



**LIVING
WATER**

Dairy and freshwater thriving together

Evaluation Report
Wairua River/Te awa o Wairua,
Northland/Te Tai Tokerau
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Part of the Living Water site evaluation series

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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.

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Executive summary

Introduction

The Wairua River programme, part of a 10-year Living Water partnership between the Department of Conservation (DOC) and Fonterra, aimed to reduce sediment loads and nutrients flowing into the Wairua River, and ultimately the very large Kaipara Moana (Harbour). Interventions were to improve both hydrological functioning and build ecosystem resilience in the catchment. The programme demonstrated its collaborative efforts through on the ground projects, particularly the Waimā Waitai Waiora partnership, that resulted in improved wetland protection and biodiversity enhancement with 400,000 plants added to the catchment and more than 130 farm plans developed to support land management changes on-farm over time.

This evaluation is intended for programme stakeholders and partner agencies and assesses the programme's impacts and development using a participatory and complexity-aware methodology. The report provides a comprehensive understanding of the programme and encourages reflection. It shares insights, challenges, and lessons learned over the years, with recommendations focusing on: ensuring farm plans are implemented and support wider catchment resilience; enhancing on-farm planning process effectiveness; continuing support for mana whenua aspirations and leadership, maintaining and building on progress; and expanding focus of work to other Pockets in the drainage district.

This evaluation uses a performance story approach, involving key partners in collaborative activities to assess the programme's outcomes and impacts. The report's layout is designed to facilitate understanding and reflection. 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 view of activities and outcomes. Chapter 4 focuses on three key areas of collaboration, exploring insights, challenges, and lessons learned. Finally, Chapter 5 provides a performance summary and strategic recommendations for future work in similar contexts.

Importantly, this evaluation (along with those of the other Living Water sites) is not meant to be the final word, but rather to serve as a background document for facilitated discussions, helping stakeholders move forward. The reports have been designed with this use in mind, using the findings and insights to foster continued progress and adaptation.

Visualising the programme

Chapter 1 introduces the Wairua River programme, explaining its background and the context that influenced its creation. It explains the Theory of Change (ToC) and the basic assumptions that have guided the programme's implementation and development in recent times. The programme's Theory of Change serves as a guide that shows the process and reasoning behind the expected impact of the programme, connecting activities and outputs to desired outcomes. In addition, this chapter explains the participatory evaluation method used, which actively involves important partners in collaborative activities and aligns with the ToC. The chapter introduces the performance story report approach to assess the programme's impact, compare actual achievements with expectations, and share the insights gained throughout the programme's journey.

Chapters 2 and 3 provide frameworks that enable the reader to look across the individual work streams and view the operation of the programme as a whole. This visualisation is based on the programme's underlying goals and its evolving Theory of Change (ToC). The most recent ToC (developed following a programme review in 2017) shows the logical progression from activities to expected impacts. It serves as a guide, connecting the programme's operational elements to its strategic objectives and the rationale behind the anticipated outcomes.

Chapter 2 provides a comprehensive overview of the Wairua River programme's operation, outlining the inputs, activities, and outputs. It describes the multi-layered governance of the programme, including strategic oversight, national programme management, and site-level delivery. The chapter highlights how the operating model of Living Water has evolved through three phases: establishment, strategy confirmation, and impact growth.

Important inputs include partnerships and relationships with multiple organisations, landowners, community groups, and particularly the Waimā Waitai Waiora collaboration. These inputs have provided vital knowledge, capability, and support. The activities and outputs are categorised into on-farm initiatives, a sub-catchment approach, tool trials, strategic partnerships, and efforts to monitor progress and tell the programme's stories. These include a range of projects, from farm environment plans and wetland protections to trials of practices like detention bunds and biocontrol of an invasive species. The chapter emphasises the importance of strategic partnerships with mana whenua, local councils, and community organisations in achieving the programme's goals. Finally, the chapter presents a quantitative summary of the programme's outputs and results, including funding investments, farm environment plans, trials, and environmental restoration efforts.

Chapter 3 focuses on the impact of the Wairua River programme, specifically the changes it has influenced in both social and ecological areas. It acknowledges that while biophysical environmental changes may take decades, the Wairua programme has achieved significant intermediate outcomes. These include increased awareness of the ecological significance of the Okarika Pocket, improved understanding of the functioning of the water network, active participation from mana whenua, and growth in relationships between diverse catchment stakeholders, extending linkages across catchments.

This chapter acknowledges organisational changes within councils, DOC and Fonterra, highlighting shifts in business practices and increased collaboration. It explores the impact of the relationships built, particularly through Waimā Waitai Waiora, and significant contributions to environmental improvements through on-farm efforts. The chapter emphasises the growth of skills, cultural understanding, and governance abilities among partner groups.

Finally, the chapter discusses the scaling up and expansion of programme elements, showing how the Living Water and Waimā Waitai Waiora partnerships have influenced broader environmental and social change beyond the Wairua catchment.

Insights, challenges, and lessons

Chapter 4 explores three different aspects of the programme to support a thoughtful understanding of its overall impact and processes. It focuses on identifying valuable insights, challenges, and lessons - elements that are often found, but not always addressed, in complex programmes. The benefits that are identified are the additional positive outcomes that result from a single programme activity, often spanning different areas of impact. Understanding these co-benefits demonstrates how integrating activities across various work areas has expanded impact.

Using a reflective approach, we examine the insights and lessons learned from this programme, considering challenges and surprises as opportunities for deeper learning, flexibility, and adjustment while recognising that challenges are often difficult to discuss. This chapter does not aim to provide a comprehensive overview, but rather to highlight specific aspects that reflect the programme's holistic and participatory approach. These insights, challenges, and lessons are based on a collective assessment that can provide guidance for future land and water management projects. The three key areas address the following aspects:

- **Working with mana whenua:** This section focuses on the partnerships with mana whenua, underscoring the importance of these in the programme. Engaging with mana whenua has deepened understanding and respect for indigenous knowledge systems and has strengthened relationships and trust. This collaboration has not only led to ecological benefits but has also provided cultural insights and strengthened community ties, contributing significantly to the programme's success. The challenges in this area emphasise the need for adequate funding and sustained engagement, and respecting the unique perspectives and histories of mana whenua.
- **Understanding Different Scales and Systems:** This part of the chapter reflects on the programme's ability to bridge different scales and systems, from individual farm activities to broader catchment management. It emphasises the importance of considering diverse perspectives and scales in environmental management. The benefits include the development of comprehensive and inclusive strategies that resonate at multiple levels of involvement. The insights gained highlight the need to link actions to broader systems and the challenges that come with it, emphasising the importance of using multi-scale approaches to achieve long-term ecological health.

- **Capacity and Capability:** This section discusses the growth in capacity and capability among the programme’s participants. It recognises the development of collaborative skills necessary for managing multi-stakeholder initiatives, often overlooked in mainstream organisations. This capacity building has led to more effective planning and implementation of environmental goals, with additional benefits including enhanced understanding and innovative approaches to catchment management. The challenges and lessons learned in this area emphasise the importance of valuing and nurturing the diverse skills required for successful collaborative environmental projects.

Progress assessment and recommendations

Chapter 5 summarises the progress, achievements, and recommendations of the Wairua River programme. It reflects on the impact of the programme and provides guidance for future actions. The programme has made significant advancements in environmental management, increasing the capacity and capability within the Wairua catchment. This includes better information about the ecological and hydrological functioning of the catchment, supporting hapū research and leadership, enhancing freshwater habitats through planting and restoration, and promoting sustainable agricultural practices through farm planning and on-farm trials and tool demonstrations. The programme has strengthened catchment connections, and supported collaboration among different groups. The journey has also highlighted challenges, such as the social and cultural processes inherent in ecological restoration processes, and the limited time and resources available, relative to the need and aspirations for catchment transformation.

The programme has achieved important intermediate outcomes that contribute to long-term environmental and social goals that have laid a strong foundation for ongoing environmental stewardship and community engagement.

Based on the assessment in this chapter, the recommendations emphasise the importance of focusing on a number of intermediate outcome areas to achieve long-term environmental and social goals. These areas are often overlooked or underfunded but are crucial for sustainable catchment management. The recommendations are as follows:

- **Ensure farm environment plans are implemented and support wider catchment resilience:** Industry sectors should support farm environment plan implementation, with a particular focus on improving water quality and wetlands, as well as wider catchment coverage to strengthen catchment resilience.
- **Enhance on-farm planning process effectiveness:** Invest time in developing practical farm environment plans, with more thorough landowner engagement to ensure input, understanding and buy-in to actions.
- **Continue support for mana whenua aspirations and leadership:** Maintain strong relationships with mana whenua, align work programme priorities, and build cultural competencies within agencies.

- **Maintain and build on progress:** Continue focus on the Northern Wairoa catchment and build on the relationships and initiatives developed through the Living Water and Waimā Waitai Wairoa programmes.
- **Expand focus from Okarika pocket to other drainage districts:** Work with the district council to address the Hikurangi drainage district farm issues, involving Fonterra and its Kauri dairy factory and wetlands. Scale successful interventions and lessons learned to other parts of the catchment and similar contexts.

These recommendations, based on insights, challenges, and practical experiences from the Wairua programme, aim to advance inclusive, adaptive, and sustainable catchment management practices. They, along with other evaluation reflections from the Living Water sites, provide guidance for future planning. The recommendations are presented as prompts for facilitated discussions, ensuring that the evaluation continues to be a dynamic resource that informs ongoing and future collaborative initiatives.



The Otakairangi Wetland is one of two remnant wetland fragments in the Okarika Pocket, providing habitat for threatened plants and animals.

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Abbreviations

CAME - Complexity-Aware Monitoring and Evaluation

CCS - Catchment Condition Survey

DIA - Department of Internal Affairs

DOC - Department of Conservation

FEP - Farm Environment Plan

FFP - Freshwater Farm Plan

FIF - Freshwater Improvement Fund

IKHMG - Integrated Kaipara Harbour Management Group

KMR - Kaipara Moana Remediation programme

MEA - Mana Enhancing Agreement

MfE - Ministry for the Environment

NKONWM - Ngā Kaitiaki O Ngā Wai Māori (hapū collective)

NRC - Northland Regional Council

PCE - Parliamentary Commissioner for the Environment

PME - Planning, Monitoring and Evaluation

PSR - Performance Story Report

QEII - Queen Elizabeth II National Trust

SPRINT - Strategic Planning Review, and Integration New Tools

ToC - Theory of Change

WDC - Whangārei District 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 Wairua River programme work. 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 Wairua River 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 was designed and implemented using a participatory model. In addition to forming evaluation teams composed of 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 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. 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 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 Living Water programme, providing a holistic understanding of its outcomes and the broader context in which it operates. The evaluation approach aims to:

- Complete the monitoring and reporting of Living Water 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 the Wairua River programme 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 Wairua River catchment contexts, 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 Wairua River 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 a 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 providing 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

The Wairua River catchment, covering 75,000 hectares, includes the 13,000-hectare Hikurangi repo (swamp/floodplain). This was a vast wetland before it was largely drained and developed for agriculture (including dairying), forestry, horticulture, and lifestyle blocks. The floodplain features two large wetland remnants (Otakairangi and Wairua), as well as dozens of small, isolated and fragmented wetland and riparian forest remnants.

The area's land use is supported by a drainage scheme and flood pumps, including the 5,300 hectare Okarika 'pocket', a term used by landowners for a sub-catchment within the drainage scheme. This drainage scheme significantly affects hapū values, water quality and biodiversity. The repo was traditionally used by mana whenua as a pātaka kai (a place for gathering kai) with tuna, kākahi (freshwater mussels) and kēwai (freshwater crayfish) harvested from the heavily forested catchment. Freshwater species are particularly impacted by the impacts of drainage as well as the flood pumps themselves, including tuna (eels), that are chopped up in the turbines. During floods, sediment, nutrients, and faecal contaminants are pumped into the Wairua River, affecting downstream environments, including the Kaipara Moana (Harbour). Kaipara Moana is a prized Ngāti Whatua 'food basket' and is an extremely important nursery for juvenile fish, particularly snapper, grey mullet, and flounder, and mako and great white sharks.

Tensions have long existed within this large catchment, which flows south-west from the North Island's east coast to Kaipara Moana on the west coast. Some upstream catchment landowners don't see themselves as part of the Kaipara, having more linkages to the east coast, while downstream farmers (to the west) dislike the impact of upstream runoff when the flood pumps are turned on. Tensions with council include the cost and rating associated with the flood scheme as well as the impact on tuna. The Wairua River floodplain has some of the most intensive dairying in Northland with Fonterra dairy farms making up 36% of the catchment (only possible because of the flood scheme), it also produces a significant portion of Northland's dairy income and industry employment.

In 2005 the Integrated Kaipara Harbour Management Group (IKHMG) was established by Ngāti Whatua and led by Te Uri o Hau Settlement Trust. It had been working for years bringing together the six government departments and councils with regulatory powers and responsibilities for the Moana together with hapū, landowners and other stakeholders to address the ongoing decline of the mauri of the Harbour. IKHMG was later subsumed into the Kaipara Moana Remediation Programme, a co-governed partnership between Kaipara Uri, the Crown (MfE) and Northland Regional Council and Auckland Council, to protect, restore and enhance the mauri of Kaipara Moana.

1.2.3 Programme development

The Wairua River programme, reflecting Living Water's three-phase process across all catchments, began by establishing foundational relationships, conducting research and collecting baseline data. It also provided initial trials and restoration support by sponsoring community efforts. Following a strategic reset, the goals for the Hikurangi floodplain were continued through involvement in a broader collaborative partnership (known as Waimā Waitai Waiora). At the same time, Living Water focussed on the Okarika 'pocket' within the Hikurangi drainage scheme, completing farm environment plans, tools and ongoing trials. Relationships, particularly with mana whenua, continued to build through both the Living Water and Waimā Waitai Waiora collaborations.

Getting started

The Living Water programme was launched in Northland in 2013 with the aim of improving water quality, increasing biodiversity, and supporting the strategic action plan of the Integrated Kaipara Harbour Management Group (IKHMG).

The programme began work in the north-eastern Kaipara Moana (Harbour) sub-catchment of Hikurangi, an intensive dairy farming area covering 75,000 hectares, with the intention of expanding work to the central and southern sub-catchments over time. A key objective was to connect fragmented wetlands to improve ecosystem health within and around the floodplain which included two nationally significant wetlands managed by the Department of Conservation (DOC) - Otakairangi Swamp and Wairua River reserves.

The early efforts of the programme focused on understanding the characteristics of the catchment and identifying challenges, particularly in relation to sediment and nutrients. This involved direct collaboration with catchment farmers. A Landowner Reference Group was formed to help develop the programme's first business plan which focussed on early, tangible results. Modelling information was used to determine the locations for riparian fencing, soil conservation planting and detention bunds in order to reduce in-river sediment loads. Two projects that aimed to directly engage farmers were also completed. The first was an ecosystem services assessment, designed to help landowners understand the wider benefits (including economic) that wetlands can provide to a farming business. The second project involved on-farm biodiversity assessments as part of a national Living Water pilot. The aim of this pilot was to see if providing relevant information about specific biodiversity on-farm, would encourage landowners to protect and enhance it..

It was recognised that building relationships and increasing the programme's visibility in the catchment area were important. As a result, community projects were sponsored across the wider Kaipara Harbour catchment, including a kiwi transfer and release, an alternative water supply project, and an extension of a community nursery. Trials, demonstrations, research projects and school projects were undertaken in collaboration with partners including council, hapū and community groups. These included supporting a tuna transfer, a project focused on monitoring and an education project led by the hapū collective NKONWM, two oxbow restoration projects with WDC, Fish & Game Northland and Ngāti Hau, and a wetland construction workshop for farmers with Fish & Game Northland.

Strategic refresh and Waimā Waitai Waiora partnership

In 2016, the Living Water programme reviewed and revised its national strategy. The focus shifted from environmental restoration to a more systems-focused learning and proof of concept programme with an emphasis on partnerships, trialling tools and scaling up solutions. A strategic planning process (Google Sprint Planning) undertaken for the Wairua site (and all other Living Water sites), involved a wide range of stakeholders, including iwi representatives, councils, landowners and community groups. For the Wairua, the strategic reset sharpened the focus (effort, influence and funding) to an area where more impact could be achieved in the timeframes that the partnership allowed - the intensive dairying area in the Hikurangi catchment, known as the Okarika 'Pocket', including an area of remnant wetland (Otakairangi). This focus was also of particular interest to the local hapū. Living Water wanted to understand mana whenua aspirations for the whole area (Hikurangi repo), bringing people together to hear their aspirations (conceptual models, logic models) and support mana whenua aspirations' influence on management decisions.

As part of the strategic reset, Living Water also supported the development of a successful Freshwater Improvement Fund (FIF) application by partners focussed on reducing sediment flowing into the Kaipara Moana from the Northern Wairoa catchment, that includes the Wairua River and Hikurangi floodplain. A 'Mana Enhancing Agreement' was signed between Ngā Kaitiaki O Ngā Wai Māori, Te Roroa, Te Uri o Hau, Northland Regional Council, Integrated Kaipara Harbour Management Group, Reconnecting Northland, Sustainable Business Network and Living Water partnership. This new partnership formed in 2017, became known as Waimā Waitai Waiora and provided a way for Living Water to contribute to the goals (and learn lessons) for the larger catchment - assisting landowners to implement sustainable land management practices - while also focussing on completing farm environment plans and trials already underway within Okarika pocket. The Waimā Waitai Waiora also supported a significant foundational iwi/hapū-driven research project, Te Kawa Waiora, to identify mana whenua values and priorities to inform planning (such as farm plans). For Living Water, Waimā Waitai Waiora brought closer working relationships with the NRC land management staff while relationships with NKONWM continued to strengthen and expand through joint work such as water quality monitoring, farm planning and restoration work.

Transitioning projects and relationships

By 2022, the on-farm support activities in the Okarika Pocket were nearing completion. The focus then shifted to documenting case studies on the tools and trials that were conducted, for sharing both internally and externally. Every month, members of Ngā Kaitiaki O Ngā Wai Māori joined with Living Water to sample water quality in the Okarika Pocket. They also took part in electric fishing training, with a view to NKONWM members continuing to monitor water quality after Living Water's involvement ended, and to extend the work further across the catchment.

Relationships were also transitioned into ‘business as usual’ roles within the respective organisations. For example, an environmental partnerships staff member from Fonterra became the Living Water representative on the Waimā Waitai Waiora governance group, engaging more regularly with Fonterra’s regional leadership. The Department of Conservation (DOC) also remained actively involved in the Waimā Waitai Waiora partnership and sought ways to incorporate the work and lessons from Living Water into their business planning and strategies, particularly for threatened species and habitats (particularly wetlands and bittern).

In 2023, Living Water’s 10-year programme came to an end, closely following the completion of the Waimā Waitai Waiora five-year FIF funding in December 2022. Meanwhile, the Kaipara Moana Remediation (KMR) programme, a co-governed partnership between the Crown, Kaipara Uri, and regional councils to ‘restore the health and mauri of Kaipara Moana’, was building its on-the-ground delivery capacity. Fonterra played a crucial role as an early delivery partner for the KMR, facilitating funding and support for on-farm fencing and planting during its initial phase. Many of the relationships, capabilities, and approaches developed through the Living Water and Waimā Waitai Waiora partnerships have now been integrated into KMR delivery efforts.



Living Water forged a strong working relationship with hapu collective Ngā Kaitiaki O Ngā Wai Māori in support of their aspirations for the Hikurangi Repo.

1.3 Programme milestones

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

2014	2015	2016	2017	2018
<p>IKHMG Symposium support</p> <p>Provided a forum to discuss future LW projects and opportunities to collaborate with diverse Kaipara stakeholders including farmers, scientists, government, industry, NGOs, iwi and hapū.</p> <p>Fonterra's Jordan Valley Farm biodiversity assessment</p> <p>This demonstrated Fonterra's intention to 'lead by example'. Much later it was also the site of the first attempt to bring mātauranga Māori into a FEP.</p>	<p>Report on Opportunities for Restoration in the Hikurangi Floodplain completed</p> <p>Begins the process of Living Water understanding and documenting the threats to the wetland and informs restoration planning, including a focus on the Otakairangi Wetland.</p>	<p>Oxbow lakes restoration demonstration</p> <p>Built relationships by aligning priorities and joint actions with mana whenua and key stakeholders. This work began in partnership with WDC, Ngā Kaitiaki O Ngā Wai Māori (Ngāti Hau) & Northland F&G.</p>	<p>Sprint planning exercise</p> <p>Consolidated focus within Okarika 'Pocket' while continuing larger Hikurangi catchment aspirations through a new partnership.</p> <p>Waimā Waitai Waiora restoration partnership project begins</p> <p>MfE FIF funding secured for a five year \$2.4 million project with partners, to reduce sediment reaching Kaipara Moana.</p>	<p>Okarika Pocket Catchment Condition Survey undertaken and repeated in 2023</p> <p>Collected spatial information as a baseline and to use for reflecting on progress over time while building linkages with landowners and catchment partners in the process</p>
2020	2020	2021	2023	2023
<p>WWW project funds a Hapū Co-ordinator role based in NRC</p> <p>The WWW funded mana whenua role helped facilitate relationships, work programmes and insights across the partnership. The value of the role was recognised by the NRC who made the role permanent within the council.</p>	<p>Te Kawa Waiora hapū-driven research project initiated through WWW</p> <p>This project provided an opportunity for hapū to wānanga and reflect on the values of their awa and to share that understanding with others. For Living Water it demonstrated the importance of understanding the context for all work, shared in a meaningful and positive way.</p>	<p>NKONWM contracted to undertake water quality monitoring and assessments in Okarika Pocket</p> <p>This enabled a fuller understanding of the impact of activities in the catchment and helped NKONWM formalise their 'track record' of contract delivery that helped secure other contracts for work across the Wairua catchment, including \$1 million from Te Mana o Te Wai</p>	<p>Hikurangi Catchment case study for PCE research</p> <p>WWW members involved in this project that investigated how to achieve policy settings for land use change at a catchment scale for New Zealand.</p>	<p>Feasibility study for land retirement/ alternative land management approaches within the Hikurangi swamp scheme</p> <p>WDC and NKONWM led-project, building on the years of mahi within the Hikurangi repo, to investigate the retirement of land within the swamp scheme to achieve better ecological, social and cultural outcomes.</p>

Table 1: The Wairua River 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.



Living Water supported farmers to protect native bush areas on their farm through QEII covenants.

1.4.1 Logic model

Following the strategic realignment in 2017, the programme team identified key strategic activity areas for the Wairua River site. These were envisioned to guide the programme towards success, as depicted in the accompanying 2018 logic model (Table 2). They emphasised activities and outcomes to help restore unique peat lake systems.

Activities	Outputs	Medium term outcomes (by 2023)	Longer term outcomes
On-farm: Baseline reports, assessing biodiversity, QEII covenants, riparian projects, free plants	Farm Environment Plans (FEP), Biodiversity Assessments QEII covenants, fencing, riparian and wetland planting	All Fonterra farmers in the Okarika Pocket understand what difference their management activities have on freshwater	Healthy resilient lowland freshwater ecosystems Profitable responsible dairying
Sub-catchment approach: Working with landowners to take action towards agreed freshwater outcomes	Beetle bio-control trial Silt detention bunds trial	The hydrological and ecological functioning of the Okarika pocket water network has improved	A shared understanding of the interdependence of agriculture, economic & environment by the broader community
Tool trials: Trialling detention dams, water quality & aquatic biodiversity monitoring	Wairoa Freshwater Improvement Fund, Mana Enhancing Agreement Sharing learnings through website, social media, professional forums, community events	Sediment reduction tools have been trialled in the Okarika pocket to demonstrate if a measurable reduction in sediment can be achieved	
Strategic partnerships: Working with mana whenua, operational agencies & others		Mana whenua are actively involved in Living Water projects and mātauranga Māori is integrated into our work	
Monitoring our progress, Telling our story and Championing change		Living Water tool and solutions have been scaled up to other Northland catchments	

Table 2: The Wairua River logic model (2018)

The Wairua River logic model reflects the programme’s midpoint and a further change in the site’s plan of expanding out from Hikurangi into other Kaipara Moana catchments. Instead, the strategy remained on the dairy-intensive Hikurangi catchment, and particularly the Okarika Pocket, while seeking to continue efforts in the wider catchment through the collaborative project funded by partners and matched through MfE’s Freshwater Improvement Fund.

The medium term ‘building block’ outcomes reflect the proof of concept approach from the National Living Water Strategy, with an increased understanding of the impact of activities, and practical sediment reduction tools, as well as the uptake of tools and approaches by farmers and land managers.

1.4.2 Underpinning assumptions and guiding principles

The assumptions and principles outlined here are from the Living Water National Planning, Monitoring & Evaluation Framework, which served as a reference for the programme's strategic approach.

Causal assumptions included recognising the importance of:

- **Partnerships:** 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 aligned 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 underpin the programme's approach to achieving its long-term goals and reflect a commitment to a holistic and inclusive strategy for catchment management.



The Wairua River catchment has some of the most intensive dairying in Northland, made possible through a highly managed drainage scheme.

2. Inputs, activities and outputs

In this chapter the foundational elements of the Wairua River programme are examined, focusing 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

In the last five years of the Wairua River programme, project governance and management also meant working within the Waimā Waitai Waiora partnership. This included representation at the partnership’s governance level, as well as planning and integrating operational delivery with Waimā Waitai Waiora partners.

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 Living Water Wairua River programme has benefited from a wide range of partnerships and collaborations, most significantly with Waimā Waitai Waiora and Ngā Kaitiaki O Ngā Wai Māori. Collectively, these relationships have facilitated access to valuable knowledge and expertise.

Many people within the catchment community and beyond have shared their knowledge, skills and experience with the Living Water programme. These contributions are not always visible or fully recognised in planning or reporting processes, and are difficult to capture or quantify. Support included in-kind contributions through knowledge, funding, and voluntary time from a range of difference organisations and individuals including:

- **Mana whenua:** particularly Ngā Kaitiaki O Ngā Wai Māori (hapū collective of Ngāti Hau, Ngāti Hine, Te Kahu o Torongare, Te Uriroroi, and Te Parawhau), Te Uri o Hau, and Te Roroa.
- **Catchment farmers and landowners**
- **Networks:** Integrated Kaipara Harbour Management Group, Sustainable Business Network
- **Waimā Waitai Waiora partnership:** Northland Regional Council, Ngā Kaitiaki O Ngā Wai Māori, Te Roroa, Te Uri o Hau, Integrated Kaipara Harbour Management Group, Reconnecting Northland, Sustainable Business Network (Million Metres Streams) and Manaaki Whenua (Landcare Research).
- **Business and industry bodies:** Fonterra, Dairy NZ
- **Community not for profits:** Mountains to Sea Trust (Whitebait Connection), Fish & Game Northland, Conservation Volunteers NZ, Queen Elizabeth II National Trust, and Reconnecting Northland.
- **Councils:** Northland Regional Council, Whangārei District Council
- **Central government:** DOC, MfE (funding through FIF)

A variety of consultants and researchers also contributed to the programme.

Inputs - direct funding

The funding outlined below includes both Living Water funding, and funding provided for the Waimā Waitai Waiora project in the Northern Wairoa Catchment. Significant Freshwater Improvement Funding through MfE was made possible by the scale of direct funding provided by the Waimā Waitai Waiora project partners.

- Living Water funding: \$2.6 million over ten years
- Waimā Waitai Waiora: 5 year total project cost \$2.4 million. Partners' contributions were matched by MfE FIF.

2.2 Activities and outputs

This section explores the activities and the immediate results of the Wairua River programme. Understanding how actions lead to outputs is essential for assessing the effectiveness of the programme. The Wairua River programme activities are organised based on the elements identified in the site's 2018 logic model (see section 1.4). It is important to note that these activities are interconnected, rather than separate. Initially, the focus was on gaining a better understanding of the catchment, creating a profile through community projects, and working with key stakeholders on restoration demonstration sites.

Over time, as understanding of the catchment improved, the programme shifted its focus to the 17 dairy farms in the Okarika Pocket. However, work on-farm beyond this area continued through the Waimā Waitai Waiora partnership.

2.2.1 On-farm

Baseline reports and assessments: Living Water hired consultants to conduct studies (see Appendix I) to understand how the environment functioned and could be affected by restoration efforts. They also enlisted experts to identify biodiversity values, threats, and restoration options. This information guided Living Water's work in the catchment and future plans. Additional studies were undertaken as the scope of the work evolved.

In Wairua, notable studies included the Otakairangi swamp baseline information project, initiated in 2014. This project aimed to improve hydrology and the water regime in collaboration with WDC. It mapped the swamp, identified threats and restoration opportunities, and assessed its hydrological functioning.

The first Farm Environment Plan with a comprehensive biodiversity assessment was completed on Fonterra's Jordan Valley Farm, which was also linked to the Integrated Kaipara Harbour Management Group's 'flagship farm' programme. Ecologists and a Sustainable Dairying Advisor, conducted similar assessments on nine other farms in the Hikurangi catchment.

QEI covenant protection: Landowners were involved in formal protections through QEI covenant agreements for 15.5 hectares of forest remnants on their land. This included fencing areas to protect them from stock, weed and pest control.

Farm environment plans: The principle of integrating mātauranga Māori alongside western science into farm planning processes was a concept Living Water was keen to explore. Initially tested on Jordan Valley Farm by NKONWM, an SDA and the DOC site lead, it was clear that more work was needed to advance this. This joint Jordan Valley Farm visit helped inform Living Water's view of the value of the hapū-driven Te Kawa Waiora research, as a necessary step towards progressing this concept.

By the end of the Wairua programme, all 17 farms in the Okarika Pocket had completed a farm environment plan. An additional 137 plans were developed in the wider catchment through the Waimā Waitai Waiora partnership, including plans developed by NRC as well as Fonterra.

2.2.2 Sub-catchment approach

Community support: Initially, a fund was created to aid local organisations working in the catchment and on-farm. Projects included Conservation Volunteers work on IKHMG ‘flagship farms’ and in the Hikurangi catchment, supporting riparian planting initiatives. The Whitebait Connection freshwater ecology education programme received support for four local schools and included on-farm streamside field trips and workshops delivered in collaboration with NKONWM.

Fencing wetland and riparian margins: In the Okarika Pocket, more than 15 kilometres of fences around wetland and riparian areas were constructed. Similarly in the larger Wairua catchment, the Waimā Waitai Waiora partnership supported stock exclusion fencing along waterways, resulting in almost 60 kilometres erected over a five year period.

Planting: Through Living Water and the Waimā Waitai Waiora partnership, significant on-farm planting efforts focussed on wetland and riparian areas, and erosion-prone areas. Approximately 100,000 plants were planted within the Okarika Pocket, with an additional 390,000 planted in the wider Wairua catchment through Waimā Waitai Waiora, with a focus on Māori land.

2.2.3 Tool trials and demonstrations

Between 2013 and 2018, seven tool trials and demonstrations took place in the Wairua catchment, mostly in partnership with other catchment stakeholders. These included biocontrol of an invasive weed, wetland creation, oxbow restoration, riparian planting for flood prone areas, ecosystem services, biodiversity assessments and detention bunds.

Demonstrations: A restoration demonstration of an oxbow on the Hikurangi floodplain was developed with Whāngarei District Council, Ngā Kaitiaki O Ngā Wai Māori, Ngāti Hau and Northland Fish & Game. The 7.4 hectare restoration plans for the Wairua oxbows included retiring land from grazing, ecological surveys to establish baselines, creating ephemeral wetlands to connect the two oxbows and replanting.

‘Good-practice’ sites were established for riparian planting in flood prone areas on the Mangawhero and Mangahahuru streams. The swamp drainage scheme advisory group supported the trial, designed to encourage landowners to undertake similar projects on their own properties. A collaboration with Northland Regional Council and Fish & Game hosted a workshop and demonstration of ‘How to build a low-cost wetland’.

Pest plant control trial: Living Water partnered with NRC and Landcare Research on a 3 year trial to test the effectiveness of three species of Brazilian beetles as a biocontrol agent for *Tradescantia* (wandering willie), an invasive weed that smothers native seedlings and, prevents bush regeneration. Stock grazing is often used to control the weed and particularly on land around wetlands and waterways, this can contribute to nutrient and sediment entering waterways. Results showed the beetles were effective.

Ecosystem services trial: An ecosystem services approach to water quality improvement was commissioned for the Hikurangi catchment. Modelling identified management interventions, such as fencing of streams, prioritised soil conservation planting and detention bunds that could reduce in-river sediment, bacteria and reduce peak flood flows. Valuing ecosystems proved challenging, particularly for wetlands.

Detention bund trials: Two detention bund structures were trialled on farms to slow the movement of stormwater during heavy rainfall and capture sediment and nutrients. Monitoring showed that one of the two bunds effectively slowed about 70% of excess rainfall, removing about 95% of the suspended sediment, 45% total nitrogen and 80% phosphorus. The second bund was less effective, highlighting the importance of site selection and appropriate contributing catchment size.

2.2.4 Strategic partnerships

As well as working directly with Fonterra farmers from the beginning of the project, Living Water also established early connections with existing organisations and networks with a strong presence in the catchment. This was achieved through projects and processes, including sponsorships and joint project work. Building these relationships was crucial to achieving outcomes. Strategic partnerships included:

Integrated Kaipara Harbour Management Group (IKHMG): IKHMG was established by Te Uri o Hau and brought together hapū, councils, landowners, businesses, scientists and NGOs with interests in the Kaipara catchment. They held regular planning, expertise and information sharing forums. IKHMG actively participated in discussions about future projects and opportunities from the initial stages of Living Water. Living Water also supported the network's initiatives such as the 'flagship farms' (with CVNZ volunteer time), and a symposium, as well as regularly attending network meetings. IKHMG also served as a partner in the Waimā Waitai Waiora partnership and chaired the governance group. IKHMG has since been subsumed by the Kaipara Moana Remediation programme.

Mountains to Sea Conservation Trust: From 2015 to 2018, Living Water supported the delivery of the Whitebait Connection programme in four schools within the catchment, twice a year. The Trust's collaboration with Ngā Kaitiaki O Ngā Wai Māori also enabled delivery of cultural health education within the schools programme. Stakeholder engagement workshops were also conducted.

Ngā Kaitiaki O Ngā Wai Māori (NKONWM): Living Water's early relationship with the hapū collective included sponsorship of a tuna (eel) research project with NIWA (including elver transfer), tuna tagging and education in schools as well as other freshwater education in schools through the Whitebait Connection programme. By 2019 NKONWM and Living Water staff began collaborating on joint water quality monitoring trips. Eventually, NKONWM took over delivery of water quality monitoring for six sites in the Okarika Pocket. This expanded to include fish surveys, eDNA sampling and cultural assessments in 2021.

Waimā Waitai Waiora: This partnership was the most significant strategic partnership formed during the Wairua River programme. It was formalised through a Mana Enhancing Agreement signed in 2017 by nine partners - Northland Regional Council, Ngā Kaitiaki O Ngā Wai Māori, Living Water Partnership, Reconnecting Northland, Integrated Kaipara Harbour Management Group, Manaaki Whenua (Landcare Research), Sustainable Business Network (Million Metres Streams), Te Roroa and Te Uri o Hau.

Together they committed to a five-year project aimed at reducing sediment and bacteria levels in the northern Wairoa River and its tributaries. This included the Hikurangi swamp (floodplain) and Wairua River. The project involved working with landowners and other stakeholders 'to implement sustainable land management practices informed by mātauranga Māori'. The joint project had a budget of \$2,500,000 which consisted of partner funding matched by a grant from MfE's Freshwater Improvement Fund.

As part of the project, landowners received land management advice, through Fonterra Sustainable Dairying Advisors or NRC Land Management Advisors, resulting in a total of 137 FEPs/FFPs completed over the course of five years. Subsidies were provided to support implementation of actions identified in the plans. Activities included the fencing of riparian and wetland areas. In total, almost 60 kilometres of fencing was completed, 395,450 plants were planted in riparian areas and 'poplar poles' were planted on erosion-prone land.

A Hapū Co-ordinator role was created and funded by the Waimā Waitai Waiora partnership to provide a more direct way for mana whenua to engage with Waimā Waitai Waiora (rather than through NKONWM) and NRC, who also 'hosted' the role in-house. This fixed-term role was made permanent by NRC, who now fully funds the role.

Integrating mātauranga Māori into farm planning processes was strongly supported by Living Water, as well as through the Waimā Waitai Waiora partners. It was agreed that this 'integration' should be led or informed by local hapū and iwi, rather than government agencies. The Te Kawa Waiora research project was developed by hapū with tangata whenua researchers to explore and identify issues of importance to them related to the wellbeing and mauri of the Wairoa River, to inform ecological management. The research process highlighted that mana whenua identifying their own aspirations, goals and objectives was a prerequisite for them contributing to the likes of farm environment plans seeking to support and align restoration plans and actions.

2.2.5 Monitoring and evaluation

Living Water developed a monitoring and evaluation plan for the Wairua River programme based on the National Framework. The plan covered environmental, economic, social, and organisational progress and outcomes. Monitoring included:

Water quality monitoring: From 2016-18, water quality at six pump stations in the Hikurangi repo was monitored. After the strategic reset in 2018, focus was concentrated on the Okarika Pocket, consequently the monitoring locations were moved there. NKONWM members worked with Living Water DOC staff conducting monthly water quality monitoring, and twice yearly fish surveys. Starting in 2021, this monitoring was handed over (contracted) to NKONWM, who now undertake cultural monitoring alongside the 'western science'-based methodologies.

Catchment condition survey: The first catchment condition survey was undertaken in the Okarika Pocket in 2018 by contractors, volunteers from NKONWM, and NRC. This survey provided a snapshot of the catchment condition based on assessments of physical features and engaged landowners in the process. It included assessments of stock access and vegetation along streams, soil erosion, instream structures, and significant natural areas. Landowners were engaged through the survey process and discussions included their insights and knowledge of issues and possible actions. This helped identify priority water quality and ecological issues in the Hikurangi catchment. The survey was repeated in 2023 to understand the effects of planned interventions, such as fencing and riparian planting, as well as unplanned impacts, including flooding from Cyclone Gabrielle and other weather events.

Tool trials and demonstrations: Results and case studies were published on the Living Water website - see Appendix I for links to individual trials.

2.2.6 Telling our story and championing change

The Waiura River programme promoted change, tracked progress, and shared its story through a variety of media. Living Water staff used different methods to drive change and share the programme's narrative. Media engagement was important, with staff actively sharing milestones on platforms like LinkedIn, Twitter (now X), local and national media and the programme's website. The Living Water website contains in-depth case studies and updates (see Appendix I for links). These records offer a comprehensive view of the various activities and projects and their associated contexts. They also delve into specifics like project costs, lessons learnt, and the communities involved.

Digital outreach and hands-on experiences showcased the programme and its activities. Regular updates were provided through IKHMG network meetings which included local hapū, landowners, business and industry agencies, NGOs as well as local, regional and central government. Field trips involving the farming, agencies and science communities, Fonterra and DOC staff and local catchment communities allowed participants to see the programme's initiatives and lessons firsthand.

Throughout the partnership, progress on projects and lessons from the five Living Water sites were shared with central and local government and key organisations, such as the NZ Landcare Trust, Parliamentary Commissioner for the Environment, and the Kaipara Moana Remediation programme, who continue to support better outcomes for farming, freshwater and biodiversity. These initiatives also included collaborations with academic institutions, sponsorship and participation in conferences and symposiums demonstrating wider community engagement efforts.



Ngā Kaitiaki O Ngā Wai Māori have been involved in monitoring water quality in the Okarika Pocket, an important part of telling the story of environmental change.

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).

9

projects

5

trials

100k

natives planted in the
Okarika Pocket

100%

of Fonterra farms in the
Okarika Pocket have a
Farm Environment Plan

137

farm environment plans
completed as part of
Waimā Waitai Waiora

395k

natives planted through
Waimā Waitai Waiora and
Living Water

15.5ha

of forest remnants
formally protected
through QEII covenants

15km

of waterway fencing in
the Okarika Pocket

11km

of riparian planting in the
Okarika Pocket

60km

of waterway fencing
through Waimā Waitai
Waiora

\$2.6m

Living Water investment
over 10 years

\$2.5m

combined funding for
Waimā Waitai Waiora

3. Outcomes - results and themes

This chapter highlights the impact of the Wairua River programme, including through the Waimā Waitai Waiora partnership, looking at who and what has changed (outcomes) that Living Water contributed to. The 2018 logic model (refer section 1.4) identified a number of 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 (outcomes). 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 Wairua River, the intermediate outcomes emphasise the importance of on-farm actions and sediment reduction trials (particularly in the Okarika Pocket) and wider partnerships contributing to the health of the Wairua and Waiora rivers and ultimately the Kaipara Moana.

This chapter explores the contributions of Living Water to the outcomes at the Wairua River site, presented through two ways:

- Results table: offers a quick snapshot of progress based on the site's 2018 logic model (see section 1.4.1); and
- Outcomes by theme: 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 Wairua River programme include organisational changes, relational changes, ecological changes and valuing the environment, capability/capacity changes, financial investment and impact and scaling up and out.

It is important to note that the organisational changes and outcomes for the two Living Water partner organisations (see 3.2.1 below) are the result of collective efforts across all five catchments involved in the programme. Each catchment, including the Wairua River programme, contributed to these overarching changes, underscoring the collaborative impact of the five Living Water catchment initiatives.

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>All Fonterra farmers in the Okarika Pocket are:</p> <p>Implementing actions in their FEPs and are participating in trials for freshwater management on-farm</p>	<p>All 17 Okarika Pocket Fonterra farmers have an FEP and more than 40% have implemented freshwater improvement actions beyond regulation identified in the plans.</p> <p>Common actions included fencing and planting of waterways and wetlands, a focus on effluent management, and 'edge of field' interventions such as wetlands, sediment traps and detention bunds.</p>
<p>Working towards an agreed freshwater outcome</p> <p>Understand what difference their management activities have on freshwater</p>	<p>More than 15 kms of fencing around wetlands and riparian areas has been installed and over 100,000 additional plants have been planted in riparian and erosion prone areas.</p> <p>Insights from Living Water staff and landowner interviews show:</p> <ul style="list-style-type: none"> • Attitudes towards environmental enhancement have shifted positively over time, including ideas around the value of the (previously) 'rubbishy swamp', with environmental actions becoming commonplace, particularly in local clusters, with visible improvements in water quality. • Landowners saw aesthetic enhancements and increased biodiversity as benefits of the actions (along with improved farm management).
<p>Sediment reduction tools are being trialled and effectiveness monitoring is ongoing</p> <p>Tools demonstrate if a measurable reduction in sediment can be achieved</p>	<p>The two detention bunds installed to test the capture of sediment and nutrients during heavy rainfall provided insights into the importance of site selection and appropriate catchment sizing. The trial confirmed that detention bunds should be considered as a catchment-wide tool for managing water flows during heavy rainfall and for reducing sedimentation. They would work best with multiple bunds placed to treat small contributing catchments rather than in major waterways</p>
<p>The hydrological and ecological functioning of the Okarika Pocket water network has improved</p>	<p>The Otakairangi baseline research project significantly contributed to understanding the eco-hydrological functioning of wetlands in the Okarika Pocket and the impacts of both current and historic drainage on the swamp.</p> <p>Based on the research, including insights from local dairy farmers, practical ways of improving the wetland were identified, with applicability across the wider Hikurangi catchment.</p> <p>The Ecosystem Services Assessment included hydrological modelling. This helped identify detention bunds as a possible important catchment-scale intervention</p>

Short and medium-term outcomes

Contributions to outcomes

Living Water staff are using their partnership experience and successfully contributing to the Wairoa FIF programme and governance

Living Water staff were instrumental in developing and supporting the successful application to the MfE's FIF fund for the five year Northern Wairoa Project with partners (Waimā Waitai Waiora). It contributed to governance and programme implementation in the following ways:

- Contributed to development of Mana Enhancing Agreement for the Waimā Waitai Waiora partnership.
- The principle of integrating mātauranga Māori into Living Water work ensured that work plans aligned with mana whenua aspirations.
- Previous experience working with IKHMG and NKONWM aided early progress on the shared Waimā Waitai Waiora work programme.
- Expertise in developing FEPs and aspirations to integrate mātauranga Māori into them helped support the hapū-driven Te Kawa Waiora research project, highly valued by mana whenua, partners, and wider agencies.
- Technical expertise in monitoring helped the programme meet FIF project accountability requirements.
- Conducted a participatory partnership evaluation session to provide a framing for thinking about what the next steps would be.

Mana whenua are actively involved in Living Water projects and mātauranga Māori is integrated into our work

Living Water built deep relationships with mana whenua through work in the Okarika Pocket and wider Kaipara Moana catchment. Examples include:

- Okarika Pocket water quality monitoring knowledge exchange with NKONWM resulted in cultural health monitoring being added to the monitoring regime and the monitoring programme being contracted to NKONWM for delivery.
- Collaboration on the oxbow 'lake' restoration demonstration (Ngāti Hau, WDC and neighbouring farmer).
- Joint on-farm visits as part of the Farm Environment Plan development process, including the initial trial of on-farm biodiversity assessments on Fonterra's Jordan Valley Farm and later testing of how to integrate mātauranga Māori into FEPs.
- These relationships developed further through the Waimā Waitai Waiora partnership whose joint purpose was to "reduce sediment and bacteria levels in the Wairoa River and its tributaries by working with landowners to implement sustainable land management practices informed by mātauranga Māori."
- To better enable the integration of mātauranga Māori into planning processes, Living Water strongly supported a research initiative through the Waimā Waitai Waiora partnership. Te Kawa Wairoa research included research training for kaitiaki to support kaitiaki to develop their own kawa to support the health of the river and its people.
- The partnership experience reinforced that mana whenua needed time and resourcing to go through their own processes, such as identifying their own aspirations and approaches to 'ecological' management of particular areas, before these can be implemented in plans.

Short and medium-term outcomes	Contributions to outcomes
Living Water tools and solutions have been scaled up to other Northland catchments	<p>Relationships and trust built through Living Water meant that Fonterra was in a strong position to partner when KMR was looking to develop FEPs and accelerate delivery for fencing and planting. Fonterra was able to provide support at scale to deliver results at pace.</p> <p>Detention bunds have been scaled to other Living Water catchments. Results of the trial have been shared with KMR and NRC who are interested in detention bunds as a potential tool as part of the Kaipara harbour soil conservation strategy.</p>

Table 3: Wairua River 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 DOC and Fonterra are due to collective efforts at all five Living Water sites. Each site, including Wairua River, played a role in these broad changes, highlighting the collaborative impact across the Living Water catchments.

The Living Water 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. Living Water has influenced other stakeholders to make organisational changes and commitments.

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.
- 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.
- Over the course of the Living Water programme, the number of Sustainable Dairying Advisors in the Northland area (and throughout the country) has increased, along with the diversity of skills recruited. Both DOC and NRC staff members have been recruited into SDA roles, bringing their networks, knowledge and skills with them.

- Through its work with Living Water and The Whitebait Connection, Fonterra established a direct connection with the organisation and contracted programme delivery as part of the Co-operative’s Sustainable Catchments Programme in the Ruakākā catchment.
- Fonterra has also built upon the Mana Enhancing Agreement, which was introduced to the Waimā Waitai Waiora partnership by Reconnecting Northland. This approach has reframed the relationships between Fonterra’s factory sites and mana whenua, shifting from transactional (typically centred around consents) to mana-centred respectful relationships. This change enables more expansive ways of working together based on shared aspirations and goals.
- Fonterra’s status of ‘trusted delivery partner’ with the KMR was the result of relationships and hard work. Both the Living Water and Waimā Waitai Waiora partnerships diversified the experiences of Fonterra and hapū working together, increasing linkage points, respect, and understanding between them. Fonterra’s delivery role for a co-governed KMR programme was a first for the dairy co-operative.

Department of Conservation: Over the past decade, the Living Water programme has influenced the Department’s approach to conservation and biodiversity management, both on and off the conservation estate. Examples include:

- The insights gained from Living Water have been pivotal in evolving DOC’s understanding that conservation challenges are not solely biophysical issues solvable by technical means. They are complex problems, intertwined with human influence and community dynamics. This holistic view has been instrumental in shaping the Ngā Awa programme, launched in 2019, which focuses on restoring the biodiversity of 14 rivers across New Zealand, from mountains to sea. The programme underscores the importance of 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 within the Department. 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 at a time when there was very little budget for freshwater work in the department.
- Work in the Hikurangi swamp has been given more focus by DOC as a result of Living Water. In addition to working on Public Conservation Land (PCL), DOC staff were involved more broadly with iwi, private landowners and farmers.

- DOC has committed to working with local kaitiaki, building capacity and collaborating on mainstream freshwater programmes. This is reflected in the work of the freshwater biosecurity, migratory fish and Ngā Awa programme teams.

Northland Regional Council

The Waimā Waitai Waiora partnership challenged all partners to learn and develop new ways of working informed by mātauranga Māori. This required partners to adapt their usual practices. While technically being the ‘host’ organisation, NRC had to adjust their administrative and management practices to accommodate shared decision-making and accountability within a complex partnership.

Like other partners, NRC’s experience and understanding of partnerships, building bridges between diverse partners through shared aspirations, approaches and experiences, has grown over time.

Along with hosting the project’s Hapū Co-ordinator role, NRC has expanded its organisational capacity and capability by making the role permanent within their staff structure. The Hapū Co-ordinator has helped facilitate relationships between the council and iwi-owned farms and supported on-farm restoration work.

Ngā Kaitiaki O Ngā Wai Māori

Through the Waimā Waitai Waiora partnership, NKONWM gained representation - ‘a seat at the tēpu’ (table) - alongside NRC, and other partners in decision-making regarding catchment protection and management. Restoration work increasingly focused on sites and issues of significance to hapū, respecting the mana and kaitaki responsibilities of mana whenua. The Hapū Co-ordinator role developed through the Waimā Waitai Waiora partnership and made permanent by the Council, improved accessibility and responsiveness to mana whenua.

The partnership with Living Water, particularly the western science training related to catchment monitoring and the successful contracting of NKONWM for the water quality monitoring, provided income for the ‘volunteer-based’ collective as well as a ‘track record’ of contract management and delivery.

Approaches to influencing catchment changes have also expanded, examples include:

- Participation in a feasibility study of potential management regime changes in another area of the Hikurangi Repo (the ‘Otonga Pocket’) with WDC, with NKONWM being part of the study process.
- Funding to support the development of hapū-led plans to influence policy and implementation activities in the Northern Wairoa from MfE’s Te Mana o Te Wai fund, continuing on from the foundations from Te Kawa Waiora.
- Contributed to the Hikurangi catchment case study research by the Parliamentary Commissioner for the Environment, exploring land use change under different policy settings.

3.2.2 Relational changes

Both DOC and Fonterra entered the Living Water Wairua programme with existing relationships and reputations within the Wairua catchment. Over the 10-year programme, new collaborations and relationships have formed, contributing to long-term change pathways.

Working with farmers and landowners: Both DOC and Fonterra staff built relationships with dairy farmers in the Okarika Pocket through both the farm environment planning process, and the subsequent grants and subsidies provided to implement freshwater improvement action (such as fencing and planting ‘wet areas’ and riparian margins).

Linkages between hapū and catchment farmers and landowners increased over time through joint work with Fonterra SDAs and DOC staff on and off farm. Building relationships takes time, but trust has increased making it easier for DOC and other agency staff to work with landowners in the future. Joint on-farm work with NKONWM, such as farm planning and water quality monitoring also built relationships.

These additional linkages have also reduced tension between landowners and hapū over the flood pumps. There now seems to be more understanding amongst landowners of how flood pumps can adversely impact hapū values, biodiversity, and endangered species. Subsequently the Kaipara Moana Remediation programme (Kaipara Uri) has also built relationships with wider catchment landowners, and provided subsidies for fencing and planting of riparian areas and highly erodible land, utilising Fonterra as a delivery partner.

Working with hapū (mana whenua): From the beginning, the Living Water programme sought to build relationships with mana whenua. Through the work in the catchment and the Waimā Waitai Waiora partnership, relationships and trust grew, and shared aspirations were achieved. Examples include:

- In the Hikurangi and wider Kaipara Moana catchment, relationships were initially built through involvement in the IKHMG network (Te Uri o Hau-led) and sponsorship such as NKONWM’s tuna research project with NIWA and schools education with The Whitebait Connection programme.
- Early trials in areas of mutual interest, like Oxbow lake restoration with NKONWM (Ngāti Hau), contributed to mutual learning and strong relationships with DOC and Fonterra. Mutual learning through on-farm planning, monitoring with NKONWM, and the shared governance and operational experience of the Waimā Waitai Waiora partnership, all helped build strong relationships with both DOC and Fonterra.
- The Waimā Waitai Waiora brought the NKONWM hapū collective and Te Uri o Hau together around a common goal. The partnership and Mana Enhancing Agreement brought mana whenua to the decision-making table alongside council and other catchment stakeholders.
- The Living Water and Waimā Waitai Waiora programmes have strengthened the relationships between Fonterra and Te Uri o Hau, with Fonterra becoming a ‘trusted delivery partner’ for the Kaipara Moana Remediation programme, co-governed by Kaipara Uri and regional councils.

- Mana whenua have commented on the willingness to embrace hau kāinga tangata whenua in the way that NRC does its work.

Working with and through the Waimā Waitai Waiora partnership: The signing of the Mana Enhancing Agreement (MEA) in 2017 marked the beginning of a collaborative project that has had a profound impact on relationships within the Northern Wairoa catchment and beyond. The project aimed to address the declining health of the catchment by reducing sediment, while also respecting the mana of the partners and drawing on both mātauranga Māori and western science.

Despite significant differences among the groups involved in the project, including decision-making power, funding contributions, staffing resources, knowledge, partnership experience, cultural capability, and working methods, the Mana Enhancing Agreement brought these parties together based on the principle of mana and mutual respect. This agreement provided a framework for collaboration rather than fragmented consultation with hapū, and facilitated shared decision-making.

The relationships strengthened through this project have continued beyond the initial five-year timeline, with the partners expressing their intention to continue working together. Fonterra and DOC have maintained direct relationships with NKONWM through supporting a successful Te Mana o Te Wai MfE funding application and continuing to support staff time for monitoring and assessment activities.

3.2.3 Ecological changes and valuing the environment

Supporting (or ‘restoring’) ecological systems to be healthy and resilient takes time, beyond the 10 year timeline of the Living Water programme. Changes that are part of the necessary building blocks towards longer term change, include how we think about the environment, as well as more tangible physical changes. Examples include:

- WDC released the Hikurangi Swamp Floodway Riparian and Ox-Bow/Cut Off Channel Management Plan identifying 18 sites suitable for restoration along the Wairua River floodplain, following the restoration demonstration of two oxbow lakes.
- Through Living Water, more than 15 ha of on-farm forest remnants, including threatened species, are now protected in perpetuity through QEII covenants.
- Landowners interviews noted a significant shift in attitudes over time with environmental actions becoming common.
- Establishing buffers and excluding stock from wetlands and waterways on farms is crucial. Over 15 kilometres of fencing and 100,000 native plants have been added in the Okarika Pocket and Otakairangi wetland areas. In the larger Northern Wairoa catchment, almost 60 kilometres of fencing for stock exclusion from waterways was supported through the Waimā Waitai Waiora partnership, along with a total of 390,000 plants.
- Living Water has contributed to a better understanding of the Hikurangi repo (swamp) ecological and hydrological functioning, as well as priorities and processes for addressing issues. This information has been shared with catchment stakeholders, including farmers/landowners and integrated into FEPs preparation and

implementation. All 17 Fonterra farmers in the Pocket have an FEP and 40% have taken action for freshwater improvement over and above regulations. Native riparian planting in the Okarika Pocket has increased by at least 11 kilometres since 2018 along with an additional 15 kilometres of stock exclusion fencing.

- Insights from Living Water staff and landowner interviews show positive shifts in attitudes towards their local environment, with environmental actions becoming commonplace. There are local clusters where landowners are picking up on their neighbour's initiative, with visible improvements in water quality. Landowners recognise aesthetic enhancements, increased biodiversity, and improved farm management as benefits. Common actions included fencing and planting of waterways and wetlands and effluent management. Many landowners reported the intention of extending their actions further, such as building wetlands and sediment traps, however finance was their main barrier to implementing these changes.
- In the wider Kaipara Moana catchment, as well as developing FEPs, landowners are also investing more in fencing and planting projects, boosted by the 50% subsidy provided through the KMR.



Sharing information about the unique species that live in wetland areas has been critical to building appreciation for these habitats with local communities (Waikaka/black mudfish Otakairangi Wetland).

4. Insights, challenges, and lessons

Over the last decade, the Living Water Wairua River 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.

The challenges, insights, and lessons in this chapter represent the results of a participatory and holistic evaluation of the programme, leveraging collective insights to assess its effectiveness and applicability to similar initiatives. These findings are informed by Living Water's experiences within the Wairua site and Waimā Waitai Waiora partnership, as well as outside that. Many lessons resonate across other Living Water catchments and lessons from evaluations at other sites also inform understanding in this catchment.

The co-benefits, insights, challenges, and lessons arising from the collaborative efforts are explored in the three specific areas. Co-benefits are the additional positive outcomes that emerge from a single programme activity, often extending beyond the primary goal to impact multiple areas. For example, an ecological restoration project might enhance biodiversity while also strengthening community relationships and boosting local economies. Understanding co-benefits helps see the broader impact of the work, emphasising the value of integrating activities across various components of the programme.

While this chapter concentrates on three specific areas within the Wairua programme, it is important to recognise that the insights derived are not confined to this site alone. The insights and lessons derived from this programme offer valuable insights for Living Water partners and may also be pertinent to local and regional councils and others, such as those involved in partnerships and more people-centred approaches to 'wicked problems'. 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 Working with mana whenua

Since the start of the Living Water programme, a key focus has been to partner with mana whenua. Over time, these partnerships in the Kaipara/Wairua catchment have grown in scope and depth. Working with hapū and iwi has broadened the programme's understanding of the interconnectedness, complexity, and necessary approaches in the Wairua catchment and beyond. It has also helped to establish and strengthen trust-based relationships.

Co-benefits

- **Improved understanding and support:** Investing in relationships with mana whenua has improved understanding of mana whenua aspirations and ways to support them through the programme. These partnerships have also provided a positive platform for change and action, resulting in “aha moments” for partners’ in understanding hapū histories and context.
- **Strengthening relationships and expanding knowledge:** Living Water and agency partners in Waimā Waitai Waiora have strengthened relationships, knowledge and shared understanding. This includes understanding the practical implications of co-management (or co-governance) which can be applied to other projects and partnerships, as well as standard practices.
- **Sharing expertise:** The programme has facilitated the sharing of expertise through collaborative work and training, which has been applied in other contexts, including NKONWM developing kaitiaki networks and hapū-led plans for the Northern Wairoa catchment, initiatives that secured \$1million from the MfE Te Mana o Te Wai fund.
- **Restoration efforts:** Sites of importance to hapū were included in priorities for restoration work, particularly Otakairangi wetland and the oxbow lakes. This has also resulted in changes to the management regime in the Hikurangi Swamp drainage system (related to riparian and oxbow channel management) by WDC.
- **Feasibility study for Otonga Pocket management changes:** More recently, WDC initiated a feasibility study for potential changes to the management regime in another area within the Hikurangi repo known as the Otonga Pocket. NKONWM supports this initiative which aims to purchase and retire available land, removing four pumps from the flood scheme and increasing flood capacity through restoration of wetlands. Funding for the feasibility study was secured from the DIA's Better Off Funding Support.
- **Monitoring and evaluation:** Working with mana whenua has expanded progress towards longer term outcomes can be monitored and evaluated. This provides a more holistic and systems-oriented perspective on impacts and issues in the catchment. This includes cultural assessments, expanding the kaitiaki network, monitoring by NKONWM and the integration of mainstream western science with mātauranga Māori.
- **Trusted delivery partner:** Fonterra became a trusted delivery partner of the co-governed KMR programme, delivering FEPs and working with Fonterra suppliers to identify and implement sediment reduction projects on farms with funding support

from KMR. This accelerated the development of FEPs and actions across the wider Kaipara Moana catchment. Fonterra also supported the KMR by sharing systems, reporting and mapping through their farm planning app and internal processes. This strong relationship and credibility was assisted by the shared goals and experiences developed through Living Water’s on-the-ground work (especially through Waimā Waitai Waiora) with hapū, and their support for mana whenua priorities.

Insights, challenges, and lessons

- **Supporting mana whenua priorities:** There is an expectation that mana whenua will engage and partner on projects, especially in the environmental space. However, this engagement is often under-funded, and can undervalue their input. For instance, some mana whenua on the Waimā Waitai Waiora governance group felt like the only “volunteers” in a room full of people on salaries. Engaging early, clarifying desired levels of engagement, addressing barriers, and considering decision-making power and funding can help support partnership development.
- **Understanding contexts and respecting worldviews:** Understanding contexts and respecting others’ worldviews is crucial for successful collaboration. People are complex so building (and maintaining) relationships and trust is important. Understanding mana whenua histories and current contexts (such as Treaty settlement status, aspirations, priorities, and relationships with catchment stakeholders), are important factors that influence joint strategies and actions.
- **Integrating mātauranga Māori into FEPs:** Integrating mātauranga Māori into any initiative requires mana whenua direction. By working with mana whenua and later supporting the Waimā Waitai Waiora hapu-led Te Kawa Waiora research project, valuable insights and prerequisite steps to inform the FEP development process were gained. These include that time and resourcing is needed for mana whenua to go through their own processes to inform approaches to ‘ecological’ management of particular areas.
- **Reframing relationships around the principle of mana:** The mana enhancing agreement of Waimā Waitai Waiora fundamentally reframed the relationships between project partners, enabling new and more adaptable ways of working to develop between mana whenua and Waimā Waitai Waiora partners. This agreement went beyond business as usual and fostered collaboration with NRC, Fonterra, and DOC.
- **Necessity of long-term investment:** Agency-based projects like Living Water and Waimā Waitai Waiora often have short timelines in relation to the desired outcomes, and staff and agency interest may shift elsewhere. Long term investment, continuity and intergenerational transmission are necessary to achieve ‘environmental’ outcomes. Mana whenua play a vital role in sustaining catchment aspirations and focus due to their enduring intergenerational linkages, knowledge and concern for their whenua regardless of the political landscapes and changing contexts.

4.2 Bridging different scales and systems

The Wairua River programme helped bridge different scales that influence systems through its relational approach to working with others. In particular, the programme's partnerships and work with hapū at multiple levels and in different ways, has made connections across different biophysical and socio-cultural scales and systems that continue to influence changes in practice.

Co-benefits

- **Understanding different scales:** There is no one shared 'scale' that everyone identifies with or cares about. Thinking across multiple and diverse scales can help connect with and engage the 'hard to reach'.
- **Bridging mana whenua scales:** The programme bridged different 'mana whenua scales' including between the multi-hapū NKONWM collective and SDAs and DOC rangers (through shared activities and direct partnerships), Kaipara Uri (particularly Te Uri o Hau) and Fonterra SDAs and management through IKHMG and later KMR relationships, as well as the Te Kawa Waiora research project developed through Waimā Waitai Waiora. This diversity of connections has helped relationships evolve and continue over time.
- **Importance of farm-scale work:** Farm-scale work is important, particularly when it is connected to thinking and ownership of wider scales. Often done at farm level (e.g. groups of dairy farmers), catchment aspirations and impacts, economic resilience, alignment with peers all help amplify momentum and impact.
- **Relational approaches at larger scales:** Working in more relational ways at a larger-than-farm-scale can help create a sense of shared responsibility, momentum and connection by recognising individual and shared values. This also diversifies and disperses leadership, innovation and action, creating more resilience, especially given the sometimes frequent changes in agency staff who might be 'leading' particular projects.

Insights, challenges, and lessons

- **Beyond farm-scale:** Working only at a 'farm by farm' scale won't achieve the necessary changes to improve lowland freshwater ecosystem health in dairying contexts. Starting at any scale, actions and approaches need explicit links to other scales and systems they are connected to (and influence/ are influenced by).
- **Ongoing development:** Engaging staff in agencies who can scale or 'systematise' specific trials or approaches early in the development process helps provide useful direction and facilitates wider adoption and scaling of work. For example, collaborating with the Māori Strategy Team in Fonterra, as well as the regional SDA and local hapū, to trial the 'integration' of mātauranga Māori into FEPs. Building blocks for ongoing development are now in place within Fonterra. Through the Te Kawa Waiora research, hapū are also considering what that might mean for all farm plan processes in their takiwā.

- **Understanding constraints:** There are insufficient people/groups able to bridge different scales, (they often lack the mandate or capability to do so). It's also easy to become critical when we don't appreciate other peoples' (or groups') scales. For some, these scales are "mandates" that are often more complex to deliver than generally recognised. Councils and their ability to adapt rapidly can be constrained by both mandates (and their interpretation) and trust (both managerial and public).
- **It can be lonely:** Working outside of your organisation's usual scale (mandate/structure) can be isolating. For the Living Water site leads, their DOC colleagues mostly worked on public conservation land and had limited interaction with farmers, dairy co-operatives or private landowners. Colleagues and line managers not directly involved in the (novel) Living Water partnership, didn't necessarily understand (or appreciate) the work enough to be able to support it as they would for other projects.
- **Wider catchment planning:** Having an individual farm environment plan can be a barrier to a landowner engaging with wider collective catchment planning processes. Farm planning processes need to be relational and adaptable (rather than instructional), requiring an understanding of contexts and making connections beyond the farm to broader catchment scales. This also applies for catchment planning where processes can foster shared understanding of common and individual values, (holistic) goals (the 'why'), as well as the impact of specific actions (the 'what') and shared responsibility/ownership.
- **Ecological function:** Returning better ecological function to lowland waterway networks is not something within an individual farmer's control, especially the swamp drainage scheme that needs change to be effective at a larger scale. Farm practice change and network change are both needed.
- **Sustainable funding models:** New (sustainable) funding models are needed to develop and maintain programmes over the long periods of time required to accomplish the kinds of multi-scale, systemic changes needed.

4.3 Capacity and capability

The Wairua River programme, together with the Waimā Waitai Waiora partnership, have enhanced the capacity and capability of groups and individuals involved. Both have fostered a culture of co-operation and collaboration among groups working within and beyond the Wairua catchment. However, the project has also highlighted the challenges of recognising the value of social skills and collaborative approaches, and integrating them into mainstream organisations.

Co-benefits

- **Expanding collaborative and strategic skills:** The Wairua team expanded their collaborative and strategic skills, enabling them to effectively contribute to the planning and support of social and organisational goals and capabilities. These skills are often overlooked in mainstream organisations but are crucial for managing multi-stakeholder initiatives.

- **Learning from shared experiences:** Both DOC and Fonterra staff, along with Waimā Waitai Waiora partners, also gained insights from shared experiences ‘behind the farm gate’. These included understanding the importance of empathy and building trust with farmers and landowners, and sharing expertise in practical ways that are of interest to farmers as well (eg. identifying pests in a drain, spotting regenerating bush). On-farm FEP visits can be part of the introductory and relationship building process where a ‘trusted advisor’ (in this case Fonterra) introduces and endorses others (DOC or Council).
- **Building organisational capacity:** Both DOC and Fonterra benefitted from the capability developed through relationships and experience as part of the Living Water Wairua River programme. There was turnover of staff in the (DOC) Site Lead role, but many moved into other roles within DOC or Fonterra where their expanded skill sets were valuable. The Sustainable Dairying team in Te Tai Tokerau expanded in number (from 1 to 6) and a more diverse range of skills, including biodiversity, were recruited for than previously sought.
- **Strengthening relationships and partnerships:** The Wairua River programme established strong relationships and partnerships within and beyond the catchment. These relationships fostered a better understanding and appreciation of partners’ values, aspirations and histories, providing useful context for working collaboratively and being innovative, developing new and improved ways of achieving outcomes and bridging scales.

Insights, challenges, and lessons

- **People continuity:** The various changes to staff in the Site Lead role (DOC staff) possibly hindered programme progress at times, but each site lead brought a different skill set, ideas and experience that also benefited the programme and wider staff involved. The challenges posed by site lead changes were also mitigated by the continuity of Fonterra SDAs and Living Water managers who were directly involved with programme delivery and partner relationships.
- **Staffing projects:** Considering how project teams are structured and staffed is important. In addition to technical experts you need ‘generalists’ who have a broader understanding of the contexts and have strong interpersonal skills to manage multi-stakeholder initiatives. Recognising the skills and complexity required for this type of work should be reflected in job specifications and recruitment processes.
- **Supporting individuals:** Support needs to be provided for individuals involved in partnerships that are particularly novel. They often feel isolated in their respective ‘home’ organisations when working on projects that are not part of the usual business operations, and these projects may not be recognised or fully understood by their peers or line managers.

- **Value of demonstration sites:** The Okarika Pocket on-farm best practice planting sites serve as valuable reference and learning sites for both new and existing staff, especially with Fonterra's Northland SDA team, as well as for the farming community.
- **Knowledge expansion:** Through both Living Water Wairua and Waimā Waitai Waiora, access to information and knowledge about the biophysical catchment has significantly expanded. Other knowledge and understanding, particularly associated with mana whenua, has also grown through collaboration with NKONWM and the hapū-driven Te Kawa Waiora research project.



The relationships fostered through the Wairua River programme and the Waimā Waitai Waiora partnership provided understanding and appreciation of partners' values, aspirations and histories, providing useful context for working collaboratively.

5. Progress assessment and recommendations

This concluding chapter synthesises the diverse experiences and outcomes of the decade-long Wairua River programme. The programme aimed to improve water quality, enhance biodiversity and contribute to shared action for the Kaipara Harbour (Moana) catchment. In this chapter, we will critically evaluate the programme's alignment with its evolving Theory of Change over the past decade. We will also assess the efficacy of its underlying assumptions, and revisit the guiding principles of the Living Water programme. This reflection highlights achievements and challenges, and provides recommendations for future initiatives. These insights aim to reflect on the journey of the Wairua River programme, and contribute to discussions on sustainable catchment management and other 'working at place' initiatives, both locally and beyond.

5.1 Programme achievements and outcomes

The initial programme strategy was to focus on the dairy-intensive Hikurangi (sub) catchment, before expanding into other Kaipara Moana catchments to the centre and south of Hikurangi. By year two, the programme revised its focus to continue in the Hikurangi, on wetland ecosystem enhancement (through protection and reconnection) and better understanding flood, sediment and nutrient control to benefit farmers and other groups. Following the strategic reset (SPRINT process) in 2017, Living Water further refined its focus to the Okarika 'Pocket', while planning to progress wider Hikurangi catchment work through a new formal partnership of mana whenua, Council, NGOs, and research agencies. This revised strategy was documented in the programme's Theory of Change and logic model (see section 1.4), reflecting a further adaptive response to emerging insights and challenges through the work to date.

This section outlines how the Wairua River 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

Early work in the Wairua River programme utilised the networks of the IKHMG to build relationships and profile in the large Kaipara Harbour (Moana) catchment. Aiming to improve the health of the harbour by reducing sediment and nutrient flows, initial activities included supporting an IKHMG symposium (where future Living Water projects were discussed) and linking Fonterra's Jordan Valley Farm into IKHMG's 'flagship farms' programme. Community grant funding also helped the programme develop a wider catchment profile early on, while focussing on the Hikurangi (sub) catchment.

Collaborative demonstrations included oxbow restoration, riparian planting in flood-prone areas, and practical tools like how to build a low cost wetland. These projects helped build relationships through the experiences of working together with key catchment stakeholders.

Research was also conducted to better understand the Hikurangi ecological and hydrological systems, and along with baseline environmental assessments and biodiversity evaluations. These projects identified priority areas and interventions, and informed on-farm sediment reduction trials. Case studies detailed the purpose, use, results, lessons learned, and links to further information from these demonstrations and trials.

Tool trials and demonstrations were integral, with five trials conducted between 2013 and 2018. These included biocontrol of an invasive weed, wetland creation, and ecosystem services trials. Demonstration projects such as the restoration of an oxbow on the Hikurangi floodplain showcased ecological restoration practices. Trials of detention bunds highlighted the potential for sediment and nutrient capture during heavy rainfall, providing insights into effective water management strategies.

Building strategic relationships and partnerships was a key focus, leading to significant results and lessons. The Waimā Waitai Waiora partnership brought together key catchment collaborators with direct funding, leveraging relationships built through the first half of the Living Water programme and incorporating new partners. All partners committed to a “mana enhancing” agreement that challenged and moderated standard practices. The programme aimed to improve land management practices for the health of the river and its people, guided by both mātauranga Māori and western science. This led to hapū voices represented at the decision-making table, involvement in operational planning, the establishment of a dedicated co-ordinator role to support hapū engagement with and within the council, joint project delivery on the ground, and hapū-based research (Te Kawa Waiora) to inform land management policy and planning.

The Wairua River programme facilitated the creation of Farm Environment Plans (FEPs) on all 17 Fonterra farms in the Okarika Pocket, with an additional 137 plans in the wider catchment through the Waimā Waitai Waiora partnership. The FEPs were developed by both Fonterra SDAs and NRC land management officers and saw DOC and NKONWM regularly involved on-farm alongside Fonterra and NRC, improving their visibility and understanding of on-farm challenges and priorities. Farm plan implementation, including fencing and planting initiatives, was also supported by both Living Water and Waimā Waitai Waiora.

5.1.2 Contribution towards outcomes

The Wairua River programme’s impact extended beyond immediate outputs, significantly influencing both ecological and social dynamics within the catchment. One notable outcome is the better understanding (by the Waimā Waitai Waiora partners) of the significant work needed by mana whenua (hapū) before mātauranga Māori can be ‘integrated’ into environmental planning and management. This became clear through the hapū-driven Te Kawa Waiora research process, and prompted NKONWM to successfully seek funding to support the expansion of their kaitiaki network and development of hapū-

led plans to influence policy and implementation activities in the Northern Wairoa catchment.

The approach of developing knowledge, supporting local hapū and stakeholder initiatives and priorities, and exploring 'practical solutions' continued through the life of the programme. Overall both Living Water and Waimā Waitai Waiora have strengthened the recognition of cultural values and improved cohesion within the Wairua catchment.

Ecologically, the programme achieved significant milestones such as the completion of Farm Environment Plans (FEPs) for all 17 farms in the Okarika Pocket and the additional 137 plans developed through the Waimā Waitai Waiora project. These plans led to over 15 kilometres of fencing around wetlands and riparian areas and the planting of almost 400,000 plants (including those as part of Waimā Waitai Waiora), enhancing the ecological health of the catchment.

The ecosystem services assessment and hydrological modelling identified detention bunds as effective tools for sediment and nutrient capture, further contributing to the improved understanding of the ecological functioning of the Hikurangi swamp and the wider catchment.

The relational and capability changes were profound, with Living Water also contributing to shifts in 'business as usual' practices within Fonterra and DOC. DOC's involvement in the programme led to a more holistic understanding of conservation challenges, influencing initiatives like the Ngā Awa River Restoration programme. Despite multiple changes to the Living Water sites leads, the programme momentum continued due to the solid DOC and Fonterra connections forged through joint work on the ground, particularly on-farm co-operation and sharing of different expertise. Working closely with mana whenua at multiple programme levels, also improved cultural competency and shared understanding within the Living Water team.

The Waimā Waitai Waiora partnership brought together diverse stakeholders, fostering culturally-informed collaborative experience and laying the groundwork for ongoing efforts to manage the catchment's environmental future. This collaborative approach, guided by a Mana Enhancing Agreement, emphasised the importance of shared aspirations and respectful relationships, significantly impacting regional environmental management.

5.1.3 Contribution to unplanned outcomes

The Wairua River programme provided some surprising outcomes that were not part of the original plan. Important outcomes emerged from increased collaboration with hapū, which resulted in a stronger integration of Māori knowledge into environmental initiatives. This included cultural health monitoring being added to the water quality monitoring and the establishment of a dedicated hapū co-ordinator role within the Northland Regional Council. This role improved direct engagement with mana whenua, enhancing the programme's cultural understanding and delivery.

Waimā Waitai Waiora also initiated the hapū-driven research project, Te Kawa Waiora. This project aimed to facilitate hapū development of new ecological management based on mātauranga Māori. The research helped partners understand the complexity of 'integrating mātauranga Māori' into planning, and hapū work and resources needed before that could be done.

The Wairua River programme and partnerships leveraged resources and developed collaborative relationships to extend activities, such as Ngā Kaitiaki O Ngā Wai Māori who have extended their network and influence of hapū kaitiaki, successfully gaining funding for growing hapū capability and capacity. The strong relationships and credibility built through the Living Water and Waimā Waitai Waiora programmes also helped facilitate a new partnership formation for Fonterra with Kaipara Uri through the KMR. This significantly increased support for Fonterra farmers across the much larger Kaipara Moana catchment.

5.1.4 Areas for improvement

The Wairua River programme, while achieving successes, encountered challenges that offer valuable lessons for future environmental management efforts. Reflecting on these experiences is crucial for acknowledging the complexities of such ambitious projects and for identifying pathways to enhance their effectiveness and sustainability.

The early work programme was built on existing networks and familiar work to DOC, such as ecological research, and enhancement of significant ecosystem areas. As experienced in all Living Water sites, the Wairua River programme began with ambitious outcomes to be achieved in a relatively short period of time and with limited resources. Changes in catchment practices and subsequent water quality improvement are complex issues with substantial time lags between the implementation of practices and the realisation of end results. Rather than simply being a technical problem, changing organisational and farmer practices 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.

Although the collaboration between Waimā Waitai Waiora partners and the implementation of a significant number of FEPs across the Hikurangi catchment was commendable, interviews with landowners revealed areas for improvement in the FEP process. Some landowners expressed the need for more engagement, including time for discussions to understand their goals for their land and more involvement in prioritising areas for improvement. Improving the engagement process would create a stronger sense of ownership and commitment among landowners, leading to more effective implementation of FEPs.

Limited resources posed significant challenges, impacting the scope and reach of activities, particularly in its early stages. The ambitious goals had to be balanced with the available funding and human resources, emphasising the need for more realistic goals, particularly given the complexity and time scales for catchment change.

5.1.5 Reflecting on guiding principles and assumptions

Living Water's national guiding principles and assumptions played an important role in shaping the direction and outcomes of the Wairua River programme. Early collaborations led to a formal and successful partnership to combine mātauranga Māori with mainstream science to improve land and waterway management practices. Living Water's research focus on understanding the ecological and hydrological functioning of the Hikurangi to inform priorities and actions was valued by the Waimā Waitai Waiora partnership, and was mirrored by the hapū-driven research project, Te Kawa Waiora. This project laid the groundwork for further hapū work to priorities and approaches to land management. The focus on monitoring, particularly working with hapū to share techniques and approaches used, was appreciated by Ngā Kaitiaki O Ngā Wai Māori, as was the reflective evaluation on the Waimā Waitai Waiora partnership.

The four causal assumptions formalised in the programme's 2018 Theory of Change (see section 1.4) - partnerships, social learning, behaviour change and systems thinking - effectively overlapped and reflected the complexity of the work. Multiple elements and influences within the system (including organisational structures, wider communities, and policy) needed to undergo changes to enable and reinforce the desired transformation. In the Wairua River, particularly through the Waimā Waitai Waiora partnership, efforts were focused on tools and approaches that sought to progress systemic changes.

Evaluating these principles and assumptions, considering the programme's achievements and challenges as discussed throughout this report, demonstrates an alignment between the programme's strategic intent and its operational execution. This reflection validates the underlying theoretical framework and highlights areas for improvement, ensuring that future initiatives can build upon this foundation with enhanced strategies and clearer objectives. By consistently aligning actions with foundational principles and learning from each implementation phase, the insights from the Wairua River programme can help inform future environmental management projects.

5.2 General recommendations

Reflecting on the Wairua River programme's journey highlights the value of collaboration and adaptive management in progressing environmental aspirations in complex place-based initiatives. While acknowledging achievements, this analysis also identifies areas for improvement and the emergence of unexpected outcomes. These experiences provide important lessons for partners and stakeholders of the Living Water programme.

For future environmental projects, it is important to learn from both the challenges faced and the unexpected successes encountered. By adapting strategies based on these experiences, seizing new opportunities as they arise, and committing to continuous learning, future initiatives can better support comprehensive processes of change. This approach aims to enhance environmental management efforts, making them more effective and inclusive, and ultimately benefiting both communities and natural environments.

While the Living Water partnership concludes its decade-long programme, the work of catchment and other place-based management initiatives continues. Therefore, the following recommendations are intended for organisations, mana whenua, and communities engaged in ongoing catchment stewardship. They emphasise the importance of often-overlooked intermediate results or "supporting structures" essential for advancing long-term environmental and social goals:

- **Ensure farm environment plans are implemented and support wider catchment resilience:** Industry sectors should actively support the development and implementation of farm environment plans (FEPs) with facilitation, funding, incentives, and advice, especially focusing on water quality and wetlands. This support should extend catchment-wide to ensure comprehensive coverage. Efforts should also support initiatives beyond individual farms to enhance overall catchment resilience, contributing to long-term environmental sustainability and ecosystem health.
- **Enhance on-farm planning process effectiveness:** Industry and agencies should invest time in developing practical and actionable farm environment plans. Engage landowners thoroughly to ensure input, understanding and buy-in. This approach should also build wider catchment context, connect landowners and agencies, and support adaptive management, enhancing overall effectiveness and stakeholder engagement.
- **Continue support for mana whenua aspirations and leadership:** Support mana whenua priorities and leadership by maintaining strong relationships, aligning work programmes with mana whenua priorities and building cultural competencies within agencies. Facilitate sustainable funding models, roles and processes that enhance mana whenua leadership in environmental restoration efforts.
- **Maintain and build on progress:** Agencies should continue to focus on the Northern Wairoa catchment given its significant impacts on Kaipara Moana health, building on relationships and initiatives developed through the Living Water and Waimā Waitai Waiora programmes.

- **Expand focus from Okarika pocket to other drainage districts:** Work with the Whangārei District Council to address the Hikurangi drainage district farm issues, involving Fonterra and its Kauri Dairy factory and wetlands. Scale successful interventions and lessons learned to other parts of the catchment and similar contexts.

These recommendations draw on the insights, challenges and practical experiences from the Wairua programme, contributing to advancing management practices that are inclusive, adaptive, and resilient. Collectively, these and other evaluation reflections on collaborative initiatives from the other Living Water sites lay the groundwork for future planning. We envisage these recommendations serving as actionable guides for practitioners, ensuring that the evaluation remains a dynamic resource for ongoing and future efforts.



Engaging with landowners is key to ensuring their input, understanding and buy-in. Developing practical and actionable farm environment plans needs to be a priority.

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.

Wairua site specific sources

- Living Water Evaluation Team: Developed in close collaboration with an evaluation team comprising 7 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).
- Six interviews with programme participants.
- Living Water webpages: [Wairua River/Te awa o Wairua](#) served as a primary source of both current and archived information on site objectives, activities, and outcomes. Webpage project summaries include:
 - [Site Summary: Reducing sediment to restore and protect rare wetlands in Wairua](#)
 - [Waimā Waitai Waiora Partnership Project](#)
 - [Okarika Pocket transformation project](#)
 - [Detention Bunds](#)
 - [Low cost wetlands](#)
 - [Oxbow Restoration](#)
 - [Otakairangi Wetland Baseline Information Project](#)
 - [Whitebait Connection](#)
 - [Tradescantia Trial](#)
 - [Ecosystem Services](#)
- Catchment Condition Survey, 2018 and 2023, including landowner interview insights (unpublished).
- Wairua monitoring data - from national Living Water site monitoring data (unpublished).
- MfE Freshwater Improvement Fund Project Closure Report (2023) Waimā Waitai Waiora (unpublished)
- Published reports and information: These documents 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 (see below)
 - [Waimā Waitai Waiora](#) project website.

- [Kaipara Moana Remediation](#) programme website.
- Whangārei District Council (2023) - [Hikurangi repo project - 'Better Off' funding](#).
- [Te Kawa Waiora Visual Introduction](#) and [Te Kawa Waiora Report 2020 - 2021](#).

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).
- Waimā 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, 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 River Evaluation Report
- Pūkorokoro-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](#)

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 Living Water 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 Programme Annual Reports 2014 - 2023, see [Our progress/Tō mātou Kokenga Whakamua](#)
- 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

Pivac, A. & Pivac-Hohaia, T. (2022). Voices of Nga Wai Maori ki te Tai Tokerau: A case study report. <https://www.nrc.govt.nz/media/4phlvdsi/stage-2-case-study-report-final.pdf>

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Landcare Research Manaaki Whenua. (2015). Living Water - Opportunities for restoration: Hikurangi Floodplain. https://www.livingwater.net.nz/assets/Clarkson%20Bartlam%20Price%202015%20LW_Hikurangi%20LC2383.pdf?k=f7773ad295

Parliamentary Commissioner for the Environment. (2024). Exploring land use change under different policy settings in two case study catchments. <https://pce.parliament.nz/media/ut0dxela/exploring-land-use-change-under-different-policy-settings-in-two-case-study-catchments.pdf>

Townsend, A. (2014). Biodiversity Assessment, Jordan Valley Fonterra Farm, Hikurangi, Northland. <https://www.livingwater.net.nz/assets/sm/upload/pt/xu/ll/rf/Living+Water2+JVFF+Biodiversity+Assessment.pdf?k=c192fbc420>

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 work 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 Wairua River 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.

Anh Nguyen

DOC Site Lead

Anh Nguyen was the Site Lead with the Department of Conservation (DOC) for the Wairua River site. Her role involved guiding the direction of the programme's initiatives, engaging with stakeholders, and coordinating efforts to restore and protect the catchment.

Tracie Dean-Speirs

Fonterra Senior Partnerships Manager

Tracie Dean-Speirs was involved in the initial establishment of the Living Water programme and selection of sites as a Lakes Management Advisor at Waikato Regional Council, and then as a member of the Freshwater Science team at DOC. Tracie moved to Fonterra in 2021 to run the Fonterra Sustainable Catchments Programme for the North Island and has provided invaluable advice and expertise into the Living Water programme.