



Report

Financing restorative economies in Aotearoa New Zealand's marine and coastal space

Lima S, Stancu C, Cortés Acosta S,
Bridger T and Peacocke L

August 2023



Report for Sustainable Seas National Science Challenge project

2.2 Encouraging restorative economies in NZ marine spaces (MBIE Contract Number: C01X1901)

Report authors

Lima S, Stancu C, Cortés Acosta S, Bridger T, and Peacocke L

Date of publication

August 2023

For more information on this project, visit:

<https://www.sustainableseaschallenge.co.nz/our-research/restorative-marine-economies/>



Citation

Lima, S., Stancu, C., Cortés Acosta, S., Bridger, T., and Peacocke, L. (2023). *Financing restorative economies in Aotearoa New Zealand's marine and coastal space*. Sustainable Seas National Science Challenge.

About Sustainable Seas Challenge

Our vision is for Aotearoa New Zealand to have healthy marine ecosystems that provide value for all New Zealanders. We have 60+ research projects that bring together around 250 scientists, social scientists, economists, and experts in mātauranga Māori and policy from across Aotearoa New Zealand. We are one of 11 National Science Challenges, funded by Ministry of Business, Innovation & Employment.

Cover image: Mussel reef restoration activities and a patch of restored seagrass. Shaun Lee

Acknowledgements

We would like to thank the Sustainable Seas National Science Challenge (MBIE Contract Number C01X1901) for funding this research.

We greatly appreciate and thank Alex Rogers and Mathilde Richer de Forges for their thoughtful feedback and suggestions for improvement. We are also grateful for guidance, ideas, and feedback from Professor Nicolas Lewis and Sustainable Seas Challenge Director Julie Hall.

Disclaimers

This document has been prepared by EnviroStrat Limited for the exclusive use of the client and for a specific purpose, as stated in the document. No other party should rely on this document without the prior written consent of EnviroStrat Limited. EnviroStrat Limited undertakes no duty, or warranty, nor accepts any responsibility, to any third party who may rely upon or use this document. This document has been prepared based on the client's description of their requirements and EnviroStrat Limited's experience, having regard to assumptions that EnviroStrat Limited can reasonably be expected to make in accordance with sound professional principles. EnviroStrat Limited may also have relied upon information provided by the client and other third parties to prepare this document, some of which may not have been verified. Subject to the above conditions, this document may be transmitted, reproduced, or disseminated only in its entirety.

Glossary of terms

Biodiversity refers to the variability among living organisms from all sources including, terrestrial, marine and aquatic ecosystems, including diversity within species, between species and of ecosystems (Convention on Biological Diversity, 2006).

Blue carbon refers to carbon stored in coastal and marine ecosystems.

Blue carbon ecosystems have four main dimensions that can be mapped: extent, carbon stock, rate of carbon accumulation and loss, and species composition (Blue Carbon Partnership, 2021).

Blue economy refers to marine and coastal activities that generate economic value and contribute positively to social, cultural and ecological wellbeing (Sustainable Seas National Science Challenge, 2021).

Capital classes is an economic metaphors for complementary dimensions of human wellbeing (TEEB, 2018, p. 48), the four capitals are: human, produced, social and natural.

- **Human capital** refers to the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social, and economic wellbeing.
- **Produced capital** refers to all manufactured capital, such as buildings, factories, machinery, and physical infrastructure (e.g. roads, water systems), as well as all financial and intellectual capital (e.g. technology, software, patents, brands).
- **Social capital** refers to networks, including institutions, that share norms, values, and understandings that facilitate cooperation within or among groups (e.g. iwi and community groups).

Coastal and marine environments ‘can start on up to 100 kilometres inland, extend to the continental shelf, and include ocean systems with waters up to 50 metres in depth. The diverse marine ecosystems found in these environments comprise estuarine and coastal wetlands, including marshes and mangroves, seagrass beds, sand beaches and dunes, and coral and oyster reefs’ (Barbier, 2017, p. 507).

Economic activity is the combination of actions and processes that, based on inputs, result in a specific set of products or services.

Economic instruments are fiscal and other economic incentives and disincentives to incorporate environmental costs and benefits into the budgets of governments and organisations (OECD, 2003).

Ecosystem-based management involves managing the marine environment in a holistic and inclusive way. This means that competing uses are managed in a way that does not degrade the marine environment (National Science Challenges, 2020).

Ecosystem services refers to “the flows of benefits to people from ecosystems, commonly divided into the following categories: provisioning, regulating, cultural, and supporting. Examples of ecosystem services include providing food, materials, and energy (provisioning), preventing soil erosion (regulating), and enhancing recreation (cultural)” (Capitals Coalition & Cambridge Conservation Initiative, 2020, p. 10).

Environmental markets are markets that trade environmental commodities and involve multiple exchanges of credits or allowances. This definition includes markets for greenhouse gases (GHGs), water quality or nutrient discharge allowances, water quantity and biodiversity (Greenhalgh et al., 2010). These can be compliance or voluntary markets.

- **Compliance markets (also known as mandatory or regulatory markets)** are commonly created and regulated by mandatory government regulations.
- **Voluntary markets** are typically driven by consumer preferences, are not established or enforced by governments and a third independent party has the role of certifying the carbon credits.

Externality refers to the production or consumption of a good or service that imposes benefits (or costs) on others not directly related to their production or consumption. Additionally, benefits (or costs) are not reflected in the price charged for the goods or services.

Finance solutions refer to integrated approaches to solve a specific challenge or problem by the context-specific use of finance and economic instruments. Finance solutions seek to use one or more instruments to achieve a particular outcome and the desired financial result (UNDP BIOFIN, 2018).

Green (blue) bonds are debt instruments used to finance environmentally sustainable projects.

Impact investments are “investments made with the intention to generate positive, measurable social and environmental impact alongside a financial return” (Global Impact Investing Network, 2021).

Marine economy / ocean economy refers to all economic activity in and around the marine environment, sustainable or otherwise.

Nature-based solutions refer to ‘actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively,

simultaneously providing human wellbeing and biodiversity benefits' (Cohen-Shacham et al., 2016, p. 4).

Natural asset refers to 'naturally occurring living and non-living entities that together comprise ecosystems and deliver ecosystem services that benefit current and future generations' (Dasgupta, 2021).

Natural capital refers to a stock of renewable and non-renewable natural resources (e.g. plants, animals, air, water, soils, minerals) that combine to yield a flow of benefits to people (Capitals Coalition & Cambridge Conservation Initiative, 2020).

Ocean economy refers to the sum of the economic activities of ocean-based industries, assets, goods, and services of marine ecosystems (OECD, 2016). This definition does not imply sustainability of these activities. In this report, it is equivalent to the marine economy.

Ocean finance refers to an effective investment of financial capital towards activities and sectors that impact the oceans positively. It considers public, private and cross-sector finance solutions aiming the ocean health and good ocean governance (Walsh, 2018).

Ocean natural capital is the total available biophysical stock of natural resources in the ocean, for example, fish stocks, minerals and energy resources, mangrove forests, and so on (Patil et al., 2016).

Payment for ecosystem services refers to 'transactions where users of ecosystem services contribute financially to the stewards of the services. As a concept, it seeks to link how humans value ecosystem services to changes in how an ecosystem functions due to exploitation. However, calculation of this link is a fundamental challenge for many intangible ecosystem services provided for by the ocean. As such, some calculations are made through contingent valuation – where a user defines their willingness to pay for the continuation of an ecosystem service, or be compensated for its loss' (de Vos et al., 2020, p. 20).

Restorative economies are initiatives that foster new investments and business enterprises aiming to reverse environmental degradation and protect or restore natural capital. Although the notion and definition of restorative economies continues to evolve, it refers to the melding of environmental restoration and business or investment activities (Cortés Acosta et al., 2021).

Sustainable finance refers to "the process of taking environmental, social and governance (ESG) considerations into account when making investment decisions in the financial sector, leading to more long-term investments in sustainable economies and projects" (European Commission, 2021).

Sustainable investing refers to 'a range of different types of asset classes and investment approaches. Some types of sustainable investing focus on using investor capital to make the world greener. Others focus on generating financial returns by looking for opportunities in companies that are likely to do well in a low-carbon economy, or by reducing exposure to climate change risks' (Credit Suisse, 2022).

Acronyms

| | |
|-------------|--|
| ES | Ecosystem service |
| EBM | Ecosystem-based management |
| ESG | Environmental, social and governance |
| GDP | Gross domestic product |
| GHG | Greenhouse gas |
| GRI | Global reporting initiative |
| HGMP | Hauraki Gulf Marine Park Ko te Pataka kai o Tikapa Moana Te Moananui a Toi |
| MPA | Marine protected area |
| MRV | Monitoring, reporting and verification |
| MSP | Marine spatial planning |
| NbS | Nature-based solutions |
| NETR | Natural environment targeted rates |
| NGO | Non-governmental organisation |
| NZ ETS | New Zealand emissions trading scheme |
| OECD | Organisation for Economic Cooperation and Development |
| PES | Payment for ecosystem services |
| SDG | Sustainable development goals |
| SEA | Strategic environmental assessments |
| SEEA | System of environmental-economic accounts |
| Stats NZ | Statistics New Zealand |
| SNA | System of national accounts |
| TCFD | Taskforce on Climate-related Financial Disclosures |
| TNFD | Taskforce on Nature-related Financial Disclosures |
| UNDP BIOFIN | United Nations Development Programme Biodiversity Finance Initiative |
| UNESCO | United Nations Educational, Scientific and Cultural Organisation |
| VCM | Voluntary carbon market |

Contents

| | |
|---|----|
| Executive summary..... | 8 |
| Introduction | 11 |
| Part 1: Context and research background | 13 |
| Blue economy: concept and definition..... | 13 |
| Ecosystem (seascape) scale impact investment challenges and opportunities..... | 17 |
| Enabling investment into restorative economies: stakeholders’ perspectives..... | 19 |
| Part 2: Ecosystem-level impact investment framework for marine restorative economies | 25 |
| Evaluation context..... | 26 |
| Monitoring and Evaluation (M&E) | 26 |
| Revenue streams | 27 |
| Part 3: Impact framework case study: Hauraki Gulf Marine Park..... | 29 |
| Methodological approach and assumptions | 30 |
| An impact investment framework for the Hauraki Gulf | 31 |
| Financing strategies and financial instruments | 39 |
| Drivers for investment and trends | 39 |
| Creating an enabling environment for impact investments | 43 |
| An investment thesis or proposition for the Hauraki Gulf..... | 44 |
| Conclusions | 45 |
| Lessons learned and insights from investors and case study..... | 45 |
| Knowledge gaps | 46 |
| Actions and pathways forward | 46 |
| References | 48 |
| Appendix one: semi-structured interviews, sample, and methodology | 55 |
| Appendix two: overview of selected economic studies of relevance for restorative marine economies | 56 |
| Appendix three: summary of expenditures and incomes associated with environmental activities and budget lines | 58 |

Executive summary

This report is a final output of the research project ‘Restorative marine economies: Encouraging restorative economies in Aotearoa New Zealand’s marine spaces’. It’s part of a broader area of research on the blue economy under the Sustainable Seas National Science Challenge. The project develops knowledge, frameworks, and decision-support tools to enable restorative marine economies to emerge in New Zealand.

This report is divided into three parts.

- Part 1 describes key concepts and the research background.
- Part 2 proposes the theoretical framework forming the basis for an impact investment framework proposition.
- Part 3 covers the application of the impact investment framework in the Hauraki Gulf Marine Park, and related insights and recommendations.

Purpose and methodology

This report was prepared to capture lesson about investing in restorative marine economies and applying the impact investment framework at the seascape level in the Hauraki Gulf Marine Park (HGMP). A seascape approach reflects the principles of Ecosystem-Based Management (EBM) as defined by Sustainable Seas. This study builds on the knowledge developed through interviews and workshops with impact investment experts, project developers, iwi, NGO and community representatives, and researchers. The report has been informed by a desktop review, insights about financing conservation and restoration activities, and data about Aotearoa New Zealand’s marine economy and marine sectors operating in the Hauraki Gulf Marine Park/Ko te Pataka kai o Tikapa Moana Te Moananui a Toi (HGMP).

High level insights and lessons learned

Insights from interviews with investment and finance sector participants, and workshops with experts and knowledge holders were grouped around broad themes to capture ideas for those involved in restorative economies. These themes below present a frame of reference for further research and investigation.

Scaled-up visioning

Finance sector investors identify investment opportunities when projects are beyond pilot and testing stages. They look for pathways to scale up and / or replicate successful projects. The presence of a scaled-up vision is commonly an important factor for finance sectors investors when considering allocation of capital. It tends to promise long-term returns and can suggest robust strategic and business planning. The opportunity to replicate a solution is one pathway to scaling up. Another is to begin with a scaled-up conception of the ecosystem to be restored, which this report understands as a ‘seascape scale’. A seascape scale approach may involve multiple projects at different scales and multiple investors, where a scaled-up vision will involve a portfolio approach that aligns the investment opportunities and creates added returns from synergies.

Risk-return profile of projects

Projects in a restorative marine economy, individually or as an aggregated portfolio, need a clear investment risk profile and the ability to generate risk-adjusted financial and non-financial returns. The ability to articulate the impact generated from investments and to calculate the monetary value of ecosystem services can help to mitigate the risk profile of projects to make it more attractive for investors.

Seascape approaches

Restorative economy opportunities will commonly involve a mix of investors and expected return profiles. This may involve finance sector investors, green investors, iwi investors, Regional Councils, and government agencies. These investors may have different required financial rates of return and expectations of natural and social capital returns. Two things transpire: Investors will often favour different initiatives at different scales and have different scaling-up visions, and individually and collectively they may be able to achieve higher returns across different capitals through a portfolio approach. Seascape-scale vision brokering and connecting projects will be important for achieving goals. Setting regulatory frameworks that will help to make projects investable for restorative economy will also be important.

Reputational, and environmental, social, and governance (ESG) practices

The ability to operate in a sustainable and favourable environment, where consumers and taxpayers value the natural environment and the socio-economic environment, is essential. A positioning around restorative economies (and practice) appears to come with a pre-formed view and expectation of a licence to operate backed by relevant values and business practices.

A commonly mentioned incentive for investing in sustainable practices or environmental restoration or conservation was linked to ESG practices. Reputational concerns can support investment in restorative actions, and conversely can lead to decisions by investors not to commit capital. ESG practices are factors that investors, stakeholders, and regulators use to evaluate the sustainability and ethical impact of a company's operations. ESG criteria go beyond traditional financial performance metrics and consider a company's impact on the environment, its relationships with stakeholders, and the quality of its corporate governance practices.

Knowledge and science

Gaps and barriers for further investor engagement with conservation and restoration projects include the need for clear standards for natural and social capital valuation, natural capital accounting, and impact metrics. Insufficient information to assess environmental risks and opportunities linked to an investment, or to accurately evaluate its social and environmental impact, result in undervaluation of environmental assets and market failures. Market prices often do not reflect the actual value of environmental assets or the costs of environmental degradation. Standardised impact metrics are needed to compare and evaluate the effectiveness of different conservation and restoration projects, and to facilitate investment and funding.

Revenue models

The ability to generate and capture revenue to finance restoration is a relatively new approach in New Zealand that needs further development. Investors continue to focus on investments in sustainable commodities like fisheries or aquaculture due to the predictability of revenues and being asset backed. Outcomes such as biodiversity and carbon sequestration are desirable but the extent to which they are pursued is informed by the implications to financial return. Multi-species aquaculture, seaweed, and blue carbon sequestration were areas of interest to investors – either as stand-alone revenue options or weaved into existing business revenues.

The Hauraki Gulf pilot

This report introduces a pilot case study for restorative economy investment at a seascape scale. The following lessons from the pilot can be applied in other contexts in New Zealand, outside the Hauraki Gulf Marine Park Impact Framework Case Study.

- The concept of investment at seascape level requires a change in perspective for investors and environmental groups and project developers alike. Collaboration and coordination among iwi

and stakeholders are key aspects of the governance of investable restoration projects.

- Tracking investments and corresponding impacts requires structuring projects as business models with a clear indication of the necessary inputs, revenue or impact generation models, risks, and timeframes.
- The value proposition of investing in a restorative blue economy is informed by narratives around the benefits of ecosystems (dependency on ecosystem services), meeting needs for conservation and protection (known as the conservation finance gap, and regulatory pressure), minimising future losses (wealth preservation) as well as opportunities for economic growth (profit-making).
- Where private sector investment in restoration activities is not well developed, defined, or quantified but the potential impact of marine economic activities has been assessed, converting part of the investment channelled into (or generated by) unsustainable marine sectors is critical for internalising externalities and preventing continued ecosystem loss.
- Tools and frameworks for mainstreaming nature and biodiversity into investment decisions in New Zealand are underdeveloped and not yet integrated into an accepted framework. They lack the measurement and evaluation architecture necessary to attract financial investment. Investment models have yet to be developed for assessing and aggregating investment risks and revenue opportunities and monetising positive benefits from restoration in marine contexts.
- The Sea Change marine spatial plan for the Hauraki Gulf lays valuable groundwork and establishes some context for marine protection. As New Zealand's first marine spatial plan, it's still on the pathway to fully realize its potential in promoting sustainable use of Hauraki Gulf's natural resources. Sea Change future reviews could incorporate robust application of ecosystem-based management (EBM) approaches and natural capital accounting while securing sufficient resources for its implementation.

Introduction

This report is part of a series to establish the knowledge foundations for the research project 'Restorative marine economies: Encouraging restorative economies in Aotearoa New Zealand's marine spaces'. It aims to develop knowledge, frameworks, and decision-support tools to enable restorative marine economies to emerge. The report is part of *Theme 2: Creating value from a blue economy* (phase II of the Sustainable Seas National Science Challenge).

The previous report in the series introduced a discussion on restorative economies in blue (marine and coastal) environments (Cortés Acosta et al., 2021),¹ positioning *restorative economies* as initiatives that foster new investments and business enterprises aiming to reverse environmental degradation and protect or restore natural capital. They are part of the blue economy spectrum seeking to create new business value from sustainable investments in ecosystem restoration. Several assumptions are made.

- Restoration will create multiple ecosystem benefits that contribute to wellbeing, such as habitat creation, water quality improvement, and climate change mitigation and adaptation.
- Many of these benefits are quantifiable, and some are verifiable and can be potentially monetised.
- Active investment in ecosystems and nature-based solutions (NbS) will occur if benefits can be identified, qualified, and quantified.

This report sought to understand opportunities and challenges in building restorative economies in New Zealand from the investment and finance perspective. The research provides an impact investment framework to enable economic mechanisms to emerge for restoration of coastal and marine environments at the seascape level. The purpose of an impact investment framework is to enable strategic planning and prioritisation of restorative economy projects based on predicted impacts, delivery of multiple benefits, and management of uncertainty. The impact investment framework seeks to translate a long-term vision for restoration and conservation at the seascape level into a blueprint for investment planning and decisions. 'Blueprint' refers to a plan within a regional ecosystem.

According to *State of Finance for Nature* (Mulder et al., 2021), the deployment of public and especially private investments for activities promoting environmental restoration is hampered by several things, including limited understanding and demonstration of commercially viable business models, high perceived risk by impact investors, limited track record and market transparency of successful ventures, absence of long-term capital or concessional finance, and systemic market failures such as perverse subsidies and failure to value externalities.

This report expands on the concept of restorative economies and a seascape-level approach to investments. Both are important tools for leveraging investments in the conservation and restoration of coastal and marine ecosystems (Cortés Acosta et al., 2021). The Hauraki Gulf Marine Park is used as a case study to assess the depth and breadth of available information on investments and financial flows to support coastal and marine restorative economies. The assessment provides a comprehensive overview of the ecological, social, and economic values of a coastal and marine area, aiming to enable a more targeted and effective approach to conservation and restoration efforts.

¹ For further information see [Restorative marine economies](#).

The report also highlights the importance of ecosystem-based management (EBM) of complex social-nature interactions in marine ecosystems. EBM recognises the importance of maintaining ecosystem integrity and functioning while balancing the needs of multiple users and stakeholders. By adopting an EBM approach, marine resources are used sustainably, and ecosystem resilience is maintained in the face of environmental change and human activities. Effective EBM requires collaboration and cooperation among scientists, policymakers, and local communities to develop management strategies that are science-based, adaptive, and inclusive.

Private investments play a critical role in funding conservation and restoration efforts under the overarching EBM approach. Public and philanthropic funding alone is insufficient to address the scale and complexity of coastal and marine conservation challenges. However, private investors require a clear understanding of the risks and opportunities associated with investing in conservation and restoration projects, as well as a robust assessment of risks and potential returns on investment.

A seascape-level assessment provides understanding of the ecological health and resilience of a coastal and marine area, identifies threats and stressors, and outlines the potential benefits of conservation and restoration efforts, trade-offs and externalities of existing economic activities sharing the same space. A seascape-level assessment and restorative economy approach can support the proposal of an impact investment framework through:

- developing a comprehensive investment strategy that maximises the benefits of private investments in conservation and restoration
- enabling partnerships between private investors, conservation organisations, iwi and local communities – partnerships are critical for ensuring the long-term success of conservation and restoration efforts, as they enable the sharing of expertise, resources, and knowledge, as well as the development of innovative solutions to complex conservation challenges
- understanding synergies and trade-offs among activities sharing the same seascape by highlighting interdependencies between natural, social, and economic capital
- identifying essential knowledge gaps and uncertainties that are bottlenecks for further investment in conservation and restoration at the seascape level.

Part 1: Context and research background

Previous reports in this research series introduce the restorative economies conceptual framework. This report expands the conceptual framework and proposes applying these concepts at an ecosystem scale for the Hauraki Gulf Marine Park as a case study to test an impact investment framework's applicability and underpinning concepts.

The Restorative Economies research explored and established a series of concepts and principles (Cortés Acosta et al., 2021). The proposed impact investment framework expands and consolidates the concepts and principles by further testing their application as a case study at a seascape level – The Hauraki Gulf Marine Park (presented in Part 3).

The systems and principles underpinning restorative economies are aligned with ecosystem-based management (EBM) approaches and can be observed in different land or seascapes. This report focuses on the connection between restorative and blue economies, explores the drivers and barriers for active investment in restoration and activities with net positive impacts², and outlines the challenges of applying EBM principles at the seascape level.

Blue economy: concept and definition

Mobilising finance for coastal and marine restorative economies requires appropriate structuring, several types of capital (i.e. public, philanthropic, and private investment), and investment mechanisms (e.g., impact bonds, blue bonds, and blended finance). Figure 1 depicts 'levels' within a spectrum in the blue economy (EnviroStrat, 2019).

Depending on focus and objectives, economic activities can be positioned in one or more levels. The 'prospective' level where restorative economies lie, includes activities to redress environmental harm and to produce net positive outcomes for nature and people. A business or entire sector can invest in innovative nature-based solutions to address some of the challenges it faces while improving other activities at the 'evolving' or 'emerging' levels by adopting more sustainable practices.

Restorative economy is a term used to describe an economy that combines business activities with environmentally sustainable and actively restorative practices. Mobilising finance for coastal and marine restorative economies requires appropriate structuring. This structuring is likely to include different types of capital, for example public, philanthropic, and private investment. It also requires different investment mechanisms, for example impact bonds, blue bonds, or blended finance.

Restorative economy initiatives lie at the top of a blue economy pyramid. Any specific investment in a restorative economy may involve activities in other parts of the pyramid but should produce net positive outcomes for nature through restoration and doing no new harm. Restorative economy investments are likely to involve a clear vision and steps to get there.



Figure 1. Blue economy spectrum and restorative economies. Adapted from Cortés Acosta et al. (2021).

² See for example [What is Net Positive? | Forum for the Future](#).

The Sustainable Seas National Science Challenge defines the blue economy in Aotearoa New Zealand as marine and coastal activities that ‘generate economic value and contribute positively to social, cultural and ecological wellbeing’ (Lewis et al., 2020).³ The definition is deliberately aspirational and designed to initiate a transition towards a more sustainable marine economy that is underpinned by a set of principles ([Blue Economy Principles](#), Sustainable Seas 2023), but this is not a definition that can be used to utilise standard industry based data (Lewis et al., 2020).

The marine economy in New Zealand is a satellite account governed by, and consistent with, the System of National Accounts (SNA). Marine economy accounting based on the SNA does not consider broader approaches to marine sustainability value attribution and Statistics New Zealand does not consider all attributes of a blue economy in its system of environmental-economic accounts (SEEA). Only environmental assets with an economic value that can be measured using the valuation principles of SNA are included in the SEEA central framework (Stats NZ, 2020).

As a result, policy discussions about the potential of a blue economy in New Zealand tend to be informed by aggregate information on marine sectors according to the industry categories identified by the [Australian and New Zealand Standard Industrial Classification 2006](#) (ANZSIC06). The Sustainable Seas National Science Challenge understands this interpretation of activities utilising marine resources as the national marine economy, in line Statistics New Zealand. The categories and descriptions of activities under each category are consistent with other countries and provide a stable time series for analysis, allowing comparisons and benchmarking. The six major sectors of the [New Zealand’s marine economy](#) are:

- fisheries and aquaculture – includes seafood processing and wholesaling and excludes onshore aquaculture⁴
- government and defence⁵
- marine services – includes other water transport besides passengers and cargo, such as salvage, towing, and pilotage services
- marine tourism and recreation – only reflect the economics of marine equipment retailing and leave out other relevant tourism and recreation classes such as boating and recreational fishing
- offshore minerals – includes oil extraction, natural and petroleum gas extraction and exploration, and oil shale mining
- shipping – aggregates ship, boat building and repair services, water borne cargo and passenger transport, and operation of transport terminals.

³ As discussed in our previous report (Cortés Acosta et al., 2021), the spatial dimension was added to consider the inherent association with the land-sea interface.

⁴ Onshore aquaculture refers to farming fish, crustaceans or molluscs in tanks or ponds onshore according to ANZIC 0203 classification.

Measuring the total value of the national marine economy and its contribution to the national economy at sectoral and aggregate scales has important limitations (Lewis et al. 2020; Stats NZ, 2019; Yeoman et al., 2019). In this report, we recognise these limitations and the value of Sustainable Seas’ definition of blue economy. Its aspirational intent aligns with efforts to stimulate restorative economies and with the motivations of many potential investors. We use marine economy measures as a proxy for a blue economy sparingly, but in the absence of measures of blue economy per se they can be helpful for discussing opportunities and potential measures of return for investors.⁶

Four capitals and the wellbeing approach to the blue economy

A four capitals approach has been applied to help measure and set targets for the marine restorative economy, consistent with the [New Zealand Wellbeing Framework](#) (The Treasury, 2019). In the context of restorative marine economies, produced capital depends on and interferes with the other three capitals – natural, human, and social (Figure 2). Ecosystem services are important benefits that society and businesses obtain from natural capital.

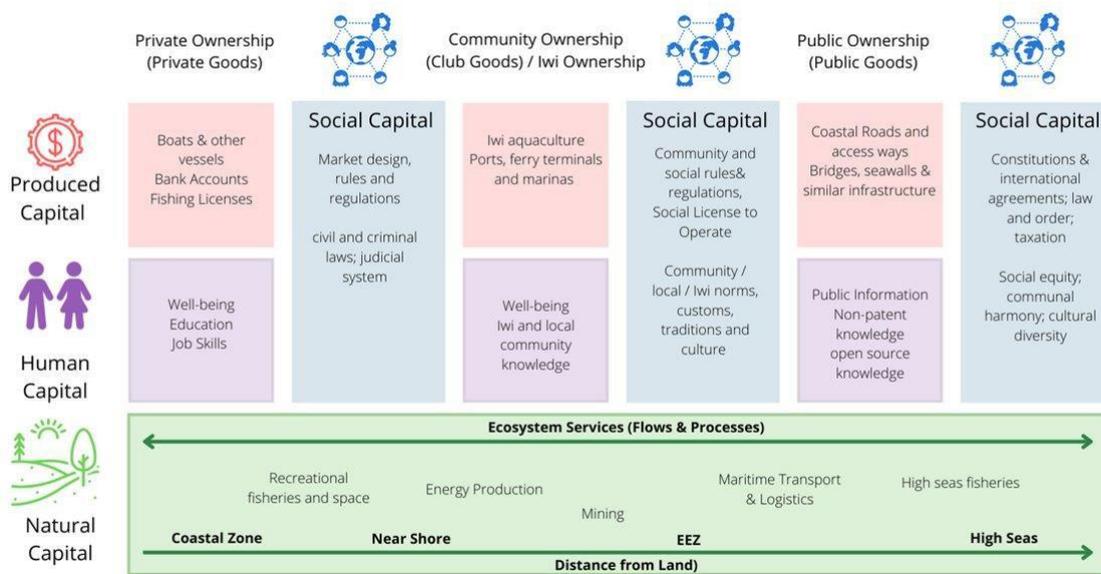


Figure 2. Capital classes and ownership categories for the blue economy. Adapted from (TEEB, 2018, p. 49)⁷.

⁵ According to Stats NZ (2019), the latest estimates for the 2007 and 2017 years include a partial measure of government and defence, which only considers local government recorded expenditure under the activity code for marine safety.

⁶ The sectors of the blue economy used by Yeoman et al. (2019) are offshore minerals (14%), commercial fisheries (15%), coastal tourism (41%), infrastructure and transport (21%) and government and services (9%). The marine economy considered by StatsNZ comprises marine services, fisheries and aquaculture, offshore minerals, and shipping.

Impact investment challenges in the blue economy: aligning demand and supply

Recent studies on impact investment and the profile of impact investors point to the challenges in aligning the demand for, and supply of, investable projects in the blue economy (World Economic Forum, 2022; Yaşar, 2021). The ongoing challenge is that investors' risk-averse 'capital preservation' approach is at odds with the scale and nature of projects seeking to deliver climate and biodiversity outcomes. This makes accessing capital challenging for interventions focusing on restoring natural assets and ecosystems.

New visions of economic possibilities are emerging to recognise the importance of identifying and capturing multiple benefits for investing in natural assets i.e. beyond financial return alone. Realising these opportunities will require a change in mindset – from a singular and short-term focus on financial return to a long-term investment approach that aligns with the restoration process for different ecosystems. It will require investing in initiatives that have both a long-term view **and** are rescaled to meaningful scale for management and ecological restoration, often by combining multiple projects. Impact investors' motivation will vary from a desire to reduce pressure over natural and social capital or improve their outcome (or both). To assess potential projects, investors may also focus on the efficiency of the capital invested.

UNDP BIOFIN develops a biodiversity finance framework to determine the connection between biodiversity outcomes and four key desired financial results (see Figure 3) – avoid future expenditures, realign expenditures, deliver better measures and results for biodiversity outcomes, and generate revenues (UNDP BIOFIN, 2018). The connection between biodiversity outcomes and desired financial results can be via (i) reducing pressure on biodiversity, such as implementing a fish quota management system, or (ii) improving biodiversity outcomes that can be measured, such as expanding marine protected areas.

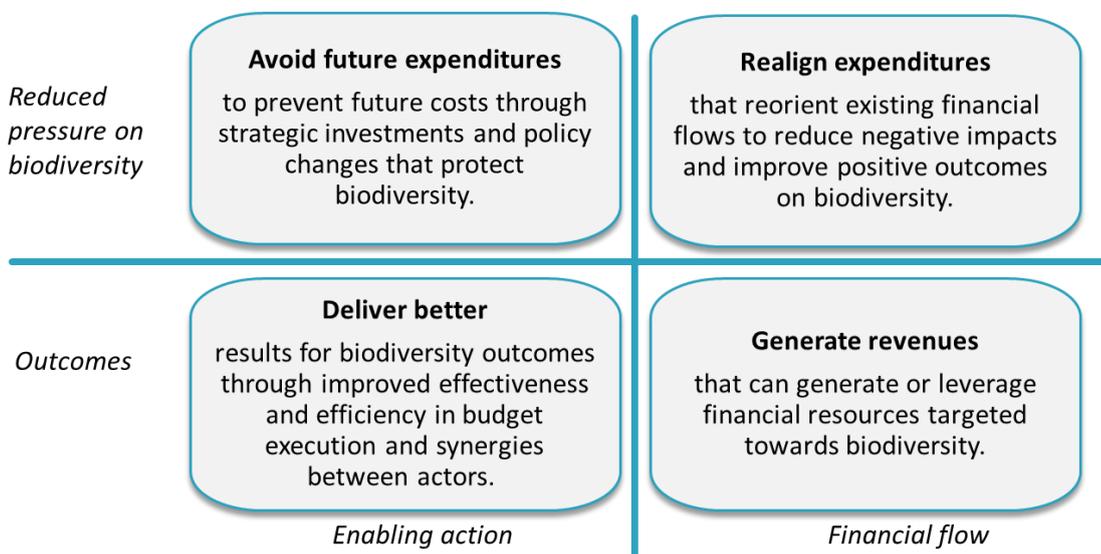


Figure 3. The connection between biodiversity outcomes and desirable financial results. Adapted from UNDP BIOFIN (2018)

⁷ Club goods in the diagram is defined as public goods with benefits restricted to a specific group (Atik & Ünü, 2019).

Financial flows and investment in restoration are of paramount importance to preserve and recover biodiversity. Deutz et al. (2020) estimate that the global biodiversity financing gap, which includes sustainable fisheries management and coastal resilience, was between US\$ 598-824 billion per year in 2019.⁸ Although the proportion of the global biodiversity financing gap for marine and coastal ecosystems has not been calculated, it's likely to be insufficient in scale and not effectively distributed (Sumaila et al., 2021).

Information regarding financial flows towards biodiversity in Aotearoa New Zealand is sparse. The scale of the biodiversity financing gap is uncertain, but it's clear that financial flows have been heavily directed to terrestrial biodiversity rather than marine and coastal ecosystems (Department of Conservation, 2019; Hall & Lindsay, 2021). A full calculation of financial flows for marine and coastal ecosystems goes beyond the scope of this report, but this information is critical to enrich the debate on the needs and importance of investment in restorative economies.

The biodiversity financing gap reflects a misalignment between the need for conservation or restoration funding (demand-side) and investment sources seeking positive biodiversity outcomes (supply-side). Therefore, there is a necessity to shift towards new investment approaches that better integrate the financial benefits and economic value of biodiversity. Perspectives on the future funding of restorative economies within the marine and coastal ecosystems of Aotearoa New Zealand, are encouraging due to the rapid progression of mechanisms and tools utilised to influence spending.

Ecosystem (seascape) scale impact investment challenges and opportunities

A different way to approach blue economy is through a place-based context. Under this context, the seascape level considers the interaction between economic sectors, the environment and people in a specific area of interest, and at a scale that is meaningful in ecological and management terms, and one that is investable for restorative capital.

According to Murphy et al. (2021), seascapes can be described as extensive marine areas that are scientifically and strategically defined, where various entities such as government authorities, private organizations, and stakeholders work together to safeguard marine life's diversity and abundance while promoting the well-being of humans. The seascape approach serves as a practical framework for applying the principles of Ecosystem-Based Management (EBM), which emphasises the importance of maintaining ecosystem health and human well-being.

Impact and dependencies of economic activities and the natural resources are seen in a holistic way, which means that any analysis should consider interactions rather than isolated economic activities.

⁸ Deutz et al. (2020) estimate that as of 2019, the annual financial flow towards biodiversity conservations was at US\$124-143 billion per year (equivalent to 0.12-0.14% of global GDP in 2019), against an estimated future global biodiversity funding needs of US\$722–967 billion per year by 2030. Thus, the global biodiversity financing gap was US\$ 711 billion per year in 2019 – with a potential range of US\$ 598–824 billion per year.

Seascope-level approaches to ecological recovery can also provide for long-term interventions and scale. This is an important approach for addressing known challenges in investment, such as the need for scale, but also as means for rallying communities and stakeholders. While the need for such approaches is recognised, its application in practice presents both challenges and opportunities. A description of selected challenges is presented below.

The challenge of determining impact and dependencies at seascope level

Attribution of value for impact investments is a complex task as it will vary according to investor perspectives and goals. However, the value of nature and socio-economic benefits results from weighing the attributed values of capitals discussed previously. While direct benefits may be easier to account for when considering impact investments, indirect benefits will require a better understanding of activities and business dependencies and impacts on the socio-environmental context with which they interact. Accounting for externalities⁹ for example, is a common approach for assessing negative environmental impact of activities, and is frequently overlooked by economic sectors (Unerman et al., 2018).

Business may directly or indirectly depend on nature. A direct dependence on nature means that businesses rely on natural assets for operations, supply chain performance, real estate asset values, physical security, and business continuity. An indirect dependence (or a fallout of business impacts on nature) might also correspond to loss of customers or market share, costs of legal actions because of business actions triggering nature loss and other negative impacts ([WEF, 2020](#)).

Analyses and methodologies for assessing nature-focused dependencies and impacts have recently been published by the Taskforce on Nature-related Financial Disclosures (TNFD). The TNFD introduces the [LEAP Nature Risk Assessment Approach](#), corresponding to an integrated assessment process for nature-related risk and opportunity management, where 'LEAP' stands for:

- locating where businesses and initiatives interface with nature
- evaluating the dependencies and impacts
- assessing risks and opportunities
- preparing to respond to nature-related risks and opportunities, and report on the response and outcomes.

Although the LEAP approach itself is not mandated for disclosing impacts and dependencies on natural assets, it can be used by businesses, and financial institutions to enhance understanding of how activities affect, and are affected by, attributes at a seascope level, including environmental aspects and commercial activities.

⁹ The Dasgupta Review discusses externalities from the perspective of market difficulties in adequately recording the use of nature's goods and services and assigning them a price, as well as the underlying challenge of defining property rights to goods and services that are mobile (i.e. much of nature consists of 'fugitive resources'). Moreover, the harms caused to nature are non-excludable, that is, it is not possible for people to pick and choose who is affected (Dasgupta, 2021).

The United Nations Environment Programme (2023) launched a methodology for profiling nature-related dependencies and impacts. The methodology allows for measuring nature and biodiversity related exposure of companies and investments. It aligns with TNFD's disclosure framework and can help the investment decision-making process.

There is also a need to observe impacts and dependencies of economic sectors that interact in the same ecosystem. At the ecosystem level, the analysis expands from the individual level of investments and companies to the complex interdependencies between economic sectors and initiatives within the same space, for example, at the seascape level.

In integrated Ocean Management and Marine Spatial Planning (MSP) for example, Strategic Environmental Assessments (SEA) are applied to support decision-making (OECD, 2006). SEA evaluates the impacts and trade-offs between various drivers and factors influencing the seascape under analysis. In New Zealand, SEA is used to deal with strategic issues under the Resource Management Act 1991 with the emphasis on processes of participatory planning as part of policy and plan development. Examples of the application of SEA in New Zealand include the development of district plans and regional land, water, and coastal plans, and plan changes (Wilson & Ward, 2010).

Enabling investment into restorative economies: stakeholders' perspectives

Two stakeholder engagement methods were used: semi-structured interviews and a stakeholder workshop. Fifteen semi-structured interviews were conducted to explore investment perspectives, value attribution, and how natural capital is considered in investment propositions (see [Appendix One](#) for more details on the methodology). The workshop involved stakeholders with experience in impact investment in Aotearoa New Zealand, or restoration initiatives, including in the Hauraki Gulf Marine Park.

The base principles of thematic analysis guided the inquiry (see [Appendix One](#)). Thematic analysis is a method for identifying, analysing and reporting themes (or patterns) within the interviews (Braun & Clarke, 2006). After analysing the interview results, the research team identified themes or topics discussed further during the workshop (see Figure 4).

- **Scale-up visioning:** Finance sector investors attach priority to scale-up visions i.e. to invest in projects that have matured successfully beyond pilot stages – they look for clear pathways to scaling up or replicating the project in other settings after successful pilots. A scale-up vision is an important criterion applied by investors when considering allocation of capital. It indicates future return potential and robust strategic and business planning, which is important for securing investment in restoration outcomes. Investors suggest that opportunities to replicate a solution represent a pathway to scale up. Importantly, scaling up the target of recovery and restoration is a way to scale-up. In this context, planning at a seascape level is one strategy, even if it adds new complexities to the challenge of measuring net positive outcomes – either at scale or in relation to the aggregation of multiple projects. This is further explored during the development of the Hauraki Gulf case study in part two of this report.
- **Robust and clearly articulated risk-return profiles:** Investors agree that projects in a restorative economy, individually or as an aggregate, need a clear investment risk profile and the ability to generate risk-adjusted financial and non-financial returns. This would enable alignment between financial instruments and projects, and investors' willingness to invest. The ability to articulate the impact generated and to monetise ecosystem services can help to mitigate the risk profile of projects to make it more attractive for investors.
- **Reputation, and environmental, social and governance (ESG) practices:** The ability to operate

in a sustainable and favourable environment where consumers and taxpayers value the natural environment, and the socio-economic environment is seen as essential for a restorative economy. Investors in restorative economy projects expect that those projects come with a social license and are backed by relevant values and business practices. Restorative economy investment is closely linked to ESG practices. ESG criteria extend decision frames beyond financial performance metrics to environmental impacts, relationships with stakeholders, and the quality of corporate governance practices. Reputational concerns can lead investors to support investment in restorative actions and strong project-based reputations can attract investors. Conversely, the absence of a social license, good governance practices, and environmental credibility can dissuade investors.

- **Supporting knowledge and science:** Investment in restoration projects requires significant environmental knowledge and data with which to calculate standards for natural and social capital valuation, and accounting and impact metrics. Financial markets require sufficient information for assessing environmental risks and opportunities linked to an investment or accurately evaluating its social and environmental impact. Poor information can result in the failure of markets to take hold. Where markets are established, information gaps can lead to undervaluation of environmental assets and other market failures that see prices failing to reflect the actual value of environmental assets or the costs of environmental degradation and/or recovery. The absence of standardised impact metrics can make it difficult to compare and evaluate the effectiveness of different restoration projects, making it more difficult to attract investment and funding.
- **Revenue capture from ecosystem services:** Ecosystem services represent an opportunity for revenue capture, but markets are underdeveloped in New Zealand. Environmental markets other than the Emissions Trading Scheme (ETS) have yet to be launched, although biodiversity credits (or biodiversity offsetting) remain plausible market-based mechanisms to conserve and restore biodiversity by providing financial incentives to landowners. Interviewees recognised these possibilities in New Zealand as ways to protect or enhance native vegetation and habitats. The Department of Conservation and other government agencies have initiated work on a [Biodiversity Offsets Accounting System](#) (Ministry for the Environment et al., 2014) producing guidance for policy makers, planners, and developers as good practice as a first step to creating a new market.
- **Enablers and drivers:** Clear consensus exists among interviewees about the need for an enabling environment that supports the implementation of projects in a restorative economy. Interviewees identified the possibilities of a governance entity with a mandate and legitimacy to guide or decide on investment opportunities, as one way to establish this environment. This could be established at the seascape level but would have to reflect New Zealand realities, such as accommodating Te Tiriti responsibilities and te ao Māori perspectives. The seascape scale would be an appropriate scale at which to establish such an entity that might align stakeholders' interests and capabilities with meaningful scaled-up restorative initiatives.

Figure 4 represents what finance sector investors and others interested in impact investment have told us about what drives their interest in marine restorative economy investment and what is required to develop that interest into a thriving market.

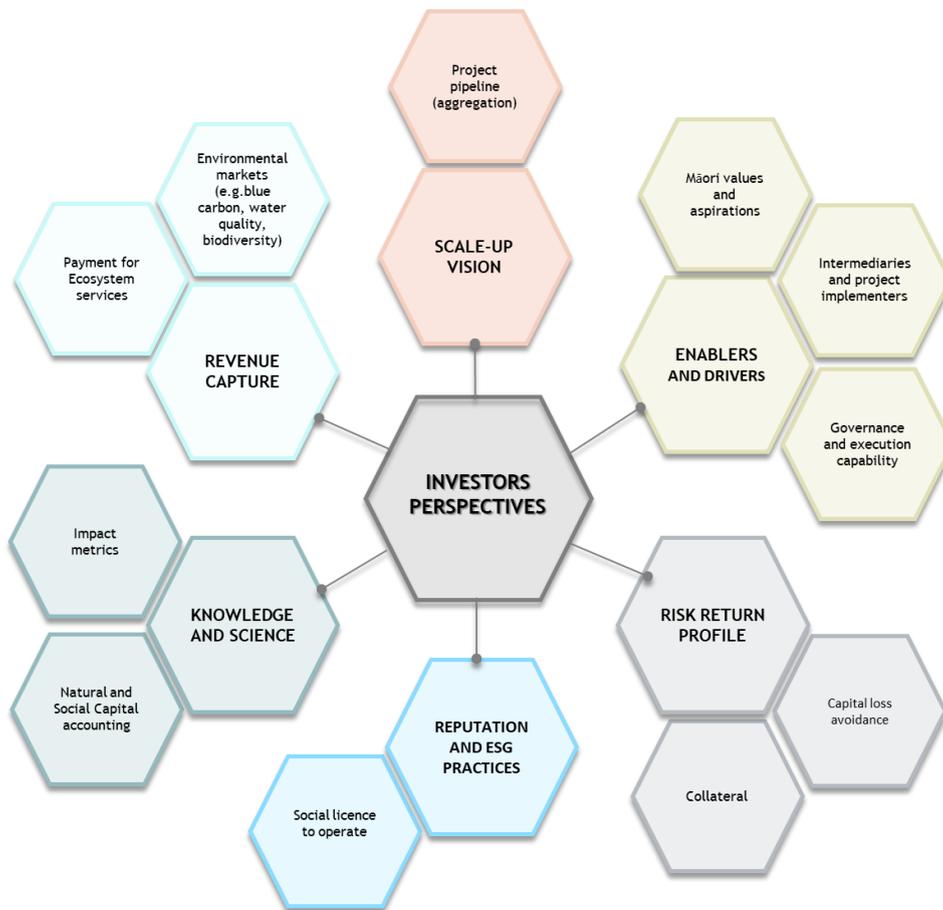


Figure 4. Thematic map of insights from interviews with representatives of the finance sector and stakeholders with experience in impact investment.

Further thematic analysis of interviews and notes from the workshop highlighted differences between interests and concerns among different groups. They pointed to a distinction between the ‘demand’ for investment-ready projects and stakeholders involved with the ‘supply’ of such projects:

Demand side lessons (challenges and opportunities)

- Genuine interest exists in restorative economy investment with no shortage of capital available to bridge the finance gap.
- If investors are to invest in a restorative blue economy, the challenge is to generate revenue flows from the investment.
- New Zealand investment professionals recognise the potential of monetising ecosystem services as a source of revenue but have a limited understanding of specific ecosystem services such as biodiversity provision and carbon sequestration, and even more limited understanding of potential synergies among multiple ecosystem services.
- Investors continue to focus on risk-return in a traditional sense and are drawn to investments in commodities (e.g. fisheries, aquaculture, and energy) by established knowledge, the predictability of revenues, and well tested risk-return models. Production

activities are also asset-backed, limiting risk, and providing both income and capital return opportunities. Investors are interested in outcomes such as biodiversity and carbon sequestration and in the returns that they might generate, but these are seen as added extras or tangential to their established business and the relative size and certainty of financial returns from commodity production.

- Validation of investment models, frameworks, and tools for measuring impacts is required to provide confidence before investors invest. Measurement frameworks, and the data for operationalizing them, are crucial for calculating risk-reward and catalysing interest from commercial (profit seeking) investors in a blue economy restorative economy.
- Many examples of larger capital allocation to (blue) conservation and restoration solutions are led by corporate social responsibility (CSR) programmes or ESG drivers without return expectations i.e. they are effectively 'grant' funded. These represent a small proportion of overall capital allocation.
- Blue bonds, while increasing in number, scale, and scope, rarely target conservation and restoration, and are not easily scalable or replicable due to their context-specific nature. Positive impact is often a byproduct of the bond rather than the driver to invest.
- In the absence of robust CSR and ESG commitments and science-based impact targets (for climate, biodiversity), it is unlikely that blue bonds will meet credibility thresholds and deliver outcomes beyond business as usual.
- Investors seek simple business models with familiar revenue streams - the complexity of investing in multiple projects at a seascape or large marine ecosystem scale is seen as a deterrent.

Supply side lessons (investable projects and projects seeking investment)

- Widespread interest exists in seeking private capital to fund restoration economy interests.
- As yet, those seeking funding for ecosystem restoration and recovery lack crucial knowledge about the form, extent, and nature of investor interest – they don't yet see the opportunities or know how to make their projects investable.
- Current investments seeking conservation and restoration as the primary impact tend to be case-specific and to adopt bespoke approaches to demonstrating their values.
- Current investments seeking conservation and restoration as the primary impact struggle to demonstrate predictable revenue and scale to attract investment.

Putting the challenge of financing restorative economies into this demand-supply framework helps to emphasise that what is at stake is the challenge of facilitating a 'market' in which demand and supply come together. The absence of capital is not the problem. In practical terms, this means that the market needs to be made by overcoming the set of obstacles that hinder latent demand in the form of capital seeking an investable project from coming together with those searching for capital to bridge the restoration gap. Workshopping this problem suggested a set of potential market-making initiatives (below) in the Hauraki Gulf and wider New Zealand context.

- Establish tailored funds for investment in marine ecosystem restoration, particularly

catalytic (grant or very low-cost debt) capital for early-stage development when outcomes are still highly uncertain.

- Establish concessionary investment funds to support scaling up successful pilots to commercial viability.
- Attract ‘catalytic capital’ that blends grant and concessionary financing to reduce the risk of very early-stage investment and build project development experience, capability, and capacity.
- Build the data and knowledge architecture necessary to measure environmental impacts and monetise ecosystem services and provide the investor confidence to go beyond small-scale, ad-hoc, and ESG / reputation management investment and meet financial return expectations.
- Develop robust and widely accepted proof-points (evidence, return models) and other investment tools.
- Build seascape scale investment propositions and models.

Seascape level investment: impact, risk and returns

A theme throughout the interviews was the challenge of balancing investment risk with adequate impact and returns (Figure 5). Balancing investment risk with adequate impact and returns is a significant challenge for investors in the restoration and conservation of natural assets. Different types of investors have different perspectives on the importance of returns and impact, which can create additional challenges in finding investments that meet both financial and impact objectives.

For philanthropic investors who are primarily motivated by achieving a positive social or environmental impact, the focus may be more on the effectiveness of the investment in achieving the desired impact, rather than the financial return. However, even philanthropic investors need to ensure that their funds are being used efficiently and effectively, and that they are making a meaningful difference in achieving intended outcomes, highlighting the importance of impact metrics, reporting, and evaluation. Public investments in restoration and conservation will prioritise impact over returns, given the focus is on promoting public good rather than generating profits.

For private entities and investors seeking a financial return, the challenge is identifying opportunities that provide an adequate return while generating a positive impact. This is particularly difficult in the context of environmental conservation and restoration, where returns may not be immediately apparent, or where there may be additional costs or uncertainties associated with the investment

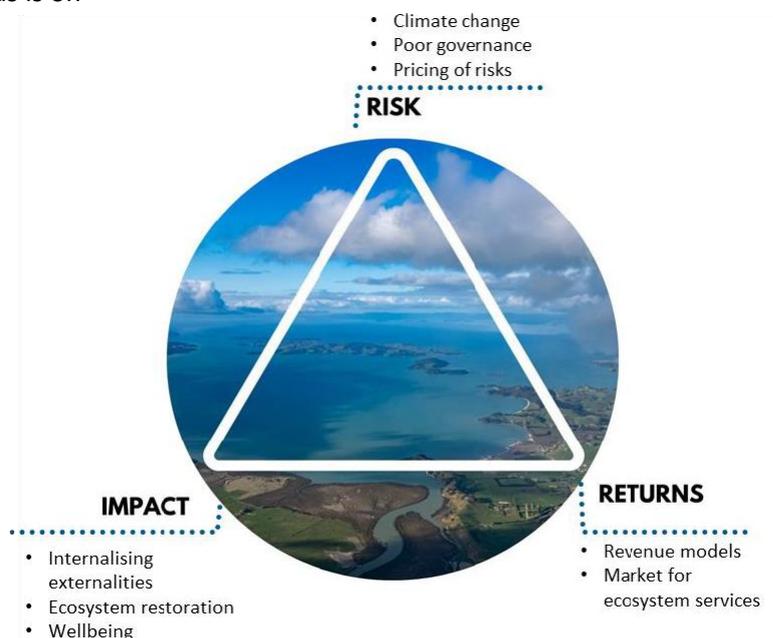


Figure 5. Challenges in investing at the seascape level: balancing between risk, impact and return

At the seascape level risk, returns and impact often have uncertainties related to climate change, lack of (or weak) governance and mispricing externalities, increasing investment risk. Returns in this context depend on existing and emerging revenue models and the creation of markets for ecosystem services such as carbon or biodiversity. Impacts need to be measured, which requires a clear understanding of externalities at the seascape scale, including how ecosystem restoration and wellbeing are valued (Figure 5). Investments at the seascape level also face additional challenges due to the complexity of coastal and marine environments.

- Marine spaces are public, which presents challenges for investors and projects, as they often require regulatory approval.
- Problems with access and ownership rights: ownership rights and access can be uncertain, leading to conflict. Disputes may increase project costs and timelines.
- Seascapes are often large-scale, generating accountability issues: Monitoring and enforcement in marine environments are difficult due to the high cost and complexity of monitoring large areas, making it challenging to hold stakeholders accountable and increasing the risks of unsustainable practices.
- Shared environment and interdependencies: Marine ecosystems are interconnected, making the identification of root causes of environmental problems challenging. This makes targeting investments to have the most significant impact or attribute losses or gains to specific issues or practices difficult.
- Uncertainties regarding socio-political dynamics and environmental change: Political and social factors impact the success of marine conservation projects, and environmental change is unpredictable. These uncertainties can affect investment outcomes and returns.
- Ecosystem recovery timeframe versus investment cycle: Ecosystem recovery can take decades, which may exceed the time horizon for investors, who typically have shorter investment cycles. This limits the attractiveness of investment in restoration projects.
- Fiduciary duties and lack of risk appetite to take on restoration: Investors' fiduciary duties can limit their willingness to take on restoration projects as they can be perceived as too risky and / or not generating sufficient financial returns.

Part 2: Ecosystem-level impact investment framework for marine restorative economies

The proposed impact investment framework consists of a process to support strategic decision-making for investments at ecosystem level. In the absence of New Zealand specific principles¹⁰, the framework is based on [principles for blue economy sustainable finance](#) developed by the blue economy initiative at UNEP FI (UNEP FI, 2018) and the [proposed Aotearoa New Zealand Blue Economy Principles](#) developed by the Sustainable Seas National Science Challenge (Short et al., 2023).

The level of financial returns of impact investment depends on investor goals, expectations, and investment strategy. Impact investors may assess the four types of capitals discussed above to attribute value to its investments, so a financial return is not the only measure driving investment decisions.

The impact investment framework depicts a process that supports investors and stakeholders with assessing investment opportunities. It presents different points of entry for analysis of context, purpose and feasibility of the intended investment and how information about the investable assets will support informed investment decisions.

The framework is suitable for assessing individual, landscape / seascape scale or ecosystem level investments. While the former features more traditional aspects of investment decision processes, the latter two require considerations of co-benefits, synergies, or trade-offs among various components of an ecosystem and the socio-economic drivers of the use of natural resources and space. Activities in landscape or seascape spaces should produce a net-positive gain of socio-environmental benefits while returning economic benefits. These benefits may take one or more of three distinct forms related to a spectrum of harm reduction running from minimising harm in existing activities and business models to developing new activities that may (or may not) replace those models and activities that incorporate sustainability principles at their core (e.g. circular economy, and investing in activities that actively redress harm by more or less directly funding recovery initiatives) (Figure 1).

Restorative economy is a term used to describe an economy that combines business activities with environmentally sustainable and actively restorative practices. Mobilising finance for coastal and marine restorative economies requires appropriate structuring. This structuring is likely to include different types of capital, for example public, philanthropic, and private investment. It also requires different investment mechanisms, for example impact bonds, blue bonds, or blended finance.

Restorative economy initiatives lie at the top of a blue economy pyramid. Any specific investment in a restorative economy may involve activities in other parts of the pyramid but should produce net positive outcomes for nature through restoration and doing no new harm. Restorative economy investments are likely to involve a clear vision and steps to get there.



Figure 1. Blue economy spectrum and restorative economies. Adapted from Cortés Acosta et al. (2021).

¹⁰ At the time this research was taking place, Sustainable Seas was developing principles for the blue economy.

The impact investment framework involves a context evaluation, monitoring and evaluation (M&E), and revenues stream. [Figure 6](#) summarises the ecosystem-scale impact investment framework developed for marine and coastal restorative economies. As it is shown, the impact framework has six main components, each one providing guidance for analysing investment possibilities from different perspectives.

Evaluation context

Defining restoration aspirations

Understanding why restoration is required should underpin a strategic plan for the investment. Reflection on the vision and aspirations for the ecosystem-scale improvement will help determine the necessary level of investment and what is achievable with the investment available.

It's important to consider the scope and spatial coverage of the investment, including boundaries, timeframes involved in interventions, expected results and what activities will occur.

Baselines

Once goals and aspirations are defined, it's essential to understand the land/seascape baseline with which the impacts will be compared. Assessing the baseline involves defining the initial conditions and indicators for the capitals (natural, social, human, and economic) that are under consideration for investment. This enables a comparison between before and after an impact investment initiative. An intrinsic goal for impact investment is to increase the capital value of the targeted land/seascape, which requires an assessment of the current state of the four capitals. Specifying the high-level risks and opportunities associated with restoration initiatives that can lead to investment opportunities is important. This includes negative impacts, dependencies, drivers of degradation, existing financial flows, and financial gaps.

Feasibility assessment and prioritisation of opportunities at the land/seascape level

Assessing the feasibility of achieving restoration aspirations involves understanding the limitations and potential of the environment, stakeholders, governance, and capacity to execute while maintaining targeted returns on investment. Approaches such as cost-benefit analysis that can inform the prioritisation of investments will support a feasibility assessment. The result is establishing a compelling investment thesis that states how an investment opportunity would generate impact (environmental and social) and financial return.

Monitoring and Evaluation (M&E)

Impact measurement and review

At a seascape level, monitoring and evaluation can occur at the portfolio (i.e. aggregated), or the individual project level. Each project needs to use its own selected indicators to monitor and report on progress and results. Monitoring and evaluation should capture the efficiency of the project in the use of investments (value for money) and the impacts (natural, social and human capitals). For measuring impacts and reviewing project's progress, monitoring and evaluation can be used as an adaptive management tool, triggering new actions or adaptation of ongoing actions as needed to achieve intended impacts. This approach allows for incremental improvements in activities and increases the chances of removing or mitigating risks before they escalate.

Prepare investment case

Once the assessment and prioritisation of potential restoration investable initiatives is complete, it's necessary to configure the investment and financial model of the initiatives through an investment case, comprising strategic, economic, commercial, financial, management, and impact analysis. This case will describe the level of risk, return, and impact expected for the investment and requires an assessment of possible economic gains alongside the socio-environmental benefits. Assessing the viability and likelihood of revenue streams will clarify expected investment returns, including an understanding of cash flows and an exit strategy. The investment case should be shared with potential target investors as early as possible to ensure the case is aligned with expectations and fit for purpose.

Raise capital

Once the investment case is completed, a capital raise process will be undertaken. In this context, blended finance (i.e a mix of grant, concessionary loans, and equity) is common, especially for early-stage pilots or new types of investment (e.g. payment for ecosystem services). The capital raise process will involve due diligence conducted by investors that will test the investment and impact metrics and ensure alignment between investor expectations and the investment. Given many of these types of investments have multiple investors, it is common for investors to pool resources and have a single due diligence process. At this stage of analysing the investment opportunity, it's important to understand the capacity to deliver the initiative outcomes, the existing barriers, and the level of uncertainty. The need for capacity- building and the levels of knowledge and innovation capability are some attributes investors might assess, depending on the context where the initiative will be implemented.

Implementation

The success of the project will be determined by the quality and completeness of its implementation against the targets agreed with investors in the capital raising stage. Regular monitoring and evaluation will enable the ongoing adaptation of the project implementation to achieve success.

Revenue streams

Revenue streams from ocean-related activities and businesses will differ for established and emerging markets. Established markets are underpinned by greening existing practices and are generally underpinned by regulatory actions. Revenue for public entities may be acquired from the enforcement of laws through fines, collection of taxes, levies, fees, and permits. The private sector gains revenue from trading goods and services and the government plays a regulating role, enforcing laws and producing policies. In established markets, the government is the leading intermediary collecting and managing the revenues mainly because these activities occur in the public domain. In this case, the potential to generate revenues and apply them directly in restoration and conservation will vary according to the legal and policy framework in place and the capacity to enforce penalties for non-compliant behaviour.

Emerging markets comprise activities that are not only novel opportunities but that enable marine ecosystem restoration and conservation while producing some revenue. One of the most common examples of these types of markets involves payment for ecosystem services schemes.

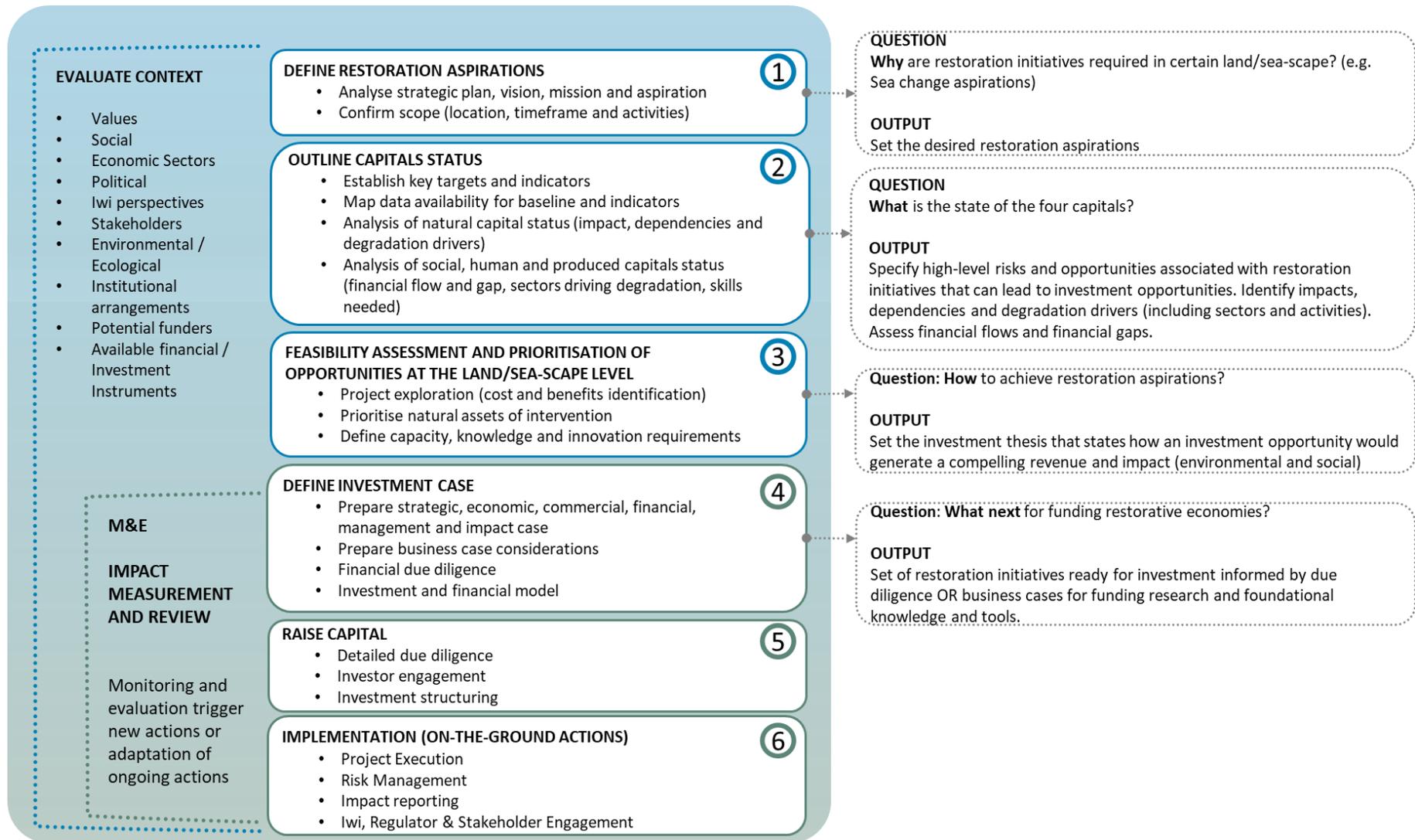


Figure 6. Proposed ecosystem-level impact investment framework for marine restorative economies

Part 3: Impact framework case study: Hauraki Gulf Marine Park

A case study was done in the Hauraki Gulf Marine Park to test the proposed impact investment framework. The case study explores the presence or absence of enabling conditions, the value proposition for seascape investment, and the framework by which these two crucial dimensions of restorative economy might be integrated into an investable programme.

This section describes the insights and lessons from applying the framework as a case study.

The Hauraki Gulf Marine Park Act 2000¹¹ provides special recognition for the Hauraki Gulf with implications for using and managing resources within the Park. It is the only Marine Park in New Zealand. The purpose of the Act is described in section 32 as:

“(a) to recognise and protect in perpetuity the international and national significance of the land and the natural and historic resources within the Park:

(b) to protect in perpetuity and for the benefit, use, and enjoyment of the people and communities of the Gulf and New Zealand, the natural and historic resources of the Park, including scenery, ecological systems, or natural features that are so beautiful, unique, or scientifically important to be of national significance, for their intrinsic worth:

(c) to recognise and have particular regard to the historic, traditional, cultural, and spiritual relationship of tangata whenua with the Hauraki Gulf, its islands and coastal areas, and the natural and historic resources of the Park:

(d) to sustain the life-supporting capacity of the soil, air, water, and ecosystems of the Gulf in the Park.”

The purpose of the Hauraki Gulf Marine Park Act 2000 is used as a guideline for defining restoration aspirations alongside the [Sea Change Hauraki Gulf Marine Spatial Plan](#) objectives (Sea Change – Tai Timu Tai Pari Stakeholder Working Group, 2017). The three-yearly assessments produced by the Hauraki Gulf Forum on the [State of our Gulf](#), and the knowledge base produced by research institutions, central, and local government provide a baseline for the current state, and the change required.

The boundaries and scope for the case study and testing of the framework is also defined in the Hauraki Gulf Marine Park Act 2000. The [Hauraki Gulf Marine Park / Tikapa Moana / Te Moananui-ā-Toi](#)¹² includes the coastal and marine areas of the eastern Auckland and Waikato regions, from Mangawhai in the North to Waihi in the south, including the catchments covering all Hauraki and Thames-Coromandel districts, extending to part of Matamata-Piako, South Waikato and smaller portions of Rotorua, Waipā and Waikato Districts. This area includes private and public land where reserves and conservation areas are administered by the Department of Conservation (DOC). Understanding the level of contribution of the Hauraki Gulf to the economy and people has been the focus of a limited number of studies. Total economic value has generally been the approach taken in such studies. [Appendix Two](#) provides an overview of previous studies on the economic benefits of the Hauraki Gulf.

The process of assessing and analysing the potential of restoration investments at the scale of the HGMP provides an understanding of the challenges, gaps, and opportunities to align the need for developing restorative economy models and the interest of possible investors.

¹¹ Hauraki Gulf Marine Park Act (2000). Retrieved from: <https://www.legislation.govt.nz/act/public/2000/0001/latest/DLM52558.html>

¹² Hauraki Gulf Marine Park Act (2000)

Methodological approach and assumptions

Developing and testing the framework

The framework proposed in [Part 2](#) is tested and populated with information and knowledge available to inform aspects of the blue economy in the Hauraki Gulf Marine Park.

Data collection

A desktop search for government and private sector reports and communication compiled baseline data. Data was collected from a variety of online sources, including Stats NZ databases. Expert interviews and workshops with iwi, officials, scientists and stakeholders complemented our information and insights.

Assumptions and challenges

The investment framework is based on the premise that several factors influence seascape-level restorative economies ([Figure 7](#)).

- **Finance and investment** – financial aspects of a seascape-level model include the sources of funding, different financial instruments used for investment, and the overall amount of investment available. In the context, it is important to identify the financial resources needed to support various initiatives aimed at restoring and sustaining the marine ecosystem.
- **Markets for goods and services** – different types of markets play a role in the model. These markets include commodities markets that deal with provisioning ecosystem services, such as fisheries, where sustainable practices are essential for long-term viability. Additionally, the model considers services markets like tourism, ecosystem markets, such as carbon markets, which provide economic incentives for conserving and restoring marine ecosystems to sequester carbon and mitigate climate change.
- **Natural capital stocks and flows** (including marine protected areas) – the focus is on the marine ecosystem's natural capital, which refers to the stock of resources and services provided by the ecosystem. This includes marine biodiversity, fish stocks, coastal habitats, and other valuable ecosystem services. Understanding and valuing these natural capital stocks and flows are key for making informed decisions regarding their sustainable use and restoration.
- **Science, measurement, and verification** – the success of any restorative initiative depends on a strong scientific foundation and informed decision-making. The ability to measure and verify desired improvements is key for understanding progress, avoiding unsuccessful pathways, and scaling up successful ones. Marine spatial planning and state of environment reports, such as the State of the Gulf Report¹³, are important enablers for measurement and accountability in restorative economies.

A wide range of data and information is required to consider and assess such factors. Information gaps and uncertainties regarding data that could not be verified were noted and considered when presenting the analysis. Any assumption used to extrapolate or complement the data gaps is noted throughout the case study. The challenges in applying the proposed framework to the Hauraki Gulf Marine Park are discussed as part of the findings.

¹³ Every three years, the Hauraki Gulf Forum creates a report on the condition of the Hauraki Gulf environment and the actions taken by agencies to protect and improve it. See more information at <https://gulffjournal.org.nz/state-of-the-gulf/>.



Figure 7. A seascape-level restorative economies model and the factors that influence its development.

An impact investment framework for the Hauraki Gulf

Restoration aspirations and investment priorities for the Hauraki Gulf

The State of the Gulf reports summarise the most relevant goals for the Park based on environmental quality assessments and trends. The results of the assessments and monitoring of the achievements of Forum goals are sources of information to define the restoration aspirations (goals and targets) for the HGMP. Current [goals](#) defined by the Hauraki Gulf Forum include: 30% marine protection, restoration of 1000 km² of shellfish beds and reefs, and riparian planting of the HGMP catchment.

The Sea Change Hauraki Gulf Marine Spatial Plan, released in 2017 established management goals and 180 priority actions.

The document [Revitalising the Gulf: Government Action on the Sea Change Plan](#) is the government's response to the Sea Change Hauraki Gulf Marine Spatial Plan. It provides a roadmap to implementing the Sea Change Plan, including fisheries management, marine protection, habitat restoration, and localised management. The strategy has been used to guide goals and targets for the proposed investment framework in this case study.

The next step in the impact investment framework is to identify and assess key economic sectors in the Gulf as they represent sources of existing financial flows and economic activities with dependencies and impacts on the seascape. This task is challenging due to inaccuracies identifying and separating marine from land-based activities, reflected in how official datasets are organised. In addition, the Hauraki Gulf Marine Park also has a significant portion of its area extending landwards to catchment boundaries and it sits across two regions. Therefore, the sectors listed below consider both land and sea; however, land-based activities are assessed from the perspective of sources or mitigation of impact on the Park:

Sea-based sectors

- Fisheries
- Aquaculture
- Maritime logistics (Port of Auckland and Maritime transport)
- Tourism and recreation (including passenger transport, and recreational fishing)
- Marine protected areas
- Restoration activities

Land-based sectors

- Urban development and infrastructure
- Agriculture and forestry
- Coastal parks, reserves, and conservation areas

Current investment landscape: key actors and initiatives

The Hauraki Gulf Marine Park has multiple stakeholders participating in decision-making that influences financial flows (in general) to varying levels. The most influential are local and national government agencies, the private sector, and Māori and iwi organisations. [Figure 8](#) illustrates the flow of capital from different stakeholders, following the StatsNZ economic sector classification. The largest receiver of capital is classified as 'other services', which includes non-profit organisations.

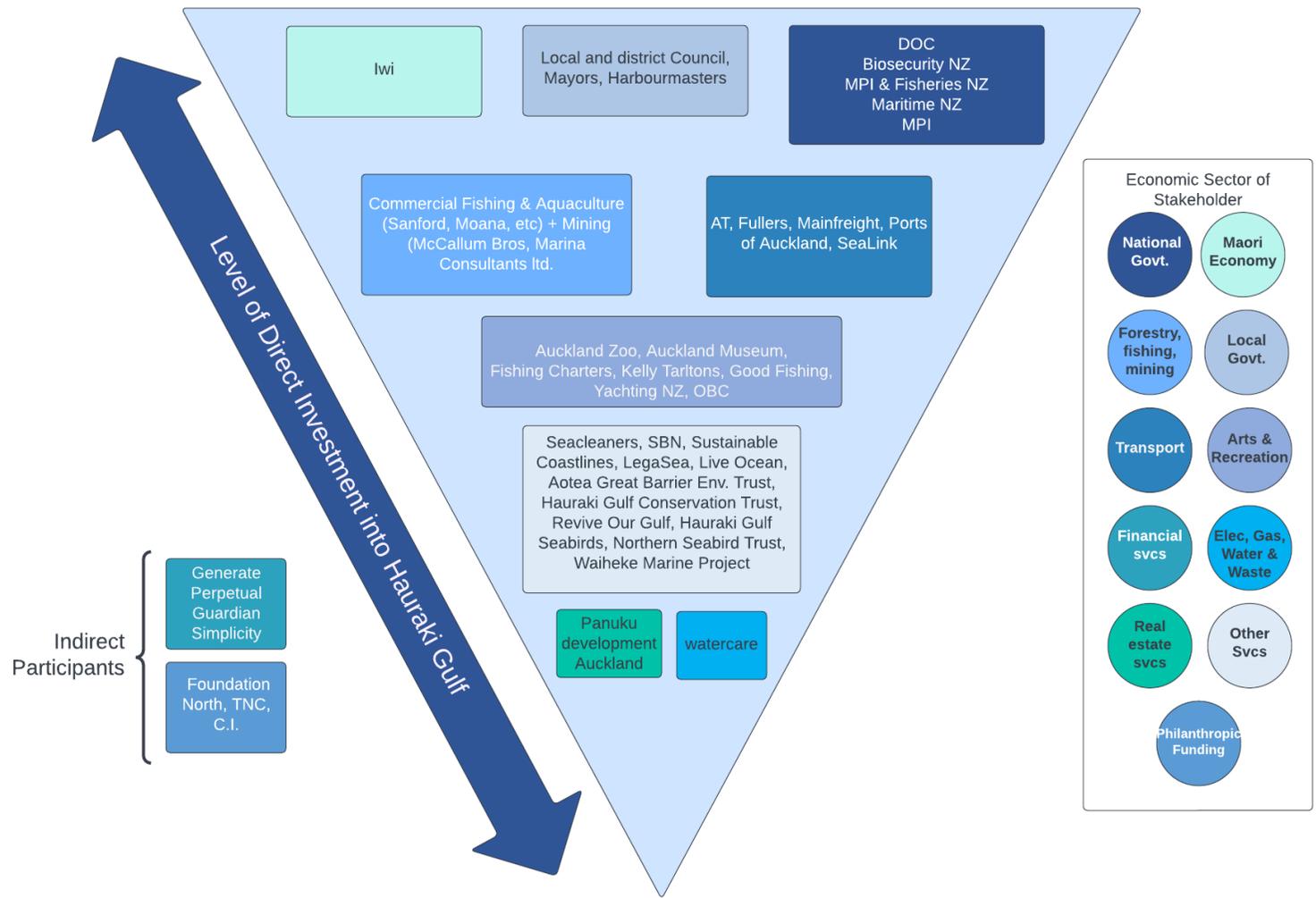


Figure 8. Iwi, stakeholders, and investors for the Hauraki Gulf mapped by economic sector

Stakeholder activities are linked to several socio-economic indicators that illustrate how environmental and social benefits can be monitored and measured. A direct indicator of a social economic benefit from marine economic sectors is job creation. However, for the purpose of analysing the impact of investments at a seascape level, it is important to consider existing jobs related to economic activities and jobs that exist because of a demand to conserve, restore, or protect natural assets. Figure 9 shows the distribution of employee count by economic sectors for Auckland Council and Waikato Regional Council (Stats NZ, 2020).

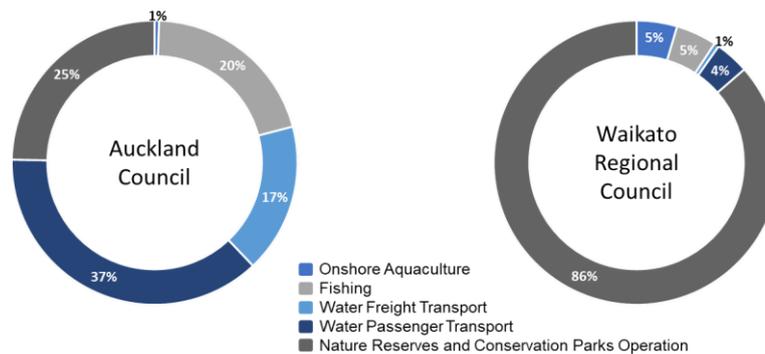


Figure 9. Distribution of the employee count per marine related sector for Auckland Council and Waikato Regional Council (Economic sectors as defined by Stats NZ)

Not all business sectors with direct relevance to the Hauraki Gulf are captured by statistical censuses. For example, disaggregated data on jobs related to tourism in the Hauraki Gulf is missing since it's difficult to separate marine and terrestrial-driven tourism jobs. Limitations are also found for the data on specific marine activities and other activities on land with direct impact on the Hauraki Gulf. The result presented in Figure 13 assumes, for example, that employees working on nature reserves and conservation parks operations have a direct contribution to the environmental quality of the Hauraki Gulf.

No accessible and comparable data exists for the jobs created because of ongoing restoration interventions. Data on the level of voluntary work was not found and could not be considered in this assessment despite its relevance. It also ignores land-based sectors such as agriculture and forestry. The tourism industry's contribution in the Hauraki Gulf to the New Zealand economy is significant. An indicator of direct contribution is the expenditure by tourists coming to New Zealand through the Port of Auckland as passengers of cruise ships. Stats NZ data shows that, on average, 203,901 passengers visited Auckland annually from 2015-2020. During this period, they have spent an average of \$645.72 per visit, contributing an average of \$147.5 million to the economy. Part of the GST collected with this expenditure is directed towards investments in environmental conservation directly benefiting the Hauraki Gulf. However, verifying how much of the invested amount comes from tourism expenditures is not possible.

Information about the size and types of investments in the Hauraki Gulf (blue) economy is scattered. There is a lack of robust information regarding current investments in the blue economy by specific blue economic activities and financial instruments. When economic and investment data is available, the extent to which they contribute to the sustainable use of marine and coastal ecosystems is difficult to establish without standardised metrics for measurement and reporting. The main volume of funds for environmental conservation, protection, or conservation in the Hauraki Gulf comes from public and philanthropic sources.

Direct investments are challenging to calculate without specific tagging of environmental income and expenditures. However, some assumptions and estimations can be made with local authorities' existing data around the HGMP and sectoral reports. The councils within the HGMP have important roles as regulators and managers of impacts from activities on land to the marine environment. Long-term plans and annual plans produced by councils indicate expenditures related to the social and natural capitals of the Hauraki Gulf Marine Park. While some expenses generally fit under the budget line for environmental expenditure, others correspond to specific investments.

Environmental protection expenditures include wastewater, solid waste and refuse, flood control, river, land and soil management, air and (fresh and marine) water quality, and pest management. Income from these services comes from rates, regulatory income (e.g. petrol tax), grants, subsidies or donations, interest and dividends, sales and other operating income (e.g. admission charges, water charge by cubic metre, rubbish bag sales). Figure 10 below shows income and expenditures in environmental protection for Auckland Council and Waikato Regional Council.

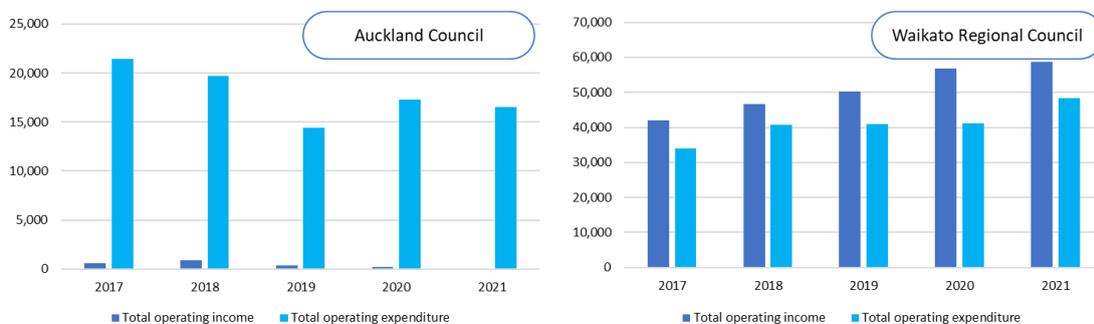


Figure 10. Local Authority Financial Statistics income and expenditure in environmental protection (\$, Magnitude = thousands)¹⁴. Source: Stats NZ, 2022.

Auckland Council has significantly more expenses than income from fees and rates while Waikato Regional Council had surplus income over expenses. An assessment of the council's annual plans gives a clearer picture of expenditures in programmes and activities affecting the Hauraki Gulf's environment. However, budget categories vary among the councils, given their different priorities and regional characteristics, and a direct comparison is not possible. A summary of the types of expenditures and incomes associated with environmental activities and budget lines of some Councils is included in [Appendix three](#).

Another source of information comes from breaking down the targeted rates included in property rates (businesses and residential). Auckland Council (2022), for example, has the Natural Environment Targeted Rate (NETR) funding operational investment costs to deliver enhanced environmental outcomes expenditure. Activities funded through the NETR directly relevant to the Hauraki Gulf include islands pest eradication and control, marine biosecurity, marine ecology focusing on habitats (survey and evaluation) and seabirds (implementing monitoring and restoration).

A differentiated targeted rate is applied on the capital value of rateable land and the estimate for funds produced through those rates for 2022 and 2023 is \$31.2 million (excluding GST), \$8.04 million from business and \$23.13 million from non-business.

¹⁴ Environmental protection corresponds to: air and water quality measurement and education, land and soil management (soil conservation, erosion control, shelter belts, non-urban run-off), flood protection and river control, agricultural effluent monitoring, and pest management (such as opossum, rabbit, and invasive weed control).

Table 1 shows how [Auckland’s 10-year Long Term Plan \(2018-2028\)](#) established the split and estimated funds from the Natural Environment Target Rate for marine-related activities.

Table 1. Auckland’s 10-year Long Term Plan and estimated funding for marine-related activities.

| Programme | Activity | % of total budget and value (\$) |
|---------------------------------|---|---|
| Islands (Kawau, Waiheke, Aotea) | Pest eradication – Waiheke and Kawau multi-species | 6% (\$18.7 million) |
| Marine biosecurity | Marine Biosecurity pathway management and response | 1% (\$3.1 million) |
| Marine ecology | Habitats – survey and evaluation | 1% (\$3.1 million) |
| Marine ecology | Seabirds – implement monitoring and habitat restoration | 1% (\$3.1 million) |

The Waikato Regional Council Annual Plan establishes the contributions that either come from consented coastal and marine resource and space use. The Waikato Regional Council has significant coastal and marine space and resource use oversight. The council has a science plan in place that enables partnership with research organisations to increase knowledge of current and future Hauraki Gulf conditions, building on previous environmental modelling done for Sea Change – Tai Timu Tai Pari Hauraki Gulf Marine Spatial Plan. The Coromandel Peninsula is covered by a project that addresses flood protection, soil conservation, and river management which have direct sedimentation impacts in the Hauraki Gulf, especially during heavy rain events. The Peninsula Project (Coromandel Zone) scheme provides for work on the Coromandel Peninsula. The breakdown of expenditures and target rate revenues for the project is presented in [Table 2](#).

Table 2 Waikato Regional Council breakdown of projected expenditures and targeted rate revenue for Coromandel Peninsula

| Activity | Projected expenditure (\$000) (GST inclusive) | Targeted rate revenue (\$000) (GST Inclusive) |
|--|--|--|
| Flood protection | 499 | 446 |
| River management | 583 | 467 |
| River improvement | 131 | 106 |
| Catchment new works | 913 | 396 |
| Catchment maintenance | 44 | 32 |
| Catchment oversight | 544 | 397 |
| Information and advice | 182 | 135 |
| Works and services - coastal marine area | 975 | 440 |

Resource consent annual administration fees also contribute to covering WRC's costs with consenting and monitoring coastal and marine activities in the Hauraki Gulf. Table 3 show the breakdown of consent charges for coastal and marine activities according to the [WRC's 2022/23 Annual Plan](#).

Table 3: Resource consent holder charges in Waikato Region

| Consent class: Coastal | Consent administration | Information gathering, research and data monitoring | Compliance monitoring | Total |
|-----------------------------------|------------------------|---|-----------------------|-------|
| Marine farms | \$145 | \$50/ha | \$40 | - |
| Moorings (All mooring structures) | \$145 | \$23 | \$15 | \$183 |
| Other ¹⁵ | \$145 | \$575 | - | \$720 |

In terms of economic sectors, data on investments and expenditures are rarely found as an aggregate for a whole sector, with a few exceptions where the sector is dominated by one entity such as Port of Auckland (shipping and cargo handling) or when producers or service providers are represented by associations (e.g. Coromandel Marine Farmers Association). Table 4 summarises the information on jobs, sector contributions to the economy, and sector revenues.

Table 4. Sector contributions to the economy and sector revenues.

| Aquaculture (mussel and oyster farming) | | |
|--|---|--------------|
| Coromandel Marine Farmers Association | In 2017 the NZIER assessed the economic impact of the aquaculture industry in the Thames Coromandel District of the Waikato Region. Highlights are that the industry adds to this District alone: | |
| | Direct jobs (as FTEs) | 350 |
| | Direct jobs in other regions | 450 |
| | Exports | \$73 million |
| | National sales | \$30 million |
| Maritime Transport (passengers and tourism) | | |
| New Zealand Cruise Association | Cruise Tourism spend in Auckland ¹⁶ | |
| | 2018-19 | \$192,505 |
| | 2019-20 | \$207,595 |
| Port of Auckland ¹⁷ | | |
| Capital investment | Direct investment from the Council | \$80 million |

¹⁵ Activities requiring consent which may significantly impact upon the coastal environment and do not sit within the classes listed above

¹⁶ Spending by cruise visitors at the port of entry, including shore excursions and spending ashore by passengers and crew and spending associated with the ships, such as port and other fees, purchase of fuel, produce and other supplies.

¹⁷ For more information, see Ports of Auckland (2022).

| | | |
|----------------------------------|--|------------------|
| Revenue | Average (2018-2022) | \$242.86 million |
| Net profit | Average (2018-2022) | \$37.8 million |
| Direct investment in restoration | Partnership with Revive our Gulf. “As part of our commitment to the health of the harbour, this financial year we were able to supply dredged shell material to Ngāti Whātua Ōrākei, who, in collaboration with Revive our Gulf, are working to restore Ōkahu Bay by re-seeding the kūtai (mussel) beds. Two barge-loads (60 tonnes) of shell hash from our maintenance dredging in the Rangitoto Channel were transferred to Ōkahu Bay and deposited just inside the breakwater piles. The shell material was spread out on the seabed to provide a suitable habitat on the sea floor for the re-seeded mussels to grow.” (Ports of Auckland, 2022, p. 13) | \$200,000 |

In terms of direct investments into restoration, conservation, and human and social capital, a few initiatives have been well established in the Hauraki Gulf Marine Park. However, data on financial flows from projects is scattered and inconsistent, preventing aggregation and accurate assessments. A non-exhaustive list is provided below (Table 5).

Table 5. Non-exhaustive list of restoration, conservation, and restorative economy initiatives by organisation, project, and value

| Organisation | Project or initiative | Value |
|--|---|--|
| <p>Revive our Gulf</p> <p>(Focus on restoration of lost shellfish reefs and beds)</p> | <p>Operates with corporate and individual sponsorship. Reef Restoration Trust (charitable trust) has partner with the Auckland Foundation for local fundraising. Funds also come from corporate sponsorship.</p> <p>Revive our Gulf also partnered with Auckland Council, the Department of Conservation (DOC), Fisheries New Zealand (FNZ) and The Nature Conservancy (TNC).</p> | <p>\$400,000 grant from Healthy Waters (Auckland Council), matched by \$400,000 (\$100,000 each from DOC and FNZ and \$200,000 from The Nature Conservancy).</p> |
| <p>Foundation North, The Nature Conservancy, Auckland Council, Hauraki Gulf Forum, The Tindall Foundation, Auckland Foundation and Outboard Boating Club</p> | <p>Challenge Fund for shellfish restoration projects (including Revive our Gulf).</p> | <p>\$6 million</p> |
| <p>Hauraki Gulf Conservation Trust</p> | <p>Support from Foundation North.</p> | |
| | <p>Waiheke Marine Project: focus on community participation, research on the current state of the marine environment and advocating for marine protection of Waiheke Island.</p> | <p>No public information</p> |
| | <p>Te Korowai o Waiheke: focus on predator and pest control in Waiheke Island.</p> | <p>No public information</p> |
| | <p>Kelp Gardeners: setting out to pilot an approach to reversing the occurrence of urchin barrens habitat in the Hauraki Gulf Marine Park starting with a small-scale human intervention to control urchin populations leading to the regeneration of seaweed habitat.</p> | <p>No public information</p> |
| | <p>Waiheke Schools Wetland Restoration: restoring a 2ha catchment area covered with wetland vegetation. In partnership with local schools the area has been repopulated with native species and is maintained weed free.</p> | <p>No public information</p> |

| Organisation | Project or initiative | Value |
|---|--|--|
| | Te Toki Reserve/Okahuiti Wetland Restoration: 8ha of coastal habitats including forest, freshwater and saltwater wetlands and mangroves. The area has been restored through weed control and replanting. Tracks are maintained for public visitation. | No public information |
| | McKenzie Reserve, Enclosure Bay: 4 ha of public reserve go through restoration with plantation of native species and maintenance of walking tracks for public visitation. | \$75,000 grant from Foundation North |
| | Awaawaroa Bay Projects: 169 ha was purchased and shared between 15 families/individuals now live on the land. A company structure was formed to administer the property and shareholders covenanted about 50% of the property, including all the mature native bush areas, regenerating bush and wetland areas. The area is maintained pest free, and it has been open for tracking and public visitation. | No public information |
| Sustainable Business Network | Source of funds for a diverse set of initiatives come from Foundation North, G.I.F.T – Gulf Innovation Fund Together, the government Jobs for Nature programme and grant from the Department of Conservation. | |
| | SBN Developed a 3-year plan (2018-2021) for systems change initiative to restore the Hauraki Gulf. Initiatives involved restoration of natural habitats around waterways, pollution and plastic litter control, capacity building, advocating for electric ferries. | Jobs for Nature: \$5 million in funds and 66 short term jobs in nature restoration \$1 million grant from DOC for a large-scale urban rejuvenation through nature regeneration. |
| Gulf Guardians and Okuma New Zealand (fishing equipment producer) | Partnership between the two entities where Okuma New Zealand committed to donating mussels back into the ocean to help the sustainable regeneration of mussel beds with every purchase of any Okuma product. | Donation of 100 tonnes of mussels towards shellfish restoration programmes |
| Kai ika Project | 'The Kai Ika project utilises fish heads, frames and offal which were previously going to waste. Since September 2016 previously discarded fish parts have been collected from the OBC by Papatuanuku Kokiri Marae whanau and redistributed to families and community groups in South Auckland who value these fish parts and enjoy their sweet flesh'. | LegaSea, the Outboard Boating Club of Auckland (OBC), Westhaven and Papatūānuku Kōkiri Marae \$1 million |

| Organisation | Project / Initiative | Value |
|---|---|---|
| | Since September 2016, 'over 190,000 kg of previously discarded fish parts have been collected from various sources and redistributed to needy families and community groups all over Auckland'. | |
| Gulf Innovation Fund Together (GIFT) – Foundation North | 'Between 2016 and 2022, G.I.F.T explored and refined approaches to test, scale and create new systems to restore the mauri of Tikapa Moana/Te Moananui-ā-Toi (the Hauraki Gulf).' G.I.F.T was a standalone fund that ended in March 2022. | Total grant amount (2016-2022): \$3,392,726 |
| GreenWave Aotearoa | Seaweed farming pilot. | \$5 million |
| Kinanomics | The Kinanomics model "involves removing malnourished urchins (kina) from 'barren' zones, feeding them a nutritious kelp-based diet in a land-based aquaculture system before harvesting the roe for export to high value markets." | \$2.4 million |

Interest in environmental research and development and innovation for the blue economy

Investments in new technologies that contribute to sustainability or directly benefit conservation and restoration represent a positive trend towards reducing future uncertainties and risks, contributing to a more favourable environment for investors. Stats NZ carries out a survey every year (published biannually) to collect information about how New Zealand businesses operate. Research and Development (R&D) is a theme covered by the survey. Based on the latest data from 2021, investments in environmental R&D have been rising since 2018 for the three sectors assessed (Figure 11). This could indicate an increase of interest or need for investment in innovations to deal with environmental aspects either because there are perceived opportunities or increased demand for compliance with new regulations or market demands. In either case, if this trend continues, a favourable environment for investments in restorative economies might be leveraged by emerging technologies.

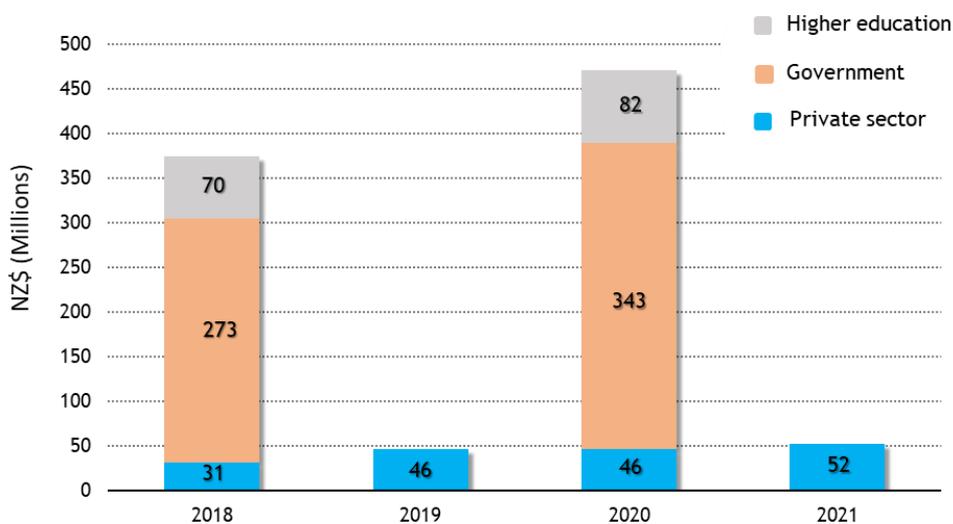


Figure 11. Expenditures with a focus on environmental research and development by higher education institutions, government, and private sectors in New Zealand (Purpose of research and development by sector (Annual-June): Environment, Stats NZ)

Envirostrat (2019 p.8) discusses how 'technology for the blue economy is evolving rapidly, disrupting existing value chains and creating new pathways to consumer and value creation'. The report found innovative efforts in:

- management of commercial fisheries for resilience instead of abundance
- approaching the opportunity for blue economy solutions and development addressing climate change and environmental impact management
- opportunities for ecosystem-based management and adaptation through ecological nature-based solutions
- 'greening' existing technology and improving (critical) infrastructure
- innovative financing for restoration, economic growth, and pollution reduction
- how to test solutions through case studies in specific locations or contexts
- developing the seaweed sector.

In the Hauraki Gulf, specific investments have been made in technical innovation, and research and development (R&D) in the aquaculture sector with assessments and pilots for multi-trophic aquaculture, circular nutrient economy, and a zero waste approach to food production (Envirostrat, 2019).

Portfolio approach and the need for aggregation

A portfolio approach to investing in the blue economy refers to a strategy where investment is made into several projects in a given area. This approach can help to spread risk and increase the chances of achieving a positive return on investment. A portfolio approach can include a mix of investments in coastal and ocean management and in different sectors such as fisheries, aquaculture, and maritime transport. Additionally, projects individually or aggregated in a portfolio approach can also consider social and environmental impact considerations at scale. The portfolio approach requires a good understanding of the market and the different sectors and companies involved.

In a balanced seascape portfolio approach, the aggregate of projects results in net-positive returns, whilst seeking high levels of impact. The level of risk depends on enabling environments or unaddressed barriers. Governance and the best available science are key for portfolio management. [Figure 12](#) represents a hypothetical scenario of projects of different risk-impact-return profiles pooled together in a portfolio. As an example, the governance arrangement of the portfolio could be like a fund or cooperation among individually and independently managed activities.

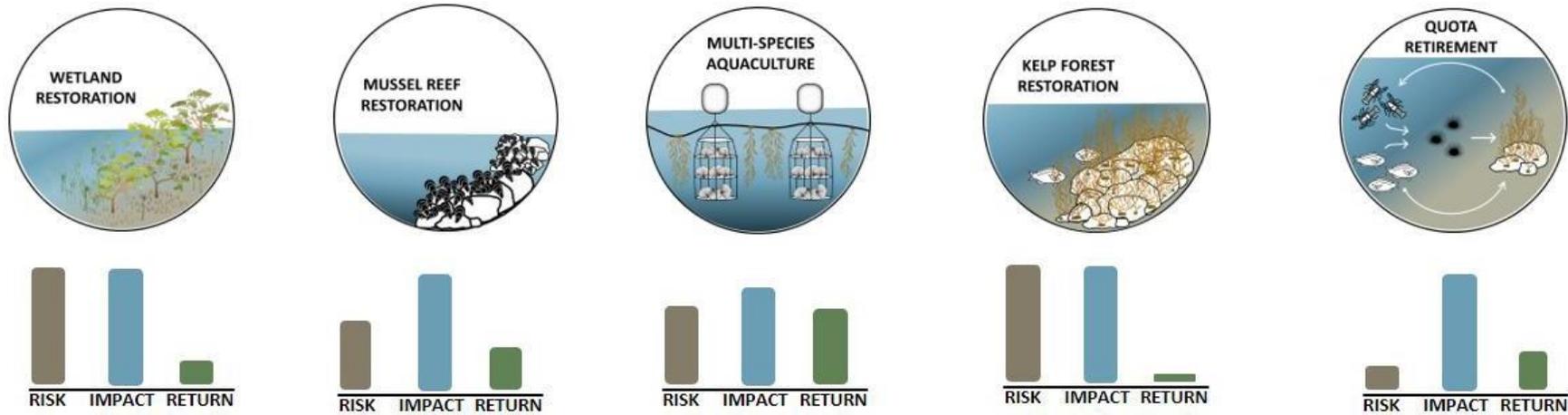


Figure 12. Perception of risk, impact, and return for a theoretical portfolio approach (column heights are illustrative only) – each project will have different revenue streams

Financing strategies and financial instruments

In the Hauraki Gulf Marine Park, the established investment market corresponds to the sectors included in New Zealand's Marine Economy accounts: fisheries and aquaculture, government and defence, marine services, marine tourism and recreation, offshore minerals, and shipping¹⁸. Offshore minerals are not significant economic activities for the context of the Hauraki Gulf Marine Park. The remaining activities generate revenues from products and services (to consumers) and payment of fees and taxes (to the government). Establishing geographical boundaries for blue economy sectors in the Hauraki Gulf Marine Park is a challenging task. Most sectors not only have activities that extrapolate the coastal and marine areas within the HGMP (e.g. fisheries and tourism) but also generate cascading economic benefits in value-chains that are not geographically constrained.

An example in New Zealand of government direct collection of levies for environmental purposes is the International Visitor Conservation and Tourism Levy (IVL) established in July 2019. Most international visitors to New Zealand are charged the levy of \$35, which is invested in projects supporting environmentally sustainable and inclusive tourism and conservation areas. The revenue collected in the second year of the IVL operation was \$2.69 million, reflecting the impacts of the COVID 19 pandemic (Ministry of Business, Innovation & Employment & Department of Conservation, 2022). However, it's not possible to track how much of this revenue is directed to environmental activities within the HGMP.

A seascape approach to restoration requires strong coordination. The instruments used to finance seascape-level restorative economies would depend on the investment stage of different initiatives and the expectations of investors as highlighted (risk-adjusted returns, impact, ability to monetise ecosystem services). Government and philanthropic funders have the potential to serve as seed investors to 'crowd in' wider private sector interest and investment in activities that address environmental restoration. For early-stage investment and establishment of a business model, philanthropy and catalytic concessionary investment can also be deployed. This blended finance model is a strategy gaining traction among impact investors, private finance, and government (WEF, 2019). Blended finance combines capital with different levels of risk in order to catalyse risk-adjusted, market-rate-seeking capital into investments. Blended finance is particularly important for blue economy and restoration due to its ability to:

- invest in activities at different scale (small to large), maturity and level of profitability
- support projects capable of scaling up (for example at ecosystem level)
- support start-ups and early-stage projects
- deploy capital using different instruments (debt, patient equity, guarantees / first loss, technical assistance, risk underwriting etc).

Drivers for investment and trends

Coastal and ocean climate change impacts

New Zealand businesses are increasingly aware of risks and impacts of climate change to businesses. The Stats NZ Business Operations Survey of 2021 had a specific focus on the

¹⁸ For a complete explanation of the approach to marine economy accounting see Stats NZ at <https://www.stats.govt.nz/indicators/marine-economy>

factors contributing to, or impeding, a transition to a low emissions economy. Awareness of potential impacts of climate change is high among businesses of all sizes. More than a third of the surveyed businesses indicated some response to climate change but the focus remained on taking action to reduce emissions, with only 9% assessing the risk to the business of the physical impacts of climate change. When prompted about future plans to assess climate change risks, 18% of the businesses indicated a risk assessment plan for the next five years ([Stats NZ, 2021](#)). Costs related to extreme weather events in New Zealand have increased exponentially since the 1990s ([Figure 13](#)), which may affect the perception of climate related risks to businesses and public opinion, and the intention to invest in protection against climate induced impacts.

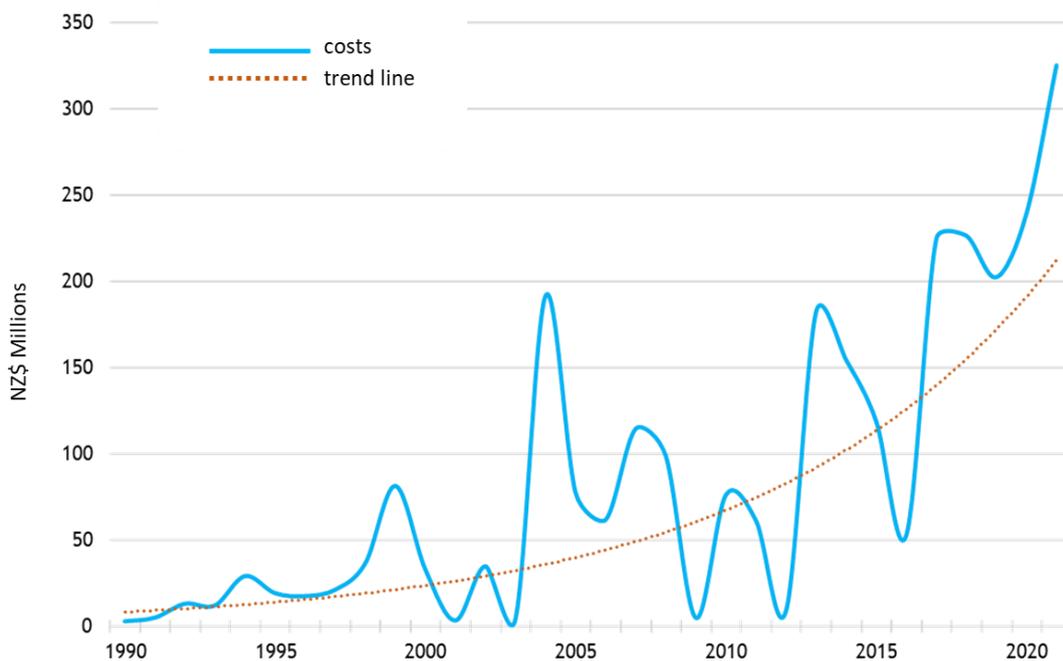


Figure 13. Variation of costs related to extreme weather events in New Zealand (Source: Stats NZ – Wellbeing data)

Data on sea-level rise trends around Auckland ([Stats NZ, 2022](#)) shows an increase of 1.4 times the levels from the period between 1901-1960 to the period between 1961-2020¹⁹ ([Table 6](#)).

Table 6. Sea-level rise variation for Auckland at different time periods (mm/year; SD = standard Deviation)

| Region | 1901-2020 | | 1901-1960 | | 1961-2020 | |
|----------|---------------|------|---------------|------|---------------|------|
| | Trend (mm/yr) | SD | Trend (mm/yr) | SD | Trend (mm/yr) | SD |
| Auckland | 1.71 | 0.08 | 1.83 | 0.21 | 2.54 | 0.21 |

As local authorities prepare and plan for sea-level rise, nature-based solutions (NbS) for coastal protection are being considered among the strategies for coastal climate adaptation.

Auckland’s Climate Plan ([Action Area N3](#)) lists a series of priority actions to integrate nature-based solutions in development planning and [Action Area N4](#) of the plan includes the strategy to maximise the potential for carbon sequestration by protecting and enhancing marine ecosystems. The Hauraki District Council has a focus on mapping and informing on hazards

¹⁹ Detailed information on sea-level rise around New Zealand can be found in [NIWA \(2022\) Update to 2020 of the annual mean sea level series and trends around New Zealand](#). Report prepared for the Ministry for the Environment.

such as sea inundation, sea level rise, coastal erosion, and river flooding but with an approach to address them that only considers grey infrastructure²⁰ interventions for coastal protection.

In the case of the Waikato Regional Council (WRC), core functions and responsibilities include natural hazard management, biodiversity and biosecurity management, coastal area management, air, freshwater and land management, and regional policy and planning.

According to a study conducted by FOCUS (2020), WRC should take measures to manage future development in low-lying areas that are sensitive to coastal erosion and flooding, including restoring coastal wetlands in areas where they have historically been lost and allowing wetland habitats to expand and migrate inland in response to a sea level rise of at least 1.36 m (i.e., RCP8.5+²¹), a worst-case scenario. The report further suggests implementing suitable development controls in the District Plan to prevent intensification of existing development in areas at high risk of coastal erosion and flooding.

According to the [Waikato Regional Hazards Portal](#), although Waikato's coastal areas are not eroding at high rate yet, in the long-term, sea level rise and other projected climate change effects will increase beach erosion. Estimated beach erosion for the eastern Coromandel Peninsula, for example, is as high as 15-20 metres over the next century, greatly increasing the number of properties and houses at risk.

Climate impacts on the Hauraki Gulf Marine Park will also have consequences beyond sea-level rise and impacts on the coast. Sea temperature rise is an additional major concern for many marine species, with mussel farms in the Hauraki Gulf being particularly impacted by warm sea temperatures in recent years. Commercial and key-ecological species will either migrate or perish if they cannot adapt to increasing temperature ranges. This will have a direct impact on fisheries, aquaculture, and the marine ecology of the Gulf.

Investors with an interest in commercial fisheries and aquaculture can assess the importance of investments in activities that increase the overall resilience of the ecosystem or target species to the impacts of increased temperatures, storm damage, or ocean acidification as a measure of protection of the future assets and sustainability of its primary investment in commercial activities. This could include investing in hatcheries and associated research and development to breed oysters, mussels, seaweed, kingfish, scallops and other farmed species that are temperature tolerant. Reducing the impact of other pressures such as pollution, sedimentation and overexploitation of resources increases the resilience of the ecosystem and economy by maintaining ecological balance and biodiversity.

Regardless of the direct benefit to the private sector operating in, and depending on, the HGMP, investment in activities to increase the resilience of natural assets is mainly done with public money. The private sector does not yet account for its externalities, dependencies, or impacts on the HGMP environment. Therefore, compensation for impacts, investments to protect the value-chain, or to avoid future losses from overuse or degradation of natural assets is very limited.

²⁰ Grey infrastructure refers to interventions and structures that require construction or engineering. Examples cited by the Hauraki District Climate Change Plan include retrofitting stormwater pipes and raising stop banks ([Hauraki District Council, 2021](#)).

²¹ According to IPCC (2000), the RCP 8.5 pathway delivers a temperature increase of about 4.3°C by 2100, relative to pre-industrial temperatures.

Tai Timu Tai Pari Sea Change Marine Spatial Plan for the Hauraki Gulf Marine Park

Tai Timu Tai Pari Sea Change is the first (and to date only) marine spatial plan in New Zealand. It seeks a significant shift towards a comprehensive and sustainable management approach for the HGMP. By establishing priorities about the shared use and protection of the Hauraki Gulf's marine resources, Sea Change provides a framework for more sustainable coexistence of various stakeholders and activities. Through marine spatial planning, Sea Change aims to address and prioritise the complex and competing demands placed on the Gulf's resources. By identifying, prioritizing, and mapping different marine activities, Sea Change facilitated informed decision-making and allocation of space. This comprehensive planning process enabled the development of management strategies that promote sustainable practices, protect vulnerable ecosystems, and minimise conflicts between different users.

The Sea Change Plan provides a useful context to inform the impact investment framework in terms of defining aspirations at ecosystem scale and setting targets and goals. Potentially the five-yearly 'State of the Gulf' reports prepared by the Hauraki Gulf Forum could also track investments for ecosystem restoration.

Business sector alignment with sustainability: dependency and impact on natural capital

There has been a steady increase worldwide in the adoption of sustainable practices by business. This global transition is being driven, amongst others, by businesses recognition of dependency on environmental resources and ecosystems and the need to reverse negative environmental impacts. However, direct investment in conservation and restoration remains low and public investment plays a much larger role than business in financing restoration.

Climate and nature-based disclosures

Global trends in sustainability reporting show increased adoption of reporting and disclosure practices informed by well-established standards and frameworks such as the Global Reporting Initiative, the [Taskforce on Climate-related Financial Disclosures \(TCFD\)](#) and the [Taskforce on Nature-related Financial Disclosures \(TNFD\)](#).

The recognition of environmental dependencies and impacts by the private sector is of critical strategic importance for long-term business viability. The TCFD and the TNFD have emerged as influential frameworks that facilitate enhanced understanding and disclosure of environmental risks and opportunities for businesses. These initiatives establish standardised approaches for evaluating and reporting the financial implications associated with climate change and nature-related issues. By adopting these frameworks, businesses can effectively integrate environmental considerations into their decision-making processes.

The TCFD encourages businesses to disclose pertinent climate-related financial information. It provides guidance for companies to evaluate and disclose climate-related risks, encompassing physical risks (e.g. extreme weather events) and transition risks (e.g. policy changes and market shifts). Through this approach, businesses can gain comprehensive insight into their exposure to climate risks and identify prospects for adapting and transitioning to a low-carbon economy. Consequently, the TCFD framework facilitates investment by providing investors with transparent and comparable information, reducing uncertainty and fostering trust in a company's capacity to identify and manage climate-related risks.

Building on the success of the TCFD, the taskforce on nature-related financial disclosures (TNFD) was established in 2021 to address the growing recognition of interdependencies between financial institutions, businesses, and nature. It endeavours to incorporate nature-

related risks and opportunities into financial decision-making processes. By incorporating nature-related disclosures, businesses can assess their reliance on natural resources, biodiversity, and ecosystem services. This enables a comprehensive understanding and effective management of impacts on nature, including pollution, and habitat degradation. Recognising and mitigating these impacts is essential for ensuring the long-term sustainability of businesses, as they depend on functioning ecosystems and a stable climate for their operations and supply chains.

New Zealand introduced the Climate-related Disclosures Act in 2021 to standardise climate risk assessment and disclosure. Sector-specific climate scenarios are being developed and will guide compliance with the act – which applies to actors in blue economy sectors. Biodiversity, and other nature-related financial disclosures are expected to be required in the future, though there is interest from businesses and assets owners about the opportunity to enhance climate risk assessment through a stronger focus on natural capital.

Creating an enabling environment for impact investments

Seascope-level governance is needed

The report, *Revitalising the Gulf – Government Action on the Sea Change Plan of 2021* (DOC/ Fisheries NZ (2021)) discusses, among a series of implementation strategies, alternative governance models for the implementation of Sea Change. The report was prepared by the Sea Change Ministerial Advisory Committee (MAC), which was appointed by the Ministers of Fisheries and Conservation in July 2019. A series of engagements with mana whenua, sectors, and stakeholders in the Gulf was part of the work of the committee to test the Sea Change proposals relating to marine-protected areas and fisheries.

For governance of Sea Change implementation, the report recommended establishing a statutory authority to lead and drive Sea Change implementation.

Establishing a cross-agency governance and implementation group is stated as a priority for the first year of the strategy's implementation. By the fourth year, the advisory committee expected that the cross-agency implementation group could:

- oversee the implementation of actions
- work with mana whenua, stakeholders, and the local community to implement actions
- respond to information received through the monitoring and reporting programme and State of the Gulf reports
- provide regular progress reports to ministers, mana whenua, the Hauraki Gulf Forum, and stakeholders.

However, this cross-agency implementation group has not been formed and engagement regarding fisheries and MPA's is ongoing and led by Fisheries NZ and DOC respectively.

Additionally, the strategy states that its intent was not to design an explicit future governance structure or funding model for the Marine Park. The overall cost or budget for implementing the strategy was not assessed. One of the conclusions of the strategy is that the Hauraki Gulf provides a favourable setting for the implementation of a seascope-level governance model that complements Sea Change and the activities of the Hauraki Gulf Forum. However, an investment strategy that can support a restorative economy model for the Hauraki Gulf Marine Park with a clear pathway for investors seeking investment opportunities with both economic return and socio-environmental benefits has not been integrated into the Sea Change implementation strategy.

An investment thesis or proposition for the Hauraki Gulf

Ecosystem (seascape) level investment is non-existent in New Zealand and still in the nascent phase overseas. The case for this scale of investment must be built. There is a need for education, awareness, and a change of perspective for capital providers and those developing the investment opportunity (project or portfolio opportunities).

Restoration of marine ecosystems can provide direct and indirect economic returns. Most financial flows into biodiversity restoration, protection and conservation in the Hauraki Gulf come from government budgets and philanthropic sources. Current investment levels in marine protection and restoration are insufficient. Evidence shows that habitats may not recover independently without active restoration (Sea Change, 2017; Morrison, 2021). Failure to invest in the restoration of marine ecosystems could result in continuous degradation, depletion of natural resources, unfavourable perception from consumers of products (e.g. fish) and services (e.g. tourism), and the risk of social opposition to marine-related activities.

The investment thesis for Hauraki Gulf is based on a fundamental premise that investors are interested in conservation opportunities that allow for appropriate risk mitigation and diversification from traditional investments. The investment thesis needs to be aligned with a habitat restoration framework to guide new investment and restoration initiatives such as those recommended in the Revitalising our Gulf Strategy (MAC, 2021). The Habitat Restoration Guidance Framework proposed in the Strategy should offer comprehensive information to support habitat restoration projects. It should guide restoration priorities, tools, and strategies for existing and new initiatives and include an assessment process that considers environmental conditions, community support, and regulatory requirements. By using this framework, investors and project developers could make informed decisions, allocate resources effectively, and maximize the impact of restoration activities.²²

An investment thesis:

- recognises the need and opportunity for at-scale proactive investment in conservation and restoration to address systemic risks, future liabilities and the economic viability of the Hauraki Gulf Marine Park
- requires investment opportunities to be aggregated under a balanced portfolio approach with different risk-return-impact profiles – ecosystems (seascapes) provide the scale for such aggregation (and impact) to take place
- prioritises the pipeline and/or types of projects to be developed and requires viable business models (and clear revenues).

²² NZIER has recently published a document called [“Valuing the Hauraki Gulf, an ecosystem services and natural capital approach”](#) with the purpose of providing a top-down assessment of the Gulf’s value using a Total Economic Value (TEV) framework and an Ecosystem Service Approach.

Conclusions

Lessons learned and insights from investors and case study

Advancing restorative economies within the blue economy in New Zealand depends on collating scientific data and building financial and environmental return models that allow blue economy investments to be assessed and risks identified and calculated. It will require indicators that identify returns to natural, social, and human capitals and allow for these to be aligned with national commitments and frameworks such as the Living Standards Framework²³, Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020²⁴, and New Zealand’s National Adaptation Plan²⁵. Key insights from this research include:

- The value proposition of investing in restorative blue economies combines the benefits of ecosystem services, achieving restoration and recovery objectives and bridging associated restoration finance gaps, minimising future ecological losses, and generating economic returns (livelihoods, returns, and economic gain). It will generate profits while returning to the environment and community (Lewis et al. 2020, 2021). This proposition is being cultivated in multiple narratives and small-scale projects but has yet to be translated into a seascape-scale strategy or plan.
- Private sector investment in restoration activities in the Hauraki Gulf have not yet been fully explored, documented, or measured, but there are broad measures of the extent of marine economic activities and opportunities for growth as well as the impacts of these activities on marine ecosystems and the ecological challenges they have created. There is widespread agreement that cost-benefit relationships are imbalanced, and action is required. Redirecting investment from unsustainable marine sectors to those willing and able to internalise externalities is widely recognised as a priority. The finance sector can play a part and is poised to do so.
- Significant opportunities exist for bringing together financial investors, innovative entrepreneurs, established marine economy enterprises (notably iwi and other Māori enterprises) and those with goals and responsibilities for delivering restorative goals (iwi authorities, environmental NGOs, and community groups). Collaboration and coordination among these entities and building the institutions that enable and secure collaboration are essential components of making the value proposition investable.
- Tracking investments and the correspondent impact requires structuring projects with business models with a clear indication of the necessary inputs, revenue and impact generation, risks, and timeframes.
- Revenues from ecosystem services and payment-for-performance models are emerging but more progress is needed to drive at-scale investments into blue ecosystem assets. Measurement frameworks and governance models to support this do not yet exist.
- Building portfolio investments at a seascape level is one way forward, but taking this step will require a change in perspective for investors, project developers, regulatory authorities, and development agencies.

²³ Living Standards Framework: <https://www.treasury.govt.nz/information-and-services/nz-economy/higher-living-standards/our-living-standards-framework>

²⁴ Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020: <https://www.doc.govt.nz/globalassets/documents/conservation/biodiversity/anzbs-2020.pdf>

²⁵ Ministry for the Environment (2022) National Adaptation Plan: <https://environment.govt.nz/publications/aotearoa-new-zealands-first-national-adaptation-plan/>

Knowledge gaps

Tools and frameworks for mainstreaming nature and biodiversity into investment decisions in New Zealand are scattered. Additionally, there is a lack of critical proof points and investment models for aggregating risks and revenue and monetising positive benefits from marine conservation. Data is dispersed or non-existent, and sector and business classifications vary among datasets. Therefore, to aggregate information for a cohesive analysis of current financial flows, and investment needs is challenging.

The science on restoration feasibility and potential in the Hauraki Gulf Marine Park is still developing – with inconclusive results in areas like mussel reef restoration. A few challenging aspects are intrinsic to marine habitats restoration including uncertainties about the control of all impacting factors on habitat degradation and long timeframes for recovery.

Actions and pathways forward

The initiatives listed here are informed by lessons learned and insights gathered during the research and testing of the impact investment framework. While there is no necessary sequential or other interdependence among them, and each may offer independent gains, initiating these measures would enable the possibilities of a seascape-scale restorative marine economy in the Hauraki Gulf.

Explore a dedicated ‘blue’ financing facility to enhance blue economy and restoration investment readiness

The review of financial flows for restoration shows the limited entrepreneurial and project development capability in the Hauraki Gulf Marine Park (and more broadly in marine ecosystem restoration in New Zealand). A facility could focus on catalysing and investing in early-stage opportunities for ecosystem restoration with an express focus on building project developer capability while also reducing risk to investors. This could include blending different sources of capital (impact investors, government, philanthropy, private sector) to finance restoration projects.

Establish practical, credible, consistent, and comparable metrics for risk management and verification methods for all four capitals to demonstrate impact and returns to investors

The need for standardised metrics and verification methods (of restoration outcomes, risks, and financial and non-financial returns) is clearly articulated by investors. Demand for assessment and disclosure of climate and nature-risks provide entry points for research and restoration knowledge holders in addressing this need. As a starting point, the inclusion of a chapter in the [‘State of our Gulf’](#) assessments dedicated to assessing financial flows for restoration and conservation in the HGMP would create the conditions for wider and sharper interest. It may also initiate a process of tracking down numbers and indicators at geographical and industry scales and the development of new ways of analysing sources of information.

Develop investment guidelines and criteria that outline the parameters for private investment and blended finance in conservation and restoration

These guidelines will support investors and regulators to make a seascape investible for restoration economy. They will be valuable for initiating one-off investment projects, but will also help to underpin a blue financing facility. Such guidelines should align with planning frameworks such as the Sea Change plan and the restoration objectives of iwi and other communities. They might specify the types of projects eligible for investment, criteria for evaluating investment proposals, and standards for monitoring and evaluating the effectiveness of investments. The development of an investment thesis and strategy for an entire seascape (e.g. Hauraki Gulf) would require such guidelines, while developing the guidelines as a project in and of itself may well stimulate the development of a seascape-wide restoration investment thesis.

Expand research and prototyping of new revenue and business models for restorative marine economies

Investment in ecosystem (seascape) level solutions, particularly when aggregation is needed to achieve investment scale. This requires greater understanding, knowledge building, and skills sharing about revenue activation models and benefit sharing mechanisms. Such revenue models need to recognise and quantify trade-offs between the different forms of capitals.

For the Hauraki Gulf, augment Sea Change to include strategic considerations about investment in natural capital and reducing climate risks

Sea Change provides a valuable foundation and context setting for marine protection. It sets out long-term aspirations, but it does not address the need for active investment in marine ecosystems (restoration and protection) or climate resilience. As the first marine spatial plan in New Zealand, it did not robustly apply ecosystem-based management approaches, nor did it reflect advances in natural capital accounting. The need to resource its implementation could be leveraged to seek such improvements and enhance cross-sectoral solutions.

References

- Atik, H., & Ünlü, F. (2019). Economic development aids as a financial instrument of global public goods: Performance assessment for donor countries. In *Global Challenges in Public Finance and International Relations* (pp. 220–241). IGI Global.
<https://doi.org/10.4018/978-1-5225-7564-1.ch013>
- Auckland Council. (2022). *Tahua ā-tau 2022/2023 Annual budget 2022/2023*. Auckland Council. <https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/budget-plans/annual-budget-22-23/Documents/annual-budget-2022-2023-vol-1.pdf>
- Barbera, M. (2012). *Towards an economic valuation of the Hauraki Gulf: A stock-take of activities and opportunities*. Auckland Council Research, Investigations and Monitoring Unit (RIMU). <https://knowledgeauckland.org.nz/publications/towards-an-economic-valuation-of-the-hauraki-gulf-a-stock-take-of-activities-and-opportunities/>
- Barbier, E. B. (2017). Marine ecosystem services. *Current Biology*, 27(11), R507–R510.
<https://doi.org/10.1016/j.cub.2017.03.020>
- Blue Carbon Partnership. (2021). *Protecting mangroves, tidal marshes, sea grasses*. International Partnership for Blue Carbon. <https://bluecarbonpartnership.org/>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Capitals Coalition, & Cambridge Conservation Initiative. (2020). *Integrating biodiversity into natural capital assessments: A series of biodiversity guidance to accompany the Natural Capital Protocol*. https://naturalcapitalcoalition.org/wp-content/uploads/2020/10/Biodiversity-Guidance_COMBINED_single-page.pdf

- Cohen-Shacham, E., Walters, G., Janzen, C., & Maginnis, S. (2016). *Nature-based solutions to address global societal challenges*. IUCN.
https://serval.unil.ch/resource/serval:BIB_93FD38C8836B.P001/REF
- Convention on Biological Diversity. (2006, November 2). *Convention text*. Secretariat of the Convention on Biological Diversity. <https://www.cbd.int/convention/articles/?a=cbd-02>
- Cortés Acosta, S., Stancu, C., Brown, I., & Bridger, T. (2021). *Encouraging restorative economies in Aotearoa New Zealand's marine and coastal space*. Sustainable Seas National Science Challenges.
- Credit Suisse. (2022). *What is meant by sustainable investing?* <https://www.credit-suisse.com/sustainability/en/sustainable-finance/sustainable-investing.html>
- Dasgupta, P. (2021). *The economics of biodiversity: The Dasgupta review – Full report*. HM Treasury. <https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review>
- de Vos, K., Hart, B., & Ryan, K. (2020). *The ocean finance handbook: Increasing finance for a healthy ocean*. Friends of Ocean Action.
http://www3.weforum.org/docs/WEF_FOA_The_Ocean_Finance_Handbook_April_2020.pdf
- Department of Conservation. (2019). *New Zealand's Sixth National Report to the United Nations Convention on Biological Diversity. Reporting period: 2014–2018*.
<https://www.doc.govt.nz/globalassets/documents/about-doc/role/international/nz-6th-national-report-convention-biological-diversity.pdf>
- Deutz, A., Heal, G. M., Niu, R., Swanson, E., Townshend, T., Zhu, L., Delmar, A., Meghji, A., Sethi, S. A., & Tobin- de la Puente, J. (2020). *Financing nature: Closing the global biodiversity financing gap*. The Paulson Institute, The Nature Conservancy & The

Cornell Atkinson Center for Sustainability.

https://www.nature.org/content/dam/tnc/nature/en/documents/FINANCINGNATURE_FullReport_091520.pdf

EnviroStrat. (2019). *Transitioning to a blue economy: Scoping and horizon scanning*. EnviroStrat Ltd. <https://www.sustainableseaschallenge.co.nz/our-research/transitioning-to-a-blue-economy/>

European Commission. (2021). *Overview of sustainable finance*.

https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/overview-sustainable-finance_en

FOCUS. (2020). *Waikato District coastal hazard assessment* [Prepared for Waikato District Council by the Focus Resource Management Group].

[https://wdcsitefinity.blob.core.windows.net/sitefinity-storage/docs/default-source/your-council/plans-policies-and-bylaws/plans/district-plan-review/stage-2/section-32-reports/section-32---appendix-5\(f\)-coastal-hazards-assessment811853155.pdf?sfvrsn=362d8bc9_2](https://wdcsitefinity.blob.core.windows.net/sitefinity-storage/docs/default-source/your-council/plans-policies-and-bylaws/plans/district-plan-review/stage-2/section-32-reports/section-32---appendix-5(f)-coastal-hazards-assessment811853155.pdf?sfvrsn=362d8bc9_2)

Global Impact Investing Network. (2021). *What you need to know about impact investing*.

<https://thegiin.org/impact-investing/>

Greenhalgh, S., Walker, S., Lee, B., Stephens, T., & Sinclair, R. J. (2010). *Environmental markets for New Zealand: The barriers and opportunities* (Series 40; Landcare Research Science). Manaaki Whenua.

http://www.mwpress.co.nz/_data/assets/pdf_file/0012/70500/LRSS_40_Environmental_markets_for_NZ.pdf

Hall, D., & Lindsay, S. (2021). *Scaling climate finance: Biodiversity instruments. Concept paper*.

Mōhio Research. <https://data.bioheritage.nz/dataset/biodiversity-instruments/resource/b5114d3c-3968-4204-b25e-fa69051365fd>

- Lewis, N., Le Heron, R., Hikuroa, D., Le Heron, E., FitzHerbert, S., James, G., Wynd, D., McLellan, G., Dowell, A., Petersen, I., Barrett, J., Sharp, E., Ribeiro, B., Catley, S., Baldoni, M., & Le Heron, K. (2020). *Creating value from a blue economy: Final report*.
<https://www.sustainableseaschallenge.co.nz/tools-and-resources/creating-value-from-a-blue-economy/>
- Ministry for the Environment, Department of Conservation, Ministry for Primary Industries, Ministry of Business, Innovation & Employment, Land Information New Zealand, & New Zealand Government. (2014). *Guidance on good practice biodiversity offsetting in New Zealand*. <https://www.doc.govt.nz/globalassets/documents/our-work/biodiversity-offsets/the-guidance.pdf>
- Ministry of Business, Innovation & Employment, & Department of Conservation. (2022). *International Visitor Conservation and Tourism Levy (IVL) Annual Performance Report 2020/21*. <https://www.mbie.govt.nz/immigration-and-tourism/tourism/tourism-funding/international-visitor-conservation-and-tourism-levy/ivl-annual-performance-reports/annual-performance-report-2020-21/>
- Mulder, I., Blin, A., Adams, J., Hartmann, T., Carreira, D., Schauer, M., Ederer, W., Smale, R., Salazar, M., & Simonetti, M. (2021). *State of finance for nature: Tripling investments in nature-based solutions by 2030* (DEP/2363/NA; United Nations Environment Programme). <https://www.unep.org/resources/state-finance-nature>
- Murphy, S. E., Farmer, G., Katz, L., Troëng, S., Henderson, S., Erdmann, M. V., Corrigan, C., Gold, B., Lavoie, C., Quesada, M., Díazgranados Cadelo, M. C., Guzmán Mora, A. G., Nunez, E., Montebon, A., Meo, S., Waqainabete-Tuisese, S., Dutra, G., Pereira, R., Mongdong, M., & Putra, K. S. (2021). Fifteen years of lessons from the Seascape approach: A framework for improving ocean management at scale. *Conservation Science and Practice*, 3(6), e423. <https://doi.org/10.1111/csp2.423>

- National Science Challenges. (2020). *Why do we need EBM?* Sustainable Seas National Science Challenge. <https://www.sustainableseaschallenge.co.nz/about-us/why-do-we-need-ebm/>
- OECD. (2016). *The ocean economy in 2030*. OECD Publishing. <https://www.oecd.org/environment/the-ocean-economy-in-2030-9789264251724-en.htm>
- OECD. (2003). *OECD glossary of statistical terms*. <https://stats.oecd.org/glossary>
- Patil, P., Viridin, J., Diez, S. M., Roberts, J., & Singh, A. (2016). *Toward a Blue Economy: A promise for sustainable growth in the Caribbean. An overview* (AUS16344). The World Bank. <http://documents1.worldbank.org/curated/en/278611473448567594/pdf/AUS16344-REVISED-v2-BlueEconomy-Summary-Oct3.pdf>
- Ports of Auckland. (2022). *Annual report 2022*. <https://www.poal.co.nz/media-publications/resultsandreviews/2022%20Annual%20Report.pdf>
- Sea Change – Tai Timu Tai Pari Stakeholder Working Group. (2017). *Sea change Tai timu tai pari: Hauraki Gulf marine spatial plan. An introduction and overview*. Waikato Regional Council. <https://www.knowledgeauckland.org.nz/publications/sea-change-tai-timu-tai-pari-hauraki-gulf-marine-spatial-plan-an-introduction-and-overview/>
- Short, K., Stancu, C., Peacocke, L., & Diplock, J. (2023). *Developing blue economy principles for Aotearoa New Zealand*. Sustainable Seas National Science Challenge. <https://www.sustainableseaschallenge.co.nz/tools-and-resources/developing-blue-economy-principles-for-new-zealand/>
- Stats NZ. (2019). *Marine economy*. <https://www.stats.govt.nz/indicators/marine-economy>
- Stats NZ. (2020). *Environmental-economic accounts: Sources and methods (third edition)*. <https://secure.livechatinc.com/>

Sumaila, U. R., Walsh, M., Hoareau, K., Cox, A., Teh, L., Abdallah, P., Akpalu, W., Anna, Z., Benzaken, D., Crona, B., Fitzgerald, T., Heaps, L., Issifu, I., Karousakis, K., Lange, G. M., Leland, A., Miller, D., Sack, K., Shahnaz, D., ... Zhang, J. (2021). Financing a sustainable ocean economy. *Nature Communications*, 12(1), 3259.

<https://doi.org/10.1038/s41467-021-23168-y>

Sustainable Seas National Science Challenge. (2021). *Blue economy*.

<https://www.sustainableseaschallenge.co.nz/our-research/blue-economy/>

TEEB. (2018). *Measuring what matters in agriculture and food systems: A synthesis of the results and recommendations of TEEB for Agriculture and Food's Scientific and Economic Foundations report*. UN Environment. <http://teebweb.org/our-work/agrifood/reports/measuring-what-matters-synthesis/>

The Treasury. (2019). *Our living standards framework*.

<https://www.treasury.govt.nz/information-and-services/nz-economy/higher-living-standards/our-living-standards-framework>

UNDP BIOFIN. (2018). *The BIOFIN workbook 2018: Finance for nature*. The Biodiversity Finance Initiative. United Nations Development Programme.

https://www.biofin.org/sites/default/files/content/publications/BIOFIN%20Workbook%202018_0.pdf

Unerman, J., Bebbington, J., & O'dwyer, B. (2018). Corporate reporting and accounting for externalities. *Accounting and Business Research*, 48(5), 497–522.

<https://doi.org/10.1080/00014788.2018.1470155>

United Nations Environment Programme. (2023). *Nature risk profile: A methodology for profiling nature related dependencies and impacts*. United Nations Environment Programme World Conservation Monitoring Centre and S&P Global Sustainable.

<http://www.unep.org/resources/publication/nature-risk-profile-methodology-profiling-nature-related-dependencies-and>

Walsh, M. (2018). *Ocean finance: Definition and actions*. https://www.icriforum.org/wp-content/uploads/2019/12/Ocean_Finance_Definition_Paper_Walsh_June_2018_1_.pdf

Wilson, J., & Ward, M. (2010). SEA in New Zealand. In *Handbook of Strategic Environmental Assessment* (1st Edition). Routledge.

<https://www.taylorfrancis.com/chapters/edit/10.4324/9781849775434-5/sea-new-zealand-jessica-wilson-martin-ward?context=ubx&refId=1de9fed6-7c03-4dee-b3db-963f421a5f80>

World Economic Forum. (2022). *Sustainable development investment partnership. Annual Report 2021-2022*. <https://www.weforum.org/reports/sustainable-development-investment-partnership/>

Yaşar, B. (2021). Impact investing: A review of the current state and opportunities for development. *Istanbul Business Research*, 50(1), Article 1.

<https://doi.org/10.26650/ibr.2021.51.0117>

Yeoman, R., Fairgray, D., & Lin, B. (2019). *Measuring New Zealand's Blue Economy* (UOA 004.19 Blue Economy). m.e consulting.

<https://www.sustainableseaschallenge.co.nz/tools-and-resources/measuring-new-zealands-blue-economy/>

Appendix one: semi-structured interviews, sample, and methodology

Face-to-face, semi-structured interviews were conducted between September 2021 and September 2022 with 15 actors: sustainable finance and investment agents, carbon-markets experts, banks, risk-management and insurance modellers, and iwi trusts. A copy of the question guide is available on request.

Each interview lasted up to an hour and was audio-recorded, transcribed verbatim, and given a code to distinguish the interviewee and maintain confidentiality. Interviewees were free to choose not to answer any question or ask to turn the recorder off at any time. Neither of these situations occurred.

The base principles of thematic analysis guided the inquiry (see Figure 14). Thematic analysis is a method for identifying, analysing and reporting themes (or patterns) within the transcribed verbatim (Braun & Clarke, 2006). The analysis was computer-assisted using the software NVivo.

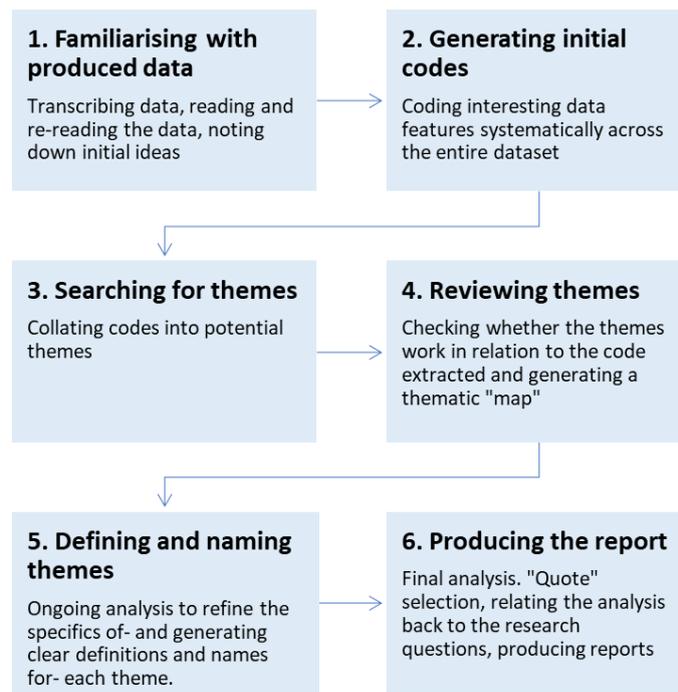


Figure 14. Phases of thematic analysis. Adapted from Braun & Clarke (2006)

Appendix two: overview of selected economic studies of relevance for restorative marine economies

An economic valuation study for the Hauraki Gulf Marine Park was conducted by Auckland Council in 2012 (Barbera, 2012). The project was developed in three phases to identify the environmental and economic benefits provided by the Hauraki Gulf while building relationships with iwi, stakeholders, partners, and knowledge holders.

The study determined knowledge gaps and produced a general overview of the total economic value of the HGMP. The project's second phase focused on verifying methods for economic valuation of ecosystems services. The third phase provided input to policies for improving the environmental state of the HGMP while maximising sustainable economic benefits. The study proposes a Total Economic Value (TEV) framework, later also adopted by Yeoman et al. (2019) for their study of the blue economy in New Zealand. The framework proposed by Barbera (2012) organises 'classes of value'²⁶ associated with the Hauraki Gulf Marine Park that could be qualified or quantified, as demonstrated in Figure 15.

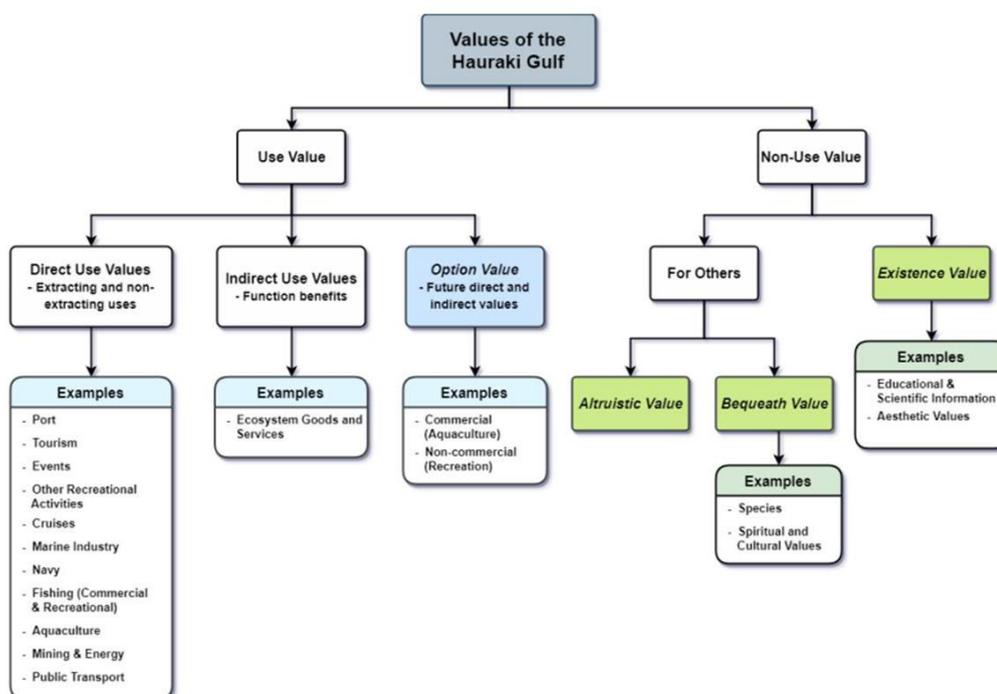


Figure 15. Total Economic Value framework proposed by Barbera (2012) for the Hauraki Gulf

The study concludes that the Hauraki Gulf Marine Park generates significant economic benefits. The estimated value added of the Hauraki Gulf was over \$2 billion, with the blue economy sector employing 26,700 people (as of 2011). This represented almost a quarter of the Stats NZ estimated national marine economy at the time. In addition, the non-market value of recreational use of the Hauraki Gulf was estimated at over \$0.6 billion. Yeoman, Fairgray and Lin (2019) focused on assessing the blue economy in New Zealand and developed a framework to capture and represent the blue economy within the marine economy. The study approach was to understand how people derive market value from the maritime area (the dimension of sector activity), apply a Total Economic Valuation approach, consider the

²⁶ Barbera (2012) makes a distinction between market values and non-market values as different classes of values for the purpose of the Total Economic Value framework.

economic value and non-market values, and apply spatial location to assess the spatial distribution of key ecosystems.

More recently, Fisheries New Zealand produced a report on the Hauraki Gulf Marine Park habitat restoration potential (Morrison, 2021). The study focused on mapping marine habitats and assessing existing historical data. It concluded that the challenge in establishing restoration targets today is due to the lack of consistent and historical information on habitat distribution and quality. The report also recommends:

- prioritising restoration efforts in areas with the greatest potential for ecological and economic benefits
- developing effective monitoring and evaluation frameworks
- engaging with stakeholders to build support for restoration efforts.

Appendix three: summary of expenditures and incomes associated with environmental activities and budget lines

The table below includes a summary of Councils' Programmes and Projects, the connection to the Hauraki Gulf Marine Park, and their economic value. The information is not complete due to limited information; NPI = no public information.

| District and Regional Council programmes and projects | Summary (connection to HG) | Value (NZ\$ Millions) or production |
|---|--|--|
| Auckland Council Annual Plan 2022/2023 ²⁷ | | |
| Stormwater management | "Urban and rural stream rehabilitation programmes to improve the health of streams and to reduce contamination heading to our harbours. Infrastructure and project work in progress includes Wairoa Catchment Rural Waterways Protection, Whau Wildlink funding." | 132 |
| Parks and community Coastal renewals and slips | "Coastal asset renewals. Including renewals to wharves, boat ramps, jetties, seawalls, and beach fronts from the Coastal Asset Renewals Regional fund to protect our sensitive environmental character" | 7 |
| Environmental Services | "Natural environment and climate change response programme" | 9 |
| Closed landfill and coastal landfill remediation | | 15 |
| Coastal asset renewals | | 5 |
| Resilient land and coasts | | 20 |
| Aotea/ Great Barrier Island ²⁸ | Department of Conservation (DOC) Management of conservation land | DOC's total annual funding for biodiversity on the island is currently around \$180,000. |
| Waiheke Island | The Waiheke Resources Trust operates a 'Love our wetlands' project, with funding from Auckland Council, and is focusing on wetland restoration on council land at Matiatia, Te Whau, Renaghiaoua and Te Matuku. | NPI |
| | Predator Free Waiheke | Awarded \$2.6 million from Predator Free New Zealand in 2018. |
| Hauraki District Council Annual Plan 2022/2023 | | |
| Stormwater management | "The stormwater activity involves collecting and disposing of excess rainfall runoff from urban areas using various drainage systems. These services are provided in Paeroa, Waihi, Ngatea, Turua, Kerepehi, Whiritoa, Mackaytown, Karangahake, Waikino and Kaiaua. Stormwater assets include open drains, piped network, manholes and pump stations which operate in combination to remove surface water runoff. All stormwater systems eventually discharge into the Waihou or Piako Rivers, with the exception of the Kaiaua and Whiritoa systems which discharge directly to sea." | |
| | Expenditure | 1.099 |
| | Revenue | 1.286 |

²⁷ These numbers could not be disaggregated between east and west Auckland therefore, not all investments relate to activities only benefiting the Hauraki Gulf.

²⁸ Peart & Woodhouse (2020) Protecting the Hauraki Gulf Islands. EDS - Environmental Defence Society. Retrieved from: https://eds.org.nz/wp-content/uploads/2021/11/RMLR-Hauraki-Gulf-Report_FINAL-V2.pdf

| District and Regional Council programmes and projects | Summary (connection to HG) | Value (NZ\$ Millions) or production |
|---|--|-------------------------------------|
| Land drainage | "Land drainage involves collecting runoff from the rural catchment areas of the district and leading it to the primary flood protection assets which discharge it directly to river or sea outlets." | |
| | Expenditure | 1.453 |
| | Revenue | 1.439 |
| Thames-Coromandel District Council Annual Plan 2022/2023 | | |
| Moanataiari flood protection loan | "The targeted rate for Moanataiari flood protection loan is set as a fixed amount on every rating unit in the area of benefit for which no election was made to pay in advance. The construction of the Moanataiari flood protection works was completed in the 1997/1998 year. Half the costs of the work were funded from the Council reserves and the balance funded by loan. Payment in advance offers have been made to rating units in the defined area of benefit to repay the loan." | |
| | Revenue | 0.004 |
| Land drainage | "The targeted rates for land drainage are to be set for land drainage on each rating unit in the following designated land drainage areas, as a rate in the dollar on land value: Hikutaia/Wharepoa and Matatoki. The Council administers two land drainage schemes: Hikutaia /Wharepoa and Matatoki. These areas are defined on maps." | |
| | Major drainage expenditure | 0.814 |
| | Revenue | 0.015 |
| Stormwater management | "Council operates a District activity for stormwater dispersal. The rating units, which fund this activity by way of targeted rate, are contained within urban areas defined by the Council" | |
| | Expenditure | 2.75 |
| | Revenue Sought (GST Inclusive) | 2.078 |
| Parks and reserves | This is only considered an expenditure, not a revenue | |
| | Expenditure | 2.341 |
| Waikato Regional Council | | |
| Ariki Tahī / Sugarloaf Wharf Ltd (ATSWL) | Regional development fund | \$2 million |