

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

QUARTERLY UPDATE

1 January to 31 March 2022

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Introduction

In June 2017, Barwon Water acknowledged that historic management of groundwater pumping at the Barwon Downs borefield had an environmentally significant impact in the Boundary Creek catchment. Reductions in baseflows caused by groundwater extraction coupled with a drier climate and supplementary flows not reaching the intended area, all contributed to the drying out of Big Swamp. This resulted in the activation of naturally occurring acid sulfate soils which were formed under waterlogged conditions, thus, leading to the acidification of the surface water and water table aquifer system, the secondary mobilisation of metals and the discharge of acidity and metals to the lower reaches of Boundary Creek and the Barwon River.

In May 2018, Barwon Water established a community and stakeholder working group to participate in the design and development of a remediation plan for Boundary Creek and Big Swamp. As part of this process, Barwon Water invited the working group to nominate their own technical experts to help support them in their discussions to shape the remediation plan.

In September 2018, Barwon Water's commitment to undertake remedial works was legally strengthened through the issuing of a Ministerial Notice under section 78 of the Water Act, 1989. This notice mandated the development and implementation of the Boundary Creek, Big Swamp and surrounding environment – Remediation and Environmental Protection Plan (REPP) by 1 March 2020.

The section 78 notice defined remediation to be 'the controls and actions that could be practicably carried out to achieve improved environmental outcomes for Boundary Creek, Big Swamp and the surrounding environment that has been impacted by groundwater pumping at Barwon Downs'. In order to align this with an accepted scientific definition for remediation, the REPP further expanded the definition to be 'the controls and actions that could be practicably carried out to improve the ecological condition and function of areas confirmed to have been impacted by historical management of groundwater pumping at Barwon Downs, noting that this is likely to be different to the original condition due to the extent of change since European settlement'.

In February 2020, Southern Rural Water accepted Barwon Water's REPP, which will be delivered under two parallel work packages:

- The Boundary Creek and Big Swamp Remediation Plan to address remediation of confirmed impact in the Boundary Creek catchment resulting from historical management of groundwater extraction.

- The Surrounding Environment Investigation to investigate whether other areas within the regional groundwater system have been impacted by historical management of groundwater extraction.

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 and made publicly available by 30 September each year.

This quarterly update is the eighth 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 January 2022 and 31 March 2022, noting that the annual report which is due by 30 September each year also includes a quarterly update.

In addition to the information contained in the quarterly updates, the Annual Report, released on the 30th September each year, provides more detail on technical investigations, monitoring, data collected, and tracking against the REPP success targets.

Implementation of the REPP

In accordance with the REPP, Barwon Water have adopted an adaptive management approach, whereby the REPP can be adapted in response to ongoing monitoring and 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 interventions and take further action, such as implementation of contingency measures, if required. This approach also ensures that the adopted remedial actions meet the vision, priorities and objectives as informed by the community and stakeholder Remediation Working Group and their nominated experts.

To help address the section 78 notice and ensure momentum was maintained, a number of key milestones were established, as shown in Figure 1. However, as reported in the previous quarterly update, this roadmap has since been updated in accordance with the adaptive management approach to account for the current state of knowledge and to capture the additional actions relating to the upstream treatment options investigation.

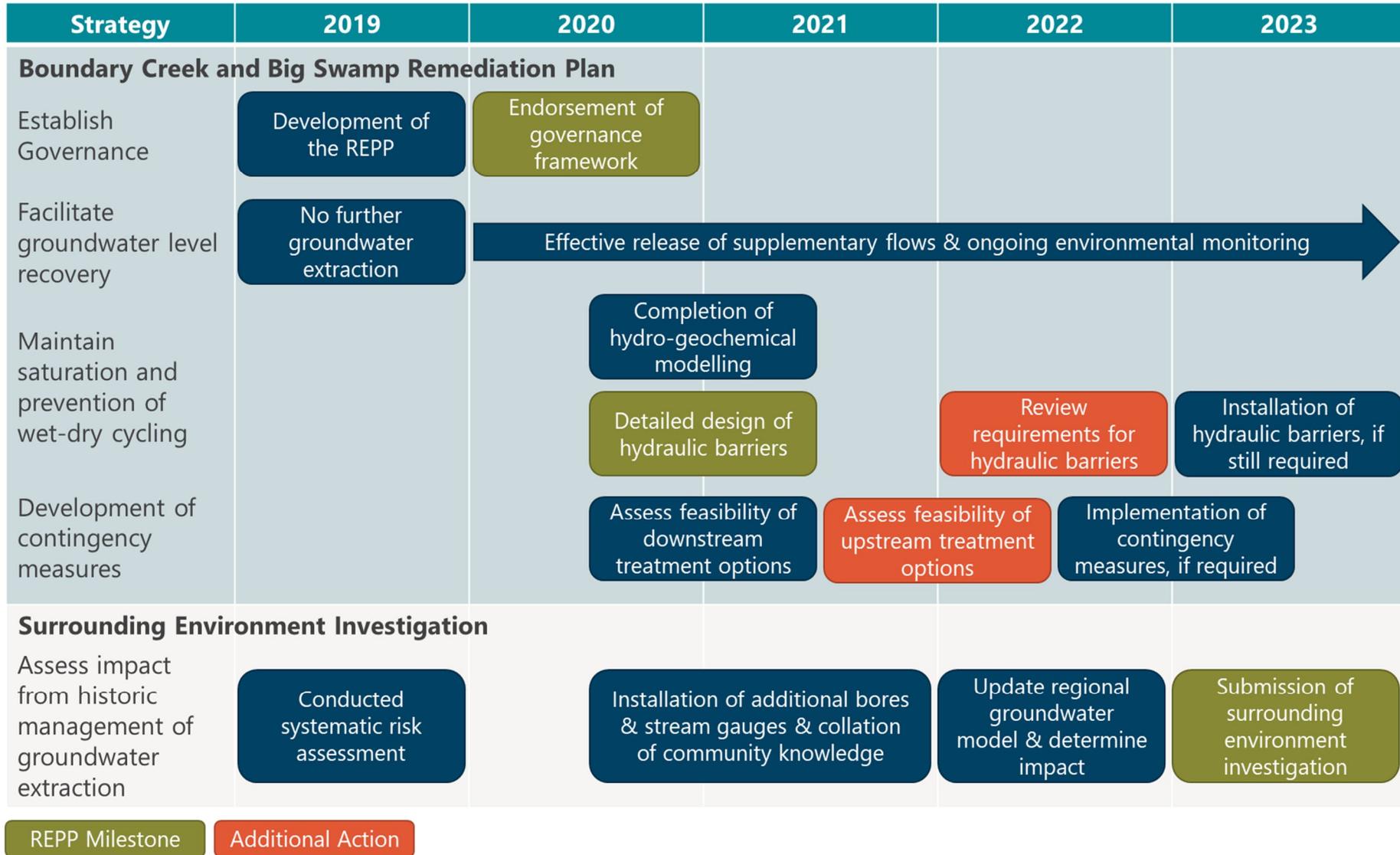


Figure 1: Timeframes for implementation of the REPP

Boundary Creek and Big Swamp Remediation Plan

Boundary Creek & Big Swamp Status Update

Following cessation of pumping activities at the Barwon Downs borefield in 2016, expiry of the groundwater water licence in 2019, the release of supplementary flows, when required, and recent climatic conditions involving high rainfall, conditions at the swamp have improved with water level data indicating the recovery and re-pressurisation of the Lower Tertiary Aquifer (LTA).

This continues to be evidenced by both the groundwater levels from groundwater monitoring bores installed within the swamp (refer Figure 2 and Figure 3) and the reduced occurrence of no-flow events and subsequent increase in pH levels within Boundary Creek downstream of the swamp (refer Figure 4 and Figure 5). However, while this is a step in the right direction, the data from 1 January to 31 March 2022 shows that the groundwater levels and quality continue to be subject to seasonal variation, with decreases in pH and spikes in acidity concentrations (as measured during routine sampling works) occurring during dryer periods, despite the long-term increasing trends.

This is consistent with the information presented in the Remediation Options Assessment (ROA) (CDM Smith, 2019) that was used to inform the REPP and the outcomes of modelling work (Barwon Water, 2021) that indicate this will continue to occur until the system sufficiently recovers and the ongoing oxidation of acid sulfate soils is minimised. The risks of this occurrence are the focus of the contingency planning measures that are currently underway to develop a suitable water treatment system that can be implemented to manage these risks, if required. This remains a key focus for Q4 2021/22 (1 April to 30 June 2022) through the upstream treatment options investigation involving the novel use of a semi-passive caustic magnesia based treatment system. Should these investigations reveal this is not a viable treatment option, Barwon Water will likely default back to the previously proposed downstream treatment option or an alternate downstream treatment approach following further consultation with Southern Rural Water and the Remediation Reference Group. It is noted that approval from Southern Rural Water is required before the adopted contingency measures can be implemented.

It is noted that the construction of hydraulic barriers and infilling of fire trenches remains on hold due to the upstream treatment options investigation and recent improvement in conditions both within and downstream of the swamp. These works will need to be reassessed and possibly adapted, where required, following completion of the upstream treatment options investigation to account for the current state of knowledge and the

adopted contingency measure(s). This is to ensure that any active interventions are in line with the remedial goals and do not lead to undue impacts on the swamp or the surrounding environment.

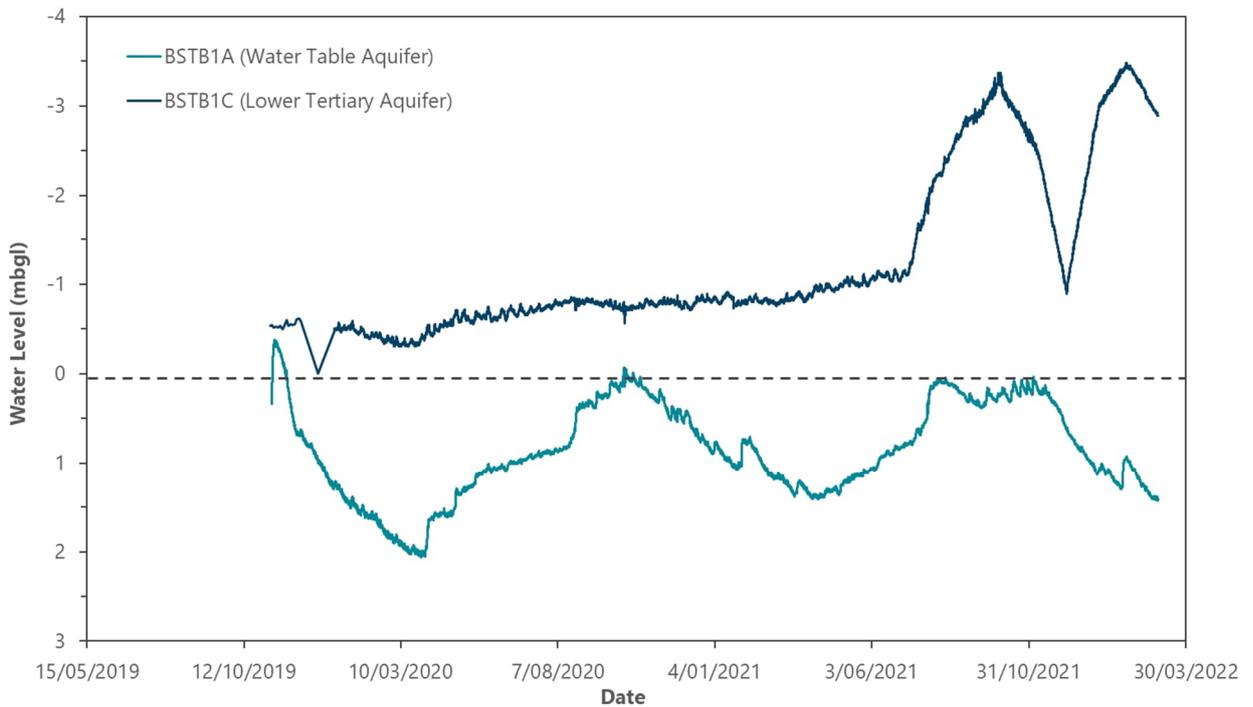


Figure 2 Groundwater levels in the eastern portion of the swamp

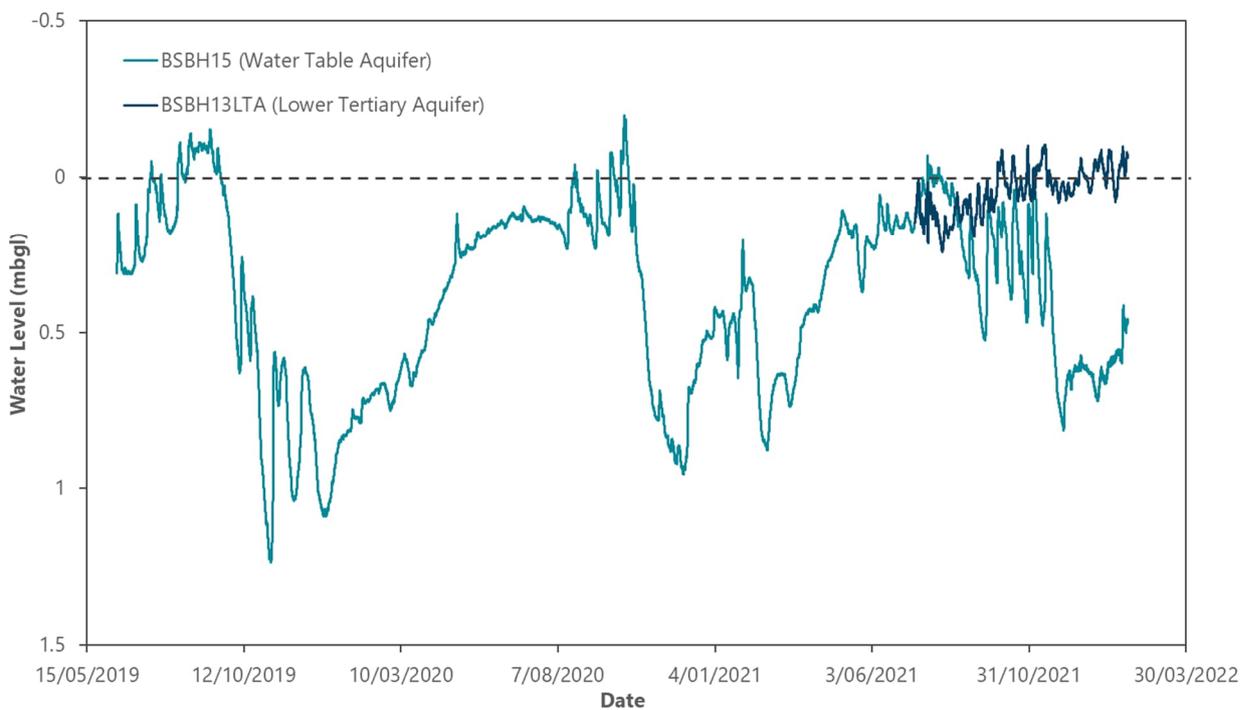


Figure 3 Groundwater levels in the western portion of the swamp

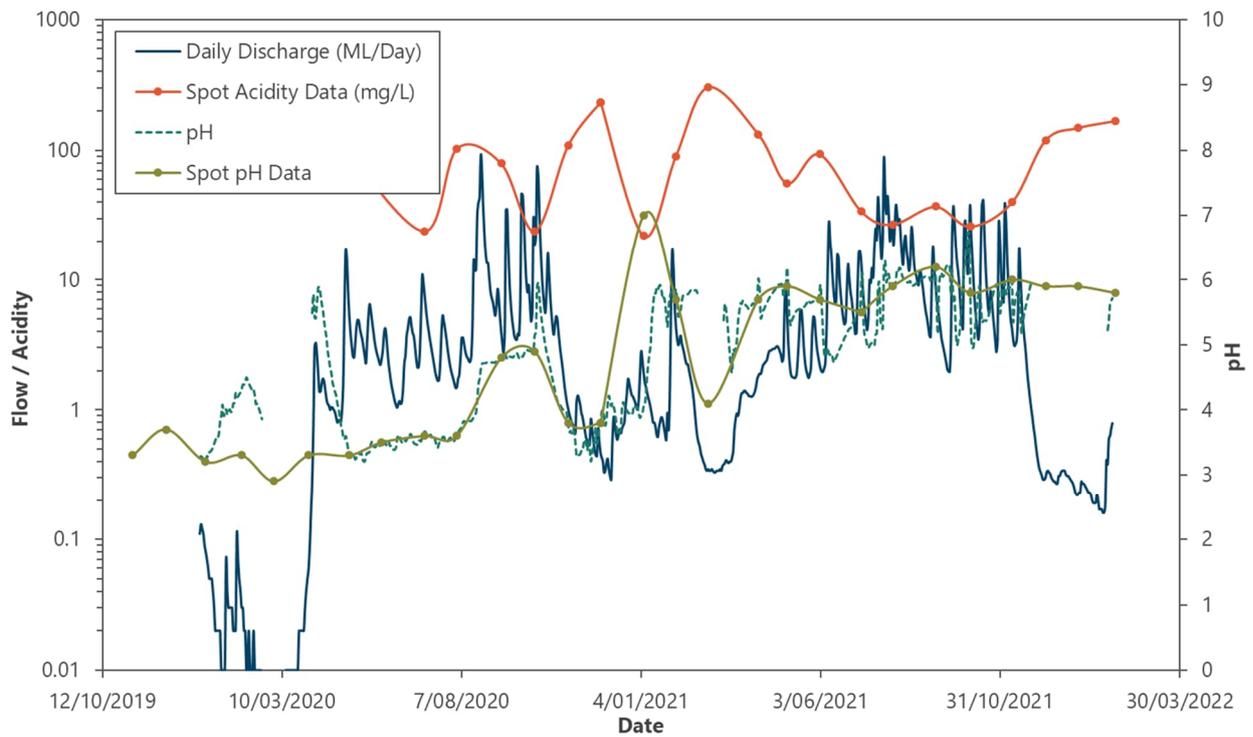


Figure 4 Streamflow, pH and acidity readings in Boundary Creek – downstream of Big Swamp as recorded at stream gauge 233276 and during routine monitoring works

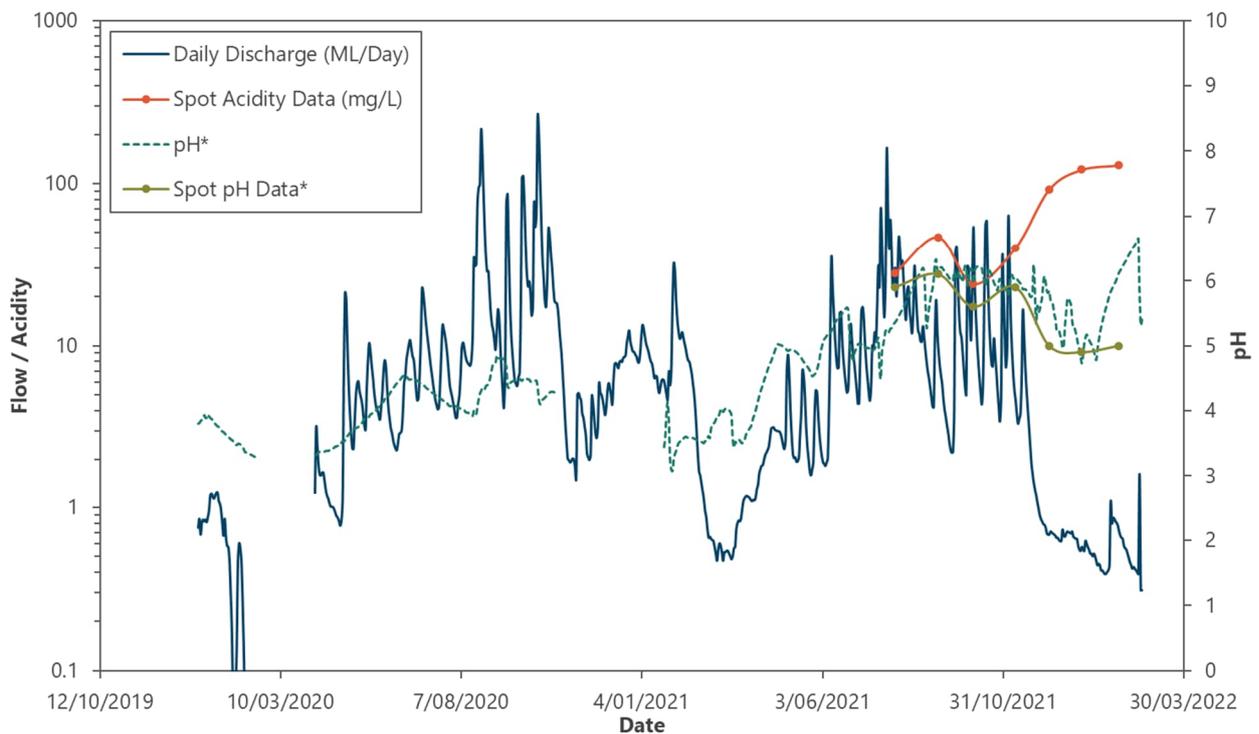


Figure 5 Streamflow, pH and acidity readings in Boundary Creek at Yeodene as recorded at stream gauge 233228 and during routine monitoring works

Actions Completed on the Boundary Creek & Big Swamp Remediation Plan

Table 1 outlines the actions completed for the Boundary Creek and Big Swamp Remediation Plan between 1 January and 31 March 2022. In response to feedback from Southern Rural Water and the Independent Technical Review Panel (ITRP), a key focus of this work has been on progressing the upstream treatment investigation as an interim measure to manage acidity loads leaving Big Swamp and the potential risks to the lower reach of Boundary Creek and the Barwon River.

Table 1 Boundary Creek and Big Swamp - Actions completed in Q3 2021/22 (1 January – 31 March 2022)

Action Items	Comment / Link
Continue to collect data from new and existing monitoring assets	Complete and ongoing
Continue to release supplementary flows, where required, to try to maintain a flow of at least 0.5 ML/day at the Yeodene stream gauge #233228	Complete and ongoing
Undertake desktop investigation of upstream treatment method for reducing acidity loads within Big Swamp and develop laboratory and field testing plan Feedback will be sought from Southern Rural Water and the ITRP	<p>The initial Upstream Treatment Trial Plan was submitted to Southern Rural Water and the community and stakeholder working group in January 2022. This included a desktop review, conceptual design and initial ecological risk assessment.</p> <p>Feedback on this plan was received in February 2022 with the laboratory trials currently underway to inform the feasibility assessment, design and the revised Trial Plan.</p> <p>In addition to this, a field visit to Big Swamp was conducted with members of our Remediation Reference Group, Southern Rural Water and members of the ITRP and Southern Rural Water's Community Leaders Group on 10 March 2022. This visit was completed in response to feedback and was a great opportunity for key stakeholders to see the swamp in real life and contextualise what the small-scale upstream treatment trial might look like.</p>
Submission of an EPA Permission Pathways Form to assess the relevant permissions required to conduct a small-scale field trial	<p>Based on the response received from EPA Victoria on 1 March 2022, 'this activity <u>is not</u> a prescribed permission activity as per Schedule 1 of the Environment Protection Regulations 2021 – so no permission is required from EPA to undertake the activity'.</p> <p>However, in undertaking this activity Barwon Water would need to meet the General Environmental Duty, which requires us to minimise the risk to human health and the</p>

Action Items	Comment / Link
	environment from our activities, so far as reasonably practicable and consider any waste duties should any waste be generated as part of the trial.
Commence phase 2 works associated with the upstream treatment investigation: Conduct laboratory trials and feasibility assessment	The laboratory trials are currently underway to assess potential commercially available sources of caustic magnesia. The outcomes of this work will inform the feasibility assessment and subsequent phases of the upstream treatment options investigation.
Finalise remaining REPP amendments to address Southern Rural Water feedback.	Barwon Water are currently working through addressing Southern Rural Water and ITRP feedback on the proposed REPP amendments
Undertake autumn macro-invertebrate and water quality sampling in the Barwon River and Boundary Creek	Sampling due to be undertaken in April 2022. Additional sampling locations within Boundary Creek and Big Swamp to be included in response to Southern Rural Water and ITRP feedback.
Submission of an EPA Permission Pathways Form to assess if any permissions are required from EPA to facilitate the use of supplementary flows as documented in the REPP	Based on the response received from EPA Victoria on 30 March 2022, 'this activity <u>is not</u> a prescribed permission activity as per Schedule 1 of the Environment Protection Regulations 2021 – so no permission is required from EPA to undertake the activity'. However, in undertaking this activity Barwon Water would need to meet the General Environmental Duty, which requires us to minimise the risk to human health and the environment from our activities, so far as reasonably practicable.
Completion of the Q3 2021/2022 Remediation Reference Group meeting	Completed on 21 March 2022
Submit quarterly update for the period 1 January to 31 March 2022 to Southern Rural Water 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

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

Table 2 outlines the upcoming actions associated with the Boundary Creek and Big Swamp Remediation Plan between 1 March and 30 June 2022. It is noted that the dates related to the upstream treatment options investigation have been adapted since the previous quarterly report.

Table 2 Boundary Creek and Big Swamp - Upcoming actions / milestones for the Q4 2021/2022 (1 March – 30 June 2022)

Action Items	Due
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 0.5 ML/day at the Yeodene stream gauge #233228	Ongoing
Completion of a workshop with the RRG nominated experts, Southern Rural Water and ITRP members to clarify and further test the future actions associated with the upstream treatment options investigation and the potential small-scale field trial	Indicative timing April/May 2022
Commence phase 3 works associated with the upstream treatment investigation: Revision of trial plan, ecological risk assessment and development of management plan based on the outcomes of phase 2 works and any feedback / comments from previous phases. It is noted that this will be subject to approval by Southern Rural Water	Estimated completion May 2022
Commence phase 3 works associated with the upstream treatment investigation: Implementation of small-scale field trial to inform the design and development of a potential full-scale system Complete small-scale field trial of the proposed novel upstream treatment system and assess feasibility of implementing a full-scale system	March/April 2022 pending the above actions
Completion of the Q4 2021/2022 Remediation Reference Group meeting	June 2022
Submit quarterly update to Southern Rural Water for the period 1 March to 30 June 2022 and publish to the Your Say web page	30 June 2022

Surrounding Environment Investigation

As reported in the previous quarterly report, Barwon Water is progressing with the surrounding environment investigation in line with the process outlined in Figure 6. The focus to date has been on the design, planning and installation of new site-specific monitoring assets, comprising 5 stream gauges and 23 groundwater monitoring bores.

While the installation of these assets has commenced, continued rainfall events and streamflows have led to changes in installation location, methodology and subsequently led to additional access / approval requirements. This will be a key focus for Q4 2021/22 (1 March – 30 June 2022) to ensure these assets are installed before the winter period.

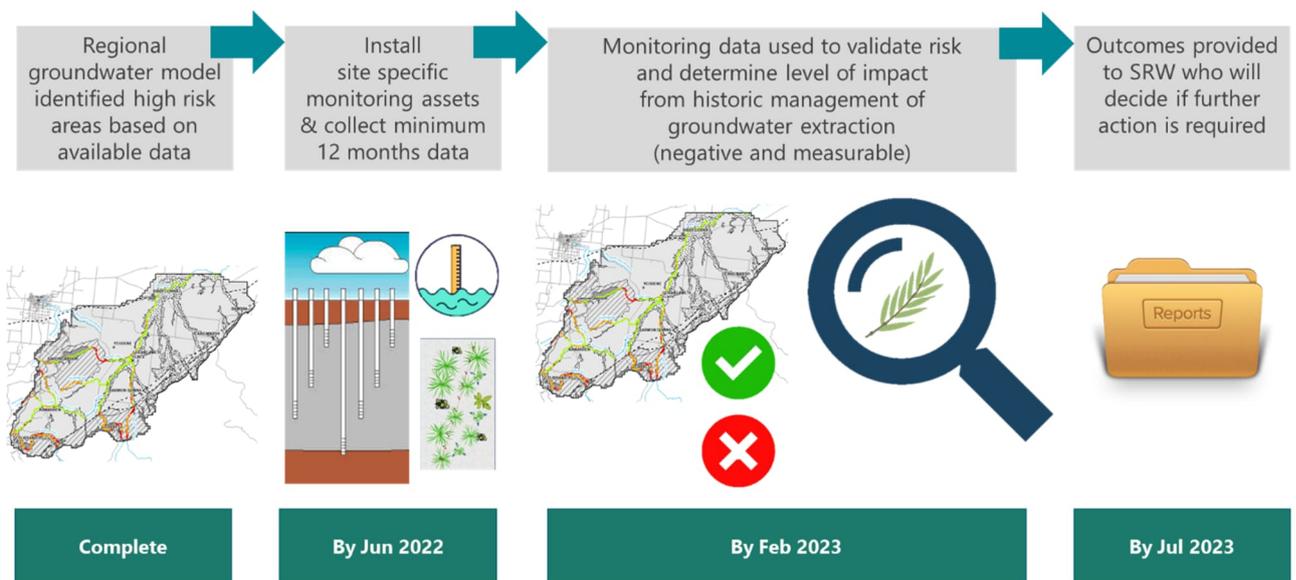


Figure 6 Process overview for the surrounding environment investigation

Actions Completed on the Surrounding Environment Investigation

Table 3 outlines the actions completed for the Surrounding Environment Investigation between 1 January and 31 March 2022.

Table 3 Surrounding Environment Investigation - Actions completed in Q3 2021/22 (1 January – 31 March 2022)

Action Items	Comment / Link
Continue collection of data from new monitoring assets for the surrounding environment investigation	Ongoing
Subject to streamflows and site conditions, complete stream gauge installations for the Gellibrand River, Barongarook Creek and Barwon River downstream of the confluence with Boundary Creek	Continued rainfall events and streamflows have meant changes in the installation methodology were required to meet the intended purpose. In addition to this, the relocation of the East Barwon stream gauge telemetry station required completion of an additional DELWP Land Owner Consent Application which was submitted on 10 February 2022. Works are currently on hold until the relevant approvals can be obtained.
Subject to safe site conditions install 4 remaining surrounding environment monitoring bores	Access and approvals requirements have meant refinement of the proposed bore locations were required to meet the intended purpose. The BCL's for the East Barwon groundwater bores were received on 17 March 2022, with works currently underway to find a suitable location for the outstanding Gellibrand River groundwater bores.

Action Items	Comment / Link
Continue collation of community information regarding sites/issues of concern to inform the surrounding environment investigation	Ongoing
Completion of the Q3 2021/2022 Remediation Reference Group meeting	Completed on 21 March 2022
Submit quarterly update for the period 1 October to 31 December 2021 to Southern Rural Water and publish to the Your Say web page	Complete – this report

Upcoming Actions associated with the Surrounding Environment Investigation

Table 4 outlines the upcoming actions associated with the Surrounding Environment Investigation between 1 March and 30 May 2022.

Table 4 Surrounding Environment Investigation - Upcoming actions / milestones for the Q4 2021/2022 (1 March – 30 June 2022)

Action Items	Due
Continue collection of data from new monitoring assets for the surrounding environment investigation	Ongoing
Subject to streamflows and site conditions, complete stream gauge installations for the Gellibrand River, Barongarook Creek and Barwon River downstream of the confluence with Boundary Creek	Estimated completion by June 2022
Subject to safe site conditions install 4 remaining surrounding environment monitoring bores	Estimated completion by June 2022
Completion of the Q4 2021/2022 Remediation Reference Group meeting	June 2022
Submit quarterly update to Southern Rural Water for the period 1 March to 30 June 2022 and publish to the Your Say web page	30 June 2022

Issues Register

Table 5 below outlines any issues that have been identified during implementation of the REPP that may impact future implementation activities.

Table 5 Issues register

Issue	Likelihood	Consequence	Comments
Coronavirus (COVID-19) pandemic limits/delays engagement with stakeholders and the community	Medium	Low	Coronavirus (COVID-19) continues to impact face-to-face stakeholder and community engagement activities. The March Remediation Working Group meeting was again held online, with e-mail updates provided in lieu of a face-to-face meeting. In general, these meetings have been well attended with most members being able to attend online.
Coronavirus (COVID-19) pandemic impacts availability of appropriate consultants or contractors to undertake required work for implementation of the REPP	Medium	Low	Barwon Water has experienced delays regarding the availability of consultants, contractors and materials to complete work for this project during the coronavirus (COVID-19) pandemic. With consultants continuing to be close to capacity this remains an ongoing risk and may lead to unexpected delays.
Additional approval requirements	High	Medium	Since the previous quarterly update Barwon Water have submitted additional applications to seek approval for the required works. The Land Owner Consent Application to enable the reinstatement of the East Barwon stream gauge is currently still awaiting response.
Continued wet conditions	Medium	Medium	Wet conditions have continued to delayed installation of some of the new stream gauges and monitoring bores required as part of the surrounding environment investigation. Refinements have been made to the installation methodology to overcome these issues, with planning underway to complete these works before the wet period.
Extended remediation timeframes	Medium	Low	While water level and quality improvements are evident, the hydro-geochemical modelling report indicated that even with active intervention, the timeframe for removal of existing acidity loads could still be in the order of 35 years. In line with the feedback received from the ITRP and community representatives Barwon Water is currently working on developing suitable contingency measures (i.e. downstream

Issue	Likelihood	Consequence	Comments
			or upstream treatment) to manage the acidity loads until the system can sufficiently recover. The need and timing associated with the implementation of contingency measures is currently unknown given the design and approvals associated with these measures are still in progress.

Community Engagement

The sixth Remediation Reference Group (RRG) meeting was held via Zoom on 21 March 2022. This meeting was attended by Barwon Water and members of the Remediation Working Group, Southern Rural Water and Southern Rural Water's Community Leaders Group (CLG).

Topics discussed included:

- An overview of the Remediation and Environmental Protection Plan (REPP) and the vision, priorities and objectives of remediation
- A summary of the actions completed since the last meeting and those currently in progress
- Reflections from the field trip which was conducted on 10 March 2022
- Status of the remedial actions outlined in the Boundary Creek and Big Swamp Remediation Plan
- An overview of the current conditions within the swamp
- The progress on the upstream treatment options investigation
- The feedback received on the initial Upstream Treatment Trial Plan
- The delays in the stream gauge and groundwater monitoring bore installation works
- Barwon Water's commitment to broaden the scope of the Surrounding Environment Investigation and undertake an investigation into the Loves Creek Catchment following concerns raised by the Land and Water Resources Otway Catchment (LAWROC) landcare group
- The next steps associated with Boundary Creek and Big Swamp Remediation Plan and the Surrounding Environment Investigation

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. While we are still collating the notes from this meeting, the high level feedback from these discussions are captured in Table 6.

Table 6 Community feedback

Community Feedback Received	Response
<p>The group members expressed appreciation to the primary landowner and Barwon Water for arranging the field visit.</p>	<p>Barwon Water thanked all those who managed to attend the field visit and acknowledged that a few members were unable to attend. We also received interest from parties outside of the group and will be holding some community information sessions to engage more broadly with these parties.</p>
<p>The group members reiterated the importance of having clear narrative and outcomes regarding the upstream treatment options investigation and that while there are some concerns, the ability to discuss these issues and obtain input from the nominated experts will be extremely important as we progress with this investigation.</p>	<p>Barwon Water is currently collating the feedback received on the initial Upstream Treatment Trial Plan. This feedback will be considered and addressed, where relevant, in subsequent phases of the investigation.</p> <p>Barwon Water also reiterated the phased approach that was outlined in the Upstream Treatment Trial Plan and that we are still in the early stages of the investigation. If the laboratory trials indicate the upstream treatment system remains a viable option then we will progress with phase 3 works. This includes further community and stakeholder engagement and approval requirements before we can implement the small-scale field trial.</p>
<p>Some concern was raised regarding the differences in feedback from different expert groups. The group expressed an interest in seeing the experts meet to discuss the next steps to ensure alignment.</p>	<p>Barwon Water has committed to conducting a workshop with the Remediation Reference Group's nominated experts and members of Southern Rural Water's ITRP to further discuss the upstream treatment options investigation which will inform the subsequent phases of work. Ultimately Southern Rural Water as the regulator will have the final say on whether we proceed or not.</p>
<p>A group member suggested a potential magnesia based reagent.</p>	<p>Barwon Water is currently investigating this potential reagent and will consider this as we progress with the investigation.</p>
<p>Members of the group reiterated the need to proceed with caution, several members of the group would like to allow the swamp time to recover naturally without further intervention.</p>	<p>As per the adaptive management approach outlined in the REPP, the adopted remedial actions will be refined in response to ongoing monitoring and the current state of knowledge. Barwon Water however, do need to be prepared to implement contingency measures should conditions deteriorate. As such, the focus is currently on developing these to ensure we have approved measures to ensure timely implementation.</p>
<p>The question was raised why Barwon Water had not yet pursued obtaining the relevant permits</p>	<p>Barwon Water is currently working on refining the potential contingency measures. Currently</p>

Community Feedback Received	Response
for the proposed remedial actions given this can lead to significant delays.	none of the proposed measures have received approval from Southern Rural Water and as such the final design of these measures may change, thus, meaning permits cannot be obtained from other relevant parties until these details are confirmed. As outlined above we have however, commenced with identifying the required approvals.
A member of the group queried how Barwon Water are progressing with installing and automated flow control valve within the dam.	Barwon Water's Technical Services Team is currently investigating the options. Once a solution has been identified we will need to engage with the landholder and obtain his permission to complete these works as the dam is privately owned and licenced

In addition to engaging with the Remediation Working Group, Southern Rural Water and Southern Rural Water's Community Leaders Group (CLG), Barwon Water is arranging a number of broader community and stakeholder engagement activities, including information sessions in May 2022.

Success Targets

Following completion of the REPP, the success targets presented in the REPP underwent a review in 2021 to account for any additional data obtained since development of the REPP. The revised success targets have not yet been accepted by SRW and are likely to be finalised as part of the REPP updates required to address feedback received from Southern Rural Water and account for the current body of knowledge given the technical works completed since the approval of the 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 for Boundary Creek, Big Swamp and as part of the Surrounding Environment Investigation can be accessed from the dedicated Boundary Creek Remediation webpage via the following link:

<https://www.yoursay.barwonwater.vic.gov.au/boundary-creek>

Contingency Measures

Table 7 outlines the contingency measures identified during the design and implementation of the REPP. It is noted that no contingency measures have been implemented to date.

Table 7 Contingency Measures Identified

Contingency Measure	Status
Downstream treatment – preferred method being a sodium hydroxide (NaOH) dosing plant	Design complete pending response to Southern Rural Water and ITRP's feedback. Implementation on hold pending outcomes of the below upstream treatment options investigation.
Upstream treatment – using caustic magnesia (MgO)	Phase 2 of the upstream treatment options assessment is currently underway, with the initial Upstream Treatment Trial Plan submitted to Southern Rural Water and the community and remediation working group in January 2022.

REPP Amendments

Table 8 outlines any recent and upcoming REPP amendments current as of the time of this report.

Table 8 Required Amendments to the REPP

No.	REPP Amendments	Status
1	Feedback received from SRW and the ITRP on the proposed amendments	Barwon Water and SRW are in ongoing discussions regarding the proposed amendments. Once these are confirmed the REPP will be amended accordingly.
2	Implementation of revised success targets	ITRP feedback has been received on the revised success targets. Barwon Water will consider this feedback in finalising the updated success targets as part of the REPP amendments.

Progress Report

Table 9 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 2021/2022 monitoring and reporting period. It is important to note that additional tasks may be added as they are identified during implementation of the REPP.

Table 9 Action Register

#	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 Update to SRW and publish to website	30-Jun-20	Complete	Complete	Southern Rural Water review of template complete. Quarterly Update uploaded to website on 30th June.
5.0	Scoping of SW-GW technical work packages required to inform detailed design and address feedback register	30-Nov-20	Complete	Complete	Complete

#	Activity	Due Date	Status	Health Indicator	Comments
6.0	Complete installation of additional monitoring assets for the following sites identified as 'high risk' in the Surrounding Environment Investigation	31-May-22	In progress	On track	19 of 23 bores are installed - remaining 4 to be completed once conditions permit and appropriate drill rig is available. 2 of 5 Stream Gauges installed, the wet weather and high flows over summer prevented installation of 2 gauges. 1 stream gauge is still awaiting approvals.
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	1 year of monitoring completed. Monitoring of groundwater levels, stream flows and water quality continues in Big Swamp and Boundary Creek.
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	Remediation Reference Group meetings continue to be held quarterly.
11.0	Submit updated REPP to capture the work plan for addressing the feedback register. SRW to accept the updated REPP.	TBA	In progress	On track	Barwon Water submitted changes to Southern Rural Water on 30 September 2020. Southern Rural Water has provided feedback, which was discussed on 10 March 2021. Barwon Water subsequently submitted the revised updates including any which were contingent on detailed design on the 31st July. Barwon Water and Southern Rural

#	Activity	Due Date	Status	Health Indicator	Comments
					Water are in ongoing discussions to verify the proposed amendments prior to making any formal updates
12.0	Submit annual report to SRW and publish to website	30-Sep-20	Complete	Complete	Completed
13.0	Remediation Reference Group Meeting	2-Dec-20	Complete	Complete	Completed
14.0	Establish vegetation baseline monitoring for Boundary Creek and Big Swamp Remediation Plan:	31-Dec-20	Complete	Complete	Baseline Monitoring undertaken 25th of November - Further monitoring to be completed in 2022
15.0	Update groundwater-surface water model	31-Dec-20	Complete	Complete	Final report uploaded to website
16.0	Submit quarterly report to SRW and publish to 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 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 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
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	Detailed design of a downstream treatment system was submitted to Southern Rural Water on 30 July 2021. Further work is currently being undertaken to assess applicability and feasibility of upstream treatment system - refer item 27
24.0	Remediation Reference Group Meeting	8-Sep-21	Complete	Complete	Barwon Water presented on the key aspects of the hydraulic barrier and contingency measure submissions, including the proposed further upstream treatment options investigation.
25.0	Submit annual report to SRW and publish to website	30-Sep-21	Complete	Complete	Report currently being drafted
26.0	Remediation Reference Group Meeting	9-Dec-21	Complete	Complete	Meeting notes to be circulated by 23 December 2021
27.0	Completion of upstream treatment investigation and development of Trial Plan	14-Jan-22	In progress	On track	In progress – Trial Plan to be submitted to SRW by 14 January 2021. It is noted that this has been delayed by 2 weeks due to expert availability
28.0	Submit quarterly report to SRW and publish to website	31-Dec-21	In progress	On track	
29.0	Remediation Reference Group Meeting	21-Mar-21	Complete	Complete	Meeting notes to be circulated by 23 December 2021
30.0	If trial plan is approved undertake upstream treatment trial	31-Mar-22	Not yet commenced		Timelines for completion of the upstream treatment trial will need to be revised to reflect the phased approach outlined in the Treatment Trial Plan and account for any feedback / approvals.

#	Activity	Due Date	Status	Health Indicator	Comments
31.0	Submit quarterly report to SRW and publish to website	31-Mar-22	Not yet commenced		
32.0	Decision on full scale upstream treatment, hydraulic barriers and downstream treatment	30-Apr-22	Not yet commenced		
33.0	Submit quarterly report to SRW and publish to website	30-Jun-22	Not yet commenced		

References

Barwon Water (2019, as amended 2020) Boundary Creek, Big Swamp and Surrounding Environment – Remediation and Environmental Protection Plan

Barwon Water (2021) Hydro-Geochemical Modelling – Design of Contingency Measure

CDM Smith (2019) Boundary Creek and Big Swamp remediation: Options assessment, report prepared for Barwon Water