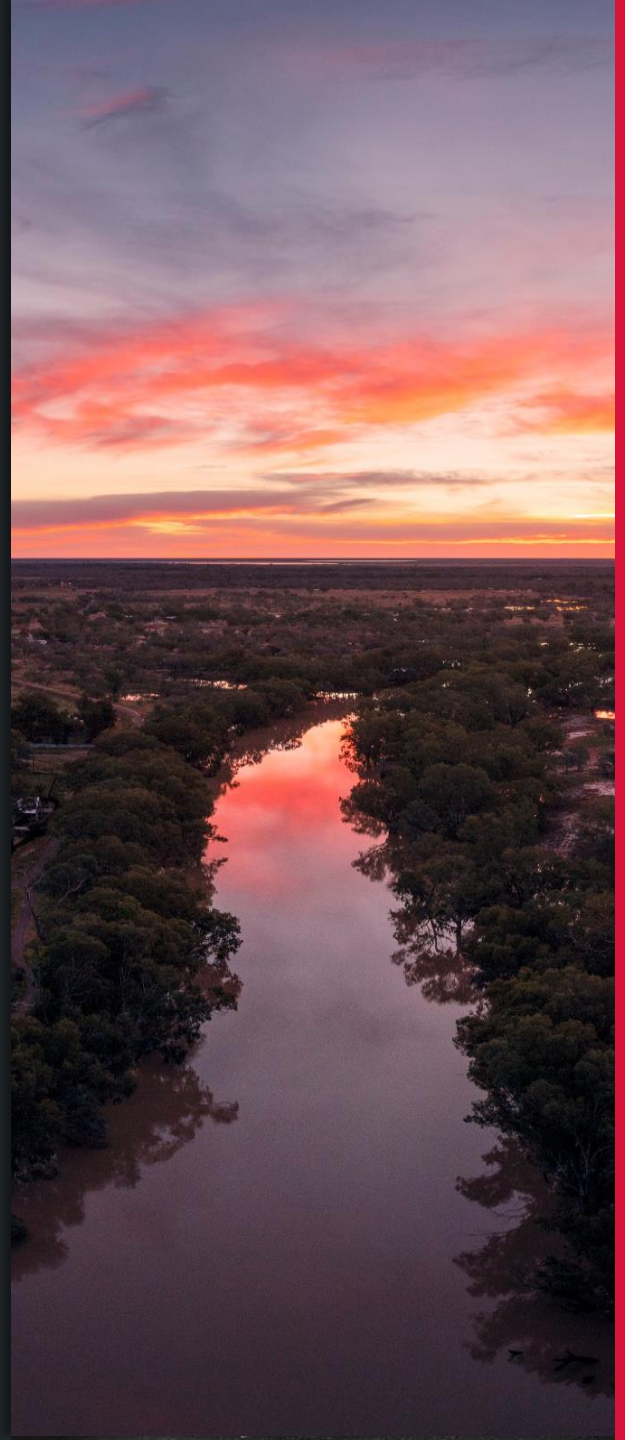
Western Regional Water Strategy



Connectivity Stakeholder Reference Group Briefing

15 December 2022

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Director – RWS

Purpose of this meeting

To update the group on:

- The connectivity actions in the Western Regional Water Strategy
- How stakeholder feedback has informed the actions
- Next steps

Development of the connectivity actions in the Western Regional Water Strategy

- Independent Panel on the First Flush Review - 2020
- Alluvium Consulting review of the North West Flow Plan - 2021
- 3 meetings of the Connectivity Stakeholder Reference Group – 2021
- Draft strategy public exhibition – June and July 2022
- Release of the final strategy – December 2022

Challenges and actions in the Western Regional Water Strategy

Challenges

- Declining water security for towns and small communities
- Insecure water supplies affect the viability of businesses
- Declining health of natural systems
- Challenges in delivering on Aboriginal people's water rights
- Poor water quality
- Reduced connectivity of flows between river systems impacts critical human and environmental needs

Responding to the challenges

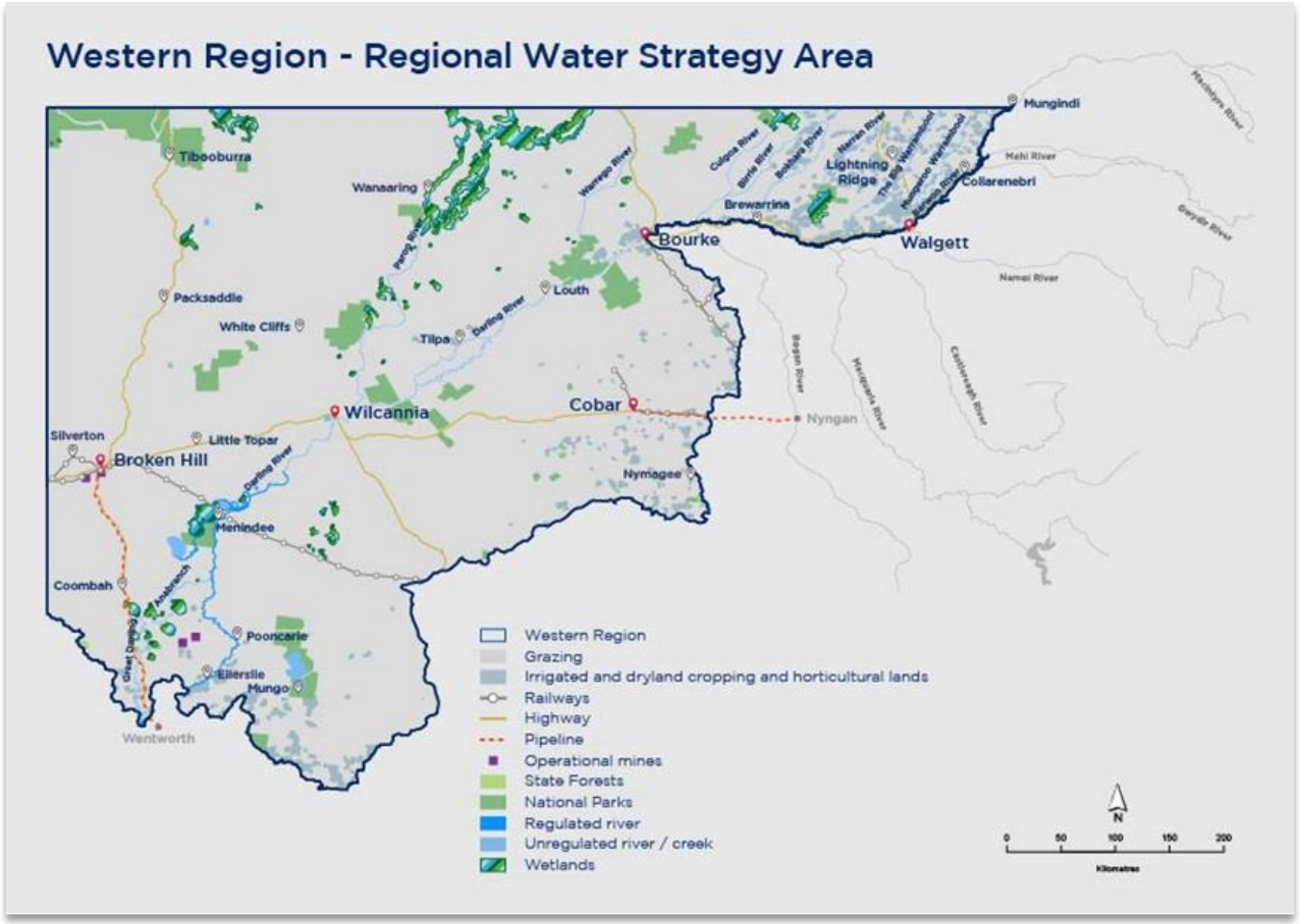
Priority 1: Improving water security for towns, industries and communities (Actions 1.1 -1.11)

Priority 2: Improving the resilience of natural systems (Actions 2.1 – 2.5)

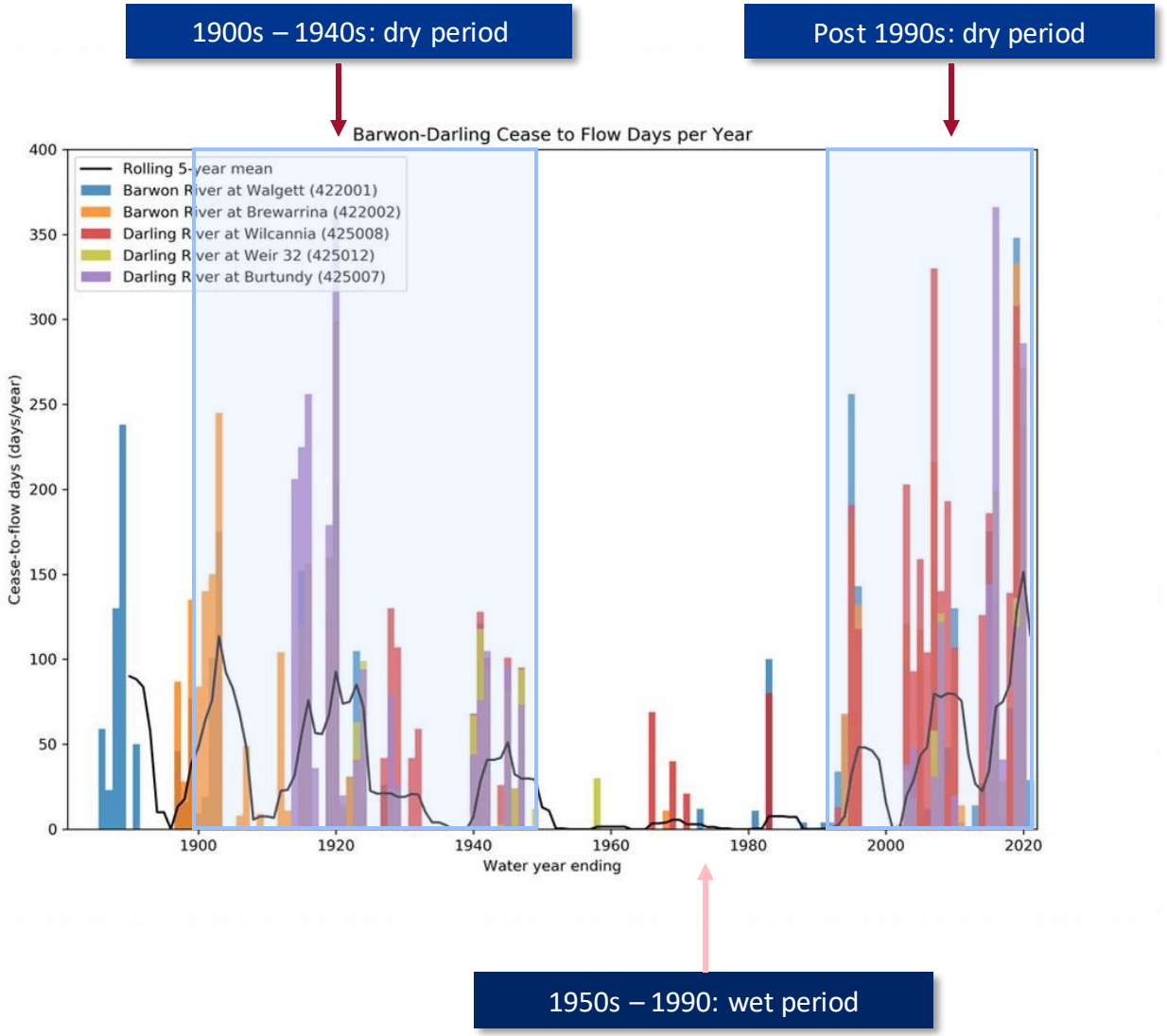
Priority 3: Improving connectivity across the Northern Basin (Actions 3.1 – 3.4)

Reduced connectivity impacts critical needs

The Barwon-Darling river receives the majority of it's inflows from upstream catchments – the rivers are "connected"



What our analysis tells us about connectivity in the Barwon-Darling



- The river has always stopped flowing during dry periods, even before significant upstream irrigation.
- It is not possible to have a constantly flowing river
- Development has increased shorter cease to flow periods, but the climate is driving extended cease to flow periods
- Climate change could increase the frequency and duration of cease to flow periods, putting critical needs at risk.

Why does water need to be flowing across connected systems?

Connectivity objectives

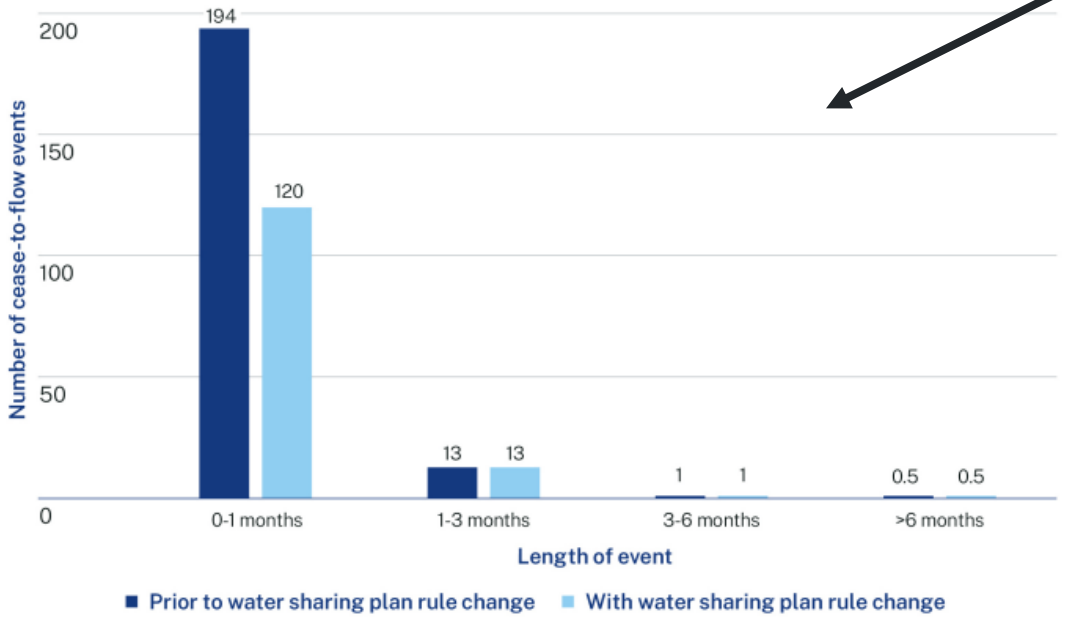
- Reduce the impact of cease to flow periods
- Protect the first flush of water after an extended drought.
- Support water quality and reduce risk of algal blooms forming
- Support fish migration.

The work is not intended to:

- Maintain a constantly flowing river
- reduce the overall amount of water being taken out of rivers, consistent limits set by the Basin Plan
- move productive use of water from one valley to another

What has NSW already done to improve connectivity?

Reductions in the number of cease-to -flow events (modelled) with and without the 2020 WSP changes in a repeat of the 1895-2020 climate - averaged across Bourke, Brewarrina and Wilcannia gauges



Rule changes will reduce the frequency of short (less than 1 month) cease to flow events by an average of 36% in the Barwon-Darling and reduce the frequency of low flow events (less than 1 month) on average by 11%

- **Changed the Barwon-Darling Water Sharing Plan** to protect low flows and reduce shorter cease to flow periods
- **Protected the first flows of water after the drought in 2020**
- **Implemented active management** - protects licensed environmental water as it moves through the Macquarie, Gwydir and Barwon-Darling unregulated river systems.
- **Regulating floodplain harvesting with a 195GL trigger**
- **Progressing work on removing unapproved flood works** in high priority areas to allow water to flow more easily across landscapes

What did the draft Western Regional Water Strategy propose?

Protecting the first flush through critical dry conditions triggers

- Restrict upstream access when Menindee Lakes was below 195GL (total) storage
- Restrict upstream access when there are no flows:
  - For 120 days at Wilcannia
  - For 60 days at Bourke
  - For 30 days in upstream tributaries

Supporting water quality and fish migration through the North-West Flow Plan

- **Riparian Targets** - replace with the critical dry condition targets
- **Algal suppression targets** – update the targets to 3,000 ML/day for seven days at Wilcannia
- **Fish migration targets** – update to dispersal and condition, spawning and migration targets at Bourke and Brewarrina

Additional long-term options proposed:

- Change the management of the Menindee Lakes
- Provide more flows down the Great Darling Anabranch from Lake Cawndilla
- Consider implementing replenishment flows

What did we hear during public exhibition?

Feedback from Stakeholders

- **195GL trigger at Menindee Lakes is not high enough** – will not genuinely provide 12 months supply. Dead storage should not be included.
- **Alternative triggers to provide 18 -24 months supply** – 450GL and 480GL suggested
- **Triggers need to be practical and make meaningful contribution to objectives**
- Support for progressing connectivity actions, but for it **to be recognised in Basin Plan review**
- **Replace Menindee target with a target at Wilcannia**

Consistent feedback: preference for water sharing plan rules rather than s324 orders

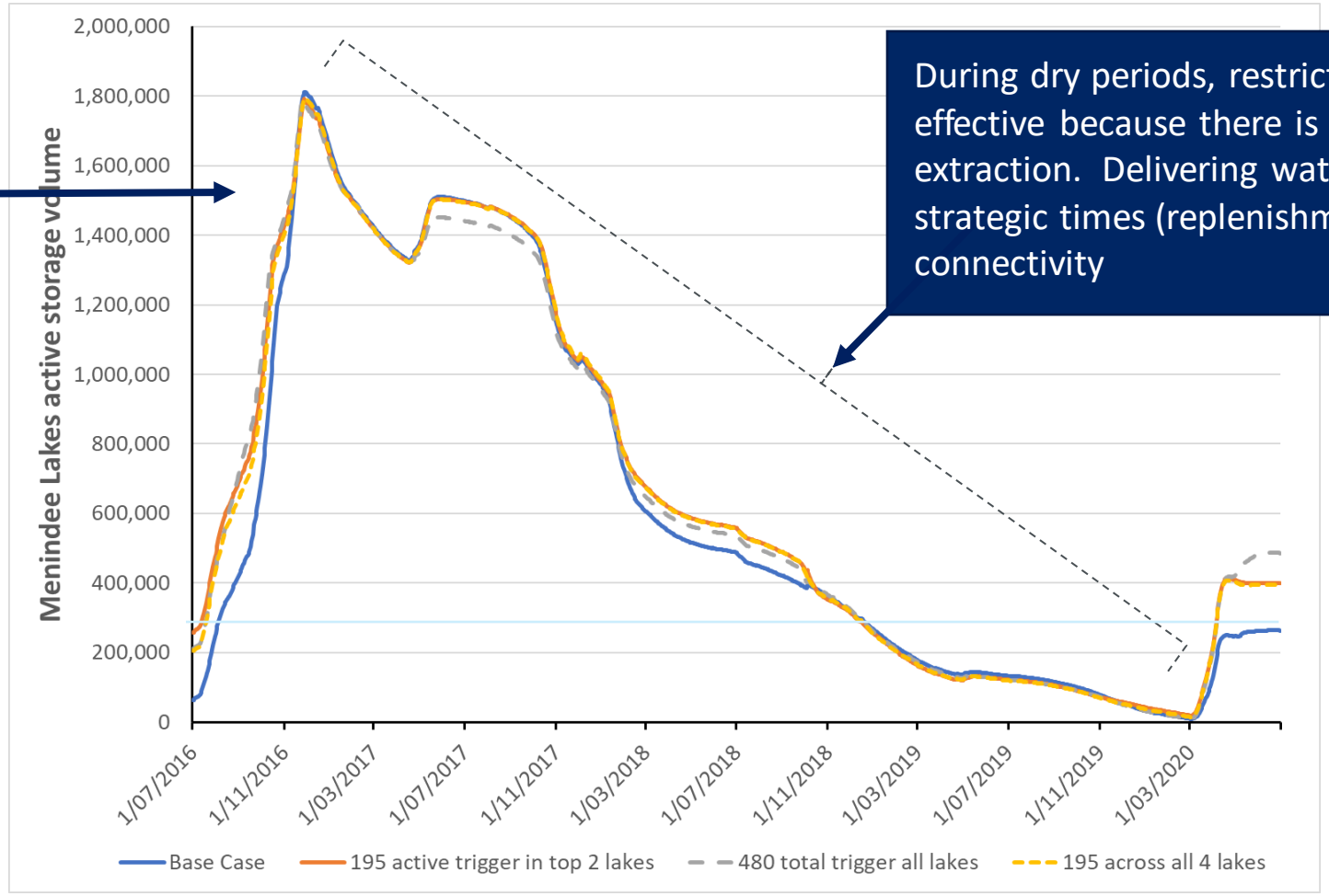
What did we do in response to feedback?

Analyse a 480GL trigger and an active 195GL Menindee trigger

Improving connectivity before, during and after droughts

Menindee Lakes storage volumes during last drought with and without 195GL (active) and 480GL triggers

During wet periods, we can protect water at important times to improve water quality. But this is challenging and only improves outcomes marginally

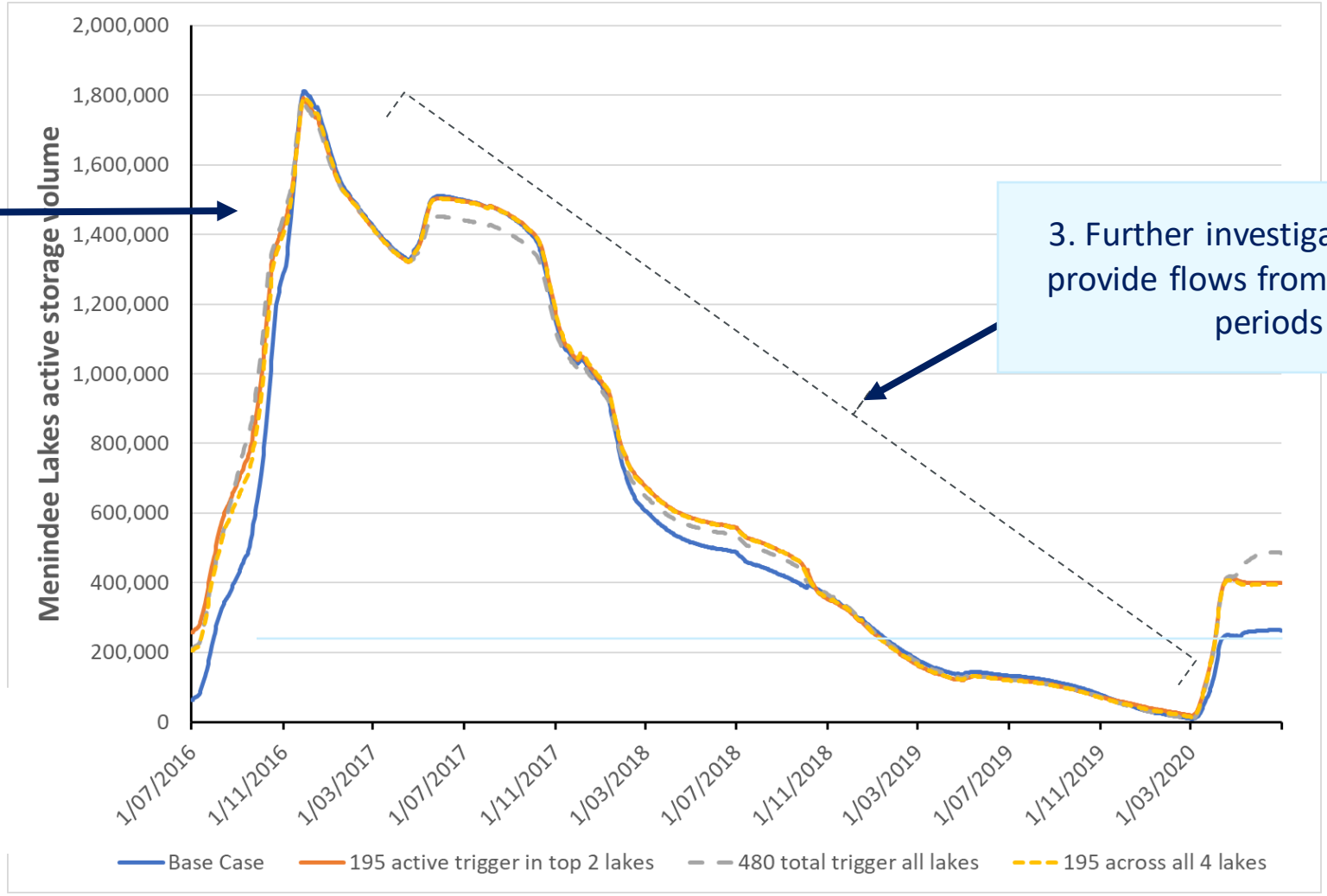


During dry periods, restricting upstream irrigators is not effective because there is no water to protect from extraction. Delivering water from upstream storages at strategic times (replenishment flows) can help improve connectivity

During the first flush, restrictions on upstream users can help accelerate drought recovery (critical dry condition triggers)

What connectivity actions are in the Western Regional Water Strategy?

2. Finalise review of the North-West Flow Plan



3. Further investigate ways to provide flows from during dry periods

1. Protect the first flush of water after an extended dry period

4. Progress investigations into changing the management of Menindee Lakes

1. Publish critical dry condition triggers and seek to implement in water sharing plans

Objective: protecting the first flush of water after an extended drought

Action: restrict lower priority licences to provide 12 months of critical human and environmental needs in Menindee Lakes:

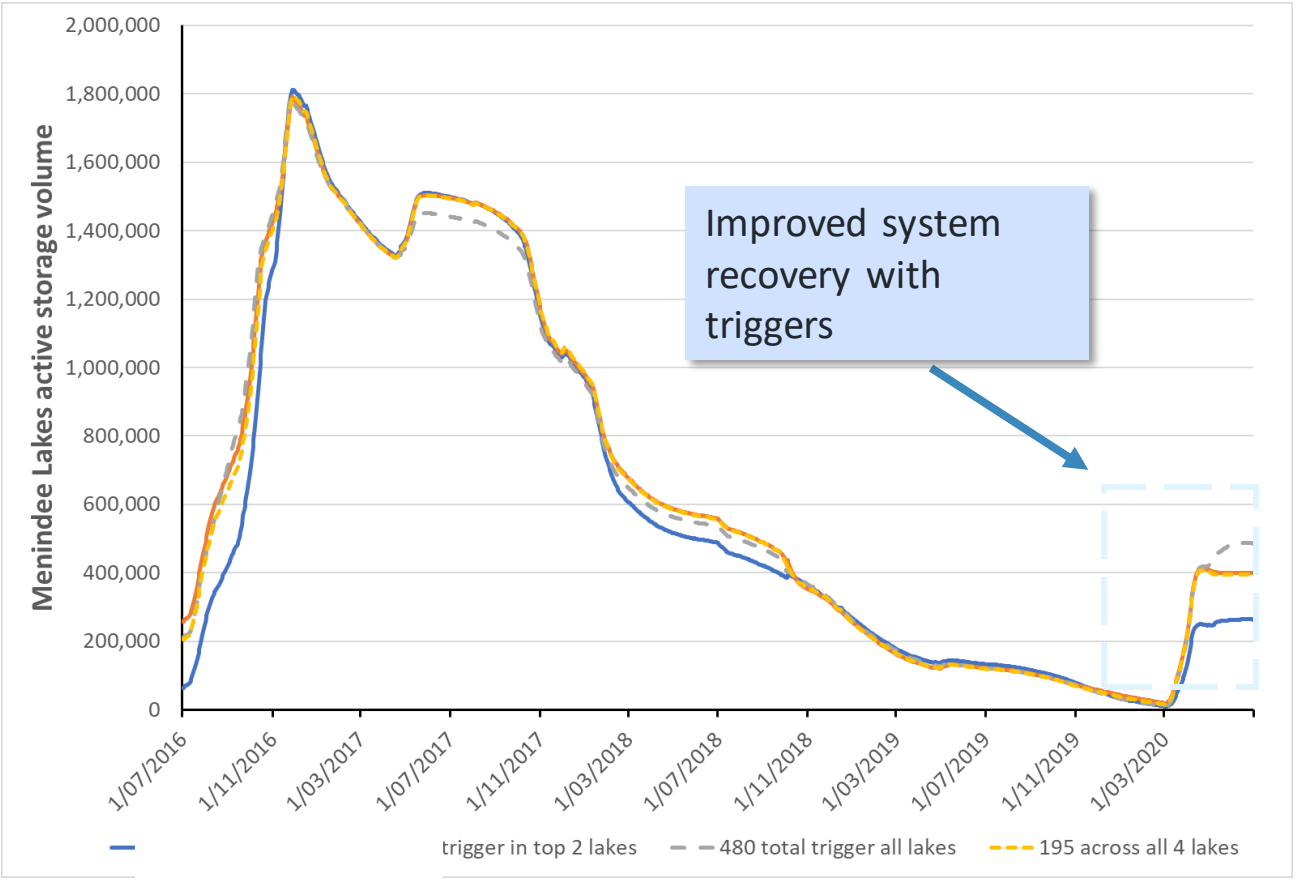
- 250GL with current infrastructure - inlet regulator in Pamamaroo will be repaired once water levels recede
- 195GL (active) storage (Wetherell, Tandure) once inlet regulator is repaired
- 30-day cease to flow in northern valleys
- 60-day cease to flow at Bourke
- 120 day cease to flow at Wilcannia

Combine with actions to:

- provide more “active” water in the Lakes – releasing operational water from Lake Cawndilla
- offset impacts on licence holders
- work with licence holders to reduce risk of drawing lakes to critical levels
- Seek to include in water sharing plans

Seek to implement in rules as part of 2024 Barwon-Darling WSP remake. Next steps are to consult on proposed rule changes in 2023

Why did we land on this proposal?



A total 195GL (non-active) trigger provides up to 6 months critical needs

- Based on average evaporation and water across all Lakes

A 195GL active trigger can provide 12 months of critical human needs in the Lower Darling

- Dam safety repairs are needed to the Pamamaroo inlet regulator. Without this, approx. 250GL is needed to provide 12 months critical needs

480GL trigger goes beyond the critical needs objective, but can provide more water during the first flush

- Would not have stopped the lakes from depleting in last drought, but would have helped top the lakes up faster
- 100% Lower Darling general security allocations are announced when the lakes are around 300GL.

Impacts on licence holders will need to be offset in non-critical times

Trigger	Average reduction in total diversions across all catchments
195GL across all lakes	2%
195GL active in the top lakes	3.3%
480GL across all the lakes	6%

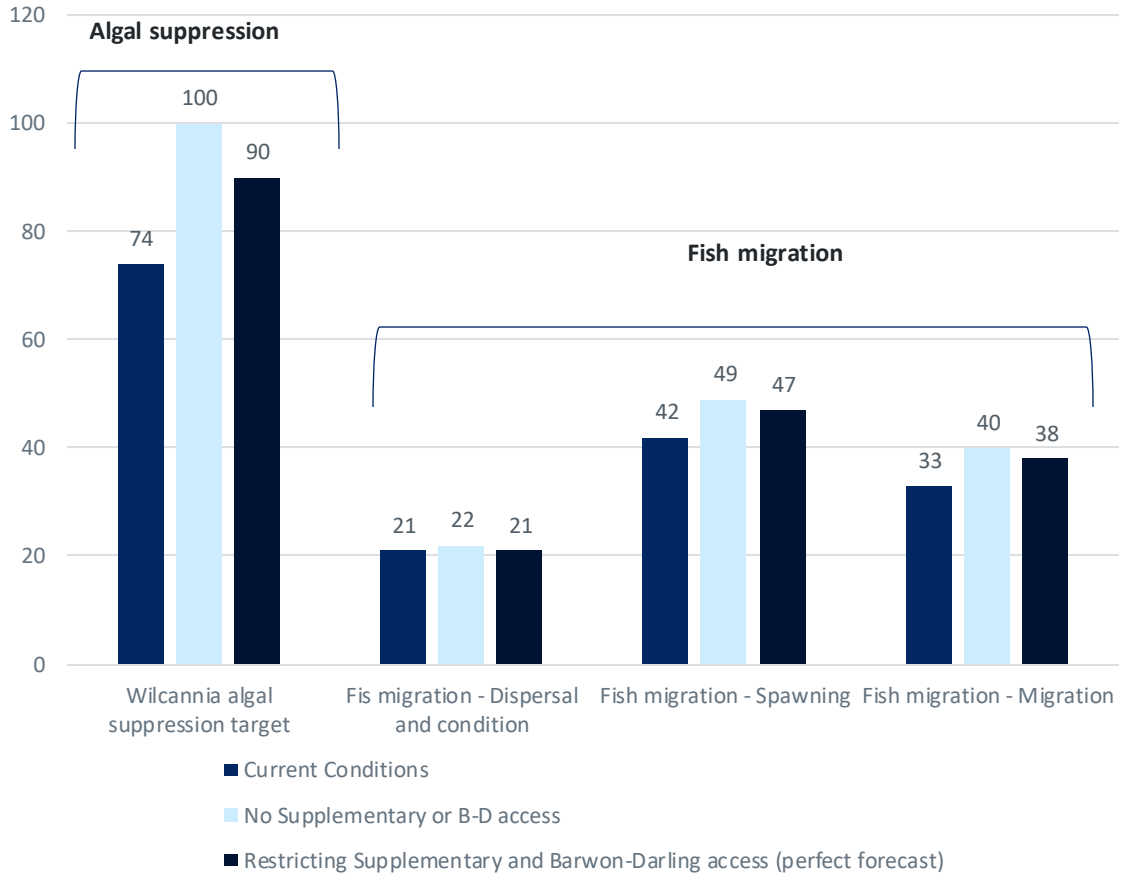
2. Finalising the review of the North-West Flow Plan

Objective: algal suppression and fish migration

- Legal requirement to undertake review and seek feedback from an independent expert panel
- Restricting supplementary access may not be enough to meet the fish migration objectives
- Complementary actions needed:
  - Remediating fish barriers
  - Catchment management and riparian land rehabilitation

Next steps: convene Expert Panel and consider review in Barwon-Darling WSP remake

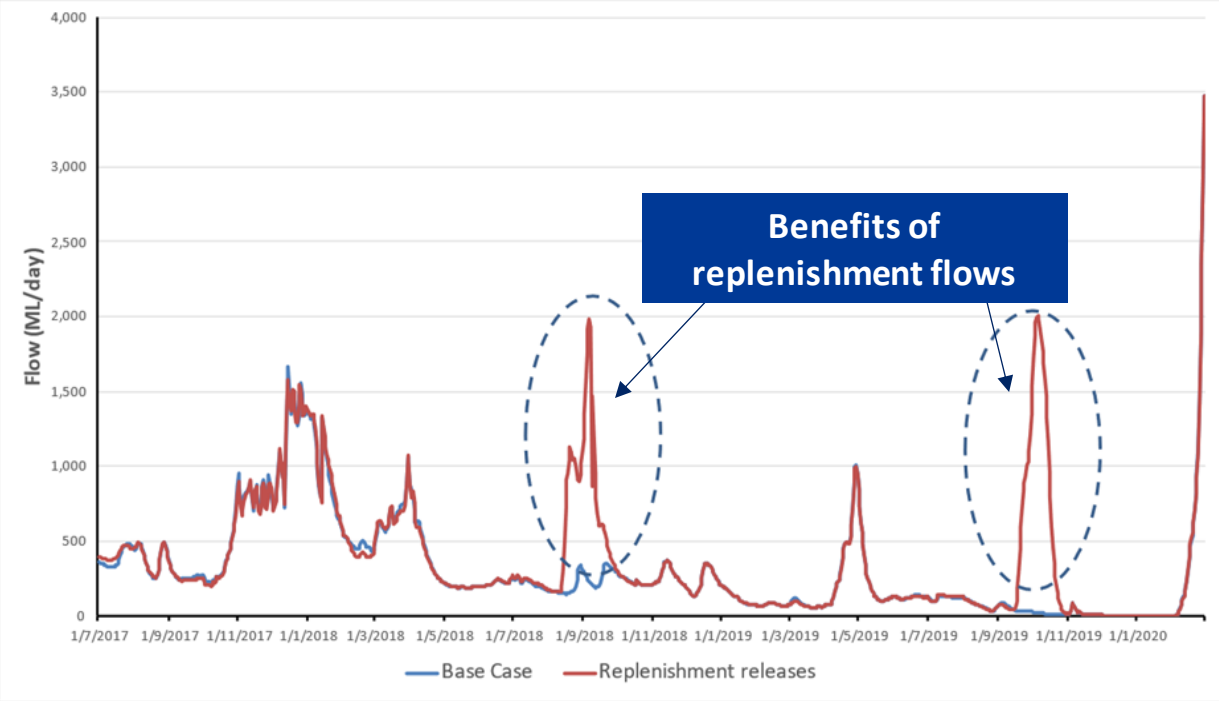
Number of years the algal suppression and fish migration targets are met under a perfect forecasting scenario compared to a bookend scenario by removing all lower priority licences



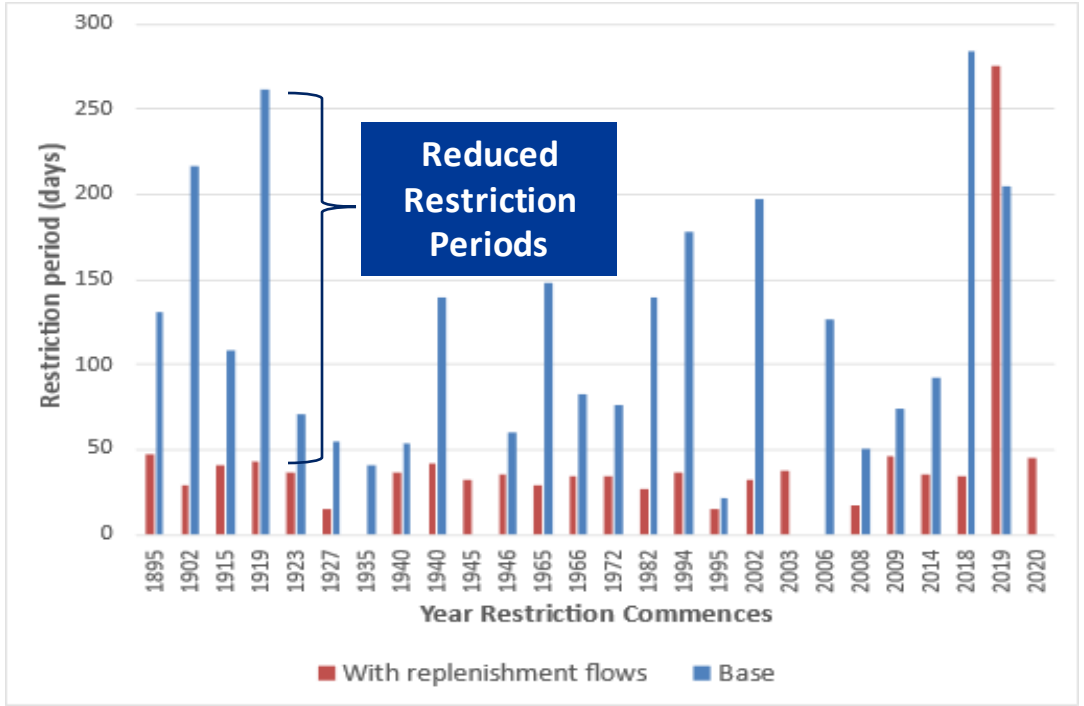
3. Further investigate ways to provide flows during dry periods

Objective: reducing the impact of cease to flow periods

Merits further investigation. Implementation pathways need further assessment and consultation



Flows at Bourke with and without replenishment flows during the last drought



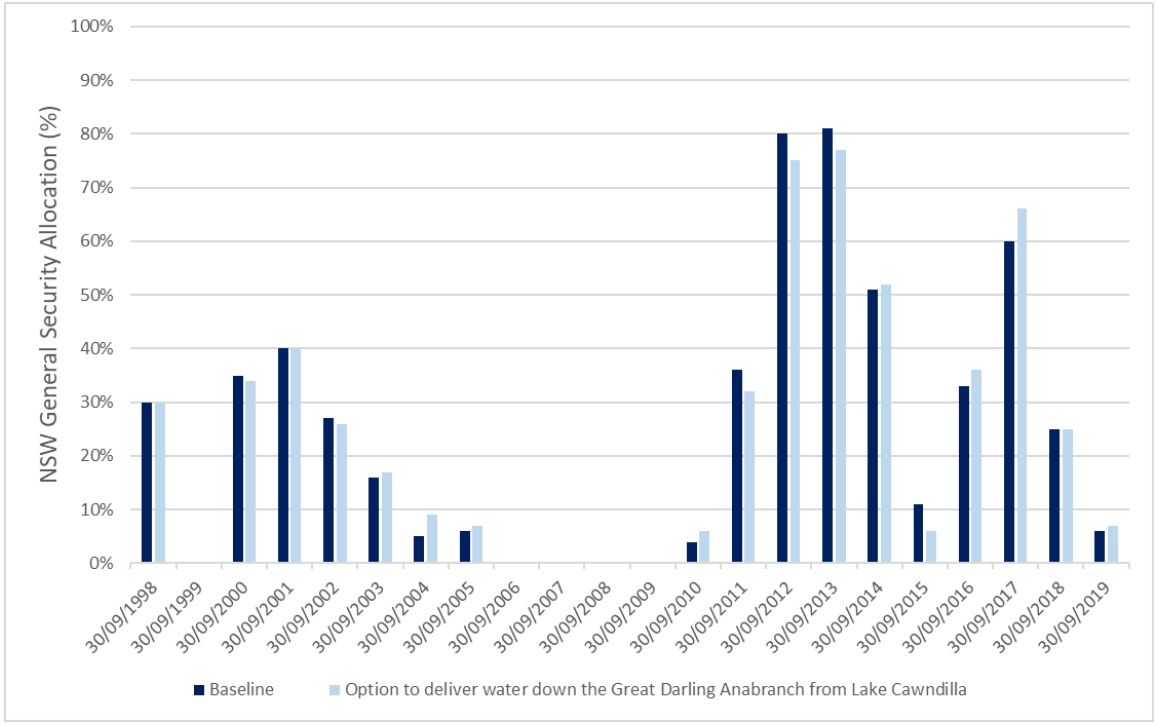
Number of days Resumption of flow restrictions are in place at Bourke with and without replenishment flows

4. Investigate changing the operation of Menindee Lakes

Objective: reduce the impact of cease-to-flow periods

- Formalising arrangements to deliver operational water from down the Great Darling Anabranch from Lake Cawndilla
- Looking at ways to recognise inactive storage in the Menindee Lakes to provide more water for critical human and environmental needs as part of the review of the Murray-Darling Basin Plan in 2026.
- Requires agreement with the MDBA and other jurisdictions
- Initial analysis suggests negligible changes to Murray GS availability or flows to South Australia

Modelled NSW Murray General Security Allocations with and without the option of releasing water from Lake Cawndilla down the Great Darling Anabranch based on data from 1998 to 2019



Next steps

- Publish the strategy on 16 December 2022
- Barwon-Darling Water Sharing Plan remake
    - Consultation 2023
    - Remake 2024
- Continue consultation and input as part of the remake of rules

Credit: Destination NSW. Wilcannia

Thank you