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Murray–Darling Basin Authority

Basin Plan annual report 2023–24

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Acknowledgement of the Traditional Owners of the Murray–Darling Basin
The Murray−Darling Basin Authority pays respect to the Traditional Owners and their Nations of the Murray−Darling Basin. We acknowledge their deep Cultural, social, environmental, spiritual and economic connection to their lands and waters.

The guidance and support received from the Murray Lower Darling Rivers Indigenous Nations and our many Traditional Owner friends and colleagues is very much valued and appreciated.

Aboriginal people should be aware that this publication may contain images, names or quotations of deceased persons.

Contents

Summary

SDL Adjustment Mechanism

As of 30 June 2024, 13 projects are complete and operational, 10 are likely to be delivered in full by 31 December 2026 and 4 are likely to be delivered in part by 31 December 2026.

The remaining 8 remain unlikely to be delivered by the 31 December 2026 deadline.

Water resource plans

In place for Queensland, Victoria, the ACT and South Australia.

11 NEW SOUTH WALES WATER RESOURCE PLANS HAVE BEEN ACCREDITED BETWEEN JULY 2023 AND JUNE 2024, BRINGING THE TOTAL ACCREDITED TO 16, WITH 4 REMAINING

100% compliance

for the 55 SDL resource units in **South Australia, Victoria, Queensland** and the **Australian Capital Territory** in 2022–23

SDLs in New South Wales were not subject to compliance assessment by the Inspector-General of Water Compliance.

MDBA Interim registers of take for NSW in 2022–23

Show that all 54 SDL resource units within non-accredited water resource plans did not exceed the compliance trigger.

Environmental water holders continue to improve delivery of water for the environment

Environmental water use has aimed to consolidate and build on ecological gains achieved across the wet years of 2020–22, including providing a mosaic of habitats to support waterbirds and consolidating environmental outcomes for wetland and floodplain vegetation.

4 out of 5 salinity targets met

Targets met at Murray Bridge, Morgan, Lock 6 and Milang. Target not met at Burtundy.

SUFFICIENT WATER WAS AVAILABLE TO MEET CRITICAL HUMAN WATER NEEDS IN THE RIVER MURRAY

2026 Basin Plan Review

The Authority released the Early Insights Paper in June 2024.

THE 5 KEY AREAS OF CHALLENGE THAT WILL BE EXPLORED AS PART OF THE REVIEW ARE:

- Assessing environmental outcomes
- Climate change and preparing for our future
- Moving beyond 'Just add water'
- Managing the northern Basin
- Building on and simplifying the Basin Plan.

The Australian Government released the final report of the Productivity Commission 5-yearly Basin Plan implementation review.

Progress on water recovery

As of June 2024

Bridging the Gap

2,131.7 GL/y

Surface water recovered

22 GL/y remains to be recovered

35.25 GL/y

Groundwater recovered

3.2 GL/y remains to be recovered

450GL for enhanced environmental outcomes

16.8 GL/y

Available for use

10.7 GL/y

Contracted (not yet delivered)

This is 6.1% of the 450 GL target.

Introduction

The Basin Plan 2012 was made under Part 2 of the *Water Act 2007* (Cth) (the Water Act) to guide the management and sharing of water in the Basin in a more sustainable way. This shared responsibility involves the 6 Basin governments – the Australian Government and the governments of New South Wales, Victoria, Queensland, South Australia and the Australian Capital Territory – and other stakeholders including First Nations, industries, environmental groups and Basin communities.

This annual report on Basin Plan implementation is prepared to meet the requirement under section 52A of the *Water Act 2007* (Cth) for the Authority[1] to report on the effectiveness of the Basin Plan within 6 months of the end of each financial year. The report helps to focus priorities, acknowledge achievements and identify problems, as well as build trust and confidence in the community about implementation of the Basin Plan reforms.

The report draws on information provided through matter reporting under Schedule 12 of the Basin Plan by the MDBA, Basin state governments, the Australian Government Department of Climate Change, Energy, the Environment and Water, and the Commonwealth Environmental Water Holder (CEWH). This 2023–24 Basin Plan annual report will provide a key line of evidence to the 2025 Basin Plan Evaluation on the status of implementation.

The Basin Plan provides an integrated system of managing the water resources of the Murray–Darling Basin where:

- water supports people and communities
- water supports a healthy and resilient environment
- water supports the economy.

Monitoring, evaluating and reporting on the effectiveness of the Basin Plan

Analysing the effectiveness of the Basin Plan relies on a program of annual reporting, alongside 5-yearly reviews, evaluations and audits. Evaluations assess the effectiveness of the Basin Plan against its objectives and outcomes. The next evaluation of the Basin Plan is underway and will be released in 2025. The evaluation findings, together with the Sustainable Rivers Audit, Outlook for the Basin, Sustainable Yields and Discussion Paper provide an evidence base for the 2026 Basin Plan Review, see Figure 1.

This report documents progress with Basin Plan implementation activities from 1 July 2023 to 30 June 2024 while also accounting for significant events impacting Basin Plan implementation that have occurred between 1 July 2023 and 30 June 2024.

[1] The Authority is comprised of the Chair, Chief Executive, Indigenous member and 4 part-time members appointed by the Governor-General. The MDBA is the statutory agency which supports the Authority.

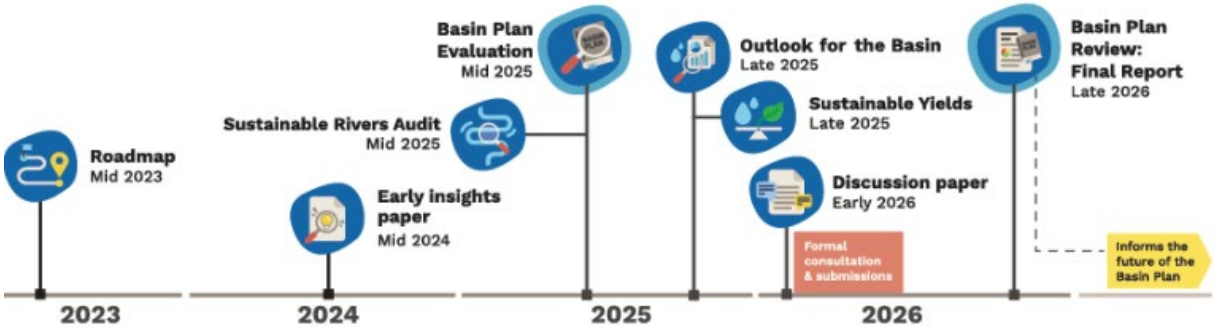

Figure 1 Basin Plan Review Timeline

Management of risks to Basin water resources

Chapter 4 of the Basin Plan provides a framework for the identification and management of risks to Basin water resources. The strategies to manage risk include:

- implementation of the Basin Plan through the environmental watering plan, the water quality and salinity management plan, the water trading rules and water resource plans (WRPs)
- use of best available knowledge and stakeholder consultation in WRP development and Basin Plan amendment
- risk-based water resource planning and management
- flow management for optimal outcomes across the range of Basin water uses
- monitoring and evaluation of Basin Plan implementation
- compliance with Basin Plan requirements and WRPs
- improvement to knowledge about water requirements and impacts

Progress in 2023–24

Basin state governments, the MDBA, the Inspector-General of Water Compliance (IGWC) and the Commonwealth Environmental Water Holder continue to implement a range of strategies to better mitigate and manage risk to Basin water resources.

These strategies include continued implementation of key elements of the Basin Plan, such as implementation of the Environmental Watering Plan and the monitoring and evaluation program, accreditation of water resource plans, water resource plan compliance activities, as well as investment in new knowledge to understand key risks to Basin water resources. These strategies are designed to manage current and future risks and risks at a range of spatial scales.

Examples include:

- delivering environmental water to enhance the ecological gains achieved across the wet years of 2020–22
- accreditation of 11 water resource plans in New South Wales, bringing the total to 16
- water resource plan compliance and audit activities undertaken by the Inspector-General of Water Compliance
- the commissioning of the Basin Plan Review – Early Insights Paper, which focuses on what's working and what might need to change to support the Basin in a changing climate
- progressing analysis and research to inform the Basin Plan Review in 2026, the 2025 Basin Plan Evaluation, the Murray–Darling Outlook and the Sustainable Rivers Audit
- continued investment in new knowledge, through programs such as Murray–Darling Water and Environment Research Program (MD-WERP) and Basin Condition Monitoring Program

- work through the Integrated River Modelling Uplift project to ensure that the models are fit for the future climate and ready to answer questions and support river operation decisions into the future. Further information is available on the MDBA website.

Challenges and areas for improvement

Climate variability has always been a significant feature of the Basin's water resources and management. As the climate changes, this variability is projected to increase. The severity and frequency of extreme weather events are expected to increase across the entire Basin. The Basin Plan Review Early Insights Paper recognises that the Basin Plan Review is an opportunity to better understand the potential consequences of long-term climate change for the Basin and consider how best to manage this transition, considering environmental sustainability, socio-economic wellbeing and inter-generational equity.

Water that can be taken

Chapter 6 of the Basin Plan is about the establishment of and compliance with sustainable diversion limits (SDLs). The Basin Plan introduced new water accounting and compliance arrangements based on SDLs for 29 surface water and 80 groundwater SDL resource units across the Basin. These arrangements are integral to the equitable and sustainable use of Basin water resources by determining what water can be taken and ensuring compliance with the SDL limits.

Chapter 6 also provides for the reviews of SDLs and other aspects of the Basin Plan. For example, a review of SDLs in the northern Basin resulted in a 70 gigalitre (GL) reduction to the water recovery target in the north.

Progress in 2023–24

Reporting on water take and compliance with SDLs is a complex task involving the MDBA and the Inspector-General of Water Compliance (IGWC). The SDL accounts for each water year are reported by all Basin state governments and assessed retrospectively at the end of the water year as described below.

Implementation roles

The MDBA is responsible for preparing the registers of take for SDL accounting. These registers collate data that is assured and used to prepare the official record of water take in the Basin. The registers report whether there has been any exceedance against the cumulative balance of permitted take. The registers are provided to the IGWC to assist with determining SDL compliance. The IGWC is responsible for managing any non-compliance with SDLs across the Basin. The IGWC publishes the results of its assessment in its SDL Compliance Statement.

Sustainable diversion limit accounting and reporting by MDBA for the 2022–23 year

All Basin state governments provide SDL accounting and compliance reporting to the MDBA each year, which is recorded in the SDL Accounts report published by the MDBA identifying water taken in each SDL resource unit across the Basin. In 2024, the MDBA published the 2022–23 SDL Accounts report.

The SDL Accounts are split into 2 registers of take: one for SDL resource units with accredited water resource plans, and the interim registers for SDL resource units in New South Wales where water resource plans are not yet accredited. The interim registers are prepared under a bilateral agreement with New South Wales for areas where water resource plans are not yet in place. The 2022–23 SDL Accounts report shows that water take in all the 55 SDL resource units with accredited water resource plans and all the 54 SDL resource units within non-accredited water resource plans did not exceed the compliance trigger.[2]

[2] Since the commencement of 2022–23 water year, 16 NSW WRPs have been accredited. In keeping with Basin Plan requirements, these WRPs will not be included for the purpose of official registers of take until future water years. Therefore, the number of accredited versus non-accredited WRPs has not changed from the 2021–22 water year for the purposes of compiling the registers of take.

The Water Take Report is the MDBA's annual assessment of water use (or take) across the Basin. The report provides insight on water availability along with the holdings and use of consumptive and environmental water, based on the SDL accounting data that Basin state governments submit to the MDBA under section 71 of the Water Act.

SDL accounting methods are being updated and improved over time, with updated methods for SDL accounting introduced through accreditation and re-accreditation of water resource plans. The MDBA will continue to work with Basin state and Australian Government agencies to review, update and report on implementation of SDLs. The IGWC may also conduct audits in relation to SDL compliance.

Sustainable diversion limit compliance reporting by the IGWC for the 2022–23 year

In 2024, the IGWC published the Sustainable diversion limit compliance statement for 2022–2023. The compliance statement shows compliance by the 55 SDL resource units presented in the MDBA's 2022–23 registers of take report. These 55 compliant units (19 surface water and 36 groundwater) cover New South Wales, Queensland, South Australia, Victoria and the Australian Capital Territory, where accredited water resource plans are in place.

IGWC annual work plan

The IGWC released an Annual Work Plan 2023–24 in August 2023. The work plan prioritises work to ensure water is managed to comply with rules set by the Basin Plan. Key priorities for the IGWC in 2023–24 were to monitor Australian Government and state performance and foster Basin-wide regulatory cooperation. Further information about the outcomes of these activities can be found in the IGWC Annual Report.

Water resource plan compliance reporting by Basin state governments for 2022–23

Schedule 12 Matter 19 of the Basin Plan requires reporting on compliance with accredited water resource plans by Basin state governments. These reports include references to compliance activities undertaken by Basin state governments. More information is available in the Basin state government Matter 19 reports on the MDBA website.

Metering, measurement and monitoring

Accurate and widespread non-urban metering is an essential part of effective water management across the Murray–Darling Basin. Metering reform is due for completion by July 2025, when every Basin state must have meters that comply with the Australian Standard (AS4747) or have relevant exemptions or grandfathering in place. The IGWC has worked collaboratively with Basin state governments to develop a metering report card for transparency about the progress of metering reform across the Murray–Darling Basin. The report cards provide consistent metrics on meter accuracy, coverage and timeliness (telemetry) and can be found at the IGWC website.

Measurement of floodplain harvesting

In New South Wales and Queensland work is underway to better measure and quantify the amount of water captured and stored from overland flows across floodplains, a practice known as floodplain harvesting in New South Wales. Accounting for water is the first step in enabling governments to put

compliance measures in place, which will allow them to monitor the amount of water that is being used. The New South Wales Government publishes quarterly progress reports for its Floodplain Harvesting Action Plan. The Queensland water resource plans have accredited the arrangements in the moratorium to prevent further growth in the take of overland flow water through a combination of authorisations and water licences. Queensland Rural Water Futures Program and the Queensland non-urban water measurement policy implementation plan provide further information about improved measurement and monitoring of the use of overland flow in Queensland. Progress of floodplain licensing and overland flow measurement is also reported in the IGWC's metering report card.

Northern Basin Toolkit

The Northern Basin Toolkit is a package of 6 measures designed to support implementation of the Basin Plan through improved environmental works, water management practices and the passage of flow across the northern Basin without depending on additional water. The measures are not a contribution to, or an offset for, water recovery and do not seek to provide equivalent outcomes to the 70 gigalitre SDL increase that was an outcome of the Northern Basin Review (2017).

Measurable progress has occurred during 2023–24. Of the 6 Northern Basin Toolkit measures:

- two measures have been completed and have now become embedded as standard practice – the coordinated planning and delivery of water for the environment and options to support event-based environmental water delivery.
- two measures have made significant progress and are on track for likely completion in 2024–25 – the protection of water for the environment and targeted water recovery.
- two measures have had their timeframes extended to December 2026 and are on track or have been rescoped by Basin state governments to be delivered by this time – environmental works and the Gwydir constraints (Reconnecting Watercourse Country Program).

Progress on the delivery of the Northern Basin Toolkit is tracked by the MDBA through its 6-monthly Basin Plan report cards and by the inter-governmental Northern Basin Project Committee through 6-monthly reporting of toolkit implementation progress. Further information is also available on the MDBA website and on the Department of Climate, Change, Energy, the Environment and Water (DCCEEW) website (Northern Basin Toolkit).

Challenges and areas for improvement related to water that can be taken

While significant progress has occurred on key water reforms, further work is needed to show the effectiveness of water reforms and to increase trust and confidence in water accounting, metering and measurement, and compliance across the Basin. For example, continuous improvement of the accuracy of SDL accounting and its underlying measurement and modelling methodology is critical to effective management. SDL accounting also needs to demonstrate adaptability and robustness under changing climate risks.

Adjustment of sustainable diversion limits

Chapter 7 of the Basin Plan is about adjustment of sustainable diversion limits. The sustainable diversion limit adjustment mechanism (SDLAM) works in 2 parts:

- supply measure projects, including constraints easing measures, to improve water infrastructure and river operating rules
- efficiency measure projects to improve water delivery systems, including off-farm infrastructure.

In 2017, southern Basin governments (proponents) brought forward 37 supply measure projects. Of the 37 notified supply measure projects, 2 projects do not contribute to the SDL adjustments. The 2017 SDLAM determination found that the 35 projects that contribute to the SDL adjustment, as a package, could deliver a 605 GL/y offset. This meant 605 GL/y less water would need to be recovered from consumptive users, while still achieving equivalent environmental outcomes sought by the Basin Plan.

Proponents are responsible for the design and implementation of these projects, with funding from the Australian Government. The proponents are responsible for ensuring the notified measures have been implemented as proposed and can achieve the notified hydrological and environmental outcomes. If a SDLAM supply measure has changed during implementation or will not be completed by 31 December 2026, it is the proponent's responsibility to bring forward an amendment to or withdraw the notified measure. *The Water Amendment (Restoring our Rivers) Act 2023* also enabled the Commonwealth to unilaterally withdraw supply measures.

As the Authority is aware of several changes to the notified measures, including the withdrawal of improved flow management works at the Murrumbidgee River–Yanco Creek offtake, reconciliation will need to be undertaken. The findings of the 2023 assurance report and the 2024 Independent Assessment of the Murray-Darling Basin's Supply and Constraints Measure further support the need for reconciliation to occur.

The MDBA at reconciliation will remodel the completed measures as notified in the Register of Measures (ROM), the result of which will be a new determination volume. To ensure completed measures are modelled accurately, it is important that the ROM contains the most up-to-date information on how the measure was implemented.

Progress in 2023–24

The *Water Amendment (Restoring Our Rivers) Act 2023* extended the timeframe for delivery of SDLAM supply and constraints as supply measures to 31 December 2026. In addition, Basin state governments will now have until 30 June 2025 to notify new supply measures, and until 30 June 2026 to amend or withdraw existing supply measures.

On 8 March 2024, the Basin Officials Committee notified the Authority that the improved flow management works at the Murrumbidgee River–Yanco Creek offtake project had been withdrawn as a SDLAM supply measure.

Efficiency measures are a component of the Basin Plan to recover 450 GL/y of water to enhance environmental outcomes. Following the passing of the *Water Amendment (Restoring Our Rivers) Act 2023*, the 450 GL/y target is no longer limited to recovery through these efficiency measures.

In 2024, an independent assessment of SDLAM projects to assess the feasibility of the delivery of the SDLAM supply and constraints measures projects was undertaken on behalf of the Australian Government. The assessment focused on 22 not-yet-completed measures and found:

- 10 are likely to be delivered in full by 31 December 2026
- 4 are likely to be delivered in part by 31 December 2026
- 8 are unlikely to be delivered by 31 December 2026.

The independent assessment report represents the most up-to-date information on project progress. The independent assessment report quotes an estimated shortfall of between 190 and 315 gigalitres per year, consistent with the MDBA's 2023 assurance report. This estimate is based on a point-in-time assessment of project status and the final adjustment volume. This will be able to be confirmed once the final delivered package of SDLAM measures is modelled as reconciliation in 2026.

The MDBA is preparing a Constraints Relaxation Implementation Roadmap to provide for a collective pathway for governments up to and beyond 2026 to complete the constraints measures and fully realise outcomes. The roadmap must be published by 31 December 2024, and is being developed in consultation with Basin state governments, the Australian Government and the public.

Challenges and areas for improvement

Communities are invested in the successful outcomes of the SDLAM projects because they aim to provide flexibility for river operations to enable improved management of water resources. There remains substantial work to implement many of the SDLAM projects. In 2023, the Authority identified that delivery of the Basin Plan required full SDLAM implementation and this would not be achieved.

Amendments made through the *Water Amendment (Restoring our Rivers) Act 2023* enabled new supply measures to be notified and provided further time, further funding and flexibility to deliver existing notified supply measures that may not otherwise have been completed in time. Noting that Basin state governments have until 20 June 2025 to notify new SDLAM measures, and until 30 June 2026 to amend or withdraw existing measures, revised supply contribution estimates will not be known until the MDBA has completed the reconciliation process by 31 December 2026.

Environmental Watering Plan

Chapter 8 of the Basin Plan sets out the Environmental Watering Plan. The Environmental Watering Plan is a key component to achieve the best environmental outcomes with the amount of water made available by the Basin Plan by:

- setting environmental objectives for water-dependent ecosystems
- setting the targets by which to measure progress towards achieving those objectives
- providing a planning framework to guide the use of water for the environment over the long term and annually
- identifying principles to be applied in environmental watering.

Progress in 2023–24

Basin-wide environmental watering priorities

In 2023–24 the Basin annual environmental watering priorities provided advice and guidance to support the planning and delivery of water for the environment. These priorities support the connectivity, native vegetation, waterbird and native fish outcomes described in the Basin-wide environmental watering strategy.

Environmental water use has aimed to consolidate and build upon the ecological gains achieved across the wet years of 2020–22 and improve resilience ahead of drier times returning, including at internationally significant wetlands. This has included a focus on providing habitat and food for the many juvenile waterbirds and other animals born during the natural high flows and, in addition, providing habitat and promoting movement of native fish and helping native fish recover from poor water quality.

Long-term watering plans and water resource plan area environmental watering priorities

Long-term watering plans are in place in all Basin states. Basin state governments are working with stakeholders to implement and review them where appropriate. Basin state governments have undertaken the activities below since July 2023 to support the implementation of long-term watering plans.

More information is in the Basin Plan Schedule 12 reports on the MDBA website.

First Nations participation in environmental watering

First Nations people are involved in environmental water management through a variety of different programs and initiatives. Examples of involvement across jurisdictions include First Nation groups contributing to annual and long-term environmental water planning; involvement (and in some instances co-design) in monitoring activities; on-Country assessments and documentation of cultural values and objectives; and many different engagement activities including participation in

environmental water advisory groups. See the Rivers, the veins of our Country for recent stories of First Nations involvement in environmental water management.

Basin governments are working with interested First Nations organisations in different parts of the Murray–Darling Basin, including through the Victorian Environmental Water Holders' Seasonal Watering Plan, New South Wales Environmental Water Advisory Groups, CEWH's First Nations Environmental Water Partnerships Pilot Program and South Australia's Healthy Coorong, Healthy Basin program. Basin governments approach to partnering with First Nations has supported engagement with First Nations people with a connection to Country to understand their responsibilities to care for Country and their values.

Each year, the MDBA reports on how First Nations' values and uses of water were considered in the planning and delivery of environmental water in the Murray−Darling Basin. In December 2023 the First Nations participation in water for the environment report was published covering the 2022–23 water year.[3] More information can be found in that report and in the Basin Plan Schedule 12 reports.

Outcomes achieved from environmental water

In 2023–24 Basin state governments, the Commonwealth Environmental Water Holder (CEWH) and the MDBA worked together to deliver water to meet environmental watering priorities.

Highlights from the 2023–24 water year include:

- Environmental water protection and connection from the northern Basin to the southern Basin: About 41 GL of environmental water flows from the northern Basin were protected into the southern Basin through the Menindee Lakes system. As part of an innovative trial, this water was delivered as a pulse in the Lower Darling (Baaka) River, to address water quality issues, and into the River Murray to improve overall river health for native fish and the local community.
- Consolidating ecological outcomes following high flows: Across recent wet years water for the environment was strategically released in and around periods of high natural flows to help support key ecological processes, such as maintaining water levels for successful waterbird breeding. With many juvenile waterbirds now in the landscape, environmental water managers sought to provide a mosaic of habitats across the system in 2023–24 to support these waterbirds progress into adult populations. This included targeting key Ramsar listed wetlands within the Murrumbidgee irrigation area. Similarly, follow-up delivery of environmental water has helped consolidate the environmental outcomes for wetland and floodplain vegetation from recent natural flow events. Environmental water has also provided habitat for and supported the movement of native fish, as well as helping native fish recover from poor water quality.

[3] The *Water Amendment (Restoring Our Rivers) Act 2023* requires the MDBA to prepare information on how, when planning for environmental watering in the Murray-Darling Basin, holders of held environmental water: (a) considered Indigenous values and Indigenous uses (as defined in the Basin Plan); and (b) involved Indigenous people each year. This requirement replaces the reporting requirement under the Water (Indigenous Values and Uses) Direction (2018). The information prepared by the MDBA will be published on its website each year.

- In the southern Basin, water for the environment was delivered across all major rivers, with the largest event being a coordinated spring pulse combining releases in the Murray and its tributaries to provide benefits along the length of the river from Hume Dam to the Coorong.
- A record 1650 GL of environmental water flowed to South Australia in 2023-24, this being the largest volume since the introduction of the Murray-Darling Basin Plan in November 2012, helping to support a number of native fish species.
- In the northern Basin, water for the environment delivery in 2023–24 occurred in the Gwydir, Namoi, Peel, Macquarie, Warrego, Border Rivers and Moonie, Condamine–Balonne and Barwon–Darling to support native fish, wetland vegetation, water quality and improved flow connectivity.

More information can be found in that report and in the Basin Plan Schedule 12 reports.

Challenges and areas for improvement

A range of improvements to support environmental water planning and delivery are underway (for example prerequisite policy measure improvements to protect environmental water from re-regulation; and the Enhanced Environmental Water Delivery Project to develop new tools and systems for decision-making). Realising the full potential of environmental outcomes from environmental water delivery will continue to be affected without the relaxation of flow constraints and completion of environmental works projects that contribute to the delivery of environmental water to greater parts of the floodplain. This includes considering use of other complementary measures that influence ecological functions and processes, such as remediating fish passage, mitigating cold water pollution and improving aquatic habitat.

The Environmental Watering Plan has been fully implemented and is generally working well. However, there are opportunities to improve the Environmental Watering Plan in key areas; these include incorporating climate change into the setting of ecological objectives and targets, building First Nations ecological objectives into the Environmental Watering Plan to improve the health of Country, and aligning the Basin annual environmental watering priorities with environmental water planning processes in the regions. More information on the opportunities to improve is available on the MDBA website. Some of these improvements will be considered in the 5-yearly review of the Basin-wide environmental watering strategy, while others will be considered as part of the Basin Plan Review.

Water quality and salinity management plan

Chapter 9 of the Basin Plan sets out the plan for managing water quality and salinity in the Basin. The objectives and targets for assessing whether water quality is fit for a range of purposes include:

- site-specific salinity targets at 5 sites
- blue-green algae targets and dissolved oxygen targets
- water quality targets for water resource plans
- a salt export objective used to assess the discharge of salt from the River Murray system into the Southern Ocean.

Progress in 2023–24

Assessment of the salt export objective

The MDBA estimates the discharge of salt from the River Murray system into the Southern Ocean every water year by comparing the estimated number of tonnes of salt exported per year averaged over the preceding 3 years against the indicative figure of 2 million tonnes of salt per year. Over the 3-year period from July 2021 to June 2024, the average rate of salt export over the barrages was 2.63 million tonnes per year. Several years of high flow, including in 2022–23, influenced the achievement of the salt export objective. The 'Assessment of the salt export objective and salinity targets for flow management for 2023–24' will be available, once published on the MDBA websites – Salt export objective and salinity targets for flow management.

Monitoring salinity at the 5 Basin Plan reporting sites

The Basin Plan requires the MDBA to monitor daily salinity levels at 5 reporting sites and to assess whether the salinity targets at the reporting sites have been met. The targets are met if salinity levels have been below the target 95% of days over the last 5 years. Results for the July 2019 to June 2024 reporting period are in Table 7. They show the targets have been met at 4 of the 5 reporting sites. The salinity targets for Burtundy were not met over the 5-year reporting period.

Table 1 Achievement of salinty targets over the 5-year reporting period from July 2019 to June 2024

Reporting site	Target value (EC µS/cm)	Achievement of target	% of days above the target value
River Murray at Murray Bridge	830	✓	0
River Murray at Morgan	800	✓	0
River Murray at Lock 6	580	✓	0
Darling (Baaka) River at Burtundy	830	✗	8.5

Reporting site	Target value (EC µS/cm)	Achievement of target	% of days above the target value
Lower Lakes at Milang	1,000	✓	2.7

Regard had to the water quality and salinity targets when managing water flows and making decisions about the use of environmental water

All Basin governments, the MDBA and the Commonwealth Environmental Water Holder have had regard to the Basin Plan water quality and salinity targets when performing their functions and making decisions about the use of environmental water in the 2023–24 reporting period.

For example, during May 2024, the MDBA facilitated the commencement of a trial to connect environmental water from the northern to the southern Murray-Darling Basin. The initial phase of the trial commenced at a time and in a manner that targeted improvements to water quality by providing a flush along the Lower Darling (Baaka) River to help dilute and disperse high algal loads and stagnant water. The MDBA also coordinated a range of actions designed to further mitigate potential water quality impacts downstream including along the South Australian Murray. The Basin Officials Committee agreed the connectivity trial would continue until 30 June 2025, with future releases dependent on the volumes of active environmental water that flows into the Menindee Lakes during the 2024–25 water year.

Further examples and information can be found in the Basin Plan Schedule 12 reporting on the MDBA website.

Challenges and areas for improvement

The Basin Plan does not directly regulate many of the actions that drive water quality, such as land use and land management. This means that the Basin Plan has limited ability to drive improvements in meeting water quality targets. In the context of a changing climate, Basin governments and the MDBA need to continue to adapt and improve how water quality and salinity is managed.

The Basin Plan Review Early Insights Paper recognised that several severe water quality events have occurred over the past 12 years and that the Basin Plan did not meaningfully influence the response to these events. Opportunities to improve management of water quality through the Basin Plan will be explored through the Basin Plan Review.

Water resource plan requirements

Chapter 10 of the Basin Plan details the requirements that water resource plans must include for the MDBA to recommend them for accreditation by the Australian Government Minister responsible for Water. Water resource plans are an integral element of implementing the Basin Plan. They set the rules for how much water can be taken from the system so that the sustainable diversion limits in each area are achieved over time. Accredited plans also enable state and territory water management rules to meet the Basin Plan requirements. There are 33 water resource plan areas across the Basin: 14 for surface water, 14 for groundwater and 5 that cover both.

Progress in 2023–24

As of 30 June 2024, New South Wales had 16 water resource plans accredited. The 4 remaining New South Wales water resource plans were withdrawn from assessment for further work and will be resubmitted in due course. More information on the accreditation status of the New South Wales water resource plans can be found on the MDBA website.

Accreditation of a water resource plan enables the Inspector-General of Water Compliance to use the full range of regulatory powers, including the ability to monitor and ensure compliance with the Basin water management arrangements they enable. The use of these powers is explained in the Water Resource Plan Compliance and Enforcement Framework published by the Inspector-General of Water Compliance. Further information about compliance with water resource plans is found in the Basin Plan Matter 19 reports for the 2023–24 water year, available on the MDBA website.

The MDBA has had early discussions with some Basin state governments about the preparation of amendments to accredited plans; however, to date no plans have been brought forward for amendment.

Challenges and areas for improvement

The Inspector-General of Water Compliance is only able to make a limited assessment of sustainable diversion limit compliance, non-compliance or claims for reasonable excuse during the reporting period, with incomplete coverage of accredited water resource plans in New South Wales. Complete coverage of the Murray–Darling Basin with accredited water resource plans is needed to fully enforce sustainable diversion limits. Similarly, monitoring compliance with and enforcement of water resource plan obligations and commitments can only commence following accreditation.

Affected communities expect water resource plans to be delivered and there is a sense of frustration that this has not already occurred.

The MDBA will continue to consult with relevant First Nations organisations when the remaining New South Wales water resource plans are submitted for assessment. The MDBA recognises that some First Nations organisations are concerned about the state's engagement approach and accreditation of plans to date.

The Basin Plan Review Early Insights Paper acknowledges that accrediting water resource plans has increased confidence by establishing a common baseline for managing the Basin's water resources,

and that assurance of water planning remains an important function of the Basin Plan. However, the prescriptive nature of water resource plan requirements has been raised by Basin state governments as a barrier to amendment, innovation and improvement. In some cases, they hamper the ability to achieve better outcomes.

Critical human water needs

Chapter 11 of the Basin Plan sets out arrangements to ensure critical human water needs are met. This is the minimum amount of water required for:

- core human needs – such as drinking, food preparation and hygiene
- essential community services – including emergency services, hospitals and schools
- commercial and industrial purposes that are vital for the community or for national security.

The Basin Plan and the Murray–Darling Basin Agreement work together to prioritise water for critical human needs in the River Murray system. Critical human water needs are the responsibility of respective individual state governments in the northern Basin, with state arrangements accredited, for the purpose of the Basin Plan, under water resource plans.

Progress in 2023–24

Risks to critical human water needs in the River Murray system were regularly assessed by the MDBA in consultation with the interjurisdictional Water Liaison Working Group. The risk assessment occurs through periodic review of the River Murray System Annual Operating Outlook and the assumptions used to prepare the MDBA's fortnightly water resource assessments.

During all water resource assessments for 2023–24, sufficient water resources were available to meet the conveyance water needs and conveyance reserve, and the water was of suitable quality under all inflow scenarios (Tier 1). More information on the water-sharing arrangements to meet critical human water needs and the conveyance water reserve is published on the MDBA website.

In the northern Basin, progress is being made by the New South Wales Government on an independent panel final report recommendations into the management of the 2020 northern Basin first flush event following drought. The activities being undertaken by the New South Wales Government support improved protection of water for critical human water needs.

Challenges and areas for improvement

The critical human water needs provisions in chapter 11 of the Basin Plan have not been triggered since the Basin Plan was made in 2012. Under a changing climate it is appropriate to question the adequacy of actions required by chapter 11.

In the northern Basin, Basin state governments have undertaken activities to improve the management of water for critical human water needs. Examples include the NSW Extreme Events Policy and incident response guides. Nonetheless the 2023 Productivity Commission report recommended that the Basin Plan should have a more substantial role in addressing critical human water need issues in the northern Basin. The Basin Plan Review is an opportunity to review and improve the adequacy of the arrangements for managing water for critical human water needs, and also to address concerns that the prescriptive nature of water resource plan requirements can impede innovated and adaptive management approaches.

Water trading rules

Chapter 12 of the Basin Plan sets out water trading rules designed to support efficient functioning and ongoing operation of Basin water markets through a consistent framework for water trade to:

- reduce restrictions on trade
- improve access to information and transparency of the water market
- improve confidence in the market (such as ensuring no insider trading).

The rules apply to the Australian Government, Basin state governments, approval authorities, irrigation infrastructure operators and individual market participants. The Basin Plan water trading rules operate alongside existing Basin state government rules and irrigation infrastructure operator rules. Basin state governments set the trading rules within their jurisdictions. The Inspector-General of Water Compliance (IGWC) is the enforcement agency for the Basin Plan water trading rules.

Progress in 2023–24

In response to the *Water market reform: final roadmap report* (the roadmap), the Australian Government introduced water market amendments through the *Water Act 2007* and the Basin Plan. The *Water Amendment (Restoring Our Rivers) Act 2023* received Royal Assent on 7 December 2023. The amendments implement some of the recommendations of the roadmap, designed to restore trust, transparency and confidence in water markets, and to enable the ACCC to regulate water market conduct through improved laws that prohibit market misconduct, strengthen insider trading rules, ban market manipulation, and introduce a mandatory code of conduct for water market intermediaries. There are new water market functions and powers for the Bureau of Meteorology and the IGWC. Further information about water market reform and its implementation is available on the DCCEEW website.

Improving water market transparency and information

To improve data accuracy on trade forms, from 1 July 2024 new obligations have come into effect for persons providing information to water market authorities. Water market participants providing information must ensure that all information in a trade or transfer application form is comprehensive and accurate. Records will also need to be kept for 5 years.

Rule 12.23(2) of the Basin Plan water trading rules exempted tagged water access entitlements that were established before 22 October 2010 from trade restrictions that apply to other water access entitlements. This created 'grandfathered' tags. From 1 July 2024, this exception from trade restrictions was removed.

A new Water Markets Intermediaries Code (the Code) will come into effect no later than 1 July 2025 to regulate the conduct of water markets intermediaries towards their clients. These intermediaries will need to comply with a new statutory trust accounting framework.

The Bureau of Meteorology's Murray–Darling Basin water information portal makes water trade information more accessible. The *Water Amendment (Restoring Our Rivers) Act 2023* gave the Bureau new functions to collect, hold, manage, interpret and disseminate water markets

information. It is developing and implementing water markets data standards, a water data hub and a new water markets website. The water data hub and website are expected to be operational by 1 July 2026.

Basin governments continue to improve the availability of general water market information. The Victorian Water Register website provides live reports on current allocation trade opportunities between zones, including a visual schematic. Water ownership statistics in northern Victoria are published annually, including a list of the largest water owners in the Murray and Goulburn systems. The New South Wales Government publishes water market information through its Trade dashboard and New South Wales Water Register. The South Australian Government publishes a Water Trading in South Australia dashboard, and a River Murray Water Calculator to help irrigators to plan for different allocation outlooks. The CEWH also publishes a quarterly update on its trade intentions.

The MDBA has continued to publish information about approximately 70 highly traded water market products, state trading regimes and the trading rules for large irrigation infrastructure operators. Links to state trading rules and irrigation infrastructure operator trade rules on the MDBA website are regularly updated on advice from the Basin state governments and irrigation infrastructure operators. Further information about Basin state water trading rules is available from the Schedule 12 reports.

Improving water market operations and trade opportunities

The roadmap also identified opportunities to improve the management of water trade in the Basin by improving transparency and ensuring water users and decision-makers are well-informed. Some of these recommendations have been addressed through the recent Trade Working Group review of Schedule D of the Murray–Darling Basin Agreement, which delivered its final report in June 2024.

This review identified measures to increase the efficiency and effectiveness of market operations and enhance the transparency of the decision-making that affects trade opportunities, particularly in relation to trade across the Barmah Choke.

Audits and investigations by the Inspector-General of Water Compliance

The IGWC published an investigation into trade price reporting in October 2023. The investigation was to identify if people disposing of a water access right in the New South Wales Macquarie followed reporting requirements (section 12.48 of the Basin Plan). The investigation concluded the scope of section 12.48 of the Basin Plan is too narrow only requiring the accurate reporting of price, and that legislators should consider broadening section 12.48 to encompass all trade details and responsible parties.

In April 2024, the IGWC published an audit report into the management of groundwater in the Goulburn–Murray (Groundwater) water resource plan area. This was an audit that focussed on the Katunga water supply protection area as this had the highest volume of groundwater traded in Victoria during 2020–21 and requires intensive management due to risks associated with groundwater extraction.

As a result of this audit, a number of observations and recommendations were made for consideration by the Victorian Department of Energy, Environment and Climate Action. These included various amendments to the Katunga Groundwater Management Plan aimed at improving transparency of information related to groundwater trade approval.

Challenges and areas for improvement

Rapid growth in the water trade market since the Basin Plan was made in 2012 has tested the appropriateness and robustness of the current trading rules and the regulatory and governance arrangements. To ensure water markets can deliver for all users into the future, governments need to continue to improve the frameworks underpinning water markets and invest in the systems and infrastructure that support them.

Monitoring and evaluating the effectiveness of the Basin Plan

Chapter 13 of the Basin Plan is about the program for monitoring and evaluating the effectiveness of the Basin Plan.

Progress in 2023–24

2025 Basin Plan Evaluation and the 2026 Basin Plan Review

The MDBA, in consultation with the Basin state governments, is preparing for the 2025 Basin Plan Evaluation. The 2025 Basin Plan Evaluation will play a critical role in tracking and communicating progress and achievement against the outcomes set out in the Basin Plan as well as identifying potential improvements to the Basin Plan. The 2025 Basin Plan Evaluation is one of the key inputs to the 2026 Basin Plan Review. (more information about the evaluation can be found here)

The Early Insights Paper to the 2026 Basin Plan Review was released on 19 June 2024. The review is an opportunity to reflect on what we have learned, what's working and what might need to change to support the Basin. The 5 areas of challenge that will be explored as part of the review are:

- assessing environmental outcomes
- climate change and preparing for our future
- moving beyond 'Just add water'
- managing the northern Basin
- building on and simplifying the Basin Plan.

Monitoring

The Basin Condition Monitoring Program is a $7.5 million Australian Government commitment to develop and deliver monitoring and reporting of economic, social, cultural and environmental conditions in the Murray–Darling Basin. More information is available on the MDBA website.

Flow-MER

Flow-MER is the Commonwealth Environmental Water Holder's on-ground monitoring, evaluation and research program. The monitoring, evaluation and research information generated through the Flow-MER program supports the efficient and effective use of Commonwealth environmental water and assists in demonstrating the environmental outcomes from watering activities.

Murray–Darling Water and Environment Research Program

The Murray–Darling Water and Environment Research Program (MD-WERP) is a $20 million Australian Government initiative to strengthen scientific knowledge of the Murray–Darling Basin. It will help inform water and environment management decisions to improve outcomes for the Basin and its communities.

Implementing the 5-yearly reviews of the Environmental Watering Plan and water quality targets in the Basin Plan

Implementation of the Environmental Watering Plan review recommendations continued to progress during 2023–24. Following research to improve methods, a vulnerability assessment has now been implemented to inform the Basin annual environmental watering priorities for 2023–24 (for both native vegetation and waterbirds). Implementation of the recommendations from the 5-yearly review of water quality targets in the Basin Plan has continued in 2023–24. A planned salt export review has been carried out during 2024. The MDBA continues to consider how the findings and improvements identified in the 5-yearly reviews could be addressed as part of the 2026 Basin Plan Review.

Productivity Commission Basin Plan implementation review (final report, December 2023)

During February 2024 the Australian Government released the final report of the Productivity Commission 5-yearly Basin Plan implementation review. The report identifies achievements made by the Basin Plan since the last review in 2018 and key areas where the Basin Plan has not achieved what was intended. The recommendations highlight what action the commission considers is needed to address the certain shortfall in water recovery, suggest governance arrangements to improve implementation, and identify key areas where the Basin Plan could be strengthened to improve delivery.

Murray–Darling Outlook and the Sustainable Rivers Audit

The Murray–Darling Outlook (the Outlook) and the Sustainable Rivers Audit present the results of monitoring and research on the condition and trends for environmental, social, economic and cultural values in the Basin. The analysis will include an assessment of risk to the range of Basin values and provide insight to future conditions across the Basin. In September 2023 the MDBA published a series of literature reviews on the status of water-related science across the Basin. The literature reviews are intended to inform and stimulate discussion.

Challenges and areas for improvement

A key challenge is to continue to ensure that the findings and outputs of the Basin Plan monitoring, evaluation and reporting program inform adaptive management and investment. Work is currently underway to ensure the program is appropriately linked to other programs and able to inform the 2026 Basin Plan Review.

Basin Plan key activities

The Australian Government and Basin state governments support the implementation of the Basin Plan through a range of funding programs. These include the purchase of water entitlements, direct investment in on-farm and off-farm infrastructure or other water recovery activities, and broader government investment and policy arrangements in Basin communities.

Water recovery

There are 2 different water recovery targets under the Basin Plan: 'Bridging the Gap' for both surface water and groundwater resources, and 450 gigalitres per year (GL/y) of additional surface water for enhanced environmental outcomes.

Amendments to the Basin Plan in 2018 reduced the 'Bridging the Gap' surface water recovery target from 2,750 GL/y to 2,075 GL/y, as an outcome of the Northern Basin Review and the sustainable diversion limit adjustment mechanism. As at 30 June 2024, 2,131.7 GL/y of surface water had been recovered towards the surface water 'Bridging the Gap' target. As at 30 June 2024**,** 35.25 GL/y of groundwater had been recovered towards the groundwater 'Bridging the Gap' target of 38.45 GL/y.

As New South Wales water resource plans are finalised and accredited, the New South Wales long-term diversion limit equivalence (LTDLE) factors will be finalised, and the estimate of the volume of water recovered towards the Bridging the Gap will be updated. The SDLAM reconciliation in December 2026 will determine a new offset, impacting the gap still to be recovered.

The *Water Act 2007* provides for the recovery of the 450 GL/y of additional environmental water to achieve enhanced environmental outcomes. The *Water Amendment (Restoring Our Rivers) Act 2023* expanded the options for recovering water for the environment, and extended the timeframe for delivering the 450 GL/y target from June 2024 to December 2027.

Progress towards the 450 GL/y target is through investment in efficiency measures projects that are required to have neutral or positive socio-economic impacts. This includes projects under the Off-farm Efficiency Program. The additional held environmental water (HEW) entitlements as specified by the Minister under section 7.08B of the Basin Plan, as introduced through the *Water Amendment (Restoring our Rivers) Act 2023*, which must also consider the socio-economic impacts each time a water purchase program is approved, will also contribute towards the 450 GL/y target.

As at 30 June 2024, the total amount of water that has been contracted for recovery against the 450 GL/y target is 27.5 GL/y, of which 16.8 GL/y has been transferred to the Australian Government environmental water holdings to be used for environmental outcomes. On 30 May 2024, 1.46 GL/y was nominated by the Australian Government Minister for Water as additional HEW entitlements from the ACT, as per Basin Plan s. 7.08B, contributing to the 450 GL/y target.

Recent activities to progress recovery of the 450 GL/y include:

- The Restoring our Rivers framework for delivering the 450 GL/y of additional environmental water was released, setting out the approach to deliver the target.

- The Resilient Rivers Water Infrastructure Program (previously the Off-farm Efficiency Program) makes available over $520 million funding over 4 years from 2023–24 for water recovery infrastructure projects to improve water use efficiency and return water to the environment.
- The Restoring Our Rivers Trading Strategy 2024-25 was released setting out the Year One plan for Voluntary Water Purchase Program.
    - This included opening a tender in selected southern Basin catchments to purchase up to 70 GL/y from 15 July to 11 September 2024.
    - Expressions of interest are also expected to take place later in 2024 for southern connected basin water rights.
    - It is supported by MDBA advice on the recovery of the additional 450 GL/y, following a request from the Secretary of the Department of Climate Change, Energy, Environment and Water.
- The Sustainable Communities Program provides $300 million to Basin state governments to minimise socio-economic impacts from water recovery towards the 450 GL/y.
- The release of an addendum to the 2012 Basin Plan Regulation Impact Statement.

More information about water recovery can be found on the Department of Climate Change, Energy, the Environment and Water website.

Support for communities

On 16 May 2024, the Department of Infrastructure, Transport, Regional Development, Communications and the Arts announced round 1 funding results for 40 projects under the Australian Government's $600 million Growing Regions program, which provides funding for local government and non-profit organisations for capital works that deliver community and economic infrastructure projects. The successful projects included riverfront works at Swan Hill and repair and protections to Lake Nookamka's environment and campsites. Round 2 funding under the Growing Regions program opened on 5 September and will close on 4 October 2024.

In June 2024, the Australian Government opened the Sustainable Communities Program to Basin states. The program aims to minimise socio-economic impacts from water recovery by supporting diversification and resilience in Basin communities while they transition to a future with less consumptive water. More than $300 million in funding available under the program can leverage other Australian Government and state government regional development programs to maximise outcomes for Basin communities.

This funding will see more invested directly into supporting community adjustment than any previous Australian Government program under the Basin Plan. It is being provided through Basin state governments to give flexibility to adapt to local conditions and priorities.

Funding agreements with states and program details will be made public on the Department of Climate Change, Energy, the Environment and Water website once finalised.

River operations

River operations support Basin Plan implementation and contribute to Basin Plan objectives and outcomes, including through:

- delivery of water to meet multiple objectives and outcomes
- management and monitoring of flows to manage risk to water quality and meet water quality targets.

The MDBA operates the River Murray system on behalf of the New South Wales, Victorian and South Australian governments. Other rivers in the Murray–Darling Basin are managed by Basin state governments. The MDBA publishes regular updates about day-to-day operations in the River Murray system, along with related reviews and reports on the MDBA website.

Office locations – *First Nations Country*
Adelaide – *Kaurna Country*
Canberra – *Ngunnawal Country*
Goondiwindi – *Bigambul Country*
Griffith – *Wiradjuri Country*
Mildura – *Latji Latji Country*
Murray Bridge – *Ngarrindjeri Country*
Wodonga – *Dhudhuroa Country*

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