2025-26 Water for the Environment Annual Plan

For the South Australian River Murray

Government of South Australia
Department for Environment and Water

Acknowledgement of the Traditional Owners

The Department for Environment and Water acknowledges Traditional Owners of Country throughout Australia and recognises the continuing connection to lands, waters and communities. We pay our respect to Aboriginal and Torres Strait Islander cultures and to Elders both past and present.

The First Nations of South Australia, the Aboriginal Traditional Owners, have occupied, enjoyed and managed their customary lands and waters since time immemorial and continue their deep cultural, social, environmental, spiritual and economic connection today. The Government of South Australia acknowledges and pays respect to the Traditional Owners and their Nations. The South Australian government also acknowledges and respects the rights, interests and obligations of Traditional Owners to speak and care for their Country – lands and waters – in accordance with their laws, customs, beliefs and traditions. In acknowledging this history and connection we also recognise the deep and irreversible damage and dislocation that Aboriginal and Torres Strait Islander people have experienced and continue to experience through European colonisation, settlement and displacement. Aboriginal Nations have advocated strongly for a healthier Murray–Darling Basin and just settlement of their land and water rights. This commitment led to a stronger Basin Plan for South Australians and asks us as a State Government to better recognise Traditional Owner interests in our water resource management. The Department for Environment and Water seeks to enable partnerships with Aboriginal Nations built upon mutual respect and trust. We recognise the differences between Nations and their preferred approaches for engagement with Government and will work through these arrangements to support Traditional Owners to meet their customary rights and obligations in natural resource planning and implementation.

First Nations peoples are warned that this publication may contain images of deceased persons or culturally sensitive material.

Foreword

The *2025-26 Annual Water for the Environment Plan for the South Australian River Murray* (the Annual Plan) is an important element of South Australia's river management framework. It builds on actions undertaken and outcomes achieved in previous years and is guided by the current ecological conditions in the River Murray, and the ecological objectives and targets in the *Long Term Environmental Watering Plan for the South Australian River Murray* (DEW, 2020).

The Annual Plan is prepared as part of the Basin Plan environmental water management framework and it is used to inform how available environmental water should be used in South Australia and throughout the Murray-Darling Basin. A wide range of stakeholders have been engaged in its development, including First Nations, scientists, river operators, water holders and the wider community, supporting a robust and transparent process to determine environmental watering priorities.

Each year, the water resource outlook is different, the available volume of water for the environment changes and environmental watering priorities vary. This presents a challenge to water holders and managers, to determine how to maximise outcomes from the available resources. It is well understood that conditions can change rapidly; therefore, the plan presents the priority needs under a range of water availability scenarios and is able to be adapted based on actual water resource conditions, stakeholder advice and monitoring results.

I would like to thank all those who have been involved in the planning, management and delivery of water for the environment and look forward to another successful watering year in 2025-26.

Dan Jordan, Acting Executive Director, Water and River Murray Division
Department for Environment and Water
30 May 2025

Cover image: Sedges at Lake Limbra in September 2024. Credit: H Kieskmap.

A long-necked and short-necked turtle at site T5 in the Lower Lakes. Credit: S Wedderburn.

Acknowledgements

In addition to Department for Environment and Water (DEW) staff, input from representatives and employees of the following organisations has been gratefully received:

- Aquasave – Nature Glenelg Trust
- Australian Landscape Trust
- Banrock Station, Accolade Wines
- Chowilla Community Reference Committee
- Commonwealth Environmental Water Holder
- Coorong, Lower Lakes and Murray Mouth Community Advisory Panel
- Coorong, Lower Lakes and Murray Mouth Scientific Advisory Group
- Flinders University
- Katarapko community members
- Murray-Darling Basin Authority
- Murray-Darling Wetlands Working Group
- Murraylands and Riverland Landscape Board
- Ngarrindjeri Aboriginal Corporation
- Mannum Aboriginal Community Association Incorporated
- Pike River community members
- Renmark Irrigation Trust
- River Murray and Mallee Aboriginal Corporation
- SA River Murray Channel and Floodplain Scientific Advisory Group
- SA Water
- South Australian Research and Development Institute - Aquatic and Livestock Sciences
- The University of Adelaide

Thukabi (turtle) monitoring in the Lower Lakes in January 2025. Credit: S Wedderburn.

Glossary

Selected Terms and Acronyms

Term	Acronym	Definition
Aboriginal Waterways Assessment	AWA	A tool used by Traditional Owners to assess the cultural values of wetlands and other important sites to support water for the environment and wetland management planning.
Additional Dilution Flow	ADF	An additional 3,000 ML/day delivered to SA when storage triggers are met in the Menindee Lakes and Hume and Dartmouth Reservoirs.
Australian Height Datum	AHD	The official national vertical datum used within Australia.
Annual Operating Outlook	AOO	Water resource availability scenarios provided by the MDBA.
Barrage	-	Structures located between Lake Alexandrina and the Coorong, constructed to manage water levels and improve water quality in the lower Murray and Lower Lakes system.
Commonwealth Environmental Water Holder	CEWH	-
Coorong, Lower Lakes and Murray Mouth	CLLMM	-
Department for Environment and Water	DEW	-
Diadromous	-	Fish that migrate between salt water and freshwater
Entitlement flow	-	South Australia has an annual Entitlement flow of 1,850 gigalitres under the Murray-Darling Basin Agreement. This volume can be reduced if water availability is limited when conditions are dry.
Environmental Water Requirements	EWRs	The water regime needed to sustain the ecological values of aquatic ecosystems and biological diversity at a low level of risk.
Fishway	-	A generic term describing all structures designed to allow the passage of fish along a waterway.
First Peoples of the River Murray and Mallee Region	FPRMMR	Native title holders in the Riverland, South Australia, including areas of the River Murray around Renmark, Berri, Barmera, Waikerie and Morgan.
Gigalitres	GL	A measure of volume where a gigalitre equals 1,000 megalitres or 1,000,000,000 litres.
Held environmental water	HEW	Defined within Section 4 of the *Water Act 2007* (Cth) (essentially water held for environmental purposes).
Integrated Operations Strategy	IOS	-
Lower Lakes	-	Lakes Alexandrina and Albert.
Long Term Environmental Watering Plan	LTWP	Long Term Environmental Watering Plan outlining the environmental objectives for the South Australia's River Murray Water Resource Plan Area (Basin Plan 2012, Chapter 8).
Megalitres	ML	A measure of volume which is equal to 1,000,000 litres.
Murraylands and Riverland Landscape Board	MRLB	-
Murray-Darling Basin Authority	MDBA	-
Ngarrindjeri Aboriginal Corporation	NAC	A regional Indigenous organisation representing the Ngarrindjeri people, descendants of the original indigenous inhabitants of the lands and waters of the Murray River, Lower Lakes and Coorong and adjacent areas.

Term	Acronym	Definition
Priority Environmental Asset	PEA	Defined in section 8.49 of the Basin Plan as an environmental asset that can be managed with environmental water.
Planned Environmental Water	PEW	Defined in Section 6 of the *Water Act 2007* (essentially water available for environmental purposes not held on licence).
Pool-connected wetland	-	A wetland that can be connected to the main river channel when South Australia is receiving Entitlement flows and normal operating pool levels are being maintained.
Volumetric Flow Rate (Q) South Australia	QSA	The river flow to South Australia, as calculated at the State border.
Regulator	-	A structure designed to control the flow and retention of water in the area of influence.
Return flow	-	Environmental water used upstream which is returned to or remains in the river and is available for reuse downstream.
River Murray Increased Flow	RMIF	The water recovered under Snowy Hydro Scheme would allow up to an additional 70 GL each year to be released to the River Murray for environmental purposes.
River Murray Unregulated Flow	RMUF	Water that cannot be captured and regulated through Murray-Darling Basin Authority storages. The Murray-Darling Basin Authority declares an unregulated flow event at the South Australian border for a specific period of time.
River Murray and Mallee Aboriginal Corporation	RMMAC	The FPRMMR Native Title prescribed body corporate.
South Australia	SA	-
SA multi-site proposal	-	A planning output that optimises and coordinates proposed site-specific watering actions for system-scale benefits within South Australia.
Southern-connected Basin Environmental Watering Committee	SCBEWC	A multi-jurisdictional committee that provides advice on the coordinated delivery of environmental water in the southern-connected Murray-Darling Basin.
Temporary wetland	-	A wetland that is not connected to the river when South Australia is receiving Entitlement flows and the weir pool is being held at normal pool level.
The Living Murray program	TLM	A river restoration program funded by New South Wales, Victoria, South Australia, Australian Capital Territory and the Commonwealth government, coordinated by MDBA.
Water Allocation Plan	WAP	-
Water for the Environment (also referred to as **environmental water** and **e-water**)	-	Water used to achieve environmental outcomes, including benefits to ecosystem functions, biodiversity, water quality and water resource health.
Water year	-	The period between 1 July in any given calendar year and 30 June the following calendar year.
Water Resource Plan	WRP	Water Resource Plans cover the groundwater and surface water management across the Murray-Darling Basin. States are required under the *Water Act 2007* (Cth) to develop these plans in accordance with the Basin Plan.

Contents

List of Figures

List of Tables

Summary

This document presents South Australia's priorities for environmental water delivery throughout the South Australian (SA) River Murray system for the 2025-26 water year. It describes the water delivery requirements to best achieve a range of environmental outcomes along the SA stretch of the river channel, its floodplains and wetlands, through to the Coorong and Murray Mouth, consistent with the requirements under the Basin Plan 2012 (Basin Plan). In doing so, it identifies opportunities to maximise outcomes from watering in SA by using return flows from upstream watering actions. It also promotes delivery of water for the environment to the Coorong, Lower Lakes and Murray Mouth (CLLMM), while providing benefits to upstream environmental assets and functions en route.

The *2025-26 Water for the Environment Annual Plan for the South Australian River Murray* (the Annual Plan) is presented as follows:

- **Section 1: Introduction** provides background information relevant to environmental watering, including recent hydrological conditions in the region.
- **Section 2: Annual Planning Process** summarises how environmental managers identified objectives for environmental watering in SA and identified and assessed any potential risks.
- **Section 3: Engagement** describes the community and First Nation engagement process and identifies the First Nations' priorities and aspirations for the delivery of water on Country.
- **Section 4: Annual Plan Implementation** outlines the next steps in undertaking delivery of water for the environment.
- **Section 5: Annual Priorities** presents the annual environmental watering priorities for the South Australian River Murray Water Resource Plan (WRP) area, which are submitted to the Murray-Darling Basin Authority (MDBA) in accordance with Basin Plan requirements. It describes a range of site-based watering actions, as well as the SA River Murray multi-site watering action which describes the preferred pattern of delivery to coordinate watering actions within the SA River Murray region.

Black-fronted dotterel at Pike Floodplain. Credit: S Walters (DEW).

1 Introduction

1.1 Purpose of this Plan

The Annual Plan guides the delivery of water for the environment in the SA River Murray and has been developed in consultation with key stakeholders. The Annual Plan presents the priorities for delivery and use of water for the environment under a range of water availability scenarios. This information is submitted to the MDBA and the Commonwealth Environmental Water Holder (CEWH) to inform whole of basin water delivery planning and fulfils SA's Basin Plan requirements to develop annual watering priorities.

The Annual Plan is a part of SA's long and short-term planning and management arrangements of water for the environment as described in *Water for the Environment Management Framework: South Australian River Murray* (DEW, 2021b), which includes the development of the Annual Plan, the annual SA River Murray Water for the Environment report, the *Long Term Environmental Watering Plan for the South Australian River Murray Water Resource Plan Area* (*SA River Murray LTWP*) (DEW, 2020), and active management of water for the environment delivered to SA. The Annual Plan integrates all the proposed watering activities for the water year ahead and has been developed based on the best available data and science. However, it is recognised that water availability and delivery is subject to change depending on actual river and climatic conditions, which will necessitate real-time and adaptive management of water including potential consideration of management options not detailed in this document.

The Annual Plan presents the water demands for the three priority environmental assets: the CLLMM, the SA River Murray Channel and the SA River Murray Floodplain as described in the *SA River Murray LTWP*. The Annual Plan identifies the preferred volume and timing of flow to SA, as well as the optimal use of infrastructure such as regulators, weirs and pumps to facilitate water delivery.

The 2025-26 environmental watering priorities identified in the Annual Plan are consistent with the *Basin-Wide Environmental Watering Strategy* (MDBA, 2019) and the *SA River Murray LTWP*.

What is Environmental Watering?

Environmental watering is the delivery or use of water to achieve environmental outcomes. It provides ecological benefits that contribute to a healthy, functioning river and ensures that important values of the SA River Murray, its wetlands, floodplains and estuary are supported.

Water for the environment delivered along the River Murray in SA is coordinated by the Department for Environment and Water, with significant input and on-ground action from other government agencies, non-government organisations, scientific bodies, community stakeholders and Traditional Owners.

For further information on the types of environmental water and relevant water holders see *Water for the Environment Management Framework* (DEW, 2021b).

Environmental water pumped into Brandy Bottle Waterhole on Chowilla Floodplain, December 2024. Credit: G Hodder (DEW).

1.2 The 2024-25 Water Year

Flow to SA **peaked at ~18 GL/day** in late October 2024

~834 GL released out the barrages (as of 30 April 2024)

180 GL of environmental water delivered from Lake Victoria during Dec-Apr

Operation of **Pike** and **Katarapko** floodplain regulators

Managed inundation of over **30** temporary wetlands and over **45** permanent wetlands

A brief summary of the 2024-25 water year to date (as of 30 April 2025) is outlined below, providing context for the conditions leading up to the 2025-26 water year. Further information on the outcomes of the environmental watering actions in 2024-25 will be presented in the Annual Water for the Environment Report which will be produced once the water year concludes and monitoring and data analysis have been completed.

Following a total period of 803 days during which South Australia received unregulated flows, only regulated flow conditions were experienced in the 2024-25 water year. Flows to SA quickly increased from entitlement at the beginning of the 2024-25 water year, with environmental water return flows from the Goulburn River system reaching the SA border and peaking at 14,290 ML/day in mid-July. This pulse was short-lived and flow closely returned to entitlement throughout August and September. October saw the beginning of the spring multi-site event, whereby environmental water return flows from several upstream actions reached the SA border and peaked at approximately 17,900 ML/day in late October 2024. This event continued into November and quickly receded to around 7,000 ML/d by the end of December.

From December 2024 to April 2025, a direct trade of water for the environment was made from Lake Victoria to support water levels in the Lower Lakes and provide continuous barrage fishway flows and maintain connectivity in the CLLMM. Between July 2024 and April 2025, approximately 834 GL had flowed through the barrages.

Water for the environment delivered to SA was used to support numerous watering actions throughout the year, including:

- Operation of Katarapko and Pike Floodplain regulators during spring and early summer
- Delivery of water for the environment to several wetland sites on the Chowilla Floodplain, including Lake Limbra, Lake Littra, Coombool Swamp, Brandy Bottle, and Werta Wert wetlands
- Barrage and fishway releases to support Coorong ecology and fish movement.
- 180 GL of direct trade delivered from Lake Victoria during summer and autumn to support conditions in the CLLMM.
- Delivery of water for the environment to multiple wetland sites via pumping by the Murraylands and Riverland Landscape Board (MRLB), Renmark Irrigation Trust, Accolade Wines and the Australian Landscape Trust.

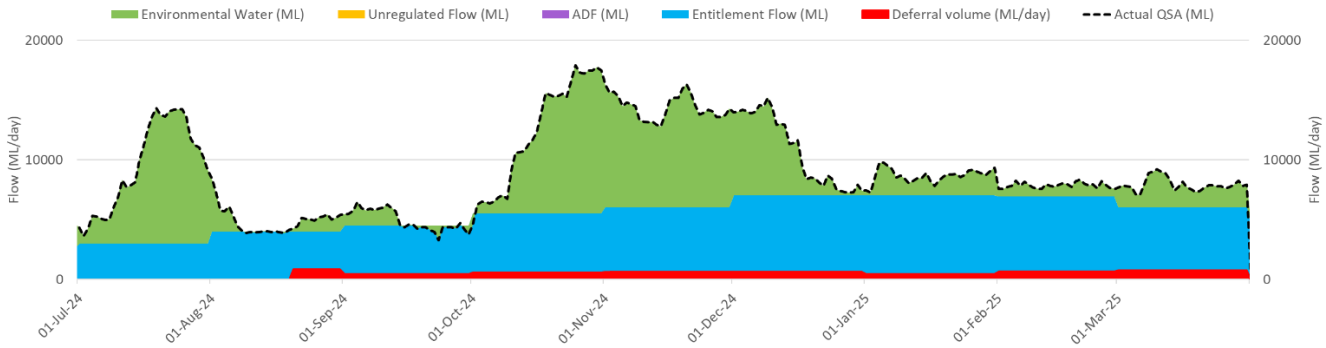


Figure 1. River Murray flows at the South Australian border 1st July to 31st March 2025.

Vegetation at Pipeclay Billabong, Chowilla Floodplain in January 2025. Credit: O Cirocco (DEW)

2 Annual Planning Process

South Australia commences annual planning each February, using a scenario-based approach. Modelled hydrographs, referred to as Annual Operating Outlook (AOO) scenarios, and estimated availability of water for the environment based on projected allocations are provided by the MDBA. The SA planning process includes the development of site-based annual environmental watering proposals using a template provided by the MDBA for a range of sites and types of watering actions (Table 1). In addition to these site-based proposals, a SA multi-site proposal is developed that describes the preferences for coordinated delivery of water for the environment for all watering actions. The watering actions outlined in the site-based and multi-site proposals are developed to align with objectives and targets outlined within the *SA River Murray LTWP*.

Once complete, the watering proposals are provided to the Southern-Connected Basin Environmental Watering Committee (SCBEWC) as part of the annual planning process. SCBEWC is coordinated by the MDBA and brings together government agencies from New South Wales, Victoria and South Australia, as well the CEWH, to coordinate and manage water for the environment across the southern-connected Basin within the Murray-Darling Basin. SCBEWC ensures environmental water management is consistent with the Environmental Watering Plan (Chapter 8 of the Basin Plan), including the *Basin-wide Environmental Watering Strategy* and facilitates collective water for the environment planning for the major water holders. This approach supports effective coordination while allowing different environmental water holders to make independent decisions on watering actions.

The SA watering proposals are consolidated into this overarching Annual Plan document and represent the state's annual environmental watering priorities for the SA River Murray region as required under the Basin Plan. DEW leads the annual planning process with input from site and water managers, environmental water holders, river operators, scientists, Traditional Owners, and stakeholder and community groups. The MRLB and several private organisations, including Renmark Irrigation Trust, Accolade Wines and the Australian Landscape Trust, play a critical role in planning for watering actions at a large number of wetlands throughout the region including the managed wetting and drying of pool-connected wetlands.

Table 1. Environmental watering proposals submitted to SCBEWC and/or the Commonwealth Environmental Water Holder for 2025-26.

Watering Proposal	Site Manager
Lower Lakes, Coorong and Murray Mouth	SA Department for Environment and Water
SA River Murray Channel and Floodplain	SA Department for Environment and Water
Chowilla Floodplain (incl. Lock 6)	SA Department for Environment and Water
Pike Floodplain (incl. Lock 5)	SA Department for Environment and Water
Katarapko Floodplain (incl. Lock 4)	SA Department for Environment and Water
Weir Pool Raising and Lowering (Locks 6 to 1)	SA Department for Environment and Water
SA River Murray Multi-site	SA Department for Environment and Water
Various wetlands along the River Murray and Lower Lakes	Murraylands and Riverland Landscape Board
Wetlands in the Renmark area	Renmark Irrigation Trust[1]
Banrock Station wetlands	Accolade Wines[1]
Calperum Station lakes and wetlands	Australian Landscape Trust[1]

[1] Non-government organisations do not complete a SCBEWC watering proposal

2.1 Planning Inputs

2.1.1 Planning Scenarios 2025-26

Planning for the 2025-26 water year was undertaken for three water resource availability scenarios provided by the MDBA, ranging from very dry to wet (Table 2 and Figure 2). Planning for the very dry, dry and moderate scenarios was combined as average monthly flows under these three scenarios were the same (or very similar) throughout the year. No data was provided for a very wet scenario therefore it was not included in planning although opportunities to enhance higher flows (e.g. >80,000 ML/day) will be considered if the opportunity arises. These water resource availability scenarios are provided by the MDBA for the purpose of annual water for the environment planning and are referred to as AOO scenarios in this Annual Plan.

Table 2: Description of Annual Operating Outlook (AOO) scenarios used in 2025-26 water for the environment planning and percent of years flows are likely to be exceeded.

AOO Scenario	Percent of years flows likely to be exceeded	Peak Flow (ML/day)	Timing of Peak
Very Dry and Dry	95 and 90	6,316	December 2025 / January 2026
Moderate	75	6,357	November 2025
Near Average	50	22,331	August 2025
Wet	25	50,148	September 2025

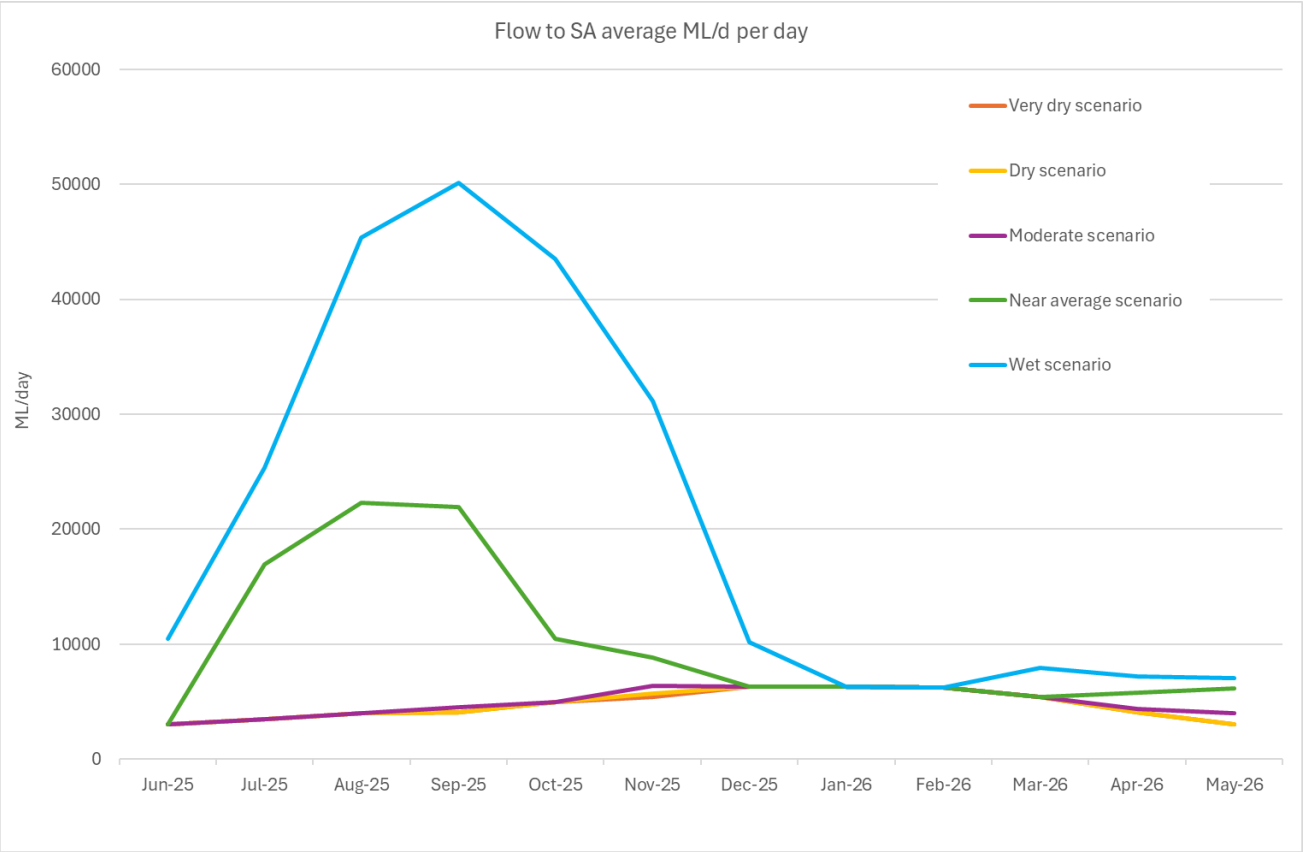


Figure 2. Annual Operating Outlook (AOO) scenarios provided by the MDBA for 2025-26 water for the environment planning.

2.1.2 Water for the Environment Availability

Held Environmental Water

The potential volume of held environmental water (HEW) available is taken into account during planning so that the proposed actions consider the feasibility of delivery. Planning focusses on the volumes of HEW likely to be available upstream of the SA border in addition to that held on licence in SA, as SA-held HEW forms part of the state's Entitlement and is already built into the AOO scenarios provided by the MDBA. More information regarding HEW within SA can be found in the *South Australian River Murray WRP Held Environmental Water Register* which is published on the DEW website. As of 15 April 2025, South Australian River Murray water allocations were projected to open at 100 percent for the 2025-26 water year.

In May 2025, environmental water holders provided an estimate of the volume of HEW likely to be available upstream of the SA border under each of the water resource availability scenarios. The AOO scenarios only include TLM and CEWO upstream of SA and do not include SA Entitlements (Table 3). Typically, SA receives between 70% and 80% of the total upstream HEW volumes used. Based on this information, planning assumed that between 810.8 GL (very dry scenario) and 1464.7 GL (wet scenario) of upstream HEW could be available to SA in 2025-26 (Table 3).

Table 3. Estimate of held environmental water available upstream of South Australia in 2025-26 under each water resource availability scenario.

Scenario	Estimate of held environmental water availability (GL)		
	Total upstream of SA border	70% of total	80% of total
Very Dry (95%)	1158.35	810.8	926.7
Dry (90%)	1358.83	951.2	1087.1
Moderate (75%)	1538.68	1077.1	1230.9
Near Average (50%)	1736.09	1215.3	1388.9
Wet (25%)	1830.88	1281.6	1464.7

Planned Environmental Water Availability

Planned environmental water (PEW) is defined in the *Water Act 2007* (Cth) as any water that is committed or preserved for achieving environmental purposes or outcomes and cannot be used for any other purpose unless required in emergency. PEW within SA is identified in the *Water Allocation Plan for the River Murray Prescribed Watercourse* (*WAP*) (MRLB, 2021) and includes the residual unallocated portion of SA's Entitlement flow, the dilution and loss component of SA's Entitlement flow, unregulated flows to SA and Additional Dilution Flow (ADF). PEW availability is already factored into the AOO scenarios. Should a MDBA-declared unregulated flow event occur during 2025-26, then environmental water managers may seek to use unregulated flows to support their watering actions, in accordance with the *Landscape South Australia Act 2019* (SA) and subject to sufficient volume being available.

Waterbirds at Morella Basin in February 2025. Credit: A Rumbelow

2.2 SA River Murray Environmental Water Planning

2.2.1 Site-based Planning

A suite of environmental watering activities occur at a range of sites within the SA River Murray, including small scale individual wetlands, large scale floodplains, lock reaches and the River Murray channel.

The types of watering events that can occur at these sites include:

- the operation of regulators within floodplain anabranches, e.g. Chowilla, Pike and Katarapko floodplains
- weir pool manipulation, comprising weir pool raising and lowering
- River Murray channel and floodplain watering via augmentation of unregulated flows or creation of in-channel flow events (e.g. spring pulses)
- pumping and water delivery via infrastructure into temporary wetlands
- flushing and freshening of disposal basins
- wetting and drying of managed pool-connected wetlands
- CLLMM management, including lake level variations, lake cycling, fishway operations and barrage releases.

The development of site-based watering proposals has been undertaken by the respective site water managers. The SCBEWC watering proposal template was used for each site to outline the preferred watering options (including management actions and ecological objectives) for each of the AOO scenarios. The information used to develop the watering proposals includes past watering history and outcomes, site condition data, site operating or management plans, consideration of risk assessments and capacity to monitor and mitigate risks, modelling outputs, and input from Traditional Owners, scientists and the community. The outcomes and evaluation of previous years' monitoring projects and the lessons learnt from past water delivery and operations are also incorporated into the development of site watering proposals.

The wetting and drying regime for pool-connected wetlands is planned by site managers, including the MRLB, Accolade Wines and Australian Landscape Trust. Water held within the Wetlands Consumptive Pool (Class 9), as described in the *WAP* (MRLB, 2021), is shared across managed pool-connected wetlands within the SA River Murray WRP area.

Australian spotted crake at Lake Littra, Chowilla Floodplain in November 2024. Credit: H Kieskamp.

2.2.2 SA River Murray Multi-site Planning

DEW also develops a SA multi-site watering proposal that outlines the optimal delivery of water for the environment within the SA River Murray system. The SA multi-site proposal seeks to align the site-specific watering actions that have been identified to maximise the effectiveness of environmental water delivery and enhance ecological outcomes throughout the system. The SA multi-site approach is supported by SA statutory and policy requirements, which prevent return flows from environmental watering actions, such as the operation of the floodplain regulators and weir raisings, being re-allocated for consumptive use. This ensures that environmental water remains within the River Murray channel for delivery to other downstream environmental watering sites, or the CLLMM, for ecological benefit.

The SA multi-site proposal identifies:

- system scale objectives of multiple watering actions
- assumptions used in developing the SA multi-site
- alignment of environmental watering actions for each scenario and the additional benefits associated with the SA combination of actions
- proposed environmental water volume and optimal delivery pattern for the suite of actions under different scenarios.

The development of the SA multi-site is supported by integrated operations modelling and risk assessments. Integrated operations aim to coordinate multiple watering actions along the SA River Murray to manage the potential risks of adverse impacts and, where possible, achieve cumulative benefits across the SA River Murray. During annual planning, modelling may be undertaken for each of the AOO scenarios to better understand the response of surface water parameters and identify the potential risks of the combined operations exceeding water quality and flow thresholds. This supports decision making for the watering actions and helps limit any potential impacts. The modelling and integrated operations assessments are used to support the final suite of site proposals within the multi-site proposal.

Several tools have been developed to assist with this coordination, including the *Integrated Operations Strategy* (DEW, 2021) and the *South Australian River Murray Environmental Water Source Model* (the *Source Model*).

Consultation with individual site managers, external scientific experts and other key stakeholders is undertaken in the development of the SA multi-site watering proposal.

Damselfly with exoskeleton at Pike Floodplain. Credit: S Walters (DEW).

3 Engagement

3.1 Community Engagement

A wide range of stakeholders, including a number of community groups, were consulted in the development of the 2025-26 environmental watering proposals. Consultation is undertaken by DEW and site managers through long-standing and on-going arrangements with groups such as:

- Coorong, Lower Lakes and Murray Mouth Community Advisory Panel (CAP) which is comprised of representatives including commercial fishers, irrigators, local government, Landscape Boards, shack owners association and individual landholders.
- Coorong, Lower Lakes and Murray Mouth Scientific Advisory Group (SAG) which is comprised of members from Flinders University, The University of Adelaide, South Australian Research and Development Institute (SARDI), Commonwealth Scientific and Industrial Research Organisation (CSIRO), Environment Protection Authority, and independent environmental consultants.
- The Ngarrindjeri Aboriginal Corporation (NAC) and Ngarrindjeri community, including the Yarluwar-Ruwe Project Coordinator.
- The First Peoples Working Group, established for ongoing engagement with River Murray and Mallee Aboriginal Corporation (RMMAC) and the wider community on water related matters. RMMAC is the Prescribed Body Corporate representing the First Peoples of the River Murray and Mallee Region (FPRMMR).
- South Australian River Murray Channel and Floodplain Scientific Advisory Group, which consists of representatives from The University of Adelaide, South Australian Research and Development Institute (SARDI), Commonwealth Scientific and Industrial Research Organisation (CSIRO), and independent environmental consultants.
- The Chowilla Community Reference Committee (CRC), and Katarapko and Pike community stakeholders, which include private landholders and representatives from irrigation trusts and local government.
- The Water Advisory Committee, a committee of the MRLB.

Private landholders, industry groups and the general public are kept informed during the planning and implementation of environmental watering actions across the SA River Murray system via traditional and social media, and the DEW River Murray Flow Report.

The CLLMM Community Advisory Panel tour of Raukkan Aboriginal Community and Teringie wetlands in March 2025 with the Raukkan community and Ngarrindjeri Aboriginal Corporation. Credit: DEW.

Proposed watering actions, monitoring data and relevant modelling results were presented and discussed at stakeholder meetings, with site tours undertaken where possible. Engagement was also undertaken between DEW and non-government organisations that are involved in managing water for the environment and to help coordinate delivery of this water to various wetlands throughout the SA River Murray system. These non-government organisations include the Australian Landscape Trust, Renmark Irrigation Trust, Accolade Wines and Murray-Darling Wetlands Working Group.

Consultation will continue throughout the 2025-26 year as the water outlook changes and actions are adjusted accordingly.

3.2 First Nations Engagement

First Nations engagement was undertaken by environmental water managers during the development of SCBEWC watering proposals and preparation of the Annual Plan. Through workshops on Country, the NAC and RMMAC provided significant input to the development of environmental water priorities in 2025-26. Both organisations were engaged in the development of this Annual Plan and will continue to be engaged on environmental water management throughout 2025-26, to incorporate their cultural interests, visions, and aspirational goals. These goals include maintaining connectivity through the Murray-Darling Basin, as well as the protection of culturally significant places and Ngatjis (totems).

Funding from the TLM program supports dedicated First Nations staff to assist with engagement between DEW, RMMAC and NAC. Where possible, engagement with First Nations groups is undertaken in collaboration with the CEWH and MDBA staff to ensure both site-based and system-scale planning and priorities are discussed.

The NAC and RMMAC will also continue to be engaged throughout the year as part of real time planning and delivery of water for the environment. This engagement includes discussions and presentations at appropriate forums and working group meetings, sharing of information and time spent on Country. In 2025, DEW has also undertaken engagement with the First Nations of the South East via the South East Aboriginal Focus Group (SEAFG), focusing on the development of a *walking the seasons* calendar to inform cultural priorities for the management of Salt Creek and Morella Basin.

3.2.1 Ngarrindjeri Aboriginal Corporation

The NAC is engaged in the management of water for the environment in the CLLMM on an on-going basis throughout the water year. DEW staff, on behalf of TLM program, work with the NAC Yarluwar-Ruwe Project Coordinator to engage with NAC staff, the NAC Board and more broadly the Ngarrindjeri community. This engagement includes face to face/online meetings, on Country tours and workshops/yarning circles to discuss barrage operations, lake level management, planning and delivery of water for the environment, and participation in ecological monitoring.

A workshop and on Country NAC/DEW/MRLB engagement session was undertaken on 12 April 2024 at Raukkan and Narrung Wetland to develop Ngarrindjeri guidance on both the DEW CLLMM and the MRLB wetland watering proposals. The outcomes identified at this session that are still relevant in 2025-26 are:

River Flow and Connectivity

- Maintaining connectivity of flow between the Murrundi (River Murray), Lake Alexandrina, Kurilpang (Lake Albert), the Kurrangk (Coorong) estuary and the Murray Mouth (Meeting of the Waters) site is very important to the Ngarrindjeri Nation. It allows the river system to be flushed of salt and nutrients, helps improve the water quality and ensures all living things (plant and animal) can flourish.
- Murrundi, the lakes and Kurrangk are all spiritual waters. The place where the fresh and salt waters mix is a place of creation for Ngarrindjeri Ngatjis (totemic friend/ancestor). Ngarrindjeri have strong ties to both freshwater and saltwater and view the freshwater flow of Murrundi as the lifeblood of the river, Lower Lakes, and Kurrangk. In bringing life to the icon site these flows bring life to Ngarrindjeri and their Ngatjis. Ngarrindjeri Ruwi/Ruwar (Country/land) requires flows and connectivity to occur between all living things, the lands, the waters, and the spirit world.
- The Ngarrindjeri Nation consists of 18 Laklinyeris (e.g. clan/family groups) that each represent specific Ngatjis so it is vitally important to protect and care for these as an individual and within family groups. It represents the connection between the Ngatjis and Ruwi – everything is connected.
- Ngarrindjeri understand that the Kurrangk particularly the South Lagoon is suffering with a reduction in flow and a build-up of salinity and nutrients which is affecting Ngatjis and Ruwi. Priority should be given to address this and tailor barrage releases to maximise flow down to the Kurrangk South Lagoon.

Waterbirds

- Prioritising water delivery to the Lower Lakes, Coorong and Murray Mouth (LLCMM) Icon Site in spring and summer is important for waterbirds particularly those frequenting the Kurrangk. Enhanced flow at these times not only freshens the system but increases food productivity enabling waterbirds to successfully feed on *Ruppia* sp., macroinvertebrates or fish. This in turn enhances breeding and allows migratory shorebirds to complete their migration back to the Northern Hemisphere.
- Waterbirds such as the Kungari (black swan) and Nori (pelican) are important totemic Ngatjis, and their abundance is an indicator of a healthy Ruwi. Kungari eggs are a food source for Ngarrindjeri and collection of these is a significant part of cultural practice that continues to be passed down through generations. Ngarrindjeri recognise the importance of protecting all waterbirds through maintaining flow through Murrundi.
- Maintaining water to Teringie and Tolderol wetlands in the Lower Murray is also culturally important to maintain birdlife particularly ducks, Kungari and many wader birds feeding off exposed mudflats.

Fish

- Prioritising water delivery in spring and summer is equally important for a variety of fish species that inhabit the fresh water of Lake Alexandrina and Kurilpang (Lake Albert), the brackish water of the Kurrangk estuary and the marine water of the Southern Ocean. Delivery of water to the Lower Lakes in spring allows water levels to be held higher (surcharged) which increases food productivity and enhances breeding of freshwater fish including Kungguldhi (congolli *Pseudaphritis urvillii*), common galaxias, southern pygmy perch (*Nannoperca australis*) and Murray Hardyhead (*Craterocephalus fluviatilis*).
- Various species of fish sustained the diet of the Ngarrindjeri people for over 60,000 years and today fish remains integral to the Ngarrindjeri community for various cultural practices. All fish species are important Ngatjis to the Ngarrindjeri Nation but some species have been identified as having declined or are less abundant (e.g. Kungguldhi which is an important freshwater fish for eating). Kungguldhi also moves between fresh and marine water to breed so ensuring continuous flow between the Lower Lakes, Coorong estuary and the Murray Mouth allows this species to complete its life cycle. Delivery water in spring/early summer enables Kungguldhi and common galaxias fish to return back to the Lower Lakes from the Southern Ocean.
- Keeping all fishways continuously open and maintaining barrage flows are very important to Ngarrindjeri and ensures all native fish are freely able to move between the waterways and enables spawning and recruitment opportunities for all species.
- Many species of fish including Pomeri (catfish), Kaltuwarri (crawfish/yabbie), Pila:ki (callop/golden perch), Kanmeri (Coorong mullet), Mamikalt (flounder), Maliwi (mulloway), Tulari (black bream), Thukeri (bony bream), Kuratji (Australian salmon) and Kungguldhi (congolli) were once abundant in Ngarrindjeri waterways. Unfortunately, due to a reduction in River Murray flow combined with a changing climate and the effects of the Millennium Drought, some fish species have declined in abundance particularly black bream in the Lower Murray. Through timely allocations of water for the environment, the following fish species - Pomeri, Kaltuwarri, Kanmeri, Mamikalt, Maliwi, Tulari, Thukeri, Kuratji, Kungguldhi would likely benefit from watering actions highlighted in the watering proposal.
- Ngarrindjeri also acknowledge carp to be a significant threat to native fish species and would like to see further management controls.
- Pondi is key to the Ngarrindjeri creation story of Ngurunderi (creator) who created all fish, the waterways and islands. The Ngarrindjeri community have an aspiration to return Pondi back to the Lower Murray for various cultural reasons. Ngarrindjeri are still able to pass on stories about Pondi to future generations but given that this spiritually important fish is now absent from the Lower Murray, Ngarrindjeri are unable to take future generations onto Ruwe to catch and view this fish for themselves.

Turtles, Frogs

- A healthy population of Thukabi (turtles) and Korbili (frogs) are required for Ngarrindjeri to continue cultural practices. With increased water availability, it would be good to support the re-introduction of the freshwater Murray crayfish so they could return to Ngarrindjeri Ruwe. The importance of these totemic species could then be shared with future generations. However research into how these species could be returned and sustained is needed given that flow patterns have changed in the Lower Murray (e.g. less volume / velocity)
- The Ngarrindjeri community have noticed a decline in Thukubi and want to ensure that their habitat and food resources within waterways are enhanced and maintained. Predation of foxes on Ruwe is also a problem as eggs are predated on after nesting.

- Similarly to Thukabi, Ngarrindjeri also note a decline in Korbili abundance across some species including the southern bell frog (*Litoria raniformis*). Prioritising spring/summer delivery of water for the environment to the Lower Lakes will also assist breeding and recruitment of both Thukabi and southern bell frogs.

Plants

- Many species of plants are culturally significant to the Ngarrindjeri Nation. One plant that was mentioned at the 2023-24 workshop was Murong (wild yam) which has declined over recent years. There is a desire to assist this plant while also acknowledging that there are many other plants that could also benefit from increased allocations of water for the environment.
- Maintaining adequate water around the Lower Lakes and surrounding wetlands is important for continuing the abundance of rushes (*Cyperus gymnocaulos*) – important for basket, mat, fish trapping, weaving.

Ongoing consultation with the Ngarrindjeri on water management will occur every 1-2 months from May 2025 via Water Kungan Yunan Yarning Circle meetings.

Thubaki (turtle) monitoring in February 2025. Credit: S Wedderburn.

3.2.2 First Peoples of the River Murray and Mallee Region

The RMMAC (on behalf of the FPRMMR Native Title holders) have produced a *River Murray and Mallee Country Plan* (RMMAC, 2020), which includes a framework for engagement with FPRMMR on water resource management, their visions and values, and information on culturally important river species. To capture the FPRMMR interests and objectives in relation to environmental water, the *River Murray and Mallee Country Plan* includes the Aboriginal Water Interests Program Logic, which identifies two high-level aspirational goals 'To see our lands and waters healthy to maintain our cultural connections to the lands, water and all living things' and 'to achieve the social and economic outcomes and wellbeing desired by the First People of the River Murray and Mallee Region'.

On 18 March 2025, a dedicated on-Country meeting was held on Murtho Floodplain with members of the First Peoples Working Group to share information and observations of the 2024-25 watering year, present the water actions proposed for 2025-26, and to understand the cultural values and outcomes associated with watering actions. Future tours and workshops will be undertaken throughout 2025-26 to seek further RMMAC input into the planning and delivery of water for the environment.

Bi-monthly meetings are held with the First Peoples Working Group, these include presentations, sharing of information, discussions and development of project ideas. These meetings are a key ongoing means for gaining input from the FPRMMR on water planning and delivery and the associated monitoring programs.

Aboriginal Waterways Assessments (AWAs) are an important tool used by Traditional Owners to assess the cultural values of wetlands and other important sites and support the use of water for the environment and wetland management planning. RMMAC have amended the tool for their use and have undertaken AWAs at a number of floodplain and wetland sites over the past five years, including revisiting some sites to see the outcomes from delivering water for the environment. AWAs enable the sharing of knowledge between First Peoples and environmental water managers about environmental watering actions and the management of sites to meet cultural and environmental outcomes. AWAs will continue to be undertaken by RMMAC at priority watering sites in 2025-26.

The RMMAC Aboriginal Rangers will continue to work closely with the DEW ecologists on a range of monitoring activities across the floodplains and wetlands of the Riverland including turtle tracking, scar tree health assessments, fish and tadpole surveys, understorey vegetation surveys, and water quality data collection.

The South Lagoon in the Coorong in January 2025. Credit: O Cirocco (DEW).

4 Annual Plan Implementation

The *SA River Murray LTWP* and the *SA Environmental Water Management Framework* (DEW, 2021b) provide additional information regarding the SA River Murray ecological assets and water for the environment planning, policies and management.

Following annual planning, environmental water is provided, principally by the CEWH and TLM, to support priority watering actions. Where water has been agreed to for a particular site, operational event plans that outline the specifics of infrastructure operations and water delivery are typically finalised and implemented.

Water for the environment management (Figure 3) involves:

- Annual planning – development of environmental watering priorities and plans, consultation
- Environmental water provision – approvals, trades
- Water delivery and 'real time' management – infrastructure operations, monitoring
- Reporting and evaluation – water accounting and data analysis.

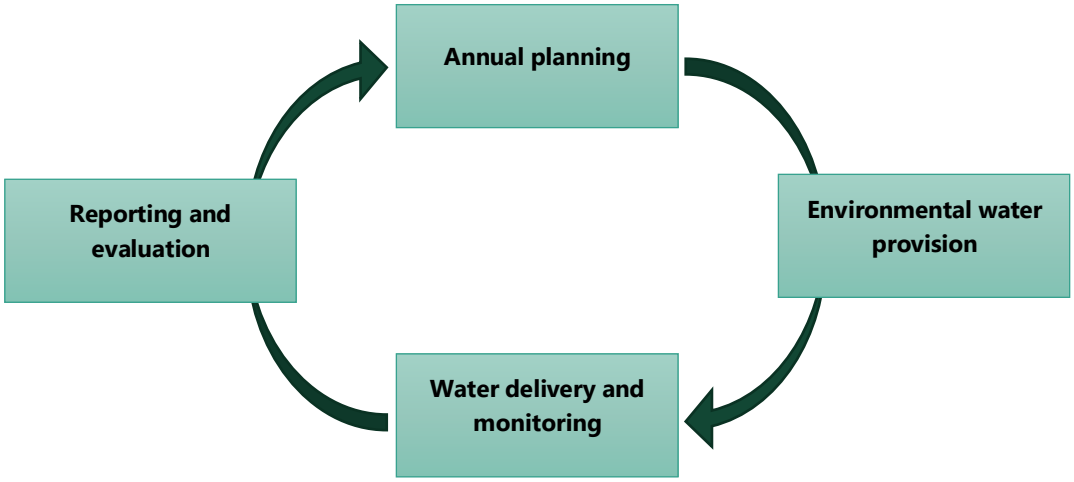


Figure 3. Overview of the annual environmental water management process.

4.1 Environmental Water Provision

Decisions to supply environmental water to meet identified demands in the watering proposals are made by environmental water holders. This includes the CEWH (in relation to Commonwealth environmental watering holdings), SCBEWC (in relation to 'Joint Water', that is TLM, River Murray Increased Flow (RMIF) and River Murray Unregulated Flow (RMUF)) and DEW (on behalf of the SA Minister for Climate, Environment and Water who makes decisions on the use of water on the Minister's water licences).

4.2 Environmental Water Delivery

Delivery and monitoring of water for the environment is undertaken throughout the year. This includes the delivery of water to the SA border and the subsequent management of the water at the sites identified within this annual plan.

Environmental water delivery incorporates the following activities:

- development of water delivery/operational plans
- approvals
- continuous 'real time' planning
- hydrological modelling
- water delivery in conjunction with infrastructure operation
- monitoring
- ongoing consultation and communication
- evaluation, water accounting and reporting.

4.2.1 Real Time Planning and Operations

'Real time' planning is the short-term planning and decision making that occurs on an ongoing basis throughout the year, particularly leading up to and during the delivery of water for the environment. The timeframes for real time planning are shorter than annual planning, and decisions are informed by more specific water resource forecasts than the broader AOO scenarios used for annual planning.

Environmental water managers are provided with information on the short-term forecasts of river conditions and the availability of water for the environment. If these vary from the planned AOO scenarios, watering actions may need to be adaptively managed. Where real time planning has led to changes to a proposed watering action, further modelling and risk assessments may need to be undertaken to ensure adverse impacts are avoided.

Operational Advisory Groups (OAGs) hold regular meetings to ensure coordination and communication during watering events and rapid responses to any issues that may arise. Membership of these groups includes environmental water holders, managers of environmental assets and river operators. South Australia has representatives on cross-jurisdictional committees and OAGs and actively participates in the planning and coordination of large-scale environmental watering events.

Grey teal, maned ducks and straw necked ibis at Pike Floodplain. Credit: S Walters (DEW).

4.3 Monitoring, Evaluation and Reporting

Monitoring, evaluation and reporting is critical for improving knowledge of floodplains, wetlands, CLLMM and the River Murray system. It is vital to understanding the physical and biological components of the river system and how these have responded over time to changing conditions. Ongoing monitoring programs are essential in being able to determine the need for delivery of water, including operation of major infrastructure, and to assess the outcomes of the delivery of water for the environment. In addition to this, the evaluation and interpretation of monitoring results are fed back into the planning process and are used to support planning and watering decision making in an adaptive management cycle. This continuous improvement in knowledge and learning increases the effectiveness of environmental water planning and delivery and helps to achieve management and ecological outcomes.

Site specific monitoring is undertaken at all key watering sites, with the methodology, data management and analysis based on the site monitoring plans developed by the water managers, in conjunction with advice from scientific and community stakeholders and support from Traditional Owners. As well as supporting site specific watering decisions, the data collected assists with the assessment of environmental water delivery outcomes along the river and supports the evaluation of the Basin Plan.

Each year, DEW compiles an *Annual South Australian River Murray Water for the Environment Report*. The report provides a record of all environmental watering activities undertaken throughout the region during the water year, including evaluation against proposed actions and priorities set out in the relevant Annual Plan. The annual report also presents a summary of key environmental outcomes, including case studies, as well as a list of technical reports that provide more detailed information about monitoring and ecological outcomes. All site and water managers across the SA River Murray are encouraged to participate in this reporting process, which also benefits from the input of Traditional Owner groups, scientific experts and community groups. Annual reports are published on the DEW website.

A swan nest at Lake Limbra, Chowilla Floodplain in September 2024. Credit: H Kieskamp.

Cormorants, grey teal and a white-necked heron at Pike Floodplain in April 2025. Credit: S Walters (DEW).

5 Annual Priorities for 2025-26

South Australia has developed site-specific watering proposals for a number of locations throughout the SA River Murray system for the 2025-26 water year using a scenario-based approach (see section Planning Scenarios). A summary of site-based actions is presented in this section. Appendix A provides detailed lists of all proposed actions under each water resource availability scenario, including associated hydrographs, volumes and ecological objectives.

5.1 Site-based Watering Actions

5.1.1 Coorong, Lower Lakes and Murray Mouth Icon Site

In 2024-25, water for the environment supported seasonal lake level variation and all freshwater releases to the Coorong via the barrages (total volume of 834 gigalitres as of 30 April 2025). The biggest daily volumes of water released from the barrages occurred in late July and early August as a result of return flows from a large Goulburn winter fresh event. Following this, very little water for the environment was delivered to South Australia in late August and September, and barrage flow and lake water levels receded. From October to December, upstream releases of water for the environment from Hume and the tributaries (the spring 'multi-site') contributed to increased end-of-system flows. Water levels were raised in the Lower Lakes, and significant barrage flow supported the Coorong's estuarine environments. By the end of December, flow to SA receded to just entitlement and Direct Trade volumes, and barrage flow was reduced to fishways-only. Barrage flow remained at fishways-only flow until the end of April. The volume of Direct Trade for the Coorong and Lower Lakes was increased by an additional 30 gigalitres in March (from 150 GL to 180 GL for the period December to April) to reduce the rate of decline in water levels in the Lower Lakes and to enable fishway flows to continue. End-of-year water delivery from the Murrumbidgee and other sources contributed to barrage flows being re-instated in April and will likely continue till June 2025.

The spring 2024 water level surcharge to 0.85 m AHD in Lake Alexandrina delivered significant benefits to the wetlands of the Lower Lakes, with threatened fish such as southern pygmy perch and Murray hardyhead showing signs of recruitment and abundant frogs recorded. However, the autumn drawdown to 0.55 m AHD resulted in some wetland habitat drying and signs of stress observed in fish such as congolli. In the Coorong, the continued benefits from the 2022-23 flood and relatively large winter environmental water delivery resulted in daily average South Lagoon salinity remaining below 60 parts per thousand (ppt) until late November 2024. Following a reduction in barrage flows and reduction in Coorong water levels, daily average South Lagoon salinity increased steadily through summer and autumn to peak at around 95 ppt in early April 2025. While the improvements in South Lagoon ecology (particularly fish and invertebrate diversity and abundances) appear to have reduced with the increasing salinity, some improvements in the aquatic plant community were observed compared to spring/summer 2023-24. The northern Coorong remained an important refuge area for estuarine species (waterbirds, fish, invertebrates and aquatic plants), with salinities maintained below 35 ppt despite the very small volumes of barrage flow during summer and autumn.

Lakes Alexandrina and Albert

In the Dry and Moderate scenario for 2025-26, water for the environment delivery through summer/autumn is needed to maintain water levels in the Lower Lakes above 0.50 m AHD and maintain at least fishway flows through this period. For all other water availability scenarios, summer/autumn delivery will support water levels in the Lower Lakes to be maintained above 0.55 m AHD (with water levels at or above 0.6 m AHD expected in a wet scenario).

Lake levels will be managed between 0.70-0.80 m AHD between October to December for the dry and moderate scenario. As water availability scenarios increase, the maximum lake levels increase, with 0.775-0.875 m AHD targeted in the Near Average scenario and 0.80-0.90 m AHD in the Wet scenario.

Water for the environment will be used to raise lake levels in spring and early summer to enhance emergent and submergent vegetation in fringing wetlands of the Lower Lakes, which provides habitat for small-bodied threatened fish such as southern pygmy perch, Murray hardyhead and the Yarra pygmy perch *(Nannoperca obscura)*. Raising and maintaining water levels during spring and early summer also aligns with the timing of waterbird breeding in the Lower Lakes. For summer/autumn,

the dry and moderate scenario requires direct trade and return flows from autumn watering actions to maintain minimum autumn lake levels. The near average and wet scenarios during this time, will also require the same returns to keep lake levels at or above 0.55 and 0.60 m AHD respectively. These operations will ensure that threatened fish, frog and waterbird habitat is maintained.

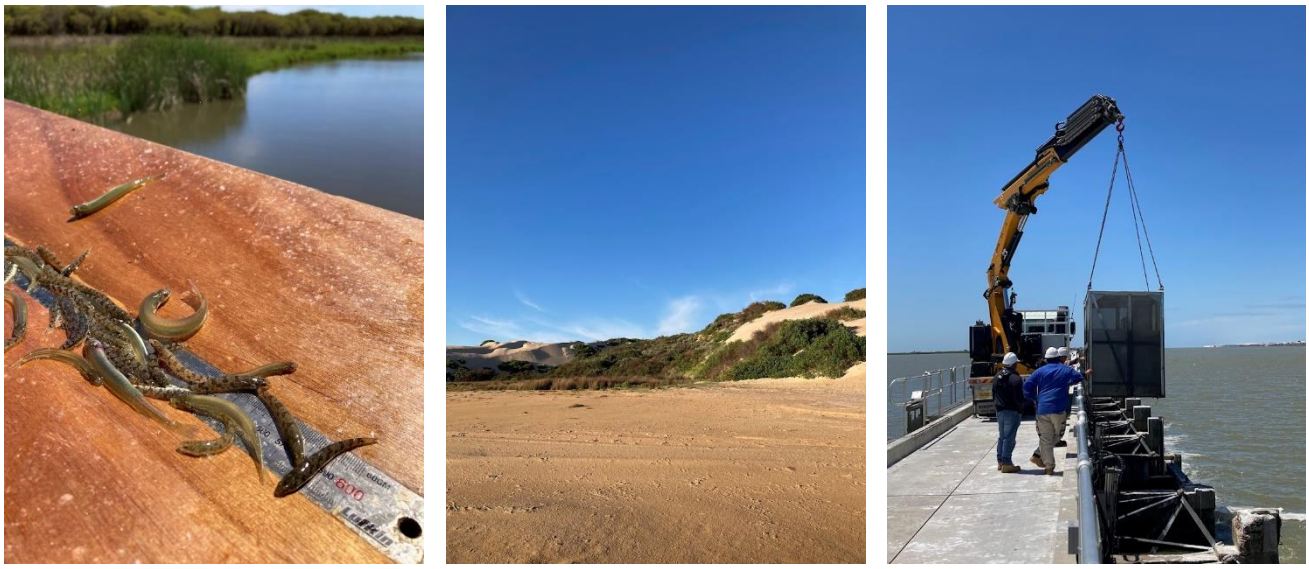
Barrage Operations, Murray Mouth estuary and the Coorong

For all 2025-26 water availability scenarios, all barrage fishways will remain open for 365 days, even during reverse flow events. When sufficient water is available, barrage bays will be preferentially opened adjacent to fishways to provide attractant flow for fish passage.

In the dry to moderate scenario, the aim is to maintain lake levels as well as barrage flows, throughout all seasons where possible. In the dry to moderate scenario, a small winter flow has been requested to increase barrage flows and support winter diadromous (i.e. congolli*)* and anadromous (i.e. pouched lamprey *Geotria australis)* fish migration. During spring in the dry to moderate scenario, a significant volume of water for the environment has been requested to allow for the upstream migration of young-of-year common galaxias and congolli, and to support the North Lagoon foodweb of the Coorong, including waterbirds, fish, invertebrates and *Ruppia tuberosa*. Furthering into summer/autumn in the dry to moderate scenario, direct trade and return flows from autumn watering actions are required to ensure continuous barrage fishway flows.

Under the near average and wet scenarios in spring/summer, water for the environment has been requested with a spring directed release and spring multi-site return flows to extend moderate-high barrage flows. These operations are expected to not only support the whole Coorong foodweb through reducing salinity, but to also support the growth and reproduction of *Ruppia tuberosa* by delaying the recession in Coorong water levels. Higher volumes of barrage flows in winter and spring will also help to scour the Murray Mouth and maintain its openness.

Monthly average water demands for the CLLMM at the SA border for the dry to wet scenarios, along with the total environmental water demand as part of the SA River Murray multi-site proposal are provided in Appendix A.



Left image: Barrage fishway monitoring in Hunters Creek. Middle image: the South Lagoon, Coorong. Right image: Barrage fishway monitoring. Credit: O Cirocco (DEW).

Morella Basin and Salt Creek

The magnitude of flow from Morella Basin to the Coorong, via Salt Creek, is highly dependent on local rainfall across the South East of South Australia. In 2025-26, operation of the Morella and Salt Creek infrastructure will be driven by salinity requirements of the Coorong, inundation requirements of en-route wetlands in the South East and fish migration requirements at the Morella and Salt Creek fishways. If very wet conditions are experienced in this catchment, a surcharge of Morella will also be considered.

Morella Basin. Credit: Adrienne Rumbelow (DEW).

5.1.2 SA River Murray Channel and Floodplain

Although the 2022-23 flood resulted in improved vegetation condition and past years have seen recruitment of large bodied native fish, dry conditions in 2024-25 have seen flows remain within channel, with the highest flow reaching 17,900 ML/day in late October due to upstream releases from Hume and the tributaries as part of the system scale 'multi-site' action. In 2025-26, water for the environment is being sought to support the entire length of the SA River Murray channel, including where possible, a late spring pulse and the enhancement of any unregulated flows for the inundation of temporary wetlands and overbank flows onto the floodplain. The proposed water for the environment delivery patterns aim to enhance flow conditions and are informed by the EWRs identified in the *SA River Murray LTWP*.

Under the very dry, dry and moderate scenarios, the planning hydrograph indicates that flow at the SA border will be close to entitlement, with the spring and summer months slightly below entitlement flows. Water for the environment will be sought to generate a flow of approximately ≥10,000 ML/day, starting in mid-September and continuing to late December, to support Murray cod nesting and breeding during critical spring / summer months. Water is also sought to maintain flows above entitlement during the hotter summer months and support channel flows to the Lower Lakes. Additionally, where feasible, a small spring pulse of ≥15,000 ML/day is sought for at least 25 days in late November, to early December. Outcomes from a spring pulse will include improved hydraulic conditions, and increased food resources, habitat availability and breeding success for large-bodied native fish. Note: graphs in Appendix A show the total monthly environmental water sought for SA including the river channel demands.

The near average scenario indicates a small unregulated flow of approximately 22,000 ML/day at the SA border in August and September, with flows reducing to <10,000 ML/day for the remainder of the year. Water for the environment is sought to maximise the flow peak where possible of any unregulated flow through the addition of ~10,000 ML/day in the spring months. In the areas below the weirs, where water level variability in response to changing flow conditions is the greatest, inundation of higher elevations of the river channel will assist in maintaining soil water availability and freshening groundwater and support native vegetation growth and survival. This watering action will also help to inundate lower lying temporary wetlands, providing refuge and foraging habitats for frogs and birds. Additionally, water for the environment is sought to provide higher in-channel flows (>15,000 ML/day for 30 days) and a small spring pulse (>18,000 ML/day for at least 25 days) in October to November respectively for hydraulic and fish outcomes as per the drier scenarios.

River red gum saplings at Plushs Bend in February 2025. Credit: C Sabeeney (DEW).

The wet scenario indicates an early unregulated flow that peaks at the SA border at ~50,000 ML/day in September, is >40,000 ML/day in October and >30,000 ML/day in November, after which flows fall to less than 10,000 ML/day for the remainder of the year. Water for the environment is proposed to maximise the flow peaks of the unregulated flow by targeting an additional 10,000 ML/day to enhance flows to >60,000 ML/day. Adding water for the environment to enhance flows will maximise floodplain inundation to support significant areas of the long-lived vegetation, such as lignum (*Duma florulenta*), river red gum (*Eucalyptus camaldulensis*) and black box (*Eucalyptus largiflorens*), and support seedlings that germinated after the 2022-23 flood that are in need a follow-up watering. In addition to this, maintaining flows at >40,000 ML/day into November will contribute to the breeding success of large-bodied native fish. A range of other benefits will also be achieved at these larger flows including improved longitudinal and lateral connectivity, benefiting soil moisture conditions, increases in productivity, and widespread frog and waterbird breeding. Water for the environment is also proposed to be added to slow the recession of a high flow.

Under even wetter conditions, i.e. >80,000 ML/day, opportunities to enhance higher flows and maximise floodplain and wetland watering will also be considered if the opportunity arises.

Weir Pool Manipulation

During the spring channel pulse in 2024-25, weir pool raising was not undertaken to ensure velocity improvements in the River Murray Channel achieved during the pulse were not impacted. As a result, only areas along the river channel and adjacent wetlands within the 15,000 ML/day flow band were inundated.

Condition monitoring data from autumn 2025 at weir pool manipulation monitoring sites shows less than 50% of tree condition transects met the ecological target and only 26% of lignum transects met the ecological targets. It was observed during tree condition monitoring surveys that seedlings and saplings that had emerged following the 2022-23 flood were noticeably declining, particularly those on higher elevations. Therefore, providing water to vegetation is a high priority in spring 2025 to maintain soil moisture availability conducive to growth. Weir pool operations will contribute to the restoration and maintenance of key flora species such as river red gum, black box and river cooba (*Acacia stenopylla*) woodlands, lignum shrublands and non-woody vegetation species across the floodplains including supporting survival of tree seedlings. The maintenance of vegetation communities will provide crucial habitat for frogs, waterbirds and other fauna.

Long-thumbed frog caught during tadpole surveys at Overland Corner. Credit: C O'Brien (DEW).

Under the dry and moderate AOO scenarios, QSA is below 10,000 ML/day throughout the entire water year. Depending on the availability of adequate flows, three options (A, B & C) are proposed (see Appendix A for further details). Options A & B range from current maximum to moderate magnitude weir raising actions across all weir pools during spring 2025, except Lock 3. Lock 3 is excluded as the flow rates in these scenarios are not likely to provide enough dilution to manage salt loads from Lake Bonney. If neither maximum or moderate magnitude actions can commence during spring due to low flows then an autumn weir raise (Option C) across all weirs, excluding Lock 3, is proposed. Raising weirs will enhance lateral connectivity with the floodplain, providing water level rises as cues for frog breeding, and will provide water to long-lived vegetation seedlings, improving recruitment into adult populations.

Under the near average scenario, the planning hydrograph indicates QSA peaks at approximately 22,000 ML/d in August/September. There are two potential weir manipulation options depending on the magnitude of flow. Option A proposes if flows are >4,000 ML/day in early spring then all Locks are to be raised other than Lock 3 unless flows are above 20,000 ML/day, which would provide significant dilution for salt load management. Option B proposes a small scale (within normal operating range) weir pool lowering across all locks if flows are between 10,000 to 25,000 ML/day during winter and a subsequent raising of every weir (excluding Lock 3) in spring (as long as QSA is over 4,000 ML/day during spring).

Under the Wet Scenario, where QSA is above 25,000 ML/day, in channel velocities won't be impacted by a raising. Thus, Locks 3, 5 and 6 are proposed to be raised, with Locks 1, 2 and 4 remaining at normal pool level as flows are within their weir removal range. The weir manipulation actions aim to achieve lateral and longitudinal connectivity, enhancing inundation to provide habitat for frogs, vegetation and waterbirds, and supporting lotic conditions for flow dependent species and matter transport.

All proposed weir pool actions will be informed by expected flow rates under each scenario (Table 4). Management under each scenario may change due to the timing and magnitude of an in-channel pulse or enhanced flows, and proposed actions at Locks 4, 5 and 6 may change if watering actions occur at Chowilla, Pike and/or Katarapko floodplains, as weir pools will need to be raised in conjunction with the major floodplain regulators.

Table 4. Potential manipulations for each weir pool in 2025-26 under all AOO scenarios.

Annual operating outlook	Proposed manipulation for each weir pool in metres above (+) or below (-) normal pool level											
	Lock 1		Lock 2		Lock 3		Lock 4		Lock 5		Lock 6	
	Winter	Spring	Winter	Spring	Winter	Spring	Winter	Spring	Winter	Spring	Winter	Spring
Dry/Moderate Option A	0.00	0.10	0.00	0.50	0.00	0.00	0.00	0.30	0.00	0.50	0.00	0.40
Dry/Moderate Option B	0.00	0.10	0.00	0.30	0.00	0.00	0.00	0.30	0.00	0.30	0.00	0.20
Dry/Moderate Option C	0.00	0.10	0.00	0.30	0.00	0.00	0.00	0.30	0.00	0.13	0.00	0.20
Near Average Option A	0.00	0.10	0.00	0.30	0.00	0.22	0.00	0.30	0.00	0.50	0.00	0.40
Near Average Option B	-0.10	0.10	-0.08	0.50	-0.03	0.00	-0.04	0.30	-0.05	0.50	-0.08	0.40
Wet	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.50	0.00	0.40

5.1.3 Managed Floodplains

Chowilla Floodplain

In 2025-26, water delivery will focus on maintaining and improving the condition of long-lived vegetation as well as supporting the survival and growth of seedlings that germinated during the 2022-23 flood and providing feeding and breeding habitat for waterbirds, frogs and other wildlife.

Under all water resource availability scenarios pumping is proposed at up to 12 priority wetland sites. The ecological outcomes of these pumping operations will aid in maintaining river red gum, black box, river cooba and lignum populations that surround these wetlands. Pumped environmental water delivery will also increase the abundance and diversity of many understorey species and submerged and emergent aquatic vegetation. Delivery of water for the environment via pumping aims to support the eight riparian frog species, particularly the threatened Southern Bell Frog. Chowilla's large lakes and wetlands also provide hyper-productive habitats for waterbirds and other wildlife. Under all scenarios flows through Pipeclay Creek and Slaney Creek weirs will be optimised this will aid in maintaining the flow mosaic characteristics of the Chowilla anabranch system providing favourable conditions for large-bodied native fish and supporting riparian and aquatic vegetation along the creek edges.

For the dry to moderate water resource availability scenarios, an operation of the Chowilla Creek environmental regulator along with raising of Lock 6 is proposed to generate an in-channel rise or low floodplain inundation over an additional 1,500-4,000 ha of floodplain depending on the scale of operation. Small scale managed inundations provide a mechanism to improve and maintain soil moisture availability in lower lying areas of the floodplain, supporting long lived trees, seedlings and understorey vegetation. Inundation of some of the lowering lying wetlands and lakes will provide important habitat for waterbirds, frogs and other wildlife.

Under the near average and wet water resource availability scenarios, a medium to high level operation of the Chowilla Creek environmental regulator with a concurrent raising of Lock 6 is proposed. This will generate broadscale floodplain inundation, enabling delivery of environmental water across 4,000-8,000 ha of floodplain depending on the scale of operation. These larger scale inundations will support areas of mature river cooba and black box trees that are located higher on the floodplain, as well as improve broadscale soil moisture and facilitate ongoing survival and growth of seedlings and saplings that germinated after the 2022-23 floods. This operation would also support the germination and growth of aquatic and understory vegetation as well as increase the extent of the habitat mosaic within the anabranch and across the floodplain, providing opportunities for feeding and breeding for waterbirds, amphibians and other wildlife. Floodplain inundation facilitates the transfer of carbon and nutrients from the floodplain to the river, providing valuable food resources to the River.


Left image: Macroinvertebrates caught at Lake Littra (credit: O Cirocco (DEW)). Right image: Pied Stilt, Lake Limbra, Chowilla Floodplain (credit: H Kieskamp).

Pike Floodplain

Supporting the establishment of floodplain tree seedlings and saplings that emerged following the 2022-23 flood is a key objective for delivering water for the environment at Pike floodplain in 2025–26. Seedlings and saplings located at low elevation have persisted and grown in response to soil moisture provided by the 2024 delivery of water for the environment. However, those seedlings beyond the influence of the 2024 watering are likely to be lost without receiving water this year. The current circumstances represent a rare opportunity to support successful establishment of new river red gum, black box and river cooba to replace some of the widespread loss of trees during the millenium drought and as a result of historical clearance. Other priority objectives for delivering water for the environment, using the Pike and Tanyaca environmental regulators, are to impart resilience to mature trees and lignum, and encourage a wider zone of littoral understorey vegetation in locations adjacent to the main creeks and anabranches. Furthermore, the water level rise may provide a cue for frog breeding, depending on the timing of delivery[2], as well as providing additional foraging habitat for waterbirds, and access to additional inundated habitat for aquatic invertebrates to fuel the floodplain food web. These objectives are expected to be supported by the low-level managed inundation proposed under the dry and moderate scenarios, as well as the medium-level managed inundation proposed under the near average scenario. The proposed low-level inundation involves raising the regulators by 0.65 m above the normal pool level to 15.2 m AHD under dry conditions, while the proposed medium-level inundation would see the regulators raised by an additional 0.3 m to 15.5 m AHD under near average conditions. This additional 0.3 m raise would spread water further out from the littoral edges of the creeks and adjacent swales into areas of shedding floodplain, for example the Snake Creek floodplain, to increase shallow foraging habitat for waterbirds and promote understorey succession in those locations.

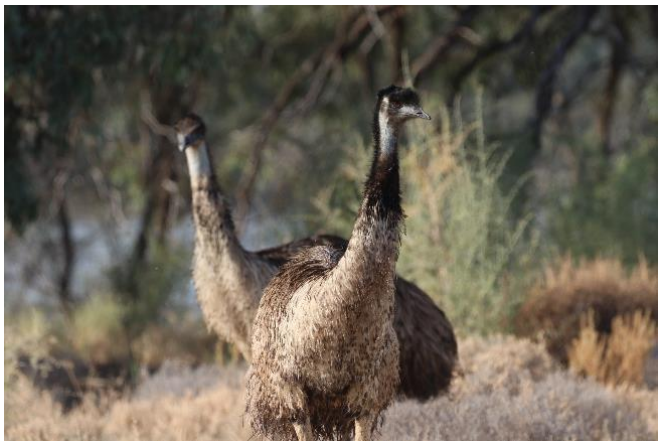
The lateral extent of watering currently possible is constrained by flood damage to environmental infrastructure, with repairs still to occur at Pike floodplain which preclude any use of the environmental regulators to inundate areas greater than would occur under the wet planning scenario. Managed operations using the regulators are currently not proposed under the wet scenario.

Delivery of water for the environment via pumping is proposed at Mundic Wetland and the Tanyaca Horseshoe floodplain under the dry to near average scenarios, as occurred in spring 2024. Both locations showed good regeneration of native vegetation following the 2022-23 flood, and backing up the 2024 watering event is proposed to consolidate those outcomes. Both of these locations provided productive foraging for waterbirds, and some terrestrial birds, during and after delivery of water for the environment in spring 2024. Mundic wetland supported good numbers of southern bell frogs, and other frog species, in spring 2024. Mundic wetland sits at high elevation and requires either a raise of the environmental regulator to its maximum height, or River flow over 90,000 ML/day, to be inundated. It is one of few high elevation locations at Pike floodplain where water can be delivered to sustain young black box and spiny lignum (rare species, *Duma horrida*) that

[2] infrastructure works may necessitate a very early watering event at Pike floodplain, which may not be conducive for frog breeding outcomes, but would primarily target native vegetation outcomes

emerged after the flood. Likewise, the Tanyaca Horseshoe floodplain can be inundated using the environmental regulators only under a high-level managed inundation, or during River flows over 60,000 ML/day. Supporting regeneration of lignum and river cooba is the key outcome sought from pumping water to this location, as well as sustaining eucalypts that have colonised a construction borrow pit on this part of the floodplain.

Left image: A pair of emus at Pike Floodplain. Right image: Juvenile pied stilts at Pike Floodplain. Credit: S Walters (DEW).



Katarapko Floodplain

Katarapko floodplain has not experienced substantial out-of-channel flow since early September 2023, hence in 2025-26, proposed operations will focus on generating inundation to improve soil moisture availability in priority riparian, wetland and floodplain areas and provide breeding cues for frogs, waterbirds and other wildlife. Under the wetter scenario, higher flows will naturally inundate these priority low-lying areas and higher-level operations are proposed to support maximising connectivity and inundation to reach higher elevation vegetation communities and habitats.

For the dry to moderate water resource availability scenarios, an operation of the Splash environmental regulator to 12.2 m AHD, with a raising of Lock 4 by 0.30 m (to 13.5 m AHD), is proposed for 30 or more days during spring (October to November). This small-scale operation will generate a managed inundation over approximately 160 hectares and is expected to replenish soil moisture along river banks, impart resilience to mature floodplain trees like river red gum and river cooba, as well as supporting seedings that germinated during previous floods (e.g. 2016 and 2022-23 floods) to persist to larger growth stages. The inundation will also support expansion of littoral vegetation, arrest decline of fringing lignum populations, cue small-scale frog breeding and support habitat for communities of reptiles, mammals and birds. Additionally, the proposed operations will provide diverse hydraulic instream conditions and localised fluctuations in productivity to support populations of resilient native, foraging generalist fish species. Under the dry to moderate scenarios, pumping to Piggy Creek, Piggy Creek Lagoon and Boyties Lagoon is also proposed to augment the ecological outcomes associated with the environmental regulator operation, providing additional habitat and breeding opportunities for waterbirds and frogs and improved wetland lignum condition.

For the Near Average scenario, an operation of the Splash environmental regulator up to 12.9 m AHD, with a Lock 4 raising of 0.30 m (to 13.5 m AHD), is proposed during spring (October to December). This action will generate a medium extent inundation (~413 hectares), which in addition to the ecological outcomes above, will also inundate greater areas of lignum fringing permanent waterbodies, connect anabranch creeks to larger temporary wetlands to support increased frog and waterbird breeding, and increase of the extent of shallow foraging habitat for waders.

Under the wet scenario, an operation of the Splash environmental regulator up to 13.2 m AHD, with a Lock 4 raising of 0.30 m (to 13.5 m AHD) is proposed to maximise inundation extent to reach higher elevation native vegetation communities. Operations under the near average and wet scenarios include delivering water to the wetlands proposed to be pumped under the dry to moderate scenarios therefore supporting objectives for frog breeding and waterbird habitat. At this higher level, the floodplains adjacent to the major wetlands will also be inundated, reaching additional stands of trees and lignum However, depending on flow magnitude, there is the possibility that no operations may be undertaken under the wet

scenario as ecological objectives will be met with a natural event and hence structures will be opened to facilitate site-scale connectivity.

: Improved littoral vegetation response at Eckerts Creek following low-extent spring inundation. Credit: R Walsh (DEW).

5.1.4 Wetlands

A number of temporary and pool-connected wetlands throughout the SA River Murray system are identified as priorities for receiving water for the environment in 2025-26. Wetland watering (pool-connected and temporary) will be undertaken by the MRLB and DEW, along with a number of non-government organisations (NGO's) including the Australian Landscape Trust, Renmark Irrigation Trust and Accolade Wines. The work of these groups is vital in delivering benefits across numerous sites along the SA River Murray, providing valuable refuge habitat and complementing the outcomes achieved through larger scale watering actions.

Temporary wetland watering, predominantly via pumping, is proposed under the very dry to wet scenarios, with the number of wetlands to be watered decreasing as conditions become wetter and increases in flow see them become connected to the River.

The sites proposed by the MRLB to receive environmental water in 2025-26 have been prioritised to consolidate the outcomes from the high flows in previous years, consider the critical ecological needs for threatened species, and prevent the loss and desiccation of long-lived vegetation (Appendix B). Up to 58 sites covering 2,041 ha under the very dry, dry and moderate scenarios have been proposed, using an estimated total volume of up to 24 GL. As the conditions become wetter under the near average and wet scenarios, the number of sites proposed reduces to 45 and 13 sites, respectively. The main objectives of watering sites are to support threatened species such as the regent parrot (*Polytelis anthopeplus monarchoides*), Murray hardyhead and southern bell frog, each listed under *the Environment Protection and Biodiversity Conservation Act*

1999 (Cth) (EPBC Act). Watering also aims to benefit EPBC-listed migratory bird species, long-lived vegetation (river red gums and black box trees) and aquatic vegetation.

A range of other temporary wetlands have been identified as potential priorities for watering in 2025-26 by other non-government organisations, including Australian Landscape Trust, Renmark Irrigation Trust, Accolade Wines and, potentially, Murray Darling Wetlands Working Group.

In addition to the delivery of water to temporary wetlands, approximately 52 pool-connected wetlands (Appendix C) will be managed across all water resource availability scenarios, noting that in the wetter scenarios, management of most sites is not possible. Wetland infrastructure will be operated to implement wetting and drying phases to eliminate carp, support the growth of riparian and aquatic vegetation, and provide refuge and breeding opportunities for biota, including threatened species. Opportunities to couple re-wetting cycles with surcharge events (i.e. raising water levels above normal pool level via pumping) are also being explored.

For both temporary and pool-connected wetlands, the timing, duration, and extent of inundation will vary on a site-by-site basis and be tailored to the site needs, supporting threatened and/or culturally significant species, shallow or short watering to support vegetation or seedlings, and where feasible return flows. As the year progresses, site assessments will continue to inform priorities and other sites may come into consideration for watering.

Ottelia ovalifolia at Overland Corner. Credit: S Robinson (MRLB).

5.2 System-scale Watering Actions

5.2.1 SA River Murray Multi-site

The 2025-26 SA River Murray multi-site watering proposal aims to meet watering objectives at individual sites, as well as provide additional landscape-scale outcomes within South Australia. The multi-site proposal is underpinned by the objectives, targets and EWRs in the *SA River Murray LTWP* and the expected outcomes in the *Basin-wide Environmental Watering Strategy*.

The SA multi-site allows for the:

- Coordination of the delivery of environmental water to South Australia to maximise the potential outcomes throughout the South Australian River Murray system.
- Delivery of environmental water to the CLLMM, while providing benefits to upstream river channel and floodplain assets en route, e.g. return flows from spring events supporting CLLMM outcomes.
- Improved effectiveness of environmental watering and extent of benefits by aligning the timing, magnitude and duration of discrete watering actions to water delivery to South Australia.

The primary objectives of the 2025-26 multi-site watering are:

- Maximise inundation through infrastructure operations and enhanced flows to support broadscale maintenance in the condition of floodplain and wetland vegetation, including the provision of follow up watering to the many seedlings/saplings that germinated in the 2022-23 flood, particularly black box and river cooba.
- Improve local soil moisture and support the growth of mature trees, lignum, understory and aquatic vegetation.
- Provide feeding and breeding habitat for waterbirds, frogs and other wildlife in potentially on-going dry conditions.
- Maintain lotic conditions along the river channel and within the anabranches, from September through to December to support Murray cod breeding.
- Where possible support flows and lotic conditions within the river channel for localised SA golden perch spawning and recruitment and the transport and dispersal of propagules (seeds, eggs and larvae) in late spring.
- Longitudinal and lateral connectivity, providing pathways for the dispersal, migration and movement of native water-dependent biota between the floodplain and river, and to downstream reaches and the ocean.
- Provide ecosystem benefits through to the estuary, supporting lake levels and habitat maintenance in the Coorong.
- Whole of system outcomes, including productivity and hydraulics from the river channel and floodplains, through to the CLLMM.
- Salt mobilisation and transport along the system to the marine environment.
- Deliver environmental water consistent with the Environmental Water Requirements (EWRs) of the Long-Term Watering Plan (LTWP: DEW 2020) and contribute to the ecological objectives for priority environmental assets and priority ecosystem functions described in the LTWP.
- Under wetter conditions, delivery of water for the environment would favour enhancing flows for whole of system outcomes over site-based outcomes.

The SA multi-site objectives are an extension of the environmental watering objectives for site-based actions, and are summarised in Appendix A. The graphs provided in Appendix A indicate the relative timing of the River Murray channel and floodplain water demands, the CLLMM water demands and infrastructure management (where applicable). The combined watering actions within the multi-site reflect advice from scientists and other stakeholders, which was provided at the 2025-26 multi-site workshop held on the 14 April 2025, to better align environmental benefits within SA and avoid detrimental impacts.

5.2.2 Very Dry (95%), Dry (90%) and Moderate (75%) AOO scenarios

In the very dry to moderate scenarios the highest demands for water for the environment are driven by the CLLMM requirements, with additional volumes added in July through to October for the operation of floodplain regulators and weirs and for the pumping of wetlands. The channel demands and floodplain operations passing flow requirements are expected to be achieved through the delivery of water to the CLLMM.

A weir pool inundation in the late spring/early summer period is considered optimal timing for improved soil moisture, and the river channel is seeking a pulse in late November to December to promote the spawning of golden perch. The exact timing of weir pool management will continue to be explored in real-time planning to best meet the objectives of floodplain and weir pool inundation, while also considering the impact on a potential spring-pulse in late November and December. If

a spring pulse arrives earlier than November, or the height of a pulse in late November is unlikely to provide velocity cues for fish breeding, site-based operations would be prioritised over spring pulse outcomes, and weir pool raising may be extended into December.

5.2.3 Near Average (50%) AOO scenario

In the near average AOO, the highest demands for water for the environment are driven by river channel demands in August and September and CLLMM demands for the remainder of the year. The floodplain and weir operational demands for filling and passing flows in July and early August could be achieved by the near average AOO unregulated flows. Higher flows and the environmental water demand for the CLLMM in October is preferred as part of the multi-site over the lower flow demands of the river channel during this month, with the flows for the CLLMM also benefitting the river channel outcomes.

As with the drier scenarios, a weir pool inundation in the late spring/early summer period is considered optimal timing for improved soil moisture, and the river channel is seeking a pulse in late November to December to promote the spawning of golden perch. The exact timing and duration of weir pool raising will continue to be explored in real-time planning to best meet the objectives of inundating floodplains and weir pools, while also considering the impact on a potential spring-pulse in late November and December. However, if a spring pulse arrives earlier than November or the height of a pulse in late November is unlikely to provide flows for fish breeding, site-based operations would be prioritised over spring pulse outcomes, and weir pools raising may be extended into December.

5.2.4 Wet (25%) AOO scenario

In the wet AOO, the highest demands for water for the environment are driven by the river channel in September to November, after which the demand is driven by the CLLMM for the remainder of the water year.

Some floodplain and weir operations were proposed under the wet AOO, however when enhancing flows at the proposed magnitudes, operations are not possible due to weirs being removed. Where this conflict may happen, enhancing flows to achieve system scale benefits is prioritised over site-based operations.

The multi-site includes the enhancement of flows for river channel and floodplain inundation. Operations may commence at Chowilla and potentially Katarapko and some weir pools early in July and August, with site-based operations likely to cease as flows increase towards 50,000 to 60,000 ML/d in September. The volumes required for operations in July and August may be provided by the unregulated flows within the AOO.

If conditions are wetter again, including flows >80,000 ML/day, water for the environment may be sought to enhance an unregulated flow to inundate higher elevations of the floodplain along the length of the SA River Murray for system scale outcomes.

5.2.5 Environmental water volume and delivery pattern

The estimated volume of water for the environment required to deliver the 2025-26 SA multi-site proposal ranges from approximately 1,189 GL in the very dry to moderate scenarios to 1,465 GL in the near average scenario to (Table 5). SA multi-site volumes represent the volume of environmental water required to be delivered to the South Australian border to support all proposed watering actions in the South Australian River Murray for that scenario. These volumes are in addition to water for the environment on South Australian licences (approximately 250 GL), which is delivered as part of South Australia's Entitlement and therefore included in the base flow represented in the AOO scenarios. The SA multi-site volumes incorporate the contribution that the river channel water demand and upstream watering actions make to the CLLMM water demands.

Table 5. Indicative volume of environmental water required per month to deliver the South Australia multi-site action. Options under each scenario represent alternative demand profiles and are not cumulative.

Annual operating outlook	Indicative volume (GL) of environmental water required per month												Total est. volume 2025-26 water year only (GL)
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
Very Dry / Dry / Moderate	67	72	122	192	228	208	73	66	67	52	21	20	1189
Near Average	15	131	270	305	264	180	73	66	67	52	21	20	1465
Wet	0	0	246	140	263	270	180	90	68	53	33	20	1364

5.2.6 Cooperative Arrangements between Water Resource Plan Areas

There is no active management of water for the environment in the Eastern Mount Lofty Ranges WRP area or the SA Murray Region WRP area. Opportunities to coordinate environmental watering between these areas and the SA River Murray are limited. The catchments of the Eastern Mount Lofty Ranges WRP area flow to the lower River Murray and Lake Alexandrina, with the outflow from these catchments contributing an average annual runoff of 76 GL per year to the Murray-Darling Basin (DEW, 2019). The timing and volume of environmental watering in the Eastern Mount Lofty Ranges WRP area occurs in response to local rainfall and flows, rather than being able to be managed or manipulated to achieve coordinated outcomes with environmental watering in the SA River Murray WRP area. Any flow reaching Lake Alexandrina cannot be allocated and is considered PEW within the SA River Murray WRP area.

The SA Murray Region WRP area includes the Coorong and Murray Mouth, however in recognition of the intrinsic connection between the Coorong and the Lower Lakes, South Australia seeks to manage the site as a whole as described in *the SA River Murray LTWP*.

Water holders and managers of water for the environment in SA, New South Wales, Victoria, the MDBA and CEWH have worked together for several years to trial, plan and coordinate annual southern-connected basin multi-site environmental watering events. This planning aims to maximise the use of unregulated flows, water for the environment and return flows at multiple sites as water moves through the southern-connected basin.

The SCBEWC and Water Liaison Working Group (both coordinated by the MDBA) contribute to the development of the southern-connected basin multi-site events each year. This includes the planning and implementation of a coordinated River Murray channel spring pulse aimed at optimising benefits along the River Murray channel as well as achieving alignment with upstream tributary inflows and watering actions at wetland and floodplain sites and the CLLMM.

Black swans at Lake Limbra, Chowilla Floodplain in September 2024. Credit: H Kieskamp.

Round-leaved pigface (Disphyma crassifolium).
Credit: C Sabeeney (DEW).

References

Basin Plan. (2012). (Cth).

DEW. (2019). *South Australian River Murray Water Resource Plan, Provided for accreditation pursuant to section 63 of the Commonwealth's Water Act 2007.* Adelaide: Government of South Australia.

DEW. (2020). *Long term environmental watering plan for the South Australian River Murray water resource plan area.* Adelaide: Government of South Australia, Department for Environment and Water.

DEW. (2021). *Integrated Operations Strategy.* Adelaide: Government of South Australia, Department for Environment and Water.

DEW. (2021b). *Water for the environment management framework: South Australian River Murray.* Adelaide: Government of South Australia, Deparment for Environment and Water.

DEW. (2022). *2022-23 Annual Water for the Environment Plan For the South Australian River Murray.* Adelaide: Government of South Australia, Department for Environment and Water. Available on https://www.environment.sa.gov.au/topics/river-murray/improving-river-health/environmental-water/environmental-water-planning.

DEW. (2024). *2022-23 SA River Murray Water for the Environment Report.* Adelaide: Government of South Australia, Department for Environment and Water.

Environment Protection and Biodiversity Conservation Act . (1999). (Cth).

Landscape South Australia Act. (2019). (SA).

MDBA. (2019). *Basin-wide environmental watering strategy.* Canberra: Commonwealth of Australia, Murray-Darling Basin Authority.

MRLB. (2021). *Water allocation plan for the River Murray prescribed watercourse.* Adelaide: Murraylands and Riverland Landscape Board.

RMMAC. (2020). *River Murray and Mallee Country Plan, A Strategic Plan by the First Peoples of the RIver Murray and Mallee (2019-2024).* South Australia: River Murray and Mallee Aboriginal Corporation.

Water Act. (2007). (Cth).

Appendices

Appendix A – Multi-site Actions

Summary of water for the environment multi-site actions proposed for 2025-26 under water resource availability scenarios

Very Dry (95%), Dry (90%) and Moderate AOO (75%) scenarios

Table 6: Very Dry (95%), Dry (90%) and Moderate (75%) AOO: Proposed operations and objectives for the multi-site

Site	Management action(s)	Timing	Volume	Ecological Outcomes and Objectives
CLLMM	Action A: 1,500 to 2,000 ML/d at the SA border for the action duration. Action B: 3,000 to 9,000 ML/d at the SA border for the action duration peaking in November and December. Action C: Additional ~7,500 to 8,300 ML/d at SA border for January to March, followed by 3,600 to 5,700 ML/d in April to June.	Jul – Aug 2025 Sept – Dec 2025 Jan – Jun 2025	**105 GL** **690 GL** **290 GL**	Action A: • Winter diadromous fish migration (lamprey and congolli) Action B: • Aquatic vegetation, fish and frog habitat in the Lower Lakes • Upstream migration of YOY common galaxias and congolli • Coorong North Lagoon Food web • Migratory wader arrival • *Ruppia* flowering Action C: • Prevent drying of fish habitats in Lower Lakes • Continuous fish passage at barrage fishways
River Murray Channel and Floodplain	Action A: Target 10,000 ML/day mid-September to December. Action B: Target >15,000 ML/day for at least 25 days in later November to December and supporting channel flows during warmer months January/February.	Sept - Dec Nov - Dec	**535 GL** **175 GL**	Action A: 10,000 ML/d: • Flow and habitat for Murray cod recruitment • Lower stratification / algal risks Action B: ≥15,000 ML/d pulse: • Golden perch recruitment - improve velocity • Inundate riparian vegetation in tailwaters
Weir Pools	Option A: WP raising to maximum height depending on flows: WP1 +10 cm; WP2 +50 cm; WP4 +30 cm; WP5 + 50 cm; WP6 +40 cm. *Note: timing may change based on floodplain operations and/or river Channel outcomes.	Optimal: Sept – Dec Alternate: Aug – Nov*	33.4 GL fill & losses, 26.1 GL return flows. Total at least **6.7 GL** (use at L6 still to be modelled)	• Support improved vegetation condition through inundation and improved soil water availability • Support survival of tree seedlings/saplings that germinated in 2022-23

Site	Management action(s)	Timing	Volume	Ecological Outcomes and Objectives
	Option B: WP raising to lower heights depending on flows: WP1 +10 cm; WP2 + 30 cm; WP4 +30 cm; WP5 +30 cm WP6 +20 cm. Option C: WP raising in Autumn if WP raising in Spring is not viable: WP1 +10 cm; WP2 +30 cm; WP4 +30 cm; WP5 +13cm; WP6 +20cm.	Timing as above Mar – May	Total at least **4.7 GL** TBD (waiting on modelling)	• Provide additional habitat for waterbirds, frogs and other wildlife in potentially on-going dry conditions.
Chowilla	Action C1: Low-level regulator operation 18.5 m AHD and WPR L6 +40 cm. Or Action C2: in-channel regulator operation 18.1 m AHD and no WPR (i.e. L6 +0 cm). Note: Chowilla operations may be between C1 and C2 depending on actual flows in the river and timing and duration AND (for both C1 and C2) Action A: Pump up to 12 priority Wetland sites. Action B: Manage inflows via Pipeclay Creek and Slaney Creek weirs.	Sept – Dec Jul – Dec** Winter-Spring OR Autumn All year	20.6 GL fill & losses, 12 GL return flows. **Total 8.6 GL** 14 GL fill & losses, 51 GL passing flows (Jul-Sept), 6 GL return flows. **Total 59 GL** **8-10 GL** 0 GL	• Support localised maintenance in the condition of trees and provide follow up watering to seedlings/saplings that germinated in 2022-23. • Provide feeding and breeding habitat for waterbirds, frogs and other wildlife in potentially on-going dry conditions. • Improve local soil moisture and support the growth of understory and aquatic vegetation. • Provide the stimulus for the food web that will contribute to food supplies for a range of floodplain and terrestrial biota. • Maintain the mosaic of in-stream habitats particularly the fast-flowing habitats to support native fish including Murray cod.
Pike	Option A: Low-level managed inundation, raising environmental regulators by 0.65 m to 15.2 m AHD; WPR L5 +50 cm. AND Option D: Pumping Mundic wetland Option E: Pumping Tanyaca horseshoe floodplain	Sept - Dec (pending potential infrastructure works) Sept – Dec Sept – Dec	18.3 GL fill & losses, + 70 GL passing flows (Sept - Nov), 13.8 GL return flows. **Total 74.5 GL** Pumping volumes are included in MDBLB wetland team pumping volumes	Regulator action: • Cue small-scale frog breeding • Encourage expansion of littoral edge vegetation • Increase inundated habitat for aquatic invertebrates to fuel food web • Increase bank storage of water to maintain mature floodplain tree condition • Support persistence of tree seedlings that germinated post-flood Pumping Tanyaca Horseshoe floodplain: • Support regeneration of lignum, river cooba and eucalypts in previously cleared area

Site	Management action(s)	Timing	Volume	Ecological Outcomes and Objectives
				• Support emergence of aquatic invertebrates from resting stages and provide foraging habitat for frogs and waterbirds. Pumping Mundic wetland: • Support black box regeneration, tangled and spiny lignum condition • Provide habitat and opportunity for frog breeding and shallow foraging habitat for waterbirds • Support renewal of aquatic plant seedbanks.
Katarapko	Option A: Low-level managed inundation (12.2 m AHD) and WPR L4 + 30 cm. AND/OR Option D & E: Pumping Piggy Creek, Piggy Creek Lagoon and Boyties Lagoon	Jul – Dec Sept – Dec	9.1 GL fill and losses, + 76.5 GL passing flows (Jul - Oct), 7.8 GL return flows. **Total 77.8 GL** Included in MRLB wetland pumping volumes	• Replenish bank-stored soil moisture • Encourage expansion of littoral vegetation • Impart resilience to mature trees in low-lying riparian zones • Provide follow up watering to tree seedlings/saplings that germinated in 2016 and 2022-23 • Arrest declining lignum condition • Cue small-scale breeding for frogs and waterbirds Pumping: • Provide additional habitat and breeding opportunities for frogs and waterbirds • Improve wetland lignum condition
Wetlands	Potential pumping to up to 58 wetlands along the River Murray.	All year	Up to **25.8 GL**	

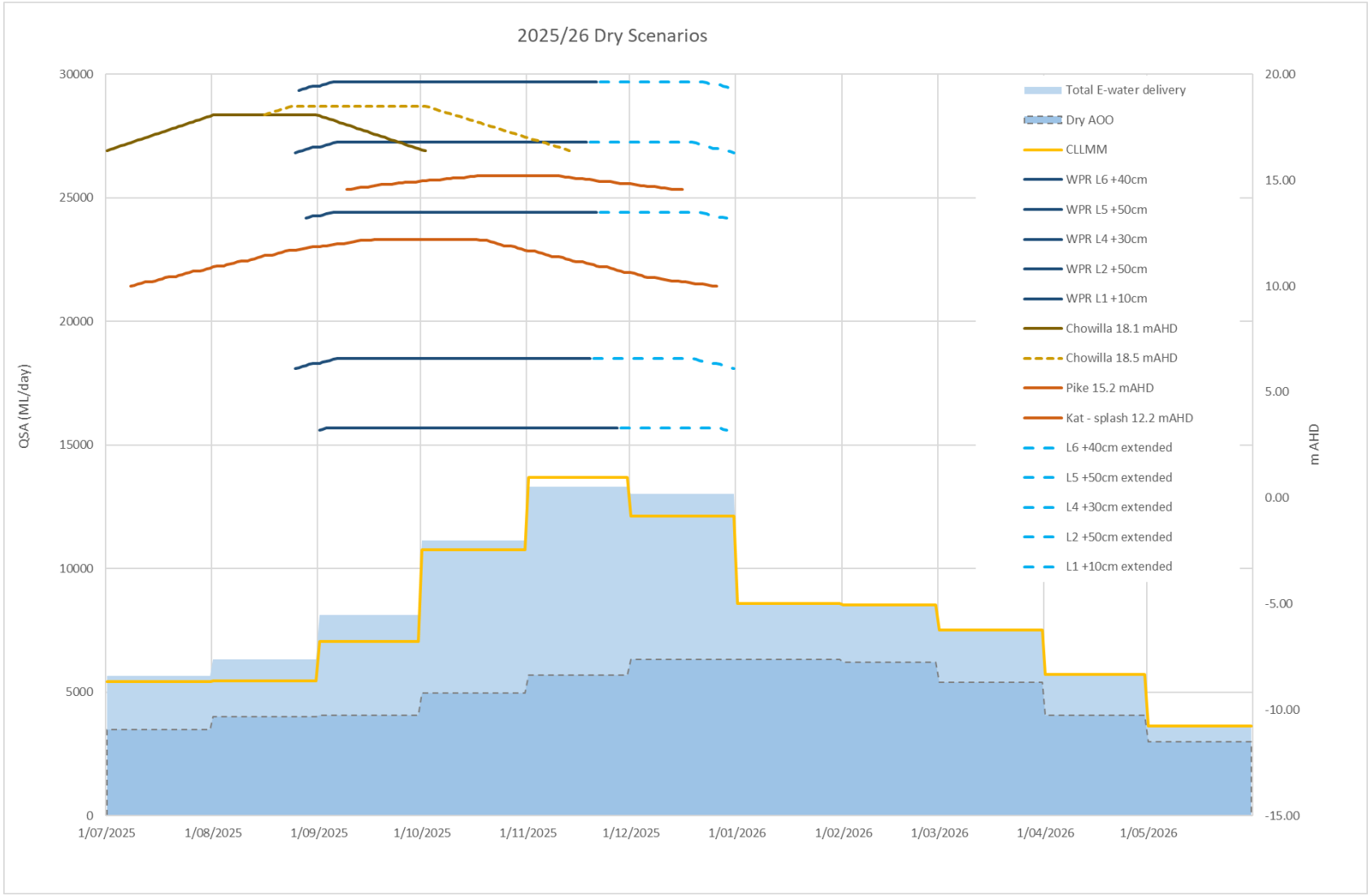


Figure 4. Preferred delivery pattern of SA multi-site environmental water and operations under a Very Dry (95%), Dry (90%) and Moderate Annual Operating Outlook (AOO) scenario.

Near Average (50%) scenario

Table 7: Near Average (50%) AOO: Proposed operations and objectives for the multi-site

Site	Management action(s) / objectives	Timing	Volume	Ecological Outcomes and Objectives
CLLMM	Action A: 12,000 to 20,000 ML/d at the SA border for the action duration, peaking in October and November. Action B: 4,000 to 8,500 ML/d at the SA border for the action duration.	Oct – Dec Jan – Jun	**750 GL** **290 GL**	Action A: • Ruppia growth and reproduction • Whole of Coorong foodweb benefits (plants, invertebrates, fish, waterbirds) Action B: • Same outcomes as action C in the Dry/Moderate scenario
River Murray Channel and Floodplain	Action A: Enhance unregulated flow to peak ≥31,000 ML/day in September. Action B: Reducing to ≥15,000 ML/d in October and channel spring pulse peaking at ≥18,000 ML/d in late November, and increasing flows in channel in the warmer months Dec to March	Aug - Sept Oct – Mar	**289 GL** **643 GL**	Action A: ≥ 31,000 ML/d enhanced peak: • Inundate higher levels of vegetation • Support red gum saplings • Temporary wetland connectivity for waterbirds and frogs. Action B: >18,000 ML/d spring pulse: • Improve velocity • Improve large-bodied native fish recruitment.
Weir Pools	Option A: WP raising to maximum heights: WP1 +10 cm; WP2 + 30 cm; WP3*** +22 cm; WP4 +30 cm; WP5 +50 cm; WP6: +40 cm. ***Action at WP3 will only be undertaken if QSA >20,000 ML/d. Option B: winter WPL (within NOR) prior to spring WPR – however this option will be managed adaptively depending on floodplain operations and any spring pulse or enhanced flow action that might occur.	Optimal: Sept – Dec Alternate: Aug – Nov	50.2 GL fill & losses 31.2 GL return flows Total at least **8.2 GL** *use at L6 to be modelled	• Support improved vegetation condition through inundation and improved soil water availability • Support survival of tree seedlings/saplings that germinated in 2022-23 • Provide additional habitat for waterbirds, frogs and other wildlife in potentially on-going dry conditions.
Chowilla	Action D1: Low to medium regulator operations to 19.35 m AHD and WPR L6: +40 cm. Note Action D1 is included in the multi-site volumes as L6 maximum height in 2025-26 is likely to only be +40cm. Action D2: Low to medium regulator operation 19.5 m AHD and WPR L6 +60 cm.	Jul – Nov Jul – Nov	56.2 GL fill and losses 32.8 GL return flows **Total 23.4 GL** 68.5 GL fill and losses	• Support broadscale maintenance in the condition of trees. • Provide follow up watering to seedlings/saplings that germinated in 2022-23, particularly black box and river cooba. • Create a mosaic of connected wetland habitats providing feeding and breeding habitat for waterbirds, frogs and other wildlife. • Improve broadscale soil moisture

Site	Management action(s) / objectives	Timing	Volume	Ecological Outcomes and Objectives
	AND (for both A and B) Action C: Pump up to 12 priority Wetland sites Action D: Manage inflows via Pipeclay Creek and Slaney Creek weirs	Winter-Spring Or Autumn All year	39.3 GL return flows **Total 29.2 GL** **8-10 GL** **0 GL**	• Support the germination and growth of understory and aquatic vegetation. • Remaining outcomes are the same as the Dry/Moderate AOO scenario.
Pike	Action B: Medium extent regulator operation 15.5 m AHD and WPR L5 +50 cm. AND Option D: Pumping Mundic wetland Option E: Pumping Tanyaca horseshoe floodplain	Sept/Oct – Dec	21.7 GL fill & losses 16 GL return flows **Total 5.7 GL**	• Includes outcomes noted for Dry/Moderate scenario • Inundates an increased area of lignum and shedding floodplain that fringes permanent waterbodies. • This provides increased area of shallow foraging habitat for waders, increased frog habitat and opportunity for understorey vegetation succession across a more extensive area compared with Action A.
Katarapko	Action B: Medium extent regulator operation 12.9 m AHD and WPR L4 +30 cm.	Jul - Dec	12.1 GL fill & losses 10.2 GL return flows **Total 1.92 GL**	• As above for Dry/Moderate with inundation of an increased area of lignum that fringes permanent waterbodies. • Increased area of shallow foraging habitat for waders. • Connect anabranch creeks to the large temporary wetlands to support frog breeding and resident waterbird breeding.
Wetlands	Potential pumping to up to 58 wetlands along the River Murray.	All year	Up to **25.8 GL**	

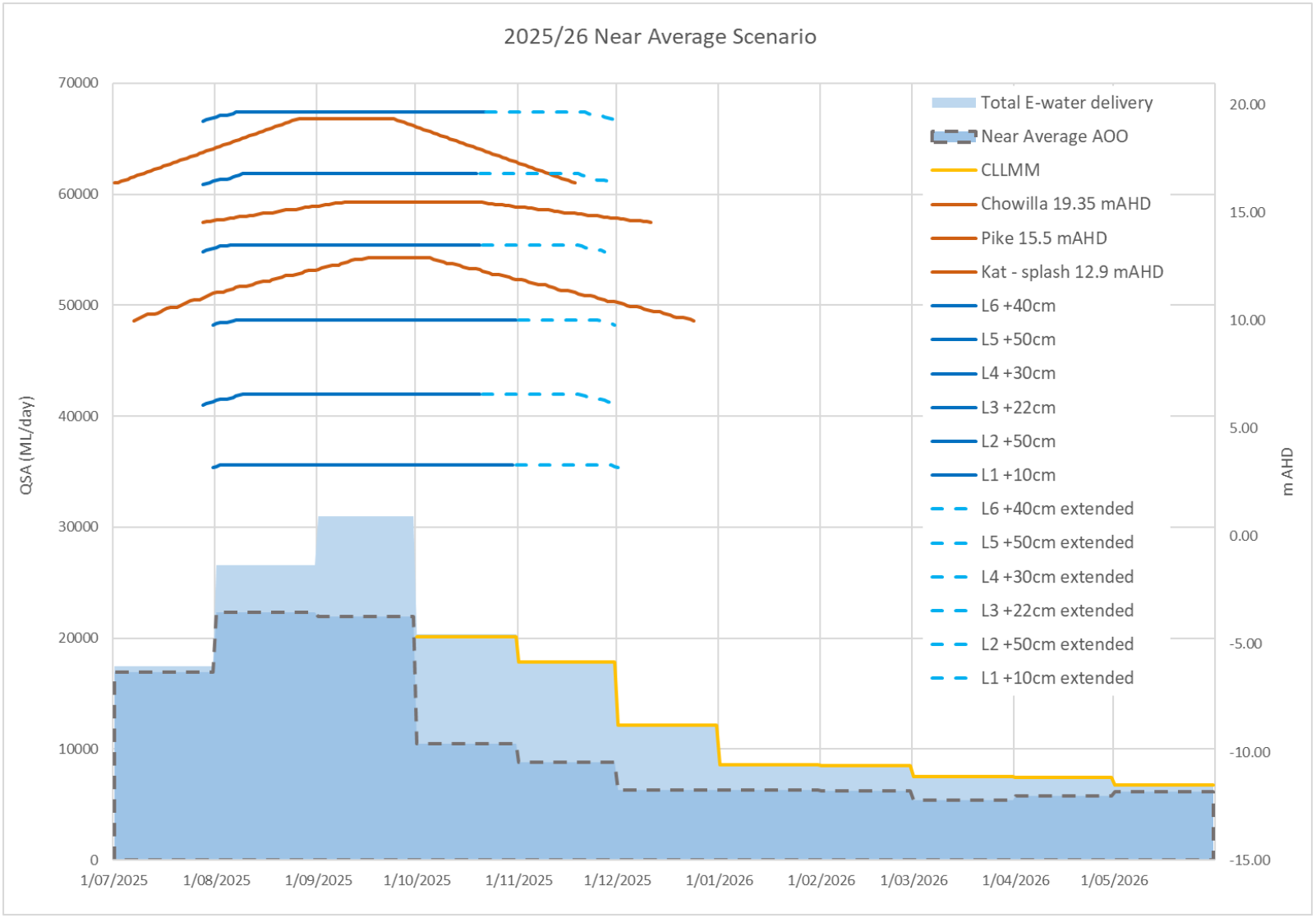


Figure 5. Preferred delivery pattern of SA multi-site environmental water and operations under a Moderate (75%) Annual Operating Outlook (AOO) scenario.

Wet Scenario (25%) scenario

Table 8: Wet (25%) AOO: Proposed operations and objectives for the multi-site

Site	Management action(s) / objectives	Timing	Volume	Ecological Outcomes and Objectives
CLLMM	Action A: 12,000 to 35,000 ML/d at the SA border for the action duration peaking in November. Action B: 7,660 to 11,000 ML/d at the SA border for the action duration.	Nov – Jan Feb – Jun 2026	**570 GL** **255 GL**	Action A: • Same outcomes as action A in the Near Average scenario Action B: • Same outcomes as action B in the Near Average scenario
River Murray Channel and Floodplain	Action A: Enhance flow peak to ~60,000 ML/day in September, enhance flows up to 40,000 ML/day in October and slow rate of recession of unregulated flow till February. NOTE: enhancing flows for system scale benefits is prioritised over individual site-based operations and outcomes.	Sept – Feb	**946 GL**	• Area of inundated floodplain. • Long-lived vegetation condition • Support black box and red gum saplings. • Achieve all channel EWRs and FP1 and FP2
Weir Pools	Action A: WP raising to maximum heights: WP3 +22 cm; WP5 + 50 cm; WP6 + 40 cm. Note: at flows above 50 GL/d, the above weir pools will be removed so weir raising will not be possible.	Optimal Sept – Dec Alternate: Aug – Nov	TBD pending further modelling	Maximise inundation without compromising in channel velocities to achieve the following outcome: • Support improved vegetation condition through inundation and improved soil water availability • Support survival of tree seedlings/saplings that germinated in 2022-23 • Provide additional habitat for waterbirds, frogs and other wildlife in potentially on-going dry conditions.
Chowilla	Action E1: Higher extent regulator operation 19.65 m AHD and WPR L6 +40 cm. Operations may start in July, and will likely cease as flows approach 50,000 ML/d. AND Action C: Pump at up to 12 priority Wetland sites Action D: Manage inflows via Pipeclay Creek and Slaney Creek weirs	Jul and Aug (if flows enhanced) Otherwise: Jul - Nov Autumn All year	**6.2 GL** in July **50 GL** in Aug (Total 31.6 GL if operations continue) **8-10 GL** **0 GL**	• Ecological outcomes are the same as the Near Average AOO scenario.

Site	Management action(s) / objectives	Timing	Volume	Ecological Outcomes and Objectives
Pike	No operations			N/A
Katarapko	Action C: High extent regulator operation to 13.2 m AHD with WPR L4 +30 cm. TBD operations may start in July, and cease if flows increase, or if a unregulated flow peak is expected to have a short duration operations may involve the regulator to increase magnitude or duration of that short flow peak.	July - TBD	19.8 GL fill and losses 18 GL return flows **Total 1.8 GL**	Depending on flow: • Either structure open to facilitate biological connectivity. OR • Operate around a peak to achieve greater inundation or longer duration inundation to reach higher elevation trees, seedlings and lignum.
Wetlands	No/very limited pumping of wetlands. Sites are inundated by AOO and enhanced flows.	All year	Negligible	

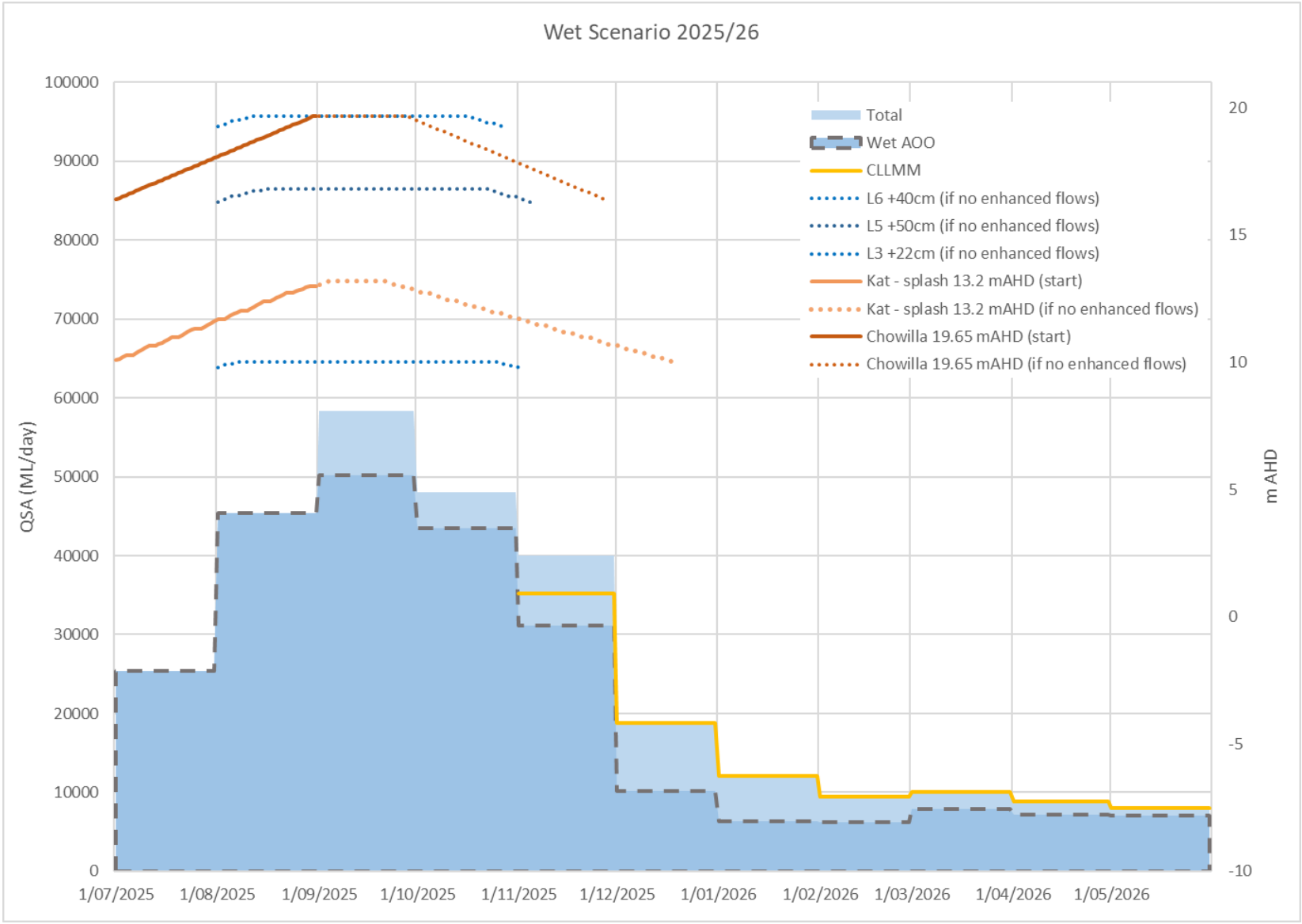


Figure 6. Preferred delivery pattern of SA multi-site environmental water and operations under a Wet (25%) Annual Operating Outlook (AOO) scenario.

Appendix B

Potential temporary wetland watering sites in 2025-26

The following list is indicative only and based on sites identified by the MRL Board only, noting a range of other sites are under consideration for watering in 2025-26 by other NGOs. Sites may be added to or removed from consideration as conditions change and or new information becomes available. The temporary wetlands that are identified as priorities to receive water in 2025-26 may change to accommodate emerging priorities and feasibility of delivery.

Wetland Complex	Potential MRL Board wetland watering sites 2025-26
Akuna	Akuna
Banrock	Banrock Floodrunner
Banrock	Banrock Lagoon
Beldora/Spectacle Lakes	Beldora North Flats
Berri Evaporation Basin	Berri Evaporation Basin
Bookmark Creek	Bookmark Creek
Cadell	CAD1 Cadell Temporary Wetland
Cadell	CAD2 Cadell Ephemeral Wetland
Clarks	Clarks MHH Lagoon
Disher	Disher Creek
Katarapko	Gerard Lignum Basins
Gurra	GUR2 Lyrup Lagoon
Hogwash Bend	Hogwash Bend - Central Basin
Hogwash Bend	Hogwash Bend - North Basin
Hogwash Bend	Hogwash South Basin
Currency Creek	Investigator College
Katarapko	Katarapko Creek Floodrunners - North
Katarapko	Katarapko Creek Floodrunners - South
Katarapko	Katarapko Regent Parrot Floodrunner
Maize Island	Maize Island
Markaranka	Markaranka East Basin
Markaranka	Markaranka Floodrunner 2
Markaranka	Markaranka Floodrunner 5 + overspill
Markaranka	Markaranka Main Basin
Martins Bend	Martin Bend Temporary 1 & 2 (via Lagoon)
Martins Bend	Martin Bend Temporary 3
Milang Shores	Milang Snipe Sanctuary South
Molo Flat	Molo Flat Western Basin
Morgan CP	Morgan CP North (Bird and Meeting Lagoons)
Morgan CP	Morgan CP South
Morgan East	Morgan East
Murbpook	Murbpook Northern Floodrunners

Wetland Complex	Potential MRL Board wetland watering sites 2025-26
Wiela/Murtho	Murtho Park Flats
Wiela/Murtho	Murtho/Wiela Connector
Nikalapko	Nikalapko
Nilka	Nilkra (Taylor Flat)
Gurra	Old Loxton Road
Old Parcoola	Old Parcoola
Old Parcoola	Old Parcoola Floodrunners
Lawari CP/Hindmarsh Island/Kumarangk	Outer Wetlands
Overland Corner	Overland Corner - Lignum Basins
Overland Corner	Overland Corner - Main Basin
Paringa Paddock	Paringa Paddock Swales
Pyap	Pyap Lagoon - Surcharge
Qualco	Qualco QLC1
Swan Reach Complex	Sugar Shack - Wetland 3
Swan Reach Complex	Sugar Shack - Wetland 5 Surcharge
Swan Reach Complex	Sugar Shack - Wetland 6
Moorundie	Sweeney's Lagoon
Teringie	Teringie East
Tolderol	Tolderol Game Reserve
Whirlpool	Whirlpool Corner
Wiela/Murtho	Wiela
Wigley Reach	Wigley Central Channel
Wigley Reach	Wigley Dunes

Appendix C

Pool-connected wetlands undergoing management in 2025-26

The pool-connected (Class 9) wetlands likely to be managed for wetting and drying in 2025-26 are listed in the table below. Additional sites may be considered subject to observations and conditions throughout the year.

Wetland Complex	Wetland
Banrock	Banrock
Big Bend	Big Bend
Brenda Park/Scotts Creek	Brenda Park
Causeway Wetland Complex	Causeway - Little Duck Lagoon
	Causeway - Winding Creek
Devon Downs South	Devon Downs South
Hart Lagoon	Hart Lagoon
Irwin Flat	Irwin Flat

Wetland Complex	Wetland
Kroehn's Landing	Kroehn's Landing
Lake Merreti	Lake Merreti
Lake Woolpoolool	Lake Woolpoolool
Loveday Basins	Loveday Basin North
	Loveday Basin South
Loveday Lagoons (Mussels)	Loveday Lagoons – Pipeline and Sheepyard lagoons
	Loveday Lagoons – Mussels Lagoons
Martin Bend	Martin Bend
Morgan Lagoon (CP)	Morgan Lagoon CP
Morgans Lagoon - Lower Murray (LM)	Morgans Lagoon LM
Murbko South	Murbko South
Murbpook Lagoon	Murbpook Lagoon
Narrung	Narrung
Nelwart	Nelwart
Ngak Indau	Ngak Indau
Nigra Creek & Schillers Lagoon	Nigra - Schillers Lagoon
	Nigra - downstream outlet
North Caurnamont	North Caurnamont
North Purnong	North Purnong
Paiwalla	Paiwalla
Pilby Complex	Pilby - Depression
	Pilby Lagoon
	Pilby Creek
Pipeclay Billabong	Pipeclay Billabong
Pyap Horseshoe	Pyap Horseshoe
Ramco Lagoon	Ramco Lagoon
Reedy Creek	Reedy Creek
Riverglades	Riverglades
Silverlea	Silverlea
Slaney Billabong	Slaney Billabong
Spectacle Lakes/ Beldora	Spectacle Lakes / Beldora
	Beldora Lagoon
Sugar Shack	Wetland 10
	Wetland 2
	Wetland 5
	Wetland 13
Sweeney's Lagoon	Sweeney's Lagoon
Teal Flat Complex	Teal Flat
	Teal Flat Hut

Wetland Complex	Wetland
Teringie	Teringie
Waltowa	Waltowa
Wongulla Lagoon	Wongulla Lagoon
Yatco	Yatco North
	Yatco South

Published by the Department for Environment and Water.
Government of South Australia

Telephone +61 (8) 8595 2253

ABN 36702093234

Report prepared by:
Department for Environment and Water
Water and River Murray Division
Water Infrastructure and Operations Branch

www.environment.sa.gov.au

Government of South Australia

Department for Environment and Water