

# Tomohaka / Tomahawk Lagoon Implementation Plan

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## Acknowledgements

This plan has been developed through collaboration with mana whenua, stakeholders, and the community. Kā mihi nui to the following people for their contributions:

Marc Schallenberg (Cawthron Institute); Nicole Bezemer, Darin Stewart, Ruth Myers, Sherrill Te Ata Passau (Tomahawk-Smaills Beachcare Trust); Andrew Innes (ECOtago); Steve Catty, Dean Williamson, Warren Mathieson; Zoe Lunniss, Jared Oliver (Dunedin City Council); Nicole Foote (NZ Landcare Trust); Hannah Zwalue (Department of Conservation); Steven Dixon (Fish & Game Otago); Paula Cross (Otago Peninsula Biodiversity Group); Paul Pope (Otago Peninsula Community Board); Lala Frazer (Save The Otago Peninsula); Karen Parker (Tahuna Normal Intermediate); Tom Clark, Anna Cross (Queen's High School); Sam Dixon (Otago Catchment Community). This is a living document for the duration of the project and additional contributors may be added/acknowledged. A summary of the changes made to the draft plan through this collaborative process can be found in Appendix 1.

## 1. Purpose

The purpose of this Implementation Plan is to provide clarity on the actions required to implement recommended management actions. The actions were identified during consultation with partners/stakeholders and through the ecological assessment of Tomohaka / Tomahawk Lagoon<sup>1</sup>. The intention is that the Implementation Plan will remain a living document, used to achieve two primary purposes:

1. To guide delivery of recommended management actions
2. To use as a basis for discussion with mana whenua, key stakeholders, and community representatives

## 2. Context

In response to concerns about water quality, the 2017/18 Annual Plan provided for Otago Regional Council (ORC) staff to work with the local community to scope lake restoration works for Tomahawk Lagoon. Engagement and consultation with the local community around Tomahawk Lagoon was initiated as water quality was found to be degrading. Local citizen science group ECOTAGO helped to identify that there are elevated levels of sediment, E. coli, nitrates and phosphates found within the lagoon and Lagoon Creek (contributing waterway). Cyanobacteria is found within the lagoon regularly in the summer months. The community also raised other concerns to do with water levels and sediment. Community values also include recreational access, fishing, and enhancement of native biodiversity.

The engagement and consultation process included the following steps:

- In February 2018, a workshop was held with the community, where community goals and values for the Tomahawk Lagoon catchment were identified.
- In May 2018, a second workshop was held with the community where potential projects for the lagoon and catchment were identified.
- In early 2021, ORC staff prepared a draft outline management plan based on the above consultation feedback.
- In March 2021, a key stakeholder meeting for Tomahawk Lagoon catchment was held to discuss the draft outline management plan, and feedback was provided. At this meeting, key stakeholders had the opportunity to vote for the projects within the plan that they identified as being the highest priority for implementation.
- On the 29 April 2021, a drop-in session was held at Grant Braes AFC Clubrooms so that the community could vote on the projects that they identified as being the highest priority for implementation. 40 community members attended this session and provided feedback.
- In April 2021 online consultation was held with the community, to complement the drop-in session, so that they could provide their votes on the projects that they identified as being the highest priority for implementation. 59 people participated in this opportunity and provided their votes.
- The three projects that received the highest votes for implementation within the Tomahawk Lagoon catchment were:
  - ▶ An Ecological Assessment of the lagoon and catchment.
  - ▶ A permanent water quality monitoring suite established.
  - ▶ Formation and support of a community catchment group.

The sum of \$100,000 has been approved in the 2021-31 Long Term Plan for 2021/22 for projects to improve biodiversity and water quality within the Tomahawk Lagoon catchment. The sum of \$80,000 has been provided in each of the 2022/2023 and 2023/2024 financial years.

On 14 April 2022, report ENV2201<sup>2</sup> was presented to the Environmental Implementation Committee where the proposed Management Plans including priority projects for implementation for Tomahawk Lagoon were considered. The resolution made was that the Committee:

1. **Notes** this report.

2. **Approves** the initial management plan and ongoing development of management plans for Tomahawk Lagoon and Lake Tuakitoto catchments with their communities.
3. **Approves** commencement of project implementation.
4. **Notes** that project implementation will proceed this financial year, slightly accelerated for Tomahawk Lagoon, and as planned for Lake Tuakitoto.
5. **Notes** implementation in future years is dependent on Annual Plan decisions of Council and will be guided by the ecological assessments and priorities that arise through these.

Following the approval of the implementation of the initial management plan by the Implementation Committee:

- In April 2022, Otago Regional Council submitted a Request for Proposal (RFP) on the Government Tender Services (GETs) website for: “Lake Tuakitoto and Tomahawk Lagoon – Ecological Assessment”.
- In June 2022, ORC awarded the contract to Cawthron Institute, who would deliver an ecological assessment for Tomahawk Lagoon to identify and provide guidance on where action could be delivered for best investment and environmental outcomes.
- In March 2023, Cawthron Institute undertook a field study at Tomahawk Lagoon.
- In July 2023, Cawthron Institute delivered a report<sup>1</sup> on the ecological assessment and potential management actions for Tomahawk Lagoon, which incorporates historical and field study data.
- In July 2023, ORC shared this report with community representatives, mana whenua, and key stakeholders.

The ecological assessment identified several recommended management actions with the goal to enhance freshwater quality of Tomahawk Lagoon and the wider catchment. These are summarised in Table 1.

**Table 1** Summary of potential recommended management actions from the Ecological Assessment of Tomahawk Lagoon.

Goal	Management Action	Priority
Reducing contaminants in the lagoons	Explore the possibility of zoning the catchment as a nutrient-sensitive zone in the Otago Regional Council Land / Water Plan	Highest
	Undertake fencing and riparian planting; buffers in forestry areas	Highest
	Enhance existing wetlands in the catchment	High

To monitor long-term outcomes, ORC has established a monthly water quality monitoring site in the deepest point of the upper lagoon.

### 3. Scope

The Implementation Plan encompasses both the lower and upper Lagoons, the associated wetlands, outflow, and catchments.

The plan sets out the outcomes, objectives, activities, deliverables, tasks, and ORC teams responsible for the implementation of the potential management actions listed in Table 1. It also

identifies potential roles and responsibilities of mana whenua, key stakeholders, community groups, key risks, and mitigation strategies.

The Implementation Plan covers the period from receipt of the ecological assessment from Cawthron Institute (July 2023) to June 2025. Note that the date to which funding from the ORC Long-term and Annual plans is allocated for this project ends in June 2024, however a carry-over of funding into 2024/25 has been endorsed to allow appropriate timeframes for delivery.

#### **4. Structure of Plan**

The draft Implementation Plan:

- i. Presents a logic model to conceptualise management action implementation and timeframes.
- ii. Defines potential roles and responsibilities of those involved in implementation.
- iii. Identifies risks to delivery and risk mitigations.



## i. Implementation Programme

<b>Vision</b>	A thriving Tomahawk Lagoon catchment, where water quality and biodiversity are enhanced through community action to contribute to a healthy ecosystem for all to enjoy.				
<b>Inputs</b> (The resources used to deliver activities and outputs in the project)	<b>Activities</b> (Project actions that lead to outputs <i>with timing of delivery</i> )	<b>Outputs</b> (what is produced and delivered <i>with associated measures of success</i> )	<b>Outcomes</b> <i>Short-term Outcomes</i> 0-6 months <i>Medium-term outcomes</i> 6-18 months <i>Long-term Outcomes</i> >18 months		
<p><b>Partners</b></p> <ul style="list-style-type: none"> <li>- Aukaha</li> <li>- Ōtakou Rūnaka</li> </ul> <p><b>Key Stakeholders</b></p> <ul style="list-style-type: none"> <li>- DCC</li> <li>- DOC</li> <li>- Ecotago Trust</li> <li>- Fish and Game Council</li> <li>- Tomahawk Lagoon Catchment Group</li> <li>- Otago Peninsula Biodiversity Group</li> <li>- Otago Peninsula Community Board</li> <li>- Save the Otago Peninsula</li> <li>- Tomahawk-Smailis Beachcare Trust</li> <li>- Birds New Zealand</li> <li>- NZ Landcare Trust</li> <li>- Community members/schools</li> </ul> <p><b>Funding</b></p> <ul style="list-style-type: none"> <li>- FY 21/22 \$100,000</li> <li>- FY 22/23 \$80,000</li> <li>- FY 23/24 \$80,000</li> </ul> <p><b>ORC Staff</b></p> <p><b>Contractors</b></p> <p><b>Ecological Assessment Report</b></p>	<p><b>Activity Group 1</b></p> <ul style="list-style-type: none"> <li>- ORC Drafts Implementation Plan for Recommended Management Actions from Ecological Assessment (April 2024).</li> <li>- Work collaboratively with mana whenua, stakeholders, and community to develop plan (November 2024). (Appendix 1)</li> <li>- ORC explores zoning of catchment (October 2024).</li> </ul> <p><b>Activity Group 2</b></p> <ul style="list-style-type: none"> <li>- Deliver stormwater education event (April 2024).</li> <li>- Develop signage to facilitate community education.</li> <li>- Assess options and viability of education initiatives relevant to the programme's Vision (November 2024).</li> <li>- Work with landowners to ensure regulations and best practice are followed during forestry harvest (March 2025).</li> </ul> <p><b>Activity Group 3</b></p> <ul style="list-style-type: none"> <li>- Work with landowners and community to identify and prioritise restoration sites, discuss cost-sharing mechanism, and collaboration (January 2025).</li> <li>- Discuss activities with ORC natural hazards and engineering to identify any risks (October 2024).</li> <li>- Engage/collaborate with landowners and community groups to fence, plant, and maintain priority sites (June 2024, June 2025).</li> </ul>	<p><b>Output Group 1</b></p> <ul style="list-style-type: none"> <li>- Final Tomahawk Lagoon Implementation Plan created (December 2024).</li> <li>- Discussions about the viability of nutrient zoning had with ORC policy team.</li> </ul> <p><b>Output Group 2</b></p> <ul style="list-style-type: none"> <li>- Stormwater Education event delivered.</li> <li>- Signage installed (April 2025).</li> <li>- Support viable education initiatives that contribute to the programme's Vision (April 2025).</li> <li>- Forestry is harvested in a way that minimises sediment movement.</li> </ul> <p><b>Output Group 3</b></p> <ul style="list-style-type: none"> <li>- Potential enhancement areas are identified with landowners, prioritised, and planned for (<i>habitat enhancement plans developed that include consideration of animal pest control, plant maintenance, erosion control and future walking access</i>)</li> <li>- Planting and fencing budget is allocated to sites according to site prioritisation criteria.</li> <li>- Landowners working with project to undertake riparian and wetland enhancement (<i>number of landowner agreements/similar in place; number of restoration plans in place</i>)</li> <li>- Fences constructed (<i>metres of fencing</i>)</li> <li>- Plants planted (<i># of plants; size (area) of enhancement projects completed</i>)</li> </ul>	<p><b>A collaborative effort has confirmed the Implementation Plan and timeframes</b></p> <p><b>Increased engagement with landowners and community around enhancing water quality values in the Tomahawk Lagoon catchment</b></p> <p><b>Areas for habitat enhancement are identified and plans are produced</b></p>	<p><b>Habitat is enhanced through planting and fencing</b></p> <p><b>Opportunities to support community education are explored</b></p>	<p><b>Improved stream and lagoon water quality</b></p> <p><b>Enhanced native aquatic and terrestrial biodiversity</b></p>

## ii. Roles and Responsibilities

This project is a collaborative project between mana whenua, key stakeholders, community, and ORC. It is important to understand the roles that different parties could potentially have in delivery of the management actions for Tomahawk Lagoon. These are summarised in Table 2.

**Table 2** Potential roles for Mana whenua, stakeholders, community

Organisation/s	Potential roles
Mana whenua and Aukaha	<ul style="list-style-type: none"> <li>Advice on rongoā species to include in plantings.</li> <li>Advice on cultural sites that may be positively or negatively impacted by restoration activities.</li> </ul>
ORC	<ul style="list-style-type: none"> <li>Project delivery and oversight</li> <li>Leading the stormwater education event</li> <li>Identify natural hazards and risks of activities</li> <li>Manage contractors</li> <li>Provide best practice advice to landowners</li> <li>Oversee habitat restoration site prioritisation and implementation</li> </ul>
Birds New Zealand	<ul style="list-style-type: none"> <li>Engage in project and identify opportunities.</li> </ul>
Community members/ Schools	<ul style="list-style-type: none"> <li>Attend planting days and other events.</li> <li>Provide options for future education initiatives.</li> <li>Provide feedback on signage.</li> </ul>
Department of Conservation (DOC)	<ul style="list-style-type: none"> <li>Provide feedback on signage.</li> </ul>
Dunedin City Council (DCC)	<ul style="list-style-type: none"> <li>Permission for signage installation.</li> <li>Participation in stormwater education events.</li> <li>Provide stormwater education advice.</li> <li>Help facilitate volunteer engagement in habitat restoration activities</li> </ul>
Ecotago Trust	<ul style="list-style-type: none"> <li>Deliver water quality programme 2024.</li> <li>Participation in stormwater education event.</li> <li>Provide options for future education initiatives.</li> </ul>
Fish and Game - Otago	<ul style="list-style-type: none"> <li>Can monitor fish before and after creek restoration.</li> <li>Assess fish passage and barriers.</li> <li>Involvement in creek restoration (putting in rocks and gravel).</li> </ul>
NZ Landcare Trust	<ul style="list-style-type: none"> <li>Engage in project and identify opportunities.</li> <li>Provide feedback on signage.</li> </ul>
Otago Peninsula Biodiversity Group (OPBG)	<ul style="list-style-type: none"> <li>Engage in project and identify opportunities.</li> </ul>
Otago Peninsula Community Board	<ul style="list-style-type: none"> <li>Engage in project and identify opportunities.</li> </ul>
Save The Otago Peninsula (STOP)	<ul style="list-style-type: none"> <li>Advertise planting days.</li> </ul>
Tomahawk Lagoon Community Catchment Group	<ul style="list-style-type: none"> <li>Support with landowner engagement.</li> </ul>
Tomahawk-Smaills Beachcare Trust	<ul style="list-style-type: none"> <li>Facilitation of planting where capacity allows.</li> <li>Support with landowner engagement.</li> <li>Provide feedback on signage.</li> </ul>

### iii. Risks and Mitigations

There are some potential risks in delivery of management actions at Tomahawk Lagoon. Identifying these risks and potential mitigations is a useful first step in minimising these risks.

**Table 3** Risks and mitigations

Activity	Risk	Likelihood	Impact	Mitigations
Explore the possibility of zoning the catchment as a nutrient-sensitive zone in the Otago Regional Council Land / Water Plan	Appropriate planning tools may not be available	High	Low	Ongoing engagement with landowners. Catchment Advisors to provide best practice advice.
Undertake fencing and planting; enhance existing wetlands in the catchment	Lack of buy-in from landowners	Low	High	Consult with landowners early. Provide education. Provide co-funding incentives. Work with community groups to plan and deliver work.
	Risk of disturbing archaeology (part of the Lower Lagoon is within the 2GP Archaeological Alert Layer)	Low	High	Consult with Heritage New Zealand before undertaking any works in this area.
Stormwater education	Messaging about improving stormwater is ineffective.  Event is poorly attended.	Medium	Medium	Provide a wide variety of resources including interactive displays.  Advertise widely.

## 5. Budget

Note that while the total spend remains the same, the annual budget allocations differ to allow appropriate timeframes for delivery.

Activity Group	Tasks	Activities	2022/23		2023/24		2024/25		Total - Budget
			Budget	Actual	Budget	Actual	Budget	Actual	
1	Ecological Assessment and consultation	Cawthron Institute Contract	56,125.50	56,125.50					56,125.50
		May 2023 Open Day Event and Workshop	600.00	528.90					528.90
2	Zoning and stormwater education	SLR Consulting - Stormwater education resources			7,328.00	7,328.48			7,328.00
		Stormwater education day			5,000.00	3,703.03			5,000.00
		Support community water quality monitoring			12,600.00	12,600.00			12,600.00
		Support education initiatives					12,000.00		12,000.00
		Signage - production and installation			1,600.00	0.00			1,600.00
3	Enhancing riparian and wetland habitat	Fencing and planting			45,500.00	32,200.00	119,317.60		197,017.60
<b>Total</b>			<b>\$ 56,725.50</b>	<b>\$ 56,654.40</b>	<b>\$ 72,028.00</b>	<b>\$55,831.51</b>	<b>\$ 131,317.60</b>	<b>\$ -</b>	<b>\$ 292,200.00</b>

## 6. References

1. Kelly DJ, Schallenberg M, Waters S. 2023. Ecological assessment of Lake Tuakitoto and Tomahawk Lagoon and options for lake rehabilitation. Nelson: Cawthron Institute. Cawthron Report 3947. Prepared for Otago Regional Council.
2. Otago Regional Council. 2022. Implementation Committee Agenda – 14 April 2022 Report No. ENV2201. <https://www.orc.govt.nz/news-and-events/events/2022/april/implementation-committee-14-april>

## Appendices

### *Appendix 1. Summary of changes from feedback on draft Implementation Plan*

This document summarises the feedback and resulting changes to the Tomohaka Tomahawk Implementation Plan. Partners and stakeholders were consulted in November/December 2024. Note that the Implementation Plan is a living document.

Change to plan	Reasons
Removed 'Construct a wetland at the outlet of Lagoon Creek' from the plan. \$30K funding repurposed to 'fencing and planting'	Constructing a wetland within the lagoon itself was seen as an 'ambulance at the bottom of the cliff' and should be considered after all other catchment improvements (planting, fencing) have been made. All parties spoken to supported repurposing this funding for direct restoration actions (fencing, planting, and sediment traps), rather than the creation of a plan that may not be carried out. The repurposing of funding will result in a greater number of landowners in the catchment being engaged, and this would build connection and momentum.
Combined budget for fencing with budget for planting	Flexibility will mean ORC can support landowners with what they need. This will be determined by site visits.
Added 'Work with landowners to ensure regulations and best practice are followed during forestry harvest" to Activity Group 2.	Community members expressed concern about forestry activities and the key landowner was happy to receive advice on minimising sediment movement. ORC can facilitate this.
Added geographic boundaries covered by the plan to the Scope.	To clarify that the scope of the plan encompasses both the lower and upper lagoons, the associated wetlands, outflow, and catchments.
Parts of Activity Group 3 relating to habitat restoration were combined and simplified	To make the process more flexible and reduce burden on landowners.
Included animal pest control, plant maintenance, erosion control, and consideration of future walking access in habitat enhancement plans.	Improving/extending the walking access around the lagoon was identified during early consultation, however this goal fell outside the management actions prioritised in the plan. Community members wanted landowners to at least consider potential future walking access when restoration plans are created.  There was concern about damage to plantings from pest animals, particularly rabbits. Site visits will also determine if erosion is contributing to sediment to the lagoon.

	<p>Plant maintenance is crucial to plant survival. Responsibility and input for this activity needs to be detailed in restoration plans.</p>
<p>Added 'enhanced native aquatic and terrestrial biodiversity' to the long-term outcomes.</p> <p>Noted that the community values also include recreational access, fishing, and enhancement of native biodiversity.</p>	<p>To acknowledge that the Long Term Plan focusses on degraded water bodies, the Vision is catchment-wide, and the values of the community are multi-faceted. Improving water quality will improve fisheries. Native biodiversity was highly valued; the lagoon area is a regionally significant wetland habitat for native fish.</p>
<p>Added 'Provide feedback on signage' to the potential roles for DOC, Landcare Trust, Tomahawk-Smaills Beachcare Trust, and Community members.</p>	<p>These parties expressed interest in helping with this activity to ensure that signage is accurate, engaging and highlights the community's effort.</p>
<p>Added potential roles for Fish &amp; Game.</p>	<p>F&amp;G have an interest in supporting native and introduced fish.</p> <p>Can monitor fish before and after creek restoration.</p> <p>Assess fish passage and barriers.</p> <p>Involvement in creek restoration (putting in rocks and gravel).</p>
<p>Added 'Oversee prioritisation of habitat restoration sites and implementation' to ORC's role.</p> <p>Added 'where capacity allows' to Tomahawk-Smaills Beachcare Trust role of facilitating planting.</p>	<p>To ensure funds and support are distributed transparently and fairly. To support priority sites in a way that considers the vision, management goals, and community's capacity.</p>
<p>Removed 'advertise planting days' from OPBG role.</p>	<p>OPBG have other strategic priorities.</p>
<p>Added 'To monitor long-term outcomes, ORC has established a monthly water quality monitoring site in the deepest point of the upper lagoon'.</p>	<p>This is the key indicator of long-term success of the project.</p>
<p>Added 'Help facilitate volunteer engagement in habitat restoration activities' to DCC's potential roles.</p>	<p>DCC's Volunteer Coordinator may be able to facilitate community involvement especially on any DCC land.</p>
<p>Added 'Check for cultural sites that may be positively or negatively impacted by restoration activities' to Mana whenua and Aukaha potential roles.</p>	<p>Knowledge of sites of importance to Māori will be added to, and influence, the prioritisation of habitat restoration.</p>