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MURRAY–DARLING BASIN AUTHORITY

Annual Assurance Report 2021

Sustainable diversion limit adjustment mechanism

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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, the Northern Basin Aboriginal Nations and our many Traditional Owner friends and colleagues is very much valued and appreciated.

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

Contents

Executive Summary

Through the sustainable diversion limit adjustment mechanism (SDLAM), Basin governments notified a suite of measures to improve water management, make consumptive and environmental water use more efficient, and optimise the use of available water in the river system. In 2017, the Authority assessed Basin governments' notified measures and proposed an increase of the sustainable diversion limit by 605 gigalitres per year (GL/y) based on the environmental outcomes that the measures were expected to achieve.

Under the *Basin Plan 2012* (Cth) (Basin Plan), the Authority is required to assess whether the notified measures have been implemented as proposed, and achieved the adjustment initially determined in 2017. If the package of notified measures is not implemented (or is changed in a way that would impact on the adjustment amount under the 2017 determination), the Authority must undertake a reconciliation, which may lead to a revision of the adjustment amount. The Authority has committed to preparing and publishing annual assurance reports to inform the Authority's view as to whether a reconciliation is likely to be required.

This 2021 report provides assurance of 4 SDLAM supply measures and whether the expected environmental outcomes (and associated volumetric adjustment) associated with the measures are capable of being delivered.

The following 4 SDLAM environmental works-related supply measures have been assessed as a part of this assurance report (see Assurance of completed 'In Operation' measures):

- The Riverine Recovery project led by South Australia
- The Living Murray (TLM) environmental works and measures – Koondrook–Perricoota Forest Flood Enhancement proposal (a multi-jurisdictional project by New South Wales, Victoria and South Australia)
- Nimmie Caira Infrastructure modifications proposal (led by New South Wales)
- Gunbower Forest Works TLM measure (a multi-jurisdictional project by New South Wales, Victoria and South Australia).

The 2 TLM measures were largely constructed at the time of determining the sustainable diversion limit adjustment in 2017. As such, the assurance process has focused on whether identified operational issues have been addressed to ensure that the envisaged environmental outcomes (as per modelling underpinning the original 2017 determination) are capable of being achieved and supporting the volumetric adjustment.

The Authority's 2021 assurance approach is intended to complement Basin governments' decision to publish regular reporting on each measure's progress, which includes a high-level assessment of the SDLAM program status by Indec Pty Ltd (the Indec Report) as well as subsequent quarterly reporting by Basin governments.[1] In April 2021, the Indec Report assessed 15 SDLAM measures as being complete and in operation; this figure is also reflected in Basin governments' own quarterly reporting. In addition to the 4 SDLAM measures listed above, the Authority has considered the

[1] Basin governments' most recent progress report, for the April–June quarter, was published in October 2021.

progress of all SDLAM measures to provide the community with its own high-level independent assessment of Basin governments' progress.

New South Wales, Victoria, South Australia and the Australian Government Department of Agriculture, Water and the Environment were given an opportunity to review this 2021 assurance report and respond to draft assessments.

What did we find?

The SDLAM supply measures assessed in this 2021 report are already demonstrating the innovative ways in which New South Wales, Victoria and South Australia are working to achieve a range of environmental outcomes with less water recovery.

The assurance assessment found that each of the 4 assessed measures is capable of supporting healthier wetlands and forests, as well as birds and fish; in fact, several of the measures' are achieving valuable real-world outcomes. The measures are also capable of supporting substantive contributions to the volumetric adjustment. However, the assurance assessment identified that some of the measures' environmental outcomes are different to those originally envisaged by the 2017 determination.

The Authority's high-level assessment of SDLAM measures broadly aligns with the findings of the Indec Report and Basin governments' reporting. The Authority expects the majority of the SDLAM supply measures to be complete by 2024 but notes that 7 predominantly large-scale and/or constraints relaxation-related measures in the SDLAM package have been assessed by the Indec Report (and Basin governments' reporting) as at high or extreme risk of not being completed by 2024.[2] Some of these at-risk measures impact the capability of other measures to operate as envisaged by the 2017 determination. The measures' interdependencies present challenges to successfully achieving the originally envisaged environmental outcomes and anticipated water savings of the package of measures.

In 2021 the Murray–Darling Basin Ministerial Council agreed to New South Wales rescoping 2 of the identified 'at risk' measures (the Menindee Lakes Water Savings measure and Improved Flow Management Works at the Murrumbidgee River – Yanco Creek Offtake). The Ministerial Council also announced that New South Wales, with Australian Government support, is accelerating 5 measures

[2] These measures are:

- Improved Flow Management Works at the Murrumbidgee River – Yanco Creek Offtake
- Menindee Lakes Water Savings measure, including the Lower Darling key focus area constraints relaxation measure
- Enhanced Environmental Water Delivery measure
- Yarrawonga to Wakool Junction key focus area
- Hume to Yarrawonga key focus area
- Murrumbidgee key focus area
- New Goulburn key focus area

or measure components.[3] This acceleration is welcome but, as the proposed accelerated measures only directly address one of the identified at-risk measures, the acceleration is unlikely to be enough to address all state-identified project delivery challenges.

Since 2019, the Authority's annual SDLAM reports have concluded that project delays meant a reconciliation would be likely (see Figure 1). In 2021, the Authority is of the view that a reconciliation of the package of SDLAM measures remains likely to be required due to the on-going risk that some measures will not be operational by 30 June 2024. At the same time, a reconciliation would provide the opportunity to recognise and reflect any changes in completed measures, such as those made to maximise environmental outcomes and respond to stakeholder feedback. The Authority will continue to conduct assurance of SDLAM measures in 2022 and 2023 to provide transparency and to inform any decision as to whether a reconciliation is required in 2024.

2019 SDLAM Annual Assurance Report

The 2019 report found there are 'some risks and challenges to the successful delivery of the SDLAM program. Supply projects must be implemented effectively in the southern Basin to manage the risk of further water recovery in 2024. The MDBA will make a decision on whether it considers that the package of supply measure projects, as delivered, will produce different environmental outcomes from those determined in 2017. In this case the MDBA has the capacity to undertake a reconciliation process to evaluate any difference and adjust the SDLs in Basin catchments.'

2020 SDLAM Annual Assurance Report

The 2020 report stated, 'the risks to fully implementing critical supply and constraints projects, together with the slow progress in recovering water through efficiency projects, make it increasingly unlikely that the SDL adjustment program will be fully delivered by June 2024, putting the overall SDL adjustment at risk. As is stands, this means that the MDBA would have no choice but to run a reconciliation determination to recalculate the adjustment amount. Based on current indications, it is likely that such a reconciliation would lead to the need for additional water recovery.'

Figure 1 The Authority's previous SDLAM progress reporting conclusions

[3] On 30 April 2021, a Joint statement from the Ministerial Council advised that New South Wales, with Australian Government support, is accelerating 5 key SDLAM measures (or measure components). They are:

- Sustainable diversion limit offsets in the Lower Murray: Locks 8 and 9 project.
- Modernising Supply Systems for Effluent Creeks project – Murrumbidgee River.
- Murray and Murrumbidgee Valley National Parks sustainable diversion limit adjustment supply measure.
- Koondrook–Perricoota Flow Enabling Works. This is a subcomponent of the Yarrawonga to Wakool Junction key focus area constraints relaxation measure.
- Mid-Murray Anabranches Constraints Demonstration Reach. This is a subcomponent of the Yarrawonga to Wakool Junction key focus area constraints relaxation measure.

Background

The Basin Plan and sustainable diversion limits

The Basin Plan addresses the historical overallocation of water from the Murray–Darling Basin for consumptive use. The Basin Plan:

Provides a high level framework that sets standards for the Australian Government, Basin state governments and Murray–Darling Basin Authority (Authority) to manage the Murray–Darling Basin's water resources in a coordinated and sustainable way in collaboration with the community.

The purpose of the Basin Plan is to provide for the integrated management of the Basin water resources in a way that promotes the objects of the Water Act 2007 (Cth) (Act).[4]

The Basin Plan's objective for long-term average sustainable diversion limits is to establish environmentally sustainable limits on the quantities of surface water and groundwater that can be taken for consumptive use from Basin water resources, having regard to social and economic impacts. The sustainable diversion limits regulate how much water, on average, can be used in the Basin by consumptive users (towns, communities, farmers and industries), while aiming to keep rivers and the environment healthy.

The Basin Plan details the intended 'outcomes in relation to the establishment of long-term average sustainable diversion limits' as follows:

a) *the restoration and protection of water dependent ecosystems and ecosystem functions in the Murray–Darling Basin; and*
b) *well-informed water recovery measures, including water purchasing and infrastructure, enable a transition to long-term average sustainable diversion limits; and*
c) *greater certainty of access to Basin water resources; and*
d) *water access entitlement holders and communities of the Murray–Darling Basin are better adapted to reduced quantities of available water.*

[4] Explanatory Statement, Basin Plan 2012 (page 1) as tabled 26 Nov 2012

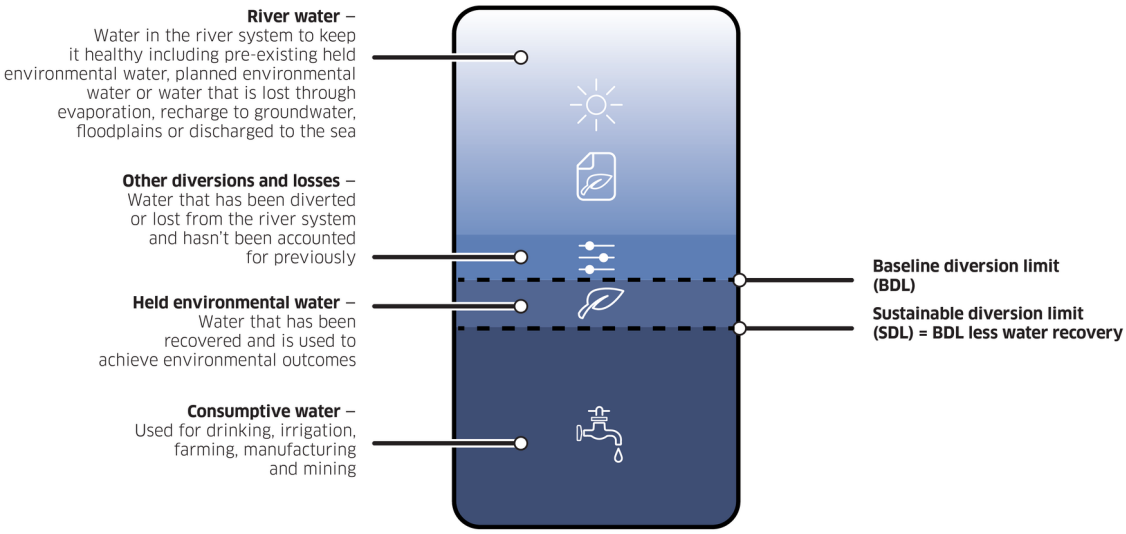

Figure 2 Different types of surface water in the Basin

The 2012 Basin Plan set a surface water recovery target of 2,750 GL/y for the whole Basin. As part of a limited package of Basin Plan amendments in 2018, the Basin Plan was amended in 2018 to reflect the adjustments provided by operation of the SDLAM.

Sustainable diversion limit adjustment mechanism

The SDLAM involves a suite of measures in the southern Basin, as listed at Table 1, which either:

- Allow Basin Plan environmental outcomes to be achieved with less water recovery, resulting in more water remaining in the system for other users. These measures are supply' or 'supply and constraints' measures.[5]
  or
- Improve the efficiency of water use.

The 2017 SDLAM draft determination found that supply and constraint measures, as a package, could deliver an offset of 605 GL/y, meaning 605 GL/y less water would need to be recovered from consumptive users such as towns, communities, farmers and industries. As this figure exceeds the Basin Plan's prescription that any adjustments to the sustainable diversion limit be restricted to 5% of the basin-wide SDL, efficiency measures are implemented in tandem to save water for the environment. Water efficiency measures were projected to recover 450 GL/y more water for the environment.

[5] 'Constraints measures' refers to measures that remove or ease 'a physical or other constraint on the capacity to delivery environmental water to the environmental assets of the Murray–Darling Basin' (Basin Plan). 'Supply measures' are measures that operate to 'increase the quantity of water available to be taken in a set of surface water sustainable diversion limit resource units compared with the quantity available under the benchmark conditions'. Accordingly, some constraint measures are also notified as supply measures, but not all.

The Basin Plan amendment resulting from the operation of the SDLAM and implementation of the Northern Basin Review reduced the water recovery target to 2,075 GL/y.

The 605 GL/y offset was calculated on the basis of the implementation of the supply and constraints measures as a package, with significant interdependencies between the various measures. This means that withdrawal or amendment of one (or more) measure(s) could have broader effects on the total volumetric adjustment that go beyond the individual contribution of each measure. For this reason, it is not possible to deduct or vary the value of withdrawn or amended measures to determine the reconciliation amount. To determine the value of changes to the measures, a recalculation of the total package is required.

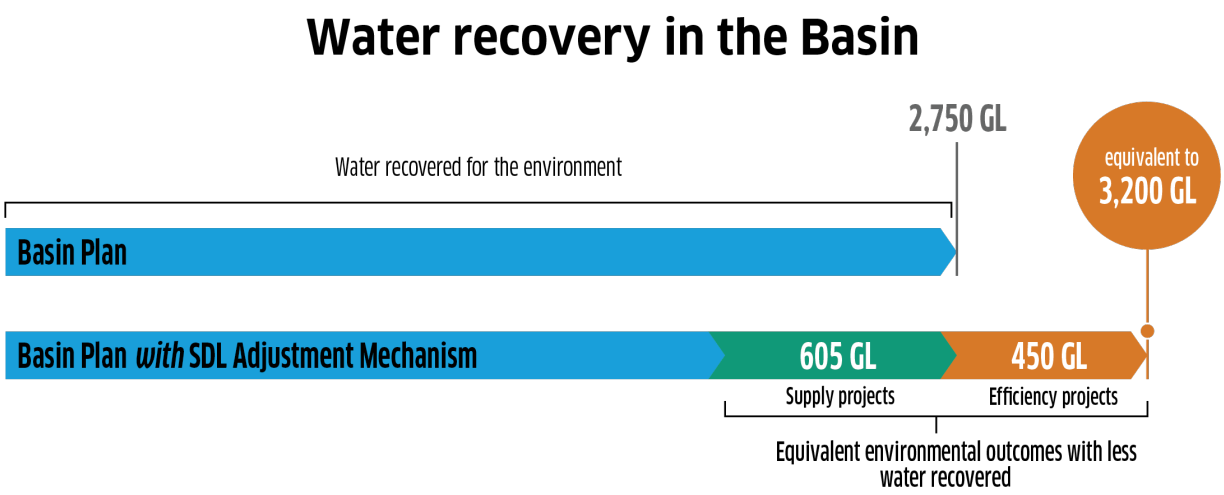

Figure 3 Illustration of the Adjustment Mechanism

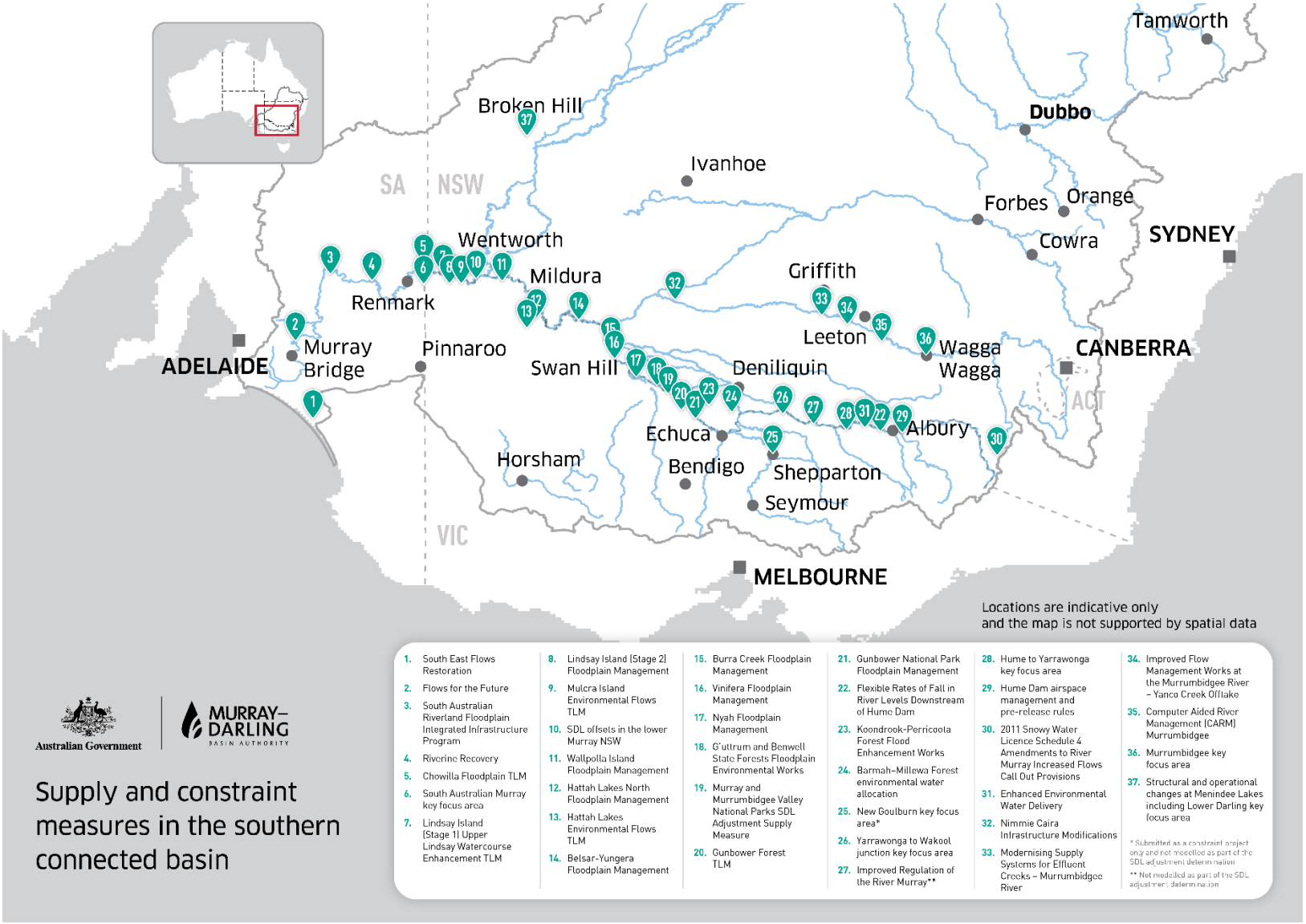

Figure 4 Map of sustainable diversion limit adjustment mechanism measures

Table 1 Different Types of SDLAM Measures

Types of SDLAM measure			Measure title
Measures that allow Basin Plan environmental outcomes to be achieved with less water recovery, resulting in more water remaining in the system for consumptive users	Supply measures: designed to manage the Basin's waterways more efficiently so less water recovery is needed to achieve environmental outcomes[6]	Operational rules changes and system enhancements	2011 Snowy Water Licence Schedule 4 Amendments (River Murray Increased Flows)
			Operating rule change to the use of the Barmah–Millewa Forest Environmental Water Allocation
			Computer Aided River Management system for the Murrumbidgee River
			Enhanced Environmental Water Delivery (EEWD or Hydro-cues)
			Flexible rates of fall in river levels downstream of Hume Dam
			Operating rule change to Hume Dam airspace management and pre-releases
			Menindee Lakes Water Savings project (including the Lower Darling constraints key focus area)
			Sustainable diversion limit offsets in the Lower Murray, New South Wales (Locks 8 and 9 Weir Pool Manipulation)
		Environmental works	Belsar–Yungera floodplain management project
			Burra Creek floodplain management project
			Gunbower National Park environmental works project
			Guttrum and Benwell Forests environmental works project

[6] Supply measures can:

- reduce evaporation at water storages
- manage environmental water more efficiently through using infrastructure
- change river operating rules.

Types of SDLAM measure			Measure title
			Hattah Lakes North floodplain management project
			Lindsay Island (stage 2) floodplain management project
			Nyah floodplain management project
			Vinifera floodplain management project
			Wallpolla Island floodplain management project
			Riverine Recovery project
			South East Flows Restoration project
			The Living Murray Environmental Works and Measures: Koondrook–Perricoota Forest Flood Enhancement Works
			The Living Murray Environmental Works and Measures: Mulcra Works
			The Living Murray Environmental Works and Measures: Lindsay Island (Stage 1) Works
			The Living Murray Environmental Works and Measures: Hattah Lakes Works
			The Living Murray Environmental Works and Measures: Gunbower Forest Works
			The Living Murray Environmental Works and Measures: Chowilla Floodplain Works
			Improved flow management works at the Murrumbidgee River – Yanco Creek offtake
			Nimmie-Caira Infrastructure Modification Proposal
			Eastern Mount Lofty Ranges Flows for the Future project
			Murray and Murrumbidgee National Parks

Types of SDLAM measure			Measure title
			Modernising supply systems for effluent creeks – Murrumbidgee River
			South Australian Riverland Floodplains Integrated Infrastructure Program (SARFIIP): Pike and Katarapko Floodplain project elements
		Constraints measures: designed to overcome some of the physical barriers and improve rules so that environmental water can be delivered more effectively[7]	Yarrawonga to Wakool junction reach constraints measure
			Murrumbidgee constraints measure
			Hume to Yarrawonga constraints measure
			River Murray in South Australia constraints measure
			Murrumbidgee and the Lower Darling
			New Goulburn constraints measure[8]
Measures that improve the efficiency of water use	Efficiency measures: make water use practices more efficient and, as a result, water saved can be used for the environment		On farm irrigation efficiency and other water use efficiencies
			Urban or industrial and mining areas water efficiency

[7] The Lower Darling constraints measure was not notified as a distinct constraints relaxation measure, but was integrated into the Menindee Lakes Water Savings project notification.
[8] The New Goulburn constraints measure was not nominated as a supply measure unlike the other constraints relaxation measures.

Assurance approach

The Authority has committed to using assurance to inform its decision as to whether a reconciliation is required in 2024.

While previous SDLAM annual reports have focused on progress – whether individual measures will enter operation by 30 June 2024 –this year, the Authority has focused its assurance activities on a selection of completed SDLAM measures, including whether they are capable of delivering the expected environmental outcomes (and associated volumetric adjustment). This change reflects the decision by Basin governments to publish regular reporting on each measure's progress, meaning that the Authority's own assurance process will offer more value by shifting its focus to measures Basin governments have reported as complete. However, the Authority has also undertaken its own high-level assessment of Basin governments' progress against all SDLAM measures to identify operational matters or other issues it considers relevant to SDLAM measures' progress.

In 2021, 4 SDLAM environmental works measures were assessed as to whether they:

- are capable of operating as expected in the 2017 determination[9]
- are capable of delivering the environmental outcomes expected in the 2017 determination[10]
- support delivery of the expected adjustment amount.

The selection of assessed measures (as listed at Table 2) was done in consultation with Basin governments.

In its assurance, the Authority examined the 4 measures' capability against key modelling assumptions and elements contained in the measures' latest notifications. These modelling assumptions and notification elements have been articulated as a series of assurance criteria (see Table 3). In considering measures' capability, the Authority's assurance did not assess measures against the actual decisions made by (or performance of) environmental water holders.

[9] Authority assurance of whether a measure is capable of operating as expected does not include engineering assessments and related reviews; these are part of project-management reporting and assurance undertaken by Basin governments.

[10] While some environmental monitoring and evaluation is occurring (particularly in relation to The Living Murray measures), environmental outcomes are likely to take a number of years to be realised. It is not generally possible to provide assurance as to whether the measures have delivered environmental outcomes at this time (or prior to June 2024). As such, the Authority has instead considered whether measures are *capable* of achieving the outcomes envisaged by modelling underpinning the 2017 determination.

Table 2 Selected measures

Measure title	Responsible jurisdiction/s	Selection rationale
Riverine Recovery project	South Australia	The Indec Report and subsequent Basin governments' reporting identified this measure as completed and in operation since 2019.
TLM environmental works and measures – Koondrook–Perricoota Forest Flood enhancement proposal	New South Wales / Victoria / South Australia	The Indec Report and subsequent Basin governments' reporting identified this measure as completed and in operation as part of the TLM package.
Nimmie–Caira Infrastructure modifications proposals	New South Wales	The Indec Report and subsequent Basin governments' reporting identified this measure as completed and in operation.
Gunbower Forest TLM project	Victoria / New South Wales / South Australia	The Indec Report and subsequent Basin governments' reporting identified this measure as completed and in operation as part of the TLM package.

Table 3 Criteria for assurance of completed measures

Assurance criteria	Examples of the criteria
Assurance criteria relating to whether the measure will be capable of entering into operation by 2024	**Physical structures:** Critical infrastructure identified as part of the delivery of the SDLAM measure in the notification. The Authority also considered how operability of the physical structures supported flow travel times, water depth and volume.
Assurance criteria relating to whether the measure will be capable of delivering the expected environmental outcomes	**Area inundated:** The area, in hectares, that is expected to receive water (with a particular focus on the area of inundation for key ecological assets such as lignum, red gums and waterbird and fish breeding sites). This is a critical component for the measure's delivery of environmental outcomes. **Operating strategy:** The operating strategy identifies the frequency, duration and flow volume of environmental watering scenarios the measure was expected to support.
Assurance criteria relating to whether the measure will be capable of supporting the volumetric adjustment	**Interactions with other SDLAM measures:** including where a measure relies on another measure to achieve its outcomes (e.g. relaxation of constraints) or whether the measure creates the pre-conditions for other measure(s) to achieve their outcomes. **Other matters** relevant to the measure's capability to operate, achieve environmental outcomes, or support the volumetric adjustment previously identified by Basin governments.

Assurance was conducted using the documentation and evidence submitted by each responsible Basin government, and supplemented by further inquiries such as interviews with measure implementation and construction teams where necessary. New South Wales, Victoria and South Australia were given an opportunity to review and respond to draft assessments prior to their finalisation.

Assessment of sustainable diversion limit adjustment mechanism measures' progress

The Authority's analysis broadly aligns with the independent Indec report and subsequent Basin governments' reporting. A limited number of measures being assessed by Indec and Basin state governments as 'at risk' has prompted Basin governments to act.

The Authority makes the following observations based on a high-level assessment of the Indec Report and Basin governments' latest 2021 quarterly report (further assessment details are included in the Appendix):

- Several proposed changes to the physical structures and/or operating strategies in some SDLAM measures, as well as operational issues, were identified through the 2021 assurance process of measures' progress. The Authority will continue to monitor progress and review the significance or materiality of any changes. To ensure public transparency of measures' changes and what they are intended to deliver, the Basin Plan requires notifications to be amended after any 'details of the measure' change. Basin governments should notify changes to the measures as soon as practicable (particularly where infrastructure or rule changes impact on the anticipated environmental outcomes of the measure).
- An important milestone for some SDLAM measures is the settling of operations and maintenance arrangements. A set of operations and maintenance principles for SDLAM Joint Venture assets could mitigate any risks of delay in project approvals and construction. The Authority understands resolution of operational and maintenance (and other SDLAM policy issues) is in the Ministerial Council's forward work program.
- In response to the 'at risk' rating of the Menindee Lakes Water Savings measure and Improved Flow Management Works at the Murrumbidgee River –Yanco Creek Offtake measure, the Ministerial Council has agreed to New South Wales rescoping these measures. A SDLAM reconciliation may be required to reflect the revised environmental outcomes that can be expected to be delivered from New South Wales' rescoped measures.
- As at 30 September 2021, 2.2 GL/y of the 450 GL/y from the efficiency measures has been registered with the Commonwealth Environmental Water Holder, with a further 16.7 GL/y in future efficiency measures in contract.

The Authority's assessment confirms the Indec Report's conclusion that delivery of all constraints relaxation measures are at high or extreme risk (with the exception of the South Australian measure, which on track for delivery).

The Authority notes the Ministerial Council has announced that New South Wales, with Australian Government support, is accelerating delivery of some measures (including components of a constraints relaxation measure) to enable delivery by 2024. Any delay in progressing constraints measures has implications given their interdependencies with other measures. The Authority has

already observed that some of the environmental works measures, while constructed and completed, are not yet capable of achieving the anticipated environmental outcomes due to limitations on water inflows and outflows.

Assurance of completed 'In Operation' measures

The Riverine Recovery project

Context

Historically, river flow in the River Murray system has been limited by infrastructure (including weirs and locks, levee banks and flow diversion infrastructure) that has developed progressively over the course of European settlement. Such infrastructure has led to relatively stable water levels in the main river channel and dramatic changes in floodplain connectivity. South Australia's River Murray wetlands have sat at 2 extremes:

- in about 30% of wetland area, the wetlands were permanently disconnected from the river at normal river levels; they received water very irregularly when natural events led to high flows
- conversely, the other 70% of wetland areas were, effectively, permanently connected to the river and therefore permanently inundated.

This lack of variability in wetland inundations resulted in environmental degradation and loss of species diversity. The Riverine Recovery project aims to restore the ability to manage inundation variability in South Australia's River Murray wetlands and floodplains.

Expected works

The Riverine Recovery project is an infrastructure-based supply measure that aims to achieve long-term improvements in the health of the riverine environment between Wellington and the South Australian border. The measure includes 9 distinct project elements, with only a subset of elements (the Yatco Lagoon and Wetlands Phase 1 and Phase 2 Wetlands project elements) relevant to producing water savings for the purposes of the SDLAM.

Expected environmental outcomes

The measure's notification indicates that, by improving the health of wetlands and introducing a variable wetting and drying regime, it is expected to generate water savings and allow approximately 7.2448 GL/y of water access entitlements to be transferred to the Australian Government for environmental purposes, either within South Australia or upstream of the South Australian–Victorian border.

Significance of contribution to volumetric adjustment

As previously reported in the Authority's 2020 report, the original determination expected the Riverine Recovery measure to make a low-level, local-scale contribution to the SDLAM volumetric adjustment.

Assurance assessment

The Authority is confident that the Riverine Recovery project is capable of achieving the expected environmental outcomes and supporting the volumetric adjustment as envisaged in the measure's original notification.

7,244,800 South Australian Class 9 entitlement shares (equivalent to a long term average annual yield of approximately 7.2448 GL) have been transferred to the Commonwealth Environmental Water Holder (CEWH). The CEWH has confirmed that allocations granted against this entitlement are being used to provide water for the environment.

The Living Murray environmental works and measures – Koondrook–Perricoota Forest Flood Enhancement measure

Context

The Koondrook–Perricoota Forest Flood Enhancement measure is part of the broader The Living Murray (TLM) package of works.

The Koondrook–Perricoota State Forest covers approximately 32,000 ha in southern New South Wales and is part of the second largest river red gum forest in Australia. The ecological significance of the Koondrook–Perricoota State Forest has been recognised nationally as a Living Murray Icon site, and internationally as a Ramsar wetland.

The Koondrook–Perricoota Forest has experienced reduced flooding conditions in recent decades as a result of river regulation. While the implications of river regulation constitute a long-term impact, the Millennium drought (the extended dry period between 1997 to 2010), as well as the 2017 to 2020 drought, exacerbated the situation.

MDBA's modelling underpinning the SDLAM determination assumed the relaxation of constraints, including completion of the Yarrawonga to Wakool Constraints relaxation measure, in order for the environmental outcomes of the Koondrook–Perricoota TLM measure to be achieved. [11] Noting constraints relaxation measures are still underway, this assurance process has focused on the TLM measure's ability to support the environmental outcomes anticipated in the SDLAM determination for the Koondrook–Perricoota area.

Expected works

The Koondrook–Perricoota Forest Flood Enhancement measure is an infrastructure-based supply measure. It involved construction of environmental water management structures including regulators and levee banks in Koondrook–Perricoota.

Modelling of the measure expected the works would allow water managers to direct water into the forest and hold it there before releasing it back to the River Murray via the Wakool River. This retention of water is expected to help deliver environmental objectives for the area while reducing the need for high flows or floods on the River Murray.

Expected environmental outcomes

MDBA's modelling of the measure assumed that, under full operating capacity and with the full delivery of the constraints package, up to 16,872 ha of forest would be watered to maintain and restore:

[11] The Yarrawonga to Wakool Constraints relaxation measure is designed to improve ecological outcomes by enabling the passage of higher overbank environmental flows. Through infrastructure and other operational changes it is expected to enable the relaxation of the current operational flow constraints at Yarrawonga.

- healthy permanent and semipermanent wetlands
- healthy river red gum forests
- successful breeding of colonial waterbirds
- healthy populations of resident native fish in wetlands.

Significance of contribution to volumetric adjustment

As previously noted in the Authority's 2020 report, the original determination expected the combined TLM measures to make a high level, system-scale contribution to the SDLAM volumetric adjustment.

Assurance assessment

This measure's physical structures had already been constructed at the time of the original SDLAM determination, and the physical works are operation. The completed works include:

- upstream structures to divert water into the forest from Torrumbarry Weir (including an inlet channel, inlet regulator and associated fishway) and
- downstream structures to control the release of water from the forest and to maximise return flows back to the Murray.

Analysis indicates:

- There are challenges getting water into, and out of, the site. Modelling envisaged inflows of 2,000 megalitres (ML/d) over 30 days, and releases at a rate of 2,000 ML/d based on relaxation of constraints. However, New South Wales has advised that the current operating strategy (which sets the limits on how the physical structures are able to be operated in line with New South Wales planning approvals) sets a maximum inflow rate of 250 ML/day. It was noted that the structure can support high inflows (1,000 ML/day) as demonstrated in the commissioning of the works.
- The current operating environment supports less frequent watering with lower equivalent natural flow volumes over a shorter duration than the works are physically capable of and was originally modelled (in conjunction with the constraints relaxation measure).

Based on this analysis, the Koondrook–Perricoota TLM measure is not currently capable of supporting the (combined TLM and constraints relaxation) inundation area of 16,872 ha or the environmental outcomes on which the 2017 SDLAM determination was based.

Basin governments are actively working to address these challenges. In April 2021, the Murray–Darling Basin Ministerial Council announced New South Wales, with Australian Government support, is accelerating delivery of a number of measures, including Koondrook–Perricoota Flow Enabling Works (as a sub-component of the Yarrawonga to Wakool Constraints Management Measure). Basin governments are continuing to work collaboratively with impacted landholders to ensure an enduring approach for handling third-party impacts and operational liabilities. If successful, the flow enabling works could better support the Koondrook–Perricoota measure's capability to deliver the envisaged environmental outcomes.

Nimmie–Caira infrastructure modifications measure

Context

The Gayini Nimmie–Caira forms part of the lower Murrumbidgee River system located northeast of Balranald in southern New South Wales. The Gayini Nimmie–Caira comprises approximately 85,000 hectares of land within the southern floodplain area of the Murrumbidgee River near the confluence with the Lachlan River and is generally dominated by lignum shrubland. It is adjacent to Yanga National Park.

The Nimmie–Caira Infrastructure Modifications SDLAM measure is an infrastructure-based supply measure.

Expected works

This measure involves the conversion of the existing floodway-wetland-channel operations into a fill and spill arrangement that is low-maintenance and has low operational requirements. Under this arrangement, water can be delivered to ecological assets via the natural paths (creeks and floodways) that occupy the lowest elevations across the landscape, rather than the extensive channel system developed for agricultural purposes.

Expected environmental outcomes

The measure's notification indicates that the reconfigured water delivery infrastructure will allow more effective delivery of environmental flows to the Gayini Nimmie–Caira floodplain and other parts of the Lower Murrumbidgee. The measure seeks to provide for enhanced ecological outcomes by providing an appropriate watering regime for environmental assets and values, including:

- existing lignum, red gum and black box communities
- rehabilitation of some lignum areas that have been lost through irrigation development
- small and medium-sized fish
- colonial nesting waterbirds
- the threatened southern bell frog.

Significance of contribution to volumetric adjustment

As previously reported in the Authority's 2020 report, the original determination expected the Nimmie–Caira measure to make a medium level, local-scale contribution to the SDLAM volumetric adjustment.

Assurance assessment

This measure's physical structures have been constructed and the works are operational. There were modifications to the works during construction. New South Wales advised that these occurred due to a variety of factors including the identification of more efficient ways of achieving outcomes (e.g. causeways rather than spillways at multiple sites to increase flow capacity through regulators).

Changes to the physical structures have the potential to impact on environmental outcomes, such as inundation extent. Current modelling indicates the measure is capable of watering 10,900 ha of lignum areas, 2,730 ha of river red gums and 4,510 ha of black box. In this case, the New South Wales Government has advised that 'the difference in inundation extent and communities between project information and … modelled-outcomes reflects a better understanding of what is possible, not a change in the fundamental project parameters'.

Based on the measure's current operating strategy, the Authority considers this measure is capable of delivering watering events to maintain the southern bell frog and small-bodied fish populations as well as black box health in line with the frequency, duration, and flow rates initially envisaged.

The Authority notes watering events to support bird breeding, lignum watering and red gum inundation were originally expected to occur with a minimum frequency of 2 out of every 5 years (40% of years) but are now expected to occur in only 25% of years as set out in the site's operating strategy. The New South Wales Government has advised that 'this change is due to new information on floodplain hydrology and better clarity on environmental watering patterns'.

In line with the above observations, the Authority considers that while the measure is evidently capable of delivering environmental outcomes and supporting water savings, these outcomes are likely to be different to those modelled as part of the original SDLAM determination.

Gunbower Forest The Living Murray measure

Context

Gunbower Forest is part of the Gunbower–Koondrook–Perricoota icon site. It is located on the mid-Murray floodplain in northern Victoria. The forest supports a range of vegetation types, including wetlands, river red gum communities, black box and grey box woodland. The health of the forest and the native fauna it supports is closely tied to local hydrology, which has been significantly altered by regulation of, and water extraction from, the River Murray. Historical river regulation means that floods occur less frequently and are reduced in duration and magnitude.

Expected works

The Gunbower Forest TLM measure is an infrastructure-based supply measure. As part of the broader TLM program, the Gunbower Forest TLM measure's works include a package of diversion regulators and a channel to direct water from Gunbower Creek (part of the Torrumbarry irrigation system) into the forest. Existing levees along the forest boundary allow water to be contained within the national park and state forest to inundate river red gum forest and permanent and semi-permanent wetlands. This will allow water managers to simulate a more natural flooding regime. The measure will be complemented by the Gunbower National Park environmental works project.

Expected environmental outcomes

The expected environmental outcomes for Gunbower Forest TLM are to:

- achieve healthy wetlands and river red gum communities
- provide conditions for successful waterbird breeding events at least 3 times every 10 years
- maintain healthy populations of native fish in the wetlands.

When in operation, the works were expected to allow wide-scale watering equivalent of up to 35,000 ML per day across 4,700 ha of forest.

Significance of contribution to volumetric adjustment

As previously reported in the Authority's 2020 report, the original determination expected the combined TLM measures to make a high-level, system-scale contribution to the SDLAM volumetric adjustment.

Assurance assessment

This measure's physical structures have been constructed. Environmental watering events in 5 out of the 7 years since the works were first commissioned clearly demonstrate that the physical structures are operational and are capable of successfully providing water for the environment.

Monitoring of watering events in Gunbower Forest and Gunbower Creek indicates that vegetation and waterbird outcomes have been consistently met or partially met since the commissioning of the works. Fish outcomes have similarly been met or partially met; the Authority notes that investigation and activities are underway to support restoration of locally extinct fish species to Gunbower Island. These outcomes have been achieved through the delivery of water for the environment.

The original measure notification and related modelling of the Gunbower TLM measure assumed an inlet channel would be able to deliver water at the rate of 1,650 ML/d to the lower part of the site. However, there are currently limitations on water delivery to a rate of 700 ML/day in Spur Creek and 800 ML/day within Gunbower Creek. Based on 2 full-forest watering operations to date, the works are now capable of inundating 4,500 ha of Gunbower Forest. This inundation extent is marginally (~4%) below the original modelled target of 4,700 ha.

However, longer fill times associated with these inflow limitations risks increased flood durations. As environmental water entitlements in Gunbower Creek are subject to interruptible supply during the irrigation season, longer fill times limit the capacity for water to be delivered during spring and summer. This may affect the ability to fulfil natural spring cues for waterbirds and vegetation. The Authority is of the view that, while the measure's environmental outcomes can be predominantly achieved, the inflow limitations present risks to the reliability of this achievement.

The Authority understands the Victorian Government is actively investigating the impact of the long-term reliability of achieving ecological outcomes with changes to inflow rates into Gunbower Forest, along with other mitigation options.

Authority's view on reconciliation

Potential reconciliation triggers

Reconciliation reflects the Basin Plan's recognition that changes to the measures proposed in 2017 would occur in project implementation (for example, to reflect better information and science, or due to seeking better or different environmental and operational outcomes). Reconciliation enables Basin States to be flexible and adaptive when implementing notified measures.

The SDLAM Reconciliation Framework states 'the Authority will base its decision on whether a reconciliation is required to support a new determination based on assessments of:

- whether the SDLAM projects will enter operation by 30 June 2024
- whether SDLAM projects will deliver the expected adjustment amounts
- whether the SDLAM measures will the deliver the expected environmental outcomes.'

In this context, triggers for a reconciliation can include (but may not be limited to):

- measures being withdrawn or not yet being operational by 2024
- rescoped measures or material changes to measures that would impact the environmental outcomes (and adjustment amounts) the measures are capable of delivering.

The Basin Plan allows measures to be formally withdrawn or amended until 31 December 2023. Therefore, if a reconciliation is required, the Authority will be required to determine any proposed adjustments after that date (i.e. between 31 December 2023 and 30 June 2024).

Current assessment

A reconciliation continues to be likely given the risk that the SDLAM package of measures, in its entirety, may not be operational by 30 June 2024. A reconciliation would also provide the opportunity to reflect changed or improved environmental outcomes that completed measures are capable of.

Whether SDLAM measures will enter operation by 30 June 2024

The Indec Report concluded there are 7 measures that are at high or extreme risk and are unlikely to be completed within the time available. These measures are:

- Supply measures – Environmental works: Improved Flow Management Works at the Murrumbidgee River – Yanco Creek Offtake (currently being rescoped)
- Operational rule changes to river and system enhancements:
    - Menindee Lakes Water Savings measure, including the Lower Darling key focus area constraints relaxation measure (currently being rescoped)
    - Enhanced Environmental Water Delivery measure

- Constraints relaxation measures:
    - Yarrawonga to Wakool Junction key focus area
    - Hume to Yarrawonga key focus area
    - Murrumbidgee key focus area
    - New Goulburn key focus area.

The next 12 months will be critical for progressing at-risk measures as much as possible to ensure that the best practicable outcomes can be achieved within the time available.

At-risk measures may have flow-on effects to the capability of other measures to operate as envisaged. The number of supply measures that are dependent on these at-risk measures presents a barrier to successfully achieving the same environmental outcomes and associated water savings originally envisaged by modelling underpinning the 2017 determination.

In 2021, the Murray–Darling Basin Ministerial Council agreed to New South Wales rescoping 2 of the identified 'at risk' measures (the Menindee Lakes Water Savings measure and Improved Flow Management Works at the Murrumbidgee River – Yanco Creek Offtake). The Ministerial Council also noted the acceleration of a small set of measures (or components of measures), which will seek to ensure that 3 full measures, and 2 components of a further measure are delivered by 2024. This acceleration is welcome but, as the proposed acceleration measures only directly address one of the identified at-risk measures, it is not likely to be enough to address all the State-identified project delivery challenges.

Nonetheless, based on the Indec Report, Basin governments' reporting and the Authority's own assessment, the Authority still expects the majority of SDLAM measures to be operational by 2024.

Whether SDLAM measures will deliver the expected environmental outcomes and support the expected adjustment amounts

SDLAM measures are already demonstrating examples of innovative ways the Basin state governments are working to achieve a range of outcomes with less water recovery. Positive environmental benefits from SDLAM measures are also being observed.

The 4 measures examined in detail in this report show SDLAM measures are already achieving healthier wetlands and forests as well as supporting bird and fish breeding events; these measures are capable of supporting substantive contributions to the volumetric adjustment. For example, the Riverine Recovery Project has successfully transferred a licence for approximately 7.2448 GL to the Australian Government to provide water for the environment.

However, analysis by the Authority indicates that some of the environmental outcomes these measures are capable of delivering are not the same environmental outcomes that were originally envisaged. For example, the areas of redgum, lignum or black box that can be inundated by the measures are different to the size of the areas identified in the notifications used to inform the 2017 determination. The Authority's assurance process did not try to attribute why the changes had occurred; it only identified that there was evidence that the outcomes are different.

The assurance of completed measures also demonstrated how 'at-risk' measures may have flow-on effects to the capability of other measures to operate as modelled. The dependency of a number of

supply measures on these at-risk measures (particularly the constraints relaxation measures) presents challenges to successfully achieving the originally envisaged environmental outcomes and associated adjustment of the SDLAM package. Challenges to the delivery of the constraints-relaxation measures mean that, for example, the Koondrook–Perricoota structures (while constructed and operational, and able to achieve some environmental outcomes) are not currently capable of supporting the modelled environmental outcomes due to lower inflow rates, less frequent planned watering events, planned watering events with shorter durations than modelled, and fewer ecological assets intended to be inundated.

Public assurance is a critical tool for giving the community confidence on whether SDLAM measures are capable of achieving their intended environmental outcomes. In the lead-up to 2024, the Authority will continue to publish its findings through an annual report to enable progress to be credited and to communicate points of interest, particularly where there are different and improved environmental outcomes.

In the likely event that a reconciliation is required in 2024, the differences in the outcomes and operations that measures are capable of by 30 June 2024 will need to be reflected in the SDLAM adjustment determination.

Appendix: Progress assessment

The Authority has considered the progress of SDLAM measures. This assessment of progress in relation to many measures aligned with the Indec Report and Basin governments' assessed reporting. In particular, the Authority notes the Indec Report assessment that the following measures have been completed and are in operation:

- Flexible rates of fall in river levels downstream of Hume Dam
- Operating rule change to Hume Dam airspace management and pre-releases
- The Living Murray Environmental Works and Measures: Lindsay Island (Stage 1) Works
- The Living Murray Environmental Works and Measures: Chowilla Floodplain Works
- The Living Murray Environmental Works and Measures: Hattah Lakes Works

The Authority has no comment on the progress of the above measures, noting the Authority is yet to assure whether the expected environmental outcomes (and associated volumetric adjustment) associated with the measures are capable of being delivered.

Table 4 below outlines where the Authority's assessment has identified operational matters or other issues relevant to SDLAM measures' progress.

Table 4 Authority assessment

Measure title[12]	Authority assessment
Supply Measures: Operational rules changes and system enhancements	
2011 Snowy Water Licence Schedule 4 Amendments (RMIF)	This measure was assessed by the Indec Report as being completed and in operation. While the planned rule changes are in place, the Authority understands they are not fully operational as Basin states are yet to finalise how water entitlements will be handled. States are currently working to address these matters via their water sharing plans.
Operating rule change to the use of the Barmah–Millewa Forest Environmental Water Allocation	This measure was assessed by the Indec Report as being completed and in operation. The Authority's 2020 SDLAM Progress Report noted that amendment of the New South Wales River Murray Water Sharing Plan was needed to operationalise the rule change for the Barmah–Millewa Forest Environmental Water Allocation. Changes have been drafted but the Water Sharing Plan is yet to be amended. Recent analysis from the Indec Report also discussed amendments to Victorian Bulk Entitlements with these amendments considered necessary for effective operation of the rule change. These amendments are still underway.
Computer Aided River Management system (CARM) for the Murrumbidgee River	This measure was assessed by the Indec Report as being completed and in operation. The Authority's 2020 SDLAM Progress Report noted that amendments to the New South Wales Murrumbidgee Water Sharing Plan were needed to operationalise the rule change for the CARM. Changes have been drafted but the Water Sharing Plan is yet to be amended.

[12] Further details about the measures and their anticipated benefits is available on the MDBA website at Sustainable diversion limit adjustment projects.

Measure title[12]	Authority assessment
Enhanced Environmental Water Delivery (EEWD or Hydro-cues)	The Indec Report identified this measure as being 'high risk', with concerns about its ability to be completed by 30 June 2024. The Authority has no further comments about this measure's progress.
Menindee Lakes Water Savings project (including the Lower Darling constraints key focus area)	The Indec Report identified this measure as being 'extreme risk', with concerns about its ability to be completed by 30 June 2024. The Murray–Darling Basin Ministerial Council has agreed that this measure be re-scoped. A SDLAM reconciliation may be required to reflect the rescoped measure.
SDL Offsets in the Lower Murray, New South Wales (Locks 8 and 9 Weir Pool Manipulation)	In April 2021, this measure was one of a small number of measures the Murray–Darling Basin Ministerial Council identified for accelerated delivery. The Authority notes future operation and maintenance of the proposed infrastructure is anticipated to fall to the Murray–Darling Basin Joint Venture. As with any major works on the River Murray that impacts existing Joint Venture assets or creates new Joint-Venture assets, the Murray–Darling Basin Agreement requires additional approvals prior to commencing any work. The MDBA is liaising with New South Wales in this regard.
Supply Measures: Environmental works	
Belsar–Yungera floodplain management project	The Indec Report noted some delivery challenges, but still expected the measure to be completed by 2024. The Authority has no further comments about this measure's progress.
Burra Creek floodplain management project	The Indec Report noted some delivery challenges, but still expected the measure to be completed by 2024. The Authority has no further comments about this measure's progress.
Gunbower National Park environmental works project	The physical structures and envisaged inundation area described in the Indec report for the Gunbower National Park environmental works project slightly differ from what those that informed the 2017 modelling. Changes to the implementation of physical structures may reflect regulatory and cultural approvals processes. The Authority will continue to monitor progress and review the significance of any project changes, noting that changes to the physical structures may result from regulatory and cultural heritage approvals.
Guttrum and Benwell Forests environmental works project	The Indec Report noted some delivery challenges, but still expected the measure to be completed by 2024. The Authority has no further comments about this measure's progress.
Hattah Lakes North floodplain management project	The physical structures described in the Indec report for the Hattah Lakes North floodplain management project slightly differ from what those that informed the 2017 modelling. The Authority will continue to monitor progress and review the significance of any project changes, noting that changes to the physical structures may result from regulatory and cultural heritage approvals.

Measure title[12]	Authority assessment
Lindsay Island (stage 2) floodplain management project[13]	The physical structures described in the Indec report for the Lindsay Island (stage 2) floodplain management project slightly differ from what those that informed the 2017 modelling. The Authority will continue to monitor progress and review the significance of any project changes, noting that changes to the physical structures may result from regulatory and cultural heritage approvals.
Nyah floodplain management project	The physical structures described in the Indec report for the Nyah floodplain management project slightly differ from what those that informed the 2017 modelling. The Authority will continue to monitor progress and review the significance of any project changes, noting that changes to the physical structures may result from regulatory and cultural heritage approvals.
Vinifera floodplain management project	The physical structures described in the Indec report for the Vinifera floodplain management project slightly differ from what those that informed the 2017 modelling. The Authority will continue to monitor progress and review the significance of any project changes, noting that changes to the physical structures may result from regulatory and cultural heritage approvals.
Wallpolla Island floodplain management project	The physical structures described in the Indec report for the Wallpolla Island floodplain management project slightly differ from what those that informed the 2017 modelling. The Authority will continue to monitor progress and review the significance of any project changes, noting that changes to the physical structures may result from regulatory and cultural heritage approvals.
South East Flows Restoration project	The first stage of works for this measure have been largely constructed and are in operation. The second stage of works are currently in the concept design phase. The Authority notes Indec reporting that Phase 2 of the measure is at significant risk of not being delivered by 2024 if Australian Government funding approval cannot be obtained by December 2022. South Australia has advised that it is finalising its technical assessment for Phase 2.
The Living Murray Environmental Works and Measures: Mulcra Works	Modelling of this measure (and therefore modelling underpinning the SDLAM volumetric adjustment) envisaged 5 regulators however recent analysis in Indec reporting described the works as including 7 regulators. Despite this, the Authority notes Indec reporting that the targeted inundation area remains consistent at 820 ha.
Improved flow management works at the Murrumbidgee River – Yanco Creek offtake	Recent Indec reporting identified this measure as being 'high risk', with concerns about its ability to be completed by 30 June 2024.The Murray–Darling Basin Ministerial Council has agreed that this measure be re-scoped (with outcomes of rescoping review anticipated later in 2021). A SDLAM reconciliation may be required to assess the final contribution of the rescoped measure.

[13] The Authority understands that, for some measures, designs are yet to be finalised and decided on as some may be undergoing environmental impact assessments (or their jurisdictional equivalent).

Measure title[12]	Authority assessment
Eastern Mount Lofty Ranges Flows for the Future Project	Timeframes for delivery of this measure have evolved since the original determination. Nonetheless, the Authority is comfortable this measure is still on track to be completed by 2024.
Murray and Murrumbidgee National Parks	The Indec Report noted some delivery challenges but still expected the measure to be completed by 2024; the Murray–Darling Basin Ministerial Council has noted that delivery of this measure will be accelerated. The Authority has no further comments about this measure's progress.
South Australian Riverland Floodplains Integrated Infrastructure Program (SARFIIP): Pike and Katarapko Floodplain project elements	Construction of the major SARFIIP components at the Pike and Katarapko floodplains has been carried out. The Authority understands commissioning of the works is underway to 30 December 2021.
Modernising supply systems for effluent creeks – Murrumbidgee River	The Indec Report noted some delivery challenges but still expected the measure to be completed by 2024; the Murray–Darling Basin Ministerial Council has noted that delivery of this measure will be accelerated. The Authority has no further comments about this measure's progress.
Constraints Measures	
Yarrawonga to Wakool junction reach constraints measure	Any delay of constraints measures has far reaching implications; the MDBA has already observed that related environmental works measures (while constructed and completed) are not capable of supporting the originally modelled environmental outcomes. The Ministerial Council has announced New South Wales (with Commonwealth support) is accelerating delivery (by 2024) of select components of this constraint relaxation measure.
Murrumbidgee constraints measure	The Indec Report assessed delivery of this constraints relaxation measure as being at 'high risk'. Any delay of constraints measures has far reaching implications given the interdependencies between various SDLAM measures.
Hume to Yarrawonga constraints measure	The Indec Report assessed delivery of this constraints relaxation measure as being at 'high risk'. Any delay of constraints measures has far reaching implications given the interdependencies between various SDLAM measures.
River Murray in South Australia constraints measure (also nominated as a supply measure)	The Indec Report noted some delivery challenges but still expected the measure to be completed by 2024. However, as noted in the Indec Report, the ability of this measure to achieve envisaged environmental outcomes will be dependent on the success of the other upstream constraints measures. Despite these upstream measure concerns, South Australia has advised that this measure will still provide environmental outcomes within the South Australian River Murray under lower managed conditions and higher unmanaged flow conditions (when these occur naturally).
Murrumbidgee and the Lower Darling	The Indec Report identified this measure as being 'extreme risk', with concerns about its ability to be completed by 30 June 2024. The Murray–Darling Basin Ministerial Council has agreed that this measure be re-scoped. A SDLAM reconciliation may be required to reflect the rescoped measure.

Measure title[12]	Authority assessment
New Goulburn constraints measure	The Indec Report assessed delivery of this constraints relaxation measure as being at risk. Any delay of constraints measures has far reaching implications given the interdependencies between various SDLAM measures.
Efficiency measures	
Efficiency measures	In its previous (2020) assurance report, the Authority noted that, as at 31 December 2019, recovery via efficiency measures programs stood at approximately 1.26 GL (with a further ~0.64 GL contracted but not yet delivered). The Department of Agriculture, Water and the Environment has liaised with Basin state governments. Since that time, there has been little progress. As at 30 September 2021, only 2.2 GL/y has been recovered. A further 16.7 GL/y is contracted, including 15.9 GL identified in the Goulburn-Murray Irrigation District, ~0.8 GL from the Water Efficiency Program, and a potential for up to 1 GL from the Mitiamo Pipeline project. These projects have been contracted and more opportunities for water recovery are expected from South Australia, Queensland and New South Wales as the Off-farm Efficiency Program proceeds. Currently-approved efficiency projects are: • On-farm: Commonwealth On-Farm Further Irrigation Efficiency Program – South Australian pilot • On-farm: Water Efficiency Program (WEP)[14] • Off-farm: Goulburn Murray Water (GMW) Water Efficiency project • Off-farm: Efficiency Program (OFEP) includes state-led off-farm projects, off-farm grants programs and state on-farm projects. • Off-farm: Mitiamo Pipeline project via National Water Grid In addition, there are approximately 50 concept proposals from the Stocktake of the Off-farm Infrastructure Report submitted to the Murray–Darling Basin Ministerial Council that could be implemented to deliver water use efficiency gains and provide water savings. Given current progress, it is difficult determine how the full 450 GL/y will be achieved by 30 June 2024.

[14] On 3 March 2021, the Minister for Resources, Water and Northern Australia announced the closure of the Water Efficiency Program. While the Water Efficiency Program is closed to further applications, project works for already-assessed applications are expected to be completed by June 2024.

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

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