South Australian River Murray Water for the Environment Report 2024-25



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 Government of South Australia 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 should be aware that this publication may contain images of deceased persons or culturally sensitive material.

Acknowledgements

The South Australian River Murray Water for the Environment Report was prepared by staff in the Department for Environment and Water with contributions from the Murraylands and Riverland Landscape Board, Accolade Wines, Australian Landscape Trust and Renmark Irrigation Trust. A draft was provided to the Commonwealth Environmental Water Holder and The Living Murray Program, with their feedback improving the quality of the Report.

The following agencies and organisations are acknowledged for their important role in the management of water for the environment:

- Accolade Wines, Banrock Station
- Australian Landscape Trust, Calperum Station
- Bio-R Australia
- BirdsSA
- Chowilla Community Reference Committee
- Commonwealth Environmental Water Holder
- Commonwealth Scientific and Industrial Research Organisation
- Coorong, Lower Lakes and Murray Mouth Community Advisory Panel
- Coorong, Lower Lakes and Murray Mouth Scientific Advisory Group
- First Peoples of the River Murray and Mallee Region
- Flinders University
- Gerard Country Ranger Team
- Investigator College
- Katarapko Community Advisory Panel
- Murray-Darling Basin Authority, including The Living Murray program
- Murraylands and Riverland Landscape Board
- Nature Foundation
- Nature Glenelg Trust
- New South Wales Department of Climate Change, Energy, the Environment and Water
- Ngarrindjeri Aboriginal Corporation
- Pike Community Reference Committee
- Raukkan Community Council
- Renmark Irrigation Trust
- River Murray and Mallee Aboriginal Corporation
- River Murray Channel and Floodplain Scientific Advisory Group
- SA Water
- South Australian Research and Development Institute
- The Conservation and Hunting Alliance of SA
- The University of Adelaide
- The Goolwa to Wellington Local Action Planning Association Inc.
- The Mannum Aboriginal Community Association Inc.
- The National Trust of SA (Overland Corner)
- The SA Regent Parrot Recovery Team
- Treasury Wine Estates
- Victorian Environmental Water Holder
- Wetland Habitats Trust

Cover image: An inundated Lake Littra from above in December 2024. Credit: DEW.

Executive Summary

After four years of moderate to very wet conditions, the 2024-25 water year saw a dramatic return to dry conditions with some areas of the Murray Darling Basin experiencing the highest temperatures and lowest rainfall on record. Notably, this was the first water year since 2019-20 where there were no unregulated flow events, making the delivery to South Australia of almost 1,400 gigalitres (GL) of water for the environment particularly important. Water for environment provided 46 per cent of all water delivered across the South Australian Border and came from a variety of holders, including the Commonwealth Environmental Water Holder, The Living Murray and the South Australian Minister for Environment and Water, with a large portion of this water being return flows from upstream environmental watering actions.

Within South Australia, a range of environmental watering actions were undertaken producing many positive outcomes. Some of the highlights of 2024-25 included:

- elevated in-channel flows along the length of the River Murray in South Australia during the critical spring-summer period due to the arrival of return flows from upstream watering actions
- a significant pumping program on the Chowilla Floodplain, inundating approximately 700 hectares of highly productive ephemeral wetland habitat and generating an incredible waterbird response with thousands of waterbirds observed, including threatened and migratory species, and multiple swan breeding events
- combining low-level regulator operations with pumping to priority wetlands, maintaining pockets of green in the form of native amphibious and flood-responding plants on the Pike and Katarapko Floodplains
- management of almost 100 pool-connected and ephemeral wetlands supporting growth and recruitment by native aquatic plants and animals at locations spread from the Riverland region to around the Lower Lakes
- a widespread positive frog response including records of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC)-listed southern bell frog calling at over 15 sites and an abundance of tadpoles from a range of species
- almost 900 GL released from the barrages providing continuous connectivity between freshwater and estuarine environments
- detection of breeding and young-of-year Murray hardyhead, an EPBC-listed native fish species, at Lower Lakes sites indicating that this population may be self-sustaining.

The effective management and monitoring of water for the environment to achieve these types of outcomes is a collaborative effort between environmental water holders, river operators, First Nations, scientists, community groups and environmental managers from a range of organisations and remains a focus of the South Australian Government.



Round-leaf pigface *(Disphyma crassifolium).* Credit: DEW.

Abbreviations

AHD	Australian Height Datum
AOO	Annual Operating Outlook
AWA	Aboriginal Waterway Assessment
BOM	Bureau of Meteorology
CAMBA	China-Australia Migratory Bird Agreement
CEWH	Commonwealth Environmental Water Holder
CLLMM	Coorong, Lower Lakes and Murray Mouth. Also refers to the Lower Lakes, Coorong and Murray Mouth 'The Living Murray' Icon Site.
DEW	Department for Environment and Water
EC	Electrical Conductivity
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
Flow-MER	CEWH's Monitoring, Evaluation and Research (Flow-MER) Program
GL	Gigalitres
HEW	Held Environmental Water
IPP	The Living Murray's Indigenous Partnerships Program
JAMBA	Japan-Australia Migratory Bird Agreement
MDBA	Murray–Darling Basin Authority
ML	Megalitre (a million litres)
NAC	Ngarrindjeri Aboriginal Corporation
NPW Act	*National Parks and Wildlife Act 1972*
QSA	Flow at the South Australian border
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement
RMIF	River Murray Increased Flow
SA River Murray LTWP	Long-Term Environmental Watering Plan for the South Australian River Murray
SCBEWC	Southern Connected Basin Environmental Watering Committee
TLM	The Living Murray Program
VEWH	Victorian Environmental Water Holder
YOY	Young of Year



Black Swan family at Ral Ral Creek. Credit: DEW.

Contents

Acknowledgements iii

Executive Summary iv

Abbreviations v

Introduction and Purpose 1

Planning for Environmental Watering 2

Overview of Flow Conditions in 2024-25 3

Environmental Water Delivery 4

Outcomes of Water Delivery 6

South Australian River Murray Channel and Floodplain 7

River Murray Channel Flows 7

Weir Reaches 1, 2, 3, 4, 5 and 6 8

Chowilla Floodplain 9

Pike Floodplain 11

Katarapko Floodplain 13

Wetlands 16

Pool-Connected Wetlands 16

Ephemeral Wetlands 18

Murraylands and Riverland Landscape Board 18

Renmark Irrigation Trust 19

Coorong, Lower Lakes and Murray Mouth 21

Lake Level Management and Barrage Releases 21

Partnering with First Nations 24

Communications and Engagement 27

Monitoring 29

Appendix A 30

Water for the Environment Actions Planned for 2024-25 30

Appendix B 31

Environmental Watering Actions Undertaken in 2024-25 31

Appendix C 32

Managed Pool-Connected Wetlands 32

Appendix D 34

Pumped Wetlands 34

Appendix E 36

References 36

List of Figures

Figure 1. Actual flows to South Australia (QSA) in 2024-25 without water for the environment compared to planning scenarios. 2
Figure 2. Australian mean temperature deciles (top) and Murray-Darling Basin rainfall deciles (bottom) 1 July 2024 to 30 June 2025. Source: Bureau of Meteorology. 3
Figure 3. River Murray flows at the South Australian border (QSA) in megalitres per day (ML/day) during 2024-25. 3
Figure 4. Proportion of water for the environment delivered to SA that was contributed by each water holder in 2024-25. 4

List of Tables

Table 1: Summary of water for the environment actions proposed under the very dry/dry water resource scenario in the 2024-25 Annual Plan 30
Table 2: Volume of water for the environment delivered across the South Australian River Murray region from different water holders (e.g. Commonwealth Environmental Water Holder (CEWH), The Living Murray (TLM), South Australian Minister for Climate, Environment and Water (SA), Victorian Environmental Water Holder (VEWH), River Murray Increased Flow (RMIF) and private holdings in SA (Private) in 2024-25. 31
Table 3: Pool-connected wetland complexes managed in 2024-25 by Accolade Wines, SA Department for Environment and Water (DEW), Murraylands and Riverland Landscape Board (MRLB), Australian Landscape Trust (ALT) Accolade Wines and Nature Foundation (NF). Includes 49 wetlands across 40 wetland complexes. 32
Table 4: Volume of water for the environment delivered to a total of 47 pumped wetlands by the SA Department for Environment and Water (DEW), Murraylands and Riverland Landscape Board (MRLB), Renmark Irrigation Trust (RIT) and Australian Landscape Trust (ALT) in the South Australian River Murray region in 2024-25. 34

Introduction and Purpose

The planning, delivery, monitoring, evaluation and reporting of water for the environment within the South Australian River Murray is coordinated by the Department for Environment and Water (DEW) in collaboration with First Nations, other government agencies, research organisations, non-government organisations and community groups.

The primary purpose of this report is to provide a complete and public record of all environmental watering actions, regardless of water holder or manager, undertaken in the South Australian River Murray region throughout the 2024-25 water year. It fulfils the South Australian Government's commitment to the Council of Australian Governments (COAG) to publish an annual report on the use of River Murray water for the environment in South Australia (SA) for public information sharing (National Water Initiative Policy Guidelines for Water Planning and Management; COAG, 2010) and is in addition to the reporting undertaken by DEW to meet the requirements of the Murray-Darling Basin Plan (Basin Plan).

Water for the environment delivered in 2024-25 was provided by a number of water holders including the South Australian Minister for Climate, Environment and Water, the Commonwealth Environmental Water Holder (CEWH), The Living Murray (TLM) program, the Victorian Environmental Water Holder (VEWH) and New South Wales Department of Climate Change, Energy, the Environment, and Water (NSW). Along with DEW, there are a number of other organisations involved in delivering the water to sites located throughout the South Australian River Murray, these include the Murraylands and Riverland Landscape Board (MR Landscape Board), Renmark Irrigation Trust, Australian Landscape Trust and Accolade Wines.

Throughout this report, 'water for the environment' refers to *held environmental water*, which is water available under a water access right (e.g. water licence) for the purposes of achieving environmental outcomes. Environmental outcomes are also underpinned by *planned environmental water*, which is water protected via a plan or legislation, such as unregulated flows, that cannot be used for non-environmental purposes (unless in an emergency). Receiving planned environmental water is critically important to achieving environmental outcomes in SA.

This report provides a record of environmental watering activities along the South Australian River Murray during the 2024-25 water year and includes:

- an overview of river conditions in 2024-25
- a summary of the water for the environment actions undertaken, including sites and volumes
- key environmental observations and outcomes
- a list of reports that provide detailed information about monitoring and ecological outcomes.



Blue ringtail damselfly (*Austrolestes annulosus*) at Lake Limbra. Credit: H Kieskamp.

Planning for Environmental Watering

The watering actions undertaken throughout the 2024-25 water year were identified in the 2024-25 Water for the Environment Annual Plan for the South Australian River Murray (2024-25 Annual Plan) (DEW, 2024) and guided by the Basin Annual Environmental Watering Priorities 2024-25 (MDBA, 2024), the Long-Term Environmental Watering Plan for the South Australian River Murray Water Resource Plan Area (DEW, 2020) and the Basin-Wide Environmental Watering Strategy (MDBA, 2019). These documents (available on the DEW website), together with site-based management plans, describe key ecological objectives and targets for environmental watering in SA.

The 2024-25 Annual Plan describes the planning process undertaken in the lead up to the water year. A scenario-based planning approach is used, which enables flexibility in the delivery of water for the environment depending on the flow conditions experienced. The scenarios used in planning for 2024-25 are shown in Figure 1.

All environmental water holders and site managers in the region were invited to participate in the planning process which benefits from the input of First Nations groups, scientific experts and community groups, including the Coorong, Lower Lakes and Murray Mouth (CLLMM) Community Advisory Panel, CLLMM Scientific Advisory Group, SA River Murray Channel and Floodplain Scientific Advisory Group, the Ngarrindjeri Aboriginal Corporation and the River Murray and Mallee Aboriginal Corporation.

The proposed watering actions were submitted to the MDBA Southern Connected Basin Environmental Watering Committee (SCBEWC) and the CEWH in early 2024 to inform decisions on the use of water for the environment in SA, as well as system-scale planning for the southern Murray-Darling Basin. Representatives from SA, as well as New South Wales, Victoria, the MDBA, the VEWH, the CEWH, Murray Lower Darling Rivers Indigenous Nations (MLDRIN) and the Commonwealth Government attend SCBEWC[1].

Planning for Flexible Management

To facilitate the planning process, the MDBA provide planning hydrographs that describe hypothetical flow conditions under a range of climate scenarios (Figure 1). DEW and site managers planned for environmental watering actions based on these flow scenarios, as described in the 2024-25 Annual Plan (DEW, 2024). These scenarios are useful for planning purposes but are indicative only and do not serve as a forecast of flow conditions.

Comparison of the actual flow to SA without additional water for the environment in 2024-25 indicates the 'very dry' and 'dry' planning scenarios were most representative of the conditions experienced throughout most of the water year (see dashed line in Figure 1). More information on the actions planned for the 'very dry' and 'dry' scenarios, and an indication of which of these were achieved, is shown in Appendix A.

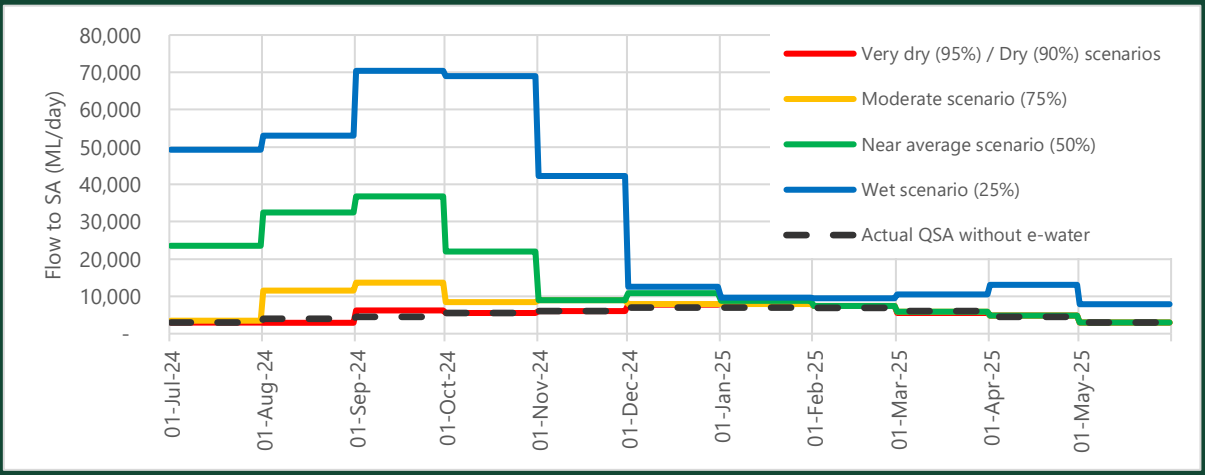


Figure 1. Actual flows to SA in 2024-25 without water for the environment compared to planning scenarios

[1] For more information regarding SCBEWC, refer to their annual reports.

Overview of Flow Conditions in 2024-25

Dry conditions

2023-24: Moderate
2022-23: Very Wet

3,017 GL total flow across the South Australian border

2023-24: 7,453 GL
2022-23: 23,085 GL

The 2024-25 water year saw warm and dry climatic conditions across the Murray-Darling Basin (BOM, 2025), following moderate conditions in 2023-24. The Northern Basin experienced temperatures very much above average, whilst much of the Southern Basin had the highest temperatures on record (Figure 2). Rainfall averages were highly variable across the Basin. Large areas of the Northern Basin saw above average rainfall, whilst the South Australian and western Victorian fringes of the Southern Basin experienced the lowest rainfall on record (Figure 2). Overall, Basin inflows in 2024-25 totalled less than half of the long-term median inflow volume (MDBA, 2025).

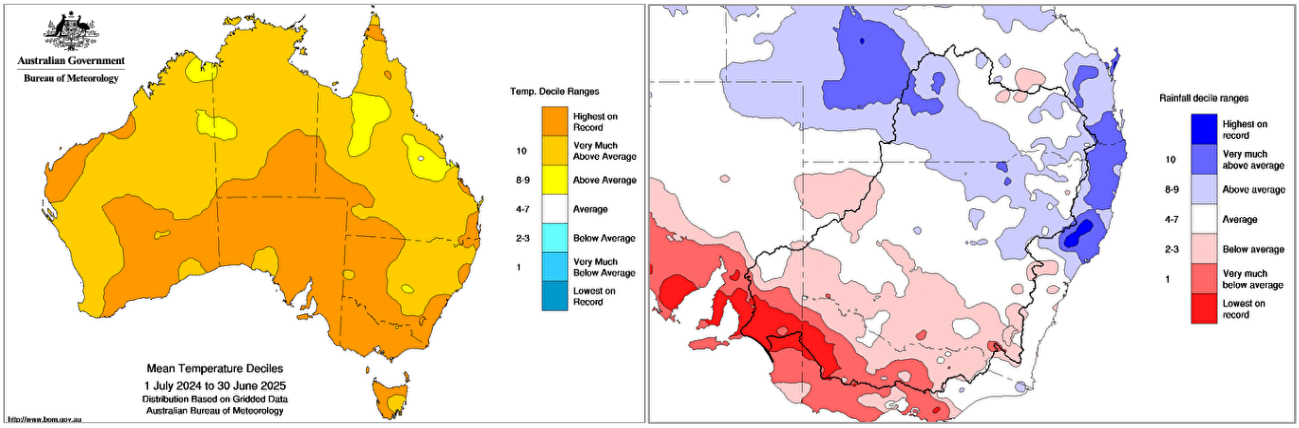


Figure 2. Australian mean temperature deciles (left) and Murray-Darling Basin rainfall deciles (right) 1 July 2024 to 30 June 2025. Source: Bureau of Meteorology.

SA received its full Entitlement throughout 2024-25, with a small volume of this Entitlement deferred from late August 2024 to the end of April 2025 and throughout June 2025 as part of SA's Storage Right. SA did not experience any unregulated flow events, and the only water SA received above Entitlement was from trade and the delivery of water for the environment. Flows to SA remained below 20,000 megalitres per day (ML/d) for the entire year, peaking on 25 October 2024 at 17,899 ML/day at the South Australian border (Figure 3). Modelling by the MDBA indicates that flow at the South Australian border would have peaked above 20,000 ML/day in late winter and remained at or above 18,000 ML/day throughout spring under natural conditions[2].

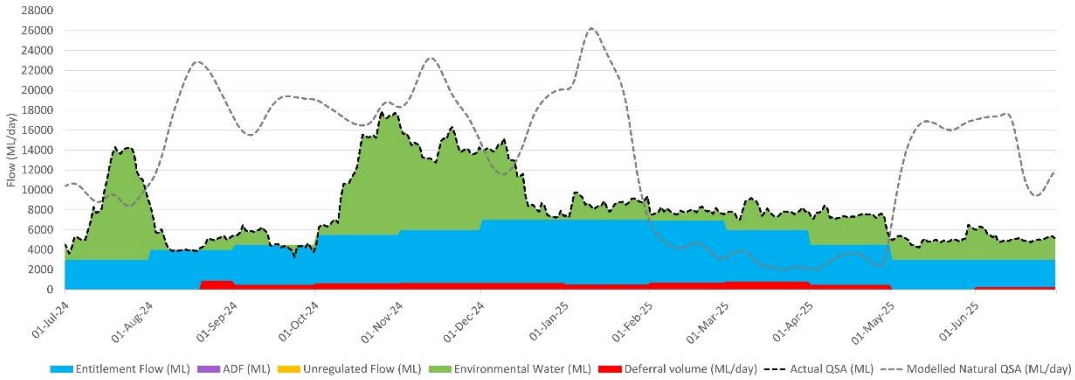


Figure 3. River Murray flows at the South Australian border (QSA) in megalitres per day (ML/day) during 2024-25.

[2] Natural conditions are representative of the scenario with no dams, weirs and consumptive diversions from the river but does not exclude impact of land use changes or levees in the river system

Environmental Water Delivery

1,394 GL water for the environment

27 GL pumped to wetlands and floodplains

894 GL released out the barrages

2 major floodplain regulators operated

In total, 1,394 GL[3] of water for the environment was delivered to SA (Appendix B). The CEWH provided 975 GL (including 162 GL held on licences in SA) and TLM provided 321 GL (including 45 GL held on licences in SA), or 70% and 23% of the total volume delivered to SA, respectively (Figure 4). SA also received 53 GL of water for the environment in the form of VEWH, NSW and River Murray Increased Flow (RMIF) return flows from upstream environmental watering actions, and 44 GL of water for the environment held in SA by the South Australian Minister for Climate, Environment and Water. A small volume of water for the environment held on a private licence (<2GL) and just under 15 GL of consumptive water were delivered for environmental outcomes in 2024-25 (Appendix B).

The majority of water for the environment (~1,315 GL or 94%) delivered to SA made its way along the length of the South Australian River Murray to the Lower Lakes and Coorong, providing ecological and water quality benefits throughout the system. The remaining 79 GL (6%) of water for the environment supported a number of successful environmental watering events including a main channel flow pulse, the operation of the Pike and the Katarapko floodplain regulators and the hydrological management of over 96 wetlands, which included the pumped delivery of water for the environment to 47 sites.

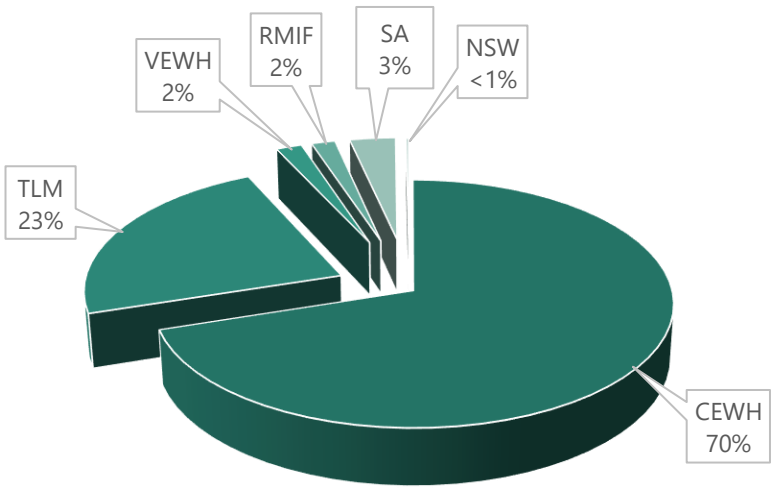


Figure 4. Proportion of water for the environment delivered to SA in 2024-25 by each water holder:

- *CEWH = Commonwealth Environmental Water Holder*
- *TLM = The Living Murray Program*
- *SA = SA Minister for Climate, Environment and Water (3.2%) and privately held (0.1%)*
- *VEWH = Victorian Environmental Water Holder*
- *RMIF = NSW (0.5%) and Victorian (1.2%) River Murray Increased Flow*
- *NSW = NSW Department of Climate Change, Energy, the Environment and Water*

[3] Volumes have been rounded to the nearest gigalitre.



Fringing vegetation at Pipeclay Billabong following environmental watering actions. Credit: DEW.

Outcomes of Water Delivery

To understand the ecological outcomes of the environmental watering actions undertaken within the South Australian River Murray, various monitoring programs have been implemented. Monitoring programs vary from a whole-of-Basin scale, such as CEWH's Monitoring, Evaluation and Research (Flow-MER) Program, to icon site scale such as the TLM Program condition and intervention monitoring, and to smaller site-scale programs funded variously by federal and state governments, and the MR Landscape Board.

The following section provides a summary of outcomes observed at key watering sites and the water for the environment that supported these outcomes.



Southern bell frog tadpoles caught during surveys at Werta Wert. Credit: DEW.

South Australian River Murray Channel and Floodplain

Several environmental watering events occurred across the South Australian River Murray Channel and Floodplain in 2024-25 including pumping to priority wetlands, low level operations of floodplain regulators at Pike and Katarapko Floodplains and delivery of a small in-channel flow pulse. The outcomes observed at a range of sites throughout the channel and floodplain are summarised in this section.

River Murray Channel Flows

1,336,424[1] ML delivered

>600 River km watered

Site Water Manager: DEW

Source of water: CEWH, TLM, VEWH, NSW, RMIF, SA Minister

Specific Ecological Objectives:

- Increase the availability of habitat with moderate-fast flowing water, particularly in spring
- Protect Murray cod habitat during their breeding season and support survival of larvae
- Promote successful breeding and survival of golden perch and silver perch larvae
- Vary water levels below the weirs to freshen groundwater and support native plant growth

Outcomes:

The 2024-25 water year opened with flows to SA at 4,324 ML/day. A winter pulse within the Goulburn River resulted in a pulse along the SA main river channel in July 2024, peaking at 14,219 ML/d in late July. There was a reduction in flows in late September 2024 to 3,280 ML/day due to a delayed start to the Southern Connected Basin spring-summer multi-site event. Once the multi-site action commenced, SA received return flows from October to December from a number of sources including approximately 140 GL from Victorian tributaries (including the Goulburn, Loddon, Campaspe and Broken Rivers), approximately 140 GL from the Murrumbidgee River spring fish pulse and approximately 260 GL of Hume releases as part of the multi-site action.

The spring pulse peaked at the SA border at 17,899 ML/day on 25 October 2024 leading to inundation of an additional 800 ha of riparian edge in Weir Pool 1 to Weir Pool 5. As part of the multi-site action, SA water managers worked with the CEWH and managers in the Murrumbidgee to secure an additional 20 GL in November which ensured that flows to SA exceeded 10,000 ML/day for over 60 days from mid-October into December 2024, during the critical breeding period for Murray cod (*Maccullochella peelii*; Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Preliminary results from the CEWH's Flow MER program showed the presence of Murray cod, golden perch (*Macquaria ambigua*) and silver perch (*Bidyanus bidyanus*; critically endangered under the EPBC Act) larvae that spawned during spring-summer of 2024. Although no golden and silver perch young-of-year were detected in SA, moderate numbers of Murray cod young-of-year were detected during the autumn electrofishing surveys in SA, and were widespread through SA and NSW areas. In late spring to autumn, water for the environment continued to maintain flows between 7,000 to 10,000 ML/day, which primarily supported CLLMM objectives such as maintaining barrage flow and Lower Lakes water levels.

Cod on the rise: *Spring flows support successful local Murray cod breeding*

Flows in spring-summer 2024-25 remained above 10,000 ML/day for 67 days during a critical period for Murray cod breeding. Subsequently, moderate numbers of Murray cod young of year that would have spawned during this period were detected during SARDI electrofishing surveys in autumn 2025 undertaken as part of the CEWH's Flow MER program.



Image: Juvenile Murray cod. Credit: SARDI Aquatic Sciences

[1] Includes 1,314,986 ML of water for the environment that was delivered to the CLLMM for environmental outcomes.

Weir Reaches 1, 2, 3, 4, 5 and 6

No weir pool manipulations

Site Water Manager: DEW

No weir pool manipulations were undertaken in 2024-25. Modest weir pool lowering within normal operating range were proposed for Weir Pools 1, 2, 4 and 6, however, these did not proceed due to several issues including navigation concerns following the 2022-23 floods.

Implementation of the weir pool monitoring program continued in 2024-25, providing important data on the condition of flora and fauna across the six weir reaches.

Waterbirds were monitored at 25 sites across the six weir pools, covering an area of 588 ha. These sites supported approximately 2,041 waterbirds, including 31 different species. Observations included musk duck (*Biziura lobata*) and Australasian darter (*Anhinga novaehollandiae novaehollandiae*), both rare under the *National Parks and Wildlife Act 1972* (NPW Act), and the Caspian tern (*Hydroprogne caspia*), a listed migratory species under the EPBC Act.


River turkey-bush (*Eremophila divaricata ssp. divaricata*). Credit: DEW.

Tree condition monitoring across all weir pools indicated the health of river red gum (*Eucalyptus camaldulensis*) and black box (*Eucalyptus largiflorens*) populations has improved over the period from 2022 to 2025. However, the number of dead or at-risk black box increased in 2025, while dead and stressed river red gums remained consistent over time.

Frog call monitoring detected seven different species of frog calling across 30 sites, with the overall abundance of frog calls increasing from the previous water year. Tadpole surveys were conducted at 18 sites. 1,398 tadpoles were caught with the majority of those captured at Plush's Bend near Renmark. Southern bell frogs (*Ranoidea raniformis;* Vulnerable under the EPBC Act) were observed at 4 new sites, including Roonka Conservation Park in Weir Pool 1 where the closest historical record (from 1.3km away) dates back to 1986.


Australasian swamphen (*Porphyrio melanotus*). Credit: DEW.

Chowilla Floodplain

10,313 ML pumped

700 ha watered

Site Water Manager: DEW

Source of water: TLM

Specific Ecological Objectives:

- Maintain and improve the condition of long-lived vegetation (i.e., black box, cooba and lignum)
- Support the ongoing growth of seedlings and saplings
- Optimising flow conditions by reinstating hydrodynamic diversity and lotic conditions
- Provide breeding refuge habitat for waterbirds, frogs and other biota
- Improve local soil moisture and support growth of understorey and aquatic vegetation
- Maintain or improve the diversity and abundance of key waterbird species

Outcomes:

A dry year saw water for the environment delivered to five ephemeral lakes and wetlands on the Chowilla Floodplain during spring, summer and autumn 2024-25. The sites included Coombool Swamp, Brand Bottle, Lake Littra, Werta Wert Wetland and Lake Limbra. In total, 10,313 ML (or 10 GL) of water for the environment was delivered to these sites via pumping, inundating over 700ha of wetland habitat. In addition, the regulating structures on all five of Chowilla's pool-connected wetlands were opened over spring and summer. Pipeclay Billabong, Pilby Lagoon, Pilby Creek, Rivermint Lagoon (formerly Lock 6 Depression) and Slaney Billabong were all inundated after receiving a full dry in the preceding months. The Chowilla Environmental Regulator was not operated given the low flows.

Extended water delivery to the floodplain wetlands provided a much-needed drink for long-lived amphibious and fringing vegetation. River cooba (*Acacia stenophylla*), lignum (*Duma florulenta*) and black box were all observed flowering around watered lakes in 2024-25. Thick stands of Cyperus, rushes and sedges interspersed with amphibious and floodplain understorey species to provide fantastic fringing habitat around the waterbodies.



Wavy marshwort in flower at Pipeclay Billabong. Credit: DEW.

Following several years of near absence, aquatic vegetation in Chowilla's large lakes and wetlands is now showing promising signs of recovery. High turbidity and fast flows from the 2022-23 flood, subsequent high flows, and multiple years of over-abundant carp across the floodplain likely caused this absence. Over the summer, the recovery was highlighted by broad expanses of red water milfoil (*Myriophllyum verrucosum*) establishing across Lake Littra, Werta Wert Wetland, and Coombool Swamp. Aquatic species such as swamp lily (*Ottelia ovalifolia*), wavy marshwort (*Nymphoides crenata*; Rare under the NPW Act), ribbonweed (*Vallisneria australis*) and red water milfoil were all observed growing in the clear, carp-free waters of Pipeclay Billabong after it was inundated from dry in mid-spring. Additionally, the vibrant red-hued *Azolla rubra* formed thick blankets across much of the surface of the wetland.

Delivery of pumped water for the environment created highly productive habitat for wetland birds. As a result, high abundances and diversity of birds were observed during spring surveys. Lake Limbra recorded approximately 4,500 wetland birds from 30 species, including the white-bellied sea-eagle (*Haliaeetus leucogaster*; Endangered under the NPW Act), and

the Australasian shoveler (*Spatula rhynchotis*) and blue-billed duck (*Oxyura australis*), both Rare under the NPW Act, and freckled ducks *(Stictonetta naevosa*; Vulnerable under the NPW Act).


Sacred kingfisher at Lake Littra. Credit: H Kieskamp.

Migratory bird species including sharp-tailed sandpipers (*Calidris acuminata*) and red-necked stints (*Calidris ruficollis*), both protected under international agreements, were observed feeding at Chowilla during their migration from the Arctic. Lake Littra recorded approximately 700 wetland birds from 30 species. Healthy lignum beds sheltered Australian spotted crake (*Porzana fluminea*) and supported Australian shelduck (*Tadorna tadornoides*) breeding. Sacred kingfishers (*Todiramphus sanctus*) were recorded breeding in woodland hollows at Werta Wert Wetland. Autumn surveys at Coombool Swamp showed the lake was supporting over 11,000 birds from 30 different species. Extended inundation allowed black swans (*Cygnus atratus*) to initiate multiple breeding events, with active nests, chicks and dependent young providing indicators of breeding success. Smaller-scale breeding was recorded among dotterels, stilts, ducks, cormorants, grebes and kingfishers, indicating that environmental watering played a role in maintaining populations for several species at the site.

Scoping out a Snipe

Excitingly, a Latham's snipe (*Gallinago hardwickii;* Vulnerable under the EPBC Act) was observed for the first time at Chowilla Floodplain, being recorded at different wetlands on two separate occasions; first utilising fringing habitat created at Werta Wert Wetland in late spring, and then again at Lake Littra during late summer. The repeated sightings indicates that the combination of watering sites attracted and retained this rare migratory wader over several months.


Latham's snipe, an EPBC-listed migratory species. Credit: H Kieskamp.

Chowilla has maintained a particularly high diversity of terrestrial bird species since the 2022-23 flood, with 74 species recorded during spring and 67 species recorded during summer of 2024-25. This is a high diversity when compared with the trend over the last decade or so and is likely due to a series of good-condition years on the floodplain, including interaction with environmental watering sites. The abundant resources that environmental watering sites produce, particularly insects and fringing flowering vegetation, attracts thousands of terrestrial birds at a time.

Spring/summer of 2024 saw successful frog breeding across the Chowilla Floodplain, with high species diversity and abundances recorded during frog call surveys. Seven species were heard calling during spring, including the southern bell frog and the painted frog, a burrowing species in the *Neobatrachus* genus which had not been recorded the previous year. Frog egg clusters were observed in fringing lignum at ephemeral wetlands in October. Fyke net surveys at both pumped ephemeral lakes and pool-connected wetlands captured high numbers of tadpoles from at least six taxa. Delivery of water via pumping inundated the vegetated fringes of wetlands, sustaining water levels in key breeding habitat throughout spring. It also sustained multiple breeding events for several species including the southern bell frog. Successful recruitment of burrowing frogs was confirmed at Lake Littra and Werta Wert, while southern bell frogs produced abundant tadpoles at Werta Wert and Brandy Bottle wetlands, with later-stage development noted in November and December.

Pike Floodplain

1,415 ML delivered

401 ha watered

Site Water Manager: DEW

Source of water: CEWH

Specific Ecological Objectives:

- Maintain and improve the condition of long-lived vegetation (i.e. river red gum and lignum)
- Provide diverse hydraulic conditions and complex habitats for flow dependent biota and processes
- Maintain water quality to support aquatic biota and normal biogeochemical processes
- Provide habitat conducive to supporting communities of riparian frogs
- Restore and maintain resilient populations for large-bodied native fish
- Establish and maintain a diverse plant community comprised of native flood-dependent and/or amphibious species

Outcomes:

Due to the dry conditions, watering actions focused on providing refuge habitat for fauna, supporting resilience of vegetation communities at low elevation and supporting post-flood regeneration of floodplain trees. Watering actions included a low-level raising of the Pike Regulator and pumping to two ephemeral wetlands.

Raising of the Pike Regulator commenced on 19 August 2024 at a slow rate averaging 0.02 metres per day. Water levels were raised upstream of the Pike Regulator by approximately 0.55 m to the target height of 15.10 m AHD, generating a water level equivalent of what would occur under river flows of approximately 50,000 ML/day. The target height was maintained for seven weeks from the 25 September to 12 November 2024, before being drawn down and returned to normal pool level on the 17 December 2024. Approximately 335 hectares were inundated on Pike Floodplain at the peak of the watering event, in addition to the permanently inundated anabranches and wetlands. This watering action used 1,120 ML of water. Weir 5 was not operated as part of delivering water for the environment to Pike Floodplain this year.

Pumping commenced at two locations, Tanyaca Horseshoe floodplain and Mundic Wetland, on 29 October 2024. A total of 150 ML was pumped to the Tanyaca Horseshoe Floodplain, inundating 43 hectares, and 145 ML of water was pumped to Mundic Wetland, inundating 23 hectares.

There was a modest decline in tree condition across the floodplain between the 2024 and 2025 surveys (Wallace, 2025). However, more than 70% of monitored viable river red gums were assessed as being in good condition in autumn 2025 (Wallace, 2025), reflective of the presence of permanent water and capacity to deliver water for the environment at low elevations more frequently, compared with higher elevation locations that typically support black box. Only 20 of 29 black box tree transects that were surveyed recorded more than 70% of trees in good condition, which was similar to the results in 2024 (Wallace, 2025).

Dry with a flush of green

The drying conditions saw a decline in understorey plant species richness and extent of occurrence of native amphibious and flood-responding plants in many locations across the Pike Floodplain. However, the temporary wetlands and anabranch channels that benefited from the low-level inundation and pumping saw an increase in extent of these plants. The dry conditions also saw water levels recede in semi-permanent waterbodies that had retained water since the flood, resulting in a flush of amphibious plant growth on the exposed damp substrate.



Aquatic vegetation response at Mundic Wetland. Credit: DEW.

Woodland bird and wetland bird species observed across the floodplain in 2024-25 surveys was very similar to 2023-24 surveys. Waterbird species richness was slightly higher in spring 2024 (39 taxa, Kieskamp 2025) compared with spring 2023 (33 taxa, Kieskamp 2023) when there were no watering actions undertaken.

A remarkable observation in spring was the recording of black-backed bitterns (*Botaurus dubius*), a cryptic species listed as Endangered under the NPW Act that has not previously recorded at Pike floodplain. They were seen and heard using their preferred very densely vegetated habitat, in low elevation areas where water for the environment was delivered via the Pike Regulator.

Two woodland bird species that require complex habitat were recorded – the western whistler (*Pachycephala fuliginosa*) and hooded robin (*Melanodryas cucullata ssp. cucullata*; Rare under NPW Act; Endangered under EPBC Act) (Kieskamp, 2025). Other observed woodland species of conservation significance included little friarbirds (*Philemon citreogularis*) and striped honeyeaters (*Plectorhyncha lanceolata*) (both Rare under NPW Act), as well as southern whiteface (*Aphelocephala leucopsis*; Vulnerable under the EPBC Act.

A range of raptor species, top predators of the productive floodplain ecosystem, were frequently observed (Kieskamp, 2025). Bird breeding occurred with red-capped robins (*Petroica goodenovii)*, eastern blue-bonnets (*Northiella haematogaster)*, sacred kingfishers *(Todiramphus sanctus),* whistling kites *(Haliastur sphenurus),* galahs *(Eolophus roseicapillas),* wedge-tailed eagles *(Aquila audax),* kookaburras (*Dacelo novaeguineae*), grey butcherbirds *(Cracticus torquatus),* red-kneed dotterels and Australasian darters all recorded raising young on Pike floodplain.

All of the riparian frog species known to occur within the region were detected calling at most of the survey sites, including southern bell frogs which were particularly active at Mundic Wetland.



Grey teal (*Anas gracilis*) at the Tanyaca Horseshoe pumping site. Credit: DEW.

Electrofishing surveys across 13 sites in Autumn 2025 captured a total of 10,721 fish from 14 species (11 native and 3 non-native) (Fredberg and Bice, 2025). The results of this survey revealed the fish assemblage to be similar to other sampling years that were also preceded by low to moderate within-channel flows (Fredberg and Bice, 2025). Such years typically support high abundances of small- and medium-bodied fish. The most abundant native species were, bony herring (*Nematalosa erebi*) (81% of catch), unspecked hardyhead (*Crateocephalus fulvus*) (5%) and Murray rainbowfish (*Melanotaenia fluviatilis*) (4%) (Fredberg and Bice, 2025). The most abundant non-native species were common carp (*Cyprinus carpio*) (4.5%) and goldfish (*Carassius auratus*) (1%) (Fredberg and Bice, 2025). Three species of conservation significance were sampled, namely: Murray cod (Vulnerable under the EPBC Act 1999); silver perch (Endangered under the EPBC Act 1999) and freshwater catfish (*Tandanus tandanus*) (Protected under the South Australian Fisheries Management Act 2007) (Fredberg and Bice, 2025). Good results for Murray cod have been observed in recent years following improved inflows into the Pike floodplain and this continued this year with recruitment evident and young of year fish sampled (Fredberg and Bice, 2025).

Katarapko Floodplain

268 ML delivered

125 ha watered

Site Water Manager: DEW

Source of water: CEWH

Specific Ecological Objectives:

- Maintain water quality to support aquatic biota and normal biogeochemical processes
- Restore and maintain resilient populations of foraging generalist fish
- Maintain and improve condition of long-lived vegetation (e.g. river red gum and lignum)
- Establish and maintain a diverse plant community comprised of native flood dependent and/or amphibious species
- Provide habitat conducive to supporting riparian frogs and waterbirds

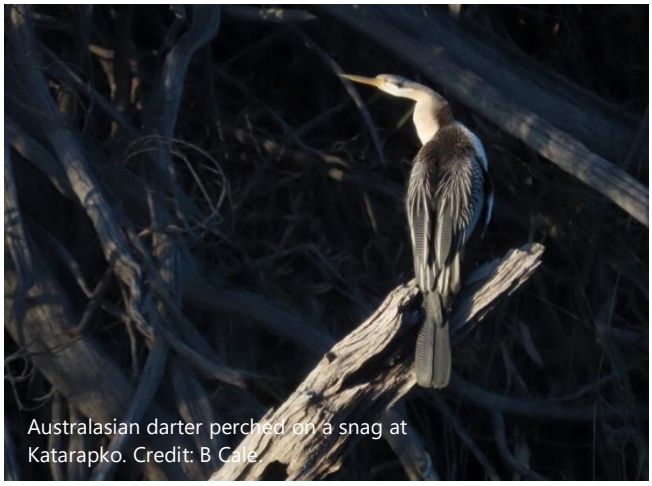
Outcomes:

A low-extent managed inundation operation was undertaken at the Katarapko Floodplain in 2024. Water levels upstream of the regulator were raised by 2.0 metres, reaching the target peak of 12.0 m AHD. Operations commenced on the 3 September and concluded on 17 December 2024. Peak water level was maintained for four weeks, from the 8 October to the 8 November 2024. This watering action elevated floodplain water levels to those typically associated with river flows of approximately 30,000 ML/day, resulting in the inundation of an additional 125 hectares beyond the areas that are permanently inundated. A total volume of 268 ML was delivered during the operation.

Tree condition monitoring showed a modest decline between the 2024 and 2025 surveys, reflective of site-wide drying conditions (Wallace 2025). For river red gum and black box transects, approximately 90% of transects were assessed as being in good condition, while 95% of mixed species transects were in good condition. For river cooba, however, there was a decline in tree condition and tree loss was recorded in four out of eight transects.


Pink cockatoos. Credit: B Cale.

Understorey vegetation surveys in 2025 suggested that diversity and abundance of flood dependent and amphibious species had declined at shedding floodplain and temporary wetlands since 2024, consistent with site-wide drying conditions (DEW 2025b). Lignum condition was either maintained or improved across the floodplain. Observations indicate some improvement in condition for low elevation lignum sites, which had declined in condition following prolonged inundation from the 2022-23 flood.


Australasian darter perched on a snag at Katarapko. Credit: B Cale.

Bird surveys undertaken in 2024-25 recorded 75 species of terrestrial birds utilising the Katarapko Floodplain over the spring, summer and autumn survey periods. Crimson rosellas (*Platycercus elegans*) were the most widespread species, recorded at all sites and during every visit (Cale 2025). In contrast, nine rare woodland species were detected, including the blue-faced honeyeater (*Entomyzon cyanotis cyanotis*), elegant parrot (*Neophema elegans),* Gilbert's whistler (*Pachycephala inornata*), hooded robin, little friarbird, restless flycatcher (*Myiagra inquieta*) and white-winged chough (*Corcorax melanorhamphos*). Notably pink cockatoos (*Lophochroa leadbeateri*), which are rarely observed on the floodplain at Katarapko (last recorded in May 2016), were detected during the autumn surveys, with a

pair observed attending a river red gum hollow. Two species listed as Vulnerable under the NPW Act were also observed. A flock of regent parrots (*Polytelis anthopeplus*) were observed feeding on young leaves and buds of several black box trees during autumn surveys while brown quail (*Synoicus ypsilophorus*), were recorded during both the summer and autumn surveys.

The 2024 low-level managed operation meant water was largely within channel, limiting the availability of wetland waterbird survey search areas. A total of 34 waterbird species were recorded at Ngak Indau, Eckerts Flat and Lock 4 depressions (Cale 2025), although by autumn these wetlands had dried and were not surveyed. Each of these sites supported between 10 and 34 species, with Eckerts Flat showing the greatest diversity. On one summer survey visit to Eckerts Flat, a large flock of 114 black-tailed nativehen (*Tribonyx ventralis*) were observed foraging in emerging vegetation on drying flats.

Rare Plants on Show

A notable highlight from Katarapko Floodplain has been the population expansion of two plant species of conservation significance; the tufted burr-daisy (*Calotis scapigera*) and creeping boobialla (*Myoporum parvifolium*). These species, which are listed as Rare under the NPW Act, have both markedly increased in abundance since 2022 flood.



Tufted burr-daisy emerging following inundation. Credit: DEW.

Electrofishing surveys detected a fish assemblage characteristic of low within-channel flows, capturing a total of 9,976 fish from 13 species (nine native and four non-native). The most abundant native species were bony herring, unspecked hardyhead and Australian smelt (*Retropinna semoni*). The most abundant non-native species was common carp (Fredberg and Bice 2025).

Fyke net surveys captured a total of 1,922 fish from 10 species, (7 native and 3 non-native). The most abundant native species were carp gudgeon (*Hypseleotris* spp.), unspecked hardyhead, dwarf flathead gudgeon (*Philypnodon macrostomus*), Australian smelt (*Retropinna semoni*) and Murray rainbow fish. The most abundant non-native species was eastern gambusia (*Gambusia holbrooki*) (Huntley and Pay 2025). Three species of conservation significance were sampled, namely Murray cod, silver perch and freshwater catfish. The abundance and extent of Murray cod was the highest observed at Katarapko since sampling commenced in 2009. The results highlight positive responses of Murray cod to improvements in connectivity and hydrodynamics in the Katarapko Anabranch (Fredberg and Bice 2025).

Five species of riparian frogs were detected across nine permanent creek sites in spring monitoring including emerald-spotted frog (*Pengilleyia peronii*), eastern sign-bearing froglet (*Crinia parasignifera*), spotted marsh frog (*Limnodynastes tasmaniensis*), eastern banjo frog (*Limnodynastes dumerilii*) and long-thumbed frog (*Limnodynastes fletcheri*). The eastern banjo frog and long-thumbed frog were detected in low numbers and had a limited distribution, while the other species were more widespread across the monitored sites (DEW 2025a).



Black-tailed nativehens foraging on a drying mudflat. Credit: B Cale.



Regent parrot feeding on black box at Katarapko Floodplain following operations. Credit B Cale.



Tadpole monitoring at Overland Corner in January 2025. Credit: MRLB.

Wetlands

56,196 ML used

96 wetland sites managed

The delivery of water for the environment and management of wetland sites along the South Australian River Murray was facilitated by various organisations and water holders, including the MR Landscape Board, DEW, Accolade Wines, Renmark Irrigation Trust and Australian Landscape Trust. A full list of the wetland sites watered in 2024-25 is presented in Appendices C and D. This section outlines the ecological outcomes observed during the delivery of water to both managed pool-connected wetlands and ephemeral wetlands in 2024-25.

Pool-Connected Wetlands

28,881 ML used[1]

Site Water Managers: DEW, Murraylands and Riverland Landscape Board, Accolade Wines, Australian Landscape Trust

In 2024-25, 49 pool-connected wetlands across 40 wetland complexes were managed by various organisations, including DEW, the MR Landscape Board, Accolade Wines and Australian Landscape Trust.


Newly emerged sedges at Hart Lagoon. Credit: MRLB.

Dry phases were initiated at a number of pool-connected wetlands to remove carp, consolidate sediments and promote growth of fringing vegetation. In addition, dry phases initiated in 2023-24 were completed at several sites enabling these wetlands to be refilled. In total, approximately 1,190 hectares of wetland mudflats were exposed across 20 sites between the SA Border and the Murray Mouth. Mudflats provide foraging habitat for wading and cryptic waterbirds including crakes and rails, with the EPBC-listed migratory sharp-tailed sandpipers and red-necked stints observed foraging at Waltowa and Narrung wetlands. Waterbird breeding was observed at multiple inundated sites including Morgans Lagoon (Yarramundi North), Sugar Shack 10, Ramco, Hart, Brenda Park, Beldora, Spectacle Lakes and Paiwalla wetlands.


Morgans Lagoon refilling. Credit: MRLB.

Native sedges and herbs that colonised the wetland fringes and exposed clays provided prime breeding habitat for frogs upon re-wetting, including southern bell frogs at Morgan Conservation Park and Beldora Lagoon. Combined with removal of common carp, the consolidation of sediments improved water quality on refilling and provided ideal growing conditions for several aquatic plant species such as ribbonweed and red water milfoil. This was particularly notable at Teal Flat Hut, Paiwalla, Beldora, Spectacle Lakes, Narrung, Hart Lagoon, Ramco Lagoon and Sugar Shack wetlands. Following the partial drying and wetting phases at Hart and Ramco Lagoons, high abundances of waterbirds were regularly seen foraging on aquatic plants and algae that germinated after the removal of carp. Black swan numbers regularly dominated the surveys.

[1] An additional volume of 1,512 ML of All Purpose Consumptive (Class 3 and Class 8) was delivered to Paiwalla Wetland and Loveday Basins for environmental outcomes.

Quite the Spectacle at Beldora

A collaboration between Beldora Station, the Murraylands and Riverland Landscape Board, the Commonwealth Environmental Water Holder and DEW used a combination of water management tools at the Beldora-Spectacle Lakes Wetland Complex to mimic water levels reminiscent of the past, including a dry phase that saw the removal of remnant pools and thousands of carp. Had these fish survived, they would have spawned over 12 billion eggs per year and consumed 1.5 tonnes of macroinvertebrates daily. Upon completion of the dry, rewetting began with carp screens in place to prevent destructive large carp from entering the wetland. Pumping of water for the environment was then used to surcharge water levels in the wetland.



Drying phase nearing completion. December 2024. Credit: MRLB.

Over 500 hectares of clear water, filled with flowering aquatic plants and bursting with birdlife was the result of careful hydrological management over the past two years. Positive outcomes observed were:

- regular sightings of rarer duck species, including musk duck, Australasian shoveler, hardhead (*Athya australis*) and blue-billed duck
- increased diversity of aquatic plant species which covered over 80% of the main lagoons
- over 150 hectares of lignum shrublands, herblands and open river red gum and black box woodlands inundated including thousands of red gum and black box seedlings that germinated following the 2022-23 floods
- successful waterbird breeding events including of black swan and a range of duck and grebe species
- successful breeding of six species of frogs including the nationally threatened southern bell frog
- she nesting of threatened regent parrots in fringing red gums with above-average clutch sizes was also observed.



Beldora North after being refilled. Credit: MRLB.



Vegetation response after inundation at Beldora Surcharge. Credit: MRLB.

Ephemeral Wetlands

27,315 ML delivered[2,3]

Site Water Managers: DEW, Murraylands and Riverland Landscape Board, Australian Landscape Trust, Renmark Irrigation Trust

Source of water: SA, CEWH, TLM

In 2024-25, 47 ephemeral wetlands[4] received water for the environment, including three wetlands in the Lower Lakes region. Management of ephemeral wetlands was undertaken by four organisations: DEW, the MR Landscape Board, Renmark Irrigation Trust and Australian Landscape Trust. Below is a summary of the key ecological outcomes observed by each organisation at their ephemeral wetland sites.

Murraylands and Riverland Landscape Board

Water for the environment was delivered via pumping or gravity to a total of 37 ephemeral wetlands managed by the MR Landscape Board in 2024-25, inundating 1,944 hectares.

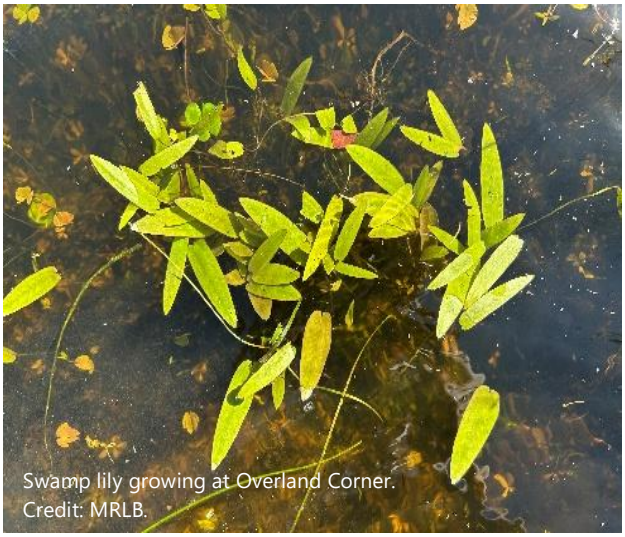
Southern bell frogs were detected calling at nine wetlands between Lock 2 and the SA border. Tadpole surveys captured southern bell frog tadpoles in excellent condition at Whirlpool Corner and small abundances at Wigley Reach.



Summer 2024 tadpole surveys at Banrock Lagoon. Credit: MRLB.

Abundant waterbird assemblages were supported at many sites in 2024-25 including numerous duck species of conservation significance. Foraging habitat, supporting modest abundances of EPBC Act listed migratory shorebird species, was provided at Yaiwaiparrung and Teringie East dominated by sharp-tailed sandpipers. Resident shorebirds such as red-capped plovers (*Charadrius ruficapillus*) and pied stilt (*Himantopus leucocephalus*) were also regularly present.

Targeted regent parrot surveys in 2024-25 were undertaken across the Riverland. A positive success rate of nesting was noted with a total of 27 of the 37 inspected nests confirmed as regent parrot nests by MRLB staff and researchers from the Australian National Universities – Difficult Bird Research Group.



Swamp lily growing at Overland Corner. Credit: MRLB.

Tree condition monitoring undertaken in autumn 2024-25 showed that condition scores (a combination of canopy cover and density) generally improved across sites since monitoring in 2023 following the 2022-23 floods. Notable increases in canopy growth and density were observed at Banrock Station, Gerard, Murtho Park, Sweeney's Lagoon, Markaranka, Qualco, Cadell and Sugar Shack.

Extensive growth of submerged aquatic plants was observed at many sites. The greatest diversity of aquatic and emergent plants was observed at Overland Corner Lignum Basins where swamp lily and robust milfoil (*Myriophyllum papilosum*) were recorded for the first time. These new additions grew amongst red water milfoil, nardoo (*Marsilea drummondii*) and numerous emergent species such as common spikerush (*Eleocharis acuta*).

[2] The number of wetlands and volume delivered include Berri Evaporation Basin, Bookmark Creek, Disher Creek and Pike (Col Col), which are permanent wetlands.

[3] An additional volume of 2 ML of All Purpose Consumptive (Class 3) water was pumped to Tolderol Game Reserve Wetlands for environmental outcomes.



Nardoo (*Marsilea drummondii*) at Namoi Street in May 2025. Credit: F Harrihill.

Renmark Irrigation Trust

Water for the environment was pumped to eight temporary wetlands by Renmark Irrigation Trust in 2024-25, including, Paroo Street, Begara Street, Namoi Street, Johnson's Waterhole, Warrego Street, Twentysixth Street, Bookmark Creek Wetlands Main Basin, and Bookmark Creek Wetlands North-West Basin. Bookmark Creek Wetlands Main Basin received water for the environment for the first time, bringing the total number of active sites managed by Renmark Irrigation Trust to thirteen.

During spring watering, dripline sites at Paroo Street and Begara Street supported the recruitment and growth of flood-dependent vegetation. Vegetation surveys at the sites recorded 76 species, including the rare spiny lignum *(Duma horrida ssp. horrida*) and noted improved health in black box, river red gum and river cooba with abundant tip growth and flowering observed.

Ecological monitoring at sites during autumn observed 44 bird species and four frog species. Species of interest included the white-bellied sea eagle (Endangered under the NPW Act 1972) for the first time at an RIT e-watering site, great egret (*Ardea alba*), and Caspian tern. At Twentysixth Street, black swan successfully bred, producing four cygnets. Nardoo and other aquatic and flood-dependent plant species were present at many sites following autumn environmental water delivery.



Black swan with cygnets at Twentysixth Street in June 2025. Credit: F Harrihill.



Bluerod (*Stemodia florulenta*) and Golden everlasting (*Xerochrysum bracteatum*). Credit: MRLB.

Coorong, Lower Lakes and Murray Mouth

1,314,986[1] **ML** delivered to the CLLMM

142,500 ha watered

893,568 ML released out the barrages

Lake Level Management and Barrage Releases

Ecological Objectives:

- Promote successful migration and recruitment of diadromous fish species in the Lower Lakes and Coorong
- Maintain or improve aquatic and littoral vegetation in the Lower Lakes
- Maximise fish passage connectivity between the Lower Lakes and Coorong
- Support aquatic habitat by establishing and maintaining variable salinity regimes in the Murray Mouth Estuary and North and South Lagoons.
- Maintain or improve waterbird populations in the Lower Lakes, Coorong and Murray Mouth
- Restore resilient populations of black bream and greenback flounder in the Coorong
- Maintain or improve mudflat invertebrate communities
- Maintain or improve *Ruppia tuberosa* colonisation and reproduction

Outcomes:

Approximately 893,568 ML of water was released through the barrages in 2024-25, including entitlement flow and water for the environment. The proportion of flow through each of the barrages throughout the water year was Goolwa 27%, Mundoo 9%, Boundary Creek 3%, Ewe Island 5%, and Tauwitchere 56%. Barrage flow was down to fishways only for the start of 2025, which impacted barrage flow proportions. Actual water delivery closely followed planned delivery in 2024-25. In most months, more water was delivered from water holders than was requested, however, less was delivered in December 2024 and January 2025 than requested.



Male (left) and female Australian shelducks foraging in the Coorong. Credit: J Kruger.

For the CLLMM Icon Site, water for the environment is planned and delivered as per the requirements of the SA CEWH-DEW water delivery schedule, and in alignment with system scale watering events, the CLLMM SCBEWC proposal and decision on water use made by SCBEWC.

In the Lower Lakes, seasonal water level fluctuation was managed to a maximum of around 0.85 m AHD in early summer 2023 and a minimum of 0.55 m AHD in late summer

[1] An additional volume of 13,033 ML that is not held environmental water was delivered to the CLLMM for environmental outcomes

and early autumn 2024. This water level envelope was designed to protect threatened fish, frog and waterbird habitat in Lower Lakes wetlands.

At the Lower Murray barrages, all fishways were operated year-round with attractant flow directed next to fishways when there was sufficient available volume. This continuous connectivity between freshwater and estuarine environments contributed to the detection of congolli (*Pseudaphritis urvilii*) moving upstream from the Coorong to Lake Alexandrina via barrage fishways in spring 2024 (Gervais et al. 2025). Adult female congolli migration was also tracked from the South East drainage network, through the Coorong to the Murray Mouth and ocean to breed, displaying the importance of connectivity between waterways.

Small-bodied Fish Persistence

The status of Murray hardyhead, Yarra pygmy perch *(Nannoperca obscura),* and Southern pygmy perch *(Nannoperca australis)* has been assessed since 2007 under The Living Murray (TLM) initiative of the Murray-Darling Basin Authority (MDBA). Based on the variable nature of the species in terms of habitat use and abundance, the detection of breeding Murray hardyhead in November 2024 and young-of-the-year in March 2025 suggests the population in the Lower Lakes is self-sustaining at low or background levels (Wedderburn and Bailey 2025). A single pygmy perch captured in Boggy Creek in November 2024 was the first recorded pygmy perch at the site since monitoring commenced there in 2008. The site is opposite Lucerne Island where several hundred Yarra pygmy perch were released in November 2023. Genetic testing is required to confirm the fish's identification. If borne out, it will be the first wild recruit for Yarra pygmy perch since the Millennium Drought.



Pygmy perch measured during November 2024 surveys. Credit: S Wedderburn.


A bone-dry Boggy Creek during the Millennium Drought. Credit: DEW

Monitoring of barrage fishways occurred through October 2024 to January 2025 by SARDI Aquatic Sciences with the assistance of SA Water. Relatively high numbers of young of year congolli and common galaxias were observed with good overall diversity of the fish assemblage. This monitoring caught a total of 26 pouched lamprey *(Geotria australis)* at four of the seven fishway sites sampled. No short-headed lamprey were recorded during the 2024 winter monitoring. All pouched lamprey were tagged and released to track their movement as they migrate upriver to spawn. Six of these tagged lamprey were subsequently detected in the main River Murray channel at Lock 1 with four passing through Lock 2 (Gervais et al. 2025).

Spring Lower Lakes fish condition monitoring was undertaken by University of Adelaide staff with assistance from Ngarrindjeri community members in November 2024. Lagoon goby (*Tasmanogobius lasti*) and congolli were abundant in Lake Albert and on Hindmarsh Island. Adult Murray hardyhead were observed in Shadows Lagoon. Young-of-year southern pygmy perch were detected in low abundances on Hindmarsh Island, providing evidence of breeding at the site. Southern pygmy perch were also recorded at Mundoo Island sites and Black Swamp. Autumn fish monitoring was undertaken in March 2025 with assistance by Ngarrindjeri community members. Due to low water levels in the Lower Lakes, very few fish were detected and some species such as congolli showed signs of stress (Wedderburn and Bailey 2025).

Song meters were used to record calls of male frogs during the breeding season. Six song meters were deployed across four different wetland sites around the Lower Lakes region. While no southern bell frogs were detected this year, other frog species expected in the area were abundant and calling during periods of high water levels in the Lower Lakes (Rudder 2025). An expansion of the frog monitoring program is proposed for next year seeking to detect southern bell frog populations in other wetlands around the Lower Lakes.



Fairy tern banding at Coorong South Lagoon. Credit: L Vial.

The Coorong waterbird census was undertaken in January 2025, and the Lower Lakes census was undertaken in late January/early February 2025. Bird numbers were generally lower than the previous water year, particularly for grey teal, Australian shelduck, great cormorant (*Phalacrocorax carbo*) and Australian pelican (*Pelecanus conspicillatus*). Numbers for other waterfowl expected in the area, including musk duck, were higher. These increases likely reflect drier conditions in key wetlands across south east Australia, forcing more birds to seek refuge in the Coorong. In general, shorebird numbers were similar to last year with a few species in lower numbers and others in greater numbers (Paton et al. 2025).

Waterbird breeding monitoring in the Coorong and Lower Lakes was conducted in January and February 2025. Five breeding colonies of fairy tern (*Sternula nereis*; Endangered under NPW Act) were observed in the Coorong South Lagoon with two colonies observed showing successful fledging juveniles (Paton and Paton 2025). The Coorong census has shown a slow and steady increase in adult numbers in recent years, consistent with better breeding outcomes.

The Ngarrindjeri Aboriginal Corporation led a continuation of the Thukabi (freshwater turtle) monitoring project through 2024 and 2025, supported by the University of Adelaide. Now in its third year of monitoring, up to 22 sites were surveyed for freshwater turtles across Lake Alexandrina and Lake Albert. In 2025 a total of 104 eastern long-necked turtles (*Chelodina longicollis*) were recorded and a further 73 eastern short-necked turtles (*Emydura macquarii*; Vulnerable under NPW Act). Both species showed comparable numbers to the previous year's monitoring, however, these populations are heavily weighted towards older individuals highlighting that recruitment and aging population issues of Thukabi requires addressing within the next decade before the majority of populations in the region die off.

Coorong benthic invertebrate and mudflat monitoring was undertaken in early December 2024 where rapid recovery of macroinvertebrate communities in the Murray Mouth was evident. This resilience is likely supported by well-established source populations in the Coorong North Lagoon. Macroinvertebrates and worms have recolonised the mudflats in the Murray Mouth following the 2022-23 floods, supported by the consistent flows from the barrages. Salinities in the Coorong South Lagoon were fresher than in most other years although very few macroinvertebrates and no bivalves or snails were observed during this monitoring. With reduced flows over the barrages in 2024, salinity levels increased again in the Coorong South Lagoon to levels above the threshold of many macroinvertebrate species with diversity and population sizes decreasing as a result (Dittmann et al. 2025).



A healthy mudflat cross-section from the Coorong showing worm casings. Credit: S Dittman.

Partnering with First Nations

5 tours on country

5 Aboriginal Waterway Assessments (AWAs)

5 Workshops

Over **592** hours of First Peoples support with monitoring

DEW and partner organisations involved in delivering water for the environment in SA acknowledge and pay respect to the First Nations of the Murray–Darling Basin, who have a deep cultural, social, environmental, spiritual, and economic connection to their lands and waters. DEW and partner organisations work with members of the River Murray and Mallee Aboriginal Corporation (RMMAC), the prescribed body corporate of the First Peoples of the River Murray and Mallee Region (FPRMMR); the Ngarrindjeri Aboriginal Corporation (NAC), the prescribed body corporate of the Ngarrindjeri People; and First Nations of the South East, through the South East Aboriginal Focus Group (SEAFG) and Burrandies Aboriginal Corporation (BAC); to ensure cultural priorities and local knowledge are incorporated into environmental watering programs. DEW Chowilla staff also engage with the Barkindji Maraura Elders Committee (BMEC) who represent the Maraura Nation, in collaboration with NSW DPIE staff responsible for site management at Kulcurna (the NSW part of the Chowilla floodplain), and the MR Landscape Board work with the Sugar Shack Aboriginal Corporation, representing Nganguraku, on the management of the Sugarshack Wetland Complex. Many First Nations groups are directly involved with operating water management infrastructure such as regulating structures and pumps and collecting monitoring data to support decision-making.



Community members assisting with small-bodied fish surveys at Tea Tree Lagoon in November 2024. Credit: S Wedderburn.

The MDBA's The Living Murray's Indigenous Partnerships Program (TLM IPP) ensures First Nations knowledge and cultural values can be incorporated into icon site management, supporting the employment of Indigenous Facilitators at the Chowilla and CLLMM Icon Sites, and broader engagement with local community members to support The Living Murray's watering programs.

Some of the valuable collaborations in 2024-25 included:

- The Ngarrindjeri community were involved in a half day workshop at Raukkan in April 2024. The workshop involved presentations from DEW and NAC project staff along with plenty of group discussion throughout. The workshop discussion focused on annual planning of water for the environment to the Lower Lakes, Coorong and Murray Mouth Icon Site but also broadly included the Long-Term Watering Plan for the SA River Murray. A questionnaire was also developed and worked through with community to ask questions relating to the importance of specific plants and animals (Ngatjis), including the notable decline or change to any, how a healthy functioning river system should look, and also suggestions on how to revise the Ngarrindjeri cultural text included in the current Long-Term Watering Plan to better reflect current Ngarrindjeri cultural values and aspirations.

- Following on from the workshop, MR Landscape Board project staff discussed smaller-scale pumping projects utilising water for the environment. The Narrung wetland was visited where wetting and drying actions and management of carp were discussed along with additional sites proposed for receiving water for the environment (e.g. Teringie East, Tolderol

Game Reserve, and Milang Snipe Sanctuary). The management of a wetland (Yaiwaiparrung) that is owned by Ngarrindjeri through Raukkan Community Council was also discussed.

- An On-Country planning workshop was held at Murtho Park in March 2025 with FPRMMR Working Group members and DEW staff managing Chowilla, Pike and Katarapko floodplains, weir pool manipulation, and broader River Murray channel and floodplain watering events, as well as wetland managers from the MR Landscape Board. The watering proposals for the River Murray channel and floodplain, infrastructure operations and wetland management being planned for 2024-25 water year were discussed and input on cultural perspectives and priorities gained.

- The NAC Yarluwar-Ruwe Project Coordinator (Indigenous Facilitator at the CLLMM) met with DEW staff on a weekly basis throughout the year to discuss consultation on First Nation water interests and watering actions for the CLLMM.

- The SEAFG held a number of meetings across the year, supported by BAC, to discuss Coorong related matters.

- The NAC and Ngarrindjeri community continued to assist DEW and The University of Adelaide with threatened fish, thukabi (turtle) and kaltuwari (yabby) monitoring in the Lower Lakes. The Ngarrindjeri Thukabi Monitoring Project received second prize in the SA Citizen Science Awards 2024. Ngarrindjeri community members also participated in the release of captive-bred Yarra pygmy perch into Lake Alexandrina.

- Updates were provided throughout the year regarding environmental water planning, management and outcomes from watering actions at Chowilla, Pike and Katarapko floodplains, weir pool manipulation and the River Murray channel, at FPRMMR Working Group Meetings, On-Country meetings, tours, and workshops and via email. Chowilla Floodplain staff and the RMMAC Project Officer met weekly to provide updates and progress on projects, engagement and monitoring.

- The Chowilla Floodplain team, in conjunction with colleagues from NSW, also regularly liaised with representatives from the BMEC to discuss environmental water management in the Kulcurna section of the Chowilla Floodplain in NSW.

Black swans thriving at Chowilla

The First Peoples of the River Murray and Mallee Region have been working closely with DEW staff, sharing knowledge and assisting in the continual restoration of the Chowilla Floodplain. At both Coombool Swamp and Lake Limbra, delivery of water for the environment has extended the benefits from the 2022-23 floods and resulted in multiple breeding events of black swans. Active nests with eggs, chicks and dependent young were observed at both sites in great numbers. This breeding success is significant not only ecologically, but culturally too. Black swans are Ngatji (totem animals) for many First Nations groups and historically they were important for food and clothing. Traditional wisdom, stories and practices talk about the preservation and spiritual importance of black swans, and how they connect people to the waterways.



Swan nest at Lake Limbra. Credit: H Kieskamp.



Swans at Lake Coombool. Credit: H Kieskamp.

- Aboriginal Waterways Assessments (AWAs) were undertaken at Werta Wert and Lake Littra on Chowilla Floodplain during delivery of water for the environment in spring 2024. AWAs were also undertaken at Ngak Indau Wetland at Katarapko and Mundic Floodrunner on the Pike Floodplain. These On-Country assessments continue to be an important means of connection to Country, sharing information and knowledge about the watering sites, and gaining Traditional Owner perspectives.

- The RMMAC Rangers provided significant support in the delivery of ecological monitoring at all Chowilla, Pike and Katarapko floodplains between spring 2024 to autumn 2025. This included more than 592 hours of assisting floodplain ecologists with frog call, tadpole, small-bodied fish, lignum and understorey vegetation condition surveys. The learning, knowledge and skills being shared between the Rangers and DEW ecologists continues to be of great value for the management of the floodplains.

- Tours were held with RMMAC during summer-autumn to view the outcomes of the environmental watering and to discuss the ecological condition of the Chowilla, Katarapko and Pike Floodplains, potential options for management, and to view the monitoring activities underway with the support of RMMAC Rangers.

- The MR Landscape Board also attend FPRMMR Working Group and RMMAC Ranger team meetings, providing updates and discussing ideas. Over the 2024-25 water year, the MR Landscape Board held three wetland tours with 20 community members visiting three wetland complexes selected by the FPRMMR Working Group members. The tour outcomes included the discovery of new cultural sites for future investigation such as Banrock Wetland, site nominations for AWAs, and invaluable feedback and input into the MR Landscape Board environmental watering program.

MRLB ecologists and members of the NAC undertaking monitoring at Rocky Gully. Credit: MRLB.



Communications and Engagement

10 community tours on-site

>20 forum / workshop presentations

56 social media posts

19 radio features and interviews

Water for the environment managers in SA strive to maintain community input and engagement throughout the water year. Planning annual delivery of water for the environment starts early and involves workshops with environmental water holders, scientific experts, First Nations, non-government organisations and river operators. These workshops consider the water resource forecast for the year ahead, facilitating discussions around what watering events may be possible and aiding in the development of watering proposals aimed to meet site specific and basin-wide targets.

Further community and non-government organisation consultation took place during the development of watering proposals for all major watering actions. For the Chowilla Floodplain Icon Site, River Murray channel, Pike and Katarapko Floodplains, and CLLMM Icon Site, there are established reference groups and/or science advisory groups with an in-depth knowledge of the region, its infrastructure and ecological processes. These groups provided valuable input to help plan for the delivery of water for the environment in 2024-25. Additionally, site tours, meetings and presentations were undertaken with various stakeholders to gain feedback on proposed actions and to share information about the outcomes of environmental water delivery. One-on-one conversations with landholders and industry representatives were also undertaken.



Community members and DEW staff enjoy a break at Lock 6 during a tour of the Chowilla Floodplain. Credit: DEW.

Community consultation and engagement continued throughout the water year from the initial planning phase and through the spring-summer peak season for delivery of water for the environment. Methods of communication and engagement included radio (10 interviews and nine features), print media and website articles (16 articles), social media posts (56 posts), weekly River Murray flow reports, multiple weekly stakeholder and public notifications during operations, and presentations to various interest groups (>20 forums). Ten tours involving a diverse range of stakeholders were undertaken on the three major floodplains and within the CLLMM region.



Coorong Lower Lakes and Murray Mouth community members enjoying a tour of Teringie Wetlands. Credit: DEW.

Many decisions on real-time delivery of water for the environment during spring and summer were driven by consultation with SA's E-Flows Reference Group. These fortnightly meetings included presentations from the DEW Water Delivery team and input from a range of site managers and scientists regarding flow to SA and potential associated use of water for the environment to enhance ecological outcomes. DEW staff also attended fortnightly Flow to SA planning meetings and other operational meetings to work with water holders and river operators to identify opportunities for enhanced water delivery and to process trades and water orders in a timely manner.

Regular updates on the outcomes of water delivery were posted on the River Murray SA Facebook page (56 posts) and Murraylands and Riverland Facebook page (2 posts). Several media releases and videos were also produced by DEW (or DEW staff contributed to content) and can be found at the following links: Department for Environment and Water - News. Non-government organisations were also actively involved in community engagement, with Renmark Irrigation Trust, Accolade Wines, and Australian Landscape Trust (Calperum Station) promoting the importance of water for the environment through mainstream and social media.

Monitoring

A number of monitoring programs aim to capture the ecological responses to water for the environment along the South Australian River Murray. These include:

- Condition and intervention monitoring at the Chowilla Floodplain and Lower Lakes, Coorong and Murray Mouth Icon Sites through the MDBA's TLM Program
- Condition and intervention monitoring associated with weir pool manipulation and Pike and Katarapko floodplain regulator operations coordinated by DEW
- CEWH's Flow-MER Program, which collects data along the South Australian River Murray Channel.
- Monitoring of selected South Australian River Murray wetlands and floodplain areas by the MR Landscape Board
- Monitoring by non-government organisations

Monitoring reports are produced for many of these projects (Appendix E), with many available on the CEWH Flow-MER and MDBA websites.

An extensive network of real-time surface water monitoring stations that measure a range of parameters including water level, salinity, dissolved oxygen and water temperature are found throughout the South Australian River Murray, Lower Lakes and Coorong and are operated and maintained by DEW. The data generated is critical for water managers to inform decisions on environmental flow delivery and the operation of infrastructure. Surface water monitoring data can be accessed at the Water Data SA website.



DEW and MRLB staff undertaking fish surveys at Hindmarsh Island. Credit: MRLB

Appendix A

Water for the Environment Actions Planned for 2024-25

Table 1: Summary of water for the environment actions proposed under the very dry/dry water resource scenarios in the 2024-25 Annual Plan

1. Very Dry and Dry conditions

Site	Proposed Action	Status for 2024-25
CLLMM	**Action A:** 4,000-5,000 ML/d at the SA border for July - August	**Achieved**
	Action B: 9,000-15,000 ML/d at the SA border for September – December, peaking in November and December	**Partially achieved** (flows remained below 9,000ML/day until 10 October)
	Action C: Additional ~500 – 2,000 ML/d at SA border for January - June	**Not achieved**
Channel and Floodplain	**Action 1a:** Target ≥15,000 ML/d for at least 60 days including ≥18,000 for at least 30 days between mid-October and late December	**Partially achieved** (24 days ≥15,000 ML/d between mid-Oct and mid-Dec)
	Action 1b: Target ≥10,000 ML/d in September for 30 days	**Not achieved** (flows remained below 10,000ML/day throughout September)
Weir Pool Manipulation	If flows are ≥10,000 ML/d, then weir pool lowering (~September - December) targeting heights below normal pool level of: WP1: -10cm; WP2: -8cm; WP4: -4cm; WP6: -8cm	**Not achieved** (no weir lowerings undertaken due to navigation concerns)
Chowilla Floodplain	**Action A:** Pumping of up to 10 wetlands. No floodplain operations proposed (winter to spring).	**Achieved** (3 sites watered via pumping)
	Action B: Manage inflows via Pipeclay Creek and Slaney Creek weirs (all year)	**Achieved**
Pike Floodplain	**Action A**: Optimise flows through anabranches; in-channel rise (15.1 mAHD). Duration at peak 25 days, total event 100 days (October – December). No raising at Lock 5 proposed	**Achieved**
	Action B: Pump water to tiered watering area west of blocking bank, and Mundic Wetland (October – December)	**Achieved**
Katarapko Floodplain	No floodplain operations proposed. Optimise flows through the anabranches	**Achieved action proposed under Moderate Scenario** (Inundation height of 12.0 mAHD reached at the Splash)
Ephemeral Wetlands	Potential pumping to up to 54 wetlands along the River Murray (all year)	**Achieved** (47 sites watered via pumping)

Appendix B

Environmental Watering Actions Undertaken in 2024-25

Table 2: Volume of water for the environment delivered across the South Australian River Murray region from different water holders (e.g. Commonwealth Environmental Water Holder (CEWH), The Living Murray (TLM), South Australian Minister for Climate, Environment and Water (SA), and Victorian Environmental Water Holder (VEWH) in 2024-25.

Watering Action/ Location	Held environmental water (HEW) volume (ML)								HEW subtotal (ML)	Other SA-held water used for environmental outcomes (ML)	Total volume (ML)
	CEWH	TLM	SA Minister	SA privately held	VEWH	RMIF - Vic	RMIF – NSW	NSW			
Lower Murray[5]	957,097	310,640	16,064	-	26,341	16,352	7,199	2,730	**1,336,424**	13,033	**1,349,456**
Pike Floodplain Operations	1,120	-	-	-	-	-	-	-	**1,120**	-	**1,120**
Katarapko Floodplain Operations	268	-	-	-	-	-	-	-	**268**	-	**268**
Managed pool-connected wetlands (Appendix C)	-	-	27,501	1,380	-	-	-	-	**28,881**	1,512	**30,393**
Pumped wetlands (Appendix D)[6]	16,432	10,313	570	-	-	-	-	-	**27,315**	2	**27,317**
TOTAL	**974,918**	**320,952**	**44,135**	**1,380**	**26,341**	**16,352**	**7,199**	**2,730**	**1,394,008**	**14,547**	**1,408,555**

[5] Lower Murray volume includes 1,314,986 ML of HEW and 13,033 ML of non-HEW that went to the CLLMM and transmission losses of 21,438 ML that were applied against upstream HEW between the South Australian border and Wellington (refer to the *Policy for Application of Losses to Environmental Water* for more information).

[6] Includes volume pumped to wetlands on Chowilla and Pike Floodplains and water delivered to Bookmark Creek, Pike (Col Col), Disher Creek and Berri Evaporation Basin which are gravity-fed rather than pumped.

Appendix C

Managed Pool-Connected Wetlands

Table 3: Pool-connected wetland complexes managed in 2024-25 by Accolade Wines, SA Department for Environment and Water (DEW), Murraylands and Riverland Landscape Board (MRLB), Australian Landscape Trust (ALT) Nature Foundation (NF). Includes 49 wetlands across 40 wetland complexes.

Wetlands	Actions	Manager
Banrock Wetland	Filled in spring, commenced dry in summer	Accolade Wines
Big Bend	Commenced dry in summer	MRLB
Brenda Park	Remained closed until filling in autumn	MRLB
Causeway Wetland Complex	Connected to the River all year	MRLB
Devon Downs South	Connected to the River all year	MRLB
Hart Lagoon	Commenced dry in autumn	MRLB
Irwin Flat	Connected to the River all year	MRLB
Kroehn's Landing	Connected to the River all year	MRLB
Lake Merreti	Remained closed all year	ALT
Lake Woolpolool	Remained closed all year	ALT
Loveday Basins	Connected to the River all year	DEW
Loveday Lagoons – Pipeline Sheepyard	Commenced dry in summer	MRLB
Loveday Lagoons - Mussels	Commenced dry in summer	MRLB
Martin Bend	Connected to the River all year	MRLB
Morgan Conservation Park	Filled in spring, connected the rest of the year	MRLB
Murbko South	Commenced dry in spring, remained closed the rest of year	MRLB
Murbpook Lagoon	Connected to the River all year	NF
Narrung	Filled in winter, commenced dry in summer before filling again in autumn	MRLB
Nelwart	Connected to the River all year	MRLB
Ngak Indau	Closed all year until filling in autumn	DEW
Nigra Creek/Schillers Lagoon	Connected to the River all year	MRLB
Nigra Creek/DS Outlet	Connected to the River all year	MRLB
North Caurnamont	Filled in summer	DEW
North Purnong	Connected to the River all year	DEW
Paiwalla	Filled in summer, then frequent opening/closing of flow regulator to maintain partially full/dry conditions	MRLB
Pilby – Depression	Connected to the River all year	DEW
Pilby Lagoon	Filled in spring, commenced dry in autumn	DEW
Pilby Creek	Filled in spring, commenced dry in autumn	DEW
Pipeclay Billabong	Filled in spring, commenced dry in autumn	DEW
Pyap Horseshoe	Commenced dry in summer	MRLB
Ramco Lagoon	Commenced dry in summer, refilled in autumn	MRLB
Reedy Creek	Connected to the River all year	MRLB
Riverglades	Connected to the River all year	MRLB
Silverlea	Connected to the River all year	MRLB
Slaney Billabong	Filled in spring, commenced dry in autumn	DEW
Spectacle Lakes /Beldora	Filled in summer, pumped in autumn	MRLB
Beldora Lagoon	Filled in summer, pumped in autumn	MRLB
Sugar Shack – Wetland 10	Filled in summer	MRLB
Sugar Shack – Wetland 2	Filled in winter, commenced dry in summer before refilling in autumn	MRLB
Sugar Shack – Wetland 5	Commenced dry in summer, refilled in autumn	MRLB

Wetlands	Actions	Manager
Sugar Shack – Wetland 13	Filled in summer	MRLB
Sweeney's Lagoon	Connected to the River all year with supplementary pumping over summer	MRLB
Teal Flat	Filled in summer	MRLB
Teal Flat Hut	Filled in summer	MRLB
Teringie	Filled over spring/summer, pumping in autumn	MRLB
Waltowa	Frequent opening/closing of flow regulator to maintain partially full/dry conditions from spring to autumn	MRLB
Wongulla Lagoon	Connected to the River all year	MRLB
Yatco North	Frequent opening/closing of flow regulator to maintain partially full/dry conditions over spring and summer, closed in autumn	MRLB
Yatco South	Filled in summer	MRLB

Appendix D

Pumped Wetlands

Table 4: Volume of water for the environment delivered to a total of 52 wetlands by the SA Department for Environment and Water (DEW), Murraylands and Riverland Landscape Board (MRLB), Renmark Irrigation Trust (RIT) and Australian Landscape Trust (ALT) in the South Australian River Murray region in 2024-25.

Watering Location	Volume (ML)	Manager
Lock 6 to Lock 7		
Chowilla Wetlands (Coombool, Werta Wert and Brandy Bottle)	8,952	DEW
Lake Limbra	325	DEW
Lake Littra	1,036	DEW
Lock 5 to Lock 6		
Begara Street	15	RIT
Bookmark Creek[7]	384	MRLB
Bookmark Creek – Main Basin	39	RIT
Bookmark Creek – Northwest Basin	13	RIT
Johnsons Waterhole	116	RIT
Mundic Wetland	145	MRLB
Murtho Park Flats	207	MRLB
Murtho/Wiela Connector	397	MRLB
Namoi Street	73	RIT
Paringa Paddock	140	MRLB
Paroo Street	19	RIT
Pike (Col Col)[7]	300	DEW
Reny Lagoon	58	ALT
Tanyaca Horseshoe	150	MRLB
Thookle Thookle	192	ALT
Warrego Street	37	RIT
Whirlpool Corner	87	MRLB
Widewaters	217	ALT
Woolpolool South	26	ALT
Lock 4 to Lock 5		
Berri Evaporation Basin[7]	1,085	MRLB
Disher Creek[7]	40	MRLB
Gurra Gurra Lyrup Lagoon	56	MRLB
Martins Bend Temporary 1 & 2	86	MRLB
Twentysixth Street	33	RIT
Lock 3 to Lock 4		
Gerard Lignum Basins	148	MRLB
Spectacle Lakes (surcharge)	2,848	MRLB
Lock 2 to Lock 3		
Akuna	235	MRLB
Banrock Lagoon	2,257	MRLB
Banrock Floodrunner	83	MRLB
Maize Island	31	MRLB
Old Parcoola	6	MRLB
Overland Corner (Main)	972	MRLB
Wigley Reach Lignum Basin	46	MRLB

[7] Bookmark Creek, Pike (Col Col), Berri Evaporation Basin and Disher Creek are gravity fed rather than pumped

Watering Location	Volume (ML)	Manager
Lock 1 to Lock 2		
Cadell CAD 1 Temporary Wetland	479	MRLB
Cadell Ephemeral Wetlands	82	MRLB
Hogwash South Basin	550	MRLB
Markaranka Floodrunner 5	60	MRLB
Markaranka Regent Parrot Strip	18	MRLB
Molo Flat Eastern Channel	38	MRLB
Molo Flat Western Basin	1,443	MRLB
Molo Flat Western Channel	21	MRLB
Murbpook Northern Floodrunners	74	MRLB
Nilkra (Taylor Flat)	1,294	MRLB
Qualco (QLC1)	518	MRLB
Wellington to Lock 1		
Sugar Shack Wetland 6	39	MRLB
Sweeney's Lagoon	190	MRLB
Lower Lakes		
Teringie East	1,549	MRLB
Tolderol Game Reserve	2	MRLB
Yaiwaiparrung	108	MRLB

Appendix E

References

BOM. (2025, July 25). *Financial year climate and water statement 2024-25*. Retrieved from Bureau of Metereology: http://www.bom.gov.au/climate/current/financial-year/aus/summary.shtml#tabs=Key-points.

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

DEW. (2024). *2024-25 Water for the Environment Annual Plan for the South Australian River Murray.* Adelaide: Department for Environment and Water, Government of South Australia.

MDBA. (2019). *Basin-Wide Environmental Watering Strategy.* Canberra: Murray-Darling Basin Authority.

MDBA. (2024). *Basin Annual Environmental Watering Priorities 2024-25.* Canberra: Murray-Darling Basin Authority.

MDBA. (2025). *River Murray System Operating Outlook 2025-26.* Canberra: Murray-Darling Basin Authority.

Monitoring Reports for 2024-25

Cale, B. (2025) Katarapko Floodplain 2024/2025 Bird Monitoring. Report for the Department of Environment and Water.

DEW (2025a). Eckerts-Katarapko floodplain frog monitoring: 2022-24 survey results and reporting against ecological targets, Government of South Australia, Department for Environment and Water, Adelaide.

DEW (2025b). Eckerts-Katarapko Floodplain Understorey Vegetation Condition: 2025 survey results and reporting ecological targets, Government of South Australia, Department for Environment and Water, Adelaide.

DEW (2025). Pike Floodplain – 2025 Understorey Condition: survey results and reporting ecological targets, Government of South Australia, Department for Environment and Water, Adelaide.

Dittmann, S., Ahmed, D., Teigeler, J., Schroder, J. and Nitschke, J. (2025). Benthic macroinvertebrate survey 2024-25 report. Coorong, Lower Lakes and Murray Mouth Icon Site. Flinders University, Adelaide.

Fredberg, J., and Bice, C.M. (2025). Katarapko Fish Assemblage Condition Monitoring 2025. South Australian Research and Development Institute (Aquatic and Livestock Sciences), Adelaide. SARDI Publication No. F2021/000517-5. SARDI Research Report Series No. 1260. 47pp.

Fredberg, J., and Bice, C.M. (2025). Pike Fish Assemblage Condition Monitoring 2025. South Australian Research and Development Institute (Aquatic and Livestock Sciences), Adelaide. SARDI Publication No. F2021/000433-4. SARDI Research Report Series No. 1226. 51pp.

Huntley, S., and Pay, T. (2025) Small-bodied fish surveys of Katarapko Creek and Pike River floodplain systems, Autumn 2025. A report to South Australian Department for Environment and Water. Nature Glenelg Trust, Victor Harbour.

Gervais, C., Bice, C., Strawbridge, A., Zampatti, B. and Fredberg, J. (2025). Condition monitoring of fish movement and recruitment at the Murray Barrages 2024/25. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2011/000186-14. SARDI Research Report Series No. 1241. 58pp.

Paton, D. and Paton, F. (2025). Waterbird breeding in the Coorong and Lower Lakes during summer 2024-25. Bio-R, Adelaide.

Paton, D., Paton, F. Whittaker, D. and Markos, D. (2025). Condition monitoring of the Lower Lakes, Murray Mouth and Coorong Icon Site: Waterbirds in the Coorong and Lower Lakes 2025. Bio-R, Adelaide.

Rudder, A. (2025). Capturing southern bell frog *(Litoria raniformis)* breeding response to environmental water management in the Lower Lakes, South Australia. Report prepared for the Department for Environment and Water, Berri, SA.

Wallace, T.A. (2025) Eckerts-Katarapko Floodplain tree condition survey data April 2015-February 2025. Report produced by Riverwater Life Pty Ltd for the Department for Water and Environment, South Australian Government

Wallace, T.A. (2025) Pike floodplain tree condition survey data March 2009-February 2025. Final report produced by Riverwater Life Pty Ltd for the Department for Water and Environment, South Australian Government. June 2025.

Wedderburn, S., and Bailey, C. (2025). Condition monitoring of threatened fish populations in Lake Alexandrina and Albert. Report to the Murray-Darling Basin Authority and South Australian Department for Environment and Water. The University of Adelaide, Adelaide.

Published by the Department for Environment and Water.
Government of South Australia
October 2026

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



With the exception of the Piping Shrike emblem, other material or devices protected by Aboriginal rights or a trademark, and subject to review by the Government of South Australia at all times, the content of this document is licensed under the Creative Commons Attribution 4.0 Licence. All other rights are reserved.

© Crown in right of the State of South Australia

