Northern Basin Toolkit Measures

August 2023 progress update from the Northern Basin Project Committee

Narran River and Lakes

Credit: Northwest Helicopters

Northern Basin Toolkit Measures

The Australian Government is working with the New South Wales (NSW) and Queensland (Qld) governments to implement a suite of water management tools or measures - the Northern Basin Toolkit.

The Northern Basin Toolkit is designed to maximise environmental outcomes in the northern Basin by improving water management practices and passage of water flow. The 6 toolkit measures support the implementation of the Murray–Darling Basin Plan (Basin Plan).

All Basin governments have agreed to the implementation of the toolkit measures. The Intergovernmental Agreement on Implementing Water Reform in the Murray-Daring Basin sets out the commitment. The Australian Government is investing up to $180 million for NSW and Qld to implement toolkit environmental works and measures projects.

Outcomes of the six toolkit measures:

1. **Targeted water recovery** – In progress for June 2024
2. **Protection of environmental flows** – Some risk to June 2024 delivery
3. **Improved coordination and management of environmental water** – On-track for June 2024
4. **Event-based mechanisms** – On-track for June 2024
5. **Environmental works and measures to improve environmental outcomes across the northern Basin, providing increased opportunities for native fish movement (through building fishways)** – Full package of projects will not be completed by June 2024
6. **Removal of physical constraints in the Gwydir catchment to improve flows to the wetlands** – Projects will not be completed by June 2024

Loudens Lagoon, Macquarie Marshes (CEWO)

Targeted Water Recovery

In progress for June 2024 delivery

Aim

This measure aims to recover water for the environment as part of the Australian Government's commitment to deliver the Basin Plan in full. The water will be used improve the health of the northern Basin system.

Bridging the Gap:

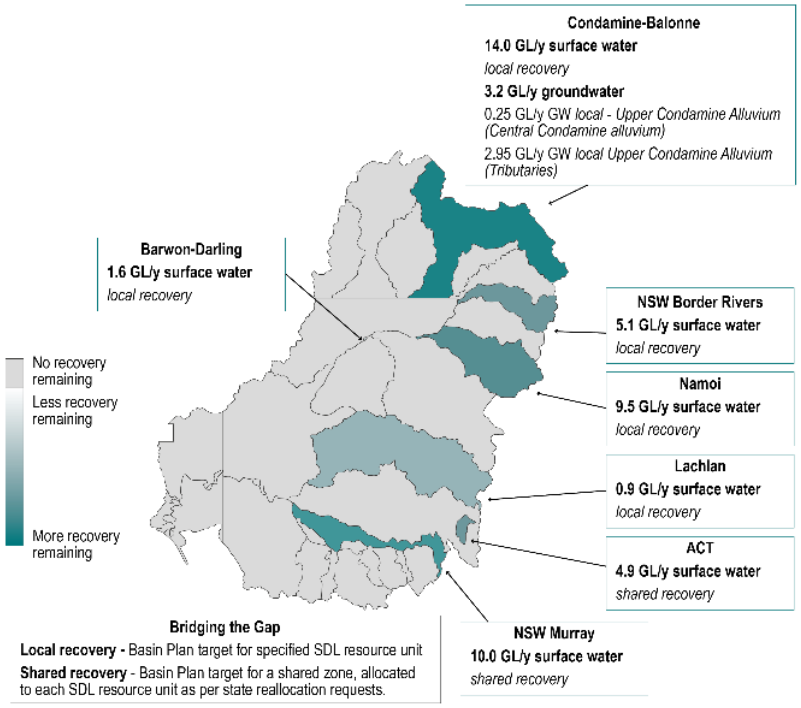
The Water Act 2002 (Cth) and Basin Plan 2012 (Cth) require water recovery to bridge the gap to the Sustainable Diversion Limits (SDLs).

- A total of 46GL of surface water and 3.2GL of groundwater still needs to be recovered across 7 catchments to achieve the SDLs (see map).
- In the absence of other feasible projects, purchasing is the most effective and efficient method to achieve these targets.

Note NSW water resource plan accreditation may change the water recovery progress and or remaining gaps in NSW catchments.

Remaining water recovery

Current remaining recovery effort across the Murray-Darling Basin to bridge the gap to the SDLs



What has been achieved so far in the northern Basin:

Basin Plan bridging the gap surface water recovery targets are achieved in the following northern Basin catchments:

Moonie, Nebine, Paroo, Qld Border Rivers, Intersecting Streams, Warrego, Gwydir and Macquarie Castlereagh.

The latest information on meeting northern Basin water recovery targets is available at: Progress on Murray-Darling Basin water recovery - DCCEEW.

In October 2022, the Murray–Darling Basin Ministerial Council noted that the Commonwealth and Basin states would work together on water recovery options including through strategic water purchases.

In February 2023, the Australian Government released a Strategic Water Purchasing Framework to Bridge the Gap under the Murray-Darling Basin Plan.

From 23 March to 19 May 2023, the government ran a voluntary open tender to strategically purchase water across 6 catchments in NSW and Qld. Offers are expected to commence in August 2023.

Some excellent progress. Some risk to June 2024 delivery

Protection of environmental flows

Aim

Recognise and protect environmental water as it moves through the unregulated systems of the northern Basin through enduring management arrangements.

Enhancing system connectivity across the Northern Basin.

Challenge:

Ensuring all management arrangements are captured in Water Resource Plans (WRPs) across the northern Basin.

Continuing to improve the NSW active management arrangements, to be consistent with policy changes and improvements to operations.

Making cross-border accounting arrangements for environmental water permanent by 2024.

Next steps:

NSW is working on a method to recognise held environmental water that has crossed the Qld/NSW border and flowing via the NSW Intersecting Streams into the Barwon-Darling, so it can be protected under active management arrangements rules in the Barwon-Darling.

There is a possible next step to extend environmental water protection to enhance Basin-wide connectivity approach (e.g. accounting and protection of Northern Basin environmental flows from the northern Basin through Menindee Lakes).

What has been achieved so far

- Management arrangements are included in accredited Water Resource Plans that recognise/measure and protect additional flows through the Lower Balonne resulting from water recovery upstream of Beardmore Dam.
- NSW Active management arrangements in NSW Water Sharing Plans allow Held Environmental Water (HEW) to be recognised and protected in the Barwon-Darling, Macquarie and Gwydir rivers (85.1 GL protected in the Macquarie-Bogan and Barwon-Darling in 2020-21).
- NSW Barwon-Darling Water Sharing Plan includes a number of reforms to enhance connectivity – resumption of flow rules, Individual Daily Extraction Components and changes to A-class licence pumping conditions.
- Environmental water cross border accounting arrangements.

Case study:

An accounting system has been developed to measure and protect held environmental water across the NSW/Qld border.

Qld and NSW developed and implemented transparent accounting method calculating contribution and timing of HEW crossing the Qld/NSW border.

The new method applies across the Condamine-Balonne, Border Rivers, Lower Warrego, Moonie and Nebine catchments – includes operational protocols and procedures.

The method was successfully trialled during a major flow event in March/April 2021.

246 GL and 105 GL of HEW was accounted for at the Qld/NSW border in the 2021/22 and 2022/23 water years respectively.

Image: Narran Lakes Nature Reserve , Northwest Helicopters

Coordination and management of environmental flows

Joint environmental releases have achieved environmental outcomes.

On-track for June 2024 delivery

April 2018 June 2018

Above: Darling River at Tilpa, NSW, before and after environmental flows. Locals were able to play cricket on the dry river bed before flows came through (Credit: Left: Tim Lee, ABC. Right: CEWO)

Aim

The measure aims to coordinate and manage environmental water from upper catchments to downstream rivers, boosting environmental outcomes including:

- improve habitat and health of river systems
- support drought refugia
- support joint activities through the NBEWG to achieve whole-of-north outcomes.

What has been achieved so far:

- The Australian, Qld and NSW governments have coordinated joint environmental releases to achieve whole-of-north connected flows through the:
- the Northern Connectivity Event in 2018
- the Northern Fish Flow in 2019
- the Northern Waterhole Top-Up in 2020/2021
- the Northern Refresh in 2022/2023
- Formalised arrangements are in place for coordinating watering activities across the northern Basin through the NBEWG.
- Water management provisions in Water Resource Plans and Water Sharing Plans.

First Nations participation in water management

In April 2022, First Nations northern Basin representatives participated in the Northern Basin Environmental Watering Group (NBEWG) for the first time.

This was a significant first step to recognise the importance of including First Nations' knowledge when planning the use of water for the environment.

The First Nations' representatives shared information and knowledge with environmental water managers to enhance water planning and management.

Next steps:

If conditions remain dry, governments will consider coordinating another joint environmental release for spring 2023.

Event-based mechanisms

Proof of concept demonstrated and on-track for June 2024 delivery

What is an event-based mechanism?

- An event-based mechanism (EBM) is an innovative way to get more water to where and when it is needed. This extra water complements or tops-up the water the Commonwealth Environmental Water Holder (CEWH) owns on a permanent basis.
- An EBM is a way to achieve additional environmental outcomes during specific flow events at important sites such as the internationally significant Dharriwaa (Narran Lakes).

What has been achieved so far:

- The CEWH has activated two innovative grants to successfully support bird breeding at the internationally significant wetland at Dharriwaa (Narran Lakes). This area is home to the Yuwaalaraay/Euahlayi First Nations people.
- Through the grants, additional water was provided in:
    - 2020 to help prime vegetation for bird breeding via a pilot project
    - 2023 to help keep key wetlands wet at a critical time resulting in the most successful bird breeding at the site in a decade.
- This water also refreshed flows in the lower Balonne, reconnecting waterholes and improving habitat and food sources for fish and birds along the Narran River.
- These innovative ways of getting water most builds on the collective efforts of the community, industry and government to build resilience in the ecosystem after lengthy years of drought.

2020 pilot project:

- In 2020 the CEWH ran a pilot project to rebuild waterbird habitat at Dharriwaa.
- Four water licence holders in the Lower Balonne river system were offered reimbursement via an ad-hoc grant to not pump water they were legally entitled to pump from the Narran River.
- One water-licence holder accepted this offer. This allowed more water from Lower Balonne flows in 2020 to remain in the river and reach the lakes. This water helped revive some critical habitat for waterbirds.
- An independent review of the pilot has been completed to capture learnings and to identify improvements which could be implemented for subsequent events

Above: South Arm Straw-necked ibis colony. Photo: Pat Johnston and Joanne Ocock, NSW NPWS. Photo taken as part of surveys approved under scientific licence

Above: Pelicans at Dharriwaa. Photo: Roxanne Francis, CES-UNSW.

2023 – Additional flows to support bird breeding at Dharriwaa:

- The CEWH entered into a grant arrangement with a water licence holder to release 6.5 gigalitres of water from private storages into the Narran River.
- 2.4 gigalitres reached Dharriwaa where it supported the most successful breeding at the site in over a decade.
- On its way to Narran Lakes, the flows reconnected parts of the river and replenished important waterhole habitat, providing additional benefits for birds, fish and other native animals.
- Details of the flow can be found on the CEWH's website.
- The CEWH has commissioned an independent evaluation of the 2023 event. The findings will be published on the CEWH website later in 2023. The evaluation recommendations will help the CEWH and state delivery partners improve how event-based mechanisms are implemented in the northern Basin.

Environmental works and measures

Delivery of full package of projects will not be completed by June 2024

Aim

This measure aims to deliver environmental works to promote fish movement, reduce fish extraction during pumping and improve environmental water delivery to key ecological assets.

Activities include:

- construction of fishways and removal of barriers such as weirs along riverways of the Barwon-Darling, Border Rivers, Condamine-Balonne and Culgoa – reconnect 2000 km of river, improve native fish habitat and condition
- construction or modification of infrastructure to enhance watering of key environmental assets at Macquarie Marshes and Narran Lakes (Dharriwaa).

Community benefits

Job creation and investment in regional communities during construction phase, as well as increased tourism opportunities and create aesthetic town amenities as native fish populations increase.

Challenges and risks:

Severe risks to timely delivery:

- Delays caused by weather events and wet conditions expected to continue into 2023
- Supply chain and pricing
- Shortfall in skilled labour force

Potential cost escalations as approved funding was based on feasibility cost estimates.

May result in reduced scope and delivery of environmental outcomes.

Feasibility – August 2019 to July 2020	Prioritisation – August 2020 to February 2021	Business case – March 2021 to February 2023 Gateway – from October 2022	Implementation – to June 2024

Projects	Feasibility	Business case / Gateway	Implementation	June 2024 delivery
NSW Reconnecting Northern Basin (fish passage)	Complete (22 sites identified)	Gateway assessment underway	Partially underway	6 sites implemented by June 2024 10 site design works ready mid-2024 4 sites uncertain
NSW Macquarie Marshes	Complete (2 sites identified)	Progressed to full implementation	Partially underway at one site, second site impacted by inundation	On track for delivery of works at one site, with the other delivered after June 2024 Risk associated with inundation
NSW Fish screens	Complete	Progressed to full implementation	Partially underway – EOI, on-ground investigations	On track for installation of all fish screens (13 sites with 49 pumps)
Qld Fish screens	Complete	Gateway assessment underway	Installation at 3 demonstration sites underway	On track for installation of all fish screens (19 sites with 38 pumps)
Qld bifurcation weirs/Culgoa fishways	Complete	Business case submitted April 2023 for Cwlth assessment	To be decided by Cwlth Minister	If approved, will not be delivered by June 2024
Qld Condamine-Balonne fishways	Complete	Business case submitted April 2023 for Cwlth assessment	To be decided by Cwlth Minister	If approved, will not be delivered by June 2024

Gwydir Reconnecting Watercourse Country Program (previously Gwydir constraints measures)

Projects will not be completed by June 2024

Aim:

To enable the delivery of desired flows to ecological assets in the Gingham and Lower Gwydir watercourses, and Lower Mehi River.

Co-design and implement physical and operational measures which enable both farming and the environment to co-exist with improved confidence.

Community engagement:

NSW continues to engage with watercourse landholders and property managers, the Gomeroi community, industry, Moree Plains Shire Council, the river operator and stakeholders to refine and implement measures that achieve lasting outcomes.

Input from the community is essential to the successful implementation of the program. A tiered and iterative engagement and co-design framework aims to maintain relationships and foster collaboration.

Challenges and risks:

Extreme weather events, wet conditions and the dynamic nature of the watercourses may hamper on-ground work, access, and negotiations with stakeholders.

Recent flooding has resulted in further growth of the Gwydir Raft and flow path changes in the Gingham. This requires baselines to be re-established and mitigations to address the raft. Mitigation works are out of scope of the Reconnecting Watercourse Country Program and currently unfunded.

The success of the program is strongly dependent on negotiations with watercourse landholders, managers and the river operator.

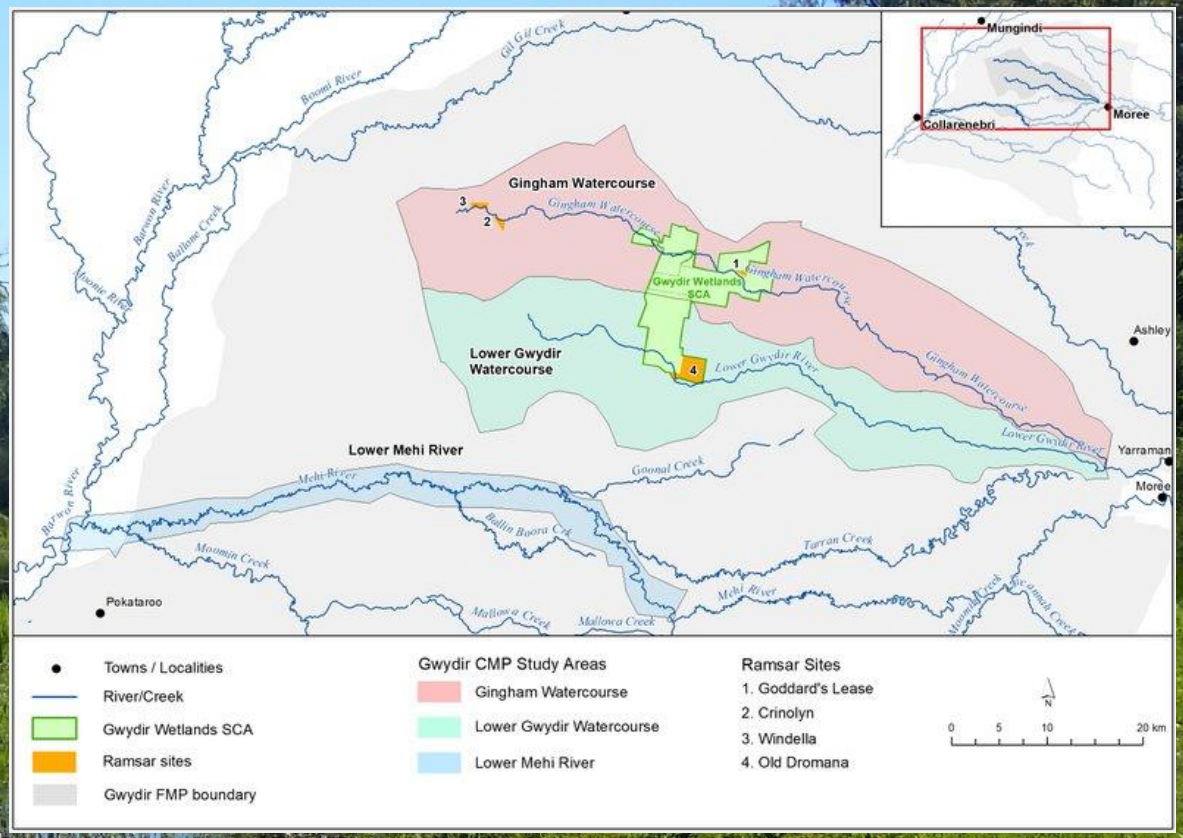


Image: Downstream Gingham Bridge, Gingham watercourse David Preston, NSW DPE

Narran River and Lakes

Credit: Northwest Helicopters