



Nature Conservation Council

Submission on the Northern Basin Connectivity Project

23 March 2026



Nature Conservation Council

About NCC

The Nature Conservation Council of New South Wales (NCC) is the state's peak environment organisation. We represent over 200 environment groups across NSW. Together we are dedicated to protecting and conserving the wildlife, landscapes and natural resources of NSW.

www.nature.org.au

For further information about this submission, please contact:

Name: Melissa Gray

Position: Water Campaigner/Community Organiser

Phone: (02) 9516 1488

Email: mgray@nature.org.au

Acknowledgement

The Nature Conservation Council NSW acknowledges that we live and work on the land of First Nations. This land has been cared for since time immemorial by Traditional Owners, whose sovereignty was never ceded. We pay our respects to the Traditional Owners past and present of the many Countries within so-called New South Wales.

We respect the leadership of Traditional Owners in caring for Country and support the development of treaties that meaningfully empower them to do so. We acknowledge the dispossession of First Nations People, and the harm inflicted on people and Country since colonisation began. We acknowledge that colonisation is an unjust and brutal process that continues to impact First Nations people today. As people living and working on First Nations Country it is incumbent on us to play our part in righting the historical and ongoing wrongs of colonisation. Indeed, our vision of a society in which nature and communities thrive together depends upon it.

The Nature Conservation Council of NSW (NCC) respects and supports all First Nations people's right to self-determination as outlined by the UN Declaration of the Rights of Indigenous Peoples (UNDRIP), which extends to recognising the many different First Nations within Australia and the Torres Strait Islands. NCC commits to maintain open lines of communication and to build respectful mutual relationships with First Nations people in all the work we do and wherever possible, seek aligned outcomes with and support the goals of First Nations groups.

We commit, as an organisation, to empower and work together with First Nations people to protect, conserve and restore the land, waters, air, wildlife, climate and culture of the many First Nations people in NSW.

23 March 2026

NSW Department of Climate Change, Energy, the Environment and Water
Water Group

By email: connectivity.feedback@dpie.nsw.gov.au

To whom it may concern

SUBMISSION: Northern Basin Connectivity Project

The Nature Conservation Council of NSW (NCC) represents over 200 member organisations and tens of thousands of individuals across NSW, advocating for the protection and restoration of our state's unique natural environment. NCC is pleased to provide comment on the Connectivity Expert Panel Final Report 2024, and the various analysis reports released by NSW DCCEEW to develop the work of the Panel.

NCC congratulates the NSW Government on their commitment to improving the lateral hydrological connectivity of northern inland NSW rivers by the deadline of 31 December 2026 and strongly supports the implementation of all recommendations of the Connectivity Expert Panel (the Panel) in full.

The Panel's final report (July 2024) is a comprehensive evidence-based document that provides a clear and holistic pathway to address the systemic failures in water management that have led to the severe degradation of the Barwon-Darling/Baaka and its tributaries.

Connectivity base flows are defined by the Panel as:

- A base flow most of the time
- A small flush once a year
- A larger flush every second year

Connectivity base flows cannot be achieved with additional Held Environmental Water. NCC supports the Panel's approach that connectivity flows can only be achieved through rule changes in water sharing plans.

The Government's response to the Panel's report, while acknowledging the Panel's work, proposes a course of action that deviates from the Panel's core advice in several critical areas, and would at best deliver a piecemeal and ineffective implementation that would fail to deliver the connectivity outcomes the Panel envisioned.

Key deviations include:

- Ignoring the recommended precautionary approach to not delay the implementation of connectivity rules;
- Not addressing the recommendation of bringing the significant volumes of rainfall runoff capture into the water accounting framework and aligning floodplain harvesting and rainfall runoff capture with supplementary access;



- Not modelling the protection of small and large flushes in non-dry times;
- The social and economic benefits of improved connectivity have not been modelled alongside the modelled economic impact to irrigators;
- The Government has already rejected the Panel's recommendation for an independent governance body; and
- Unnecessarily duplicating work to identify priority unregulated water sources for connectivity rules.

This submission offers an introduction to the urgency of these reforms, supporting comments on the connectivity report recommendations, a critique of the Department's response before presenting our conclusion.

Introduction - Urgent Context

The implementation of connectivity rules as articulated by the Panel must proceed without delay, guided by the precautionary principle. The environment is wearing all the risk of delayed decisions. Delays in the pursuit of 'perfect' information or flawless modelling must not serve as a barrier to enacting the essential rules required to meet the basic ecological needs of our rivers. Modelling will always be predictive and imperfect. **The necessary reforms once implemented can and must be refined over time through adaptive management, but the time for inaction is over.** The Panel's final report has been available for almost two years; the Government must now get on with the job of implementation.

The rivers of the northern basin are in a state of severe decline, characterised by a dramatic increase in the frequency and duration of cease-to-flow events, poor water quality, and devastating impacts on native fish populations, waterbirds, and riverine ecosystems. This is not a natural phenomenon; it is the direct result of a water management framework that has prioritised upstream extraction over the fundamental connectivity needs of the entire system.

The Barwon/Darling River is not naturally ephemeral – it never used to completely dry up. Prior to significant water regulation, the Barwon-Darling River flowed more than 90% of the time. The river naturally maintained lotic (flowing water) habitats, ensuring continuity of aquatic life. Even during extreme droughts such as the Federation Drought (1895–1903) and World War II Drought (1939–1945), the river maintained low but continuous flows 85% of the time. Periods of zero flow (defined as 20 ML/day) were short-lived, typically lasting less than a month, and were followed by renewed flow pulses¹.

The *Basin Plan 2012* establishes a clear legal requirement for hydrological connectivity through its environmental watering plan and the obligations it places on state-level water resource plans. Specifically, Section 8.06(3) of the Plan sets an explicit objective to "*protect and restore connectivity within and between water-dependent ecosystems*," encompassing longitudinal, lateral, and vertical connections.



Section 5(3) of the *Water Management Act 2000 NSW (the Act)* establishes a clear hierarchy of water sharing principles, which prioritises the protection of water sources and their dependent ecosystems over extractive uses. **The current state of the northern basin rivers demonstrates a manifest failure to adhere to the hierarchy of water sharing principles.**

Supporting comments on the Panel's recommendations

Holistic Approach to Connectivity is Needed

The NSW Government should take a holistic and adaptive management approach to water management across the entire northern basin, considering how rules work together to achieve agreed connectivity outcomes. Upstream water sharing plans must actively consider and provide for downstream environmental and community needs.

Current valley-centric approach to water management is a primary cause of systemic connectivity failure. Water Sharing Plans are designed to manage resources within a specific catchment, with little to no inbuilt mechanism for considering the cumulative, system-wide impacts on downstream environments and communities. This has created a scenario where the health of the Barwon-Darling is sacrificed for upstream extraction. **A holistic, system-scale approach is a prerequisite for sustainable water management.**

The Panel's focus on maintaining connectivity during non-dry times is a paradigm shift from the Government's narrow focus on "critical needs" during extreme drought. **Allowing the system to dry out only to have to rewet it is highly inefficient.** By protecting a greater share of water for the environment during wetter periods, the system can build a 'resilience buffer', making it better able to withstand the inevitable dry times and reducing the enormous volumes of water required to re-wet a parched system.

Panel's Proposed Approach for Improving Connectivity

The Department should implement rules to achieve the targets and triggers that:

- a. During non-dry times – ensure that baseflow is protected across the northern basin and provide for small and large freshes consistent with the environmental water requirements outlined in the relevant Long Term Watering Plan (LTWP).
- b. During dry times – extend the current resumption of flow rules into the northern basin tributaries and provide for a small flushing flow following an extended dry period all the way to Menindee Lakes prior to allowing extraction.
- c. Establish a "connectivity" environmental water allowance in the Gwydir, Namoi and Border Rivers regulated water sharing plans to provide for replenishment flows during dry times.

Ensuring base flow with the proposed end-of-system (EoS) flow targets is essential for maintaining river health, by ensuring a minimum level of flow leaves each tributary, the cumulative contribution will be sufficient to meet baseflow needs in the Barwon-Darling.



The proposal to use restrictions on supplementary and floodplain harvesting as the primary tool to meet these targets, with dam releases as a secondary measure, is efficient and aligns with the principle of protecting natural flows first. The targets for small and large flushes are directly tied to the Environmental Watering Requirements needed for critical ecological processes like fish breeding and nutrient cycling.

Additional flows created from introducing connectivity rules must be protected from extraction all the way to Menindee Lakes, where they should be held for use in supplying critical environmental needs.

Expanding Active Management in the Barwon-Darling to ensure protected flows are tracked and shielded from extraction as they move through the system is critical. Pumping restrictions need to be relaxed progressively from the top of the system downward.

Floodplain Harvesting in NSW

Floodplain harvesting, including rainfall runoff capture, is a primary cause of poor connectivity, and must be the focus for reform.

Rainfall runoff floodplain harvesting should be restricted whenever supplementary access is restricted to ensure equity and to contribute to connectivity flows.

Rainfall runoff, which constitutes 44% of all floodplain harvesting water diversions, could provide critical contributions to connectivity base flows. Most rainfall runoff capture (61%) is exempt from licencing, and is therefore off the 'ledger'.

Rainfall runoff captured by floodplain harvesting levees is a significant natural source of the base flows that the connectivity work is attempting to replace. These flows have been denied to the environment without compensation. **This represents a huge volume of water being taken from the system with little to no oversight or accounting.** The current system creates an unacceptable risk to the environment and undermines the integrity of the entire water management framework.

The rules for exempt rainfall runoff capture must be reviewed.

Unregulated tributary inflows into a regulated system below the storage are another source of water that could contribute to connectivity base flows.

NCC supports the Panels recommended flow targets to restrict floodplain harvest take – small fresh, 14 consecutive days of 1400 ML/d at Wilcannia, and a large fresh of 15 consecutive days at 14000 ML/d at the Wilcannia river gauge.

The Panel's proposed restrictions on floodplain harvesting should be implemented and outcomes monitored to determine if additional restrictions are necessary in the future to facilitate longitudinal connectivity.

The uncertainty around floodplain harvesting and its impacts, largely due to a lack of data and modelling limitations, can no longer be a barrier to action.



The Panel notes that using Menindee Lakes volumes as a trigger for floodplain harvesting restrictions is illogical, as the local in-valley triggers allow floodplain harvesting once met.

Management of Menindee Lakes

NCC strongly supports this suite of recommendations to improve the management of the Menindee Lakes and the security of supply for the Lower Darling-Baaka, and will be engaging in the Menindee Review process.

Unregulated River Water Sources

To improve equity of rules between plan areas, water sources adjacent to the Barwon-Darling should have similar cease-to-pump rules that protect base flows as the Barwon-Darling does. This extends to aligning floodplain harvesting rules in the unregulated and regulated water sharing plans. This recommendation addresses a fundamental inequity in the current water management framework, which has created an unfair system where users on one side of an arbitrary line have a lower level of responsibility for protecting flows.

Improve the distribution and function of the gauging network across the unregulated catchments.

The Department should develop a plan for ensuring that any of the water sources identified as high risk for impacting connectivity have adequate gauging to support necessary rules within the next two years. A precautionary approach must be taken when assessing adequacy of gauges for implementing rules, which prioritises protection of environmental flows, including connectivity flows. Existing gauges should be assessed for repair or recalibration before replacement is considered. If a cease-to-pump rule is not adopted due to poor gauging, this must be clearly stated, with the criteria for that decision made transparent and publicly available. Newer, less expensive technologies should be considered where gauges are difficult to implement or inaccurate.

Implement cease-to-pump rules in water sources identified by the Panel as important for contributing to downstream connectivity. This is a vital reform to modernise the management of unregulated rivers. The Panel found that the widespread use of “no visible flow” rules is “inadequate to protect the water sources and their dependent ecosystems”. **These rules allow extraction to continue until a river is on the brink of ecological collapse.** Replacing them with scientifically-based, gauge-based cease-to-pump rules that protect specific flow classes (such as baseflows) is essential for moving to a proactive management model that protects river health. This will ensure that a fair share of water is left in the system to maintain connectivity and support the environment.

The existing hydrological risk assessment approach developed by DCCEW Water Science team should be reviewed and revised if necessary to fully address connectivity risks and then used to prioritise water sharing plans for rule changes and determine appropriate cease to pump rules. This hydrological risk assessment should be released to the public. This work should be used to prioritise action, rather than developing a new categorisation method from scratch.

Implement restrictions on extraction in unregulated tributaries that drain directly into the Barwon-Darling whenever there are restrictions in the regulated water sharing plan areas to achieve an annual small fresh or large fresh flow every other year, as outlined in the Panel’s recommendations

for regulated catchments. This recommendation is essential for ensuring a coordinated, 'whole-of-system' response to achieving connectivity targets. When restrictions are in place in the regulated rivers to protect a flow event (like a small or large fresh), it is logical and necessary that the unregulated tributaries contributing to that event are also subject to restrictions.

Modelling and Forecasting

The Department should continue to improve its modelling capability to support the implementation of the Panel's recommendations, including floodplain harvesting, 'losses' in the models, and unregulated flows. The Panel identifies that the current models have significant limitations that undermine their ability to accurately represent the complex hydrological processes of the northern basin.

The Department should improve its flow forecasting capability to support the implementation of the Panel's recommendations. Accurate flow forecasting is a critical operational tool for effective water management. The Panel's proposed rules, particularly those related to triggering restrictions for freshes and resumption of flow events, rely on the ability to forecast flows with a reasonable degree of accuracy. Continuous improvement in flow forecasting will allow for more proactive and efficient management, ensuring that opportunities to protect important flow events are not missed.

The Department should ensure that its modelling and forecasting are transparent and publicly available. This is a fundamental principle of good governance. The models and forecasts that underpin water management decisions should not be a 'black box'. Making them transparent and publicly available will build trust and allow for independent scrutiny, leading to better science and more robust decision-making.

An independent panel of experts to provide ongoing advice on modelling and forecasting would provide a crucial layer of quality control, ensuring that the department's modelling and forecasting are fit-for-purpose and based on the best available science. This would help to depoliticise technical debates and ensure that decisions are based on a shared understanding of the evidence. The Government's rejection of this recommendation is a significant concern.

NCC strongly supports improved transparency with water modelling, including:

- Modelling and forecasting are regularly reviewed and updated; a core component of adaptive management, as science, data, and modelling techniques are constantly evolving.
- Modelling and forecasting are integrated with the Department's decision-making processes, ensuring that decisions are based on the best available evidence and are aligned with the agreed connectivity objectives.
- Working with the Commonwealth Environmental Water Holder and other stakeholders to ensure that its modelling and forecasting are coordinated with their activities.

Implementation and Governance

The Department should establish an independent body to oversee the implementation of the Panel's recommendations. This is one of the most important recommendations in the entire report, yet it has already been rejected by the Government. An independent oversight body, with the authority and expertise to scrutinise the implementation process, is essential for rebuilding trust in



NSW water management and ensuring that the Panel's recommendations are implemented in a way that is faithful to their original intent. **This body would provide a crucial layer of accountability, ensuring that the reform process is not captured by vested interests or derailed by bureaucratic resistance.** The Government's outright rejection of this recommendation is a significant blow to the credibility of its response.

Critique of the Department's Approach

The Government's approach outlined in the department's information papers and supporting documents represents a significant retreat from the spirit and intent of the Panel's recommendations. The proposed pathway is characterised by delay, dilution, and a reluctance to embrace the systemic changes that are so clearly required. **NCC is concerned that this approach will lead to a piecemeal and ineffective implementation that fails to deliver the connectivity outcomes the Panel envisioned.**

A Flawed Modelling Hierarchy: Prioritising Dam Releases Over FPH Restrictions

By failing to model the impact of further restrictions on supplementary and floodplain harvesting (FPH), the department has presented a skewed and incomplete picture of the options available that artificially inflates the reliance on and impacts of dam releases.

Restrictions on opportunistic take, particularly supplementary and floodplain harvesting including rainfall runoff capture, should be the primary mechanism for achieving connectivity targets, with releases from dams used as a secondary or supplementary tool. This is a logical and efficient approach that prioritises the protection of natural flows.

However, the department's hydrological modelling has inverted this hierarchy. The scenarios for achieving End of System (EoS) flows focus almost exclusively on two options for dam releases – 'EoS Accounts' and 'EoS Translucency' – while stating that existing supplementary access restrictions "largely provide for the end of system flow targets to be met, and no additional restrictions have been modelled". This is a direct contradiction of the Panel's advice and fails to test the most important and effective tool for protecting connectivity.

Unnecessary Delays in Protecting Unregulated Rivers

The department's insistence on developing a new, duplicative process would delay the implementation of these urgently needed protections, directly contradicting the Panel's advice on the precautionary principle.

The Panel identified the poor management of unregulated rivers as a major contributor to connectivity failure and recommended a suite of immediate actions, including the replacement of "no visible flow" rules with gauge-based cease-to-pump rules.

Instead of acting on this clear advice, the department has proposed a new, multi-stage "draft method to categorise priority unregulated water sources". This method involves a complex process of categorisation, prioritisation, and then further investigation, with a timeline that pushes any

meaningful rule changes out to 2026 at the earliest. This is an unacceptable delay. The Panel, using the department's own risk assessments, had already identified the priority water sources.

Ignoring the Precautionary Principle Approach

A lack of perfect data is not a valid reason to defer action when the evidence of systemic failure is overwhelming.

The Panel advocated for a precautionary approach, implementing the best possible rules now and using adaptive management to refine them as data and models improve.

The department, however, has repeatedly used these modelling limitations as a justification for its conservative and delayed approach. The information paper is replete with statements about the difficulty of modelling certain processes, which are then used to cast doubt on the feasibility or effectiveness of the Panel's recommendations. This is a misapplication of the precautionary principle.

Rejecting Independent Oversight

The Panel's recommendation to establish an independent body to oversee the implementation of its recommendations was one of its most critical governance reforms. **The Government's outright rejection of this recommendation undermines the credibility of its entire response, sending a clear signal that the Government is not committed to the level of transparency and accountability that is required to rebuild public trust.** Without independent oversight, the implementation process will remain a 'black box', vulnerable to capture by vested interests and resistant to public scrutiny.

Skewed Economic Analysis

The department's economic analysis focuses heavily on the direct costs to irrigators from reduced diversions, without quantifying the significant economic, social, and cultural benefits of improved river health. This narrow framing inevitably produces a skewed result that overstates the costs of reform and understates the benefits. The analysis fails to account for the economic value of improved water quality, healthier fish stocks for recreational and commercial fishing, the benefits to downstream agriculture and communities from more reliable flows, and the immense cultural value of healthy rivers to First Nations.

Marsden Jacobs identify the current ecosystem services value of the Barwon Darling River and tributaries at \$7.6 billion - \$17.4 Billion. Based on the lower value estimate, connectivity improvements could yield a further \$100 million value.

A robust economic analysis should contain the cost of a *do nothing* scenario, which is missing from the Marsden Jacobs report. Examples of costs of inaction would include Government responses to fish kills and algal blooms, higher cost of providing potable water for human consumption, decline in ecosystem services and loss in tourism income.

Omission of Critical Scenarios from Modelling

The department has not modelled any potential rules specifically focused on protecting small and large freshes during non-dry times – a critical element to connectivity reform.



Conclusion

The Connectivity Expert Panel has provided the NSW Government with a clear, evidence-based, and achievable roadmap to begin restoring the broken rivers of the northern basin. The Panel's 24 recommendations form an integrated and essential package of reforms that will restore a more natural and resilient flow regime, benefiting the environment, downstream communities, and First Nations cultural values. **The Nature Conservation Council of NSW endorses these recommendations in their entirety and urges the Government to commit to their full and faithful implementation.**

The Department's response is characterised by delay, dilution, and a concerning reluctance to embrace the systemic changes required.

By failing to model the Panel's primary recommendation of restricting floodplain harvesting, proposing a new and duplicative process for unregulated rivers, not modelling critical elements of the defined base flow, and rejecting the critical need for independent oversight, **the department has charted a course that risks squandering this historic opportunity for reform.**

The Government needs to act now and adaptively manage solutions as better information becomes available.

Thank you for the opportunity to participate in this consultation.

Your key contact point for further questions and correspondence is Melissa Gray, Water Campaigner, available via mgray@nature.org.au and (02) 9516 1488. We welcome further conversation on this matter.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'JMumford'.

Jacqui Mumford
Chief Executive Officer
Nature Conservation Council of NSW