Reconnecting River Country Program

Darlington Point
31 October 2024

Department of Climate Change, Energy, the Environment and Water

Australian Government

NSW GOVERNMENT

Acknowledgement of Country

The Department of Climate Change, Energy, the Environment and Water acknowledges that it stands on Aboriginal land.

We acknowledge the Traditional Custodians of the land and water, and we show our respect for Elders past, present and emerging.

We do this through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

Artist and designer Nikita Ridgeway from Aboriginal design agency – Boss Lady Creative Designs, created the People and Community symbol.

1

Program introduction

Aims and objectives, Benefits

Michelle Cavallaro
Director Reconnecting River Country Program

Program rationale, objectives and benefits

Continued declined in the health of the environment and animal species:

- 76% of Murrumbidgee River floodplain degraded due to altered flow regimes
- Between 1983–2001, waterbird numbers declined by 90% on the Lowbidgee floodplain.
- 8 of 21 native fish species in the Murrumbidgee are now either locally extinct or very low population numbers.

To improve the health of wetlands and native animals in the Murrumbidgee and Murray that depend on these habitats to survive.

- Aim to achieve this through more flexible use of environmental flows.
- To reduce the need for further water buybacks under the Basin Plan.
- Improved dam management, flow notification and access through investment in infrastructure.

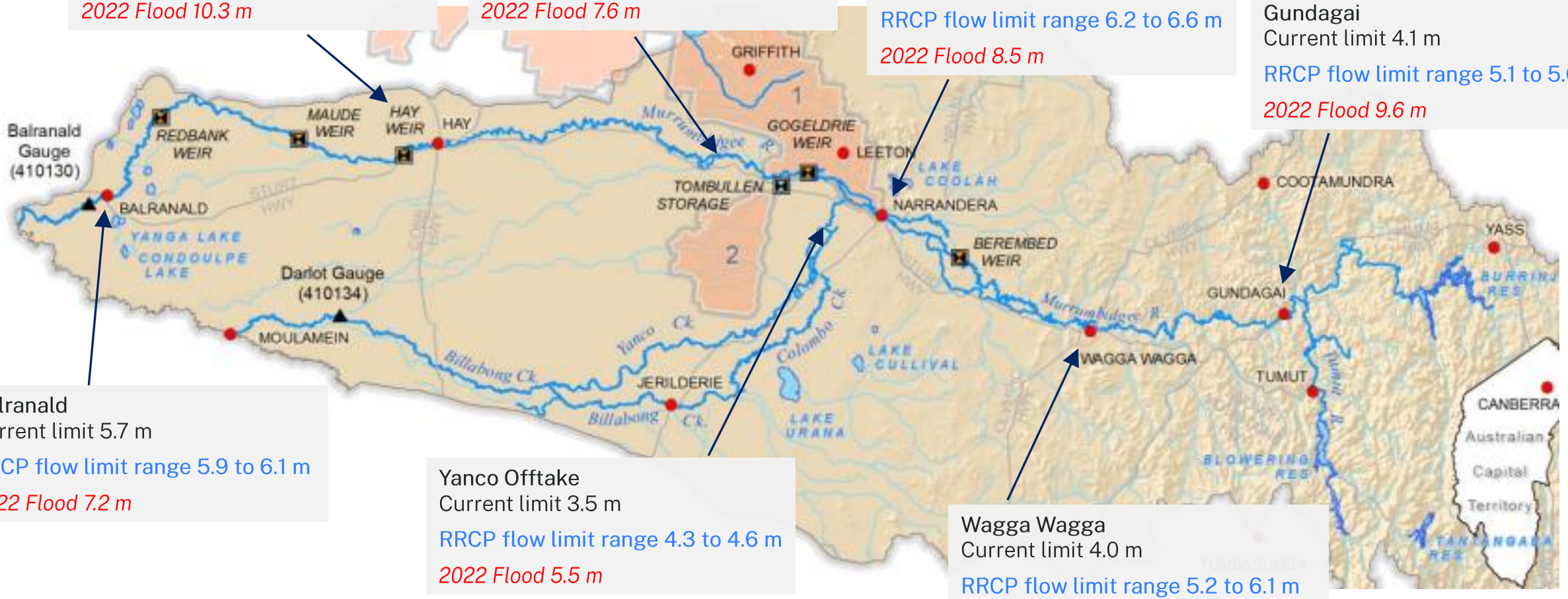
Flow limits being considered across the catchment

Hay
Current limit 5.8 m
RRCP flow limit range 7.8 to 8.5 m
2022 Flood 10.3 m

Darlington Point
Current limit 4.4 m
RRCP flow limit range 5.5 to 5.9 m
2022 Flood 7.6 m

Narrandera
Current limit 5.2 m
RRCP flow limit range 6.2 to 6.6 m
2022 Flood 8.5 m

Gundagai
Current limit 4.1 m
RRCP flow limit range 5.1 to 5.6 m
2022 Flood 9.6 m



Balranald
Current limit 5.7 m
RRCP flow limit range 5.9 to 6.1 m
2022 Flood 7.2 m

Yanco Offtake
Current limit 3.5 m
RRCP flow limit range 4.3 to 4.6 m
2022 Flood 5.5 m

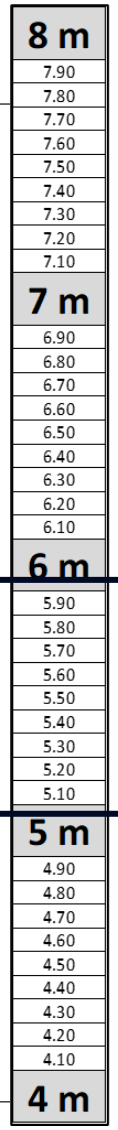
Wagga Wagga
Current limit 4.0 m
RRCP flow limit range 5.2 to 6.1 m
2022 Flood 9.7 m

Flow limits considered

Flow limits between 32,000 to 40,000 ML/d at Wagga Wagga are being considered.

Darlington Point gauge

Darlington Point gauge



← 7.60m / 96,000 ML/d - Nov 2022

← 7.30m / 75,000 ML/d - Major flood level

← 7.10m / 67,000 ML/d - Oct 2016 and Dec 2010

← 7.00m / 60,000 ML/d - Moderate flood level

← **5.90m / 30,000 ML/d**

← **5.50m / 26,000 ML/d**

Range of environmental flow limits being investigated

Note: most environmental flows will be less than this height (5.20 to 5.60 m is more likely)

← 4.70m / 19,000 ML/d

← 4.30m / 16,000 ML/d

Flow range for current operational limit of 22,000 ML/d at Wagga

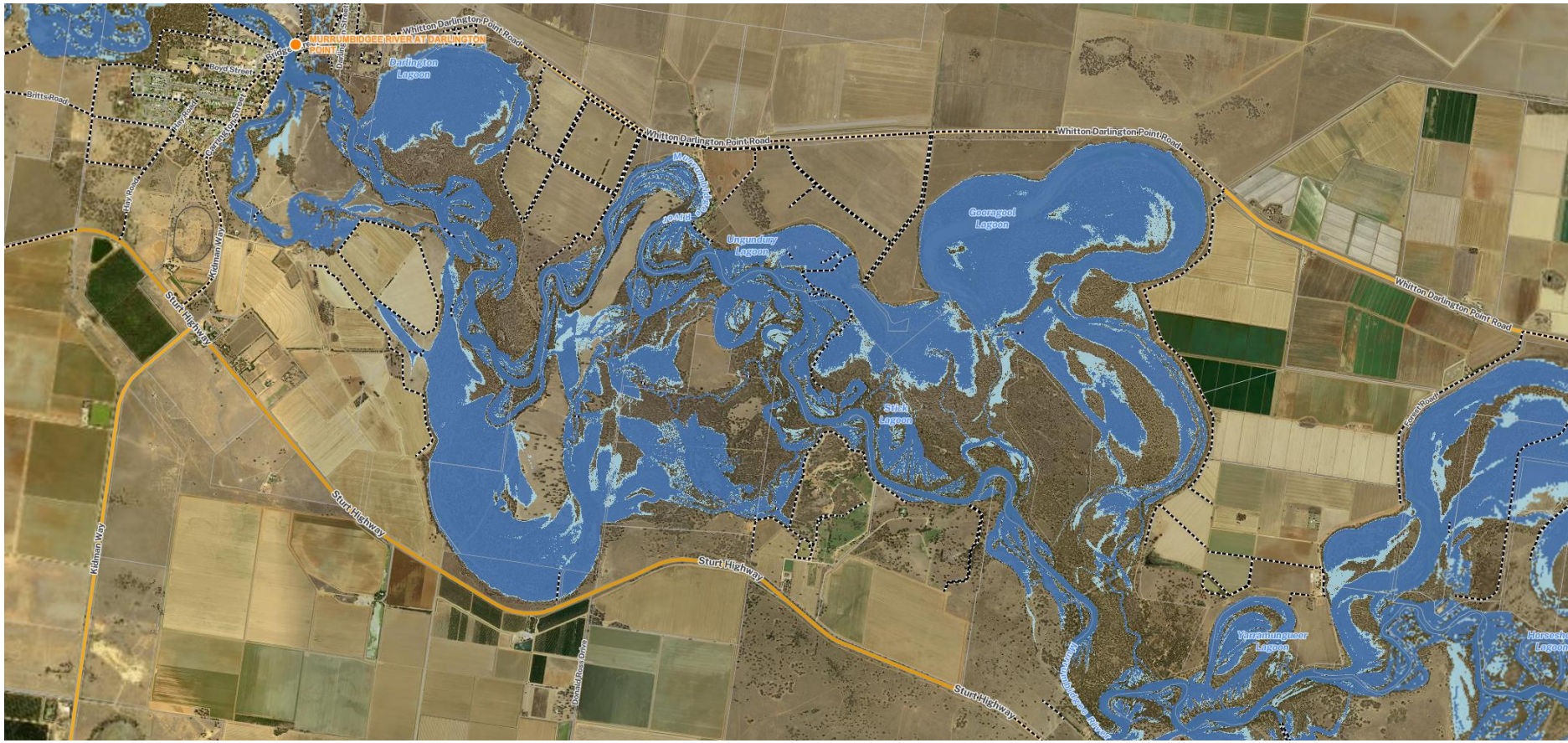
Flow limits being considered

Environmental flow corridor example

28,000 ML/d at Darlington Point

5.70 m on Darlington Point gauge

DCCEEW mapping



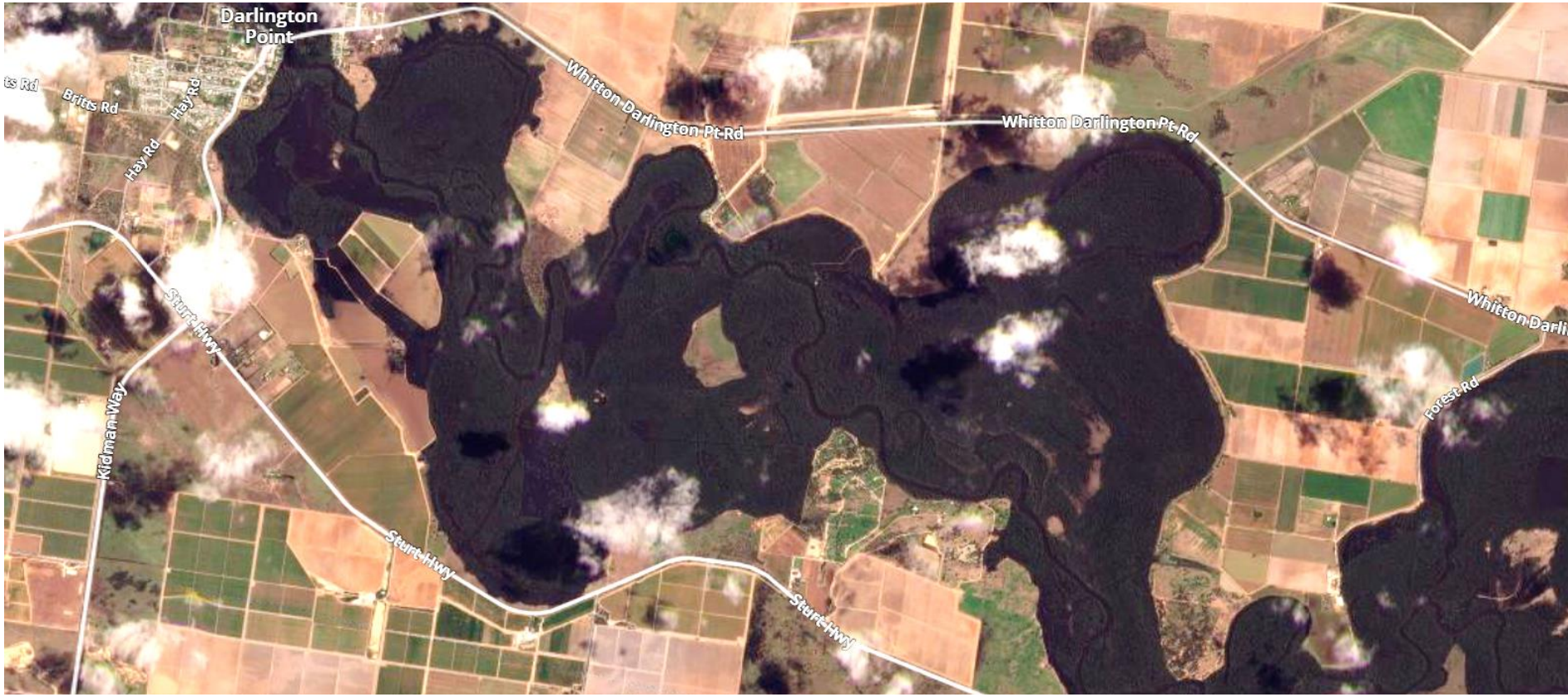
Flows well above what is considered by the program November 2022 flood – for comparison

96,000 ML/d at Darlington Point

7.60 m on Darlington Point gauge

Satellite imagery

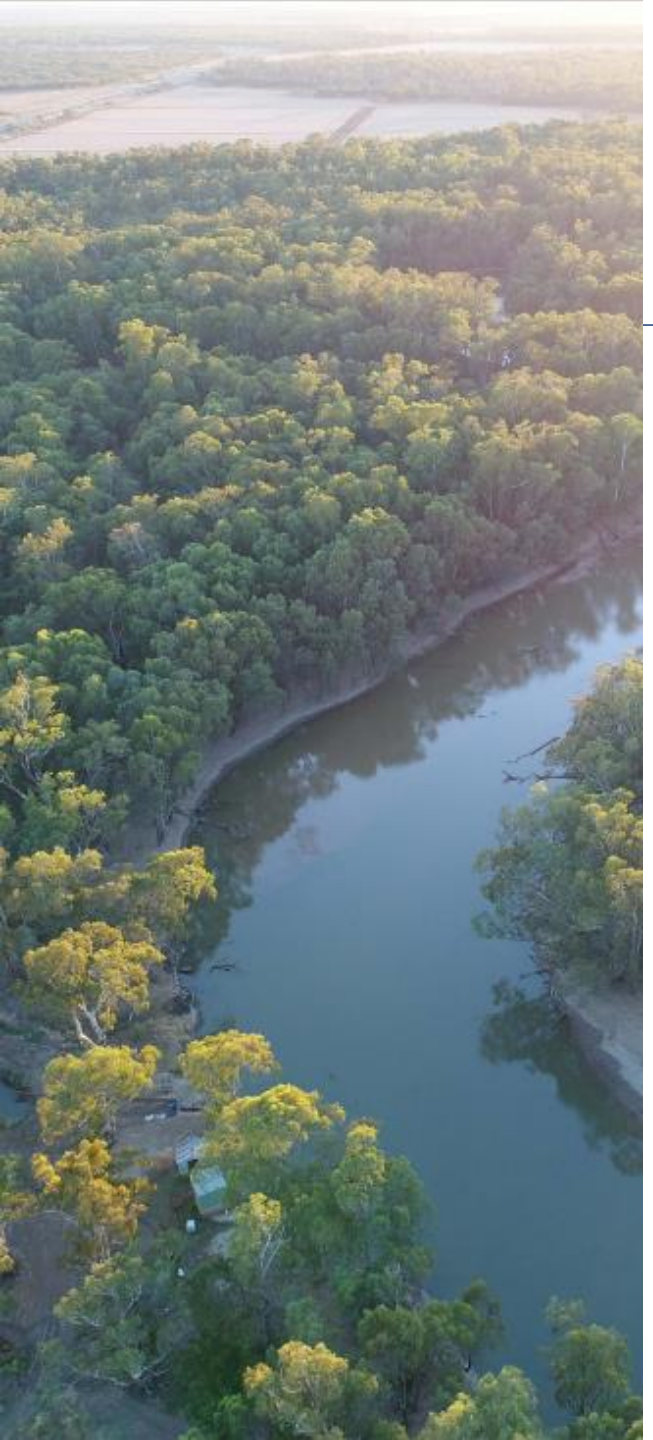
16 Nov 2022



2

Program status

Michelle Cavallaro
Director Reconnecting River Country Program



Reconnecting River Country Program status and key points

- Program is in development.
- No flows have been delivered under the program. No decisions have been made to select a flow option.
- No negotiations have commenced. Discussions with landholders have been to understand the potential impacts and benefits from the program.
- No higher environmental flows will be delivered before December 2026.
- Funded to prepare a Murrumbidgee Final Business Case by February 2025, this will recommend a flow option for delivery.
- The Final Business Case must be considered before proceeding to delivery.
- Full Murrumbidgee project cannot be delivered by December 2026. Only small portion would be delivered to support environmental flows under the current Murrumbidgee Water Sharing Plan.
- Funded to improve river operations, including flow notification systems and operating procedures.
- Funded to upgrade Mundarlo Bridge, and Mundowy Lane and replace 4 regulators in Werai Forest. This will improve community access during higher flows and inject money into local economy during construction.

3

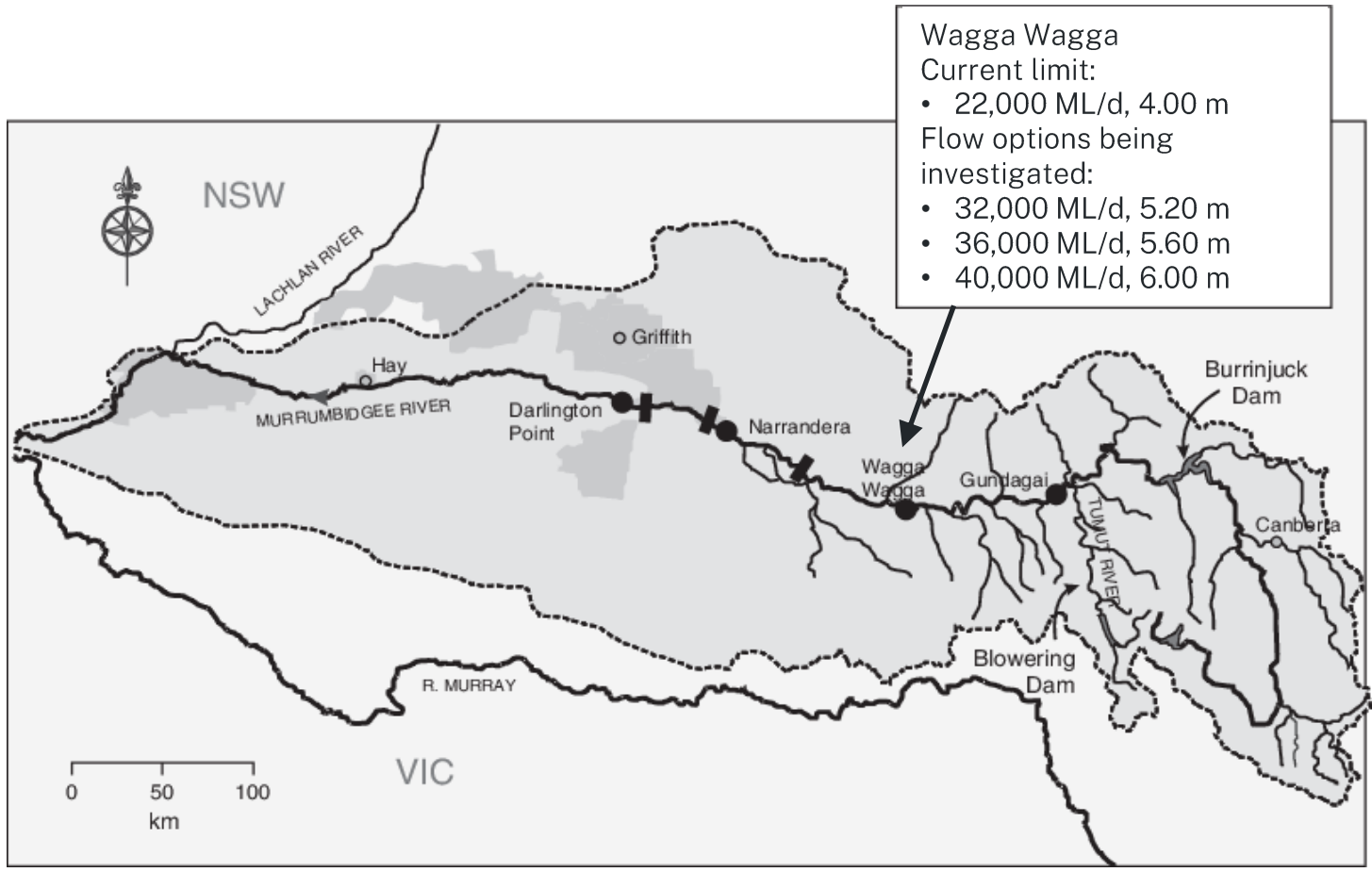
Understanding the program

Flow options, modelling and, frequency, timing and duration

Ian Burns
Manager, Technical RRCP

Delivering higher environmental flows

- Program flows will involve releases from Burrinjuck and Blowering dams, in combination with tributary inflows (primarily upstream of Wagga Wagga).
- Burrinjuck release rates depend on dam storage levels, and are often limited to 20,000 to 25,000 ML/d.
- Blowering release rates are limited by Tumut River channel capacity constraints (9,300 ML/d at Tumut).
- Managed environmental flow deliveries of 36,000 to 40,000 ML/d will be limited to situations with favourable tributary inflows, providing a practical limit to the frequency at which these higher flows can be delivered.
- Deliveries may provide increased dam airspace and flood mitigation benefits in some years (200 GL+ of environmental water released from storage).



Frequency, timing and duration of program flows

Frequency

- The frequency of managed environmental flow deliveries will vary over time according to climate conditions, water availability, ecological priorities, river operations requirements and consideration of risks.
- These deliveries will not occur when there is elevated flood risk.
- On average, it is anticipated that these deliveries will occur about 3 to 5 years per decade.
- Flows delivered will vary in size, with a mix of smaller events (22,000 to 32,000 ML/d) and some larger events up to the flow limit.
- Higher flows between 32,000 and 40,000 ML/d will require a combination of higher levels in Burrinjuck Dam, together with tributary inflows. This requirement provides a practical limit to the frequency at which these higher flows can be delivered.

Frequency, timing and duration of program flows

Timing

- Most managed environmental flow deliveries would occur between August and October, with river rises occurring slightly later in downstream areas as these flows move along the river system.
- Occasionally deliveries could occur slightly earlier in May to July, when there is sufficient environmental water available toward the end of the water year and a high priority to support wetland health.
- Deliveries in warmer months would be infrequent, and mostly involve augmenting an existing flow event to reduce hypoxic blackwater risks or improve environmental outcomes.

Duration

- The duration of these managed environmental flow deliveries would be around 3 to 5 days at peak flow, followed by a gradual recession in flows back to background flow levels.

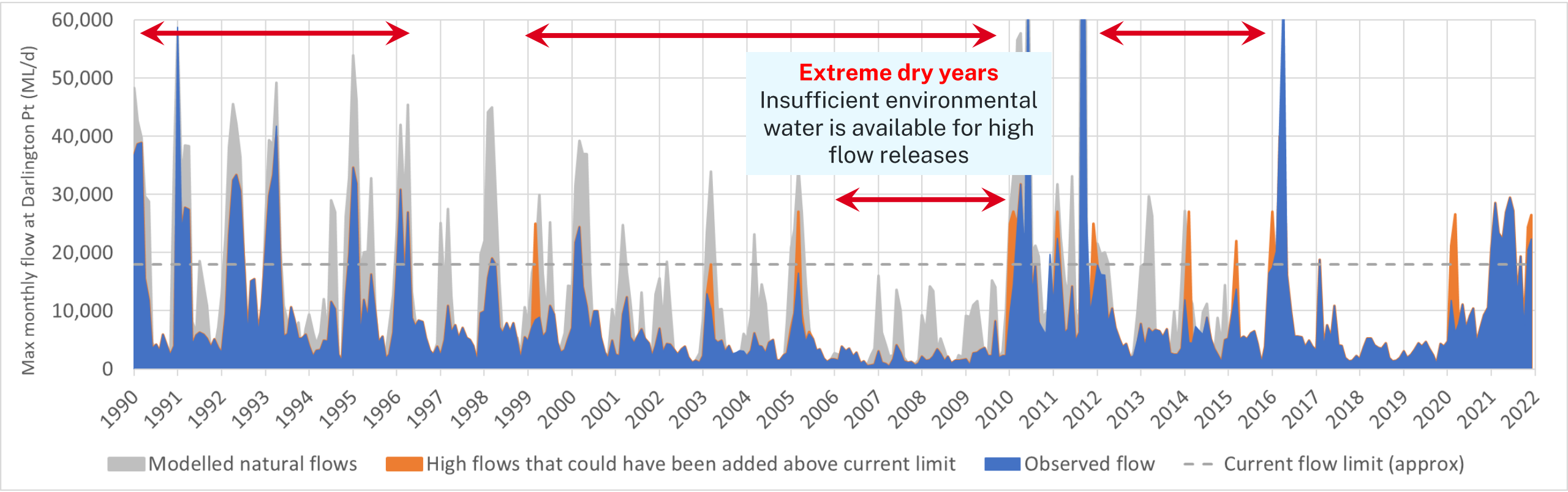
Frequency of proposed environmental flows

Hypothetical example for 40,000 ML/d flow limit option, 1990 to 2022

Wet years
Few or no high flow releases required as environmental water needs are largely met by existing flows.

Dry years
High flow releases could reduce the length of dry spells and ensure wetlands and critical habitats are not irreversibly damaged

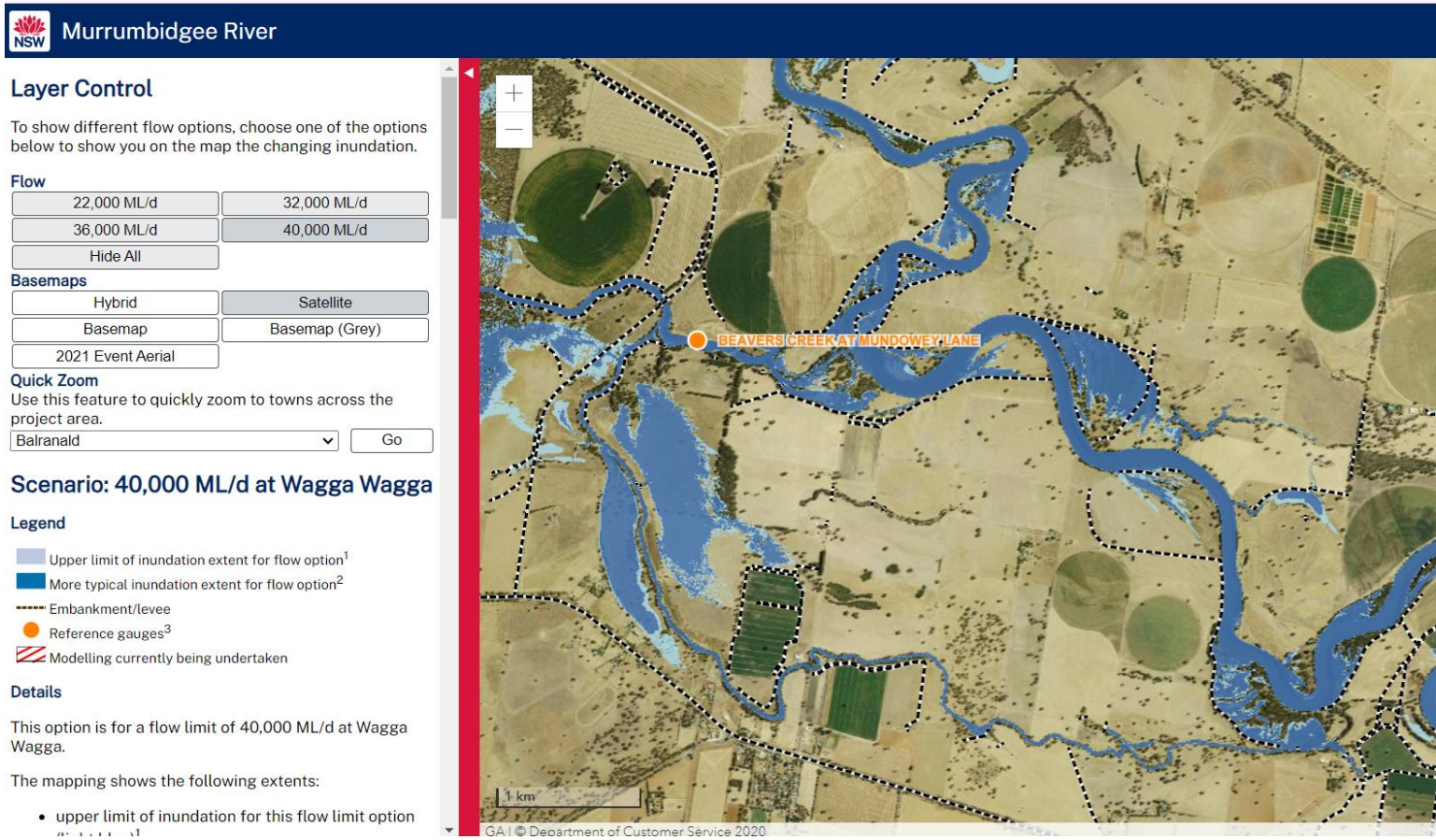
Moderate years
High flow releases would supplement existing flows to support condition and recruitment of native plants, animals and fish



Maximum monthly flows in the Murrumbidgee River at Darlington Point gauge

Mapping the flow corridor

- Flow corridor mapping was published in mid 2022.
- Mapping based on new detailed modelling, checked against observed water levels, aerial photography and satellite imagery from recent flow events.
- Feedback from landholders has mostly been positive with some localised errors identified. A review of the modelling is underway to address feedback to date.
- If the program proceeds to delivery mapping will be reviewed with landholders at commencement of negotiation and adjustments made if inaccuracies are identified.



Flow extent mapping is available at: https://water.dpie.nsw.gov.au

4

Flow delivery

How will the flows be delivered?

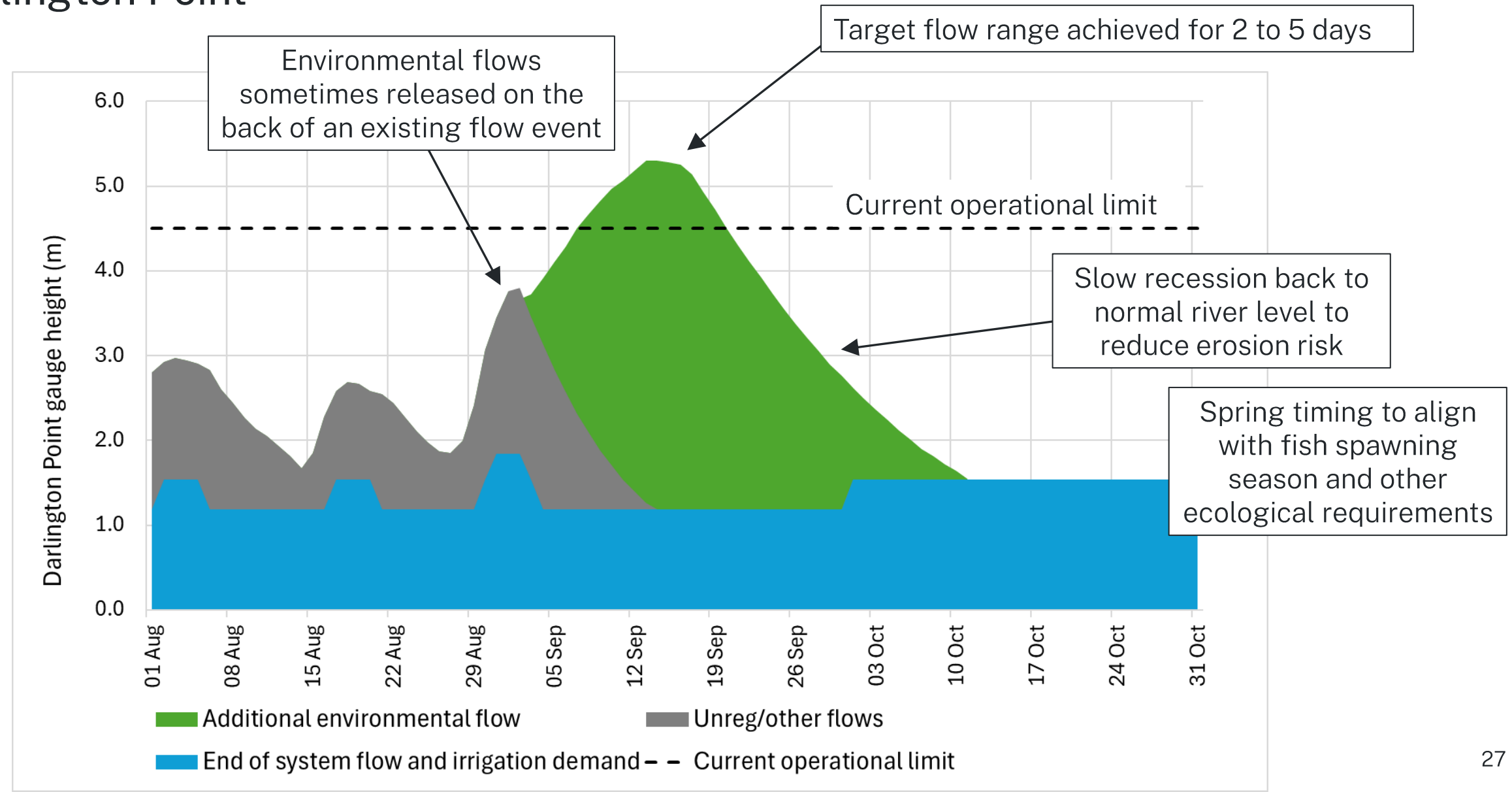
James Maguire
Senior Environmental Water Manager Officer, BCS

Environmental flow delivery

- Environmental flow events based entirely on dam releases cannot physically exceed about 36,000 ML/d due to dam release constraints
- The ability to run the river to 32-40,000ML/day would allow the environment to "share the river" with any level of irrigation demand and still get good environmental outcomes.
- If the irrigation demand is low more often the environmental flows will target lower peak heights.
- During flood years environmental water will most often be used to mitigate against excessive bank slumping and dilute hypoxic blackwater return flows in the Lower reaches– not create addition flood events.

Example potential environmental flow event

Darlington Point



Proposed environmental flow notifications

Development of an improved environmental flow notification system is part of the Reconnecting River Country program.

The system is being developed with WaterNSW and environmental water managers.

Key elements will include:

- Annual environmental flow plans describing broad intentions for the year.
- Early advice of planned environmental flow releases including dates, flow rates and levels along the river system.
- Text message and email updates throughout the event.

5

Understanding Program delivery

Michael Scotland and David Pearce

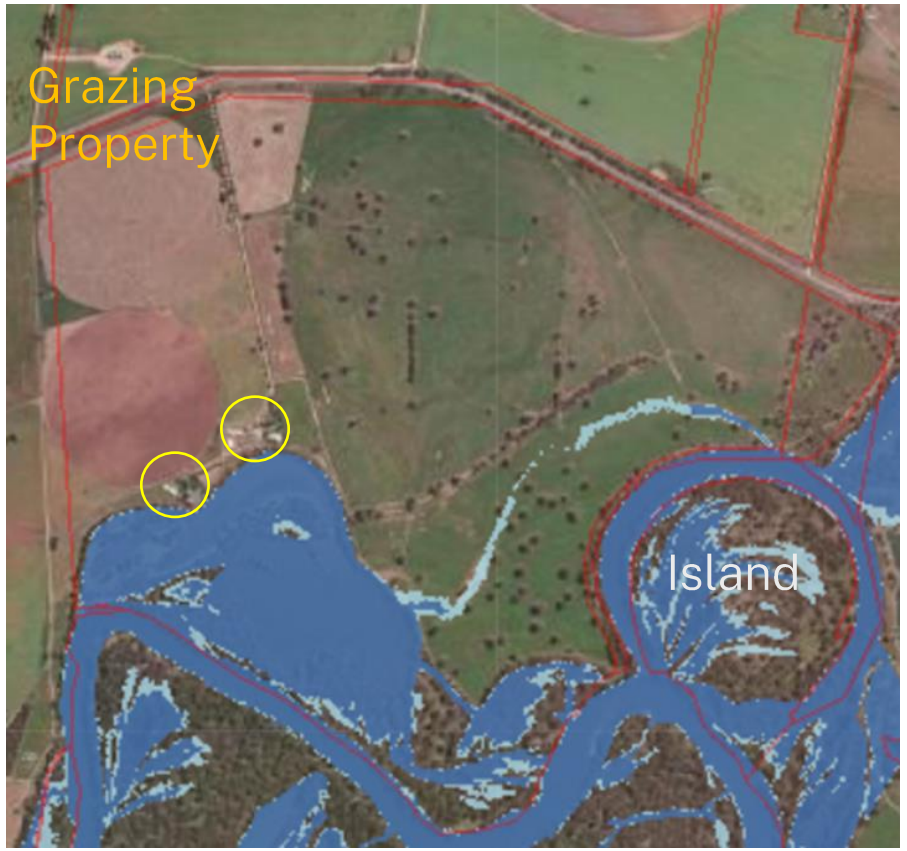
Why flow easements?

- Other options were considered to establish a flow corridor:
  - covenants without easements
  - event based agreements and mitigation works without easements; and
  - land use planning zones and Floodplain Management Plan zones
- None of these options provide an enduring flow corridor.
- Flow easement terms are also enduring and will provide certainty to landholders on the conditions of future environmental flow releases.
- Some properties that are minimally affected may not need a flow easement. The program is currently exploring this option.

What will the agreement include?

- ✓ If a flow easement is required over your property, you will be compensated
- ✓ Focussed on providing an enduring right to occasionally release flows in the flow corridor for environmental purposes.
- ✓ Is only for environmental water releases not for other types of water.
- ✓ Is only for an interest in land, not the land itself.
- ✓ Landholders can continue to use and manage the land in the flow corridor in their preferred manner.
- ✓ Specifies the nature of proposed environmental flows by reference to the gauge height.
- ✓ Establishes a flow corridor.
- ✓ Alongside the easement there will be a deed of agreement which will include a high-level map of the property and the inundation extent.
- ✓ There may also be covenants attached to the easement e.g. if works are proposed.
- X The flow easement will not allow public access to the land.

Compensation is not one size fits all



Your property and impact is unique. Every property must be considered individually to be fair and reasonable.

Questions