

Review of the Environmental Watering Plan

March 2021

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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.

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1. Summary

In 2020, the Murray Darling Basin Authority completed a review of the Environmental Watering Plan (EWP) (Chapter 8 of the [Murray–Darling Basin Plan](#)). The review found that the EWP is working well with some improvements identified that offer increased efficacy and efficiency in its implementation.

The Environmental Watering Plan (EWP) provides guidance on how water for the environment should be used to achieve the ecological objectives of the Basin Plan. The EWP includes:

- A description of the environmental objectives and targets for the Basin’s water-dependent ecosystems
- A planning framework for managing planned and held environmental water to meet these objectives (called the Environmental Management Framework which includes outputs such as the Basin–wide Environmental Watering Strategy and Long-Term Environmental Watering Plans)
- Methods to identify water-dependent ecosystems, and principles to guide the prioritisation of the use of water for the environment.

The purpose of this review was to assess the effectiveness of the EWP in contributing to the achievement of the environmental objectives for the water-dependent ecosystems of the Murray–Darling Basin.

The Authority undertook the EWP review in consultation with a range of stakeholders, including Basin state governments, the Commonwealth Environmental Water Office (CEWO), the Australian Government Department of Agriculture, Water and Environment, state water planners, scientists, MDB peak organisations and First Nations.

The review found that the EWP is effectively co-ordinating the planning, prioritisation and use of environmental water across the Basin.

As the implementation of the Basin Plan and particularly water for the environment matures, there will continue to be opportunities to improve the currency and contemporary nature of the EWP. In this vein the review identified a range of opportunities as key findings. The key findings were:

- First Nations’ values and uses, and methodology to have regard to these values and uses, should be strengthened through implementation of the EWP.
- Adaptive management requires the continual incorporation of new environmental watering knowledge and better communication of uncertainty.
- SMARTer (Specific, Measurable, Achievable, Relevant and Timebound) objectives and targets should be explored where practical.
- Opportunities to streamline reviews, evaluations and long-term watering plans should be pursued over the next five years.
- Communication of how different components of the EWP work together and link to other Basin Plan components should be improved.
- Inter-governmental cooperation in environmental water planning should be improved to enhance the effectiveness of the EWP.

Based on these findings, 29 recommendations were identified, which are grouped by five topics:

- First Nations
- Adaptative management
- Climate adaptation and objectives and targets setting
- Alignment within the EWP and to other Basin Plan chapters
- Regulatory power and interpretation of the EWP

Most of these recommendations are focused on improvements that can be implemented within the existing legislative powers.

The MDBA is considering how these recommendations and findings could be addressed as part of the Basin-wide Environmental Watering Strategy, due in 2022; the next EWP review, scheduled in 2025; and the Basin Plan review in 2026. The MDBA will work with Basin governments and other key stakeholders to implement the review's recommendations.

2. Introduction

This report contains the findings and recommendations of the MDBA's review of the Environmental Watering Plan (EWP) set out in the following format:

- Chapter 2 summarises the purpose of the EWP, the legal requirements of the review and the approach undertaken by the Authority in undertaking this review.
- Chapters 3 summarises the review's overall findings and the key topics that need to be addressed in the next stage of EWP implementation.
- Chapters 4 through 8 summarise the review's findings and recommendations against these five key topics:
 - First Nations' values and uses
 - Adaptive management
 - Climate adaptation and objectives and target setting
 - Alignment within the EWP and to other Basin Plan chapters, and
 - Regulatory power and interpretation of the EWP

All chapter, part and division references in this report (e.g. Chapter 8, Part 4, Division 3) refer to content in the Basin Plan unless specified otherwise.

Purpose of the Environmental Watering Plan

The purpose of the EWP is to co-ordinate the planning, prioritisation and use of environmental water on both an annual and long-term basis. It achieves this purpose through the following key components of the EWP:

- Setting the overall environmental objectives for water-dependent ecosystems of the Murray–Darling Basin
- Setting the targets by which to measure progress towards achieving those objectives
- Providing an Environmental Management Framework to guide the use of water for the environment, which includes long-term planning and annual prioritisation for the Basin as a whole (Basin-scale) and for each water resource plan area (regional-scale)
- Sets out the methods to be used to identify environmental assets to be considered for water for the environment, and
- Provides the principles for applying environmental water.

[Figure 1](#) shows the hierarchy of these components as well as some of the interrelationships between them.

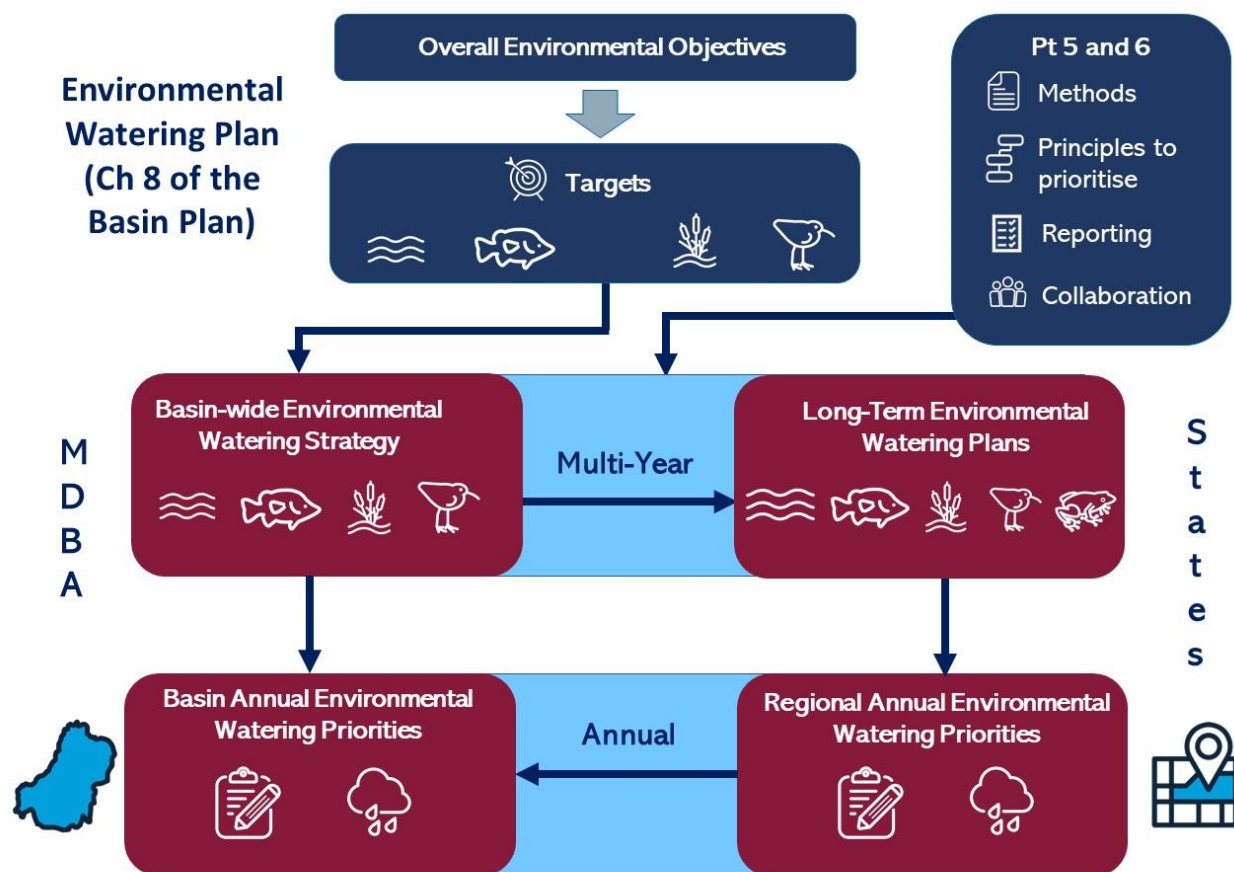


Figure 1: Chapter 8 components diagram. Note that annual environmental watering priorities are prepared for each water resource plan area, while Basin Annual Environmental Watering Priorities are at the Basin-scale.

Legal requirements of the review

The Basin Plan 2012 requires that the Authority to review the EWP before the end of 2020, and every five years thereafter.

The purpose of the review is to assess the effectiveness of the EWP in contributing to the overall environmental objectives for water-dependent ecosystems to inform improvements ([Text box 1](#)).

The review does not have to be of the whole EWP (chapter 8) but must as a minimum include a review of the targets ([Text box 2](#)). The scope of the review is at the Authority's discretion.

Each review must be undertaken in consultation with Basin state governments and the CEWH and provide relevant persons with an opportunity to comment on proposed findings and recommendations before publication.

Section 13.07 of the Basin Plan: Purpose of [Basin Plan] reviews

The purpose of the reviews required by this Division is to assess:

- (a) the effectiveness of:
 - (i) the water quality targets in the water quality and salinity management plan; and
 - (ii) the environmental watering plan in contributing to the achievement of the objectives set out in Chapters 8 and 9.

Note: The Authority must publish the findings and recommendations arising from a review: see section 13.19.

Text box 1: Excerpt from the Basin Plan that relates to the purpose of reviewing the Environmental Watering Plan.

Section 13.09 of the Basin Plan: Reviews of the environmental watering plan

- (1) The Authority must complete a review of the environmental watering plan before the end of 2020 and within every 5 years thereafter.
- (2) The review must include a review of the targets set out in Schedule 7.
- (3) The Authority may request from a person or body (for example, a person or body mentioned in subsection (4)) any information that it considers necessary to conduct the review.

Note: See also section 238 of the Act.

- (4) The review must be undertaken in consultation with the Basin States, the Commonwealth Environmental Water Holder and other relevant Commonwealth agencies.

Text box 2: Excerpt from the Basin Plan that relates to reviewing the Environmental Watering Plan.

The Authority's approach to the review

The scope of the review included all components of the EWP. This ensured that the review was a comprehensive assessment of the EWP's role in co-ordinating the planning, prioritisation and use of environmental water on both an annual and long-term basis.

A range of internal and external stakeholders were consulted throughout the review covering:

- Water planners
- Environmental water holders and managers
- Independent scientists
- Peak environmental groups
- First Nations and
- Farming groups

An independent consultant was employed to capture the perspectives of key stakeholders on how the EWP operates in practice and to gather information about developments in best practice in planning and natural resource management since the EWP was developed.

A workshop was held in Canberra on 5 June 2019 with stakeholders to collect further insights on innovative approaches to managing complex systems in uncertain environments. Stakeholders were

also invited to complete a survey on the appropriateness, effectiveness and efficiency of the major components of the EWP.

A subset of the survey group was invited to be interviewed to gather insights on the practical aspects of the operation of the EWP including its efficiency and effectiveness.

The review also considered findings from the [2017 Basin Plan Evaluation](#) and the [2018 Productivity Commission report](#).

This information was synthesised and then key findings were identified. A staff workshop was held at the MDBA's Canberra office to consider the review findings.

Consultation on review findings

The MDBA synthesised the data collected into key findings and shared these with Basin governments as well as with the Northern Basin Aboriginal Nations (NBAN), Murray Lower Darling Rivers Indigenous Nations (MLDRIN), peak groups and other stakeholders.

Feedback on the key findings informed the draft recommendations which the MDBA shared with Basin state governments, the Australian Government Department of Agriculture, Water and the Environment, the CEWH and other relevant bodies. They were provided with an opportunity to comment before the Authority finalised the review and authorised the report for publication.

3. Overall findings

Findings

The review found that the EWP is effectively co-ordinating the planning, prioritisation and use of environmental water across the Basin.

More specifically, most components of the EWP were found to be operating soundly ([Figure 2](#)). The objectives and targets were generally deemed appropriate ([Figure 3](#) and [Figure 4](#)). Individual components of the Environmental Management Framework were regarded to be fairly or extremely effective, in particular the Strategy and LTWPs, which have a high impact on environmental watering. The principles and method for determining environmental watering priorities were deemed to be fairly or extremely appropriate. Practitioners and advocates had a high level of support for the method for identifying assets and their watering requirements. One exception was the Basin Annual Environmental Watering Priorities, which were deemed ‘not at all effective’ or ‘slightly effective’.

Collectively, practitioners, researchers, advocates and MDBA staff agreed that substantial changes to the EWP are not required and there are no critical gaps that require legislative change at this time. However, the review identified potential improvements in relation to implementing the EWP, as well as potential improvements that could be addressed at the Basin Plan review in 2026.

These improvements have been summarised below by five key topics.

First Nations’ values and uses

Potential improvements include:

- building First Nations ecological outcomes in the next Strategy
- providing opportunities for environmental watering to contribute to cultural outcomes (without compromising environmental outcomes), and
- incorporating First Nations’ ecological objectives into the next Basin Plan following engagement, facilitation and agreement with Traditional Owners.

Adaptive management

Potential improvements include:

- better communicating complex narratives around environmental water management
- fostering a culture of learning and adaptation and adopting best available scientific knowledge
- continuing the evolution in approach from site-scale to system-scale environmental watering
- reshaping the EWP in the next Basin Plan to reflect that environmental watering has matured, and
- ensuring that ecological monitoring provides timely information for decision-making.

Climate adaptation and objective and target setting

Potential improvements include:

- acknowledging the influence of a changing climate on water-dependent ecosystems in the next Strategy
- reviewing the appropriateness of targets and objectives in the lead up to the Basin Plan review in 2026
- better defining the sub-set of water-dependent ecosystems that can be protected and restored, and
- improving line-of-sight between objectives, targets and expected environmental outcomes in the various environmental water planning documents.

Alignment within the Environmental Watering Plan and to other Basin Plan chapters

Potential improvements include:

- aligning Basin priorities with environmental water planning processes in the regions
- explaining how different EWP components relate to each other and what their role is in delivering best practice environmental watering, and
- improving linkages between the EWP and other chapters of the Basin Plan, such as the Water Quality and Salinity Management Plan and Water Resource Plan requirements.

Regulatory power and interpretation of the EWP

Potential improvements include:

- genuine collaboration between the different spheres of government, and improved community participation in environmental watering
- improved alignment between chapters in the Basin Plan to strengthen coordination of environmental watering, and
- better integration between planning across catchments, and improved protection of environmental water, to ensure that environmental outcomes are maximised.

While the review considered whether the regulatory powers provided in the EWP are sufficient for compliance and audit activities, MDBA's compliance functions are to be transferred to an Inspector-General of Water Compliance to ensure strong and independent regulation.

Potential improvements for the five topics are discussed in more detail in the following chapters, along with the recommendations that will address them. The recommendations are primarily concerned with making implementation of the EWP more effective.

It is worth noting that this review identified the need to improve monitoring arrangements across the Basin. This finding is important but not within the scope of the EWP review, and therefore will be addressed by MDBA's new Monitoring Strategy.

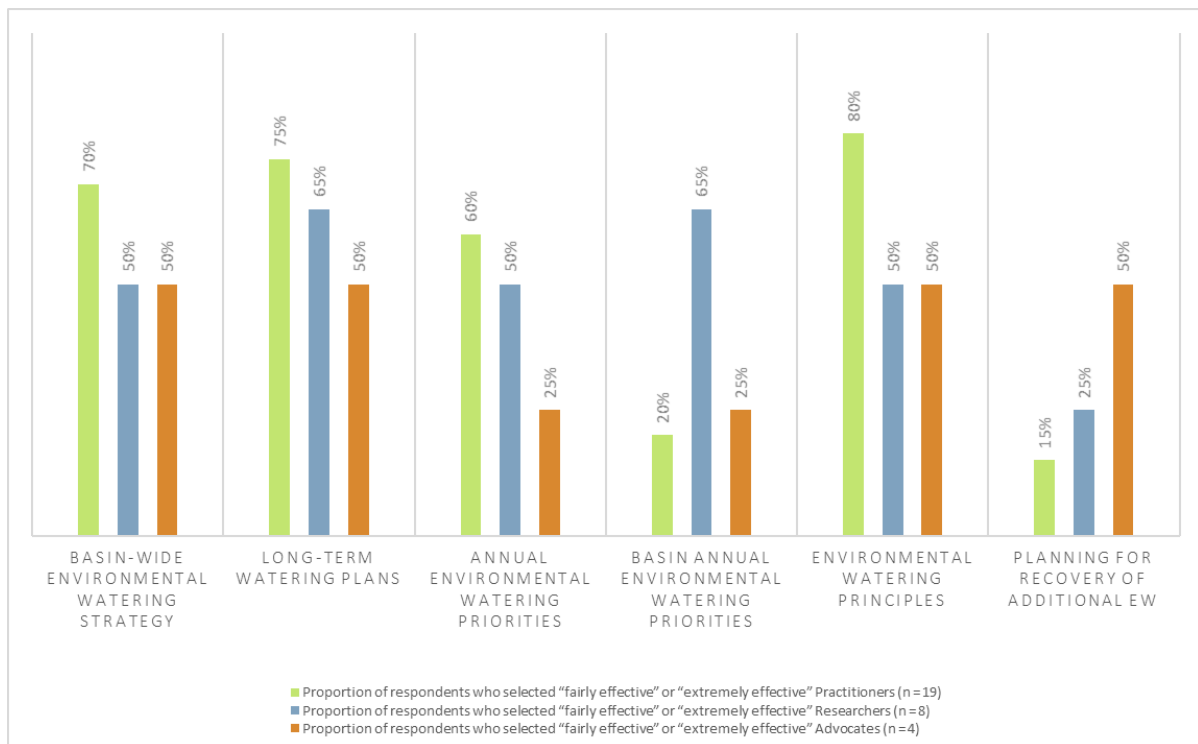


Figure 2: External survey graph on effectiveness of Environmental Management Framework (EMF) components. The planning for recovery of additional environmental water (Part 4, Division 7) sets out the Authority's role in planning for additional environmental water by any mechanism. Fairly and extremely effective represented the two highest categories for scoring the effectiveness.

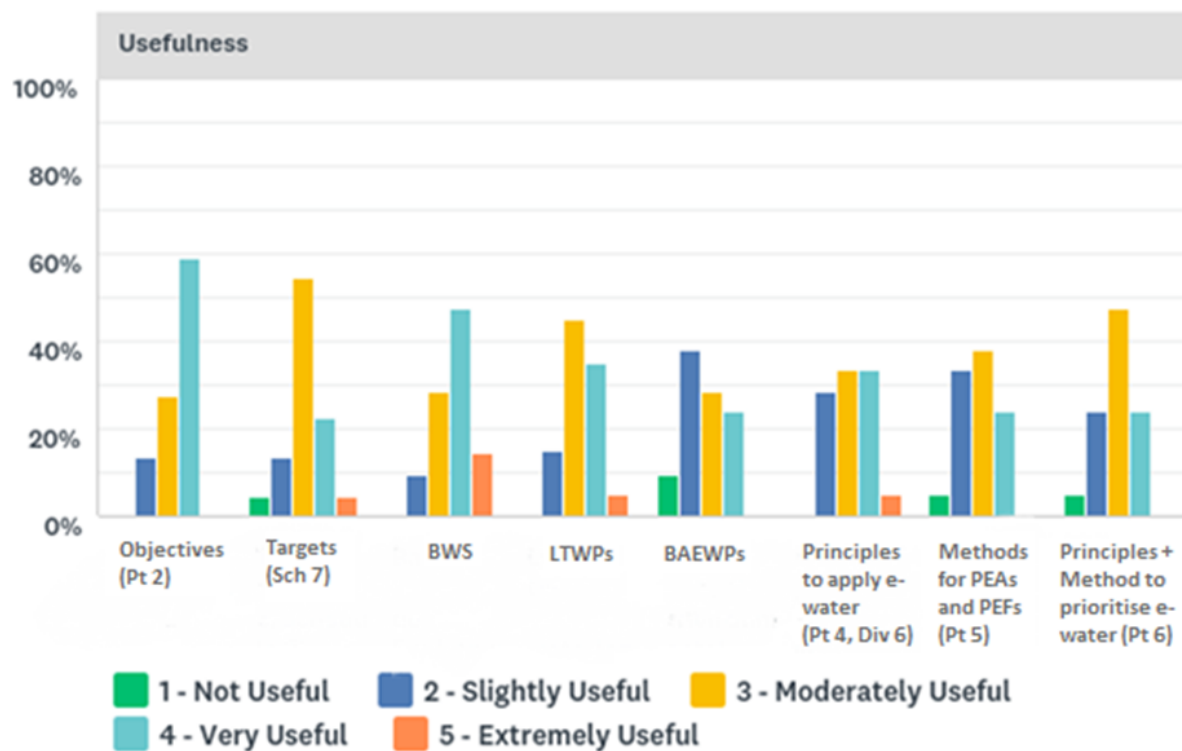


Figure 3: Internal survey graph of MDBA staff showing the scoring of usefulness of EWP components. Sample size (n=22).

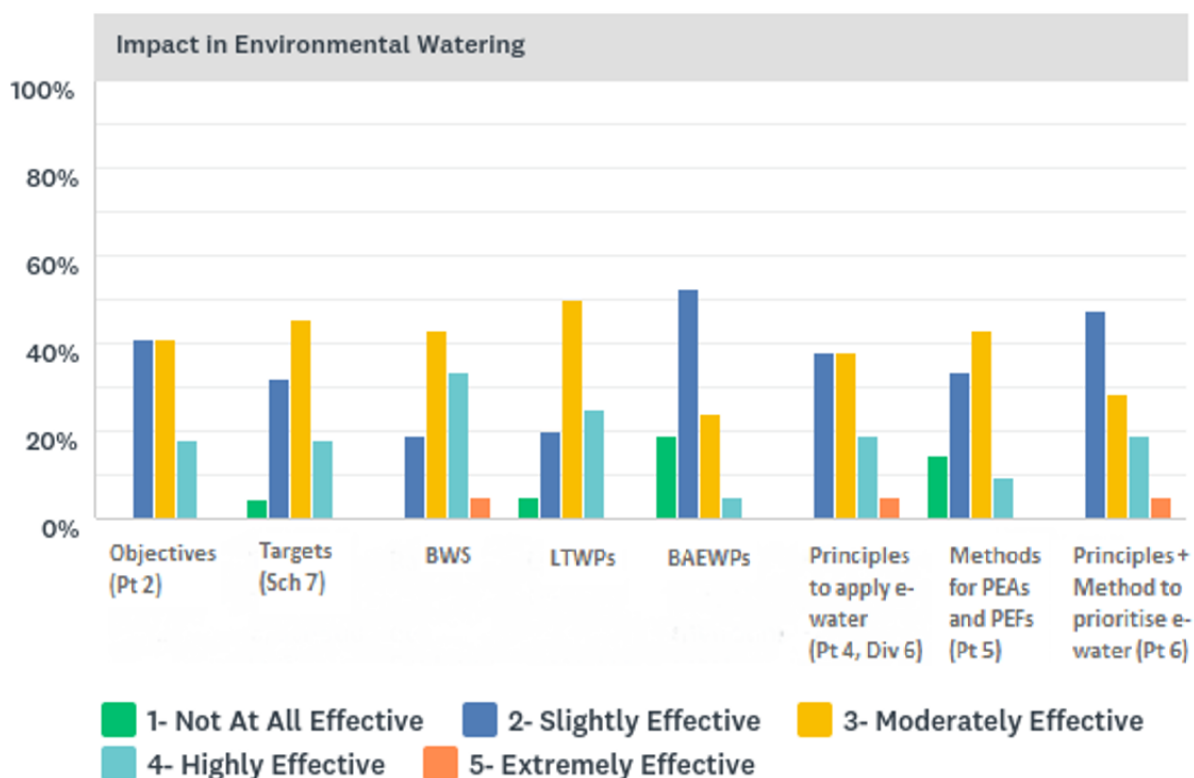


Figure 4: Internal survey graph of MDBA staff showing the scoring of impact on environmental watering of EWP components. Sample size (n=22).

4. First Nations' values and uses

Findings

The EWP includes several requirements to consider First Nations' values and uses when planning for environmental water. For example, the MDBA must have regard to Indigenous values and uses when preparing the Strategy (this in turn influences how LTWPs are prepared). Similarly, the Basin Priorities must have regard to Indigenous values and uses. An example of using existing provisions to further First Nations' involvement in environmental watering is the [First Nations Environmental Water Guidance](#) project, which has been used to inform the Basin priorities as well as the CEWO's delivery of environmental water.

Although these requirements are important, the review found that it was unclear how parts of the EWP have 'regard to' Indigenous values and uses. The review also found that there were opportunities to strengthen First Nations' values and uses in other parts of the EWP. For example, an overall objective ought to include First Nations' ecological values following engagement, facilitation and agreement with Traditional Owners.

These findings on First Nations' values and uses are best addressed through implementation activities under the existing EWP. These include the review and update of the Strategy and LTWPs, continued stakeholder engagement with First Nations' peak groups in the Basin, and further work with First Nations' groups who have Cultural Authority.

Recommendation 1 states that the MDBA will work towards formal incorporation of First Nations' ecological objectives and outcomes into Part Two of the EWP at the next legislative amendment of the Basin Plan. The MDBA will work with NBAN and MLDRIN to draft a new objective. Sections 8.15 (4)(e) and 8.29 (3)(g) of the Basin Plan would also need to be updated, likely to be 'First Nations' objectives and outcomes' rather than 'Indigenous values and Indigenous uses' to reflect language usage changes. These changes are more suited to the next amendment to the Basin Plan due to their interaction with Basin Plan definitions at section 1.07 of the BP, and Chapter 10 (Part 14) Water Resource Planning provisions.

Recommendations 2 to 4 continue to build on progress in First Nations' involvement and participation in environmental watering through the Strategy. These implementation measures should be monitored for effectiveness to inform the 2025 EWP review and subsequent 2026 Basin Plan review.

The inclusion of First Nations' values in environmental water policy is consistent with the [2018 Ministerial Directive](#) to report on how environmental water holders have considered Indigenous values and uses and involved Indigenous people when planning for environmental watering. It also echoes findings in other recent reviews, including the [2018 Productivity Commission review report](#), and [the 2020 Independent Assessment of Social and Economic Conditions in the Basin](#).

The MDBA will continue to test all recommendations concerning First Nations' interests with NBAN and MLDRIN, the two peak Traditional Owner groups in the Murray–Darling Basin.

Recommendations

Recommendations	Timing
1. The MDBA will work towards formal incorporation of First Nations' ecological objectives and outcomes into Part Two at the next legislative amendment of the Basin Plan (Chapter 8).	2026 Basin Plan review (or next legislative amendment to the Basin Plan)
2. The MDBA will continue to work with environmental water holders to provide opportunities for environmental watering to contribute to cultural outcomes (without compromising environmental outcomes).	Basin-wide Environmental Watering Strategy 2022 Revisit for the 2025 EWP review and 2026 Basin Plan review
3. The MDBA will include First Nations' outcomes as part of the update of the Basin-wide Environmental Watering Strategy in 2022 (as flagged in Basin-wide Environmental Watering Strategy 2019).	Basin-wide Environmental Watering Strategy 2022
4. When the Basin-wide Environmental Watering Strategy is updated to include First Nations' objectives, then Long-Term Watering Plans in 2022/2023 will need to have regard to them.	Basin-wide Environmental Watering Strategy 2022

5. Adaptive management

Findings

The review noted the importance of clearly communicating the purpose and benefit of environmental water to improve community understanding. In these communications the uncertainty about environmental watering outcomes should be acknowledged, including the influence of a changing climate. The Menindee fish deaths in December 2018 and January 2019 were cited as an example of how external factors, such as temperature and rainfall, can influence ecosystem outcomes. Recommendation 5 is that the MDBA consider the benefits of communicating more complex narratives around environmental watering. This recommendation echoes the [Interim Inspector-General's report](#) which emphasised that Basin governments should work together to increase water literacy in communities.

The review highlighted that a culture of learning and adaptation is vital in environmental watering. Much remains to be learned about the ecology of the Basin which in turn helps drive optimised outcomes from environmental. Trials for different approaches should be promoted through the Strategy, LTWPs, and the Basin priorities, as well as through cooperation between environmental water holders for specific watering actions. Recommendation 6 is that MDBA will continue to adapt the approach to the Basin Annual Environmental Watering Priorities and promote a culture of learning and adaptation.

Many components of the Environmental Management Framework are in their first iteration and/or are guided by provisions which are eight years old. The review found that the EWP could be revised to reflect the more contemporary approach to environmental watering. However, this recommendation would apply to other Basin Plan chapters and therefore is more suited to a general Basin Plan review. Recommendation 7 is that this matter should be revisited in the 2026 Basin Plan review, with a view to streamlining the EWP to reflect that its implementation has matured.

The application of best-available scientific knowledge to environmental watering was a key topic of the review. There are many knowledge gaps that make decision-making challenging. One example is making decisions about what objectives are achievable, partially achievable or unachievable as a result of current river operations, environmental water recovered to date and climate. Another example is making assumptions about complementary management actions that can aid environmental watering (e.g. land management) or about issues that can hinder environmental watering (e.g. operational constraints). Recommendation 8 states an ongoing commitment to invest in adaptive management and use the Water Environment Research Program and the Basin Science Platform to address some of these knowledge gaps.

The concept of Priority Environmental Assets and Priority Ecosystem Functions was supported by this review. Nonetheless, there is a need for environmental water planning to continue the evolution in approach from site-scale to system-scale and consider the timing of flows over multiple years to connect environmental assets along a river. Additionally, there is a need to consider interdependencies between different environmental assets in supporting the life cycle requirements of biota such as fish and waterbirds. That said, it is prudent to allow all elements of the EWP to be

fully implemented before considering any changes to Priority Environmental Assets and Priority Ecosystem Functions. Recommendation 9 is that the MDBA will consider whether Priority Environmental Assets and Priority Ecosystem Functions require updating with best-available science for the 2026 Basin Plan review. Any updates to the concepts would incorporate knowledge gained from environmental watering practice and be made in consultation with Basin state governments.

In closing this discussion about adaptive management, it is worth noting that the 2017 Basin Plan evaluation found that opportunities exist to identify the full suite of monitoring in the Basin, and for this information to be better integrated and more accessible. While this finding is important, it is not within the scope of the EWP review. However, MDBA's new Monitoring Strategy project will invest and co-ordinate better monitoring and reporting for environmental, social and economic conditions in the Basin.

Recommendations

Recommendations	Timing
<p>5. The MDBA working with environmental water holders will further investigate ways to better communicate information and complex narratives around environmental water management.</p> <p>The MDBA should also consider communications that explain the influence of a changing climate and other external drivers on environmental water management.</p>	Now
<p>6. The MDBA will continue to improve and adapt the approach to the Basin Annual Environmental Watering Priorities and promote a culture of learning and adaptation.</p>	Now
<p>7. The MDBA should consider removing redundant (or out of date) provisions in the Environmental Watering Plan, for example, those targets that apply up to 2019 and reviewing the Basin-wide Watering Strategy five years after it was first made.</p>	2026 Basin Plan review
<p>8. The MDBA will continue to use new adaptive management research and the MDB Water Environment Research Program and the Basin Science Platform to address knowledge gaps.</p>	Now
<p>9. The MDBA will consider examining whether the concept of Priority Environmental Assets and Priority Ecosystem Functions requires updating with the best-available science for the 2026 Basin Plan review.</p>	2026 Basin Plan review

6. Climate adaptation and objectives and target setting

Findings

The achievability of objectives and targets in a changing climate was strongly emphasised in the review. Achievement of targets for all sites under a changing climate will need to be considered at the 2026 Basin Plan review. However there are multiple ways of responding to a changing climate; it is not as simple as reducing targets and it depends on how resilience to a changing climate is addressed both in environmental watering and water management more broadly.

Water-dependent ecosystems, for instance, will adapt in complex ways to a changing climate and understanding these adaptations will inform different approaches to environmental watering. Recommendation 10 states that the MDBA should investigate the potential for future updates to the Strategy to acknowledge the influence of a changing climate on water-dependent ecosystems. Recommendation 11 emphasises the need to review all targets under a changing climate in the longer-term. Any future updates to the targets will be made in consultation with Basin state governments in the lead up to the 2026 Basin Plan review.

Future work under climate adaptation should also consider how to define the sub-set of all water-dependent ecosystems that will be protected and restored. This should consider whether the sub-set be defined by the CAR principles (Comprehensive, Adequate, Representative) or if it should be more closely linked to international treaty obligations (e.g. RAMSAR) or relevant Threatened Species lists. Recommendation 12 note the potential to add further clarity at the 2026 Basin Plan review and to draw on the latest scientific thinking.

The review identified that the Schedule 7 targets lack detail about what is to be achieved, but there is a clear line of sight between these targets and the more specific expected environmental outcomes in the Strategy. As the Strategy is the most appropriate instrument for SMART expected environmental outcomes, it should seek to improve the SMARTness of outcomes for river flows and connectivity, native vegetation, waterbirds and native fish based on their capacity to assist Basin Plan evaluation. This was also identified in the [Basin-wide Environmental Watering Strategy 2019 review](#) and forms the basis for Recommendation 13.

The review strongly emphasised the need for there to be a clearer line-of-sight between objectives and targets. Developing a guide to the EWP would help communicate this line-of-sight to wider audiences than environmental water managers and holders and river operators. Recommendation 14 states that the MDBA will consider better communicating how EWP objectives and targets are linked to expected environmental outcomes in the Strategy. Similarly, Recommendation 15 considers communicating how basin-scale objectives, targets and outcomes link to those written at a catchment scale. This could also be supported by the guide to EWP implementation (see Recommendation 19).

While most review participants deemed the targets ‘fairly appropriate’ or ‘extremely appropriate’ ([Figure 5](#)), potential future improvements to the Schedule 7 targets were identified ([Table 1](#)). These

improvements were related to having a better ecological knowledge base and greater appreciation of what makes for an effective indicator. However, as the targets were generally supported, the minor conceptual concerns raised here can be addressed through the Strategy. Recommendation 16 suggests that there is an opportunity for Schedule 7 Targets to be revisited in the 2026 Basin Plan review using best-available scientific knowledge. As noted earlier, any updates to the targets would be made in consultation with Basin state governments during the 2026 Basin Plan review.

The review found that some LTWPs do not draw on enough ecological information when defining Priority Environmental Assets and Priority Ecosystem Functions. Detailed ecological information is important to support planning and coordination of environmental water. Review respondents noted that the LTWPs were variable in effectiveness and there was no overall assessment of the extent to which LTWPs collectively achieve Basin-scale environmental objectives. Recommendation 17 states that the MDBA will continue to provide advice and support Basin state governments as needed to update and review LTWPs so they include enough ecological information for Priority Environmental Assets and Priority Ecosystem Functions.

Schedule 7 - Longer term targets that apply from 1 July 2019	Potential improvements
(2) (a) flow regimes which include relevant flow components set out in paragraph 8.51(1)(b)	Review participants expressed a concern with the appropriateness of focusing on a hydrology and flow regime rather than environmental outcomes.
(2) (b) hydrologic connectivity between the river and floodplain and between hydrologically connected valleys	Review participants expressed concern about the appropriateness of focusing on a hydrology and flow regime rather than environmental outcomes.
(2) (c) river, floodplain and wetland types including the condition of priority environmental assets and priority ecosystem functions	Review participants strongly supported this target.
(2) (d) condition of the Coorong and Lower Lakes ecosystems and Murray Mouth opening regime	Murray Mouth and Coorong targets being met through Basin Plan mechanisms alone was flagged as potentially unachievable under a changing climate.
(2) (e) condition, diversity, extent and contiguousness of native water-dependent vegetation	Contiguousness and extent of vegetation are measures of how physically connected habitat is and largely determined by land use decisions. Assessing native vegetation using condition indicators is more appropriate as these are linked to water management.

Schedule 7 - Longer term targets that apply from 1 July 2019	Potential improvements
(2) (f) recruitment and populations of native water-dependent species, including vegetation, birds, fish and macroinvertebrates	<p>Macroinvertebrates have not been monitored since Basin Plan commencement, making it difficult to assess this target.</p> <p>The Sustainable Rivers Audit and Australian River Assessment System demonstrated that macroinvertebrates are non-responsive bio-indicators in the Basin, except in the high-gradient upland streams. Removal of macroinvertebrates suggested.</p> <p>The term 'recruitment' is arguably covered by the term 'populations'.</p>
(2) (g) the community structure of water-dependent ecosystems	<p>The term 'community structure' in the context of water-dependent ecosystems is ambiguous.</p> <p>Community structure in ecology means the types and numbers of species present and in this case, present in water-dependent ecosystems.</p>

Table 1: Schedule 7 Targets with potential improvements

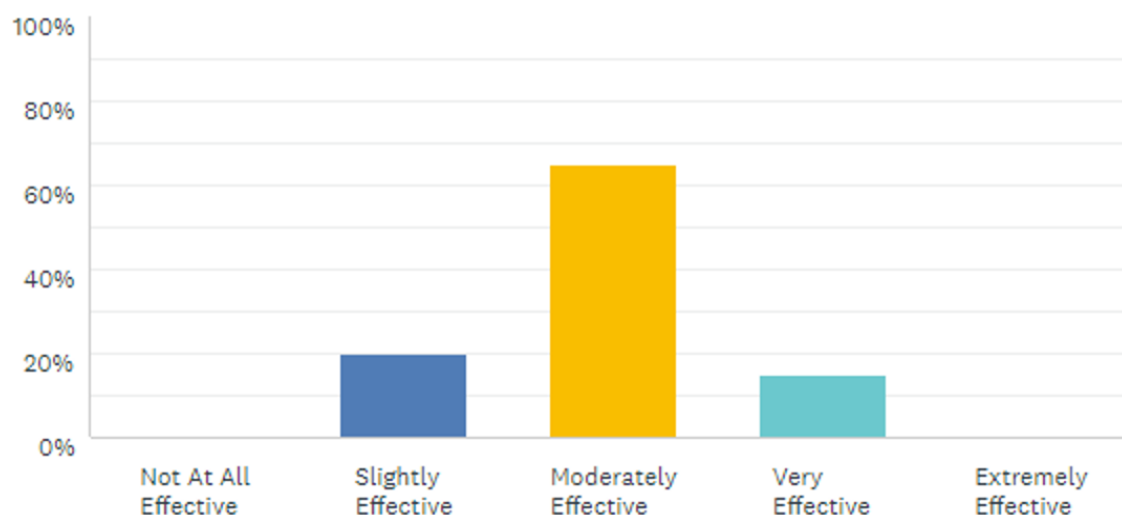


Figure 5: Internal Review - How effectively do Targets (Schedule 7 – applying from 2019) measure progress towards Part 2 overall environmental objectives (n=20 respondents)

Recommendations

Recommendations	Timing
10. The MDBA will investigate the potential for future updates to the Basin-wide Environmental Watering Strategy to acknowledge the influence of a changing climate on water-dependent ecosystems.	Basin-wide Environmental Watering Strategy 2022
11. The MDBA will consider the achievement of targets for all sites under a changing climate. The MDBA will also consider adding detail to the term ‘sufficient’ in 8.06(3)(c) and 8.06(3)(e) so that they better link with the overall objective.	2026 Basin Plan review
12. The MDBA will consider adding detail to the term ‘subset’ to make it clear that the “subset of all water-dependent ecosystems” is a comprehensive, adequate and representative subset of water-dependent ecosystems that rely on Basin-scale processes and are linked to international treaty obligations.	2026 Basin Plan review
13. The Basin-wide Environmental Watering Strategy 2022 will investigate the potential to make its expected environmental outcomes SMARTer (Specific, Measurable, Achievable, Relevant, and Timebound).	Basin-wide Environmental Watering Strategy 2022
14. The MDBA will consider better communicating how EWP objectives and targets are linked to outcomes in the Basin-wide Environmental Watering Strategy.	Now
15. The MDBA will consider better communicating how Basin-scale objectives, targets and outcomes link to those written at valley/water resource plan area scales.	2026 Basin Plan review
16. The MDBA will consider reviewing the Schedule 7 Targets using best-available scientific knowledge for the 2026 Basin Plan Review.	2026 Basin Plan review
17. Long-Term Watering Plans should draw on relevant ecological information for Priority Environmental Assets and Priority Ecosystem Functions in determining Environmental Watering Requirements.	2022/2023 LTWPs update 2026 Basin Plan review (if required)

7. Alignment within the Environmental Watering Plan and to other Basin Plan chapters

Findings

As noted earlier, the review found that the annual Basin priorities were the least effective component of the Environmental Management Framework ([Figure 2](#)). Publication of the priorities in late June of each year was considered too late to influence regional environmental water planning. To remedy this, some respondents suggested that the Basin priorities could shift to multi-year priorities with a more strategic focus. Others suggested retaining an annual cycle as it allows for further approaches to be trialled.

The MDBA is exploring a new approach for the 2021-2022 water year, in collaboration with Basin state governments and the CEWO. This approach seeks to reduce duplication of State planning process while retaining a Basin-wide perspective. Recommendation 18 states a commitment to reviewing methods for developing the Basin priorities, and continued inclusion of multi-year rolling priorities. This will ensure better alignment with other instruments in the Environmental Management Framework.

The review found that the alignment and hierarchy of components within the EWP was difficult to interpret. Chapter 8 is not understood much beyond the practitioners involved in writing it, and there is currently no compelling explanation of how it works. This issue can be addressed through better communicating the relationship between different requirements of the EWP and does not require legislative changes. Recommendation 19 suggests a guide to the EWP would help explain the relationship between the EWP's components.

Improved alignment between the long-term targets in the Strategy and the LTWPs was found to be important. The next update to the Strategy and LTWPs provides an opportunity to explain the 'objectives hierarchy' that links Basin-scale outcomes with regional-scale targets. This would improve alignment without the need for legislative amendment. Recommendation 20 states that the MDBA will continue to provide advice to Basin state governments on linkages between targets in the Strategy and LTWPs.

Some respondents noted that the two sets of Principles in the EWP [Part 4, Division 6 and Part 6, Division 1 respectively] were unclear and/or duplicative. Given strong support by practitioners for both sets of environmental watering principles being 'fairly' or 'extremely effective' in the review, clarifying their different purposes is a communication matter. Recommendation 21 states that the purpose of the different sets of principles will be communicated via a guide to the EWP for practitioners and the public.

Improving linkages between the EWP and other chapters of the Basin Plan is also vital. However, this would involve revision of other components of chapters 5, 9 and 10 of the Basin Plan. For this reason, Recommendation 22 suggests that these linkages be considered at a full review, such as the 2026 Basin Plan review.

Recommendations

Recommendations	Timing
18. The MDBA will continue to include multi-year rolling priorities in the Basin Annual Environmental Watering Priorities.	Now
19. The MDBA will investigate the benefits of developing a ‘guide to Chapter 8 implementation’ that is accessible to practitioners and the public.	Now
20. The MDBA will continue to provide advice on linkages between targets in the Basin-wide Environmental Watering Strategy and Long-Term Watering Plans.	Now
21. The MDBA will investigate the development of a ‘guide’ to Chapter 8 that includes better communication of the purposes of the EWP ‘principles’.	Now
22. The MDBA should consider improving the links between Chapter 8 and chapters 5, 9 and 10.	2026 Basin Plan review

8. Regulatory power and interpretation

Findings

The review identified the need for genuine collaboration with Basin state governments, the CEWO, and in particular local community stakeholders in environmental water planning and delivery. Improving stakeholder understanding of how water for the environment is used is a pre-requisite to meaningful collaboration. Recommendation 23 suggests considering ways to foster water literacy over the long-term for stakeholders.

The review identified the importance of alignment between Chapter 5 (Management Objectives) and Chapter 8 of the Basin Plan. The objective set out in section 5.03(1)(d) of the BP - *to ensure that environmental watering is co-ordinated between managers of planned environmental water, owners and managers of environmental assets, and holders of held environmental water* - is absent from the EWP. Given the central role the EWP plays in co-ordinating the planning, prioritisation and use of environmental water, it would be prudent to ensure the co-ordination aspect is strengthened. Recommendation 24 suggests this be considered in the 2026 Basin Plan review.

There is a need to consider if the Environmental Watering Requirements between LTWPs should be more integrated. The River Murray channel and the Barwon–Darling LTWPs were the two examples cited in the review. Future revisions of LTWPs could consider how to improve alignment and co-ordination between different states for the River Murray. Likewise, reviewing the Barwon–Darling LTWP could focus on better integration with other LTWPs in the northern Basin and the Lower Darling LTWP to improve connectivity. Recommendation 25 states that MDBA will continue to provide advice and support state co-ordination during future revisions of LTWPs.

The review found that the current principles and method for applying environmental water offer enough flexibility to river operators to trial new approaches in environmental watering. The provisions in section 8.42 and 8.43 (Principles 10 and 11), and section 8.62 (Seasonal, operational and management considerations) consider delivery feasibility and allow for increasing sophistication in water delivery. The review also found that river operations guidelines provide appropriate oversight with the EWP. While the MDBA could consider clarifying the roles of environmental water committees to maximise effectiveness of delivery decisions, the adequacy of the Part 6 principles and method means no change is needed (Recommendation 26).

There are two important factors in protecting environmental water to have its full intended purpose. First, recognising the importance of non-consumptive non-environmental water in contributing to environmental outcomes. Second, protecting held environmental water passing through catchments. There are a range of state mechanisms in place to deal with these two factors; for example, the protection of held environmental water has been agreed to in principle for NSW and Queensland in the Northern Basin Toolkit. However, not all toolkit provisions are in effect. As such, recommendations 27 and 28 flag that the 2022 Strategy update is the most appropriate instrument to consider progress with these two broad water co-operation issues.

The review found the guidance provided to prepare LTWPs should be improved. This would occur after the 2022 Strategy update and would involve asset managers and environmental water holders assisting preparation of this guidance. This is consistent with the 2018 Productivity Commission report (recommendation 11.2). Recommendation 29 affirms that the MDBA will continue to provide advice and shared learning across jurisdictions to support the development of future LTWPs.

The review considered whether the regulatory powers provided in the EWP are sufficient for compliance and audit activities. This included whether elements of the Environmental Management Framework required an outcomes or process-based audit versus compliance with principles. Both the principles provided for applying environmental watering [Part 4, Division 6] and the principles for determining priorities for environmental water [Part 6] were assessed as preferable to a prescriptive process, as they better considered practical constraints in conditions and reflected trade-offs between principles. However, there is also a need to deliver accountability for water use, both for water for the environmental and more broadly.

During the course of this review, the MDBA's compliance functions were transferred to an Inspector-General of Water Compliance to ensure strong and independent regulation.

Recommendations

Recommendations	Timing
23. The MDBA should consider ways to foster increasing water literacy over the long-term for stakeholders.	Now
24. The MDBA should consider carrying over this provision [s5.03(d)] verbatim from Chapter 5 of the Basin Plan in the 2026 Basin Plan review.	2026 Basin Plan review
25. The MDBA will continue to provide advice and support Basin state governments as needed to update and review Long-Term Watering Plans.	2023 LTWP review
26. The MDBA will retain flexibility in the EWP provided via the principles for delivering and prioritising environmental water delivery.	Now
27. The MDBA may consider broad water co-operation issues in the Basin-wide Environmental Watering Strategy 2022, including the contribution of non-consumptive non-environmental water to environmental outcomes.	Basin-wide Environmental Watering Strategy 2022
28. The MDBA may consider broad water co-operation issues in the Basin-wide Environmental Watering Strategy 2022, including the shepherding of Held Environmental Water between multiple catchments.	Basin-wide Environmental Watering Strategy 2022
29. The MDBA will continue to provide Long-Term Watering Plan advice, and shared learning across jurisdictions are facilitated through relevant environmental watering committees.	Now

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