



# Basin Plan Annual Report 2022–23

December 2023

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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.

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# Reflecting on Basin Plan progress at the end of 2023

This Basin Plan annual report covers the water year from July 2022 to June 2023. However, there have been several key developments since June 2023 that are relevant to progress on Basin Plan implementation. These are identified to acknowledge their significance and impact on continued implementation of the Basin Plan as we move beyond 2022–23 toward the 2025 Basin Plan Evaluation.

# Authority advice to the Minister on Basin Plan implementation

In July 2023, the Authority<sup>1</sup> provided <u>advice to the Australian Government Minister for the</u> <u>Environment and Water</u> about full implementation of the Basin Plan by the 2024 deadline. Despite significant outcomes delivered through implementation since 2012, the Authority advice was that full implementation of the Basin Plan will not be possible by 30 June 2024 under current settings (the legislated rules, agreements and funding arrangements that dictate implementation).

The Authority advice identified the clear and significant challenges preventing full implementation:

- (1) The full package of supply measure projects identified for the sustainable diversion limit adjustment mechanism (SDLAM) will not be delivered by 30 June 2024. Consequently, the full anticipated offset of 605 gigalitres per year (GL/y) of water to adjust sustainable diversion limits, and the linked environmental outcomes will not be realised.
- (2) Since a large portion of the anticipated supply measure gains (between 190 and 315 GL/y) will not be available, the Authority is required to complete a reconciliation and determine a corresponding upward adjustment to the sustainable diversion limits.
- (3) 12.2 GL/y of the 450 GL/y target for water to be recovered through efficiency measures has been achieved. A further 13.8 GL/y has been contracted for delivery. This water recovery will not be completed by 30 June 2024.
- (4) The rules for take and management of water and protections for planned environmental water in water resource plans (WRPs) are critical to give effect to enforcement of the sustainable diversion limits (SDLs) under the Basin Plan. Full implementation of WRPs has not yet been realised in New South Wales. Without accredited water resource plans there is no mechanism to enforce compliance of SDLs.
- (5) Water resource plans are a means for including First Nations people in water resource planning and management. The Authority acknowledged that deep dissatisfaction remains with the New South Wales Government's First Nations engagement and consultation methods for water resource plans.

<sup>&</sup>lt;sup>1</sup> 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.

(6) Progress on the Northern Basin Toolkit package of measures, to complement and support environmental watering in the northern Basin, has been slow and, in some instances, intention to implement appears to have waned. The result is that valuable elements of the agreed toolkit will not be implemented by 30 June 2024.

# Legislative amendments to deliver the Basin Plan in full

On 22 August 2023, an agreement was made between the Australian, New South Wales, Queensland, South Australian and Australian Capital Territory governments to deliver the Basin Plan in full. This agreement set a new pathway to achieving full Basin Plan implementation that relied on amendments being made to the *Water Act 2007* (Cth) and the *Basin Plan 2012* (Cth). The amendments contained in the <u>Water Amendment (Restoring Our Rivers) Bill 2023</u> introduce flexibility to allow for implementation of the Basin Plan by:

- (1) extending time to deliver viable sustainable diversion limit adjustment mechanism (SDLAM) supply and constraints projects and Northern Basin Toolkit projects until 31 December 2026
- (2) allowing for Basin state governments to bring forward new supply projects provided they can be achieved by 31 December 2026
- (3) a reconciliation of SDLAM project outcomes by the Murray–Darling Basin Authority (MDBA) to be completed by 31 December 2026
- (4) broadening water recovery program to help meet the 450 GL/y target by 31 December 2027, and
- (5) including several increased accountability measures to help ensure progress is achieved.

The bill was introduced into the Australian Parliament on 6 September 2023 and passed through the Senate on 30 November 2023. Once given Ascent by the Governor-General, the amended legislation enables implementation of the agreement reached with Basin state governments to deliver the Murray–Darling Basin Plan in full.

# Water resource plans in New South Wales

Between July 2023 and the publication of this annual report there have been a further 3 groundwater plans and 1 surface water plan <u>accredited</u> by the Australian Government Minister responsible for Water. The MDBA continues to assist New South Wales with understanding the WRP requirements for the remaining plans to help ensure their resubmission as soon as possible.

# Productivity Commission Basin Plan implementation review (interim report, October 2023)

During late October 2023 the Productivity Commission released the interim findings and recommendations from its 5-yearly <u>Basin Plan implementation review</u>. The report invites further comment, and the final report to the Australian Government is due in December 2023 and is required to be tabled in Parliament. The report identifies achievements made by the Basin Plan since the last review in 2018 and key areas where the plan has not achieved what was intended. The interim recommendations highlight what action is needed to address the certain shortfall in water

recovery, suggests governance arrangements to improve implementation, and identifies key areas where the plan could be strengthened to improve delivery.

# Independent review into the 2023 fish deaths in the Darling (Baaka) River at Menindee

In September 2023, the Office of the New South Wales Chief Scientist and Engineer released the review into the fish deaths that occurred at Menindee in February and March 2023. The New South Wales Government released its initial response to the review on 10 November 2023. The review is relevant to Basin Plan implementation for what it says about long-term pressure on the Darling (Baaka) River system, the need for a changed regulatory approach and the social nature of difficult decisions that need to be made. This report underlines the significance and importance of bringing Basin Plan reforms to completion.

# **About this report**

Under section 52A of the *Water Act 2007* (Cth) the Authority is required to report on the effectiveness of the Basin Plan within 6 months of the end of each financial year. These annual reports help to focus priorities, acknowledge achievements and identify problems, as well as build trust and confidence in the community about the Basin Plan reforms.

The MDBA, the Basin state governments, the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW), and the Commonwealth Environmental Water Holder (CEWH) also report against matters listed in Schedule 12 of the Basin Plan each year. These Schedule 12 reports are an important source of information for preparing the Basin Plan annual report. This 2022–23 Basin Plan annual report will be used as a key line of evidence on the status of implementation in the 2025 Basin Plan Evaluation.

# Summary

# SDL Adjustment Mechanism

As of 30 June 2023, 14 projects are operational, 6 are on track, and 16 are unlikely to be in operation by the legislated deadline.

The Australian Government has proposed an extension of time to 31 December 2026 for implementation of these projects.

#### Water resource plans

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

5 NEW SOUTH WALES WATER RESOURCE PLANS HAVE BEEN ACCREDITED BETWEEN JULY 2022 AND JUNE 2023. ANOTHER 4 PLANS WERE ACCREDITED BETWEEN JULY 2023 AND NOVEMBER 2023

#### 100% compliance

for the 55 SDL resource units in **South Australia, Victoria, Queensland,** and the **Australian Capital Territory** in 2021–22



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 2021–22



Show that the Barwon-Darling and Gwydir surface water areas currently exceed their transitional accounting threshold and the Murrumbidgee surface water area is approaching its transitional accounting threshold.

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

Floods early in 2022–23 brought widespread environmental benefits to floodplains. Environmental water was used to help improve water quality, support fish movement, and maintain water levels to support waterbird breeding events.

# Image: Second systemImage: Second systemImage: Second system3 out of 5 salinitytargets met

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

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



# 2026 Basin Plan Review

The Authority released a roadmap in June 2023.

#### THE 4 KEY THEMES OF THE REVIEW ARE:

- Climate Change
- Sustainable Water Limits
- First Nations
- Regulatory Design

The 2025 Basin Plan Evaluation will provide foundational data and the case for change to the review.

#### The Australian Government and Basin State Governments endorsed all 23 recommendations in the Water Market Reform Final Roadmap

# Progress on water recovery

As of June 2023

#### Bridging the Gap



2,107.4 GL/y Surface water recovered 98% of the surface water target recovered



**35.2** GL/y Groundwater recovered 92% of the groundwater target recovered

450GL for enhanced environmental outcomes



**12.2** GL/y Available for use

**13.8** GL/y Contracted for delivery

This is 5.8% of the 450 GL target.

# Introduction

The Basin Plan 2012 was made under Part 2 of the *Water Act 2007* (Cth) (the Water Act), building on the National Water Initiative and the Murray–Darling Basin Agreement. The Basin Plan was created to guide the management and sharing of water in the Basin in a more sustainable way. This is a shared responsibility, involving the six 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.

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

The Basin Plan contains a program for monitoring, evaluating and reporting its effectiveness. It includes annual reporting, five-yearly reviews, evaluations, and audits by the Inspector-General of Water Compliance. Evaluations assess the effectiveness of the Basin Plan against its objectives and outcomes. The next evaluation of the Basin Plan will be released in 2025. The evaluation findings will inform the 2026 Basin Plan Review, which is required under section 50 of the Water Act.

Basin Plan evaluations are undertaken within a conceptual framework of program logic, which describes the relationship between activities and outcomes. An overarching Basin Plan program logic is presented in Figure 1. The program logic shows how the implementation activities relate to the intended outcomes described in the Basin Plan.

This report documents progress with Basin Plan implementation activities from 1 July 2022 to 30 June 2023 while also accounting for significant events impacting Basin Plan implementation that have occurred between June 2023 and November 2023. To provide a clear link to the Basin Plan, this report is structured to correlate to chapters in the Basin Plan and associated implementation activities.<sup>2</sup>

<sup>&</sup>lt;sup>2</sup> Some chapters of the Basin Plan do not deal with implementation activities. They are: Chapter 1 – Introduction; Chapter 2 – Basin water resources and the context for their use; Chapter 3 – Water resource plan areas and water accounting periods; and Chapter 5 – Management objectives and outcomes. Progress against these chapters is not included in this report.



Figure 1 Basin Plan Program Logic

# Prevailing weather conditions for 2022–23

Prevailing weather conditions changed markedly in the 2022–23 reporting period. The last 6 months of 2022 saw <u>above average rainfall across most of the Basin</u> and very much above average rainfall across much of New South Wales and south-east Queensland. This wetter than average period brought widespread flooding. Early 2023 saw the tail end of flooding, followed by flood recovery among many communities across the Basin, and then a shift to <u>below average rainfall conditions</u> led by drying conditions in the northern Basin.

# Management of risks to Basin water resources

Chapter 4 of the Basin Plan is about the identification and management of risks to Basin water resources.

#### Key finding:

It is unclear whether our existing policy frameworks and adaptive management instruments will be adequate to manage the risks posed by climate change, in particular the climate extremes and the high likelihood of less water in the Basin.

# Introduction to Chapter 4

The objectives of chapter 4 of the Basin Plan are to:

- provide a framework for the MDBA to identify and manage risks to the condition and continued availability of Basin water resources
- give Basin states information about the risk strategies they must have regard to when identifying strategies to manage medium or high risks that have been identified in water resource plans.

The strategies to manage risks to Basin water resources identified in chapter 4 include:

- continued implementation of the Basin Plan
- development of water resource plans
- effective monitoring, evaluation and compliance
- improvements in knowledge, including improving knowledge of the impact of climate change on Basin water resources
- promoting and enforcing compliance with the Basin Plan and water resource plans.

### Key obligations and responsibilities in 2022–23

Table 1 Basin Plan chapter 4 – key obligations and responsibilities in 2022–23

Responsibilities	Basin Plan section	Who is responsible
Have regard to the strategies (to manage or address risks) when undertaking its functions.	4.03(2)	MDBA

# Progress in 2022–23

Basin state governments, the MDBA and the Commonwealth Environmental Water Holder continue to invest in new knowledge to better understand the impacts of key risks like climate change to

water resources and identify strategies to better mitigate and manage the risks. Programs that strengthen knowledge of the Murray–Darling Basin and improve understanding of risks include:

- climate change planning and adaptation activities
- upgrading Basin river models.

## Climate change planning and adaptation activities

The MDBA has a role to support climate change adaptation and consider implications for Basin policy and water management. The MDBA's <u>climate workplan</u> provides a guide to this work: see Figure 2. Progress against this workplan in 2022–23 is outlined below.



Figure 2 The 3 phases of the Murray–Darling Basin Authority climate workplan

## Supporting climate adaptation

During 2022–23 the MDBA shifted from Phase 1 to Phase 2 of the climate work plan. The MDBA climate adaptation efforts occur at a Basin scale through considering climate impacts and implications in the context of long-term Basin policy and water management settings. Throughout 2022–23 this has included:

- assessing climate risks as part of the <u>Basin-wide environmental watering strategy</u> and annual Basin watering priorities that guide use of environmental water to improve the health of rivers, wetlands and floodplains
- facilitation of a Climate Community of Practice (CoP) leadership group, who share challenges, experiences and information. During 2022–23 the CoP explored the impact of climate change on water resources, Basin-scale vulnerability to climate change, and how to demonstrate climate change responses in public natural resource management
- use of information from the <u>Basin Condition Monitoring Program</u> to better understand the impacts of climate change on the economic, social, cultural and environmental conditions in the Basin, and to identify further data and monitoring needs

- collaboration in research to identify how consideration of climate change impacts on dissolved oxygen levels and blue-green algae can improve water quality across the Basin
- completion of a climate vulnerability assessment of Basin groundwater resources
- collaboration with the Bureau of Meteorology to improve modelling and decision support tools for river management under a changing climate by moving away from use of historic inflows for streamflow forecasting to use of dynamic streamflow statistics that can account for climate change impacts.

The MDBA has established an interjurisdictional approach to better understand future climate for the upcoming Basin Plan Review in 2026 and longer-term management. This included establishing an interjurisdictional Strategic Hydroclimate Working Group which commenced in October 2022. The Basin Officials Committee also agreed to establish an Independent Hydroclimate Science Expert Panel.

Basin state governments are incorporating climate change and adaptation into water management actions. Several examples of Basin state action are identified in the annual <u>Schedule 12 reporting</u> published on the MDBA website. Further information about Basin state government action during 2022–23 is also available here:

- The Victorian Water and Climate Initiative
- Use of <u>climate data in strategic water planning</u> for New South Wales
- Providing the climate risk information in Queensland
- <u>Climate science knowledge and tools</u> in South Australia.

### Upgrading the Basin's river models

There are currently 24 river models covering various parts of the Murray–Darling Basin. The models have worked well in the past, but they require significant manual intervention to provide a whole-of-Basin view. The Australian Government, through the Integrated River Modelling Uplift project, is working with Basin state governments to ensure that the models are fit for future climate scenarios, ready to answer questions and support river operation decisions into the future. The project is integrating Basin modelling to provide a Basin-wide view and building an online portal for sharing water data and modelling information. The integration is expected to be complete by July 2024. Further information is available on the <u>MDBA website</u>.

# Challenges and areas for improvement

The changing climate presents challenges for managing the water resources of the Basin. It is unclear whether our existing policy frameworks and adaptive management instruments will be adequate to manage the risks posed by climate change, in particular the climate extremes and the high likelihood of less water in the Basin. Addressing the impacts of climate change is a key area of focus for the 2026 Basin Plan Review, which will consider how the Basin Plan can be improved to respond to climate change, as outlined in <u>the roadmap released in June 2023</u>.

# Water that can be taken

Chapter 6 of the Basin Plan is about the establishment of sustainable diversion limits and compliance with sustainable diversion limits.

#### Key findings:

There was compliance with the sustainable diversion limits in all sustainable diversion limit resource units operating under a water resource plan and on the registers of take in 2021–2022.

The Inspector-General of Water Compliance (IGWC) continues to express concern about the lack of accredited water resource plans in New South Wales, leading to an inability to assess sustainable diversion limit compliance for the New South Wales portion of the Basin.

The MDBA interim registers of take for 2021–22 indicate that the Barwon–Darling and Gwydir surface water areas currently exceed their transitional water accounting compliance thresholds, and the Murrumbidgee surface water area is trending towards its compliance threshold.

There has been good progress on the policy and management measures of the Northern Basin Toolkit, but it is clear at the close of 2022–23 that the full package of toolkit measures, particularly the Gwydir constraints and environmental works measures where progress has been slow, will not be complete by the June 2024 deadline agreed by Basin water ministers.

# Introduction to Chapter 6

The Basin Plan introduced new water accounting and compliance arrangements based on sustainable diversion limits (SDLs) for 29 surface water and 80 groundwater SDL resource units across the Basin. Equitable and sustainable use of Basin water resources involves determining what water can be taken and ensuring compliance with these SDL limits. This is an integral part of the Basin Plan, described in Chapter 6.

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. The Northern Basin Review also led to the Australian Government and the New South Wales and Queensland governments adopting a suite of water management practices and tools (commonly referred to as the Northern Basin Toolkit) with assistance from the Australian Government. Progress on Northern Basin Toolkit implementation is provided in the Basin Plan supporting activities section.

# Key obligations and responsibilities in 2022–23

Table 2 Basin Plan chapter 6 – key obligations and responsibilities in 2022–23

Responsibilities	Basin Plan section	Who is responsible
Establish, maintain and publish a register of take for each sustainable diversion limit resource unit. This is to assist with determining compliance with sustainable diversion limits.	6.08	MDBA
Under certain circumstances, provide a claim for reasonable excuse to the MDBA and Inspector-General of Water Compliance if there is an exceedance of the sustainable diversion limits compliance trigger with a surface water sustainable diversion limit. If relying on a claim for providing a reasonable excuse, set out the steps to reduce the cumulative balance of the register of take to zero or less.	6.12	Basin state governments
Under certain circumstances, provide a claim for reasonable excuse to the MDBA and Inspector-General of Water Compliance if there is exceedance of the groundwater sustainable diversion limits compliance trigger. If relying on providing a claim for reasonable excuse for non-compliance, set out the steps to reach the point where there is no excess to compliance limits set out in section 6.12C(1)(a).	6.12C	Basin state governments
The Inspector-General of Water Compliance may conduct, or cause to be conducted, an audit in relation to compliance using the Inspector-General's powers under the Water Act. The audit must be published and may lead to further action by the Inspector-General of Water Compliance.	Note to ss. 6.12(5), 6.12C(5)	IGWC

# Progress in 2022-23

Reporting on water that can be taken (take) and compliance with sustainable diversion limits (SDLs) is a complex task involving both the Murray–Darling Basin Authority (MDBA) and the Inspector-General of Water Compliance (IGWC). The task is further complicated because the water take and compliance reported in 2022–23 uses data collected during the previous 2021–22 reporting period.

Below is a brief introduction to the respective roles of the MDBA and the IGWC. The chapter then reports progress that draws on data from the 2021–22 reporting period, being the SDL accounting and compliance reports, and metering report cards. Progress is then reported for elements of take and compliance that rely on data from the 2022–23 reporting period, including water resource plan compliance and measurement of floodplain harvesting.

### 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.

The IGWC released an <u>Annual Work Plan 2022–23</u> in August 2022. 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 2022–23 were: trade enforcement, water resource plan compliance, and engagement related to compliance involving environmental water, water metering, water buybacks, and river operations. Further information about the outcomes of these activities can be found in the <u>IGWC Annual Report</u>.

# Sustainable diversion limit accounting and reporting by MDBA for the 2021–22 year

All Basin state governments provide SDL accounting and compliance reporting to the MDBA each year under section 71 of the *Water Act 2007* (Cth). This data is recorded in the registers of take report published by the MDBA identifying water taken in each SDL resource unit across the Basin. In 2023, MDBA published the <u>SDL registers of take report for the 2021–22 water year</u>.

The registers of take are split into two: 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 2021–22 report shows that in all the 55 SDL resource units with accredited water resource plans water take was within the sustainable diversion limits. The interim registers of take show that 2 SDL resource units, the Barwon–Darling watercourse and the Gwydir, exceeded the SDL compliance threshold, and the Murrumbidgee is trending towards the compliance threshold.

The <u>water take report for 2021–22</u> 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 MDBA collects in the registers.

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 governments 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 Inspector-General of Water Compliance for the 2021–22 year

In September 2023, the IGWC published the <u>Sustainable diversion limit compliance statement for</u> <u>2021–2022</u>. The compliance statement shows compliance by the 55 SDL resource units presented in the MDBA's 2021–22 registers of take report. These 55 compliant units (19 surface water and 36 groundwater) cover Queensland, South Australia, Victoria and the Australian Capital Territory, where accredited water resource plans are in place.

#### The Inspector-General of Water Compliance said:

The Inspector-General of Water Compliance has expressed concern through the 2021–22 compliance statement and 2022–23 annual report about the continued lack of water resource plans in New South Wales, continuing the inability to assess compliance for the 54 sustainable diversion limit resource units in New South Wales (10 surface water and 44 groundwater). The Inspector-General's annual report can be viewed online.

# 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. This is the first year that the New South Wales Government has been able to submit a Matter 19 report. 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. Requirements for non-urban metering were set out in the Murray– Darling Basin Compliance Compact (2018), with detailed rules and guidance in the Metrological Assurance Framework 2 (2021). 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 Inspector-General of Water Compliance (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. Two metering report cards have been released to date; one for the 2020-21 water year (released January 2023) and the other for the 2021–22 water year (released August 2023). The report cards provide consistent metrics on meter accuracy, coverage, and timeliness (telemetry). Further information about the IGWC report cards can be found at Reviews and report on the IGWC website. The IGWC will continue to work with the Basin state governments to produce metering report cards as the July 2025 reform completion target approaches.

A project is underway through Standards Australia to update the AS4747 series of standards for nonurban water metering. A working group is re-drafting the standards and this re-draft process is approaching completion. The draft standards will be subject to public consultation before they are finalised and updated, which is likely during 2024. The standards closely relate to and reference the Metrological Assurance Framework 2, which will also be updated to align with the new standards.

### 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. <u>Accounting for water</u> 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 <u>Floodplain Harvesting Policy</u> sets out the process for bringing floodplain harvesting into the water licensing framework. It involves creating new works approvals, licences, rules and ways of measuring floodplain harvesting so that the harvesting take can be managed within the legal limits set by the Basin Plan and New South Wales water sharing plans.

The New South Wales Government publishes quarterly progress reports for its Floodplain Harvesting Action Plan. The <u>progress report for April to June 2023</u> (quarter 2) identifies that licensing and measurement frameworks for floodplain harvesting came into effect for the New South Wales Border Rivers and Gwydir valleys on 15 August 2022, for the Macquarie valley on 1 March 2023, and for the Barwon–Darling on 1 April 2023. Licencing and measurement frameworks for the Namoi valley are expected to be in place by the end of 2023.

The New South Wales Government is incorporating floodplain harvesting into water resource plans. The MDBA will continue to work with the New South Wales Government to ensure appropriate arrangements are reflected in surface water resource plans for the 5 northern Basin valleys: New South Wales Border Rivers, Macquarie–Castlereagh, Gwydir, Namoi and Barwon–Darling Watercourse.

The Queensland Government put a moratorium in place during 2000–01 preventing new overland flow works from being started and existing works from being changed. 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. The Queensland Government has granted water licences to replace infrastructure constrained authorisations and implemented measurement programs to better account for the take of overland flow, for example, water licences for overland flow were granted in the Lower Balonne during 2010 and take has subsequently been measured. In other floodplains, the take of overland flow water is constrained by works-based authorisations to ensure no growth in the take of overland flow water beyond 2000–01 levels of development. The Queensland Rural Water Management 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.

#### Hydrometric Networks and Remote Sensing Program

This \$35 million program continues to be delivered in collaboration between the New South Wales and Queensland governments, the Bureau of Meteorology, Geoscience Australia and the MDBA. The initiative will improve how the northern Basin's water is measured and monitored and give communities access to more water information. Approaches developed will then be utilised in other parts of the Basin. Information about the projects under the initiative can be found on the <u>MDBA</u> website.

### Implementation of the Northern Basin Toolkit

The Northern Basin Toolkit is a \$180 million Australian Government investment in the ecological health of the northern Basin and will be implemented in a way that generates jobs and economic activity in rural and regional communities. There are six Northern Basin Toolkit measures designed to support implementation of the Basin Plan through improved water management practices and the

passage of flow across the northern basin without depending on additional water. Four of the toolkit measures are policy and water management practice changes, and two of the toolkit measures involve infrastructure to install environmental works and overcome constraints in the Gwydir catchment. The Australian Government has approved toolkit funding for 10 environmental works projects.

### Progress on the Northern Basin Toolkit in 2022–23

Progress on delivery of the Northern Basin Toolkit is tracked by the MDBA through its <u>6-monthly</u> <u>Basin Plan report cards</u> and by the inter-governmental Northern Basin Project Committee through 6-monthly reporting of toolkit implementation progress to the Basin Officials Committee and the Ministerial Council. Further information is also available on the <u>DCCEEW website (Northern Basin</u> <u>Toolkit)</u>.

The implementation status for each of the toolkit measures is shown in the table below. Further information is available in the August 2023 Northern Basin Project Committee progress update on Northern Basin Toolkit measures, available on the <u>MDBA website</u>. It is clear at the close of the 2022–23 reporting period that the full package of toolkit measures will not be complete by the June 2024 deadline agreed by Basin water ministers.

	Northern Basin toolkit measures	Implementation status (June 2023)
1.	Targeted water recovery	In progress for June 2024 delivery
2.	Protection of environmental flows	Some risk to June 2024 delivery
3.	Improved coordination and management of environmental water	On track for June 2024 delivery
4.	Event based mechanisms	On track for June 2024 delivery
5.	Environmental works and measures to improve environmental outcomes across the northern Basin, providing increased opportunities for native fish movement (through building fishways)	Full package of projects will not be completed by June 2024
6.	Removal of physical constraints in the Gwydir catchment to improve flows to wetlands	Projects will not be completed by June 2024

Table 3 Implementation status of northern Basin toolkit measures

# Challenges and areas for improvement

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 the Northern Basin Toolkit, Basin government officials and Ministers will further consider risks to implementation of the toolkit measures and will identify treatments to mitigate risks, including risks to project delivery timeframes and budget. This includes proponent states rescoping the approved package of environmental works and measures projects to fit within the available \$180 million toolkit budget.

# Adjustment of sustainable diversion limits

Chapter 7 of the Basin Plan is about adjustment of sustainable diversion limits.

#### Key findings:

The 2023 <u>SDLAM assurance findings</u> identify that of the original 37 sustainable diversion limit adjustment mechanism (SDLAM) supply measures projects:

- 14 are currently operational
- 6 are likely to be operable by 30 June 2024
- 16 will not/are unlikely to be operable by 30 June 2024
- 1 was not progressed.

The <u>2023 SDLAM assurance report</u> confirmed that a reconciliation of SDLAM will be needed. The June 2023 <u>Authority advice on Basin Plan implementation</u> estimates a revised supply measures contribution of between 290 to 415 GL/y (down from the 605 GL/y estimate in 2017). This is a shortfall of between 190 to 315 GL/y from the expected 605 GL/y contribution forecast from supply projects. With further delays to supply measures during 2022–23, the Authority is of the view that the shortfall will be at the higher end of the forecast.

<u>Authority advice on Basin Plan implementation</u> affirms that little progress has been made with recovery of 450 GL/y of water through efficiency measures projects. As of 30 June 2023, the <u>department identifies 26 GL/y</u> of water recovery has been contracted towards efficiency measures. The remaining recovery through efficiency measures is 424 GL/y.

# Introduction to Chapter 7

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

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

Basin state governments have nominated a suite of supply, constraint and efficiency measure projects under the SDLAM. Under the Basin Plan, the Authority is required to assess whether the notified supply measures, as implemented at 30 June 2024 (under current settings), support the SDL adjustment initially determined in 2017. If the Authority considers that the measures would produce a result different from the 2017 determination, the Authority must conduct a reconciliation. See below for more about the SDLAM reconciliation framework.

In 2017 the MDBA assessed the notified supply and constraints easing measures and proposed an increase of the sustainable diversion limit by 605 GL/y based on the environmental outcomes that the measures were expected to achieve once completed. Basin governments committed to implementing the SDLAM projects in full by 30 June 2024.

The constraint measures program has 6 projects spanning New South Wales, Victoria and South Australia. The projects address infrastructure, policy and operating constraints that restrict the vital connectivity between rivers and floodplains to achieve material and important ecological outcomes and a significant SDL offset. Constraints projects are extremely complex, requiring significant stakeholder engagement.

The SDLAM provides for an efficiency measures program to recover 450 GL/y of additional water for the environment. The program recovers water through investing in efficiency measure projects that have neutral or positive socio-economic impact. The use of water recovered through efficiency measures enables achievement of enhanced environmental outcomes set out in Schedule 5 of the Basin Plan.

# Key obligations and responsibilities in 2022–23

Table 4 Basin Plan chapter 7 – key obligations and responsibilities in 2022–23

Responsibilities	Basin Plan section	Who is responsible
Notification of measures and amendment of notifications	7.12	Basin state governments
Maintain a register of sustainable diversion limit adjustment measures	7.13	MDBA

# Progress in 2022-23

Progress on delivery of the SDLAM projects is tracked by the MDBA through its <u>6-monthly Basin Plan</u> <u>report cards</u> and in the <u>annual SDLAM assurance reports</u>. Basin state governments also self-report their progress to the MDBA through the <u>quarterly SDLAM progress reports</u>. In June 2023, progress on SDLAM measures was also included in <u>Authority advice on the status of Basin Plan implementation</u>. There is further discussion of these reports below. Overall, the assessment of SDLAM progress at the end of 2022–23 is that:

- the supply measure projects will not deliver the envisaged 605 GL/y SDL offset and the expected environmental outcomes by 30 June 2024
- substantial work remains to implement the constraints measure projects, threatening achievement of expected environmental outcomes
- there has been very little progress in achieving the 450 GL/y SDL offset from outcomes of efficiency measures projects.

In recognition of these implementation pressures, the Australian Government proposed amendments to the Water Act and Basin Plan including an extension of time for delivery of the projects. The amendments have passed Parliament and are now in force.

# Sustainable diversion limit adjustment mechanism reconciliation framework

The <u>SDLAM reconciliation framework</u> describes the Authority's<sup>3</sup> proposed approach to the reconciliation decision, including the role of assurance. It clarifies the roles and responsibilities of the Authority and Basin governments. Under the framework, the MDBA conducts assurance on SDLAM projects and provides an annual update on the progress of the package of measures. The MDBA's progress assessment does not duplicate reporting by Basin governments; rather it aims to communicate any divergence in its assessments of progress and expected outcomes from the measures.

### SDLAM assurance reporting by the MDBA

The assurance process undertaken by the MDBA over the past 3 years provides insight into whether SDLAM measures will be operational by 30 June 2024 and how measures will be operated. The <u>SDLAM 2023 assurance report</u> reaffirms that some SDLAM measures will not be implemented by 30 June 2024 and that under current settings a reconciliation will be required in 2024.

Assurance reporting has estimated a shortfall of between 190 and 315 GL/y for the 605 GL/y SDL offset from supply measure projects. Several measures have faced ongoing delay throughout 2022–23, leaving the Authority with the view that the shortfall will be at the higher end of the forecast shortfall.

# SDLAM project quarterly progress reporting by Basin state governments

Basin state governments self-assess the progress made on SDLAM supply and constraint measure projects on a quarterly basis. The MDBA publishes SDLAM program <u>quarterly dashboard reports</u> on behalf of Basin state governments. The most recent Basin state reporting is for the period October to December 2022.

### Efficiency measures

The Off-farm Efficiency Program is the current vehicle for recovering 450 GL/y of additional water for the environment. Information on the projects approved under the Off-farm Efficiency Program can be found on the Department of Climate Change, Energy, the Environment and Water website.

In its July 2023 advice to the Australian Government Minister responsible for Water, the Authority identified that very little progress had been made in achieving the 450 GL/y efficiency measures target. Only 12.2 GL/y had been registered to the Commonwealth since 2018 with a further 13.8 GL/y contracted (as at 30 June 2023) for delivery by 30 June 2024. The Authority has also reiterated and supported the conclusion of the <u>second independent review of the Water for the Environment</u> <u>Special Account (WESA)</u> that the 450 GL/y of water will not be recovered by 30 June 2024 under the current Off-farm Efficiency Program, even if WESA time and budget limits were removed.

<sup>&</sup>lt;sup>3</sup> 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.

# Challenges and areas for improvement

Communities are invested in the successful outcomes of the supply, constraints and efficiency projects. Many of the projects aim to provide important flexibility to river operations to enable better environmental outcomes under climate change. Lack of project delivery and a subsequent adjustment to the SDLs may result in a reduction of water available for consumptive use. In the wake of the uncertainty about projects, the community is calling for a clear pathway forward.

Amendments made to the *Water Act 2007* (Cth) and the *Basin Plan 2012* through the Water Amendment (Restoring our Rivers) Bill 2023 will provide further time, further funding, and flexibility to propose new projects while increasing accountability for project delivery.

In its 27 September 2023 submission to the Senate Inquiry on these amendments, the MDBA acknowledged that delivery of the significant and important reforms in the Basin Plan requires full implementation. The submission reiterated the Authority's view that there is no possibility implementation will be finalised by the target date of 30 June 2024 under the legislative settings. The submission also notes that the proposed amendments provide a pathway to progress implementation.

The Water Amendment (Restoring our Rivers) Bill 2023 passed the Australian Senate on 30 November 2023. The Governor-General gave ascent to the amended legislation on 7 December 2023, enabling implementation to deliver the Murray–Darling Basin Plan in full.

# **Environmental Watering Plan**

Chapter 8 of the Basin Plan sets out the Environmental Watering Plan, including processes to coordinate the planning, prioritisation and use of water for the environment and the principles to be applied in environmental watering.

#### Key finding:

Environmental water holders are continuing to improve the delivery of water for the environment, including by coordinating watering events and by using and reusing water at multiple sites.

# Introduction to Chapter 8

The Environmental Watering Plan is a key component of the Basin Plan. Its purpose is to achieve the best environmental outcomes with the amount of water made available by the Basin Plan. The Environmental Watering Plan aims to do this 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.

## Key obligations and responsibilities in 2022–23

Table 5 Basin Plan chapter 8 – key obligations and responsibilities in 2022–23

Responsibilities	Basin Plan section	Who is responsible
Identify annual watering priorities	8.23	Basin state governments
Prepare Basin-wide annual environmental watering priorities	8.27	MDBA
Apply environmental watering principles	8.33–8.43	MDBA, Basin states, Commonwealth Environmental Water Holder (CEWH)
Report where annual watering priorities are not followed	8.44	MDBA, Basin states, CEWH

# Progress in 2022-23

### Basin-wide environmental watering priorities

The Basin-wide annual environmental watering priorities guide the annual planning and prioritisation of environmental watering. In 2022–23 the MDBA prepared <u>Basin annual environmental watering</u> <u>priorities</u> for river flows and connectivity, native vegetation, waterbirds and native fish and to further develop First Nations environmental watering objectives. Key drivers for water for the environment for the 2022–23 water year were to build on the gains from wet conditions to achieve Basin-scale outcomes from use of environmental water and to build environmental resilience for drier times.

The Northern Refresh flow (April–May 2023) is an example of how the Commonwealth Environmental Water Holder (CEWH) has had regard to the Basin annual watering priorities. High flows during 2022 into early 2023, coupled with hotter weather towards the end of summer 2023, created poor water quality conditions, resulting in fish death events including in the Barwon–Darling River. The CEWH and New South Wales Government provided environmental water to improve water quality, keep streams and rivers connected, and support native fish to move along waterways until cooler conditions in the middle of the year arrived and lessened water quality risks. The CEWH released 8.8 gigalitres (GL) through the Gwydir (4.5 GL) and Namoi (4.3 GL) catchments from mid-April to mid-May 2023 to build on water protected along the Barwon–Darling through the activation of the Commonwealth's unregulated licences, which provided an additional 16.9 GL.

Flows provided through New South Wales planned environmental water and 'translucent' environmental water allowance releases from New South Wales tributaries also contributed to the event. Coordinated releases in the northern Basin were facilitated by engagement with the Northern Basin Environmental Watering Group. Monitoring undertaken following the Northern Refresh flow found that dissolved oxygen levels had increased. The flow also helped to improve water quality overall by diluting salt concentrations, nutrients and algae along the Barwon–Darling (with some areas such as Walgett experiencing amber alerts for algal growth before the flow).

In 2022–23 the MDBA, the Commonwealth Environmental Water Holder and all Basin state governments reported that environmental watering was in accordance with the Basin-wide environmental watering priorities.

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

Long-term watering plans are in place in all states except for the Australian Capital Territory. Basin governments are working with stakeholders to implement and review them where appropriate. Basin state governments have undertaken activities below since July 2022 to support the implementation of long-term watering plans.

In 2022–23, the New South Wales Government has undertaken steps to review the 9 long-term water plans covering the New South Wales Murray–Darling Basin, including:

- a First Nations review of 2019–20 long-term watering plans for advice on how to best update the plans with First Nations content in 2023–24 and 2024–25. The final report was released in October 2023
- publication of annual environmental watering priorities for the 9 valleys where New South Wales actively manages water for the environment.

The long-term watering plans for the South Australian Murray Region and Eastern Mount Lofty Ranges are under review with the aim of completion in February 2025. The 2022–23 annual water for the environment plans for the 3 South Australian water resource plan areas were reviewed, updated and published on the South Australian Department for Environment and Water environmental water planning web page and provided to the MDBA by 31 May 2022.

Victoria's long-term watering plans are underpinned by the asset-based environmental water management plans prepared by catchment management authorities (CMAs). In 2022–23, the Goulburn Broken CMA has updated the plans for Black Swamp and the Barmah–Millewa Forest. CMAs across the Victorian Murray–Darling Basin are progressively updating plans as needed to align with the updated guidelines (published in 2021–22) and ensure consistency with the Basin Plan. Updates to Victoria's 3 long-term watering plans are likely to be in response to the release of the next Basin-wide Environmental Watering Strategy in 2024.

The Australian Capital Territory long-term watering plan is under development. The plan aims to develop strategies to maintain and improve the long-term health of the Australian Capital Territory's water-dependent ecosystems and provide alignment with the Basin-wide Environmental Watering Strategy. Until complete, the Australian Capital Territory relies on its Environmental Flow Guidelines for long-term environmental watering guidance. The Environmental Flow Guidelines are reviewed after five years or earlier if warranted and are based on the best available information.

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

### First Nations participation in environmental watering

Environmental water holders have continued throughout 2022–23 to engage directly with local communities and First Nations through environmental watering advisory groups in New South Wales and Victoria and the Community Advisory Panel in South Australia. Community information and views and First Nations Cultural priorities/objectives are used in watering proposals developed as part of annual environmental water planning. Each year, the MDBA reports on how First Nations' values and uses were considered in the planning and delivery of water for the environment in the Murray–Darling Basin. In December 2022 the <u>First Nations participation in water for the environment</u> report was published covering the 2021–22 water year. More information can be found in that report and in the <u>Basin Plan Schedule 12 reports</u>. The 2022–23 First Nations participation in water for the environment for the environment report will be prepared by December 2023.

# Outcomes achieved from the use and management of environmental water

In 2022–23 Basin state governments, the Commonwealth Environmental Water Holder (CEWH) and the MDBA worked together to deliver water to enhance environmental benefits associated with

flooding and meet environmental watering priorities. Very wet conditions early in 2022–23 brought widespread environmental benefits across the Basin, but specifically to floodplains that had not been inundated for some time. Combined with careful use of environmental water, the extensive high flows provided optimal conditions for waterbird breeding and floodplain vegetation. In some catchments, water for the environment was also delivered to help mitigate the impacts of low dissolved oxygen levels as water from floodplains drained back into waterways (see the following section on water quality).

The total volume of environmental water that is reported as used and reused through the Basin Plan Schedule 12 reports can exceed the total volume of held environmental water entitlements. The MDBA's annual <u>water take report</u> details the volumes of held environmental water use against the entitlements.

A summary of highlights from the 2022–23 water year is below:

- Following high natural flows, water for the environment played a critical role in early 2023 by improving water quality as floodwaters receded, supporting fish movement and maintaining water levels to support waterbird breeding events through to completion in what was one of the biggest waterbird boom years in the Basin in decades.
- In early 2023 the CEWH entered into an arrangement <u>to release water from a private storage</u> to provide environmental water to Narran Lakes (Dharriwaa) and support more than 20,000 nests of various waterbird species including straw-necked ibis, royal spoonbills, glossy ibis, egrets, cormorants, Australian darters, yellow-billed spoonbills and pelicans.
- Coordinated delivery of water for the environment in the northern Basin (the Northern Refresh flow) improved water quality and river connectivity and supported native fish movement.
- In the Great Darling Anabranch, <u>water for the environment was released to fill gaps</u> between operational releases. This event supported both lateral and longitudinal connectivity by providing connection between the northern and southern Basin, supporting the vegetation communities of the anabranch and its lakes and transporting juvenile fish from Menindee Lakes to the River Murray.
- Environmental water managers partnered with river operators to trial strategic management of Lake Victoria to better shape the unregulated flows passing onto the Lower Murray. In the lead up before the peak natural flows arrived in December 2022, and in the recession following the peak, river operators managed Lake Victoria (Tar-Ru) to adjust the flow rate entering South Australia for improved environmental outcomes.
- The directed release also provided an opportunity to trial how Lake Victoria (Tar-Ru) could be managed to enhance overbank flows.

Information about the management of environmental water and examples of how it has been used by Basin states can be found in the Schedule 12 reports on the <u>MDBA website</u>.

# Challenges and areas for improvement

The Environmental Watering Plan is in place and working well. However, there are opportunities to improve implementation activities, such as continuing to improve system-scale environmental

watering, site-scale management, and aligning Basin watering priorities with environmental water planning processes in the regions. There are other potential improvements that could be addressed at the Basin Plan Review in 2026, including incorporating First Nations' ecological objectives into the next Basin Plan following engagement, facilitation and agreement with Traditional Owners.

# 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.

#### Key finding:

Targets were met at 3 of the 5 Basin Plan salinity reporting sites.

# Introduction to Chapter 9

Chapter 9 of the Basin Plan sets out a water quality and salinity management plan for the Murray– Darling Basin. The plan aims to maintain appropriate water quality for environmental, social, cultural and economic activities within the Basin.

There are a number of objectives and targets for assessing whether water quality is fit for a range of purposes. These include:

- site-specific salinity targets
- blue-green algae targets and dissolved oxygen targets
- water quality targets for water resource plans.

Chapter 9 also includes a salt export objective, which provides an indicative figure against which the MDBA must assess the discharge of salt from the River Murray system into the Southern Ocean.

### Key obligations and responsibilities in 2022–23

Table 6 Basin Plan chapter 9 – key obligations and responsibilities in 2022–23

Responsibilities	Basin Plan section	Who is responsible
Assess the achievement of the salt export objective	9.09	MDBA
Monitor salinity levels of the River Murray at 5 reporting sites – Murray Bridge, Morgan and Lock 6; Darling River at Burtundy; and Lower Lakes at Milang.	9.14	MDBA
Have regard to the water quality targets in section 9.14 when performing its functions related to the management of water flows	9.14	MDBA and Basin state governments
Have regard to the water quality targets in section 9.14 when making decisions about the use of environmental water	9.14	Environmental water holders

# Progress in 2022-23

### Assessment of the salt export objective

The MDBA must estimate the discharge of salt from the River Murray system into the Southern Ocean every water accounting period. The assessment must compare the estimated number of tonnes of salt export per year averaged over the preceding 3 years against the indicative figure of 2 million tonnes of salt per year. Generally, more salt is flushed out to the ocean during wet years and less in dry years. The report 'Assessment of the salt export objective and salinity targets for flow management for 2022–23' will be available on the MDBA website when it is published later in 2023, and a review of the salt export objective will be undertaken in 2023–24 as part of the Basin Plan Review process.

The level of salt export in a year is also impacted by river regulation, upstream salinity levels, irrigation diversions and current levels of development, including salt interception works. Over the 3-year period from July 2020 to June 2023, the averaged rate of salt export over the barrages was 2.36 million tonnes per year. This is only the second time in 10 years of reporting that the salt target has been achieved. The increased flushing of salt is due to the widespread flooding during 2022–23, when flow over the Murray Mouth barrages significantly increased, exporting a significant volume of salt.

### 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, at the end of each water accounting period, to assess whether the salinity targets at the reporting sites have been met. The targets are deemed to have been met if salinity levels have been below the target 95% of days over the last 5 years. Results for the July 2018 to June 2023 reporting period are in Table 7. They show the targets have been met at 3 of the 5 reporting sites: Murray Bridge, Morgan and Lock 6. The salinity targets for Burtundy (830 electrical conductivity or EC) and Milang (1000 EC) were not met over the 5-year reporting period. Extended periods of low-flow or no-flow conditions in the Lower Darling early in the 5-year reporting period resulted in the target being exceeded at Burtundy.

Recorded salinity levels at Milang were slightly above the 1000 EC target. Salinity levels at Milang can sometimes be influenced by reverse flows through and over the barrages from the Coorong, which causes saline water to intrude into Lake Alexandrina. Barrage operations to improve fish migration at key times of the year for species such as congolli may also cause increased salinity within Lake Alexandrina, as the South Australian Department for Environment and Water requests the barrages be left open allowing the estuary to flow into Lake Alexandrina on high tide events.

Reporting site	Target value (EC μS/cm)	Achievement of target	% of days above the target value
River Murray at Murray Bridge	830	$\checkmark$	0
River Murray at Morgan	800	$\checkmark$	0
River Murray at Lock 6	580	$\checkmark$	0
Darling (Baaka) River at Burtundy	830	×	13.3
Lower Lakes at Milang	1,000	×	7.2

Table 7 Achievement of salinty targets over the 5-year reporting period from July 2018 to June 2023

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

#### 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 2022–23 reporting period. Examples from Basin Plan Schedule 12 reporting are:

- In New South Wales water managers assess water quality risks before they deliver water for the environment. After a watering event any issues relating to water quality are identified and documented for internal review and reporting. This information informs adaptive management of environmental water delivery.
- In Victoria there are 3 main processes for informing decisions about flows and the use of
  water for the environment to help manage water quality. These processes are long-term and
  annual environmental flows planning; risk management processes; and authorising
  emergency watering actions to mitigate water quality risks. In 2022–23, emergency watering
  was required in the lower Broken Creek and parts of the lower Goulburn River to mitigate
  sudden declines in dissolved oxygen levels and prevent stress to resident native fish.
- In South Australia, River Murray operational decisions are guided by the Objectives and Outcomes for Operating the River Murray in South Australia, South Australia's River Murray Annual Operating Plan, and the 2021–22 Water for the Environment Annual Plan for the South Australian River Murray, in a manner consistent with Basin Plan objectives.
- In the Australian Capital Territory water quality is managed through the Environment Protection Regulation 2005, Guidelines for Recreational Water Quality 2014, the ACT Water Strategy 2014–2044; and the Water Resources Environmental Flows Guidelines. The guidelines protect base flows and abstraction in unregulated rivers and require environmental watering releases from the water supply dams. These flows ensure that streams are generally meeting the appropriate water quality targets.
- In Queensland, there are limited opportunities to influence water quality when making decisions about flow management or the use of environmental water. This is due to the

unregulated nature of flow and the rules-based approach to accessing flows. One opportunity is through a requirement for resource operations licence holders of water supply schemes to minimise adverse impacts on water quality during operation and maintenance activities. There were no reported incidents where the operation of water supply schemes had an adverse impact on water quality during the 2022–23 water year.

- In 2022–23, more than 200 GL of Commonwealth environmental water was delivered through Murray Irrigation Limited infrastructure to provide native fish refuge habitat during hypoxic blackwater events in the Edward/Kolety-Wakool river system.
- Fish deaths were recorded in several locations across New South Wales following the
  extensive flooding in 2022 and early 2023, including in the Darling (Baaka) River and
  Menindee Lakes. During this time, interagency technical groups including the Hypoxic
  Blackwater Working Group were convened to coordinate monitoring, management actions
  and communications across relevant government agencies, as well as providing up-to-date
  information that was accessible by the public.

More information is available 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 and predicted climate extremes, Basin governments and the MDBA need to continue to adapt and improve how water quality and salinity is managed. There is a need for continued collaboration between the MDBA and Basin governments to prioritise actions and focus on areas that pose the greatest risk.

# Water resource plan requirements

Chapter 10 of the Basin Plan sets out the requirements for water resource plans.

#### Key findings:

Water resource plans are in place for Queensland, Victoria, the Australian Capital Territory and South Australia.

20 water resource plan areas are within New South Wales – 11 for groundwater and 9 for surface water. Five groundwater water resource plans have been accredited and are operational in New South Wales as at 30 June 2023. A further 3 groundwater plans and one surface water plan were accredited between August and November 2023.

# Introduction to Chapter 10

Chapter 10 of the Basin Plan details the requirements that water resource plans must include for the MDBA to recommended them for accreditation by the Australian Government Minister responsible for Water. Water resource plan requirements include:

- sustainable diversion limits
- water trade rules
- providing for environmental watering
- meeting the water quality and salinity objectives
- information on how the water take will be measured and monitored
- planning for extreme events
- taking account of Indigenous values and uses
- setting out the approach to addressing risks.

Water resource plans are an integral element of implementing the Basin Plan, as 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. The plans also make sure that state and territory water management rules meet the Basin Plan requirements and include arrangements that strengthen water management at a local level. There are 33 water resource plan areas in total: 14 for surface water, 14 for groundwater and 5 that cover both.

# Progress in 2022-23

As of 30 June 2023, New South Wales had 5 water resource plans accredited. A further 4 plans were accredited after June 2023, 2 in August and 2 (including one surface water plan) in November 2023. More information on the accreditation status of the New South Wales water resource plans can be found on the <u>MDBA website</u>.

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 parts of water resource plans such as water quality, indigenous values, environmental water delivery, and responsiveness to risks such as extreme events and climate change. The use of these powers will be explained in the Water Resource Plan Compliance and Enforcement Framework that the Inspector-General is currently preparing. The Water Resource Plan Compliance and Enforcement Framework is expected to be finalised in March 2024.

Further information about compliance with water resource plans is found in the Basin Plan Matter 19 reports for the 2022–23 water year, available on the <u>MDBA website</u>.

Adaptive management of Basin water resources is an important part of Basin Plan implementation, allowing for advances in technology and other innovations to drive significant improvements in water management. Water resource plans are currently able to evolve over time through amendment. Proposed amendments will need to be assessed by the MDBA and accredited by the Australian Government Minister responsible for Water. The MDBA continues to work with Basin state governments about possible amendments.

# Challenges and areas for improvement

As of 30 June 2023, there were 5 accredited water resource plans in New South Wales. 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 water resource plan coverage in New South Wales. This means that the opportunity to enforce sustainable diversion limits in New South Wales remains very limited with the accreditation of all water resource plans from New South Wales crucial to successful implementation of the Basin Plan.

#### The 2022–23 Annual Report from the Inspector-General of Water Compliance has identified:

The ongoing absence of operational New South Wales water resource plans poses a significant risk to the implementation of the Basin Plan. Without accredited water resource plans, significant areas of the Basin cannot be assessed for compliance. The Inspector-General is of the view that it is not unreasonable for other Basin state governments and the broader Basin community to question the delay of New South Wales submission of water resource plans. Ongoing delays in New South Wales preparing accreditable water resource plans for MDBA assessment has contributed to the undermining of trust and confidence in the Basin Plan. The Inspector-General's annual report can be viewed online.

The efficiency and effectiveness of the water resource will be considered through both the Productivity Commission Murray–Darling Basin Plan implementation review 2023 as well as the 2025 Basin Plan Evaluation.

# **Critical human water needs**

Chapter 11 of the Basin Plan is about critical human water needs.

#### Key finding:

Sufficient water was available to meet critical human water needs in the River Murray system.

# Introduction to Chapter 11

Chapter 11 of the Basin Plan sets out arrangements to ensure critical human water needs are met. Critical human water needs are 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. This is done by:

- setting the amount of water required to meet critical human water needs
- using a tiered approach to sharing water in the River Murray system.

In the northern Basin there is no shared government water management infrastructure. There are intergovernmental agreements between New South Wales and Queensland concerning cross-border river management. Critical human water needs are the responsibility of respective individual state governments in the northern Basin, and those state arrangements are accredited, for the purpose of the Basin Plan, under water resource plans.

### Key obligations and responsibilities in 2022–23

Table 8 Basin Plan chapter 11 – key obligations and responsibilities in 2022–23

Responsibilities	Basin Plan section	Who is responsible
Assess inflow prediction for the River Murray system	11.06	MDBA
Identify and manage the risks to critical human water needs in the River Murray system	11.07	MDBA
Undertake risk management for inter-annual planning related to critical human water needs	11.08	MDBA

# Progress in 2022-23

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 <u>River Murray System Annual Operating Outlook</u> and the assumptions used to prepare the MDBA's fortnightly water resource assessments.

During all water resource assessments for 2022–23, 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.

Throughout 2022–23 the River Murray was under Tier 1 – normal water availability arrangements. More information on the status of water-sharing arrangements to meet critical human water needs and the conveyance water reserve is published on the <u>MDBA website</u>.

# 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. The Productivity Commission, in its 2023 review, has identified there are longstanding concerns about the management of critical human water needs in the northern Basin and the role of the Basin Plan in meeting these needs. The adequacy of Basin-wide management for critical human water needs under a changing climate will be part of analysis in the 2025 Basin Plan Evaluation and the 2026 Basin Plan Review.

# Water trading rules

Chapter 12 of the Basin Plan is about water trading rules.

#### Key finding:

Water trading has brought substantial benefits to many water users across the Basin. However, continued reforms are needed to improve market confidence and transparency.

The Australian Government and Basin state governments have endorsed, in principle, implementation of all 23 recommendations in the Water Market Reform final roadmap report. There has been a strong focus on foundational activities in 2022–23 – setting up funding arrangements and governance structures, continuing stakeholder consultation and preparing amendments to the Water Act and the Basin Plan.

The Water Amendment (Restoring our Rivers) Bill 2023 contains amendments to bring much of the water market roadmap into force. The bill passed the Australian Parliament on 30 November 2023.

# Introduction to Chapter 12

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

The rules aim 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, the Basin states, 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 is the enforcement agency for the Basin Plan water trading rules.

### Key obligations and responsibilities in 2022–23

Table 9 Basin Plan chapter 12 – key obligations and responsibilities in 2022–23

Responsibilities	Basin Plan section	Who is responsible
Enforcement of Basin Plan water trading rules.	Chapter 12	Inspector-General of Water Compliance

Responsibilities	Basin Plan section	Who is responsible	
Ensure trading rules are consistent with the Basin Plan water trading rules.	Chapter 12	Basin states, irrigation infrastructure operators	
Notify the Inspector-General of Water Compliance of restrictions to the free trade of surface water.	12.19	Basin states	
Publish information about tradable water rights	12.41	MDBA	
Make trading rules generally available	12.46, 12.47	Basin states, irrigation infrastructure operators	
Prices of trade to be reported	12.48	Seller of the water access right	
Make water announcements generally available	12.50	Basin states, Australian Government agencies	
Not trading if aware of a water announcement before it is made generally available	12.51	Water market participants	

# Progress in 2022-23

The Australian Government Minister responsible for Water, the Hon. Tanya Plibersek MP, released the independent <u>Water market reform: final roadmap report</u> (the Roadmap) on 11 October 2022. The Roadmap offers a practical, feasible and cost-effective forward plan for water market reforms and was developed following a comprehensive inquiry in Murray–Darling Basin water markets by the Australian Competition and Consumer Commission (ACCC).

On 12 October 2022, the Australian and Basin state governments came together to endorse, in principle, implementation of all 23 Roadmap recommendations. During 2022–23, there was a strong focus on foundational activities – setting up funding arrangements and governance structures, continuing stakeholder consultation and preparing amendments to the *Water Act 2007* and the *Basin Plan 2012*. More information about progress in water market reforms is available in the <u>October 2023 implementation report</u>.

The Roadmap reforms will enable the ACCC to regulate water market conduct through enforcing improved Basin-wide laws that prohibit market misconduct, strengthen insider trading rules, ban market manipulation and introduce a mandatory code of conduct for water market intermediaries.

The Australian Government has included restoration of trust, transparency, and confidence in water markets as part of amendments to the Water Act and the Basin Plan. The amendments include:

- A clear and consistent framework for water market conduct through a mandatory code focused on water market intermediaries and their conduct in relation to clients.
- Stronger requirements for water markets decisions to improve consistency in the way these decisions are publicly announced.

- Data and systems reforms to increase the quality and availability of water market information for market participants and regulators.
- New water markets functions and powers for the Australian Competition and Consumer Commission, the Bureau of Meteorology and the Inspector-General of Water Compliance.
- New insider trading and market manipulation prohibitions.
- Removal of the Basin Plan exemption for grandfathered tags to level the playing field for all water entitlement holders.

Further information about the Roadmap, its implementation and water markets more generally is available on the <u>DCCEEW website</u>. Information on the Water Amendment (Restoring our Rivers) Bill 2023 is available on the <u>Parliament of Australia website</u>.

A Trade Working Group of state and Australian Government representatives is currently reviewing Schedule D of the Murray–Darling Basin Agreement. This includes considering some of the intervalley water trade issues raised in the water market reform roadmap. The review is expected to conclude in February 2024 and will recommend changes to Schedule D and its protocols.

Other work to reform Basin market settings is also underway, including improving metering and telemetry, improving transparency in environmental water delivery and river operations, and developing a hydro-economic modelling program.

### Improving water market transparency and information

The Bureau of Meteorology's <u>Murray–Darling Basin water information portal</u> offers an important early contribution to delivery of the Roadmap by making water trade information more accessible. In May 2023, additional information was added about groundwater levels and groundwater trade, as well as more interactive river diagrams of major Basin catchments.

The Bureau of Meteorology has responsibility for developing and implementing a range of new measures to improve water market transparency. These include new data standards, a water market data collection hub and publishing accurate minute-by-minute water prices on its website. Development of the new Water Market Hub and website is underway, and it is expected to be operational by 2027.

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

Basin governments make water announcements generally available using a range of methods. During 2022–23 these have included by publishing media releases, publishing available water and allocation information, and publishing information about water levels and flow rates.

The MDBA has continued to publish information about approximately 70 highly traded <u>water market</u> <u>products</u>, <u>state trading regimes</u> and the <u>trading rules for large irrigation infrastructure operators</u>. Links to state trading rules and irrigation infrastructure operator trade rules on the MDBA website are regularly updated on advice from the Basin states and irrigation infrastructure operators.

The current nature and stage of maturity of water trading rules is such that there are many smaller scale detailed activities underway at the state level. Refer to the <u>Schedule 12 reports</u> of the Basin States for more information.

# Audits and investigations by the Inspector-General of Water Compliance

The Inspector-General of Water Compliance finalised two trade audits in the 2022–23 reporting period and closed 49 trade investigation matters, with another 4 matters remaining open. The open matters include one inaccurately reported trade, which does not constitute non-compliance under current legislative arrangements. The Inspector-General of Water Compliance is working with the relevant agency to have the matter rectified.

# 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.

# Program for monitoring and evaluating the effectiveness of the Basin Plan

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

#### Key finding:

The Authority is preparing for the 2026 Basin Plan Review. During 2022–23 the 2026 Basin Plan Review Roadmap was released to set out the milestones to ensure the Basin Plan continues to respond to the changing environment and the needs of communities and industries while protecting the Basin for generations.

# Introduction to Chapter 13

Chapter 13 of the Basin Plan sets out the program that will be used to monitor, evaluate and review the effectiveness of the Basin Plan. It details:

- principles of responsibility for monitoring and evaluating the Basin Plan, and other principles to be applied in monitoring and evaluation
- key evaluation questions the Authority must ask in undertaking an evaluation
- requirements to undertake 5-yearly reviews of the water quality and salinity management plan targets in chapter 9, the Environmental Watering Plan and the social and economic impacts of the Basin Plan
- reporting and publication requirements.

### Key obligations and responsibilities in 2022–23

Table 10 Basin Plan chapter 13 – key obligations and responsibilities in 2022–23

Responsibilities	Basin Plan section	Who is responsible
Lead monitoring and evaluation at the Basin scale	13.03	MDBA
Enable evaluations and reporting by collecting, analysing and reporting information (including data) in a fit-for-purpose manner	13.03	Basin states

# Progress in 2022-23

### 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.

An important source of evidence for the Basin Plan Evaluation and the Basin Plan Review are the 5-yearly matter reports produced under Schedule 12 of the Basin Plan. Schedule 12 requires the MDBA, the Basin states, the Commonwealth Environmental Water Holder and the Department of Climate Change, Energy, the Environment and Water to report on a range of matters identified in Schedule 12 every 5 years. These reports are due to be completed by the end of October 2024 to provide evidence to the 2025 Basin Plan Evaluation.

During 2022–23 the MDBA led the development of guidelines to help ensure the 5-yearly reports are fit for purpose and ensure:

- clear links to the Basin Plan objectives and outcomes and key evaluation questions
- inclusion of findings that are clear and concise and can be readily communicated
- inclusion of transparent links to the evidence that supports the findings and conclusions
- preparation according to principles that promote rigour, transparency and accessibility to data and information.

In June 2023 the Authority released a roadmap to the 2026 Basin Plan Review. The review tasks MDBA to make sure the Basin Plan continues to respond to the changing environment and the needs of communities and industries while protecting the Basin for generations to come. The task involves ensuring the plan is more responsive to the impacts of climate change, keeping what is working well and identifying what is needed to protect the Murray–Darling Basin and its values into the future. Following the review, the Authority may recommend amendments to the Basin Plan.

The 4 key themes of the review are:

- Climate change: providing a clear picture of past and current condition of the Basin and describing likely change under future climate scenarios in terms of environmental, economic, cultural and social outcomes.
- Sustainable water limits: considering the environmentally sustainable level of take and sustainable diversion limits for surface and groundwater, and identifying if change is needed to deliver best outcomes for all social, cultural, environmental and economic values.
- First Nations: identifying how the Basin Plan can be improved to better recognise First Nations' values in water management and enhance their involvement.
- Regulatory design: considering if the current range of legal requirements and compliance processes are clear and understood and if not, how they can be simplified.

Over the next 2 years there will be a range of information gathering and sharing activities that will provide input to the 2026 Basin Plan Review.

### Monitoring

The <u>Basin Condition Monitoring Program</u> is a \$7.5 million Australian Government commitment to develop and deliver new monitoring and reporting of economic, social, cultural and environmental conditions in the Murray–Darling Basin. The program is being administered by the MDBA.

The Basin Condition Monitoring Program is driven by the requirements of the 2026 Basin Plan Review and the needs of Basin communities.

It also forms part of the <u>Australian Government's response</u> to the <u>Independent assessment of social</u> and economic conditions in the <u>Murray–Darling Basin</u> in 2020.

The program consists of 15 projects across the 5 themes of economic, social, environmental, cultural and hydrology. More information is available on the <u>MDBA website</u>. The projects will be implemented over the period to December 2025.

## 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. The strategic themes of the research are climate adaptation, hydrology, environmental outcomes, and social, economic and cultural outcomes. The program involves over 17 government and non-government institutions.

Key progress on MD-WERP in 2022–23 includes:

- ongoing implementation of 26 strategic research projects
- rescoping of 2 projects First Nations Water Outcomes in the Northern Basin, and Developing a First Nations perspective on conservation prioritisation
- completion of research and report publication for tactical projects (for complete details see the <u>MD-WERP web pages</u>), examples include:
  - evaluation of causes of reduced flow through the northern Basin (complete and reported)
  - innovation sweep, scoping and development of drone-based waterbird monitoring, and waterbirds foraging habitat. Project complete and reported with software code shared on the <u>MDBA's GitHub page</u>
- initiation of 2 projects:
  - $\circ \quad \mbox{riverbank stability and erosion} \\$
  - summary and analysis of severity and frequency of blue-green algal blooms in the Basin
- delivery of <u>the second annual MD-WERP symposium in July 2023</u> which brought scientists, researchers, policy makers and end-users of research together to exchange ideas, knowledge and experience
- annual MD-WERP Progress Report 2021–22 and newsletters published on the <u>MD-WERP web</u> pages
- extension of MD-WERP to June 2025.

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

Implementation of the <u>Environmental Watering Plan review</u> recommendations continued to progress during 2022–23. Following research to improve methods, a vulnerability assessment has now been implemented to inform the <u>Basin annual environmental watering priorities for 2023–24</u> (for both native vegetation and waterbirds). In July 2022, the MDBA published a plain English <u>Guide to the Environmental Watering Plan</u>.

Implementation of the recommendations from the 5-yearly review of water quality targets in the Basin Plan stalled in 2022–23 due to flood response operations. Implementation will resume in 2023–24. Progress was made during 2022–23 on scoping the planned salt export review for 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.

## Murray–Darling Outlook and the Sustainable Rivers Audit

The Murray–Darling Outlook (the Outlook) and the Sustainable Rivers Audit are part of the suite of products the MDBA will be producing to help inform the 2026 Basin Plan Review. They 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 by independent academics and science organisations examining the status of water-related science across the Basin. The reviews are a point in time assessment that will be complemented by additional scientific knowledge and developments in the literature over time. The <u>literature reviews</u> 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 supporting activities**

The Basin 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. Key programs include:

- the Off-farm Efficiency Program
- other activities supporting implementation of the Basin Plan such as changing river operation practices to enhance environmental outcomes.

# Water recovery

Under the Basin Plan there are two different water recovery targets: '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 <u>sustainable</u> <u>diversion limit adjustment mechanism</u>.

As at 30 June 2023 2,107.4 GL/y of surface water had been recovered towards the surface water 'Bridging the Gap' target. While the total target of 2,075 GL/y appears to have been exceeded, there remains a need to recover an additional 46.0 GL/y. This is because the volume of water recovered in some sustainable diversion limit (SDL) resource units has been exceeded, while the recovery of water in other SDL resource units is yet to be achieved in full.

As at 30 June 2023, 35.25 GL/y of groundwater had been recovered towards the groundwater 'Bridging the Gap' target of 38.45 GL/y. A further 3.2 GL/y of groundwater remains to be recovered.

To further bridge the outstanding recovery targets, the <u>Department of Climate Change, Energy, the</u> <u>Environment and Water</u> commenced an open tender process in March 2023 to purchase water in 6 surface water and 2 groundwater SDL resource units. At as 30 June 2023, the Department was assessing responses to that tender process and was developing arrangements with the Australian Capital Territory Government to recover the 4.9 GL/y required to bridge the gap in the Australian Capital Territory SDL resource unit.

It is important to note that the recovery volumes for the New South Wales surface water SDL resource units cannot be finalised until the remaining New South Wales water resource plans are assessed by the MDBA and accredited by the Australian Government Minister responsible for Water.

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. As at 30 June 2023, the total amount of water that has been contracted for recovery against the 450 GL/y target is 26.0 GL/y, of which 12.2GL/y has been transferred to the Australian Government environmental water holdings to be used for environmental outcomes.

Water recovered through the <u>Off-farm Efficiency Program</u> contributes to the 450 GL/y Basin Plan target for enhanced environmental outcomes. The Australian Government is working closely with Basin states and potential proponents to bring forward more projects for consideration under the Off-farm Efficiency Program and to provide increased options for water recovery.

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

# Support for Communities

### Growing Regions Program

More recently, the Australian Government <u>Growing Regions program</u> was open until 1 August 2023. There will be further rounds of this program, including stage 2, open from 27 November 2023 to 15 January 2024.

### **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.

In addition to day-to-day river operations, activities that occurred in 2022–23 included:

- publishing 11 editions of the <u>Flows in the River Murray system update</u>, issued monthly and available on the MDBA website
- publishing the <u>River Murray weekly reports</u>
- increasing the transparency of the <u>Independent River Operations Review Group</u> by publishing its reviews of the MDBA's River Operations annual report
- publishing the <u>Barmah–Millewa Feasibility Study</u> final report and other publications related <u>Barmah–Millewa Program</u>.

**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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