



## Commonwealth Environmental Water Holder submission on the review of the Murrumbidgee Regulated Water Sharing Plan by the Natural Resources Commission

The Commonwealth Environmental Water Holder (CEWH) welcomes the opportunity to make a submission to this review of the Water Sharing Plan for the Murrumbidgee Regulated River Water Sources 2016 (hereafter referred to as the WSP). The statutory functions of the CEWH are performed for the purpose of protecting or restoring the environmental assets of the Murray-Darling Basin (including in the Murrumbidgee Regulated River). This submission has an emphasis on water management to support environmental outcomes and assets, while acknowledging that a healthy river underpins the social, cultural, economic and environmental outcomes, both within the valley and across the Basin.

### Summary of key issues

This submission identifies the following key issues to be considered in the review of the WSP:

- provide meaningful monitoring and evaluation reporting that quantifies how well aspects of the WSP contribute to its objectives
- provide appropriate access to cultural water for the First Nations of the Murrumbidgee Valley
- improve unregulated and regulated WSP connections to support environmental water use
- improve monitoring and management of translucent flows to achieve environmental objectives
- revise and improve end of system flow rules and other water quality management tools, for both the Murrumbidgee River and Yanco and Billabong Creeks
- apply greater consideration of environmental watering requirements and objectives in weir operations, and
- when complete include references to the new *Yanco Creek System Operations Plan* from the SDLAM Yanco Creek Modernisation project in the WSP.

### 1. To what extent do you believe the plan has contributed to environmental, cultural, social and economic outcomes?

The WSP sets objectives and performance indicators for environmental, cultural, social and economic outcomes. In addition, the [Murrumbidgee Surface Water Monitoring, Evaluation and Reporting Plan](#) conceptually links the WSP's environmental objectives to both Long Term Watering Plan and Basin Plan objectives, and reporting on monitoring outcomes against the requirements of Schedule 12 of the Basin Plan.

However, beyond Schedule 12 reporting under the Basin Plan, we are unaware of any specific reporting against the performance indicators or assessment of the effectiveness of the strategies listed in the WSP, as specified in Part 2 of the WSP. It is therefore difficult to assess the extent to which the WSP is contributing to environmental, cultural, social and economic outcomes.

Targeted ecological monitoring, such as CEWH funded Murrumbidgee Selected Area Flow-MER monitoring is not designed to assess listed WSP objectives. However, it does support the evaluation of environmental water use, including in some cases, the use of planned environmental water made available through the WSP. The latest report is available here:

<https://www.dcceew.gov.au/water/cewo/catchment/murrumbidgee/monitoring> and further information on the program is available here: <https://flow-mer.org.au/selected-area-murrumbidgee/>

Some key outcomes from the delivery of Commonwealth and NSW water for the environment (held and planned) in the Murrumbidgee include, supporting:

- increased diversity of native water-dependent vegetation at sites receiving water for the environment, as compared to those not
- waterbird breeding for a diverse range of species (including threatened species) at numerous sites across the Murrumbidgee Valley, including an estimated 102,000 nesting pairs of waterbirds (predominantly ibis and pelicans) in Gayini Nimmie-Caira in 2022–23
- breeding of six frogs species; with the return of the nationally threatened southern bell frog populations in the Lowbidgee to greater than pre-Millennium Drought numbers, and their continued range expansion
- populations of a range of native fish, including threatened species
- spawning and recruitment of golden perch in the Yanga National Park floodplain
- movement of native fish between the Murrumbidgee and Murray Rivers, and between the Murrumbidgee River and floodplain creeks
- water quality, including mitigating low dissolved oxygen conditions in the Lower Murrumbidgee River and Yanco Creek system to protect aquatic animals, and
- increased inundation extents and lateral connectivity of critical refuge habitats in dry years critical for the aquatic vegetation and aquatic animals dependant on them.

## 2. What changes do you believe are needed to the water sharing plan to improve outcomes?

### *Improving access to water for First Nations people of the Murrumbidgee Valley*

The CEWH acknowledges the First Nations of the Murrumbidgee Valley as the Traditional Custodians of its lands and waters and recognises their ongoing connection to culture and country. The CEWH supports the need to increase First Nations peoples' ownership, access, and management of water.

The WSP provides a 2150 ML Aboriginal cultural access license (CAL) (Part 8, Section 67 (3) & (4)). The review and any changes to the CAL need to be made with the close engagement of First Nations people in the Murrumbidgee Valley. This should include:

- identifying mechanisms to allow greater access
- providing better support for those seeking to access and use the water
- providing greater flexibility in the use of the licence as determined by First Nations organisations and peoples, which may include economic outcomes and the capacity to trade water (equivalent to other water entitlements), and
- arrangements for holding cultural water.

Additionally, use of the CAL is limited in some areas of the lower Murrumbidgee due to restrictions on certain Lowbidgee extraction points, which limits CAL use by Nations in the lower Murrumbidgee.

The Murrumbidgee CAL specific purpose access rules changed in the December 2022 version of the WSP, it is unclear whether any consultation was undertaken when making this change. The CEWH has heard from First Nations organisations concerned about the lack of consultation when making this change. The CAL rules have been amended to include Part 7 section 45 (2) and (4), which adds

the ability for an Aboriginal person to apply for a specific access licence of 10 ML. However, the plan then specifies that these licences must not exceed the total volume of the CAL (2150 ML). This would mean that useability of CALs for nations or groups, who have at times used large proportions of the CAL, may be limited. This means a maximum of 215 Aboriginal people in the Murrumbidgee can apply for a specific access licence. Further consultation should be undertaken on the rule change, including consideration of options for making the 10 ML licences per person be “in addition to” the existing 2150 ML of CAL.

The CEWH would support, through consultation with First Nations, improvements to the WSP to enable First Nations opportunities to more easily access and manage the CAL.

### *Responding to the recommendations of the Murrumbidgee Long Term Water Plan*

There are issues identified in the Murrumbidgee Long Term Water Plan (LTWP) which need to be addressed to improve WSP outcomes. A summary is below (for detail see Table 26; LTWP Part A). The CEWH supports implementing the recommendations made in the Murrumbidgee LTWP including:

- Protection of environmental flows, including LowBidgee Supplementary Licences
- Improved interaction between Murrumbidgee Regulated and Unregulated WSP
- Improved Water Quality monitoring requirements
- Improved tools to manage fish deaths
- Opportunities to temporarily remove weir gates
- Formalise Channel sharing arrangements, and
- Intervalley transfer management to protect against hypoxic blackwater events.

Some of these matters are expanded on below.

### *Held Environmental Water (HEW)*

#### *Improved interaction between Murrumbidgee Regulated and Unregulated WSP*

The WSP has made provisions that allow for the partial or complete protection of Planned Environmental Water (PEW) in unregulated waterbodies. However, in the instance where regulated environmental water enters unregulated waterbodies (for example an off-river lagoon), this water is not adequately protected. It is important that the regulated and unregulated WSP complement each other. For example:

- In the Mid-Murrumbidgee, HEW may be delivered into wetlands via high pulses, pumping or via infrastructure. Some of these wetlands have unregulated licences associated with them. These licences allow the unregulated licence holders to draw down wetlands, regardless of whether that wetland holds a proportion of HEW, essentially limiting environmental outcomes.
- In the Lowbidgee, HEW may be delivered via the Murrumbidgee River (regulated water source) into lakes, e.g., Tala or Yanga Lake (unregulated water source). In instances it may be desirable to redirect/pump that water further into a second wetland location to achieve environmental outcomes. This use is unsupported by the WSP rules, without environmental water holders being debited again for the water.

#### *Weir pool Management and accounting*

Murrumbidgee River operators at times require environmental water holders to order HEW to fill weirs to enable the delivery of environmental water into off channel areas. For example, environmental water has been used to fill Redbank Weir to deliver environmental water into North

Redbank wetland areas. As far as we know this is not required of other general security license holders. It is understood that this is required because water for the environment is often delivered during irrigation “off-season”, which can coincide with WaterNSW lowering weir pools for infrastructure maintenance. Environmental water holders should not be penalised because the environment deliveries require different timing than traditional irrigation schedules. River operations and the WSP needs to accommodate more effectively and equitably the water delivery requirements (timing) of all entitlements holders and not penalise one user type when meeting their needs. Changes in operations to meet changing demands has been a feature of water management in the Southern Connected Basin.

#### *Supplementary licences - Ordering and Protection of HEW*

High flows and floodplain connections remain a high priority of the CEWH. The CEWH holds a large volume of regulated river Supplementary Allocation Licences (SAL) and Lowbidgee SALs. SAL access is usually associated with high river flows. Traditionally SALs are pumped or diverted from the main river channel. The CEWH, however, would like the ability to order supplementary water so that water remains in-channel and to demonstrate its protection within and beyond the Murrumbidgee via Prerequisite Policy Measures (PPMs).

#### *Lowbidgee SAL - rule change in amended December 2022 plan*

Regarding announcing Lowbidgee supplementary access (Part 8) the wording has changed in the December 2022 amendments. Part 8 section 50 3 (B) states that regarding Lowbidgee supplementary licences, the minister must not announce supplementary water if the uncontrolled flow “...in the Minister’s opinion” can be re regulated into the Murray. This language is a change and may bring a level of subjectiveness into the announcements. This may have the ability to affect the reliability of licences. Further detail and consultation on this change is essential to ensure there is no diminution in yields for SALs.

#### *Planned Environmental Water (PEW)*

The efficient and effective use of the Commonwealth water holdings are predicated on PEW being protected as per the intention of the Basin Plan (s10.28). Any changes that reduce the protection of PEW could increase the risk to priority environmental assets and the capacity of the CEWH to support targeted outcomes in the Murrumbidgee catchment. To provide certainty to the management and protection of environmental water, further refinement of operational arrangements, improved transparency and clarification is necessary. The purpose of the planned environmental water rules should be clearly articulated, with monitoring and reporting in place to determine whether it is meeting intended environmental objectives, and it should be explicitly accounted for. In addition, review of its operational management should form part of regular planning discussions with environmental water managers.

#### *Translucency and Transparency Flow rules*

Transparent and translucent flows are linked to natural triggers. Maintaining natural cues and natural flow integrity is important to achieve ecological outcomes. This form of PEW is intended to maintain a proportion of the natural high flow events. However, at times it is evident that these events are “flattened out”, due to downstream risks. Flexibility exercised by river operators, results in releases that are longer, lower, and more extractable, impacting its environmental benefit.

Long-term monitoring of the ecological benefits of specific aspects of water sharing plan rules would be beneficial. For example, the translucency rule at Burrinjuck is designed to scour biofilm in the channel below the dam, however, there is little evidence that the rule or the way it is interpreted is meeting objectives.

The effectiveness of transparent and translucent flow provisions should be reassessed in the mitigation of medium and high risks identified in the WRP Risk Assessment. This includes assessing options for protecting transparent and translucent flows to the end of the Murrumbidgee system, including the Yanco Creek System, to enable inundation of downstream priority ecological assets and functions, and actively managing translucent flows to replicate as much of the natural cues flow rates as possible.

In addition, the new rule division 5 section (78) for orders made under the Piggybacking Procedures manual allow environmental water managers to request that water be delivered from a particular water storage. However, an additional rule which permits “piggy backing” of HEW on top of translucent flows may at times be beneficial. Currently in periods where translucent flows are occurring, if an environmental water holder places an order, the water order is debited from the translucency releases. For example, if translucent flows are occurring from Burrinjuck Dam, additional HEW from Burrinjuck cannot be added to the translucent release without being debited for the full release including the translucent component.

#### *End of System Flow Rules*

End of system (EOS) flows (at Balranald and Darlot) provide an important source of water for environmental assets within the Murrumbidgee regulated water source as well as being important for river communities. These flows are critical for maintaining water quality during extreme dry and hot periods. The Murrumbidgee WRP Risk Assessment identifies high and medium risks for water quality.

In the past 10-15 years there has been significant changes in the pattern of water demand across the southern connected basin, including periods of significant trade into the Murrumbidgee. Change in water use behaviour has had a direct effect on the volume of inter-valley transfer (IVT) passing through the Murrumbidgee and contributing to EOS flows. An evaluation of the January 2019 fish deaths in the Murrumbidgee identified changes in IVT use patterns as a contributing factor to the decline in water quality, as these flows previously provided a mitigation to the onset of weir pool stratification<sup>1</sup>. With ongoing climate change and the likelihood of accompanying increasing heat wave events, the risk of fish deaths is likely to increase.

The severe water quality issues experienced in recent years and the fish death event in Redbank weir pool in 2019 indicate that current risk mitigation strategies are not effective in addressing current or future risks. The Murrumbidgee LTWP lists 170 ML a day at Balranald and 40 ML a day at Darlot as a very low flow, the EOS flow target in Summer can sit as low as 180 ML a day for Balranald and 50ML a day year-round for Darlot, this is even during very risky hot periods. At times environmental water managers have worked to ensure that the EOS flow at Balranald is higher to manage risks. However, this is often not enough.

The assessment of climate change related risks presented in the draft WRP Risk Assessment indicate that flow related risks are expected to increase in severity and occurrence, further exacerbating impacts from changes in system operations. The WRP and Risk Assessment does not provide strong evidence that the existing strategies will treat the flow related risks. The 2019 severe water quality event provides an indication that the operation of the WSP may not support basic river health. An investigation of the effectiveness of flow rules may include:

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<sup>1</sup> [Baldwin \(2019\)](#) Weir stratification and hypoxic water management - Murrumbidgee River 2019. A report prepared for the Commonwealth Environmental Water Office. 45 pp.

- assessment of risk associated with changes in system operations, including the effectiveness of current end-of-system flow rules to support basic river health, including monitoring
- the establishment of a new critical response EOS flow rule that enables a temporary increase in the minimum flow during November to March, triggered by a severe water quality incident, to be defined within the Incident Response Guide
- revision of Balranald 180 ML a day EOS flow rule to meet the environmental objectives of preventing stratification and maintaining refuges, and
- revision of the 50ML a day EOS flow target at Darlot, with a focus on assessing the impact upstream if this is delivered via Coleambally infrastructure.

#### *Water Quality*

The draft WRP Risk Assessment reports on the risks to the environment from the deterioration of various water quality factors including low dissolved oxygen (DO). The final risk ratings for DO for Hay, Maude and Waldaira were all assessed as low. In the context of the issues already noted, weir pool stratification across the lower Murrumbidgee River during January-February 2019, enhanced risk under climate change and changes to system operations (e.g. IVT patterns), the risk assessment and adequacy of mitigation measures at these locations should be re-assessed.

The Incident Response Guide (IRG) did not have sufficient detail to properly support the management of the 2019 water quality issue. The lack of detailed information on what would trigger the implementation of the IRG (i.e. moving into stage 2) resulted in uncertainty. HEW was eventually used in the absence of effective rules within the context of the WSP and WRP to manage the water quality risks.

The operation of the WRP/WSP to manage resource risks to both the environment and communities must contain effective risk management strategies and procedures that do not rely upon HEW to underpin the operation of the WSP.

It is recommended:

- the water quality risk assessment should be re-assessed for areas downstream of Hay weir, in the context of observed water quality issues and climate change risks
- the review of EOS flow rules as described above
- there is investigation of new rules with a focus on operating rules related to the end-of-system flow rules (specific to critical response), management of rainfall rejections the management of IVT and trade restrictions (consistent with Basin Plan Trade rules s12.18),
- the WQMP identifies a process for investigating new operating strategies such as weir pool draw down and specific monitoring and assessment procedures, and
- the IRG includes specific water quality triggers and thresholds to provide clarity on the responsibilities of parties in the management of critical water quality events to allow timely responses, for example exploring a limit on the percentage of flow from Tom Bullen storage in summer – linked to blue green algae count.

#### *Sustainable Diversion Limit Adjustment Mechanism (SDLAM) – Yanco Creek Modernisation Project*

The Yanco Creek modernisation SDLAM project is investigating the modernisation of infrastructure to enable smarter use of water in the Yanco Creek System – including Yanco, Billabong, Colombo and Forest Creeks, and associated wetlands. It involves a series of initiatives aiming to improve water management as part of commitments within the SDLAM program.

The project has developed a working *draft Yanco Creek System Operations Plan*. The operations plan proposes how the Yanco Creek System once SDLAM works are complete should be operated into the

future for river operators, local communities, and other stakeholders. Of particular concern is the ability for EOS flows to be delivered via Coleambally irrigation area meaning the upper Yanco system may be in very low flow periods for longer under the SDL. Once finalised, the *Yanco Creek System Operations Plan* should be considered in relation to the WSP and ensure the plans are complementary.

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