Unpacking River Murray deliverability, shortfall risk and the Barmah Choke

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We acknowledge their deep cultural, social, environmental, spiritual and economic connection to their lands and waters.

The MDBA understands the need for recognition of Traditional Owner knowledge and cultural values in natural resource management, associated with the Basin.
Session outline

• Current context and challenges
• Actions underway
• Looking ahead
A quick recap – Shortfall

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

These come about in two ways:

- **A delivery shortfall** occurs when actual water use is higher than was forecast when water was released from storages weeks earlier.

- **A system shortfall** occurs when the combined capacity of the system is unable to supply all downstream requirements over the full season.
Current water sharing

Inflows to Menindee Lakes shared 50:50 between NSW and Victoria when lakes are operated by MDBA

Murrumbidgee River and Billabong Creek

NSW tributary inflows downstream of Albury are 100% NSW water

SA entitlement supplied equally by NSW and Vic

Vic tributary inflows downstream of Albury are 100% Vic water

Ovens, Goulburn, Campaspe and Loddon Rivers

Inflows upstream of Albury shared 50:50 between NSW & Victoria

Snowy releases, inflows into Hume and Dartmouth Dams, Kiewa River
### Current challenges

<table>
<thead>
<tr>
<th>Deliverability</th>
<th>Land-use change</th>
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<tbody>
<tr>
<td>declining river capacity</td>
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<td>risk of shortfall</td>
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<td>increased permanent plantings and associated change in water use</td>
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<table>
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<tr>
<th>Climate change</th>
<th>E-water delivery</th>
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<td>adapting to a warmer, drier future</td>
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<td>optimal delivery of environmental water</td>
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Deliverability: Barmah-Millewa reach

- Flows reduced from 11,300ML/d in the 1980s to ~9,200ML/d today
- 20+ million cubic metres of sand Yarrawonga to Picnic Pt
- Options being explored for joint-government decision
- Aim to improve water flows
- Will report end-2022

Mining for gold metres-deep in the bed of a river near Beechworth (courtesy State Library of Victoria).
Land use change

Area of permanent horticultural crops 2003-2021

- SunRISE study planning tool
- NSW-Vic-SA Murray from Wakool Junction to the Barrages
- Expansion notable from 2015

High quality data and science underpins decision making.
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<th>Common community perceptions</th>
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<td>There has been no increase in downstream trade of water through the Barmah Choke</td>
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<td>More water-use in Sunraysia to date appears to have little effect on conveyance losses, but is being further investigated</td>
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<td>Constraints relaxation projects are for environmental water only</td>
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River Murray water use in summer below the Choke
Barmah – SA Border

Useage (GL)

- Inter Valley Trade (IVT)
- Total Environmental delivery to SA
- Net consumptive trade to SA
- Use excl. Inter Valley Trade
- SA Entitlement Order

Flood years

From Tributaries

From Murray System
Climate change

- Climatic step-change around year 2000
- Future will be warmer, drier with more severe weather events
- Adapting to climate change is a key focus for us all

2019 was the hottest year on record, with temperatures 1.5°C above the long-term average.
Water for the environment: patterns of use

Flows in the River Murray system over a typical water year

- Water for the environment
- All other water

Flow volume

- Autumn
- Winter
- Spring
- Summer
How are we addressing the reduced capacity of the river?
### Timeline of action

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<tr>
<th>Completed</th>
<th>Underway (2022)</th>
<th>Planned (2023 and beyond)</th>
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<tr>
<td><strong>Shortfall planning</strong></td>
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<td>MDBA Shortfall response plans for delivery shortfall</td>
<td>• Development of State Shortfall Response Plans</td>
<td>• Continued State shortfall planning and simulation exercises</td>
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<td>• Annual interjurisdictional simulation exercises 2020/2021</td>
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<td><strong>Sand Management</strong></td>
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<td>Sediment management preliminary investigation report</td>
<td>• Options development for targeted sand removal</td>
<td>• Business case development for targeted sand removal</td>
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<td>• Sediment source report</td>
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<td>• Sediment transport report</td>
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<td><strong>Barmah-Millewa Reach Capacity</strong></td>
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<td>• Technical Oversight Committee established</td>
<td>• Decision by joint governments on next steps</td>
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<td>• Contractors engaged</td>
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<td>Barmah-Millewa Feasibility Study with report to be delivered to Basin Officials Committee/Ministerial Council Dec 2022</td>
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Barmah-Millewa Feasibility Study
Options being assessed

- Potential river works within the Barmah-Millewa reach
- Use of Snowy Hydro to transfer Murray release to the Murrumbidgee
- Changes to timing of Lake Victoria transfers
- Optimisation of the existing MIL system
- Options for delivery through the GMID
- Sediment management
Thank you

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