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River Operations and Shortfall Risks

Tyson Milne

01 May 2024

Outline of presentation



- 2023-24 Operations
- Looking ahead
- Delivery risks



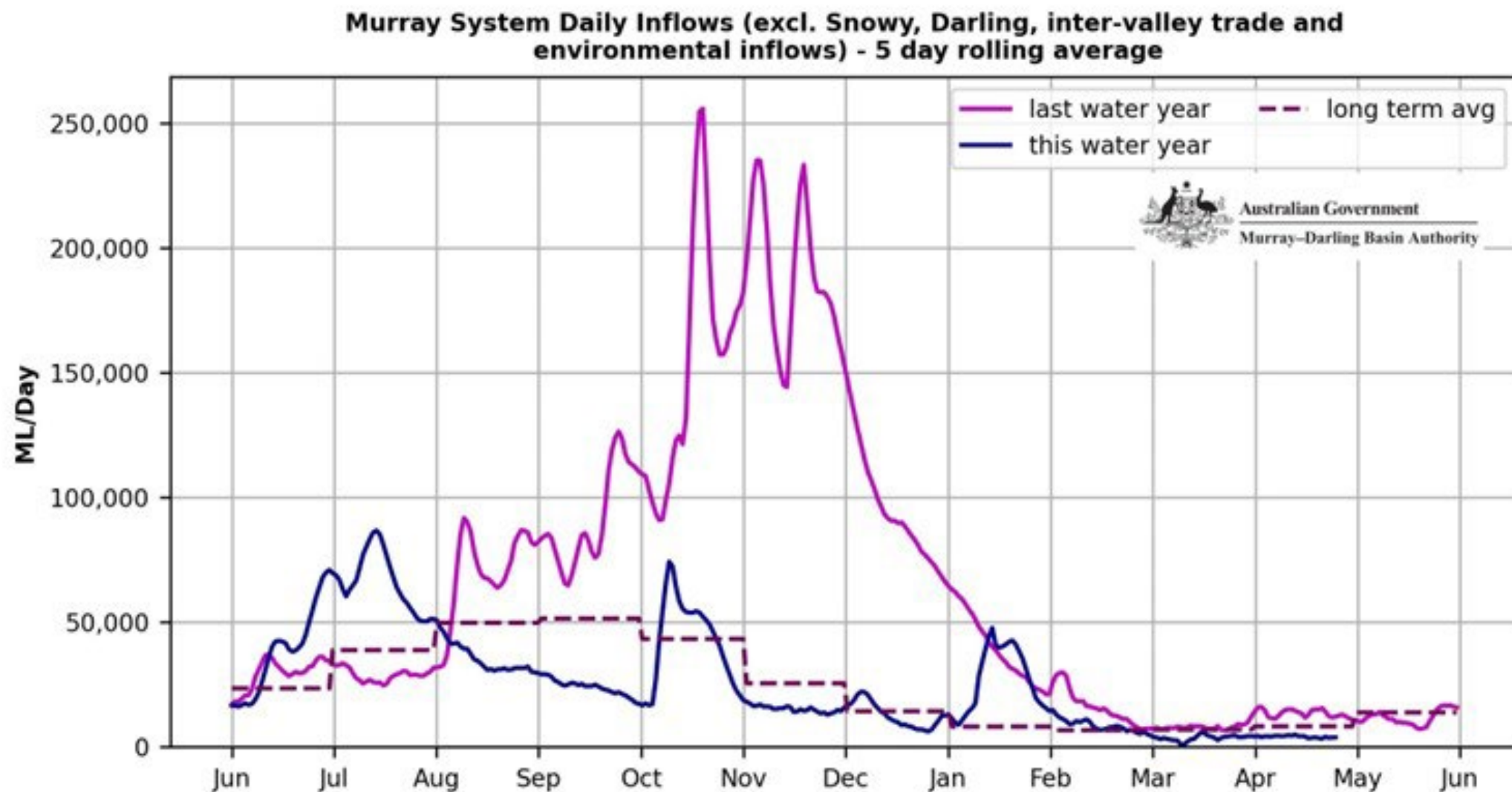
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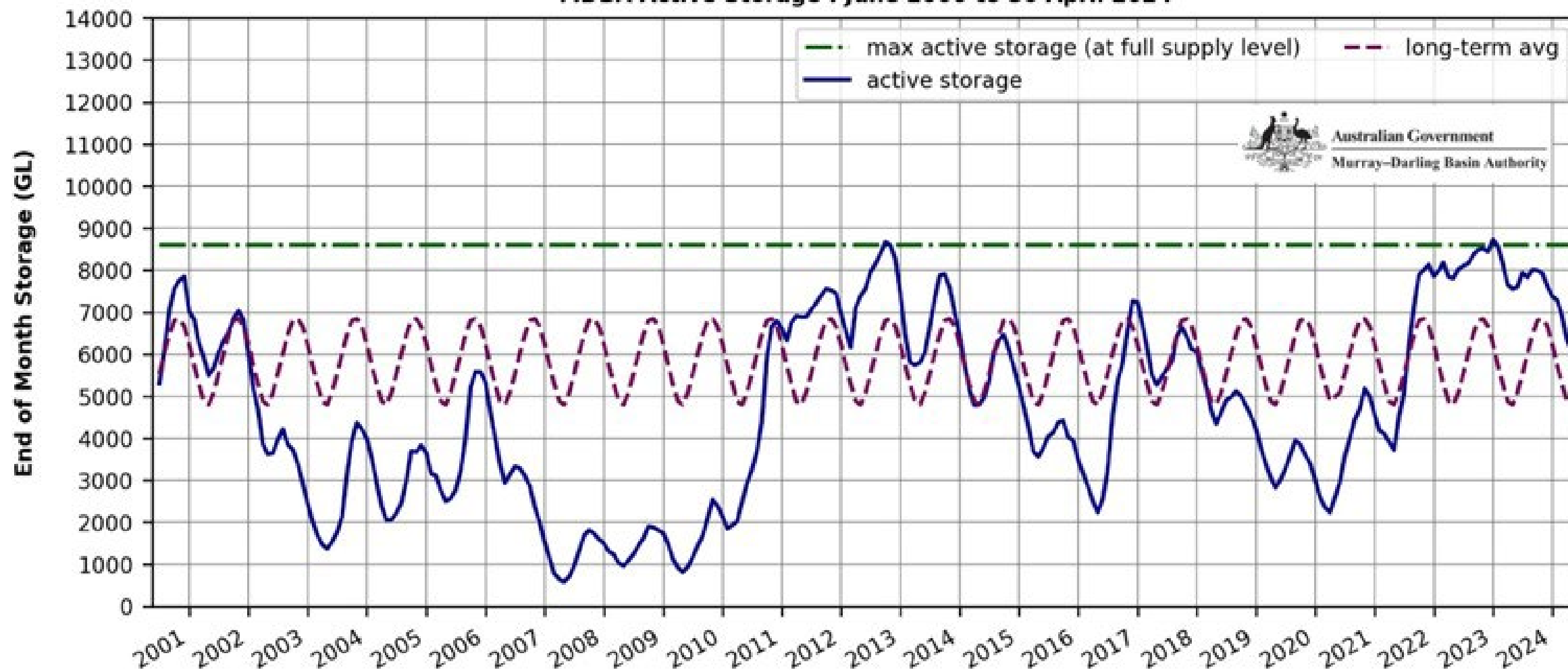
2023-24 River Operations

Inflows were variable

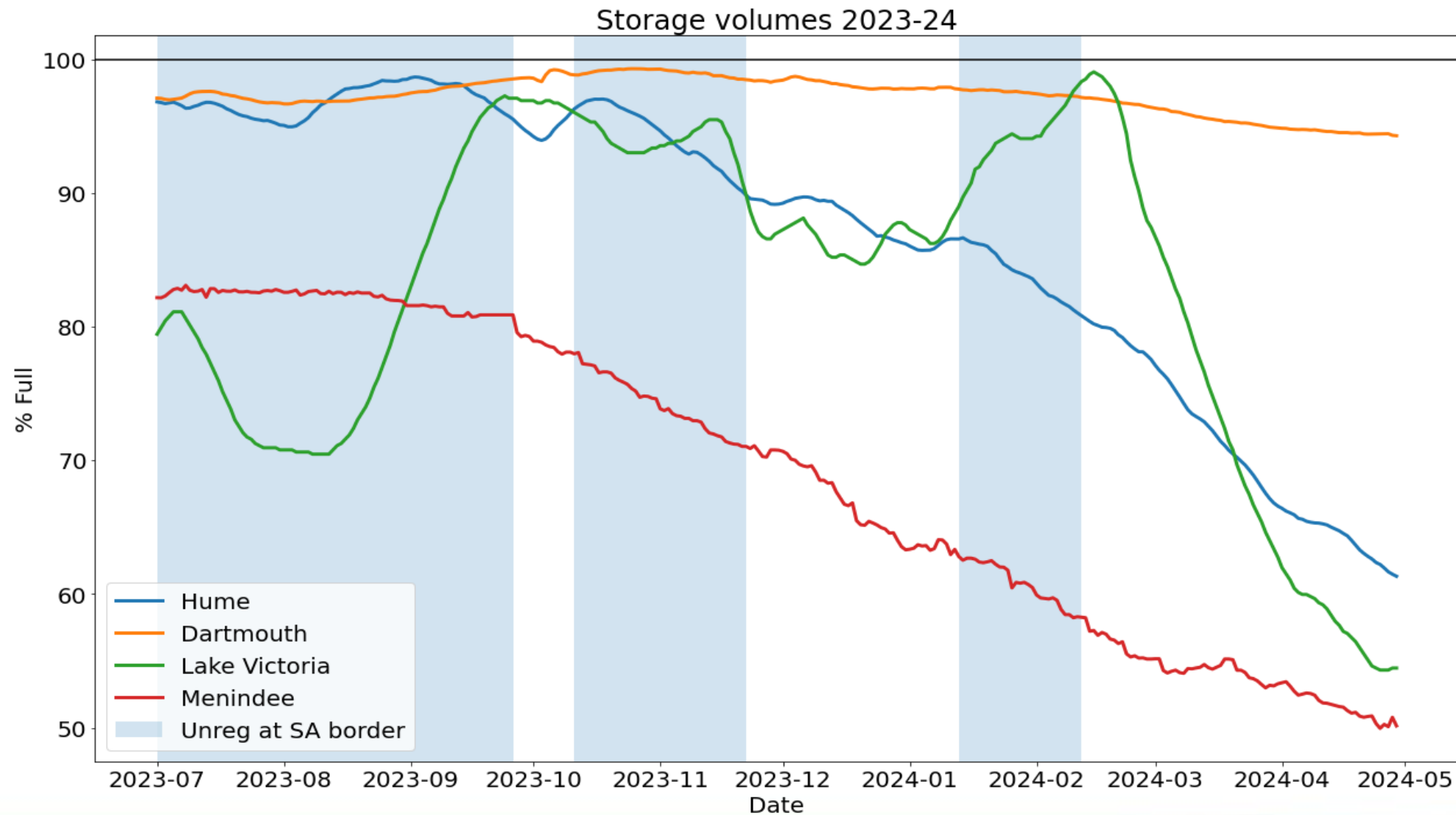


But storage levels remained high

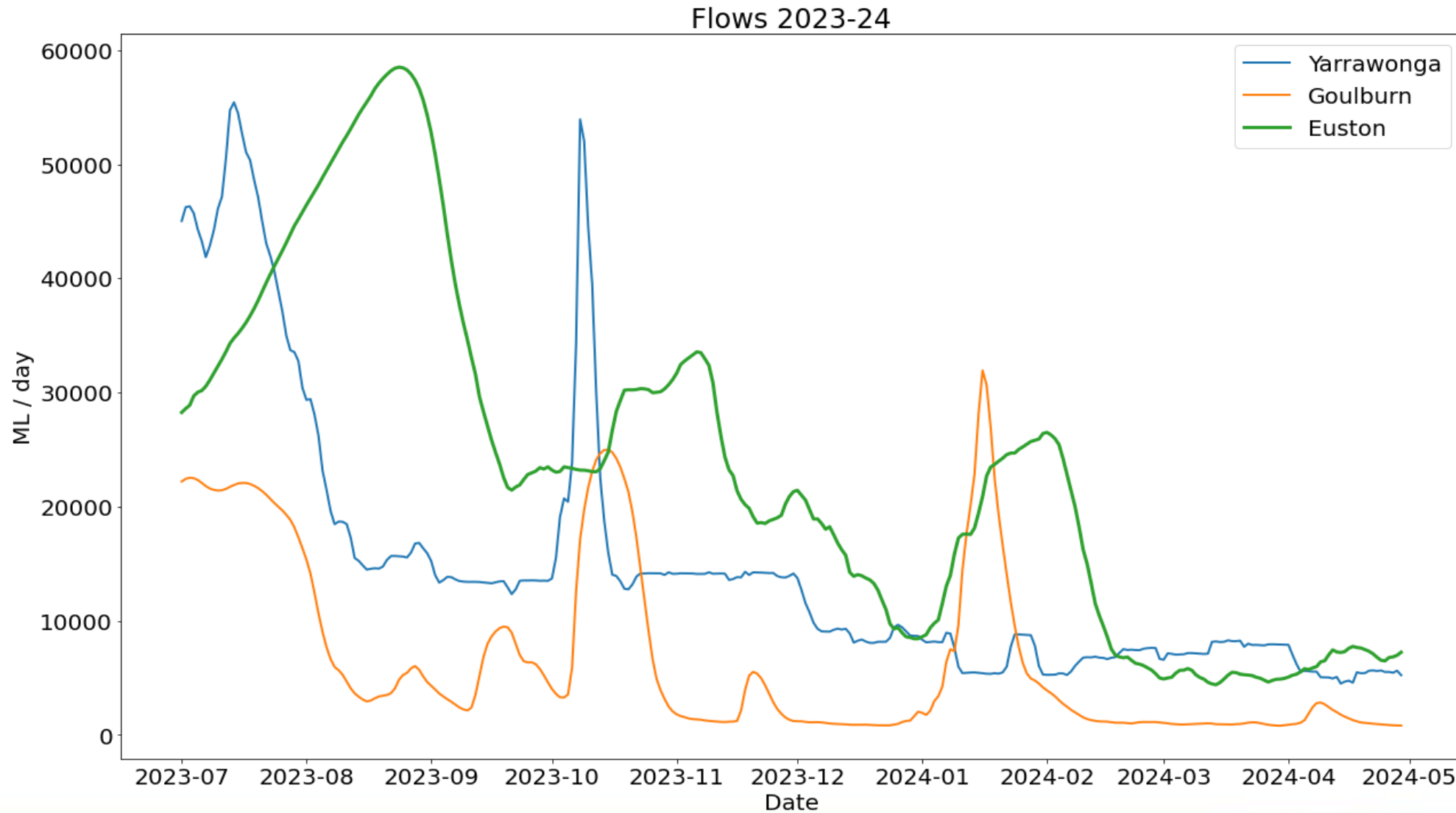
MDBA Active Storage : June 2000 to 30 April 2024



More detail on storages

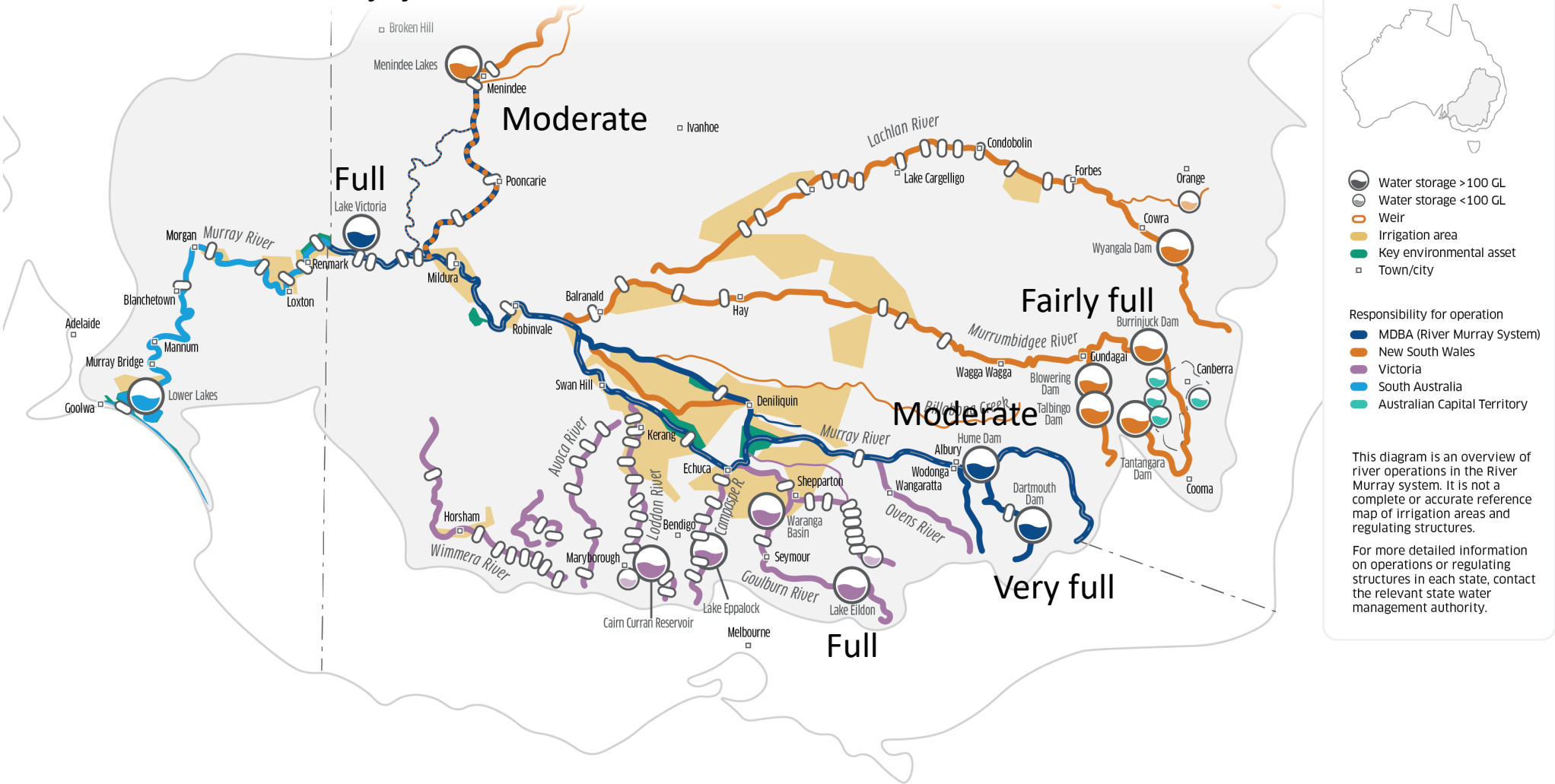


Flows in our region



System Status

Overview of River Murray system and tributaries



Recent Strategy

- Conserve Water in Hume – not guaranteed to fill
 - Preferentially call from storages with highest spill risk first
 - Aim to minimise surplus flow past Wentworth as limited ability to recapture in Lake Victoria
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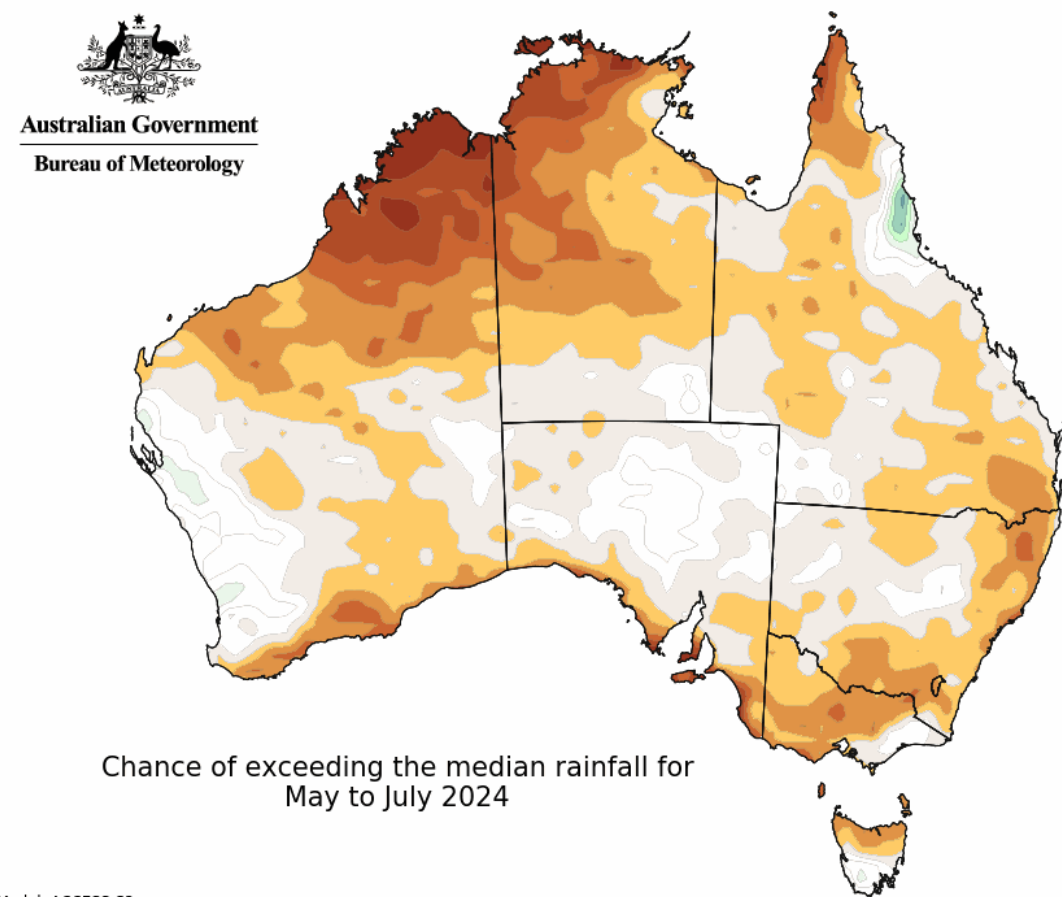
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Looking ahead to 2024-25

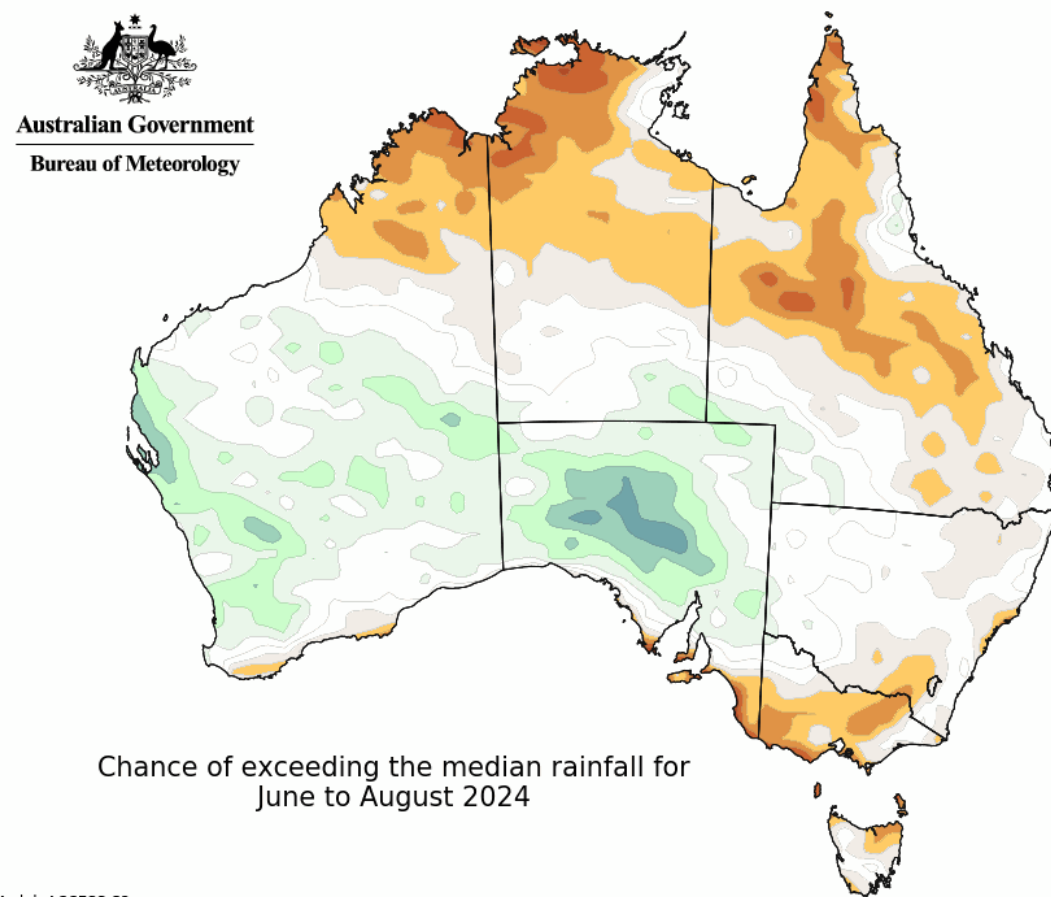
Climate Drivers

- 3/7 models have La Niña by August
 - All models indicate positive IOD until at least August
 - Confidence in IOD & ENSO forecasts beyond autumn is low
-

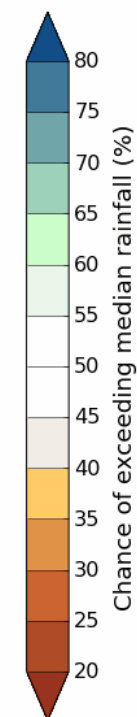
Rainfall Outlook



Model: ACCESS-S2
Base period: 1981-2018



Model: ACCESS-S2
Base period: 1981-2018

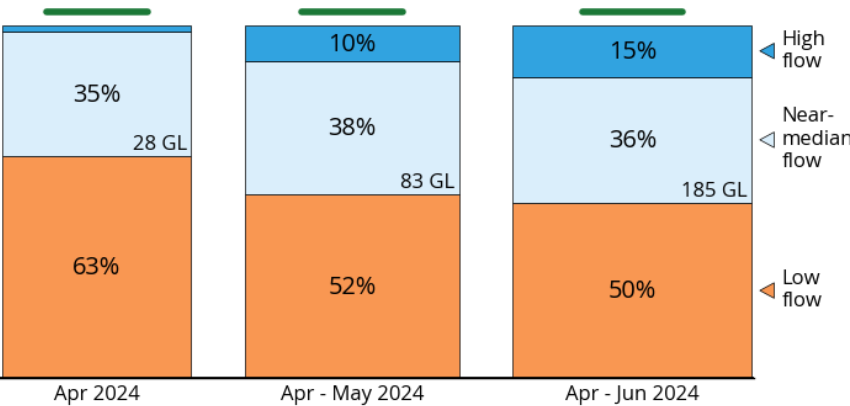


Model run: 21/04/2024
Issued: 26/04/2024

Streamflow Outlook

Unregulated inflow to Hume Dam

Forecast terciles for Apr 2024 – Jun 2024

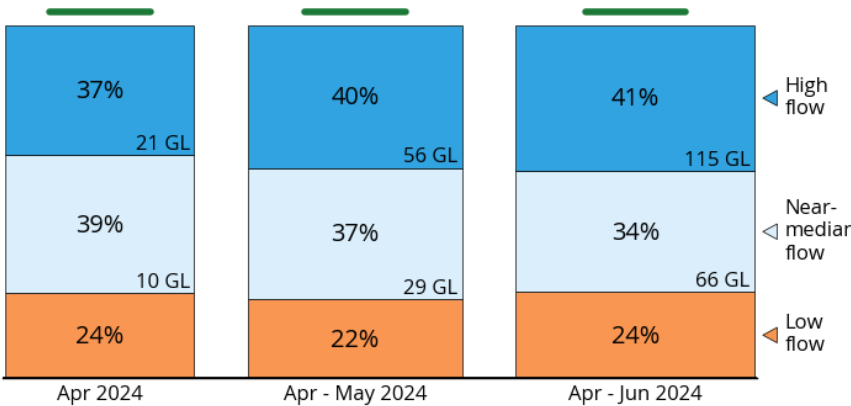


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Total inflow to Lake Dartmouth

Forecast terciles for Apr 2024 – Jun 2024

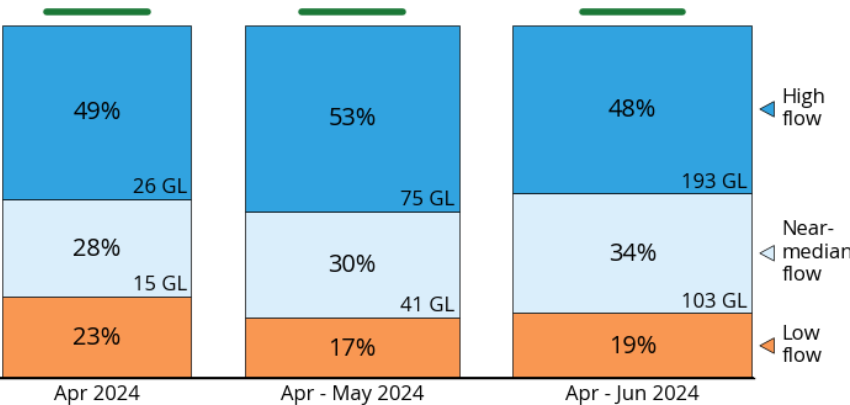


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Total inflow to Lake Eildon

Forecast terciles for Apr 2024 – Jun 2024

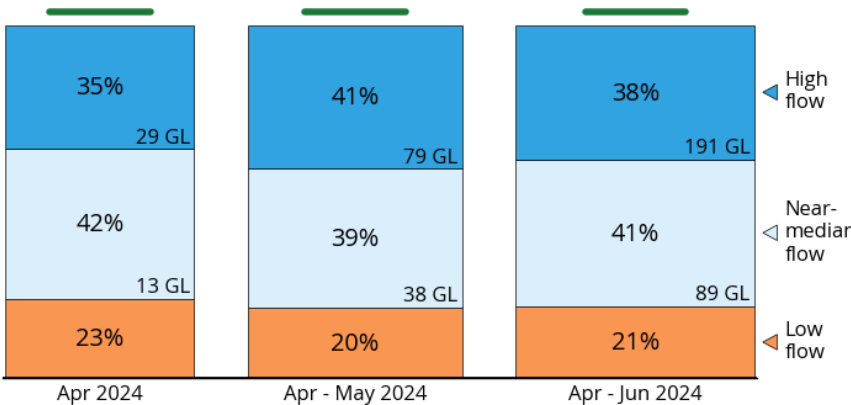


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Total flow of Ovens River to Murray River

Forecast terciles for Apr 2024 – Jun 2024



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Outlook Summary

- Even with modest rainfall likely to start the season with storages fairly high
 - With high forecast opening allocations & carryover demands likely to be high
 - Will increase Delivery Risk, however Menindee will be available at least early in the season to assist
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Annual Operating Outlook

- How we anticipate operating the system under a range on inflow conditions
 - Development currently underway
 - Released in early August, updated end of October
 - Considers risks, including Delivery Risk
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Delivery Risks in the Murray

What is a shortfall?

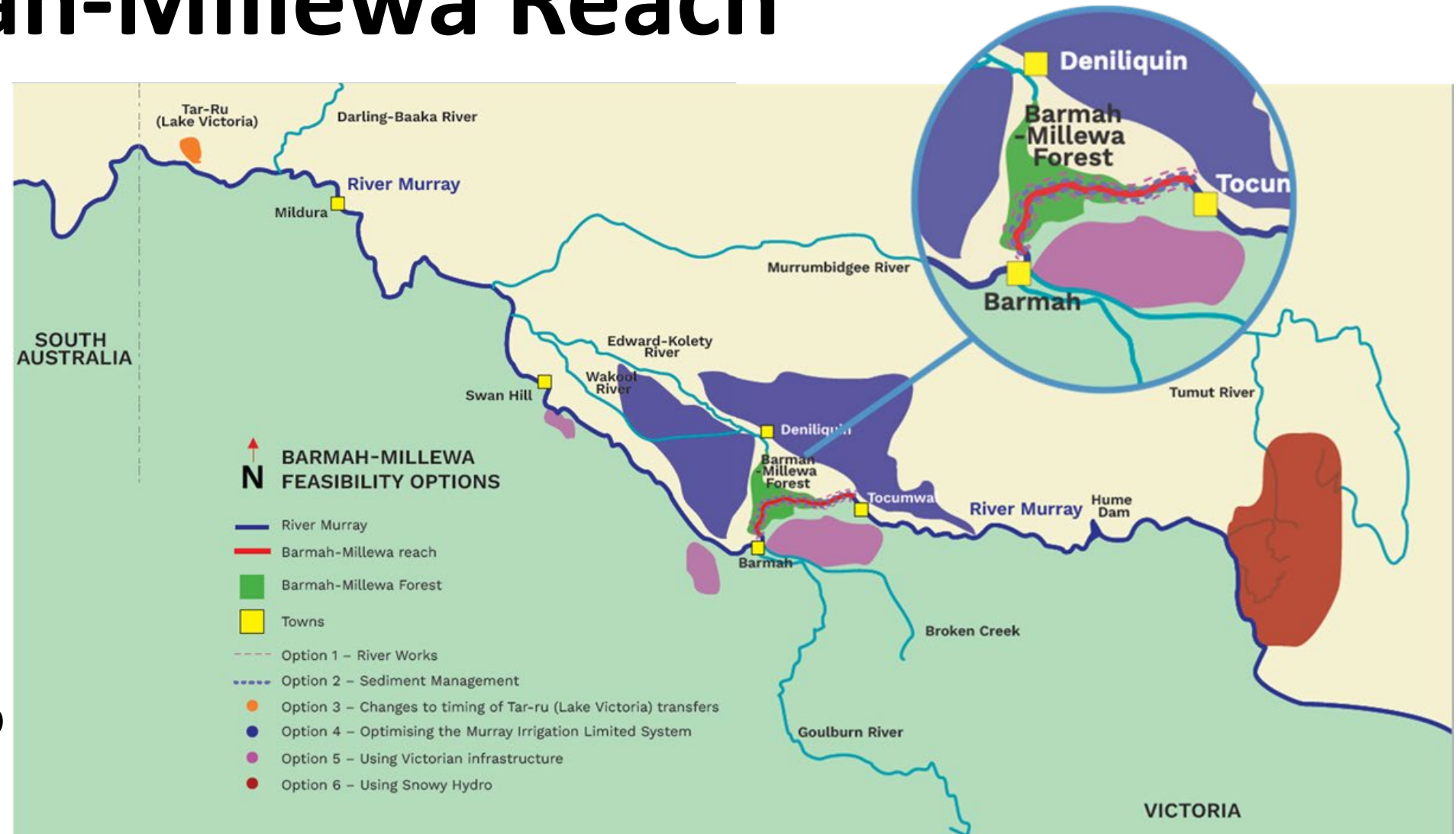
Shortfall - not being able to deliver water allocations to users when they need them.

These come about in two ways:

- **Delivery shortfalls** occur when actual water use is higher than was forecast when water was released from storages weeks earlier.
 - **System shortfalls** occur when the combined capacity of the system is unable to supply all downstream requirements over the full season.
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The Barmah-Millewa Reach

The reach is a naturally occurring narrow section of the River Murray where it flows through the Barmah-Millewa Forest, from Tocumwal in NSW to Barmah in Victoria



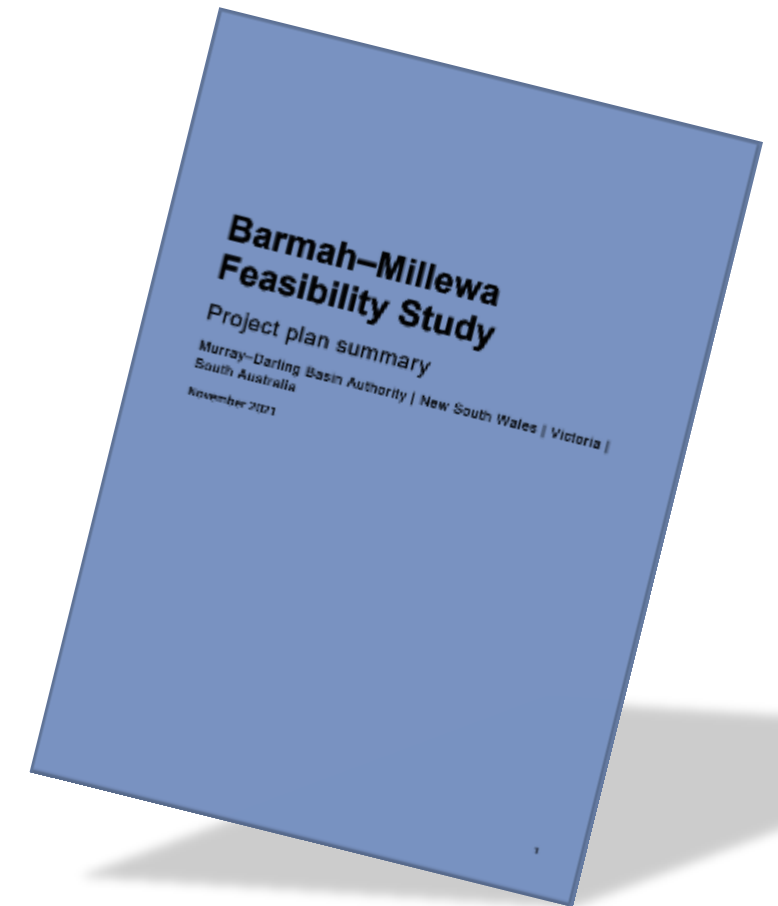
What is the problem?

- The volume of summer flows that can get through the Barmah-Millewa Reach is declining significantly
- This is due to the accumulation of a large volume of heavy coarse sand in the reach, in excess of 20 million cubic metres
- The sand was mobilised during gold mining and land clearing practices about 150 years ago, with desnagging and river regulation also contributing factors
- The sand will not flush through as it's heavy and the Barmah-Millewa Reach has the lowest flow capacity of any stretch of the river
- Volume of flows through the Barmah-Millewa Reach is estimated to decline by about 10% over the next 10 years
- Increased risk of not being able to deliver water to communities where and when they need it



Current Situation

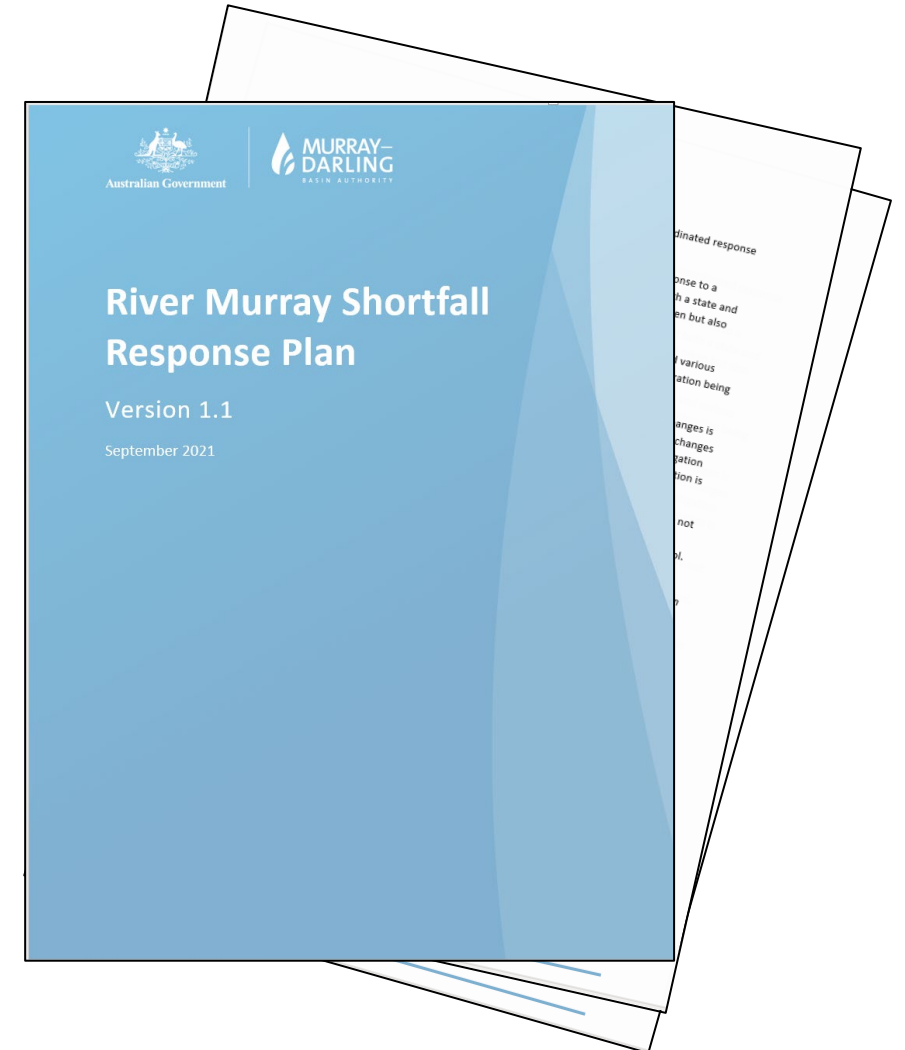
- The Barmah-Millewa Feasibility Study was presented to the Murray–Darling Basin Ministerial Council in February 2023
- Basin Ministers agreed to further progress the following options to the next stage:
 - River Works
 - Sediment Management
 - Increased use of Murray Irrigation Limited infrastructure (existing and upgraded outlets)
 - Improving timing of transfers to Ta-Ru
 - Enhanced use of Victorian mid-Murray storages (excl Ghaw Swamp)
 - Enhanced use of Murrumbidgee Weirs
- BOC & Ministerial Council will review options after each stage so there is a steady, considered approach to addressing this problem
- Engagement and consultation with First Nations and communities will continue throughout each stage of each option



Shortfall Response Plan (SRP)

- Co-ordinated response plan between MDBA & the states to identify and manage a shortfall. It includes:
 - A process to monitor risk
 - A process to follow when risk heightens
 - Defined mitigation measures
 - Methods for ensuring consistent messaging

Current version of the SRP deals with delivery shortfalls when the Menindee Lakes *are* and *are not* available as a shared resource



Delivery Risks this coming season?

- Early days, but:
 - Opening allocations likely to be high
 - Menindee Lakes available at least at start of season
 - Lake Victoria currently in good position
 - AOO will provide detailed update
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Thank you.

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