Northern Basin Connectivity Program

Protecting water flowing across connected catchments at important times is integral to supporting downstream critical human and environmental needs.

As part of developing the Western Regional Water Strategy, the Department of Planning and Environment - Water (the department) undertook significant analysis and consultation to better understand what action could be taken to improve water flowing across connected catchments of the northern NSW Murray-Darling Basin at important times for the following outcomes:

- protect the first flow of water after extended dry periods to protect critical human and environmental needs and accelerate drought recovery
- identify the best way to support algal suppression and fish migration in the Barwon-Darling
- reduce the impact of cease-to-flow periods and improve low flow connectivity.

The department is undertaking further analysis and consultation to support the implementation of these actions and inform changes that may need to be made to flow targets in water sharing plans.

Before making these changes, the Minister has established the Connectivity Expert Panel (the Panel) to review the analyses the department has undertaken and to provide independent expert advice on the adequacy of these assessments and potential changes to water sharing plan flow targets to meet critical environmental and human needs. The panel is also to provide advice on the adequacy of the access rules for floodplain harvesting to meet human and environmental needs.

In addition, the Minister has expanded the role of the Panel to examine more broadly rules in both regulated and unregulated water sharing plans that contribute to hydrological connectivity in response to the recommendations made in the Office of the Chief Scientist and Engineers report into the 2023 Menindee fish deaths.

The recommendations from the Panel will help inform the changes required within water sharing plans to improve connectivity. The department will follow the usual processes to make any water sharing plan amendments in response to the panel's recommendations. This will include public consultation on the proposed amendments.

More than 90% of the water flowing in the Barwon-Darling comes from upstream catchments

The Barwon-Darling relies on flows from five (5) NSW valleys (Border Rivers, Gwydir, Namoi, Macquarie and the Intersecting Streams), as well as a number of Queensland rivers. Most of these contributions occur during high flow periods. This means that communities, industries and

ecological needs across the region rely on water flowing from upstream catchments that are influenced by climate conditions, water management and extractions in those catchments.

Connectivity, or water flowing between catchments supports communities and ecosystems at all times:

- connectivity during non-drought times builds the resilience of the system, providing opportunities for movement, spawning, and recruitment, and improving water quality and productivity in the system
- connectivity in wet periods supports large-scale productivity, replenishing wetlands and flushing rivers to prepare systems for dry conditions
- connectivity in extreme droughts helps to avoid irretrievable damage to species, ecological communities and ecosystems.

Improving connectivity has the potential to provide benefits to a range of people, communities, ecosystems and industries. However, sharing water across connected systems means that any water management or infrastructure action will involve trade-offs. An action to improve connectivity may result in additional water being provided for one type of water use, or to communities in one part of the region, and water access being reduced for other users.

Maintaining connectivity during extended dry periods is most challenging

Protecting water flowing across connected catchments of the northern NSW Murray-Darling Basin at important times is integral to supporting downstream critical needs. However, maintaining a constantly flowing river in the Barwon-Darling catchment is not possible. The Barwon-Darling River has stopped flowing for prolonged periods, corresponding to dry periods in the climate, even before significant agricultural development in the northern Basin.

Climate change could result in more times when the northern tributary rivers do not connect with the Barwon-Darling River.

What can be done to improve connectivity across catchments?

As part of the developing the Western Regional Water Strategy the department undertook significant analysis and consultation to better understand what further action could be taken to improve connectivity. This analysis, previous independent reviews and legal requirements have suggested that the following actions are required to improve water flowing across connected catchments at important times:

- develop critical dry condition triggers to protect the first flush of water after extended dry periods to provide critical human and environmental needs and support recovery post drought and seek to implement them in water sharing plans
- review the North-West Flow Plan to identify the best way to support algal suppression and fish migration in the Barwon-Darling
- further investigate ways to provide replenishment flows from northern tributaries during dry periods to reduce the impact of cease-to-flow periods.

The Barwon-Darling Water Sharing Plan will be remade in 2025. Additional analyses of the critical dry condition triggers and North-West Flow Plan will need to be completed by mid-2024, so the triggers can be included in consultation on proposed changes to the Barwon-Darling Water Sharing Plan which will occur in the second half of 2024. Implementing the triggers will also require changes to the relevant water sharing plans for the Border Rivers, Gwydir, Namoi and Macquarie valleys.

An independent Connectivity Expert Panel has been established to review connectivity actions

The Connectivity Expert Panel (the Panel) was initially established to provide independent expert advice and recommendations on proposed changes to water sharing plan flow targets to improve flows from tributary valleys into the Barwon-Darling at important times, as well as on the floodplain harvesting access triggers. The current Terms of Reference can be found here.

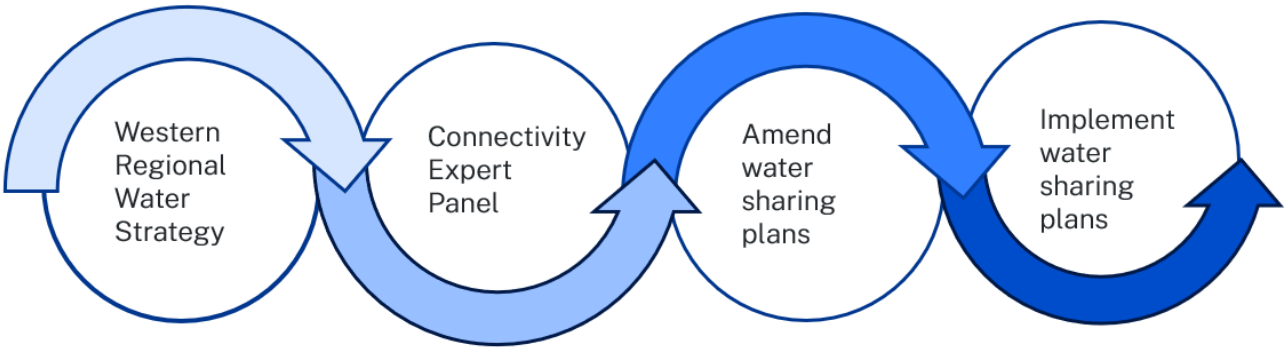
In response to the recommendations in the Office of the Chief Scientist and Engineer report into 2023 Menindee fish deaths, the scope of the Panel will be expanded to examine more broadly rules in both regulated and unregulated water sharing plans that contribute to hydrological connectivity between tributary valleys and the Barwon-Darling.

Program timeline and next steps

The Panel had its first meeting in September 2023 and will provide its draft report and recommendations in early 2024. Targeted consultation will be undertaken on the draft report, prior to the panel finalising its report.

The department will follow its usual processes to make any water sharing plan amendments in response to the panel's recommendations. This process will include public consultation on the proposed amendments (Figure 1).

Figure 1: Northern Basin Connectivity Program timeline



Further information on the Northern Basin Connectivity Program is available here