

Department of Climate Change, Energy, the Environment and Water

Prerequisite policy measures

NSW annual report 2024–25

30 June 2026



Acknowledgement of Country



Department of Climate Change, Energy, the Environment and Water acknowledges the traditional custodians of the land and pays respect to Elders past, present and future.

We recognise Australian Aboriginal and Torres Strait Islander peoples' unique cultural and spiritual relationships to place and their rich contribution to society.

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

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<https://www.water.dccceew.nsw.gov.au/our-work/projects-and-programs/environmental-water-management-nsw/what-we-are-working-now/pre-requisite-policy-measures>

Acknowledgements

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1 Introduction

1.1 Background

Prerequisite policy measures (PPMs) are legislative and operational rule changes introduced as part of the Murray–Darling Basin Plan (Basin Plan). The measures are designed to support the effective and efficient use of held environmental water (HEW) in the Murray–Darling Basin southern connected system.

In NSW, PPMs are being implemented in the NSW Murray and Lower Darling and the Murrumbidgee regulated rivers. The NSW Government has adopted an adaptive management approach to support continuous improvement in PPMs. More detailed information on the background and implementation of PPMs in NSW is available on the Water Group’s website:

water.dpie.nsw.gov.au/our-work/projects-and-programs/environmental-water-management-in-nsw/what-we-are-working-on-now/pre-requisite-policy-measures

1.2 Purpose and scope

The purpose of the annual report is to:

- support continuous improvement of PPMs implementation and environmental water management, and
- provide transparency about the use of PPMs in NSW.

This annual report documents the implementation of PPMs in NSW during the 2024–25 water year, from 1 July 2024 to 30 June 2025. The review was conducted against the 2022 versions of the procedures manuals.

The annual report is a key component of the NSW Government’s commitment to the ongoing implementation of PPMs under the adaptive management framework. The annual report focuses on environmental watering actions that use PPMs (that is, piggybacking or return flow recognition) under NSW jurisdiction only. The assessment of any multi-jurisdictional PPMs environmental watering actions undertaken during the water year is beyond the scope of this report. This annual report will be provided to the MDBA as part of NSW’s requirement under the Basin-wide Environmental Water Protection Strategy and Implementation Plan.

The annual report is not designed to assess environmental outcomes or benefits resulting from PPMs watering actions. Reporting on the use of water for the environment and its outcomes is the responsibility of environmental water holders and their respective agencies (see the Outcomes Report for 2024–25 in: www.environment.nsw.gov.au/topics/water/water-for-the-environment/planning-and-reporting).

The report was conducted by Water Group, with input from the Conservation Programs, Heritage, and Regulation Group (CPHR Group), WaterNSW, Commonwealth Environmental Water Holder (CEWH) and the Murray Darling Basin Authority (MDBA).

1.3 New evaluation and review approach

Water Group has changed its approach to the annual evaluation and review of PPMs to reflect the matured status of PPMs implementation in NSW, and to reduce effort by focussing on key review actions and stakeholder information requirements.

The previous approach included an annual review and evaluation of PPMs implementation, with both components presented in the annual report. The annual review and evaluation considered 2 key questions, (1) whether the current PPM actions and the associated supporting measures provide for the effective and efficient use of held environmental water and (2) whether there are sufficient mitigation measures in place, and whether they have been effective. The annual review and evaluation addressed these questions by following a detailed evaluation method.

To reflect the maturity of PPMs implementation, currently 7 years into implementation, and the resource constraints across NSW agencies, the new approach involves an annual report with a triggered review and evaluation.

The annual report will focus on NSW PPMs events that occurred within the water year. It will report on PPMs return flow accounting, based on information provided by WaterNSW and environmental water holders, collate the key information and present it in the annual report.

A review and evaluation will be conducted and reported on in the annual report only if triggered by significant implementation issues. Such issues that could trigger a review and evaluation include:

- non-isolated major deviations from procedures, e.g. applying PPM return flows when there is no approved accounting arrangement or watering instructions consistently not meeting procedural requirements
- identified issues or deviations which cannot be resolved through the current governance framework set out in the procedures manuals.

The Australian Government has also funded Water Group to deliver an independent assessment report of delivery against PPMs in 2026-27 under its Federation Funding Agreement, including an independent assessment of performance and an examination of the effectiveness of PPMs, with specific and detailed recommendations for improvement.

2 Key findings

2.1 Environmental water holders placed orders in line with procedures

In 2024-25, environmental water holders (EWHs), including CPHR and CEWH followed the 2022 procedures in force at the time. EWHs collaborated relatively well with MDBA and WaterNSW in the planning and ordering of HEW events. The collaboration has been improving over time.

Watering instructions/orders were generally filled out adequately, however, there were some issues with timeliness of order submission and late amendments to orders:

- There were 3 events where accounting arrangements were not planned, finalised, approved and actioned prior to event commencement. For one event this delayed WaterNSW in being able to complete quarterly accounts and confirm HEW usage. This issue has been captured in recommendation R.16 arising from this report.
- For one event in Yanco Creek, water was ordered from Murray Irrigation Limited (MIL) rather than from WaterNSW, as the water needed to be delivered through MIL's network. WaterNSW and Water Group was made aware of the delivery with little notice. As a result WaterNSW had to adapt an existing accounting arrangement for the delivery, which was not approved, but due to the accounting's conservatism did not cause any impacts to third parties - see further detail in section 2.2.3. EWHs should work with the Water Group prior to events to confirm appropriate accounting arrangement for calculating PPM return flows, then provide this information to WaterNSW so that they can protect the return flows. This issue has been captured in recommendation R.16 arising from this report.
- Some watering instructions and water orders were submitted post-event commencement, and some watering instructions/water orders were updated and submitted with changes after the watering instruction and/or order was required. This issue has been captured in recommendation R.15 arising from this report.

EWHs need to place orders in a more timely and complete manner, using the iWAS portal. EWHs need to also finalise watering instructions closer to event completion to help WaterNSW manage event delivery and account reconciliation. This issue has been captured in recommendations R.4 and R.15.

EWHs communicated with potentially impacted landholders and the other stakeholders as per their standard communication practices, noting such communications is considered part of EWH's general responsibilities that sit above any PPMs implementation responsibilities.

The above issues are considered procedural gaps rather than deviations from procedures since the 2022 procedures do not adequately describe procedures on preparing, submitting and finalising watering instructions/orders. The department is currently reviewing and updating the Murrumbidgee and Murray & Lower Darling procedures manuals with the aim to publish both in 2026. The issue of preparing, submitting and finalising watering instructions/orders has been captured in recommendation R.19.

2.2 WaterNSW followed procedures in 2024-25

WaterNSW followed the 2022 procedures in 2024-25 by:

- providing weekly event tracking of environmental water delivery against retail account and delivery point to environmental water managers, holders, governance bodies and MDBA during events
- receiving orders and delivering water in line with the orders
- undertaking accounting (where required) and undertaking retail accounting.

An unforeseen calculation error occurred in the accounting of the debit volume for the Murrumbidgee fish pulse event 1b. The error resulted in 4,472 ML more water being debited from environmental water allowance (EWA) than was required to meet the environmental flow target. Return flows were calculated correctly, as the additional debit was EWA (not HEW) and not recognised for return flows.

This error is within the debit error bounds required by the PPM Procedures Manual and is therefore not considered a deviation from procedures. It reflects a calculation issue within spreadsheet-based accounting, rather than delivery complexities. The issue was isolated to this event, with subsequent events correctly accounted. The time lag between the event and reporting (approximately 18 months) also limited earlier detection. WaterNSW and CPHR reviewed the accounting and CPHR accepted the error, therefore, no further action was required.

As part of continuous improvement in PPM implementation, work is underway to reduce the risk of calculation errors in spreadsheet-based accounting (including consideration of improved tools and systems), and to transition to quarterly event reporting to enable earlier identification and correction of issues.

Recommendation R.21: CPHR and CEWH to conduct thorough accounting reviews prior to approval of quarterly accounts.

Recommendation R.22: WaterNSW and the Water Group to investigate further opportunities to reduce the risk of calculation error in accounting processes.

WaterNSW identified that when applying the *Incremental loss method for return flows of held environmental water in the River Murray from the Murrumbidgee*, the transition between loss lookup tables for low and high flows was too coarse. It is recommended that the Water Group review the method to improve its implementation. This recommendation has been captured as recommendation R.20 arising from this report.

2.2.1 Summary of recognised return flows

An accounting summary of the environmental watering event using NSW HEW entitlements with PPMs applied is presented in Table 1. Further details are presented in Appendix A – PPM actions in 2024-25. During 2024-25, a total of 571,624 ML of environmental water deliveries in NSW resulted in 447,694 ML of return flows being recognised at the South Australian border.

Table 1: Summary of environmental watering and total debit and return flow volumes using PPMs for each river system and major environmental locations using PPMs in 2024–25.¹

Valley	Lower Darling	Lower Darling	Murray	Murray	Murray	Murray	Murrumbidgee	Murrumbidgee
Details	Great Darling Anabran	Lower Darling/ Baaka	Hume Directed Releases	Edward-Wakool	Edward River downstream Stevens Weir	Finley Escape	Murrumbidgee Fish Pulse	Yanco-Billabong
Total volume of HEW ordered (as reported by WaterNSW) (ML)^a	25,600 CEWH – 25,600	89,755 TLM – 80,700 NSW GS – 1,486.9 CEWH GS – 7,568.1	259,000 TLM – 45,000 CEWH – 205,000 RMIF – 9,000	32,282	50,750 CEWH – 47,337 NSW Conveyance – 3,413	Delivered via Murray Irrigation Limited (MIL), so no retail orders with WaterNSW	185,900 TLM – 74,500 CEWH – 111,400	16,550 CEWH – 16,550
Total volume of HEW debited* (as reported by WaterNSW) (ML)	26,794 CEWH – 26,794	37,295 TLM – 28,300 NSW GS – 1,427 CEWH GS – 7,568	231,902 TLM – 30,360 CEWH – 192,542 RMIF – 9,000	28,232 CEWH – 5,950 NSW Conveyance – 22,282	44,145 CEWH – 40,732 NSW Conveyance – 3,413	778 No retail order with Water NSW; Delivered via Murray Irrigation Limited (MIL) infrastructure. CEWH MIL = 778	187,648 TLM – 75,000 CEWH – 112,648	14,830 CEWH – 14,830

¹ The volumes in Table 1 are NSW water deliveries only and do not include any Victorian water delivered for these events.

Valley	Lower Darling	Lower Darling	Murray	Murray	Murray	Murray	Murrumbidgee	Murrumbidgee
Details	Great Darling Anabran	Lower Darling/ Baaka	Hume Directed Releases	Edward-Wakool	Edward River downstream Stevens Weir	Finley Escape	Murrumbidgee Fish Pulse	Yanco-Billabong
Return flow volume recognised at end of system (ML) [§]	218 <i>CEWH - 218</i>	31,997 <i>TLM - 24,986 CEWH - 5,897 NSW GS - 1,114</i>	204,102 <i>TLM - 30,360 CEWH - 166,542 RMIF - 7,200</i>	n/a	34,732 <i>CEWH - 32,002 NSW Conveyance - 2,730</i>	614 <i>CEWH MIL - 614</i>	174,980 <i>TLM - 70,139 CEWH - 104,841</i>	11,569 <i>CEWH - 11,569</i>
Return flow volume recognised at SA border (ML)	218 <i>CEWH - 218</i>	29,486 <i>TLM - 23,115 CEWH - 5,356 NSW GS - 1,015</i>	204,102 <i>TLM - 30,360 CEWH - 166,542 RMIF - 7,200</i>	n/a	34,732 <i>CEWH - 32,002 NSW Conveyance - 2,730</i>	540 <i>CEWH MIL - 540</i>	168,435 <i>TLM - 67,203 CEWH - 101,232</i>	10,181 <i>CEWH - 10,181</i>

[^] Order volumes are based on a pre-event estimate of environmental water use, however due to changing conditions this volume is usually revised over the course of the event.

[§] Note 'End of System (EoS)' means end of the river where the water was released from and is not necessarily the same as the SA border end point, except for Great Darling Anabran, Hume directed release and Edward River downstream Stevens weir.

* Debited volumes are the same as delivered volumes.

2.2.2 Target flows as compared to actual flows

Where a HEW hydrograph was targeted by EWH, actual deliveries of the HEW were within the accepted bounds of deliverability deviations as per the procedures. Target vs actual flows were provided by WaterNSW as part of their Annual Environmental Release River Operations Reports. These graphs are provided for each event from Figure 1 to Figure 24 in Appendix A – PPM actions in 2024-25.

2.2.3 Approved accounting arrangements were applied

Approved PPMs accounting arrangements were applied to all events occurring in 2024-25, except one deviation for the Finley Escape event.

For the Finley Escape event, the HEW delivered was Murray water rather than Murrumbidgee water, where the order was placed by EWHs directly with Murray Irrigation Limited (MIL). For this type of order, there is no specific accounting arrangement in place to recognise PPM return flows from this HEW delivery.

Under PPMs, deliveries made using HEW should have an approved accounting arrangement in place before PPMs are applied for that event (Recommendation R.16). In this case, however, due to time constraints of the event taking place, it was collectively agreed by Water Group and WaterNSW that the existing Yanco accounting arrangement be adapted for this delivery and information on return flows accounting be provided to MDBA and SA.

However, after the event had occurred, the Water Group identified that in the existing Yanco accounting arrangement, the accounting arrangement for the Darlot to the SA border portion only applies for the June to February period. Given that this event occurred in April 2025, it was not covered by an accounting arrangement for the Darlot to SA border portion.

The Water Group overlooked this mismatch between the timing of the event versus the timing limitation in the application of the loss accounting method from Darlot to the SA border when providing the informal approval (via email) to apply the existing accounting arrangement to this event. In this instance, given that the existing accounting arrangement is highly conservative, the Water Group do not anticipate any third-party impacts occurred due to the error.

To ensure this situation does not occur again, the Water Group is updating procedures to ensure the correct approval pathway is followed when EWH require a change to an approved accounting arrangement, including via the new *Environmental water delivery instruction and return flow application* process to comply with Clause 30C of the *Water Management (General) Regulation 2025*. This approval process is planned to be implemented from the start of the 2026-27 water year and is recommendation R.19 arising from this report.

Furthermore, the temporal gap (i.e. the March to May gap) in the existing accounting arrangement from Darlot to SA, is also being reviewed by the Water Group and is planned to be rectified by the end of 2026, which is recommendation R.17 arising from this annual report.

The Water Group is also developing an accounting arrangement for delivery of HEW in the Yanco including via Finley Escape, which is recommendation R.18 arising from this report.

2.2.4 Water allocation accounts were maintained

WaterNSW debited EWHs' accounts based on the volume of water delivered to the order point.

In the Murrumbidgee, daily debits are capped at the lesser of:

- *(target flow + 10% of the target flow) – required operational flow*, or
- *observed flow – required operational flow*

An unforeseen calculation error occurred in the accounting of the debit volume for the Murrumbidgee fish pulse event 1b. This has been detailed in Section 2.2.

For the Murray and Lower Darling (excluding Great Darling Anabranch, which are debited using a different accounting arrangement), the accounts were debited as per Objectives and outcomes for river operations in the River Murray System.

2.3 Post-event analysis

A post-event analysis was able to be conducted on the two environmental water deliveries made in the Edward-Wakool system, namely, the Edward River Autumn Pulse and the Spring Edward escape Trial. Both trials applied assumed use rates of 20%, as agreed through the Water Liaison Working Group (WLWG).

Post-event analysis using both the Source Murray Model to assess incremental losses (with and without HEW) and the water balance method found that the actual assumed use was:

- Autumn Pulse: 2.4% when applying an incremental loss approach
- Spring Edward Escape Trial: 29% when applying an incremental loss approach and 6-14% when applying a water balance approach
- Average over both events: 16.4% when applying an incremental loss approach.

The Spring Edward Escape Trial targeted flows up to 3,400 ML/d downstream of Stevens Weir for 11 days, however, a peak flow of 4,151 ML/d on 19 October occurred as WaterNSW adaptively managed a rainfall rejection event. The rainfall rejection attributed to the higher incremental losses, pushing more HEW overbank than would have occurred at the target flow.

The post event review gives confidence for future deliveries, however, a review of the assumed use method is required for the higher flow events to ensure the applied assumed use method is appropriate.

The PPM action summary of these events is detailed in PPMs actions – Edward River downstream Stevens Weir.

Further information on trial planning, communications and environmental outcomes can be found in the Southern Connected Basin Environmental Watering Committee annual report 2024-25.

2.4 Outstanding known PPM gaps

Identified PPM approved accounting arrangement gaps are outlined in Table 2. Water Group will continue to work with the environmental water holder and CPHR to prioritise the development of new arrangements. Some of these issues were identified in the 2025-26 water year and not in the 2024-25 water year, however, they are captured here as part of ongoing improvement in PPM implementation.

Table 2: Gaps in PPM implementation as at time of publishing.

PPM Gap	If proceeding, likely timing?
Darlot to SA accounting arrangement to cover the March to May period (i.e. the period outside of the current June to February period that is covered by the existing Yanco Method)	Proceeding. Likely timing: aiming end of June 2026
Assumed use method for delivery of HEW in the Yanco via Colleambally Catchment Drain (CCD), Drainage Channel 800 (DC800) and Finley Escape	Proceeding. Likely timing: aiming end of 2026.
Implementing the process to comply with Clause 30C of the <i>Water Management (General) Regulation 2025</i>	Proceeding. Likely timing: implemented by end of June 2026.
Addition of the Wakool Escape as a recognised delivery location in the Wakool assumed use method	Proceeding subject to budget availability.
Assumed use method for delivery of HEW via Tuppal Creek	Proceeding subject to budget availability.
Assumed use method for delivery of HEW of greater than 9,000 ML/d to Weir 32 in the Lower Darling	Proceeding subject to budget availability.

2.5 Recommendations

New recommendations from this annual report are presented in Table 3. Recommendations from the previous reports and their status are shown in Table 4.

Table 3: New recommendations arising from the 2024-25 PPM Annual Report.

No.	Recommendations	Arising from	Status
R.15	EWBs to submit watering instructions and water orders prior to event commencement in line with standard lead times.	2024-25	In progress via implementation of section 30C and updates to the watering instruction template.
R.16	EWBs to ensure accounting arrangements for proposed events have been planned, approved and finalised prior to event commencement.	2024-25	In progress via implementation of section 30C and updates to the watering instruction template.
R.17	Water Group to fill the gap of the Darlot to SA accounting arrangement to cover the March to May period (i.e. the period outside of the current June to February period that is covered by the existing Yanco accounting arrangement)	2024-25	In progress
R.18	Water Group to develop an assumed use method for delivery of HEW in the Yanco via Colleambally Catchment Drain (CCD), Drainage Channel 800 (DC800) and Finley Escape and with IVT deliveries factored in.	2024-25	In progress
R.19	Water Group to implement the process to comply with Clause 30C of the <i>Water Management (General) Regulation 2025</i>	2024-25	In progress
R.20	Water Group to review the assumed use method: <i>Incremental loss method for return flows of held environmental water in the River Murray from the Murrumbidgee</i>	2024-25	In progress
R.21	CPHR and CEWH to conduct thorough accounting reviews prior to approval of quarterly accounts.	2024-25	Not started
R.22	WaterNSW and the Water Group to investigate further opportunities to reduce the risk of calculation error in accounting processes.	2024-25	Not started

Table 4: Recommendations from previous years.

No.	Recommendations from previous years	Arising from	Status
R.1	WaterNSW to continue to work with environmental water holders to provide return flow data to South Australia.	2023–24	Complete
R.2	Water Group to develop and implement an annual risk assessment process to identify, document and mitigate risks for planned or likely PPMs events and maintain a risk register.	2023–24	In progress
R.3	CPHR to send directions for flow and accounting splits to WaterNSW's South Operations team email.	2023–24	Complete
R.4	CPHR to use iWAS ordering system rather than manual order placing.	2023–24	Not started. WaterNSW and CPHR to work through issues with placing orders via iWAS.
R.5	CPHR to submit the final agreed version of the delivery instructions to WaterNSW, if there have been changes made throughout the event.	2023–24	In progress via implementation of section 30C and updates to the watering instruction template.
R.6	Water Group to include travel times in the Great Darling Anabranch PPMs accounting arrangement.	2023–24	In progress
R.7	Water Group to collaborate with other agencies to streamline the PPMs implementation process, including fit-for-purpose water ordering, documentation of risks (including third party impacts) and mitigation measures, and reporting requirements.	2021–22	In progress via implementation of section 30C and updates to the watering instruction template and updates to the procedures manuals.
R.8	Water Group to collaborate with WaterNSW to develop a method for completing a post-event comparison of losses debited as per assumed use statement with 'actual' loss.	2021–22	In progress
R.9	WaterNSW to provide return flows split by water holder for the Murray and Murrumbidgee floodplain water use estimates.	2022–23	Complete

R.10	Water Group to collaborate with WaterNSW and environmental water holders to develop a procedure for both annual planning and contingency planning for environmental watering deliveries.	2022–23	In progress
R.11	Water Group to update the procedures manuals to clarify the accounting of air-space releases, rainfall rejection, Lowbidgee weir pool filling, piggybacking on translucency flows and recognition of return flows from supplementary access licences.	2022–23	In progress
R.12	Water Group to develop a policy on PPMs from Menindee Lakes System when it is a NSW only resource.	2021–22	In progress
R.13	Water Group to determine assumed uses for directed releases in the Murrumbidgee and return flows from mid-Murrumbidgee and Lowbidgee wetlands.	2021–22	In progress
R.14	Water Group to progress a review of the procedures manuals and update as necessary to reflect new actions and the outcomes of recommendations.	2022–23	In progress

3 Next steps

A total of 22 recommendations have been made – 8 from this report and 14 from previous reports. Of these, 3 recommendations have been completed, 16 are in progress and 3 have not started. Several of the recommendations should be resolved in 2026:

- R.12 will be resolved through an update to the Water Sharing Plan for the NSW Murray and Lower Darling Regulated Rivers Water Sources Amendment Order 2026 and a procedure update. Licence holders and peak stakeholder groups will be consulted on the changes to water sharing plans.
- Updates to the 2022 PPM procedures manuals for the Murrumbidgee and NSW Murray & Lower Darling are currently being updated to address several recommendations. Stakeholder consultation on the updates will occur in 2026.
- As part of the procedure updates, several new assumed use methods are being developed, and some are being reviewed.

4 References

1. Procedures Manual for the NSW Murray & Lower Darling Regulated Rivers (2022)
2. Procedures Manual for the Murrumbidgee Regulated River (2022)
3. Objectives and outcomes for river operations in the River Murray System

Appendix A – PPM actions in 2024-25

PPMs actions – Murrumbidgee

The PPM action was directed releases from storage(s) to meet a target flow at downstream Balranald and recognition of HEW inflows from the Murrumbidgee River (return flows) in the River Murray.

The assumed use/accounting method used was to debit additional releases from storage, calculated as the difference between the actual releases from storage and those that were estimated that would have been made without the environmental water order.

Orders were placed to the end of the Murrumbidgee system at Balranald (except for Event 1b, where the order was placed to Redbank (upstream of Balranald)) (Table 5). Assumed use (or losses) are socialised to the delivery point for within channel deliveries, as per all licenced deliveries. Hence no assumed use was applied in the Murrumbidgee Regulated River, except for Event 1b where assumed use from Redbank to Balranald was applied.

Table 5: Overview of environmental watering events that used PPMs in 2024–25 in the Murrumbidgee.

CPHR Group Event: Murrumbidgee Fish Pulse	WaterNSW Event Number: <u>1a</u>	WaterNSW Event Number: <u>1b</u>	WaterNSW Event Number: <u>1c</u>	WaterNSW Event Number: <u>1d</u>
Delivery start date	4 October 2024	28 October 2024	24 February 2025	17 April 2025
Delivery end date	30 October 2024	21 November 2024	6 March 2025	20 May 2025
Delivery pathway	Murrumbidgee River downstream of Balranald Weir	Murrumbidgee River downstream of Redbank Weir	Murrumbidgee River downstream of Balranald Weir	Murrumbidgee River downstream of Balranald Weir
Environmental site/s watered	Murrumbidgee River Channel	Murrumbidgee River Channel, Tala Creek and Lake and Yanga Creek and Lake	Murrumbidgee River Channel	Murrumbidgee River Channel
Total volume of environmental water ordered (as reported by WaterNSW) (ML)[^]	40,000 TLM – 20,000 CEWH GS – 20,000	110,000 TLM – 30,000 CEWH GS – 80,000	10,900 TLM – 4,500 CEWH GS – 6,400	25,000 TLM – 20,000 CEWH GS – 5,000

CPHR Group Event: Murrumbidgee Fish Pulse	WaterNSW Event Number: <u>1a</u>	WaterNSW Event Number: <u>1b</u>	WaterNSW Event Number: <u>1c</u>	WaterNSW Event Number: <u>1d</u>
Total volume of held environmental water debited* as reported by WaterNSW (ML)	43,254 <i>TLM – 20,000</i> <i>CEWH GS – 23,254</i>	106,746 <i>TLM – 30,000</i> <i>CEWH GS – 76,746</i>	11,945 <i>TLM – 5,000</i> <i>CEWH GS – 6,945</i>	25,703 <i>TLM – 20,000</i> <i>CEWH GS – 5,703</i>
Assumed use to end of system (a.k.a. losses to end of system) (ML) [§]	N/A	12,668	N/A	N/A
Return flow volume recognised at end of system (ML) [§]	43,254 <i>TLM – 20,000</i> <i>CEWH GS – 23,254</i>	94,078 <i>TLM – 25,139</i> <i>CEWH GS – 68,940</i>	11,945 <i>TLM – 5,000</i> <i>CEWH GS – 6,945</i>	25,703 <i>TLM – 20,000</i> <i>CEWH GS – 5,703</i>
Assumed use from end of system to SA border (a.k.a. losses from end of system to SA border) (ML)	1,532	2,422	918	1,673
Return flow volume recognised at SA border (ML)	41,722 <i>TLM – 19,266</i> <i>CEWH GS – 22,456</i>	91,656 <i>TLM – 24,502</i> <i>CEWH GS – 67,154</i>	11,027 <i>TLM – 4,656</i> <i>CEWH GS – 6,371</i>	24,030 <i>TLM – 18,779</i> <i>CEWH GS – 5,251</i>

[^] Order volumes are based on a pre-event estimate of environmental water use, however due to changing conditions this volume is usually revised over the course of the event.

[§] Note 'End of System (EoS)' means end of the river where the water was released from and is not necessarily the same as the SA border end point (except for Great Darling Anabranch, Hume directed release, Edward River downstream Stevens Weir and Edward-Wakool).

* Debited volumes are the same as delivered volumes.

Figure 1: Murrumbidgee Fish Pulse Event (Event 1a) – target daily flow rates versus actual daily flow rates for environmental water.

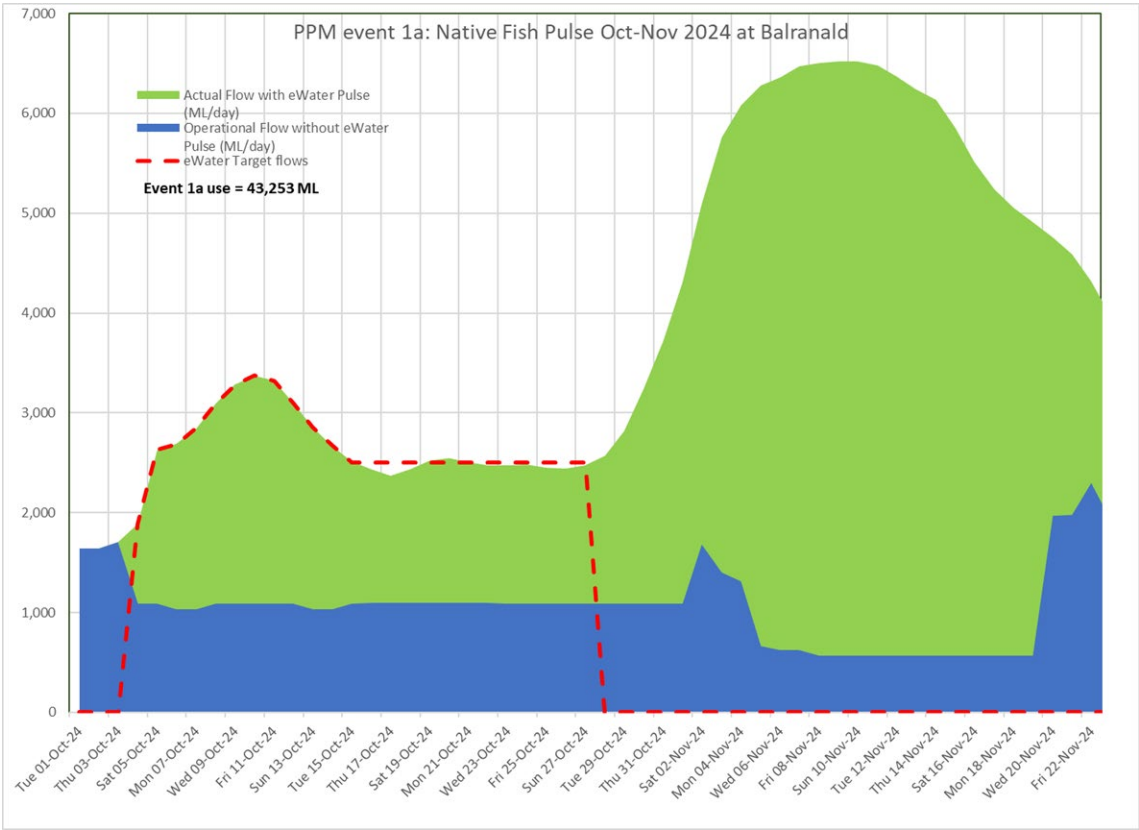


Figure 2: Murrumbidgee Fish Pulse Event (Event 1b) – target daily flow rates (revised) versus actual daily flow rates for environmental water.

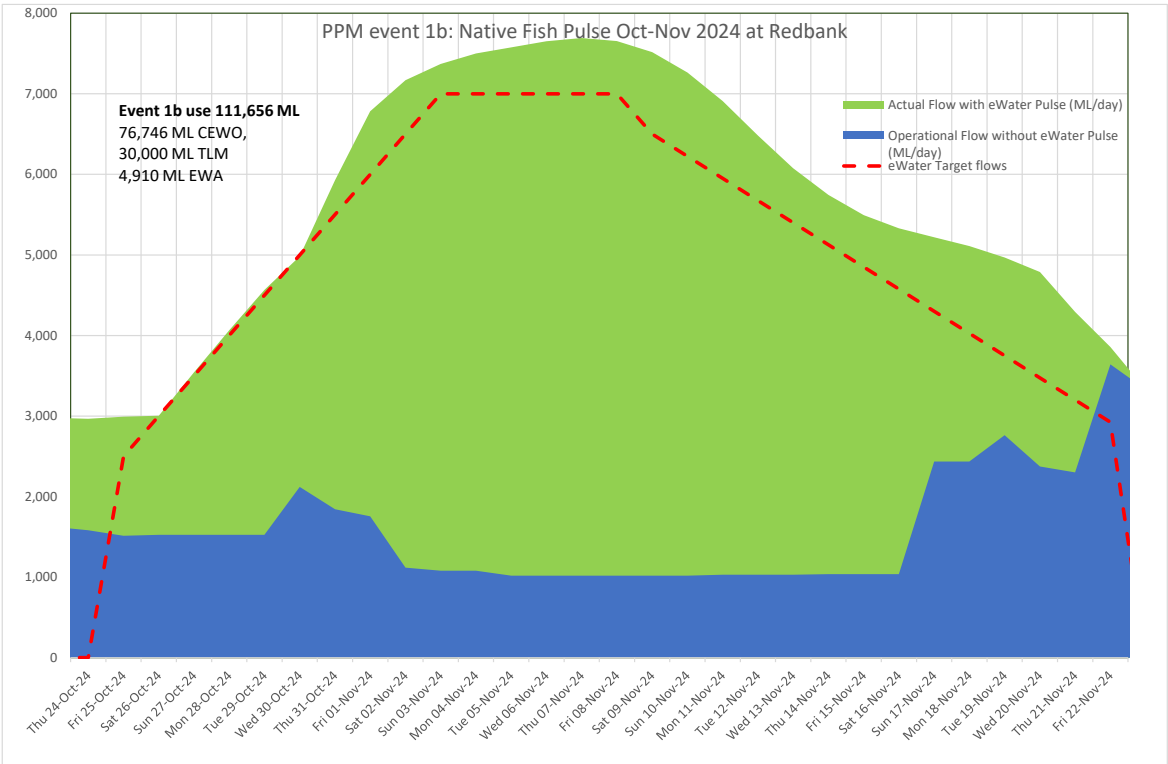


Figure 3: Murrumbidgee Fish Pulse Event (Event 1c) – target daily flow rates versus actual daily flow rates for environmental water.

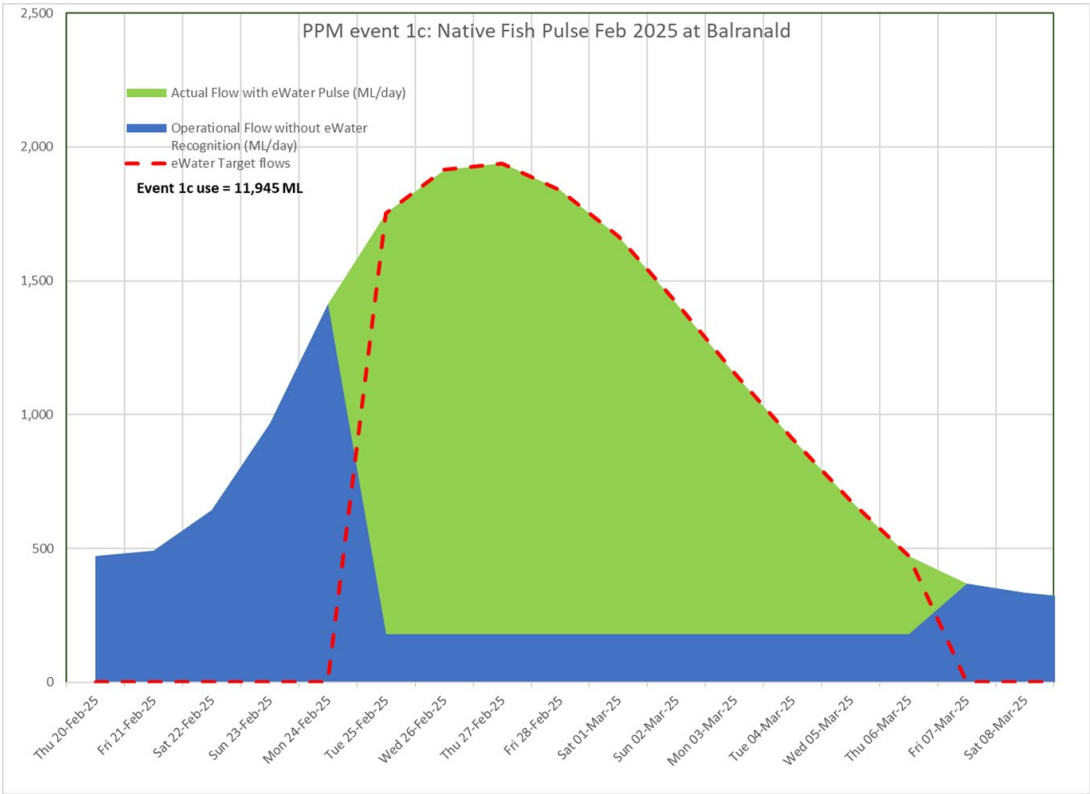
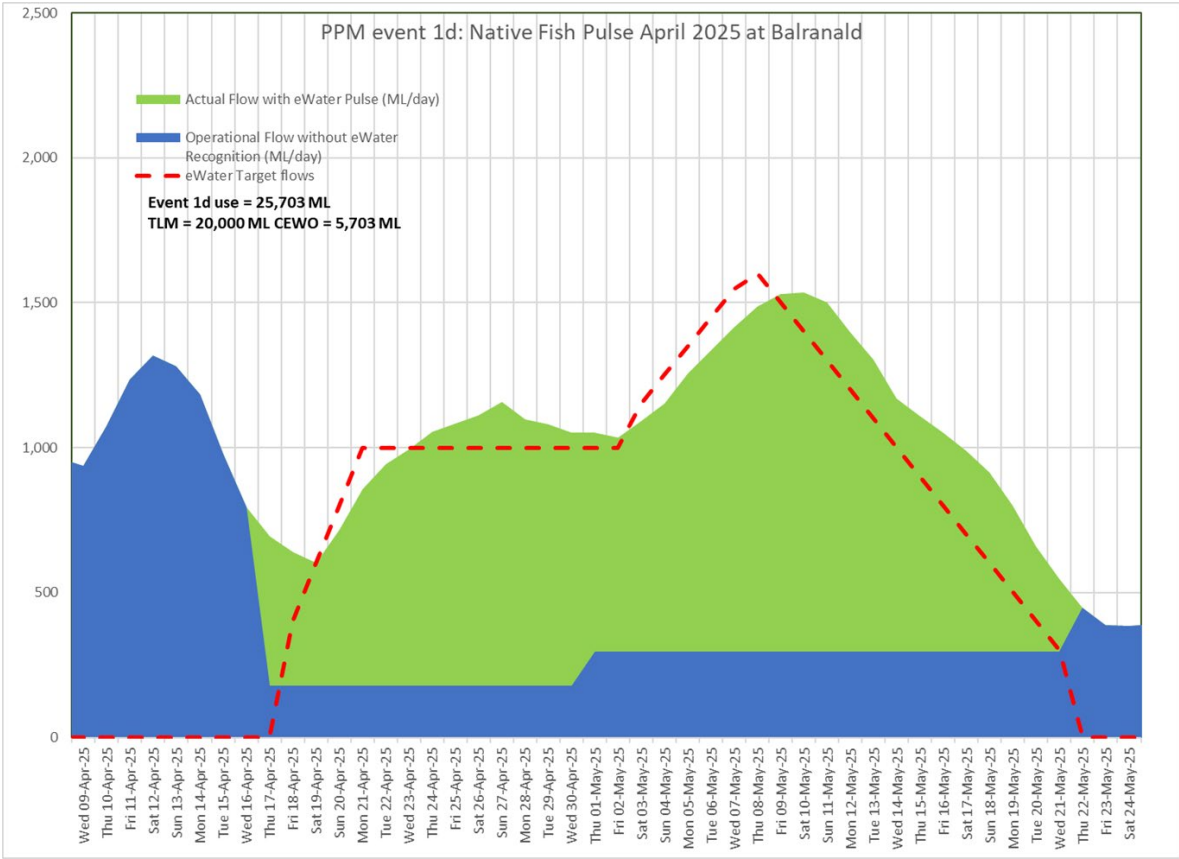


Figure 4: Murrumbidgee Fish Pulse Event (Event 1d) – target daily flow rates versus actual daily flow rates for environmental water.



PPMs actions – Yanco

The PPM actions were directed releases from storages/s to create flow in the Yanco-Billabong Creeks and recognition of HEW flows from Darlot to the junction of the River Murray and from the River Murray to the SA border (Table 6).

For the purpose of water accounting, the additional water required to be delivered through CCD was ordered and debited at the Yanco Bridge gauging site. Further, the additional transmission losses for using the CICL infrastructure was applied as per WaterNSW – CICL escape agreement.

The incremental loss estimation for protecting the held environmental water flows from CCD to Darlot were as per the *Options Paper for HEW Return Flows from Yanco Offtake to Darlot 20241024*.

Orders were placed to the Yanco Weir with additional delivery via the Coleambally Catchment Drain (CCD). Assumed use (or losses) are socialised to the delivery point for within channel deliveries, as per all licenced deliveries. Assumed use was applied in the in the Yanco from Yanco Offtake to Darlot and Darlot to the SA border.

Table 6: Overview of environmental watering events that used PPMs in 2024–25 in the Yanco.

CPHR Group Event: Murrumbidgee/Yanco-Billabong	WaterNSW Event Number: <u>2a</u>	WaterNSW Event Number: <u>2b</u>
Delivery start date	24 October 2024	20 December 2024
Delivery end date	16 November 2024	9 January 2025
Delivery pathway	Downstream of Yanco Weir with additional delivery via the CCD	Downstream of Yanco Weir via the CCD
Environmental site/s watered	Yanco-Billabong Creek system and Molly's Lagoon	Yanco-Billabong Creek system
Total volume of environmental water ordered (as reported by WaterNSW) (ML) [^]	13,250 CEWH GS – 13,250	3,300 CEWH GS – 3,300
Total volume of held environmental water debited* as reported by WaterNSW (ML)	11,614 CEWH GS – 11,614	3,216 CEWH GS – 3,216
Assumed use to end of system (a.k.a. losses to end of system) (ML) [§]	2,662	599

CPHR Group Event: Murrumbidgee/Yanco-Billabong	WaterNSW Event Number: <u>2a</u>	WaterNSW Event Number: <u>2b</u>
Return flow volume recognised at end of system (ML) [§]	8,952 CEWH GS – 8,952	2,617 CEWH GS – 2,617
Assumed use from end of system to SA border (a.k.a. losses from end of system to SA border) (ML)	1,074	314
Return flow volume recognised at SA border (ML)	7,878 CEWH GS – 7,878	2,303 CEWH GS – 2,303

[^] Order volumes are based on a pre-event estimate of environmental water use, however due to changing conditions this volume is usually revised over the course of the event.

[§] Note 'End of System (EoS)' means end of the river where the water was released from and is not necessarily the same as the SA border end point (except for Great Darling Anabranch, Hume directed release, Edward River downstream Stevens Weir and Edward-Wakool).

* Debited volumes are the same as delivered volumes.

Figure 5: Murrumbidgee/Yanco-Billabong Event (Event 2a) – target daily flow rates versus actual daily flow rates for environmental water.

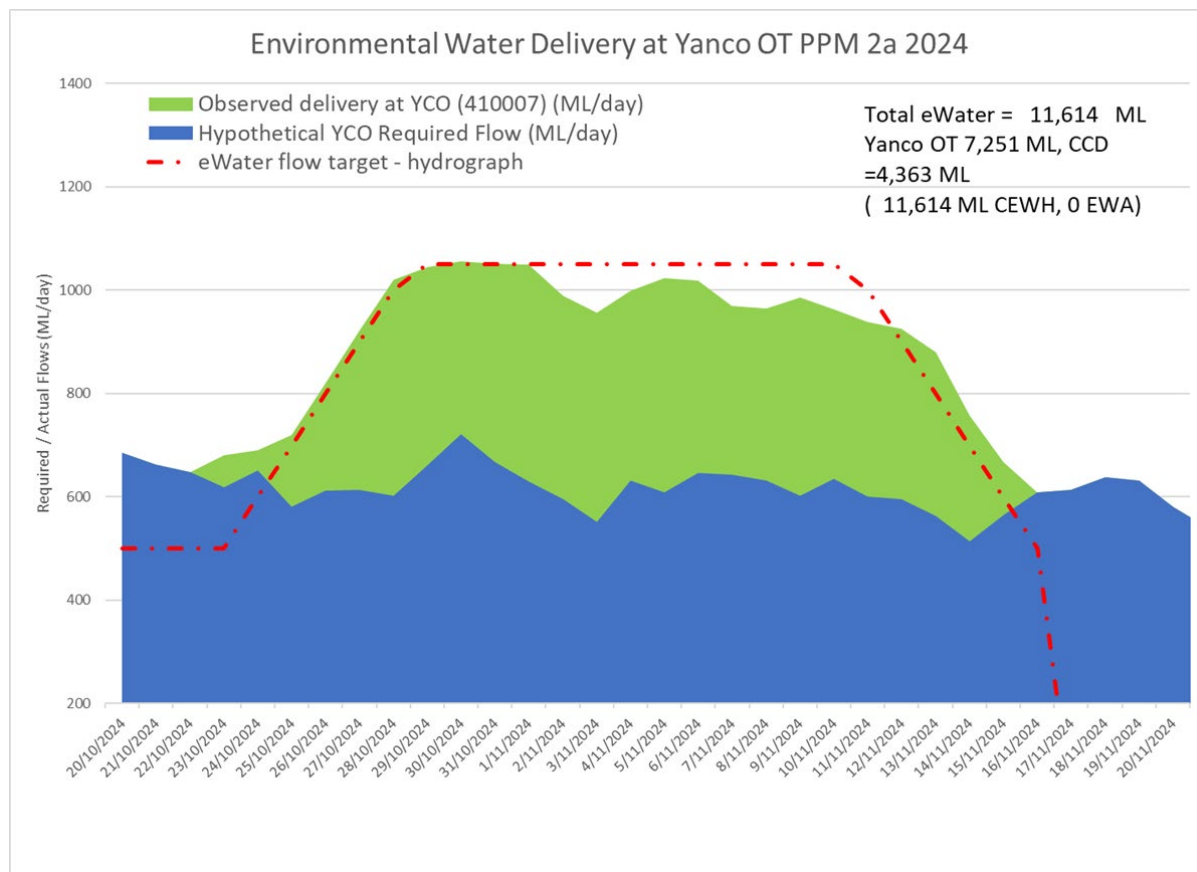
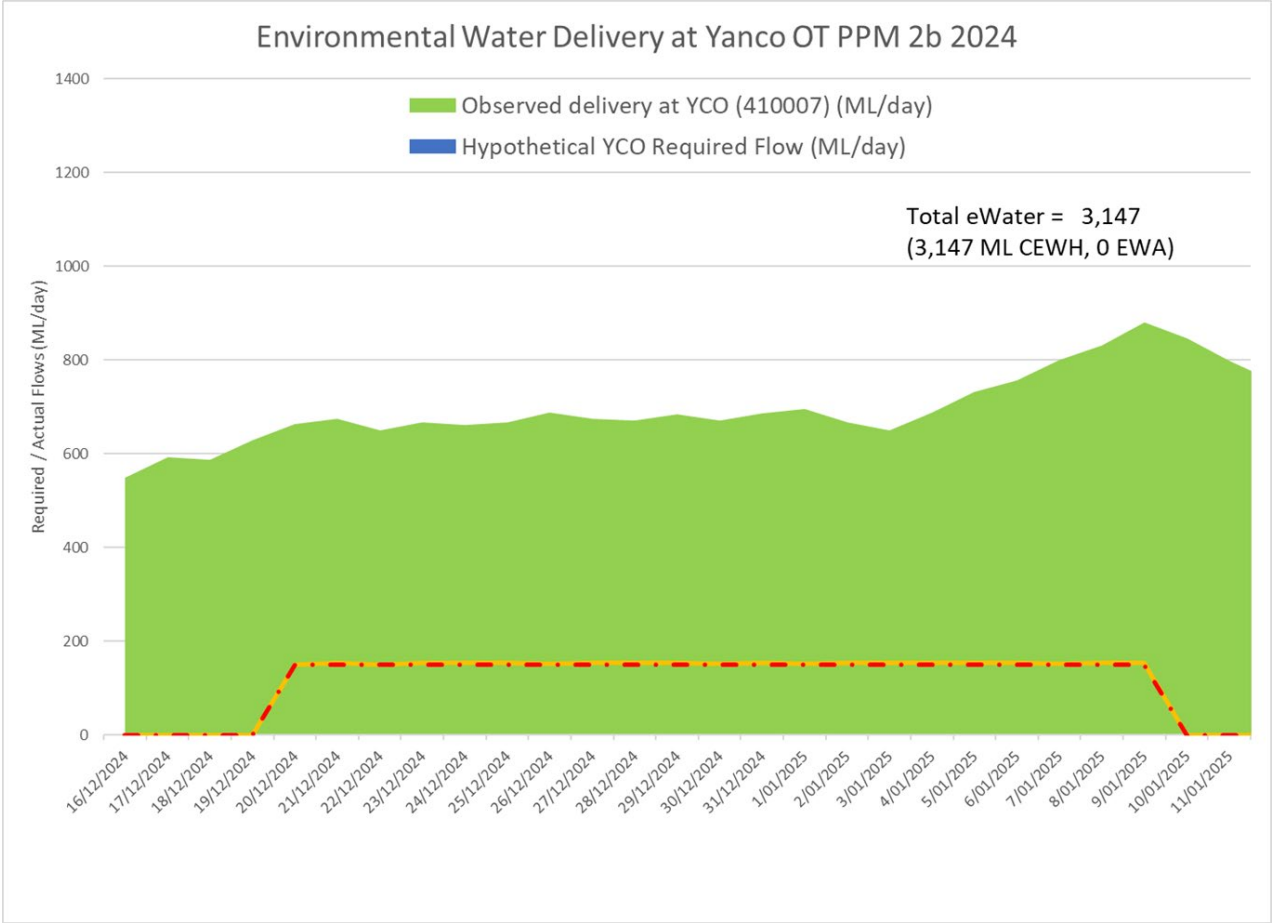


Figure 6: Murrumbidgee/Yanco-Billabong Event (Event 2b) – target daily flow rates versus actual daily flow rates for environmental water.



PPMs actions – Murray (Hume directed release)

The PPM actions were directed releases from storages/s to meet a target flow at downstream Yarrawonga and to deliver HEW inflows (return flows) in the River Murray (Table 7).

Accounting arrangements for environmental water releases from Hume Dam to meet flow targets at Doctors Point and downstream from Yarrawonga Weir were as per the specific objectives and outcomes as described in the Objectives and outcomes for river operations in the River Murray System as published on the MDBA website:

- 2.4 Directed releases from Hume Dam
- 2.5 Assumed use for directed releases of held environmental water from Hume.

Return flow calculated (20% loss) across the water year for the Murray River Multi-site event (Sep to Nov event), including travel time component (i.e. all water released in 2024-25 is assumed returned in 2024-25 for reporting purposes). This 20% loss to determine return flows was applied after the initial loss component (with no return flows) for inundation of the Barmah-Millewa Forest was taken into account.

Flows were within channel for the Murray Winter Baseflows 2024 and the Murray River Winter Flow April-June 2025 events, so no losses were applied to determine return flows.

Table 7: Overview of environmental watering events that used PPMs in 2024–25 in the Murray (Hume directed release).

CPHR Group Event:	Murray Winter Baseflows 2024	Murray River Multi-Site 2024-2025	Murray River Winter Flow April-June 2025
WaterNSW Event Number:	WaterNSW Hume Release Multi-Site Event Number: 1	WaterNSW Hume Release Multi-Site Event Number: 2	WaterNSW Hume Release Multi-Site Event Number: 3
Delivery start date	1 July 2024	26 September 2024	5 May 2025
Delivery end date	23 July 2024	12 November 2024	27 June 2025
Delivery pathway	Hume Dam to Murray River	Hume Dam to Murray River	Hume Dam to Murray River
Environmental site/s watered	Murray River, Edward-Wakool System	Murray River, Edward-Wakool System, Barmah-Millewa Forests, Werai Forest	Murray River, Edward-Wakool System
Total volume of environmental water ordered (as reported by WaterNSW) (ML)[^]	20,000 <i>TLM – 5,000</i> <i>CEWH GS – 15,000</i>	139,000 <i>CEWH GS – 130,000</i> <i>RMIF – 9,000</i>	100,000 <i>TLM – 40,000</i> <i>CEWH GS – 60,000</i>

CPHR Group Event:	Murray Winter Baseflows 2024	Murray River Multi-Site 2024-2025	Murray River Winter Flow April-June 2025
Total volume of held environmental water debited* as reported by WaterNSW (ML)	11,060 <i>CEWH GS – 11,060</i>	139,000 <i>CEWH GS – 130,000</i> <i>RMIF – 9,000</i>	81,842 <i>TLM – 30,360</i> <i>CEWH GS – 51,482</i>
Assumed use to end of system (a.k.a. losses to end of system) (ML) [§]	N/A EoS is at SA border for this event.	N/A EoS is at SA border for this event.	N/A EoS is at SA border for this event.
Return flow volume recognised at end of system (ML) [§]	N/A EoS is at SA border for this event.	N/A EoS is at SA border for this event.	N/A EoS is at SA border for this event.
Assumed use from end of system to SA border (a.k.a. losses from end of system to SA border) (ML)	0	27,800	0
Return flow volume recognised at SA border (ML)	11,060 <i>CEWH GS – 11,060</i>	111,200 <i>CEWH GS – 104,000</i> <i>RMIF – 7,200</i>	81,842 <i>TLM – 30,360</i> <i>CEWH GS – 51,482</i>

[^] Order volumes are based on a pre-event estimate of environmental water use, however due to changing conditions this volume is usually revised over the course of the event.

[§] Note 'End of System (EoS)' means end of the river where the water was released from and is not necessarily the same as the SA border end point (except for Great Darling Anabranch, Hume directed release, Edward River downstream Stevens Weir and Edward-Wakool).

* Debited volumes are the same as delivered volumes.

Figure 7: Murray Winter Baseflows 2024 Event – target daily flow rates versus actual daily flow rates for environmental water.

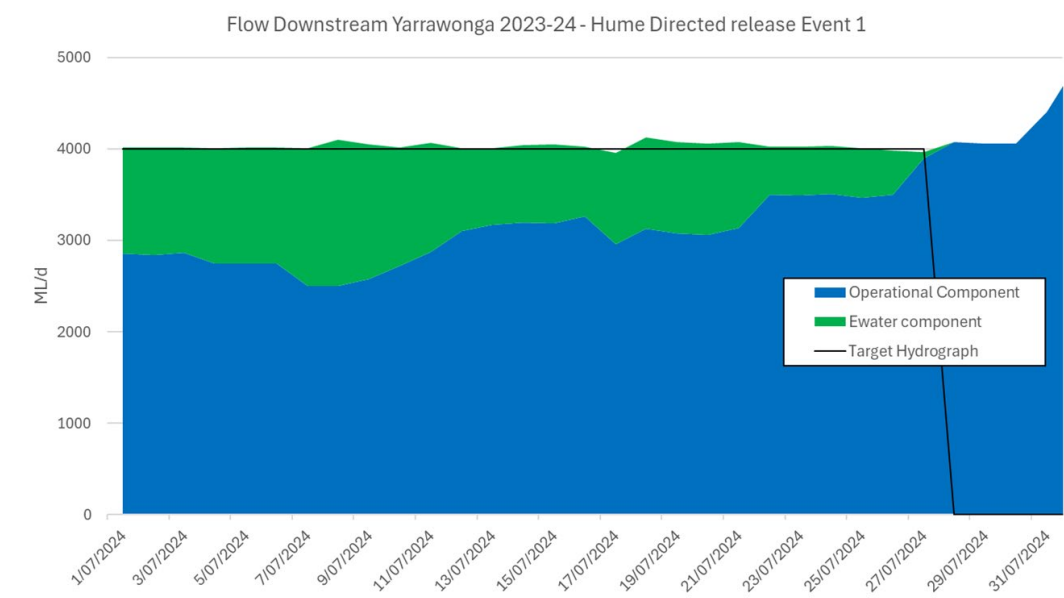


Figure 8: Murray River Multi-Site 2024-2025 Event – target daily flow rates versus actual daily flow rates for environmental water.

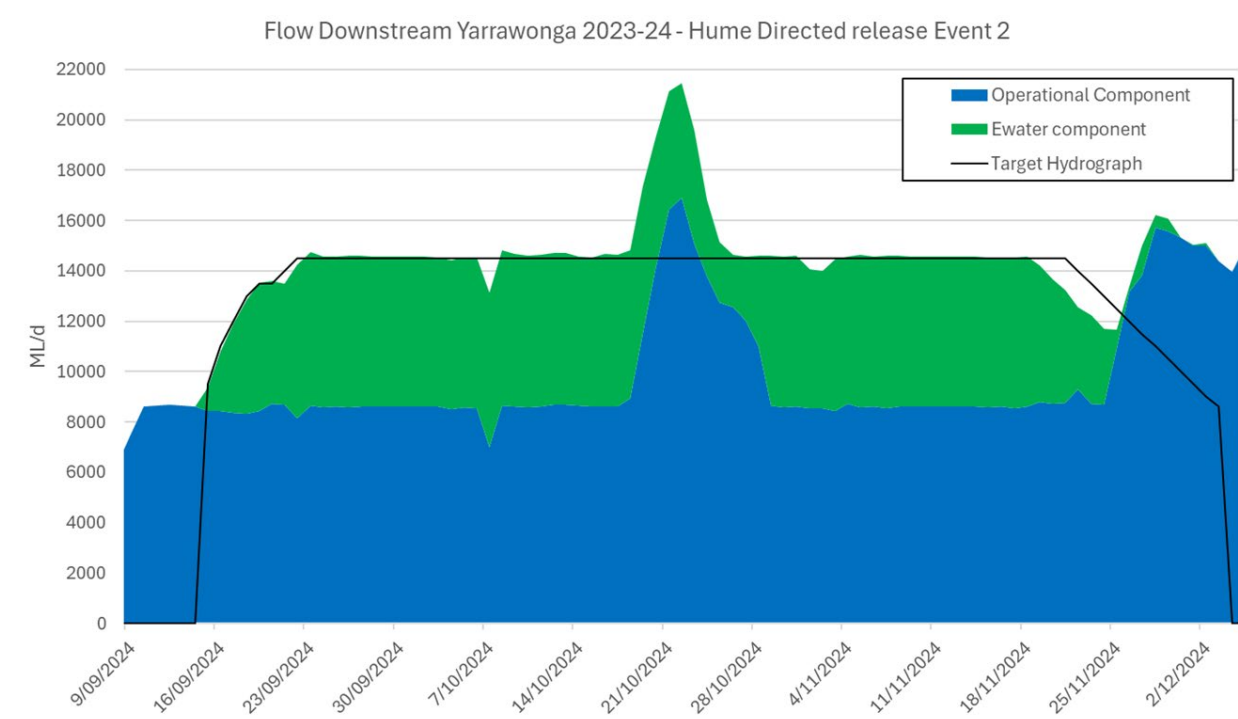
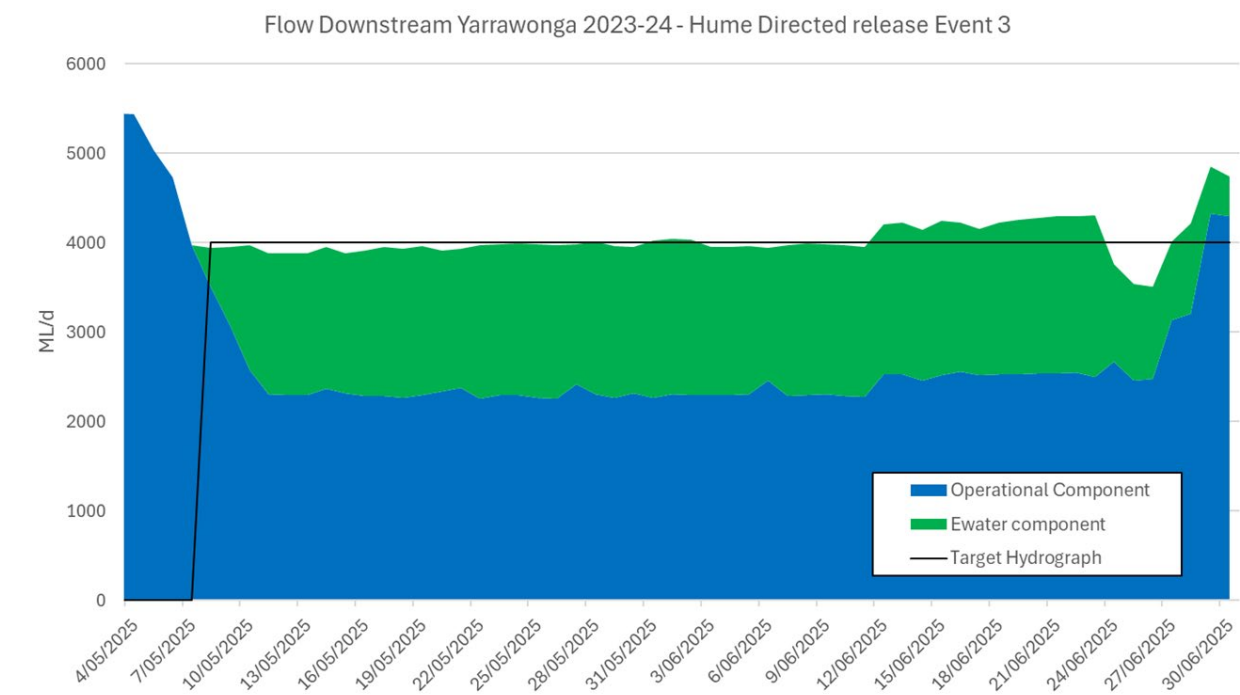


Figure 9: Murray River Winter Flow April-June 2025 Event – target daily flow rates versus actual daily flow rates for environmental water.



PPMs actions – Edward-Wakool

For the “Wakool River System Spring 2024” event (Table 9), Environmental Water Holders wished to make deliveries in accordance with the accounting arrangements for watering actions in the Edward Kolety-Wakool system (described in the *NSW Murray – Lower Darling Pre-requisite Policy Measures (PPM’s) implementation procedure manual*). The Manual notes that “When the intended flow at Yarrawonga is less than the maximum planned release as described in SO&O 3.1b, environmental water deliveries made under PPMs into the Wakool System are subject to an additional assumed use” and the measurement method is ‘to be determined’. In the interim the PPM in-channel loss proposal, as agreed by relevant agencies (PPM Working Group) on 11 July 2019 and summarised in Figure 10, has been applied.

Figure 10: Seasonal Wakool system losses.

	Summer	Autumn	Winter	Spring
% loss of inflow	80	65	55	70
100% loss threshold* (ML/day)	450	350	250	375
* Inflows below which there is a possibility of no outflows from the Wakool system				

Environmental Water Holders wished to utilise return flows from the Hume to SA Multi-site event to meet the above targets when available.

For the “Wakool River system Autumn 2025” event (Table 9), the Wakool system loss model as outlined in the PPM manual for Colligen, Yallakool and Wakool offtakes was utilised.

For the Colligen, Yallakool and Wakool offtakes, Environmental Water Holders did not wish to receive returns, the above flow targets were to be achieved with operational deliveries with EWHs being debited the assumed use as calculated using the Wakool system loss model and Werai Forest regulator calculations.

Table 8: Overview of environmental watering events that used PPMs in 2024–25 in the Edward-Wakool.

CPHR Group Event:	Wakool River System Spring 2024	Wakool River System Autumn 2025
WaterNSW Event Number:	WaterNSW Edward Wakool Event Number: 1	WaterNSW Edward Wakool Event Number: 2
Delivery start date	12 August 2024	10 December 2024
Delivery end date	21 September 2024	3 May 2025
Delivery pathway	Yallakool, Wakool and Colligen Creek Regulators	Yallakool, Wakool and Colligen Creek Regulators
Environmental site/s watered	Edward-Wakool System including Yallakool, Wakool, Colligen and Neimur Creeks	Edward-Wakool System including Yallakool, Wakool, Colligen and Neimur Creeks

CPHR Group Event:	Wakool River System Spring 2024	Wakool River System Autumn 2025
Total volume of environmental water ordered (as reported by WaterNSW) (ML) [^]	10,000	22,282
Total volume of held environmental water debited* (as reported by WaterNSW) (ML)	5,950 <i>CEWH GS – 5,950</i>	22,282 NSW Conveyance – 22,282
Assumed use to end of system (a.k.a. losses to end of system) (ML) [§]	5,950	22,282
Return flow volume recognised at end of system (ML) [§]	No return flow with the accounting method applied for this event.	No return flow with the accounting method applied for this event.
Assumed use from end of system to SA border (a.k.a. losses from end of system to SA border) (ML)	N/A	N/A
Return flow volume recognised at SA border (ML)	No return flow with the accounting method applied for this event.	No return flow with the accounting method applied for this event.

[^] Order volumes are based on a pre-event estimate of environmental water use, however due to changing conditions this volume is usually revised over the course of the event.

[§] Note 'End of System (EoS)' means end of the river where the water was released from and is not necessarily the same as the SA border end point (except for Great Darling Anabranch, Hume directed release, Edward River downstream Stevens Weir and Edward-Wakool).

* Debited volumes are the same as delivered volumes.

Figure 11: Wakool River System Spring 2024 Event – Wakool – actual daily flow rates for environmental water.

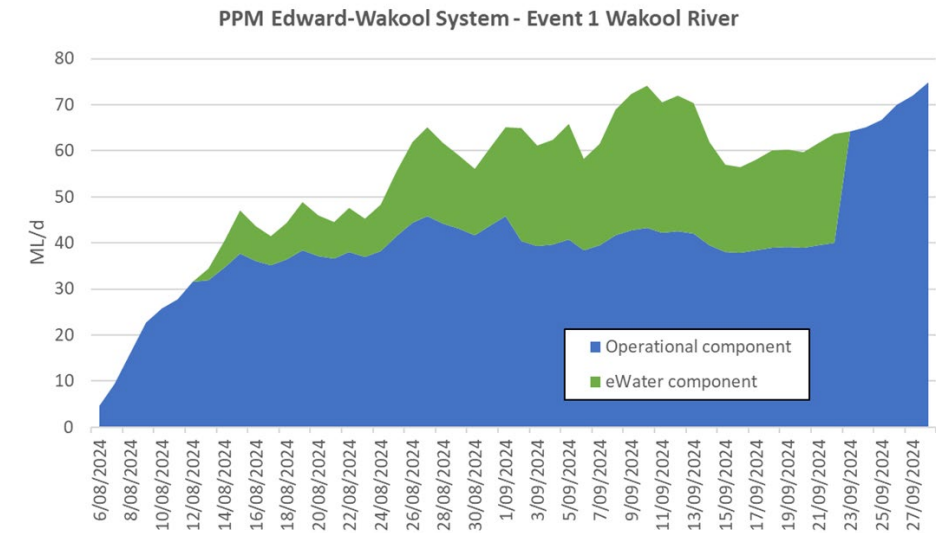


Figure 12: Wakool River System Spring 2024 Event – Yallakool – actual daily flow rates for environmental water.

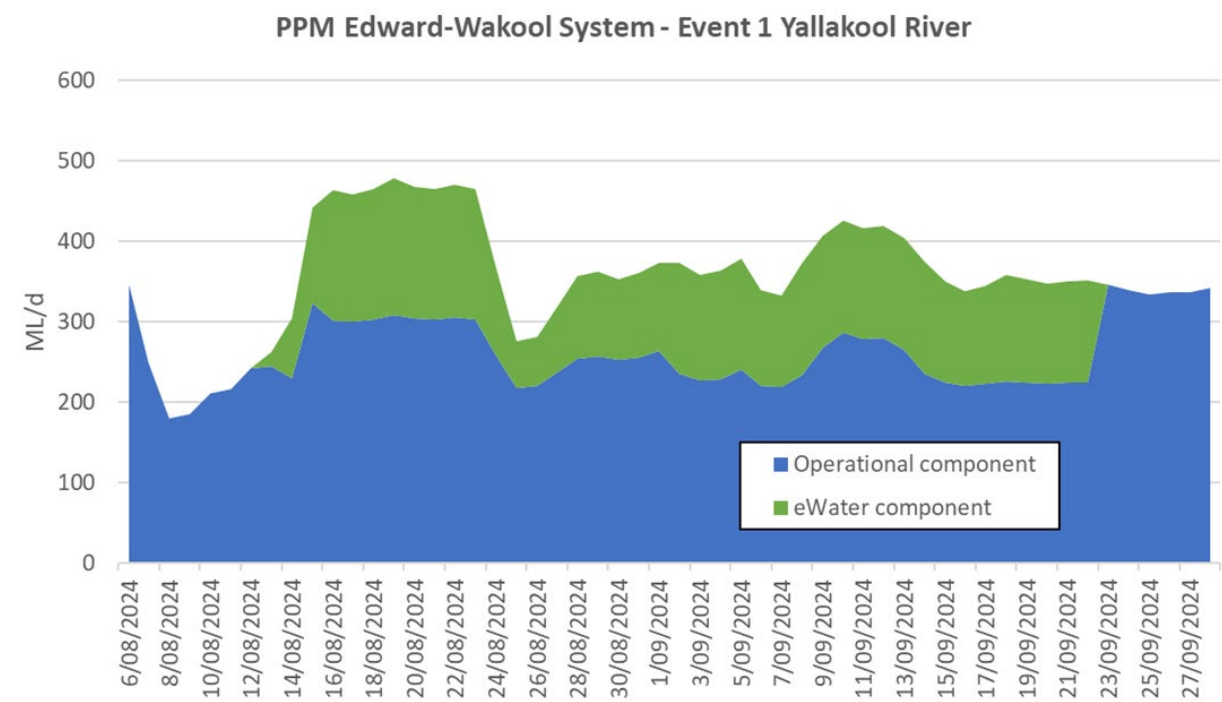


Figure 13: Wakool River System Spring 2024 Event – Colligen – actual daily flow rates for environmental water.

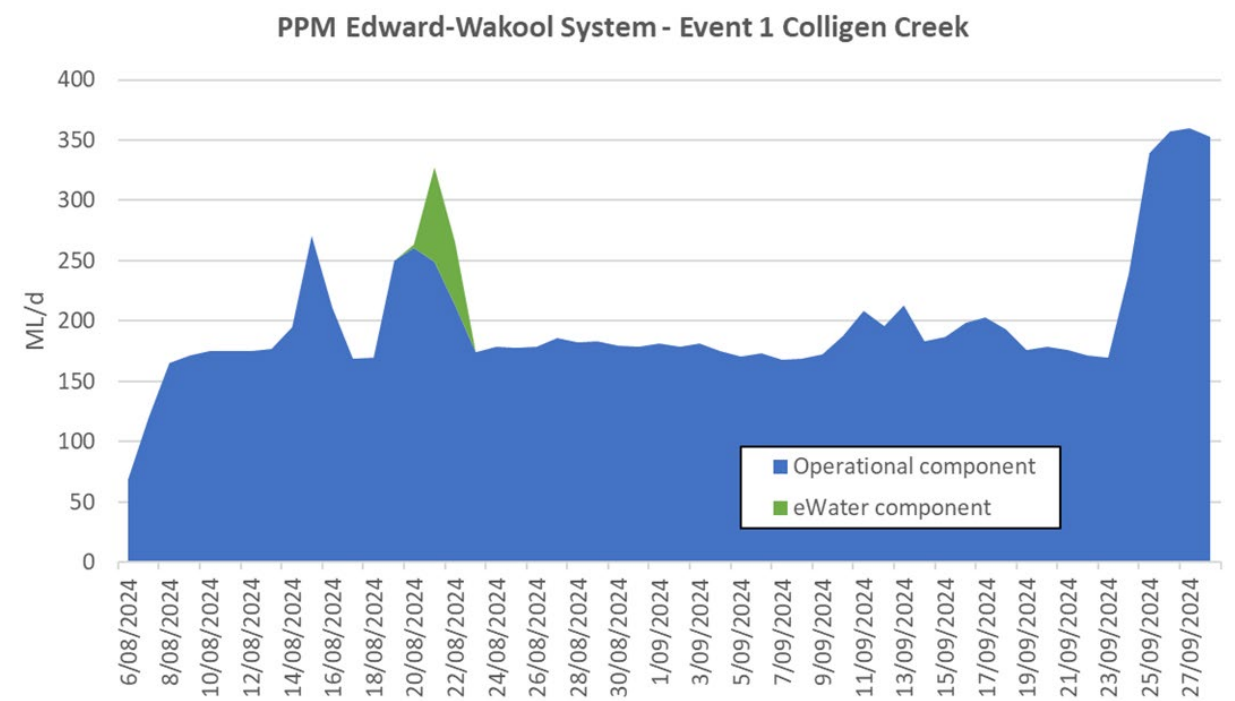


Figure 14: Wakool River System Autumn 2025 Event – Wakool – actual daily flow rates for environmental water.

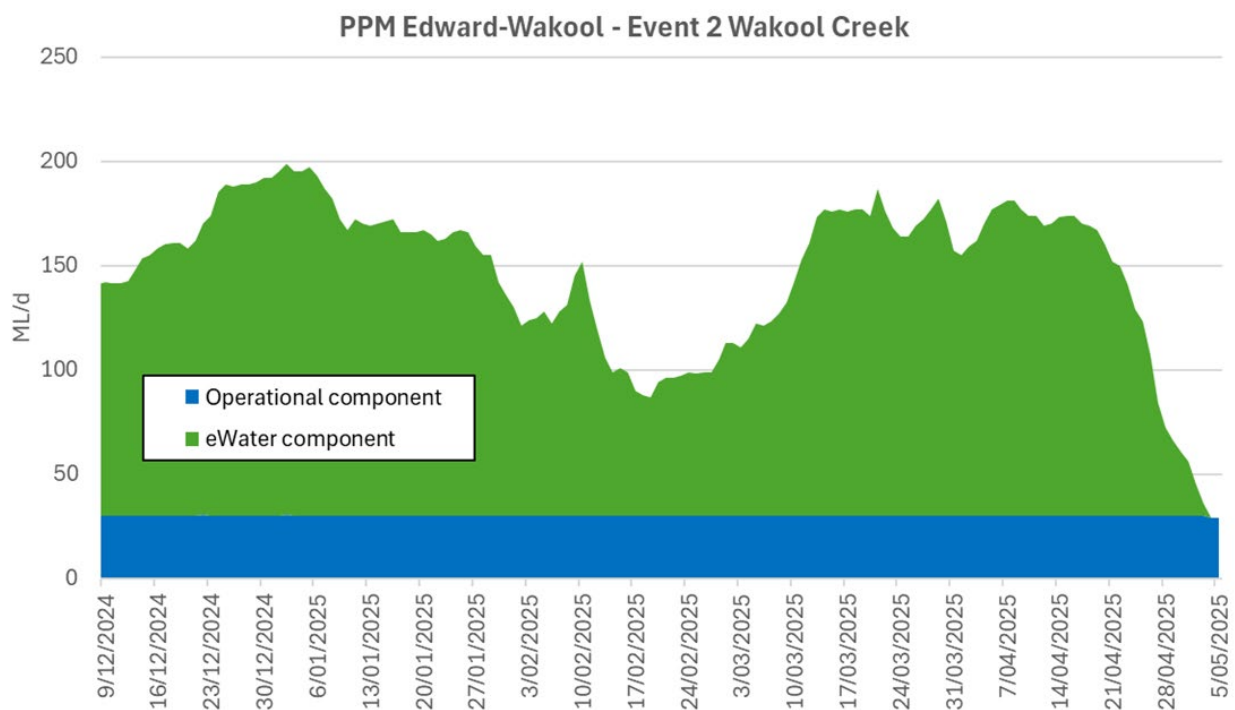


Figure 15: Wakool River System Autumn 2025 Event – Yallakool – actual daily flow rates for environmental water.

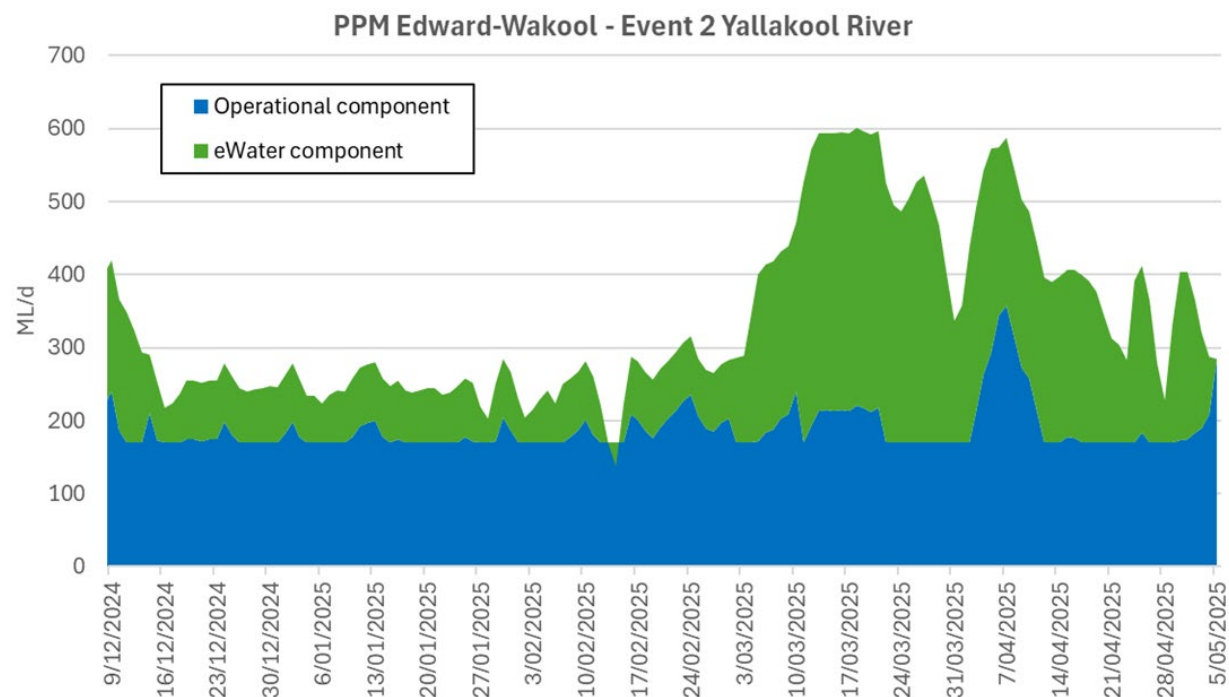
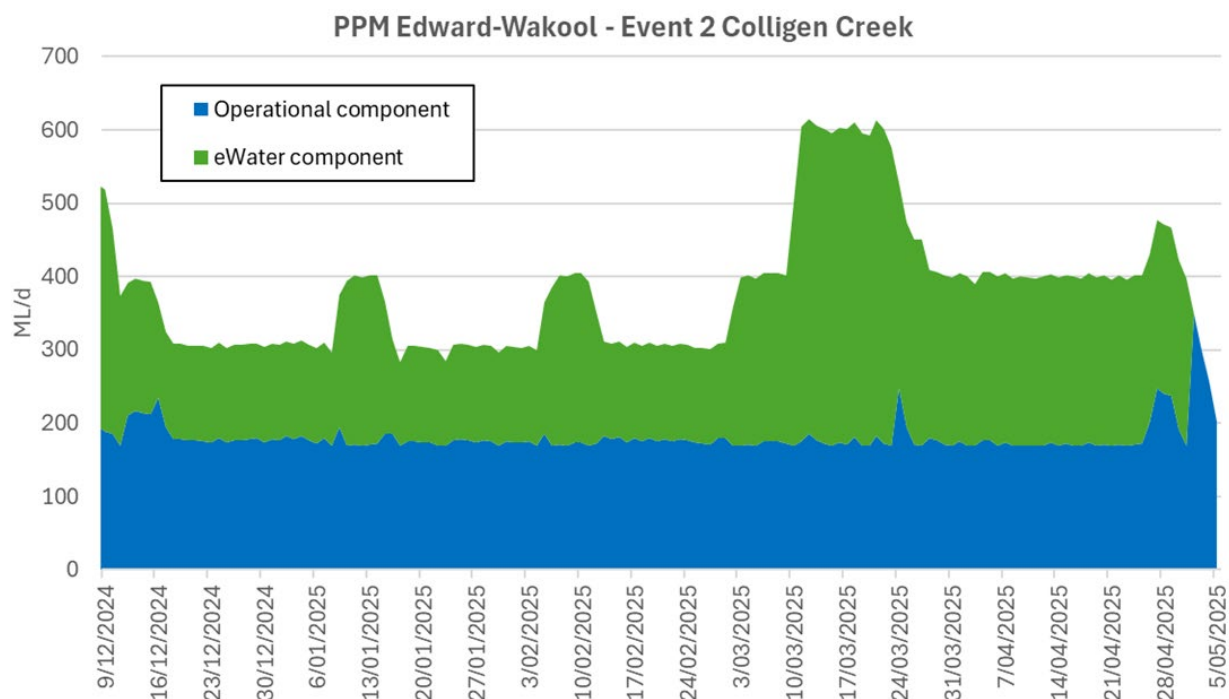


Figure 16: Wakool River System Autumn 2025 Event – Colligen – actual daily flow rates for environmental water.



PPMs actions – Edward River downstream Stevens Weir

For the “Spring Edward escape Trial” event (Table 10), releases from Hume Dam were made to give effect to the flow rates required by Environmental Water Holders for the Edward River downstream of Stevens Weir. The NSW return flows from this event were delivered to South Australia through a Bulk Entitlement Delivery.

The accounting arrangement for this event was as per:

- a. On 24 June 2024, the WLWG approved trial accounting arrangements for the Edward River Trial (i.e., for this event to support overbank flow delivery downstream of Stevens Weir).
- b. Accounting arrangements for environmental water releases from Hume Dam was as per the specific objectives and outcomes (SO&O) as described in the Objectives and outcomes for river operations in the River Murray System.
 - i. 2.4 Directed releases from Hume Dam
 - ii. 2.5 Assumed use for directed releases of held environmental water from Hume
 - iii. 5.4 Werai Forest Regulator operation
 - iv. 5.5 Authority water orders downstream of Stevens
- c. SO&O 2.4 allows MDBA to support States to estimate any additional use from using other structures, operated outside of routine arrangements, to enhance floodplain inundation which is also documented in the 24 June 2024 approval.
- d. Accounting for use of environmental water in the Edward/Kolety-Wakool system was consistent with the NSW PPM approved methods as documented in the May 2024 options paper.
- e. Any change to the sequence of e-water product used was made through an email request from NSW DCCEEW CPHR.
- f. It is acknowledged that water accounting arrangements for directed releases from Hume Dam following airspace management were agreed at WLWG in September 2021 and are now in effect.
- g. MIL are credited with a conveyance use of 10% for the operational water which flows through Mulwala Canal. For the purposes of the River Murray System Accounts, this operational water includes the e-water water. However, the conveyance use attributable to the e-water component was tracked by WaterNSW and MDBA River Murray Operations and debited by WaterNSW from the nominated EWHs accounts. This debited volume is in addition to the volume debited for the directed release.

For the “Edward River Autumn Pulse” event (Table 10), the accounting arrangement was to apply a 20% loss to environmental water returns to SA (or otherwise stated in the PPM manual) for deliveries downstream of Stevens weir.

Table 9: Overview of environmental watering events that used PPMs in 2024–25 in the Edward River downstream Stevens Weir.

CPHR Group Event:	Spring Edward Escape Trial	Edward River Autumn Pulse
WaterNSW Event Number:	WaterNSW Downstream Stevens Weir Event Number: 1	WaterNSW Downstream Stevens Weir Event Number: 2
Delivery start date	3 October 2024	2 April 2025
Delivery end date	25 October 2024	4 May 2025
Delivery pathway	Edward River downstream of Stevens Weir supported through delivery of water through Edward River Escape	Edward River downstream of Stevens Weir
Environmental site/s watered	Edward-Wakool system, including Wera Forest	Edward River
Total volume of environmental water ordered (as reported by WaterNSW) (ML) [^]	30,000 <i>CEWH GS – 30,000</i>	20,750 <i>NSW Conveyance – 3,413</i> <i>CEWH GS – 17,337</i>
Total volume of held environmental water debited* as reported by WaterNSW (ML)	23,395 <i>CEWH GS – 23,395</i>	20,750 <i>NSW Conveyance – 3,413</i> <i>CEWH GS – 17,337</i>
Assumed use to end of system (a.k.a. losses to end of system) (ML) [§]	N/A	N/A
Return flow volume recognised at end of system (ML) [§]	N/A EoS is at SA border for this event.	N/A EoS is at SA border for this event.
Assumed use from end of system to SA border (a.k.a. losses from end of system to SA border) (ML)	4,533	4,150

CPHR Group Event:	Spring Edward Escape Trial	Edward River Autumn Pulse
Return flow volume recognised at SA border (ML)	18,132 <i>CEWH GS – 18,132</i>	16,600 <i>NSW Conveyance – 2,730</i> <i>CEWH GS – 13,870</i>

^ Order volumes are based on a pre-event estimate of environmental water use, however due to changing conditions this volume is usually revised over the course of the event.

§ Note 'End of System (EoS)' means end of the river where the water was released from and is not necessarily the same as the SA border end point (except for Great Darling Anabranch, Hume directed release, Edward River downstream Stevens Weir and Edward-Wakool).

* Debited volumes are the same as delivered volumes.

Figure 17: Spring Edward Escape Trial Event – target daily flow rates versus actual daily flow rates for environmental water.

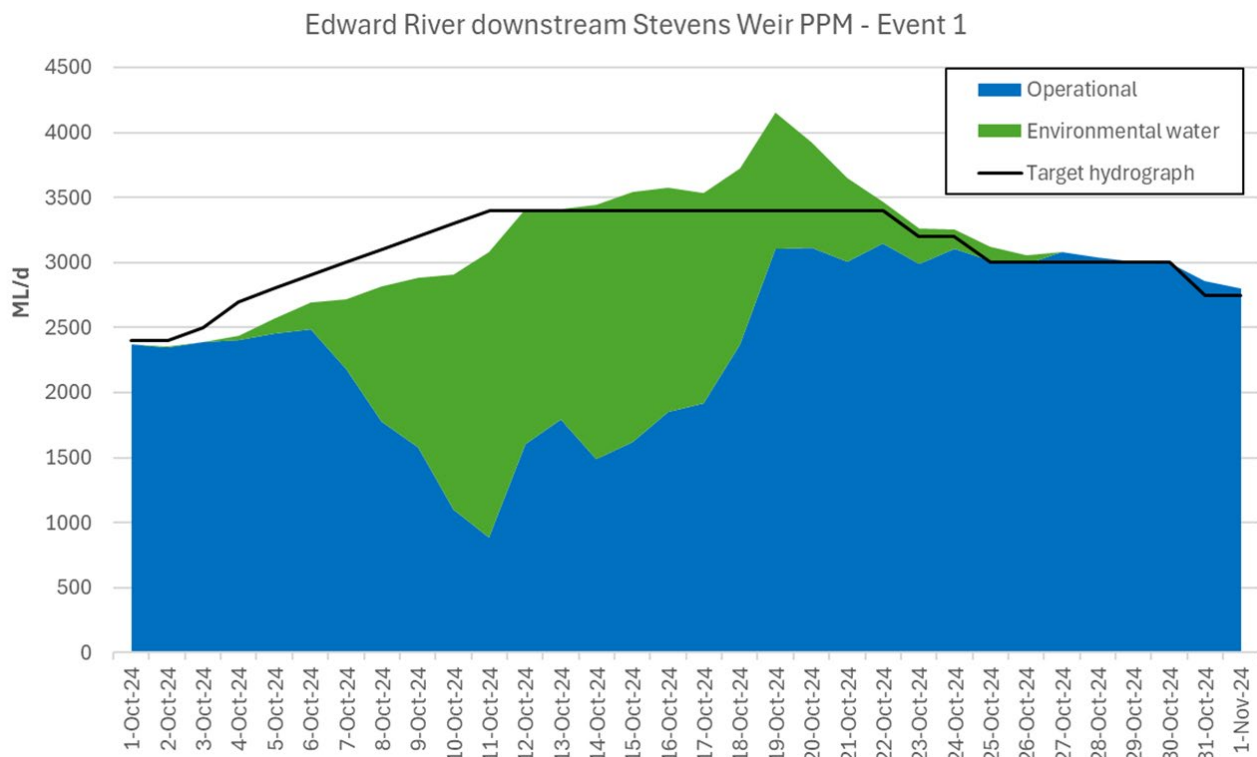
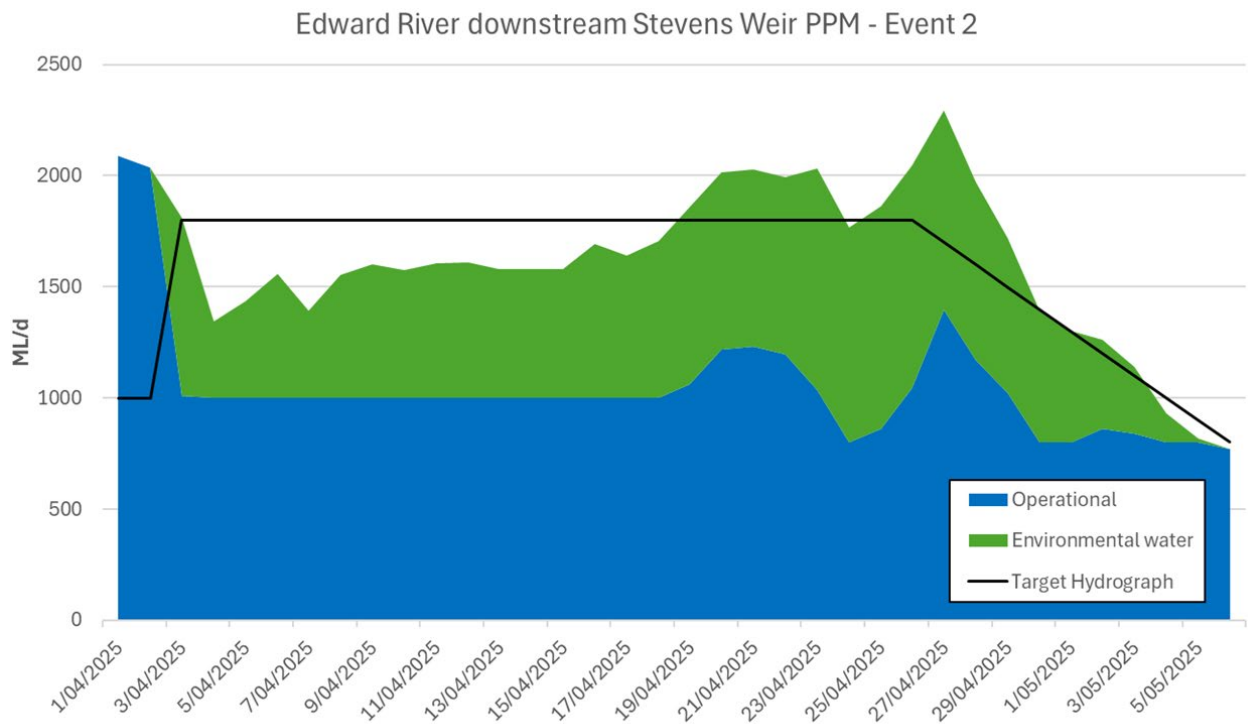


Figure 18: Edward River Autumn Pulse Event – target daily flow rates versus actual daily flow rates for environmental water.



PPMs actions – Finley Escape

DCCEEW-CPHR placed an internal customer order through Murray Irrigation Limited (MIL) to deliver flows from the Finley escape into the Billabong creek (Table 11).

The accounting arrangement for the event was to apply the Yanco Creek incremental loss and return flow method for in-channel environmental water flows. This accounting method involves an incremental loss lookup table for environmental flows delivered to the Yanco Offtake from Murrumbidgee resources and for return flows to be recognised at Darlot and the SA border.

Despite this event being delivered via Finley Escape with MIL water, this accounting arrangement was applied to provide a method for recognising return flows from the event.

Table 10: Overview of environmental watering events that used PPMs in 2024–25 in the Finley Escape.

CPHR Group Event:	Finley escape/Billabong Creek
WaterNSW Event Number:	WaterNSW Billabong Creek Event Number: 1
Delivery start date	1 April 2025
Delivery end date	8 April 2025
Delivery pathway	Billabong Creek via Finley Escape
Environmental site/s watered	Lower Billabong Creek
Total volume of environmental water ordered (as reported by WaterNSW) (ML) [^]	778 CEWH MIL – 778 No retail order with WaterNSW; Delivered via Murray Irrigation Limited (MIL) infrastructure.
Total volume of held environmental water debited* as reported by WaterNSW (ML)	778 CEWH MIL – 778 WaterNSW do not debit this delivery; delivery via MIL infrastructure as ordered with MIL by environmental water managers.
Assumed use to end of system (a.k.a. losses to end of system) (ML) [§]	164

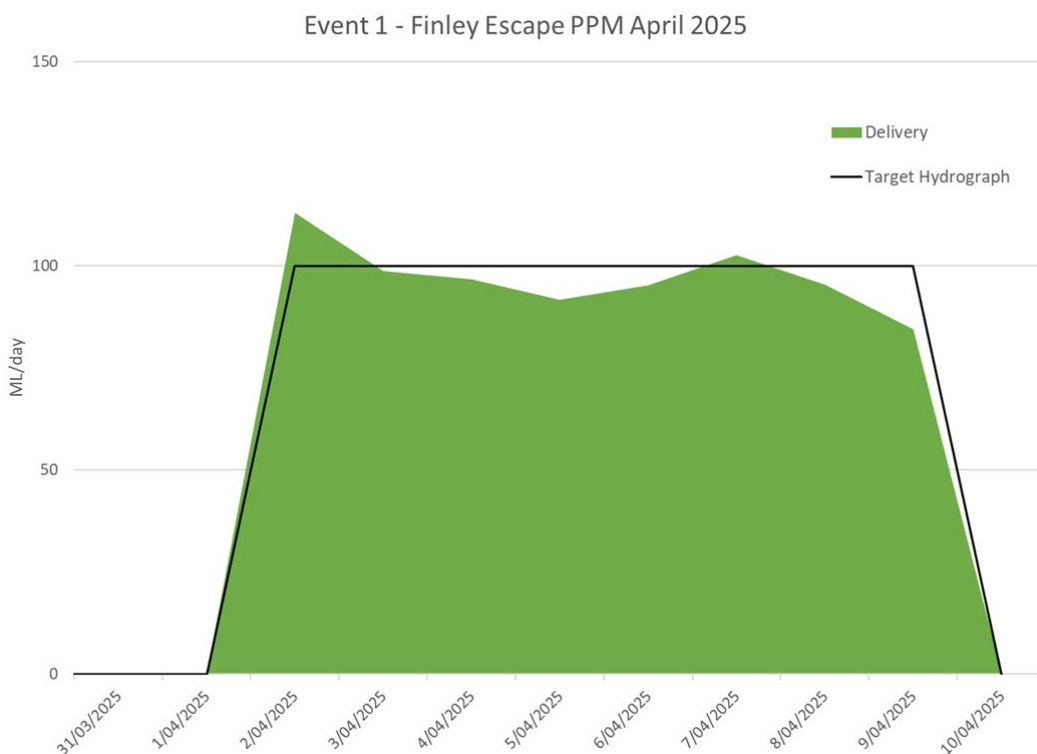
CPHR Group Event:	Finley escape/Billabong Creek
Return flow volume recognised at end of system (ML) [§]	614 CEWH MIL – 614
Assumed use from end of system to SA border (a.k.a. losses from end of system to SA border) (ML)	74
Return flow volume recognised at SA border (ML)	540 CEWH MIL – 540

[^] Order volumes are based on a pre-event estimate of environmental water use, however due to changing conditions this volume is usually revised over the course of the event.

[§] Note 'End of System (EoS)' means end of the river where the water was released from and is not necessarily the same as the SA border end point (except for Great Darling Anabranch, Hume directed release, Edward River downstream Stevens Weir and Edward-Wakool).

* Debited volumes are the same as delivered volumes.

Figure 19: Finley escape/Billabong Creek Event – target daily flow rates versus actual daily flow rates for environmental water.



PPMs actions – Lower Darling

For the Lower Darling/Baaka events (Table 12), EWHs wished to target a certain flow rate on top of operational baseflows downstream of Weir 32.

The Objectives and outcomes for river operations in the River Murray System (SO&O 10.4) allows for directed releases from Menindee Lakes.

Whilst Menindee Lakes are a shared storage, MDBA undertake the bulk level accounting of environmental releases from Weir 32 and provide daily and monthly usage numbers to WaterNSW for retail accounting requirements. Return flows to South Australia are based on the Procedures Manual for the NSW Murray & Lower Darling Regulated Rivers (2022).

All available NSW return flows from this event were delivered to SA through a Bulk Entitlement Delivery.

Table 11: Overview of environmental watering events that used PPMs in 2024–25 in the Lower Darling.

CPHR Group Event:	Lower Darling/Baaka Winter Baseflows	Lower Darling/Baaka Cod nesting flows	Lower Darling/Baaka Autumn pulse and Winter baseflows
WaterNSW Event Number:	WaterNSW Lower Darling Event Number: 1	WaterNSW Lower Darling Event Number: 2	WaterNSW Lower Darling Event Number: 3
Delivery start date	1 July 2024	1 September 2024	1 May 2025
Delivery end date	4 August 2024	3 September 2024	30 June 2025
Delivery pathway	Lower Darling River via Weir 32	Lower Darling River via Weir 32	Lower Darling River via Weir 32
Environmental site/s watered	Lower Darling River downstream Weir 32	Lower Darling River downstream Weir 32	Lower Darling River downstream Weir 32
Total volume of environmental water ordered (as reported by WaterNSW) (ML)[^]	13,020 <i>TLM – 13,020</i>	48,300 <i>TLM – 48,300</i>	28,435 <i>TLM – 19,380</i> <i>CEWH GS – 7,568.1</i> <i>NSW GS – 1,486.9</i>

CPHR Group Event:	Lower Darling/Baaka Winter Baseflows	Lower Darling/Baaka Cod nesting flows	Lower Darling/Baaka Autumn pulse and Winter baseflows
Total volume of held environmental water debited* (as reported by WaterNSW) (ML)	7,932 <i>TLM - 7,932</i>	988 <i>TLM - 988</i>	28,375 <i>TLM - 19,380</i> <i>CEWH GS - 7,568</i> <i>NSW GS - 1,427</i>
Assumed use to end of system (a.k.a. losses to end of system) (ML) [§]	1,949	298	3,051
Return flow volume recognised at end of system (ML) [§]	5,983 <i>TLM - 5,983</i>	690 <i>TLM - 690</i>	25,324 <i>TLM - 18,313</i> <i>CEW GS - 5,897</i> <i>NSW GS - 1,114</i>
Assumed use from end of system to SA border (a.k.a. losses from end of system to SA border) (ML)	269	71	2,171
Return flow volume recognised at SA border (ML)	5,714 <i>TLM - 5,714</i>	619 <i>TLM - 619</i>	23,153 <i>TLM - 16,782</i> <i>CEW GS - 5,356</i> <i>NSW GS - 1,015</i>

[^] Order volumes are based on a pre-event estimate of environmental water use, however due to changing conditions this volume is usually revised over the course of the event.

[§] Note 'End of System (EoS)' means end of the river where the water was released from and is not necessarily the same as the SA border end point (except for Great Darling Anabranch, Hume directed release, Edward River downstream Stevens Weir and Edward-Wakool).

* Debited volumes are the same as delivered volumes.

Figure 20: Lower Darling/Baaka Winter Baseflows Event – actual daily flow rates for environmental water.

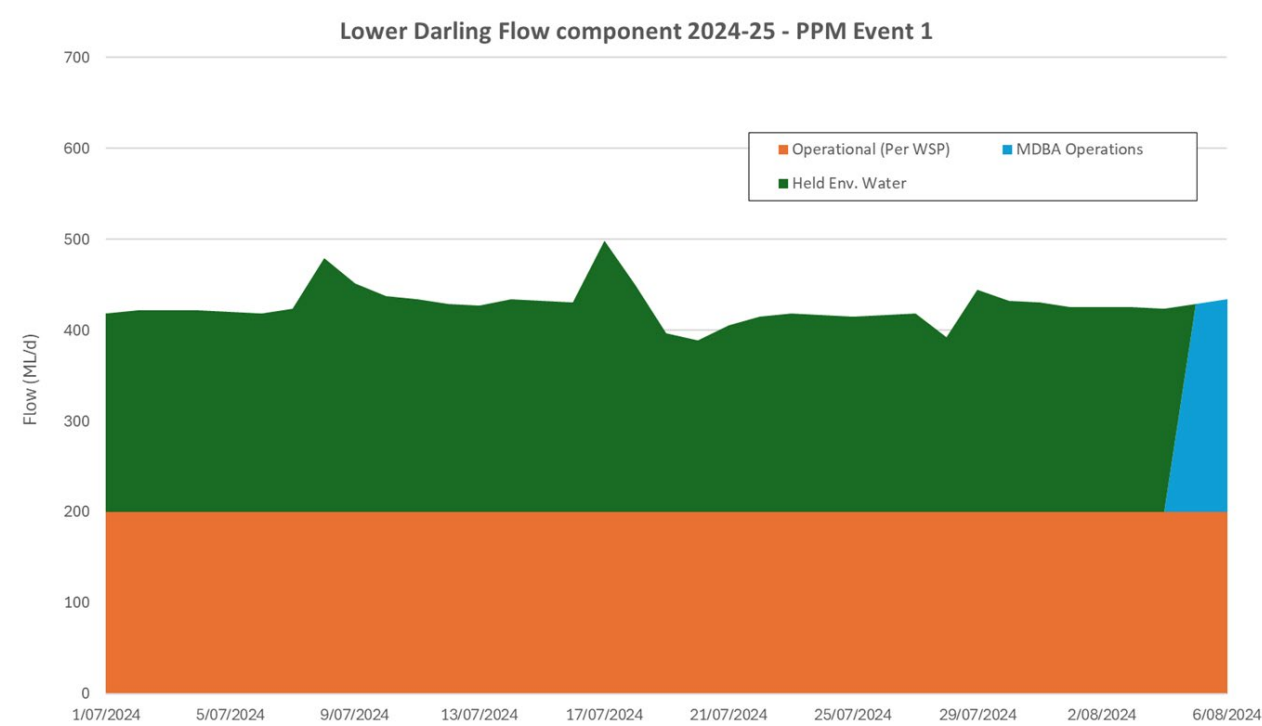


Figure 21: Lower Darling/Baaka Cod nesting flows Event – actual daily flow rates for environmental water.

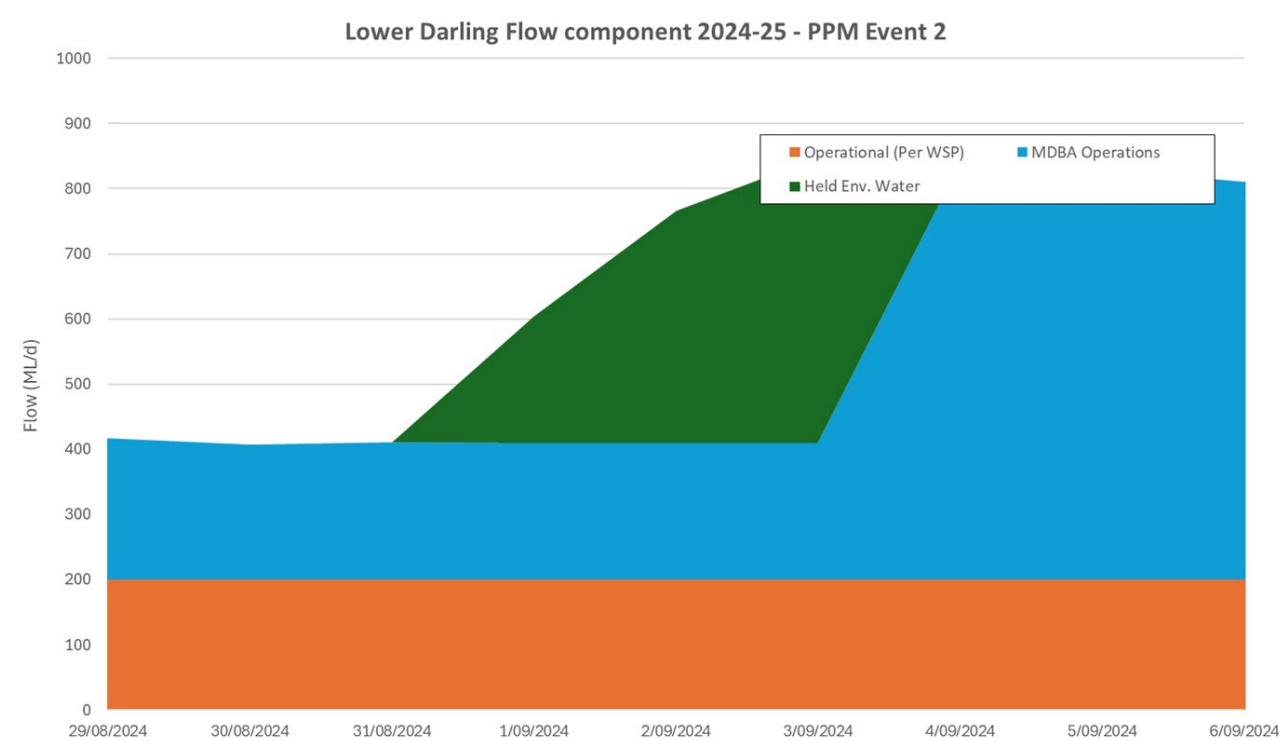
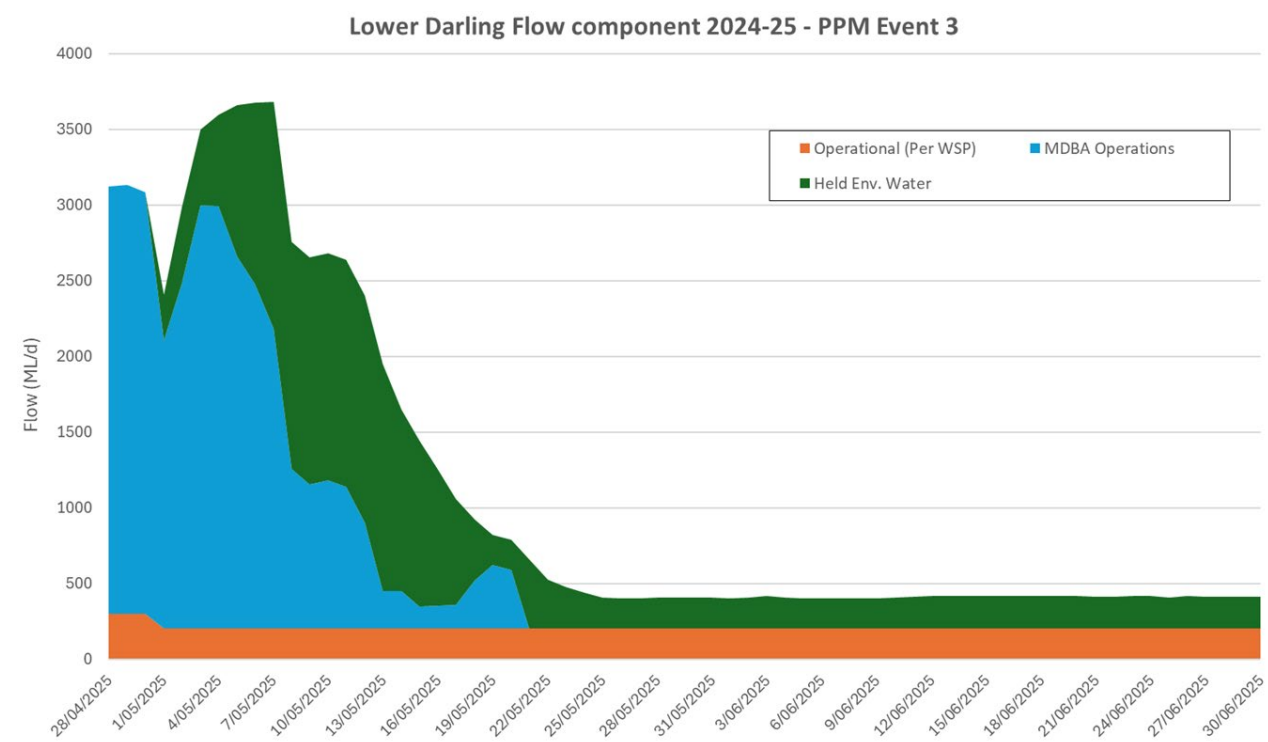


Figure 22: Lower Darling/Baaka Autumn pulse and Winter baseflows Event – actual daily flow rates for environmental water.



PPMs actions – Great Darling Anabranh

The watering action for the Oct-Nov 2024 event was to support MDBA operational flows from Cawndilla to the Murray with environmental water wearing the losses (Table 13). For the July 2024 event, the delivery of environmental water was down the GDA with returns (Table 13).

The accounting arrangement for the July 2024 event was:

1. After adjusting for travel time, when the daily average flow passing the Tara Downs gauge (425054) is equal to or exceeds releases, no losses are to be applied, and the full volume of the environmental debit is recognised at the South Australian border.
2. After adjusting for travel time, when the daily average flow passing Tara Downs is less than releases, the flow at Tara Downs is reduced by a loss value and recognised at the South Australian border. The loss value applied is equivalent to the proportional daily loss that occurred between the Bulpunga gauge (425011) and Tara Downs.
3. After adjusting for travel time, when flows at Tara Downs reach 0 ML/day, no return flows are to be recognised.

Table 12: Overview of environmental watering events that used PPMs in 2024–25 in the Great Darling Anabranh.

CPHR Group Event:	Great Darling Anabranh 2024-25 ops underwriting	Great Darling Anabranh 2024-25
WaterNSW Event Number:	WaterNSW Great Darling Anabranh Event Number: 1	WaterNSW Great Darling Anabranh Event Number: 2
Delivery start date	1 July 2024	8 October 2024
Delivery end date	4 July 2024	13 November 2024
Delivery pathway	Lake Cawndilla to the Great Darling Anabranh via Redbank Creek and Tandou Creek	Lake Cawndilla to the Great Darling Anabranh via Redbank Creek and Tandou Creek
Environmental site/s watered	Redbank Creek and Tandou Creek and Greater Darling Anabranh	Redbank Creek and Tandou Creek and Greater Darling Anabranh
Total volume of environmental water ordered (as reported by WaterNSW) (ML) [^]	300 CEWH GS – 300	25,300 CEWH GS – 25,300
Total volume of held environmental water debited* (as reported by WaterNSW) (ML)	218 CEWH GS – 218	26,576 CEWH GS – 26,576

CPHR Group Event:	Great Darling Anabranh 2024-25 ops underwriting	Great Darling Anabranh 2024-25
Assumed use to end of system (a.k.a. losses to end of system) (ML) [§]	0	26,576
Return flow volume recognised at end of system (ML) [§]	218 CEWH GS – 218	0 (No return flow as system re-start)
Assumed use from end of system to SA border (a.k.a. losses from end of system to SA border) (ML)	0	0
Return flow volume recognised at SA border (ML)	218 CEWH GS – 218	0

[^] Order volumes are based on a pre-event estimate of environmental water use, however due to changing conditions this volume is usually revised over the course of the event.

[§] Note 'End of System (EoS)' means end of the river where the water was released from and is not necessarily the same as the SA border end point (except for Great Darling Anabranh, Hume directed release, Edward River downstream Stevens Weir and Edward-Wakool).

* Debited volumes are the same as delivered volumes.

Figure 23: Great Darling Anabranh 2024-25 ops underwriting Event – target daily flow rates versus actual daily flow rates for environmental water.

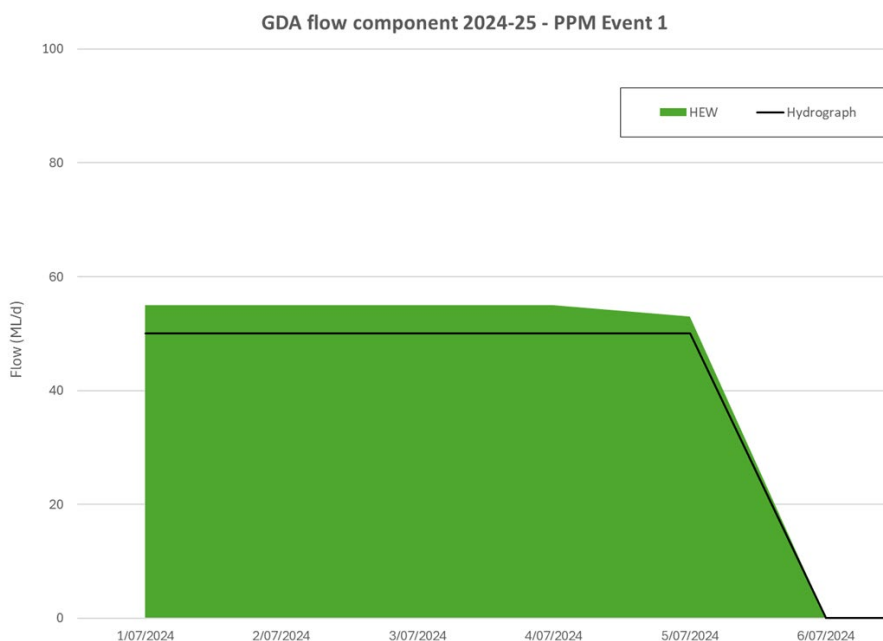


Figure 24: Great Darling Anabranh 2024-25 Event – target daily flow rates versus actual daily flow rates for environmental water.

