



Department of Climate Change, Energy, the Environment and Water



Minimum Inflows and Northern Basin Connectivity project update

Murray Forum, Deniliquin

Peter Hyde
Director Inland Planning

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What we will discuss

1. Northern Basin Connectivity
2. Minimum inflows
3. Project intersection

Minimum Inflows

Minimum Inflows program

Incorporating risk of climate change and variability into water allocations

- Improved capacity to manage water availability under a more variable climate → *more certainty for water users and environment*
- Establishing likelihood of the Extreme Events Policy being triggered/WSP suspensions → *agreed level of risk for water users and environment*

‘Minimum inflows’ – a complex problem

1. Climate variability has resulted in recent and serious instances of insecure water supplies. These affected regional economies, communities and the environment.
2. It is now evident that the former method by which water security was maintained (‘minimum inflows’) requires a review.

We have better tools at our disposal to better understand risk around water supply

Social license and statutory obligations



Better understanding the likelihood of WSP suspension under current and future conditions



Review of allocations process to secure water for high priority uses



Consider impacts on planned environmental water



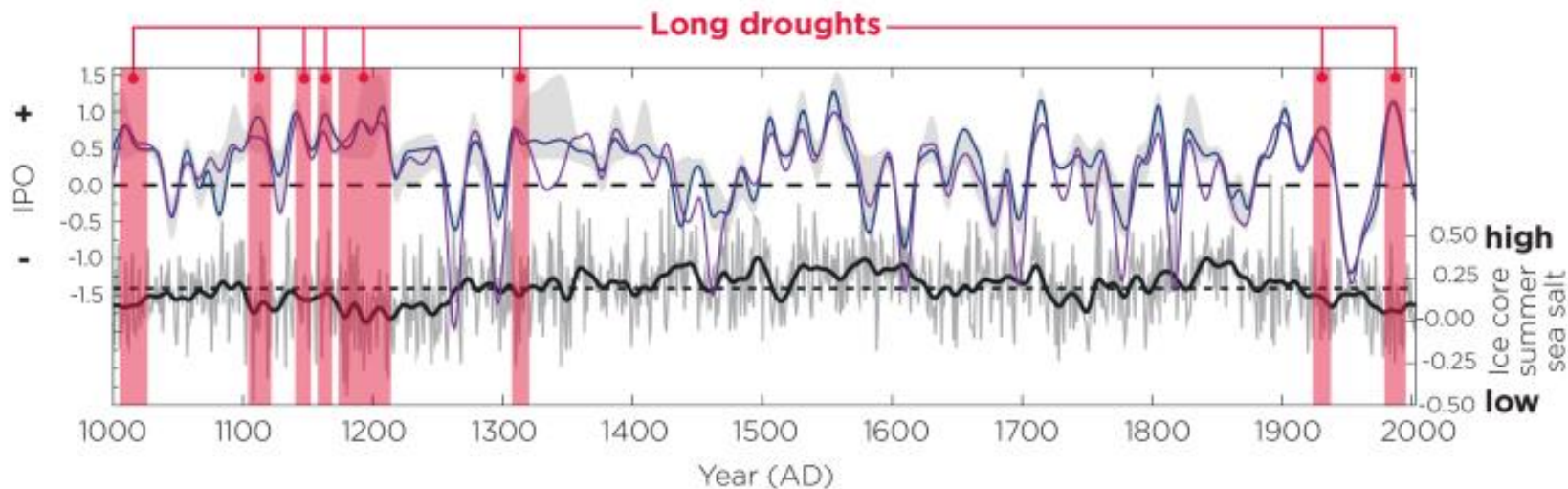
Consider the views of stakeholders



Consider climate change and variability (NCC and NSW Water Strategy)

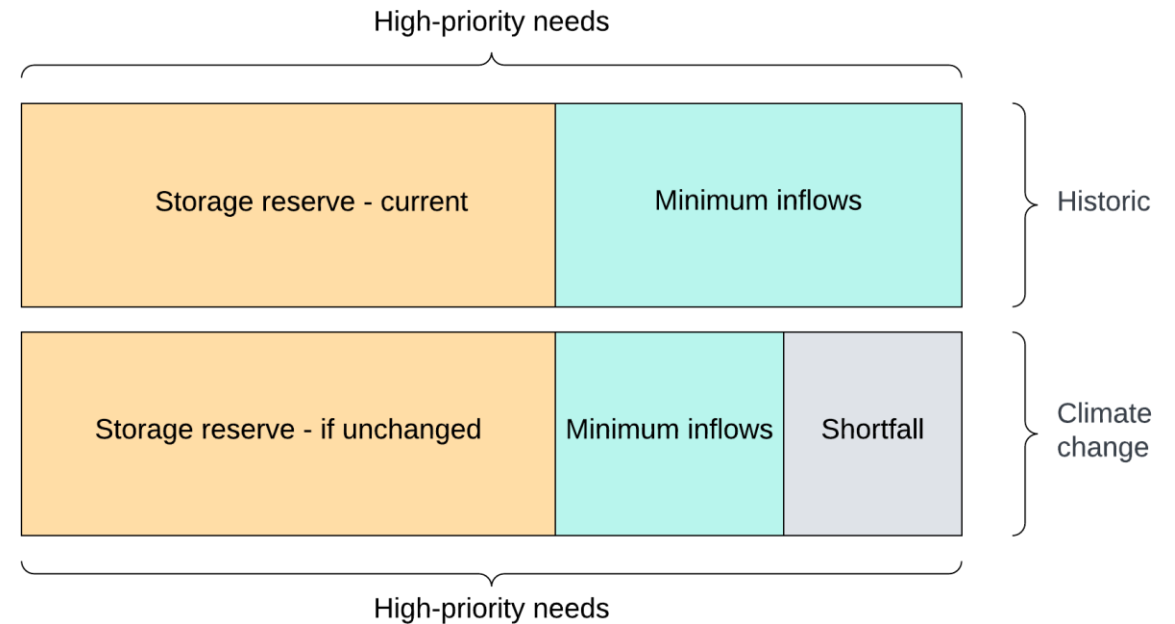
New options for assessing and managing risk

- Our best information (10,000-year dataset + recorded data + climate change scenarios) means picking a single ‘worst drought on record’ is not representative.
- Our new and improved data allows for more nuance in estimating risk and designing WSPs to manage those risks.



Our revised approach

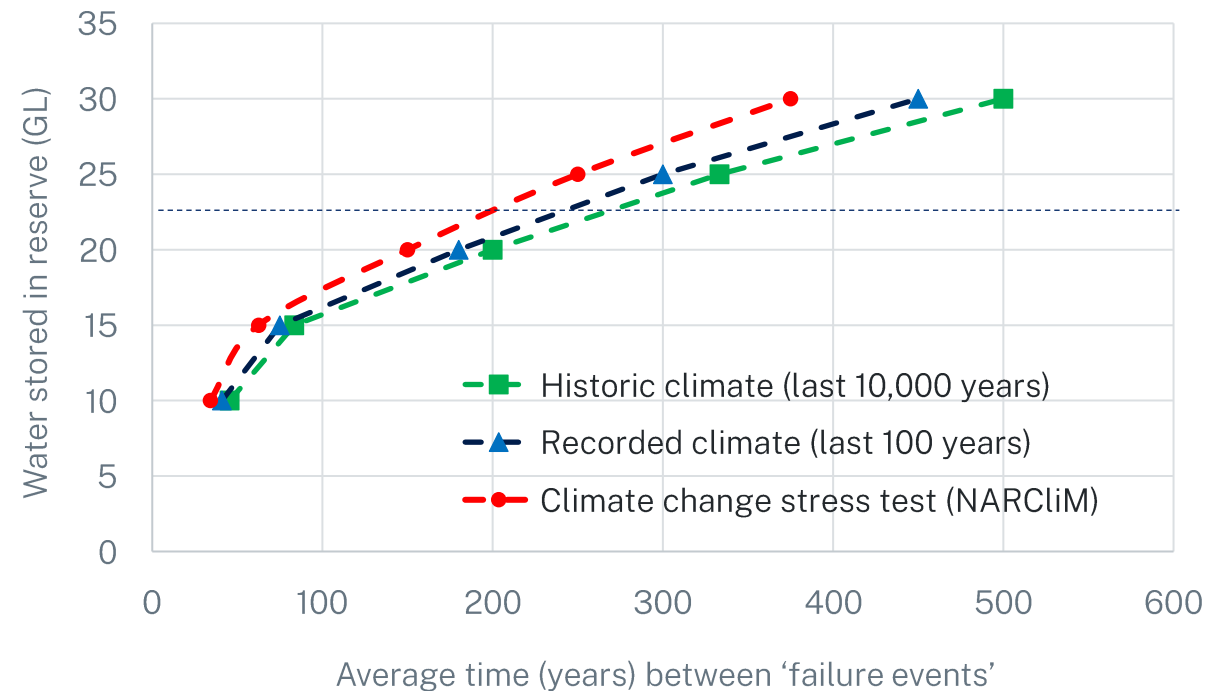
1. A more robust approach is to first assess how much water should be stored under a variable climate.
2. Calculating realistic 'minimum inflows' informs potential storage reserve changes in response to this variability.



Revised approach – our method

- The project models the minimum volumes of water required to be set aside in storages
- Incorporates paleo-stochastic and NARClIM data
- Failure = where we can't meet high-priority needs (Stage 3 EEP)
- Results will show levels of security provided by different storage reserves under different climate scenarios.

Choose your risk: how much water minimises the chance of failure? (EXAMPLE ONLY)



Benefits of the revised approach



Can directly estimate and communicate risk of failure of different storage reserve levels



Provides tangible options for decision makers



Stakeholders can clearly see how much water is being stored in reserves



Considers social, economic and environmental requirements

Method outputs and considerations

- Impacts and benefits to different licence entitlements/water users
- Length and severity of expected shortfalls
- Economic impacts
- Environmental impacts
- High priority needs (e.g., BLR, town water supply, environmental water)

Next steps

- Respond to OCSE review and revise method
- Technical summary documents
- Consultation on method, OCSE report and roll-out

Northern Basin Connectivity project



Northern Basin Connectivity Program



Project objective

- Improve river connectivity between the Barwon-Darling and its tributary systems and then downstream to provide for human and environmental needs.

Expected project outcomes

- Northern Basin water sharing plans include provisions that aim to improve water flowing across connected catchments and manage resumption of flows. This will
 - increase transparency on how system operates under a range of conditions
 - reduce reliance on temporary water restrictions (s.324)
 - protect environmental water flows from northern to southern basin.

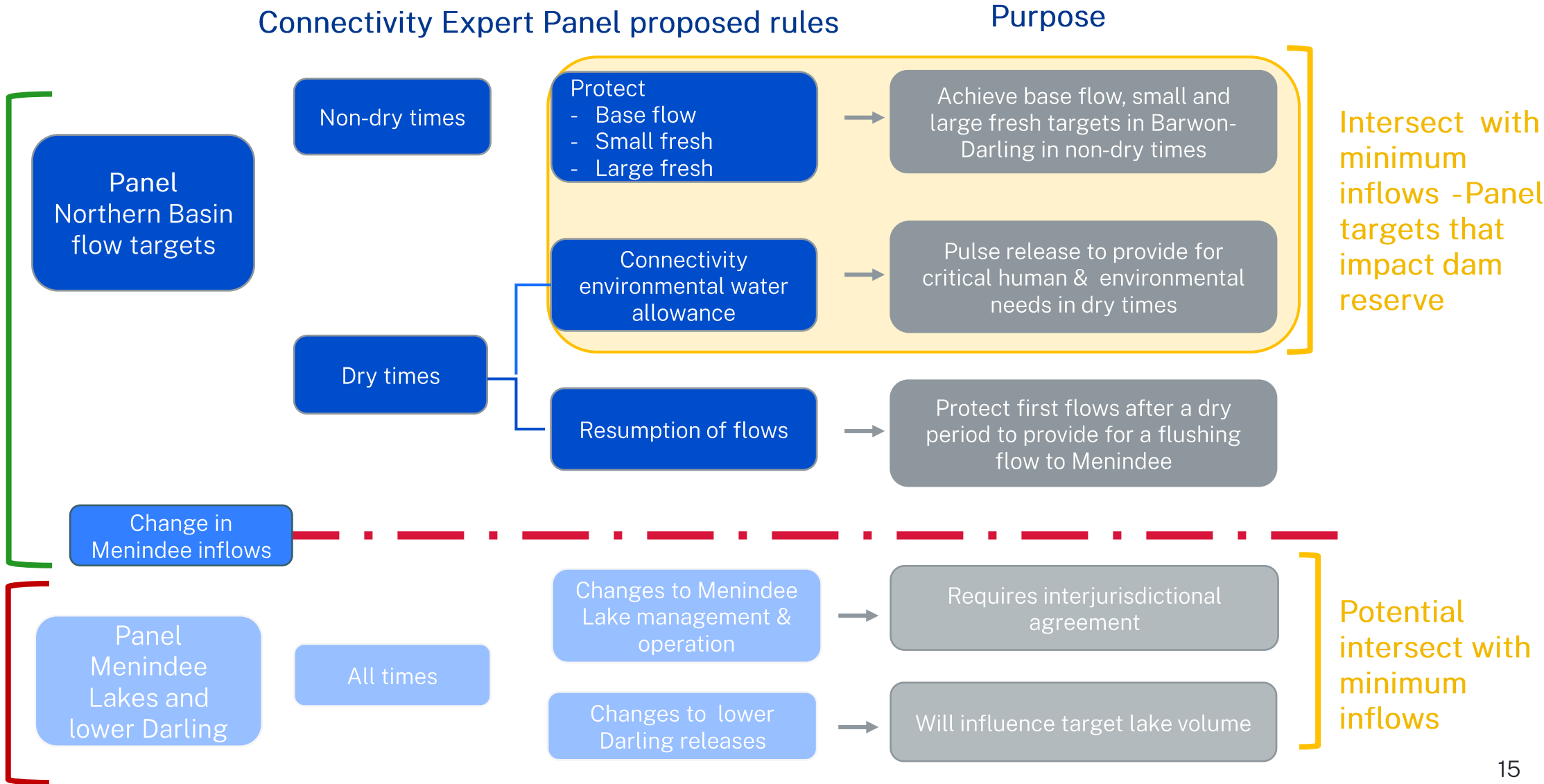
The program will build on previous reforms. Connectivity Expert Panel's report is just one input.

Connectivity Expert Panel Recommendations



Panel rules assessed by Northern Basin Connectivity program

Panel rules outside program scope



Panel extended resumption of flow rule

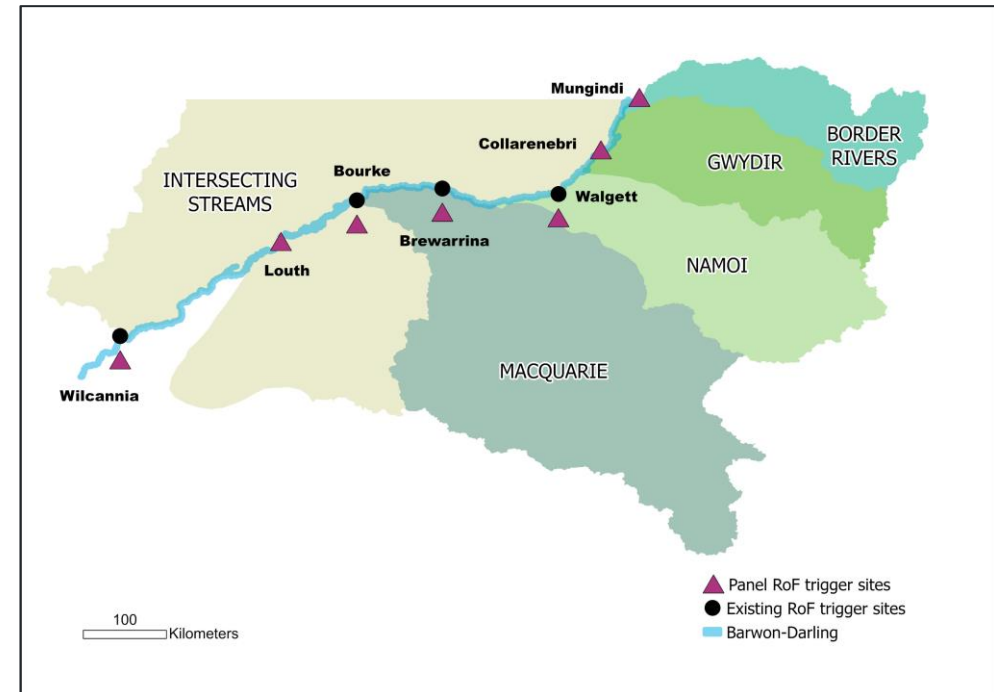
Aims to provide for a small fresh flushing flow to Menindee following an extended dry period

Applies to Border Rivers, Gwydir, Namoi, Macquarie and Barwon Darling regulated and unregulated WSP

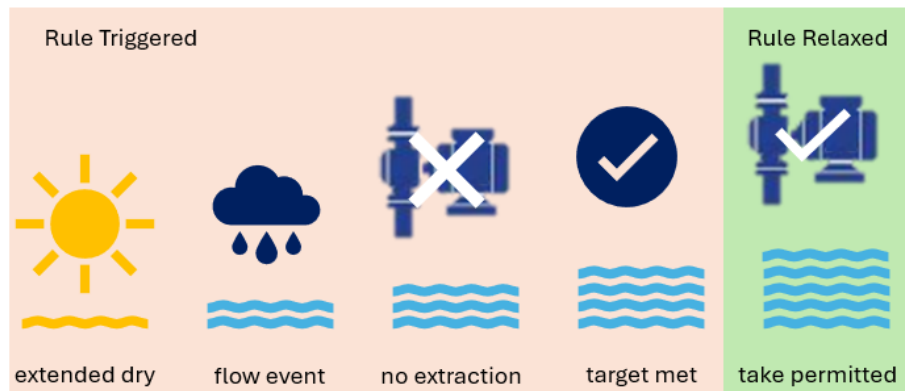
Panel's propose rule

- resumption of flow rules should be applied in northern tributaries as well as the Barwon-Darling
- access restricted after non-achievement of base flow for 90 days
- restrictions lifted when small fresh forecast to be met
- applies to supplementary, floodplain harvesting, unregulated river, Barwon-Darling A/B/C class)

Panel has proposed addition trigger locations to existing RoF rule in Barwon-Darling WSP



How the rule would work



Panel end of system flow rule

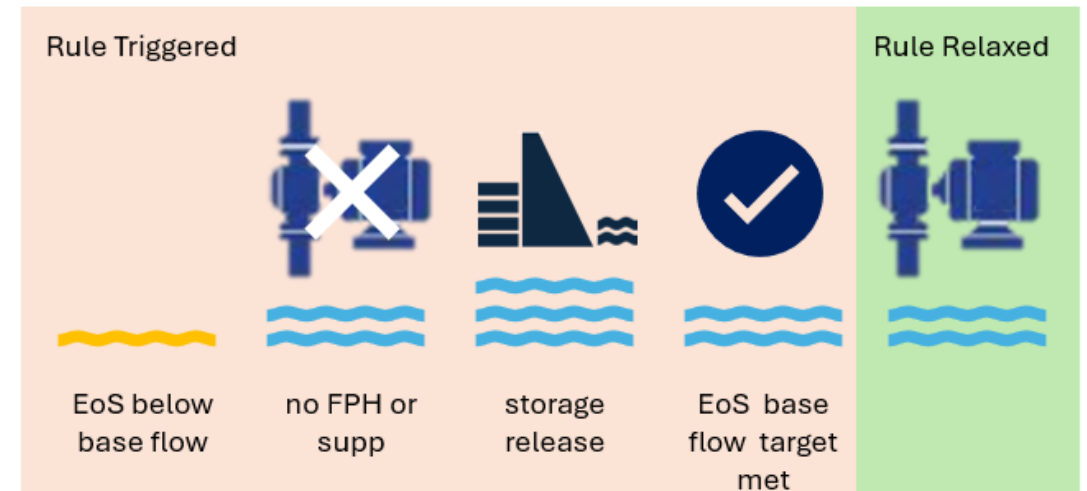
Aims to: achieve improvement Barwon-Darling base-flow targets in non-dry times

Applies to: Border Rivers, Gwydir and Namoi regulated and unregulated water sharing plans

Panel's proposed rule:

- water sharing plans should have an end of system flow requirement at bottom of base flow. to enable Barwon-Darling base flow requirements to be met in non-dry times
- achieved through limitations on supplementary and floodplain harvesting access in the first instance, with releases from storages if these flows are not adequate
 - dam releases are suspended when system enters dry phase
 - dry phase transition trigger: inflows into the major dams drop below the 75th percentile on average over 30 days

How the rule would work



Panel connectivity environmental water allowance

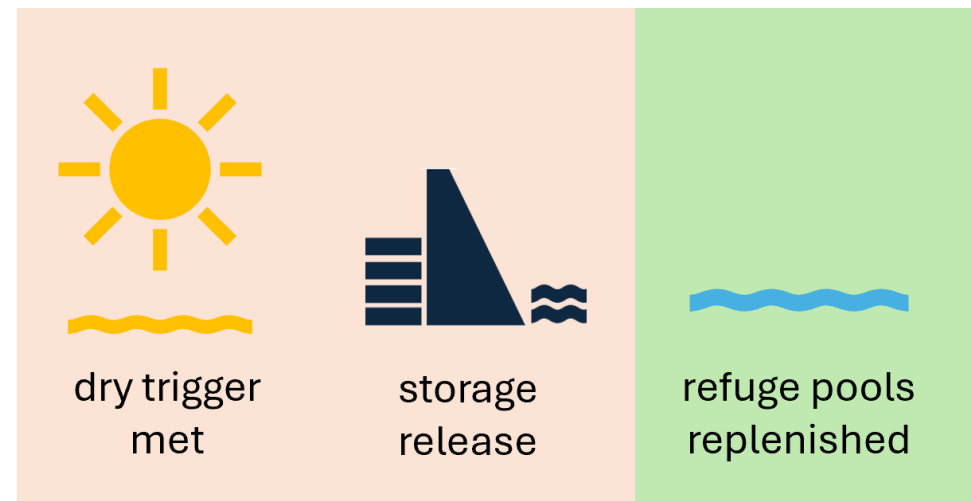
Aims to use replenishment releases from storage dams to at a minimum provide for reconnecting pools for critical human, environmental and water quality needs during dry times.

Applies to Border Rivers, Gwydir, Namoi regulated valleys

Panel's proposed rule:

- The Gwydir, Namoi and Border Rivers regulated water sharing plans should include a connectivity environmental water allowance to provide pulses as needed for water quality and other environmental outcomes during dry times
- At minimum provide for reconnecting pools for critical human needs, environmental and water quality needs in dry times

How the rule would work



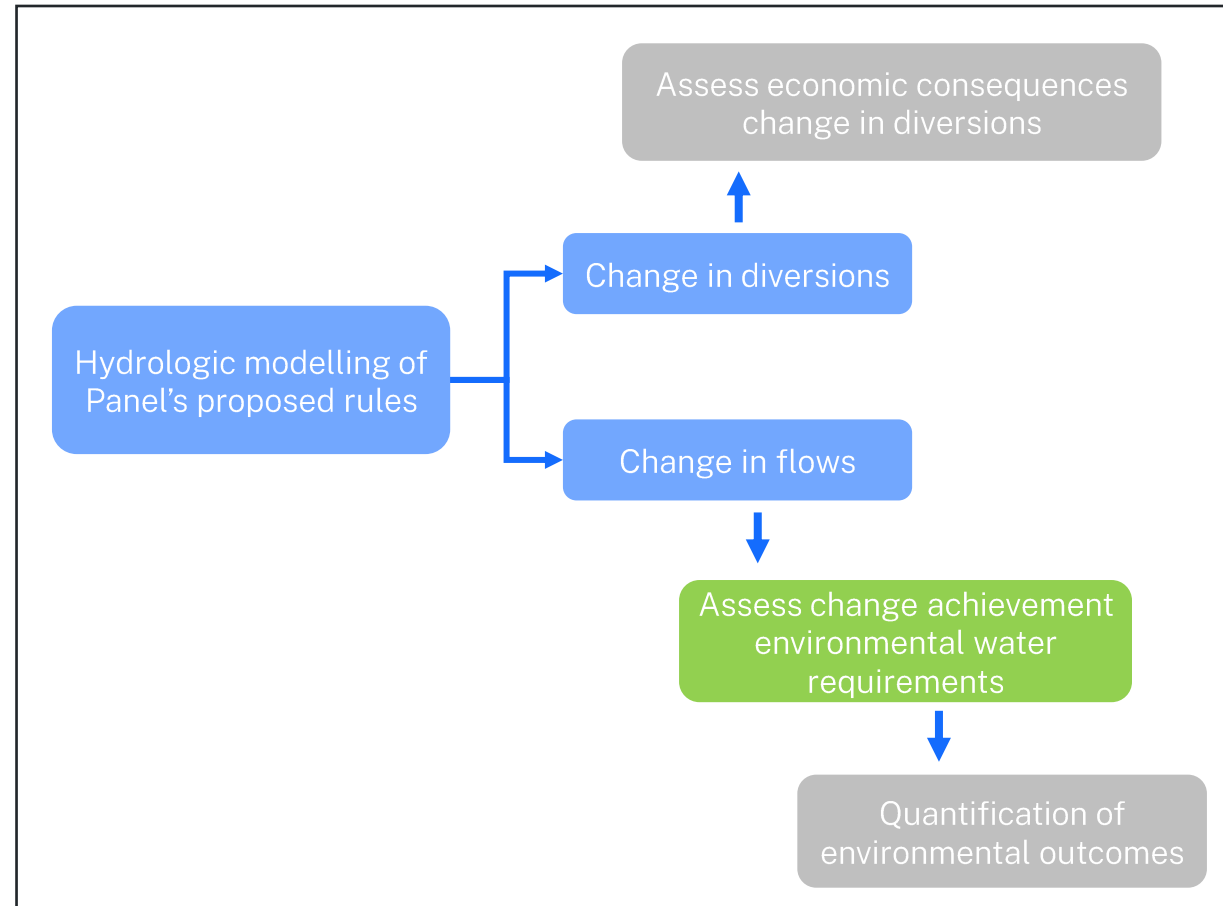
How the Panel's rules will be assessed

The Panel's proposed rules are being modelled using the latest approved version of the hydrologic models

The output from the hydrologic models will be used to assess:

- change in achievement of EWR in the Barwon-Darling
- economic consequence for irrigators
- quantify the ecological benefits

Overview of how the Panel's rules are being assessed



Project intersection

Connectivity/minimum inflow projects intersect

Northern Basin Connectivity -

- improve river connectivity between the Barwon-Darling and its tributary systems and then downstream to provide for human and environmental needs.
- regulated and unregulated WSPs in the northern Basin

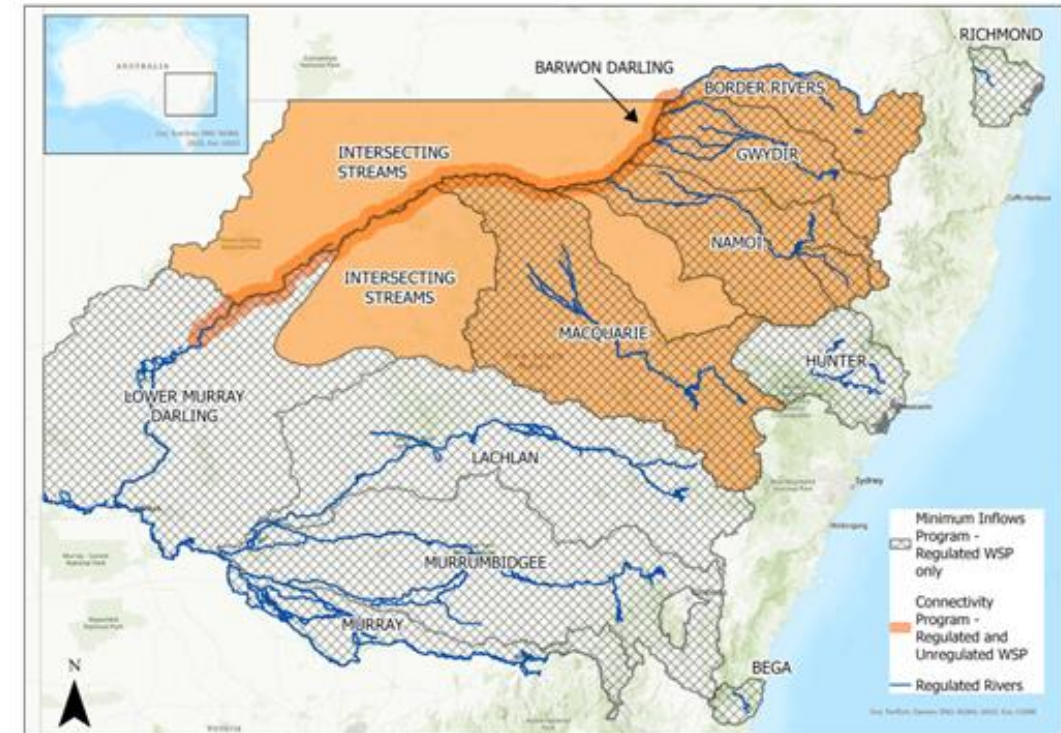
Minimum Inflows -

- proposed method to review minimum inflow sequence to take into consideration climate change
- will affect all NSW regulated WSPs

Key project interdependencies

- impacts to northern Basin regulated river WSP (Border Rivers, Gwydir, Namoi and Macquarie)
- impacts to same licence categories – need to consider cumulative impacts and benefits

Water sharing plan areas impacted by northern basin connectivity and minimum inflows projects



Expected timeline



