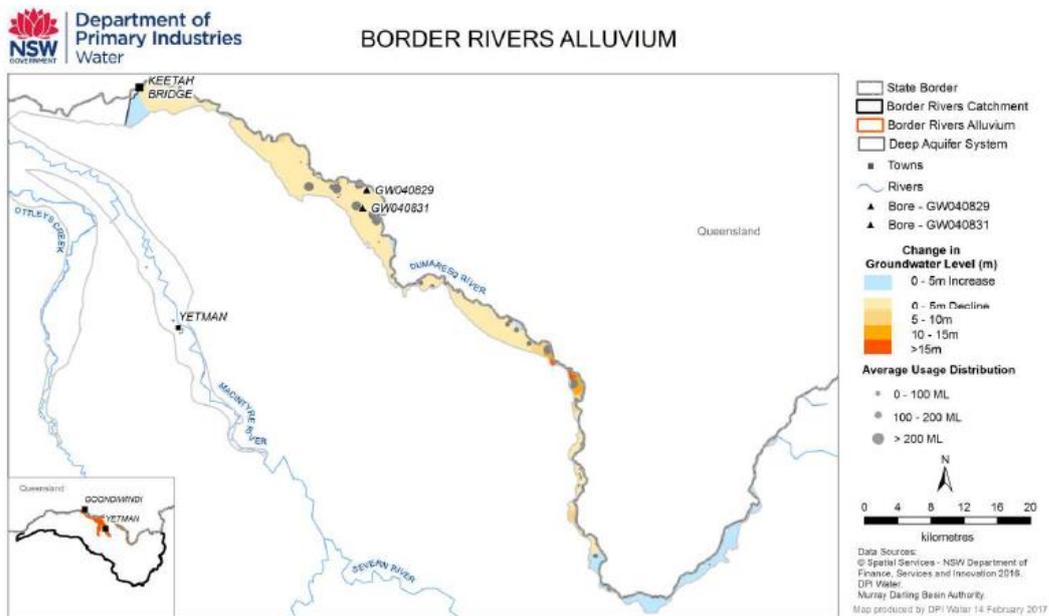


Figure 7: The change in groundwater levels in the deep aquifer system in the NSW Border Rivers Alluvium comparing change in recovery non-pumping period 2006 with the non-pumping period of 2016.