

MAHI | JOBS
MŌ TE TĀIAO | FOR NATURE

Kaipara Moana Remediation

JOBS FOR NATURE PROGRAMME

BENEFITS CASE STUDY



Case study purpose

This case study demonstrates the social, cultural, environmental and economic benefits that have already been and are likely to be delivered through the Kaipara Moana Remediation (KMR) funded through the Jobs for Nature programme and other sources.

This case study covers the first two and a half years of KMR's operations (It is too soon for the substantial benefits to be realised), providing information about what early differences have been made and what benefits might be expected in the longer term given the scale of the investment (project end date is 2031).

A Theory of Change was developed for the Kaipara Moana Remediation Programme to provide a clear roadmap for addressing environmental challenges, aligning stakeholders on shared goals, and ensuring the long-term outcomes for the health of the Kaipara Moana are communicated. This can be found in Appendix A.





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About Kaipara Moana Remediation

Aim

The KMR is a 10-year \$200 million transformative initiative that addresses critical environmental degradation in New Zealand's largest harbour while providing substantial social, cultural, and economic benefits.

The Kaipara Harbour has suffered from severe sedimentation, with on average an estimated 700,000 tonnes of sediment deposited annually, which is seven times higher than before significant human intervention, such as deforestation and land use changes. This sedimentation has degraded water quality, affected biodiversity, and reduced the harbour's ecological resilience.¹ The total annual cost of erosion damages across New Zealand is estimated to be significant. According to a 2020 analysis, the impact of soil erosion on productivity alone could be at least NZ\$300 million per year.²

A 2018 study by Streamlined Environmental Ltd reported that the cost to significantly reduce sediment deposition in Kaipara Harbour could reach up to \$331 million annually. This cost (which would achieve an

estimated 68-88% reduction in sediment)³ primarily represents the opportunity cost associated with afforesting more than three-quarters of the catchment area. While this illustrates the potential scale and cost of interventions, the KMR takes a more spatially targeted and cost-effective approach.

By focusing on priority areas - locations within the catchment that face the highest risk of sediment loss due to factors such as steep, erosion-prone land, degraded riparian zones, and significant runoff into waterways. KMR aims to achieve meaningful environmental outcomes (i.e. improving water quality and biodiversity) that support local communities and mana whenua throughout the Auckland and Northland regions.

Importance

The Kaipara District is supported by agriculture, fisheries, aquaculture, and tourism.⁴ Central to the district is the Kaipara Harbour, which is New Zealand's largest estuarine water body and one of the largest tidal ecosystems in the world. The Kaipara Moana (includes the harbour and the wider catchment) spans both the Auckland and Northland regions and holds significant ecological, cultural, and economic importance at local, regional, and national levels.

Economically, the Kaipara Moana is important to the regional economies of Auckland and Northland. Nationally, it plays a key role as the 'nursery' for snapper, New Zealand's most commercially valuable inshore fishery, contributing to both regional development and the country's fishing industry.⁵

The COVID-19 pandemic had significant economic and employment impacts on the Auckland and Northland regions. Between March and August 2020, over 26,000 Aucklanders lost their jobs, with young people, Māori, and Pacific peoples disproportionately affected due to their concentration in industries like hospitality and tourism.⁶ Auckland's additional Delta variant lockdown alone was estimated to cost the economy \$8 billion.⁷





Northland also suffered as travel through Auckland was restricted, leading to a projected 8% drop in GDP for the year ended March 2021 and a 10% reduction in employment by 2022, affecting approximately 9,000 people. Māori job losses during this period were estimated at 3%.⁸

In light of this providing employment opportunities (including for youth and Māori) would be crucial to the economic recovery of the Northland and Auckland regions. Funding for KMR was intended to help the economy by creating much-needed employment opportunities focused on environmental restoration. It was anticipated KMR would create around 700 employment opportunities.⁹ This would not only provide immediate economic relief to local communities but also help create longer-term employment opportunities in environmental management and restoration for the two regions.

Social and cultural benefits

What difference is this investment making to people?

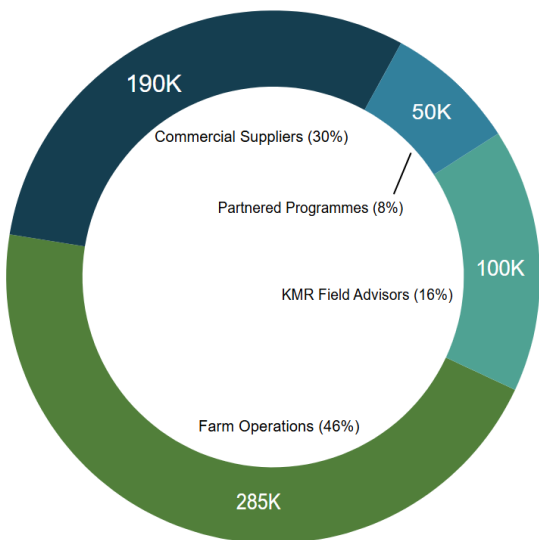
Skills and employment opportunities

KMR has already created significant employment opportunities in nature restoration and environmental management. Since its inception KMR has upskilled nearly 60 local field advisors, including tangata whenua (local iwi and hapū), to collaborate with landowners on sediment reduction plans and associated projects. This effort has generated over 625,000 additional hours of work—equivalent to a year’s worth of employment for more than 180 people in the catchment.¹⁰ 28 locally contracted businesses and 19 nurseries have also been supported in rural and remote areas.¹¹

KMR’s employment opportunities span a variety of roles, including:

- Direct farm work, such as fencing, trough installation, planting, weeding, hill country stabilisation, site preparation, and weed control;
- Commercial supplier roles in nurseries, fencing manufacturing, and farm advisory services;
- KMR-specific roles, such as field advisors who engage directly with landowners; and
- Programme partner delivery contracts, which involve external organisations managing larger-scale or specialised projects like extensive fencing or afforestation efforts.

Graph 1: Breakdown of employment by type



These diverse employment pathways ensure that both local communities and specialised contractors contribute to restoring Kaipara Moana’s mauri (life force).

Through KMR’s support for a Kaitiaki Employment Coordinator role (50/50 funded with the Ministry for Social Development), a number of Kaipara Uri locals found work with accredited suppliers to KMR projects.

Alongside in-house training, the pilot development and roll-out of two national training courses in 2023 equipped Field Advisors with the necessary skills and knowledge to gain qualifications in Freshwater Farm Planning supporting them

to be well-prepared to manage and mitigate the environmental impacts on freshwater systems.¹²

Through a partnership, the New Zealand Association of Resource Management (NZARM) is supporting the development of KMR Field Advisors. For example by offering technical training on region-specific issues such as soils, erosion risk, wetlands and riparian management. This specialised training is growing a network of rural professionals, equipped to effectively address the unique environmental challenges of the Kaipara Moana catchment.¹³

A wide variety of other relevant training has been supported through KMR investment in skills, including via the Kaitiaki Workforce Coordinator investment. This investment supports a wide range of training activities, including health and safety, controlled substances for weed control, driver licensing, de-escalation techniques for working with landowners, fencing skills, and tikanga and te reo Māori training. These activities not only equip individuals with essential skills for environmental restoration but also promote cultural understanding and respect. By incorporating Māori cultural training, the programme strengthens cultural ties and ensures that restoration efforts respect Māori traditions. Training in de-escalation and negotiation techniques help improve relationships with landowner and lead to greater community support and cooperation.

This training has primarily supported jobseekers transitioning into work in support of KMR projects. In the 2023-24 financial year alone, 106 people received KMR-funded training relevant to sediment remediation.



Improved capability of communities to address environmental issues

KMR is improving the capability of communities to address the erosion (and by extension, a myriad of other environmental issues) impacting the harbour by encouraging greater participation in sediment remediation projects and ensuring that the importance of addressing these issues is understood and valued within the community.¹⁴



Over one thousand meetings have been held with iwi/hapū, professional and rural networks, community groups, and landowners. 28 local businesses have now been accredited, including 19 nurseries, as KMR suppliers and the programme has received formal expressions of interest from 1011 landowners. Over half of the estimated eligible pastoral landowners in the catchment, indicating strong community support and involvement.¹⁵ As at 30 June 2024, two and half years into KMR's operations, nearly 700 landowners and groups have committed to Plans with KMR, with a further 83 Plans in development. These Plans support sediment remediation projects and unlock KMR grant funding.

KMR also collaborates with local schools to involve students in restoration projects, providing practical learning experiences and developing skills of environmental stewardship among youth. Students gain practical experience in environmental science and land management, enhancing their understanding and appreciation of ecological processes.

Engaging students in restoration activities encourages environmental responsibility and sustainable practices from a young age so that young people are more empowered to take care of their local environment.¹⁶ Research shows that spending time in nature as a child is closely linked to having positive attitudes and behaviours towards the environment as an adult. For example, being exposed to nature before the age of 11 has been found to strongly shape environmental values and actions later in life, laying the groundwork for lifelong care and sustainable practices.¹⁷

Community Benefits¹⁸

The health of the Kaipara Harbour is closely linked to the well-being of local communities. The harbour supports various recreational activities such as fishing, boating and bird watching which are important for the social fabric and quality of life of the residents. The community-driven efforts to restore and protect the harbour are now creating a sense of unity and shared purpose.

KMR supports community-led projects through Whenua Whānui grants, engaging local whānau, marae, hapū, catchment groups, community groups, schools and trusts in environmental restoration activities relating to sediment remediation. These grants help cover costs related to project coordination, community meetings, governance and community planting days.¹⁹ This investment helps reconnect communities with their ancestral lands and traditional practices, local places and public lands which is important for their cultural and local community identity and protection of heritage. As at 30 June 2024, 74 diverse community-led projects (including many led by Māori groups) were supported by KMR across the catchment.

How is this investment contributing to the wellbeing of Māori?

The Kaipara Moana holds profound traditional, cultural, historical, spiritual, and economic significance for Māori, and particularly the Kaipara Uri (descendants of the Kaipara region), which includes Ngā Maunga Whakahii o Kaipara, Te Rūnanga o Ngāti Whātua, and Te Uri o Hau Settlement Trust. For local Māori, particularly those who affiliate to Ngāti Whātua, Kaipara Harbour is a taonga (treasure). The harbour's health is intrinsically linked to the well-being of the local iwi and hapū.

KMR's governance model includes equal representation from Kaipara Uri and local councils.²⁰ KMR supports leadership (tino rangatiratanga) from Māori communities, particularly in relation to sediment remediation projects, while also supporting Kaipara Uri to protect their land, rivers and the Moana itself for future generations. Recognising Māori as foundational partners in KMR and ensuring that Māori perspectives are integral to decision-making processes, KMR works to reduce barriers to iwi/hapū participation in addressing ongoing erosion risks. KMR design is centred on a collaborative approach that recognises traditional Māori knowledge alongside biophysical science. Such a holistic approach helps in strengthening catchment-wide participation in reducing sediment and other related environmental degradation of the harbour.

By involving local communities, iwi/hapū in sediment remediation efforts, KMR aims to strengthen local connectivity – with each other as well as with the rivers and streams, the land and the Moana itself. KMR's holistic approach and operating model to invest in a large number of groups and partners including Kaipara Uri to deliver the outcomes it seeks reinforces social cohesion, autonomy and respects the cultural significance of Kaipara Moana.

While work is still in the early stage in the Kōrero Tuku Iho project - a project to elicit the stories, memories, histories, values, and understanding of the natural world and places of significance associated with the Kaipara Moana catchment as inspiration for the reduction of sedimentation – it will serve as an important enabler to ensure KMR can apply local perspectives, tikanga tiaki and mātauranga Māori into sediment remediation activities across the wider catchment.

Drawing on learnings from this project, KMR will be able to make investment decisions in the future that reflect the cultural perspectives and priorities of Kaipara Uri and other groups. This inclusive approach supports community-led projects, creates more social equity, and strengthens long-term relationships with the land (whenua), awa and Moana itself.²¹

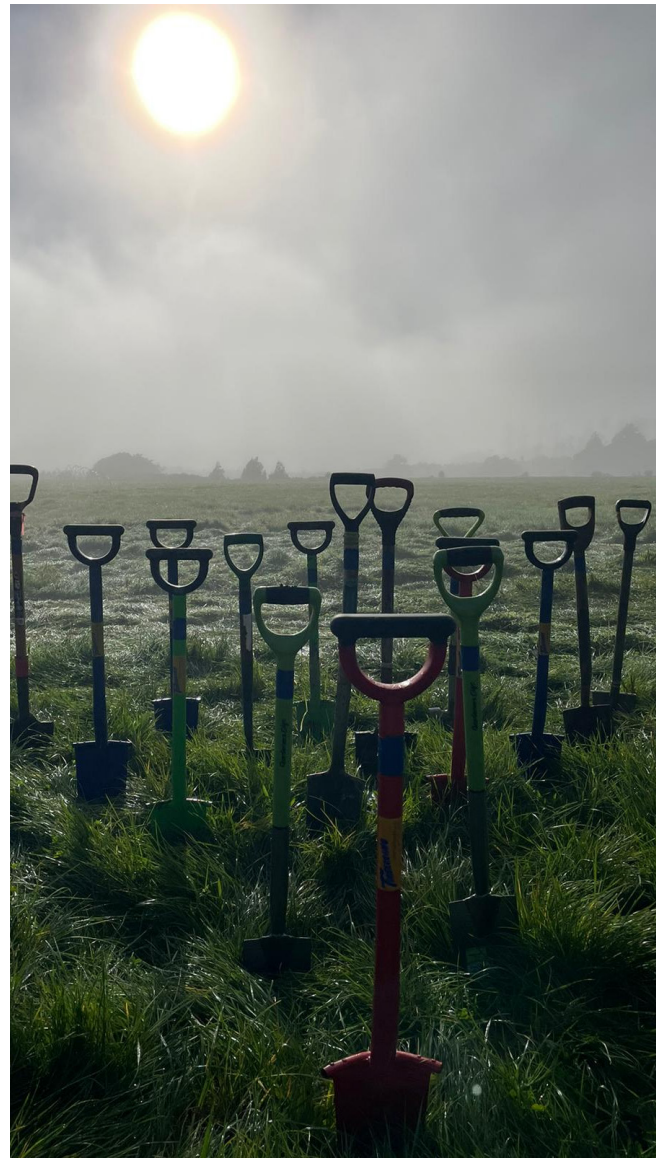


Environmental benefits

What difference is this investment making to the environment?

Sediment is a contaminant that shows high levels of natural variability in waterways, with events like heavy rainfall causing spikes in concentrations. Realistically, it may take decades to demonstrate a statistically significant reduction in sediment load entering the Kaipara Moana and to assess the impact of the Kaipara Moana Remediation (KMR) programme. This reflects the scale of the challenge and the natural processes involved.

In the shorter term, some benefits from KMR investments are expected within 6-10 years. For example, planting more than 14.9 million trees is aimed at reducing sediment entering the harbour while also contributing to broader goals such as improving landscape resilience to extreme weather events and increasing carbon sequestration through tree planting and wetland restoration. However, these holistic benefits are likely to be realised over a longer timeframe.



The full restoration of the Mauri (lifeforce) of the Kaipara Harbour and its ecological recovery is an intergenerational goal, expected to take 50-100 years.²² This timeline accounts for the extensive degradation that has occurred over time and acknowledges the slow pace of natural recovery processes. Addressing complex environmental issues like sedimentation and pollution caused by habitat loss requires adaptive management and sustained long-term commitment.

Over the coming decades, continued efforts across the catchment will be essential to build on initial sediment remediation and restoration activities. This includes widespread planting, fencing, wetland protection and restoration, native forest regeneration, and other sediment control measures. These efforts aim to ensure lasting benefits for future generations.



Ecological and ecosystem restoration of the Kaipara Moana

KMR aims to halve sediment flows into Kaipara Moana, significantly improving water quality as well as protecting biodiversity, restoring habitat for treasured and taonga species. Key activities to reduce erosion and sedimentation include riparian planting, wetland protection and restoration, assisted native regeneration and fencing to keep livestock out of waterways. These activities also reduce other freshwater contaminants, such as E-Coli, which are also a threat to waterway health.

Early signs of recovery will mean that improvements in water quality, biodiversity, and ecosystem health will become more noticeable. Some areas may start to show significant ecological recovery, with clearer waters in rivers, streams, wetlands and the Moana itself, along with the return of fish and shellfish populations, and restoration of mahinga kai.

The harbour also serves as a nursery ground for many fish species, including commercially important ones like snapper, rig and flounder.²³ It is an internationally significant habitat for migratory birds²⁴, such as the bar-tailed godwit, and a designated Marine Mammal Sanctuary, providing protection for critically endangered species like the Māui dolphin.²⁵ A survey conducted in 2010 identified 389 species present in the Kaipara Harbour, including 274 native species and 10 non-indigenous species.²⁶

The environmental output activities are important because the Kaipara Moana

supports diverse habitats, including tidal mudflats, mangroves, saltmarshes, and seagrass meadows, which are vital for various marine and bird species.

As at 30 June 2024, two and half years into operational delivery the following efforts are help to reduce sediment runoff and improve the water quality of the Moana:

- Over 129,000 hectares are now managed under KMR plans, promoting better land use practices and environmental stewardship.
- Over 1.88 million plants and trees have been planted or are contracted for planting.
- Close to 500 hectares of land has been planted or is contracted to be planted (often comprising narrow riparian strips).
- More than 201 hectares of area has been protected to assist natural regeneration of native forest.
- More than 800 km of fencing has been completed or is contracted (which is more than the distance from Cape Rēinga to Napier).

The environmental outputs achieved so far are significant steps towards reducing sediment runoff and improving water quality in the Kaipara Moana. However, it is too early to measure the long term benefits of these efforts, as these outputs contribute to environmental outcomes that take decades to be realised.

Increased Coastal Protection

Coastal protection services provided by the harbour's ecosystems such as mangroves and salt marshes help protect shorelines from erosion and storm surges. These services reduce the need for artificial coastal defences and prevent property damage. Research by Scion estimates the economic value of avoided sedimentation through erosion control in New Zealand to be approximately \$6.50 per cubic meter of sediment, based on the costs of sediment removal and infrastructure repair and other related costs.²⁷

Climate resilience

KMR's focus on tree planting, and riparian, coastal and wetland restoration contributes to carbon sequestration and increases the region's resilience to floods, storms, and other extreme weather events. This increased resilience is vital for protecting both the environment and local communities from the impacts of climate change. As at 30 June 2024, over 479 hectares of riparian, wetland, and coastal areas have been planted with native species²⁸ or poplar species to stabilise highly erodible hillsides. From winter 2024, larger-scale afforestation projects have been supported through KMR investments, particularly on erosion-prone hillsides.²⁹ As a result, KMR now operates across the full landscape to remediate sediment and reduce erosion risks to waterways and, ultimately, the Moana.



Economic benefits

How much value does the Kaipara Moana Remediation investment bring to New Zealand?

Although KMR is primarily focused on reducing sedimentation, improving water quality and creating local employment opportunities, it also indirectly supports the rural economy and the agricultural, aquaculture and tourism sectors.

The Kaipara Harbour directly supports fisheries, tourism and other recreational activities, contributing to the local, regional and national economies. These benefits contribute to improving the economic wellbeing of the Auckland and Northland regions, sustainable development and resilience against environmental challenges. As the snapper fishery is nationally important, restoring the Kaipara Moana also sustains nationally-relevant economic contributions to GDP.

While the KMR is primarily focused on reducing sedimentation, improving water quality and creating local employment opportunities the initiative will also deliver economic and financial benefits to the Northland and Auckland regions and across New Zealand.

Improving agricultural productivity

The Kaipara District's economy relies heavily on agriculture, forestry, and fishing sectors, which together accounted for 4,328 jobs in 2023 - nearly half of all employment in the district.³⁰

Healthier waterways and reduced soil erosion foster more sustainable farming practices, increasing crop yields and livestock health over time. KMR's support for retiring unproductive land (fencing off or planting) reduces agricultural input costs and avoids various on-farm costs (e.g., stock losses in wetlands or gullies), improving farm profitability.

Supporting sustainable aquaculture growth

The Kaipara Harbour serves as a vital nursery ground for commercially important fish species such as snapper, grey mullet, flounder, and rig. Over 90% of snapper caught commercially off New Zealand’s west coast originate from the Kaipara Harbour.³¹

Snapper is New Zealand’s largest recreational fishery and a significant commercial fishery. Snapper alone contributes approximately NZD 69 million annually to GDP and supports 579 jobs nationwide.³² Inshore commercial fishing as a whole contributed NZD 460 million to GDP in recent years.³³ A collapse of the snapper fishery would be costly, not only in terms of direct economic losses but also in terms of job losses and the broader impact on communities that rely on this fishery.³⁴

Support to tourism growth

Tourism is an emerging industry with significant growth potential in Kaipara. In 2023, tourism contributed \$41.9 million to Kaipara District’s GDP, representing 3.9% of its economic output. Activities such as fishing, boating, cultural experiences, and exploring natural beauty attract visitors who contribute to local economic growth.³⁵



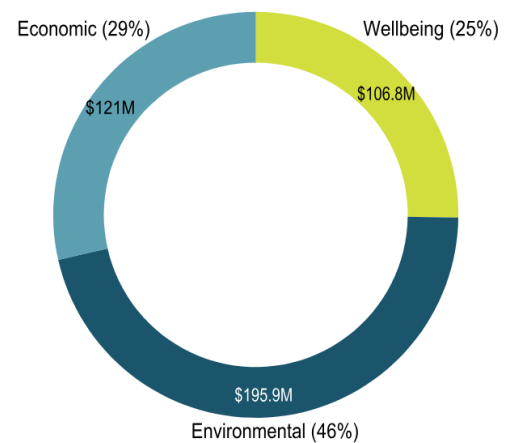
Financial return on investment³⁶

An independent analysis has been conducted to evaluate the projected economic impacts and returns from the \$200 million investment in restoring the Kaipara Moana. The full Economic Impacts of KMR report provides further details and should be read alongside this case study.

The Kaipara Moana Remediation (KMR) initiative is projected to deliver \$423.872 million in total benefits over 10 years (2020–2031), with \$3.94 returned for every \$1 invested. These benefits span contribution to economic growth, environmental protection, and community wellbeing.

- Modelling results show:
- Total benefits: \$423.872 million
- Benefit-to-cost ratio: 3.94:1 (for every \$1 spent, \$3.94 is generated)
- Net Present Value (NPV at 5%): \$316.219 million
- Payback period: Approximately 3.63 years (benefits begin to outweigh costs permanently after this period).

Graph 2: Benefits distribution – Scenario 1 (5% annual interest)



- **Economic Impact:** \$121 million, contributing directly to financial growth and development.
- **Environmental Impact:** \$195.9 million, focused on preserving and improving natural resources.
- **Wellbeing Impact :** \$106.8 million, enhancing community and social well-being.

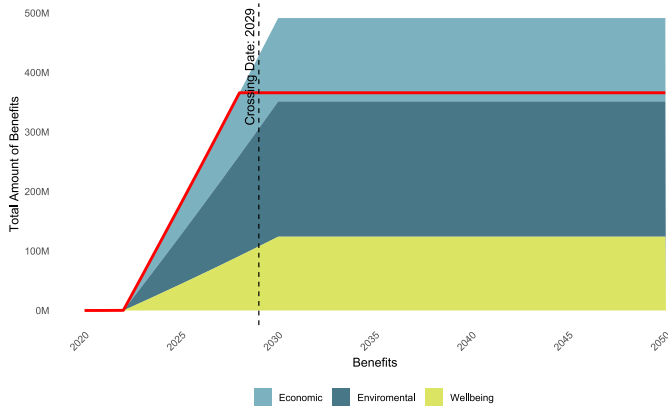
How the \$200 million investment boosts the economy

The Kaipara District is set to see a significant economic boost of \$178.7 million. Table 1 details the contribution of each economic impact type.

Table 1: Breakdown of economic benefits (\$178.9 Million)

Benefit Type	\$ Value	Description
Direct Impact	\$73.5 million	These impacts occur when KMR uses its funds to maintain projects and support landowners.
Indirect Impact	\$52.8 million	This impact happens when funding is used for business to business purchases.
Induced Impact	\$52.5 million	This impact results from wages paid during this process, which increases consumer spending.

Graph 3 – Total benefits of KMR (Scenario 1)



The analysis shows KMR is expected to deliver primarily economic benefits, with environmental and social gains playing smaller roles (Graph 2).

Why this matters for the public?

By 2029, the KMR investment will begin delivering net benefits to taxpayers, with environmental improvements like cleaner waterways and restored ecosystems continuing indefinitely. While economic returns taper off, the initiative ensures a healthier, more resilient Kaipara region for future generations.

The project’s financial return depends heavily on interest rate scenarios applied (S1-S4). For example:

Table 2 - Total EIA results (in \$000s) – Additional GDP¹

	Economic	Environmental	Wellbeing	Total
S1 - 5% annual r	\$121,003	\$195,981	\$106,888	\$423,872
S2 - 4% annual r	\$190,568	\$132,943	\$65,553	\$389,065
S3 - 6% annual r	\$167,924	\$101,864	\$48,719	\$318,507
S4 - 5% and halved benefits	\$89,459	\$58,033	\$28,171	\$175,663



¹ Note that different types of welfare benefits don’t respond the same way when interest rates change. The increase to production from investments happens straight away, while environmental benefits like carbon storage take much longer to build up. This means economic benefits aren’t as affected by interest rate changes (showing a 5.1% drop when rates rise from the first scenario (S1) to the second (S2)), compared to environmental benefits and wellbeing improvements. These more sensitive areas show bigger decreases of 12.9% and 14.2% respectively under the same interest rate changes.

Environmental and wellbeing benefits

KMR delivers significant environmental and wellbeing benefits beyond its direct economic impacts. The table below shows the monetary value of these benefits, with biodiversity improvements (\$203.07 million) and cultural values (\$106.07 million) providing the largest contributions. Together, these environmental and wellbeing benefits total over \$389 million, representing the substantial long-term value this restoration work brings to ecosystems, communities, and future generations.



Table 3 – Environmental and wellbeing benefits breakdown (Scenario 1 – 5% annual interest rate)

<i>Benefit</i>	<i>Explanation</i>	<i>Total Value</i>
<i>Improved water quality</i>	<i>Measures the economic value of cleaner water, leading to better health outcomes, reduced treatment costs, and enhanced aquatic ecosystems</i>	<i>\$25.10 million</i>
<i>Decreased risk of sickness</i>	<i>Measures the benefits of reducing health risks, leading to lower healthcare costs and improved public health outcomes</i>	<i>\$5.05 million</i>
<i>Improved biodiversity</i>	<i>Reflects the value of preserving biodiversity, which supports ecosystem services and provides cultural and recreational benefits</i>	<i>\$203.07 million</i>
<i>Improved water clarity</i>	<i>Measures the economic value of enhancing water clarity in waterways and lakes</i>	<i>\$16.73 million</i>
<i>Avoided loss of topsoil</i>	<i>Indicates the economic value of preventing soil erosion, which maintains land productivity and reduces sedimentation in waterways</i>	<i>\$0.07 million</i>
<i>Reduced stock loss</i>	<i>Measures the average yearly cost of stock loss in waterways</i>	<i>\$0.09 million</i>
<i>Aesthetic appeal</i>	<i>Reflects the value of improved aesthetic appeal, which can increase property values and enhance quality of life</i>	<i>\$0.11 million</i>
<i>Improved cultural values</i>	<i>Measures the benefits of being able to protect and promote Māori culture and practice</i>	<i>\$106.07 million</i>
<i>Increase in fish catch</i>	<i>Reflects the value of additional fish caught for recreational fishing due to improved water quality</i>	<i>\$21.95 million</i>
<i>Avoided flood damage</i>	<i>Measures the prevention of harm to people, property, and infrastructure from floodplain restoration</i>	<i>\$11.16 million</i>

The total value of each environmental benefit depends on how much the public thinks it’s worth.

To work out these values, we connect physical measurements (like kilometres of fencing or hectares of plantations) to specific economic values. New Zealand’s standard approach uses surveys showing what residents are willing to pay for benefits when available. Where this data doesn’t exist, we use avoided costs i.e. the costs society avoids by preventing environmental harm.



Limitations of the economic benefits model

The approach to estimating the economic benefits has several limitations:

- It's not possible to determine how the economic benefits are distributed among different regions where KMR takes place because the data isn't sufficient
- The assumptions needed for the input-output method don't consider changes in behaviour from consumers and businesses.
- The environmental output data available isn't detailed enough for a comprehensive analysis at this stage since it's early in the life of the KMR initiative. Therefore, conservative estimates have been used to account for these data limitations.

Conclusion

The KMR represents a bold and transformative step towards restoring the health of New Zealand's largest harbour. While significant progress has been made in the early years of this initiative, it is just the beginning of a long-term, intergenerational journey. The initiative's success hinges on sustained efforts over the next 30 years and beyond, requiring adaptive management, ongoing investment and most importantly, the active participation and support of landowners and communities.

Achieving these ambitious goals will demand continued collaboration with mana whenua, local stakeholders, and wider communities. Together, the aim is to ensure that Kaipara Moana thrives as a taonga for future generations - an enduring legacy of environmental restoration and shared responsibility.

Local vs national perspectives

The calculations separate the views of Kaipara District residents from other New Zealanders to improve accuracy. This ensures results reflect what communities actually consider harmful or valuable. For example:

- Reduced risk of illness from E. coli contamination ranks as the highest-value benefit due to avoided healthcare costs
- Ecosystem education value, marine biodiversity quality and cattle loss together contribute less than 1% of total benefits
- Carbon storage from planting riverbanks and forests makes up only 5% of total benefits, mainly because carbon prices per tonne remain low.

The model shows some benefits have limited public support for major investment, despite their environmental importance.



Glossary

Term	Definition
Biodiversity	The variety of all living organisms, including plants, animals, and microorganisms, within an ecosystem
Benefit	The measurable improvement resulting from a project or Programme (change) that is perceived as positive by one or more stakeholders and contributes to Programme objectives.
Benefit-cost ratio (BCR)	The BCR is the ratio of total discounted benefits to the total discounted costs. A BCR greater than 1.0 indicates that the benefits exceed the costs.
Carbon Sequestration	The process of capturing and storing atmospheric carbon dioxide in natural reservoirs such as forests or soil. In New Zealand, forestry is a significant method of carbon sequestration.
Cost-benefit analysis	A systematic approach used to evaluate the financial and economic desirability of a project or policy by comparing its costs and benefits over a specified period.
Cumulative Benefits	The total positive outcomes that accrue over time from a project or policy, such as long-term environmental improvements from wetland restoration in New Zealand.
Ecological Resilience	The ability of ecosystems to recover from disturbances like storms or human activities. Protecting native bush areas helps maintain ecological resilience in New Zealand.
Direct impacts	Impacts generated by the initial expenditure associated with the Programme.
Economic benefit	Measurable improvement to the financial aspects of an economy resulting from a project or Programme.
Economic impact assessment (EIA)	Analysis that quantifies the contribution that an activity makes to a geographical area in terms of output, GDP and employment.
Employment starts	Number of new people employed over a given period
Environmental benefit	Measurable improvement to the natural world and its ecosystems resulting from a project or Programme.
Environmental Degradation	The deterioration of natural environments due to human activities like deforestation or pollution. Examples in New Zealand include waterway pollution from agricultural runoff.
Full-time equivalent (FTE)	Unit of measurement of the number of full-time hours worked by all employees in a business. They provide a measure of total labour demand associated with expenditure.
Indirect impacts	Impacts that occur when businesses or people directly involved in the Programme purchase materials, goods and services from suppliers, who in turn make further purchases from their suppliers, and so on.

Term	Definition
Induced impacts	Impacts that occur when employees in those businesses providing the materials, goods and services are paid wages and the enterprises generate profits that are spent on consumption within the region.
Input-output table	A representation of national or regional economic accounting that records the way industries both trade with one another and produce for consumption and investments.
Intervention logic	Depiction of the logic that underpins an investment.
National GDP	The total value of goods and services produced within New Zealand over a specific period.
Net present value (NPV)	A financial metric that represents the difference between the present value of benefits and the present value of costs. A positive NPV indicates that the benefits outweigh the costs.
Payback period	The amount of time it takes to recover the cost of an investment.
Present value (PV)	The discounted value of future cash flows.
Public Health	The health outcomes of populations influenced by policies and environments, such as clean water initiatives improving public health in New Zealand.
Return on Investment (ROI)	A measure of profitability that calculates the return relative to the cost of an investment
Sedimentation	The accumulation of soil particles in waterways caused by erosion or human activity like construction.
Soil Erosion Prevention	Measures taken to prevent the loss of topsoil due to wind or water erosion, such as planting native vegetation on hillsides prone to erosion.
Theory of Change	A framework that explains how and why a desired change is expected to happen. It serves as a roadmap for programmes or organisations, outlining the activities they will undertake, the outcomes they aim to achieve, and the long-term positive impacts they hope to create. A theory of change is also referred to as an impact model.
Water Quality Improvement	Efforts made to enhance the cleanliness and safety of water bodies for ecosystems and human use.
Wetland Restoration	Rehabilitating wetlands to their natural state to support biodiversity and ecosystem services like flood control and water purification.

Appendix A Kaipara Moana Remediation Theory of Change (2024)



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