Environmental Water Management

18 December 2024

SOUTH AUSTRALIA

Government of South Australia
Department for Environment and Water

HydSocSA AGM and Technical Meeting

Hydrological Society of South Australia Inc.

Wednesday, 18 Dec 2024

Charles Hawker Centre,
Waite Campus

Agenda
5.30 pm – Nibbles and Drinks
Meet the Speaker

6:00 pm AGM
6:30 pm– Presentation
and questions to 7:30 pm

SA River Murray Environmental Flows

Presented by guest speaker:

Tony Herbert

Manager Environmental Water

at SA Dept Environment & Water

Location
McLeod Lecture Theatre
Charles Hawker Centre
Waite Road, Urrbrae
Opposite to gate 2

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I would like to acknowledge the Traditional Owners of the lands on which we are meeting tonight and pay my respects to their Elders past and present. I would like to extend that respect to any Traditional Owners who are present this evening.

Contents

- What is e-water (water for the environment)
- How we plan/deliver/use it
- E-water outcomes/monitoring
- 2022-23 flood
- What we can’t do.

What is Environmental Water?

a.k.a Water for the Environment

- Water Act 2007
  - Water available for the purposes of achieving environmental outcomes
    - Held – access right (e.g. an irrigation entitlement)
    - Planned – protected by plans or rules
- In practical terms..
  - All water provides environmental benefits
  - Some is intended/managed exclusively for environmental outcomes

Why do we need it?

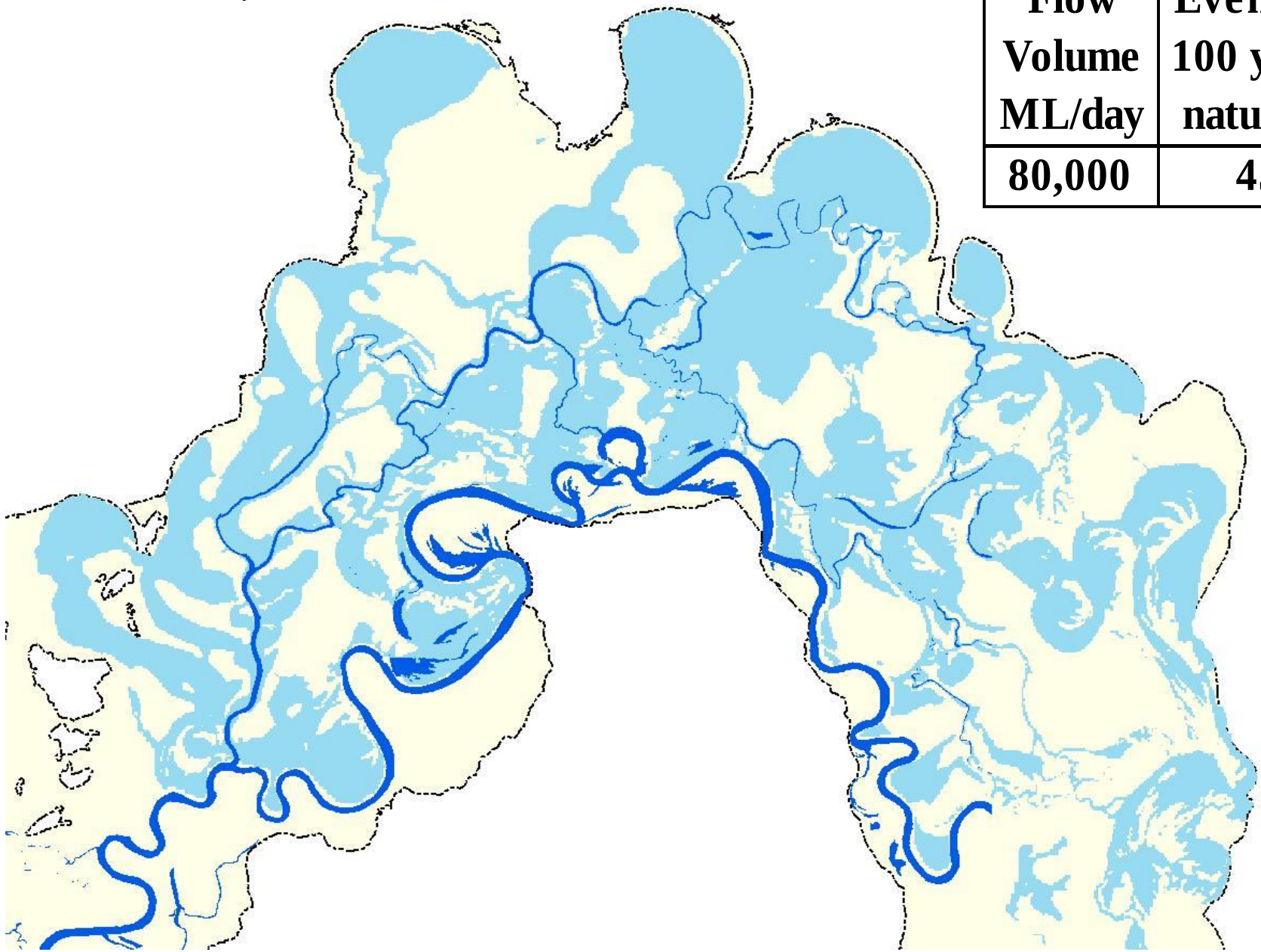
- Total volume of flow to the end of system is approx. 40% of pre-development conditions

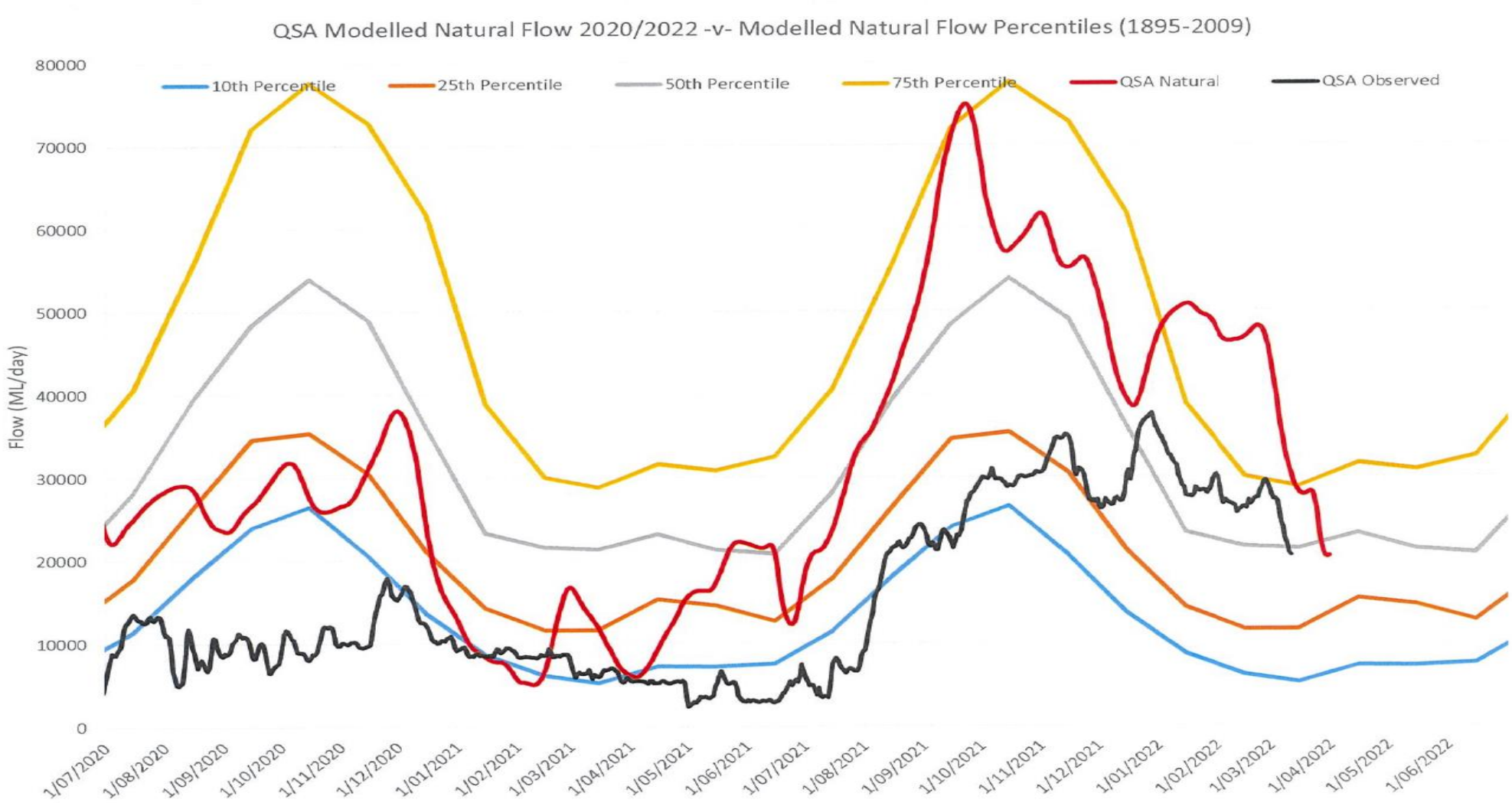
  12500 GL/yr vs 5100 GL/yr

- Basin Plan returns 2750 GL (equivalent) minus 605 plus 450
  - Not all to SA

80,000 ML/day

Flow Volume ML/day	Events in 100 years naturally	Events in 100 years now
80,000	45	12




QSA Modelled Natural Flow 2020/2022 -v- Modelled Natural Flow Percentiles (1895-2009)
10th Percentile
25th Percentile
50th Percentile
75th Percentile
QSA Natural
QSA Observed
Flow (ML/day)
80000
70000
60000
50000
40000
30000
20000
10000
0
1/07/2020
1/08/2020
1/09/2020
1/10/2020
1/11/2020
1/12/2020
1/01/2021
1/02/2021
1/03/2021
1/04/2021
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1/07/2021
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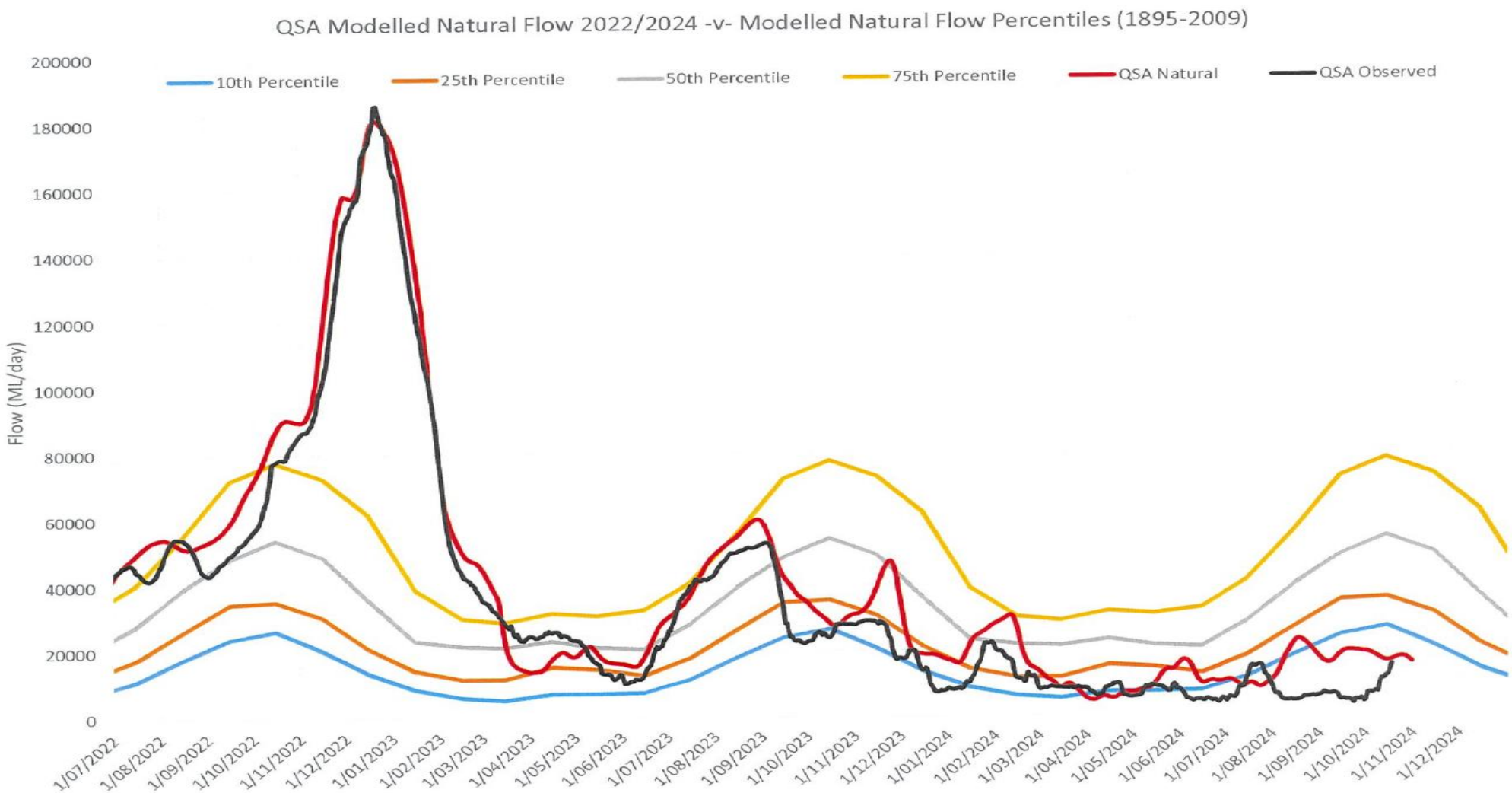
QSA Modelled Natural Flow 2022/2024 -v- Modelled Natural Flow Percentiles (1895-2009)
10th Percentile
25th Percentile
50th Percentile
75th Percentile
QSA Natural
QSA Observed
Flow (ML/day)
200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
1/07/2022
1/08/2022
1/09/2022
1/10/2022
1/11/2022
1/12/2022
1/01/2023
1/02/2023
1/03/2023
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1/11/2024
1/12/2024

Photo: Jack Seekamp, Renmark SA

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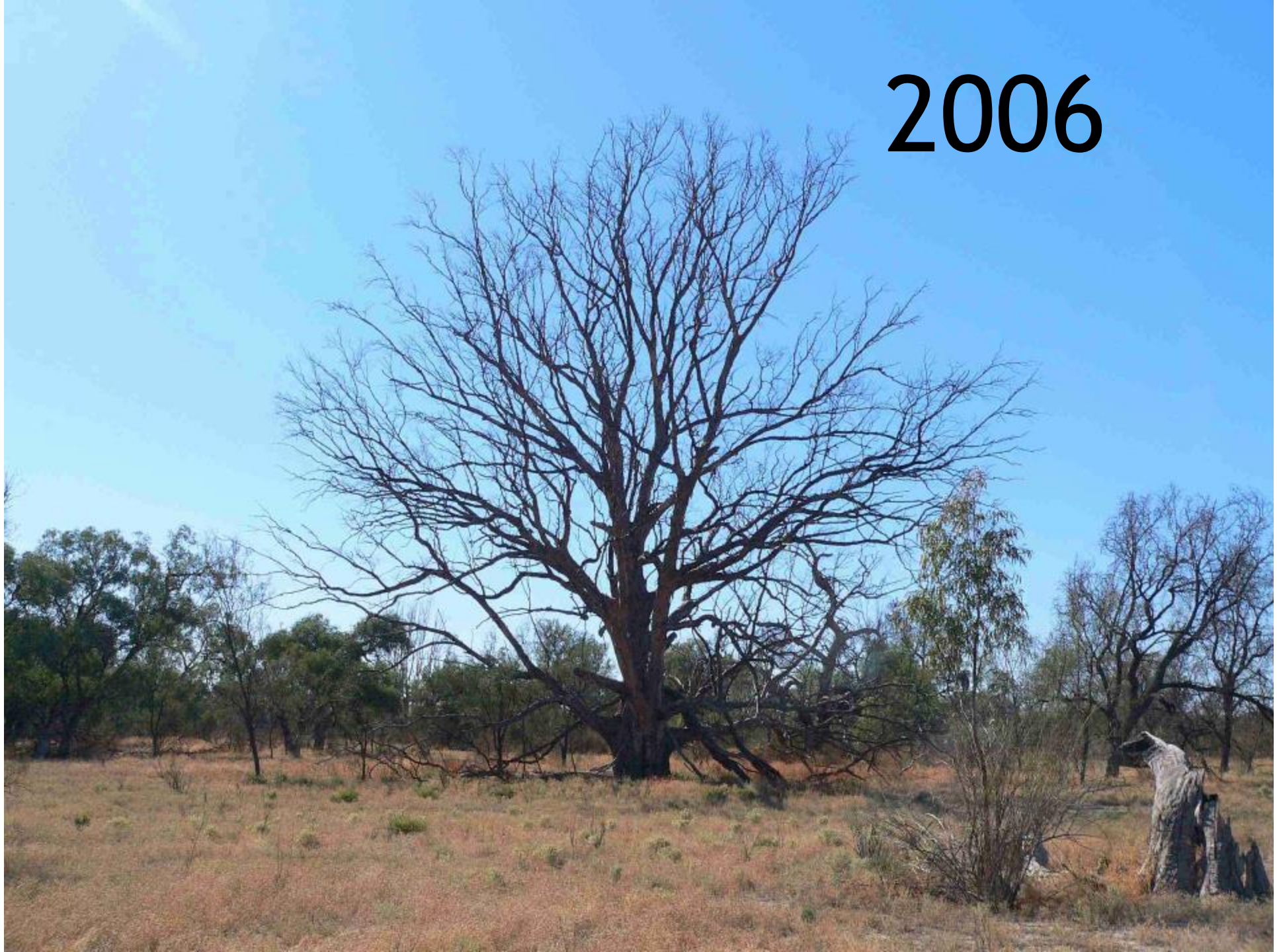
2001

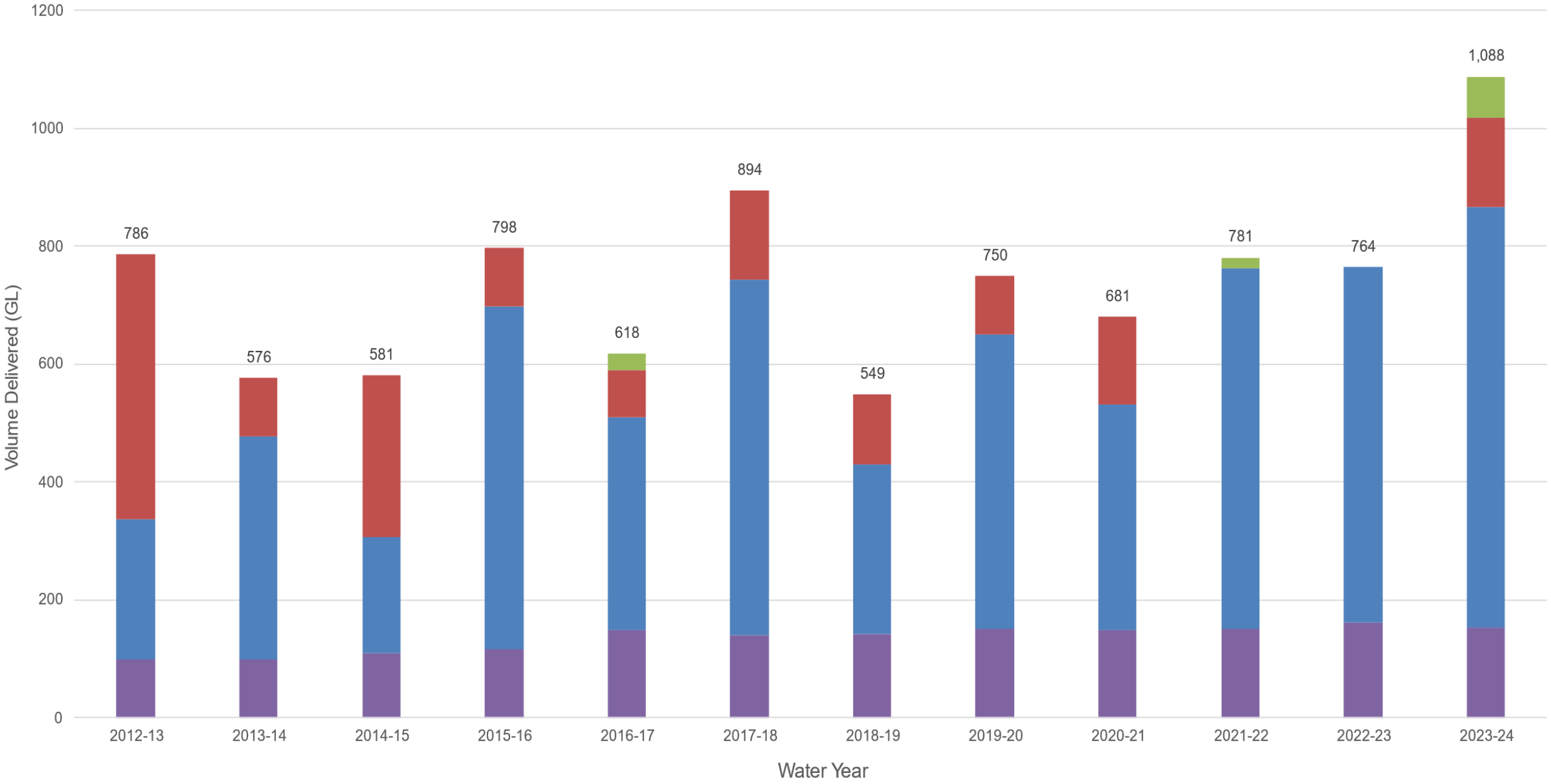

2006


2017


2024

The Murray Mouth

Annual Commonwealth Environmental Water (CEW) delivered to South Australia



How we use water for the environment

- Pumping
- Gravity
  - Wetlands
  - Floodplains
  - Weir pools
  - Lower Lakes
- Flow enhancement
  - Overbank/in channel
  - Changing duration/peak/recession
  - Barrage flows


Gravity - pool connected wetlands
Wetting & drying

Pumped Wetlands

Pumped watering of elevated wetlands

Pumped Wetlands

Larger scale pumping watering of elevated wetlands

Pumped Wetlands – Hattah Lakes

Permanent pumping infrastructure

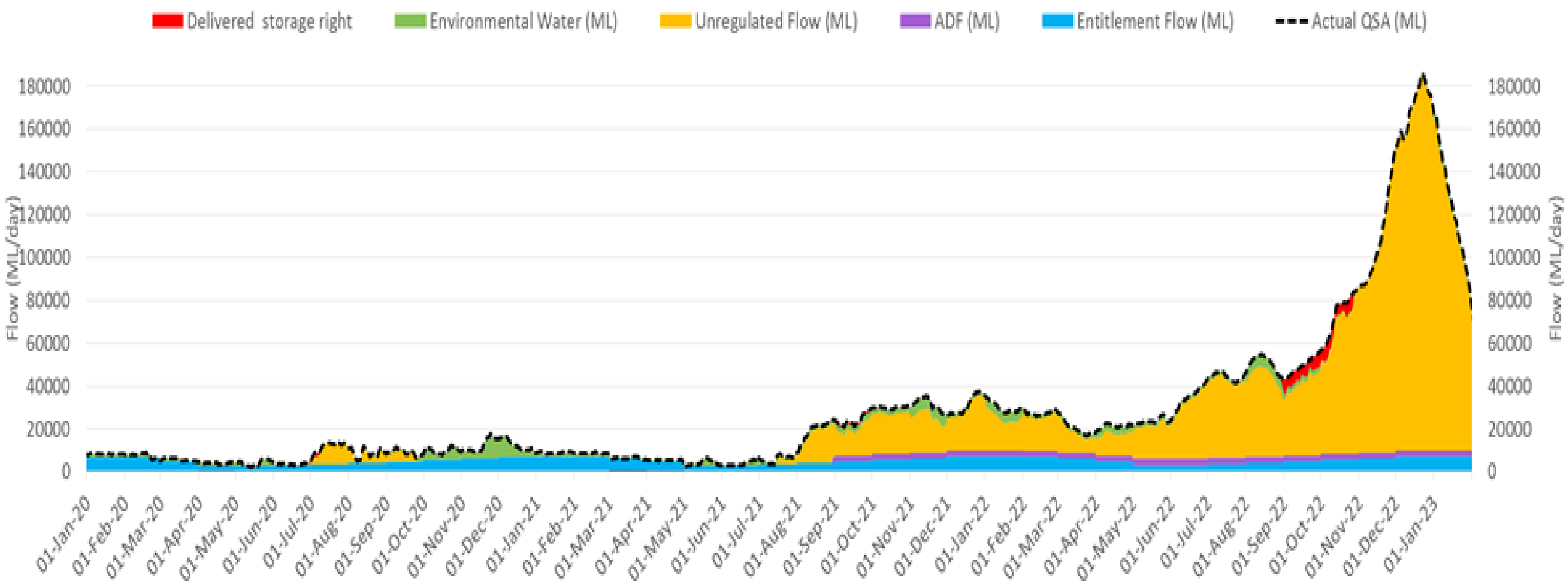
Gravity watering

Weir pools and large infrastructure for floodplain and wetland watering

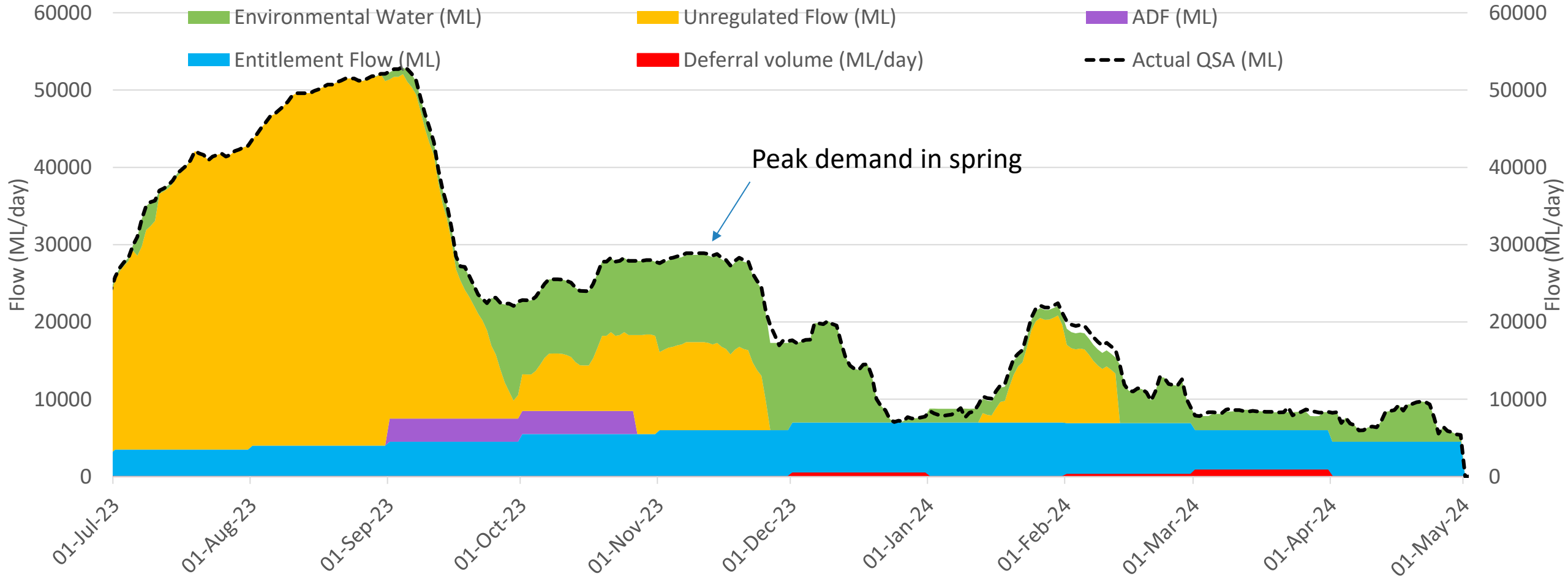
Major environmental works

River regulation scale environmental watering with large environmental regulators – Chowilla, Pike & Kat

2020-23 Flow to SA



Water for the Environment delivered 2023 – 2024

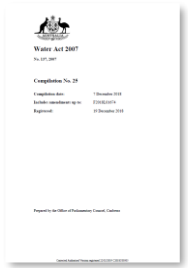


Barrages + Fishways

E-water delivery 2024

- Winter pulse 150 GL (Goulburn)
- Northern basin connection flow
- Spring pulse 500-600 GL
- Gravity wetlands
- Pumped wetlands
- Pike & Katarapko operation
- Summer/Autumn trade 150 GL
- Barrage and/or fishways open

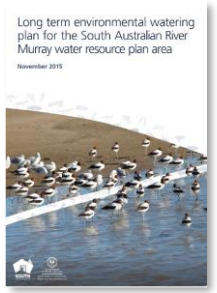
Environmental Water Planning



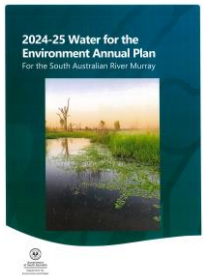
Water Act 2007
Commonwealth Government

Murray Darling Basin Plan
Murray Darling Basin Authority

Basin-wide env watering strategy
Murray Darling Basin Authority



Long-Term Env Watering Plan SA River Murray
SA DEW



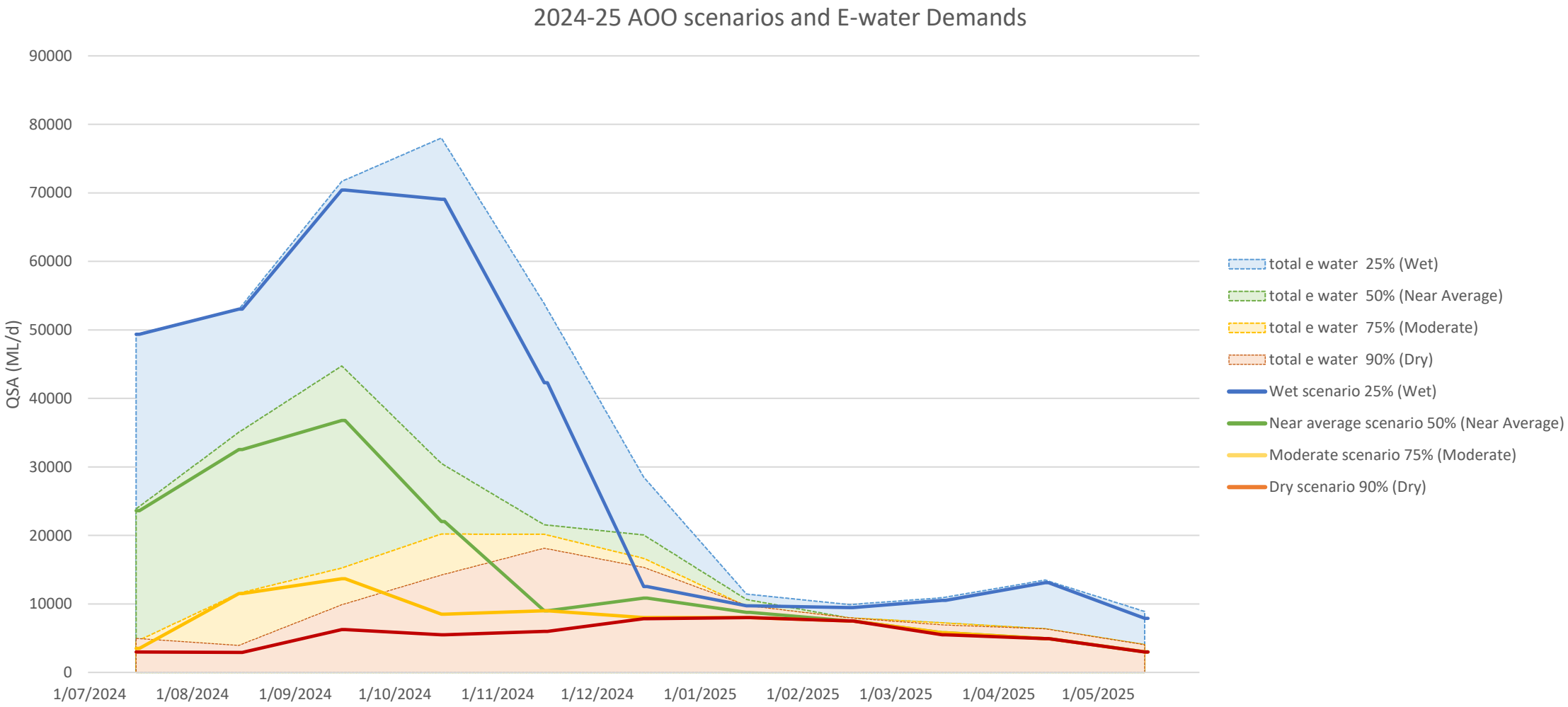
Annual SA River Murray Env-Water Plan *and* **SA Annual Env Watering Priorities**
SA DEW

Commonwealth Environmental Water Holder (CEWH)
+
Southern Connected Basin Environmental Watering Committee (SCBEWC) incl. The Living Murray (TLM)

Watering Proposals

1. River Murray Channel
2. Wetlands
3. Chowilla Floodplain & L6
4. Pike Floodplain & L5
5. Katarapko Floodplain & L4
6. Weir Raising/lowering
7. Coorong, Lower Lakes

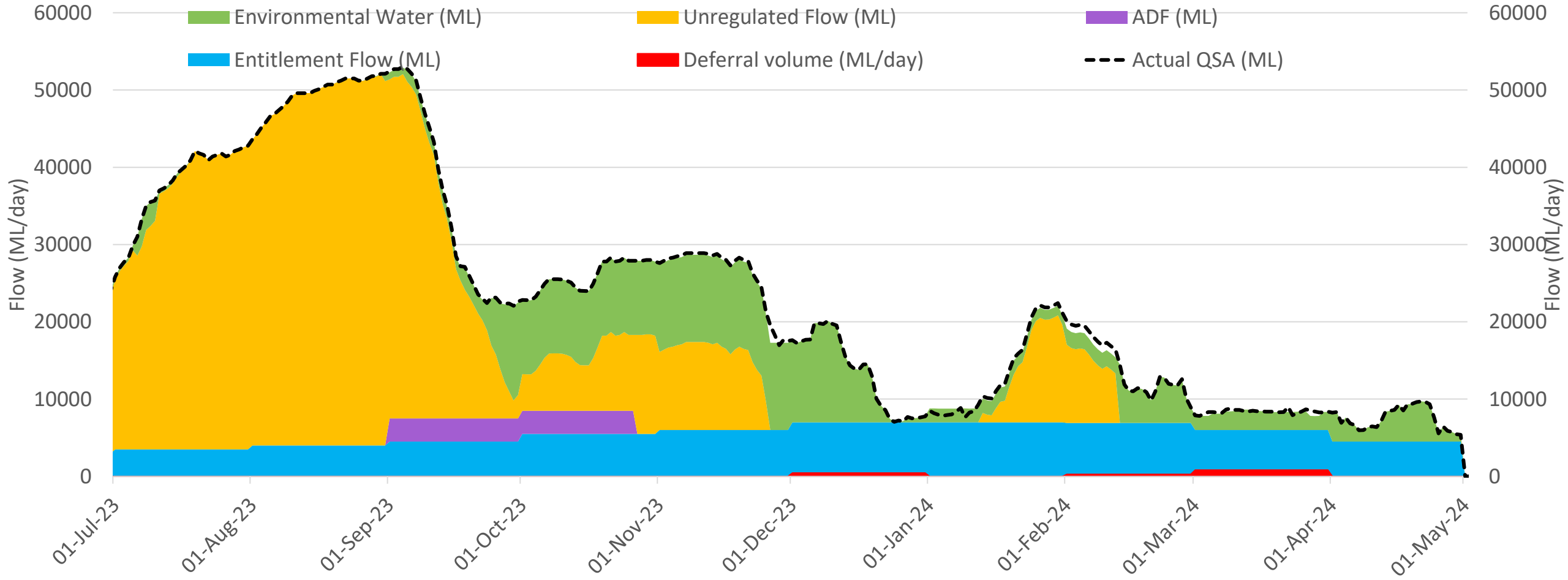
E-water Planning Scenarios for 2024/25



Outcomes of Water for Environment

- Continuous barrage outflows (10 years +)
- Improved conditions in the Lakes and Coorong
- Improved water quality in River Murray
- Connecting river with inundated floodplains and wetlands
  - Exchange of carbon and nutrients
- Improved tree/vegetation condition
- Habitat for birds and frogs
- Improved soil and groundwater conditions
- Recruitment of fish
- Operation of floodplain infrastructure

Water for the Environment delivered 2023 – 2024

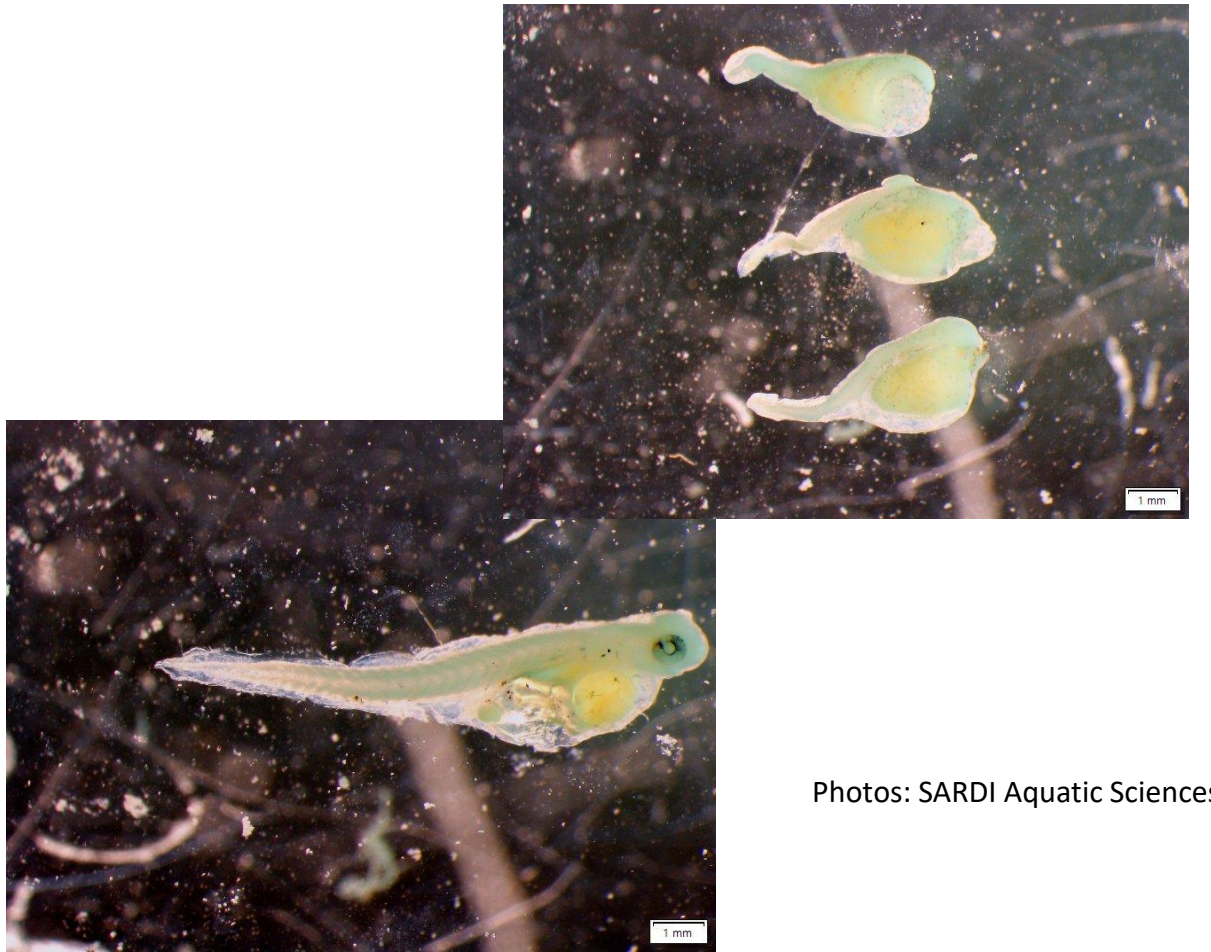


Fish outcomes

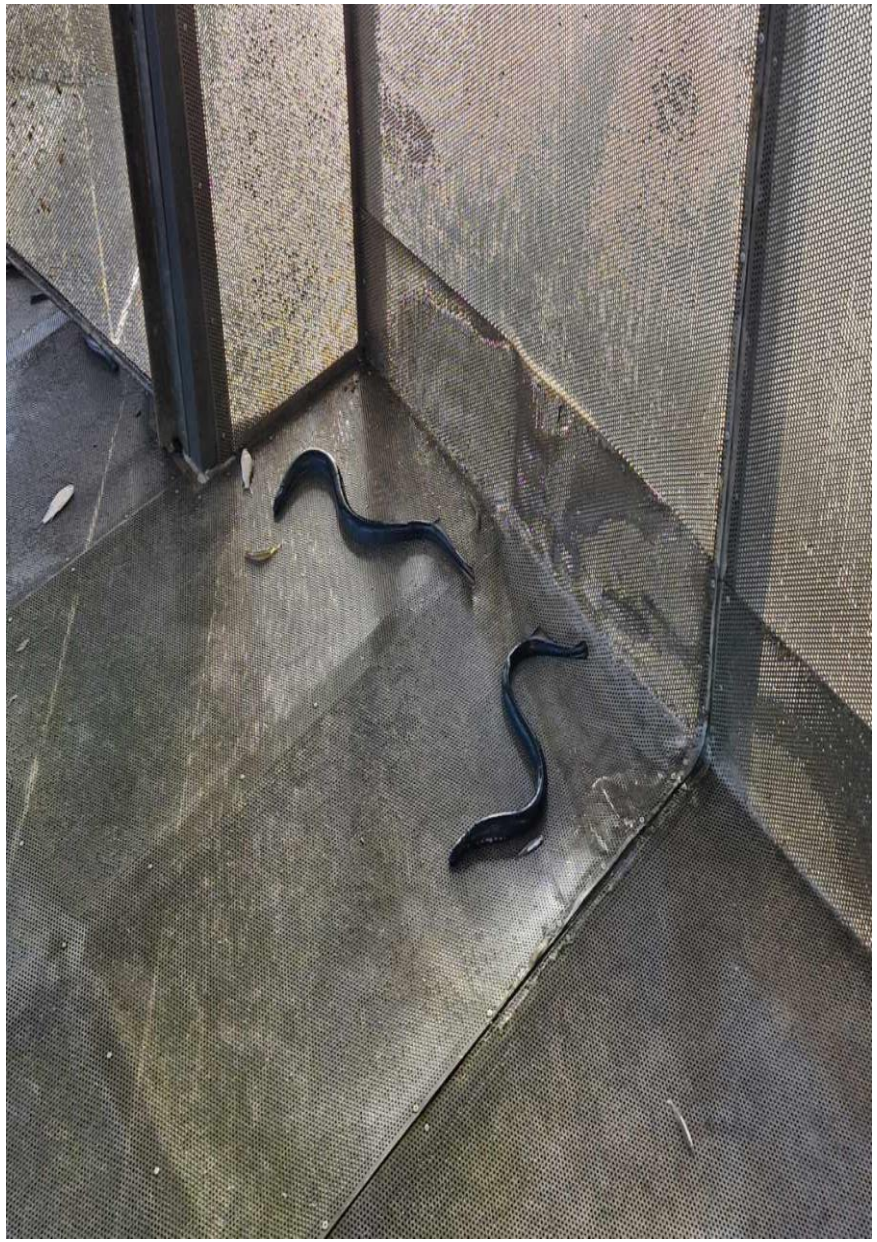
Golden perch. Credit: Aquasave NGT

Photo credit SARDI

- Freshened Coorong - expansion of habitat – fish, invertebrate, some birds
- Black bream recruitment – salt wedge
- Flow cued or flood responders
    - Cod & Callop, Silvers



Photos: SARDI Aquatic Sciences



Southern bell

Southern bell

Perons tree frog

Banjo

Long-thumbed

Spotted marsh

Frog eggs