



Ōpōtiki District Council
STRONG COMMUNITY STRONG FUTURE

TE ARA MOANA A TOI

INITIAL BENEFITS ASSESSMENT





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The construction of Te Ara Moana a Toi - the pathway to the sea - is intended to support the growth of Ōpōtiki's aquaculture industry, while creating new employment opportunities and other social and economic benefits across the region. Two years on from this project being funded, we examine the benefits and disbenefits realised to date, and look at how the future outcomes can be assessed.

00 The benefits at a glance

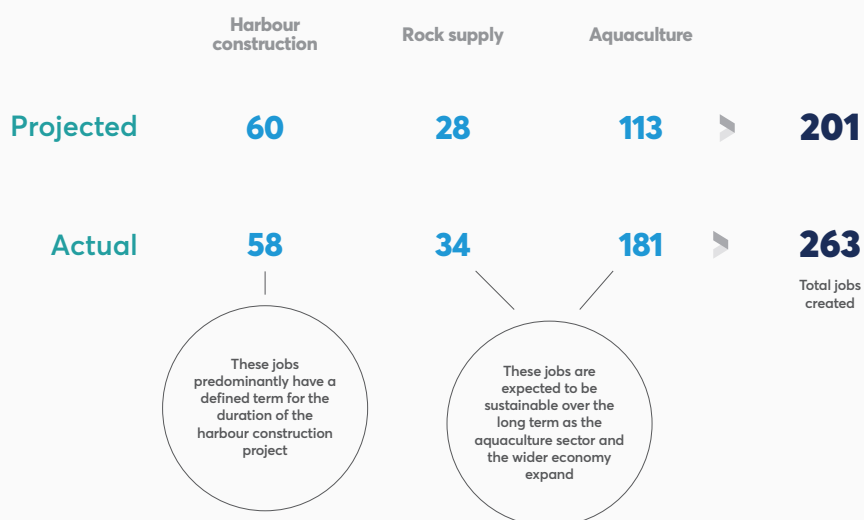
In February 2019 Cabinet announced approval for construction of a new harbour at Ōpōtiki, to support the growth and expansion of the offshore aquaculture industry.

Cabinet's approval was based on projections for economic growth in one of the most disadvantaged regions in Aotearoa. Improvements in employment, incomes and wellbeing were the objective of the investment, driven by the construction project in the short term and the aquaculture sector in the medium term.

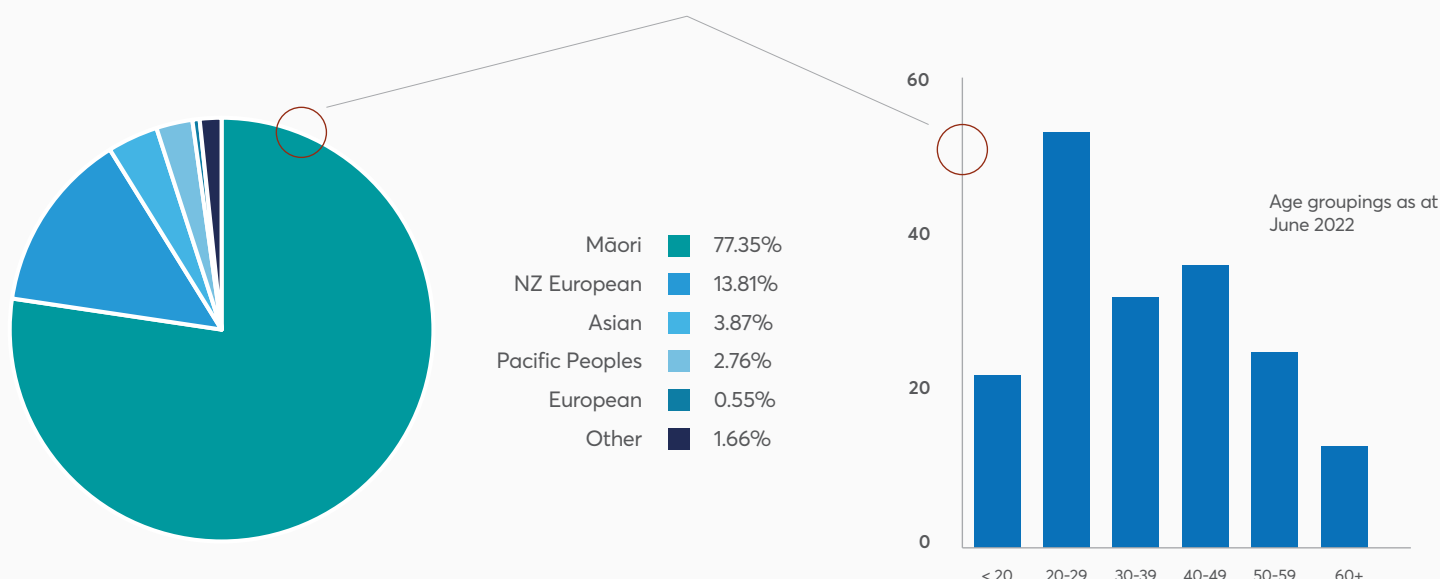
Construction of the harbour is now around 80% complete, and as the table at right shows, actual employment has turned out to be higher than the 2019 business case projected. By almost every metric, both the construction project and the aquaculture sector have over-performed, delivering additional benefits to the Ōpōtiki community and our national economy.

Importantly, as the graph below shows, the profile of the people benefiting from sustainable new jobs and better incomes closely mirrors Ōpōtiki's demographics – which means the benefits of the harbour are already being felt across the community.

Immediate employment impacts in 2022



In both ethnicity and age distribution, the Whakatōhea Mussels workforce closely reflects the Ōpōtiki District population





While the harbour is having more impact at an earlier stage than was projected in the 2019 business case, it is difficult to make firm predictions about the longer term consequences of the investment. This is for a number of reasons:

1. The original business case was narrowly focused on the economic benefits and return on investment, and took no account of the wider wellbeing impacts at a regional or national level. These are likely to be significant, but no baseline has been established to assess these against.
2. The original economic analysis is sensitive to some key assumptions about the productivity of the offshore mussel farms. In practice, the process of continuous innovation and improvement demonstrated by Whakatōhea Mussels has invalidated a number of these assumptions, which indicates the commercial returns and economic benefits may be materially higher than projected.
3. However, the timelines for expansion of the mussel farms are unpredictable. Some investments are dependant on the conclusion of Treaty settlements, while others will be contingent on wider economic conditions. The timing for future investment is therefore uncertain.
4. Despite the success of the construction project, some private sector investment in the marina is lagging the original projections in the 2019 business case. While this will not imperil the medium term growth of the aquaculture sector, it does result in a degree of uncertainty in the timing of some of the wider economic benefits.

For these reasons, simply re-projecting the benefits from the harbour using the assumptions in the 2019 business case will result in misleading and inaccurate figures. However, the following document shows how and where the current benefits from Te Ara Moana a Toi are already being felt in Ōpōtiki and across Aotearoa at the end of 2022.

01 Executive summary

The harbour development is a catalyst for the next wave of private sector investment.

Ōpōtiki represents one of the more socio-economically disadvantaged regions in Aotearoa New Zealand, and historically the District has faced economic, social, and employment challenges. Employment opportunities thus represent an opportunity to break free from the challenges the region has faced over the last few decades.

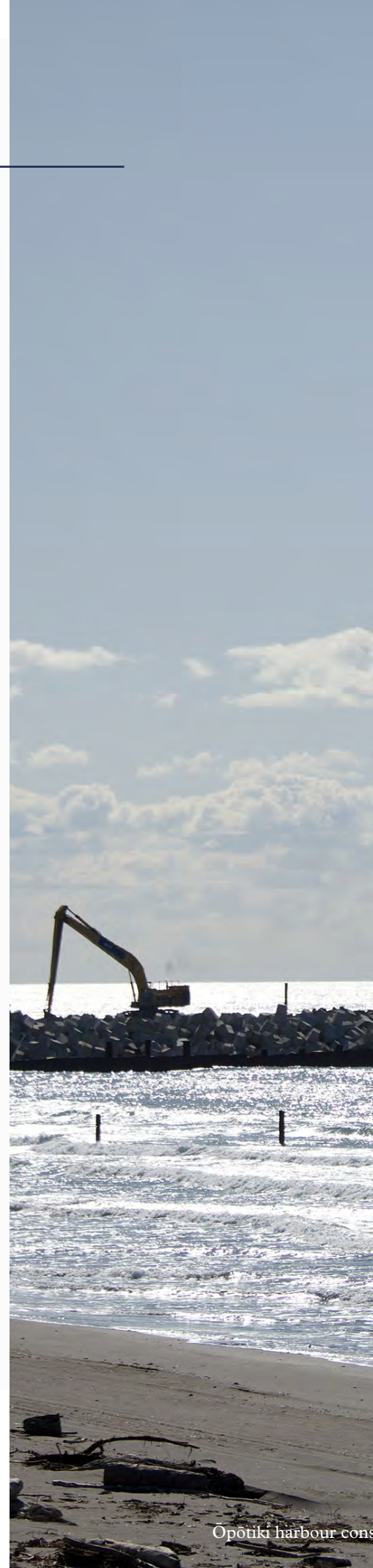
One of the most significant possibilities for large-scale employment gains lies in growing the region's open-ocean aquaculture industry. However, growing the sea farming industry to the required scale necessitates a substantial investment in developing Te Ara Moana a Toi, the harbour and on-shore facilities needed to support the open ocean sea farms.

Completing the harbour will catalyse further investments both in sea farms and on-shore developments, which will further stimulate economic activity and improve social outcomes within the wider Eastern Bay of Plenty region.

In 2020, Ōpōtiki District Council received \$79.4 million in funding through the Provincial Growth Fund. Combined with the \$20 million received through the Regional Infrastructure Fund in 2013, this has enabled the construction of the Ōpōtiki Harbour to commence.

Construction of the harbour is now around 80% complete, and given the recent development of an on-shore mussel processing factory, it is an opportune time to revisit and reassess the anticipated benefits against those estimated in the original 2019 business case.

This document therefore provides an assessment of the real-world impacts of the harbour construction project and the likely long-term impacts from the project.



Ōpōtiki harbour construction

Development of the harbour is still a work in progress, and there are a number of construction and operational challenges that need to be overcome before it realises its full potential. However, the current indications are positive and the trend is towards the harbour achieving more widespread benefits than the 2019 business case projected.

As is always the case with complex infrastructure projects, not everything has gone to plan. The final design completed in 2021 proposed some additional earthquake protection which resulted in a modest increase in scope, and there will be a delay in opening of the marina. However, transitional options are being explored, which will permit the core uses of the harbour to commence on time. This will enable the further expansion of the sea farms – which form the core of the benefits from the harbour development. In the medium to long term, these issues will not materially undermine the benefits of Te Ara Moana a Toi.

And on the other side of the ledger, the expansion of the aquaculture sector is faster and more robust than was predicted. Thanks to the energy and investment by Whakatōhea Mussels Ōpōtiki Limited, there is more crop being harvested and processed, more vessels due to start work and more jobs created than was envisaged in the 2019 business case.

In summary form:

- The reality of the harbour construction project is in line with the business case projections
- The expansion of the aquaculture sector is faster and stronger than predicted
- Jobs growth, economic growth and population growth are all at a higher level than the business case projections.

Given the harbour has yet to open, the full benefits of the project have yet to be realised and cannot be assessed in full. Indications are, however, that the 2019 business case projections are likely to understate the long term benefits the harbour will achieve in the coming decades – for Ōpōtiki and the nation.



02 How to read this document

2.1 What this document does

2.2 The logic model

2.3 Wellbeing impacts





What this document does

We assess the impacts of Te Ara Moana a Toi to date and compare this with the original projections.

The Ōpōtiki harbour development is known as Te Ara Moana a Toi – a pathway to the sea.

A safe operating harbour environment is a key requirement for growing the aquaculture industry in the region; with additional economic, employment, and social benefits also anticipated.

As of December 2022 the harbour is 80% constructed and early indications suggest the economic and employment growth is likely to surpass the initial projections contained in the business case in 2019. Alongside this, we are also seeing iwi and private sector investment in both onshore facilities and sea farms, and these developments are occurring more rapidly and extensively than originally anticipated.

The intention of this document is to assess the benefits and dis-benefits of the project to date, as well as identifying the benefits that have yet to be achieved. The following pages details our approach to this benefits realisation assessment.

In section 3, we set the scene by providing a background to the development of the Ōpōtiki harbour and what it is intended to achieve.

Section 4 provides an assessment of the construction benefits and how they have flowed through into the Ōpōtiki economy.

Next, in section 5 we provide an assessment of the aquaculture sector, and its likely growth trajectory.

Section 6 looks at the employment impacts, from both the construction and longer-term perspectives

Finally, we conclude with a possible approach for the periodic monitoring and evaluation of what Te Ara Moana a Toi is achieving for Ōpōtiki and the nation.

The logic model for the 2022 assessment

We assessed the projected versus actual impacts of the Ōpōtiki harbour development to date.

The aim of this work is to assess the projected versus actual impacts of the Ōpōtiki harbour investment, by examining the benefits, dis-benefits, and non-benefits to date. We used the Te Ara Moana a Toi business case and economic model to guide our approach.

The logic for how we've approached the assessment is shown in the diagram at right.

First, where possible, we quantified the actual economic, employment, and social impacts of the harbour development to date. To do this, we gathered data on employment, investment, and other economic outcomes from iwi and commercial sources as well as from databases such as Infometrics and Statistics New Zealand. We then made direct comparisons between the anticipated and actual outcomes.

However, not all benefits can be quantified in simple financial terms. So we also collected information about how the harbour development had impacted iwi and local business operations and aspirations, as well as the lives of the wider Ōpōtiki community.

We conducted interviews with key stakeholders including iwi and business owners. These interviews helped us understand the story behind the numbers, as well as identify some benefits and disbenefits that were not accounted for in the business case.

Finally, we end by making some future projections based on the data we have gathered and provide recommendations for ongoing monitoring and evaluation of this project as further aquaculture is enabled by Te Ara Moana A Toi.

By using qualitative data combined with economic modelling, we are able to include a range of viewpoints and capture the full picture of the impacts of this investment.

Construction of the Ōpōtiki harbour is progressing

The project is more than 80% complete and work is on track for a harbour opening in the coming year.

Assumptions were made about the benefits of the project

A range of assumptions were made about the economic, employment and social impacts from constructing the harbour and expanding the aquaculture industry.

Some of the benefits are being realised during construction

The expansion of economic activity and employment in Ōpōtiki was an explicit goal of the project.

Some of the benefits will only be realised after completion

The expansion of the sector supporting businesses is a significant impetus by the completion of the harbour.

Both streams of benefits need to be quantified

The success of the investment can be measured from both the construction benefits and the usage benefits.

Construction benefits are best measured during the construction phase

The construction project has immediate benefits with a short timeline and a long tail of subsequent impacts, which can be measured as they occur.

Assessing the benefits during the construction phase will set a baseline against which the future impacts of Te Ara Moana a Toi can be measured.

Economic expansion benefits

Construction of the harbour has enabled businesses to grow and expand in Ōpōtiki, in a range of industries.

Employment benefits

More people are employed in a range of industries due to the construction project.

Economic diversity is improved

There are a wider range of sectors operating in Ōpōtiki than was the case before the construction project commenced.

There are social impacts

Improved economic activity and employment growth has resulted in positive social impacts in the Ōpōtiki community.

Financial impacts

There are a range of financial impacts that can be easily and directly measured in dollar terms.

Non-financial impacts

There are a range of wellbeing impacts that are non-financial in nature and which are largely measured through proxy indicators.

There are both objective and subjective benefits measures

Assessing the full impact of the project requires us to look at the wellbeing benefits as well as the economic benefits.

Measurement of the full range of benefits is underway

The economic and wellbeing benefits are quantified, complemented by qualitative interview data.

Assessment during the construction phase provides a baseline

The benefits of the project are expected to develop in the years and decades ahead, and the current assessment will provide the first baseline against which the future impacts can be measured.

Benefit assessment is dynamic and needs to be conducted periodically

Benefits flow through the economy and our social structures progressively, so different assessments at different times are necessary to show the full impact.

Benefits are measured during the construction phase

The assessment produces a defined set of benefits which should be measured during the construction phase.

The wellbeing impacts

The business case looked primarily at the financial impacts, although there are additional wellbeing consequences.

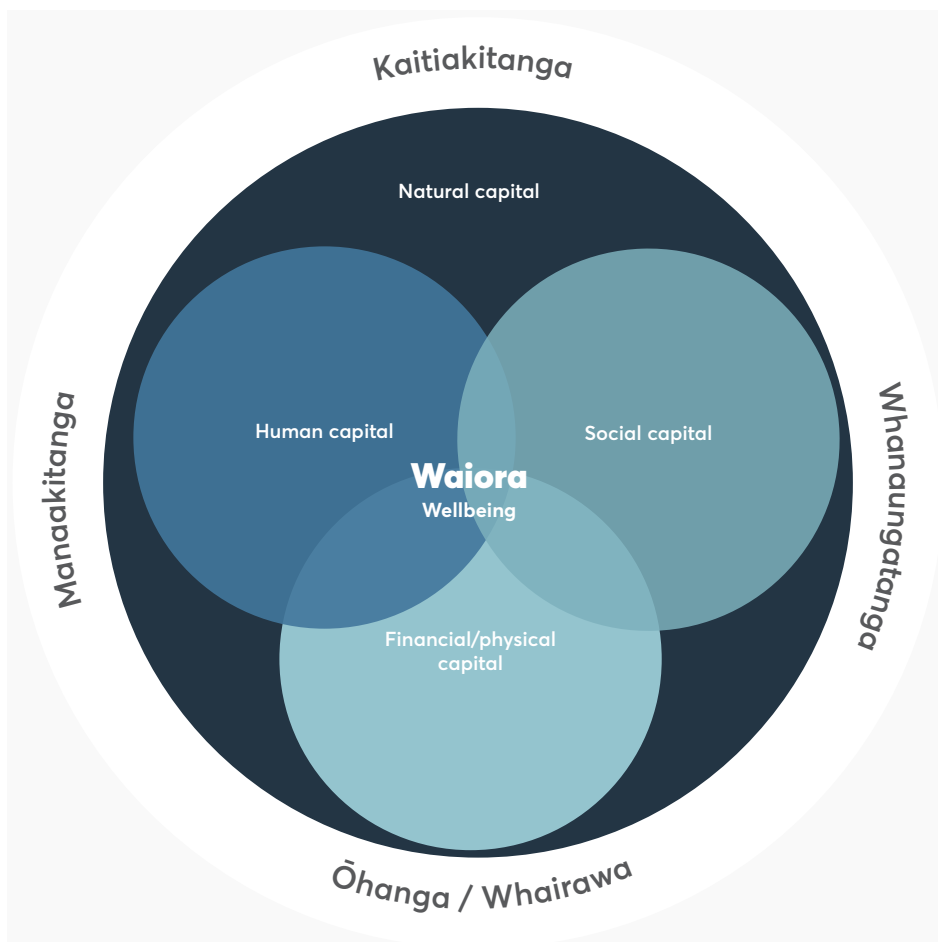
While analyses tend to focus mainly on the economic impacts of infrastructure development - namely, the costs and benefits associated with construction and operation - major projects also have impacts on our wellbeing as a society.

The diagram at right is the Productivity Commission's updated view of how the wellbeing domains interact. At the core of wellbeing is a liveable environment, preserved and enhanced through kaitiakitanga. Within this sphere the other wellbeings – human, social and economic – contribute to the waiora of Aotearoa.

These four domains directly map onto Treasury's multidimensional wellbeing (living standards) framework, and are interrelated. Indeed, many social, cultural, and environmental impacts themselves have economic implications.

It's also important to note that projects of this scale impact the wellbeing of individuals and whānau, communities, and the entire nation. These impacts can be enduring in the long term across several generations, and can begin to address intergenerational inequities - particularly for vulnerable groups.

Thus, in order to appreciate the magnitude and importance of major infrastructure investments as a wellbeing issue we need to look at its impacts holistically, assessing the costs and benefits in each of the wellbeing domains.



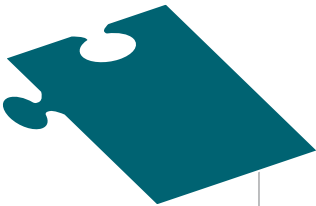
The 2019 business case for Te Ara Moana a Toi supported an application for capital funding to the Provincial Growth Fund. While both central and local government understand the importance of assessing investments from a wellbeing perspective, the requirement of the funding application focused exclusively on the financial costs and benefits of the harbour. As a result, a four wellbeings assessment of Te Ara Moana a Toi was not undertaken, which means no baseline was created for the environmental, social or cultural factors of the project.

There is significant benefit in understanding the wider implications of the project, however. A recommendation is therefore made later in the document for how the broader impacts could be assessed in the future, as part of the ongoing review of the harbour's effects.



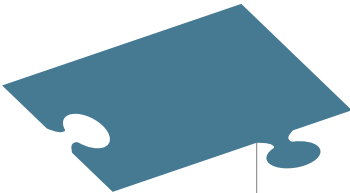
FISCAL SUSTAINABILITY

Does this option make government services more affordable over the long term, either by cutting spending or raising revenue?



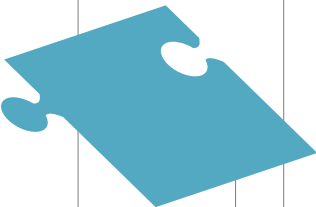
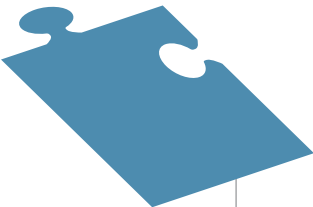
ECONOMIC GROWTH

How does this option affect incentives for consumption, saving, working, and investment? Are resources directed towards their most efficient use?



RISK

Will this option affect New Zealand's ability to withstand shocks or unexpected events? Is it flexible enough if the world changes in unpredictable ways?



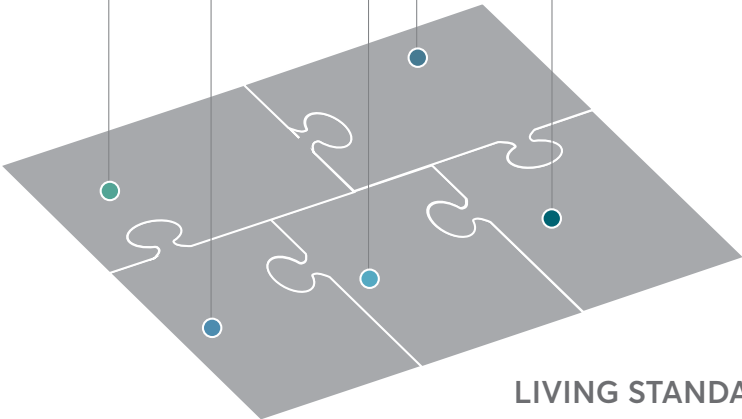
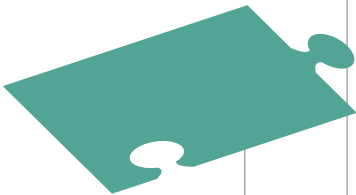
SOCIAL INSTITUTIONS

How might this option affect trust and connections between people, and between people and the government? What role does the state play in this option, and is it right for the New Zealand context?



EQUITY/FAIRNESS

Where do the benefits and burdens of this option fall, both across society and across time?



LIVING STANDARDS

03 The context for the harbour investment

3.1 Why the harbour is needed

3.2 The form of the harbour

3.3 Development timeline

3.4 The harbour value staircase





Why the harbour is needed

A new harbour with onshore facilities in Ōpōtiki is proposed to grow aquaculture in the open ocean.

As one of the more socio-economically deprived regions in Aotearoa, Ōpōtiki has historically grappled with economic and social challenges such as higher rates of criminal offending, welfare dependency, family violence, alcohol dependency, and mental health issues. Employment opportunities - or a lack thereof - represent both an underlying cause of these issues as well as a way forward for the region.

The main opportunity for large-scale employment gains comes from the aquaculture industry, which offers an economically viable and environmentally sustainable option for long-term development within the region.

Aquaculture has traditionally taken place in sheltered, enclosed bays and harbours where there are other legitimate uses and values. However, many areas have reached their social carrying capacity. Both globally and in New Zealand, attention is turning to open ocean farming as the big opportunity for aquaculture growth.

Open ocean farming presents an opportunity to farm in cooler, deeper waters, and more easily position farms away from areas of high competing use. New Zealand's exclusive economic zone is 15 times bigger than our land area – presenting significant potential.

Decades of research and commercial testing work has demonstrated the viability and profitability of the aquaculture industry in the Ōpōtiki region. Alongside this, investors have shown an appetite to grow the industry, on the back of robust international demand for high-quality marine protein.

However, in order to realise this potential, the industry must be scaled to a level that requires a full commercial harbour, ancillary facilities, and an extensive on-shore processing capability. Construction of such a harbour is beyond the ability



The harbour entrance in August 2022
Photo: Ōpōtiki District Council

of the private sector, and given the wide scale public benefits that are likely to accrue, public investment in the development of a harbour and the required supporting infrastructure is needed.

Developing the harbour will catalyse further investments in sea farm and onshore commercial development, industrial capacity, and residential development. In turn, these initiatives will lead to the employment, economic and social outcomes that are explored in more depth later in this document.

Thus, the Ōpōtiki harbour is a crucial component in growing the aquaculture industry within the wider Eastern Bay of Plenty region; resulting in significant employment opportunities and allowing the region to lift our people out of poverty. In this way the development of the harbour creates a strong link between sea farms and on-shore facilities: providing a path to the sea, Te Ara Moana a Toi.

The national strategic alignment

The project is strongly aligned with the Government's Aquaculture Strategy.

In 2019 the Government announced a strategy to help “streamline” the aquaculture industry toward becoming a \$3 billion industry by 2035.

The then Minister for Fisheries Stuart Nash released the Government's Aquaculture Strategy at the New Zealand Aquaculture Conference in Blenheim, saying the Government would work alongside the industry to deliver the “ambitious” goal.

Nash said they hoped to remove “unnecessary barriers” to aquaculture and work with industry to “totally optimise” profits, while ensuring sustainability.

Aquaculture New Zealand chair Bruce Hearn welcomed the strategy and said it recognised aquaculture's benefit to New Zealand as the “primary industry of the future” and one which could be a “beacon for the country” as they looked to transition to a low emission economy.

The Government planned to build on the existing \$600 million industry by maximising the value of existing farms through innovation and extending into modern land-based farms and open-ocean aquaculture.

The strategy signalled the Government's clear plan and support of the aquaculture industry, Nash said.

They were working on biosecurity and offshore farming, which was where the “real potential” was.

“Aquaculture contributes significantly to regional development. It generated over \$600 million in revenue in 2018, and employed 3000 people, especially in the regions. There is real potential for aquaculture to enrich our economy and our global reputation with Government, iwi and industry coming together.”

– Marlborough Express,
September 19, 2019

“

My vision is that New Zealand is globally recognised as a world-leader in sustainable and innovative aquaculture management across the value chain. Achieving this vision means building on our successes, and embracing new opportunities.

This strategy outlines a sustainable growth pathway, and an all of Government work plan to support it.

The growth pathway sets an objective for aquaculture to become a more productive industry that further supports regional prosperity. Innovation underpins this growth – both through improving the value from existing farming space, and exploring opportunities for new farming on land and in the open ocean.

This strategy also recognises the importance of partnering with iwi to ensure their values and aspirations, commercially, culturally and as kaitiaki, are provided for. This means going beyond legislative obligations and embracing true partnership.

Hon Stuart Nash
(then) Minister of Fisheries



The form of the harbour

The harbour at Ōpōtiki is designed to support the operation of national-scale marine farming.

Harbour mouth and walls

A pair of engineered sea walls that provide sheltered access to the river mouth, and a dredged channel to enable commercial vessels to use the facility in a wide range of weather and tide conditions, collectively providing a marine place of safety for the aquaculture industry and general vessels.

Residential development

Expansion of the existing Waiotahi Drifts subdivision through the addition of 107 new lots, enabled by better-managed river flows, resulting in a freeing up of land for housing and increased rating revenue over time.

Marine industrial zone

Development of the on-shore facilities necessary for boat building and maintenance, as well as berthing and servicing facilities for commercial vessels operating from the harbour.



An integrated project

The focus of the investment in Te Ara Moana a Toi is the construction of the harbour training walls, dredging of the channel and the ancillary works needed to support maritime operations. However, as the diagram shows, the project is an enabler for wider direct investment across Ōpōtiki. This includes infrastructure focused on the aquaculture sector – such as the marine industrial zone and the processing factory – but extends into the enablement of further residential subdivision and upgrades to the public wharf facilities.



Public wharf facilities

Public facilities for recreational and Coastguard users, including boat launching and refueling, with the ability to add a public commercial marina when demand warrants.

Processing factory

The on-shore processing facility for the sea farms, able to process a variety of shellfish and (potentially) finfish for domestic and international markets, employing more than 200 people in peak processing season.

The harbour at Ōpōtiki is designed to be a marine place of safety that can support the operation of national-scale marine farming. As indicated on the map to the left, it is made up of:

- A pair of **engineered sea walls** that provide sheltered access to the river mouth,
- A **dredged channel** to enable vessels to use the facility in most sea and tide conditions,
- A **commercial boat harbour** within a commercially-zoned processing area, serviced by appropriate road, water, sewerage and power infrastructure, and
- A **public wharf** that will provide servicing for recreational and Coastguard vessels, with the potential to add a public marina in the future.

There are also other on-shore facilities and private developments planned alongside the harbour construction, including:

- A privately-funded **marina and industrial zone** with the facilities for berthage, maintenance, and servicing of commercial vessels,
- A **processing factory** for sea farm crop which will support the expected increase of sea farming activity in the region and create new jobs for locals, and
- Expanded **residential development** in the existing Waiotahi Drifts subdivision by a further 107 lots, as a result of better managed river flows from the dredged channels.

A number of **sea farms** are also currently operating or planned for the near future, representing the most significant opportunity for aquaculture growth in recent decades. These are indicated in the image overleaf.

Growing the aquaculture sector

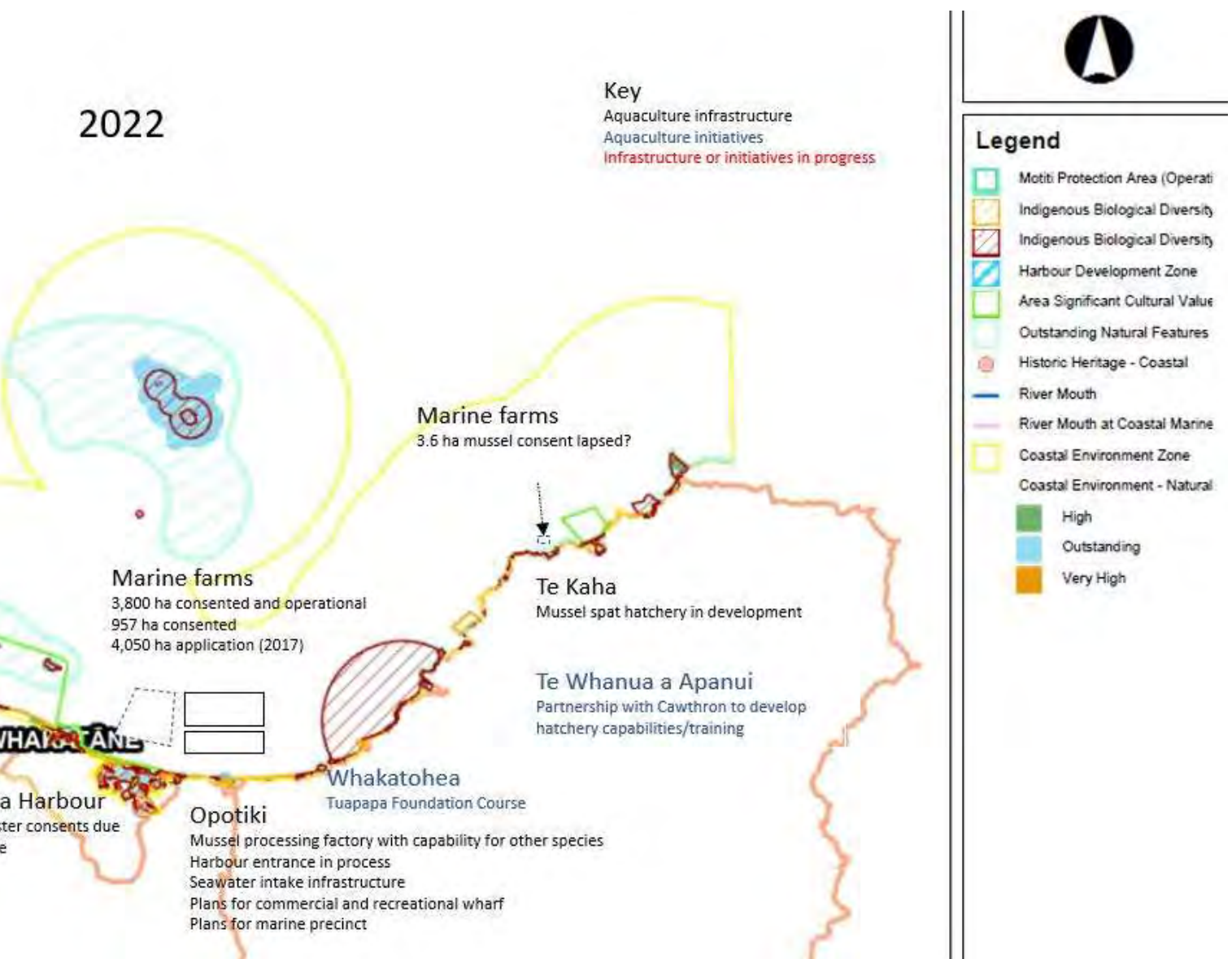
Te Ara Moana a Toi will enable the expansion and growth of offshore aquaculture in the Eastern Bay.

The diagram below shows the planned aquaculture development offshore from Ōpōtiki. Progress is being made in reserving and consenting additional water space, and this is likely to continue in the years ahead. This is a positive development and will bring additional benefits to the region and the nation.

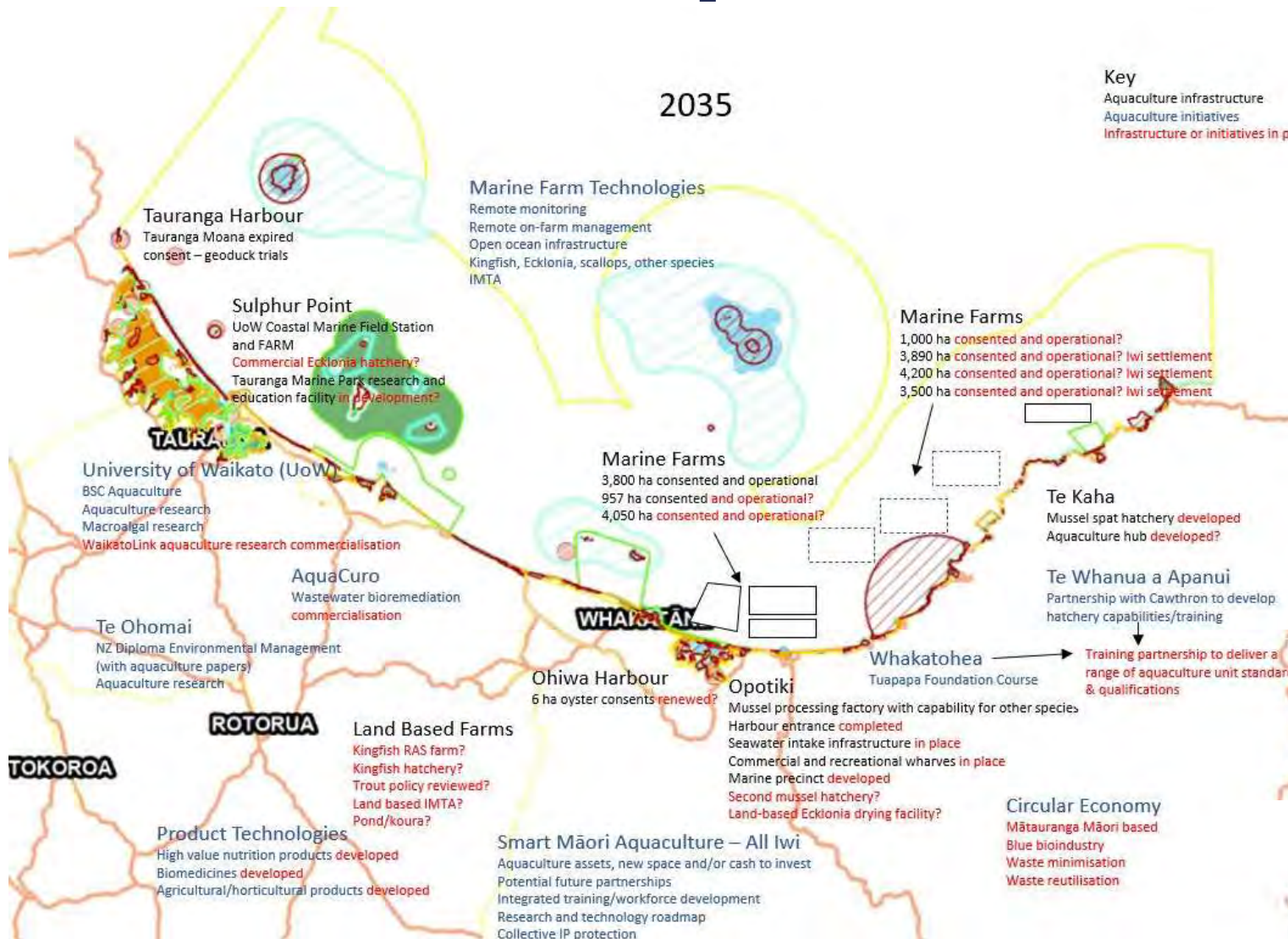
The 2019 business case contained estimates for when the various sea farms would commence development. The disruptions from the COVID-19 pandemic and the Treaty settlement processes for Whakatōhea and Te Whānau ā Apanui mean that some of the proposed dates will have shifted. The changes may impact the timing of the benefits from Te Ara Moana a Toi but not the total value over the medium to long term.



The existing and planned sea farms represent the most significant opportunity for aquaculture growth in recent decades.



The scale of future development



The diagrams above and to the right show the scale and extent of planned and future aquaculture-linked developments in the Eastern Bay of Plenty. As can be seen, the sector offers the possibility of a transformational change in the economic and social architecture of the region, with the ability to fundamentally change the trajectory of the aquaculture sector in Aotearoa.



Legend

- Motiti Protection Area (Operational)
- Indigenous Biological Diversity
- Indigenous Biological Diversity
- Harbour Development Zone
- Area Significant Cultural Value
- Outstanding Natural Features
- Historic Heritage - Coastal
- River Mouth
- River Mouth at Coastal Marine
- Coastal Environment Zone
- Coastal Environment - Natural
- High
- Outstanding
- Very High

The scale of development

As the maps show, Te Ara Moana a Toi is set to become the key that unlocks the aquaculture and economic potential of the Eastern Bay of Plenty in the decades ahead. However, doing so requires development at scale – that is, the number of sea farms, servicing vessels and supporting infrastructure needs to grow very significantly.

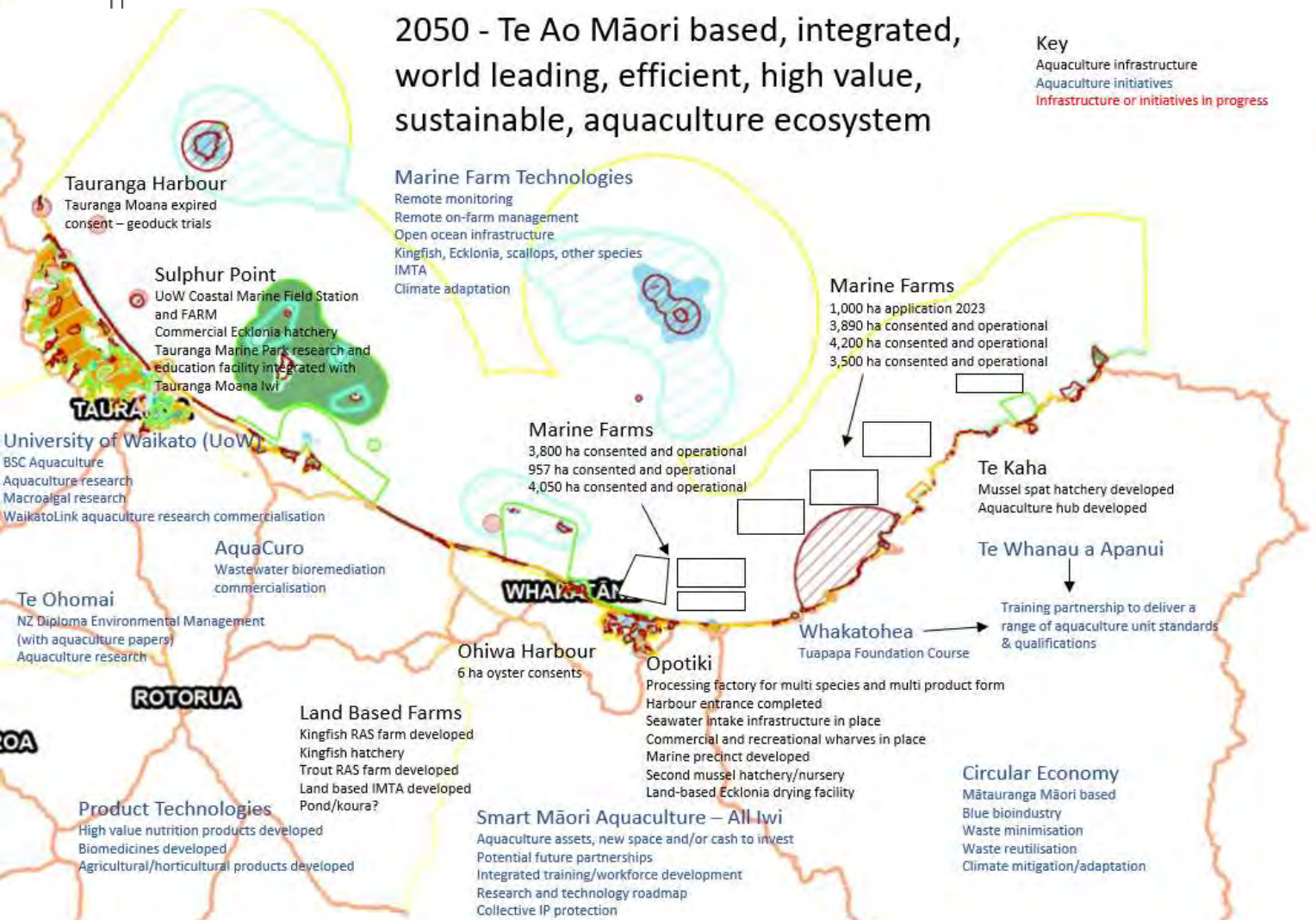
This is why the development roadmap for the harbour and its facilities is crucial, and why subsequent investment in roads, housing and core infrastructure is needed. Providing the base of operations for what will become a major focus of Aotearoa's aquaculture sector will require major private sector investment in the marina and associated onshore support facilities, and matching public sector investment in transport links, water and wastewater, and the like.

The opening of the harbour and its first use by Whakatōhea Mussels is only the initial step in realising the wider ambitions of the region. While the initial facilities only need to meet the requirements of a small number of vessels and a single operator, investment and development momentum must be kept up if the full \$132 million in benefits identified in the 2019 business case are to be realised.

2050 - Te Ao Māori based, integrated, world leading, efficient, high value, sustainable, aquaculture ecosystem

Key

- Aquaculture infrastructure
- Aquaculture initiatives
- Infrastructure or initiatives in progress



The development timeline

Construction of the harbour is now 80 percent complete.

A significant amount of research, development work, investment, and commercial trials has occurred in the last two decades leading up to the development of Te Ara Moana a Toi.

The timeline to the right shows the major milestones in this journey, beginning with the establishment of Eastern Sea Farms in 2001 by the Whakatōhea Māori Trust Board and partners. This has since triggered the expansion of local sea farming companies, including Whakatōhea Mussels Ōpōtiki Limited (Whakatōhea Mussels).

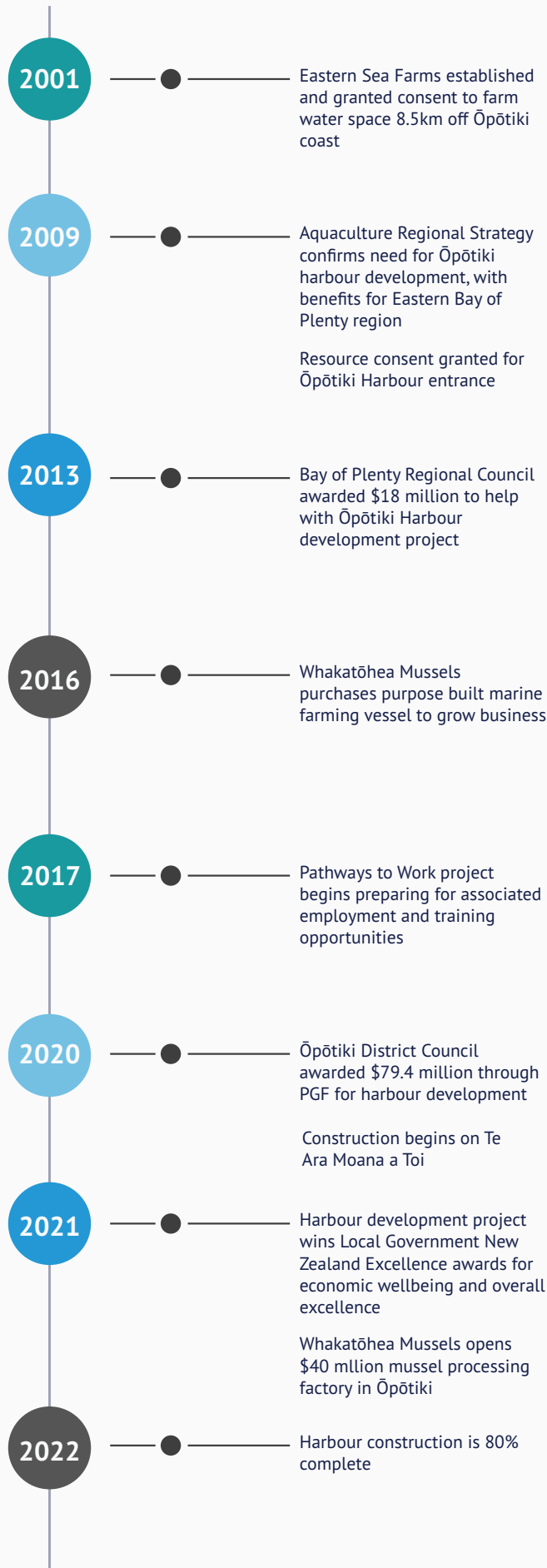
To support the growth of aquaculture in the region and attract other private sector investment opportunities a business case for harbour development was submitted to Cabinet. This business case emphasised the economic, employment, and social outcomes that would arise from the development and operations of the harbour.

Alongside this, the Pathways to Work programme began preparing for employment and training opportunities that would emerge as a result of the development.

In 2020 a revised version of the business case was successful in securing \$79.4 million through the Provincial Growth Fund in 2020. This is on top of the \$20 million in funding provided to the Bay of Plenty Regional Council through the Regional Infrastructure Fund in 2013 to assist with the harbour development project.

The potential impact and contributions of this project has also been recognised formally through two Local Government New Zealand (LGNZ) Excellence awards in 2021, with Ōpōtiki District Council winning the excellence for economic wellbeing award, as well as being the overall excellence winner.

Construction is now over eighty percent complete, and with the recent opening of the Whakatōhea Mussels mussel processing factory in the area, it is timely to reflect on what benefits, disbenefits, and non-benefits have accrued to date as a result of this investment.



What the 2019 business case predicted

Te Ara Moana a Toi was predicted to achieve a range of direct and indirect benefits at the sub-regional, regional and national levels.

There were a number of anticipated benefits as a result of Te Ara Moana a Toi. Benefits are broadly grouped into those resulting from the construction project and the long-term operations.

Harbour construction

The financial and employment benefits calculated in the 2019 business case are as a direct result of the harbour construction, and include:

- The number of new jobs created via the harbour construction process itself, estimated at 60 jobs created by 2023
- The economic value created by the development of regional quarrying facilities needed to construct the sea walls, representing another 28 jobs created by 2023
- The financial value gained through expanding the Waioatahi Drifts subdivision, as a result of better managed river flow, estimated at \$18.5-\$20 million.

Since the harbour development also enables the growth of sea farm operations, accelerated further by the establishment of an on-shore processing factory, the following additional benefits were also estimated:

- Increased outputs represented as an increase in annual Growth Weight Tonnage (GWT) of mussels harvested from 800 tonnes in 2019 to more than 11,000 tonnes by 2025
- The value created by the construction of the sea farms and on-shore processing facilities, represented by the creation of 113 new jobs associated with the mussel farms and processing factory.

Overall, the total economic value created by the sea farms was estimated at \$132 million.

In total, the construction of Te Ara Moana a Toi was predicted to directly create around 200 new jobs within the Ōpōtiki region associated with the harbour construction, mussel farms, and quarrying facilities.

Long-term harbour operations

In addition to direct benefits, it was also anticipated that the operations of Te Ara Moana a Toi would generate broader indirect and long-term benefits at the sub-regional, regional, and national level – although these were not quantified in financial terms. These benefits included:

- Enhanced workforce development in preparation for Te Ara Moana a Toi, which was identified as the key to achieving the community's aspirations
- A more favourable growth profile of the aquaculture industry within the Eastern Bay of Plenty region, and
- Additional economic activity in the region which will also create indirect jobs and induce extra employment in the wider economy.

The projected benefits in the 2019 business case were conservative estimates. For instance, the employment projections exclude any additional jobs associated with the Marine Industrial Zone and the financial calculations of crop do not include any species other than Greenshell mussels. Other benefits accruing from other uses of the harbour – such as tourism or fishing – were also excluded from the calculations.

Nonetheless, balancing the level of deprivation in Ōpōtiki against the potential wellbeing benefits, it has been acknowledged that this investment may well represent the greatest social return per dollar of investment available in Aotearoa New Zealand.

This investment may well represent the greatest social return per dollar of investment available in Aotearoa New Zealand.

The value staircase

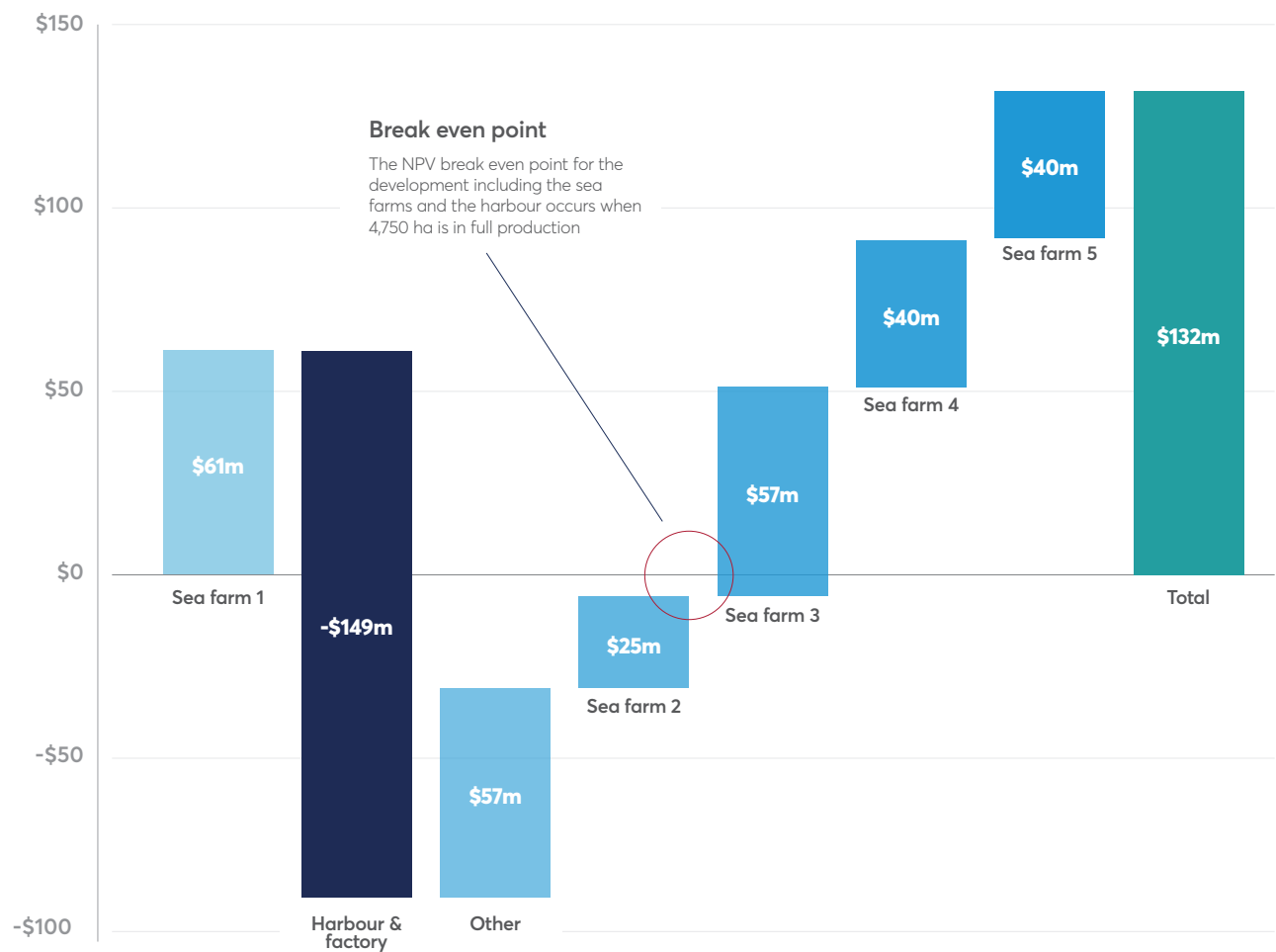
Both the costs and the benefits of the harbour were assessed in an economic model developed in 2019.

When assessing a significant infrastructure project, both the costs and the benefits of the investment need to be calculated. For Te Ara Moana a Toi, this was done with an economic model specifically developed for the purpose. It showed a net positive value from the investment of \$132 million (in 2019 dollars) over the next 30 years.

The diagram below shows how these costs and benefits were calculated. The benefits – employment and economic activity – make positive contributions, while the costs of the project such as

the construction of the harbour and the processing factory make negative contributions. The resulting final number of \$132 million is the net result, expressed in Net Present Value (NPV) terms and valued in 2019 dollars.

Recalculating the NPV of the harbour is beyond the scope of this report, as some of the major contributing factors – such as the timing of sea farm construction – remain unknown. However, the primary drivers for both costs and benefits are unchanged, and the value staircase remains valid.



The harbour as one piece of the puzzle

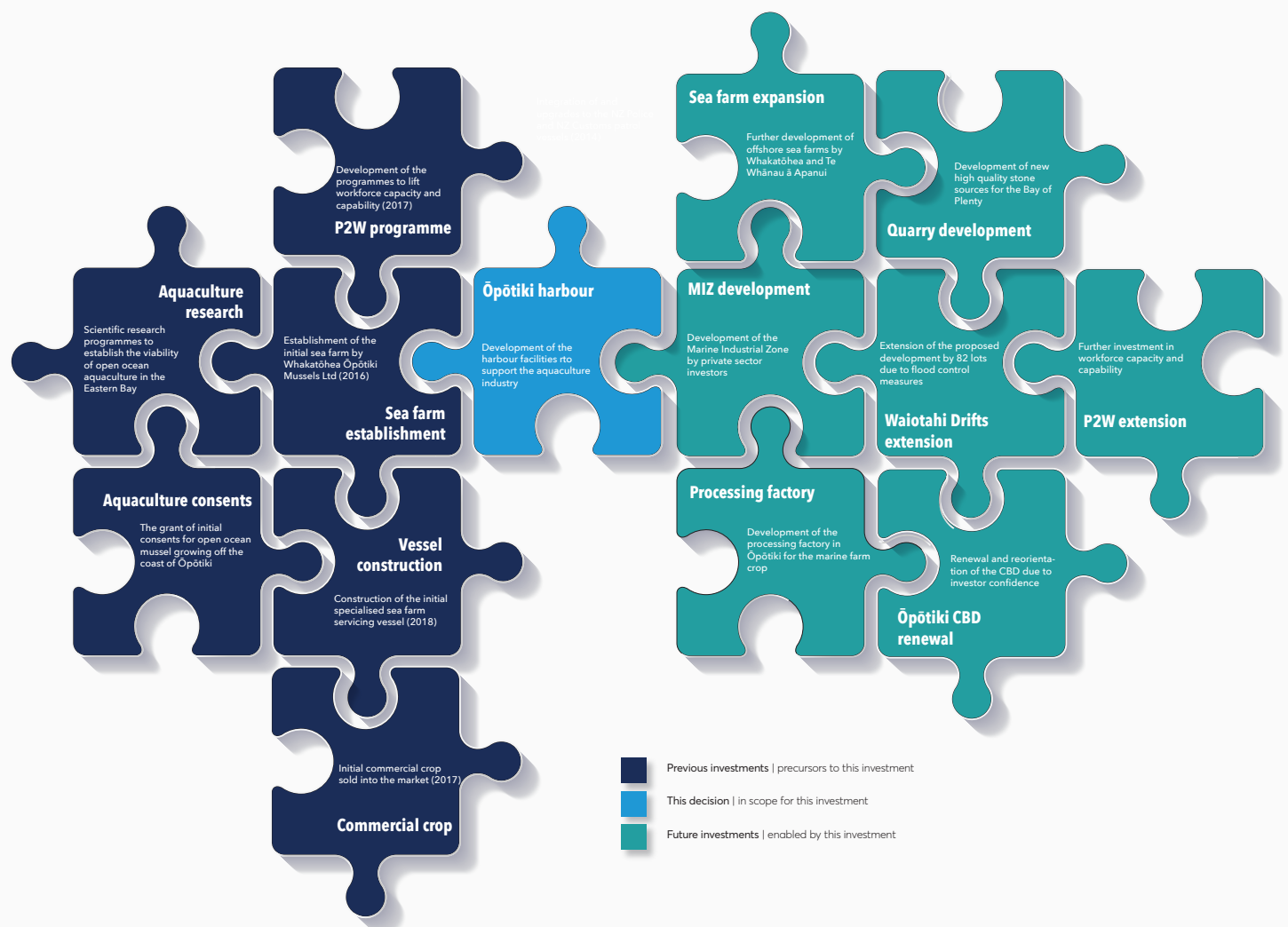
Contextualising the harbour investment.

The diagram below shows how the harbour integrates with other key regional and national initiatives, and builds on investments made by the public and private sectors to validate the commercial viability of open ocean aquaculture in the Eastern Bay.

The diagram also shows the subsequent investments that are enabled or accelerated by Te Ara Moana a Toi. It is important to note that the harbour is an enabler, so the benefits from these subsequent investments are reflected in the wider economic benefits realised from the

project, even if the direct benefits are not counted directly in the value staircase at left.

For instance, it is recognised that the Ōpōtiki CBD renewal can occur once there is increased economic activity in the District and a rationale for commercial investment; however, the benefits of this are directly attributable to the specific CBD projects, not solely to the harbour.





04 The construction story

4.1 The construction project

4.2 Short term impacts

4.2 The marina delay



The construction project

The construction of the harbour comprises the majority of the costs.

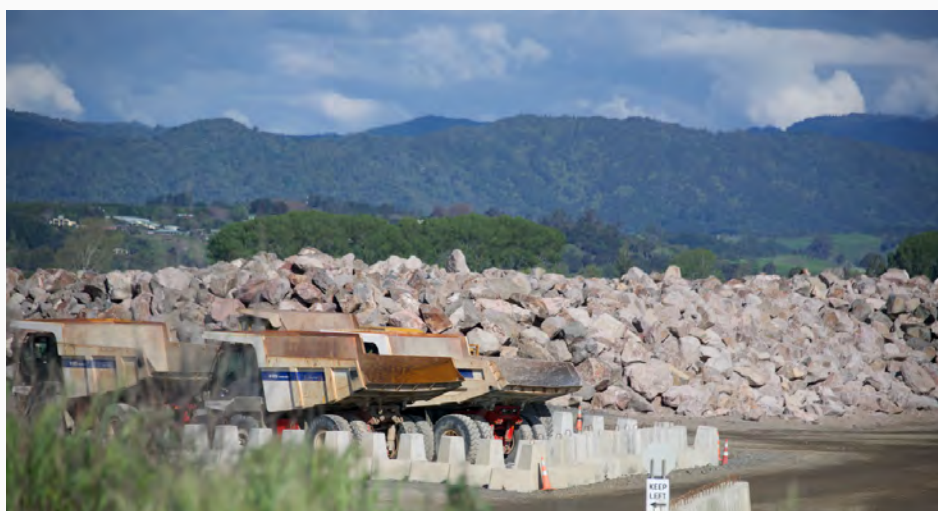
Construction of Te Ara Moana a Toi is the largest project of this scale in Ōpōtiki for many decades, and represents the first development of an all-new harbour in Aotearoa for more than 100 years. The value of the project therefore makes up the bulk of the costs identified in the 2019 business case, and the expenditure has a significant positive impact on the District and the region as the funding for the project flows through the local and regional supply chains.

The construction project was valued at \$100 million (2019 dollars) in the business case, and this is the sum that was approved by Cabinet. There were some uncertainties in the project and some aspects of the design required validation through the early stages of construction.

The overall scope of the project has evolved, primarily because the original design of the harbour walls has been changed to make the walls more resistant to earthquakes by using steel piling in their construction.

The decision to incorporate steel sheet piles in the structures followed extensive testing of the ground where the walls are sited, which could only be done once the construction project commenced. Funding for the strengthened harbour walls and improvements was approved by a December 2021 meeting of relevant Cabinet Ministers.

From a cost/benefit perspective, the change in scope to improve earthquake resilience may alter the costs of Te Ara Moana a Toi. In the absence of any other changes, this increase might erode some of the \$132 million in expected benefits once the harbour is complete; however, as the later sections of this report identify, the positive impacts from the aquaculture sector are ahead of projections, which means any effects are likely to be outweighed by other improvements.



Above Harbour construction activity in August 2022

Construction cost inflation

The costs of the project have been well managed in a high-inflation environment.

In late 2021 supply chain and construction consultants EBOSS undertook a supply chain report for the construction sector, in conjunction with the Building Research Association of New Zealand (BRANZ). The intention of the report was to quantify the anecdotal supply chain issues being experienced by construction companies, which are in turn impacting projects across the country.

The diagram below shows the extent of the challenges in key construction product categories, ranging from structural components to interior and finishing items. Not all these are relevant for the harbour project; however, structural products are suffering from the greatest supply

and logistical challenges, increasing costs and lead times for practically all significant projects.

In addition, the fuel price rises in the last two years have imposed significantly higher costs on suppliers and the main contractor, HEB. At the time of the 2019 business case, diesel was costed at \$1.10/litre ex GST and Road User Charges.

In this environment, the management of the project within the agreed budget has been exemplary, from the Harbour project team, HEB and the network of contractors that have undertaken the construction work. Their careful management of budgets has not resulted in major cost over-runs, which had the potential to erode the overall benefits of the project.

Average price increases by category

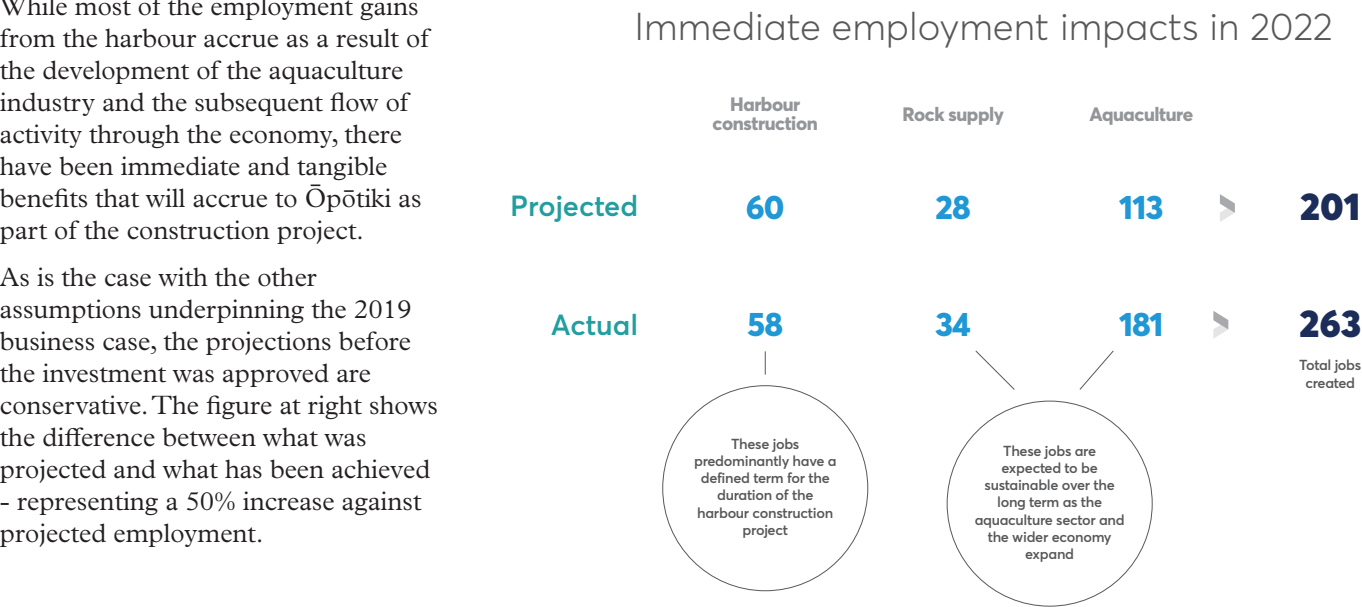


Short term construction impacts

The employment benefits from the construction project are higher than projected.

While most of the employment gains from the harbour accrue as a result of the development of the aquaculture industry and the subsequent flow of activity through the economy, there have been immediate and tangible benefits that will accrue to Ōpōtiki as part of the construction project.

As is the case with the other assumptions underpinning the 2019 business case, the projections before the investment was approved are conservative. The figure at right shows the difference between what was projected and what has been achieved - representing a 50% increase against projected employment.



House prices: the proxy for increasing incomes

One of the goals of a major regional investment such as Te Ara Moana a Toi is to provide improved incomes, in addition to extra employment. High-paying jobs are as important to the region as creating new roles.

The data on mean and average incomes can be slow to arrive and is inherently noisy; that is, in a District with only 9,000 people can see relatively large fluctuations due to changes from a single major employer, which makes it difficult to attribute specific outcomes to the project.

However, house prices are generally a proxy for changes in income levels. People are only able to spend more on housing (either through rent or mortgage repayment) when they have greater incomes.

While some of the house price growth has now retreated due to higher interest rates, Ōpōtiki experienced a very significant increase during 2021-

22. For instance, during February 2021 house prices increased in value faster in Ōpōtiki than anywhere else in New Zealand.

According to CoreLogic's House Price Index, the average value of homes increased by \$61,938 in one month alone, rising from \$372,639 in January to \$434,577 in February. Other areas where home values increased by more than \$50,000 for the month were Whakatāne at \$53,757, and Central Auckland at \$50,405.

Rising prices are not a good story for housing availability or affordability. However, they do reflect the fact that incomes in Ōpōtiki are highly likely to be rising as well, enabling whānau to pay more for their dwellings.

Longer-term trends in median incomes are likely to be visible in the national data, which will be available following the Census in 2025.

The consequences of the marina delays

The current challenges are not likely to be material to the benefits in the medium term.

The 2019 business case made the assumption that the marina would be completed around the same time as the harbour opened, and that further development would occur in the industrial zone as the number of operators and vessels increased. A number of factors have conspired to mean the harbour will commence operation while the marina is still in the consenting and construction phase.

While this could be expected to impact the outcomes of the project, the 2019 business case did not include any direct benefits from the marina or industrial zone. This was deliberate; in major projects, it can be tempting to over-claim the impacts and extend these well past the direct causal effects of the investment. Over-claiming the benefits can also prejudices the cost/benefit analysis for future projects, as the same benefits cannot accrue to multiple investments.

As a result, delays to the opening of the marina and industrial zone will not materially affect the \$132 million in overall benefits from Te Ara Moana a Toi. This does, however, come with the caveat that the aquaculture servicing vessels are able to use the harbour, which is discussed at right.



The primary benefits from the investment in the harbour come from its use by the aquaculture operators to service the offshore sea farms. For these to be realised, the harbour must be usable in a day-to-day sense – irrespective of whether or not the marina is complete.

In the period between the harbour opening and the marina opening, some form of interim facility must therefore be provided if the benefits from aquaculture usage are to be achieved. The design and location of the interim facility is immaterial from a business case perspective, assuming it is fit for purpose from an operational perspective.

For the harbour benefits to be unaffected in the short term, it is best if the interim facility is completed within the harbour construction budget and remains a useful asset over the long term. Some minor disbenefits will be created if the facility is developed and used for a short period of time and then discarded.

Harbour operating costs

While a delay to the marina opening will not materially affect the overall benefits stream for the region, it may have an adverse effect on the operating budget for the harbour itself. The draft operating budget – prepared at the same time as the 2019 business case – assumed a steady growth in harbour users, some of whom will require the marina facilities to commence operations. A delay to the marina may result in fewer harbour users in the short term, leading to an operating deficit in the period between the harbour opening and the marina opening.

This is an operational matter to be addressed between Ōpōtiki District Council and MBIE, but will not materially affect the benefits to the region or the country calculated in the 2019 business case.

05 The aquaculture story

5.1 Growth projections

5.2 The Whakatōhea Mussels impacts

5.3 Longer term trends





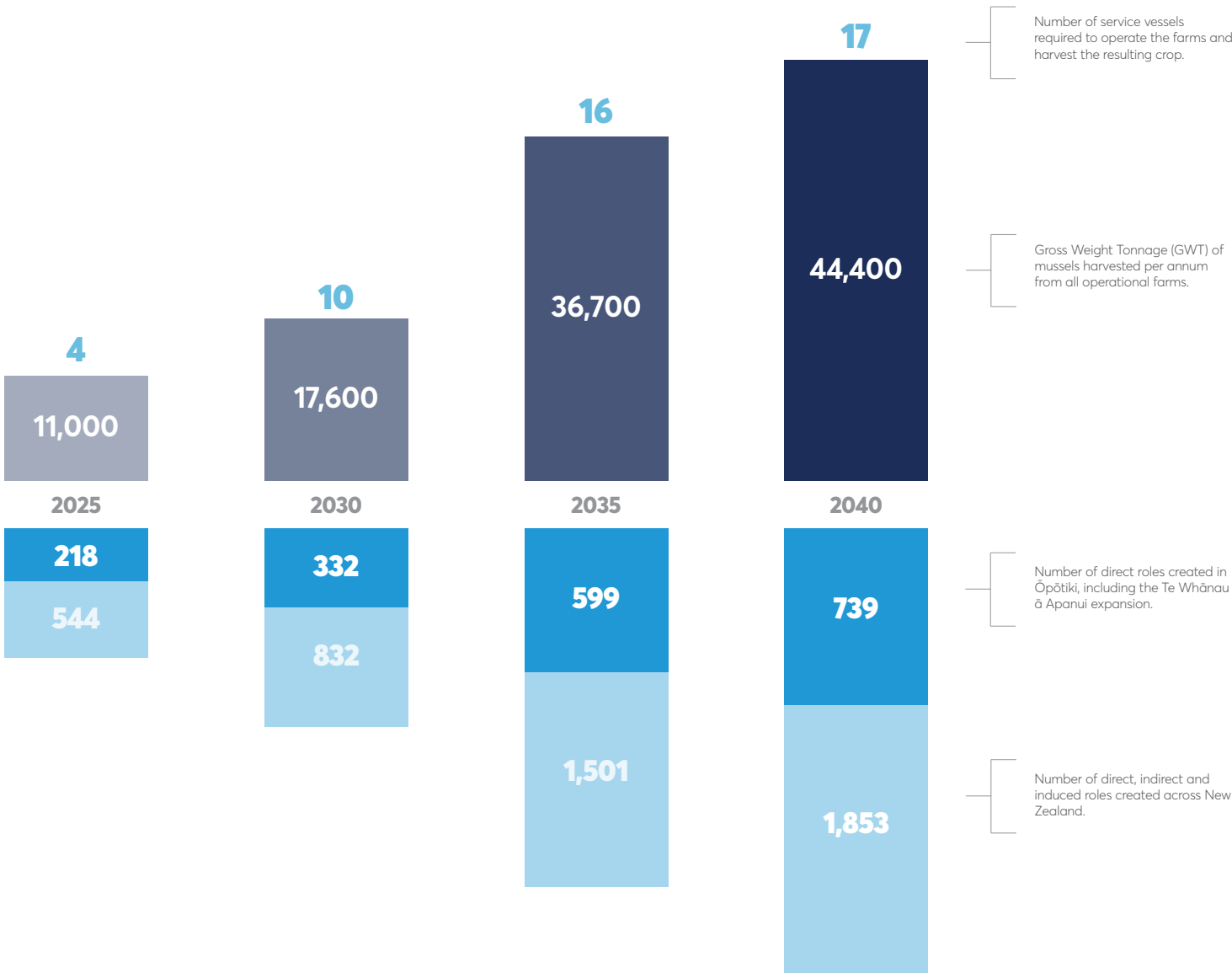
Aquaculture growth projections

The modelling in the business case showed strong growth over the next 30 years.

The growth profile of the aquaculture industry projected in the 2019 business case is shown in the chart below. Annual farm output rises from around 800 tonnes today to more than 11,000 tonnes in 2025, then quadruples to more than 44,000 tonnes by 2040.

In order to support aquaculture at this scale, the number of vessels building, operating, maintaining and harvesting the sea farms increases to 17 vessels, which will employ around 100 people.

Onshore processing also results in significant job creation. By the time farm output reaches 8,000 GWT, a processing facility is needed that will allow for up to 40,000 GWT of product to be processed annually. The facility requires around 200 staff, which will rise to a maximum of 300 people based on capacity utilisation.



The current growth track

Production growth is on track and some years ahead of schedule.

The primary driver for the long-term benefits described in the business case is the development and expansion of the offshore aquaculture industry. This is driven by the construction of new sea farms and the processing of the resultant crops, with flow-on effects to the local and national economy.

Whakatōhea Mussels Ōpōtiki Ltd is currently the sole operator in Ōpōtiki. In the short term, expansion of the industry is linked to the operational and financial performance of Whakatōhea Mussels, although this will change in the years ahead as new sea farms are developed by Te Whānau ā Apanui and others.

As the following pages show, Whakatōhea Mussels has moved faster and at greater scale than was originally projected in the business case. Whakatōhea Mussels has been the primary innovator for offshore sea

farming, and at the time the business case was developed considerable effort was going into research and development aimed at scaling up sea farming and production. These innovations have enabled Whakatōhea Mussels to expand at a faster rate than the business case estimated and generate significant intellectual property in the process.

Early construction of the processing factory has provided the platform for a significant increase in sea farm development and production in the years ahead – so the future growth track is defined by two factors:

- Expansion of the existing and planned farms by Whakatōhea Mussels
- Development of new farms by new operators, such as Te Whānau ā Apanui.

There are some encouraging signs, but it is too early to make substantive predictions about how quickly the new operators and farms might begin production. Accordingly, the production growth track in 2022 looks similar to the growth track predicted in 2019, with some minor additional benefits due to earlier expansion by Whakatōhea Mussels.

Maintenance vessel Kukutai
Photo: Whakatōhea Mussels



Whakatōhea Mussels Ōpōtiki Ltd

The first commercial aquaculture operator is setting the stage for the expansion of the sector.

Founded in 2014, in partnership with the Whakatōhea Māori Trust Board and local investors, Whakatōhea Mussels Ōpōtiki Ltd (Whakatōhea Mussels) is an Ōpōtiki-based greenshell mussel (Whakatōhea kutai) farming business. Whakatōhea Mussels owns Aotearoa's first open-ocean mussel farm - a 3,800 ha section around 8.5 kms off the Ōpōtiki coast - as well as a newly commissioned \$37 million mussel processing facility. This facility enables the on-land processing of locally-farmed mussels for domestic and export markets, with products including frozen mussel meat, frozen half shell, and live whole shell.

Both the farm and the processing facility were created to support the iwi ambitions of providing meaningful employment and income for its people, and improving outcomes for the entire community. Their long-term vision remains: "Ko te kai hoki i Waiaua" - to be the food bowl that feeds the world.

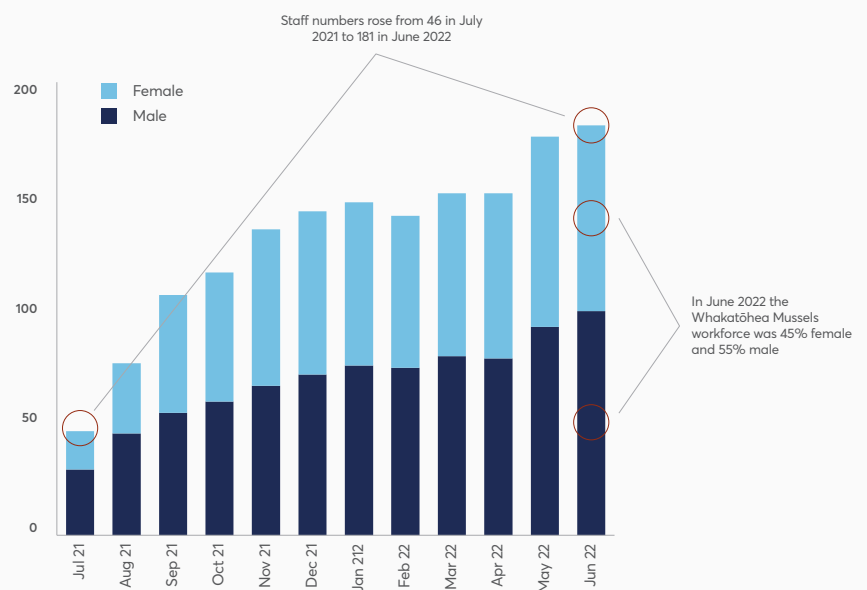
Today, Whakatōhea Mussels has holdings through Provincial Growth Fund investments as well as the Whakatōhea Māori Trust Board, and local individuals, businesses, and trusts. As of July 2022, the company employs around 181 employees and continues to expand its operations, having recently launched a third marine farming vessel which will significantly grow mussel harvesting and farm maintenance capabilities.

From the perspective of the business case, there are two strands to Whakatōhea Mussels' ongoing investments:

- Expansion of the sea farms
- Construction of the processing factory.

Each of these will be discussed in turn.

The nature and scale of its aquaculture operations means that Whakatōhea Mussels is very much a people-orientated business – and one that has had to grow its workforce rapidly as the sea farm has expanded and the processing facility has commenced operation. At the beginning of July 2021, Whakatōhea Mussels started the financial year with 46 people employed. As at 30 June 2022, this has grown to 181 employees across the marine farming and processing facility operations.



Recruitment, training and retention have therefore been key focus areas for the company, and there have been significant challenges in all areas over the last two years due to the impact of the COVID-19 pandemic. The ways Whakatōhea Mussels has approached workforce development are discussed in more depth in the Employment section.

Processing facility development

The opening of the facility has set the stage for value-added economic growth in Ōpōtiki.

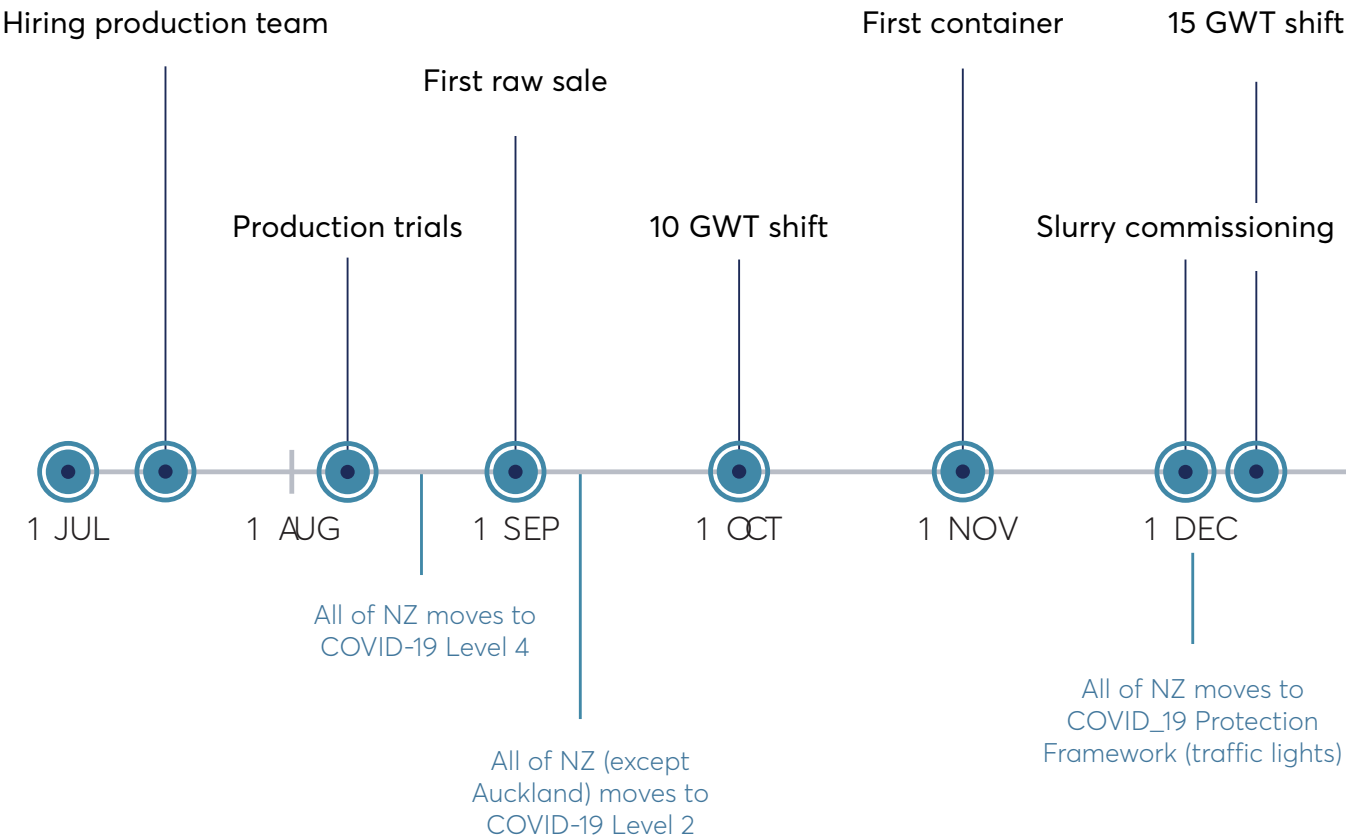
The purpose-built mussel processing factory represents a \$40 million investment “built too big for today but planned for tomorrow”; with a view toward producing a range of mussel products for both the domestic and international markets.

At present, the facility processes crop from local and other regions as a means of achieving the necessary production scale and efficiency. However, it is anticipated that the factory will increasingly process local crops as the offshore sea farm production in Ōpōtiki grows.

Development of the factory represented a significant financial and operational investment by Whakatōhea Mussels. The commissioning and start-up of the mussel processing facility in 2021 presented several challenges.

Testing and validation of the plant, services, and systems, needed to take place before Whakatōhea Mussels could start processing product for commercial sale. This was found to be a major undertaking, as was the establishment from scratch of a large-scale skilled workforce and management team. Logistical matters – from finished crop transportation to equipment maintenance – needed to be addressed and new supply chains established.

Whakatōhea Mussels managed this process throughout the COVID-19 pandemic and associated lockdowns, which demonstrates a high degree of management capability, and focus from the Board. It is a significant achievement and has set the stage for the earlier realisation of the expected benefits from the harbour investment.



The effects on the benefits

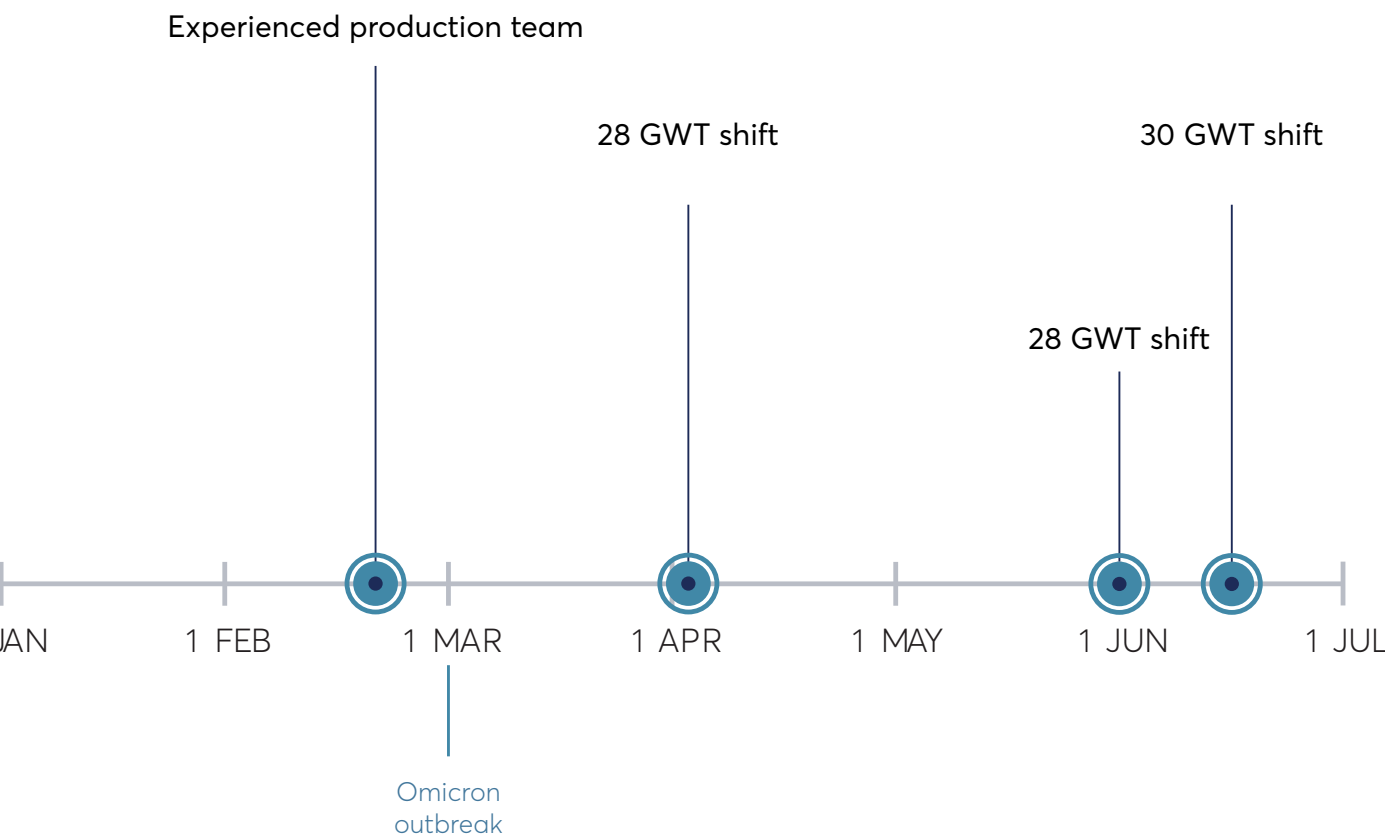
The earlier commissioning date and higher production volumes have brought forward the expected benefits.

The 2019 business case expected the processing facility to be constructed in 2023/24 and to commence operation in 2024, based on likely production volumes from the local sea farms. This assumption was based on a conservative view of the level of risk investors would be prepared to take.

Bringing the factory construction and commissioning forward by two years represents a significant departure from the earlier assumptions, and reflects a very high level of commitment to aquaculture in the Eastern Bay from Whakatōhea Mussels investors and Board. The effect in the wider community is an acceleration of the economic and social benefits of the facility, primarily through higher and earlier employment than was originally forecast.

The early and sustained employment growth has been partly enabled by Whakatōhea Mussels decision to process crop from outside the region, in addition to the Ōpōtiki harvest. In hindsight this has been an inspired and effective management decision – and one which benefits Aotearoa’s wider aquaculture strategy. Our understanding is the excess out-of-region crop would normally go to waste, so the ability of Whakatōhea Mussels to process it has enabled new economic value to be created at a national level.

This approach was not forecast in the 2019 business case, so while much of the benefit falls outside Ōpōtiki, it is a net gain to the country.



Whakatōhea Mussels sea farm expansion

While line growth is less than projected, farm productivity is significantly higher.

From the outset of mussel farming in the Eastern Bay, Whakatōhea Mussels has led the innovation in engineering necessary to farm the open ocean. This has required extensive research and development, coupled with real-world testing in sometimes trying environments.

Expansion of the existing 3,800 ha sea farm underpins the early years of the business case. As noted earlier in the document, the assumptions in the 2019 business case about how quickly this would occur were relatively conservative.

By 2022, the business case predicted Whakatōhea Mussels would have 400 lines installed in total; in fact, at 30 June 2022 the company had 298 long line structures in place, representing 62% capacity for the initial farm. This puts installations behind the projections.

Farm construction has been impacted by significant weather challenges for the company. As the Annual Report notes, the 84 days lost to adverse weather in the 2022 season meant that no new lines could be installed as seeding, managing and harvesting the existing lines took precedence in the working time available.

The company is addressing the challenge through operational changes to how shifts are worked, and by constructing and commissioning an additional servicing vessel, Pakihi Kura, which was delivered from its Auckland shipyard in late 2022.

Based on the projections in the business case, a third vessel was not expected to become operational until 2024. As is the case with the processing factory, bringing this investment forward accelerates the benefits from sea farm operations and increases employment.

	2022 - projected	2022 - actual	
Mussel lines	400	298	-25.5%
Mussel GWT	1,152	1,878	+63%
Harvester vessels	2	3	+50%
<p>The table shows the numbers of lines installed, the gross weight of mussels harvested and the number of vessels in operation or nearing completion.</p> <p>What is apparent from the comparison is that farm productivity is significantly higher than the 2019 business case projected. Despite line numbers being 25% lower than projected, mussel GWT is some 63% higher, and this is despite the adverse weather conditions in the 2022 season.</p> <p>The implications of this are significant. As noted, Whakatōhea Mussels has used innovation and a process of continuous improvement to develop the sea farms and the processing operations. If the level of productivity achieved by Whakatōhea Mussels as a result of these efforts is extended to the rest of the aquaculture area, production volumes – and the economic returns generated by the operators – are likely to be significantly higher than the 2019 business case projected.</p> <p>It is premature to count these benefits immediately. As Whakatōhea Mussels notes, the productivity per mussel rope varies from season to season, which is to be expected for a natural product grown in the open ocean. We have therefore been cautious in interpreting the data to date, but it is reasonable to predict higher crop levels and economic benefits overall if the same trend continues over the next 3-4 seasons.</p>			

Longer term implications

More sea farms are planned, although the timing is uncertain.

Obtaining the resource consent for the initial 3,800 ha sea farm was a protracted process, involving significant research and investment over an extended period. Since that point, however, interest in open ocean aquaculture in the Eastern Bay has expanded considerably, driven primarily by the expansion ambitions of local iwi Whakatōhea and Te Whānau ā Apanui.

At the time of writing, more than 12,600 ha of water space has been allocated for future marine farming by 2050. This scale of operation will vastly increase the number of mussel lines, servicing vessels and tonnage of crops processed in the coming decades – and with it, the employment opportunities and subsequent improvements in economic circumstances for the District.

The 2019 business case set out an estimated path for the additional sea farms to be developed, but these were rough estimates at best. Since then, events such as further progress on the Treaty of Waitangi settlement for Whakatōhea have altered the likely timelines, but have not altered the intent of iwi to invest further and scale up their aquaculture investments.

The timing of the longer-term benefits is inextricably linked to the timing of the new farms, as well as the productivity changes discussed on the previous page. At this stage it would be highly speculative to propose a different development timeline as it is not likely to be any more accurate than the initial projections from 2019.

On this basis, no re-modelling of the longer-term benefits has been undertaken, and it is proposed this is left to the point where iwi investment intentions are clearer.

Whakatōhea Mussels and the role of innovation in the sector

At the time of the 2019 business case, Whakatōhea Mussels had begun development of the first sea farm with a single servicing vessel. While considerable work had been done to get to that point, further innovation was needed to scale up the farm, learn the lessons of the weather and develop and operationalise the factory.

Throughout the process, Whakatōhea Mussels have developed considerable knowledge and intellectual property about how to farm the open ocean and harvest and process the resulting crop. In some areas, Whakatōhea Mussels' expertise is probably unique in the world.

As a commercial organisation it is up to the company to decide how to use this intellectual property; they may seek a monetary return, or provide it to other organisations on different terms. Irrespective of the arrangements, the intellectual property has not been valued in the 2019 business case, and further work would be needed to estimate its worth to the company and the economy. Given the inevitable process of disseminating innovation across industry sectors, it is likely at least some of the value of the knowledge developed by Whakatōhea Mussels will eventually benefit the entire aquaculture sector in Aotearoa.





A person wearing blue overalls is seen from the back, working on a large, orange-painted metal tank. The tank has some black markings on its side. In the background, there are various workshop items, including a red tarp, a whiteboard, and some machinery. The floor is concrete and appears to be a workshop or factory setting.

06 The employment story

6.1 Preparing the workforce

6.2 Construction and aquaculture

6.3 Pathways and development

Employment projections

Employment growth in both construction and aquaculture has exceeded projections.

The graph below shows the projected long-term employment impacts from the investment. This includes both the short-term effects from the construction project and the long-term growth from the aquaculture sector.

As the industry expands, the employment impacts for the region and the country become significant. Direct employment is driven by:

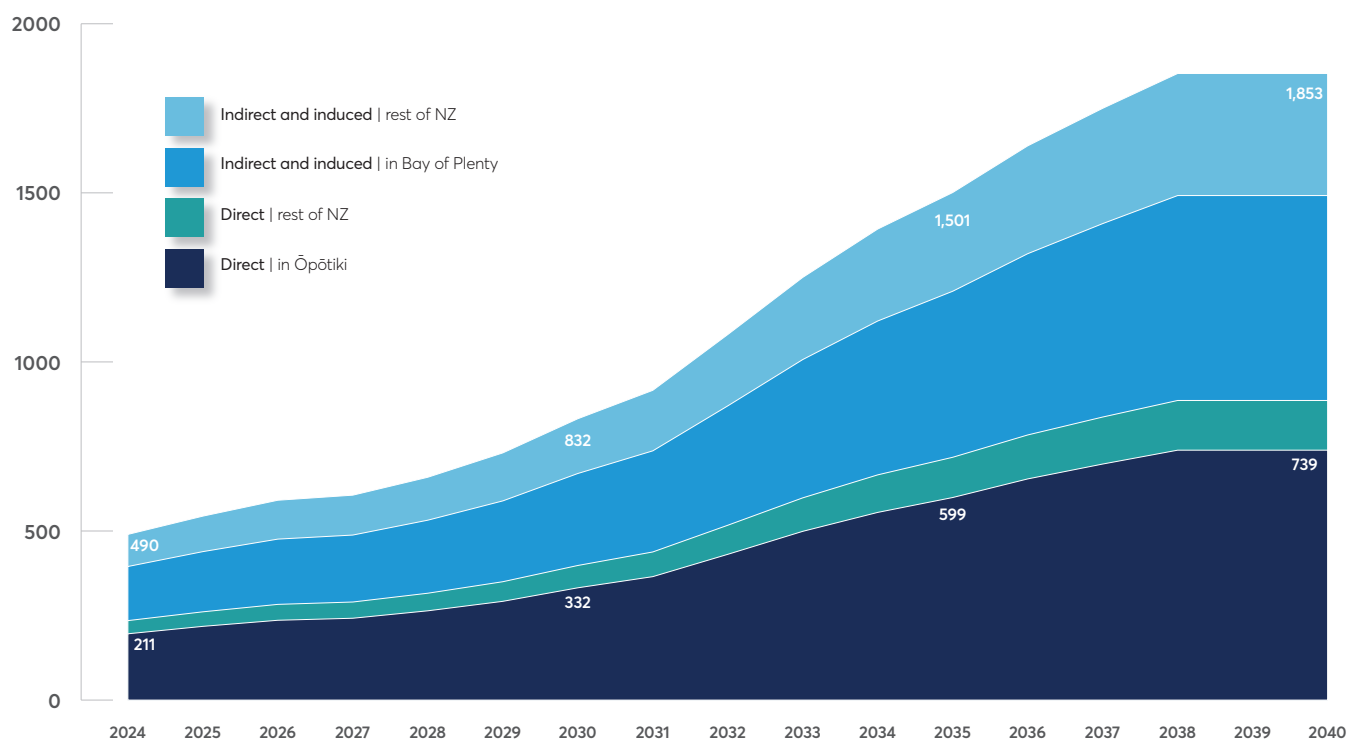
- Crewing of sea farm servicing vessels
- Production staff for the onshore processing facilities
- Administrative, managerial and support staff working within the aquaculture industry.

Beyond these direct roles, there is indirect and induced employment growth across the Bay of Plenty, driven by the uplift in economic activity. In turn, there are New Zealand-wide impacts as the effects ripple out through the wider economy.

The data challenge

The primary benefits from the investment in the harbour come from its use by the aquaculture operators to service the offshore sea farms. For these to be realised, the harbour must be usable in a day-to-day sense – irrespective of whether or not the marina is complete. In the period between the harbour opening and the marina opening, some form of interim facility must therefore be provided if the benefits from aquaculture usage are to be achieved. The design and location of the interim facility is immaterial from a business case perspective, assuming it is fit for purpose from an operational perspective.

For the harbour benefits to be unaffected in the short term, it is best if the interim facility is completed within the harbour construction budget and remains a useful asset over the long term. Some minor disbenefits will be created if the facility is developed and used for a short period of time and then discarded.



The role of workforce development

The success of local workforce programmes has had a noticeable impact for Ōpōtiki.

A full workforce development approach was integrated to the Te Ara Moana a Toi project and its procurement processes from the outset.

Workforce development activity commenced in Ōpōtiki some years before approval for the harbour investment was obtained, with operational and funding support from Whakatōhea, Ōpōtiki District Council, regional and central government, and NGOs such as the Todd Foundation.

The cross-sector workforce development strategy has been co-led by Whakatōhea and Ōpōtiki District Council from the outset. Originally named “pathways to work” it has been a multi-faceted approach, and encompassed initiatives with students at the College, unemployed people of all ages, and with those keen to upskill and change jobs or careers.

Programmes have included skills training, community driver licensing and much more, all aimed at improving the ability of local people to benefit from increased employment opportunities.

The early commencement of workforce development enabled key organisations to increase capability and capacity ahead of the surge of roles that resulted from the project being approved and the construction contracts signed. By the time demand began to ramp up from HEB, Whakatōhea Mussels and other local employers, a robust education to employment pipeline had been established, from basic life skills through to NZQA courses and providers, with strong engagement from private sector employers.

Wherever possible local procurement, including for training provision, has been prioritised and this in turn has led to additional indirect employment.

There have been significant impacts for the Ōpōtiki community, in two key areas:

- Ōpōtiki people had the skills and qualifications necessary to fill the emerging construction and aquaculture roles, which has had positive impacts at a personal, whānau and community level. If there had been insufficient workforce development, there was a danger that many of the roles created by the construction project in particular would have been filled by an imported workforce, which carries significantly lower benefits for the Ōpōtiki District.
- The integrated approach to training and development has been entrenched in the operations of major companies such as HEB and Whakatōhea Mussels. Both organisations include structured training programmes from a range of providers, focused on areas of immediate benefit to the company – such as specific operations skills – alongside courses in literacy, numeracy, cultural awareness and leadership.

The cross-sectoral approach is now an integral part of the Ōpōtiki community, and has allowed the District to maximise the employment benefits from the development of the harbour. The continuation of the programmes is likely to ensure the benefits of aquaculture expansion are similarly reflected in the long term.



Construction employment

HEB's engagement with the social procurement process has been a success.

Part of the international VINCI Construction group, HEB are one of Aotearoa's major infrastructure companies who have delivered on large scale projects across the country.

HEB was therefore well-positioned to take on the lead contractor role for the complex Ōpōtiki harbour design and build, while also delivering on the social procurement requirements.

Local workforce utilisation was built into the tendering process and due to the risky nature of the work there was considerable wrap-around of training provided.

For instance, to help prepare potential local workforce members on the construction site, HEB co-operated with MSD, Whakatōhea, a local driver and operator trainer, and a large machinery hire company, and a staged training course was run. Those who graduated to the second stage were trained on the construction site, to use small versions of the large machines utilised in the construction. A number were recruited to HEB, while others gained work with local subcontractors on the project, or furthered their training in various trades and driving courses.

Other training courses such as rigging and dogging, working at heights, and elevated work platforms were also provided to new recruits alongside upskilling experienced locals with class 2, 4 and 5 licenses.

Overall, approximately half of the 40 HEB workers on the harbour development project were locally employed. HEB has signalled their intention to offer local staff the opportunity to continue working with the company beyond the harbour project elsewhere in the country. Even those unable to relocate will have still accrued considerable training and experience better positioning them in the job market for future employment.

In addition to local workforce employment, HEB also played a significant role in lifting the skills and capability of local businesses across their supply chain. This involved improving health and safety standards as well as enabling companies to become more efficient and create their product to higher specifications and requirements.

As a result, these businesses have been able to expand their operations and become more competitive at a regional level. Equally, HEB has benefited from the flexibility and efficiencies of engaging local suppliers.

There have also been benefits for HEB in the form of transferable learnings

out of this project. While geotechnical risks had initially been identified as the biggest concern with the current project, the learnings and intellectual property developed around harbour design and construction will be transferable within the company and will help de-risk future projects.

Thus, the harbour investment and social procurement requirements have had significant benefits in upskilling and developing the local workforce to support the next wave of investment. Further government investment to harness and fully realise the benefits accrued to date, especially those related to improving employment outcomes for the region.

Growing local business: East Bay Concrete

In response to the demand for concrete to cast the harbour units, HEB and the project team worked with local supplier East Bay Concrete to upgrade their local batching plant and implement new quality control processes and systems to meet the demand for suitably-specified concrete. East Bay Concrete – a long-time supplier to the region – rose to the challenge and made significant investments to meet the volume and quality standards of the project.

More staff have been employed as a result, and the company now has the ability to bid on significant construction projects in the region thanks to its proven track record of delivering high-specification concrete on time and in the required volumes. This will enable a stalwart Ōpōtiki business to directly compete with larger regional suppliers.



Aquaculture employment

Whakatōhea Mussels has invested heavily in workforce development.

The company began significant recruitment in 2021 as construction of the processing facility progressed. At the beginning of July 2021, Whakatōhea Mussels started the financial year with 46 people employed, which grew to 181 employees across the marine farming and processing facility operations by June 2022.

The nature of the work in the aquaculture industry means there was not a pre-skilled workforce in Ōpōtiki. The company has therefore invested heavily in training and development, for both processing and sea farming positions. This programme has required close collaboration with several providers to share resources whilst training of staff is underway, and the company has received support from local and government organisations to establish and operate the training programmes. These are detailed at right.

Tūāpapa Foundation Skills Training

The Tūāpapa Programme was a pre-employment foundation programme provided to the community through a collaboration between Whakatōhea Mussels, Te Pou Oranga o Whakatōhea and the Primary Industry Training Organisation (PITO). It was a unique learning experience which combined elements of Primary Industry Skills (Level 2) qualification with employment skills and Whakatōhea history.

Primary Industry Skills Level 2

Once graduates of the Tūāpapa Programme commence employment, a PITO trainer delivers several NZQA accredited unit standards (post-employment) to complete the Primary Industry Skills Level 2 qualification. This is applied to all new production staff entering the processing areas of the business.

New Zealand Apprenticeship in Seafood Processing (Level 3 & 4)

The New Zealand Apprenticeship of Seafood Processing is a 22-month course designed by PITO to provide specific skills needed within our unique business. This apprenticeship is tailored for the development of supervisors and managers. It includes training in the areas of Quality Control, Effective Hygiene and Sanitisation Standards, Processing, Logistics and Distribution, Environmental and Sustainability, and Aquaculture.

New Zealand Academic and Learning Institute - Employee Numeracy and Literacy Fund

In conjunction with the New Zealand Academic and Learning Institute (NZALI), Whakatōhea Mussels has developed a bespoke educational

programme to strengthen numeracy and literacy skills in the areas of leadership and communication. Training is provided by NZALI and funded via the Tertiary Education Commission (TEC) Employee Numeracy and Literacy Fund.

Over the next three years the company is seeking to enhance leadership and communication skills for around 120 employees in the processing area of the business.

Marine Farm Training Programme

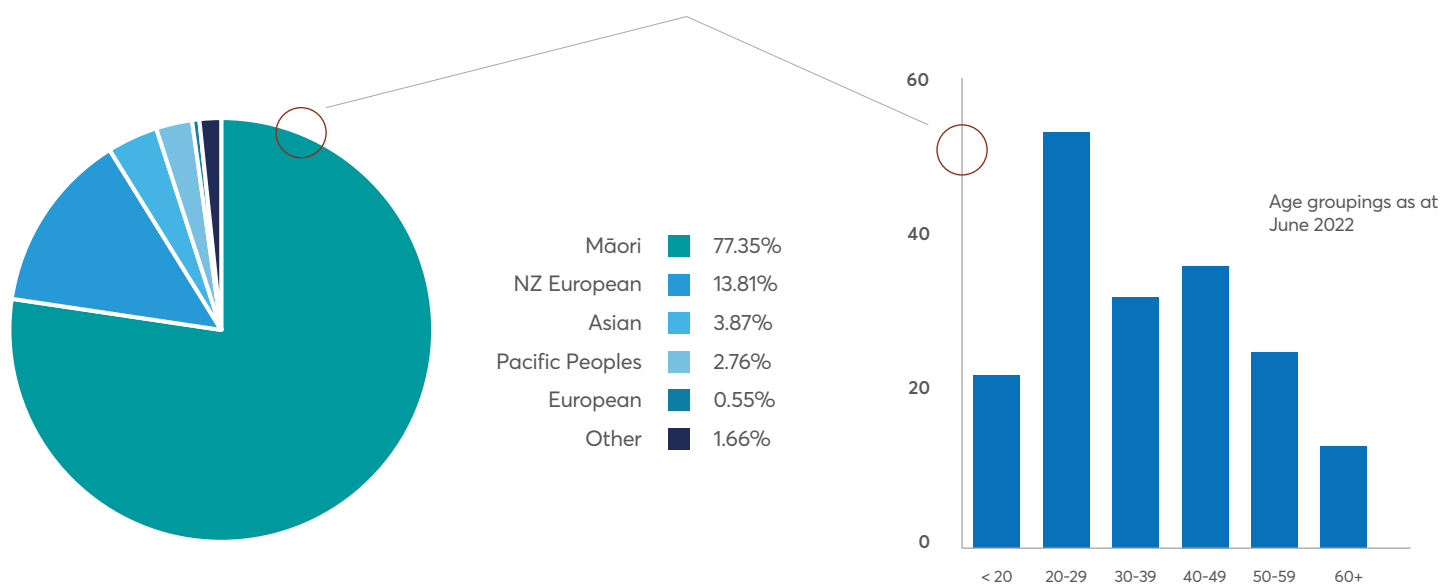
With the construction of a third Whakatōhea Mussels vessel underway, there has been a focus on additional recruitment and training for the approximately eight crew members and additional Skippers.

To help with bringing on new recruits, Whakatōhea Mussels has developed a work experience process to expose potential employees to the rigours of work life at sea. This process aims to increase the intake of potential crew members.

To upskill crew, Whakatōhea Mussels has enrolled several marine farm crew members into the Toi Ohomai Institute of Technology Advanced Deckhand Qualification. This is a 52-week programme which helps recognise the knowledge the crew gains on the vessels as a formal NZQA qualification, and is also the second step in the progression towards becoming a Skipper.



In both ethnicity and age distribution, the Whakatōhea Mussels workforce closely reflects the Ōpōtiki District population





Training and development pathways

C Hayes Engineering is an Ōpōtiki success story.

C Hayes Engineering, a local company that has been in operations since 1988, also played a crucial role in the harbour development.

The firm produced the large steel moulds used to make hanbars – heavy concrete structures that surround and protect the harbour from wave action and tides – protecting the 400m long seawalls. This contract amounted to around a tenth of the business' annual output; representing a significant opportunity to showcase local business capability.

However, the C Hayes Engineering story extends beyond just supporting the harbour development. The company also operates a certified training unit run by Tatai Kingi (pictured below). The programme delivers training in mechanical engineering and welding, but students are supported holistically during their study.

For instance, a company van transports students from as far afield as Edgecumbe each morning. Rangatahi are supported in developing essential life skills and equipped with

job-relevant training such as numeracy skills, setting them up for better future employment outcomes.

Tatai Kingi describes several examples of previous students who have been hired as apprentices and later full-time staff at the firm, as well as many others who have been able to secure meaningful employment opportunities nationally and overseas, that may not have been accessible to them otherwise.

With an emphasis on putting the person first and upholding their mana, the company is a crucial component in developing Ōpōtiki's workforce, particularly our rangatahi.

In this way, C Hayes Engineering is just one example of a local business that has benefited and is benefiting from the construction of Te Ara Moana a Toi.

Opposite and left
Rangatahi learning engineering skills.

Centre Tatai Kingi leads the training unit.

Right C Hayes Engineering warehouse.



07 Recommendations and next steps

7.1 Learnings from the assessment

7.2 The way forward

7.3 The case for further investment

A photograph of a woman with a purple shirt and a child. The woman is smiling and has her hands clasped. The child is partially visible on the right side of the frame. The background is a blurred outdoor setting.

Ōpōtiki harbour approval celebration event, March 2020



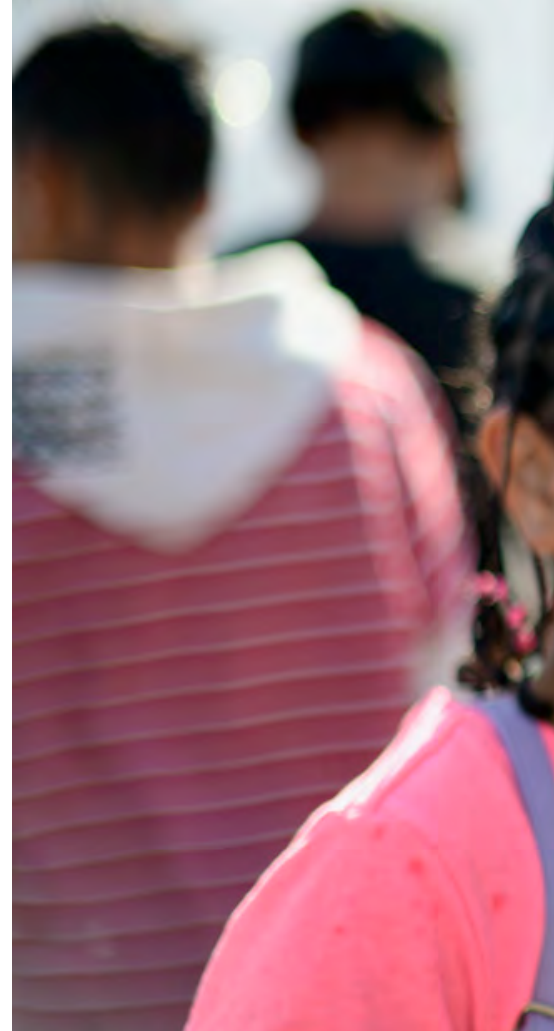
Learnings from the assessment

There are a number of learnings that are relevant to other projects.

There are some significant lessons to be learned from the development of Te Ara Moana a Toi, focused on how the benefits from similar regional infrastructure projects can be maximised:

- The social procurement process was essential for local workforce/economy benefits. Using a principles-based approach rather than a strict prescriptive approach during the procurement process allowed HEB and the community to tailor the interventions to achieve the best outcomes for the project and the community, which in turn allowed the local and regional benefits to be increased.
- Achieving greater diversity of supply for services and materials proved essential during the disruptions from the pandemic and enabled greater flexibility as the project progressed. Single-sourcing can look attractive on paper but diverse sourcing brings resilience for the project and the community, as well as delivering greater benefits within the region.
- Creating jobs alone is not enough. Providing for employee health and wellbeing and putting these at the forefront of the business has paid dividends for both HEB in the construction project and Whakatōhea Mussels in its aquaculture operations, and makes a material difference to the wellbeing of the wider community.
- Integrated and collaborative workforce development, working with iwi, agencies and local organisations, has been the foundation stone for getting Ōpōtiki people into quality jobs. Without the concerted approach to workforce development – which commenced well before the investment was approved – it's likely a significantly greater proportion of the construction and aquaculture workforces would have been imported from outside Ōpōtiki and the benefits to the local community reduced as a result. Collaborative and committed workforce development needs to be an integral part of any major regional infrastructure project, backed by long-term commitments. This can genuinely deliver significant local and regional benefits.
- While there are clearly lasting and material wellbeing benefits from the project, these were not assessed in quantitative or qualitative terms at the business case stage. This makes it difficult to assess progress and quantify the full impacts of the investment, so the subsequent assessments end up with a strong focus on the financial performance to the exclusion of other factors. Establishing a wellbeing baseline would allow the real impacts of significant regional investments to be made visible and measurable.
- The collaborative approach taken – between iwi, central government, local government, the private sector and the community – has been exemplary with Te Ara Moana a Toi. While there have been and will continue to be myriad challenges, all of the parties have had skin in the game and a shared commitment to achieving long term outcomes for Ōpōtiki. In every sense, this major infrastructure project is being done with and for Ōpōtiki, rather than to it, and much social license for the aquaculture industry and the commercial operations at the harbour has been created as a result.

There will undoubtedly be other learnings as the construction project ends and as the aquaculture industry expands. Some recommendations on how the benefits from Te Ara Moana a Toi can be assessed in the future are discussed on the following page.



The way forward

Future work should assess the wellbeing impacts of Te Ara Moana a Toi.



Ōpōtiki harbour approval celebration event, March 2020

The sole purpose of economic development is to improve the wellbeing of the people. While the economic and financial measures of Te Ara Moana a Toi are a useful way of tracking progress, they don't tell the story of how the lives of the people of Ōpōtiki District will be changed for the better.

Many of the larger-scale impacts from the harbour and the aquaculture sector will take decades to unfold, as economic and social circumstances improve. These can only be tracked and measured if there is an agreed starting point.

To that end, it is recommended that a baseline assessment of wellbeing is undertaken, before the harbour begins large-scale operation. This will allow

the future impacts of the investment to be measured in all four domains – social, cultural, environmental and economic.

There are a range of wellbeing methodologies and approaches, but Council should carefully consider using the He Rangatipu He Tohu Ora (HRHTO) framework developed by Trust Tairāwhiti, and tailoring it for Ōpōtiki. HRHTO is methodologically sound and is linked to Treasury's Living Standards Framework, whilst also being a pragmatic, practical and cost-effective tool.

The case for further investment

The economic analysis acknowledged the need for an investment pipeline.

The funding of Te Ara Moana a Toi by central Government and Bay of Plenty Regional Council reflects a large-scale commitment to reversing a generation of neglect and decline in Ōpōtiki. The economic modelling conducted in 2019 recognised the scale of the impact the harbour – as the enabler of aquaculture expansion – can have on the District and the country.

However, the modelling also showed that Ōpōtiki would grow in population as well as economic activity, and that further investment would be required in infrastructure, roading, housing and community facilities in order to support this growth.

While Te Ara Moana a Toi is the foundation stone for Ōpōtiki's future development and prosperity, it must be supported by ancillary investment. Without the houses and roads and schools and supermarkets to support the growing population, the jobs created by the aquaculture industry will be filled by people from outside Ōpōtiki, commuting long distances for work. This will have negative economic, environmental and wellbeing outcomes.

Further investment in infrastructure – from Ōpōtiki District Council, from Bay of Plenty Regional Council, from central Government, and from the private sector – will continue to be needed for some decades to come in order to realise the full benefits of Te Ara Moana a Toi.



Maintaining momentum

As the aquaculture development maps earlier in this document show, Te Ara Moana a Toi is set to become the key that unlocks the aquaculture and economic potential of the Eastern Bay of Plenty in the decades ahead. However, doing so requires development at scale – that is, the number of sea farms, servicing vessels and supporting infrastructure needs to grow very significantly.

Providing the base of operations for what will become a major focus of Aotearoa's aquaculture sector will require major private sector investment in the marina and associated onshore support facilities, and matching public sector investment in transport links, water and wastewater, and the like.

While the initial facilities – to allow Whakatōhea Mussels to operate their existing fleet of vessels – must be constructed quickly and cost-effectively, investment and development momentum must be kept up if the full \$132 million in benefits identified in the 2019 business case are to be realised.



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