



LIVING
WATER

Dairy and freshwater thriving together

Evaluation Report
Pūkoro-Miranda, Hauraki
July 2024

Will Allen
Viv Sherwood
Pūkoro-Miranda Evaluation Team

Part of the Living Water site evaluation series

Acknowledgements: This report was developed through a collaboration between the external evaluation consultants and the Pūkoro-Miranda Evaluation Team consisting of Sarah Yarrow (Living Water National Manager), Katie Collins (Living Water Science Lead), Dion Patterson and Rose Graham (DOC Site Leads). We are grateful to all the individuals who generously contributed to this evaluation through their participation in workshops, group sessions, or individual interviews with the external consultants.

Note: Will Allen and Viv Sherwood have been involved in the monitoring and evaluation activities of the programme through the initial monitoring and evaluation design phases, and more recently in the development and implementation of this final evaluation phase.

Disclaimer: This document has been prepared for the benefit of the Living Water team, their partner organisations, and others as a resource to use in future thinking about the implementation of collaborative place-based initiatives. The material contained within is provided solely for the purpose of being used within anyone's own participatory process. It should be subject to further consideration and refinement in accordance with their specific needs and circumstances. The individual perspectives we have presented may not always reflect the perspective of a partner organisation or other entity.

Document citation: Allen W., Sherwood V., Pūkoro-Miranda Evaluation Team (2024). Evaluation Report: Pūkoro-Miranda, Hauraki. Available online at <https://www.livingwater.net.nz/our-progress-to-matou-kokenga-whakamua/>

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Contact details: Will Allen – willallen.nz@gmail.com, Viv Sherwood – vivsherwood.nz@gmail.com

Cover images: Living Water

Design and layout: Kate Veale



Executive summary

Introduction

The Pūkoro-Miranda programme, part of the 10-year Living Water partnership between the Department of Conservation (DOC) and Fonterra, aimed to enhance the health and sustainability of the Pūkoro-Miranda catchment area. By restoring and reconnecting rural freshwater ecosystems and sensitive coastal environments, the programme demonstrated collaborative efforts involving the Living Water partnership, mana whenua, and various local partners—particularly the Pūkoro-Miranda Naturalists' Trust (PMNT), the Western Firth Catchment Group Trust (WFCGT) and Tiaki Repo ki Pūkoro Trust (TRKPT). This evaluation, intended for the primary audience of programme stakeholders and partner agencies, assesses the programme's impacts and development through a participatory and complexity-aware methodology. The report is structured to ensure a thorough understanding of the programme and to promote constructive reflection. It highlights insights, challenges, and lessons gained over the years, with recommendations focusing on strengthening cross-sector collaboration, enhancing community and stakeholder engagement, improving integrated planning, and enhancing technical support and engagement tools.

This evaluation employs a performance story approach, which involves the key partners in collaborative activities to assess the programme's outcomes and impacts. Chapter 1 outlines the evaluation framework and sets out the programme context and development over time. Chapters 2 and 3 build on the programme's Theories of Change (ToC) and logic model structure to provide a holistic perspective on activities and outcomes. Chapter 4 focuses on three key areas of collaboration to explore insights, challenges, and lessons learned, presenting them in a way that ideally supports facilitated discussions. Finally, Chapter 5 provides a performance summary and offers strategic recommendations to guide future work in similar contexts.

Importantly, this evaluation is not intended to conclude with these reports but to serve as a background document for facilitated discussions, helping stakeholders move forward. The reports have been designed with this use in mind, aiming to guide future discussions, using the findings and insights to foster continued progress and adaptation.

Visualising the programme

Chapters 2 and 3 provide framings that enable the evaluation team to look across the individual activities and view the operation of the wider programme. The programme's evolving Theory of Change (ToC) is essentially a guide illustrating the process and rationale behind its expected impact, linking activities and outputs to desired outcomes, and serving as a foundational blueprint for strategic planning and execution.

Chapter 2 delves into the programme's multi-layered governance, covering strategic oversight, national programme management, and site-level delivery, demonstrating the evolution through its various phases. This structure has supported the programme through

its start-up, from initial engagement and quick wins to strategy consolidation and, ultimately, supporting it to broaden its impact. Contributions from a wide range of partners at site have been essential, encompassing expertise, resources, and support from both local and wider community entities. Activities ranging from habitat expansion and integrated catchment approaches to strategic partnerships underscore the programme's commitment to ecological health and community engagement. This chapter concludes with metrics that reflect the programme's achievements and underscore the tangible impact of collective efforts towards environmental sustainability.

Chapter 3 highlights the outcomes and impact of the programme and examines who and what has changed over the course of this Living Water initiative. Recognising that environmental change is a long-term endeavour, with desired state changes often taking 15–20 years or more to materialise, this chapter outlines the changes the programme has contributed to so far. These changes are presented in two different ways. Firstly, a results table offering a quick snapshot of progress based on the programme's 2018 logic model. Outcomes are then grouped by themes that represent the drivers and enablers of change within the wider human and ecological systems: organisational changes, relational changes, ecological changes and valuing the environment, capability, and capacity changes (particularly social and organisational), contributions (in-kind), and scaling up and out. This strategic theme categorisation not only facilitates a structured analysis of the programme's impact but also highlights the multifaceted nature of environmental change, emphasising the importance of a holistic approach to catchment management.

Insights, challenges, and lessons

Chapter 4 looks at three different aspects of the programme to support a reflective view of its overall impact and processes. It focuses on identifying insights, challenges, and lessons – elements commonly found together, but not always addressed, in complex programmes. The co-benefits identified are the additional positive outcomes that arise from a single programme activity, often spanning different areas of impact. Understanding co-benefits illustrates how integrating activities across various work areas has broadened our impact.

Through a reflective lens, we examine the insights and lessons derived from this programme, viewing challenges and surprises as catalysts for deeper learning, flexibility, and adaptation, acknowledging that challenges are often hard to write about. This chapter does not aim to provide an exhaustive overview but rather to spotlight specific initiatives that embody the programme's holistic and participatory ethos. These insights, challenges, and lessons draw from a collective assessment, offering valuable perspectives on the programme's effectiveness and its potential blueprint for future land and water management projects. The three key areas address the following aspects:

- Collaborations take time: The Pūkorokoro-Miranda programme realised the importance of patience and adaptability in building trust and aligning diverse visions. Co-benefits included broader community impact and sustainable relationships. Insights and challenges identified the need for balancing patience with visible progress, flexible strategies, and sustainable funding models for impactful outcomes.

- Importance of working at catchment level: The Pūkoro-Miranda programme highlighted the benefits of a catchment-level approach, enhancing ecosystem connectivity and collective impact. Initiatives like land purchases expanded bird habitats, while landowner engagement improved ecosystem health. Co-benefits included strategic efficiency, broad environmental impact, and community ownership. Key insights and lessons involved tailoring tools, integrated prioritisation, and leveraging community groups.
- Finding the right entry points: Strategic entry points, like partnerships with WFCGT, tailored Farm Environmental Plans (FEPs), and possum control initiatives, bridged community interests with conservation goals. These efforts engaged the wider community and empowered smaller property owners. Key insights emphasise shared environmental goals, economic motivations, and balancing long-term conservation with immediate stakeholder needs. Initiatives like possum control show how focused actions can broaden community involvement, highlighting the need for a human-centric approach.

Progress assessment and recommendations

Chapter 5 encapsulates the journey of the Pūkoro-Miranda programme, offering a comprehensive overview of its progress, key achievements, and forward-looking recommendations. This chapter acts as a pivotal reflection point, assessing the programme's impact and charting the path ahead.

The programme has marked significant advancements in environmental management and community engagement within the Miranda sub-catchment. Noteworthy activities and outputs include freshwater habitat protection and enhancement through land acquisition and targeted mitigations, community-driven pest management, and the promotion of sustainable agricultural practices via farm environment plans (FEPs). These initiatives have ideally demonstrated ecologically desirable freshwater activities in an agricultural landscape, fostered improved ecological health, strengthened community connection, and reinforced collaborative practices across groups. The journey also illuminated challenges, such as the need for broader community engagement beyond immediate stakeholders and how to address ecological complexities exacerbated by climate variability.

The programme achieved several intermediate outcomes that can be seen as important stepping stones towards long-term environmental and social goals. These include the tangible ecological and social outcomes from concerted efforts leading to freshwater habitat enhancement and a wider sense of community ownership and responsibility towards catchment health. Progress in these areas not only met immediate programme goals but also established a solid foundation for continued environmental stewardship and community engagement.

With this assessment in mind the recommendations underscore the importance of focusing on intermediate outcomes - or 'supporting structures' - essential for advancing long-term environmental and social catchment goals. These areas, often overlooked, undervalued, or underfunded, are seen as integral for sustainable catchment management into the future. The recommendations are as follows:

- **Strengthen cross-sector collaboration processes:** Establish robust cross-sector partnerships from the outset, and recognise their value throughout, to help achieve milestones like significant habitat enhancement and improved social connection.
- **Enhance community and stakeholder engagement:** Develop inclusive engagement strategies with diverse participatory tools, fostering regular dialogue and shared decision-making to achieve ecological goals and community stewardship.
- **Improve integrated planning for integrated programmes:** Adopt adaptable catchment management frameworks using robust Theories of Change and behaviour change models. Leverage insights from behavioural science to design effective interventions reflecting ecological, cultural, and community needs.
- **Enhance technical support and engagement tools:** Refine catchment tools like CAPTure and FEPs, integrate biophysical data, and engage farmers and land managers to foster ownership. Use feedback to continuously improve and align proposed interventions with ecological goals.

These recommendations, derived from the insights, challenges, and practical experiences of the Pūkoro-Miranda programme, contribute to advancing catchment management practices that are inclusive, adaptive, and sustainable. Collectively, these and other evaluation reflections from the Living Water sites aim to guide future planning. By presenting these recommendations as prompts for facilitated discussions, we hope the evaluation will continue to serve as a dynamic resource, informing ongoing and future collaborative initiatives.



Pukoro-Miranda is an internationally significant area for migratory shorebirds, who spend time refuelling before their long flight to Siberia or Alaska. Protecting and maintaining their habitats is crucial for their survival.

Contents

Executive summary	1
1. Evaluation and programme introduction	1
1.1 Evaluation process, design and report structure	2
1.2 Programme context and development	5
1.2.1 National context	5
1.2.2 Catchment context	6
1.2.3 Social/cultural context	6
1.2.4 Programme development	7
1.3 Programme milestones	9
1.4 Theory of change	10
1.4.1 Logic model	10
1.4.2 Underpinning assumptions and guiding principles	12
2. Inputs, activities and outputs	13
2.1 Governance, management, and resourcing	13
2.2 Activities and outputs	15
2.2.1 Restoration and habitat expansion	15
2.2.2 Mountains to Sea integrated catchment approach	16
2.2.3 Strategic partnerships	18
2.2.4 Monitoring and evaluation	17
2.2.5 Documentation and advocacy	18
2.3 Outputs - by the numbers	19
3. Outcomes - results and themes	20
3.1 Results table	20
3.2 Outcomes by theme groupings	23
3.2.1 Organisational changes	23
3.2.2 Relational changes	24
3.2.3 Ecological changes and valuing the environment	25
3.2.4 Capability/capacity changes	29
3.2.5 Financial investment and impact	29
3.2.6 Scaling up and out	30

4. Insights, challenges, and lessons	31
4.1 Collaborations can take time	32
4.2 Benefits of working at catchment level	33
4.3 Finding the right entry points	35
5. Progress assessment and recommendations	39
5.1 Programme achievements and outcomes	39
5.1.1 Achievement of activities and outputs	39
5.1.2 Contribution towards outcomes	40
5.1.3 Areas for improvement	41
5.1.4 Contribution to unplanned outcomes	42
5.1.5 Reflecting on guiding principles and assumptions	43
5.2 General recommendations	44
Appendix I: Information sources for evaluation	46
Appendix II: Author biographies	51

Abbreviations

CAME - Complexity-Aware Monitoring and Evaluation

CAPTure - Catchment Assessment Prioritisation Tool

CCS - Catchment Condition Survey

DOC - Department of Conservation

FEP - Farm Environment Plans

GIS - Geographic Information System

HDC - Hauraki District Council

MOU - Memorandum of Understanding

NGOs - Non-Governmental Organisations

PMNT - Pūkorokoro-Miranda Naturalists' Trust

PSR - Performance Story Report

RTC - Residual Trap Count

TRKR - Tiaki Repo ki Pūkorokoro Reserve

TRKPT - Tiaki Repo ki Pūkorokoro Trust

ToC - Theory of Change

TNC - The Nature Conservancy

WFCGT - Western Firth Catchment Group Trust

WRC - Waikato Regional Council

1. Evaluation and programme introduction

Living Water, a partnership between the Department of Conservation (DOC) and Fonterra, was a ten-year programme to find ways to improve freshwater ecosystem health while enabling farming to thrive. The partnership was formed in 2013, marking the first national collaboration of its kind in New Zealand - between a government conservation agency and a primary industry cooperative - and emerged at a time of growing national concern about the impact of dairy farming on water quality.

Fonterra pledged \$20 million over 10 years for programmes, operationally overseen by DOC, complemented by DOC's commitment of approximately \$500,000 annually in staff time. The partnership aimed to improve freshwater ecosystems and increase biodiversity in agricultural landscapes. Five catchments, all with intensive dairying and challenging freshwater issues, were selected to trial a variety of tools and approaches. These catchments were: Wairua River, Northland; Pūkoro-Miranda, Hauraki; Lakes Areare, Ruatuna and Rotomānuka, Waikato; Ararira-LII River, Canterbury; and Awarua-Waituna Lagoon, Southland. Moving beyond a focus on individual farm enterprises, this partnership has embraced a comprehensive catchment-scale approach, deepening our understanding of effective environmental change on a larger scale and showcasing the contributions agencies and sectors can make at this level.



Figure 1. The Living Water sites

This report synthesises key insights, challenges, and lessons developed from an evaluation of the Pūkoro-Miranda programme site work in Hauraki. It is part of a series of five evaluations conducted across the Living Water sites, each building upon the valuable lessons learned. This report aims to provide a comprehensive analysis of the Pūkoro-Miranda programme, assessing its effectiveness and impact within the broader context of the Living Water initiative. By synthesising key insights, challenges, and lessons, this report contributes to the collective understanding of catchment-scale environmental management and highlights how this programme fits into and supports the overall objectives of the Living Water initiative.

1.1 Evaluation process, design and report structure

The evaluation process for each site is designed and implemented using a participatory model. In addition to forming evaluation teams comprising Living Water Partnership (Fonterra and DOC) staff at each site, the evaluation consultants conducted interviews with various stakeholders, reviewed relevant literature, and facilitated workshops with the entire Living Water team. The joint authorship of each of the site evaluation reports includes both the consultant evaluators, Will Allen and Viv Sherwood, and the Living Water Pūkoro-Miranda Evaluation Team: Sarah Yarrow (Living Water National Manager), Katie Collins (Living Water Science Lead), and the appropriate Living Water site staff for each catchment. This collaborative approach ensured that the evaluation was co-created with people involved in and impacted by the programme, incorporating diverse perspectives and fostering a sense of shared ownership. While each evaluation is site-specific, the authors' collective work across the entire Living Water programme informs and enhances our understanding, enabling us to draw broader lessons and insights that benefit all sites.

The performance story design is based on methods that facilitate joint evaluation activities, ensuring a range of perspectives are considered. This approach ensures that each evaluation not only assesses the outcomes and impacts of interventions but also fosters a collaborative environment where insights and learning are shared and integrated into ongoing and future projects. For the Pūkoro-Miranda site specifically, the performance story report (PSR) design is used to explore and detail the extent of the intervention's contribution to outcomes. The report notes intended accomplishments, reports achievements against expectations, and discusses lessons learned and what will be changed. The process steps for this site included clarifying the programme logic, developing guiding questions for the performance inquiry process, and evidencing outcomes.

In addition to this evaluation, the authors note that the Living Water programme has utilised its comprehensive website to report on the implementation and results of various trials and processes. This website has served as a key platform for ongoing monitoring and documentation of the programme's activities, complementing the formal evaluation processes. The programme has also produced a Living Water ebook highlighting eight key lessons learned, which further contributes to the overall evaluation landscape.

Recognising the dynamic and interconnected nature of environmental and community programmes, this evaluation of the Pūkoro-Miranda site also utilises complexity-aware monitoring and evaluation (CAME) approaches. These approaches include systems thinking to understand interconnections, adaptive management to adjust strategies based on new learning, participatory methods to engage stakeholders, developmental evaluation to support innovation, outcome harvesting to identify contributions to change, and contribution analysis to establish links between activities and outcomes. These approaches are well-suited for capturing the nuanced and evolving impacts of the programme, providing a holistic understanding of its outcomes and the broader context in which it operates. The evaluation approach aimed to:

- Complete the monitoring and reporting of Living Water Pūkoro-Miranda activities as part of transparent and sound management.
- Establish a credible case for the programme's contribution while providing a common language for discussing different activity streams and focusing on results – including from a wider programme perspective.
- Support the programme and its partners as they look to encourage, guide, and catalyse future activities that aid agency and sector staff looking to support similar place-based initiatives.
- Assess the sustainability and scalability of the programme's outcomes and practices.
- Document and analyse the lessons learned and insights gained throughout the programme's implementation.

Importantly, this evaluation process was never designed to conclude with these reports. The reports are intended as aids to facilitate discussions with each site's partners and local communities, using the findings and aspects of the evaluation as prompts for facilitated learning debriefs or social learning discussions as part of a utilisation phase. This approach is particularly highlighted in the way Chapters 2 and 3 build on the structure of a logic model but provide a whole programme perspective. Similarly, Chapter 4 is designed to take a few key programme areas and use them to explore insights, challenges, and lessons. This method allows for addressing challenges in a non-personal way, setting the stage for future facilitated discussions in a safe environment.

The findings, conclusions, and recommendations of this report are designed to offer insights and lessons that can inform and enhance future work by the site partners. This evaluation for Pūkoro-Miranda serves as a foundational piece for extracting broader lessons, particularly focusing on how agencies can improve catchment-level initiatives. Through this structured approach of evaluation at all five sites, the Living Water programme aspires to extract lessons learned to help inform and guide other catchment projects to achieve greater environmental resilience and community well-being.

Report structure

To effectively support a utilisation phase and future discussions, the structure of this report is designed to systematically present the evaluation findings and insights. The following outlines the structure of this report:

Chapter 1: Outlines the evaluation framework and introduces the Pūkoro-Miranda catchment context, the development of the Living Water work programme over time, and its underlying Theory of Change (ToC), that frames the remainder of the report.

Chapter 2: Delves into the inputs of the programme: the partners, knowledge, and resources. It outlines activities and outputs produced and, together with the milestone timeline, provides a snapshot of the programme's collaborations over the past ten years.

Chapter 3: Focuses on outcomes - the actual difference the programme has made in the real world. This analysis is conducted across themes instead of their relation to individual activity areas, as some outcomes achieved often span multiple activity areas. Detail is provided on intermediate outcomes, changes in practices, and the impacts across diverse catchment groupings such as mana whenua, sector organisations, farmers, community groups, and schools.

Chapter 4: Presents key findings, co-benefits, insights, challenges, and lessons learned from the Pūkoro-Miranda programme. It highlights the collective experiences over the last decade, focusing on three specific areas to illustrate the breadth of learning. This chapter shows how the insights and lessons can inform future catchment management projects, emphasising the interconnected nature of the programme's efforts and their broader applicability.

Chapter 5: Offers broader evaluation of the programme's impact by outlining progress towards the desired long-term outcomes. This assessment looks at the contribution of intermediate outcomes, the potential unintended impacts, and the effectiveness of the programme's strategies. The chapter concludes by offering recommendations for future work.

1.2 Programme context and development

Understanding the broader context is crucial in evaluating any programme. A programme does not operate in isolation; it both draws from and contributes to the larger societal and environmental framework. Understanding this interaction is essential in assessing a programme's effectiveness and relevance. This brief context section acknowledges the national and local conversations, initiatives, policies, and cultural histories that influence environmental management and agricultural practices in New Zealand.

1.2.1 National context

Over the past twenty years, New Zealand has witnessed a transformative shift in its agricultural practices and environmental management involving the gradual introduction of a raft of guidelines, policies and national regulations aimed at enhancing water quality and resource management. In addition to increased water usage efficiency and a growing focus on biodiversity, there has been a strong focus on encouraging sustainable farming practices. Increased community involvement and participation in policy development and research have supported these developments. More recently there has also been considerable evolution of community catchment group initiatives, as communities recognise the need to work at a catchment (vs property) scale and seek to work together locally to address water quality challenges ahead of regulation.

Living Water's collaborative approach to catchment management reflects this contemporary approach to environmental management. It has encouraged collaboration and integrated management at the catchment level and beyond, emphasising the interconnection of land and water resources. It looked to address issues like freshwater contamination and biodiversity loss. Within this context, the Living Water programme focused on identifying practical, scalable solutions, reinforcing a comprehensive catchment-scale approach that deepens our understanding of effective environmental change on a larger scale and showcased the contributions agencies and sectors can make at this level.

The programme recognised the significance of wetlands, rivers, and other water bodies to the communities, particularly mana whenua. Living Water aimed to include mana whenua in the journey to address widespread environmental issues, and to acknowledge their whakapapa, cultural values, and unique perspectives on understanding and measuring environmental health. The Living Water programme also played a role in facilitating stakeholders to think about sustainable practices and biodiversity restoration.

Alongside Living Water a range of other key initiatives have contributed to this evolving catchment management framework and the landowner and perceptions about the changes required. These initiatives operate across a spectrum of scales, from farm-specific projects to comprehensive national strategies and are supported by government, industry, councils and non-government organisations. They include the Clean Streams Accord, Sustainable Dairying: Water Accord, Fonterra's Sustainable Dairying Tiaki Programme (farm environment planning), riparian planting projects, Predator-Free New Zealand 2050, National Policy Statement for Freshwater Management (Te Mana o te Wai), regional water

management strategies, and various research and development initiatives. All these collective efforts underscore a commitment to a more sustainable and environmentally conscious agricultural sector.

1.2.2 Catchment context

Transitioning from the national to the local, this evaluation focuses on the Pūkorokoro-Miranda catchment, one of the five focus sites under the Living Water programme. Located on the Firth of Thames/Tikapa Moana, the Pūkorokoro-Miranda catchment (made up of six sub-catchments) flows into an internationally significant coastal wetland that is protected under the Ramsar Convention. The total catchment area is 6,000 hectares which includes about 9 dairy farms, sheep and beef farms and lifestyle blocks, amongst other uses.

The Pūkorokoro-Miranda coastline and immediate surrounds serve as a sanctuary for approximately 40 species of shorebirds, including migratory species like the red knots and bar-tailed godwits making annual journeys to Siberia or Alaska and back. The godwits/kuaka arrive in October, which make the shell flats home before migrating back to Alaska and Russia in March. The areas' rest and refuel zones – which include a remarkable example of a chenier plain, a coastal formation with ridges covered in shells – are crucial for these migratory birds.

However, a significant concern for the area is the noticeable deterioration and shrinking of Pūkorokoro-Miranda's bird habitat. The decline in water quality stems from rising sediment levels and nutrient inputs. This degradation is largely a result of differing land management practices on the surrounding land and the altered water flow systems implemented to curtail flooding for properties in the catchment's lower reaches. Living Water's key focus was restoring and reconnecting a rural freshwater ecosystem and a sensitive coastal environment using a community-led 'Mountains to Sea' approach.

1.2.3 Social/cultural context

The Pūkoro-Miranda area, originally known as Pūkoro, was re-named after the HMS Miranda Ship that fired on the local Māori (Ngāti Paoa) settlement in November 1863 as part of the Waikato invasion in the New Zealand Wars. In 2015, Ngāti Paoa proposed a re-naming, incorporating both names, which was put into effect. The Pūkoro-Miranda Naturalist' Trust (PMNT) re-named itself in 2014.

The area near Kaiaua, also known as the Shorebird Coast, is located along a coastal tourist route from Auckland. It stretches from the seaside village of Kaiaua in the North, around the western edge of the shallow Firth of Thames/Tikapa Moana, across chenier shell banks and stony beaches. This region is one of New Zealand's most important ecological coastal and wetland areas for shorebirds. Nearly half of the national population of the endemic wrybill/ngutu parore and around 40 other shorebird species can be found along the western shores of the Firth of Thames.

Since at least the 1970's, the area has been renowned for the opportunity to observe rare and migratory shorebirds. Today it attracts both local and international visitors who benefit from the extensive conservation and advocacy work led by the PMNT, based out of the Pūkoro-Miranda Shorebird Centre. Visitors are also drawn to the area for the hot pools and proximity to the Coromandel Peninsula.

1.2.4 Programme development

The Pūkoro-Miranda programme, reflecting Living Water's three-phase process across all catchments, began with establishing foundational relationships, baseline data collection, and focused conservation initiatives. Following a strategic reset for refined focus in 2017 it advanced into a tailored, systemic catchment management approach. This evolution from conservation on public land to a holistic catchment-level strategy, exemplifies the programme's journey towards integrating ecological needs with community collaboration for sustainable ecosystem stewardship.

Getting started

The Pūkoro-Miranda programme began by seeking foundational relationships in the area, and developing an understanding of environmental challenges through surveys and baseline assessments. Between 2013 and 2016, hydrological studies and ecological evaluations sought to comprehensively understand the catchment's water dynamics and biodiversity, with a focus on the Robert Findlay Wildlife Reserve and surrounding areas. Efforts aimed at initiating habitat enhancement, alongside targeted biodiversity studies, worked to establish a solid foundation for understanding and addressing conservation needs. Support for protection of international flyway sites (with the Pūkoro-Miranda Naturalists' Trust (PMNT)), and planning future restoration activities were also initiated.

Strategic reset and refined priorities

In 2017, Living Water strategically shifted its focus, forming a key partnership with the Western Firth Catchment Group Trust (WFCGT) to implement targeted environmental projects, including freshwater enhancement and land retirement. A significant milestone

was the establishment of the Tiaki Repo ki Pūkorokoro Trust (TRKPT), marking a shift towards a community-led, collaborative approach to catchment management, emphasising shared values and mutual respect. This phase also included freshwater monitoring and community engagement in habitat enhancement, underscoring the programme's commitment to ecological and community resilience. A Catchment Condition Survey (CCS) provided insights into environmental challenges. From 2017, the Pūkorokoro-Miranda programme deepened its focus on integrated catchment management, using tools for catchment planning and prioritisation, and implementing restoration strategies for the newly acquired reserve. Working with the WFCGT, a comprehensive possum control initiative was launched to protect restoration efforts and engage the community.

In the last two years of the programme the involvement of The Nature Conservancy (TNC) highlighted a growing interest in the Pūkorokoro-Miranda catchment's potential for hosting biodiversity and resilience projects, reflecting the programme's evolving focus towards sustainability and ecological resilience amid significant weather challenges. During this time, the programme also strengthened partnerships, notably through a MOU with the Hauraki District Council and TRKPT, solidifying collaborative efforts for catchment restoration. The WFCGT applied Living Water's freshwater mitigation strategies and secured funding for neighbouring catchments, showcasing the scalability and impact of the programme's initiatives.



The Repo ki Pūkorokoro Reserve was formed by the purchase and retirement of 19.6 hectares of farmland, creating additional habitat for migratory shorebirds.

1.3 Programme milestones

The following timeline highlights key milestones and significant achievements of the programme in the Pūkoro-Miranda catchment. These milestones mark important moments of progress, collaboration, and impact, showcasing the programme journey, its evolution, and its outcomes.

2013	2014	2015	2016	2017
<p>Project launch & initial assessments</p> <p>Hydrological and ecological evaluations, identifying restoration opportunities.</p>	<p>Land negotiations begin</p> <p>Discussions with a landowner for purchasing farmland for retirement and restoration at the Miranda and Pūkoro stream mouth.</p>	<p>Baseline data</p> <p>Completion of initial reports on hydrology, water quality, and biodiversity, outlining potential actions.</p> <p>Land purchase process</p> <p>Initiation of the land purchase process with successful funding from the DOC Land Acquisition Fund.</p>	<p>Initiated Incubate process</p> <p>Led to establishment of the Tiaki Repo ki Pūkoro Trust.</p> <p>Biodiversity and hydrological assessments</p> <p>Further investigation of options for planting, hydrology and control of goats and fennel.</p> <p>First funding grant to PMNT</p> <p>To survey and monitor the migration of shorebirds across the East Asian-Australasian Flyway.</p>	<p>Sprint planning exercise</p> <p>Focused efforts on the Miranda sub-catchment and catchment scale approaches.</p> <p>Links with catchment group established</p> <p>Enhanced contact and co-ordination between Western Firth Catchment Group Trust (WFCGT) and Living Water.</p> <p>Catchment Condition Survey (CCS)</p> <p>Provided baseline information about the catchment state and identified priority locations for interventions to achieve improvement targets.</p>
2018	2019	2020	2022	2023
<p>First funding grant to the WFCGT</p> <p>First funding grant to the WFCGT for implementing on-farm freshwater improvement activities.</p> <p>Land acquisition</p> <p>DOC purchased 19.6ha of farmland, establishing a wildlife management reserve, now known as Te Repo ki Pūkoro (TRKP), a name gifted to the site by Ngāti Paoa.</p> <p>Freshwater biodiversity advocacy</p> <p>Further assessment of freshwater biodiversity values, engaging schools and the community in inanga habitat considerations.</p>	<p>Community engagement</p> <p>Hosted a pest control workshop for over 100 landowners and launched the 'Mountains to Sea' restoration project with WFCGT.</p> <p>Tiaki Repo ki Pūkoro Trust (TRKPT) established</p> <p>Formation of a charitable Trust to oversee reserve management of newly acquired land. Advice regarding options for restoration was obtained and considered.</p>	<p>Possum control trial initiated</p> <p>In response to overwhelming community interest, and concern for new and historic planting efforts, a possum control contractor was engaged to support the WFCGT. The scope included community support to eventually lead their own pest control efforts.</p> <p>CAPTure GIS tool trial</p> <p>Tested a method for prioritising the most effective freshwater improvement interventions at a catchment level, to support on-farm intervention planning.</p>	<p>The Nature Conservancy (TNC) involvement</p> <p>Engagement with TNC for research into Blue Carbon opportunities and coastal resilience in Pūkoro-Miranda.</p>	<p>Catchment Condition Survey repeated</p> <p>The CCS was repeated for the Miranda sub-catchment showing significant freshwater mitigations had been actioned since 2017.</p> <p>Repo ki Pūkoro Reserve restoration planning</p> <p>Finalisation of Repo ki Pūkoro Reserve restoration plan, with DOC transferring management responsibility to TRKPT. The TRKPT secures \$296K from the DOC Community Fund to continue their mahi.</p>

Table 1: The Pūkoro-Miranda programme milestones and timeline

1.4 Theory of change

A Theory of Change (ToC) describes how we think change happens. A programme's ToC serves as a foundational roadmap, outlining the desired outcomes, the steps necessary to achieve these outcomes, and the causal relationships between these actions and outcomes. It fosters a shared understanding that is essential for both coordination and evaluation, encapsulating the programme's context, a logic model, and its underlying assumptions. This framework is instrumental in articulating a programme's intended achievements, providing a basis for both coordination and evaluation. The initial ToC for all the sites under the Living Water programme was broadly oriented towards holistic environmental and community well-being outcomes. This encompassed supporting diverse wetland ecosystems, embedding biodiversity within sustainable dairy farming practices, enhancing water quality and biodiversity through knowledge sharing, documenting the programme's impact, revitalising cultural and natural heritage, and elevating awareness of ecosystems' roles in community health. Several main activity themes were organised around ecosystem enhancement - farm management sustainability, community and iwi support, research and monitoring, and effective storytelling.

Living Water's National Strategy was revised in 2017, moving from a predominantly on-the-ground 'restoration' programme to a 'proof of concept' focussed more on testing tools and approaches that could be scaled and sharing lessons along the way, both successes and 'failures'. The National Planning Monitoring & Evaluation Framework followed in 2018.

1.4.1 Logic model

Following the strategic realignment in 2017, the site team identified a select number of key strategic activity areas for the for the Pūkorokoro-Miranda site. These were envisioned to guide the programme towards success, as depicted in the accompanying 2018 logic model (Table 2). They emphasise activities and outcomes aimed at restoring and reconnecting a rural freshwater ecosystem and sensitive coastal environment using a community-led 'Mountains to Sea' approach.

Activities	Outputs	Medium term outcomes (by 2023)	Longer term outcomes
Habitat expansion: Land purchase and restoration via community trust	FEPs, Biodiversity Assessments - on farms and projects to enhance riparian areas	Increased area of habitat suitable for shorebirds	Healthy resilient lowland freshwater ecosystems
Mountains to Sea: Catchment condition survey and baseline survey for mountains to sea, influencing new drainage district fish surveys	Wetland planting days, Fennel control trial, drain restoration Support for PMNT and their East Asian-Australasian Flyway survey work	Community ownership of Mountains to Sea project Mountains to Sea project demonstrates improvement in freshwater outcomes for the catchment	Profitable responsible dairying A shared understanding of the interdependence of agriculture, economics and environment by the broader community
Restoration support: For public land	Track to public viewing hide and cycleway interpretation	Biodiversity and cultural values are improving in the Taramaire drainage district	
Strategic partnerships: Pūkoro-Miranda Naturalists' Trust (PMNT), landowners, DOC, iwi, councils	Baseline surveys, Whitebait spawning sites, awareness public events	Living Water tools and solutions have been scaled up to other catchments in the Firth of Thames	
Monitoring our progress, Telling our story and Championing change	Establishing a community-led trust Sharing learnings through website, social media, professional forums		

Table 2: The Pūkoro-Miranda logic model (2018)

Activities ranged from habitat expansion and enhancement to extensive community and stakeholder collaborations, and partnerships with Ngāti Paoa and groups such as WFCGT and PMNT. Outputs from these activities include biodiversity assessments, restoration plantings, and support for significant ecological surveys.

In terms of outcomes, the programme aimed to contribute to both intermediate (short/medium) and long-term impacts. The logic model presupposes that achieving the desired ecological and social state changes is a long-term endeavour, extending beyond the programme's 10-year timeframe. These intermediate outcomes are pivotal, laying the groundwork for long-term ecological improvement through community engagement, and serving as key indicators of the programme's short to medium-term success.

In the short to medium term, it sought to increase habitat areas for shorebirds and enhance community ownership of conservation projects. Long-term aspirations focused on a range of outcomes including establishing resilient freshwater ecosystems, sustainable dairy farming practices, and fostering a community-wide appreciation for the interdependence of agriculture, economics, and the environment. This model points to a commitment to not only ecological restoration but also to embedding cultural values and knowledge-sharing as cornerstones of catchment improvement efforts.

1.4.2 Underpinning assumptions and guiding principles

The assumptions and principles outlined below are from the [Living Water National Planning, Monitoring and Evaluation Framework](#) (2018, updated 2020), which served as a foundational reference for the programme’s strategic approach.

Causal assumptions are:

- **Partnership:** Effective change requires collaboration, as no single organisation possesses all the necessary resources or influence.
- **Social learning:** Learning occurs through action, reflection, and collaboration, offering new perspectives and pathways forward.
- **Behaviour change:** Enduring change in farming practices involves a comprehensive change cycle, from motivation to the embedding of new habits.
- **Systems thinking:** Addressing change at the individual farmer level is just one aspect; broader systemic changes are also necessary for accelerated impact.

These assumptions align with the Living Water Programme’s guiding principles, emphasising collaboration, the integration of mātauranga Māori, knowledge sharing, economic viability, scalability, and the importance of learning and sharing. These principles underpinned the programme’s approach to achieving its long-term goals and reflect a commitment to a holistic and inclusive strategy for catchment management.



The Pūkorokoro-Miranda community came together to form a Trust to manage the Repo ki Pūkorokoro Reserve.

2. Inputs, activities and outputs

In this chapter, the foundational elements of the Pūkoro-Miranda programme are examined, focusing specifically on inputs, activities, and outputs. The inputs form the backbone (ie. necessary support and direction) of the programme and result in the activities and their associated outputs. These components also served as the driving forces that kept staff engaged and active throughout the programme lifecycle.

2.1 Governance, management, and resourcing

Governance and management

The Living Water partnership operated at three levels:

- **Strategic oversight** was managed by the Steering Committee, which comprised senior representatives from both partners, the Department of Conservation (DOC) and Fonterra.
- **National Programme Management** was led by the National Manager, supported by a programme group of staff from both DOC and Fonterra. This group was responsible for the delivery of national projects and maintaining consistency across catchment programmes.
- **Site-level delivery teams** were directed by a full-time DOC Site Lead, with support from DOC and Fonterra staff. DOC was responsible for operational delivery at the site level, working in close collaboration with Fonterra staff. The Site Teams were also supported by a Freshwater Technical Adviser (DOC), and Sustainable Dairying Advisor (Fonterra). These teams conducted project trials and implemented restoration work alongside mana whenua, stakeholders, researchers, contractors, and consultants.

The operating model of Living Water was adapted over the ten years of the partnership as the programme of work moved through three phases:

- Establish, engage, investigate, and ‘quick wins’
- Confirm strategy, consolidate, plan, trial and build alliances
- Share lessons, grow impact

As the Living Water programme entered its final phase (2020-2023), it focused management resources on broadening impact and sharing the tools and insights from the programme more widely.

Inputs – Resourcing, expertise and collaborations

The Pūkoro-Miranda programme has benefited from the knowledge, skills and experience of many people from within the catchment community as well as beyond. These contributions, often difficult to quantify, were crucial yet not always visible or fully recognised in planning or reporting processes. They came from a variety of sources, including:

- **Department of Conservation (DOC):** Contributed institutional knowledge and expertise including specialist freshwater technical advice, legal advice, GIS mapping, bird monitoring, volunteer coordination and pest flora and fauna control.
- **Fonterra:** Provided expertise and support from teams, such as the Sustainable Dairying Team, Sustainable Catchments Team, and On Farm Excellence Team.
- **Ngāti Paoa:** Local iwi (mana whenua) for the Pūkorokoro area, were involved throughout the programme, providing cultural and historical insights and guidance, and leadership in taking the TRKPT restoration objectives forward.
- **Western Firth Catchment Group Trust (WFCGT):** A group of residents and landowners whose properties extend 24 km along the Western Firth of Thames from Waitakaruru to Wharekawa. Already interested in improving biodiversity, they became a logical partner in freshwater enhancement aspirations.
- **Pūkorokoro-Miranda Naturalists' Trust (PMNT):** An organisation dedicated to the study and conservation of shorebirds and their habitats, playing a significant role in the Pūkorokoro-Miranda catchment.
- **Hauraki District Council:** Local government body that has provided regulatory guidance, resources, and support for the programme.
- **Waikato Regional Council:** Another local government body that contributed regulatory guidance, resources, and logistical support.
- **Te Whāngai Trust and Dalton Hapū Trust:** Both have been pivotal in developing and sustaining the TRKPT and supporting the planting programmes. The Dalton Hapū Trust collaborated with Living Water and DOC to acquire the Repo ki Pūkorokoro land for shorebird habitat expansion.
- **Tiaki Repo ki Pūkorokoro Trust (TRKPT):** Formed as a part of programme activity and includes representatives from Ngāti Paoa and various stakeholders such as, PMNT, WFCGT, Te Whāngai Trust/ Dalton Hapū Trust, EcoQuest, and the community.
- **Landowners and community:** Provided insight into the history, aspirations and issues typical of landowners and residents in the Miranda sub-catchment and adjoining. Some members frequently provided access over properties and partook in community days, freshwater improvement initiatives and contractor led surveys.
- **Consultants, researchers, and contractors:** Provided specialised knowledge and technical support.

Inputs – Direct funding

The funding outlined below includes both Living Water funding, and funding provided for linked Pūkorokoro-Miranda work.

- Living Water \$2.4 million over ten years
- DOC funding for land purchase 19.6 ha reserve \$580,000

- DOC Community Fund for the TRKPT \$296,000 (2023)
- In kind support for activities from landowners, Councils, WFCGT members and TRKPT members. Some landowners went to great lengths to self-fund and undertake strategic fencing for land retirement and planting.

2.2 Activities and outputs

In the “Activities and Outputs” section, we explore the tasks undertaken (activities) and the immediate results (outputs). Understanding how actions translate into outputs is essential for assessing the effectiveness of the programme of work.

The activities for the Pūkorokoro-Miranda site are organised according to the components identified in the site’s logic model. Project activities range from on-farm efforts and tool trials to wider habitat restoration. Programme staff collaborated with mana whenua, agencies, organisations, community groups and landowners. Projects included supporting community-led catchment restoration, developing farm environment plans (FEPs) for farms in the catchment, facilitating a land purchase and restoration project at the Miranda and Pūkorokoro stream mouths, and supporting farmers with catchment scale possum control. There was a focus on sharing stories, lessons, and insights. More specific commentary on how activities and outputs manifest in the programme follows.

2.2.1 Restoration and habitat expansion

From the early stages of the programme Living Water engaged consultants to complete a range of hydrological studies (see Appendix I) to help understand how the environment functioned and could be impacted by restoration efforts. In addition, Living Water has also engaged experts to identify the biodiversity values, threats and options for restoration. Information from these studies has informed much of the Living Water work in the catchment, as well as guiding future plans for long-term solutions. Further studies were undertaken throughout as the scope of the work evolved and refined.

Living Water supported the on-going restoration and management of the coastal land along East Coast Road through animal and plant pest control (including fennel management trials), and restoration planting. Most of the land along this stretch of road is managed by DOC and the PMNT (with small blocks in private ownership).

The “Coastal Wildlife Habitat Acquisition and Restoration” project aimed to reverse the historical loss of wildlife habitat in coastal landscapes. The objective was to support community-driven ecological restoration, reintroducing nature into agricultural areas without affecting farm productivity and exploring the potential of coastal lands for “Blue Carbon” sequestration.

In terms of land acquisition, an area near the Miranda and Pūkorokoro stream mouth was identified. After extensive negotiations, a joint venture between DOC and the neighbouring landowners – Dalton Hapū Trust - led to the purchase and subdivision of a 60ha site, with DOC retaining 19.6ha designated as a Wildlife Management Reserve.

The “Building International Linkages” project facilitated partnerships across borders to protect habitats along the East Asian-Australasian Flyway, crucial for migratory birds visiting Pūkoro-Miranda. This effort, led by the PMNT and supported by Living Water funding, led to significant conservation advocacy and research collaborations, including with North Korea and the Chinese Forestry Commission. A notable achievement was the 2015 agreement signed with China to protect vital intertidal habitats, reflecting the Living Water programme’s broad environmental impact and its strategic alignment with Fonterra’s commercial interests in China.

The restoration and habitat expansion activities were highly complementary to the integrated catchment objectives outlined below.

2.2.2 Mountains to Sea integrated catchment approach

Living Water collaborated with the WFCGT to co-develop a project aimed at establishing a freshwater biodiversity corridor, stretching from the hilltops to the coast, across farmland. This initiative adopted an ‘Integrated Catchment Management’ approach, encapsulating the journey from ‘Mountains to Sea’. Living Water contributed resources and funding to build on the pre-existing commitment and enthusiasm in the community. These resources were directed towards assisting landowners in enhancing water quality and biodiversity on their properties. Living Water funded projects like detention bunds, erosion-preventive poplar plantings and riparian/seepage area plantings, while partnering with landowners on fencing objectives. The collective impact of these improvements was designed to bring about a significant, positive change in the freshwater environment.

The Living Water funding contribution accelerated delivery of FEP’s for larger farms and introduced versatile hybrid FEP’s for smaller lifestyle areas, prior to funding prioritised actions to collectively improve water quality and biodiversity. Living Water carried out a comprehensive Catchment Condition Survey (CCS) in 2017, identifying key ecological issues in the catchment and establishing baseline information that helped determine priority areas and activities for improved management. From this data, a geospatial Catchment Action Prioritisation Tool (CAPTURE), was developed and trialled to pinpoint areas for freshwater enhancement interventions. In 2023, the CCS was repeated, and five landowners interviewed, assessing the catchment’s state and collecting insights. Covering 3,568 ha, with a focus on 1,454 ha in the Miranda sub-catchment, the survey aimed to align with the 2017 baseline for effective change tracking.

Significant improvements included a 35% increase in native riparian vegetation, with 11 km of new plantings along waterways. Additionally, over 43 km of new waterway fencing (funded by landowners) resulted in a 45% increase in areas where livestock access to waterways is fully restricted.

Living Water, with the WFCGT, also facilitated the development of a local Predator Free Strategy with the catchment community to involve more landowners and to protect remnant bush and new plantings. This support included both resources as well as contracted expertise to increase community capability.

2.2.4 Strategic partnerships

Recognising the importance of collaborations, three strategic partnerships were developed to enhance conservation and restoration efforts in the Pūkoro-Miranda area.

Pūkoro-Miranda Naturalists' Trust (PMNT): Between 2016-2019, Living Water provided annual funding support of \$15,000 to the PMNT to survey and monitor the migration of shorebirds across the East Asian-Australasian Flyway, covering areas from Pūkoro-Miranda to Northeastern China and the Korean Peninsula. The PMNT has led extensive restoration efforts at Pūkoro-Miranda, enhancing habitat and food sources for shorebirds. However, these birds also require suitable habitat and food sources during their annual migration through China. PMNT's effective relationship building has significantly contributed to DOC's progress in initiating formal ecosystem protection talks with Chinese authorities.

Western Firth Catchment Group Trust (WFCGT): The partnership with the WFCGT was pivotal to achieving freshwater protection improvements in the Miranda sub-catchment. The WFCGT were a group of landowners already willing to - and already undertaking - environmental restoration in the upper catchment. Living Water funding and prioritisation tools helped to guide the pre-existing enthusiasm to target high-risk freshwater areas on private land.

Tiaki Repo ki Pūkoro Trust (TRKPT): With the programme timeline set from 2013 to 2023, Living Water sought to establish a community trust for the future management and ecological restoration of the 19.6 ha reserve after its acquisition. It was crucial to have a management plan supported by local stakeholders. To achieve this, Living Water employed a collaborative approach called 'Incubate' to establish the TRKPT, involving multiple stakeholders including PMNT, the WFCGT, Te Whāngai Trust, the Dalton Hapū Trust, EcoQuest, and a community representative. Crucially, this Trust included representation and significant input from mana whenua, Ngāti Paoa. The Trust was also supported by representatives from DOC, Living Water, and NZ Landcare Trust.

2.2.5 Monitoring and evaluation

Living Water developed a comprehensive monitoring and evaluation framework at a national level to assess the environmental, economic, social, and organisational impacts of its trials. Drawing from the national framework, a Pūkoro-Miranda monitoring plan was developed.

2.2.6 Documentation and advocacy

The Pūkoro-Miranda programme advocated change, tracked progress, and told the story using a variety of techniques. Living Water staff have utilised a range of methods to drive change and share its narrative. Media engagement has been key, with Living Water staff sharing milestones on platforms like LinkedIn, Twitter (now X), through local and national media and the programme's website. Beyond the immediacy of social media updates, the Living Water programme's website serves as a repository of in-depth case studies and updates. Collectively, these records not only offer a holistic view of the various activities and experiments and their associated contexts but also delve into specifics like project expenditures, lessons gleaned, and the benefits gained.

Living Water Pūkoro-Miranda's strategic digital outreach and hands-on experiences helped showcase the programme and its activities and lessons. Field trips, involving Fonterra staff, schoolchildren, the local community and others, have been instrumental in offering participants a firsthand view of the programme's initiatives. Across the wider Living Water programme collaborations with academic institutions, sponsorship and participation in conferences and symposiums demonstrated wider community engagement efforts.

The WFCGT and other local partners were instrumental in documenting and reporting on the progress throughout. They were frequently called upon and always willing to contribute to data gathering and feedback required by Living Water at various intervals over the life of the partnership.



A range of on-farm actions were identified in Farm Environment Plans and implemented throughout the catchment to reduce erosion, increase native riparian planting and fence off waterways from stock.

2.3 Outputs - by the numbers

Many indicators help assess success across multiple workstreams. These metrics are particularly useful for acknowledging progress in achieving outputs (the goods and services delivered by the programme).

8

projects

5

trials

4

case studies

19.6ha

of farmland purchased
by DOC and retired to
expand critical shorebird
habitat

80%

of the
Pūkoro-Miranda
catchment with FEPs

43km

of riparian fencing

11km

of native riparian
planting on-farm

2

Catchment Condition
Surveys completed across
3,500ha

1

Community-led trust
established (TRKPT)

3

environmental trusts
partnered with (PMNT, Te
Whāngai Trust and
WFCGT)

1

Catchment-scale possum
control programme
underway with
landowners



3. Outcomes - results and themes

This chapter highlights the impact of the Pūkorokoro-Miranda programme and looks at who and what has changed because of Living Water activities – the outcomes. The 2018 Living Water Logic Model (refer section 1.4) identified several intermediate outcomes. These outcomes, expected in the short to medium term (5-10 years), are crucial steps and foundational to the achievement of the desired long-term goals. The Living Water Logic Model acknowledges that the desired long-term goals and the changes they bring at both the ecological and social levels happen over longer timeframes (15-20 years plus), so the full impact of Living Water activities will not be visible within the 10-year time frame of the Living Water programme.

For the Pūkorokoro-Miranda catchment, the intermediate outcomes include an emphasis on restoring and reconnecting a rural freshwater ecosystem and sensitive coastal environment using a community-led ‘Mountains to Sea’ approach. The programme also aims to enhance the recognition of ecological values within the catchment.

It’s important to note that the organisational changes and outcomes for the two Living Water partner organisations are the result of collective efforts across all five catchments involved in the programme. Each catchment, including the Pūkorokoro-Miranda programme, contributed to these overarching changes, underscoring the collaborative impact of the five Living Water catchment initiatives.

This chapter explores the contributions of Living Water to the outcomes at the Pūkorokoro-Miranda site, presented through two frameworks:

- Results Table: offering a quick snapshot of progress based on the site’s logic model, and
- Outcomes by theme, which highlights broader changes resulting from the programme.

These frameworks clarify how specific actions align with Living Water’s overall goals and show the tangible and intangible changes in the community and ecosystem due to the programme’s efforts.

Outcome themes for the Pūkorokoro-Miranda site include organisational changes, relational changes, ecological changes and valuing the environment, capability/ capacity changes, financial investment and impact and scaling up and out.

3.1 Results table

This table offers a snapshot of the progress made towards the outcomes identified in the site’s 2018 logic model (refer to section 1.4 Theory of Change for a summary version of the logic model and its underlying assumptions). It provides a brief overview of the outcomes and contributions towards achieving them.

Short and medium-term outcomes

Contributions to outcomes

<p>Land purchase and Community Trust Establishment with restoration plan</p> <p>Increased area of habitat suitable for shorebirds</p>	<p>The land purchase process concluded with the acquisition of 19.6 ha, now protected as a reserve and earmarked for ecological enhancement, including for bird habitat. Following this, the Tiaki Repo ki Pūkorokoro Trust (TRKPT) was established to manage the reserve, comprising a diverse range of catchment representatives. The Trust's formation and the subsequent development of a restoration plan provides a community-led approach to managing the new reserve. Expanded shorebird habitat and wetland areas, are also key milestones in the Waikato Conservation Management Strategy (CMS) and RAMSAR Wetland Convention.</p>
<p>Community ownership of Mountains to Sea Project</p>	<p>Community groups, landowners, and local stakeholders in the Mountains to Sea project have fostered a sense of ownership, evidenced by active participation and support for the project's goals. Landowners across the catchment have engaged in habitat enhancement activities, pest control, Catchment Condition Surveys (CCSs), and Farm Environmental Plans (FEPs), with many initiatives being self-funded. The WFCGT achieved a good downward reduction of possum densities (from around an RTC of 18% in 2021 to 6.8% by 2023) in the Miranda sub-catchment in collaboration with Living Water and the wider community.</p>
<p>Active involvement of mana whenua and integration of mātauranga Māori</p>	<p>The programme's formation of TRKPT included strong representation from Ngāti Paoa, including active leadership. Opportunities for further engagement are evident in the restoration aspirations for the new reserve (e.g. multi-purpose plant species).</p>
<p>Improvement in freshwater outcomes for the catchment</p>	<p>The programme has laid the groundwork for future water quality improvements. Implementing FEP actions on-farm (erosion control, sediment bunds) and extensive riparian fencing and planting has resulted in 11 km of new native planting (up 35% from the 2017 CCS) and 43 km of new waterway fencing. While immediate water quality improvements can't be quantified, these efforts set the stage for long-term positive changes if continued.</p> <p>The purchase and retirement from farming of the 19.6 ha reserve, increased protected freshwater and estuarine wetland areas within the total catchment by almost 20 percent.</p>

Short and medium-term outcomes

Contributions to outcomes

Improvement in biodiversity and cultural values in the Taramaire Drainage District	Landowners and the Hauraki District Council had been in discussion for some time about the Pūkorokoro-Miranda catchment being included within the Taramarie Drainage District, with Council taking responsibility for managing a drainage scheme via a targeted rate. This would provide an opportunity to introduce drain management approaches focused on maintaining and enhancing biodiversity and cultural values along with maintaining the drainage function for landowners. A number of activities have been carried out through the Living Water programme that have contributed to this outcome. Collaborative efforts in the area have improved support for biodiversity and recognition of cultural values, aligning with the programme's holistic catchment management approach.
Scaling of Living Water tools and solutions	The adoption of Living Water solutions beyond the Pūkorokoro-Miranda catchment shows their scalability. This was facilitated through knowledge sharing and collaboration with catchment groups and environmental projects. This expansion leveraged existing resources, fostered networks, and encouraged experience sharing, leading to new initiatives. The Nature Conservancy's involvement enabled Blue Carbon research at Repo ki Pūkorokoro. The Hauraki District Council endorsed the restoration project, strengthening collaboration with DOC and TRKPT. WFCGT applied Living Water's mitigation strategies and secured additional funding for neighbouring catchments.

Table 3: Pūkorokoro-Miranda programme results table

3.2 Outcomes by theme groupings

The following outcome theme groupings reflect the people-centred changes that influence the long-term outcomes sought. Examples and snapshots reflect changes that the Living Water programme has contributed to.

3.2.1 Organisational changes

Organisations are dynamic, inherently complex and relational, and changes to their functioning are influenced by multiple factors. Notably, Living Water has contributed to adjustments in ‘business as usual’ practices and commitments, rather than initiating or directly leading these changes. It’s crucial to recognise that the changes and outcomes experienced by the two Living Water partner organisations are due to collective efforts at all five Living Water sites. Each site, including Pūkorokoro-Miranda, played a role in these broad changes, highlighting the collaborative impact across the Living Water catchments.

Additionally, the partnership enabled staff directly involved from both organisations to gain a deeper understanding of each other’s perspectives, reducing polarisation. This fostered a more collaborative environment where solutions were jointly identified and trialled. As a limited-term partnership, it was important that other local partners committed to sustaining the gains over time. Various stakeholders have made organisational changes and commitments because of Living Water.

Fonterra: The influence of the Living Water partnership led to organisational changes within Fonterra in some of the following ways:

- Directly supported the development of a digital platform for farm environment plans (FEP), trialled on Ararira LII catchment farms. This resulted in the integration of regionally specific environmental information within the FEP tool (such as soil types, physiographic information, significant habitats) and access to biodiversity information and accelerated the delivery of FEPs by Sustainable Dairying Advisors (SDAs).
- At a broader system level, through Living Water’s support for the national Farming with Native Biodiversity pilot, Fonterra developed its own formal in-house capability and training for SDAs so they can directly support farmers with biodiversity on-farm.
- Lessons from Living Water influenced the design of Fonterra’s Sustainable Catchments programme and guided how strategic decisions about partnering with the right people and groups in the right places to achieve objectives were made.
- Lessons from Living Water guided how and who Fonterra supported for system level change, such as Fonterra supporting the development and use of LandscapeDNA with Fonterra farmers and continued Fonterra involvement in the Whakamana Te Waituna partnership in Southland.

Department of Conservation: The influence of the Living Water partnership led to organisational changes within DOC in some of the following ways:

- Lessons from Living Water were instrumental in helping to shape DOC’s Ngā Awa programme, launched in 2019, which focuses on restoring the biodiversity of 14 rivers across New Zealand, from mountains to sea. The programme builds on the knowledge

gained through Living Water about the complex nature of land and water management and that it is intertwined with human influence and community dynamics. Approaches within Ngā Awa underscores the importance of this through a critical focus on collaboration, co-design, and co-leadership with iwi, hapū, and whānau.

- This more holistic view has also influenced internal structuring, particularly highlighting the importance for DOC rangers to establish and maintain positive local relationships, recognising these as key to successful conservation alongside scientific and technical expertise.
- The Living Water work helped raise the profile of DOC obligations and work related to freshwater species and habitat. This work takes DOC staff and projects beyond Public Conservation Land (PCL), which was not well recognised as “core work” at the time. The visibility of the Living Water partnership - which in itself was challenging given that perceptions of ‘dirty dairying’ were common - and its effort and resourcing invested in “Telling our story” helped elevate the profile of freshwater work within DOC. In 2018 significant additional funding was provided within DOC for freshwater focused work aligned to its revised strategy.

3.2.2 Relational changes

Over the past decade, the Living Water Pūkorokoro-Miranda programme has been a driver in bridging gaps and fostering collaborative relationships among various stakeholders, all with a shared vision for the health of the catchment and waterways connecting to the Firth of Thames/Tikapa Moana. As the Living Water Pūkorokoro-Miranda programme concludes, it leaves behind a legacy of strong, foundational relationships that are poised to drive future catchment initiatives.

- **Establishment of a community trust:** Tiaki Repo ki Pūkorokoro Trust was established to lead the restoration and management of the new reserve. The “Incubate” process used to bring diverse groups together to develop the Trust highlights the effort to work together as individuals and groups with differing views, backgrounds, and goals for ecological restoration. The programme contributed to the formation of a diverse community Trust, fostering relationships among various stakeholders.
- **Community engagement in possum control:** The “Possum Control Strategy” emphasises engaging the whole community to achieve outcomes for the environment. This collaborative effort between the Living Water programme team and the wider community (including organisations) highlights the shared responsibility developed for preserving the ecosystem. It helped form new relationships in the wider community and opened new opportunities to undertake restoration work, whilst protecting and enhancing the work done to date. The approach to the catchment-scale possum control ensured a thorough transfer of knowledge by engaging a contractor skilled in both predator control and community engagement.
- **The programme has formed relationships with local entities:** These entities include the Pūkorokoro-Miranda Naturalists’ Trust (PMNT), Western Firth Catchment Group Trust (WFCGT), Te Whāngai Trust, Ngāti Paoa representatives, Hauraki District Council (HDC), Waikato Regional Council (WRC) and The Nature Conservancy (TNC).

These partnerships and collaborations not only underscore a mutual acknowledgment of Pūkoro-Miranda's regional importance, but also highlight a shift towards more collaborative efforts where they will continue to manage the wider catchment into the future (see 3.2.6 below). Living Water sought to adequately recognise and include the people at place and to guide and support change from those with existing connections to the area.

3.2.3 Ecological changes and valuing the environment

Living Water worked on projects to improve biodiversity and water quality in the Pūkoro-Miranda catchment, and to foster an understanding of environmental values.

- With the purchase of a 19.6 ha reserve, the area of protected freshwater and estuarine wetland within the total catchment increased by close to 20 percent. This area can now be restored (by the TRKPT) to help support shorebirds by providing additional breeding, roosting, and feeding habitat, while also reducing the proximity of farming to the sensitive coastal area. Approximately one-third of the land is being planted to provide fernbird habitat. Expansion of shorebird habitat and wetland areas are also key milestones in the Waikato Conservation Management Strategy (CMS) and RAMSAR Wetland Convention.
- The Living Water Pūkoro-Miranda programme has consistently demonstrated a commitment to fostering a deeper understanding of the catchment's hydrology and biodiversity. Hydrology assessments between 2014 – 2016 focused on the vulnerable shorebird habitat, stilt ponds and potential expansion areas. The CCS completed in 2017 identified significant natural areas, erosion points, impacts on fish passage, stock access to waterways and native vegetation cover. Assessing the freshwater biodiversity values, together with the programme's focus on biodiversity and hydrological assessments, was the foundation for a catchment-level approach.
- Over the past ten years, and within the broader scope of the Living Water programme, it is important to acknowledge the advancement of on-farm ecological changes. These shifts, while representing just some of the changes needed to achieve the programme's long-term goals (alongside catchment and system-wide changes), are significant. They reflect how understanding and relationship building together have contributed to freshwater mitigation interventions, including detention bunds and erosion prevention plantings, retirement of significant natural areas (e.g. remnant bush blocks and seepage areas) and extensive fencing and riparian planting across several farms.
- The Western Firth Catchment Group Trust (WFCGT) initially came together with the focus on managing and coordinating the planting of riparian zones alongside streams on their properties. According to their website, it was not long after the group was formed that it became aware of Living Water. This discovery, which proved to be crucial, gave the WFCGT's efforts a boost. With a desire to expand efforts further to a wider catchment area, the group formed a charitable trust. They were then able to secure funding and collaborate closely with Living Water, with the shared goal of identifying and mitigating freshwater environmental risks. The WFCGT has extended their successes from the Miranda sub-catchment to adjacent sub-catchments

(namely Huarahi). The WFCGT achieved a reduction of possum densities (from an RTC of 18% in 2021 to 6.8% by 2023) in the Miranda sub-catchment in collaboration with Living Water and the wider community.

- Through a strategic partnership with the Pūkorokoro-Miranda Naturalists' Trust (PMNT) and a contribution of \$15,000 annually for three years, Living Water has helped advance conservation efforts for migratory birds like the red knot and bar-tailed godwit along the East Asian-Australasian Flyway. This collaboration supports international treaty obligations, complements the holistic approach to restoration and highlights the role that local catchment communities can play in global conservation. PMNT's robust international relationships facilitated a landmark 2015 habitat protection agreement between DOC and Chinese authorities, underscoring a commitment to safeguard critical intertidal zones. These efforts, including a pivotal agreement with China's Forestry Commission to protect intertidal habitats in North eastern China, not only support the programme's extensive ecological impact aspirations but also exemplified the dual benefits of conservation initiatives and international cooperation.
- Two cyclones – Gita (2018) and Gabrielle (2023) – and drought conditions (2013 and 2020) serve as constant reminders of the damage that can be inflicted in this environment through volatile weather events, and clearly highlights the future challenges this coastal community and environment faces. The effects of these events ultimately influenced the direction of the partnership, both socially and ecologically. These natural events not only impacted environmental restoration efforts but also had a significant influence on the people involved in the programme. Farmers and local participants often referenced these cyclones as pivotal moments that helped them understand the realities of climate change and the importance of nature-based solutions. This experience led to a shift in perspective and fostered both individual and social learning, as discussions about the adverse impacts of these events spread throughout the community.

From classroom to stream: Fostering environmental stewardship in Pūkoro-Miranda

Engaging the wider community in biodiversity protection and restoration was an important part of Living Water. The Living Water Pūkoro-Miranda programme involved advocacy, tracking progress, and sharing milestones through a variety of platforms, from social media to the programme's website, where in-depth case studies and updates were featured. However, beyond the digital outreach lies the programme's hands-on experiences, such as the īnanga habitat research, which served as an opportunity to engage the community, especially its younger members, in environmental challenges and initiatives occurring in their local catchment.

The programme first undertook freshwater biodiversity assessments in the Pūkoro-Miranda catchments in 2015, utilising an external contractor. They found good populations of īnanga in three lower catchments, and good potential in a fourth. They recommended further research into spawning sites for both restoration guidance and to involve landowners.

In 2018, the programme re-engaged the contractor to assess a number of the catchment's streams for īnanga spawning habitat suitability and potential for community engagement. The exact physical location of the required environmental conditions for spawning to occur were identified. These sites were then assessed for safe public access and two sites selected. Straw bales were installed on the stream margins to form artificial spawning habitat. Several landowners generously provided advice, experience and observations, and access to their properties, further enhancing the programme's scope and impact through their contributions.



The Whitebait Connection resources, designed specifically to engage communities in freshwater and marine conservation, were used for the community and school days. The Hauarahi Stream, chosen for its proximity to Kaiua School and its manageable conditions for safety, hosted the school visit while Te Puaeharuri Stream was chosen for the community day. To support the school and community visits, fish traps were also set up alongside the straw bales.

Although no īnanga eggs were found on either day, the approach to artificial habitat (in the absence of naturally occurring vegetation) was well demonstrated to the participants. In addition the fish traps collected a small range of freshwater species (including adult īnanga), so the freshwater biodiversity values of the area were able to be shared with attendees.

Involving school children in these community engagement efforts is a highlight, offering them a hands-on experience that extends beyond the school classroom setting. These initiatives can have a notable impact, as students not only enjoyed the activities but were engaged and interested. This approach to environmental education is beneficial in nurturing stewardship among the next generation, offering the potential for lasting positive effects.

Involving the community on a personal level (i.e. the landowners surrounding the streams and attendees of the community day) was an extension of other engagement attempts throughout the programme, which included tailored Farm Environmental Plans and community trapping days. Pūkorokoro-Miranda programme's 'Mountains to Sea' approach, recognised that biodiversity values in the lower parts of catchments are impacted by what is going on in the upper parts (the 'mountains') and therefore the importance of working at a catchment scale.



3.2.4 Capability/capacity changes

During the decade-long Living Water Pūkorokoro-Miranda programme, there was a noticeable enhancement in the capabilities and capacities of various catchment groups and individuals involved.

- The Living Water team – already knowledgeable in ecology, agriculture, and water – expanded their collaborative and strategic skills through the programme. This allowed them to not only coordinate complex collaborations, but also plan effectively for the programme’s social and organisational goals. Building solid partnerships at site, from farmers to mana whenua to different agencies and community groups, was integral to achieving programme objectives. The team also had the opportunity to work very closely over many years with landowners and farmers, learning what influences and guides their priorities, inspiration and aspirations.
- The programme sought to link community engagement with the use of tools and approaches like the CCS and the GIS-based CAPTure tool. By bringing together experts from various disciplines, and overlaying the research findings with local knowledge, the programme fostered a culture of collaborative problem-solving. This contributed to support on-farm improvements.
- On the ground, the programme led to practical insights. Knowledge was built around understanding effective conservation strategies in agricultural areas. Trials of detention bunds, coastal plantings and erosion resistant poplar pole plantings in particular demonstrated conservation gains in the face of natural weather events.

3.2.5 Financial investment and impact

Over the last decade, the Pūkorokoro-Miranda programme has seen significant financial investment and leveraging of resources. Living Water contributed approximately \$2.4 million over ten years. Additional substantial financial support included a \$580,000 investment by the DOC for the purchase of a 19.6 ha wildlife reserve and a \$296,000 contribution in 2023 from the DOC Community Fund to the TRKPT. Much of this funding has been spent within the catchment and wider community. Importantly, local landowners independently financed all 43 km of necessary fencing, indicating a high level of local commitment to the programme’s goals. The impact of this investment can be observed in the 2023 CCS, the outputs of the WFCGT, the progress of the PMNT on international initiatives and across the catchment in initiatives like the community possum control. In particular, the acquisition of the Repo ki Pūkorokoro reserve and the journey of the TRKPT to restore it, could provide inspiration for similar farmland retirement initiatives, both locally and nationally, coastal and inland, in the face of a changing environment. Overall, given the strong social aspect to the programme at the Pūkorokoro-Miranda site, much of the evidence of investment may not be immediately apparent on the ground, but rather in the long-term outcomes.

3.2.6 Scaling up and out

The Pūkorokoro-Miranda programme helped bring together resources from partner organisations and enabled the sharing of expertise, tools, and practices, through the catchment and beyond. This expansion was achieved by leveraging existing resources, fostering collaborative networks, and motivating individuals to share their experiences. In some cases, this has led to new initiatives.

- **Blue Carbon Trials:** The Repo ki Pūkorokoro site (now Reserve) has long been considered a potential opportunity for Blue Carbon trials. This potential was realised when The Nature Conservancy (TNC) became involved and subsequently committed to research at the site, securing a formal agreement with the TRKPT to conduct their feasibility study.
- **Hauraki District Council partnership:** Through this project Living Water, DOC, and the TRKPT have strengthened their working relationship with HDC. The Council has not only endorsed the Repo ki Pūkorokoro restoration project in principle but also committed to several vital roles associated with the reserve's restoration. The roles and responsibilities of the HDC will soon be solidified in a tri-party MOU involving DOC, TRKPT and HDC.
- **WFCGT objectives:** The WFCGT aspirations include coverage of 26,000 ha in 13 sub-catchments. Working with this Trust has expanded the influence of Living Water experiences beyond the Miranda sub-catchment. The Trust has already secured further external funding and has taken steps to apply the Living Water freshwater mitigation prioritisation recommendations to the neighbouring catchments.

Also, the Living Water partnership, which is involved in five national catchments, is incorporating the relationships, tools, and methods developed in Pūkorokoro-Miranda into their larger organisational strategies, which encourages continued collaboration and innovation.

4. Insights, challenges, and lessons

Over the last decade, the Living Water Pūkorokoro-Miranda programme has provided a learning platform for all partners involved. Throughout this period, staff and programme partners have navigated real-world challenges, including unexpected events like cyclones Gita and Gabrielle, to advance the programme's goal of farming and freshwater thriving together. This chapter aims to distil the essence of these collective experiences and focuses on three key areas from the Pūkorokoro-Miranda programme that highlight the breadth of our learning through these collaborative endeavours.

This exploration examines the insights, challenges, and lessons arising from our collaborative efforts in these three areas. It acknowledges how a range of catchment participants and activities contributed to the overarching success of environmental and community objectives. Through a reflective lens, the insights and lessons derived from this programme are examined, viewing challenges and surprises as catalysts for deeper learning and adaptation. This approach honours the diverse contributions of partners and stakeholders, fostering a culture of shared learning and continuous improvement. Understanding the concept of co-benefits is vital in appreciating the complexities of such programmes.

Co-benefits are the additional positive outcomes that arise from a single programme activity, often extending beyond the primary goal to impact multiple areas. In complex programmes like Living Water, where activities are interconnected, co-benefits illustrate how actions in one area can lead to positive effects in others. For example, an ecological restoration project might not only enhance biodiversity but also strengthen community relationships and boost local economies. Understanding co-benefits illustrates how integrating activities across various work areas broadens the impact.

While this chapter concentrates on three specific areas within the Pūkorokoro-Miranda programme, it is important to recognise that the insights derived are not confined to this site alone. Many lessons resonate across other Living Water catchments, underscoring the interconnected nature of our learning and efforts. Additionally, lessons from evaluations at other sites can inform understanding in this catchment. This chapter can also serve as a resource for facilitators and catchment communities, providing relevant prompts, insights, and practical guidance to aid future discussions, reflections, and strategic planning.

4.1 Collaborations can take time

The journey of collaboration in the Pūkoro-Miranda programme highlighted the importance of patience and adaptability. Building trust and aligning diverse visions was a time-intensive yet fundamental process for establishing sustainable initiatives, laying the groundwork for achieving the programme's goals. Working collaboratively also provided a range of additional positive outcomes (or co-benefits) across different settings.

Co-benefits

- **Efficiency in partnership:** Early collaboration with the WFCGT streamlined the delivery of freshwater mitigation actions, saving time and resources. This partnership is an example of how joint efforts can lead to significant environmental impact, showcasing improved efficiency through early and effective collaboration with existing groups.
- **Broader community impact:** The skills and understandings developed through the programme have broader applications, preparing participants for future community and environmental initiatives. The establishment of the TRKPT brought together a range of perspectives and skill sets from across the wider community, forming new connections across the catchment. The learnings and experiences from the TRKPT can be applied to other initiatives, demonstrating the programme's role in fostering broader community impact.
- **Well-grounded partnerships:** The programme cultivated a culture of cooperation, demonstrating the value of investing time in building strong partnerships. This is exemplified by the formation of the TRKPT, and the partnership with the WFCGT, where mutual values and respect have been key to their successful collaboration and funding efforts.
- **Leveraging environmental efforts:** The programme's initiatives have supported additional environmental efforts within the catchment. By supporting a range of collaborative initiatives, the programme has contributed to the initiation and enhancement of complementary environmental efforts by land managers, extending the overall impact on the ecosystem.

Insights, challenges, and lessons

- **Building a community-led trust:** Establishing the TRKPT required over three years of persistent effort and trust-building. The process illustrated the importance of both patience and tangible outcomes in building alignment and shared values. The challenge was maintaining credibility through visible progress. The lesson learned is that effective partnership building in environmental programmes demands a balance of common ground and demonstrable achievements to maintain progress.
- **Navigating diverse aspirations:** Working through different perspectives (and a number of significant natural events) to manage the new reserve effectively, as seen in the collaboration between DOC, WRC, HDC, and the TRKPT, highlights the importance and necessity of flexible strategies, open communication and factoring in the differing priorities for those involved.

- **Direct leadership and clear communication:** Other Living Water sites highlighted that in complex situations with diverse interests, a more direct approach by agencies or funders can sometimes be necessary. Clear communication of expectations and decisive leadership can streamline decision-making and ensure project momentum. This lesson suggests that, in certain contexts, balancing a participatory approach with decisive leadership can enhance effectiveness and expedite progress.

4.2 Benefits of working at catchment level

The Pūkoro-Miranda programme has shown the importance of a holistic, catchment-level approach to environmental management. This holistic strategy contributed to cumulative impact and addresses the interconnected nature of ecosystems. By working at the catchment level, the programme not only achieved its primary goals but also generated a range of additional positive outcomes (or co-benefits) across different areas.

Co-benefits

- **Strategic efficiency and cost-effectiveness:** Partnering with WFCGT, which had members with interests across multiple catchments, enabled strategic (high impact) interventions opportunities identified through tools like CCS and CAPture, to be easily taken up by landowners from the catchment. It helped prioritise on-farm activities over a broader area, effectively meeting freshwater objectives and helping landowners collectively meet catchment needs more efficiently.
- **Broader environmental impact:** The initiative to purchase and retire farmed land for ecological restoration increased the habitat area for shorebirds and reduced the farming impact on a fragile coastal ecosystem. This effort aligned with the broader environmental strategy in the catchment, complementing and tying together the “sea” end with the work of the WFCGT in the “mountains”. It is anticipated that these types of initiatives will also inspire and motivate other landowners to retire land, particularly in vulnerable coastal (and wetland) areas.
- **Growing community engagement and ownership:** Engaging with the wider catchment community, integrating with initiatives like possum control and the CCS, help increase the sense of collective responsibility for environmental stewardship, and what that might look like. Similarly, the establishment of the TRKPT, with members from across the catchment, provides an example of a well-resourced starting point to support the effort of taking ownership and maintaining engagement.

Insights, challenges, and lessons

- **Collaborative approaches to complex challenges:** Coordinated efforts are crucial for managing intricate ecological and social dynamics in catchment activities. Effective collaboration is essential at this scale, but coordinating multiple stakeholders remains a challenge. Strong partnerships can address complex issues more thoroughly, though not always quickly.
- **Tailoring tools together:** Experts and advisors working directly with landowners developed ‘hybrid’ Farm Environment Plans (FEPs) that catered for smaller operators

and lifestyle blocks. Integrating diverse needs was challenging, but tailored tools enhanced engagement.

- **Integrated planning and prioritisation:** Tools like the CCS and CAPTURE provided large-scale, evidence-based environmental baselines, guiding targeted actions. While robust data supports effective planning, sourcing useful data is often challenging (cost, accessibility). Integrated tools that can be used by the community for prioritising interventions are vital for strategic planning.
- **Aligning with community groups:** Established groups like the WFCGT were essential for implementing catchment-wide initiatives, showcasing the power of community-driven efforts. Aligning with existing networks to expand their initiatives can accelerate progress, although mobilising these groups effectively can be challenging. Community engagement is an essential part of achieving environmental goals.



Living Water funded the upgrade of the access track to the bird hide viewing area so that it is more accessible.

4.3 Finding the right entry points

Identifying strategic entry points was pivotal for the Pūkoro-Miranda programme, particularly the partnership with the WFCGT, tailored FEPs, and the possum control initiative. These efforts underscored the significance of linking community interests with restoration goals, demonstrating how targeted actions can serve as catalysts for broader engagement and environmental stewardship. Moreover, these strategic entry points produced a range of additional positive outcomes (or co-benefits) across different areas.

Co-benefits

- **Broad community engagement:** By tackling widespread issues such as possum control, in collaboration with a locally recognised community group (WFCGT), the programme successfully rallied community efforts, laying the groundwork for more integrated environmental initiatives. Possum control, identified as a common community interest, enabled DOC to combine pest control with Living Water's freshwater objectives, extending the reach of the programme for the benefit of the environment and community.
- **Aligned economic and ecological interests:** The partnership with the WFCGT brought together agricultural and conservation perspectives. This alignment not only bolstered freshwater protection but also respected and complemented agricultural livelihoods, demonstrating dual benefits of conservation activities in an agricultural landscape.
- **Building community confidence and empowerment:** Tailored approaches to local issues significantly boosted participant engagement and investment in the programme's goals, enhancing community confidence and empowerment. This is demonstrated in the outcomes of the small property FEP's, the training in possum control, and the funding application successes of both the WFCGT and the TRKPT.
- **Biodiversity gains:** Focused pest control efforts complemented the broader biodiversity objectives of the community, while still contributing to freshwater enhancement.

Insights, challenges, and lessons

- **Balancing commitments and motivations:** Linking restoration efforts with the community's economic interests can boost engagement. The challenge is balancing long-term restoration goals with immediate financial needs. The lesson learned is that restoration requires recognising and addressing both immediate and long-term priorities to maintain relationships, efforts, and pursue opportunities.
- **From targeted projects to broad engagement:** Starting with specific projects like possum control helped build recognition and broaden community involvement in wider catchment management activities. The challenge is maintaining this momentum, and the lesson is that focused efforts can lead to wider community participation.
- **Human-centric approach:** Recognising and valuing personal relationships, mutual respect, patience, and the willingness to understand differing perspectives facilitates collaboration. While this approach takes more time, it helped build a solid foundation

for ongoing collaborative efforts. The lesson is that a human-centric approach aligns with the programme’s aspirations for sustainable community-driven restoration.

- **Changing land ownership is complex:** The complexity of the Crown’s land acquisition process required specialist skills and expertise, making the commitment more demanding over time. The insight is that simpler options to improve wildlife habitats on public land or implementing other freshwater ecosystem restoration initiatives may have produced results sooner.

Collectively, these and other evaluation reflections on collaborative initiatives from the other Living Water sites, can lay the groundwork for future planning. They aim to sustain the positive impacts of this work, providing guidance for future environmental stewardship and community engagement. The potential of these insights to reach a broader audience underscores the hope that the experiences and lessons detailed here will inspire and support similar efforts elsewhere, fostering a culture of collaboration, sustainability, and resilience. Presenting these areas as prompts for facilitated discussions raises the possibility that the evaluation will serve as a living document, guiding and informing ongoing and future initiatives.



Checking predator traps on-farm and around shorebird habitat.

Engaging catchment communities through shared environmental challenges

Improving biodiversity and water quality at a catchment scale in a rural (farmed) landscape necessitates the involvement of as many landowners as possible. A significant challenge for many environmental initiatives is how to engage a diverse array of landowners and residents, from dairy and lifestyle block owners to the broader community. This was an important consideration for the Pūkorokoro-Miranda programme, especially given that many smaller properties had willing participants, encompassed significant waterways, had remnant native bush blocks and/or steep topography. Engaging all landowners was critical to any meaningful environmental improvement.

Finding a unifying theme

Predator control emerged as a unifying theme. Dion Patterson, the Living Water Site Lead, noted that discussions with landowners often turned to the havoc wrought by possums on crops and native vegetation. The programme shared in the concern – the 2017 Catchment Condition Survey had identified significant natural areas in the catchment and the 'Mountains to Sea' initiatives were steadily retiring remnant native bush and establishing extensive riparian planting. A lack of possum control risked undoing the investment to date and could become a barrier to community engagement. Aligning with the national Predator Free 2050 movement, Living Water saw an opportunity to engage the community on common ground, providing the tools and support needed to tackle possum populations effectively.

In 2019, a comprehensive survey assessed landowners' willingness to engage in pest control, revealing a strong consensus on the importance of managing pests to protect local biodiversity and agriculture. This insight led to a community workshop, hosted in conjunction with the Western Firth Catchment Group Trust (WFCGT), attracting around 100 landowners. The event featured experts in predator control and presentations from environmental groups, laying the groundwork for future collaboration on broader conservation efforts.

The involvement of an expert trapping contractor played a critical role, not just in immediate possum control solutions, but also in the engagement and education of landowners aiming to ensure the legacy of the trapping programme beyond its conclusion in 2023. Living Water also helped the WFCGT establish a trap resource supply for the community and led trap trials to determine best methods.

In 2022 – 2023, the opportunity to repeat the process of meeting on common ground presented itself. There were several complaints of goat herds doing extensive damage to native plants, including those that had been self-funded by residents. Living Water led two rounds of goat control in the Miranda sub-catchment where riparian planting efforts had been focused.

Outcomes and learnings

The programme's approach—starting with pest control as a point of entry—addressed immediate ecological concerns and helped build a foundation of collaboration that supported wider environmental goals, particularly in freshwater protection and enhancement.

The initiative highlighted several crucial insights for Living Water. Engaging a catchment community requires meeting them where they are, both literally and in terms of their interests. Pest control, a universally recognized issue, served as an effective entry point, fostering a sense of shared purpose among a diverse group of stakeholders. Moreover, the programme demonstrated the importance of providing practical support and resources, facilitating not just immediate action but also long-term community capacity for environmental restoration.

As the programme moves forward, the focus on inclusive, community-driven conservation efforts continues to shape the Pūkorokoro-Miranda catchment's environmental narrative. Living Water's experience in Pūkorokoro-Miranda offers practical insights to engaging communities in restoration efforts, showing that starting with common challenges can pave the way for broader environmental stewardship and collaboration.



A community meeting featuring experts in predator control and presentations from environmental groups, laid the groundwork for future collaboration on broader restoration efforts.

5. Progress assessment and recommendations

This concluding chapter synthesises the diverse experiences and outcomes from the decade long Pūkoro-Miranda programme, guided by its ambitious goal of restoring and reconnecting a rural freshwater ecosystem and sensitive coastal environment using a community-led ‘Mountains to Sea’ approach. Here, we critically evaluate the programme’s alignment with its initial Theory of Change (ToC), assess the efficacy of its underlying assumptions, and revisit the guiding principles of the Living Water programme. This reflective examination will highlight both the achievements realised and issues faced, culminating in a set of strategic recommendations aimed at refining future environmental management initiatives. By encapsulating these insights, we aim to contribute to broader discussions on sustainable catchment management practices.

5.1 Programme achievements and outcomes

The Pūkoro-Miranda catchment programme has navigated a ten-year developmental trajectory characterised by evolving strategic focuses—from initial habitat enhancement efforts to a more active community-led integrated catchment restoration approach. Initially guided by an implicit set of assumptions, the programme formalised its strategic framework during the ‘SPRINT’ reset, which introduced a detailed ToC and Logic Model as outlined in Chapter 1. This pivotal adjustment marks the programme’s adaptive response to emerging insights and encountered challenges.

This section outlines how the Pūkoro-Miranda programme has met the planned activities and outputs and assesses its contributions to the outlined outcomes. The subsequent discussion will examine these achievements considering the evaluative evidence gathered across the programme’s lifetime, aiming to provide a balanced view of both the accomplishments and areas where expectations have not been fully realised.

5.1.1 Achievement of activities and outputs

The Pūkoro-Miranda programme delivered a range of activities and outputs, many of which were charted in the Logic Model. The scope of the programme was marked by partnerships and collaborations that extended beyond traditional boundaries, drawing in a broad spectrum of in-kind support, knowledge, and expertise. These collaborative relationships were instrumental in harnessing contributions from a variety of sources, including DOC, Fonterra, Ngāti Paoa representatives, and local councils and community trusts and even overseas organisations. Each partner provided critical local insight, technical advice, and on-ground support that enriched the programme’s capabilities in areas such as legal and GIS services, pest control, ecological restoration and the historical context of the area.

As a strategic initiative, significant efforts were made in acquiring land and enhancing shorebird habitat near the Miranda and Pūkoro stream mouths. The programme was able to negotiate the purchase in collaboration with the Dalton Hapū Trust. The land purchase process concluded with the acquisition of 19.6 ha, protected as a Reserve earmarked for ecological enhancement, including for bird habitat. Following this, the Tiaki Repo ki Pūkoro Trust (TRKPT) was established to manage the reserve, comprising a diverse range of catchment representatives. The Trust's formation and the subsequent development of a restoration plan provides a community-led approach to managing the new reserve. Other related restoration efforts across the Miranda sub-catchment included pest control, revegetation, targeted freshwater quality mitigations and formalising land retirement options, in partnership with the WFCGT. The programme also supported comprehensive efforts to understand and improve biodiversity, water quality, and hydrology. Working with the WFCG and following a landowner survey on predator control, over 100 landowners participated in a pest control workshop, effectively linking their engagement to a broader strategy of pest management to protect native species and habitats as well as being a way to engage 'harder to reach' landowners. The links with the WFCGT and the development of the TRKPT are good examples of different forms of community-led environmental restoration and waterway protection efforts, underpinned by collective stewardship and action within the local population. This engagement extended to developing tailored (scaled down) FEPs for smaller farms and lifestyle blocks in the Miranda sub-catchment, promoting sustainable agricultural practices that minimise environmental impacts and enhance water quality. The FEPs complement the integrated catchment-scale approach to water quality.

5.1.2 Contribution towards outcomes

The programme's impact extended well beyond immediate outputs, significantly influencing both ecological and social dynamics within the catchment. One of the most notable outcomes was the establishment of the Tiaki Repo ki Pūkoro Trust (TRKPT) following the strategic acquisition of 19.6 ha for ecological restoration. This initiative, combined with active community participation in the Mountains to Sea project, fostered a strong sense of ownership and engagement among local landowners and stakeholders.

The programme's holistic approach to catchment management not only expanded shorebird habitat and wetland areas, key milestones in the Waikato Conservation Management Strategy (CMS) and RAMSAR Wetland Convention, but also enhanced biodiversity and cultural values within the Miranda sub-catchment. The scalability of Living Water tools and approaches was further demonstrated by their adoption beyond the Pūkoro-Miranda catchment, promoting knowledge sharing and collaboration with other environmental projects in the other catchments across the Hauraki District.

Organisational and relational changes were significant, with Living Water acknowledged as contributing to shifts in 'business as usual' practices within Fonterra and DOC. This included integrating biodiversity into Fonterra's FEPs and enhancing DOC's freshwater conservation efforts. Strengthened partnerships and collaborative networks with local entities like PMNT, WFCGT and councils underscored the programme's regional importance

and laid the groundwork for continued collaborative efforts to manage the catchment's environmental future.

5.1.3 Areas for improvement

While the Pūkorokoro-Miranda programme made great progress in many of its objectives, it also faced challenges (in common with other similar initiatives), that provide crucial lessons for future environmental management efforts. Reflecting on these challenges is essential for recognising the complexities of such ambitious programmes and for identifying strategies to enhance their effectiveness and sustainability.

At the outset of the programme, many stakeholders may have expected to see evidence of enhanced water quality within the programme's lifetime. However, environmentally conscious catchment practice and subsequent water quality improvement are complex issues with substantial time lags between the implementation of practices and the realisation of end results. Achieving lasting change in these areas is not simply a technical problem, but requires changing organisational and farmer practices, which involves building trust, fostering collaboration, developing shared goals over time and recognition (reward). This complexity highlights the importance of setting realistic expectations and focusing on the intermediate steps that pave the way for long-term success. There is a need to rethink collective approaches to implementing change. Instead of solely focusing on the desired end outcomes, we should recognise and prioritise the essential building blocks that will support future progress toward a programme's ultimate goals.

In the Pūkorokoro-Miranda programme, as at other Living Water sites, community engagement was acknowledged as an area for improvement. While engagement approaches evolved constantly over the ten years, effectively engaging a broader spectrum of the community beyond the immediate stakeholders remained challenging. The programme's experiences highlight the necessity for more inclusive and adaptive engagement strategies that resonate with diverse community segments. Future initiatives should focus on identifying and addressing barriers to participation early in the process to ensure broader community support and involvement.

Ecologically, the programme navigated complexities that were more intricate and interconnected than anticipated, exacerbated by climate variability events such as droughts and cyclones, as well as the disruptive impact of the COVID-19 pandemic. These experiences highlight the ongoing need for integrating climate adaptation strategies into programme planning and execution. Proactive measures and flexible response strategies are essential to mitigate the impacts of such unpredictable factors on both the ecological and social objectives.

Resource constraints also posed significant challenges, limiting the scope and reach of key activities, particularly in habitat restoration and pest management. The ambitious goals often had to be balanced against the available funding and human resources, underscoring the need for enhanced resource allocation. While diversifying funding streams is a recommended strategy, it is acknowledged that this is particularly challenging in the current economic climate.

5.1.4 Contribution to unplanned outcomes

The programme also contributed to outcomes that were not necessarily envisaged in the original planning documentation. Developing and operationalising a predator control strategy was not foreseen in the programme's strategic planning in 2017. Instead, this grew out of a need to engage important 'hard to reach' landowners - particularly small-scale landowners who weren't engaged through FEP processes (too small) but occupied steeper land at the headwaters of streams. An interest in predator control was tested through a survey and further confirmed through a well-attended community workshop and on the ground delivery, became a means of building relationships and credibility with the 'co-benefit' of contributing to protecting planting activities already underway.

The collaboration with TNC on Blue Carbon research emerged as an influential development, introducing expertise and resources previously unavailable to the programme, and in particular the ongoing reserve management trust (TRKPT). This partnership not only enhances the scientific depth of the reserve's restoration management programme but also pioneers new pathways for conservation work - including potential income generation - that were not originally anticipated but aligns with broader environmental strategies and sustainability goals discussed in earlier chapters.

The collaboration between the PMNT and Living Water, which contributed to the 2015 agreement with China around international habitat protection for migratory shorebirds, modestly expanded the programme's geographical and ecological influence. While Living Water provided some funding to PMNT, the negotiations and relationships were primarily driven by PMNT. This collaboration contributed to the protection of vital intertidal habitats, significantly enhancing the global reach of local conservation efforts, and contributing to international biodiversity and migratory bird protection networks. Such outcomes underscore how growing the right partnerships can increase a programme's ability to contribute to conservation at a global scale, demonstrating a substantial extension of impact that aligns with the strategic goals outlined in the programme's broader catchment management efforts.

These examples underscore the dynamic nature of conservation and restoration projects, where evolving partnerships and emerging opportunities can significantly extend the impact and scope of the original plans. It is also worth noting that the composition of the Living Water team and the partners evolved over the decade, with new personnel bringing different skill sets and perspectives. Combined with the refined focus area post-SPRINT, it could be concluded that the realised outcomes are different to the goals set early on, in terms of on-the-ground specifics, and instead reflect adaptations in response to ever-changing contexts.

5.1.5 Reflecting on guiding principles and assumptions

Throughout the Pūkoro-Miranda programme, Living Water’s guiding principles and foundational assumptions contributed to the programme’s direction and outcomes. The commitment to collaborative approaches, and focus on scalable solutions were reflected in the strategic partnerships formed and the inclusive strategies employed. These partnerships not only enabled ecological improvements but also sought to ensure these enhancements were culturally meaningful and economically viable, in line with the programme’s foundational principles.

The assumptions that long-term collaboration and systemic thinking are essential for effective environmental management were validated throughout the Pūkoro-Miranda programme. This systemic approach was critical for handling the complexities of catchment management and advancing toward the Partnership’s long-term aim of enabling farming, freshwater and healthy ecosystems to thrive side-by-side. Importantly, the operation of the programme supports the growing recognition of the need to engage a wider array of community stakeholders in practice change—from mana whenua, agencies, and sector bodies to land managers, rural intermediaries, and other community groupings—to fully realise catchment-scale change.

This evaluation of the programme’s guiding principles and assumptions, considering its achievements and challenges, confirms an alignment between strategic intentions and operational execution. This reflection not only reaffirms the effectiveness of the initial theoretical framework but also identifies areas for refinement, ensuring that future initiatives can build on this groundwork with more precise strategies and objectives. By consistently aligning actions with foundational principles and learning from each implementation phase, the learnings from the Pūkoro-Miranda programme can help inform future environmental management projects.



The global significance of Pūkoro-Miranda as an international feeding ground for migratory seabirds was a driving factor in Living Water’s decision to work in the area.

5.2 General recommendations

The Pūkoro-Miranda programme exemplifies a comprehensive initiative aimed at integrating socio-cultural, economic, and environmental dimensions within catchment management. Reflecting on its journey, this programme demonstrates the efficacy of collaborative endeavour and adaptive management in achieving environmental and community objectives. It has successfully met many of the activities and outputs outlined in the logic model and made significant contributions to key outcomes. While acknowledging areas needing improvement, the programme's ability to learn, adapt, and navigate the complexities of catchment management has generated positive outcomes, offering valuable insights for future initiatives.

As the Living Water partnership concludes its decade-long programme, catchment restoration and other place-based initiatives continue. Therefore, these general recommendations are intended for organisations and communities engaged in ongoing catchment stewardship, emphasising the importance of often-overlooked intermediate results or “supporting structures” essential for advancing long-term environmental and social goals:

- **Strengthen cross-sector collaboration processes:** Future initiatives seek to support robust cross-sector partnerships from the outset. Cross-sector collaborations can take many forms and are pivotal for realising significant milestones like habitat restoration and community engagement. However, they can also be time-consuming, so consider this input as part of your project investment planning. Identifying partners, particularly those with existing community connections, commonalities and possible synergies, can help make early progress on shared actions, which also contributes to building relationships, trust and momentum.
- **Enhance community and stakeholder engagement:** Develop inclusive engagement strategies using diverse participatory tools. Create flexible frameworks that encourage regular dialogue, shared decision-making, and open communication. The success seen in the Pūkoro-Miranda programme in partnership with the WFCGT demonstrates the value of engagement that complements community efforts and enhances community ownership of ecological goals and action.
- **Improve integrated planning for integrated programmes:** Adopt adaptable catchment management frameworks that incorporate robust Theories of Change, behaviour change and community empowerment models. Use insights from behavioural and social sciences to design interventions that effectively encourage community actions, outcomes and ownership. This ensures strategies are grounded in understanding how to achieve and sustain constructive practice change, incorporating ecological, cultural, and community considerations to improve decision-making beyond economic factors.

- **Enhance technical support and engagement tools:** Continue to refine catchment prioritisation tools like CAPTure, CCS, and FEPs, integrating them with biophysical monitoring data. Ensure their development and application actively engage farmers, land managers, and owners, fostering greater understanding and ownership of results. Encourage continuous improvement by using monitoring feedback to refine interventions, ensuring they remain effective and aligned with ecological goals.

These recommendations draw upon the insights and experiences from the Pūkoro-Miranda programme, contributing to a broader roadmap for advancing catchment management practices that are inclusive, adaptive, and sustainable—ensuring the health and resilience of freshwater ecosystems and communities alike. Collectively, these and other evaluation reflections on collaborative initiatives from the other Living Water sites lay the groundwork for future planning. We envision these recommendations serving as actionable guides for practitioners, ensuring that the evaluation remains a dynamic resource for ongoing and future efforts.



Collaboration with landowners at Pūkoro-Miranda has been key to achieving better environmental outcomes.

Appendix I: Information sources for evaluation

The development of this evaluation report is grounded in a participatory model that prioritises collaboration and inclusive engagement across a wide array of stakeholders. The approach has integrated insights and contributions from various partners, enriching understanding of the outcomes and impacts of the Living Water initiatives. Presented below is an outline of the key information sources and participatory processes that have informed the evaluation.

Pūkoro-Miranda programme specific sources

- Living Water Evaluation Team: Developed in close collaboration with an evaluation team comprising 6 members (See Appendix II). The team comprised two independent evaluation consultants, and included site-specific staff and national programme staff from both Fonterra and the Department of Conservation (DOC).
- Four individual interviews with programme participants.
- Living Water [Pūkoro-Miranda](#) webpages: Served as a primary source of both current and archived information on programme objectives, activities, and outcomes.
- Pūkoro-Miranda programme monitoring data - from national Living Water site monitoring data (unpublished).
- Pūkoro-Miranda Living Water webpage project summaries:
 1. [Wading in to improve water quality at Pūkoro-Miranda \(overview\)](#)
 2. [Blue carbon project](#)
 3. [Pūkoro-Miranda catchment mountains to sea project](#)
 4. [Predator control strategy](#)
 5. [Coastal wildlife habitat acquisition and restoration](#)
 6. [Building international linkages](#)
 7. [Catchment Condition Survey](#)
 8. [Catchment action prioritisation tool \(capture\)](#)
 9. [Increasing wildlife habitat areas in a farming landscape](#)
 10. [Incubate: establishing a community trust](#)

Wider Living Water evaluation activities

1. Evaluation design and ethics

- Development of [Living Water National Planning, Monitoring & Evaluation Framework](#) (July 2017-2018).
- [Logic model, indicators and monitoring plans for site](#) (April 2018).
- An evaluation ethics plan was developed with the Living Water management team and agreed with the Senior Responsible Owners for the Living Water Partnership from the Department of Conservation and Fonterra. Those involved in the Living Water programme evaluation followed the agreed processes and complied with the ethics protocol.
- The independent evaluation consultants were responsible for undertaking individual and group interviews to assure participant confidentiality and anonymity.
- Development of Performance Story and CAME evaluation methodologies underpinning final individual site evaluation reports. This evaluation design was developed by the independent consultants, and then fine-tuned in consultation with each site Evaluation Team.
- Cross-site Learning: The evaluation methodology was significantly enriched by learnings from across all the Living Water sites. This broader perspective was crucial in shaping insights and understanding of each site's unique challenges and successes, fostering a comprehensive understanding that reflects the interconnectedness of the Living Water initiatives.
- Development and implementation of the Whakamana te Waituna Monitoring & Evaluation Framework, Programme & Action Plan in 2019.
- Two participatory partnership evaluations for Living Water management and governance groups (2018 and 2021).
- Waima Waitai Waiora (Wairua) Mana Enhancing Partnership review (March 2022).
- National evaluation reflection with Living Water team (December 2022).

2. Interviews with past and present staff

- Conducted one-on-one interviews with past Living Water staff across 3 sites, gaining historical perspectives and insights into the evolution of programme activities and strategies.

3. Engagement with representatives outside the Living Water Partnership:

- At certain sites, we engaged with 1 or 2 representatives from other partner organisations, broadening our perspective on collaborative efforts and their impacts

4. Regular meetings with programme management

- Fortnightly meetings with two members of the Living Water programme management team were instrumental in aligning the evaluation process with the programme's overarching goals and objectives. These two members were also involved as members of the site evaluation teams (See Appendix II)

5. Annual Living Water hui and reflections

- Including a final closure hui and field trip held with both Living Water staff and stakeholders and presentations and field trip for NZARM conference (November 2023).

6. Living Water Site Evaluation Reports

The development of these reports provided detailed insights into the specific activities, outcomes, and lessons learned at each site, contributing to a nuanced understanding of local and site-specific contexts.

- Wairua Evaluation Report
- Pūkoro-Miranda Evaluation Report
- Waikato Peat Lakes Evaluation Report
- Ararira LII Evaluation Report
- Whakamana te Waituna Evaluation Report¹
- Site reports found on the [Living Water website](#)

7. Living Water National Evaluation Summary

A national evaluation summary provides an overview of the achievements and outcomes of the Living Water partnership and draws together the lessons and recommendations from the five site evaluation reports.

- Report can be found on the [Living Water website](#)

8. Place-based Engagement and Impact tool

The Place-based Engagement and Impact tool was created to aid organisation staff and stakeholders in place-based initiatives. It provides flexible guidelines for implementing complex environmental and community programmes.

- The tool can be found on the [Living Water website](#)

This multifaceted approach to gathering information has enabled a comprehensive and nuanced evaluation of the Living Water initiatives across the sites. It reflects our commitment to a participatory and inclusive methodology, ensuring that the insights and learnings derived from this evaluation are deeply informed by the experiences and expertise of all stakeholders involved.

1. The Whakamana te Waituna Evaluation Report was commissioned by the Whakamana te Waituna Trust, of which Living Water was a key member and funder.

9. General documentary and secondary sources

- [Living Water programme](#) website: Served as a primary source of both current and archived information on programme objectives, activities, and outcomes
- [Living Water \(2018, updated 2020\) National Planning, Monitoring & Evaluation Framework](#)
- Living Water [Governance and Operating model](#)
- [Living Water Story \(ebook\)](#): A celebration and summary of experiences and learnings from all five sites offered a holistic view of the programme's objectives and achievements
- General material: Reviewed additional materials of a more popular nature, including newsletters, media releases, and public communications. These sources helped capture the broader narrative and public engagement strategies of the Living Water initiative

This multifaceted approach to gathering information has enabled a comprehensive and nuanced evaluation of the Living Water initiatives across the sites. It reflects our commitment to a participatory and inclusive methodology, ensuring that the insights and learnings derived from this evaluation are deeply informed by the experiences and expertise of all stakeholders involved.

Reports and other programme documentation

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Appendix II: Author biographies

External evaluation consultants

Will Allen

Consultant Evaluator

Dr Will Allen is an independent evaluator and systems scientist with over 30 years of experience in sustainable development and resource management. His work bridges local, indigenous, and organisational perspectives, helping multi-stakeholder groups develop shared goals, actions, and indicators. An inaugural Board member of the Aotearoa New Zealand Evaluation Association (ANZEA), he has managed the Learning for Sustainability (LfS) website since 2006. The site is a knowledge hub for methodologies, skills and processes needed to support collaboration and address complex sustainability issues.

Viv Sherwood

Consultant Evaluator

Viv Sherwood (VM Works) is an independent consultant with almost 20 years' experience in government sector operational roles in community development and environment sectors. Viv has also worked with and within iwi structures on environmental management. Her monitoring and evaluation experience is informed by practical experience - in operational planning and delivery, the complexity of working in partnerships, as well as community development approaches - with participatory and complexity-aware monitoring and evaluation (CAME) approaches preferred.

Living Water Pūkoro-Miranda Evaluation Team

Sarah Yarrow

Living Water National Manager

Sarah Yarrow managed the national Living Water programme, bringing together a diverse range of stakeholders to enhance freshwater ecosystems while supporting sustainable agriculture. Her leadership and strategic vision have been instrumental in guiding the programme's development and implementation across multiple catchments.

Katie Collins

DOC Freshwater Science Lead

Dr Katie Collins was the Principal Scientist for the Living Water programme, providing scientific guidance and expertise to ensure the programme's activities are grounded in robust evidence and best practices. Her work involved close collaboration with site leads, researchers, practitioners, and community members to drive impactful environmental outcomes.

Dion Patterson

DOC Site Lead

Dion Patterson is a DOC Senior Ranger and was Site Lead for the Pūkoro-Miranda site. His role involved guiding the direction of the programme's initiatives, engaging with stakeholders, and coordinating efforts to restore and protect the catchment.

Rose Graham

DOC Site Lead Support Ranger

Rose Graham is a DOC Ranger and was the Site Lead Support Ranger, helping to implement freshwater initiatives at the Pūkoro-Miranda site. Through the programme, she has gained extensive experience in managing and delivering conservation projects and fostering community partnerships.