

Boundary Creek, Big Swamp and Surrounding Environment – Remediation and Environmental Protection Plan

QUARTERLY UPDATE

1 April to 30 June 2023

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Introduction

In June 2017, Barwon Water acknowledged that the historic management of periodic groundwater pumping activities at the Barwon Downs borefield, conducted between 1982 and 2016, had led to a reduction in groundwater contribution from the Lower Tertiary Aquifer into Boundary Creek, a tributary of the Barwon River. This reduction, in conjunction with the changes in land use, Millennium Drought, and the complexities associated with management and regulation of a private on-stream dam that controls flows into the lower reaches of Boundary Creek, resulted in the increased frequency and duration of 'cease to flow' and 'acid flush' events along Boundary Creek and Big Swamp – a wetland that is primarily fed by inflows from Boundary Creek. This was despite meeting the provisions set out in the groundwater extraction licence(s) that were intended to offset the potential impacts from Barwon Water's groundwater pumping activities on Boundary Creek.

In May 2018, Barwon Water established a community and stakeholder working group to help inform the development of a Remediation Plan to address the impacts caused by Barwon Water's activities. In September, 2018, Barwon Water's commitment to undertake remedial works was legally strengthened through the issuing of a Ministerial Notice by Southern Rural Water (SRW) under section 78 of the *Water Act 1989*. The Boundary Creek, Big Swamp and Surrounding Environment Remediation and Environmental Protection Plan was subsequently submitted to Southern Rural Water (SRW) in December, 2019, and was implemented in February, 2020. Noting that this continues to be adapted, as required, in line with the adaptive management approach.

In accordance with the section 78 notice, the controls and actions implemented as part of the Boundary Creek and Big Swamp Remediation Plan have been designed to achieve improved environmental outcomes for Boundary Creek, Big Swamp and the Surrounding Environment. Noting that these do not aim to address the factors beyond Barwon Water's control and that these will continue to impact on the overarching resilience of the system.

A key requirement of the section 78 notice and the REPP is the provision of quarterly updates to Southern Rural Water to report on progress with implementation of the plan, as well as an Annual Report. The section 78 notice also stipulates that the Annual Report is required to be submitted to Southern Rural Water for review and comment before being made publicly available by 30 September each year.

This quarterly update is the thirteenth (13th) since the REPP was implemented on 1 March 2020, and provides a high-level update on progress against the actions and timeframes outlined in the REPP between 1 April and 30 June 2023.

Implementation of the REPP

In accordance with the REPP, Barwon Water has adopted an adaptive management approach, whereby the REPP can be adapted in response to the current 'state of knowledge'. This approach allows Barwon Water to evaluate how the 'confirmed areas of impact' and the surrounding environment are responding to the adopted remedial actions and take further action, such as implementation of contingency measures, if and when required, to minimise the occurrence of high-risk events should these persist following the implementation of the primary remedial actions. Noting that these may take time for improvements to be realised. This approach also ensures that the adopted remedial actions continue to meet the vision, objectives and targets as informed by the community and stakeholder Remediation Reference Group (RRG) and their nominated experts.

To help address the requirements of the section 78 notice and ensure momentum was maintained, a number of key milestones and actions were established. In line with the adaptive management approach, these continue to be updated, as required, to account for the current 'state of knowledge' and to capture any additional actions that Barwon Water has committed to since the implementation of the REPP in March 2020 (refer Figure 1).

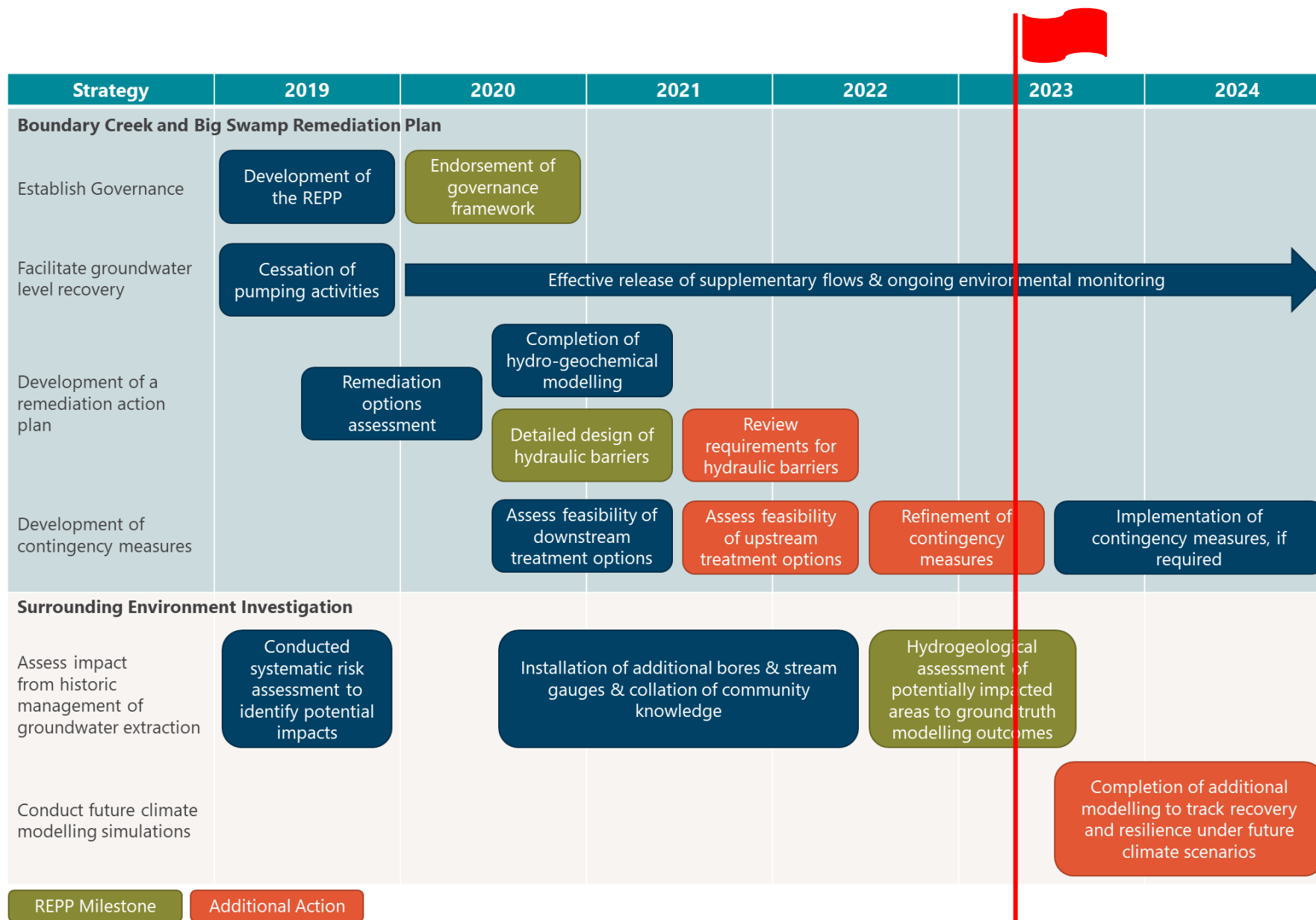


Figure 1: Timeframes for implementation of the REPP

Boundary Creek and Big Swamp

Remediation Plan

Boundary Creek and Big Swamp status update

Based on the most recent data collected as part of Barwon Water's routine environmental monitoring program, the following observations can be made:

- Groundwater levels within Big Swamp's upper aquifer system continue to be maintained above the reactive horizon (i.e. where there is a high potential acidity) (refer Figure 2 and Figure 3). This positive outcome continues to minimise any further oxidation of acid sulfate soils and reduce the severity of wet-dry cycling processes.
- Groundwater levels from bores installed in the Lower Tertiary Aquifer system within Big Swamp continue to indicate the long-term recovery and repressurisation of the Lower Tertiary Aquifer system (refer Figure 2 and Figure 3), with the western end of the swamp consistently reporting artesian conditions since March 2022 (refer Figure 3). This is a positive shift towards restoration of groundwater-surface water interactions in Boundary Creek upstream of Big Swamp.
- Standing water continues to be visible, at least seasonally, within Big Swamp's inundation areas, with visible improvements in the western portion of the swamp compared to March 2022 (refer Table 1). This is a positive transition to providing suitable conditions for desired species and minimise the occurrence of 'acid flush' events, that occur following severe drying events.
- Between 1 July 2022 and 30 June 2023, the pH levels in Boundary Creek downstream of Big Swamp (site 233276) have ranged between 4.4 and 7.7 (average of 6.1 pH units) (refer Figure 4), while the pH levels in Boundary Creek at Yeodene (site 233228) have ranged between 3.8 and 6.5 (average of 5.6 pH units) (refer Figure 5). This is 1.9 pH units above the 2019/20 average, 1.5 pH units above the 2020/21 average and 0.5 pH units above the 2021/22 average. This year-on-year improvement indicates a marked reduction in the frequency and duration of severe acid flush events.
- Between 1 July 2022 and 30 June 2023, average daily streamflow's at stream gauge 233228 (Boundary Creek at Yeodene) have ranged between 0.9 and 154 ML/day, reporting an average daily flow of 15.4 ML/day (refer Figure 4 and Figure 5). This is above the minimum flow target outlined in the REPP.

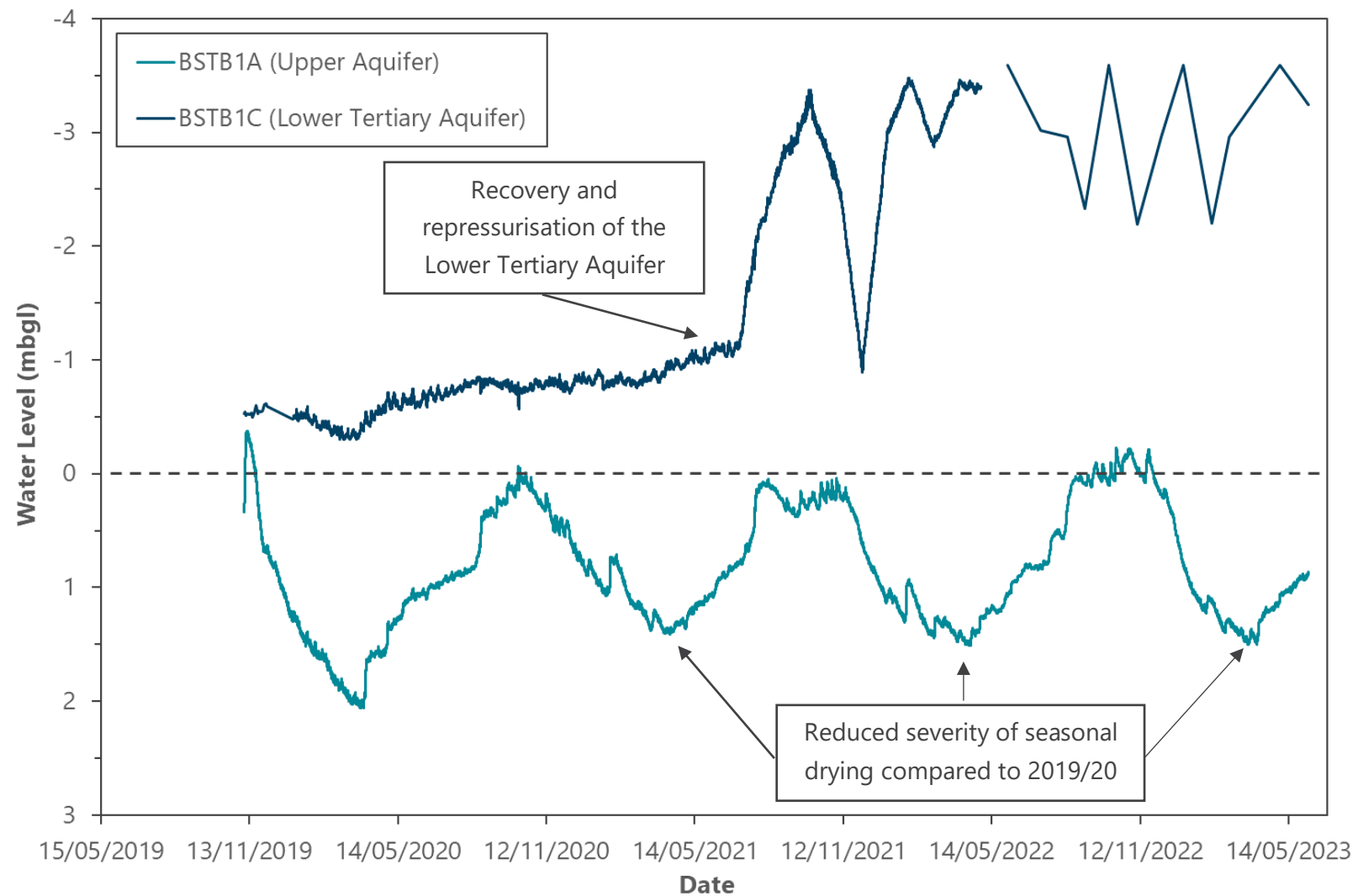


Figure 2 Groundwater levels in the eastern portion of the swamp. Note that since the logger was removed from BSTB1C in April 2022 due to leakage associated with repressurisation of the LTA, the data presented after this time relates to spot sampling data

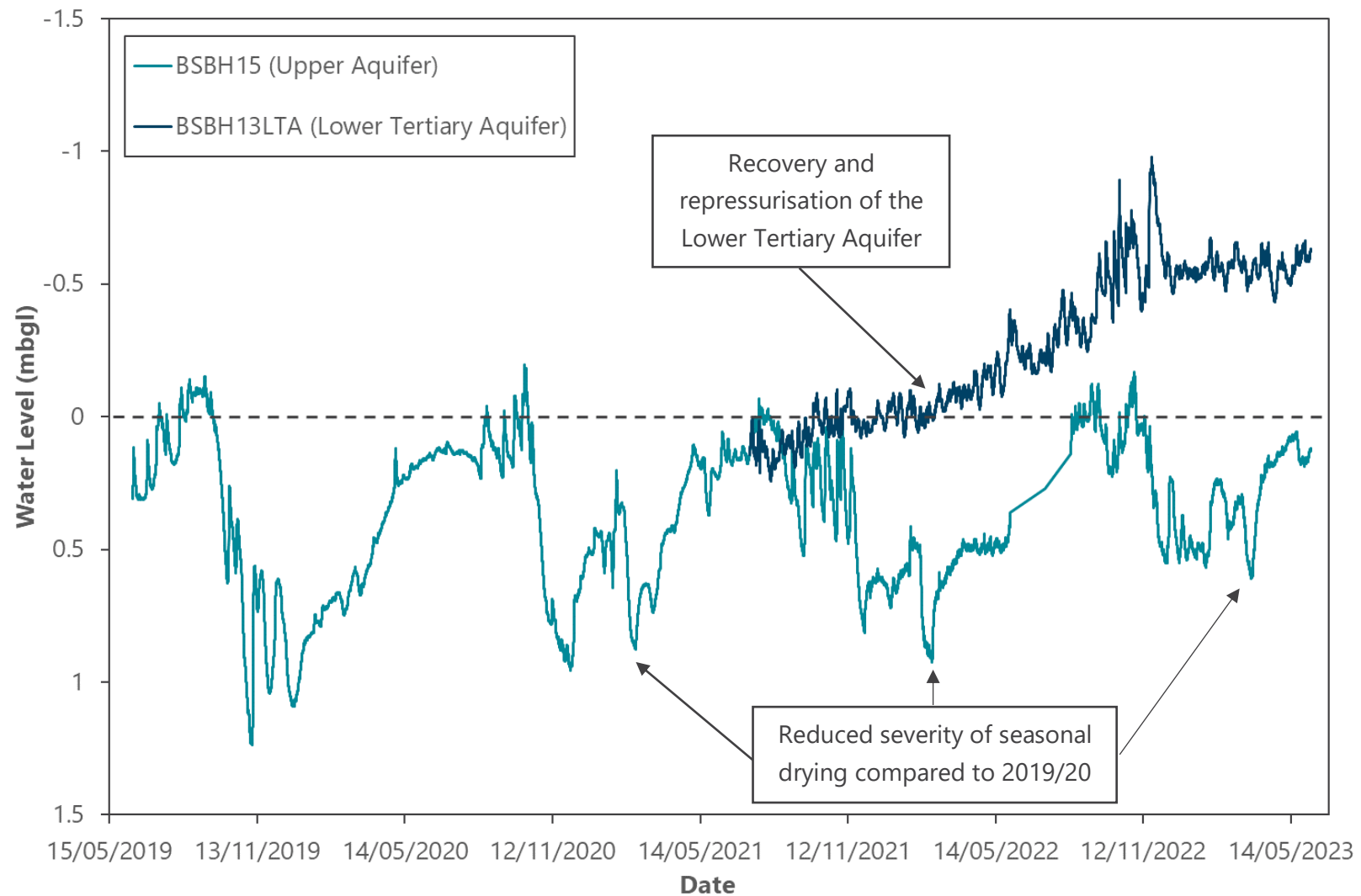


Figure 3 Groundwater levels in the western portion of the swamp. Note that the logger from BSBH15 was found to be missing on 14 July 2022 and was replaced on 15 August 2022, data between these times relates to spot sampling data

Table 1 Visual comparison of Big Swamp between March 2022 and June 2023

Date	Western end of Big Swamp	Eastern end of Big Swamp
March 2022		
October 2022		
February 2023		
April 2023		

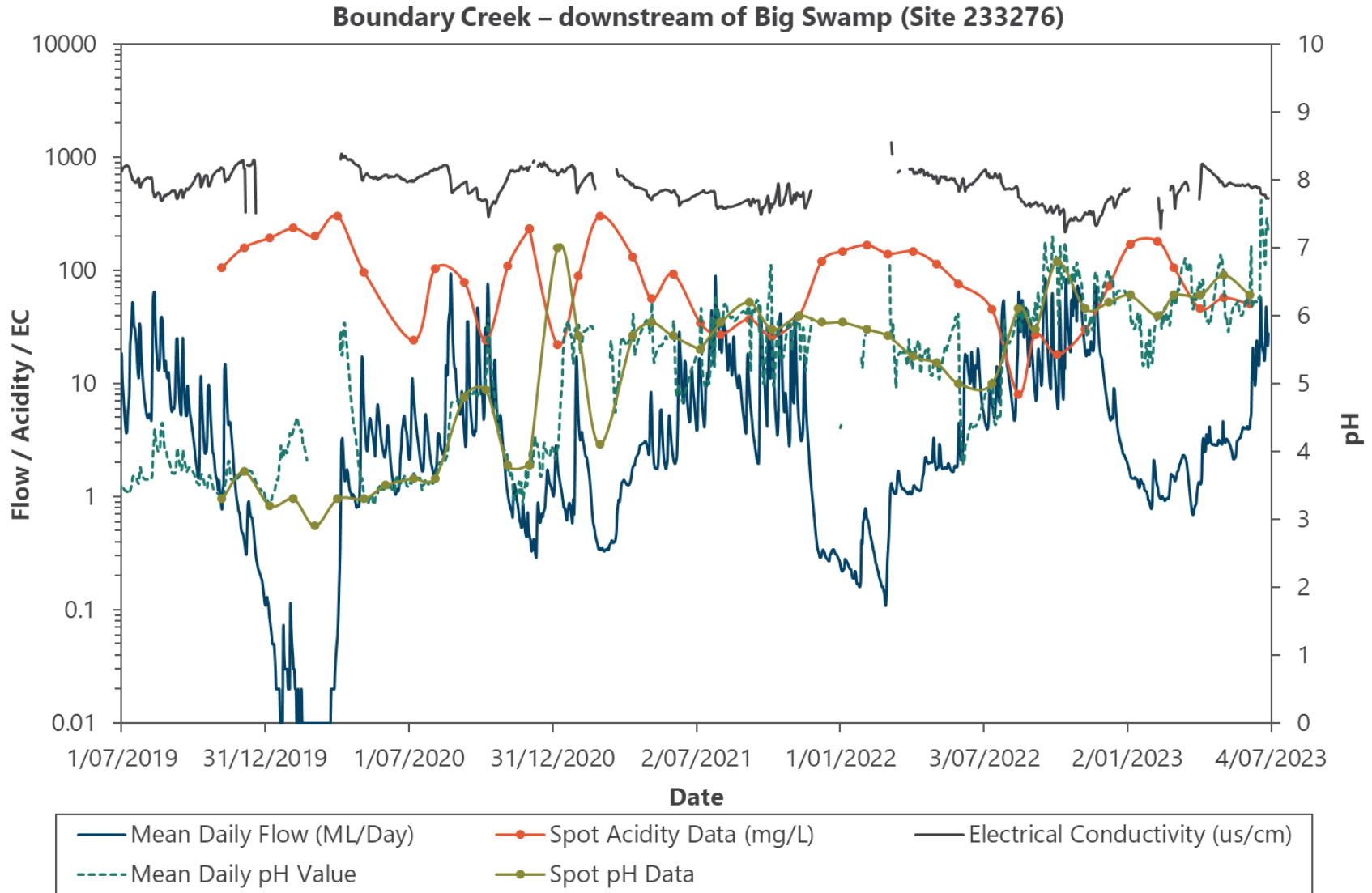


Figure 4 Streamflow, pH, EC and acidity readings in Boundary Creek – downstream of Big Swamp as recorded at stream gauge 233276 and during routine spot sampling

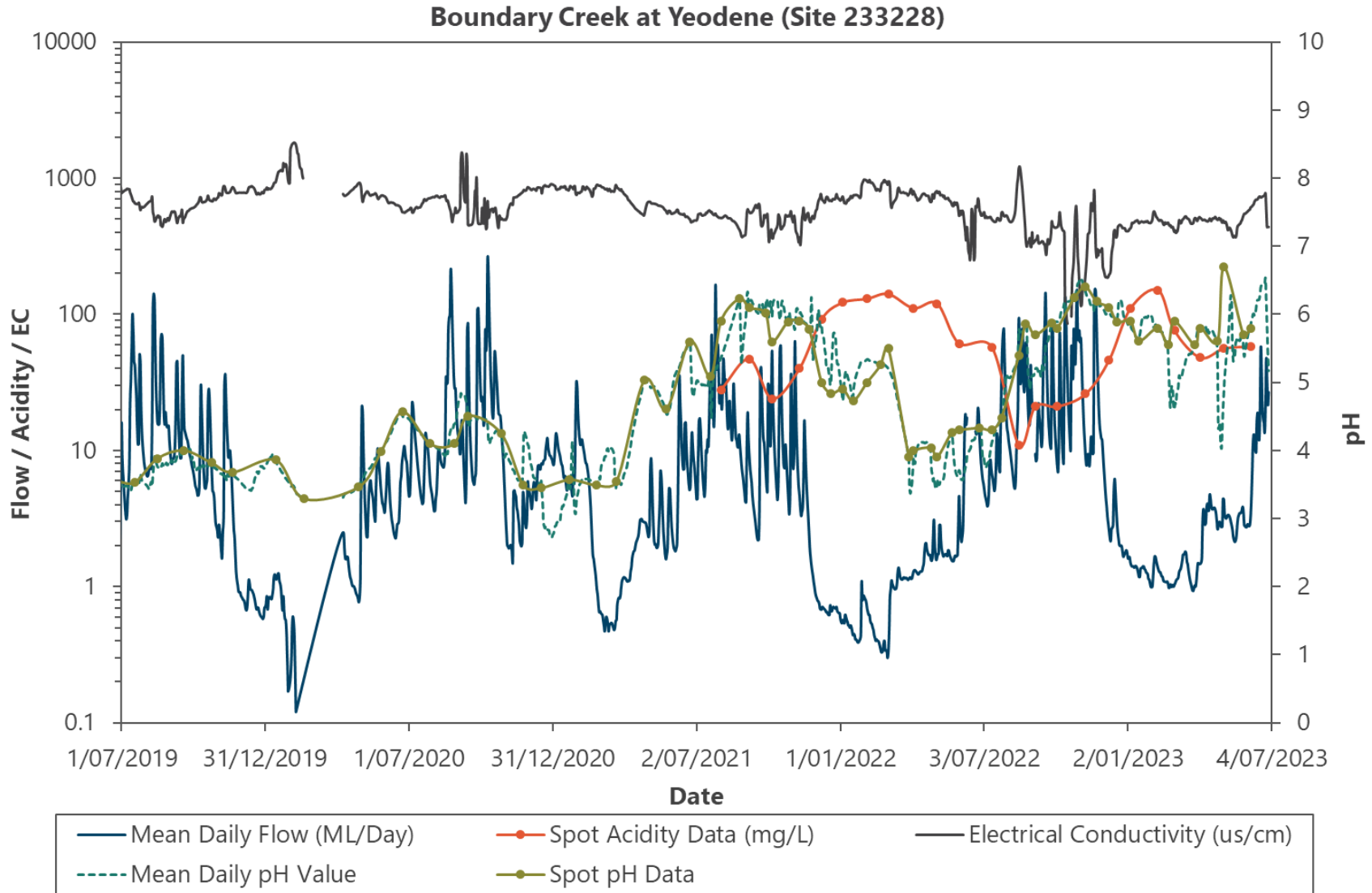


Figure 5 Streamflow, pH and acidity readings in Boundary Creek at Yeodene as recorded at stream gauge 233228 and during routine spot sampling

Actions Completed on the Boundary Creek & Big Swamp Remediation Plan since 31 March 2023

Table 2 outlines the actions completed for the Boundary Creek and Big Swamp Remediation Plan since 31 March 2023.

Table 2 Boundary Creek and Big Swamp - Actions completed in Q4 2022/23 (1April – 30 June 2023)

Action Items	Comment / Link
Completion of the Q4 2022/2023 Remediation Reference Group meeting	Completed 14 June 2023
Submit quarterly update to Southern Rural Water for the period 1 April to 30 June 2023 and publish to the Your Say web page	Complete – this report Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Continue to collect data from new and existing monitoring assets	Ongoing
Continue to release supplementary flows, where required, to try to maintain a flow of at least 0.2 ML/day at the Yeodene stream gauge #233228. Noting that this has been updated to reflect the changes outlined in the interim draft REPP that was submitted to Southern Rural Water on 22 December 2023.	Ongoing Following activation in March 2023, Barwon Water continue to monitor the operation of the automated flow valve that was installed on the outlet of the private on-stream dam to help facilitate the passing of flows down Boundary Creek.
Undertake autumn macro-invertebrate and water quality sampling in the Barwon River and Boundary Creek	Draft report complete – pending finalisation. Once complete, this will be uploaded to the Your Say Website. Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Undertake the next round of the Big Swamp vegetation monitoring works	Complete and uploaded to the Your Say Website. Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Progress amendment of the REPP based on the current 'state of knowledge' and the adaptive management approach. This will include a review of the adopted remedial actions and the development of a risk-based remedial strategy that accounts for recent community and stakeholder feedback to help facilitate natural recovery processes.	An interim draft of the revised REPP was submitted to Southern Rural Water on 22 December 2022 for initial feedback. This is currently being revised based on the outcomes of the Ecological Risk Assessment (ERA), Paleoecology Study and feedback received from RRG members and Southern Rural Water and will be submitted to Southern Rural Water by 31 July 2023.

Action Items	Comment / Link
Development of contingency measures	As above. Design of the mobile downstream treatment contingency measure is currently underway. This is due to be completed and submitted to Southern Rural Water by 31 July 2023.
Completion of a Level 3 Ecological Risk Assessment to quantify the risks of the existing metal and acidity loads on Boundary Creek, Big Swamp, and the Barwon River and to help inform the development of suitable triggers for the implementation of relevant contingency measures, if required	Draft report complete – pending finalisation. Once complete, this will be uploaded to the Your Say Website. Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Completion of a paleoecology study of Big Swamp	Draft report complete – pending finalisation. Once complete, this will be uploaded to the Your Say Website. Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Development of the Barwon Downs Borefield Decommissioning Plan	Draft report complete – pending finalisation. Once complete, this will be uploaded to the Your Say Website. Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek

Upcoming Actions Associated with the Boundary Creek & Big Swamp Remediation Plan

Table 3 outlines the upcoming actions associated with the Boundary Creek and Big Swamp Remediation Plan between 1 July and 30 September 2023.

Table 3 Boundary Creek and Big Swamp - Upcoming actions for Q1 2023/2024 (1 July – 30 September 2023)

Action Items	Due
Submission of the final revised REPP to Southern Rural Water	31 July 2023
Submission of the mobile downstream treatment contingency measure design to Southern Rural Water	31 July 2023
Submission of the Barwon Downs borefield bore decommissioning licence application to Southern Rural Water	31 July 2023

Action Items	Due
Completion of the Q1 2023/2024 Remediation Reference Group meeting	September 2023
Submit quarterly update to Southern Rural Water for the period 1 October to 31 December 2023 and publish to the Your Say web page	14 October 2023
Completion of community information sessions to engage with the broader community	Dates and locations to be confirmed following submission of the additional technical works in July 2023.
Continue to collect data from new and existing monitoring assets	Ongoing
Continue to release supplementary flows, where required, to try to maintain a flow of at least 0.2 ML/day at the Yeodene stream gauge #233228	Ongoing

Surrounding Environment Investigation

Surrounding Environment Investigation status update

In line with the REPP, the surrounding environment investigation is due to be submitted to Southern Rural Water by 31 July 2023 in line with the process outlined in Figure 1 and Figure 6.

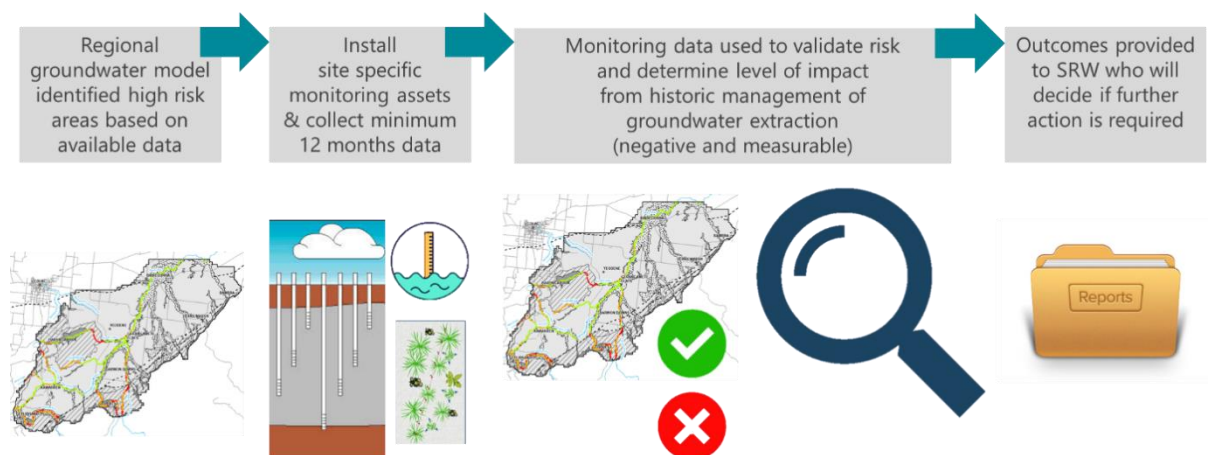


Figure 6 Process overview for the surrounding environment investigation

Actions Completed on the Surrounding Environment Investigation since 31 March 2023

Table 4 outlines the actions completed for the Surrounding Environment Investigation since 31 March 2023.

Table 4 Surrounding Environment Investigation - Actions completed in Q3 2022/23 (1 April – 30 June 2023)

Action Items	Comment / Link
Completion of the Q4 2022/2023 Remediation Reference Group meeting	Completed on 14 June 2023
Submit quarterly update to Southern Rural Water for the period 1 April to 30 June 2023 and publish to the Your Say web page	Complete – this report Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Continue collection of data from new monitoring assets for the surrounding environment investigation	Ongoing
Continue collation of community information regarding sites/issues of concern to inform the surrounding environment investigation	Ongoing
Subject to streamflows and site conditions, complete the remaining stream gauge installations	The installation of the Barongarook Creek stream gauge was completed in May 2023. The East Barwon stream gauge reinstatement works have not yet been completed and are currently on hold pending finalisation of the surrounding environment investigation, which has indicated that environmentally significant impacts from Barwon Water's groundwater pumping activities have not occurred at this location. Therefore, the reinstatement of this gauge may no longer be required to inform the REPP.
Commence the assessment phase of the surrounding environment investigation	Complete – the Kwarren and Barwon Downs Hydrogeological Assessments have now been completed and will be submitted to Southern Rural Water as part of the overarching surrounding environment investigation by 31 July 2023. Once submitted, this will be published on the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Progress amendment of the REPP based on the high-level approach to the Surrounding Environment Investigation that was submitted to Southern Rural Water on 30 June 2022	Complete - An interim draft of the revised REPP was submitted to Southern Rural Water on 22 December 2022 for initial feedback. This is currently being revised based on the outcomes of the Ecological Risk Assessment (ERA), Paleoecology Study and feedback received from RRG members and Southern Rural Water and will be submitted to Southern Rural Water for acceptance by 31 July 2023.

Upcoming actions Associated with the Surrounding Environment Investigation

Table 5 outlines the upcoming actions associated with the Surrounding Environment Investigation between 1 July and 30 September 2023.

Table 5 Surrounding Environment Investigation - Upcoming actions for Q1 2023/2024 (1 July – 30 September 2023)

Action Items	Due
Submission of the final revised REPP to Southern Rural Water	31 July 2023
Completion of the Q1 2023/2024 Remediation Reference Group meeting	September 2023
Submit quarterly update to Southern Rural Water for the period 1 October to 31 December 2023 and publish to the Your Say web page	14 October 2023
Completion of community information sessions to engage with the broader community	Dates and locations to be confirmed following submission of the additional technical works in July 2023.
Continue collection of data from new monitoring assets to track recovery	Ongoing
Scope any further works required as part of the surrounding environment investigation	30 September 2023
Engage a suitably qualified consultant/contractor to conduct the future climate resilience modelling work	30 September 2023

Issues Register

Table 6 below outlines any issues that have been identified during implementation of the REPP that may impact future implementation activities.

Table 6 Issues register

Issue	Likelihood	Consequence	Comments
Availability of appropriate consultants or contractors to undertake works required under the REPP	Medium	Low	Barwon Water has experienced delays regarding the availability of consultants, contractors, and materials to complete work for this project. With consultants continuing to be close to capacity this remains an ongoing risk and may lead to unexpected delays.
Extended remediation timeframes	Medium	Low	While water level and quality improvements are evident, changing climatic conditions

Issue	Likelihood	Consequence	Comments
			could impede the recovery seen to date or lead to another decline in the future. While this is beyond Barwon Water's control, this may provide a barrier to meeting the remediation success targets.

Community Engagement

The eleventh (11th) Remediation Reference Group (RRG) meeting was held via Zoom on 14 June 2023. This meeting was attended by Barwon Water, members of the community and stakeholder Remediation Reference Group and Southern Rural Water.

Topics discussed included:

- An update on the resignation of Barwon Water's Managing Director Tracey Slatter and outlined that General Manager Technology and Transformation Shaun Cumming will be Interim Managing Director until a new Managing Director is appointed.
- A brief discussion regarding the following items that were raised during the previous RRG meeting
 - Timing of the Barwon Downs borefield decommissioning works
 - Re-appointment of RRG nominated expert Richard Bush
 - The private on-stream dam passing flow release valve upgrades/automation
 - Future community information sessions
 - Follow up on the Gerangamete CFA discussion paper prepared in 2010
- Progress against the Boundary Creek and Big Swamp Remediation Plan and the current conditions with Boundary Creek and Big Swamp
- An overview of the preliminary findings from the Paleoecology Study
- An overview of the preliminary findings from the Ecological Risk Assessment
- An overview of the revised success targets and triggers for the implementation of contingency measures based on the outcomes from the Paleoecology Study and Ecological Risk Assessment and previous feedback
- Progress of the Surrounding Environment Investigation and findings from the Hydrogeological Assessments for the Kawarren and Barwon Downs Sub-Basins
- Next steps

During this meeting, an open forum was also held for group members to raise any topics that were not discussed above and for members to ask any questions that they may have. A high-level summary of the feedback received during this meeting is outlined in the table below.

Table 7 Community feedback

Community Feedback Received	Response
<p>A RRG member sought clarification on whether the automated management of flow releases from the private on-stream dam are underway.</p>	<p>Barwon Water confirmed that the automation is underway. This commenced in March 2023 with additional stream gauge upgrades completed in May 2023 to enhance the automation and manage the flows as much as possible. Southern Rural Water's Groundwater and Rivers team have also been notified and are monitoring.</p>
<p>A RRG member asked if there was evidence that that supported the drainage of Big Swamp and indicated that the fire trenches would not have had significant impacts as these mimic the previous flow patterns.</p>	<p>Barwon Water outlined that historical drainage and excavation/realignment works downstream of the swamp would have resulted in changes to the hydrology of the system. Even though drainage lines were not constructed within the swamp itself, the drainage downstream would have impacted the swamp as water could drain more efficiently from the system. The development of erosion channels within the swamp have also led to changes in flow patterns through the swamp itself.</p> <p>A RRG nominated expert also commented that small changes, even the trenches, may have had an influence on the moisture content of the swamp, but broader changes could also have occurred since the 1800's. This would be consistent with other regions around Australia.</p>
<p>The RRG and RRG nominated experts indicated that they were happy with the approach taken to develop the groundwater level target.</p>	<p>Barwon Water to finalise the groundwater level target based on this feedback.</p>
<p>With regard to the Boundary Creek flow target, a RRG member queried how the supplementary flows affect this target and queried if supplementary flows could be accessed in the future.</p>	<p>Barwon Water indicated that once groundwater levels have recovered these supplementary flows should not be required. Future wet-dry cycling will still occur post remediation in response to climate related factors or the difficulties associated with the management and regulation of the private on-stream dam. This is beyond the scope of the remediation works.</p> <p>A RRG nominated expert suggested that the use of supplementary flows post-remediation should be considered as a risk management strategy moving forward.</p>
<p>The RRG and RRG nominated experts indicated that there were happy with the approach taken to develop the pH success target – particularly given pumping really exacerbated a pre-existing issue. A RRG nominated expert also commented that a pH threshold of 5 is a pretty good one for aquatic freshwater environments.</p>	<p>Barwon Water to finalise the pH target based on this feedback.</p>

Community Feedback Received	Response
<p>The RRG and RRG nominated experts indicated that they were happy with the approach taken to develop the ecological values target. A RRG member also commented that the justification section also reflects the intent of facilitating natural recovery and highlights the importance of minimising the introduction of additional stressors to the system unless there is a strong case to step in – that’s terrific!</p>	<p>Barwon Water to finalise the ecological values target based on this feedback.</p>
<p>The RRG and RRG nominated experts indicated that they were happy with the risk-based contingency approach and associated triggers. Specific feedback received is also provided below:</p> <ul style="list-style-type: none"> • A RRG nominated expert commented that the wording for the mobile downstream treatment system should reflect that this relates to ‘acid-related fish kill events’, not those caused by other factors. • A RRG member commented that they much prefer the revised contingency approach to reducing the severity of wet-dry cycling processes over the hydraulic barriers given the potential unintended consequences and supported the light touch that is being applied to minimise any further impacts. This was also echoed by a RRG nominated expert. • A RRG member and RRG nominated expert outlined that the vegetation contingency measures should only be implemented under worst-case conditions and consider the potential trade offs 	<p>Barwon Water outlined that the contingency measures are designed to be worst-case controls. These are more intrusive than the remedial actions and hence, there needs to be a net benefit for these to be implemented. The layered approach also ensures that the actions are commensurate with the risks. This context will also be provided in the revised REPP.</p>
<p>A RRG member said they would like to make sure that we can respond to another extended dry period and keep all the targets intact.</p>	<p>A Barwon Water spokesperson outlined that we do not currently know what may happen under future climate scenarios, even if groundwater levels recover. The future climate modelling work will aim to address some of these questions, but it is likely that some of these targets may not be achievable under an extended dry period, even in the absence of pumping. The Remediation Plan does not aim to mitigate against climate change – these need to be considered at a much broader scale.</p>

Success Targets

Since the implementation of the REPP in March 2020, the success targets have been reviewed and adapted over time based on feedback from the Remediation Reference Group, Southern Rural Water, and the Independent Technical Review Panel. While the revised success targets have not yet been accepted by Southern Rural Water, the draft targets were included as part of the interim draft of the revised REPP that was submitted to Southern Rural Water on 22 December 2022. Noting that further revisions to these success targets have since been made in response to feedback from the RRG and Southern Rural Water. These will be submitted to Southern Rural Water by 31 July 2023 as part of revised REPP.

An update on progress against the relevant success targets will be provided in the Annual Report along with the supporting monitoring data.

Technical Reports and Investigations

Relevant technical and investigation reports that have been completed to inform the Boundary Creek, Big Swamp and Surrounding Environment Remediation and Environmental Protection Plan can be accessed via Barwon Water's dedicated Your Say webpage via the following link: <https://www.yoursay.barwonwater.vic.gov.au/boundary-creek>

Barwon Water will proactively share links to technical reports as they are published so that Remediation Reference Group members have access to the latest information as it is shared.

Contingency Measures

As part of the REPP review process Barwon Water has since developed a risk-based contingency approach that focuses on minimising the potential for high-risk events, should these persist following the implementation of the primary remedial actions.

This risk based contingency approach, which has been developed in conjunction with the Remediation Reference Group, will be formalised upon submission of the revised REPP to Southern Rural Water by 31 July 2023.

REPP Amendments

An interim draft of the revised REPP was submitted to Southern Rural Water on 22 December 2022 for initial comment and feedback. Barwon Water is currently finalising the revised REPP based on this, and additional feedback obtained from the RRG meeting held on 14 June 2023, prior to submission to Southern Rural Water by 31 July 2023.

Progress Report

Table 8 outlines the actions that have been completed, are currently in progress, or are yet to commence as part of implementation of the REPP through to the end of the 2022/23 monitoring and reporting period (30 June 2023). It is important to note that additional tasks may be added as they are identified during the implementation of the REPP.

Table 8 Task Tracker

#	Activity	Due Date	Status	Health Indicator	Comments
1.0	Meeting with SRW to be held at the Barwon Water office to develop work plan towards confirming priority actions relating to feedback provided.	30-Apr-20	Complete	Complete	Complete
2.0	Complete autumn macro-invertebrates survey	30-Jun-20	Complete	Complete	Report now complete and is now uploaded on website
3.0	Complete soil incubation testing	31-May-20	Complete	Complete	Report has been finalised and is now uploaded on website
4.0	Submit quarterly report to SRW and publish to website	30-Jun-20	Complete	Complete	Completed and uploaded to website
5.0	Scoping of SW-GW technical work packages required to inform detailed design and address feedback register	30-Nov-20	Complete	Complete	Complete
6.0	Complete installation of additional monitoring assets required to inform the Surrounding Environment Investigation	30-Jun-23	Complete	Complete	The installation of 21 additional groundwater bores and the development of 4 pre-existing groundwater bores was completed in June 2022. The installation of the final stream gauge (Barongarook Creek) was completed in May 2023.

#	Activity	Due Date	Status	Health Indicator	Comments
					The East Barwon stream gauge reinstatement works have not yet been completed and are currently on hold pending finalisation of the surrounding environment investigation which has indicated that environmentally significant impacts from Barwon Water's groundwater pumping activities have not occurred at this location. Therefore, the reinstatement of this gauge may no longer be required to inform the REPP.
7.0	Conclusion of monitoring period enabling the capture of a full seasonal cycle of data to inform updates to the groundwater-surface water model and geochemical model.	31-Jul-20	Complete	Complete	The data collected from this work has since been included in the relevant technical reports
8.0	REPP Feedback Work plan - Submission and Acceptance	31-Jul-20	Complete	Complete	Completed
9.0	Governance Framework - Submission and Acceptance	31-Jul-20	Complete	Complete	Completed
10.0	Barwon Water Communications and Engagement Plan	Ongoing	In progress	On track	The Communications and Engagement Plan continues to be adapted in line with the adaptive management approach.
11.0	Submission of the updated REPP to Southern Rural Water to account for the current state of knowledge and close out any outstanding feedback. SRW to accept the updated REPP.	31-Jul-23	In progress	On track	On 22 December 2023 Barwon Water submitted an interim draft of the revised REPP to Southern Rural Water for initial comment and feedback. Barwon Water are currently finalising the revised REPP based on this, and additional feedback obtained from the RRG meeting held on 14 July 2023 for submission to Southern Rural Water by 31 July 2023.

#	Activity	Due Date	Status	Health Indicator	Comments
12.0	Submit annual report to SRW and publish to Your Say website	30-Sep-20	Complete	Complete	Completed
13.0	Remediation Reference Group Meeting	2-Dec-20	Complete	Complete	Completed
14.0	Establish vegetation monitoring for Boundary Creek and Big Swamp Remediation Plan	31-Dec-20	Complete	Complete	Completed
15.0	Update groundwater-surface water model	31-Dec-20	Complete	Complete	Completed and uploaded to website
16.0	Submit quarterly report to SRW and publish to Your Say website	31-Dec-20	Complete	Complete	Completed
17.0	Remediation Reference Group Meeting	17-Mar-21	Complete	Complete	Completed
18.0	Submit quarterly report to SRW and publish to Your Say website	31-Mar-21	Complete	Complete	Completed
19.0	Remediation Reference Group Meeting	23-Jun-21	Complete	Complete	Completed
20.0	Submit quarterly report to SRW and publish to Your Say website	30-Jun-21	Complete	Complete	Completed and uploaded to website
21.0	Submission of detailed design of the hydraulic barriers outlining proposed controls or actions and any revisions to success measures/targets.	1-Jul-21	Complete	Complete	Complete. Submitted to Southern Rural Water on 1 July 2021. Barwon Water have since reviewed the viability of this remedial action as part of the Outcomes and Implications of the Upstream Treatment Investigation (Barwon Water, 2022) and no longer consider hydraulic barriers a potential remedial action due to the unintended impacts that would result from implementing this approach. This has since been reflected in the revised REPP.
22.0	Update Hydro geochemical model	31-Jul-21	Complete	Complete	Completed and uploaded to website

#	Activity	Due Date	Status	Health Indicator	Comments
23.0	Complete detailed design of contingency measure and feasibility assessment for up-stream for new upstream treatment method	31-Jul-21	Complete	Complete	<p>Barwon Water has since ruled out the use of the proposed semi-passive caustic magnesia treatment system. This decision was supported by Southern Rural Water and the Independent Technical Review Panel (ITRP) in their response received on 29 August 2022.</p> <p>Following completion of the Upstream Treatment Investigation in June 2022, Barwon Water have since developed a risk based contingency approach that focuses on minimising the potential for high-risk events, should these persist following the implementation of the primary remedial actions.</p> <p>As part of this, Barwon Water is currently revising the design of the downstream treatment system, with the aim of submitting a revised design to Southern Rural Water by 31 July 2023.</p>
24.0	Remediation Reference Group Meeting	8-Sep-21	Complete	Complete	Completed
25.0	Submit annual report to SRW and publish to Your Say website	30-Sep-21	Complete	Complete	Completed and uploaded to website
26.0	Remediation Reference Group Meeting	9-Dec-21	Complete	Complete	Completed
27.0	Submit quarterly report to SRW and publish to Your Say website	31-Dec-21	Complete	Complete	Completed and uploaded to website
28.0	Completion of upstream treatment investigation and development of Trial Plan	14-Jan-22	Complete	Complete	Complete. Submitted to SRW on 14 Jan 2022.

#	Activity	Due Date	Status	Health Indicator	Comments
					Barwon Water has since ruled out the use of the proposed semi-passive caustic magnesia treatment system. This decision was supported by Southern Rural Water and the Independent Technical Review Panel (ITRP) in their response received on 29 August 2022.
29.0	Remediation Reference Group Meeting	21-Mar-21	Complete	Complete	Completed
30.0	Submit quarterly report to SRW and publish to Your Say website	31-Mar-22	Complete	Complete	Completed and uploaded to website
31.0	Hosted community information session in Winchelsea	10-May-22	Complete	Complete	Completed
32.0	Hosted community information session in Colac	17-May-22	Complete	Complete	Completed
33.0	Remediation Reference Group Meeting	8-Jun-22	Complete	Complete	Completed
34.0	If trial plan is approved undertake upstream treatment trial	30-Jun-22	Complete	Complete	Barwon Water has since ruled out the use of the proposed semi-passive caustic magnesia treatment system. This decision was supported by Southern Rural Water and the Independent Technical Review Panel (ITRP) in their response received on 29 August 2022.
35.0	Decision on implementation of full-scale upstream treatment, hydraulic barriers, and downstream treatment	30-Jun-22	Complete	Complete	
36.0	Submit quarterly report to SRW and publish to Your Say website	30-Jun-22	Complete	Complete	Completed and uploaded to website
37.0	Remediation Reference Group Meeting	21-Sep-22	Complete	Complete	Completed
38.0	Submit quarterly report to SRW and publish to Your Say website	30-Sep-22	Complete	Complete	Completed and uploaded to website

#	Activity	Due Date	Status	Health Indicator	Comments
39.0	Submit annual report to SRW and publish to website	30-Sep-22	Complete	Complete	Completed and uploaded to website
40.0	Remediation Reference Group Meeting	16-Nov-22	Complete	Complete	Completed
41.0	Submit quarterly report to SRW and publish to Your Say website	31-Dec-22	Complete	Complete	Completed and uploaded to website
42.0	Remediation Reference Group Meeting	8-Mar-23	Complete	Complete	Completed
43.0	Submit quarterly report to SRW and publish to Your Say website	31-Mar-23	Complete	Complete	Completed and uploaded to website
44.0	Remediation Reference Group Meeting	14-Jun-23	Complete	Complete	Completed
45.0	Submit quarterly report to SRW and publish to Your Say website	14-Jul-23	Complete	Complete	Completed and uploaded to website
46.0	Submission of the Ecological Risk Assessment to Southern Rural Water	31-Jul-23	In progress	On track	The draft Ecological Risk Assessment was issued to the RRG nominated experts on 20 June 2023 for feedback. Upon receipt of this feedback, the report will be finalised and submitted to Southern Rural Water.
47.0	Submission of the Paleoecology Study of Big Swamp to Southern Rural Water	31-Jul-23	In progress	On track	A preliminary draft of the Paleoecology Study was received on 14 June 2023. This report has been provided to the RRG nominated experts for feedback prior to finalisation and submission to Southern Rural Water.
48.0	Development of the Barwon Downs Borefield Decommissioning Plan	31-Jul-23	In progress	On track	A draft decommissioning plan was received on 23 May 2023. This is currently being finalised to account for feedback received from the RRG nominated experts.

#	Activity	Due Date	Status	Health Indicator	Comments
					Once finalised, this will be used to support the submission of a decommissioning licence to Southern Rural Water.
49.0	Submission of the revised downstream treatment contingency measures	31-Jul-23	In progress	On track	A preliminary draft report was received on 8 June 2023. This is currently being finalised in preparation for submission to Southern Rural Water.
50.0	Provide the outcomes of the Surrounding Environment Investigation to Southern Rural Water to determine if further remedial works is required	31-Jul-23	In progress	On Track	Barwon Water is currently finalising the hydrogeological assessment reports to account for feedback from the RRG nominated experts. The outcomes of these works will be used to inform the overarching surrounding environment investigation that needs to be submitted to Southern Rural Water by 31 July 2023.