

# Macquarie-Cudgegong Environmental Flows Reference Group

## Meeting Summary, 24 & 25 May 2022, Lazy River Estate Dubbo

**Attendees:** Ian Rogan (Chair), Jo Ocock, Robert McLellan, Hugh Kater, Garry Hall, Mel Gray, Nerida Sloane, Paul Keyte (Day 1, Exec officer), Tim Hosking (SWARCO), Debbie Love (Day 1), Bev Smiles, Bill Johnson, David Duncan (Day 1), Stephanie McCaffery, Mahmood Khan (Day 1), Ajantha Prathab (Day 1), Nicola Fernandes and Jarrod Mesken (notes).

**Apologies:** Julie Lovell, Richard Woodlock, Rob Smith, Danielle Flakelar, Hayley Behnke, Sri Sritharan, Peter Thomas.

### 1. KEY WATERING OUTCOMES 2021-2022

- Extended dam spill event.
- Approximately 63GL of environmental water was delivered this water year to date, from various accounts (Translucent and Active EWA, General Security HEW, Supplementary HEW). Most of the volume used was Translucent EWA triggered over Spring 2021 (40.5GL). ~6GL of Supplementary ordered to protect flow peaks, ceased ordering supp in May 2022.
- At current flow dates, the 3-year total flow volumes will be comparable to other recent 3-year wet periods 2010-2012 and 1999-2001.
- Inundation data indicates extended duration of the 20,000ha of the Macquarie Marshes 'Pink zone' – River Red Gum woodlands and semi-permanent wetland areas, with some inundation of the 50,000ha 'Red Zone' outer RRG woodland and inner coolabah black-box and adjacent areas.
- Significant End-of-system flows from the Macquarie-Castlereagh measured over 312GL at Miltara, and ~600GL at the Barwon River confluence including Castlereagh and Marthaguy Creek flows.
- Translucent releases were made into the Cudgegong River in accordance with the WSP, reaching 10GL maximum annual volume. Some of these flows were suspended for a period due to Burrendong dam spill operations.

### 2. WATERING OBJECTIVES: 3-YEAR AND 1-YEAR

#### *Proposed 3-year Objectives: 2022-2025*

It is proposed to move to a rolling 3-year set of catchment objectives, to:

- **Secure system resilience** as the river system continues to recover from the drought:
  - Support ongoing **wetland vegetation drought recovery** in the Macquarie Marshes, noting the habitat provided for waterbirds and wetland fauna.
  - **Recruiting to Macquarie River native fish populations** – 'flow generalists' and 'in-stream specialist' species like Murray cod, catfish and small-bodied native species, noting related in-stream productivity benefits were free of cold-water pollution.
  - **Provide future maintenance flows** in years 2 (2023) and 3 (2024) using carryover to target core (Semi-permanent, mixed marsh & inner red gum communities) Marshes areas and specific river flows in future years, noting the risk of future river system failure where the drought of record has been omitted from river operations.
- **Support viable colonial waterbird breeding events**, should they occur
- **Connect the Mid-Macquarie River to the Barwon River** where possible, for the movement of flow-specialist native fish into our catchment (e.g. golden and silver perch)

## Proposed Annual Objectives for the 2022-2023 Water Year

The following objectives were set for the 2022-2023 water year:

- **Support further wetland recovery and build resilience in key water dependent vegetation communities in the Macquarie Marshes**
- **Improve ‘event-readiness’ of the Macquarie Marshes system for colonial bird breeding**, to maximise outcomes should colonial breeding be initiated. This includes maintaining key foraging areas and supporting the vegetation condition at colony sites where possible.
- **Support viable colonial waterbird breeding events**, should they occur and need assistance.
- **Support flow events that assist the recruitment of native fish into the local population.** Where possible, flows should target flow generalists and in-channel specialist species:
  - a productivity-generating Spring flow pulse in August-September 2022 (if required)
  - attempt to stabilise river flows at approximately 1,000ML/day at Gin Gin for optimal in-channel native fish breeding in from late Sept to November 2022, and
  - If volumes allow, consider reducing ‘holes’ in river flows during freshwater catfish breeding season (Nov-January) depending on other river operations.

It is noted that providing stable flows for optimal breeding of these species are during variable wet seasons is unviable, so a focus on filling river flow ‘holes’ due to river operations can instead be a focus.

### 3. A PLAN FOR THE 2022-2023 WATER YEAR

It is proposed to:

1. **Translucent Environmental Water Allowance (EWA): Adopt the default Water Sharing Plan timing window and flow rates, except during the *stable flow component* of the managed event where the flow range will be reduced to the *ordered flow rate* (to provide flow stability).**

**Subject to rules-based release triggers being met, this EWA could provide between 0 and 64GL volume to Marebone Weir. It may or may not reduce the size of the Spring 2022 Environmental Flow Pulse event (see (2) below).**

Translucent EWA releases can, and hopefully will, contribute to the environmental outcomes of managed releases. The volume and timing of the managed event will be adjusted around the contribution from Translucent EWA flows.

There are three discrete timing windows when Translucent EWA flows may occur. Their timing will influence the planned event size as below:

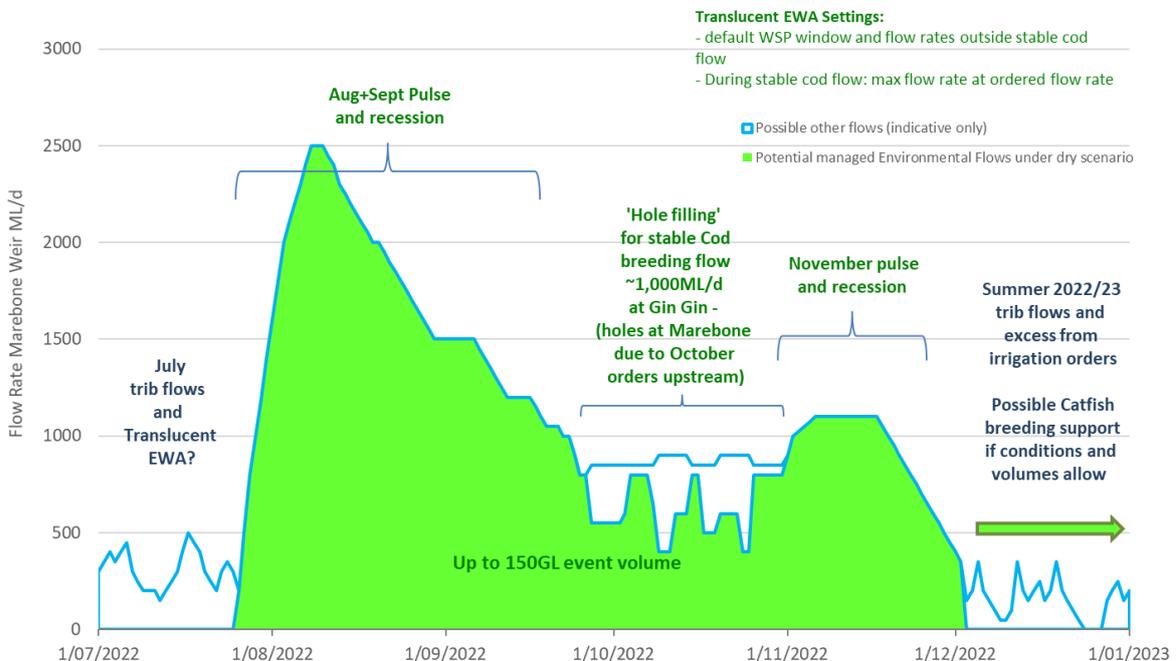
- a) **Prior to the managed event (July 2022).** Flows in this month assist in meeting inundation objectives and may mean a reduced initial pulse size of the managed event. Flood Mitigation Zone operations may also assist here should they continue to occur.
- b) **During the managed pulse event (August-November 2022) :** In this case Translucent EWA will directly replace active account use. This is consistent with previous practice.
- c) **After the managed event (Autumn 2023).** This would be after the 30 March 2023 Translucent EWA window re-opening. Releases from the Translucent EWA sub-account in this season will be separate to the volume delivered during the managed event.

2. **Use up to 150GL from all environmental water sources** for a Spring 2022 flow pulse to achieve the stated annual objectives. Any Translucent EWA, flood mitigation zone operations or large surplus flows occurring during this managed event would contribute to this volume.
3. Secure a **minimum carryover of approximately 120GL to future years**. Given predicted rainfall and current dam storage, this is considered likely to be greater than 120GL.

It was recommended the planned event should have three components and an optional fourth (see graph below):

- 1) An **August-September pulse** to Marebone, to secure inundation extent in the Macquarie Marshes in cooler (more efficient) months, also forming a native fish pre-breeding productivity and movement pulse in the mid-Macquarie River
- 2) **Relatively stable flow during October** for native fish spawning in the Mid-Macquarie River – ‘topping up’ daily flows to meet the flow target of **1,000ML/d at Gin Gin**.
- 3) **A pulse and long recession in November** to support the newly hatched fish larvae and extend inundation duration within the Macquarie Marshes for vegetation seed-set, waterbird habitat and recruitment of flow-dependent frog species.
- 4) (optional) Depending on volumes and conditions, **supporting Freshwater Catfish breeding over summer by maintaining minimum flow rates and filling holes in hydrograph at Gin Gin**. This would be discussed later with the EWAG.

Under this proposal, flow connectivity to the Barwon River would likely be achieved in August and September 2022, and possibly October and November 2022 via the Macquarie Marshes and Lower Macquarie River.



**Proposed 2022-2023 Winter-Spring environmental watering event at Marebone Weir under dry conditions - plan as of June 2022**

#### **4. MONITORING IN 2022-2023**

- A list of proposed monitoring actions was presented by DPIE Environment & Heritage Group including waterbirds, vegetation and frog surveys and wetland inundation mapping.
- CEWO and DPI-Fisheries monitoring for larval and recruitment monitoring will be undertaken in 2022–23 and movement monitoring for Murray cod and catfish near Gin Gin will occur between 2022–2024.
- Commencement of baseline data collection for the regulated Cudgegong River.

#### **5. COMMUNICATIONS IN 2022-2023**

- A range of media and communication activities will be undertaken by EHG and CEWO.
- Engagement for EWAG recruitment will commence soon. Chair, Ian Rogan and EHG staff able to present to any groups if that assisted in attracting EWAG membership applications.

#### **6. UPDATE ON VARIOUS WATER-RELATED PROJECTS**

- **Northern Basin Toolkit project** – Oxley break No3 bed raising structure, investigation into works on Mumblebone breaks –project admin underway by Water Infrastructure NSW
- Southern MMNR '**Breakaway**' structures – National Parks applying for construction funding

**NEXT MEETING: 1-day event Tues 30 August 2022 – Location TBC**