
Department of Planning and Environment

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2020-21 Active Management Annual Evaluation and Review

Summary Report

July 2022



Acknowledgement of Country

The Department of Planning and Environment acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and we show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

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Introduction

This report is a summary of the 2020-21 active management annual evaluation and review (the review). The review is the first since the rules commenced 1 December 2020 in the Barwon-Darling, Gwydir and Macquarie-Bogan unregulated water sources.

The review is the product of substantial contributions from DPE-Water's partner agencies – WaterNSW, DPE-Environment and Heritage (DPE-EHG) and the Natural Resource Access Regulator (NRAR) – who submitted annual reports to DPE-Water. These included 57 issues raised by stakeholders or agencies and 10 partner-agency recommendations. The contributions have enabled a thorough review of active management in its first year of implementation, resulting in a total of 39 DPE-Water-endorsed recommendations.

The full review report will be made available on the department's Environmental Water Hub.

Terminology

Term or abbreviation	definitions and descriptions
active environmental water (AEW)	<p>Water that the NSW Minister for Water identifies as requiring protection from extraction on a given day, in accordance with the active management procedures manuals for the unregulated Barwon-Darling, Gwydir and Macquarie-Bogan water sources. AEW includes:</p> <ul style="list-style-type: none"> held environmental water (HEW) flowing from an upstream water source planned environment water (PEW) from upstream water sources protected from extraction under the existing water sharing plan rules licensed unregulated river water where the licence holder has notified the Minister that they want the water left in the unregulated river water source and protected from extraction.
active management rules	<p>Water sharing plan rules for the unregulated Barwon-Darling, Gwydir and Macquarie-Bogan water sources that enable the river operator to raise access thresholds by an amount necessary to protect active environmental water from extraction.</p>
announcements	<p>WaterNSW's daily announcements of flow class and volumes distributed to licence holders.</p>
deviation	<p>An action by WaterNSW or DPE-Water that does not follow the active management procedures.</p>
Environmental Water Management Coordination Group	<p>A working group established to resolve issues relating to the implementation of NSW environmental water reforms. The group includes representatives from DPE-Water, WaterNSW and NRAR.</p>
individual daily extraction components (IDECs)	<p>A daily extraction limit for individual licence holders.</p>
mismatch	<p>The difference between distributed volumes (based on forecast flows) and volumes that should have been distributed (with the benefit of observed flows) for a management zone.</p>
'no-flow share' procedure	<p>Procedure 19 in the current Barwon-Darling procedures manual which allows access to all licence holders if available water is greater than the sum of individual daily extraction components in their management zone.</p>
one-gauge rule	<p>Clause 49A (5) of the Barwon-Darling water sharing plan that allows the remaining functional gauge to be used to determine and announce access if the other gauge is not functioning.</p>

Term or abbreviation	definitions and descriptions
partner agencies	DPE-Water, WaterNSW, DPE-EHG and the NRAR.
procedures	The operational procedures for active management described in the procedures manuals established under the water sharing plans for the unregulated Barwon-Darling, Gwydir and Macquarie-Bogan.

Purpose and structure of the review

The purpose of the review is to inform the ongoing development and improvement of the implementation of active management rules in the unregulated Barwon-Darling, Gwydir and Macquarie-Bogan. The main consideration for the review is whether the primary objective of the active management rules was achieved during the 2020-21 review period. That is, whether the active management procedures were effective at protecting active environmental water (AEW) from extraction in areas where the rules apply.

This review assesses the primary objective and the Barwon-Darling, Gwydir and Macquarie-Bogan procedures manuals (procedures 31, 25 and 32 respectively) and outlines additional matters for consideration. Accordingly, the review considers and includes:

- a) reporting on the implementation of improvements from previous reviews
- b) issues relating to active management raised through consultation with stakeholders
- c) a summary of results and recommendations contained in reports provided by WaterNSW, NRAR and the DPE-EHG
- d) proposals for variations or new procedures brought forward by agencies or stakeholders
- e) an assessment of whether:
 - procedures were followed for active management
 - any deviations from the procedures occurred and any modifications to the procedures that may be required to avoid future deviations, where possible
 - the current active management procedures and their operation provide for AEW to remain in the water source for environmental purposes
 - the risk management measures in place are effective in protecting AEW and ensuring that access by water users to water above the access thresholds arising from other sources has not been impacted, and
 - the active management procedures should be expanded, modified or remain unchanged
- f) recommendations to change the manuals, the active management policy or [relevant] water sharing plan rules relating to active management.

The procedures manuals also include a requirement to consult with stakeholders on the ability of the procedures to meet the objectives and principles of active management and consideration of criteria to trigger the mismatch procedures in the Barwon-Darling and Gwydir.

Key findings

Between 1 December 2020 and 30 June 2021, the newly implemented active management rules in the Barwon-Darling, Gwydir and Macquarie-Bogan protected a total of 103 gigalitres of AEW from extraction. The protection occurred during three actively managed flow events in the Barwon-Darling (77.8 gigalitres) and one in the Macquarie-Bogan (25.7 gigalitres). The active management rules were not applied in the unregulated Gwydir because no Held Environmental Water (HEW) flowed into the system and no water was nominated for protection by licence holders in the unregulated Gwydir during the review period.

The procedures were largely effective at protecting active environmental water, although some gaps exist

A key finding from the evaluation and review was that the procedures were largely effective at allowing AEW to remain in the water source for environmental purposes. Management of backflows from the Barwon-Darling into the Macquarie-Bogan, however, represents the largest gap in protection of AEW. Inconsistencies with access thresholds for Schedule 2 and 2A licences in the Barwon-Darling are another, smaller procedural gap, while systems to announce and protect active management flow events and manual travel time adjustments for AEW represent operational gaps in protection. Finally, challenges in assessing compliance monitoring information means there is some uncertainty around the level of water user compliance with active management procedures. This issue is being addressed through recommendations to improve the collation of information.

The procedures were mostly followed, with four deviations reported

Procedures were mostly followed, although four deviations were reported by WaterNSW. One deviation included two occasions in the Barwon-Darling when DPE-Water permitted two licence holders to pump above their individual daily extraction components (IDECs). The allowances were made to accommodate unique circumstances caused by mismatches from local rainfall and the one-gauge rule overlapping with 'resumption of flows' restrictions. On both occasions, risk management measures were put in place by DPE-Water to protect AEW.

Another notable deviation was WaterNSW overlooking a 24 hour, 500 megalitre environmental water event in the Macquarie-Bogan, which meant it was unprotected. Post-event analysis showed the lack of protection did not affect the environmental flow event on this occasion.

The remaining deviations were less severe and related to one corrected announcement following a system error and adjustments to Schedule 2 licences to account for AEW.

Managing flow forecasting uncertainty remains a key challenge for active management

The main residual risk to the effectiveness of active management is uncertainty in flow forecasting. This uncertainty contributes to mismatches between the announced/allocated volumes versus the observed or post-calculated flows in a management zone. WaterNSW manages this risk through their operational measures to minimise uncertainty.

A review of 'mismatch' data found WaterNSW's measures to be appropriately conservative, as the total proportion of 'under-announced' volumes was small – 1.2% of total AEW and 1.5% of total water available for extraction. That is, the measures strike an acceptable balance between being overly conservative and underestimating AEW and water available for extraction. However, the measures are complex to implement and several issues relating to the mismatch procedures were raised by partner agencies and stakeholders. These issues included water users' social licence to 'mine the tail' of flow events, suggesting further consideration of the mismatch procedures is required.

Sub-daily 'corrective' announcements could address the mismatch issues

To address the issues with forecasting uncertainty and mismatches, WaterNSW recommended sub-daily 'corrective' announcements be incorporated into the Barwon-Darling water sharing plan and procedures manual. Corrective announcements would enable a single adjustment on the day of the announcement, as flows become more certain, which could reduce mismatch volumes and its associated issues.

The 'no-flow share' procedure contradicts the Barwon-Darling water sharing plan and exacerbates mismatch volumes

The no-flow share procedure (Procedure 19) allows water users in the Barwon-Darling to access water without submitting an expression of interest, which is a requirement under the water sharing plan clauses 46(1) and 47(5). Procedure 19 also exacerbates mismatch volumes and allows non-extractive users to receive an extractive allocation.

The 'one-gauge' rule enabled access to water that would have otherwise been below thresholds

Another key issue is related to the 'one-gauge' water sharing plan rule in the Barwon-Darling (clause 49A(5)), where the remaining functional gauge is used to determine access if the other gauge is not functioning. This rule enabled licence holders to access water when flows were below thresholds at the non-functional downstream gauge but above thresholds at the functional upstream gauge. WaterNSW recommended that DPE-Water amend the rule so access can be based on the forecast (modelled) flow, rather than the remaining functional gauge.

Addressing other issues raised by stakeholders will improve effectiveness and efficiency of active management

Other key issues from the review include:

- the need for new gauges on Marthaguy Creek upstream of the Terrigal confluence and replacing the Tara gauge (both being progressed through other projects)
- water user requests for real-time visualisations of AEW and extraction data reporting, which would also assist compliance monitoring for NRAR and increase transparency for partner agencies and stakeholders
- the need for more streamlined annual reporting methods for partner agencies
- several issues and recommendations related to specific operational and licence holder concerns, some of which are being progressed through other DPE-Water projects (i.e. the Macquarie Issues List and the Claydon Review Recommendations Implementation Project).

Next steps

The next steps in the continuous improvement of active management will be (1) determine how to progress the recommendations, (2) consult with stakeholders on the proposed changes to the active management rules and procedures and (3) plan the implementation of any changes.

The Environmental Water Management Coordination Group will determine which recommendations to progress.

Licence holders and peak stakeholder groups will be consulted on the changes to vary water sharing plans, and any changes to the Active Management in Unregulated Rivers Policy or the three active management procedures manuals and their associated operations.

DPE-Water will prepare a workplan to implement the 39 recommendations from the review in collaboration with the Environmental Water Management Coordination Group. The plan will prioritise the recommendations for policy changes and documentation revisions, specifically any updates to the three procedures manuals and the Barwon-Darling Water Sharing Plan. In carrying out the workplan, DPE-Water will collaborate with partner agencies, the Environmental Water Management Coordination Group and managers of relevant projects and programs.

Recommendations

The 39 recommendations are grouped into 5 themes – policy changes, document revisions, further investigations, operational improvements, and communications and engagement – according to the actions required for their implementation. The themes also provide a basis for planning and prioritising their implementation.

Water sharing plan, policy and procedural changes

- R.1 DPE-Water to enable sub-daily (corrective) announcements in the unregulated Barwon-Darling water source, through water sharing plan, procedures manual and operational changes, and consider the implications for compliance monitoring.
- R.2 DPE-Water and WaterNSW to make the required changes to the Barwon-Darling Water Sharing Plan and procedures manual and develop systems to enable temporary trade of IDECs.
- R.3 DPE-Water to consider revising wording for access thresholds in the Barwon-Darling Water Sharing Plan (49A, Table B) from "more than" to "equal to or more than".
- R.4 DPE-Water and WaterNSW to revise trading rules between management zones in the Macquarie-Bogan to manage the impact of trading in/out entitlements with different access thresholds.
- R.5 DPE-Water to remove the requirement to ignore the flow class threshold at a non-functioning flow reference point gauge when making flow class announcements in the Barwon-Darling for management zones that rely on two flow reference points (i.e., WSP sub-clause 49A (5), referred to as the "one-gauge rule"), to allow the use of forecast flows at both flow reference points to determine flow class access.

Document revisions

- R.6 DPE-Water to change the 'no flow share' procedure (Procedure 19 in the Barwon Darling procedures manual) to prevent licence holders who did not submit an EOI from extracting water.
- R.7 DPE-Water and WaterNSW to complete investigations into travel times greater than one day within a management zone and their impact on licence holders in the Macquarie-Bogan (as being progressed through the Environmental Water Management Coordination Group).
- R.8 DPE-Water to advise licence holders in the unregulated Barwon-Darling, Gwydir and Macquarie-Bogan water sources on the maximum period that can be entered for an EOI.
- R.9 DPE-Water to include wording (based on any relevant WSP clauses) in the three procedures manuals relating to the period an announcement applies in the case of a system outage and should clarify that the announcement covers both the flow class and flow share.

- R.10 DPE-Water to amend the three procedures manuals to require WaterNSW to provide a basic summary of active management events in the previous 12 months to 30 June to agencies by 31 August each year.
- R.11 DPE-Water to reinforce the requirement that IDECs shall not be exceeded under any circumstances by stating this in the Barwon-Darling procedures manual.
- R.12 DPE-Water to revise the Barwon-Darling procedures manual to clarify that multiple flow share announcements and flow class announcements (each of 24-hour duration) during times of "high flow" may be announced on one day ("high flow" to be defined) so long as WaterNSW's operational practice of daily accounting is followed.
- R.13 DPE-Water to change reporting templates so that feedback, issues and their recommendations are tracked using a table format.

Further investigations

- R.14 DPE-Water and WaterNSW to review operational feasibility of the mismatch procedures.
- R.15 DPE-Water and the Environmental Water Management Coordination Group to further investigate measures to protect AEW in Barwon-Darling backflows from extraction in the Macquarie, and then implement these measures.
- R.16 DPE-Water to resolve the issue with sleeper/irrigator licences in the unregulated Macquarie-Bogan being able to protect water instream.
- R.17 DPE-Water to consider changes to the WSP clause relating to use of the remaining functional gauge, when data from one gauge is not available [49A (5) Barwon-Darling WSP], to allow forecast flows instead of ignoring the non-functional gauge.
- R.18 DPE-Water and WaterNSW to first explore the rationale behind the inclusion of Procedure 15.3 and Note 5 and then revise the procedure, the Barwon-Darling WSP, and the mandatory and discretionary conditions for Schedule 2 and 2A licences in the WSP to ensure consistency between all three instruments.
- R.19 WaterNSW to review the customer request to change the cut-off time for EOI submission (currently 9 am on previous day).
- R.20 WaterNSW to consider including a graphical representation of AEW on the WaterInsights portal and implement where practical.
- R.21 WaterNSW to pursue opportunities to improve flow forecasting in the Barwon-Darling (in line with Claydon Review Recommendation 2 and 3).
- R.22 DPE-Water and WaterNSW to make changes to the Gwydir procedures manual to reflect the practices of not announcing access when normal conditions apply in the Gwydir and only announcing on days when active management rules apply.
- R.23 DPE-Water to conduct an analysis on the likelihood of an issue (issue 12 in Table 5 of the full report) between two licence holders in the Macquarie-Bogan.

- R.24 WaterNSW to consider development of a system/process to facilitate Aboriginal supplementary access licences in the Barwon-Darling.
- R.25 WaterNSW and NRAR to explore options for dynamic (near real-time) comparison of extraction data and daily access announcements.
- R.26 DPE-Water to investigate development and implementation of an active management event reporting portal so agencies can report events, track compliance, report issues and put forward recommendations throughout the year

Operational improvements

- R.27 WaterNSW to change operational systems to prevent full IDEC announcement for licences that did not submit an EOI when the rules allow this.
- R.28 DPE-Water to review interim measures used by WaterNSW to address issues with Tara gauge and either endorse the measures or propose new measures.
- R.29 WaterNSW to identify extraction points along management zones in the Barwon-Darling and incorporate into the forecasting model to improve flow forecasts in the downstream zone.
- R.30 DPE-Water to change procedures to require environmental water licence holders to (a) nominate the end of the upstream regulated system as the delivery location when the water is then to be actively managed in the Barwon-Darling, and to (b) place such orders via iWAS.
- R.31 DPE-Water to progress installation of a new gauge at Marthaguy Creek near upstream of the confluence with Terrigal Creek (prioritised in the Hydrometric Improvement Plan).
- R.32 WaterNSW to make access announcements from all prior water years publicly available through their WaterInsights portal.
- R.33 WaterNSW and NRAR to establish an advanced notification protocol to facilitate timely active management compliance monitoring.
- R.34 WaterNSW to replace/relocate Tara gauge and DPE-Water to update references to the gauge in the Barwon-Darling WSP and procedures manual.
- R.35 WaterNSW to revise the announcement system to minimise opportunity for human error.
- R.36 WaterNSW to review and improve systems to ensure all active environmental watering events are reported and protected.
- R.37 WaterNSW to ensure impacts on AEW volumes are avoided when manually changing travel time.

Communications and engagement

- R.38 DPE-Water and WaterNSW to address stakeholder concerns around the resumption of flows rule through external communications.
- R.39 DPE-Water to notify licence holders of current trading rules between zones with different access thresholds.