

# Information collection template for water year 2017–18 (MDBA)

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## Table of Contents

Reporting context .....	1
A. Risk Management.....	2
B. Local Knowledge and Stakeholder Engagement.....	5
C. Environmental Watering.....	10
D. Critical Human Water Needs .....	17
E. Water Quality and Salinity Management .....	20
F. Water Trading.....	29
G. Reporting Requirements.....	31
H. Water Resource Plan.....	34
I. Sustainable Diversion Limit (SDL) Implementation, SDL Adjustment & Constraints Management .....	37
J. Reviews of the Basin Plan .....	41
K. Assessing Inflows .....	<b>Error! Bookmark not defined.</b>
Attachment A: Theme B - Basin Environmental Watering Priorities (BAEWP) for reference in reporting why watering not undertaken in accordance, under BPs8.44 .....	45

## The Murray-Darling Basin Authority (MDBA) 2017–18 Annual Report to satisfy reporting obligations for:

- Basin Plan Schedule 12 responses (except Matter 9.3 – use of environmental water, which is reported separately).
- Basin Plan Implementation Agreement (BPIA) self-assessment of progress with implementation tasks.

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## Reporting context

This reporting template addresses the MDBA’s Basin Plan annual reporting obligations for 2017-18 water year. It includes annual reporting as required under Schedule 12 of Basin Plan, as well as reporting against the 2017-18 requirements of the Basin Plan Implementation Agreement.

The completed report will be reviewed by the Independent Audit Committee for completeness and accuracy.

In completing the template you are encouraged to refer to previously published material where appropriate, so as to maintain consistency and minimise any additional reporting burden.

## A. Risk Management

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<b><i>The effectiveness of the management of risks to Basin water resources (s4.03)</i></b>		
<p><b>A1</b> Implementation and management of the risk strategies under s4.03 (3) of the Basin Plan.</p> <p><i>Applicable to Schedule 12 Matter 4, Indicator 4.1 and BPIA Task 39.1</i></p>	<p>How regard was had to the risk strategies.</p>	<p>The Northern Basin Review was completed using best available knowledge, including some acquired from research commissioned specifically for the Northern Basin Review. An interim evaluation of Basin Plan implementation and outcomes was completed in 2017-18.</p> <p>MDBA commissioned an independent expert review of the risks posed by changes in return flows to the surface water resources of the Basin (due for completion in October 2018).</p> <p>MDBA has implemented all of its responsibilities under the Environmental Watering Plan (BP CH 8).</p> <p>Water for the environment coordinated through the Southern Connected Basin Environmental Watering Committee (SCBEWC), and planning, use and monitoring of the jointly managed water portfolios of The Living Murray Initiative (TLM) and River Murray Increased Flows (RMIF), contributed to implementation of two of the risk management strategies under s4.03 (3) of the Basin Plan. Namely the environmental watering plan (3ai) and the water quality and salinity management plan (3aia). See responses to C2 and E2 respectively.</p> <p>Further s4.03 (3):</p> <p>(c) to promote a risk-based approach to water resource planning and management</p> <p>The Southern Connected Basin Environmental Water Committee (SCBEWC) has a risk management strategy to identify, evaluate and control risks associated with coordinating the delivery of environmental water and a risk management framework for managing salinity spikes. Jointly held environmental water has been delivered to support the health of the River Murray for over 10 years and a range of management arrangements and tools have been developed to assist decision making about the use of environmental water with regards to managing salinity and water quality risks. (see C2 and E2 for further detail of these arrangements and tools)</p> <p>(e) to ensure effective monitoring and evaluation of the implementation of the Basin Plan</p> <p>The jointly managed water portfolios of The Living Murray Initiative (TLM) and River Murray Increased Flows (RMIF) includes investment in both site condition and</p>

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		<p>intervention monitoring to enable effective learning, adaptive management, and risk mitigation. Condition monitoring information contributes to reporting on Schedule 7 (targets to measure progress towards Chapter 8 Environmental Watering Plan objectives), with monitoring data helping to report on the condition of some of the key environmental assets of the Basin - six significant wetland and floodplain forest sites along the River Murray.</p> <p>A new report tracking condition over the past ten years, based on the site condition monitoring data, was released in May 2018. Annual updates will be added to this baseline, and into the future will be used to support asset scale condition reporting (contribution to Matter 8 reporting and Basin Plan evaluation 2020).  <a href="https://www.mdba.gov.au/publications/mdba-reports/living-murray-icon-site-condition-report">https://www.mdba.gov.au/publications/mdba-reports/living-murray-icon-site-condition-report</a></p> <p>(g) to improve knowledge of water requirements within the Murray-Darling Basin, including the following</p> <p>(i) environmental watering requirements;  Through SCBEWC coordination and information sharing efforts, environmental water holders and river operators have improved their knowledge of environmental water requirements for key environmental assets and functions in the Murray-Darling Basin. Information sharing and actions across multiple environmental water holders has occurred through the planning, delivery, monitoring and evaluation of environmental watering actions, often as part of shared actions using a range of held environmental water portfolios.</p> <p>For example, 2017/18 saw the introduction of an annual report card for each of the six river Murray sites. This annual monitoring report card includes a snapshot of change in condition (performance against icon site ecological objectives), and emerging learnings from intervention monitoring. Trends and monitoring findings were explicitly considered as part of the SCBEWC annual planning process when determining priority sites and coordination opportunities for use of water for the environment. This explicit linking of monitoring results back into the planning process helps improve knowledge of environmental watering requirements in the Southern Basin.</p> <p>(ii) requirements relating to the social, spiritual and cultural uses of Basin water resources by Indigenous people;  In 2017/2018 there was an Indigenous Partnerships Program forum, held in Renmark in</p>

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		<p>May 2018. The Indigenous Partnerships program brings aboriginal knowledge, cultural values and perspectives to the planning and manager of the River Murray's icon sites (<a href="http://www.mdba.gov.au/thelivingmurray">http://www.mdba.gov.au/thelivingmurray</a>). The IPP provides a model of maturing Aboriginal engagement in water resources management. The IPP has run for over 10 years and has demonstrated the following benefits:</p> <ul style="list-style-type: none"> <li>• Stronger connection with culture, land and water: leading to an improved community well-being.</li> <li>• Shared benefits: Tangible and culturally significant environmental outcomes</li> <li>• Capacity building in water and river management: leading to improved community capacity and knowledge of water and river management.</li> <li>• Cultural sharing and understanding: Aboriginal involvement in decision-making has led to a closer relationships with local land manager, helping government and catchment agency staff to understand the Indigenous perspectives.</li> </ul> <p>The partnerships developed, the successes and the lessons learned from the IPP are being used to work with other programs, such as the Aboriginal Waterways Assessments, to establish cultural objectives to be considered with environmental objectives for environmental water use.</p> <p>The IPP is well placed to test knowledge learned through the Aboriginal Waterways Assessments and Cultural Flows Research Project to improve the management of environmental water and facilitate two-way learning between government agencies and community groups.</p> <p>(iii) the impact of climate change on water requirements;</p> <p>Environmental water holders plan for all potential climate scenarios to maximise opportunities and mitigate risks. Monitoring and evaluation projects allow learnings and outcomes from one year's actions to be incorporated into future planning, and this underpins a successful adaptive management approach responsive to a variable and changing climate.</p>
<b>Strategies to manage or address identified risks (s4.03)</b>		
<p><b>A2</b> Identify research priorities to address risks to Basin water resources.</p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will, through the Basin Plan Implementation Committee –</p>	<p>The MDBA's Knowledge Acquisition Framework (KAF) has been developed to provide a support tool to assist with identifying, sharing and prioritising knowledge needs across the MDBA. The KAF is comprised of nine theme areas (including climate change, hydrology and social and economic outcomes) which cover the key areas in which the MDBA</p>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<p><i>Applicable to BPIA Task 39.2</i></p>	<p>Water Resource Plan Working Group, identify research priorities to improve knowledge of the impact of climate change, interception activities, land use, floodplain harvesting, peri-urban and industrial take on Basin water resources in a manner consistent with the National Water Knowledge and Research Platform.</p>	<p>acquire new knowledge, including through the delivery of research, to assist with reducing risks of not having access to new knowledge to underpin decision making and water management.</p> <p>The National Water Knowledge and Research Platform is not an active strategy, however the MDBA are on the working group and contributing to the development of a Basin Science Platform (led by NSW DPI through the Basin Official Committee (BOC)) to help to identify key research priorities across the Basin.</p> <p>The Advisory Committee on Social, Economic and Environmental Sciences (ACSEES) will be assisting the MDBA will identifying research priorities for the climate change theme area, as a part of their work plan.</p>
<p><b><i>Guidelines to assist in implementing risk strategies (s4.04)</i></b></p>		
<p><b>A3</b> Develop guidelines that provide further advice on actions that may be taken to implement the risk strategies listed.</p> <p><i>Applicable to BPIA Task 40.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>If required, the MDBA will develop guidelines in consultation with BPIC and the BPIC – Water Resource Plan Working Group.</p>	<p>Guidelines for meeting Basin Plan requirements for developing water resource plans in accordance with the Basin Plan Chapter 10 Part 14 (Indigenous values and uses), and section 10.46 (monitoring) have been developed in consultation with BPIC and published at <a href="https://www.mdba.gov.au/publications/policies-guidelines/water-resource-plans-what-they-are-how-they-are-developed">https://www.mdba.gov.au/publications/policies-guidelines/water-resource-plans-what-they-are-how-they-are-developed</a>.</p> <p>Separately, the MDBA has also developed a guideline on meeting the requirements for Chapter 10 part 9 (risk assessment) and a suite of position statements to provide clarity and guidance to states in addressing a range of relevant Chapter 10 requirements. These position statements are publicly available on the MDBA website (as above) and have been distributed to the Basin States via BPIC and the BPIC WRPWG.</p> <p>The MDBA published its revised <a href="#">Compliance and enforcement policy</a> 2018–21 in June. The policy sets out MDBA’s approach to compliance and enforcement, including in relation to WRPs, under the Basin Plan and Water Act.</p> <p>The MDBA has commenced developing a WRP compliance framework, which will be made publicly available when complete.</p>

## B. Local Knowledge and Stakeholder Engagement

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<b><i>The extent to which local knowledge and solutions inform the implementation of the Basin Plan.</i></b>		
<p><b>B1</b> The outcome of engagement on the implementation of the Basin Plan.</p> <p><i>Applicable to Schedule 12 Matter 6, Indicator 6.1</i></p>	<p>Please describe the process and outcomes of local engagement for key BP implementation activities in 2017-18 as follows:</p> <p><b>Water Resource Plans:</b></p> <ul style="list-style-type: none"> <li>Any activities undertaken to increase Traditional Owners' capacity to participate in the development of WRPs, and improve engagement between water planners and Traditional Owners, in order to incorporate indigenous values and uses into WRPs (BP Ch10 Part 14). <i>*Part 14 notes the expectation that the Authority will consult with relevant Indigenous organisations in relation to whether the requirements of this part have been met</i></li> </ul> <p><b>Environmental watering:</b></p> <ul style="list-style-type: none"> <li>Describe the engagement process and how local knowledge, views and solutions influenced the planning and delivery of environmental water and the outcomes. This includes how the following were considered: <ul style="list-style-type: none"> <li>the views of local communities and persons materially affected by the management of environmental water (BP8.39 and NPA 8e)</li> <li>indigenous values (BP8.35)</li> </ul> </li> </ul> <p><b>Other Basin Plan implementation activities</b></p> <p>Describe how local knowledge and solutions identified through engagement with local communities, including Aboriginal communities, impacted on the implementation of other key Basin Plan mechanisms or activities including the development and implementation of SDL adjustment measures. (Reporters may also choose to address any of their other engagement priorities).</p> <p>Examples or case studies are not mandatory, but may be a useful way to describe how local knowledge and solutions inform implementation of the Basin Plan.</p>	<p><b>Environmental Water Coordination engagement:</b></p> <p>Where possible environmental water holders use existing state networks and forums to engage with communities. This can be via the Environmental Watering Advisory Groups in NSW, the Catchment Management Authority networks in Victoria, and the Community Advisory Panel in South Australia. Icon Site Managers work with local community groups to incorporate local knowledge and views into watering proposals which go to SCBEWC as part of the annual environmental water planning process each year.</p> <p>There has been a concerted effort across environmental water holders to improve engagement by improving our communications approach. In particular, the coordination and consistency in the way we communicate about water for the environment to make information more accessible to communities. Agencies have worked together to develop a communications framework to assist with this and work is underway to engage a coordinator to help all environmental water holders implement the framework.</p> <p>This has been supported by work to improve the utility of water for the environment information by updating the MDBA website to better meet audience needs (following market research). Work also commenced to support better information sharing of water use, monitoring results and stories from people in the basin about water for the environment and its outcomes.</p> <p><b>Environmental watering planning</b></p> <p>The MDBA consulted with Basin States and the Commonwealth Environmental Water Holder (CEWH) in developing the <i>Basin annual environmental watering priorities</i> (Priorities) for 2018-19 through a range of processes and forums. For example, the MDBA sought feedback on the Priorities for the previous water year from the CEWH, the Basin Plan Implementation Committee (BPIC) and its Environmental Watering Working Group (EWWG), the Southern Connected Basin Environmental Watering Committee (SCBEWC), the Northern Basin Aboriginal Nations (NBAN), Murray Lower Darling Rivers Indigenous Nations (MLDRIN) and the Basin Community Committee (BCC). We also conducted a survey of these and other stakeholders to improve our communications of the Priorities. MDBA staff also attended meetings of state advisory groups, where we had</p>

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<b><i>The extent to which local knowledge and solutions inform the implementation of the Basin Plan.</i></b>		
		<p>the opportunity of engaging with local communities on environmental watering matters.</p> <p>The MDBA consulted environmental water holders and Basin States, and other agencies and stakeholders in developing the Outlook for 2018-19. The Outlook sets out opportunities to achieve good outcomes for the Basin's environment and is an important part of how we consult to develop the priorities. We provided a draft for feedback and comments were considered in developing the final Outlook, which the MDBA published in April, 2018.</p> <p><b>Engagement in water for the environment planning</b></p> <p>Local knowledge, views and solutions were included in the SCBEWC annual water planning process through input when developing watering proposals. Watering proposals for a range of sites throughout the River Murray system were developed by site managers and other natural resource managers, with a range of other stakeholders typically providing input – views and ideas. This is generally through community advisory groups, led by the jurisdictions, including local communities, government agencies, land and waterway managers, scientists and Traditional Owners. SCBEWC then made decisions on which watering proposals to support. Use of water from the joint-government portfolios of The Living Murray Initiative and RMIF in 2017–18 was consistent with the decisions of SCBEWC.</p> <p><b>Considering indigenous values in environmental water planning</b></p> <p>The Living Murray Indigenous Partnerships Program (IPP) is an initiative established by Joint Governments to identify opportunities for Indigenous contribution in the planning and management of key sites and environmental watering activities. A review of the program in 2017 identified significant achievements by the program in supporting indigenous engagement in site management and environmental water planning. In May 2018, the first ever IPP forum was held in Renmark, bringing together Traditional Owners, Indigenous Facilitators, Icons Site managers and water management agencies, to share views and learnings across sites.</p> <p>Among the many things shared at the forum, attendees learned of:</p> <ul style="list-style-type: none"> <li>• work underway at Millewa forest to identify and protect burial sites when watering,</li> <li>• complementary land management practices to regenerate the forest in Gunbower</li> </ul>

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<b><i>The extent to which local knowledge and solutions inform the implementation of the Basin Plan.</i></b>		
		<p>forest via traditional burning, and</p> <ul style="list-style-type: none"> <li>• an example of linking IPP with other programs such as the Working on Country Ranger Program at Chowilla, in which indigenous rangers spoke of their work to map cultural sites such as burials and scar trees – using this information to inform the use of water for the environment at Chowilla.</li> </ul> <p>Activities under the IPP across the sites in 2017–18 included:</p> <ul style="list-style-type: none"> <li>• Indigenous community consultation on site-based environmental water planning (annual site plans and long-term environmental water management plans developed under the Basin Plan), cultural heritage management, pest management and ecological monitoring.</li> <li>• Facilitating Indigenous people to go out onto country to reconnect with cultural practices and traditions</li> <li>• Provision of job training in ecological monitoring (leaf litter, turtles, scar tree health, fish).</li> <li>• Improving capacity of indigenous communities to inform water management decisions by identifying and sharing cultural knowledge and values.</li> <li>• Direct assistance with ecological monitoring by scientists undertaking environmental monitoring.</li> <li>• Attendance and presentations at community events and other fora.</li> <li>• Intergenerational learning as a result of Elders and younger generations sharing time and stories on country.</li> <li>• Two-way learning between Traditional Owners, agency staff and scientists.</li> </ul> <p><b>Aboriginal environmental watering guidance project</b></p> <p>The MDBA progressed its work with MLDRIN and NBAN on ways to integrate Aboriginal people’s perspectives into environmental water planning. This includes developing guidance on Aboriginal Nations’ cultural objectives and outcomes for environmental water across the Basin.</p> <p>On 21 February 2018 the MDBA held a joint Water Resource Planning workshop with Aboriginal representatives from Northern Basin Aboriginal Nations and Murray Lower Darling Indigenous Nations as well as Basin states. The workshop looked at water resource plan timeframes; Basin Plan requirements for Chapter 10, Part 14 (Indigenous values and uses); the WRP accreditation process; and links between water resource</p>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<i>The extent to which local knowledge and solutions inform the implementation of the Basin Plan.</i>		
		<p>planning and the outcomes from the National Cultural Flows Research project.</p> <p>One of the actions arising from the workshop was for the MDBA to undertake ongoing discussions with MLDRIN and NBAN on water resource planning. To this end, the MDBA has established regular, fortnightly teleconferences with MLDRIN and NBAN to discuss WRP progress and development.</p>

## C. Environmental Watering

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<b>Basin annual environmental watering priorities (ss8.27 - 8.31, 8.04 - 8.07, 8.14(2) (a) (i), 8.49 - 8.51, 8.33 - 8.43, 8.53 - 8.59; Schedules 8 &amp; 9)</b>		
<p><b>C1</b> Prepare Basin annual environmental watering priorities each year, with the required content, published, reviewed and updated as obligated under Chapter 8, Part 4, Divisions 2-5</p> <p><i>Applicable to Schedule 12 Matter 10, Indicator 10.1 and BPIA Task 51.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <ul style="list-style-type: none"> <li>a) In consultation with Basin States and the CEWH, the MDBA will review the framework for development of Basin annual environmental watering priorities, based on feedback and evaluation of previous year's priorities.</li> <li>b) The MDBA will provide advice to Basin States in developing their annual environmental watering priorities, if requested.</li> <li>c) The MDBA will consult with environmental water holders and Basin States on the proposed Basin annual environmental watering priorities through the BPIC – Environmental Watering Working Group.</li> <li>d) The MDBA will have regard to the annual environmental watering priorities provided by the Basin States.</li> <li>e) The MDBA will develop the draft Basin annual environmental watering priorities via multilateral consultation through BPIC – Environmental Watering Working Group, and bilateral consultations with Basin States and the CEWH.</li> <li>f) The MDBA will publish the Basin annual environmental watering priorities.</li> </ul>	<ul style="list-style-type: none"> <li>a) The MDBA consulted with Basin States and the Commonwealth Environmental Water Holder (CEWH) to review the framework for developing the <i>Basin annual environmental watering priorities</i> (Priorities) for 2018-19. This was done through a range of processes and forums, including an online survey and discussions with BPIC's Environmental Watering Working Group (EWWG). This feedback and advice was used to develop the 2018-19 Outlook and Priorities.</li> <li>b) The MDBA did not receive any requests from the Basin states to provide advice for the preparation of state annual watering priorities. However, the Southern Connected Basin Environmental Watering Committee sought strategic guidance from the MDBA to inform their water planning for the year ahead.</li> <li>c) The MDBA consulted environmental water holders and Basin States, and other agencies and stakeholders in developing the Outlook and the Priorities for 2018-19. This included consulting on a draft of the Outlook and taking account of advice prior to releasing a final version in April, 2018. The MDBA provided draft Priorities to the EWWG and considered feedback received when developing a draft of the 2018-19 Priorities report. The draft report was provided to EWWG for comment in May 2018 and feedback was considered in finalising the report, which the MDBA published in June 2018.</li> <li>d) The MDBA considered the Basin states' annual watering priorities provided to it in May and June 2018 and found that the state priorities generally complemented the Basin-wide priorities. This involved consultation on the needs and opportunities for environmental watering within the framework provided by the Basin Plan and the Basin-wide environmental watering strategy.</li> <li>e) As mentioned above, BPIC's EWWG, Basin states and the CEWH were consulted during the development of the 2018-19 Outlook and Basin states' annual watering priorities. As a result of this consultation process and further analysis, the Priorities now feature a combination of annual and multi-year</li> </ul>

		<p>environmental watering priorities for different water availability scenarios. This approach is better suited to the multi-year watering regimes that are needed for long-term environmental recovery. Rolling multi-year priorities are more responsive to opportunities that may arise under different water availability scenarios and provide more flexibility for environmental water managers to manage their portfolios to meet the Basin priorities</p> <p>f) The MDBA published the Basin annual environmental watering priorities for 2018-19 on 27 June 2018.</p>
	<p>g) The MDBA will seek stakeholder feedback on the process for developing Basin annual environmental watering priorities to inform the process in the following year.</p>	<p>The MDBA sought feedback from the Commonwealth Environmental Water Holder (CEWH), the Basin Plan Implementation Committee (BPIC) and its Environmental Watering Working Group (EWWG), the Southern Connected Basin Environmental Water Committee (SCBEWC), the Northern Basin Aboriginal Nations (NBAN), Murray Lower Darling Rivers Indigenous Nations (MLDRIN) and the Basin Community Committee on the process for developing Basin annual environmental watering priorities. This informed the preparation of the 2018-19 outlook and priorities. Engagement activities included attendance at meetings and an online survey. The 2018-19 priorities also included a Statement of Commitment to incorporating Aboriginal environmental values and outcomes into Basin environmental watering priorities.</p>
	<p>h) The MDBA will evaluate whether priorities are met, based on annual reporting requirements and reporting of where Basin annual environmental watering priorities are not followed and review the prioritisation framework and process.</p>	<p>The following advice was provided by the States in relation to whether the Basin annual environmental watering priorities for 2017-18 had been met:</p> <ul style="list-style-type: none"> <li>• South Australia, Queensland and the ACT reported that environmental watering was undertaken in accordance with the Basin-wide annual environmental watering priorities for 2017-18.</li> <li>• Victoria reported that two of the 26 Basin annual watering priorities were not fully met because feral pig predation disturbed an Ibis breeding event at Boals Deadwood in Barmah-Millewa Forest; and watering for Moira grass in Millewa Forest was prioritised over Barmah Forest, although flows achieved some benefits for Moira grass in Barmah Forest.</li> <li>• NSW reported that three environmental watering events deviated from the Basin annual environmental watering priorities. NSW mentioned that all three events involved in-channel deliveries to improve ecosystem resilience and fringing riparian vegetation. There were no overbank flows associated with the deliveries and therefore these events did not meet MDBA priorities for vegetation.</li> </ul> <p>The MDBA took account of whether the 2017-18 priorities had been met in developing the 2018-19 Basin annual environmental watering priorities.</p>

**The implementation of the environmental management framework (Chapter 8, Part 4)**

<p><b>C2</b> Watering strategies, plans and priorities are prepared consistently with Chapter 8, Part 4 in relation to coordinating, consulting and cooperating with other Reporters and the matters to which regard must be had (Chapter 8, Part 4)</p> <p><i>Applicable to Schedule 12 Matter 10, Indicator 10.2</i></p>	<p>Please describe progress in coordinating, consulting or cooperating with other Basin jurisdictions on the management and delivery of environmental water and opportunities for improvement.</p>	<p>The Southern Connected Basin Environmental Watering Committee (SCBEWC) is the forum that supports coordination of environmental water delivery across multiple water holders and jurisdictions in the Southern Basin. SCBEWC brings together agencies to coordinate and manage environmental water across the Commonwealth, New South Wales, Victorian and South Australian governments.</p> <p>In order to streamline planning processes and avoid duplication, SCBEWC incorporates two distinct functions: the coordination of environmental water across the southern connected Basin (facilitation), and decision making on a number of jointly held water portfolios and joint natural resource management program elements. This approach ensures effective coordination across multiple water portfolios while allowing different environmental water holders to make independent decisions.</p> <p>Key to the effectiveness of SCBEWC is its broad membership, collaboration and consultation - providing all relevant stakeholders involvement and shared responsibility in the effective and efficient management of water for the environment.</p> <p>Environmental water managers and river operators are working more closely together to improve outcomes for the river system. Increasingly they assess how various plans and real-time actions link together to start to look for opportunities to adjust watering actions to better meet the ecological needs of multiple parts of the southern connected basin. This emerging system-wide approach ensures that outcomes achieved at individual sites supports the Basin Environmental Watering Strategy for the benefit of a healthier and more productive basin.</p> <p>The MDBA's 2017 evaluation of the Basin Plan found that by 2016-17, over a third (37%) of all environmental watering events were coordinated events involving multiple environmental water holders. This increasing collaboration is seeing environmental water managers combine their water to achieve larger and more effective events than would otherwise be possible.</p> <p>SCBEWC develops operational scenarios before the start of the year to assist with coordinating the use of environmental water and identifying commitments for water held as part of the joint portfolio under The Living Murray and RMIF. During the year, environmental water holders regularly communicate to discuss the potential for initiating watering actions and monitoring the progress of current actions.</p> <p>SCBEWC planning considers a range of matters including:</p> <ul style="list-style-type: none"> <li>• Requirements of the Basin Plan including the Basin-Wide Environmental Watering Strategy and Basin Annual Environmental Watering Priorities,</li> <li>• Having regard to Water quality targets in s9.14</li> <li>• SCBEWC agreed operating, channel capacity and coordination principles</li> <li>• Watering proposals under a range of water availability scenarios (dry to wet),</li> <li>• Regular discussion of opportunities for coordination amongst environmental water holders and broader planned river operations,</li> </ul> <p>Identification of potential delivery constraints and risks and mitigation strategies.</p>
<p><b>C3</b> How environmental</p>	<p>Provide at least one case study that demonstrates how environmental</p>	<p>The Southern Connected Basin Environmental Watering Committee (SCBEWC) plans</p>

<p>watering principles were applied consistent with Chapter 8, Part 4, Division 6.</p> <p><i>Applicable to Schedule 12 Matter 10, Indicator 10.3</i></p>	<p>watering principles were embedded in the decision-making process and identify the relevant principles. Please note it is not necessary to address each of the 11 Principles individually. Responses can include links to published case studies for further detail.</p> <p>Please provide reasons for any environmental watering that was not undertaken in accordance with the Basin annual watering priorities listed at Att A (partially/fully), in accordance with Section 8.44 of the Basin Plan and Principle 1.</p>	<p>and coordinates the delivery of environmental water in the Southern Connected Basin consistent with the environmental watering principles and in accordance with Basin annual watering priorities.</p> <p><b>Principle 1:</b> Environmental watering to be undertaken having regard to the Basin annual environmental watering priorities</p> <p><b>Principle 2:</b> Consistency with the objectives for water-dependent ecosystems</p> <p><b>Principle 3:</b> Maximising environmental benefits</p> <p><b>Principle 4:</b> Risks</p> <p><b>Principle 5:</b> Cost of environmental watering</p> <p><b>Principle 6:</b> Apply the precautionary principle</p> <p><b>Principle 7:</b> Working effectively with local communities</p> <p><b>Principle 8:</b> Adaptive management</p> <p><b>Principle 9:</b> Relevant international agreements</p> <p><b>Principle 10:</b> Other management and operational practices</p> <p><b>Principle 11:</b> Management of water for consumptive use</p> <p><b>Example: Making best use of all water in the river (Principles 1, 2, 3, 5, 8, 10, 11)</b></p> <p>An example of making the best use of water was the recent delivery of over 180 GL of water for the environment in spring 2017, using water available from the Commonwealth Environmental Holder, the Victorian Environmental Water Holder, and joint-government water portfolios (The Living Murray, and RMIF, administered by the MDBA and where consensus decisions are made by the Southern Connected Basin Environmental Watering Committee). This event was coordinated with the delivery of other parcels of water, including water being released to meet consumptive demands.</p> <p>The delivery of a combination of water sources enabled more widespread watering of wetlands in the Barmah-Millewa Forest, at the right time of year in spring/early summer, to improve the growth of wetland plants such as the threatened Moira grass and trigger water bird breeding that could then be supported with targeted deliveries of environmental water over summer. Importantly this allowed follow up watering to the high natural flows that were experienced in 2016 – a management action to consolidate the strong ecological response to flooding that will help build resilience. The delivery was coordinated with operational transfers allowing the management of water for consumptive use, consistent with achieving environmental objectives.</p> <p>Water returning from this spring 2017 event was then used to supplement other watering activities elsewhere to link other rivers and wetlands through the system. The water that flowed out of the Barmah-Millewa Forest, plus water coming from an environmental watering event in the Goulburn River, were used to meet a large portion of the 112 GL pumped into Hattah Lakes in 2017 (a Ramsar listed wetland of international significance).</p> <p>This delivery, using pumping infrastructure, capitalised on the Hattah Lakes already being</p>
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		<p>partially filled and enabled the flows to reach stressed black box trees which hadn't been flooded since 1993 and were in a poor condition. The remaining water from the upstream events (and outflows from the Hattah Lakes once the lakes were drawn back down) then flowed through the remainder of the River Murray to provide connectivity all the way to the end of system at the Coorong and Murray mouth. This level of system connectivity has been identified in the Basin Wide Environmental Watering Strategy as being crucial for supporting ecological connections and processes as well as site based outcomes.</p> <p><b>Example: Community involvement in decision making (Principles 1, 2, 3, 6, 7, 8)</b></p> <p>In 2017, there was a strong example of community knowledge and science informing the use of water for the environment, which resulted in the first successful spawning of black bream in the Coorong since the millennium drought. Flows to the Lower Lakes, Coorong and Murray Mouth was an annual watering priority for 2017-18.</p> <p>State and federal agencies worked with the South Australian Community Advisory Panel and Scientific Advisory Group to develop a plan for providing water to the Coorong over summer 2017–18. The meeting which occurred in October 2017 was the first time the two groups had met together. Local information from a commercial fisherman indicated that black bream were ready to spawn but needed the right water quality conditions to breed successfully – conditions that would need use of environmental water through the barrages in a particular pattern to create a salt wedge of the right salinity gradient.</p> <p>Monitoring of the Coorong over nearly a decade had shown that the black bream stock was heavily depleted and that successful spawning and recruitment had not occurred since the millennium drought. Together, community members, scientists, environmental water holders and state agency staff developed a watering plan to support black bream over summer. The plan was implemented and monitoring showed good conditions for black bream. However, larval monitoring over summer did not detect successful spawning.</p> <p>All involved noted the lessons learned to be considered in future years as part of adaptive management. Condition monitoring at the site in autumn 2018 then started detecting baby black bream. Scientists who had monitoring the site for years and who were used to pulling nets with no bream, were ecstatic with the results, as were all involved when the news went around.</p> <p>This example of community, science and government working together to set objectives, implement a plan, monitor and evaluate an event, is a clear example of the application of the principles of the Environmental Watering Plan resulting in a significant environmental outcome.</p> <p><b>Further information across all 11 principles</b></p> <p>Coordinated watering actions, plus the other site-specific environmental watering actions for the year, had regard to the Basin annual environmental watering priorities as part of the planning and prioritisation process undertaken by SCBEWC. Many of the sites where</p>
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		<p>environmental water is delivered are Ramsar listed sites of international significance. Sites also include important wetlands and a number of those, including the Lower Lakes, Coorong and Murray Mouth are important for the life cycles of international migratory bird and threatened species.</p> <p>In coordination with other environmental water holders, site managers and river operators, jointly held environmental water is delivered having regard to a range of risks. Environmental watering proposals submitted by site managers identified a range of risks associated with watering actions, and proposed appropriate mitigation measures. These were considered in the assessment of proposals against risk assessment criteria and lower risk activities scored higher for these criteria. This risk information was then used by SCBEWC in assisting with decisions on the commitment and use of jointly held environmental water and to apply risk mitigation strategies during watering actions.</p> <p>Adaptive management principles were applied throughout the planning and delivery of jointly held environmental water in 2016-17:</p> <ul style="list-style-type: none"> <li>• Long-term monitoring and intervention monitoring results were used to develop and assess environmental watering proposals.</li> <li>• Real-time decision-making allowed managers to respond to changing river and climatic conditions. These were informed through operational advisory groups.</li> <li>• Validation and recalibration of a number of models occurred with the input of measured data from the watering events. These processes help to ensure and maintain model accuracy and usefulness.</li> <li>• The environmental water coordination program (TLM) organises bi-annual Icon Site Managers meetings where managers share and learn from recent successes and challenges faced at each of their respective sites. This enables the different site managers to learn and improve management practices more quickly and effectively.</li> <li>• At a system level, the Southern Connected Basin Environmental Watering Committee held a review of their activities to assess recent performance and identify improvements. The most recent review led to several changes in the annual planning process, including: <ul style="list-style-type: none"> <li>• Earlier SCBEWC engagement with MDBA River Ops and Water Liaison Working Group on the BOC-approved environmental watering trials. Further, seek to develop a shared list of environmental watering ideas that can be prioritised for testing and trialling.</li> <li>• A strengthened operational scenarios planning process to identify system-scale collaboration and coordination opportunities, while reducing relative effort on the final reporting product.</li> <li>• A more systematic approach to identifying and aligning coordination opportunities through developing and testing an environmental water coordination tool to be trialled at the April 2018 workshop.</li> </ul> </li> </ul>
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		A River Murray Channel system-wide watering proposal that develops a common approach to defining channel and floodplain needs, and helps inform the coordination of tributary flows. Introducing a top-down systems approach to add value to the existing bottom-up site based watering proposals.
<b>Basin-wide environmental watering strategy (ss8.13 - 8.17 &amp; 8.49 - 8.51; Schedules 8 &amp; 9)</b>		
<p><b>C4</b> Prepare a Basin-wide environmental watering strategy.</p> <p><i>Applicable to BPIA Task 50.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will review and update the Basin-wide environmental watering strategy in consultation with environmental water holders, Basin States and stakeholders at intervals not exceeding five years.</p>	<p><i>Not Applicable in 2017-18</i></p> <p>The MDBA commenced preliminary work on reviewing and updating the Basin-wide environmental watering strategy 2014. The next strategy is due to be published by November 2019.</p>
<p><b>C5</b> Conduct a review of the environmental watering plan</p> <p><i>BPIA task 73.1</i></p>	<p>The MDBA will scope the review of the environmental watering plan.</p>	<p><i>Not Applicable in 2017-18</i></p>

## D. Critical Human Water Needs

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<b><i>The implementation, where necessary, of the emergency response process for critical human water needs.</i></b>		
<p><b>D1</b> The number of days in the water accounting period that Tiers 1, 2 and 3 water sharing arrangements have been applied.</p> <p><i>Applicable to Schedule 12 Matter 13, Indicator 13.1</i></p>	<p>Provide a summary of the number of days that tiers 1, 2 and 3 water sharing arrangements have been applied during 2017/18.</p>	<p>Tier 1 water sharing arrangement applied for the entire period of 2017/2018. No Tier 2 and 3 arrangements were in place.</p>
<b><i>Process for managing risks to critical human water needs associated with inflow prediction (s11.07)</i></b>		
<p><b>D2</b> Assess the risks of insufficient conveyance water, insufficient water for the conveyance reserve, and the water quality and salinity triggers been reached. Determine whether any advances under the Murray-Darling Basin Agreement are required.</p> <p><i>Applicable to BPIA Task 63.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will assess and manage the risks to critical human water needs associated with inflow prediction and in conducting its river operations functions.</p> <p>The Annual Operating Plan and monthly Water Resource Assessments consider risks to critical human water needs associated with a range of water availability/inflow scenarios including the risk of insufficient conveyance water, conveyance reserve or where the water quality and salinity triggers are reached under the range of water availability/inflow scenarios.</p> <p>Each determination of annual water availability is calculated using data and models agreed to by each of the Basin States.</p> <p>The MDBA will consider the risk to critical human water needs of any advances under clause 102C or Schedule H. If advances are required, or forecast to be required, the Annual Operating Plan will identify and assess any risks to critical human water needs associated with making these advances.</p>	<p>In order to manage risks to critical human water needs associated with inflow prediction, MDBA regularly reviews its predictions and adjusts to reflect current conditions. This is done through periodic review of the Annual Operating Plan and the assumptions used in preparing the monthly Water Resource Assessments, in consultation with the Water Liaison Working Group.</p> <p>No advances were required or forecast to be required through these assessments.</p>
<p><b>D3</b> Undertake water resource assessments.</p>	<p><b>Response should confirm or update on the following statement:</b></p>	<p>Water resource assessments were undertaken on a fortnightly basis during the irrigation season and on a monthly basis outside the irrigation season in accordance with the River</p>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<p><i>Applicable to BPIA Task 63.2</i></p>	<p>The MDBA prepares Water Resource Assessments, usually monthly but may be more frequent if conditions are very dry. As part of the preparation of the assessments, the MDBA regularly reviews its inflow scenarios, in consultation with the Water Liaison Working Group.</p>	<p>Murray System Objectives and Outcomes document. For each water resource assessments, inflows were review and the results of the assessment discussed with WLWG before being distributed to the Basin Officials Committee.</p>
<p><b>Risk management approach for inter-annual planning for critical human water needs arrangements (s11.08)</b></p>		
<p><b>D4</b> Undertake inter-annual planning for critical human water needs.</p> <p><i>Applicable to BPIA Task 64.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA's risk management approach for inter-annual planning for critical human water needs is based on: the conveyance reserve under s11.12(2); the range of inflows predicted under s11.06; the risk management processes under s11.07; the efficient operation of the River Murray System and the <i>Objectives and Outcomes for River Operations in the River Murray System</i>; monitoring and forecasting of water quality data in the River Murray System; and communication between the MDBA, Basin States and private providers of water quality data.</p> <p>From January to June each year the MDBA prepares a forecast of the water available in the next water year. This second year forecast will be based on the matters listed under s11.08 (1) of the Plan. The Water Resource Assessments are prepared in consultation with the southern Basin States, through the Water Liaison Working Group.</p> <p>The MDBA will use information from the existing River Murray Water Quality Monitoring Program as the basis for identifying water quality risks to critical human water needs.</p> <p>When making decisions about the volume of water available to the Basin States in a particular year, and whether water can be set aside for the conveyance reserve, the MDBA must have regard to the Water Resource Assessments which form the basis for decisions on the water available to Basin States, including if water can be set aside for the conveyance reserve.</p>	<p>From time to time, MDBA prepares a Water Resource Assessment for the next water year, from the next June to the following May. This is known as the Second Year Water Resource Assessment. This Assessment allows MDBA to identify inter-annual risks to critical human water needs and to put in place appropriate responses. Second year assessments were provided to WLWG as at the end of March (on 10th April 2018) and end of April (on 9th May 2018). No risks to critical human water needs were identified for the 2018-19 water year.</p>
<p><b>Commencement and cessation of Tier 2 water sharing arrangements (ss11.09 &amp; 11.10)</b></p>		
<p><b>D5</b> Determine if the trigger is reached and Tier 1 or 2 applies.</p> <p><i>Applicable to BPIA Task 65.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA, through the preparation of the Water Resource Assessment, will determine if the triggers detailed in BP s11.09 have been reached, or if the appropriate conditions apply.</p>	<p>No Tier 2 water sharing arrangements were triggered in 2017/18.</p>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
	<p>The MDBA will publish a notice on its website declaring that:</p> <ul style="list-style-type: none"> <li>• Tier 1 water sharing arrangements cease and Tier 2 water sharing arrangements commence; or</li> <li>• Tier 2 water sharing arrangements cease and Tier 1 water sharing arrangements commence.</li> </ul> <p>The <i>Guideline on the triggers and process for moving between water sharing Tiers</i> provides more information on how the MDBA will communicate a change in water sharing arrangements to the Basin States and Commonwealth.</p>	
<p><b>Commencement and cessation of Tier 3 water sharing arrangements (ss11.15 &amp; 11.16)</b></p>		
<p><b>D6</b> Determine if the trigger is reached and Tier 3 applies.</p> <p><i>Applicable to BPIA Task 66.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA, through the preparation of the Water Resource Assessment will determine if the appropriate conditions apply. If New South Wales, Victoria or South Australia considers the triggers have been reached, its BOC member should advise the Executive Director, River Management Division, MDBA.</p> <p>The MDBA will publish a notice on its website declaring that:</p> <ul style="list-style-type: none"> <li>• Tier 1 or Tier 2 water sharing arrangements cease and Tier 3 water sharing arrangements commence; or</li> <li>• Tier 3 water sharing arrangements cease and Tier 2 water sharing arrangements commence; or</li> <li>• Tier 3 water sharing arrangements cease and Tier 1 water sharing arrangements commence.</li> </ul> <p>If conditions require water sharing arrangements to change from Tier 3 to Tier 1, the MDBA will declare that Tier 2 arrangements commenced when Tier 3 arrangements ended but ceased immediately afterwards.</p> <p>The <i>Guideline on the triggers and process for moving between water sharing Tiers</i> provides more information on how the MDBA will communicate a change in water sharing arrangements to the Basin States and Commonwealth.</p>	<p>Triggers for Tier 3 were not met in 2018/19.</p>

## E. Water Quality and Salinity Management

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<b>Chapter 9 Guidelines (s9.13)</b>		
<p><b>E1</b> Prepare and publish guidelines relating to water quality targets.</p> <p><i>Applicable to BPIA Task 57.1</i></p>	<p>The BPIA notes that MDBA will prepare a proposal for consideration by BPIC for a new guideline providing additional guidance in relation to flow management decisions by the MDBA, BOC and Basin States and when making decisions about the use of environmental water by the CEWH and other environmental water holders and managers. BPIC will then decide the process for the guideline to be developed.</p>	<p>Work on this task was kept on hold while the Basin Salinity Management 2030 (BSM2030) strategy was being developed and approved by Ministerial Council in November 2015. Since November 2015, the MDBA, with input from river managers, developed an initial draft guideline for 'having regard' to salinity and other water quality targets (dissolved oxygen and blue-green algae).</p> <p>In 2016 the Basin Plan Implementation Committee (BPIC) agreed to MDBA's proposal that consultation on the draft guideline be carried out through Basin Salinity Management Advisory Panel (BSMAP), Water Liaison Working Group (WLWG) and Environmental Watering Working Group (EWWG). In addition, the MDBA included Sothern Connected Basin Environmental Watering Committee (SCBEWC) in the consultation process as this committee is comprised of environmental water holders/managers from the Australian, New South Wales, South Australian and Victorian governments and the MDBA river operators.</p> <p>The MDBA consulted all the above committees in 2018, and is currently addressing a large number of comments received from the consultation process. Once this feedback is addressed, an updated version of the guideline will be provided to BPIC for recommending to the Authority for approval.</p> <p>In the absence of an agreed flow management guideline for salinity and water quality targets, the MDBA, Basin Officials Committee (BOC), Basin States and the Commonwealth Environmental Water Holder (CEWH) must still have regard to the targets identified at s9.14 of the Basin Plan under the common law principal (s1.07 Note of the Basin Plan).</p>
<b>Implementation of the water quality and salinity management plan, including the extent to which regard is had to the targets in Chapter 9 when making flow management decisions</b>		
<p><b>E2</b> Progress with implementation of the Basin Plan <i>Water Quality and Salinity Management Plan</i> (BP CH9) and outcomes, including having regard to the</p>	<p>Context: BP ch9.14 recognises that flow management, in some circumstances, can assist with the management of water quality issues, such as salinity, hypoxic black water events and blue green algal outbreaks. The intent of s9.14 is that 'having regard' to these risks and opportunities becomes part of business as usual when making decisions about flow management or the use of environmental water. Other actions that can also address water quality issues include coordination</p>	<p>Salinity:</p> <p>Under the basin-wide BSM2030 strategy, MDBA coordinates the review of elevated salinity events to examine the causes, impacts and effectiveness of management responses and to identify potential policy improvements. A discussion of elevated salinity events was held as part of the salinity forum held in Adelaide, in November 2017. The forum provided an opportunity for MDBA and jurisdictional river operators, environmental water managers and salinity managers to collaborate, share experiences and transfer knowledge of best practice for salinity management relating to two elevated salinity</p>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<p>targets on dissolved oxygen, recreational water quality and levels of salinity when managing flows.</p> <p><i>Applicable to Schedule 12, Matter 14, Indicator 14. and BPIA 54.1</i></p>	<p>and communication about blue green algal outbreaks (in line with BP9.18) or hypoxic black water events.</p> <p>In this context, please describe how these water quality issues were considered, when making decisions about flow management or the use of environmental water, and/or other actions; did this make a difference to these water quality issues, and any learnings to inform continuous improvement.</p>	<p>events reported in 2016-17.</p> <p>MDBA also evaluated the effectiveness of the process for conducting a review of elevated salinity events, seeking opportunities for continuous improvement in the review process. The evaluation found there were opportunities to refine the process and that these improvements should be captured through updating the procedure that guides reviews, in addition to further clarifying the roles and responsibilities and key stakeholders. While the salinity forum provided an appropriate opportunity for the discussion and analysis of the elevated salinity events, it is a biennial forum and as such an annual forum for these discussions is required.</p> <p>Non-Salinity Water Quality:</p> <p><i>Blue-green algae</i></p> <p>During 2017-18, red alerts for blue-green algae were issued by States at a number of locations in the southern Murray-Darling Basin. The MDBA had regard to the Basin Plan target for recreational water quality (cyanobacteria) (9.14 (5)(b)) by:</p> <ul style="list-style-type: none"> <li>• Participating in NSW Regional Algal Coordinating Committee meetings</li> <li>• Preparing mapping of the blue-green algal alert level status, based on information provided by jurisdictions</li> <li>• Including updates regarding blue-green algal alerts and links to both G-MW and NSW alerts in the river operations weekly reports</li> <li>• Considering the algal alerts when making flow management decisions: <ul style="list-style-type: none"> <li>➢ In the lower Darling, red alerts for blue-green algae were issued at several locations including the lower Darling between Pooncarrie and Burtundy, Weir 32, Lake Tandure, Lake Wetherell and Lake Menindee. A red alert was first issued for the Menindee Lakes and Lower Darling on the 6<sup>th</sup> September 2017. Due to limited water availability and inflow from upstream there were limited operational options available to help address water quality issues.</li> <li>➢ In the first week of March 2018 red alerts for blue-green algae were issued in the Edward-Wakool at Merran Creek (adjacent to Lake Tooim), the Edward River at Deniliquin and the Gulpa Creek at Mathoura. No practicable changes to flow management were able to be undertaken by MDBA and the red alerts were lifted for the Edward River by mid-March 2018.</li> <li>➢ A red alert was issued for the Lake Victoria outlet in the first week of March 2018. The observed levels of blue-green algae were not considered a public health risk however downstream water treatment plants were experiencing raw water challenges associated with taste and odour which required additional chemical treatment and associated costs. SA Water monitoring data suggested that the source of <i>Dolichospermum Crassum</i> and</li> </ul> </li> </ul>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
		<p><i>Cylindrospermopsis raciborskii</i> was predominantly from Lake Victoria. During the bloom MDBA and SA Water kept the releases from Lake Victoria as low as practical in order to limit impacts on water quality downstream. Further monitoring resulted in the alert level at the Lake Victoria Outlet being downgraded to amber from the 12th April 2018.</p> <p><i>Dissolved oxygen</i></p> <p>During 2017-18, no hypoxic black water events affected the River Murray System as far as MDBA was aware. The risk of hypoxic black water forming was elevated for a brief period in early summer and the MDBA had regard to the Basin Plan dissolved oxygen target (9.14(5)(a)), as outlined below.</p> <p>A natural event in the Ovens River system in December 2017 resulted in higher flows in the River Murray downstream of Yarrowonga Weir and the opening of some Barmah-Millewa Forest regulators. This in turn led to inundation of some low lying areas within Barmah-Millewa Forest. The growing awareness of increased hypoxic black water risk when inundation occurs during warmer months raised concerns in this instance and dissolved oxygen data (24 hour data in some locations) was closely scrutinised. Dissolved oxygen levels lower than 6mg/L were detected in the Edward River at Toonalook, indicating that water low in dissolved oxygen was returning to the river from the Millewa Forest.</p> <p>A range of risk mitigation strategies were explored by river operators, environmental water holders and managers in case dissolved oxygen levels continued to decline to levels which may have threatened the survival of aquatic biota (generally 4mg/L and below). This included assessing whether additional water could be supplied to localised areas to improve dissolved oxygen levels. Consideration was also given to whether prolonging floodplain inundation of Barmah-Millewa Forest would be beneficial. Collectively it was decided that the best operational strategy was to allow the flow to naturally recede to within channel capacity through the Barmah-Millewa Forest and to re-route some of the flow already in transit down the Murray to the Edward River. Dissolved oxygen levels started to rise in affected locations and the operational strategy was considered a success. No further actions were required.</p> <p>On preliminary review of this event, observations were made which may help explain why hypoxic black water (dissolved oxygen levels below 2mg/L) did not form in 2017. The inundation event in 2017 was considerably smaller in magnitude and duration compared to flooding in 2016 and probably re-wet areas that were previously inundated in 2016; these factors combined may have resulted in lower dissolved organic carbon loading in the water. This insight into possible mitigating factors, if proven through further research, could provide rationale for increasing the frequency of watering events.</p> <p>During 2017-18, MDBA funded two water quality investigations to improve knowledge of non-salinity water quality risks and understanding of management options. These projects</p>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
		<p>are:</p> <ul style="list-style-type: none"> <li>- Assessment and mitigation options of hypoxic blackwater risks in the River Murray system, which aims to develop scenario modelling tools to allow for improved flow management options to minimise future risks of hypoxic blackwater events, and</li> <li>- Lake Hume blue-green algal risk minimisation, which aims to develop a 3-dimensional hydrodynamic model to assess the risk of blooms and to identify the options for new strategies in mitigating blooms in Lake Hume.</li> </ul> <p>A range of procedures and tools have been developed to consider water quality risks, and ensure that the MDBA has regard to the targets in s9.14 of the Basin Plan, when making decisions about the use of environmental water. The Southern Connected Basin Environmental Water Committee (SCBEWC) has a risk management strategy to identify, evaluate and control risks associated with coordinating the delivery of environmental water and a framework for managing salinity spikes. Jointly held environmental water has been delivered to support the health of the River Murray for over 10 years and a range of management arrangements and tools have been developed to assist decision making about the use of environmental water with regards to managing salinity and water quality risks.</p> <p><b>Watering proposals</b></p> <p>The planning and delivery processes for environmental water in the southern connected Basin has regard to the Basin Plan water quality targets. When developing watering proposals, using the tools outlined below, jurisdictions and site managers are asked to assess the risk of proposed watering actions and identify appropriate mitigation strategies. These watering proposals are reviewed by the SCBEWC as part of the annual water planning process, including when deciding on use of jointly-held water for watering actions.</p> <p><b>Operating plans for environmental works</b></p> <p>In collaboration with partner governments and icon site management authorities, operating plans have been developed to guide the use of the environmental works at Gunbower–Koondrook–Perricoota Forest, Hattah Lakes and the Chowilla Floodplains–Lindsay–Wallpolla Islands. These operating plans assist environmental water managers to effectively and efficiently deliver water as well as manage risks (including water quality risks) related to operation of the environmental works.</p> <p><b>Modelling</b></p> <p>Operational and hydrodynamic models are used to inform watering activities at the icon sites with environmental works. These models simulate the operation of the works to produce information about areas of inundation, water usage, impacts on downstream</p>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
		<p>flows and water quality.</p> <p>A blackwater model for the River Murray and Edward–Wakool rivers is used to predict downstream Dissolved Oxygen (DO) levels during watering activities, assisting water managers and river operators to manage low DO (which can kill fish and other aquatic animals) during environmental water delivery. The model provides an assessment of the predicted DO levels from the inundation of major floodplains of Barmah-Millewa Forest, and Gunbower-Koondrook-Perricoota forests. This modelling capability is also being extended to South Australian floodplains, including the Chowilla Floodplain.</p> <p><b>SCBEWC operational salinity risk management framework</b></p> <p>A salinity risk management framework is in place to use when planning and delivering environmental water to high salinity risk sites. The framework allows salinity risks and mitigation and/or monitoring measures to be identified, including cumulative risks from multi-site watering activities. Selected measures will depend on a range of factors at the time of delivery. Some important measures include hydrograph manipulation, improved coordination of water deliveries and dilution flows.</p> <p>There is a hydrodynamic model for the Coorong, Lower Lakes and Murray Mouth. This model can be used to consider different environmental water delivery scenarios and how different delivery patterns and lake operating practices can influence lake levels and salinity in the lakes and Coorong.</p> <p><b>Monitoring</b></p> <p>Monitoring of water quality issues is primarily undertaken using joint-funded water monitoring stations, to inform both operations and environmental water planning or delivery activities.</p> <p>Other sources of data are available from state-based staff who record water quality data from spot readings during watering actions at icon sites.</p> <p>During the real-time management of jointly-held watering events this information is reviewed by Operational Advisory Groups (OAGs); further information on OAGs is presented below.</p> <p><b>Operational Advisory Groups (OAGs)</b></p> <p>OAGs support operational decisions on the real time management of environmental water delivery at the Icon Sites. OAGs include representatives from state agencies, state water authorities, river operators, icon site managers, environmental water managers and scientists.</p> <p>Before and during watering events, OAGs meet on a regular basis to discuss a range of operational matters including flow management, inundation extents, risk management,</p>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<p><b>E3</b> Conduct a review of the water quality targets in the water quality and salinity management plan</p> <p><i>BPIA task 73.1</i></p>	<p>The MDBA will scope the reviews of the water quality and salinity management plan targets in consultation with the BPIC – Monitoring and Evaluation Working Group. The review of the water quality and salinity management plan targets must include a review of salinity targets and target sites. The review of the environmental watering plan must include a review of targets.</p>	<p>ecological responses, engineering issues, fishway operations and water accounting.</p> <p>Section 13.08 of the Basin Plan requires the MDBA to conduct a review of the water quality targets (as set out in Chapter 9, Part 4 of the Basin Plan) in the water quality and salinity management plan every five years after commencement of the Basin Plan.</p> <p>The first review was due in 2017, however, an Independent Review of the Water Act in 2014 made a number of recommendations about rephrasing and aligning the five-yearly and ten-yearly reviews that were legislated in the Basin Plan. The rationale was that a delayed start date would provide more meaningful results, given that full implementation of the Basin Plan will not be achieved until 2019, or, in the case of SDLAMs, 2024.</p> <p>To give effect to these recommendations, Parliament passed the <i>Water Amendment (Review Implementation and Other Measures) Act 2016</i> on 4 May 2016 and the due date of the first review was rescheduled from 2017 to the end of 2020.</p> <p>Planning for this review is well underway within the MDBA and a range of draft project documents has been developed, including:</p> <ul style="list-style-type: none"> <li>• project plan</li> <li>• stakeholder engagement plan</li> <li>• risk assessment plan</li> <li>• benefits realisation plan</li> </ul> <p>Once the project plan is finalised, the MDBA will commence the review, most likely in the second quarter of 2018-19.</p>
<p><b>E4</b> Monitor salinity levels at five sites on a daily basis and report at the end of each water accounting period. Is salinity at reporting sites consistent with the salinity targets in s9.14(5)?</p> <p><i>Applicable to Schedule 12 Matter 14, Indicator 14.3 and BPIA Task 54.2</i></p>	<p>The MDBA will assess whether the salinity targets have been met over the period that consists of that water accounting period and the previous four water accounting periods. This will include an analysis of data at reporting sites against target values in s9.14(5).</p> <p>Once this assessment has been carried out the MDBA will publish this assessment on its website.</p>	<p>Salinity levels at the five reporting sites (Lock 6, Morgan, Murray Bridge, Milang and Burtundy) were monitored continuously over the five-year reporting period (2013 – 2018). The targets are deemed to have been met if the percentage of days above the target is less than 5%, or the salinity has been below the target 95% of the time.</p> <p>Over the reporting period (July 2013 – June 2018), the assessment indicates the targets have been met at all reporting sites except at Burtundy.</p> <p>The target value at Burtundy is 830 EC. Over the reporting period, the salinity at Burtundy was above the target for 36% of days. This resulted from record dry conditions in the Darling system in the 2015 – 16 water year, during which the lower Darling River downstream of Menindee Lakes experienced 8 consecutive months of no flow. This was the longest no flow period since construction of the Menindee Lakes Scheme. However, salinity levels were below the target value over the 2017 – 18 period, peaking at 825 EC in October 2017.</p>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
		<p>The details of the assessment of the achievement of targets at the five reporting sites will be published along with the Basin Plan Annual Report 2017-18.</p> <p>The 2017 Basin Plan Evaluation recommended that the review of the water quality and salinity targets in the Basin Plan scheduled for 2020 should examine the appropriateness of salinity targets, particularly at Burtundy in light of progress on implementing protection of environmental water in the northern Basin.</p>
<b>Salt export objective (s9.09)</b>		
<p><b>E5</b> Adequacy of flushing to provide salt export. Conduct an annual assessment of the extent to which the salt export objective is met against the indicative figure of a minimum 2 million tonnes per year.</p> <p><i>Applicable to Schedule 12 Matter 14, Indicator 14.4 and BPIA Task 53.1</i></p>	<p>Estimated number of tonnes of salt exported from the River Murray System to the Southern Ocean, with an explanation of adequacy of flushing in the context of broader flow and salinity management in the Basin.</p> <p>As per BPIA requirements, the MDBA will annually estimate salt export using Method 3 (BMT WBM 2-D hydrodynamic model in consultation with the BPIC – Water Resource Planning Working Group and the BPIC – Water Quality Taskforce) and publish the estimate on its website.</p> <p>Please see BPIA obligations for further information about applicable methods over time.</p>	<p>For the July 2017 to June 2018 period, the estimate of salt discharged over the barrages is 0.44 million tonnes. Over the three-year period July 2015 to June 2018, the annualised rate of salt export over the barrages is 0.86 million tonnes per year. This is lower than the indicative figure of 2 million tonnes per year referred to in the Basin Plan.</p> <p>Flushing salt from the river systems helps avoid salt accumulation and adverse impacts on water users. Flushing salt also supports healthy river and floodplain ecosystems. Salt interacts with in-stream biota (animals and plants), changing the ecological health of streams and estuaries.</p> <p>Generally, more salt is flushed out to the ocean during wet years and less salt is flushed out in dry years. The level of salt flushing in a year is also impacted by river regulation, irrigation diversions and current levels of development, including salt interception works.</p> <p>The 2017 Basin Plan Evaluation recommended that the 2020 Basin Plan review should examine the appropriateness of the salt export objective as an indicator of adequate flushing of salt from the river system in the context of a variable climate. The review could consider how salt export objectives can be varied to deal with periods of low flow.</p> <p>The details of the assessment of the achievement of salt export objective will be published along with the Basin Plan Annual Report 2017-18.</p> <p>The approach used to estimate salt export in this report is described in MDBA Technical Report 2013/09 as Method 2. The refinement of the approach for estimating salt export objective (Method 3) is yet to be progressed. This will be considered by the MDBA when the South Australian diversion data for the current approach is available in a timely and streamlined manner, which is an essential requirement for applying Method 3.</p>
<b>Application of salinity targets for the purposes of long-term salinity planning and management (s9.19)</b>		
<p><b>E6</b> Apply salinity targets in the Murray–Darling Basin Agreement for salinity planning and</p>	<p>The MDBA, Basin Officials Committee and Basin States are to undertake any long-term salinity planning and management functions in accordance with the targets in Appendix 1 of Schedule B, including the Basin Salinity Management Strategy Operational Protocols.</p>	<p>On behalf of the Basin States, the MDBA reports on this indicator regarding the types of measures that the Basin States and MDBA have implemented to make progress towards the end-of-valley targets set for long-term salinity planning and management.</p>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<p>management and report on the Implementation of measures to achieve end of valley targets (s9.19)</p> <p><i>Applicable to BPIA Task 56.1 and Schedule 12 Matter 14, Indicator 14.5</i></p>	<p>Please indicate how this is done.</p> <p>Note that reporters may refer to Basin Salinity Management 2030 Strategy reporting to meet this reporting requirement, in line with the Schedule 12 Reporting Guidelines.</p>	<p>In 2017-18, the following activities were undertaken:</p> <ul style="list-style-type: none"> <li>• Joint works and measures (salt interception schemes - SIS) were operated and maintained to divert salt away from the Murray and Darling rivers and from adjacent floodplain areas. The operation of the SIS made a significant contribution to maintaining river salinity at levels consistent with the targets.</li> <li>• Basin states have implemented measures such as improved irrigation practices, rehabilitation of irrigation infrastructure, and salinity management plans or land and water management plans. These measures contributed to the achievement of basin salinity target at Morgan.</li> <li>• Salinity modelling tools were reviewed and updated to improve the accounting of actions that have significant salinity impacts on the river. These tools assist the assessment of entries in the salinity registers which account on river salinity impacts in terms of credits and debits.</li> <li>• New Basin Salinity Management Procedures are being prepared. These procedures will provide the operational detail and consistency to guide the implementation of the accountabilities under Schedule B.</li> <li>• Knowledge priorities to reduce uncertainty around future salinity risks under the BSM2030 strategy have been progressed, including developing a transfer function for use in groundwater models to compute irrigation accessions to groundwater recharge, conducting a floodplain workshop to scope out knowledge gaps relating to environmental watering and floodplain salinity dynamics and the priorities for future work, and commencing investigations at trial sites to understand the system responses to changed SIS operations.</li> </ul> <p>Following are the key achievements in 2017-18 for long-term salinity planning and management:</p> <ul style="list-style-type: none"> <li>• Ministerial Council agreed, in June 2018, to the Water Amendment Regulations, to amend Schedule B of the MDB Agreement to give effect to the BSM2030 strategy.</li> <li>• The basin salinity target was met for the ninth consecutive year. The target aims to maintain the average daily salinity at less than 800 EC for at least 95% of the time at Morgan, South Australia.</li> <li>• The salt interception schemes diverted approximately 485 thousand tonnes of salt away from the River Murray system and adjacent landscapes</li> </ul>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
		<ul style="list-style-type: none"><li data-bbox="1294 212 2105 268">• The 2017 independent audit confirmed a net credit balance in the salinity registers for New South Wales, Victoria and South Australia.</li></ul>

## F. Water Trading

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<b>Restrictions on trade and their application (ss12.02 - 12.36)</b>		
<p><b>F1</b> Ensure trades are consistent with the water trading rules.</p> <p><i>Applicable to BPIA Task 67.2</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will consult with Basin States through the BPIC – Water Trade Rules Working Group in order to ensure regular targeted examination of Basin States’ water trading rules to assess whether those rules are consistent with the Plan.</p> <p>The MDBA may examine trading activity conducted within Basin States to ensure that it is consistent with the restrictions on trade and the right to trade free of certain restrictions.</p>	<p>The MDBA has been working with states bi-laterally in relation to inconsistencies with the Basin Plan water trading rules, as the majority of issues relate to individual state issues. Regular updates about inconsistencies are provided to BPIC.</p> <p>The MDBA has published the <i>Strategic Priorities - Basin Plan water trading rules</i> policy. This policy allows the MDBA to prioritise its regulatory and compliance activities. Priorities may be adjusted over time.</p>
<b>Declarations on allowable restrictions on permitted use of exchange rates (ss12.18 &amp; 12.22)</b>		
<p><b>F2</b> Make a declaration on allowable restrictions on trade.</p> <p><i>Applicable to BPIA Task 68.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>If a Basin State requests and the MDBA is satisfied that the restriction is necessary, the MDBA will make a written declaration that a restriction is allowable. The MDBA will publish its decision and the reasons for it on its website.</p>	<p>The MDBA did not receive any formal requests for a declaration of an allowable restriction from any Basin State in 2017-18.</p>
<p><b>F3</b> Make a declaration on permitted use of exchange rates.</p> <p><i>Applicable to BPIA Task 68.2</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will make a written declaration permitting a specified exchange rate if a Basin State requests, and the MDBA is satisfied that it is for the purpose of addressing transmission losses, or to redress the impact of previous exchange rate trades. The MDBA will publish the declaration on its website.</p>	<p>The MDBA did not receive any formal requests for a declaration of an exchange rate from any Basin State in 2017-18.</p> <p>The MDBA has a framework in place to consider declaration requests for exchange rates, as we have previously declared an exchange rate under section 12.22:  <a href="https://www.mdba.gov.au/managing-water/water-markets-trade/basin-plan-water-trading-rules/exchange-rate-declarations">https://www.mdba.gov.au/managing-water/water-markets-trade/basin-plan-water-trading-rules/exchange-rate-declarations</a></p>
<b>Information and reporting requirements (ss12.40 - 12.51)</b>		
<p><b>F4</b> Publish information about water access rights and trading rules.</p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p>	<p>The MDBA has continued to publish Information about approximately 70 highly traded water market products, State trading rules and the trading rules for large Irrigation Infrastructure Operators (IIOs).</p>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<p><i>Applicable to BPIA Task 69.1</i></p>	<p>The MDBA will determine the form in which information is to be provided, and will publish information provided to it (or nominate a central information point for publication).</p> <p>The MDBA will not require information to be given more than once per water accounting period, unless information is changed.</p>	<p>A number of the links to state trading rules and IIO trade rules were updated during 2017-18 following advice from the Basin States and IIOs.</p>
<p><b>F5</b> Make water announcements generally available.</p> <p><i>Applicable to BPIA Task 69.2</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>Water announcements will be published in a way that makes them likely to be brought to the attention of interested members of the community.</p> <p>The MDBA will implement a process to ensure that a person, who is aware of a water announcement before it is generally made available, must not trade a water access right that is subject to the water announcement, or whose price or value would be materially affected by the announcement until that announcement is made.</p>	<p>MDBA ensures that water announcements were generally available by publishing media releases as well as putting the releases on the MDBA website. The MDBA has improved and maintained the website that provides daily updates on the volume available for trade across the Barmah choke while the restriction is in place. This process involved working with Victoria and keeping NSW informed of the steps.</p> <p>The MDBA continued to manage sensitive water market information consistent with its protocol (introduced 2014, reviewed in 2017-18). Staff engaged in business activities with access to sensitive water market information must have in place a signed statement acknowledging they will comply with the protocol prior to being provided with access to this information. Refresher training was conducted with staff in key areas and included in mandatory training developed for all staff delivered in 2017-18.</p>
<p><b><i>The implementation of water trading rules</i></b></p>		
<p><b>F6</b> Compliance with the Basin Plan water trading rules.</p> <p><i>Applicable to Schedule 12 Matter 16, Indicator 16.1</i></p>	<p>Authority to report on its obligations under the water trading rules not listed above.</p>	<p>As the regulator of the rules, the MDBA has responsibility to address non-compliance and inconsistencies with the Basin Plan water trading rules. The MDBA takes a risk based approach to compliance and regulation.</p> <p>The MDBA is developing an assessment framework to assess the consistency of State's trading rules.</p> <p>In June 2018 Phase 1 of the Water Trade Price Reporting Audit commenced: This audit is assessing state systems for processing water trades and how they facilitate the correct recording of water trade prices. Accurate and transparent price reporting is an important element in providing confidence that water markets are operating in a fair and transparent manner. Phase 1 audit results will be available in late 2018.</p>

## G. Other Reporting Requirements

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<b>Effectiveness Reports (s13.05)</b>		
<p><b>G1</b> Evaluate the effectiveness of the Basin Plan against the objectives and outcomes set out in Ch 5, 8 and 9.</p> <p><i>Applicable to BPIA Task 71.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>MDBA Annual Effectiveness Report developed annually in consultation with the BPIC – Monitoring and Evaluation Working Group.</p>	<p>The first major evaluation of the effectiveness of the Basin Plan was published in December 2017 (<a href="https://www.mdba.gov.au/publications/mdba-reports/2017-basin-plan-evaluation-reports">https://www.mdba.gov.au/publications/mdba-reports/2017-basin-plan-evaluation-reports</a>). Preparation of the evaluation report fulfils the requirement to prepare an annual effectiveness report.</p> <p>The Evaluation represented a health check on Basin Plan progress five years in and provided newly integrated knowledge, and recommendations. Outcomes of the evaluation inform adaptive management toward improved implementation of the Basin Plan. It also contributed capacity building of Basin partners toward future evaluation requirements under the Plan.</p> <p>The 2017 Evaluation confirmed: positive signs of improved environmental health where water could be delivered; government investment has help kept social and economic impacts at a minimum and help modernise the irrigation industry (however the impacts vary from community to community); and water markets are functioning to facilitate water trade.</p> <p>While many elements of the Basin Plan are on track, and there have been some significant achievements, the evaluation also highlighted progress is lagging in several important areas, such as compliance and water resource plan accreditation. In addition to adaptive management actions, Basin Plan implementation in these areas requires renewed commitment and effort by all jurisdictional partners.</p>
<b>Five-year advice of the Plan impacts (s13.05).</b>		
<p><b>G2</b> Advice on the impacts of the Basin Plan as soon as possible after the first five years.</p> <p>As soon as possible after November 2020.</p> <p><i>Applicable to BPIA Task 72.1</i></p>	<p><b>The MDBA will prepare a report and recommendations for consideration of the Minister and Ministerial Council, drawing on the effectiveness reports.</b></p>	<p>This report to Ministers and Ministerial Council is due in 2020, however MDBA's 2017 Evaluation looked at impacts of the Basin Plan (see G1 above).</p>
<b>MDBA may conduct (and publish) audits to assess the extent of compliance with the Plan (ss13.10 &amp; 13.20).</b>		
<p><b>G3</b> Conduct audit.</p>	<p><b>Responses should address the following requirement(s) as</b></p>	<p>In response to The Murray-Darling Basin Water Compliance Review (2017), the MDBA</p>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<p><i>Applicable to BPIA Task 74.1</i></p>	<p><b>outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA may conduct, or appoint or establish a person or body to conduct, periodic audits to assess the extent of compliance with the Plan. Finalised audits will be published on the MDBA website.</p> <p>The MDBA will produce a report setting out the findings of the audit and any recommendations arising from the audit; and before the report is finalised, provide an opportunity to comment on the proposed findings and recommendations. The finalised audit report will be published on its website.</p>	<p>has worked to build its audit and investigation capability within the newly established Office of Compliance. Alongside capacity building to conduct compliance audits, the MDBA is also developing a public Compliance Audit Policy, Strategy and will develop Annual Audit Plans to guide future work and provide transparency on our approach to audits.</p> <p>Two audit activities had commenced by June 2018:</p> <ul style="list-style-type: none"> <li>- a review of Northern Connectivity Environmental Watering Event: This review is being undertaken jointly with the NSW Natural Resources Access Regulator (NRAR) to assess the effectiveness of the compliance arrangements NRAR put in place to ensure environmental water was not taken illegally during the Event. This environmental watering event was designed to provide connectivity through the Barwon-Darling system by releasing Australian Government and NSW held environmental water.</li> <li>- Phase 1 of the Water Trade Price Reporting Audit: This audit is assessing state systems for processing water trades and how they facilitate the correct recording of water trade prices. Accurate and transparent price reporting is an important element in providing confidence that water markets are operating in a fair and transparent manner.</li> </ul> <p>Reports for both of these audits will be published by December 2018. Planning is underway for Phase 2 of Water Trade Price Reporting audit, which will look at actual price reporting by water traders. Audits to look at metering and measurement compliance in Qld and NSW are expected to be commence in early 2019.</p>
<p><b>Assessments of trends in the condition and availability of Basin water resources (s13.11)</b></p>		
<p><b>G4</b> Undertake an assessment.</p> <p><i>Applicable to BPIA Task 75.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA may periodically undertake assessments of trends in the condition and availability of the Basin water resources and the social, cultural and economic contexts in which they are used, as revealed by monitoring information.</p> <p>The assessment will be undertaken in consultation with the BPIC – Monitoring and Evaluation Working Group.</p>	<p>The 2017 Basin Plan Evaluation provided, for the first time, a high level integrated overview of the condition and availability of water resources, as well as the social, cultural and economic context of the Basin. The evaluation was underpinned by comprehensive technical reports of the various contributing themes. These are available on MDBA's website at <a href="https://www.mdba.gov.au/publications/mdba-reports/2017-basin-plan-evaluation-reports">https://www.mdba.gov.au/publications/mdba-reports/2017-basin-plan-evaluation-reports</a>.</p> <p>The Basin environmental watering outlook 2017-18 included information about water availability in the Basin, climate conditions, the ecological condition of river flows and connectivity, waterbirds, native vegetation and native fish, and an early indication of opportunities to deliver environmental watering to support Basin-scale outcomes in 2017-</p>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
		18.
<b>Assessment and improvement of monitoring evaluation and reporting capabilities</b>		
<p><b>G5</b> Conduct an assessment of monitoring, evaluation and reporting capabilities.</p> <p><i>S 13.23, BPIA Task 76.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will prepare a draft assessment in consultation with BPIC – Monitoring and Evaluation Working Group.</p> <p>The MDBA will finalise and publish the assessment, have regard to any recommendations, and exercise its best endeavours with Basin States, the Department and the CEWH, to give effect to those recommendations – (By November 2020).</p>	<p>In early 2018, the MDBA, in consultation with Basin governments, developed Terms of Reference, for the assessment of monitoring, evaluation, and reporting (MER) capabilities.</p> <p>In June 2018, MDBA commissioned a consultant to assist with undertaking the assessment. This including developing an assessment framework, and identifying the current and target MER capabilities for the MDBA, Basin States, the Department and the CEWH. The assessment is expected be completed and published by the end of 2018.</p> <p>The Monitoring and Evaluation Working will use the findings to make recommendations to BPIC on how to improve MER capabilities in the lead up to the 2020 and 2025 evaluations, and the review of the Basin Plan in 2026.</p>

## H. Water Resource Plan

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<b>Identify all water resource plan areas (s3.03)</b>		
<p><b>H1</b> Identify and publish maps of the water resource plan areas.</p> <p><i>Applicable to BPIA Task 38.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will identify and hold relevant data sets for the publication on its website of a map that identifies each water resource plan area.</p>	<p>Up-to-date data sets and maps that identify the Water Resource Plan Areas for groundwater and surface water are available on the MDBA's website at: <a href="https://www.mdba.gov.au/publications/maps-spatial-data">https://www.mdba.gov.au/publications/maps-spatial-data</a></p>
<b>Assessment of water resource plans (ss10.01 - 10.55)</b>		
<p><b>H2</b> Assess water resource plans for accreditation.</p> <p><i>Applicable to BPIA Task 58.1</i></p>	<p>Progress with the development of water resource plans for accreditation is currently being reported by the MDBA. MDBA may add to/build on the most recent MDBA quarterly report on WRP development for this reporting requirement.</p> <p><b>For context, the BPIA noted the following requirements for the preparation of WRPs:</b></p> <p>The approach needed to address water resource plan requirements will vary according to local conditions, levels of development and statutory and other arrangements in the water resource plan area.</p> <p>Each Basin State will prepare water resource plans for the Plan's water resource plan areas.</p> <p>The MDBA and the Basin States agree that the Basin State will use the following types of instruments to inform the content of the Basin State's water resource plans:</p> <ul style="list-style-type: none"> <li>• New South Wales: surface water and groundwater sharing plans;</li> <li>• Victoria: bulk water entitlements, environmental entitlements, groundwater management plans, sustainable water strategies and other instruments of the kind currently in place under the Victorian water planning and management framework. It is noted that this suite of instruments may be amended as a result of the outcomes of the current Victorian Water Law Review and further</li> </ul>	<p>WRPs are an important means of aligning Basin-wide and state-based water resource management. WRPs will incorporate existing water planning and management undertaken by Basin states, as well as build on these arrangements, where necessary, to meet the Basin Plan's requirements.</p> <p>Basin states may rely on a number of instruments and documents as well as their primary water resource planning instruments to fulfil the broad range of requirements in the Basin Plan or prepare plans that reflect the legislative and planning arrangements in their state.</p> <p>MDBA and Basin states have worked together to develop a Development Program for each state in accordance with the Water Resource Plan Completion Plan. Lead assessors are also developing Reconnaissance Plans for each WRP that gives an overview of the geography of the area, the land use and the relevant state legislation.</p> <p>The WRP quarterly report published in September 2018 showed that the delivery of South Australia, Queensland and Australian Capital Territory WRPs are progressing to schedule, while the delivery of Victoria's remaining three plans has been extended to April 2019. The prospects are less certain for NSW with 20 WRPs yet to be submitted.</p> <p>The MDBA uses a sound WRP assessment framework that includes a range of policy and guidance material to support the preparation and accreditation of WRPs. The MDBA is also working to ensure adequate resources are dedicated to the water planning and assessment task.</p> <p>In relation to consultation with indigenous organisations, Part 14 of Chapter 10 of the Basin Plan requires the MDBA to consult with relevant Indigenous organisations in relation to how a WRP meets the requirements of this Part.</p> <p>When the finalised WRP is received by MDBA for assessment, relevant material is sent to</p>

	<p>consideration will be given to the relevant instruments following the completion of that review;</p> <ul style="list-style-type: none"> <li>• South Australia: water allocation plans;</li> <li>• Queensland: water resource plans and resource operations plans; and</li> <li>• Australian Capital Territory: water management plans.</li> </ul> <p>The MDBA and each Basin State will separately agree on what further material would be required for each of the Basin State's water resource plans as part of individual Basin State work programs.</p> <p>The MDBA and Basin States will collectively settle a general approach to assessment and accreditation and to the key milestones and deliverables to be addressed in the Basin State work programs. Individual Basin State work programs for the preparation of water resource plans will then be agreed with the MDBA with a view to ensuring a progressive work flow through to 30 June 2019.</p> <p>If requested by a Basin State, the MDBA and the Basin State will agree on a water resource plan development program for a water resource plan area or areas. The program could include recommended standards for addressing accreditation requirements. The development of the agreed program may be informed by the risk assessment prepared for the area or areas.</p> <p>The Basin States and the MDBA agree that any risk assessments, advice or water resource plan development programs could be shared through the BPIC – Water Resource Planning Working Group to ensure continuous mutual improvement.</p> <p>Water resource plans must identify the objectives and outcomes based on indigenous values and uses and be prepared having regard to the views of relevant indigenous organisations with respect to cultural flows. The MDBA will consult with relevant indigenous organisations, including MLDRIN and NBAN, with respect to these matters during the assessment of water resource plans for accreditation.</p>	<p>NBAN / MLDRIN for advice.</p> <p>Once the advice is received from NBAN/MLDRIN, this is included as an attachment to the WRP accreditation package that is sent to the Minister for the accreditation decision.</p>
<p><b>H3</b> Convene water planners' forum.</p> <p><i>Applicable to BPIA Task 58.2</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will, commencing in 2014, convene an annual water planners' forum to which all parties will be invited to share experiences and new information relevant to the development of water resource plans for accreditation. Discussions at these forums may be used to inform updates of the <i>Handbook for Practitioners for Chapter 10, Water Resource Plan Requirements</i>.</p>	<p>On 23 May 2018 the MDBA held the fifth annual water planners' forum. The forum was attended by representatives from all Basin states as well as representatives from the Basin Community Committee, Northern Basin Aboriginal Nations and Murray-Lower Darling Rivers Indigenous Nations. Discussion topics included: water planning challenges; MLDRIN and NBAN consultation process; Environmental watering framework, water trade and compliance review outcomes.</p>

**Review of long-term diversion limit equivalence factors.**

**H4** Review of long-term diversion limit equivalence factors.

*Applicable to BPIA Task 61.1*

Long-term diversion limit equivalence factors reflect the long term average use of water access rights of the water resource plan area.

In consultation with Basin States, the MDBA will develop a work program and processes for the timing and revision of the long-term diversion limit equivalence factors through the BPIC – Water Resource Planning Working Group. The work program will outline the processes for stakeholder consultation.

The MDBA will consult with the BPIC – Water Resource Planning Working Group and BPIC, as appropriate. The MDBA will provide the proposed changes to the long-term diversion limit equivalence factors to the Ministerial Council for consideration.

Basin States are at different stages of the process of finalising cap factors:

Long-term diversion limit equivalence (LTDLE) factors for the Qld Warrego, Paroo and Nebine were updated when the WRP was accredited in June 2017. These updated factors have subsequently been applied to water recovery estimates.

The New South Wales Government released draft cap factors for a 6 week consultation period in June 2018, further to consultation with the MDBA. This period has now closed, and NSW is preparing its response to the submission received. The MDBA has recently commissioned an independent review of the NSW planning assumptions, which will soon be published.

The MDBA is working bilaterally with the Victorian, SA and Queensland Governments on planning assumptions and LTDLE factors for the remaining WRP areas as part of WRP accreditation.

It is not a relevant matter for the ACT, as the ACT shared reduction amount has been recovered within NSW

## I. Sustainable Diversion Limit (SDL) Implementation, SDL Adjustment & Constraints Management

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<b>Identification of surface water sustainable diversion limit resource units (s6.02)</b>		
<p><b>I1</b> Identify and publish the surface water sustainable diversion limit resource unit maps. Hold relevant data sets.</p> <p><i>Applicable to BPIA Task 41.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will identify and hold relevant data sets and publish on its website maps that identify each surface water Sustainable Diversion Limit resource unit.</p> <p>The MDBA will consult with Basin Plan Implementation Committee and the Basin Plan Implementation Committee – Water Resource Plan Working Group to update and maintain surface water sustainable diversion limit resource unit maps, as required.</p>	<p>Up-to-date data sets and maps that identify each surface water Sustainable Diversion Limit resource unit are available on the MDBA's website at: <a href="https://www.mdba.gov.au/publications/maps-spatial-data">https://www.mdba.gov.au/publications/maps-spatial-data</a></p>
<b>Identification of groundwater sustainable diversion limit resource units (s6.03)</b>		
<p><b>I2</b> Identify &amp; publish groundwater sustainable diversion limit resource unit maps.</p> <p><i>Applicable to BPIA Task 42.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will identify and hold relevant data sets and publish on its website maps that identify each groundwater sustainable diversion limit resource unit.</p> <p>The MDBA will consult with BPIC and the BPIC – Water Resource Planning Working Group as appropriate.</p> <p>The MDBA will update a groundwater SDL resource unit map where, following consultation, a change is identified as necessary. The maps are available on the MDBA website. The MDBA will maintain a groundwater SDL resource unit map on its website.</p>	<p>Up-to-date data sets and maps that identify each groundwater sustainable diversion limit resource unit are available on the MDBA's website at: <a href="https://www.mdba.gov.au/publications/maps-spatial-data">https://www.mdba.gov.au/publications/maps-spatial-data</a></p>
<b>Constraints Management Strategy (s7.08)</b>		
<p><b>I3</b> Provide annual reports to Ministerial Council on progress with implementing Strategy.</p> <p><i>Applicable to BPIA Task</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will assess and report on progress against recommendations in the Constraints Management Strategy, in consultation with Basin States.</p>	<p>In 2017, MinCo received a report on progress on the matters covered by the strategy as the status of the projects were being considered as part of the wider SDLAM assessment / approval process.</p> <p>As requested by COAG and MDB Ministerial Council the MDBA is working with the Commonwealth and the States as part of the Constraints Measures Working Group (CMWG) to progress the development of a work plan to guide how basin governments can</p>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
45.7		coordinate and integrate the delivery of constraints measures projects. The CMWG is now aiming to deliver this work plan to Ministers by December 2018.
<p><b>14</b> Amend the Constraints Management Strategy as appropriate.</p> <p><i>Applicable to BPIA Task 45.8</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will consider new information and progress in implementing the Constraints Management Strategy and update, as required, in consultation with all parties and the community.</p>	<p>On behalf of the States, the MDBA completed a number of projects to understand the risks and costs of the proposed constraint measures as identified in the strategy. This information was used by the states to develop Constraints business cases or concept proposals for submission into the SDL Adjustment mechanism process.</p> <p>Any new information generated from previous or future work that will impact on the implementation will be incorporated into the coordinating work plan.</p>
<p><b>Development of methods for calculating supply and efficiency contributions (s7.14-7.17, 7.20, Schedule 6)</b></p>		
<p><b>15</b> Advise Basin States on the feasibility of supply measure proposals.</p> <p><i>Applicable to BPIA Task 46.2</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will assist SDLAAC to assess the feasibility of supply measure proposals, including through the provision of technical advice and modelling, once the benchmark model and the ecological elements scoring method are complete.</p>	<p>Complete. The MDBA provided technical analysis of projects to support Basin governments in their assessment of project feasibility studies and business cases.</p> <p>The MDBA also administered the sustainable diversion limit adjustment assessment framework, designed in collaboration with Basin governments and CSIRO, to determine the environmental equivalence from the final package of state projects and recommend an adjustment volume for sustainable diversion limits. Based on the package of measures notified by Basin state governments to the MDBA, the MDBA determined the sustainable diversion limit adjustment volume in September 2017. In December 2017, this adjustment was proposed and adopted as an amendment to the Basin Plan by the Commonwealth Minister responsible for Water.</p>
<p><b>17</b> Develop proposed approach to incorporating efficiency measures into the SDL adjustment mechanism.</p> <p><i>Applicable to BPIA Task 46.4</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will develop an approach on how the 2016 SDL adjustment could incorporate the progressive recovery of water from efficiency measures, in consultation with Basin States.</p>	<p>Ongoing. For the full 605 GL adjustment to be realised, 62 GL of efficiency measures are required by 30 June 2019 to ensure the Basin Plan's five per cent adjustment legal limit is not exceeded. Projects are expected to be put forward by Basin state and territory governments to meet the 62 GL required. Additional efficiency projects can continue to put notified to the MDBA until 31 December 2023.</p> <p>As a result of the Government agreeing to the <a href="#">Basin Commitments Package</a>, funding for supply measures are linked to the delivery of efficiency measures. Under this approach, state access to supply measure funding would be conditional on the Commonwealth being able to roll-out any efficiency measures programs. These arrangements would be set out in the performance milestones under funding agreements with the States.</p> <p>The Authority will consider whether reconciling the package of SDLAM projects by 30</p>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
		<p>June 2024 against the equivalent environmental outcomes determined in 2017 is required. The project assumptions within the MDBA's modelling of the 2017 determination make up a base-line for the projects. Any changes after further design, community consultation or other influences will be reported at regular intervals and an assessment of the impact of these factors will be undertaken and accounted for through the MDBA's sustainable diversion limit reconciliation process in 2024.</p> <p>The MDBA is currently developing a reconciliation statement for public release. As efficiency measures are delivered, the MDBA will keep a register of the entitlements recovered.</p>
<b>Notification and registration of measures (ss7.12, 7.13)</b>		
<p><b>18</b> Maintain a register of notified measures and publish on website.</p> <p><i>Applicable to BPIA Task 47.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will establish the register as soon as practicable after it receives its first notification. The MDBA will update the register, as soon as practicable, after receiving additional notifications or amendments to existing notifications. A process for receiving notifications and updating the register will be developed by the MDBA in consultation with basin states.</p>	<p>Ongoing. The notification register is available on the <a href="#">MDBA website</a>. The register is provided in the form of two tables:</p> <ul style="list-style-type: none"> <li>○ Table A lists the relevant details of each notified measure</li> <li>○ Table B lists the efficiency entitlements and likely SDL adjustment for each of the Basin's surface water SDL resource units.</li> </ul> <p>Changes to notified measure details listed in Table A are endorsed by the Sustainable Diversion Limit Adjustment Assessment Committee (or its equivalent implementation committee) and then once agreed by the Basin Officials Committee, are provided to MDBA. MDBA then subsequently updates the table.</p>
<b>Determining and proposing initial adjustment amounts (ss7.10, 7.15-7.20, 7.23)</b>		
<p><b>19</b> Determine the amounts of proposed SDL adjustments resulting from any measures notified by 30 June 2016.</p> <p><i>Applicable to BPIA Task 48.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>Using the methods developed in consultation with Basin States, the CEWH, the Department and relevant members of the science community, the MDBA will determine contributions from notified supply measures (taking into consideration the impact of unimplemented policy measures) and efficiency measures and propose adjustments amounts.</p> <p>Before proposing an adjustment, the MDBA must seek and consider advice from BOC and submissions from members of the community.</p>	<p>Complete. The MDBA <a href="#">determined an adjustment</a> to the Sustainable Diversion Limit based on the package of measures notified by Basin state governments to the MDBA. Using the science based assessment framework - designed in collaboration with Basin governments, and including the ecological equivalence method developed by the CSIRO, the MDBA assessed notified supply measures and recommend an adjustment to the SDL. This draft determination was open for public consultation in October 2017. BOC also reviewed the draft determination and provided advice to the MDBA.</p>
<p><b>110</b> Propose SDL adjustments.</p> <p><i>Applicable to BPIA Task</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will prepare amendments to the Plan, for adoption by the</p>	<p>Complete. MDBA considered feedback received on the draft determination and prepared an amendment to the Basin Plan for consideration by the Commonwealth Minister responsible for Water. In preparing the amendment, the MDBA provided advice to BOC</p>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
48.3	<p>Minister (under section 23B of the Act).</p> <p>The MDBA will consult with Basin States through BOC, or other committees as appropriate, on the implications of a proposal on any declared Ramsar wetland. The MDBA will advise the Minister on the implications of an SDL adjustment amount proposal for any declared Ramsar wetland. The advice will be provided as part of the package of information presented to the Minister when proposing an adjustment amount.</p>	<p>and the Authority for consideration on the implication of the SDL adjustment proposal for any declared Ramsar wetlands.</p> <p>In December 2017, the determination was proposed and the adjustment adopted as an amendment to the Basin Plan by the Commonwealth Minister responsible for Water.</p>

## J. Reviews of the Basin Plan

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<b>Reviews of the Basin Plan (s6.06)</b>		
<p><b>J1</b> Conduct research and investigations to inform reviews of the Basin Plan. Publish the results.</p> <p><i>Applicable to BPIA Task 43.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will conduct research and investigations for informing any reviews of the Plan and publish on its website any reports produced as a result of this research or investigation.</p> <p>The MDBA will develop, consult through BPIC and implement a strategy to provide new knowledge to future Basin Plan reviews and update the relevant aspects of the Plan.</p> <p>The MDBA will publish its final report on research or investigations conducted to inform any reviews of the Plan on its website.</p>	<p>MDBA conducted several review activities in 2017-18.</p> <ul style="list-style-type: none"> <li>The SDL Adjustment mechanism work contributed to the amendment of SDLs (see I9, I10)</li> <li>MDBA evaluated the Basin Plan in 2017 and published reports (see G1, G3 above)</li> </ul> <p>Planning commenced for other reviews due in future years:</p> <ul style="list-style-type: none"> <li>For the review of the Basin Wide Environmental Watering Strategy (due 2019)</li> <li>For the reviews of water quality targets and the environmental watering Plan (BP 13.07) (due 2020)</li> <li>Basin Plan Evaluation and advice to Ministers and Ministerial Council on the impacts of the Basin Plan (due 2020)</li> </ul>
<p><b>J2</b> Undertake a review of the work underpinning the SDLs in the Northern Basin, including the basis for the long-term average sustainable diversion limits for surface water and groundwater SDL resource units.</p> <p><i>Applicable to BPIA Task 43.3</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will undertake the review of the work underpinning SDLs for the Northern Basin, in collaboration with New South Wales and Queensland, who will participate in the review and advise on associated studies, processes and final recommendations.</p> <p>The MDBA has established a Northern Basin Advisory Committee (NBAC) to provide independent strategic advice to the MDBA on how an adaptive Basin Plan can be implemented in the Northern Basin.</p> <p>The MDBA, New South Wales and Queensland have endorsed the formation of the Northern Basin Intergovernmental Working Group, a technical reference panel of Queensland, New South Wales and Commonwealth officials (MDBA, the CEWH and the Department), to provide advice on developing and implementing the Northern Basin work program.</p> <p>The work program for 2012-13 was developed in consultation with NBAC and the Northern Basin Intergovernmental Working Group, and both groups are working with the MDBA to develop and implement the remaining three years of the Northern Basin scientific and socio-economic work program through 2015-16.</p>	<p>The MDBA finalised a review of Basin Plan settings in the northern Basin, in close consultation with the New South Wales and Queensland governments In November 2016. Based on the outcomes of the review and community feedback the Authority proposed a reduction in the water recovery target from 390 GL to 320 GL provided there are commitments from governments to implement a range of toolkit measures. Further details on the northern Basin review can be found at: <a href="https://www.mdba.gov.au/publications/mdba-reports/northern-basin-review-report">https://www.mdba.gov.au/publications/mdba-reports/northern-basin-review-report</a></p> <p>The MDBA also completed the reviews of two NSW and one Victorian groundwater area in 2014/15 as required under s6.06 of the Basin Plan.</p> <p>The previous report (2016-17) sets out the consultation and process undertaken to prepare the Basin Plan amendment.</p> <p>On the basis of these reviews the Authority proposed an amendment to the Basin Plan which came into on 13 November 2017. On 14 February 2018 the Senate voted to disallow the amendment.</p>

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
	<p>The MDBA commits to provide funding of \$1 million per year over the three financial years (2013-14 to 2015-16) to be allocated by the MDBA for projects under the Northern Basin work program, noting that the scope and funding amounts for particular projects will be determined by the MDBA in light of advice from established consultative arrangements with the New South Wales and Queensland governments and NBAC.</p> <p>The Commonwealth has committed to provide \$822,000 in Commonwealth funding for the <i>Floodplain vegetation watering requirements proposal</i>, subject to the outcomes of the scoping study for Queensland now underway. The project would be delivered over three financial years, from 2013-14 to 2014-15, through the Murray–Darling Freshwater Research Centre, who will work with research providers in the Northern Basin.</p>	

## K. Assessing Inflows

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<b>Establish and maintain assets and functions database (s8.48)</b>		
<p><b>K1</b> Establish and maintain assets and functions database.</p> <p><i>Applicable to BPIA Task 52.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>The MDBA will prepare a draft strategy for developing and maintaining the environmental assets and functions database.</p> <p>The MDBA will consult on the strategy through the BPIC – Environmental Watering Working Group.</p> <p>The MDBA will implement the strategy as agreed.</p> <p>The MDBA may publish this database on its website.</p>	<p>MDBA has renewed our focus on the Environmental Assets and Functions Information System blueprint that was developed by Think Place in 2014-15. The CRC for Spatial Information undertook a proof of concept in 2016 and together these provided the overall strategy. There was consultation with all states and water holders at the time.</p> <p>The stages currently being implemented are foundational and include development of underpinning databases including the detailed design of the assets and functions relational database. This relational database has been designed and is being populated and revised using the few state long term watering plans (LTWPs) that are completed. The database cannot be fully populated until the last LTWP is completed as these are where assets and functions are defined. Consultation with the Environmental Watering Working Group is planned for 2018-19.</p>
Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
<b>Process for assessing inflows (s11.06)</b>		
<p><b>K2</b> Monitor and review inflow volumes within the River Murray System.</p> <p><i>Applicable to BPIA Task 62.1</i></p>	<p><b>Responses should address the following requirement(s) as outlined in the Basin Plan Implementation Agreement:</b></p> <p>Within the River Murray System, the MDBA<sup>1</sup> must monitor and review inflow volumes taking into account the best possible inflow information, tributary inflows, daily, monthly and seasonal weather conditions and trends in climate and inflow patterns.</p>	<p>The MDBA routinely monitors, reviews and engages with service providers to ensure the best management practices are employed in hydrometric data collection and management, and that the assets are maintained to contemporary standards.</p> <p>Murray–Darling Basin Authority River Murray System Summary of River Operations 54</p> <p>The MDBA undertakes routine internal reviews of both hydrographic data and telemetry data to ensure the hydrographic data management, archiving and editing are carried out in accordance with the established industry standards or in compliance with the service provider's standard operating procedures. This involves auditing the age of hydrographic data, rating and data accuracy, data editing practices, and daily monitoring of telemetry systems.</p> <p>A desktop review of the MDBA's hydrometric network was carried out during 2017. As a result of this review, additional DO monitoring was installed at 3 existing sites (Colignan, Boundary Bend and Below Wakool Junction) and rain gauges were added to 5 existing Upper Murray sites to improve the Upper Murray flood forecasting model.</p>

<sup>1</sup> In relation to River Operation including tasks 62-65, the Independent River Operations Review Group (IRORG) has reviewed the Authority's compliance with the Act and the Basin Plan in relation to river operations. IRORG has reported "The Authority was able to demonstrate to IRORG that it had met its obligations under the Act and Basin Plan in relation to these operational functions."

Reporting Matter	Supporting evidence to be provided by MDBA	Response/milestone achievement and compliance status
		<p>Relevant state hydrographic teams routinely undertake gauging at critical sites to ensure the rating tables are within the acceptable ranges. Within the budget constraints, the MDBA believes the current hydrometric monitoring program is effective and sufficiently accurate to meet its obligations under clause 45 of the Agreement.</p> <p>In 2017-18 water year, the River Operations team utilised the “ROWS Flood” hydrographic data and model management system during the 2018 flood training scenario. The team also utilised the recently built and calibrated URBS rainfall and run-off model (in conjunction with ROWS Flood) during the 2018 flood training scenario and at times during day to day operations to test its performance and drive its on-going development. During 2017-18, further enhancements and modification were made to URBS model to improve model skills.</p>

## Attachment A: Theme B - Basin Environmental Watering Priorities (BAEWP) for reference in reporting why watering not undertaken in accordance, under BPs8.44

The table below provides a reference for exception-based reporting under BPs8.44 at sB4b of this annual reporting template. The table lists Basin annual environmental watering priorities for 2017-18 and the relevant jurisdiction.

Themes	Basin annual environmental watering priorities for 2017-18 (further details of the priorities are located in the report 'Basin environmental watering priorities – Overview and technical summaries – 30 June 2017' <a href="https://www.mdba.gov.au/sites/default/files/pubs/e-water-priorities-2017-18.pdf">https://www.mdba.gov.au/sites/default/files/pubs/e-water-priorities-2017-18.pdf</a> )	Relevant jurisdiction
Fish	1. (FISH) <b>Southern Basin</b> : Support Basin-scale population recovery of native fish by reinstating flows that promote key ecological processes across local, regional and system scales for the southern connected Basin.	NSW, Vic, SA, CEWH and TLM
	2. (FISH) <b>Barwon–Darling</b> : Improve flow regimes and connectivity to maximise the ecological function of the Barwon–Darling river system for native fish.	NSW, Qld and CEWH
	3. (FISH) <b>Whole of Basin</b> : Support viable populations of threatened native fish and maximise opportunities for range expansion and the establishment of new populations.	NSW, Vic, Qld, SA, ACT, CEWH and TLM
Waterbirds* See Notes for relevant waterbird management strategy 3-8	4.a (BIRD) Narran Lakes: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 3, 4, 5 and 7 [moderate water resource availability scenario]*	Qld, NSW and CEWH
	4.b (BIRD) Gwydir Wetlands: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 3 and 6 [wet water resource availability scenario]*	NSW and CEWH
	4.c (BIRD) Macquarie Marshes: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 3, 6 and 7 [wet water resource availability scenario]*	NSW and CEWH
	4.d (BIRD) Booligal Wetlands: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 3, 7 and 8 [very wet water resource availability scenario]*	NSW and CEWH
	4.e (BIRD) Great Cumbung Swamp: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 3, 7 and 8 [very wet water resource availability scenario]*	NSW and CEWH
	4.f (BIRD) Lake Brewster: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 3, 7 and 8 [very wet water resource availability scenario]*	NSW and CEWH
	4.g (BIRD) Fivebough Swamp: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 7 [wet water resource availability scenario]*	NSW and CEWH
	4.h (BIRD) Lowbidgee Floodplain: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 3, 6 and 7 [wet water resource availability scenario]*	NSW and CEWH
	4.i (BIRD) Gunbower-Koondrook-Perricoota: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 3, 6 and 7 [wet water resource availability scenario]*	NSW, Vic, CEWH and TLM

Themes	<b>Basin annual environmental watering priorities for 2017-18</b> (further details of the priorities are located in the report 'Basin environmental watering priorities – Overview and technical summaries – 30 June 2017' <a href="https://www.mdba.gov.au/sites/default/files/pubs/e-water-priorities-2017-18.pdf">https://www.mdba.gov.au/sites/default/files/pubs/e-water-priorities-2017-18.pdf</a> )	Relevant jurisdiction
	4.j (BIRD) Kerang Wetlands: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 3, 6 and 7 [wet water resource availability scenario]*	Vic and CEWH
	4.k (BIRD) River Murray & Euston Lakes: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 7 [wet water resource availability scenario]*	NSW, Vic, CEWH and TLM
	4.l (BIRD) Darling Anabranch: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 7 [moderate water resource availability scenario]*	NSW, CEWH and TLM
	4.m (BIRD) Lindsay-Walpolla-Chowilla: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 7 [wet water resource availability scenario]*	SA, NSW, Vic, CEWH and TLM
	4.n (BIRD) Barmah–Millewa: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 3, 6 and 7 [wet water resource availability scenario]*	NSW, Vic, CEWH and TLM
	4.o (BIRD) Corop Wetlands: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 7 [wet water resource availability scenario]*	Vic and CEWH
	4.p (BIRD) Pyap Lagoon: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 7 [wet water resource availability scenario]*	SA and CEWH
	4.q (BIRD) Hattah Lakes: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 3, 6 and 7 [wet water resource availability scenario]*	Vic, CEWH and TLM
	4.r (BIRD) Lake Buloke: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 7 [wet water resource availability scenario]*	Vic and CEWH
	4.s (BIRD) Coorong: Improve the abundance and diversity of the Basin's waterbird population by using the following waterbird management strategies: 3, 6 and 7 [wet water resource availability scenario]*	SA, CEWH and TLM
	4.t (BIRD) Other Sites: Improve the abundance and diversity of the Basin's waterbird population.	NSW, Vic Qld, SA, ACT, CEWH and TLM
Vegetation	5. (VEG) <b>Whole of Basin:</b> Enable recruitment of trees and support growth of understorey species within river red gum, black box and coolibah communities on floodplains that received overbank flooding during 2016 by inundating the floodplains again.	NSW, Vic Qld, SA, ACT, CEWH and TLM
	6. (VEG) Barmah–Millewa Forest: Improve the condition and extent of Moira grass in Barmah–Millewa Forest. Refer to table 6 of the Identifying which priority to employ will depend on the resource availability scenario as set out in <b>Table 6</b> of the ' <b>Basin environmental watering priorities – Overview and technical summaries – 30 June 2017</b> ' report. [wet water resource availability scenario]	NSW, Vic, CEWH and TLM

Themes	<b>Basin annual environmental watering priorities for 2017-18</b> (further details of the priorities are located in the report 'Basin environmental watering priorities – Overview and technical summaries – 30 June 2017' <a href="https://www.mdba.gov.au/sites/default/files/pubs/e-water-priorities-2017-18.pdf">https://www.mdba.gov.au/sites/default/files/pubs/e-water-priorities-2017-18.pdf</a> )	Relevant jurisdiction
Flows and connectivity	7. (FLOW) Coorong, Lower Lakes and Murray Mouth: Improve connectivity between freshwater, estuarine and marine environments and improve habitat conditions in the Coorong by optimising and managing inflows through the Lower Lakes. Not all priorities are relevant in each water year. Identifying which priorities to employ will depend on the resource availability scenario, as set out in <b>Table 7</b> of the ' <b>Basin environmental watering priorities – Overview and technical summaries – 30 June 2017</b> ' report, and the condition of the Coorong, Lower Lakes and Murray Mouth. [wet water resource availability scenario]	SA, CEWH and TLM

\*Note: Waterbird management strategies:

1. Avoid critical loss of foraging and roosting habitat (*note: N/A for 2017-18 priorities*)
2. Maintain foraging and roosting habitat (*note: N/A for 2017-18 priorities*)
3. Support naturally triggered breeding.
4. Maintain breeding habitat in 'event ready' condition.
5. Trigger and support small-to-moderate breeding events.
6. Trigger and provide ongoing support for small-to-moderate scale breeding across functional feeding groups.
7. Create a mosaic of wetlands habitat types.
8. Improve opportunities for large-scale breeding for colonial nesting waterbird