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SUSTAINABLE NAPIER COMMITTEE

Open Attachments Under Separate Cover

Meeting Date: Thursday 13 February 2020

Time: 10am

Venue: Council Chambers
Hawke's Bay Regional Council
159 Dalton Street
Napier

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Reshaping Te Whare Tangaroa o Aoteaora The National Aquarium of New Zealand

Project Shapeshifter

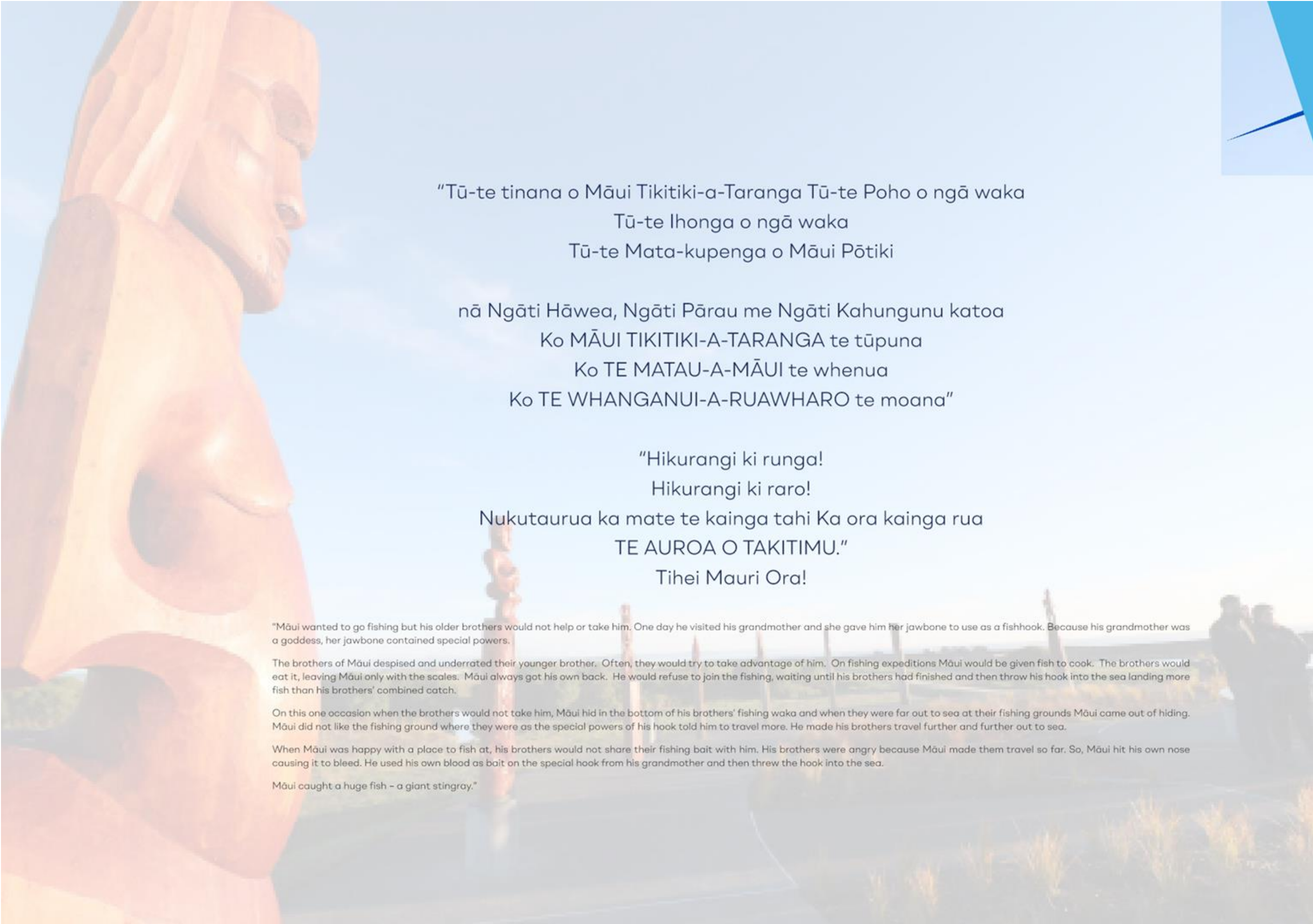


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New Zealand

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"Tū-te tinana o Māui Tikitiki-a-Taranga Tū-te Poho o ngā waka
Tū-te Ihonga o ngā waka
Tū-te Mata-kupenga o Māui Pōtiki

nā Ngāti Hāwea, Ngāti Pārau me Ngāti Kahungunu katoa
Ko MĀUI TIKITIKI-A-TARANGA te tūpuna
Ko TE MATAU-A-MĀUI te whenua
Ko TE WHANGANUI-A-RUAWHARO te moana"

"Hikurangi ki runga!
Hikurangi ki raro!
Nukutaurua ka mate te kainga tahi Ka ora kainga rua
TE AUROA O TAKITIMU."
Tihei Mauri Ora!

"Māui wanted to go fishing but his older brothers would not help or take him. One day he visited his grandmother and she gave him her jawbone to use as a fishhook. Because his grandmother was a goddess, her jawbone contained special powers.

The brothers of Māui despised and underrated their younger brother. Often, they would try to take advantage of him. On fishing expeditions Māui would be given fish to cook. The brothers would eat it, leaving Māui only with the scales. Māui always got his own back. He would refuse to join the fishing, waiting until his brothers had finished and then throw his hook into the sea landing more fish than his brothers' combined catch.

On this one occasion when the brothers would not take him, Māui hid in the bottom of his brothers' fishing waka and when they were far out to sea at their fishing grounds Māui came out of hiding. Māui did not like the fishing ground where they were as the special powers of his hook told him to travel more. He made his brothers travel further and further out to sea.

When Māui was happy with a place to fish at, his brothers would not share their fishing bait with him. His brothers were angry because Māui made them travel so far. So, Māui hit his own nose causing it to bleed. He used his own blood as bait on the special hook from his grandmother and then threw the hook into the sea.

Māui caught a huge fish – a giant stingray."

WHAI | The Stingray Design

"Nāwai te tarawhai ka uru kei roto, e taea te whakahoki?"

"Who can remove the barb of the stingray, once it has entered in?"

This whakatauki proverb is said in a situation where there is no turning back, when the path that has been struck or action taken is irreversible.

We have explored widely and thought deeply for Project Shapeshifter to deliver a proposal that has a Māori heart and a Māori back-bone; a proposal with strong kaupapa Māori, yet which is easily translated to a general audience.

As the whakatauki says, the barb has entered and the desire for Tangaroa to speak to humankind through his whānau has sprung forth.

Project Shapeshifter has adopted the symbol of the tarawhai *stingray* as representing Te Ika-a-Māui *The Fish of Māui* pulled from the sea. This great tarawhai *stingray* was a shapeshifter just as Māui was, and like Māui, we seek to Shapeshift the National Aquarium of New Zealand to be culturally fit, nationally and globally resonant and relevant, and future proof.

Māui, his waka, and his great tarawhai, Te Ika-a-Māui are the symbols and heritage of our island nation binding us together as Aotearoa New Zealand, and further afield as Pacific cousins.

Mango Pare Hammerhead Shark design.

Recognises the whai as part of the shark family and symbolises stubborn determination & strength.

This element is also repeated as a component in some of the patterns below.

Te Matau-a-Māui Fish-hook of Māui

Symbolises the double ended fish-hook of Māui, Hawke's Bay, fashioned from the jawbone of his grandmother Murirangawhenua. Located where Māui foul-hooked the whai in its pākau wing.

The Kauae, or *jawbone*, also makes reference to Māori lore regarding knowledge, te Kauae Runga, te Kauae Raro - *both upper and lower jaw knowledge*, both spiritual and practical.

Ngutu-Kura

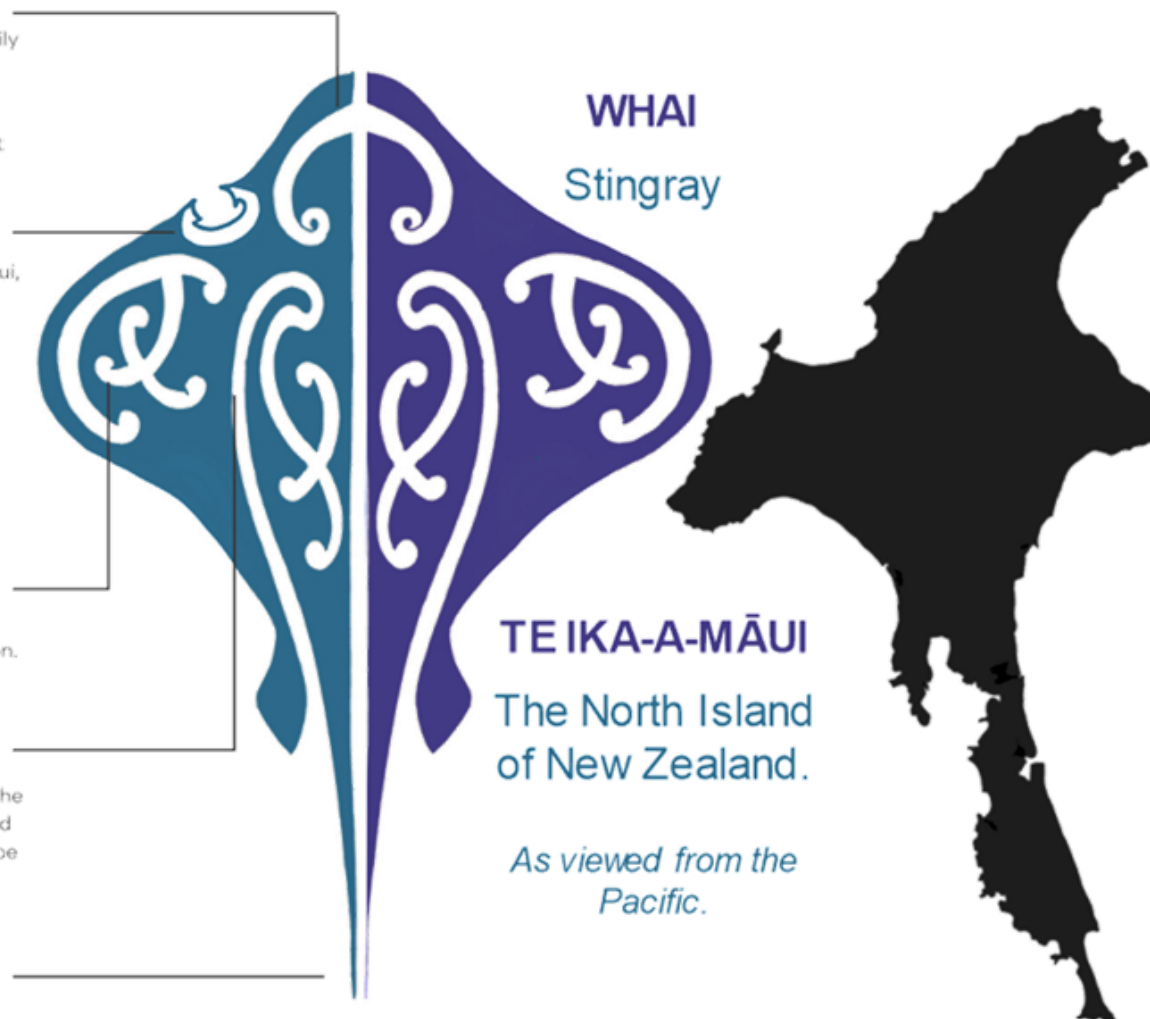
Represents body and mind and the passing down of oratory from generation to generation.

Puhoro

A pattern that represents speed and movement, back and forth, here referencing the grace and speed of movement of the whai and how water moves around it. Reminding us to be quick and agile.

Pāua

The chosen colours of purple and green, reference the paua, or *abalone* shell, an important icon for Ngāti Kahungunu.



Welcome to Project Shapeshifter



Mayor Kirsten Wise
Te Kaunihera o Ahuriri Napier City Council

Our oceans are in trouble and more than ever Aotearoa New Zealand needs a strong voice for marine conservation, however our National Aquarium needs help to do this credibly.

From plastics pollution and acidification to excess nutrient flows and impacts of fishing, the oceans that help sustain life on our planet are suffering from the negative consequences of human activity. Every day we are warned that ignoring what happens beyond the shoreline will impact us, our children and grandchildren, and the millions of species that make the oceans their home.

Aotearoa New Zealand is a maritime nation, and we all grew up with the sea lapping at our feet. Our culture was forged in the Pacific, and our ties to the nations circling the greatest ocean on Earth are long and deep. We trace our history to the great waka and early sailing ships, and our stories tell of Māui fishing this very nation from beneath the waves.

Yet it is hard for many New Zealanders to understand that what happens on the land shapes what happens in the oceans – and the health of the oceans is the key to the long-term health of the planet. We may understand in our heads, some are only just feeling the tug in their hearts, and many want to know what they can do to help. We harm the oceans from ignorance and complacency, not from malice.

To truly understand, we need to be educated. And if we are educated – if we understand that how we inhabit the land affects the lives of everything that lives in the oceans – then we will act differently, and we will shape the future of our planet differently.

To be educated, we need to understand the complexities of the ocean on its own terms. We need to be able to show our children and each other the wealth of life that lives beneath the waters, and to comprehend the links between the land and the sea. To see is to understand, and to understand is to learn, and we all need to learn so that we may change. People care for what they love.

So, we are standing together to propose the national place that will help people learn, change and fall in love with the oceans. We are proposing that we co-invest in a facility that can tell the stories the 21st Century needs, in The National Aquarium and Oceans Centre.

Its kaupapa will be based on Moana Tuatahi which means oceans first.

This is a place where we learn how to consider the oceans' needs as a first priority. Every second breath we take comes from the ocean and our climate, our weather and the oceans are inextricably linked. What we do on the land, and as we traverse the skies and seas affects the oceans. As all indigenous peoples understand, it is all linked. Yet only three percent of people have ever seen under the big blue blanket and so most people struggle to understand the oceans. Furthermore, we need synthesis of what we already know to inform better, faster decisions to protect, manage, restore and regenerate marine ecosystems.

The vision is for a place where the Pacific flows through the building, where land and sea are joined, where the stories of the ocean are told by hapū, conservationists, scientists, volunteers, and most importantly by the species that make the ocean their home. It is a place unlike anywhere else. It is the place Aotearoa New Zealand needs if we are to truly understand that our history and our future are both found in the waters of the Pacific.

We ask that you join us on this journey, and that you – like us – embrace the ocean, and the vast potential of the waves lapping at our shore.

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He Whakarāpopotonga Executive Summary



Whakarāpopotonga | Executive Summary

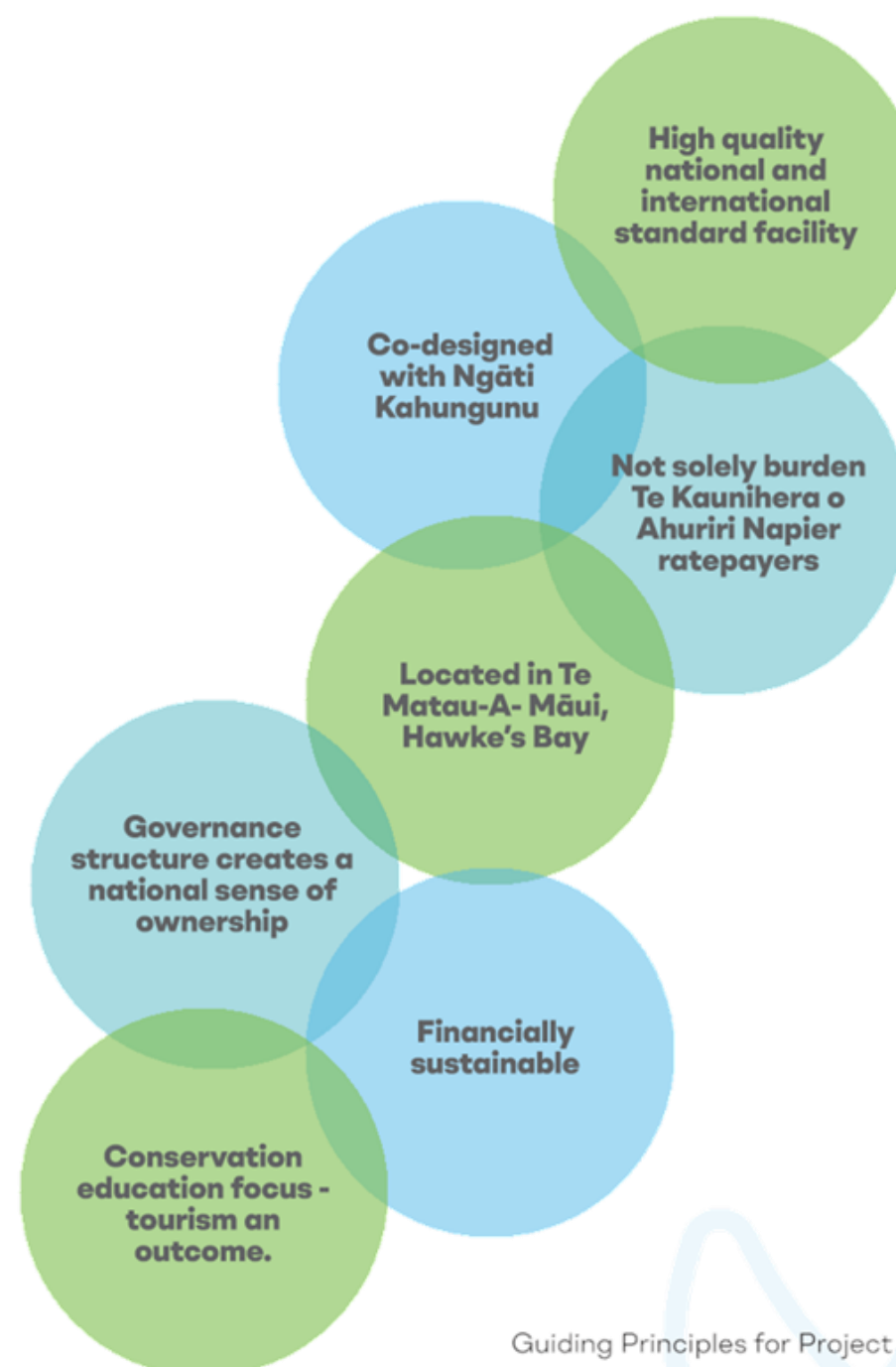
Tirohanga Whānui | Overview

Background

This Detailed Business Case (DBC) documents Project Shapeshifter which was established by Te Kaunihera o Ahuriri Napier City Council in 2019 to address the National Aquarium of New Zealand's operational challenges and builds on the 2018 Indicative Business Case. Te Kaunihera o Ahuriri Napier City Council recognises that critical environmental and social well-being challenges faced by Te Matau-a-Māui Hawke's Bay are intrinsically linked to the current state of the urban and rural environment. Acknowledged as a project of regional significance, the Matariki Regional Economic Development Strategy (REDS) directed NCC to source Provincial Growth Fund (PGF) support to efficiently highlight and tackle these issues in one proposal to build a new and significant National Aquarium and Oceans Centre on Marine Parade. NCC contracted a world class team to scope, design and analyse a new facility underpinned by Te Tiriti o Waitangi, The Treaty of Waitangi.

Project Shapeshifter operated with six core guiding principles agreed by Te Kaunihera o Ahuriri Napier City Council and the project team:

1. It should be a high standard, national level facility and thus sit comfortably alongside other iconic national facilities whilst also meeting international aquarium standards.
2. It should be co-designed with Ngāti Kahungunu.
3. It should test whether there was enough rationale for it continuing to be in Te Matau-a-Māui Hawke's Bay and thus whether any ongoing financial burden should not be the sole responsibility of Ahuriri Napier, and therefore ratepayers.
4. The governance and operating structure should deliver a national sense of ownership alongside Ngāti Kahungunu as mana whenua.
5. To be financially sustainable and deliver the strategic outcomes and expectations, that the structure facilitate truly blended funding from a range of sources.
6. This last principle was emphasised by the Ministry of Business, Innovation and Employment (MBIE) and Te Kaunihera o Ahuriri Napier City Council in that it must have a conservation education focus with tourism as an outcome.



Guiding Principles for Project Shapeshifter

Whakarāpopotonga | Executive Summary

Kaupapa Māori | Cultural Case

Whakaaro Rangatira Māori Viewpoint

Māori are becoming increasingly disconnected with te taiao taimoana the environment and ocean. More importantly is the disconnection with cultural practices relating to te taiao taimoana as intergenerational access to, and knowledge of marine practices is lost to those unable to maintain a close physical relationship.

Treaty of Waitangi Māori Fisheries Settlements secured commercial fishing rights for Māori, however they did not secure perpetual cultural practices in the people through customary fishing rights, and as most efforts have been land and culture focused, the importance of the ocean, Tangaroa and Hinemoana, have largely been overlooked.

The effects of cultural disconnection continue to hold Māori from collective prosperity in a post-Treaty of Waitangi grievance era. Social well-being issues accelerate as the cultural disconnection strengthens, prompting the creation of indigenous models as Māori self-search for solutions outside of western paradigms.

However, a resilient and strong culture is on the resurgence with the next generation eager to reconnect with their marine heritage, demanding to see deliberate action for climate change, conservation, and reversal of the effects of consumer society to the detriment of indigenous well-being.

Buoying this resurgence, current government policy and strategy is driving a national phenomenon in the profusion of Māori engagement models, mātauranga frameworks, cultural values frameworks and Māori capability plans. A side-effect of this phenomenon is the cultural fatigue and disappointment at misinterpreted, misunderstood and misrepresented concepts that get bandied from place to place. Of course, the challenge is in meeting the need for the truly holistic approach that Māori yearn for and thrive from, yet without the Māori-heart and soul, the models seldom survive their development phase.

Project Shapeshifter demands a holistic approach to imagining a Māori aquarium of global acclaim, an architectural icon, a cultural magnet and flagship for Aotearoa New Zealand's marine and ocean conservation efforts, and a place where the stories of the species housed are elaborated to their fullest advantage through the eyes of indigenous peoples across the Pacific rim.

The world is actively watching and learning from Aotearoa New Zealand. In July 2019 in Noumea, at the conclusion of the first of nine global meetings on the United Nations 'Decade of the Ocean', the head of the UN body responsible for ocean conservation, Vladimir Ryabin, said, "Indigenous Pacific knowledge can help define the science needed to save the ocean".

This is a strong indicator of the future trajectory for how we tackle environmental challenges on a global scale. Perhaps a starting point, is contained in the Takitimu teachings regarding water and the ocean domain, as provided by Nigel How, Curator of the Wairoa Museum and Ngāti Kahungunu adviser to Project Shapeshifter:

"Karakia, or incantations, are the verbal formula used to protect, enhance, reduce and stabilise Tapu sacred and restricted and Noa free from tapu or restriction, depending on the situation. Water was used in certain karakia ceremonies. Incantations came in many forms, were based on the relationships of Atua and were designed to maintain universal balance. For example, the Atua Tāne god of the forest and Tangaroa god of the sea disagreed over separating their parents Ranginui sky father and Papatūānuku earth mother. Tangaroa has resented Tāne ever since he forced his parent's separation, and extends that resentment to humankind as the offspring of Tāne. Tangaroa will take any opportunity he can to abduct the offspring of Tāne, especially when we hunt and consume his offspring - the many creatures of the ocean."

It is often said, 'never turn your back on Tangaroa', warning us to be wary of the wrath of the ocean god, lest he find the opportunity to attack us.

"Humankind manages this love-hate relationship through incantation to their brother Rongo, who is the peacemaker. Traditionally when humankind set off over water for travel or fishing, incantations evoked the diplomatic nature of Rongo to keep peace between his brothers, and thus keeping humankind



safe. These blessings were enforced after safe passage with incantations and offerings of genuine respect to Tangaroa for the tolerance accorded to humankind under the influence of Rongo. As humankind consume their own relatives (marine life), these incantations also invoked the necessary placations to maintain balance in the cosmos."

"In regard to the sea, it is through the angst suffered by Tangaroa over the separation of his parents that he surrounded himself in his own tears and created a world within them as part of his healing process. Humankind bear the reminder of this cycle through our own salty tears – a gift from Tangaroa to remind us of how to suffer and how to heal. This is why openly crying is a traditionally accepted expression of grief, love and healing. Tears remind humankind of what our ancestor Tāne did and how his brother Tangaroa coped with the situation."

These stories remind us to respect the ocean, and to respect its gifts, and of the need to exercise caution in our relationship with it, the need to balance the relationship between land and sea, and how our own behaviour and emotions connect to it.

Project Shapeshifter is unashamedly designed following cultural design best practice and builds a platform for telling Polynesian stories pertaining to the species that are displayed. Project Shapeshifter aims to demonstrate that Te Ao Māori *The Māori Worldview* as interpreted through the National Aquarium, presents a unique opportunity to translate Te Ao Māori to all New Zealanders, a hitching post for people to know and understand the Māori worldview with depth and compassion, prompting a renewed care for the environment and ocean. Within the realms of Project Shapeshifter, a deliberate effort has been made to consider the impact of a reshaped aquarium in reconnecting Māori to their whakapapa genealogy, pūrākau *legendary stories*, and kaitiakitanga *customary guardianship*.

Whakarāpopotonga | Executive Summary

Kaupapa Rautaki | Strategic Case

The Existing National Aquarium of New Zealand

The existing facility is no longer fit for purpose and should be decommissioned, the 1973-76 section demolished, and the 2002 expansion repurposed.

- 1 The animals are at risk of ill effects from inappropriate exhibit design and challenges with seawater systems
- 2 only animals that tolerate marginal conditions are on display which reduces the visitor experience and conservation education values
- 3 exhibit life support systems are rudimentary and risk significant failure
- 4 water quality data is generally unavailable to support animal care and health
- 5 staff access for several exhibits is extremely poor complicating proper animal care
- 6 the original building (1460sqm, 1973-76) is no longer sound
- 7 the back of house has extensive system corrosion finish degradation

The Importance of Healthy Oceans

Globally attention is now on ocean health given it is fundamental to life on the blue planet, whether providing oxygen, seafood, profound socio-cultural values, tourism, or global trade. The oceans are a major part of the planet's climate and weather system. We wrongly thought that the oceans were inexhaustible, vastly absorbing, and too big to fail. Around the world sea-level rise, ocean acidification, marine heat waves, and deoxygenated dead-zones are occurring. Yet in places fisheries management and marine conservation are gradually improving marine ecosystem health. In many cases we are waking up to issues of sedimentation and plastics yet there is much to do to normalise the daily actions of all to lessen our impact on the oceans and marine life.

Modern Aquariums

Aquariums today inspire awe, wonder and excitement through showing people what is under the big blue blanket. Leading World Association of Zoos and Aquariums (WAZA) facilities attract 700 million visitors annually. In addition to informing and raising awareness of environmental issues they enable visitors to become agents of change and to actively support field conservation of species and ecosystems. Zoos and aquaria enjoy high public trust, and experience internationally, shows that instilling in all visitors a strong sense of excitement about, and a desire to care for, life on earth creates a solid platform to fulfil the promise to care for and conserve wildlife, using a social-science, evidence-based approach that influences actual pro- environmental behaviour.



Sector Engagement and Public Support

This condensed (six-month) DBC process included sectoral engagement hui with Ngāti Kahungunu representatives, local community, youth, conservation, tourism, research, and education stakeholders nationally and locally. Positively received hui responses prioritized:

- Better caring for the oceans,
- Fully embracing Te Ao Māori,
- Supporting community conservation nationally; and
- Synthesising and communicating science research.
- Key concerns which were facility funding and resilience given sea level rise, the need to stimulate tourists to visit the region, and complementing other national marine research.
- A full national dialogue with Māori is also recommended.

These findings were further endorsed by the nationwide Colmar Brunton poll conducted during this process. Key findings from this were:

- eight in ten New Zealanders have a direct connection with the ocean each year.
- 92 percent agreed with the statement "We should all have the opportunity to experience and learn about the marine environment".
- 46 percent said they would visit the new proposed National Aquarium and Ocean Centre in the next five years.

Whakarāpopotonga | Executive Summary

Kaupapa Ōhanga | Economic Case

Challenges, Investment Objectives and Social Return on Investment

The core challenges to address are: the need to meet national standard in equally representing our bi-cultural heritage, a need to educate about the oceans, issues with animal welfare, and an underwhelming visitor experience at the existing facility, thus the DBC Investment Objectives analysed for the Economic Case were:

1. to ensure the new facility reflects our bi-cultural foundation of Te Tiriti o Waitangi, The Treaty of Waitangi.
2. to develop and implement Aotearoa New Zealand-specific ways of educating people about the importance of healthy oceans in order to help change the human behaviours that are negatively impacting the oceans,
3. to provide a facility that cares for marine animals in order to meet tikanga Māori, regulatory and moral obligations, and to see to the welfare of the animals, and to treat them with respect, and,
4. to provide a high-quality visitor experience for locals and visitors in order to increase engagement with the oceans and its ecosystems in a way that is compelling, and drives return visits.

A range of options were considered against the Investment Objectives with the preferred option outlined below.

Design

A robust sectoral engagement process informed a world first co-design process of Māori designers and globally leading aquarium designers EHDD working together to produce a beautiful, iconic, modular, resilient facility which will inspire awe and wonder and connect visitors to the oceans. With enough detail it has informed the costing estimates herein. The designs reflect Aotearoa New Zealand's marine realm from the sub-tropics to the sub-Antarctic in exhibits that will be delivered in two stages over 10 years.

Stage One:

- Three major tanks exhibiting sub-tropical, temperate and kelp ecosystems, seven smaller exhibits, and refitting the existing building for education and transitional animal care,
- decommission and demolish the 1973 original building, and,
- repurpose the newer parts of the 2002 expansion to improve staff facilities and include a temporary education centre.

Stage Two:

- Repurpose the 2002 expansion and refit into freshwater, mangrove, estuary and forest habitats and a temporary exhibit space (Pacific Nation-in-residence),
- build the new National Oceans Centre (component of the new facility) collaboration space and which will also house the administrative, education and research support facilities,
- build a 4D Immersive Theatre to showcase the Māramataka (*Māori environmental calendar*),
- build a live deep-sea exhibit (require different technology), and,
- complete the external saltmarsh and sand dune landscaping critical to long-term resilience.

Visitor Projections and Demand

Projections were based on analysis of corresponding growth trends (Tourism NZ, Statistics NZ) for the following visitor categories local, within two hours' drive, overnight stays, free and independent travellers (FITs) and cruise passengers. Relatively conservative estimates were considered. The model allowed for initial visitor uptake and five- and ten-year visitor experience increase numbers returning to at, or just above, trend. This shows gradual visitor number growth from 2026 (opening) 196k per annum to just over 300k over 25 years. More optimistic predictions emerged through the Colmar Brunton survey and anecdotal feedback by specialists in the tourism sector but such numbers are untested.

Investment Profile

The economic impact assessment is positive, yet the financial models show firstly, the requirement for a blended funding co-investment model for the initial capital expenditure requirements to build Stage One of the proposed facility, secondly, annual operational expenditure shortfalls requiring capital injections from \$2.6 million annually and lastly, periodic capital expenditure upgrades of \$1.5 million every five years and an average of \$3.7m operational shortfall per annum over the first ten years.

Napier City Council's Long-Term Plan has committed \$10 million over 2020-2021. \$15 - 35 million is sought from the Provincial Growth Fund. The Revenue Generation Strategy has determined that two \$20 million (\$40 million in total) campaigns are viable over eight-years. The Stage One cost estimate is \$77.5 million (\$83.3 million with interest and revenue generation costs) thus there is a projected shortfall of \$18.6 million over and above the \$65 million from known sources.

Building upon the principle of blended funding, co-investment is essential for a facility like this. At this stage, the financial modelling of the co-investment includes Local and Central Government, Investors and Donors. It is essential that fundraising not induce funder fatigue. Success also depends upon the ownership model and structure and as can be seen from the Te Papa Foundation experience, when a facility is fully government underwritten it can be challenging to attract philanthropic support. Again, at this stage the initial proposals for the ownership model and structure herein are reasonably basic and need to be further explored.

The facility is proposed to be funded from a combination of local councils, central government, investors and donors. During the construction period debt financing at a rate of four percent is used to bridge the shortfall (\$18.6m) ahead of all donations being received (final donations are expected to be received in FY29) unless an interest free loan is secured.

Economic Impacts

The economic impact of the proposed new facility has been assessed and analysed using Cost Benefit Analysis, Social Return on Investment and Economic Impact Assessment and found:

The construction economic impact is estimated to:

- Generate \$31 million of regional GDP, with a further \$50 million of national GDP = total \$81 million.
- Generate regional employment of 410 FTE, with 535 FTE employed elsewhere = total 944 FTE.
- Boost regional household incomes by \$11 million p.a. and national incomes by \$28 million p.a.

Facility operation is estimated to:

- Generate \$17 million p.a. of regional GDP, with a further \$9 million p.a. of GDP = total \$26 million.
- Generate regional employment of 152 FTE, with a further 14 FTE employed elsewhere = national total 166 FTE.
- Estimated to boost regional household incomes by \$7 million p.a. and national household incomes by \$8 million p.a.

Results

The combined economic value creation including with social outcomes (Social Return on Investment) is estimated to:

- Create an estimated \$45 million (present value 2021) of combined economic and social value that is attributable to the project (based on the period 2025-2049).
- Have a net contribution of \$40 million from increased economic activity associated with visitors.
- Have a net contribution of \$179 million associated with the social outcomes for visitors, staff and volunteers. (See page 79)
- Create capital and operating costs are -\$174 million.
- Create benefit: cost ratio of 1.26x.

Risk

Although a complex project, there are relatively straightforward risks associated with delivering the project. However, the benefit realisation risks are significantly more complex. The risk nature means that it is difficult to rigorously quantify either the probability or the likelihood as there are many interlinked challenges, and the analysis reflects this. This is further explained in the Economic Case of this document.

Whakarāpopotonga | Executive Summary

Kaupapa Ahumoni | Financial Case

Financial Modelling

A 29-year financial model (four years construction plus 25 years operation) has been built to forecast revenue, operational costs and capital costs. It allows for the impact of changes in factors such as visitor numbers, financial performance and project costs to be understood. It is not an accurate forecast of actual expenditures rather it is a high-level like for like comparison to inform Council investment. It is sensitive to; actual construction costs, actual cost of capital for the Council and the private sector at the time of construction, which in turn will be subject to macroeconomic factors that are outside the Council's control, and construction cost inflation in the interval between a decision being made and the commencement of construction.

Preferred Option Output Summary

The total capital cost of the preferred option is \$77.5 million (\$83.3 million with interest and revenue generation costs) and which includes \$65.6 million of construction costs, \$7.0 million in contingency and \$4.9 million associated with cost escalation during the construction period. Real fit-out replacement costs equal \$1.5 million every five years and real exhibition refurbishment costs equal \$3.2 million every ten years. Revenue in the first full year of operations of \$6.6 million (approximately 196 thousand visitors) against operating costs of \$9.6 million (nominal inflation of 2.8 percent per annum has been applied unless stated otherwise).

Initial capital costs

The initial capital costs are projected at \$77.5 million including construction (\$65.6 million) and contingency (\$7.0 million). Escalation totals \$4.9 million across the construction period. Included within construction is the new building (3,702m²), initial existing building refurbishment (1,974m²), demolition of part of the existing building (1,400m²), external exhibits (800m²), landscaping, decanting/relocation costs, consent costs, fixtures & fittings, and tanks.

Ongoing capital costs

Real fit-out replacement costs are equal to \$1.5 million every five years with the first refurbishment occurring in FY29. Real exhibition refurbishment costs are equal to \$3.2 million every ten years with the first renewal occurring in FY34. Total nominal ongoing capital costs associated are projected at a total of \$23.1m between FY21-FY49.

Depreciation

Depreciation on the initial capital costs is based on a 50-year useful life beginning at the start of the operational period (FY25). Total depreciation incurred between FY21-FY49 is \$55.6m. Depreciation on the fit-out replacement is based on a five-year useful life. Total depreciation incurred between FY21-FY49 is \$9.3m. Depreciation on the refurbishment of exhibitions is based on a ten-year useful life. Total depreciation incurred between FY21-FY49 is \$7.5m.

Operating cashflow

Net operating cashflow is negative during the operational period. Additional funding injections will be required to fund operations as well as the fit-out replacement and exhibition refurbishment. An operational funding injection of \$2.6m is required in the first full year of operation followed by operational expenditure and refurbishment capital expenditure cash shortfalls totalling \$45.3m in the first ten years.



Whakarāpopotonga | Executive Summary

Kaupapa Tauhokohoko | Commercial Case

Kaupapa Whakahaere | Management Case

Kaupapa Tauhokohoko | Commercial Case

It is best practice for councils to use the government's approved procurement framework, as this can significantly reduce the time taken to select and appoint suitable suppliers. The necessary suppliers can be selected by tender or from an existing panel, which will be based on pre-established criteria. Typical selection criteria include the previous experience of the company and people in the design and construction of similar facilities, as well as price. The procurement strategy defines the procurement process for the project. This may be prepared internally by the Council or externally, such as by the project manager or architect.

The Commercial Case does not yet consider the commercial arrangements that will need to be negotiated and developed between the ownership and operational partners.

Given the concept of Project Shapeshifter and consideration of cultural intellectual property, an understanding of the need for indigenous procurement is desirable for the implementation of the new National Aquarium.

Project Shapeshifter is aware of other such ownership and operating models internationally including Ocean Wise which owns and runs Vancouver Aquarium. That is on city council land and originates with four First Nation Tribes, two of whom are represented on the Ocean Wise Board. Ocean Wise has an international presence including in aquariums in Mexico and China. It has a thirty percent ownership interest in the largest European aquarium, Oceanographic in Valencia, Spain. Project Shapeshifter has had several discussions with Ocean Wise which has expressed interest in collaboration to share experience about operational models and also with an interest in sharing experience related to indigenous world views and practices.

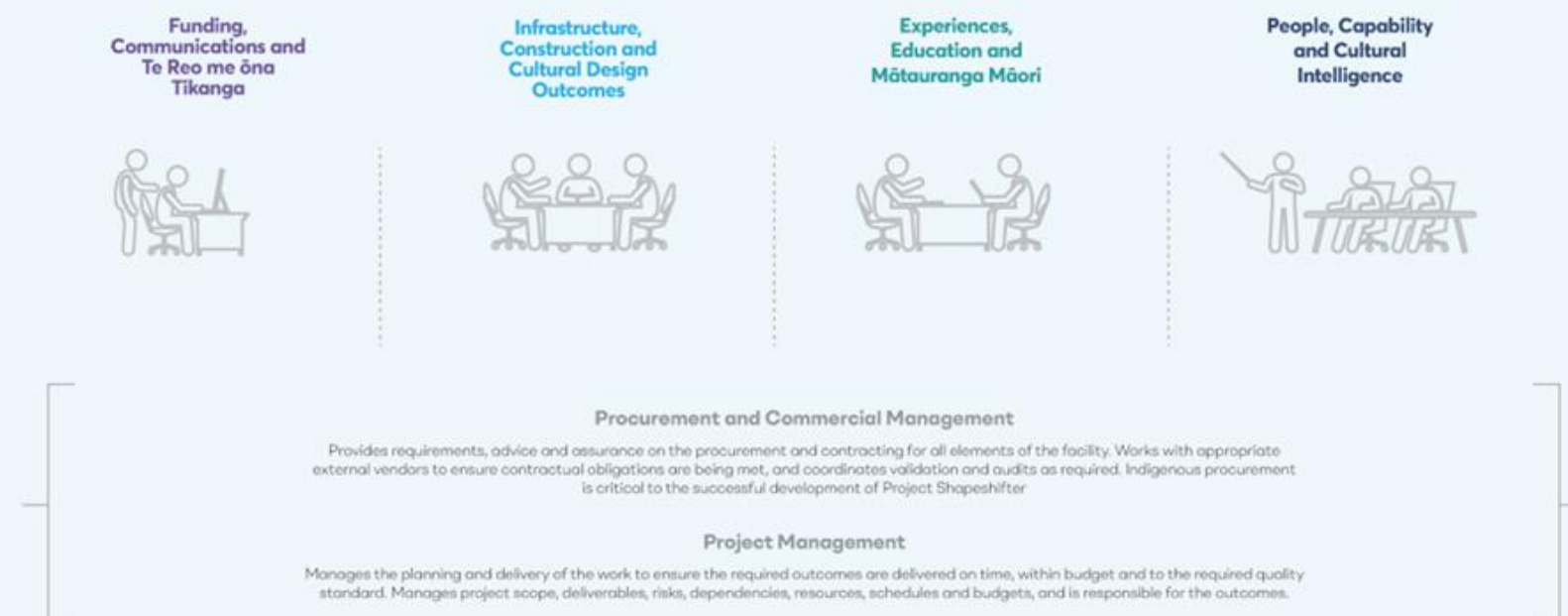
Kaupapa Whakahaere | Management Case

Creating the National Aquarium and Oceans Centre of New Zealand is a complex project involving complex design, construction and financing, new legal entities, a powerful communications and relationship management strategy (community, public, stakeholders and political) and clear large programme management. Detailed large programme design and planning will need to be done if the project is green-lighted and then professional project, commercial and procurement management, and content expertise deployed. Four major, inter-related work packages will be needed to deliver the project:

1. Funding, Communications, Te Reo me ōna Tikanga
2. Infrastructure, Construction and Cultural Design Outcomes

3. Experiences, Education and Mātauranga Māori
4. People, Capability, and Cultural Intelligence

Along with a Governance structure comprising Project Sponsors, Project Steering Group, Project Manager and the four packages (teams).



Whakarāpopotonga | Executive Summary

Tūtohutanga | Recommendations

1. That the existing National Aquarium of New Zealand should be decommissioned and a nationally and internationally significant National Aquarium and Oceans Centre be built on Marine Parade in Ahuriri Napier that repurposes the newer parts of the existing National Aquarium of New Zealand (2002 expansion).
2. That the proposed ownership structure (Trust) be explored further and considered against funding source and partner perspectives, expectations and commercial structures. Project Shapeshifter has received feedback that it preferably be a model that is ultimately co-owned by a range of interests across Ngāti Kahungunu whānui, Te Kaunihera o Ahuriri Napier City Council, (a combination of) the other four councils in the region, and as such can attract a wide range of funders.
3. That relationships are strengthened with Ngāti Kahungunu whānui, and that Ngāti Kahungunu lead a national dialogue with Iwi to fully realise the potential for, and issues related to, the proposed National Aquarium and Oceans Centre and that a new and appropriate Māori name is bestowed on this facility.
4. That an outreach process is undertaken with Iwi Taketake, Pacific Rim indigenous nations to establish relationships and explore potential mutual collaboration.
5. That central government partner to:
 - Commit \$15 - \$35 million from the Provincial Growth Fund towards the project to overcome issues with timing, funding shortfall and the project's national importance.
 - Contribute resources (funds, expertise, policy as required etc.) from other central government funds and agencies including but not limited to: Māori Economic Development, Vision Mātauranga, Education, Conservation, Culture and Heritage, Tourism New Zealand, Science and Innovation, and the Ministry of Foreign Affairs and Trade towards the further analysis required until opening day and in regular grants to the operational facility.
 - Explore the legal basis for a nationally significant facility to assess whether the Museum of New Zealand Te Papa Tongarewa Act 1992

should be amended to enable the National Aquarium and Oceans Centre, whether a new Act is required or whether a Trust (social enterprise model) suffices.

6. That a bold fundraising programme be designed to encompass a blended capital model including:
 - Te Matau-a-Māui Hawke's Bay councils
 - Central Government
 - The Ngāti Kahungunu Post Settlement Governance Entities and Ngāti Kahungunu Iwi Incorporated
 - Domestic and international philanthropists

- Innovative financing models including but not limited to Impact Investment and raising an Endowment (to generate income towards operational costs).
7. That a formal strategic planning process be implemented for the National Aquarium of New Zealand, with a focus on conservation and education, to guide its transition to the National Aquarium and Oceans Centre.



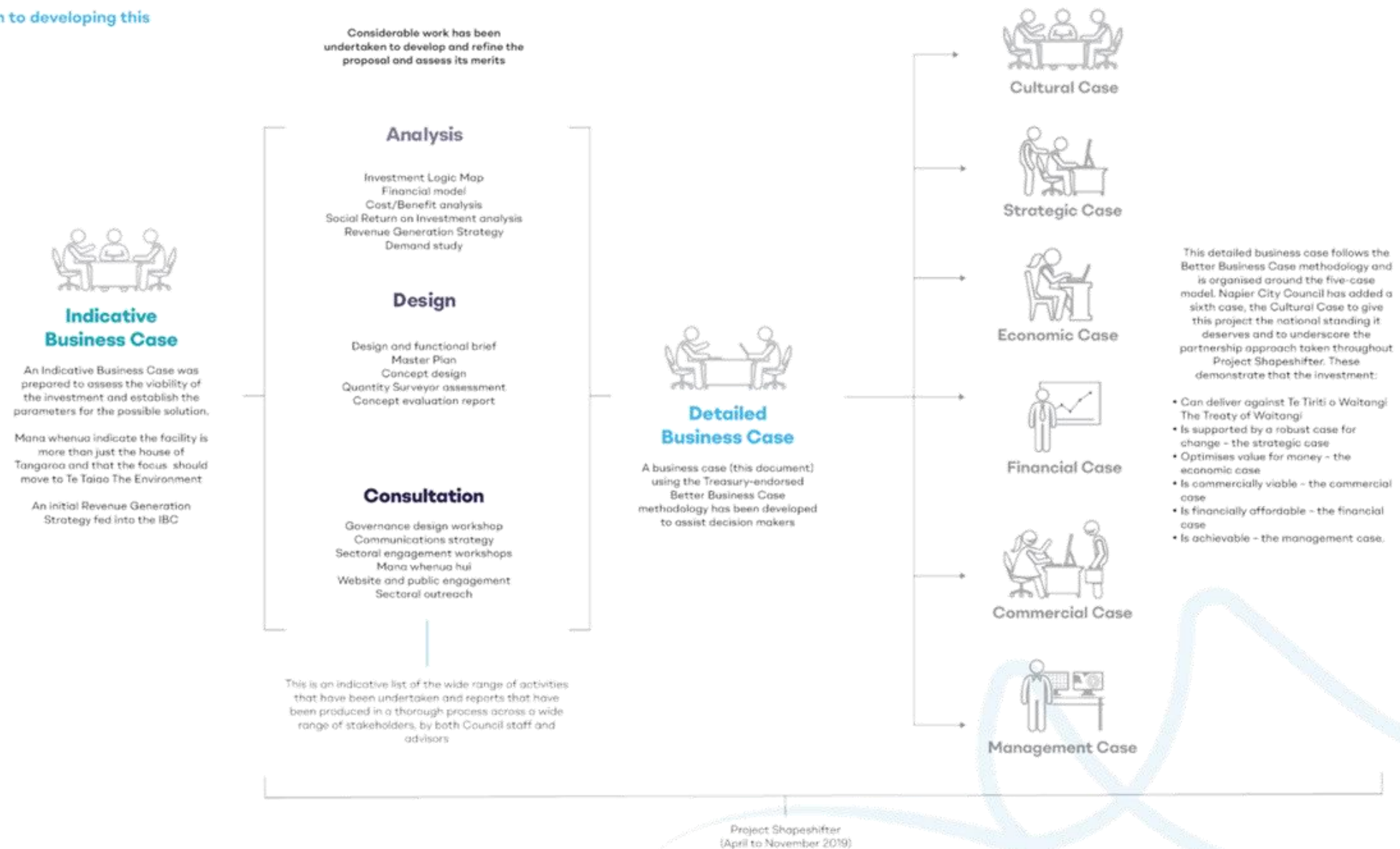


Whakatakinga Introduction

Whakatakinga | Introduction

The process that has been used

A best-practice approach has been taken to developing this business case.



Whakatakinga | Introduction

Te Raruraru | Problems

The need to better care for our oceans

Significant changes are required to bring the National Aquarium and Oceans Centre to life. The existing facility cannot continue as it is and a new facility is needed to enable Aotearoa New Zealand to live up to its international commitments to care for the 4th largest Exclusive Economic Zone. The Department of Conservation's 6th report to the Convention on Biodiversity (2018) noted: "Marine reserves in New Zealand do not yet cover the full range of our distinctive coastal and marine habitats and ecosystems" and there are a range of perspectives over whether less than one percent or greater than thirty percent is protected. Most importantly a systematic approach is urgently needed to care for marine ecosystems underpinned by Māori commercial and customary fishing rights and promulgated through mātauranga Māori knowledge.

Aotearoa New Zealand is a maritime nation. We have the highest private boat ownership globally. Our resource management framework was world leading when established in the '90's. The Quota Management System controlled the worst overfishing excesses and the Resource Management Act (RMA) jurisdiction extended out to 12 nautical miles. The RMA and Fisheries Act (1996) were designed to interact yet this is only just being legally clarified now, especially as awareness grows about the impacts of the tonnes of sediment entering coastal environments.

Science is beginning to research and understand the cumulative impacts of ecosystem changes, sedimentation and climate change related issues such as ocean acidification with the significant loss of kelp. There has been a profound shift in how we address freshwater management and pests exemplified by Predator Free 2050 and the many science, mātauranga Māori knowledge, community, local and central government catchment restoration initiatives nationally. Our care for the oceans needs a similar profound national groundswell and shift.

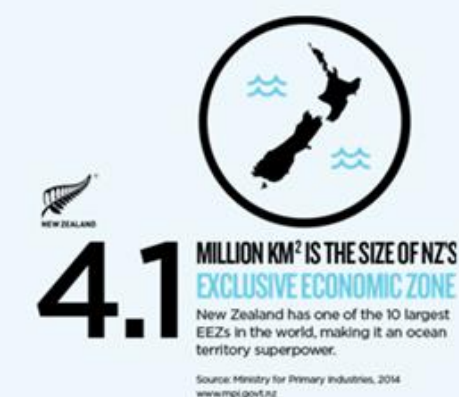
The strong support for Project Shapeshifter from the Curious Minds (Appendix 1) programme exemplifies the opportunity to make such care for estuarine, coastal and marine ecosystems a new way of life. Curious Minds has funded over 120 diverse community science projects in the last four years in three regions: South Auckland, Otago and Taranaki with many

incorporating mātauranga Māori knowledge From Portobello Laboratory to Leigh Marine Lab and communities in Whangaroa, Taranaki and the

Marlborough Sounds, there are clear calls for a 'mothership' to link, support and enable collaboration for better marine and coastal ecosystem, and community well-being. Many community groups, science and research organisations working across the country on marine and aquatic initiatives have expressed their need for a place where they can come together, share knowledge, synthesise their findings, develop solutions and communicate learning to wider audiences.

The conclusion being that as a nation we are overdue in complementing these community efforts with integrated care for marine health. We must identify where and how coastal ecosystems can also be regenerated and create a constituency of support for these crucial springs of life.

The proposed facility will provide solutions to these problems by convening, exploring, showcasing and promoting care for our marine environment.



Whakatakinga | Introduction

Te Ara Hou | Solution

Public support for a National Aquarium and Oceans Centre

The solutions this DBC proposes below have been developed through an internationally and nationally unprecedented community engagement process which substantiates the case for creating the new National Aquarium and Oceans Centre:

- Close the existing facility and refit and repurpose it.
- There is clear national appetite for a new institution focused on conservation, education and collaboration about Aotearoa New Zealand's oceans, coasts, and *ki uta ki tai mountains to sea* ecosystems.
- Te Ao Māori must be at the foundation of its design and operation and which is nationally unique, globally significant, and uplifts the mana of Te Tiriti o Waitangi and The Treaty of Waitangi.
- Ngāti Kahungunu Iwi Incorporated support this kaupapa and have contributed pūrākau *legendary stories* to vividly enliven the domains of Te Taiao Taimoana The Environment and The Ocean.
- People of Aotearoa New Zealand and from across the world can fall in love with, access and understand our inter-connectedness with the oceans, and ultimately know that caring for nature and caring for ourselves are one and the same thing.
- Equity of access to such a facility was a strong point throughout the process. Most current aquaria and other centres focused on the natural world around the country are inaccessible to low income communities.
- There is a need for an innovative aquarium to showcase New Zealand's rare and endangered fauna and flora to facilitate good quality, curriculum aligned conservation education programmes for our taiohi youth.
- A 'mothership' or hub for the many oceans and coastal community organisations would enable collaboration between community and formal science and especially the integration of mātauranga Māori knowledge with other knowledge systems. Nothing like this exists presently and the proposed facility could also communicate

collaboration results to the public and synthesise such knowledge making it available back to community groups, land-owners, students, researchers, and central and local government.

- The proposed facility should weave the three strands of our unique aquatic and marine ecosystems:
 1. Pūtaiao Māori science,
 2. Western science and conservation knowledge, and,
 3. Knowledge from the indigenous peoples of the Pacific Rim.

- A place is needed where the interconnectedness of Aotearoa New Zealand freshwater, coastal and oceanic environments can be shown and the challenges facing them. *Ki uta ki tai ki moana hohonu from the mountains to the deep sea* is the life cycle of many of Aotearoa New Zealand's rare and endangered aquatic species e.g. tuna eels, tītī muttonbirds, inanga whitebait.
- It must deliver high quality and innovative education and learning programmes.
- Partnerships are key to the success of this facility and collaboration is key to improve marine health.



The facility must inspire awe, wonder, excitement and action in all visitors who will leave knowing what action to take and that their actions do matter.

Whakatakinga | Introduction

Ngā Hua | Outcomes

Innovative Collaboration and Partnerships

The financial models and potential ownership models presented in this Business Case show that there are ways the facility can be financially sustainable. A requirement would be for all parties to put the ocean first and to embrace as a strategic project realised through transformational collaboration. Potential partners from the following groups have expressed interest in contributing further to Project Shapeshifter.

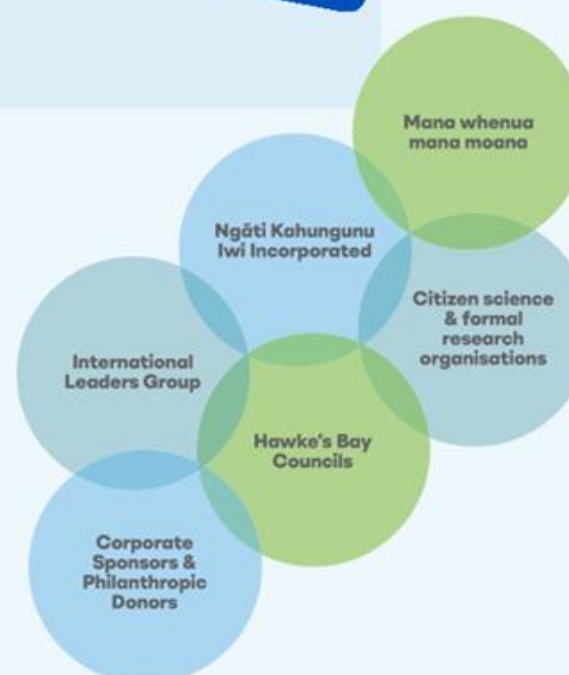
Ngāti Kahungunu are in-principle supportive and open to progressing discussions about a partnership approach. They are particularly supportive of the Project Shapeshifter co-design approach with Māori. EHDD wholeheartedly embraced Te Ao Māori in the design process and which is profoundly reflected in the beautiful designs for the proposed National Aquarium and Oceans Centre.

The five Hawke's Bay councils of Wairoa, Central Hawke's Bay, Hastings District Councils, Napier City Council and Hawkes Bay Regional Council recognize the importance of the aquarium to the region. Officers from Hawke's Bay Regional Council have contributed to key Project Shapeshifter elements.

Key research organisations such as NIWA and the University of Waikato are in-principle supportive and discussions have been held with key Government agencies such as Department of Conservation (Appendix 11), and the Ministry for the Environment.

Engaging corporate sponsors and philanthropic donors can only happen when the new facility's purpose, design, structure, cost (capital expenditure, operational expenditure) and partnership commitments are explicit and confirmed.

Internationally Project Shapeshifter has created an International Leaders Group of experts in running aquariums and delivering high quality conservation education programmes. Memoranda of Understanding are being progressed with Monterey Bay and Vancouver Aquariums and others have expressed interest (Aquarium of the Pacific (Los Angeles), the National Ocean Literacy Trust (National Marine Aquarium, England)).



The International Leaders Group agreed the following key points of advice to Project Shapeshifter:

- It is essential to reconnect people to nature and this plays a critical role in better well-being, especially in relation to the importance of cultural context for this in Aotearoa,
- It is difficult, but not impossible to track deliberate enquiry to understand how people reconstruct their lives post learning,
- Continuous improvement in practice is critical to ensure WAZA, and Zoo and Aquarium Association (NZ and Australia) guidelines are met,
- "The best interactive is a human" – Project Shapeshifter is modelling Monterey Bay Aquarium's "greeters" volunteer programme. We have learnt that if visitors have two interactions with Aquarium personnel their learning outcomes (and likely behaviour change) improve exponentially,
- It is challenging to communicate Māori conservation messaging and concepts such as kaitiakitanga to the mainstream,
- Conservation alongside education at such facilities DOES attract tourists, and;
- It is unquestionable that Te Ao Māori brings unique value to this proposal and could make an invaluable contribution to the global aquaria community. Ocean Wise has expressed strong interest in collaborating for this explicit reason.

There is strong, national public support, as shown by the independent Colmar Brunton Survey and Project Shapeshifter stakeholder engagement process, including at the Te Matau-a-Māui Hawke's Bay community level.



International leaders from the following organisations kindly contributed to the process.



Whakatakinga | Introduction

Tiaki Taimoana | Guard Our Ocean

Māori Fisheries

Pre-1840 Māori held uninterrupted ownership and use of specific marine areas for the natural resources found in their waters. They practiced kawa and tikanga customs and protocols that guided the sustainability of access and harvest of each resource, usually informed by the māramataka *Māori environmental calendar* and celestial signs. Inter-generational connection to the environment and accumulation of knowledge pertaining to the environment fostered a society at one with nature, living within the ebbs and flows of what nature provided.

The new aquarium is predicated on this, on the value of mātauranga Māori knowledge informing marine and coastal conservation and management.

In 1992 the Māori Fisheries Settlement formally acknowledged Māori rights and interests in fisheries and the marine environment. The Settlement became the catalyst for unprecedented Māori economic growth and development, including beyond fisheries.

As Article Two of Te Tiriti o Waitangi and The Treaty of Waitangi clearly states:

Te Tiriti o Waitangi: confirmed and guaranteed the chiefs 'te tino rangatiratanga' – the exercise of chieftainship – over their lands, villages and 'taonga katoa' – all treasured things. Māori agreed to give the Crown a right to deal with them over land transactions.

The Treaty of Waitangi: confirmed and guaranteed to the chiefs 'exclusive and undisturbed possession of their lands and estates, forests, fisheries, and other properties'. The Crown sought an exclusive right to deal with Māori over land transactions.

Since 1992 advances in applying the Settlement include allocation mechanisms, establishing jointly owned commercial entities and acquisition strategies that now see Māori own greater than 45 percent of all commercial fisheries quota rights in New Zealand, in addition to their customary rights nationally.

Kaitiakitanga is a modern term and has increasingly come to the fore in the language and application of environmental sustainability and fisheries management in Aotearoa New Zealand.

This is further relevant through the Takutai Moana Act (2011) seeking to address principally Whānau, Hapū and Iwi rights and interests in the foreshore and seabed with many Whānau, Hapū and Iwi seeking to extend that into the water column and deepen their ability to be kaitiaki.

While kaitiakitanga is coming to the fore in mainstream environmental circles many non-Māori struggle with understanding it conceptually let alone the value of its application across and within the marine environment.

The proposed reshaped National Aquarium has been designed with this context firmly in mind, assuming that by combining the best of western and indigenous worldviews we can better care for Te Taiao Taimoana. The new facility can and should be the place to showcase, educate and communicate indigenous best practice both locally and internationally.

It should be a place where Aotearoa New Zealand is not only seen as a leader in rights protection but also in understanding and applying the best of indigenous and western practices to care for the natural world.





Kaupapa Māori Cultural Case

Kaupapa Māori Cultural Case

Kupu Whakataki | Introduction

The idea of redeveloping the National Aquarium of New Zealand has prompted among mana whenua the consideration and potential of its second name Te Whare Tangaroa o Aotearoa. The Indicative Business Case posed the question of a Māori aquarium to the leaders of Te Matau-a-Māui at a hui on 18 November 2017. The hui was titled "Imagining a Māori Aquarium," a challenging thought given the Māori worldview acknowledges Tangaroa and Hinemoana as the natural aquaria experience accessible to all people of Aotearoa New Zealand.

Mana whenua identified that the National Aquarium does not maintain the mana of Te Whare Tangaroa o Aotearoa; furthermore, as an aquarium that carries the national title and expectation, the mana of Te Tiriti o Waitangi needs uplifting.

Through the Māori worldview the scope of the National Aquarium extends beyond the realms of Tangaroa, being home to children of Tāne, and a learning centre for Rūaumoko. In essence, the hui of 18 November 2017 identified that the focus of the redevelopment project would best be aligned to the concept of a whare taiao – an environmental house, as a wider acknowledgement of Atua Māori Māori Deities.

The cultural scope outlined in the Indicative Business Case was to consider a whare wānanga house of learning designed and built to interpret a national aquarium seen one hundred percent through Te Ao Māori *The Māori Worldview*, as a place where indigenous science and western science could be bound together and reinterpreted for conservation action, marine education, research and tourism.

Project Shapeshifter delivers on the challenge of imagining a Māori aquarium and provides a unique and timely proposition underpinned by the following Takitimu concepts:

Te Uenuku Māori Cosmogony: The Māori belief in the beginning of the Universe from Te Uenuku *The Big Bang*.

Project Shapeshifter forms an aquarium experience that begins in the dark depths of the ocean and explains Māori cosmogony to the world, setting the scene before entering the realm of Tangaroa.

Tātai Ararangi Māori Astronomy: Māori celestial knowledge and the signs applied to seasons, navigation and migration.

Project Shapeshifter molds an aquarium experience that links celestial knowledge with environmental knowledge to better understand the ebbs and flows of nature across the Pacific Ocean.

Te Arohanui o Ronginui ki a Papatūānuku Māori Meteorology: Māori environmental worldview and māramataka Māori environmental calendar.

Project Shapeshifter brings a unique Māori worldview to life through the environmental calendar, consolidating cosmogony, astronomy and meteorology in an unprecedented interpretation that explains the mauri of water as the love of Ronginui and Papatūānuku sustaining all life. Project Shapeshifter tells the story through Te Taiao The Natural Environment and Te Taimoana The Ocean Environment.

Water is everything. Water is the great mauri of our existence as it sustains all living entities, whether we acknowledge them as living or not. Every rock, tree, every animal has a mauri which is nourished by the great mauri water. Water carries nutrients and cleanses and when it can do no more it returns energy permeating through life.

Water is the greatest mauri of all. Water is everything – it is the lifeblood of our universe.

"It is said that the tears of Ronginui nourish his beloved Papatūānuku throughout their permanent separation. Rain is the gift of love from Sky Father. Earth Mother treasures this gift, storing and releasing it so she may nourish and sustain all who dwell with her. In the primordial heat generated by their love, the tears return to Sky Father cleansed and he is sustained by all that his tears have done for his love and their offspring. Sky Father cries again for his beloved and this is the cycle of an ancient, permanent love which sustains all it encompasses."

So rather than adopting the traditional focus of aquaria, on the ocean domain only, we seek to reconnect these domains of ocean, land and sky, to both understand the ebbs and flows of nature throughout seasons, but also as a holistic framing for environmental care, mirroring what we are now witnessing in phenomena like the impacts of climate change on the ocean, land and species where the healing of the sky can lead to healing of the ocean and land.



Kaupapa Māori | Cultural Case

Māui For Questioning...

The Māui narrative is known throughout the Pacific nations. Māui lived an extraordinary life which is still recalled and discussed today. Many of his deeds explain the Pacific mindset and his presence in whakapapa genealogy details how each island nation relates to each other.

And the meaning of Maui's name? Ma = for. Ui = question. Maui = for questioning. That is, Māui questioned our world for the enlightenment of you and I. So, in the context of our quest to drive new levels of understanding and care for our ocean, it is not only the story of Māui, but that questioning and challenging spirit of Māui, that we seek to foster in the reshaped National Aquarium.

Project Shapeshifter draws inspiration from Aotearoa New Zealand's position in a global context through Te Riu-a-Māui Zealândia, a national context through Te Ika-a-Māui me Te Waka-a-Māui *The Great Fish and Waka of Māui*, a Polynesian context through Te Matau-a-Māui *The Hook of Māui* and Te Matau-a-Māui *The Constellation of Scorpius*.

In Polynesian society Māui is an idealized character possessing many names, each expressing one of his attributes:

He is known as **Māui Pōtiki**. A Pōtiki is an indulged child. So, it was with Māui who tended to be precocious.

He is called "**Atamai**" for his liberty, and "**Toa**" for his superior strength. Māui is well known for his quick thinking, resourcefulness and for his mischievous deeds.

He transformed his brother-in-law, Irawaru, into a dog.

Strength and courage were exhibited when he hauled the island from the bottom of the sea.

Another work of this Māori Hercules was the killing of Timarau, a great taniwha who lived in the water. Māui cut off the head of Timarau which he then cast into the sea where it became a kōiro *conger eel*. The tail was thrown into fresh water where it turned into the tuna *eel*. The rest of the body was thrown on to the ground where kareao *supplejack* sprung up. The blood was absorbed by the trees which have red wood, such as rimu, tōtara and toatoa.

He had a penchant for deceiving his elders, who named him **Māui-nukurau-tangata** – *the tricker of man*. The Māori people are still subject to the grasp of Māui as told in the following proverb.

"Ka mau tā Māui ki tōna ruiaunga ekore e taea te ruru."

"What Māui has hold of he will not give up." or "What is given cannot be taken away."



Te Riu-a-Māui,
The Eighth Continent
94% underwater

Te Arohanui o Rangi ki a Papa

A Cultural Framework

A project cultural framework emerged through the development process aligned with the project kaupapa cause and Takitimu teachings central to Ngāti Kahungunu. According to this teaching there are four key environmental domains:

Ranginui stratosphere upwards into outer space.

Te Taiao the space we know as the area above physical water that we humans inhabit.

Te Taimoana the space within physical water.

Papatūānuku land both above and below physical water.

These domains are the result of the separation of Rangi and Papa, and in turn their children, as described in Takitimu teachings as shared by Ngāti Kahungunu Iwi Inc. project cultural advisor Nigel How:

Rangi and Papa maintain the mauri cycle of water through evaporation and rain. They do this to sustain their children and mokopuna offspring. They also do this as a never-ending expression of their love for each other and their mokopuna.

There is kōrero talk about snow, hail, frost, sleet, mist, fog and other air-born phenomenon, but that is best left in order not to prolong this hearing. Evaporation and rain will be the parts I adhere to in this case.

The two spaces in-between Rangi and Papa were created by their children after they were separated. Tāne created Te Taiao, so he and his siblings could stand up straight and live their own lives. Tāne did this act from his own physical exertions, happiness and stubbornness. This process involved much heaving and breathing, which created steam (which was part of how he implanted mauri into Hineahuone, the mother of humankind, to bring her to life from clay ... but I digress). Tangaroa created the moana from his own tears and sadness due to the separation of his parents.

Importantly - both of these 'in-between' domains contain water, the universal mauri life essence. Both also contain air, which is another mauri and knowledge sharing session altogether. So, we have the Tai-ao (as the oxygen we breath contains water but it is not solid until rain forms) and Tai- moana (physical water which contains oxygen but not in the same state as in the Tai-ao). There is no oxygen above our ao ie: outer space has no oxygen.

That is why the Taiao is a separate space from Ranginui.

Our old people, go on...

They wish you to know the freshwater lakes, streams, rivers and wetlands are formed from the collective tears of Rangi, they are the love of Rangi caressing his beloved Papa. The freshwater springs and underground reservoirs are Papatūānuku cherishing and holding the loving gift of her husband, which she releases to nurture their descendants who live with her. The loving heat Papa generates, with assistance from Te Rā, the sun (another kōrero), causes evaporation, which is how she nurtures their children who decided to live either with their father or in-between both parents.

Te Taimoana was created from their crying child Tangaroa, who covered most of his mother with his sadness then created his own world within it. Te Taiao was created from their forthright child Tāne, who covered what was left exposed of his mother with his creations. Our old people wish you to know that because of the actions of the descendants of Tāne, us pesky humans, Tangaroa has stepped up his lamentations which has given effect to what is part of a wider environmental experience. Rising sea levels. This is Tangaroa's attack on Tāne, assisted quite ably by Tāwhirimātea (god of winds) - who himself is finding it hard to breath. These two brothers are working together.

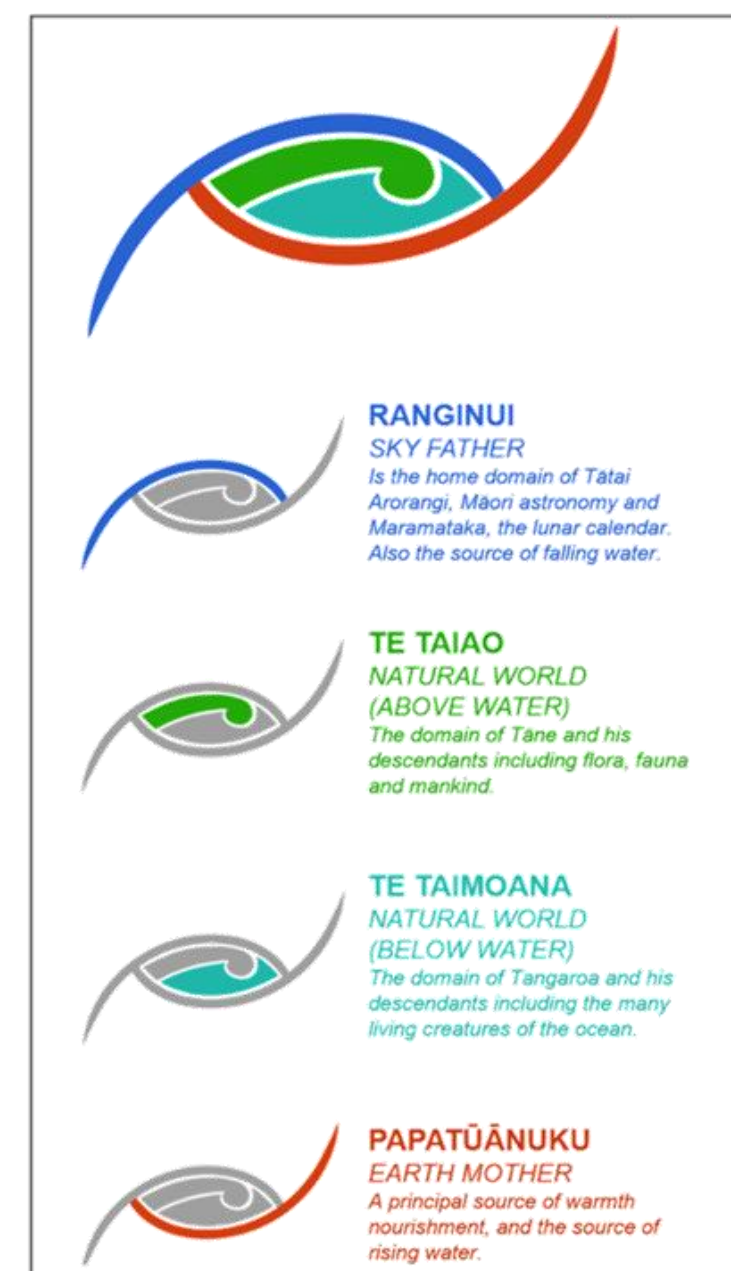
It is all a simple yet complex expression of love and sibling relationships, which keeps us all alive yet threatens our very existence.

This framework, reflected in the tahu (symbolic design) illustrated here, underpins and is reflected in the visitor journey, site design, building design, exhibits and proposed programmes.

The design represents the centre of the Takarangi double spiral which shows the embrace of Rangi and Papa and the space created in between through their separation, occupied by their children and humankind.

The symbols for Te Taiao and Te Taimoana exist in the space in between Rangi and Papa created through their separation.

This framework acts as a tāhuhu ridge-beam to the project and as a framework that places space, sky, ocean, earth and people all as parts of a single system.



Whaihua | Cultural Return on Investment

Alongside the Cost Benefit Analysis, Social Return on Investment Analysis, and Economic Impact Analysis done for the economic analysis, a Cultural Return on Investment (CROI) framework specific to this project has been developed and which is aligned with the wider project kaupapa *cause* and cultural framework.

In the context of Project Shapeshifter, encouragement is given to see Cultural Return on Investment in the value of Cultural Intellectual Property (CIP) as a primary product contributed by Māori, rather than in commercial dollar terms. As such it is strongly felt that a project specific model is required to demonstrate the inter-relation between CIP and commercial potential.

The framework focuses on two key domains of return:

- TAIMOANA Environmental returns for the domain of Tangaroa
- TAI AO / TĀNGATA Returns for the domain of Tāne which includes tāngata people

The key returns it seeks are:

- ŌHANGA Economic returns
- MAURI Enhancement of life force and well-being

The focus on Mauri as a measure of benefit and indicator of well-being is premised on the intent that every activity should be mauri enhancing, not diminishing. Mauri encompasses many domains, including mauri of water, land, people, plants, animals, and buildings.

There are an increasing number of Mauri models being used to monitor the state of the environment and impacts of activities on it.

The model acknowledges economic and environmental returns are not mutually exclusive concepts, they are closely interconnected, and this endeavor seeks to deliver returns in both areas. It also recognises 'cultural returns' as extending across these domains, not as something only framed in people terms.

**Mauri (noun) life principle, life force, vital essence, special nature, a material symbol of a life principle, source of emotions - the essential quality and vitality of a being or entity. Also used for a physical object, individual, ecosystem or social group in which this essence is located.*

TAI AO / TĀNGATA
Includes the above water domain of Tāne, and his descendants including people, flora and fauna. Includes our built environment. Asks what is the return in terms of Mauri and Ōhanga

ŌHANGA
Focusses on economic returns as a key contributor to Oranga, well-being.

TAIMOANA
Includes the underwater domain of Tangaroa and the children of Tangaroa, and asks what is the return in terms of Mauri and Ōhanga.

MAURI
Focusses on Mauri as a key indicator of the health of our environment, people, place and spaces. Papatūānuku is a key source of Mauri.

Whaihua | Cultural Return on Investment

Opportunity areas	Opportunity & benefit domain		Expected return	
	Taiao / Tāngata	Taimoana	Ōhanga	Mauri
Kaupapa Māori / Māori agenda	Platform for Māori world view to be shared and embraced.	Māori perspectives on Ocean valued.	Provides foundation on which economic opportunities can be built.	Enhances rangatiratanga and mana motuhake.
Kaitiakitanga	Increasing knowledge and ability to care for ocean and derive well-being from it.	Improve health of the ocean and its inhabitants.	Opens up opportunities for partnership, leadership, research and employment.	Improves well-being of the natural world.
Mātauranga / Cultural knowledge	Sharing and expanding on cultural knowledge of the natural world and being able to apply this to modern issues. Providing opportunities for our youth to engage in Māori knowledge systems to better understand our environment. Connecting people with seasonality.	Application of cultural knowledge alongside science to improve ocean care. Increasing awareness and knowledge of our marine environment and driving new levels of engagement and care.	Opportunities for research, teaching, hosting conferences and seminars.	Enhancing the mauri of tāngata through connection with the natural world and healing properties of the ocean. Enhancing the mauri of the ocean through conservation action.
Pūtaio / Science				
Akoranga / Learning				
Maramataka / Māori Environmental Calendar				
Tikanga / customary protocols & practices	Provides a platform for the application of, and exposure to, tikanga in public domain particularly in relation to natural world.	Re-establish tikanga relating the ocean to drive new levels of connection and conservation.	Opportunities for employment in order to deliver tikanga within the new facility.	Tikanga reinforces the connection and relationship between people and environment.
Iwi taketake / indigenous partnerships	Sharing of indigenous knowledge systems and relationship development.	Marriage of knowledge systems unlocking new insights to lead conservation action.	Potential for investment partnerships and access to wider funding pool.	Elevating mana and mauri through elevation of indigenous knowledge systems.
Mahi Toi / Creative arts	Opportunity to express our natural world and articulate our whakapapa and pūrakau through creative expression and practice in traditional arts, architecture, design and landscape design.	Give tangible expression of cultural knowledge relating to Taimoana making it accessible to support understanding and drive connection and care.	Opportunities for employment, consultancy, commissions and engagement of trades in construction.	Mauri is embodied within Mahi Toi and imbued in the materials and built fabric bringing Mauri to the site, building, exhibits and visitor experience.
Whakaāhua / Design				
Whaihanga Whare / Building				
Kaimahi / Employment	Direct and indirect opportunities for employment in roles relating to Te Taiao.	Direct and indirect opportunities for employment in roles relating to Te Taiao and its care and conservation.	Access to opportunities for employment, education, and career development with a focus on kaupapa Māori.	Enhances mauri tāngata through access to rewarding career opportunities in roles that contribute to enhancing mauri of nature.
Whakangao / Investment	Opportunities to invest in the facility and environmental initiatives.	Opportunity for investments in projects and businesses within ocean domain.	Opportunity for public, private, iwi & global co-investment partnerships / joint ownership models of facility.	Opportunity to invest in Mauri enhancing initiatives.
Manaaki manuhiri / hosting visitors	Opportunity to exercise manaaki that connects visitors with our natural world.	Opportunity to guide visitors through ocean based experiences focused on conservation.	Potential for hosting, catering, café operation, performance, entertainment and guiding.	Uplifting the mana of manuhiri is a mauri enhancing activity.
Ōhanga tāpoi / tourism	Leveraging the facility and pūrakau as a platform for delivery of, and connection to, nature based cultural tourism experiences.	Opportunities to develop tourism product focused on ocean and conservation based experiences.	Development of new cultural tourism experiences. Act as a hub for local cultural tourism e.g. Te Matau-a-Māui voyaging trust Atea-a-Rangi, Waimarama Māori Tours.	Promote environmentally responsible tourism that contributes to restoration of mauri e.g. tree planting.
Hokohoko / trade & retail	Opportunity for promoting environmentally responsible and ethical trade of authentic cultural products.	Develop products that promote ocean and creature care and opportunity to apportion profit to ocean care causes.	Opportunities for retail and online trade.	Promote and deliver responsible trade that reduces environmental impacts and contributes to enhancing outcomes.

Kaupapa Rautaki Strategic Case



Strategic Context

Our oceans are under stress

Papatūānuku Earth is a blue planet with 71 percent of it covered by the five oceans and its seven seas. It is one inter-connected ocean. **Te Moananui-a-Kiwa** The Great Ocean of Kiwa our own Pacific Ocean covers more than 30 percent of our planet.

The ocean is the source of life on Earth but is suffering from the activities of humankind.

96.5 percent of all the water on our planet is contained in the oceans, and 60 percent of a human body is water, so water is literally life - mauri. Every second breath we take is oxygen produced by life in the oceans.

The ocean provides three billion people with almost a fifth of their protein, making fish a bigger source of protein than beef. Fishing and aquaculture assure the livelihoods of one in ten of the world's people. Climate, weather patterns and ocean temperature and circulation are one inter-twined system. If anything ought to be too big to fail, it is the ocean.

Humankind has long assumed that the oceans' size allowed us to put anything they wanted into it and to take anything they wanted out. But changing temperatures and chemistry, overfishing and pollution have stressed its ecosystems for decades.

In the last few decades, there has been continued decline in the health of marine environments. Reports from WWF, the conservation organisation, show a nearly 50 percent decline in marine life populations between 1970 and 2012. Some global populations of locally and commercially fished species have decreased by half.

Humankind is threatening the health of the world's oceans. More than 80 percent of marine pollution comes from land-based activities. From coral bleaching to sea level rise, entire marine ecosystems are rapidly changing.

The ocean stores more than nine-tenths of the heat trapped on Earth by greenhouse-gas emissions. Global warming is causing alterations in ocean chemistry and many oceanic processes, and it is threatening many species of marine animals that cannot cope with higher temperatures. Coral reefs are suffering as a result; scientists expect almost all corals to be gone by 2050.

Overfishing is a serious problem in many parts of the world. Conservationists advocate creating expansive marine reserves to protect the biodiversity of the oceans, but any comprehensive regime of care can only be created if there is the societal recognition of the role that oceans play in preserving

our planetary ecosystems. In Aotearoa New Zealand, the Ministry for the Environment has recently identified several serious threats to our marine environment, including global greenhouse gas emissions causing ocean acidification and warming; native seabird and mammal species threatened with extinction; and a range of pressures interacting in complex ways to degrade coastal habitats and ecosystems. We are securing uncertainty for our future generations.

Our activities on land are polluting our marine environment

- Human settlement has brought large shifts in the patterns of sediments in most coastal environments. This includes changes in the rate it accumulates, increased muddiness, and the type and number of contaminants that bind to sediments.
- Sediment is fine particles like silt, mud, and organic material that gets carried by and in water. Soil washed from pastures and from forests after felling moves along waterways and settles as sediment on streambeds. It also comes from urban development, where the footprint of erodible or impenetrable surfaces (and therefore surface run-off) is increased. It fills in the spaces used by fish and invertebrates for hiding and breeding and makes their food harder to find or to eat.
- Sediment accumulation in estuaries is increasing in many parts of New Zealand, but there are big variations in the rate it accumulates, and some estuaries are worse than others.
- Litter and plastic debris are found everywhere in the marine environment.
- Plastic is the most commonly found litter on New Zealand beaches making up 61 percent. 11 percent of plastic litter comes from cigarettes. Having this knowledge helps us target our actions.

Our activities at sea are affecting the marine environment

- Almost all our imports and exports move via shipping.
- While cargo and cruise shipping are great earners for New Zealand, they don't always bring welcome visitors. Non-native species likely hitched a ride to New Zealand on vessels. Once established, they compete with native species for resources. Ships can also collide with mammals causing death and injury.
- Seabed trawling and dredging have decreased in the last 20 years, although nearly a quarter of the fishable area has been trawled since 1990. This causes significant seabed disturbance and damage and takes time to recover - deep water coral can take decades.

- What we do on land also has an impact. Activities such as agriculture, forestry, and the growth of cities and towns create pollutants, the load of which can be increased by land use change such as intensification, urban development, and draining wetlands.

Climate change is affecting marine ecosystems, taonga species, and us

- New Zealand's oceans play a huge role in limiting climate pollution. It's likely they take up more carbon dioxide than our forests.
- As a consequence, the water in New Zealand's oceans are warmer, more acidic, and expansive, causing sea levels to rise.
- Sea-level rise during the past 60 years was 2.4mm a year, double the rise during the previous 60 years.
- New Zealand coastal waters have warmed 0.2 degrees Celsius per decade on average. But the warmer the water gets, the less ability it has to absorb gases like carbon dioxide, reducing the ability to buffer the effects of climate change.
- Marine heat waves are occurring and have similar devastating effects as on land. During the unprecedented 2017/18 marine heatwave in the South Island, bull kelp suffered losses in Kaikōura and were completely lost from some reefs in Lyttelton.



Photo credit: Ferdi Rizkiyanto

Strategic Context

We are a maritime nation

Polynesian Navigation and Migration

The stories of first arrivals by ocean voyaging canoes, are stories that both span and connect us back to our Polynesian roots and Pacific exploration, as well as providing a platform for sharing stories of celestial navigation, the connections with species, particularly migratory species and species that acted as guides and guardians of those voyages, such as *tohorā whales* and *wheke octopus*.

Central to the local cultural fabric is Te Waka-a-Māui Nukutaimemeha, the Te Waka-a-Whātonga Kurahaupō, and Te Waka Tapu o Takitimu. These waka represent three strata of time and three distinct migratory settlement periods. The feats of these ancient ocean voyaging vessels are only fully becoming understood and appreciated in modern New Zealand and Pacific society.

Core to the voyaging story is the association with migratory species and celestial navigation.

The Scorpio group of stars in the sky is also called Te Matau a Maui, which means 'The Hook of Maui'. The shape of the stars not only looks like a scorpion, they also look like a fishhook.

During a certain period of the year, when you travel over the sea to Aotearoa from the North, these stars guide your way here. As you get closer to Aotearoa, the bottom of the group of stars gets closer and closer to the horizon, which is where the sea meets the sky. When the bottom of the hook touches the horizon, it appears to touch the land. The land that it appears to touch is Whakapūnake, so it looks like that Aotearoa is being fished up by a giant star hook.

So, the giant hook of Māui made of stars in the sky, created from the special jawbone of his goddess grandmother, actually hooks the land out of sea – right on the frowning cliff of Whakapūnake. In the context of the National Aquarium, these stories represent the richness of cultural intellectual property potential in the curatorial design and education programming.



Te Matau-a-Māui

The Hook of Māui | Constellation of Scorpius

Te Matau-a-Māui

The Hook of Māui | Hawke's Bay

Te Whakapūnake o Te Matau-a-Māui-Tikitiki-a-Taranga

The Foul Hooking by the Hook of Māui-Tikitiki-a-Taranga

A Maritime Nation

Furthermore, as the Colmar Brunton survey notes eight out of ten New Zealanders have direct connection with the marine environment. For example, on a beautiful weekend in Auckland there can be 13,000 private vessels on the Hauraki Gulf with their occupants enjoying a range of water sports. Furthermore, our economy is reliant on shipping bringing goods and services in and out.

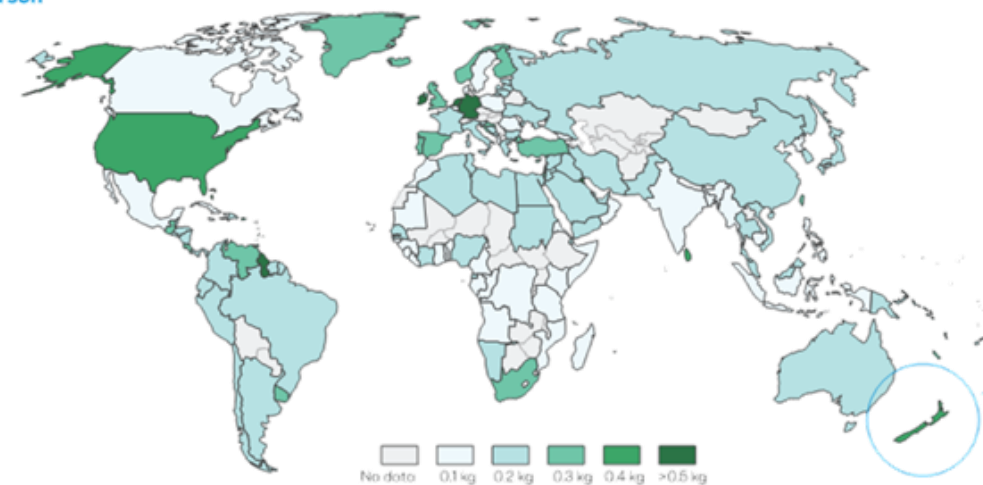
We are renowned for our sailing prowess and the forthcoming America's Cup would be a powerful opportunity to showcase Project Shapeshifter. Blair Tuke, Peter Burling and The Blake Trust have all had the proposed aquarium shared with them.

Strategic Context

We harm the oceans out of complacency

Daily plastic waste per person

The chart shows the per-capita daily plastic waste pollution per person across the globe. The highest polluting countries have a rate of waste production that is more than ten times the rate of low-pollution countries.



The actions we take on land are affecting life in the ocean. And there is increasing awareness that our actions are having a dramatic effect on the oceans.

An example is growing community concern about plastic pollution, where awareness of the Great Pacific Garbage Patch and local activities such as beach clean-ups are attracting media attention.

It is tempting to think that New Zealand is not a major contributor to these issues, but on a per-capita basis we are amongst the worst-offending nations for generating plastic waste.

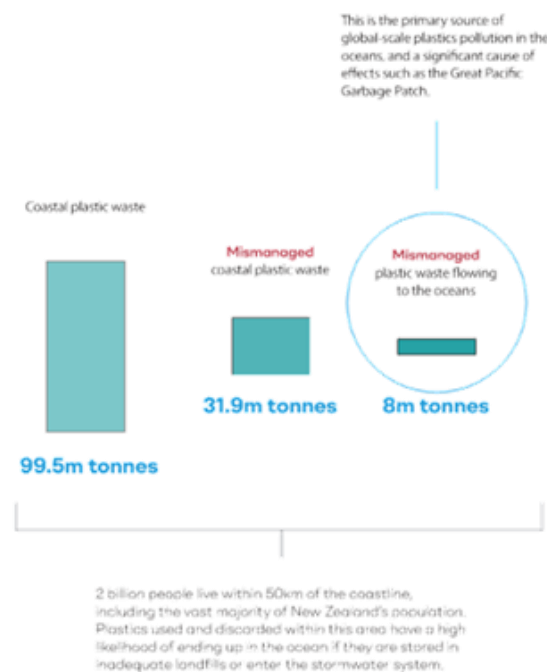
The problem of poorly-managed plastic waste entering the oceans is also exacerbated by the majority of our population living close to the sea, where ineffective landfill management and stormwater issues can result in plastics ending up at sea. Walking through Wellington on a windy day is a graphic demonstration of how easy it is for plastics originating in Aotearoa New Zealand to find their way into the oceans.

This then has a detrimental effect on marine life, seabirds, turtles, fish, whales and dolphins and marine ecosystems too, with flow-on impacts on human health and well-being.

Global plastic waste

The chart shows that the world produces about 275m tonnes of plastic waste each year. This can exceed the annual production in a given year because it can include production from previous years.

On a per-capita basis, New Zealand is a disproportionately high contributor to this problem.



Impact on ecosystems

Plastic pollution has well-documented impacts on wildlife and human health, through three pathways:

Entanglement

The entangling, encircling or constricting of marine animals by plastic debris. Entanglement cases have been reported for at least 344 species to date, including all marine turtle species, more than two-thirds of seal species, one-third of whale species, and one-quarter of seabirds.

Ingestion

Ingestion of plastic can occur unintentionally, intentionally, or indirectly through the ingestion of prey species containing plastic. It has now been documented for at least 233 marine species, including all marine turtle species, more than one-third of seal species, 59% of whale species, and 59% of seabirds. There are growing concerns about the effects of microplastics ingestion on human health.

Interaction

Interaction includes contact with plastic debris (with exception of entanglement) including collisions, obstructions, abrasions or use as substrate. Fishing gear, for example, has been shown to cause abrasion and damage to coral reef ecosystems upon collision.

Infographic developed by Davies Howard Group

Strategic Context

We all need to change attitudes and behaviour

While Māori have exercised kaitiakitanga for millennia, it is a concept that is equally applicable to everyone in Aotearoa New Zealand if the degradation of our oceans is to be reversed. A sense of stewardship and wise management will allow people to see that actions taken on land have consequences at sea, and that the resources of the ocean are not limitless.

Teaching about the oceans and their ecosystems is not enough – education must include the idea that the responsibilities of caring for our environment for the long term is an obligation on all of us. This is one of the key concepts of kaitiakitanga. Furthermore, what is really needed is to inspire awe, wonder and excitement that results in activities to regenerate marine and aquatic ecosystems.

We all need to care, to be kaitiaki stewards.

Tiaki Guard, Keep

Kaitiaki Guardian, Keeper, Steward

Kaitiakitanga Guardianship, Stewardship

In Aotearoa New Zealand, where our marine environment is over 20 times larger than the terrestrial landmass and our Economic Exclusion Zone is the fourth largest, there is a lot to inspire and empower people to understand and protect. With an estimated eight out of ten New Zealanders participating in marine based activities in our summer months, we already profoundly connect to aquatic environments.

However, being inspired about our marine environment is insufficient in itself – instead, there is a requirement that the oceans and their vibrant life is valued, nurtured and cared for, in a way that Māori have always understood as kaitiakitanga.

Today, kaitiakitanga is a system adopted for modern environmental policy development that guarantees Māori customary practices, maintaining access to the natural world and allowing for inter-generational stewardship of the Māori culture and its relationship with Te Taiao. However, in its truest sense, kaitiakitanga is traditional cultural practice in regular action: it is an ethic that can be applied anywhere but can only physically occur at a site through action.

Some of the principles of kaitiakitanga are embedded in key legislation in Aotearoa New Zealand, such as the Resource Management Act 1991, which requires that all those exercising power have a mandatory obligation to recognise and make provision for Māori cultural values in all aspects of resource management.

The 2010 New Zealand Coastal Policy Statement also calls for coastal managers to consider tāngata whenua concerns regarding the coastal environment. This includes providing tāngata whenua opportunities to exercise kaitiakitanga "over waters, forests, lands, and fisheries in the coastal environment".



Strategic Context

Aquariums have a key role to play

The role of aquariums is changing significantly. The point of zoos and aquaria is no longer to entertain and titillate humankind.

Given our global environmental uncertainties, the reaction from aquariums worldwide is to evolve beyond simply informing and raising awareness of environmental issues for visitors to becoming agents of change themselves. This means advancing an active role in conservation by supporting field conservation and enabling their visitors to do the same.

Around the world aquariums contribute to successful conservation of species and ecosystems. Extensive and diverse populations of species are cared for by institutions, which attract high numbers of visitors who are delighted and inspired by such close encounters with nature.

Zoos and aquariums enjoy wide-ranging levels of public credibility and trust and provide fun and intellectually stimulating destinations for visitors of all ages. Experience internationally shows that instilling in all visitors a strong sense of excitement about, and a desire to care for, life on earth creates a solid platform for fulfilling the promise to care for and conserve wildlife. Aquarium facilities are uniquely positioned to use a social-science, evidence-based approach to influence pro-environmental behaviour.

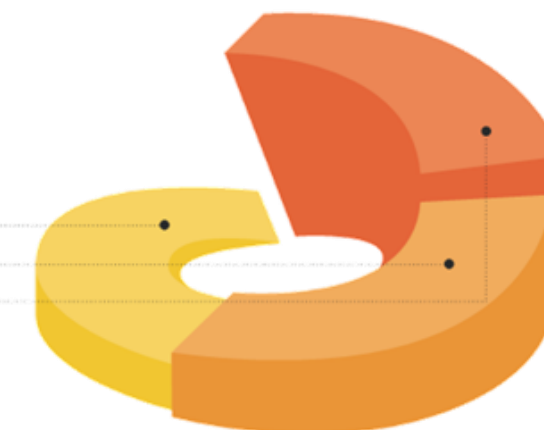
In a rapidly changing world, aquariums have a duty to:

- Provide the highest-quality care and management of wildlife within and across institutions
- Develop and adapt intensive wildlife-management techniques for use in protecting and preserving species in nature
- Support conservation-directed social and biological research
- Lead, support and collaborate with education programmes that target changes in community behaviour towards better outcomes for conservation
- Use zoological facilities to provide for populations of species most in need of genetic and demographic support for their continued existence in the wild
- Promote and exemplify sustainable practices in the management of animal populations, our facilities and the environment

The levels of influence

Building a culture of conservation occurs through constant communication with three discrete groups.

- STAFF AND GOVERNING AUTHORITIES
- VISITORS
- THE WIDER COMMUNITY



- Provide a public arena to discuss and debate the challenges facing society as extinction accelerates and ecosystem services are degraded
- Act as rescue-and-release centres for threatened animals in need of immediate help, with the best knowledge and facilities to care for them until they are fit to go back to the wild
- Be major contributors of intellectual and financial resources to field conservation
- Provide ethical and moral leadership

"With more than 700 million visitors annually passing through the gates of zoos and aquariums of the world, affiliated through regional associations of WAZA, zoological facilities have an unrivalled platform to engage the general public in conservation.

In addition, it is well known that through their living collections, zoological institutions contribute significantly to conservation research. The breadth of research carried out by zoos and aquariums is truly impressive, from behaviour science to visitor learning, and the impact of such research on conservation is well recognised. This research is fundamental to the protection and preservation of our most endangered species.

And yet, given the scale and immediacy of the global conservation challenges we face—none more than the extinction crisis already upon us—we cannot expect our zoos and aquariums to carry the burden of conservation within their gates alone."

Inger Andersen
Director General, International Union for Conservation of Nature (IUCN)
June 2015



Case Study

The Monterey Bay Aquarium

This institution is an exemplar of the changing roles of aquaria.

The Monterey Bay Aquarium (MBA) in California is a world-leading institution that has pioneered aquarium-based conservation advocacy and has a bold mission to 'inspire action on behalf of the oceans'.

The aquarium is situated right on Monterey Bay, with the ocean flowing under and into the building. It repurposed a disused fish cannery and revitalised Cannery Row, made famous by John Steinbeck.

The visitor experience is focused entirely on one place (unlike most aquariums) and its first mission was primarily about sharing the natural history of Monterey Bay which changed in 1997 to be about ocean conservation. This has made a huge difference to the function of the facility and the experience of visitors.

MBA motivates visitors to act including through supporting the implementation of marine protected areas in the U.S.A, choosing sustainable seafood and undertaking conservation field research programs which informs policy and fostering action on behalf of wildlife conservation.

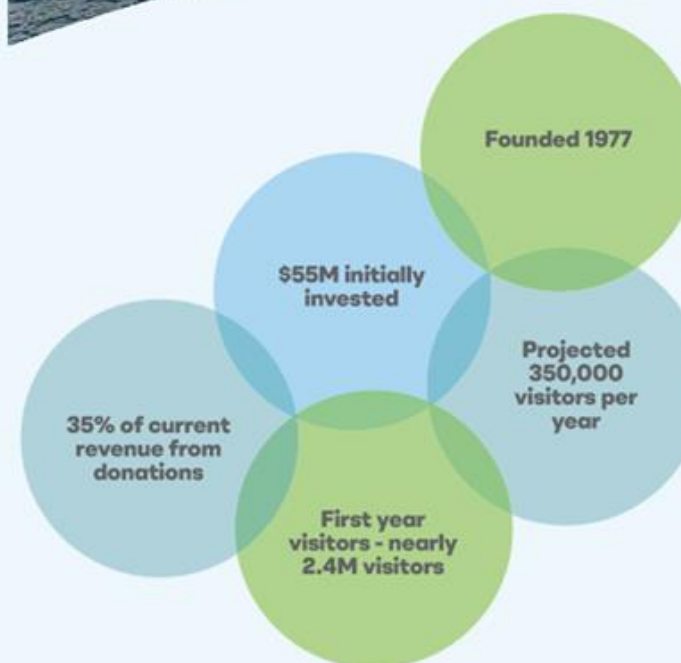
MBA empowers visitors through:

- High quality exhibits. The facility was an early adopter of kinesthetic approaches to engage people in caring for the oceans, e.g. through sculpture of marine life.
- The aquarium was the first to design a tank and water pumping system to keep kelp alive, thanks in part to the efforts of famed engineer David Packard (Hewlett Packard) and which enables visitors to experience a living ecosystem in a truly unique way.
- There is a very strong commitment to personal interpretation by knowledgeable and passionate paid and volunteer staff, something that receives more positive online travel visitor reviews than any other aspect of the MBA experience.
- The aquarium began credible, independent sustainable seafood watch programmes globally. These guide the public to make better choices to support sustainable fisheries and healthy marine life. It extended this to the Chefs Collaborative, a partnership with sustainable seafood chefs. Both approaches have gone global.

The Monterey Bay Aquarium is strongly grounded in science and with the Monterey Bay Aquarium Research Institute (MBARI) it has researched, advocated for and secured the conservation of Monterey Canyon and Monterey Bay, in partnership with several other organisations. This has produced a significant recovery of the health of that marine ecosystem and which now also supports thriving marine tourism. MBARI is regarded as one of the leading deep ocean research institutes.



The mission of the nonprofit Monterey Bay Aquarium is to inspire conservation action on behalf of the oceans



Personal interactions between staff (or volunteers) known as Personal Facilitated Experiences, with small groups or individuals create significantly higher (nearly 80 percent) better visitor satisfaction than visits without such interactions. (www.colleendilen.com via MBA 30 Oct 2019)

Werowero o Te Whare Tangaroa | Strategic Challenges for the National Aquarium

The current facility is no longer fit for purpose.

The National Aquarium of New Zealand has developed and changed over the decades of its existence, as its role and societal expectations have evolved. The Aquarium is still a cherished part of Ahuriri Napier, and a magnet for locals and visitors alike.

However, there are significant challenges ahead for the facility, stemming from the evolving role of aquariums and the limitations inherent in the physical infrastructure of the building. Animal husbandry and tank design for animal welfare has been transformed globally and the current facility is no longer practical under today's standards.

Extensive work has been undertaken with stakeholders, iwi, the community and various professionals in order to identify the issues being faced by the Aquarium, and to map out how they can be addressed. An Investment Mapping Logic process identified the problems that need to be addressed by this business case, building on the considerable work done to assess the state of the National Aquarium. This has resulted in the following four strategic challenges.



Strategic Challenges

There are four core challenges for the National Aquarium

- 1 Challenge: Te Tiriti o Waitangi The Treaty of Waitangi**
 As a National Aquarium the facility does not meet national standard in its equal representation of our bi-cultural heritage. There are no formal agreements with mana whenua and their support and involvement in the day-to-day operations, programming and curatorial development of the aquarium. This challenge is highlighted and addressed through the addition of the Kaupapa Māori Cultural Case.
- 2 Challenge: education about the oceans**
 There is a lack of understanding about the impact of human activity on the health of the oceans, which is leading to adverse impacts on marine species and ecosystems that underpin life on Earth. People are becoming disconnected from nature.
- 3 Challenge: animal welfare**
 The standards and expectations for animal welfare are struggling to be met by the current facility. This is requiring careful management and increasing resources to reach required standards in the short term. Closure of the National Aquarium will need to be considered unless they are addressed.
- 4 Challenge: visitor experience**
 The design and structure of the building is not fit for purpose, resulting in an inability to tell the stories of the ocean well, keep animals humanely, and have staff operate efficiently, meaning the National Aquarium does not offer a high-quality visitor experience.

The Current State

Wero Tuatahi | Challenge One

Uplifting Te Tiriti o Waitangi

The Treaty of Waitangi

Working with Ngāti Kahungunu

The cultural context for any significant project on the Māori Cultural Landscape dictates first and foremost it must be anchored within its geo-political tribal fabric, that is the paradigm of mana whenua and mana moana, the authority and prestige that comes from unbroken inter-generational connection and occupation of place, a concept that first and foremost recognises the ahi kaa, those who keep the home fires burning, those resident in their tribal lands.

Project Shapeshifter is underpinned by strong cultural foundations anchored philosophically in Te Ao Māori, *the Māori world*, and geographically in Te Matau-a-Māui, *The Hook of Māui*.

The people of Te Matau-a-Māui originate from the ocean, reflected in oral history and encapsulated in whakapapa, genealogical connection, and pūrākau, *legendary stories*, of eponymous ancestors, their great ocean voyages and waka, and their descendants who settled on the jawbone of the goddess Murirangawhenua, grandmother of Māui.

As such, the process for engagement has recognised the necessary consideration from a mana whenua paradigm of starting from the tribal fabric of the site. This fabric operates at multiple levels and includes both an invisible cultural fabric, as well as a structured entity fabric.

We recognised the imperative of ensuring we 'bed down' the project relationship within the mana whenua fabric, before seeking to engage in the national tribal fabric beyond Ngāti Kahungunu.

That fabric starts at the level of whānau and hapū associated with the geographic location, extending into a range of mandated entities including 'Taiwhenua' which is an organisation of Marae and Hapū geographic clusters of which there are six across the Ngāti Kahungunu tribal landscape, from Wairoa and Nuhaka in the North, through to Wairarapa and Cape Palliser in the south and inland to the mountain ranges from Urewera to Kaweka, Ruahine, Tararua, Rimutaka and Aorangi ranges, as well as the associated ocean-scape of near coast and open ocean as traced by ancestral waka.

Within that fabric there are seven Post-Settlement Governance Entities (PSGEs) that are mandated large natural groupings of hapū established for the purpose of Treaty Settlement.

The Treaty Settlement fabric of Ngāti Kahungunu is different from most other iwi, in that with the exception of fisheries and air spectrum, Treaty claims are being settled at a hapū cluster level rather than the pan-iwi 'one claim' approach taken by most iwi so far.

However, Ngāti Kahungunu Iwi Inc has a very important role in regard to the kaupapa of this project, in representing the collective interests of Ngāti Kahungunu in regard to Fisheries Settlement and Ocean care.

So the approach to mana whenua engagement has been multi-pronged and included:

- Development of a project partnership with Ngāti Kahungunu Iwi Inc. to provide advice and support to the project, resulting in the appointment of Ngāti Kahungunu Iwi Inc (NKII) Board member Nigel How as advisor to the project on behalf of Ngāti Kahungunu, and who has provided much of the core cultural content, guidance and critique of concepts based on Takitimu teachings.
- Direct meetings with Ngāhiwi Tōmoana as Chairman of NKII.
- Numerous one-on-ones and small hui with key leaders within various areas of the tribal fabric based on their roles, whakapapa and areas of recognised expertise relevant to the project, including key tribal members within national organisations including government.
- One-on-ones and small hui with Post Settlement Governance Entities (PSGEs).
- Presentations to the Napier City Council Māori Advisory Committee which has representatives of the PSGEs, Taiwhenua and Hapū within their territorial authority.
- Identification and engagement of key Ngāti Kahungunu and Māori leaders in the wider project engagement process conducted through workshops.
- A Māori design wānanga to engage leading Ngāti Kahungunu creatives in concept development and design process, with broad expertise spanning environment, whakapapa *genealogy*, pūrākau *legendary stories*, maramataka *Māori environmental calendar*, waka, tātai aroangi *Māori astronomy*, performing arts, traditional arts, and architectural design.

The outcomes of this engagement has driven and underpinned the project from start to finish and truly provided the project with a Māori back-bone and a Māori heart.

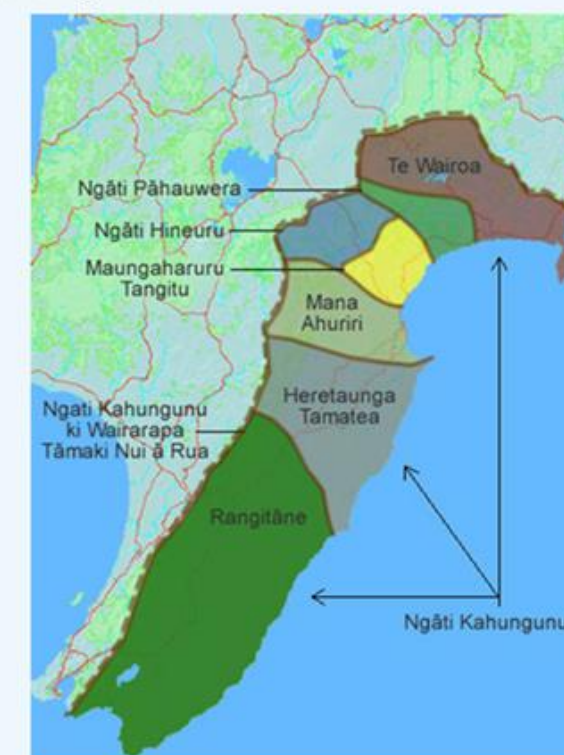
The outcomes of that process are woven throughout this document, from the Kaupapa to the Cultural Framework, selection of taonga species, pūrākau, visitor and interpretive focus areas, architectural design, site design,

education focus, environmental conservation focus based on tiaki principles, and the economic case including proposed investment employment and enterprise opportunities.

The engagement has laid strong cultural foundations for the project on which future extension of engagement to other iwi *tribes* and iwi taketake *indigenous peoples* can commence.

The project very intentionally focused on the selection of key cultural concepts that hold a special place for mana whenua and can be shared at a local level, but also concepts that provide a connective fabric with other iwi and the indigenous Pacific Rim, so, the chosen concepts are anchored locally but transportable globally.

Through this outlined approach with Ngāti Kahungunu Project Shapeshifter uplifts the mana of Te Tiriti o Waitangi The Treaty of Waitangi and sets the bar for project inception and design partnership. The scene is now set to share this kaupapa with wider Ngāti Kahungunu whānau, hapū, marae and indeed with Ngāi Māori.



Ngāti Kahungunu territory showing PSGEs

The Current State

Wero Tuarua | Challenge Two

Education about the oceans is not widespread

Aotearoa New Zealand is not well served for suitable ocean education facilities. Despite being a maritime nation, we do not have a large number of institutions or organisations focused on marine conservation and education.

There are four categories of organisation that educate and inform New Zealanders about the oceans and their ecosystems:

1. Aquaria aimed at introducing people to the inhabitants of the seas, primarily Te Whare Tangaroa o Aotearoa The National Aquarium of New Zealand in Ahuriri Napier and Kelly Tarlton's Aquarium in Tāmaki Auckland, supported by several smaller facilities around the country. These institutions have tended to become tourist attractions and have aimed to become financially self-sustaining.
2. Non-government and voluntary organisations focused on ocean conservation, such as Sustainable Coastlines and the Mountains to Sea Conservation Trust, Forest and Bird and international NGOs like Greenpeace, WWF and Sea Shepherd.
3. Government-led initiatives aimed at increasing the scientific and conservation literacy of New Zealanders, such as EnviroSchools, the Department of Conservation Marine Sentinels Programme and Curious Minds. These tend to be project-led and community-focused, often with the marine conservation elements part of a wider programme.
4. Universities and other Research organisations, which although having communications outcomes, primarily focus on education and research organisations respectively.

Considerable effort has been put into these initiatives and facilities to date, and a great many New Zealanders have been educated and informed as a result of the work of people who are passionate about the oceans and their ecosystems. Much of this work has been driven by the passion of a small number of people, with much of the activity undertaken by volunteers from across the country.

Despite these efforts, Aotearoa New Zealand has struggled to build a constituency or political momentum to better care for the oceans, in an integrated manner and as the Ministry for the Environment report, noted earlier, mentioned there are serious threats facing the oceans.

Institution	Strengths	Weaknesses
Aquariums	<ul style="list-style-type: none"> • Able to bring people face to face with aquatic species • Highly engaging, especially for children • Drive tourism and economic activity in their host cities • Can bring expertise, resources, independence and neutrality to support solution development to today's complex marine management challenges • Generally enthused and motivated staff and volunteers who are passionate about the oceans 	<ul style="list-style-type: none"> • Have had to prioritise entertainment ahead of conservation in order to be financially viable • Expensive to construct and operate so there are only a small number of facilities in Aotearoa New Zealand • Some are struggling to meet the developing standards for the care of their animals • These facilities are quite old and expensive or impractical to refurbish.
Community and NGOs	<ul style="list-style-type: none"> • Strongly connected to their communities and communities of interest • Have the ability to focus on specific issues or geographies • Enthused and motivated people who are largely volunteers and passionate about what they do 	<ul style="list-style-type: none"> • A high level of fragmentation across geographies and issues, with both overlaps and gaps between organisations • A limited ability to scale up their work due to the inherent limitations of funding and resources • Sometimes their marine conservation initiatives are only part of a wider conservation programme
Government initiatives	<ul style="list-style-type: none"> • Well aligned with national priorities and policies • Funded to deliver specific outcomes, including education about marine conservation issues • Professionally staffed by skilled and motivated people • Sometimes able to provide funding to community initiatives 	<ul style="list-style-type: none"> • In many cases the specific programmes and initiatives reach a conclusion and are not progressed further • National marine policy is fragmented and complex • The marine conservation elements can sometimes be only a part of a much wider programme of work • Institutions, including Crown Research Institutes sometimes struggle to work with the not-for-profit and community sector
Universities and other Research Organisations	<ul style="list-style-type: none"> • Aligned with national priorities. • Funded to deliver specific outcomes • Focus on their own research agenda • Independent • Innovative • Produce the skilled marine workforce of the future 	<ul style="list-style-type: none"> • National marine policy is fragmented and complex • Institutions, including Crown Research Institutes sometimes struggle to work with the not-for-profit and community sector

The Current State

Wero Tuatoru | Challenge Three

Maintaining animal welfare is increasingly difficult

The current facility struggles to meet modern some standards for animal welfare

There are a range of regulations and frameworks that guide how an aquarium must operate including national standards for husbandry, care, handling and containment of animals under:

- The Biosecurity Act 1993.
- The Hazardous Substances and New Organisms Act 1996.
- The Animal Welfare Act 1999.
- The Health and Safety at Work Act 2015.
- The Ministry for Primary Industry (MPI)'s Code of Welfare Zoos (2018).
- MPI's Code of Welfare Transport within New Zealand (2018).
- MPI's Import Health Standards - Under the Biosecurity Act 1993.
- The Environmental Protection Agency (EPA)'s Zoo Containment Facilities (2018).
- The Department of Conservation (DoC) must approve a facility to hold particular native species which they will permit.

There are also international requirements that frame what zoos and aquariums have and do:

- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

There are various regional and international member associations for zoos and aquaria that offer accreditation, support, advice and training:

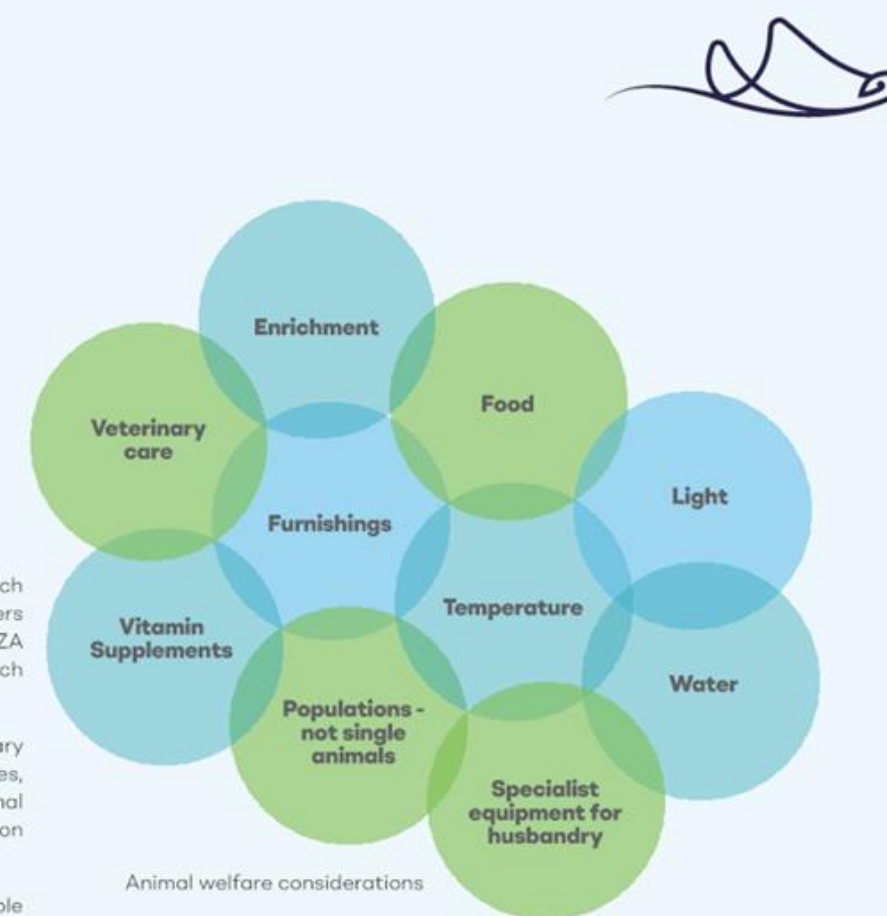
- The Zoo Aquarium Association Australasia (ZAA), which the National Aquarium of NZ belongs to, has the Accreditation 2020 standards that members are expected to meet and which focus on achieving and evidencing positive welfare standards for animals over five welfare domains - Nutrition, Environmental, Health, Behaviour and the Mental Domain (Mental or Affective State).

- The World Association of Zoos and Aquariums (WAZA), of which ZAA is a member, has a conservation strategy for members to collectively support and work towards. The current WAZA Conservation Strategy incorporates international strategy such as the Aichi Biodiversity Targets.

Although, in the existing aquarium, some specific exhibits meet necessary standards, such as for Department of Conservation permitted species, others pose risks to meeting the desirable positive or neutral states of animal welfare (as mandatory to meet Zoo Aquarium Association Accreditation criteria). The primary issues are:

- The current Oceanarium has sharp right angles and unsuitable concrete substrates that cause contact and injury to homed shark species.
- A number of exhibits are openly accessible to the public (such as Little Penguins, Long finned eels, Rocky Shore, Koi and Grass carp), resulting in possible introduction of microbes and undesired contact from visitors.
- This is also exacerbated by lack of resources to deliver a volunteer programme that could help address such issues with more physical presence on gallery.
- Additionally, size and access into some exhibits is severely restricted, making diver access for care extremely difficult, such as the Hawksbill tank and Reef tank. This also makes transport of animals needing care out of some exhibits exceptionally challenging.
- There are limited quarantine facilities for animal isolation and care and a complete lack of space to deliver any level of veterinary care, which need to be addressed.

If these issues persist for any length of time, it is likely that accreditation of the Aquarium will be withdrawn, which will mean that the species currently homed in the facility will need to be re-homed or euthanised. The lack of key live species will undermine much of the rationale for the Aquarium, as well as materially affecting its desirability as a visitor destination.



PHYSICAL / FUNCTIONAL DOMAINS

NUTRITION	ENVIRONMENT	PHYSICAL HEALTH	BEHAVIOUR
Positive Negative	Positive Negative	Positive Negative	Positive Negative

MENTAL DOMAIN

NEGATIVE EXPERIENCES

POSITIVE EXPERIENCES

WELFARE STATUS

This global animal welfare model was developed by Massey University

The Current State

Wero Tuawhā | Challenge Four

The visitor experience is underwhelming

The current facility is not able to provide a high-quality visitor experience.

Entrance into the aquarium is confusing. It is not clear where the entry is, resulting in visitors entering through retail and café space. Once in the reception area, there is further confusion as to whether the visitor journey begins from any of three points once inside. The first exhibit that is encountered is the East Coast LAB exhibit, with no live animals. So, visitors are five to ten minutes into their journey before they have seen any animals.

The original building's ring-shaped design and structure is inflexible and options for modification to incorporate larger exhibits, with appropriate visitor journey and accommodation of appropriate support spaces, is very limited. Visitors with physical access requirements, who need an elevator, find themselves having to turn back at the end of the first level to access the same lift in order to reach the ground floor again. This results in further confusion when they try to rejoin the visitor journey on this level.

Some exhibits allow for better viewing for visitors of all ages (and heights), however others completely cut off younger visitors from seeing into the exhibits at all (for example, koi and goldfish). The large rock face and non-functioning waterfall feature in the centre of the original ring-shaped building serves no purpose, uses valuable space and is not a clear part of the visitor narrative.

Whilst the size of the Oceanarium and Pānia tanks are impressive for visitors, viewing from within the Oceanarium tunnel looks up onto a corrugated iron ceiling, ruining the magic of the ocean view for visitors.

The thermal management in the building is currently unacceptable for both visitors and staff. Due to the nature of air conditioning systems, in order to keep animal exhibits at appropriate temperatures, visitor spaces suffer, being too cold in winter and too hot in summer.

Current education spaces are also not fit for purpose. It is impossible to comfortably fit a class of students or group of 20-30 adults into the current Education Room and 'Mad Scientist Lab', severely limiting programming that can be delivered to larger audiences with minimum appropriate staffing. At present, groups need to be split across a number of spaces, requiring a larger number of staff to deliver activity, in order to accommodate them comfortably.



The 'Mad Scientist' lab and classroom space cannot comfortably accommodate a normal size classroom.



The reception arrival space has poor visitor flows

He Ara Hou | A New Approach

What New Zealand says | Sector Feedback

The Sector Engagement Process

Project Shapeshifter designed a clear sectoral engagement process to explore the needs and opportunities associated with a redefined Whare Tangaroa o Aotearoa National Aquarium of New Zealand. A draft concept narrative was tested across the following sectors:

1. Ngāti Kahungunu
2. Kaitiakitanga | Conservation
3. Whakaakoranga | Education (rangahau *research*, akoranga *learning*, mātauranga *knowledge*)
4. Hapori | Community
5. Taiohi | Youth
6. Ōhanga Tāpoi | Tourism

Nine hui were held over eight weeks with experts and interested parties across the six sectors. The hui were held in both Te Ūpoko-o-te-Ika Wellington and Ahuriri Napier. A further four virtual hui were held with an International Leaders Group.

A parallel research engagement process enabled meetings and discussions with key marine organisations such as NIWA, DoC, and with local researchers from Te Matau-a-Māui Hawke's Bay.

Outside of solely Ngāti Kahungunu engagement, wider relevant Māori experts were included within their respective sectors to allow for specific Māori feedback to be captured within each sector and then matched with the outcomes driven by Ngāti Kahungunu.

The culmination of the sector engagement process through facilitated hui has resulted in the design outcomes and key focus areas for Project Shapeshifter in presenting this case for change.

Conservation and Education Messages

Charged with having a focus on conservation and education, the key conservation messages that emerged were:

- Ocean health is declining.
- Climate change is real.
- Sustainable seafood (including recreational fishing) is possible.
- A systematic network of MPAs (whatever terminology New Zealand may choose to use) is needed.
- Everything individuals do to make a difference adds up and matters.

The Oceans First Kaupapa and Sectoral Outcomes documents (Appendices 13 and 7 respectively) contain further details including material to inform the conservation messaging of the proposed Trust and facility.

The key education messages were that the proposed facility:

- Could offer innovative curriculum aligned education programmes which give effect to the learning strands of the national curricula – Te Whariki, the New Zealand Curriculum, Te Marautanga o Aotearoa, and NCEA.
- Would require an ability to deliver its education programmes into schools and tertiary education providers nationally via virtual classroom platforms and other online programmes.



Priorities

1. Marrying indigenous knowledge with leading edge science and technology, to better understand & care for our aquatic environment
2. To amaze, inspire & compel
3. Sharing our unique Pacific narrative and story of Māui with the world

Stakeholder priorities

Stakeholders were asked to prioritise a series of key messages from the draft narrative provided.

Challenges

1. Linking with local technology
2. Fostering open debate
3. Taking an intuitive leap into the future to imagine an indigenous aquarium



To triangulate Project Shapeshifter sentiment a further effort was made to commission an independent Colmar Brunton survey. Key findings were:



KEY SECTOR ENGAGEMENT FINDINGS

- Affirmation and enhancement of proposal.
- Clear view it is of NATIONAL importance.
- Clear need and appetite for a 'National Oceans Centre', not just national aquarium.
- Need for equity of access by all.
- A place and forum to convene:
- Pacific rim Indigenous knowledge systems mātauranga married with conventional science but most importantly....
- The need for an 'ocean first' focus.



He Ara Hou | A New Approach

What New Zealand says | Sector Feedback

Hapori | Community

Te Kaunihera o Ahuriri Napier City Council developed a two-staged plan to engage the Ahuriri Napier community into Project Shapeshifter:

Stage 1: Initial engagement to inform development of the detailed business case (July–September 2019)

- Young people (12-24 years).
- Nearby residents.
- Friends of the Aquarium (who pay an annual fee to receive member benefits).

Stage 2: Community consultation, depending on project confirmation by Council and the Provincial Growth Fund (2020, to be confirmed).

Taiohi | Youth

A total of 51 young people attended the three facilitated events. Key issues identified were:

- Need to recognise not all taiohi young people have a connection with nature; some haven't had the opportunity or motivation to engage or connect with it.
- A need for real things - The WOW of species in tanks remains a key attraction and will provide inspiration, awe, and wonder for young people.
- The need for 'hands-on' activities, both within and outside the facility - the opportunity to touch, do and feel.
- The importance of sharing knowledge and Māori stories.
- Encourage and share conservation stories.
- Offer local, national, international programmes.
- The building must demonstrate, live and breathe sustainability.
- The facility must offer career pathways for youth and work experience.
- Challenge: modern youth don't read signs, there is a need to engage through technology youth are familiar with including digital, gaming, social platforms and tactile experiences.

- The redeveloped aquarium proposition is viewed as an icon of cultural significance and there is enthusiasm for the expansion
- There are expectations the new aquarium will have conservation, care and welfare at its heart, and will be accessible to all.
- Connection and interaction are important, in order to provide exciting opportunities for youth.

Ohanga Tāpoi | Tourism

- Would be beneficial to the Aotearoa New Zealand tourism sector, particularly the domestic market.
- Needs to link, not compete with, experiences like Whale Watch Kaikoura. There is strong perspective that people are not seeking tamed iconic marine species, their preference is to engage in the natural environment.
- The new aquarium should stand at the same level nationally as Te Papa i.e. under an Act of Parliament.
- Exhibits where visitors can safely interact with fish/animals so that people can connect with them.
- Need to ensure visitor experiences connect with, and support uptake of, other local Tourism offerings e.g. Napier Māori Tours, city walks, Ātea-a-Rangī, Te Matau-a-Māui waka haurua experience.
- Opportunity for environmental tourism and connection with conservation sites.
- Need to package short tours for cruise market.
- Primary market will be domestic with some growth in international but limited opportunity to change destination planning post-arrival.
- The project narrative and 'Māui' story provides a strong opportunity to develop a regional tourism brand and elevate profile of Hawke's Bay Tourism.
- Opportunity for exciting use of technology.

"Creating an aquarium where we, the youth, are challenging the generation before by showing innovation without hurting the environment and aquarium. As well as for our sea life own generation help with the action"



He Ara Hou | A New Approach

What New Zealand says | Sector Feedback

Rangahau | Research

Permanently showcase mātauranga Māori *knowledge* and western science.

- Provide a hub for gathering, sharing and dissemination of mātauranga and science research partnerships and projects.
- Technology library such as drones for cetacean surveys.
- Communicate real-time research leveraging remote technologies.
- Collaboratively design and deliver citizen science initiatives. Inform, deliver and conduct behavioural change social science.
- Permanent collaboration hub.
- Foster co-location of research organisations and activities as part of future site expansion.
- Stimulate research aligned with identified ocean care needs.

"I see many areas for collaboration and ways that we could partner to extend projects to raise awareness and understanding of New Zealand's unique environment. I am impressed with your approach to draw organisations together and work collaboratively, and although this creates many challenges... the potential outcomes are far reaching."

Sally Carson, Director New Zealand Marine Studies Centre,
Department of Marine Science, University of Otago

Kaitiaki | Conservation of our underwater world

- It must be honest – about the state of the planet, habitats and ecosystems.
- It must truly represent the actual environmental needs of animals and lead with animal welfare.
- There must be strong conservation action taken by aquarium staff onsite, the organisation as a whole, and our community, with aquarium support.
- The need to connect with and facilitate 'citizen science' projects across the country.
- The need for it to have the wow factor to not only bring in numbers but catalyze behavioural change.
- It could be a watchdog for aquatic ecosystems.
- It must be an eco-building. The whole process must be environmentally friendly.
- It needs to be a rescue and rehabilitation centre – save animals and teach conservation, and not hold any animals for entertainment only.
- Strong support for marriage of science and indigenous knowledge systems to drive conservation research and care.
- Need for a non-partisan approach to foster an open kaupapa and collaboration that puts the ocean first ahead of any political or organisational agenda.

"People will care for what they love"
Ben Knight (Kāpiti community marine facilitator)

"This is the most community-based aquarium design process that I've witnessed" John Christiansen (EHDD Aquarium designers)



Akoranga | Learning

Galleries, libraries, aquariums, museums and zoos are all spaces for learning. It's important to think beyond schools as the centre of education.

- Accessibility is key for low income communities and schools so that tamariki *children* can also engage in new learning and education.
- Design all spaces with learning and education in mind.
- Educational approach will be driven by the exhibits and interpretive messaging.
- Experiential learning opportunities will be a point of difference and deliver value within the education system – and appeal to wider audiences.
- The opportunity exists to provide cultural learning and Māori medium education not available in most schools.
- The opportunity exists to develop innovative approaches to learning outside the constraints of the formal education system and academic thinking.
- Play a role in vocational education and training for maritime related employment.

"We protect what we love and we protect what we value"

"Imagine the learning if my primary school could spend eight years being based from the new aquarium"

"I went to the aquarium for the first time on my 35th birthday as my whanau couldn't afford for me to go when I was a child"

He Ara Hou | A New Approach

The proposed future state

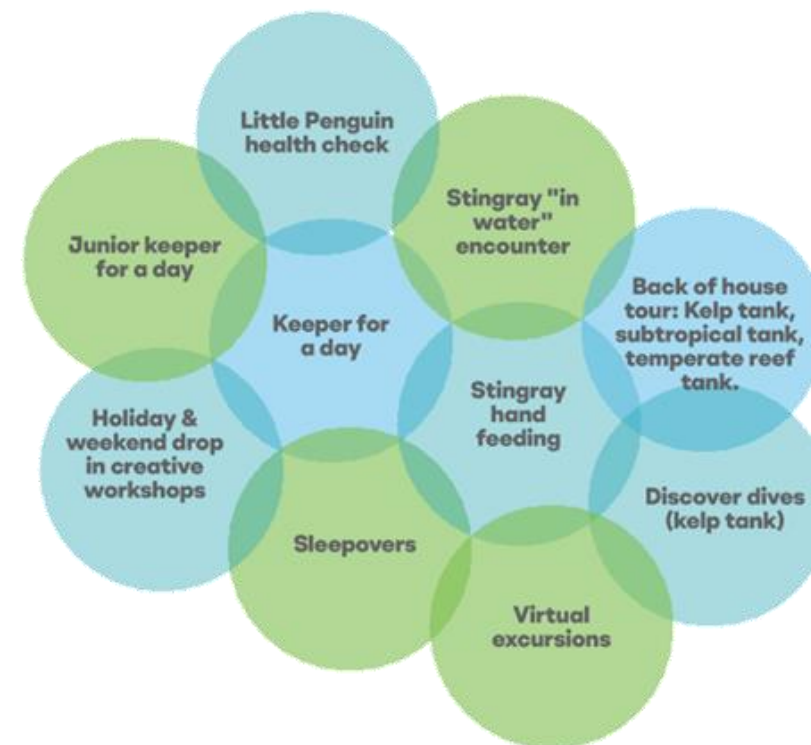
A re-imagining of the facility will transform the visitor experience.

The National Aquarium and Oceans Centre is intended to be a national flagship where our marine environment can be heard and understood. Where our voyaging heritage is celebrated, and our unique Māori worldview is translated for all to connect with.

Project Shapeshifter has engaged the international aquarium design experience of EHDD to bring to life a unique Aotearoa experience integrating the Māori worldview. Their terrific designs are appended in full. The result is a world first aquarium based on an indigenous world view that guides visitors through interactive exhibits and contact with marine life to better connect humankind to the natural world, bridging cultural gaps and promoting conservation care and action. It will ensure exemplary animal care and offer visitors unique experiences

The National Aquarium and Oceans Centre will be a place where people experience the story of the Māori belief in the beginning of the universe *Te Uenuku The Big Bang* following on to the deep realm of Tangaroa and up into *ki te whaio ao ki te ao mārama, the world of light*. They will be able to have experiences ranging from learning about the *māramataka, Māori environmental calendar*, to sleepovers alongside the animals. The design leverages key exhibits, themes and specially developed tailored moments to increase wallet share in 'unique add-on experiences' which will generate new revenue streams and product development opportunities.

New commercial opportunities that could flow from the new facility.



He Ara Hou | A New Approach

The visitor interpretive journey

Messaging conservation, education and culture.

The sectoral engagement process informed the design of the physical facility. The visitor journey through the aquarium places kaitiakitanga me te whakaakoranga education and conservation learning at the heart of the aquarium adventure.

In Stage One, the facility will guide visitors on a journey through Aotearoa New Zealand's magnificent marine habitats, showcasing key conservation stories and the significance of the species homed as ambassadors for real world conservation stories.

Stage Two will bring the freshwater ecosystems from mountains to the sea, and a 4D immersive theatre experience that will allow the visitor to go on a journey weaving indigenous creation stories and narratives, current scientific research and mātauranga Māori..

Senses will be played upon to immerse visitors into the underwater realms of Tangaroa and through dynamic coastal environments. Scale will be used to submerge visitors into kelp forests and rocky reefs. Close up encounters and interactions will connect, build empathy and foster a sense of oneness.

Sharing specific actions to empower kaitiakitanga will motivate individual and collective action for nature.

These eight key experiences are described in more detail in the section Te Wheako Visitor Experience.

KAITIAKITANGA ME TE WHAKAAKORANGA

PŪRĀKAU

CONSERVATION & EDUCATION AREAS

CULTURE STORIES



TE RAU Ō KIWA
(Pacific Circle)
Be welcomed into our Pacific Talking Circle.

World's largest ocean over 30 percent of earth's surface area and 50 percent of water. Oxygen production. Garbage Patch. Great Ocean Cleanup. Interconnectedness. Climate change. Over-fishing. Migratory species.

Hawaiiki. Moana-nui-a-Kiwa. Ocean Voyaging / Navigation & Migratory species. Whakapapa connections. Iwi Taketake / indigenous peoples. Māui. Ruamoko / Pacific Ring of Fire. Taonga species.



TOHORA
(Whales)
Enter the domain of Tangaroa, god of the sea as whales sing their song of welcome.

Size & song. Migration & shipping lanes / disruption. Māui dolphin migration & conservation. Whaling. Population recovery. Bycatch. Protection. Drones, snout bot.

Kaitiaki. Guiding voyaging waka. Paikaea. Mātauranga / rongoa use for Kauri die-back. Okeanos partnership ocean noise research / waka. Mahi toi.



HONU
(Turtle)
The great Pacific explorer & connector

6/7 species visit NZ. Life cycle. Climate change impacts on sub-tropical habitats & migration. Plastic ingestion. Protect nesting beaches. Ocean cleanup.

Indigenous stories: North America / Turtle Island. Tahiti / Lord of the Ocean. China / symbolises universe. Japan / minogame, haven for immortals. Symbol of Kumpira god of seafarers. Pacific / people travelling on back of.



MANGO
(Shark)
Kia tūpato. Be alert as you are surrounded by sharks.

Conflict with humans and depiction in movies e.g. Jaws shapes perceptions. Climate change. Bycatch. Over-fishing. Shark-finning. Quota Management System. Conservation projects.

Mango pare / Mango. Taniwha / Ururoa / symbolism. Te Arawa story. Kōwhiri and Tutira. Niho use. Pania & Moremore. Hawai Aumakua / guardian sharks. Māui & Te Māngāroa (Milky Way). Shark oil use. Taniwha & kaitiaki.

KAITIAKITANGA ME TE WHAKAAKORANGA

PŪRĀKAU

CONSERVATION & EDUCATION AREAS

CULTURE STORIES



HINEMOANA
(Ocean goddess)
Sway with our giant kelp forest.

Importance of kelp habitat / indicator species. Impacts of land-based activity & pollution of waterways. Effects of fishing. Marine reserves. Seaweed regeneration. Sentinel programme.

Hair of Hinemoana. Use of kelp as resource e.g. Rimurapa / poha. Kai & Japan partnership. Kaimoana: Kina & near shore species.



KORORĀ
(Little Blue Penguin)
Feeling a Little Blue? Our penguin and tidal pools will cheer you up.

Smallest species / other NZ species. Climate change impacts & coastal change. Protected species. Nesting boxes. Predation of eggs. Clash with domestic species: cats & dogs. Road crossings.

Kaimoana area, relationship with other coastal species e.g. Kekenos. Ngāti Toa Hongoeka Marae programme.



WHAI
(Ray)
Get in touch with Te-ika-a-Māui, the great fish of Maui.

Range of species. Interesting behavior. Migration & congregation at Poor Knights. Resilient species. Interesting and mysterious behavior.

(Te Ika-a-Māui. Te Matau-a-Māui. Reference to barb use and whakatauki.



Maramataka
(Environmental Calendar)
Be guided by the Moon, stars and species. 4D Theatre Experience

Demonstrating the interconnected nature of nature. Eco - system thinking. Concept of cause & effect. Moon / tides / surges.

Tātai Arorangi / Māori astronomy. Matariki / Puanga / Rehua. Maramataka / Lunar Calendar and relationship with migratory and indicator species. Pacific Navigation & relationship with migratory species.

He Ara Hou | A New Approach

The benefits that will flow

The benefits that will flow from the new facility can be categorised as economic, social and cultural. The economic benefits fall into the standard categories and while the build process at least, may involve transient workers with specialist skills, the ability to learn from or transfer those cannot be understated in value for future projects downstream where such skills could be retained in the region.

Benefit	Beneficiary Groups	Benefits
1 Increased Economic Activity	Building sector Hospitality Sector Tourism Retail Employment	Building the new Aquarium Accommodation and uplift in bed nights More food and beverage offerings and uplift in patronage National magnet to pull tourists into Te Matau-a-Māui Hawke's Bay High income industries and employment attached to new National Aquarium Additional tourism experiences and improved infrastructure Increased transport facilities New shops and outlets
2 Increased Social Well-being	All sectors	Enjoyment, health & well-being Increased events and civic pride uplift Connection to the marine environment, increased in and on the water activities Education and learning, informal and formal Civic pride, reducing environmental impact and social dislocation Job satisfaction and life choice
3 Cultural Investments	Iwi Authorities Māori researchers Hapū, Whānau, Marae Pasifika	Partnerships around research, innovation leadership Extending reach into the Pacific and associated investment Employment aligned to narrative story telling New cultural tourism opportunities Uplift in marae accommodation bookings Strong Te Matau-a-Māui cultural tourism brand International connectivity and wider investment alignment Pasifika inclusion

He Ara Hou | A New Approach

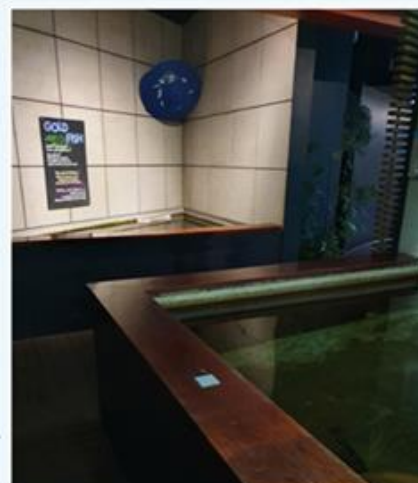
The importance of taking action

Continuing operations in the existing facility is not viable.

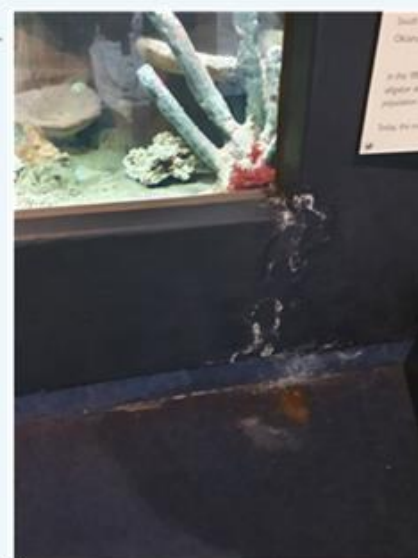
- The original building's ring-shaped design and structure is inflexible and the ability to modify, to incorporate larger exhibits, with appropriate visitor journey and accommodation of appropriate support spaces, is very limited. Furthermore, complete removal and replacement of finishes, mechanical and electrical systems, and new life support systems would be needed, and which would be costly.
- Additionally, there is the need for significant seismic upgrade of the structure as outlined in the EHDD assessment review report (Appended - own folder). The cost of refitting this building would likely be very high, approaching that of new construction, while introducing significant constraints to the design. The demolition of the original building and attached penguin exhibit is therefore recommended as part of the aquarium's expansion.
- In the 2002 expansion, the Oceanarium and Pānia reef exhibits and the building structure would require significant changes to provide for appropriate life support systems, stripping the concrete wall substrates, tank access and visitor experience as part of the new aquarium program.
- Current education spaces are not fit for purpose with insufficient space in the current Education Room and 'Mad Scientist Lab' for fit a class of students or group of 20-30 adults. This severely limits programming that can be delivered to larger audiences with minimum appropriate staffing. Currently groups must be split across multiple spaces requiring extra staff to deliver activities.
- Some exhibits are accessible to visitors creating significant risks for animal welfare.

In conclusion, the status quo is not an option. The aquarium is a significant asset to the region and its loss would be a loss to the regional tourism fabric as well as to the community more broadly. Furthermore, not proceeding with the proposed new facility would trigger a review under Section 17A Delivery of Services of the Local Government Act 2002.

Examples of issues with the building



Dark pokey spaces make accessibility and viewing exhibits difficult for visitors



Some saltwater tanks are corroding into the visitors space.



Moving Forward

The 2002 expansion, overall building structure is in good condition, with only minor seismic upgrades required for the second-floor slab attachment. But the ability to effectively incorporate the building into a new larger building is limited by the building's shape.

- The entire first floor of the 2002 expansion can be adapted to uses outside of the new aquarium. These include education spaces and temporary exhibit space. Aquarium offices can remain on the second floor, expanding into the East Coast Lab as required, or that space repurposed for other needs. However new finishes and mechanical and electrical systems will be needed, in particular at the first floor, with improvements to the buildings envelope for thermal comfort.
- The existing lobby and stair likely can be preserved to continue to function as the entry to the building and access to the 2nd floor, as any visitor entry to this space will be supported by staff.
- The costs to repurpose the 2002 expansion should be a significant savings over building the equivalent functions in the new building. Only limited structural work will be needed, primarily removal of exhibit tank walls where no longer required.
- A new exterior wall will be required on the south end of the 2002 expansion where the original aquarium building is demolished, along with a new elevator.

Not incorporating the current aquarium building immediately into the new facility also provides for some operational flexibility. The existing aquarium could remain open for at least a portion of the construction of the new facility. At some point, all or part of the old aquarium could then close and temporary quarantine and holding facilities could be installed on the first floor to stockpile animals for the new aquarium, rather than developing a remote holding location.

Whakangao | Investment Context

Strategic alignment

Project Shapeshifter is strongly aligned with international and national strategic imperatives.

Biological diversity - or biodiversity - is the term given to the variety of life on Earth and the natural patterns it forms. The biodiversity we see today is the fruit of billions of years of evolution, shaped by natural processes and, increasingly, by the influence of humankind. It forms the web of life of which we are an integral part and upon which we so fully depend.

At the 1992 Earth Summit in Rio de Janeiro, world leaders agreed on a comprehensive strategy for "sustainable development" -- meeting our needs while ensuring that we leave a healthy and viable world for future generations. One of the key agreements adopted at Rio was the Convention on Biological Diversity. This pact among the vast majority of the world's governments sets out commitments for maintaining the world's ecological underpinnings as we go about the business of economic development. The Convention establishes three main goals: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits from the use of genetic resources.

UN Convention on Biological Diversity

The Convention and the Strategic Plan provide an overarching framework on biodiversity, not only for the biodiversity-related conventions, but for the entire United Nations system and all other partners engaged in biodiversity management and policy development.

Aichi Biodiversity Targets

The Aichi Biodiversity Targets for 2011-2020 are:

- **Strategic Goal A:** Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society
- **Strategic Goal B:** Reduce the direct pressures on biodiversity and promote sustainable use
- **Strategic Goal C:** To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity
- **Strategic Goal D:** Enhance the benefits to all from biodiversity and ecosystem services
- **Strategic Goal E:** Enhance implementation through participatory planning, knowledge management and capacity building

Post-2020 Biodiversity Framework

In 2020 the Convention on Biological Diversity will adopt a post-2020 global biodiversity framework as a stepping stone towards the 2050 Vision of "Living in harmony with nature". A comprehensive and participatory process for the preparation of the post-2020 global biodiversity framework has been adopted.

Aotearoa New Zealand is a signatory to the UN Convention on Biological Diversity and has undertaken to take action to meet the Aichi Biodiversity Targets. It is also a participant in the process to create and implement the Post-2020 Biodiversity Framework.

New Zealand's National Biodiversity Action Plan 2016-2020

Toitū te marae a Tāne-Mahuta, Toitū te marae a Tangaroa, Toitū te tangata.

If the land is well and the sea is well, the people will thrive.

New Zealand published its original Biodiversity Strategy and Action Plan in February 2000 with the intention of 'turning the tide' of our biodiversity decline. The 2016 update reflects our ongoing commitment to this important mission and outlines the contribution that New Zealand will make toward stemming global loss of biodiversity over the next 4 years.

Aotearoa New Zealand's marine biodiversity is rich, with a wide variety of marine species, habitats, communities and ecosystems.

New Zealand's marine jurisdiction is one of the largest in the world, encompassing an area of almost 600 million km², spanning sub-tropical to sub-Antarctic waters. New Zealand's marine invertebrates (and protozoa) are highly diverse, with a high proportion of endemic species, and many of our bottom-dwelling fish are also endemic. A total of 43 species and subspecies of cetaceans (around half of the world's whale and dolphin species) have been recorded in our Exclusive Economic Zone. New Zealand is an important breeding ground for seabirds, including the world's greatest number of albatrosses/toroa (14 species), petrels (32 species), shags/kawau (13 species) and penguins/kororā (9 species).

Our natural environment is at the heart of the nation's identity, shaping our economy, lifestyles and culture. Visitors tell us that New Zealand's natural environment is front and centre when they are deciding where to go on holiday. Tourism spent NZ\$29.8 billion last year, an increase of 10.3% over the previous year. Tourism has now surpassed the dairy industry as New Zealand's largest contributor to export earnings.

For Māori, biodiversity conservation is also about the survival of their culture and identity, and vice versa. The ethic of kaitiakitanga is central to the expression of Māori culture and identity, and confers obligations on whānau, hapū and iwi to care for environmental taonga, including species of indigenous flora and fauna.

In order to give effect to the Aichi Biodiversity Targets, the Department of Conservation has created our National Biodiversity Action Plan, which commits the government to tangible and measurable targets.

- National Targets**
- National target 1 | People's lives are enriched through connection to nature**
 - National target 2 | People are taking greater action for nature**
 - National target 3 | Biodiversity is integrated into national and local strategies, policies, plans and reporting
 - National target 4 | More of New Zealand's natural ecosystems are benefiting from pest management
 - National target 5 | Biodiversity is integrated into New Zealand's fisheries management system**
 - National target 6 | Improved understanding of the impacts of climate change on biodiversity informs better management of vulnerable ecosystems and indigenous species**
 - National target 7 | Sustainable use and protection of biodiversity is promoted through improved national guidance, information and industry practice
 - National target 8 | Invasive alien species and pathways are identified and prioritised, priority species are controlled or eradicated, and measures are in place to manage pathways to minimise likelihood of their introduction and establishment
 - National target 9 | Improved terrestrial and freshwater ecosystem protection and integrity**
 - National target 10 | Landowners are supported to protect more rare and threatened habitats and ecosystems
 - National target 11 | Priority freshwater ecosystems are restored from 'mountains to the sea'**
 - National target 12 | More Threatened, At Risk, or Declining species are managed to the extent necessary to minimise extinction risk and ensure genetic diversity is maintained**
 - National target 13 | A growing nationwide network of marine protected areas, representing more of New Zealand's marine ecosystems**
 - National target 14 | Benefits of biodiversity and ecosystems for people's health and economic, social and cultural wellbeing are better understood and received**
 - National target 15 | Achieve multiple benefits and greater biodiversity and ecosystem services outcomes through greater coordination, integration and collaboration, particularly at the regional level
 - National target 16 | Enhance understanding of the contribution of indigenous biodiversity to carbon stocks**
 - National target 17 | Whānau, hapū and iwi are better able to practice their responsibilities as kaitiaki**
 - National target 18 | Knowledge, the science base and technologies relating to biodiversity, its values, function, status and trends, and the consequences of its loss, are improved, widely shared and transferred and applied**

There are 18 national targets that are reported to the United Nations in line with our commitments to the Convention.

The targets that this investment makes a strong contribution to are highlighted.
The targets that this investment makes a material contribution to are also highlighted.

Whakangao | Investment Context

Investment objectives

The objectives of Project Shapeshifter investment are clearly defined.

The purpose of this business case is to articulate the need for investment in Te Whare Tangaroa o Aotearoa The National Aquarium of New Zealand in order to address Te Tiriti o Waitangi The Treaty of Waitangi, and functional animal welfare and experiential issues with the current facility. As part of this process, four investment objectives have been drawn from the strategic challenges. These investment objectives set the framework for the following sections of the document, as they act as the criteria against which the success of the investment are measured.

Strategic Challenges

There are four core challenges for the National Aquarium

- 1 **Challenge: Te Tiriti o Waitangi The Treaty of Waitangi**
As a National Aquarium the facility does not meet national standard in its equal representation of our bi-cultural heritage. There are no formal agreements with mana whenua and their support and involvement in the day-to-day operations, programming and curatorial development of the aquarium. This challenge is highlighted and addressed through the addition of the Kaupapa Māori Cultural Case.
- 2 **Challenge: education about the oceans**
There is a lack of understanding about the impact of human activity on the health of the oceans, which is leading to adverse impacts on marine species and ecosystems that underpin life on Earth. People are becoming disconnected from nature.
- 3 **Challenge: animal welfare**
The standards and expectations for animal welfare are struggling to be met by the current facility. This is requiring careful management and increasing resources to reach required standards in the short term. Closure of the National Aquarium will need to be considered unless they are addressed.
- 4 **Challenge: visitor experience**
The design and structure of the building is not fit for purpose, resulting in an inability to tell the stories of the ocean well, keep animals humanely, and have staff operate efficiently, meaning the National Aquarium does not offer a high-quality visitor experience.

Investment Objectives

The investment objectives were derived from the challenges identified during the process.

- 1 **To better understand the value of cultural intellectual property as a commercial and cultural investment.** Enable the participation of Māori in the investment opportunities presented by Project Shapeshifter, with the purpose of maintaining authority over the cultural intellectual property promoted through Project Shapeshifter.
- 2 **To develop and implement Aotearoa-specific ways of educating people about the importance of healthy oceans** in order to help change the human behaviours that are negatively impacting the oceans.
- 3 **To provide a facility that cares for marine animals** in order to meet the regulatory and moral obligations to see to the welfare of other species, and to treat them with respect.
- 4 **To provide a high-quality visitor experience for locals and visitors** in order to increase engagement with the oceans and its ecosystems in a way that is compelling and drives return visits.

Critical Success Factors

Critical success factors 2-7 are contained in the Better Business Case methodology

- 1 **Cultural integrity** | mana is maintained through appropriate use, interpretation and acknowledgement of cultural intellectual property.
- 2 **Strategic fit** | Conforms to the goals and aspirations of iwi, the Council and the community
- 3 **Value for money** | Optimises value for money | Delivers the investment objectives in the most cost-effective way
- 4 **Supplier capability** | Service provider(s) can meet the technical and cultural needs | Service provider(s) have the capacity to deliver the required outcomes
- 5 **Affordability** | Affordability must match ambition | Matches sector funding constraints
- 6 **Achievability** | Internal and external skills exist and are available for successful delivery
- 7 **Regulatory compliance** | Must comply with relevant legislative, regulatory and treaty obligations

Under the Better Business Case methodology, the various options for addressing the strategic challenges are assessed against both the investment objectives and the critical success factors (CSFs). Options that are unable to fully deliver the objectives or the CSFs are rejected, and a process of positive dismissal is used to derive the short-list of viable options.

In effect, the investment objectives and CSFs are used as a yardstick to measure the ability of each option to address the challenges identified. The assessment dimensions and the resulting Multi-Criteria Analysis are discussed on the following page.

Whakangao | Investment Context

Investment scope

There is a desire for a national aquarium that meets the need for *mātauranga Māori knowledge* and conservation education in a way that observes the regulatory and moral obligations and maintains the mana of the species that are homed in the facility. These identified needs have resulted in a clearly-defined scope for the investment into Project Shapeshifter.

In Scope

1. The design of a suitable facility that will meet the educational and experiential requirements of Aotearoa New Zealand in learning about the importance of healthy oceans, so that behaviours are changed over time.
2. The design of a facility that will meet the regulatory and moral obligations for the compassionate care of all the species that are homed within it, now and into the foreseeable future.
3. The design of a facility that will be resilient to the effects of a changing climate, such as sea level rise, storm events, power outages and the like.
4. The design of a facility that meets the national standard demanded by Te Tiriti o Waitangi The Treaty of Waitangi and enables the participation of Māori into its design, interpretation and ownership.
5. Raising the external funding from the private and public sectors necessary to construct and operate the facility.
6. Construction and commissioning of the correct facility in the correct location, on time, within budget, and to the required quality standards.
7. The design and implementation of the governance, management, programming staffing and volunteer structures necessary to successfully operate the facility, in full partnership with Māori and in observance of Te Tiriti o Waitangi The Treaty of Waitangi.
8. The handover of the completed facility and the species that live within it to the agreed governance and management organisation.

Out of Scope

1. The design, funding or operation of wider conservation or education programmes on the importance of healthy oceans, beyond those that are directly linked to the facility.
2. Large scale marine and aquatic research.
3. Defining marine policy.



Whakangao | Investment Context

Constraints and dependencies

As the scope statements note, this business case will be delivered within the constraints set out in regulation, international obligations, and as part of kaitiakitanga and Te Tiriti o Waitangi the Treaty of Waitangi. As a result, there are a number of constraints and dependencies that must be observed.



Constraints

1. The investment and the resulting facility must reflect Te Tiriti o Waitangi The Treaty of Waitangi partnership spearheaded by Ngāti Kahungunu.
2. The investment must deliver on the goals and objectives agreed with Te Kaunihera o Ahuriri Napier City Council as part of the business case process.
3. The facility must deliver the outcomes required by legislative, regulatory and international obligations, including but not limited to the care of all species housed in the facility.
4. The planning and consenting constraints in Te Kaunihera o Ahuriri Napier City Council District Plan, the Building Act and other relevant documents must be observed.
5. The preferred option must demonstrate that it is affordable and achievable, within the constraints of Te Kaunihera o Ahuriri Napier City Council's financial and resource capabilities.

Dependencies

1. The proposed development may require modification to the Te Kaunihera o Ahuriri Napier City Council Long Term Plan, either by way of amendment to the 2018-28 plan or by incorporating into the 2021-31 plan.
2. Engagement is yet to take place with the Ngāti Kahungunu Post Governance Settlement Entity fabric and is to be conducted immediately after acceptance of this Business Case. A parallel conversation spearheaded by Ngāti Kahungunu will take place with iwi leaders nationally.

Investment Context

Investment risk analysis

The risk profile of the investment is being reduced through effective project management. An overview of the risk profile of the investment is shown at right. The risk analysis is provided in the Economic Case.

On-time delivery

The implementation project is not delivered on time

Delays to the project implementation cause uncertainty

Mitigation: effective project management

On-budget delivery

The implementation project is not delivered within budget

Additional costs are incurred due to project delays or shortfalls, leading to lower than expected benefits

Revenue generation estimates not achieved

Mitigation: effective project management

Insufficient scope

The full scope of the project is not delivered

There are capacity or capability shortfalls in the project, leading to additional time and cost to complete.

Mitigation: effective project management

facility does not meet the functional requirements

revenue generation strategy timing

reputational damage for Te Kaunihera o Ahuriri Napier City Council

facility does not meet the experiential or educational requirements

Educational shortfall

The completed facility provides adequate entertainment but insufficient education

Poor design leads to visitors not being sufficiently educated about the importance of the oceans

Mitigation: careful design

Unchanged behaviour

The completed experiences and information are not compelling enough for people to change behaviour

The design is not fit for purpose, resulting in a continuation of adverse outcomes for the health of our oceans

Mitigation: careful design

Delivery risks

These are the risks to the project that occur during the delivery phase, and which can be mitigated by effective project management.

Adverse impacts

There are significant impacts that can occur for employers, staff and stakeholders if the risks are not managed and mitigated effectively.

Outcome risks

These are the risks to the outcomes being achieved, which could occur once the project has been completed.



Kaupapa Ōhanga | Economic Case

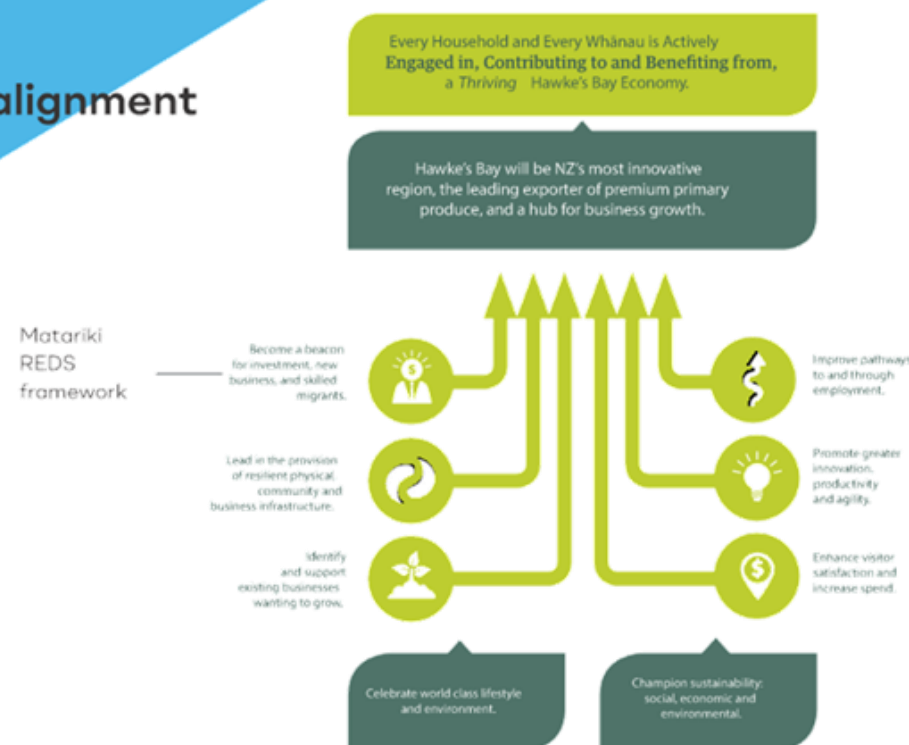
Strategy and framework alignment

The investment is strongly aligned with the Nation's, Region's and Te Kaunihera o Ahuriri Napier City Council's strategic direction.

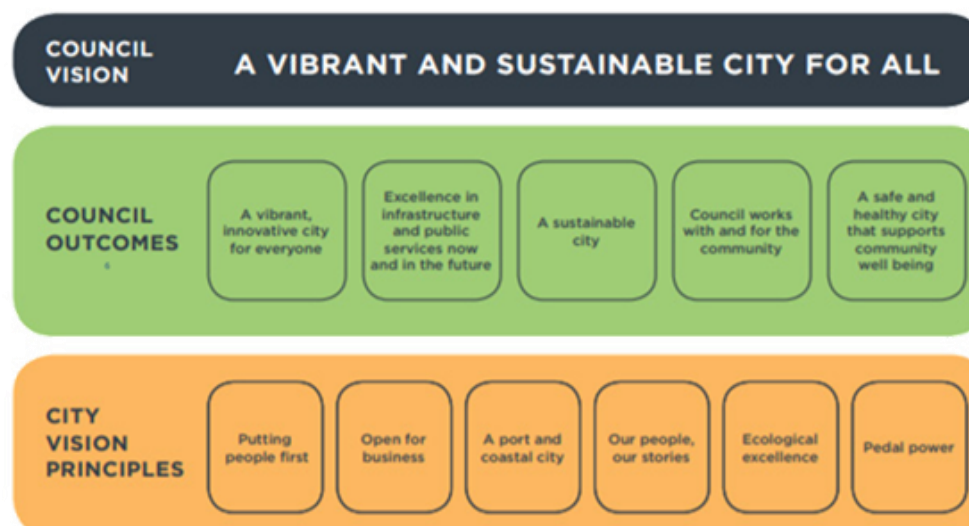
The diagrams at right show the strategic context for this investment. Four of the major agenda that the proposed National Aquarium and Oceans Centre will deliver on, and which have many common elements are:

- Matariki, the Hawke's Bay Regional Economic Development Strategy (REDS)
- The Treasury Living Standards Framework
- The Local Government Four Well-beings
- Napier City Council Long Term Plan

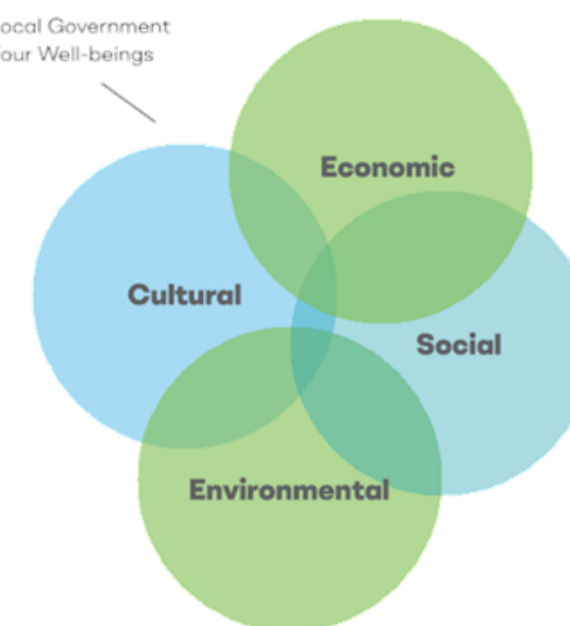
Furthermore, with a strong kaupapa Māori foundation and commitment to mātauranga, the proposed aquarium would, if it proceeds, be able to significantly contribute to delivering on these and many other strategies and frameworks such as the Sustainable Development Goals.



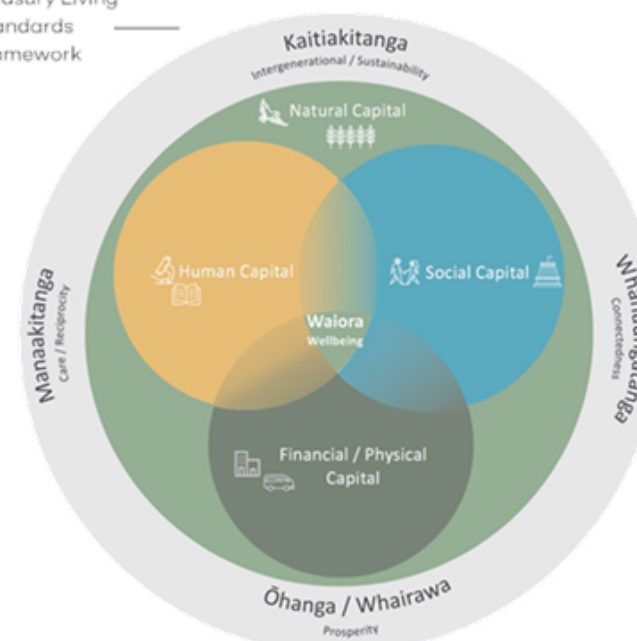
NCC Long Term Plan



Local Government Four Well-beings



Treasury Living Standards Framework



Kaupapa Ōhanga | Economic Case

Options analysis development process

The development of the preferred option follows a structured process in the Better Business Case methodology.

1 Identification



Conduct workshops to **identify** the full range of options for addressing the investment challenges, ranging from the sublime to the ridiculous

2 Analysis and long list



Collate the information gathered from workshop sessions with stakeholders

Analyse the long-list of options against the **investment objectives** being sought by stakeholders

Analyse the long-list of options against the **Critical Success Factors** in the Better Business Case methodology

Identify the **short-list** of possibilities that will be carried forward into the short-list

3 Short list



Conduct more in-depth analysis of the short-listed options in order to **refine** the possible investment approaches

Identify the **financial and non-financial benefits** that will be realised from the key short-listed options

4 Preferred option



Review the short list with stakeholders and assess their **viability** to achieve the investment objectives

Identify the **preferred option** from the short-list

5 Decision making



Develop the detailed description of the preferred option and use this as the basis for the **cost/benefit analysis**

Present the information in a form that allows stakeholders to make an **informed decision** about investing in the initiative

Kaupapa Ōhanga | Economic Case

Options analysis and alignment

Strategic Challenges

There are four core challenges for the National Aquarium

- 1 **Challenge: Te Tiriti o Waitangi The Treaty of Waitangi**
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- 4 **Challenge: visitor experience**
The design and structure of the building is not fit for purpose, resulting in an inability to tell the stories of the ocean well, keep animals humanely, and have staff operate efficiently, meaning the National Aquarium does not offer a high-quality visitor experience.

Each of the options is assessed against the investment objectives.

Investment Objectives

The investment objectives were derived from the challenges identified during the process.

- 1 **To better understand the value of cultural intellectual property as a commercial and cultural investment.** Enable the participation of Māori in the investment opportunities presented by Project Shapeshifter, with the purpose of maintaining authority over the cultural intellectual property promoted through Project Shapeshifter.
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Critical Success Factors

Critical success factors 2-7 are contained in the Better Business Case methodology

- 1 **Cultural integrity** | mana is maintained through appropriate use, interpretation and acknowledgement of cultural intellectual property.
- 2 **Strategic fit** | Conforms to the goals and aspirations of iwi, the Council and the community
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- 4 **Supplier capability** | Service provider(s) can meet the technical and cultural needs | Service provider(s) have the capacity to deliver the required outcomes
- 5 **Affordability** | Affordability must match ambition | Matches sector funding constraints
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In effect, the investment objectives and CSFs are used as a yardstick to measure the ability of each option to address the challenges identified. The assessment dimensions and the resulting Multi-Criteria Analysis are discussed on the following page.

Kaupapa Ōhanga | Economic Case

Multi-criteria options analysis

A Multi-Criteria Analysis approach is used to identify the options for delivering the required investment objectives. This methodology breaks the options into the five dimensions that are relevant for this investment:

- The Scope dimension, which assesses the scale and extent of the possible solutions
- The Service dimension, which assesses the capabilities and outputs of the possible solutions
- The Service Delivery dimension, which assesses the organisational mechanisms for delivering the Services
- The Funding dimension, which assesses how the capabilities and outputs can be funded
- The Location dimension, which assesses the possible physical location for the facility
- The Implementation dimension, which assesses how the preferred option can be most effectively deployed.

In the Better Business Case methodology, the dimensions are concatenated together to arrive at the preferred option; that is, the preferred option will be the sum of the preferred Scope option, the preferred Service option, the preferred Service Delivery option, the preferred Funding option, the preferred Location option and the preferred Implementation option.

The preferred option in each dimension is identified by testing all the alternatives against two criteria:

- Will the option deliver the investment objectives?
- Will the option meet the Critical Success Factors?

The investment objectives and Critical Success Factors are defined on the previous page, and the results are provided in the tables on the following pages.

The process is illustrated in the diagram below.

Investment Objectives

The investment objectives were derived from the challenges identified during the process.

- 1 To better understand the value of cultural intellectual property as a commercial and cultural investment. Enable the participation of Māori in the investment opportunities presented by Project Shapeshifter, with the purpose of maintaining authority over the cultural intellectual property promoted through Project Shapeshifter.
- 2 To develop and implement Aotearoa New Zealand specific ways of educating people about the importance of healthy oceans in order to help change the human behaviours that are negatively impacting the oceans.
- 3 To provide a facility that cares for marine animals in order to meet the tikanga Māori, regulatory and moral obligations to see to the welfare of the animals and to treat them with respect.
- 4 To provide a high-quality visitor experience for locals and visitors in order to increase engagement with the oceans and its ecosystems in a way that is compelling and drives return visits.

Scope + Services + Service delivery + Funding + Location + Implement

The **Scope** dimension assesses the full range of alternatives for the scale and extent of the capabilities that could be delivered in order to meet the investment objectives.

The **Services** dimension assesses the full range of alternatives for the range of capabilities and outputs that could be delivered in order to meet the investment objectives.

The **Service Delivery** dimension assesses the full range of alternatives for how the required capabilities and outputs can be delivered, with an emphasis on which organisations perform the required roles.

The **Funding** dimension assesses the full range of alternatives for how the required capabilities and outputs can be funded.

The **Location** dimension assesses the full range of alternatives for where the facility could be located.

The **Implementation** dimension assesses the full range of alternatives for how the required capabilities and outputs can be deployed.

Kaupapa Ōhanga | Options Analysis

Scope and services options

Scope

option	what it is	what you don't get at this level
Do nothing	<ul style="list-style-type: none"> This is the current state 	<ul style="list-style-type: none"> Continued operation of the National Aquarium of New Zealand
Do minimum	<ul style="list-style-type: none"> Demolish part of the existing building Rebuild around 4,300m² of new facility 	<ul style="list-style-type: none"> The ability to house a full range of plants and animals Sufficient back-of-house space for efficient operations A fully immersive experience for visitors
Extend and repurpose	<ul style="list-style-type: none"> Salvage and reuse portions of the existing building Construct a new extension of around 4,500m² - 5,000m² 	<ul style="list-style-type: none"> Disruption to animals, staff & existing educational programmes Simple project structure
Build new	<ul style="list-style-type: none"> Completely demolish the existing building Construct a new facility of around 6,500m² 	<ul style="list-style-type: none"> No smooth transition of old to new Low affordability
Multiple facilities	<ul style="list-style-type: none"> Completely demolish the existing building Construct an immersive attraction over multiple buildings and facilities of around 9,000m² 	<ul style="list-style-type: none"> Low capital or operating costs

Education objective	Care for animals objective	Visitor experience objective	Value for money	Achievability	rating
					discarded
					discarded
					preferred
					discarded
					discarded

Services

option	what it is	what you don't get at this level
Entertain	<ul style="list-style-type: none"> The facility provides a visitor-centric experience primarily aimed at entertainment 	<ul style="list-style-type: none"> Strong linkage to the environmental issues affecting the oceans Compelling reasons for people to change their behaviour
Entertain + educate	<ul style="list-style-type: none"> There are engaging exhibits that provide a compelling reason to visit There is information about the issues affecting the oceans and their inhabitants 	<ul style="list-style-type: none"> Concrete information about how to change behaviours and alter the impact we are having on ocean ecosystems new form
Entertain + educate + action	<ul style="list-style-type: none"> There are engaging exhibits that provide a compelling reason to visit There is information about the issues affecting the oceans There is information that motivates people to change behaviours 	<ul style="list-style-type: none"> Lowest operating costs

Education objective	Care for animals objective	Visitor experience objective	Value for money	Achievability	rating
					discarded
					discarded
					preferred

Kaupapa Ōhanga | Options Analysis

Service delivery and funding options

Service delivery

option	what it is	what you don't get at this level
Council operated	<ul style="list-style-type: none"> Napier City Council operates the facility All staff are NCC employees 	<ul style="list-style-type: none"> Any constraints on the requirement for NCC operational funding
Trust operated	<ul style="list-style-type: none"> An independent Trust operates the facility NCC provide an operating grant No staff are directly employed by NCC 	<ul style="list-style-type: none"> NCC control over operational decisions Direct accountability to NCC from facility management
Private sector operated	<ul style="list-style-type: none"> The facility is sold or leased to the private sector No further NCC financial or operational involvement 	<ul style="list-style-type: none"> NCC control over operational decisions Direct accountability to NCC from facility management

Education objective	Care for animals objective	Visitor experience objective	Value for money	Achievability	rating
					discarded
					preferred
					discarded

Funding

option	what it is	what you don't get at this level
Council funded	<ul style="list-style-type: none"> NCC fund the entire construction costs from a mixture of borrowing and capital reserves 	<ul style="list-style-type: none"> Any cost contribution from other parties
Council + others	<ul style="list-style-type: none"> Various funding sources – including private sector, central and regional government, the community and NCC – contribute portions of the capital costs 	<ul style="list-style-type: none"> Direct NCC control of the timelines for the project, due to the need to conduct fundraising activities

Education objective	Care for animals objective	Visitor experience objective	Value for money	Achievability	rating
					discarded
					preferred

Kaupapa Ōhanga | Options Analysis

Location and implementation options

Location

option	what it is	what you don't get at this level
Existing location	<ul style="list-style-type: none"> The facility is located on the Napier foreshore 	<ul style="list-style-type: none"> The opportunity to break the linkage with the past
Ahuriri location	<ul style="list-style-type: none"> The facility is constructed on a repurposed site on the waterfront at Ahuriri 	<ul style="list-style-type: none"> Continuity of the National Aquarium of NZ brand at an iconic location Re-use of any of the existing facilities
Inland location	<ul style="list-style-type: none"> The facility is constructed on a greenfields site in Napier away from the foreshore 	<ul style="list-style-type: none"> Direct linkage to the ocean and leveraging of that in the exhibits Continuity of the National Aquarium of NZ brand at an iconic location
Multiple locations	<ul style="list-style-type: none"> There are some elements of the facility located on the foreshore or at Ahuriri Other components are at an inland or remote location 	<ul style="list-style-type: none"> Clarity of communication to visitors about where the facility is actually located Low capital or operating costs
Another city	<ul style="list-style-type: none"> A new facility is constructed at a location elsewhere in Aotearoa New Zealand 	<ul style="list-style-type: none"> Continuity of the National Aquarium of NZ brand at an iconic location Re-use of any of the existing facilities A timely decision and implementation

Education objective	Care for animals objective	Visitor experience objective	Value for money	Achievability	rating
					preferred
					discarded
					discarded
					discarded
					discarded

Implementation

option	what it is	what you don't get at this level
Core build	<ul style="list-style-type: none"> The core facility is constructed in a single stage with no specific planning for future expansion 	<ul style="list-style-type: none"> Specific provision for future expansion
Core + extend	<ul style="list-style-type: none"> The core facility is constructed in a single stage Provision is made for expansion, contingent on future funding 	<ul style="list-style-type: none"> Lowest possible construction cost due to some planning costs and site provision for future expansion
Big bang	<ul style="list-style-type: none"> The core facility and all planned future expansions are constructed at the same time 	<ul style="list-style-type: none"> Low construction costs An early start on the new facility due to the time and cost necessary to build the expansion at the same time as the core

Education objective	Care for animals objective	Visitor experience objective	Value for money	Achievability	rating
					discarded
					preferred
					discarded

Kaupapa Ōhanga | Options Analysis

Developing the preferred option

The preferred option is identified by adding together the preferred components. The resulting facility design and operating model is explored in more detail on subsequent pages

In summary:

To summarise the diagram below, the components logically document the various considerations in determining the preferred option. For **Scope**, the most efficient approach is to reuse the viable portions of the existing building and augment that with a new high standard facility.

The **Services** have the core focus on conservation and education with a high-quality tourism experience as a necessary outcome and which underpins the facility's financial sustainability.

Service Delivery structures need to enable a powerful, enduring collaboration as well as spread the financial responsibility across key partners. In this proposed model, all facility staff would be employed by the new community Trust owner.

The conservation and education purpose of this facility means that it will be able to access a wide range of **Funding** (community, philanthropic, corporate, trusts and foundations, and, local and central government) to complement the income the facility generates through commercial activity (ticket sales, selling experiences, hospitality and retail).

The preferred **Location** is Marine Parade in Ahuriri Napier as it places the rich narrative of Māui in context. It will also capitalise on mana whenua's commitment to the existing National Aquarium of New Zealand and the historic foundation of the Hawke's Bay Aquarium Society. It also enables current aquarium infrastructure efficiency. Investing in the proposed new facility in Hawke's Bay will deliver on regional growth objectives.

The preferred **Implementation** approach is to stage the development and focus on the core new facility in the first instance. Provision has been made for Stage 2 as well as on-going upgrades which drive return visits.

Investment Objectives

The investment objectives were derived from the challenges identified during the process.

- To better understand the value of cultural intellectual property as a commercial and cultural investment.** Enable the participation of Māori in the investment opportunities presented by Project Shapeshifter, with the purpose of maintaining authority over the cultural intellectual property promoted through Project Shapeshifter.
- To develop and implement Aotearoa-specific ways of educating people about the importance of healthy oceans** in order to help change the human behaviours that are negatively impacting the oceans.
- To provide a facility that cares for marine animals** in order to meet the tikanga, regulatory and moral obligations to see to the welfare of other species, and to treat them with respect.
- To provide a high-quality visitor experience for locals and visitors** in order to increase engagement with the oceans and its ecosystems in a way that is compelling and drives return visits.

Scope

The **Scope** dimension assesses the full range of alternatives for the scale and extent of the capabilities that could be delivered in order to meet the investment objectives.

Extend & repurpose

- Reuse portions of existing building
- Construct a new facility of around 6,500m²

Services

The **Services** dimension assesses the full range of alternatives for the range of capabilities and outputs that could be delivered in order to meet the investment objectives.

Entertain + educate + action

- There are engaging exhibits that provide a compelling reason to visit
- There is information about the issues affecting the oceans
- There is information that motivates people to change behaviours

Service delivery

The **Service Delivery** dimension assesses the full range of alternatives for how the required capabilities and outputs can be delivered, with an emphasis on which organisations perform the required roles.

Trust operated

- An independent Trust operates the facility
- NCC provide an operating grant
- No staff are directly employed by NCC
- Opportunity for grant funding to support operation of facility

Funding

The **Funding** dimension assesses the full range of alternatives for how the required capabilities and outputs can be funded.

Council + others

- Various funding sources – including private sector, central and regional government, the community and NCC – contribute portions of the capital costs

Location

The **Location** dimension assesses the full range of alternatives for where the facility could be located.

Existing location

- The facility is located on the Napier foreshore
- Close to the CBD for activation

Implement

The **Implementation** dimension assesses the full range of alternatives for how the required capabilities and outputs can be deployed.

Core + extend

- The core facility is constructed in a single stage
- Provision is made for expansion, contingent on future funding

Te Mariu o Te Whakaaro | Preferred Option

The design brief

To deliver a national design icon:

- That articulates our unique Aotearoa / New Zealand and Pacific Narrative.
- That embraces the cultural landscape and natural attributes of the location.
- A sustainable and resilient and future proof design that takes into account sea level rise, storm surges and hundred year flood events.
- A design that enhances the local environment, rather than dominates it.
- That Hawke's Bay, Ngāti Kahungunu and New Zealand can be proud of.



Site concept | Pātiki/te ara moana

Te Ara Moana refers to the path of the ocean. When visitors arrive at the site they will follow a processional path that first takes them to the ocean side of the site to connect with the sights, sounds and smells of the ocean and away from the world of concrete and cars, before travelling a processional path that makes provision for customary welcome.

The site itself mimics the patterns carved by water in the braided rivers and the ocean floor, referencing the Pātiki, or flounder design, and will be landscaped to reintroduce dunes and marshes.



Building concept | Whai/te ika-a-Māui

The architectural design references the Whai, or Stingray, representing Te Ika-a-Māui, the great fish of Māui we know as the North Island. The Māui narrative plays a key role in the concept for the new Centre located in Te Ika-a-Māui, the fish hook of Māui, Hawke's Bay.

The collective of buildings represents a Huihuinga Whai, or gathering of sting-rays, assembled to form a kainga, or village of Tangaroa, god of the ocean.



Visitor experience | Ki te ao marama

'Ki te ao marama' refers to a journey to light and enlightenment. The visitor journey follows Māori cosmogeny, the creation narrative as described in the Takitimu teachings of Ngāti Kahungunu.

The journey takes visitors from the dark depths of the ocean, the domain of Tangaroa, ocean god, towards the coastal domain of Hinemoana, ocean goddess, and then emerges into the tidal zone and finally and visitors travel into the sky domain of Ranginui, the sky-father, in a 4D theatre experience.



Te Mariu o Te Whakaaro | Preferred Option

Functional requirements and response

A number of functional requirements were provided to the architects to shape the new facility and the use of the site.

Minimum Viable Product

The proposed two Stage facility is the minimum viable product. The three major tanks are the minimum set required to awe and inspire visitors whilst the other major exhibits (e.g. penguins) complete the logical New Zealand geographical story.

Design and construction phasing have been structured to enable an efficient transition.

Without Stage Two there will not be:

- exhibits featuring Kiwi, Tuatara or Tuna eels which are popular current exhibits.
- enduring external facility resilience nor native saltmarsh habitat.
- completion of the aquatic story from mountains to deep sea.
- transformational collaboration space intended to be provided by the National Oceans Centre component of the proposed new facility, and as a consequence, the facility will fail to deliver on an expressed community need.

MODULAR: Able to cater for staged approach to development and future expansion, meaning a series of repeatable smaller forms would work better than a single large form.

NARROW SITE: Had to work within a long narrow site requiring a design that could expand North and South.

HEIGHT RESTRICTIONS: The District Plan imposes a maximum build height below what is optimal for the large tanks which typically require two viewing levels, significant footings to carry the structural loading and top access.

HABITAT VARIATION: The design needed to suit a range of habitats ranging from two story high tanks, to small 'jewel tanks', to covered and semi-covered outdoor exhibits, meaning significant variation in height of exhibits.

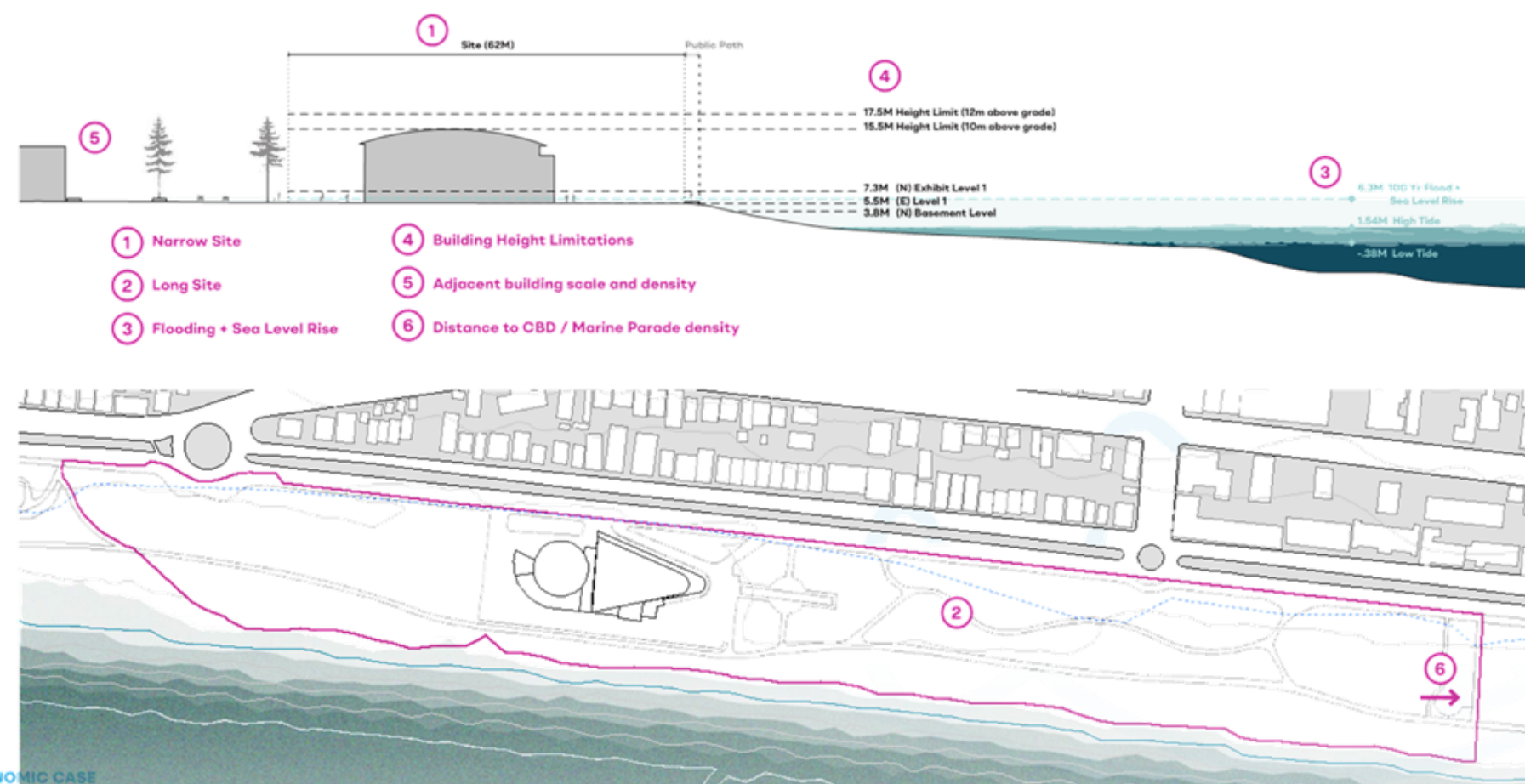
BACK OF HOUSE: The form needed to accommodate sufficient space for back-of-house functions.

VISUAL INTEREST - WITHOUT OBSTRUCTION: The extent of footprint meant it was not practical to do a single large shell design as it would create a large visual obstruction on the waterfront and not be sympathetic to the residential scale of surrounding development.

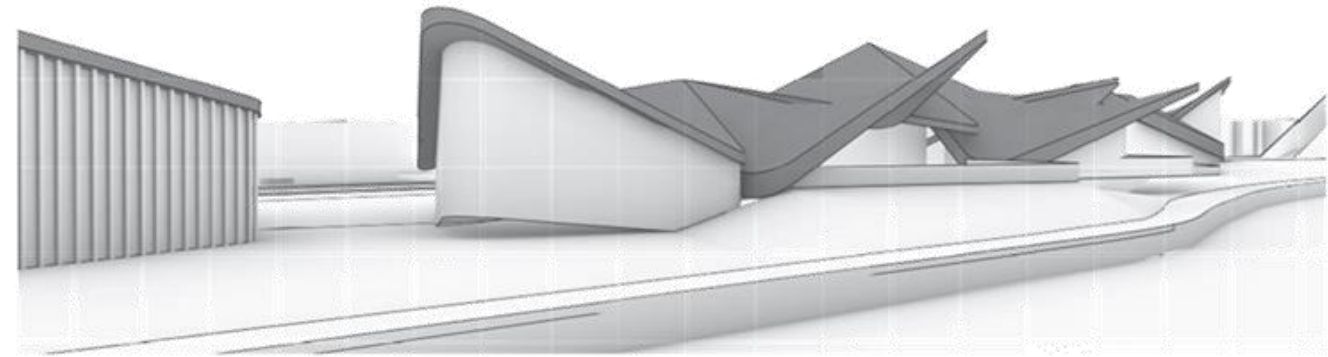
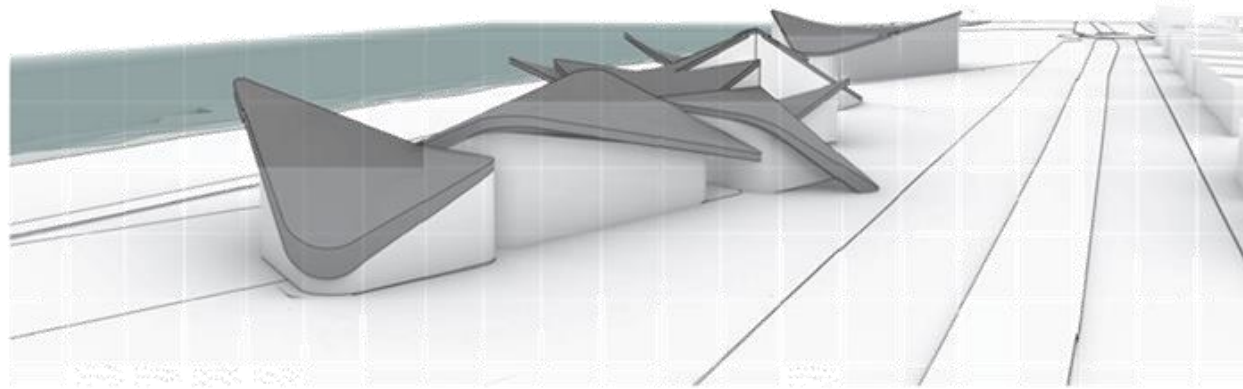
NATURE BASED DESIGN: From an aesthetic point of view it was agreed the design should reference and sit comfortably and lightly within the natural world of curves and variation of form, rather than adopting more sterile rectilinear forms.

COVERED, SEMI-COVERED AND UNCOVERED SPACE: The roofing design needed to allow for variation in height and the ability to extend the roofscape to cover outdoor exhibits.

LAYERING: The design needed to respond to the plan for resilience meaning a layering approach was needed to accommodate both the wet and dry levels.



Embedded in its context the building becomes part of a natural buffer between the ocean and the city. Its scale is sensitive to the built context, and its rippling form feels at home seated in a native dune scape. The composition reads clearly as a gathering. This architectural language allows for long term campus growth that reinforces a cohesive overall design.



Site Concept | Pātiki te Ara Moana Design Approach

Creating a sense of place and connection.

The design extends the National Aquarium site from the car park north of the Junior Bike track to the Spirit of Napier sculpture at the south in an effort to:

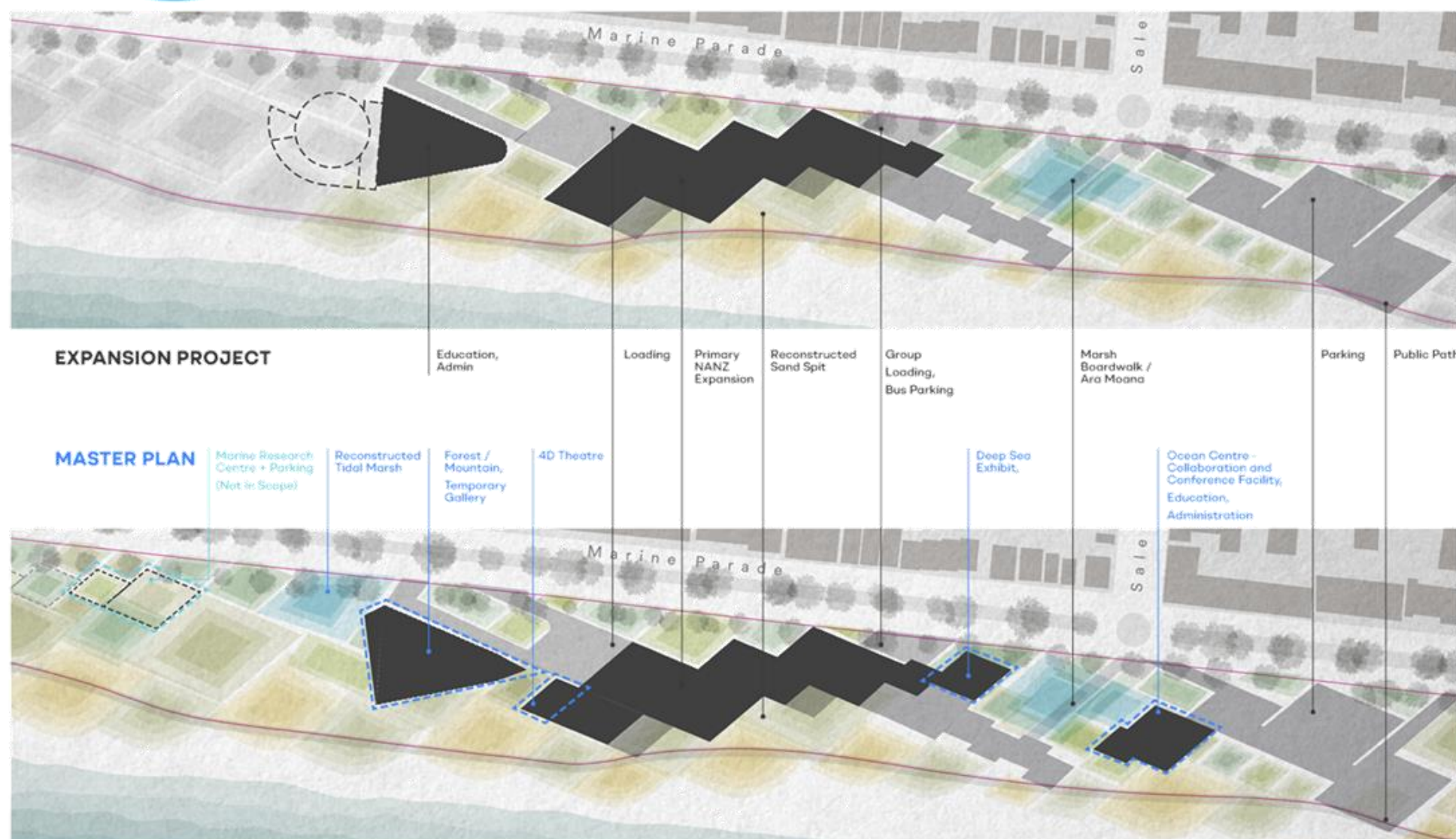
- Allow the Aquarium to build a symbiotic relationship with the Central Business District by improving access to the aquarium and allowing local business to benefit from an increase in aquarium traffic.
- Leverage the existing density of programme on the Marine Parade by bringing the Aquarium closer to the existing recreational and civic program
- Consolidate Aquarium parking with other existing parking areas to the north
- Promote access at Sale Street via a proposed roundabout
- Connect the Aquarium with other nature reserves along the Hawke's Bay (Ahuriri Estuary and Waitangi Park)
- Create a campus that fosters future expansion of the Aquarium and the Oceans Center of New Zealand, including the opportunity for research partners to be located onsite.
- Create a learning landscape that demonstrates best practices around resilient design at an urban scale



He Whenua Hou | Site Concept

Facility scope and master plan

The resulting master plan proposes two stages outlined below (Expansion Project and Master Plan) of the proposed development with space for a possible future research centre.



STAGE ONE: EXPANSION PROJECT

Existing Building:

- Demolition of unfit portion of existing Aquarium
- Repurpose current usable space as:
 - Temporary holding facility during construction of Primary NANZ expansion
 - Repurpose for administration and education

Expansion build:

- Hard landscape including parking areas and pathways
- Te Rau-o-Kiwa Orientation Lobby
- Tangaroa Deep Sea AV experience
- Turtle Sub-tropical Reef Tank
- Sharks & Rays Temperate Reef Tank
- Kelp Forest Tank
- Rocky Shore Tide Pools
- Rocky shore Crash Tank
- Rocky Shore Penguins
- Estuary Stingray Touch Tank
- Jelly Jewel Tanks
- Hospitality and retail spaces
- Portion of exterior habitat around expansion building including sand spit and tidal marshes

STAGE TWO: FULL MASTER PLAN

Existing Building:

- Relocate administration and education function to the new National Oceans Centre building
- Develop Forest Mountain Kiwi exhibit
- Develop a temporary exhibit space

Expansion extension:

- New administration, education and Oceans Centre building
- 4D Theatre
- Deep Sea exhibit
- Estuary, Beaches and Shorebirds exhibit
- Estuary, salt marsh and invertebrates touch area
- Mangrove Forest
- Jewel Tanks (small feature tanks)
- Completion of full landscaping plan including reconstructed sand spit and tidal marshes

He Whare Hou | Building Concept

Represented habitats

The habitats within the new facility have been carefully selected.

The key habitats within the facility have been chosen to reflect the core components of Aotearoa New Zealand's marine environment and to enable a greater connectivity with the day-to-day experiences of visitors with the oceans surrounding our six hundred plus islands.

Attention is given to the propensity to position species through the eyes of indigenous cultures alongside mātauranga Māori knowledge.

The subtropical tank highlights what is taking place above the ocean floor (in the water column) and creates a perspective of the wider extent of our oceans' reach, well beyond the horizon.

The temperate tank will showcase the species that inhabit our continental shelf, out to the horizon that most people can see from a local beach, in order to show the life that we are immediately affecting by our actions but may never have come into contact with.

The kelp forest gives visitors a look underneath a blanket that many see from the shore but are anxious at venturing below. The roof above it will be open to the sky and it will be cut daily as it grows.

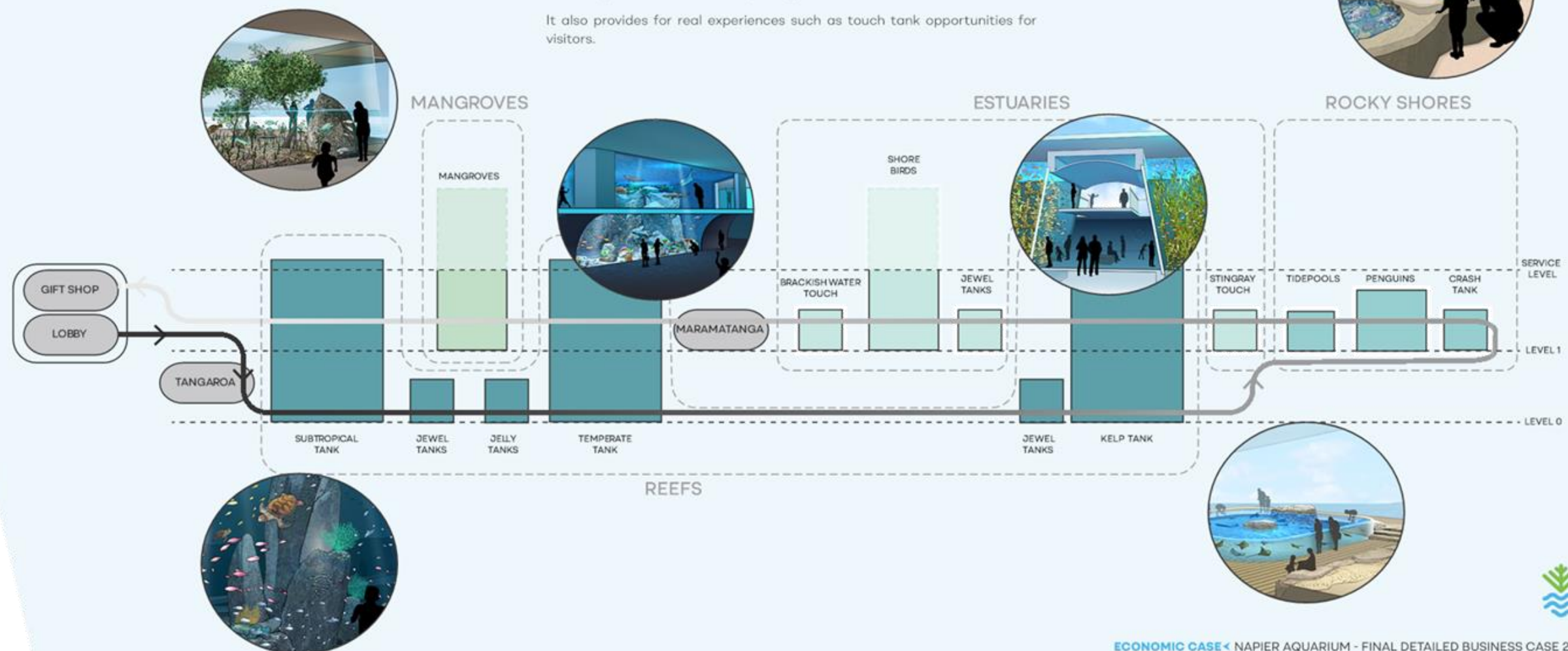
It also provides for real experiences such as touch tank opportunities for visitors.

The penguin area delivers as important connection to the marine seabird populations, given that Aotearoa New Zealand has the largest variety of seabirds breeding of any country in the world.

The rockpools and touch tanks engage people in an area that is most familiar to people who visit the coast.

From a functional perspective, the focus on local Aotearoa New Zealand ecosystems also means the costs of meeting water temperature and treatment requirements can be reduced in comparison to tropical exhibits.

The multi-story design of the key tanks also means visitors get multiple perspectives on the various habitats and a richer experience of the ocean life that surrounds us. Big tanks create the awe and inspiration.



He Whare Hou | Building Concept

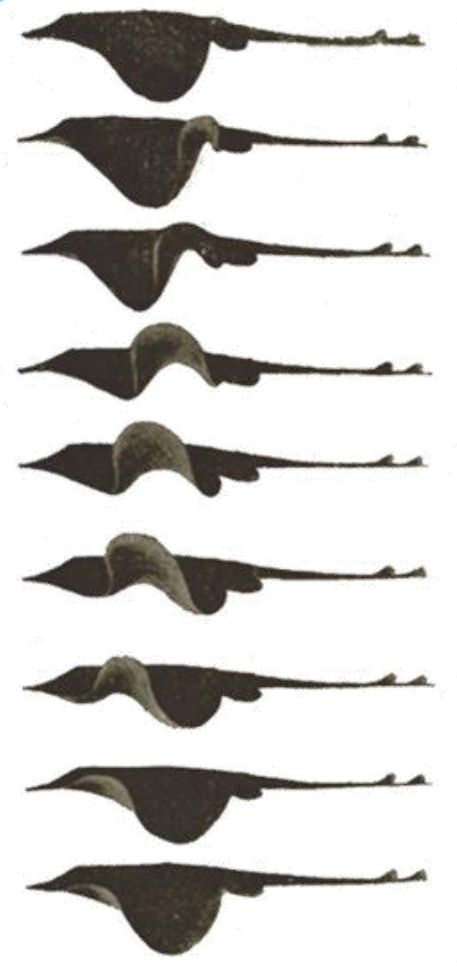
Facility design

Te Ika-a-Māui - A symbol of national significance

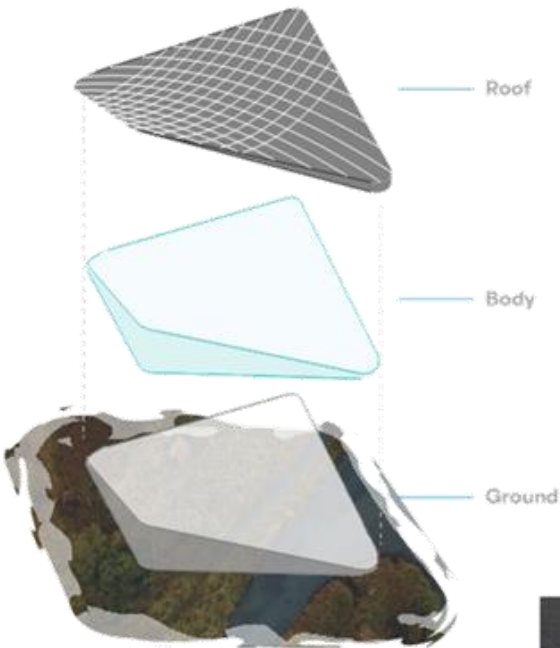
It was agreed the design needed to reflect that this is a site of national significance, meaning it would need to architecturally stack up against other national icons including Te Papa, Te Puia, Puke Ariki, Zealandia and the Waitangi Grounds amongst others.

It was also agreed the design would need to be 'postcard' worthy to attract attention and gain profile within the tourism fabric and in doing so needed to reflect Aotearoa New Zealand, the Pacific and Māori design creating an icon for Te Matau-a-Māui Hawke's Bay.

To this end a range of concepts were explored that might fit with the functional requirements, ultimately adopting the tarawhai stingray concept that first and foremost fits the functional brief, but also fits the cultural, aesthetic and aspirational brief to develop a national icon.



The biomorphic inspiration of the Whāi stingray informs a building block that is highly adaptable to programmatic needs of the interior, while maintaining a distinct identity. The resultant spatial language is as flexible as it is iconic.



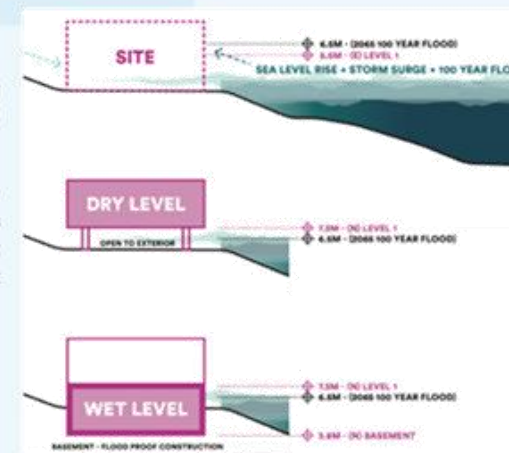
He Whare Hou | Building Concept

Facility Resilience

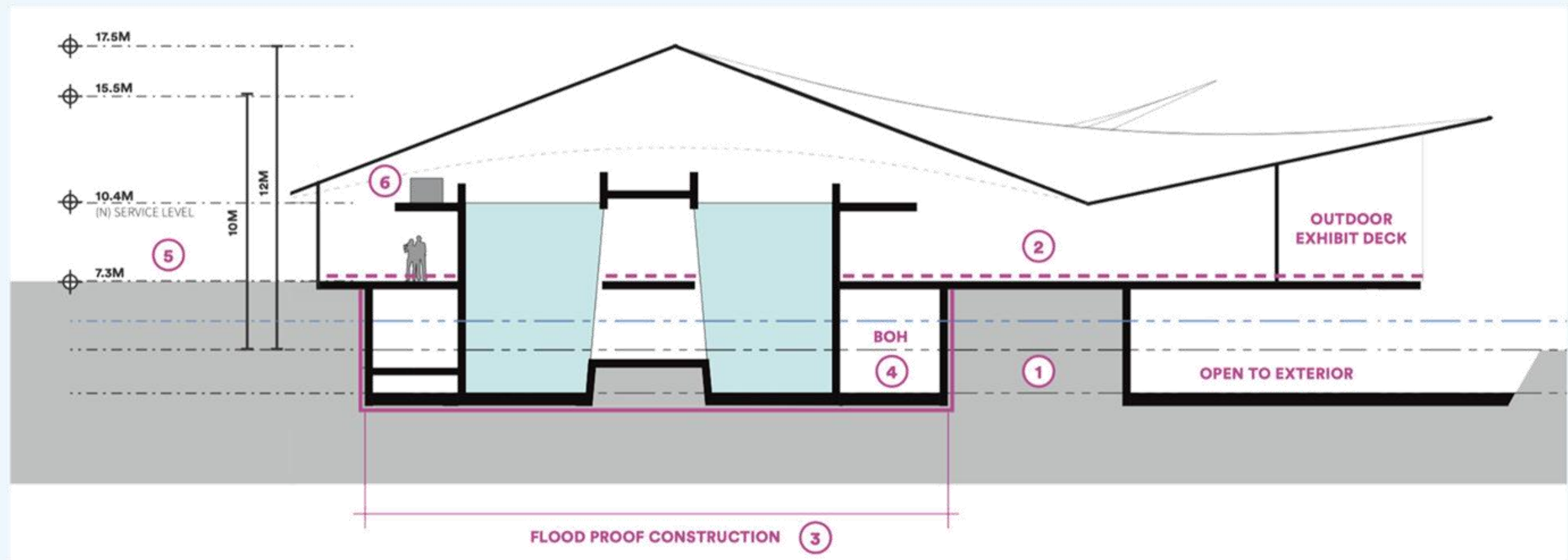
Resilience

The building has been designed to cope with rising sea levels, storm surges and hundred-year flood events.

A further analysis is needed to calculate the carbon budget of the proposed facility and its development project and the mitigation that could occur by the proposed saltmarsh habitat restoration.



- 1 Cut + Fill of Site
- 2 Main Exhibit Level Raised to 7.3m
- 3 Flood Proof construction at or below grade
- 4 Locating non critical pieces of program at or below grade
- 5 Landscape as a retention basin
- 6 Locating equipment above the floodplain



Te Wheako | Visitor Experience

The eight key experiences

Identifying and developing the key experiences

The eight key experiences were developed by:

- Identification of the key features and functions needed based on outcomes of extensive stakeholder engagement, spanning the identification of key species, ecosystems, cultural, educational and conservation objectives.
- The identification of the core drives of visitor attraction and interest.
- Benchmarking against how other facilities 'package & promote' the experiences they offer.
- Seeking to create a narrative that describes the breadth of offering.
- Illustrating some of our key points of difference, in particular referencing the Pacific and Māori environmental knowledge.

Whilst these eight key icons do not illustrate the full breadth of what is proposed, they provide focus to the offering and ease of communication of what is on offer.



Te Wheako | Visitor Experience

Ki te whaiao ki te ao mārama | A journey to the light

As visitors move beyond Te Rau-o- Kiwa, our Pacific Talking Circle, a place of ceremonial welcome, orientation and performance, they will descend into the dark depths of the ocean realm of Tangaroa and Hinemoana.

The first experience is a dark sensory AV experience being surrounded by the sights and sounds of marine mammals where visitors will drop down into the basement level underwater world moving past the sub-tropical reef tank and onto jellies, sharks and rays, and then through to the Giant Kelp Forest tank where they will be mesmerized by the swaying kelp hair of Hinemoana, goddess of the ocean.

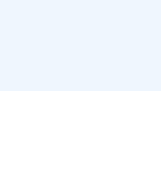
Visitors will then ascend and emerge past the wave crash pool into the tidal zone that includes the penguin enclosure, and (following Stage Two) on to the 4D immersive theatre experience that will bring Māori science of land, sea, sky and species to life.

VISITOR EXPERIENCE MASTER PLAN

EDUCATION BUILDING



FOREST / MOUNTAINS



Te Wheako | Visitor Experience

The journey

Begin your adventure being welcomed into Te Rau-ō-Kiwa, our Pacific speaking circle. You will hear indigenous voices of the Pacific Rim talk about this ocean we know as Te Moana-nui-a-Kiwa *The Great Ocean of Kiwa*. This is a place of welcome, of gathering and sharing knowledge, a place for convening Pacific voices. This is where speakers gather to share their views and knowledge.

Then, tentatively entering the darkness of the domain of Tangaroa, you will be immersed in the sights and sounds of enormous marine mammals swimming overhead as you journey towards the coast of Te Ika-a-Māui *The Fish of Māui*.

Along your journey you will encounter graceful honu turtles, our connection and link across Te Moana-nui-a-Kiwa, and be awed by the silent stealth of our mango sharks and whai rays, before arriving at the domain of Hinemoana, *ocean goddess*. Truly mesmerized by her swaying hair in our giant kelp forest, you will be anchored in place watching the diverse array of wildlife in front of you, schooling, swimming, hiding and exploring.

Emerging through our exhilarating wave crash pool, you will encounter fascinating rock pool life before strolling across to our penguin encounter to be entertained by our cute little waddling characters of the coast. Are you brave enough to pop up in the middle of their enclosure?

Let little bluey, our kororā *penguin* guide, show you around the rest of our tidal pools and on to our whai ray touch pool, to see and touch them as they gracefully glide past. Discover the story of Māui, fishing up the largest tarawhai *stingray*, the North island of New Zealand.

You will discover our taonga species, species of incredibly important cultural value that have sustained people for generations, pātiki *flounder*, tuna *eel*, wai koura *freshwater crayfish*, and inanga *juvenile Galaxids* we know as whitebait.

Then lie back and rest your legs in our immersive theatre experience that brings to life Māori knowledge of astronomy, māramataka *the environmental calendar*, and how these relate to seasons and the migration of species. Discover the genealogical connections across Polynesia through the stories of Māui, migratory species and ocean voyaging waka and pacific peoples' stories pertaining to Tangaroa.

In every step of your journey you will gain conservation insights from both scientific and indigenous knowledge systems and better understand the contribution you can make to being part of the solution.

Finally, take some time out for retail therapy, buy some unique mementos of your journey, and enjoy a coffee, cup of tea, meal and other refreshments.

Note: The 4D Theatre Experience is part of Stage 2



Utu Waihanga | Investment Profile

Projected construction costs

By engaging and bringing together design and quantity surveyor expertise, the project has been able to develop a range of estimates that are reasonably robust but that would require more in-depth analysis to provide greater than 90 percent confidence levels.

Initial capital costs

- The initial capital costs associated with the preferred option are projected at a total of \$77.5 million. This includes raw construction costs of \$65.6m and contingency of \$7.0 million. Escalation totals \$4.9 million across the construction period.
- Included within the raw costs are construction of the new building (3,702m²), initial refurbishment of the existing building (1,974m²), demolition of the older section of the existing building (1,400m²), new external exhibits (646m²), landscaping, decanting and relocation costs, consent costs, fixtures & fittings, and tanks.

Initial capital costs							
NZD\$000	FY21	FY22	FY23	FY24	FY25	FY26	Total
Construction	500	11,986	23,678	19,923	9,338	140	65,565
Contingencies	-	1,750	2,975	1,750	525	-	7,000
Total real initial capital costs	500	13,736	26,653	21,673	9,863	140	72,565
Escalation	-	385	1,513	1,872	1,152	21	4,943
Total nominal initial capital costs	500	14,120	28,167	23,545	11,015	160	77,508

Construction funding shortfall until debt repayment									
NZD\$000	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	Total
Construction capex	(500)	(14,120)	(28,167)	(23,545)	(11,015)	(160)	-	-	(77,508)
Opex (revenue generation fees)	(507)	(577)	(716)	(651)	-	-	-	-	(2,451)
Interest	-	-	(91)	(432)	(809)	(878)	(794)	(383)	(3,388)
Required	(1,007)	(14,697)	(28,974)	(24,628)	(11,825)	(1,038)	(794)	(383)	(83,346)
Less: fundraising	5,633	14,047	20,456	12,098	5,500	3,922	2,144	933	64,733
Total	4,626	(651)	(8,518)	(12,531)	(6,325)	2,884	1,351	550	(18,613)

Ongoing capital costs

- Real fit-out replacement costs are equal to \$1.5 million every five years with the first refurbishment occurring in FY29.
- Real exhibition refurbishment costs are equal to \$3.2 million every ten years with the first renewal occurring in FY34.
- Total nominal ongoing capital costs associated are projected at a total of \$23.1 million between FY 29 - 49.
- Model has been developed on four year build timeframe and twenty five year operational timeframe.

Debt financing

- Debt financing peaks at \$23.9 million in FY25 with total interest of \$3.5 million incurred.
- Debt financing is planned for given the Revenue Generation Strategy estimates eight years to raise the \$40 million. This could be circumvented through an interest free loan.



Utu Waihanga | Investment Profile

Capital funding approach

Revenue Generation Strategy

The Revenue Generation Strategy (RGS) process assessed whether private funding is available which, together with Te Kaunihera o Ahuriri Napier City Council and Government funding could redevelop the current Whare o Tangaroa National Aquarium of New Zealand in Ahuriri Napier into a substantial aquarium and marine conservation organisation.

Project Shapeshifter's RGS finding is that private funders will support the aquarium redevelopment if it:

- Be accorded an appropriate Māori title.
- Be accepted as a national institution linking to key overseas institutions.
- Be located in Te Matau-a-Māui Hawke's Bay but be a truly iconic national flagship for environmental conservation.
- Showcase live marine species.
- Contribute strongly to Te Matau-a-Māui Hawke's Bay tourism brand and economic growth.
- Interprets Te Ao Māori *The Māori Worldview* and showcases kaitiakitanga *stewardship*.
- Provide conservation education.
- Change human behaviour in favour of conservation.
- Take place in a significant, eco-friendly building.

Based on the research and the views expressed by interviewees and potential donors, a single \$40,000,000 campaign would not succeed at present. However, assuming fundraising campaign can get underway without significant delay or public controversy this amount can be achieved in two successive campaigns each for \$20,000,000.

The Revenue Generation Strategy Stage 1 goal would seek to achieve \$20,000,000 outlined in Table 1.

Revenue Generation Strategy Stage 2 (Table 2) will seek further funding from some Stage 1 contributors, solicit new funding prospects, and will incorporate

a major community fundraising event aimed at mass participation and developing a widespread sense of ownership of the national aquarium.

The Stage 2 fundraising campaign will also position the aquarium for ongoing funding through sponsorship, membership, ongoing grant applications and philanthropy.

Further details of how the campaign will run, its risks and milestones are included in the Implementation Plan (Appendix 5).

The Revenue Generation Strategy recommends that:

- Te Kaunihera o Ahuriri Napier City Council consider the campaign fundraising beyond initial government contributions in two parts, a RGS Stage 1 goal of \$20,000,000 and then a RGS Stage 2 goal of \$20,000,000.

When the project moves to Stage 2 of the fundraising campaign for the remaining \$20,000,000 the project and campaign will be in much better shape to proceed and to capture people who are not enthused at present. By then it will have much greater definition, the governance structures will be in place, the leadership will be known, and the early funders will be well informed about the project.

Response of interviewees (HNW individuals, Corporates, Trusts and Foundations, Iwi):

- Showcase species and exhibits – 83 percent positive and strongly positive.
- Boost tourism – 87 percent positive and strongly positive.
- Māori knowledge, history, conservation practices – 81 percent positive and strongly positive.
- Conservation Education – 91 percent positive and strongly positive.
- Conservation Research – 78 percent positive and strongly positive.
- Change behaviour re environment – 91 percent positive and strongly positive.

Notes: the Revenue Generation Strategy was not tasked with assessing donor funding towards any annual operational expenditure shortfall and which is recommended herein.

Furthermore, this RGS \$40 million is only towards the capital expenditure of Stage One of the new National Aquarium and Oceans Centre at present, not towards subsequent stages or operational expenditure.

Table 1: RGS Stage 1

Prospect Sector	Sector Goal
Iwi, hapū, and related business organisations	\$7,500,000
Lotteries grants	\$4,000,000
Additional Government sources	\$2,500,000
New Zealand charitable foundations and gaming trusts	\$1,500,000
Overseas Trusts and Foundations	\$1,500,000
Hawkes Bay and NZ individuals and families	\$3,000,000
Marine industries	\$1,500,000

Table 2: RGS Stage 2

Prospect Sector	Sector Goal
Iwi, hapū and related business organisations	\$2,000,000
Lotteries grants	\$2,500,000
Additional Government sources	\$6,000,000
New Zealand charitable foundations and gaming trusts	\$1,500,000
Overseas Trusts and Foundations	\$1,500,000
Hawkes Bay and NZ individuals and families	\$1,000,000
National Companies	\$6,000,000
Hawkes Bay and Napier businesses	\$1,000,000
Local community in Napier and Hawkes Bay	\$500,000

Utu Waihanga | Investment Profile

Facility co-investment



Nationally Significant, Shared Investment

The National Aquarium and Oceans Centre is intended to be a national facility where the stories that are significant to our heritage as a nation can be heard and understood. But constructing and operating a facility of this scale is beyond the financial abilities of local ratepayers - so there is a need for the funding of the new facility to be equitably spread between sectors and regions.

Facility Co-Funding

Detailed analysis during the business case process has resulted in proposing a mixed commercial and public funding approach for the facility. Critical for this to succeed will be the nature of the governance and operational frameworks that underpin the entity.

The four core areas requiring funding will be:

- 1. Stage 1 Initial capital expenditure requirements of \$77.5m
- 2. Ongoing operational expenditure shortfalls Yr1 \$2.6m and beyond
- 3. Ongoing operational expenditure renewal requirements \$1.5m every five years and real exhibition refurbishment costs equal to \$3.2m every ten years.
- 4. Stage 2 capital expenditure requirements \$31.2m outlined in Appendix 18 (RLB Quantity Survey estimates).

Funding partners have been identified as the Te Kaunihera o Ahuriri Napier City Council, Government, Sponsors (including social investors) and donors. The term social investors refers to those individuals or entities who value return on investment (ROI) based on social, cultural, environmental and wider societal outcomes before standard financial returns.

Construction costs and contributions

It is unlikely that sponsors, donors and social investors would fund building envelopes or "generic areas" where there cannot readily be some form of recognition or acknowledgement.

Existing Buildings

Similarly, treatment (repurposing/decommissioning/demolishing) of existing premises is also unlikely to attract sponsor, donor or social investor support.

Exhibition Costs and Contributions

This is key area where sponsors, donors or social investors are more likely to want to connect with the project.

That said it is important that relative shares of true costs be apportioned appropriately across all core areas including "glamour areas".

The associated Table is an indicative apportioning of costs across the funding

partners according to the criteria outlined above to show how funding might be spread;

- FF&E = Fixtures, Furniture and Equipment
- One offs = include initial marketing, animal recovery, animal transfer, staff mobilisation
- Note the shortfall totals \$18.6million.

Whatever is finally agreed it will be imperative to show that funding partnerships are real, committed, based on a shared understanding and relative to capacity to fund against what the new facility can realistically be expected to deliver across social and economic returns on investment expectation.

National Aquarium of New Zealand Trust							
Funding Model							
Central Government	Local Governments	Iwi/Maori Partners	Sponsorship	Philanthropy	Visitor Donations	Charitable Grants	Share of new visitor levy

Operating Model

Governance and management

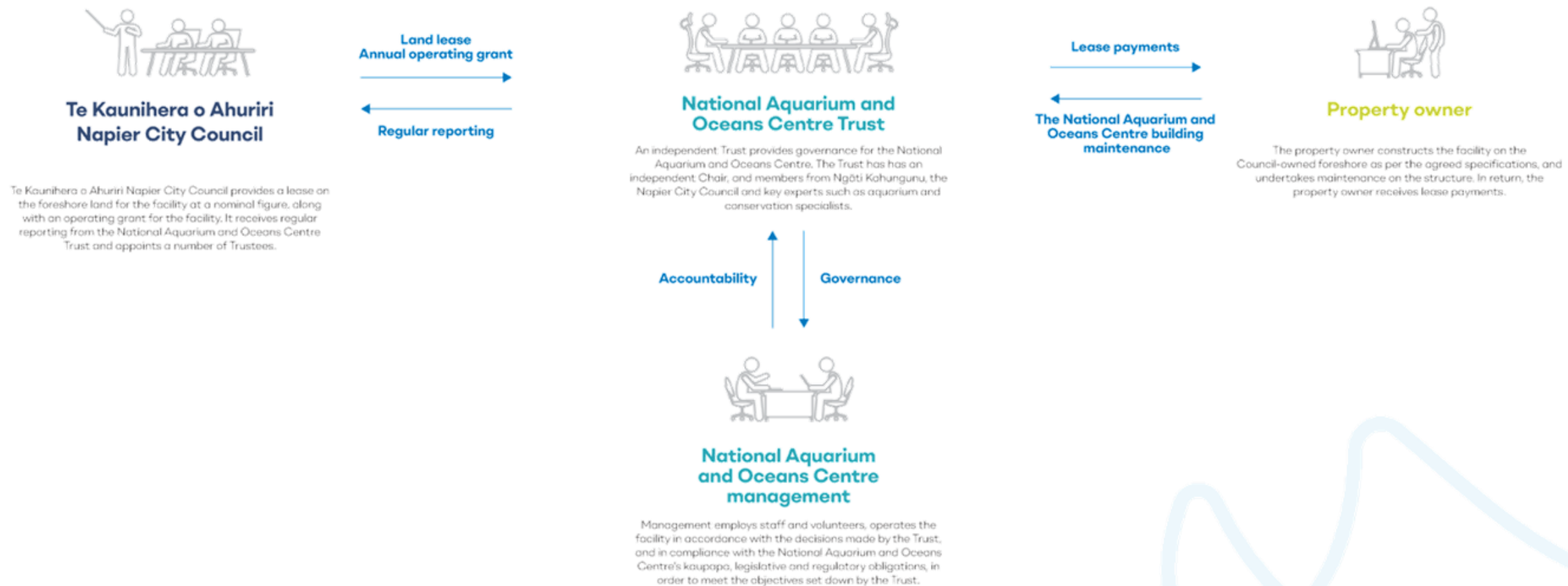
There will be key stakeholders involved in how the facility operates.

Project Shapeshifter is seeking a full co-governance and co-management approach for the National Aquarium and Oceans Centre and a commercial partnership for construction of the facility that will help give effect to this.

The vision is for a facility that allows the voices of all stakeholders – Ngāi Māori and Ngāi Pākehā – to be heard, and for the Crown-Māori Partnership to be brought to life within the National Aquarium and Oceans Centre. And as the nature of the stories and the perspectives will deepen and change over the years, only full co-governance and co-management can provide the flexibility needed for the facility to develop and grow. At the same time, it is possible that the facility may need to be further developed as the appetite of New Zealanders for authentic and compelling stories about our oceans grows, and clearly there are other supporting facilities that could be added to the precinct, expanding its environmental and cultural relevance.

Te Kaunihera o Ahuriri Napier City Council has analysed the various governance and management approaches and concluded that an independent Trust, acting with full authority and Council support, will provide the best vehicle for the aspirations of iwi, the community and the nation to be realised (Appendix 9).

With this in mind, Council ownership of the National Aquarium and Oceans Centre makes little sense, as the Trust will need the flexibility to chart its own path. Commercial partnering will provide the agile approach to how the National Aquarium and Oceans Centre can be sustainable and expanded, as well as providing a vehicle for the correct organisations to be financially involved in the facility.



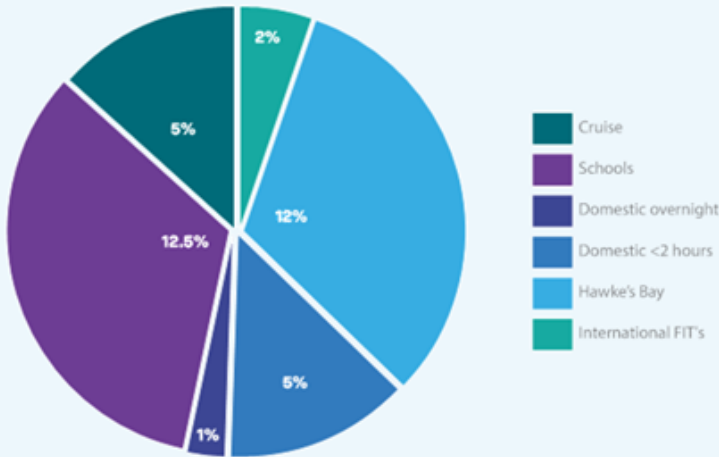
Operating Model

Visitor projections

Visitor numbers are projected to increase significantly.

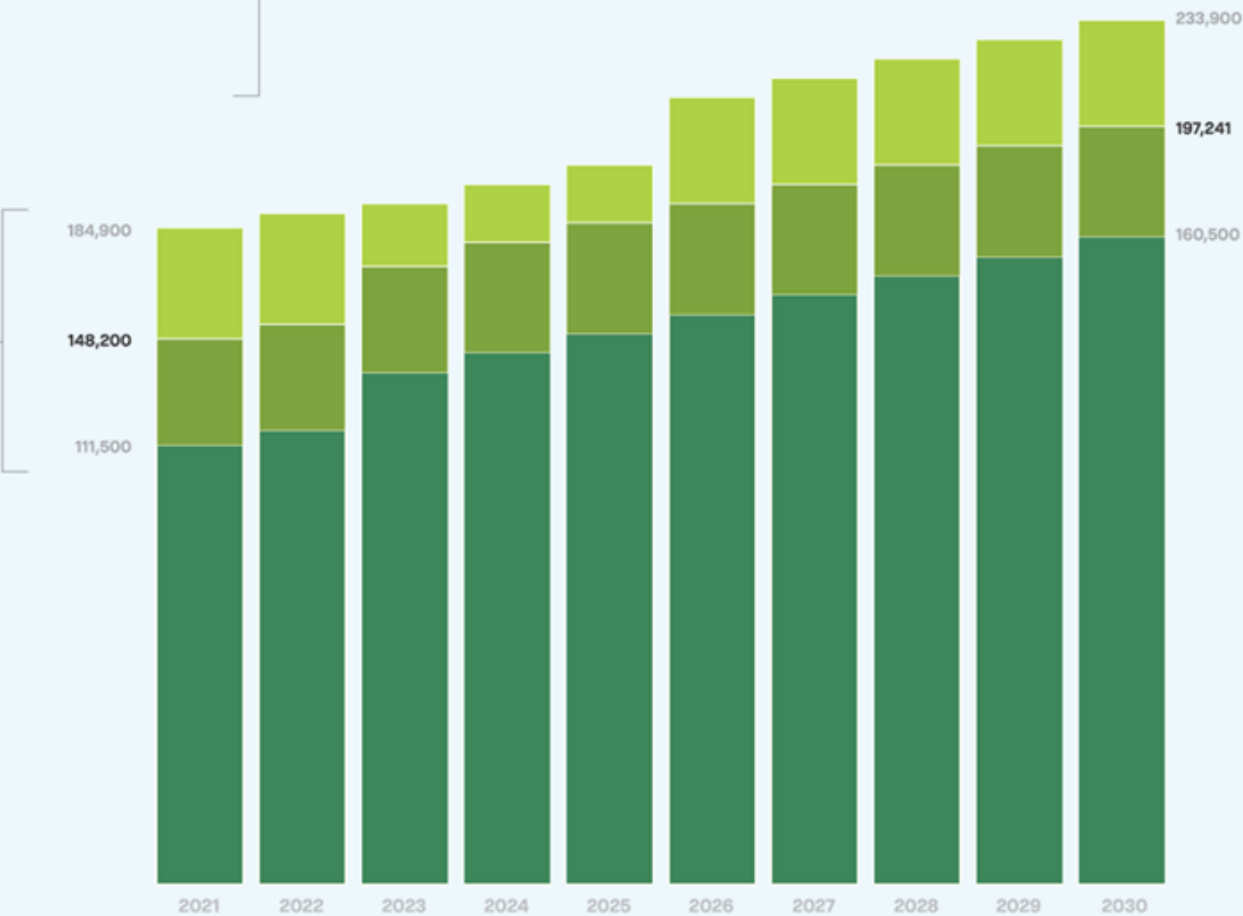
Research was undertaken by Colmar Brunton to gauge public attitudes to converting the existing facility into a National Aquarium and Oceans Centre. The report concluded:

- Support for the National Aquarium and Oceans Centre is strong and broad based. This is not only a reflection of people's excitement about the draft concept but the strong relationship New Zealanders have with the marine environment, both attitudinally and in terms of the activities they engage in near, on or in the ocean. Our close proximity to the ocean and care for the environment is a fundamental driver of this.
- For many, this love and care for the ocean is not at all costs. It needs to be balanced against the health of the economy and growth. It is important for the project, assuming it gets the green light to proceed, to demonstrate value for money in terms of project costs to keep New Zealanders on side.
- The cultural story around Māori and Pacific Rim people has potential to be a strong differentiating factor for the centre, especially if it ties back to education and conservation.
- Intended visitation in the next five years is significantly higher for the National Aquarium and Oceans Centre (46 percent) compared to the current National Aquarium (14 percent). This would exceed Te Papa's intended visitation though people at this stage are responding to a proposed concept so caution is advised.



The graph at right provides the forecasts for visitors of all types to the aquarium. It is assumed that the first full year of new exhibits is 2025 and there is likely to be a drop off in 2024 as the new build nears completion. The lower value is a pessimistic scenario for the number of visitors, while the upper value is an optimistic scenario. The middle value reflects the current visitor numbers and historical growth trend.

The graph at left shows the source of visitors to the aquarium following the opening of the facility. The mix of people is likely to change over time, depending on factors such as the frequency of exhibit renewal and wider alterations to the mix of international arrivals to New Zealand. These effects have been modelled in the economic assessment in the Appendix 8.



Operating Model

Staffing and volunteers

There will be a mix of paid staff and volunteers.

As the experience of the Monterey Bay Aquarium demonstrates, having one-on-one interaction with staff and volunteers is the key to a high-quality visitor experience, as well as providing the greatest opportunity for people to learn about the practical and everyday steps they can take to improve the health of the oceans.

As the chart at right shows, the core staffing is made up of paid employees supported by a large number of part-time volunteers. Paid staff are used where:

- There is a specific requirement for people to be available for regular hours throughout a rostered work week
- The skills are specialised or technical, and suitable qualifications and expertise is required to fill the role.

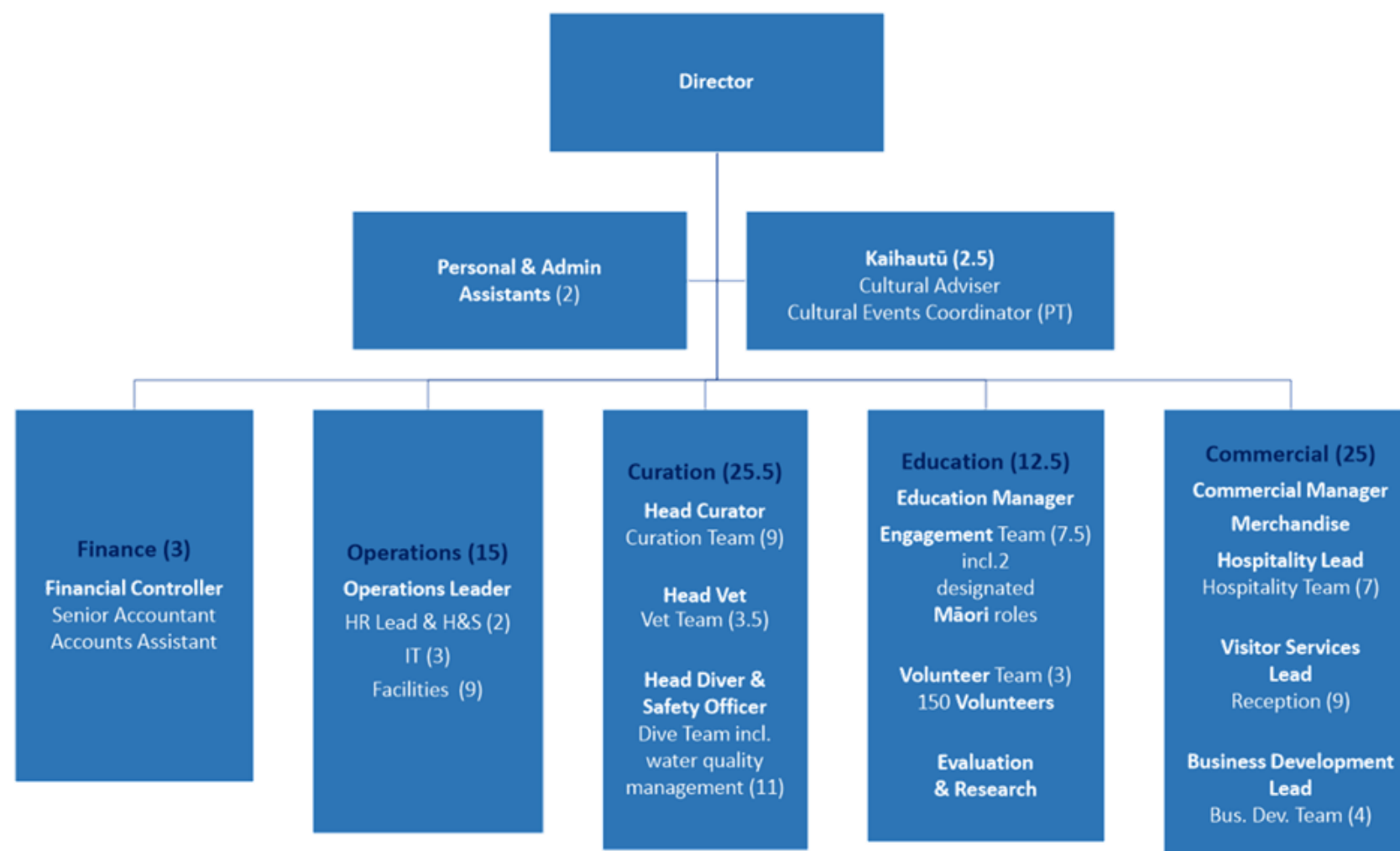
However, the greatest number of people are volunteers. As institutions overseas have demonstrated, sophisticated aquariums are a magnet for volunteers at all levels and ages, ranging from children to octogenarians, who are all inspired to engage with the animals, their habitats and the cause of educating others about the oceans.

There is a committed volunteer workforce at the current National Aquarium, and the intention is to build on the skills and expertise of these people to grow a larger and more diverse group of volunteers for the new facility.

Giving back to Volunteers

According to Volunteering New Zealand (2017) New Zealanders make a significant contribution to the social development, economy and environment of New Zealand through their engagement in volunteering. The United Kingdom's Charitable Aid Foundation, which investigates and increases understanding of charitable giving and philanthropy, positions New Zealanders as the western population that most often participates in volunteering. In the year ending March 2013, volunteer labour in organisations contributed \$3.5 billion (1.7 percent) to New Zealand's gross domestic product and the 2016 Statistics New Zealand General Social Survey found: "a strong commitment to volunteering with one in two New Zealanders volunteering

for an organisation or helping a person from another household. Despite its significance, volunteering is under pressure, with the 2016 Volunteering New Zealand State of Volunteering survey noting the following issues that are also relevant in Hawkes Bay: volunteer ageing, reduced volunteer time and reliance on the same volunteers across different roles. Rarely however is volunteering professionally managed by paid staff whose role it is to build capability amongst volunteers, so giving something back for their donated time and which is how Monterey Bay Aquarium has built such a strong volunteer programme.



Facility Development

End-to-end sequencing



Financial modelling

A 29-year annual financial model (approx. four years construction plus twenty five years operation) has been built to forecast revenue, operational costs and capital costs. The financial model also allows the impact of changes in factors such as visitor numbers, financial performance, and project cost to be understood.

Output summary

- The total capital cost of the preferred option is \$77.5 million which includes \$65.6 million of construction costs, \$7.0 million in contingency and \$4.9 million associated with cost escalation during the construction period.
- Real fit-out replacement costs equal \$1.5 million every five years and real exhibition refurbishment costs equal \$3.2 million every ten years.
- The facility will be funded from a combination of local councils, central government, investors and donors. During the construction period debt financing is used ahead of all donations coming in (the final donations of a total \$40m are expected to occur in FY29). The debt is used to finance both construction capital expenditure

and operating costs associated with revenue generation until the facility is opened (FY25). An equity injection of \$18.6m is forecast to occur in FY28 to repay the debt. Ongoing funding for replacement of the fit-out and exhibitions renewal and operational shortfalls will also be required to be funded.

- Revenue in FY25 of \$4.4 million is driven by approximately 132 thousand visitors (this represents eight months of operations). In the first full year of operations (FY26) revenue of \$6.7 million is driven by approximately 196 thousand visitors.
- Operating costs in FY25 (eight months of operations) largely represent staff costs (\$4.2m), insurance (\$0.4m), maintenance (\$0.4m), and marketing (\$0.2m). Operating costs of \$9.6 million in the first full year of operation (FY26) largely represent staff costs (\$6.4m), insurance (\$0.6m), maintenance (\$0.6m), marketing (\$0.4m), other overheads (\$0.3m), energy (\$0.2m).
- Nominal inflation of 2.8 percent per annum. has been applied unless stated otherwise.

	Summary											
NZD\$000	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31-FY49	Total
Revenue	-	-	-	-	4,369	6,655	6,631	6,898	7,165	7,778	240,873	280,370
Opex	(507)	(577)	(716)	(651)	(6,508)	(9,614)	(9,444)	(9,697)	(10,002)	(12,215)	(365,399)	(425,329)
Interest	-	-	(91)	(432)	(809)	(878)	(794)	(383)	-	-	-	(3,388)
Capital costs	(500)	(14,120)	(28,167)	(23,545)	(11,015)	(160)	-	-	(1,871)	-	(21,183)	(100,562)
Sub-total	(1,007)	(14,697)	(28,974)	(24,628)	(13,964)	(3,996)	(3,606)	(3,183)	(4,707)	(4,437)	(145,710)	(248,909)
Depreciation	-	-	-	-	(1,547)	(1,550)	(1,550)	(1,550)	(1,550)	(1,924)	(45,901)	(55,573)
Total position	(1,007)	(14,697)	(28,974)	(24,628)	(15,510)	(5,547)	(5,156)	(4,733)	(6,257)	(6,361)	(191,611)	(304,482)

Cost Benefit Analysis

How the assessment has been conducted

The costs and benefits have been assessed across multiple dimensions.

Three methodologies have been used to forecast the economic and social return on the proposed investment:

Cost Benefit Analysis

CBA

CBA is an analysis of a decision to proceed with the project compared to an alternative of "do nothing". The standpoint is the total economic value created or destroyed from a New Zealand-wide societal perspective. CBA involves the following stages:

- Identify the range of economic, social, and environmental costs and benefits that it may expect in moving from a "business as usual" or "do nothing" to a "with the project" scenario.
- Quantify the costs and benefits, using accurate estimates of monetary value for tradable goods and services, and proxy monetary values for non-traded costs and benefits, namely the negative and positive externalities, using established techniques.
- Identify a "business as usual" (counterfactual) scenario and one or more "with the project" scenarios and the value of the difference in outcomes between these scenarios, which demonstrates the impact of moving from business as usual to a different, project-based future.
- Allocate costs and benefits over a suitable project evaluation period, typically 25 years. Initial costs are usually associated with preparation and then construction, whilst revenues and benefits tend to flow once the project is up and running.
- Generate performance measurements using discounted cash flow techniques for both costs and benefits. All values are expressed in "present-day dollars" or capitalised using a discount rate. Essentially, this makes an allowance for the fact that typically, a dollar's worth of benefit received today has a higher value than a dollar's worth delivered some years hence.



Social Return on Investment

SROI

SROI measures and accounts for a wider concept of value for the attainment of multiple bottom lines than traditional CBA. It was originally developed in the US by the Roberts Enterprise Development Fund in the mid-1990s and has been further developed by the New Economics Foundation and the Scottish Government in the UK since the late 1990s. It is widely used in the UK social enterprise sector to assess organisational impact and is endorsed by the UK Cabinet Office. SROI has a widely applicable stakeholder emphasis and standard methodology.

SROI is based on traditional economic cost-benefit approaches, and assigns a monetary value to social outcomes using proxy variables that serve in place of un-observable or un-measurable variables. Social outcomes measured this way span a wide range of private (e.g., reduced stress, social confidence, sense of safety and enjoyment) and societal (e.g., social networks) factors that consider the "soft" benefits of activities. Through the assignment of monetary values to social outcomes, the value of social outcomes can be compared against the level of investment required to produce the benefit. The ratio provides a measure of value for money.

SROI analysis can be retrospective or prospective, encompass the value generated by an entire organization or focus on specific programmes or projects. There are two broad types of SROI:

- An evaluative SROI which is conducted retrospectively and is based on actual outcomes that have already taken place.
- A forecast SROI, which predicts how much social value will be created if the activity achieves the intended outcomes, which is the methodology used for this business case.



Economic Impact Assessment

EIA

The purpose of EIA is to understand the economic development effects of a proposed project by measuring how much it stimulates activity in the local, regional or national economy in terms of GDP, employment and household incomes. EIA differs from CBA which is an exercise to determine an action's net national welfare effects in terms of the efficiency of resource use.

An EIA is based on and inter-industry or "input-output" tables, which measure how the different sectors of an economy are interrelated. Specifically, the input-output tables measure the inputs that each sector requires from other sectors to produce its own outputs. These producers in turn, will require input from their own suppliers, and so on. The input-output table can be used to derive multipliers that estimate the impact that an increase in activity in a sector has on GDP, employment and household incomes. The resulting impacts comprise the following:

- Direct effects. The new facility will draw upon local industries, for example tourism operators and hospitality services, and therefore directly stimulate the regional economy.
- Indirect effects. Construction and operation of the new aquarium will require inputs from a number of other industries inside and outside the region. These suppliers, in turn, will draw upon their own suppliers, and have a cascading effect.
- Induced effects. The cumulative direct and indirect effects will result in increased employment, and hence increased household income. A proportion of this new income will be spent in the regional economy and give rise to further economic stimulus.

The total economic impact is the total of the direct, indirect and induced effects. In addition to the economic impacts estimated, the project will have other economic effects that are not quantifiable within the EIA framework such as an investment confidence, local authority infrastructure and finances.



All three methodologies have been used to forecast the economic and social return on the proposed investment. Details of the findings are provided on the following page, and the workings are contained in Appendix 16.

Cost Benefit Analysis

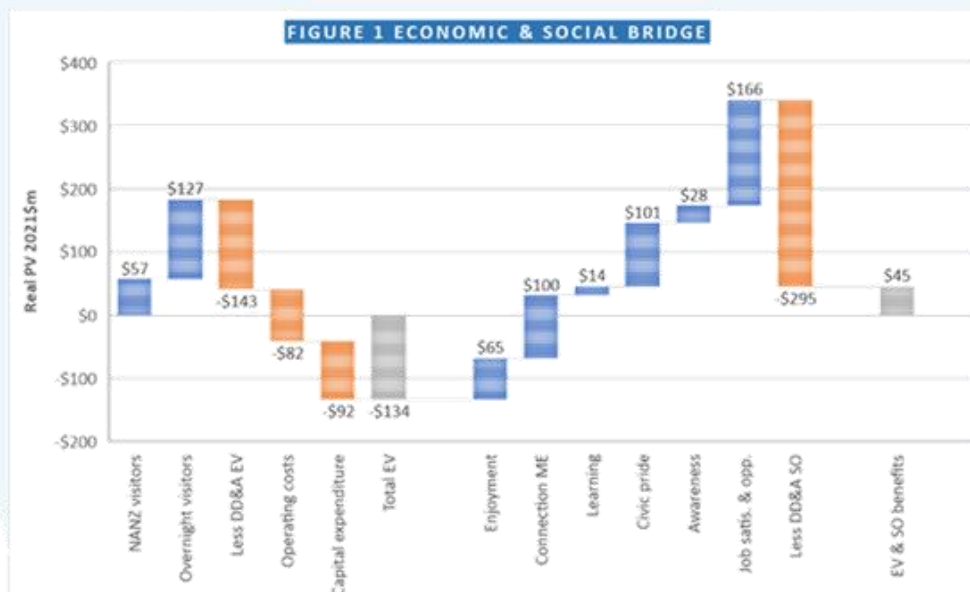
Economic and social return

There are clear social and economic benefits from investment in a new and significant National Aquarium and Oceans Centre.

The Economic Case shows the net economic impact the expansion will have over the next twenty-nine years.

As explained in previous pages the approach employed to financially forecast the economic and social returns on investment associated with the Te Whare Tangaroa o Aotearoa The National Aquarium of New Zealand project consisted of three core components.

- Economic Cost Benefit Analysis (CBA)
- Social Return on Investment (SROI) (note social includes environmental in this methodology)
- Economic Impact Assessment (EIA)



Economic Impacts

Construction is estimated to:

- Generate \$31 million of regional GDP, with a further \$50 million of national GDP for a total of \$81 million.
- Generate regional employment of 410 FTE, with 535 FTE employed elsewhere for a total of 944 FTE.
- Estimated to boost regional household incomes by \$11 million p.a. and national incomes by \$28 million p.a.

Operation is estimated to:

- Generate \$17 million p.a. of regional GDP, with a further \$9 million p.a. of GDP for a total of \$26 million.
- Generate regional employment of 152 FTE, with a further 14 FTE employed elsewhere for a national total of 166 FTE.
- Estimated to boost regional household incomes by \$7 million p.a. and national household incomes by \$8 million p.a.

Results

Figure 1 pertaining to this page summarises the results of the Economic Impact and Social Return on Investment Analysis in the form of a "value bridge" that combines the economic value creation with social outcomes:

- An estimated \$45 million (present value 2021) of combined economic and social value is attributable to the project.
- There is net contribution of \$40 million from increased economic activity associated with visitors.
- There is a net contribution of \$179 million associated with the social outcomes for visitors, staff and volunteers.
- Capital and operating costs are -\$174 million.
- The benefit: cost ratio is 1.26x.

FIGURE 2 SOCIAL OUTCOMES		HB region	Yr. 0 to 4	Yr. 5 to 9	Yr. 10 to 24	Continuing	Total
Enjoyment	Real PV \$m		\$3	\$20	\$42		\$65
Connect to marine environment.	Real PV \$m		\$5	\$31	\$64		\$100
Engagement with learning	Real PV \$m		\$1	\$4	\$9		\$14
Civic pride	Real PV \$m		\$5	\$31	\$65		\$101
Environmental awareness	Real PV \$m		\$1	\$9	\$18		\$28
Job satisfaction & opportunities	Real PV \$m		\$8	\$51	\$107		\$166
	Real PV \$m		\$0	\$0	\$0		\$0
Less DD&A social outcomes	Real PV \$m		-\$16	-\$91	-\$189		-\$295
Total Social outcomes	Real PV \$m		\$8	\$55	\$116	\$0	\$179

FIGURE 3 ECONOMIC IMPACT MEASURES		Construction			Operation		
Impact Measure		HB region	Rest of NZ	Total NZ	HB region	Rest of NZ	Total NZ
GDP							
Direct	\$m	\$12	\$11	\$23	\$12	\$5	\$17
Indirect	\$m	\$13	\$30	\$43	\$4	\$2	\$6
Induced	\$m	\$6	\$9	\$15	\$2	\$1	\$3
Total	\$m	\$31	\$50	\$81	\$17	\$9	\$26
Employment							
Direct	FTE	164	221	385	92	0	92
Indirect	FTE	180	159	339	40	10	49
Induced	FTE	66	155	221	21	4	25
Total	FTE	410	535	944	152	14	166
Household Income							
Direct	\$m	\$5	\$5	\$10	\$5	\$0	\$5
Indirect	\$m	\$4	\$8	\$12	\$2	\$1	\$3
Induced	\$m	\$1	\$5	\$6	\$1	\$1	\$1
Total	\$m	\$11	\$17	\$28	\$7	\$1	\$8

Risk and Uncertainty

Methodology and approach

The risks of implementing and operating the solution have been carefully assessed.

1 Identification



Conduct workshops to **identify** the risks to implementing the preferred option

2 Analysis and Quantification



Collate the information gathered from workshop sessions with the project team

Analyse the **linkages** between the risks and link them together to understand how risks can build up during the project

Quantify the **probability** that the risk could occur based on the knowledge of the project team

Quantify the **impact** that the risk would have based on the knowledge of the project team

3 Mitigation



Develop the mitigation actions that will reduce the **probability** of the risk occurring

Develop the mitigation actions that will reduce the **impact** of the risk if it does occur

Link the mitigation actions with the project to make sure the right steps are being taken

4 Impact Revision



Review the appropriate project documents to make sure they are aligned with the risk analysis

Quantify the **effectiveness** that the action will have in reducing the risk, based on the knowledge of the project team

Quantify the **confidence (or quality)** in the project documentation or action, based on the knowledge of the project team

5 Decision Making



Re-analyse the risks to assess the revised probability and impact after the mitigations have been implemented

Present the information in a form that allows stakeholders to make an informed decision about the residual risks of proceeding with the project

The following pages provide the analysis for each of the two events that the Te Kauniher o Ahuriri Napier City Council is seeking to manage:

- The risk that the facility will not be delivered on time, within budget or to the required standard.
- The risk that the project will not achieve the benefits that are being sought.

Each assessment identifies the risks and links them into their causal chains, so that decision makers can see the inter-relationships between them.

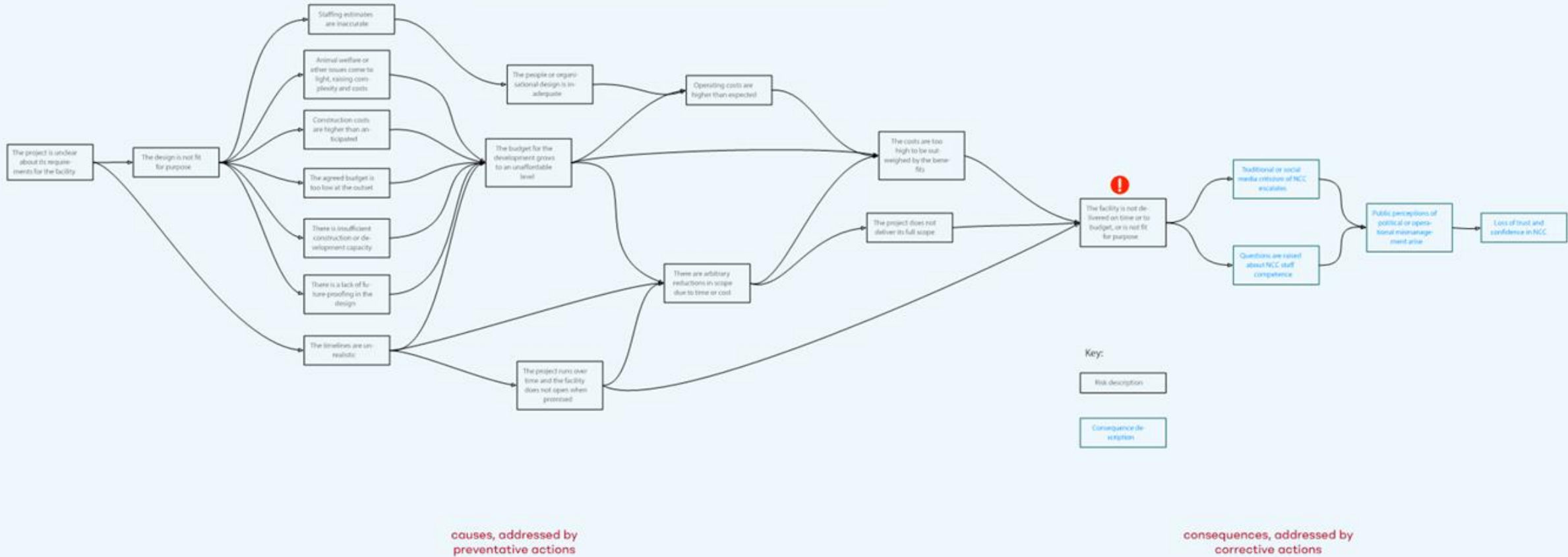
Risk and Uncertainty

Implementation risks



In accordance with more advanced risk management methodologies, the implementation risks for the facility have been assessed using a bow-tie analysis, as shown in the diagram below.

On the below diagram are the risks that could cause the outcomes not to be achieved – these risks are managed by preventing the risk from occurring, or minimising its severity. These risks are managed generally through design, either of the facility or of how it is operated, and education and engagement with stakeholders. On the right are the consequences of the risks on the left not being managed, which are primarily reputational in nature.



Risk and Uncertainty

Benefit realisation risks

There are a number of risks that could prevent the benefits being realised.

In comparison with the relatively straightforward risks associated with delivery of the project, the benefit realisation risks are significantly more complex to manage. The nature of the risks means that it is difficult to quantify either the probability or the likelihood with any degree of rigor, as there are a significant number of interlinked challenges, and the analysis reflects this.

While some benefit realisation risks can be mitigated as part of the design of the facility, other risks that could lead to suboptimal outcomes are beyond the control of any facility or institution. This is because the desire to be educated and change behaviours as a result is subject to individual desires, preferences and states of mind.

For instance, there is a risk that visitors may feel their actions will be ineffective or futile given the scale of the environmental and climate challenges facing the oceans. A large part of this sentiment may be due to external influences such as media coverage, social media-based information and conjecture, and the influence of friends, family and other peer groups.

It is obviously not possible for this to be entirely reversed with a single visit to the National Aquarium and Oceans Centre; however, the facility must play its part in providing the information and resources necessary for people's attitudes and behaviours to change, and this obliges the design team and the aquarium staff and volunteers to do the best possible job of communicating that change is both necessary and possible.



These risks could lead to the visitor experience being primarily defined by entertainment, resulting in the facility not realising its potential and the investment in educational capabilities being wasted. Most of these risks are amendable to mitigation through the design phase of the facility.

These risks could lead to visitors being both entertained and educated, but failing to take the everyday actions that will directly impact the environment and the oceans, resulting in ineffective investment in the aquarium. Most of these risks are amendable to mitigation through the design phase of the facility.



Financial Modelling

Assumptions and approach

Assumptions

The financial model on the following pages is not intended to provide an accurate forecast of actual expenditures on a new National Aquarium; rather, its purpose is to compare the options on a like-for-like basis at a high level so an informed decision can be made about the correct investment strategy for Te Kaunihera o Ahuriri Napier City Council. It will provide guidance on the likely variations between the alternative options in relative terms, even if the absolute expenditures ultimately vary from the numbers given overleaf.

The model is sensitive to the following variables:

- The actual costs of construction, which can only be known once the detailed design for the facility is completed and final estimates have been obtained from the Quantity Surveyors.
- The actual cost of capital for the Council and the private sector at the time of construction, which in turn will be subject to macroeconomic factors that are outside the Council's control.
- Construction cost inflation in the interval between a decision being made and the commencement of construction.

By their nature, financial models are simplified versions of the complexities of real-life accounting. Many actual costs can only be known in retrospect rather than in advance, so all financial models will suffer inaccuracies that can only be known about and corrected after the time for decision-making has passed. Readers should therefore note that the purpose of the modelling is to allow comparisons to be made at a high level- it is not to provide a hundred percent accurate forecast of the actual expenditures of the Council.

Financial modelling

A 29-year financial model (four years construction plus 25 years operation) has been built to forecast revenue, operational costs and capital costs. The financial model also allows the impact of changes in factors such as visitor numbers, financial performance, and project cost to be understood.

Output summary

- The total capital cost of the preferred option is \$77.5 million which includes \$65.6 million of construction costs, \$7.0 million in contingency and \$4.9 million associated with cost escalation during the construction period.

- Real fit-out replacement costs equal \$1.5 million every five years and real exhibition refurbishment costs equal \$3.2 million every ten years.
- The facility will be funded from a combination of local councils, central government, investors and donors. During the construction period debt financing is used ahead of all donations coming in (the final donations of a total \$40 million are expected to occur in FY29). The debt is used to finance both construction capital expenditure and operating costs associated with revenue generation until the facility is opened (FY25). An equity injection of \$18.6m is forecast to occur in FY28 to repay the debt. Ongoing funding for replacement of the fit-out and exhibitions renewal and operational shortfalls will also be required to be funded.
- Revenue in FY25 of \$4.4 million is driven by approx. 132 thousand visitors (this represents eight months of operations). In the first full year of operations (FY26) revenue of \$6.7 million is driven by approximately 196 thousand visitors.
- Operating costs in FY25 (eight months of operations) largely represent staff costs (\$4.2m), insurance (\$0.4m), maintenance (\$0.4m), and marketing (\$0.2m). Operating costs of \$9.6 million in the first full year of operation (FY26) largely represent staff costs (\$6.4m), insurance (\$0.6m), maintenance (\$0.6m), marketing (\$0.4m), other overheads (\$0.3m), energy (\$0.2m).
- Nominal inflation of 2.8 percent per annum has been applied unless stated otherwise.

The following pages outline in more detail:

- Revenue
- Operating costs
- Initial capital costs
- Ongoing capital costs
- Depreciation
- Operating cashflow

Government Funding Strategy

Furthermore, this Detailed Business Case has been developed according to the Five Case Model in order to be submitted to the Provincial Growth Fund. The case is made at the outset of this Detailed Business Case that this initiative is of national significance. The Provincial Growth Fund is the initial Government funding source being sought. However, other government funds are relevant for ongoing operational funding for example for environmental education and conservation outreach support the two key purposes required of the project by Government in undertaking Project Shapeshifter.

Given this Project, like other nationally significant facilities would benefit from collaborative partnerships a much wider discussion on innovative partner funding models is required across local and central Government, sponsorship and donor opportunities. This is critical given the importance of the web of relationships required to access and secure such funds. A further exploration of relevant Government funds which could be contributed is required and could include:

- other government funding sources e.g. Vision Mātauranga Capability Fund,
- interest free loans,
- similar funding arrangements as other nationally supported facilities (Te Papa, Waiouru Army Museum, Waitangi Treaty Grounds) such as application free Lottery Funds, and,
- relevant agency contributions and funding programmes from Department of Conservation, Ministry of Education, Culture and Heritage etc.

This clearly goes to the core of the ideal partnership, ownership and operating model for the proposed National Aquarium and Oceans Centre being explored thoroughly, and which requires further development and discussion amongst interested parties.

Financial Modelling

Visitor and revenue estimates

Analysis of Visitor Pools

The analysis to drive potential visitor number estimates included

Identify key potential visitor pools:

- International – Free and Independent Travellers (FITs)
- International – Cruise visitors
- National – Overnight stay visitors
- Regional visitors – within two hours' drive
- Local visitor – Ahuriri Napier and Heretaunga Hastings

Identify relative visitor pool growth projections:

- Population growth – a conservative 2.1 percent national growth figure rather than the regional growth estimates of 5-10 percent (ex Statistics NZ) was applied.
- International FIT numbers – a conservative 3 percent growth rate rather than the NZTE/Tourism NZ projections of 4-5 percent was applied.
- Cruise Ship Visitors – a conservative 5 percent growth rate rather than the Cruise NZ prediction of 10 percent was used.

Establish baseline capture rates within visitor pools and potential changes to future capture rates:

- Initially the capture rate for each pool was established. This proved rather difficult in areas other than the cruise ship visitor numbers which could be more easily separated from the total visitor numbers.
- Then a level of projected capture increase over time was applied across each pool.

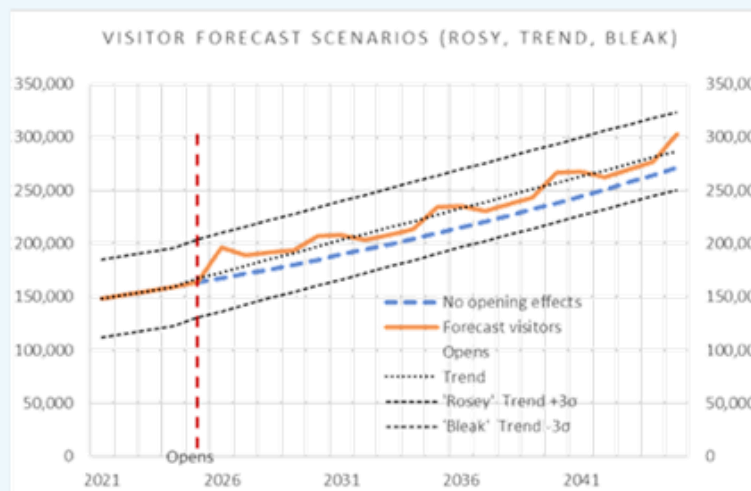
Comparative assessment of other key NZ Tourist destinations

- Te Papa Tongarewa National Museum (Wellington), Waitangi Treaty Grounds (Bay of Islands), Te Puia Māori Cultural and Geothermal (Rotorua), the National Army Museum, (Waiouru), Kelly Tarlton's Aquarium (Auckland), Pukaha National Wildlife Centre (Wairarapa), Whale Watch Kaikoura & the Antarctic Centre (Christchurch).

- Hobbiton was excluded because of the significant international marketing exposure received through the Lord of the Rings trilogy.

Assess the impact of NANZ Improvements:

- Introduce impact assessment on visitor numbers for initial opening interest increases,
- five yearly significant exhibit changes, and,
- ten-year major exhibit changes, consistent with international best practice.



	Revenue											
NZD\$000	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35-FY49	Total
Admission revenue	2,827	4,179	4,023	4,081	4,134	4,414	4,425	4,332	4,442	4,556	86,331	127,743
Retail shop sales	242	357	344	349	354	377	378	370	380	390	7,384	10,925
Food and beverage sales	172	254	245	248	251	268	269	263	270	277	5,250	7,768
Other revenue	671	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	1,007	15,098	24,828
Total real revenue	3,912	5,797	5,619	5,685	5,745	6,066	6,079	5,972	6,099	6,229	114,062	171,265
Escalation	457	858	1,013	1,212	1,420	1,712	1,933	2,120	2,396	2,690	93,293	109,105
Total nominal revenue	4,369	6,655	6,631	6,898	7,165	7,778	8,012	8,092	8,495	8,919	207,355	280,370



The number of visitors are a primary driver for revenues.

- Admission revenue is based on forecast visitor demographics.
- Retail shop sales are based on a \$1.82 (excl. GST) spend per visitor in current prices. This is based on historical spend rates of the current aquarium with the potential for upside given the new Café facilities and longer visit length of patrons.
- Food and beverage sales are based on a \$1.30 (excl. GST) spend per visitor. This is based on historical spend rates of the current aquarium with the potential for upside given the expected increase in the quality of merchandise offered.
- Other real revenue of \$1.0 million per year relates to sleepovers, animal encounters, and educational events.

Financial Modelling

Operating costs and depreciation schedule

Operational Expenditure

- Labour costs are built up based on an initial organisation structure which includes 87 FTEs and 150 volunteers. These numbers escalate in-line with the number of visitors.
- Variable operational expenditure includes:
 - Shop stock purchases calculated based on 56 percent of retail shop sales;
 - Marketing based on 7.5 percent of admission revenue; and
 - Café purchases are based on 62 percent of food & beverage sales.
- During FY25 (eight months of operation) fixed operational expenditure largely relates to insurance (\$0.4m) and maintenance (\$0.4m), and costs associated with revenue generation (\$0.5m). In the first full year of operations (FY26) fixed operational expenditure largely consists of \$0.6m insurance, \$0.6m maintenance.
- A step change in maintenance costs is expected in five years after opening (FY30) where real maintenance costs increase to \$1.7m.

Operating costs					
NZD\$000	FY21	FY22	FY23	FY24	Total
Labour	-	-	-	-	-
Other variable opex	-	-	-	-	-
Fixed opex	507	561	678	599	2,345
Total real operating costs	507	561	678	599	2,345
Escalation	-	16	38	52	106
Total nominal operating costs	507	577	716	651	2,451

Operating costs													
NZD\$000	FY21 - FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35-FY49	Total
Labour	-	3,738	5,607	5,403	5,479	5,547	5,913	5,927	5,806	5,950	6,098	114,970	170,438
Other variable opex	-	446	659	635	644	652	696	698	683	701	719	13,618	20,150
Fixed opex	2,345	1,644	2,108	1,964	1,870	1,820	2,918	2,918	2,918	2,918	2,918	43,766	70,105
Total real operating costs	2,345	5,827	8,374	8,002	7,993	8,019	9,527	9,543	9,407	9,568	9,734	172,354	260,693
Escalation	106	681	1,240	1,442	1,704	1,983	2,688	3,035	3,339	3,759	4,204	140,455	164,636
Total nominal operating costs	2,451	6,508	9,614	9,444	9,697	10,002	12,215	12,578	12,746	13,328	13,939	312,809	425,329

Depreciation												
NZD\$000	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35-FY49	Total
Initial capital costs	1,547	1,550	1,550	1,550	1,550	1,550	1,550	1,550	1,550	1,550	23,252	38,751
Fit-out/ exhibition refurbishment	-	-	-	-	-	374	374	374	374	374	14,951	16,822
Total depreciation	1,547	1,550	1,550	1,550	1,550	1,924	1,924	1,924	1,924	1,924	38,204	55,573

Depreciation

- Depreciation on the initial capital costs is based on a 50-year useful life beginning at the start of the operational period (FY25). Total depreciation incurred between FY21-FY49 is \$57.6m.
- Depreciation on the fit-out replacement is based on a five year useful life. Total depreciation incurred between FY21-FY49 is \$9.3m.
- Depreciation on the refurbishment of exhibitions is based on a ten-year useful life. Total depreciation incurred between FY21-FY49 is \$7.5m.



Financial Modelling

Cashflow projections



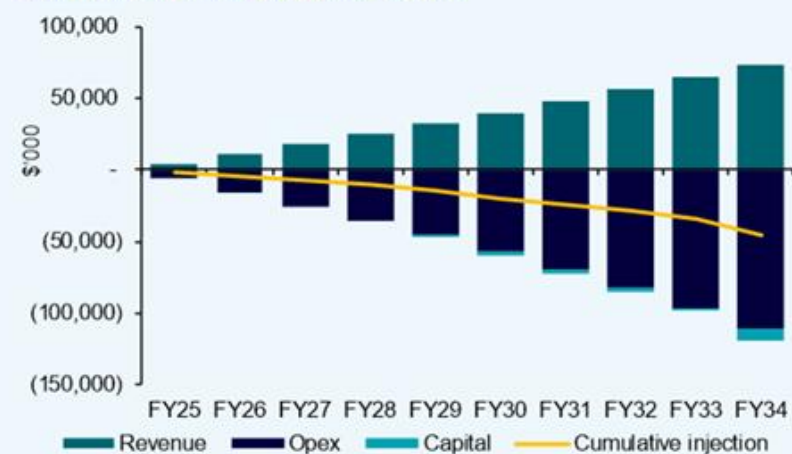
Pre-opening operational shortfall					
NZD\$000	FY21	FY22	FY23	FY24	Total
Revenue	-	-	-	-	-
Opex	(507)	(577)	(716)	(651)	(2,451)
Interest	-	-	(91)	(432)	(523)
Total nominal operating costs	(507)	(577)	(807)	(1,083)	(2,974)

Operating Cashflow

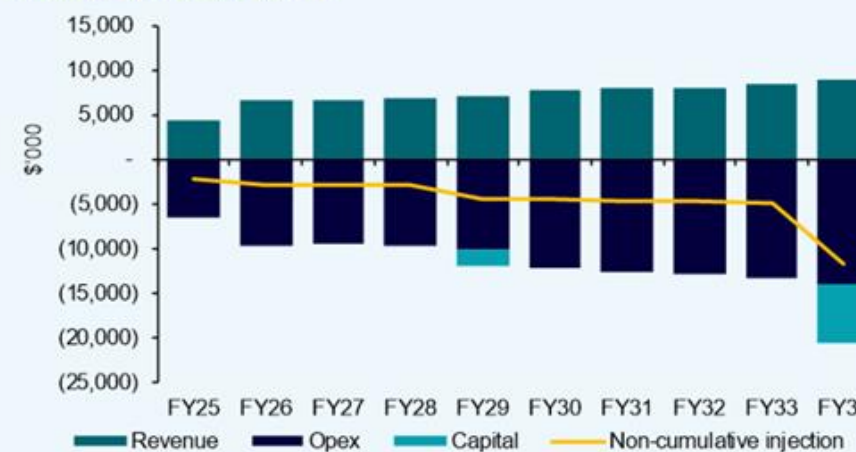
- Net operating cashflow is negative during the operational period. Additional funding injections will be required to fund operations as well as the fit-out replacement/exhibition refurbishment.
- Operational funding injections of \$2.1m are required in the first year of operations (eight months in FY25). Injections of \$3.0m are required in the first full year of operations (FY26).

Operational shortfall													
NZD\$000	FY21 - FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35-FY49	Total
Revenue	-	4,369	6,655	6,631	6,898	7,165	7,778	8,012	8,092	8,495	8,919	207,355	280,370
Opex	(2,451)	(6,508)	(9,614)	(9,444)	(9,697)	(10,002)	(12,215)	(12,578)	(12,746)	(13,328)	(13,939)	(312,809)	(425,329)
Interest	(523)	(809)	(878)	(794)	(383)	-	-	-	-	-	-	-	(3,388)
Total nominal operating costs	(2,974)	(2,948)	(3,836)	(3,606)	(3,183)	(2,836)	(4,437)	(4,566)	(4,654)	(4,833)	(5,020)	(105,454)	(148,347)

Cumulative funding injection required



Funding injection required



Kaupapa Tauhokohoko Commercial Case



Kaupapa Tauhokohoko | Commercial Case

Procurement approach

The model for delivery of this project is likely to be 'traditional' in nature rather than a 'design and build' or other method. This is due to the highly specialised nature of the facility to be delivered.

Some aspects of the build can be ring-fenced as discrete packages of work. This will enable tendering to be spread across different engagement approaches. Building envelope construction for example can be via open tender on price quality criteria. However, it is preferable that specialist services such as tank construction and Life Support Systems be via a pre-selected tender also on price quality criteria.

This means that some engagement can be carried out via open Tenderlink type method whilst other will go through an Expression of Interest and invitation to tender method.

Framework

It is considered best-practice for councils to use the government's approved procurement framework, as this can significantly reduce the time taken to select and appoint suitable suppliers.

The necessary suppliers can be selected by tender or from an existing panel, which will be based on pre-established criteria. Typical selection criteria include the previous experience of the company and people in the design and construction of similar facilities, as well as price.

The procurement strategy defines the procurement process for the project. This may be prepared internally by the Council or externally, such as by the project manager or architect. The procurement strategy will consist of the following elements:

- Investment objectives – definition of the project objectives, risks and constraints and their effects on the procurement process.
- Policy frameworks – definition of the guiding policies and frameworks that relate to the scope of the project, from both the Council and government.
- Project scope – a clear description of the project scope required to achieve the objectives.
- Tendering approach – open, pre-selected, closed, negotiated, sole-

source. It must include provision for indigenous procurement.

- Contracting type – the delivery method that is best suited to achieve the project objectives and mitigate project risks.
- Selection of consultants – the process for consultant selection and the criteria for selection.
- Selection of contractor – the process for contractor selection and the criteria for selection.
- Contract form and payment mechanism – the most appropriate contract form to manage the project risks, and how the payment mechanism will be defined within that contract.
- Specific contract mechanisms – specific contract mechanisms for this type of facility.
- Roles and responsibilities – delegations and clarity of authority and responsibility.
- Key requirements and documents – specific documents for this type of facility.

Roles and responsibilities

There are a number of roles required for the procurement of the proposed investment. The project manager will typically prepare the procurement strategy, tender documentation and scope, and manage technical inputs to the procurement documentation, with the assistance and guidance of the Council's procurement team.

A critical role is the Council's Senior Responsible Officer, who has suitable delegation and authority to approve the procurement steps. Another critical role is the interface between design and operations. This role focuses on providing clarity for approvals to handover the facility to the Council.

Other key roles include technical and consultant support:

- Project management and reporting
- Māori cultural advice with deference to Ngāti Kahungunu kawa
- Urban planning advice
- Technical advice (architect/cost consultant/other technical disciplines)
- Financial advice
- Legal advice.



Kaupapa Tauhokohoko | Commercial Approach

Required services

Service	Required scope
Project Manager	Responsible for delivery of the project scope, cost, time and quality, including procurement of the team to achieve the outcomes. Reports to the Project Sponsor. Involved from initiation through to handover to operations. Can be an internal resource or externally procured. Can sometimes include design management to support the design coordination role
Project Engineer	Responsible for the administration and management of the construction contract
Project Māori Advisor	Responsible for mana, te reo me ōna tikanga, building and curatorial design advice, pūrākau, mātauranga Provides clear direction in engagement with Ngāti Kahungunu and Ngāi Māori
Quantity Surveyor	Responsible for developing and agreeing the capital cost estimation methodology. Also updating the project control budget and providing assessments for variations and progress claim certificates. Scope to include whole-of-life costs for plant selection
Architect	Typically lead consultant, and responsible for the provision of detailed design drawings and technical specifications and monitoring the construction in accordance with New Zealand Institute of Architects observation levels 1-5 to achieve the intent of the design. Responsible for building consent process, lodgement, responses and obtaining approvals
Structural Engineer	Provides detailed design drawings, technical report and technical specifications Provides construction monitoring during the construction phase, assists with design-related issues in accordance with IPENZ construction monitoring levels 1-5, and as per scope of services Provides certification of design in accordance with relevant standards and to achieve the Code Compliance Certificate (CCC)
Fire Engineer	Provides detailed design drawings, technical report and technical specifications Provides construction monitoring during the construction phase, assists with design-related issues in accordance with IPENZ construction monitoring levels 1-5, and as per scope of services Provides certification of design in accordance with relevant standards and to achieve CCC
Mechanical/HVAC/hydraulic/electrical engineer	Provides detailed design drawings, technical report and technical specifications Provides construction monitoring during the construction phase, assists with design-related issues in accordance with IPENZ construction monitoring levels 1-5, and as per scope of services Provides certification of design in accordance with relevant standards and to achieve CCC
Civil Engineer	Provides detailed design drawings, technical report and technical specifications Provides construction monitoring during the construction phase, assists with design-related issues in accordance with IPENZ construction monitoring levels 1-5, and as per scope of services Provides certification of design in accordance with relevant standards and to achieve CCC
Geotechnical Engineer	Provides detailed design drawings, technical report and technical specifications Provides construction monitoring during the construction phase, and is responsible for dealing with the site ground conditions, foundations and groundwork required Provides certification of design in accordance with relevant standards
Planning Officer	Provides consenting strategy, schedule of consents required, specific planning advice, assessments of environmental effects and scoping of technical assessments, and includes lodgement and processing support for the resource consents
Legal Advisor	Provides legal advice as required for planning, consenting and compliance purposes
Construction Contractor	Constructs the facility to the supplied designs, managing all subcontractors as required
Exhibit water services engineer	Ensures that the design enables optimal water conditions for life support

Approach	Summary	Rating
Open tender	The open procedure is suitable where the contract is straightforward, with a limited requirement for specific skills/technical capacity, and where there is a limited number of potential contractors/consultants. It allows for a combined pre-qualification and tender assessment	
Pre-selected tender	The pre-selected tender is suitable when specific skills/technical capacity are needed and there is a limited number of potential contractors/consultants. Advice should be sought from specialists in procurement	
Existing procurement panel	Typically, an existing procurement panel will have a pre-qualification for specific skills/technical capacity. This is a potential approach if access to an existing panel, with a specific facility skill-set, is demonstrated	
Competitive dialogue	This procedure should only be used for complex contracts where the local authority does not have defined service requirements or is not able to identify clearly its legal and/or financial requirements. This procedure is most commonly used for high-value and innovative contracts	
Closed tender	Similar to the pre-selected tender and suitable for when specific skills/technical capacity are needed and there is a limited number of potential contractors/consultants. Advice should be sought from specialists in procurement. Provides good platform for indigenous procurement	
Negotiated tender	Subject to relevant procurement policies, a negotiated tender between no more than two parties may be a suitable procurement approach when specific skills/technical capacity are needed and there is a limited number of potential contractors/consultants. Both parties would need to have relevant experience	
Sole source tender	Subject to relevant procurement policies, a negotiated sole source tender may be a suitable procurement approach when specific skills/technical capacity are needed and there is a limited number of potential contractors/consultants. The party would need to have relevant experience	

There are a variety of methods for tendering, which include open, pre-selected, closed, negotiated and sole-source tendering. In turn, there are several delivery models available, which represent varying degrees of complexity, risk, innovation, client involvement and programme influence.

Irrespective of the process to select the required consultants and the construction company for the project, an evaluation framework will be used to assess the offerings available from the various interested parties. This uses four criteria:

- Price – has the tenderer demonstrated good value for money?
- Knowledge and experience – Has the tenderer demonstrated good knowledge of the requirements? Have they demonstrated their skills through the completion of other/similar projects? What were the outcomes of those projects? Have references from those projects been provided?
- Methodology – Has the tenderer demonstrated a good understanding of the project? And does the process they have outlined make sense and is it likely to work?
- Personnel – Is the tenderer able to call upon people with different/necessary skill-sets to complete the project? And what is the risk to the investment should the lead consultant or nominated key personnel leave mid-project?

Kaupapa Tauhokohoko | Commercial Approach

Market appetite and engagement

The business case and the Master Plan are essential precursors to engaging with the market and obtaining suitable tenders for the design and construction services required. A Procurement Strategy workshop will be run once approval for the investment has been given, which will determine the most appropriate procurement method to achieve the best value for the Council. The workshop will be independently facilitated by a specialist procurement consultant with design/build experience in similar-sized projects.

It is anticipated that there will be two major procurement components:

1. The design services required to take the concepts to detailed design and consent drawings
2. The construction services necessary to build the buildings and obtain Code Compliance.

It is likely that the greatest value for the Council will be obtained by engaging a specialist construction advisor before completion of the detailed design. This approach will ensure the design is constructable and will allow the construction contractor and the designers to develop suitable construction methods (buildability).

As part of this process, it is envisaged that the design architect will play an active role in the construction tender process and is likely to be a member of the evaluation panel.

In order to increase industry interest in the project, briefings will be held for both the design and the construction. The Master Plan, business case, Council policies (such as health and safety requirements) and related documents will be made available to ensure that bidders are both aware of and informed about the project.

An open tender process will be run on TenderLink, and probity advice will be sought throughout the process.

It is likely that any design/construction process will be desirable to the market, as it is exploitable by nature due to the design/construction work likely being profitable and the lack of the need for a long-term relationship between the parties. Both the Council and the suppliers are independent of one another and are not reliant on each other to function, so good project and contract management will be required throughout the project. The likely risks and their mitigations are shown in the table at right.

Given this context, it is likely that the Council will pursue a tactical competitive relationship with the successful design and construction suppliers.

Te Kaunihera o Ahuriri Napier City Council is committed to use the opportunity of this project, given its scale, to also create positive social and local economic outcomes through the commercial development including the use of local businesses, apprenticeships for enabling those not in education, employment or training (NEET) to be involved.

The Commercial Case does not yet consider the commercial arrangements that will need to be negotiated and developed between the ownership and operational partners.

Milestone	Description	Purpose
Pre-Procurement		
Prepare strategy and documentation	Preparation of all tender documentation including: <ul style="list-style-type: none"> • Agreed procurement strategy • Consultant request for proposals • Contractor request for tenders • Tender evaluation criteria 	Clarify the scope and requirements of the procurement process
Procurement		
Industry briefing	Meeting with consultants/contractors/ operators to present project scope and objectives	Consult parties prior to tender with the intent that planning for the preparation of a tender can commence
Request for tenders/proposals	Invitation to tender to select group of contractors/ consultants/ operators	Formal tender process to a select group of contractors/consultants/ operators to bid competitively for the relevant contract
Receipt of tenders	Close of tender period	
Tender evaluation	Process implemented to assess the preferred contractors/consultants/ operators	Determine the most suited contractors/consultants/ operators to achieve the project objectives
Tender interviews	Interviews of preferred and next preferred contractors/consultants/ operators	Understand proposition in more detail and discuss key points of tender
Contract negotiation	Final negotiations once preferred contractors/ consultants/operators selected	Agree on terms of contract
Due diligence	Process to verify that the preferred contractors/ consultants/operators have the capability and capacity to deliver the contract	Obtain a high level of comfort that the contract can be delivered on time, within budget and to the required standard
Contract award	Award of consultant/construction/ operator contracts	Enables preferred party to organise resources
Contract execution	Signing of contracts	Official start date
Early operator involvement	Approach implemented to include operator in design	Supports improved teamwork, innovation and delivery

Risk	Probability	Impact	Rating	Mitigation	Responsible
Suitable companies don't tender				Tenderlink process along with appropriate industry briefing	Procurement Manager Project Manager
Best value not achieved for NCC, through inappropriate procurement process				Run a procurement strategy workshop	Procurement Manager External consultants
Budget blowout				EOI/RFP Process/ Negotiation to ensure best value can be achieved	Procurement Manager Project Manager External Construction Contract Lawyer (for Construction process)
Don't wish to participate in 2-step process				Speak to potential respondents who have downloaded EOI documents	Procurement Manager
Evaluation team not able to reach consensus for RFP				Facilitation of evaluation session with non-voting facilitator	Procurement Manager



Kaupapa Whakahaere Management Case

Project delivery approach

An assessment has been made of the level of complexity of the National Aquarium and Oceans Centre project, and this has identified that it is a High Complexity project, primarily due to the number of organisations and stakeholders that will be involved in the project. These inter-relationships are shown in the diagram at right.

- The appropriate methodology pathway to be used
- The project management capability level and experience required (i.e. skills and experience)
- The appropriate level of project governance (e.g. at what level in the organisation sponsorship should sit) and who should be included on the Steering Group).



NAPIE
CITY COUNCIL
Ta Kaitiaki o Aotearoa

Kaupapa Whakahaere | Management Case

Project delivery phase plan

The project will be carried out in accordance with internationally recognised formal project management methods and protocols.

The commencement of a project occurs at the Start Up phase. This allows for the allocation of initial project resources such as the Project Manager.

Moving between the phases in the project delivery pathway is a structured process, under detailed governance oversight. Te Kaunihera o Ahuriri Napier City Council approach to governance and how the phase transitions are managed is described in more detail below.

The management of the project is also likely to involve the use of a project specific construction project management software as well as standard Te Kaunihera o Ahuriri Napier City Council software tools. Contracts will be in accordance with New Zealand Standards.

Initiate Phase

The Initiate phase includes the activities and processes to develop a full Work Breakdown Structure (WBS) for the intended work, and the risk profile for the project is assessed to ensure that decision makers are fully informed about the likely challenges - including the risks that may arise if the investment does not proceed.

The project is part way through the Initiate phase, which will conclude with the approval of the investment by Council.

Deliver Phase

Once the business case has been approved and funding allocated, the Deliver phase can commence. This is the core of the project, where:

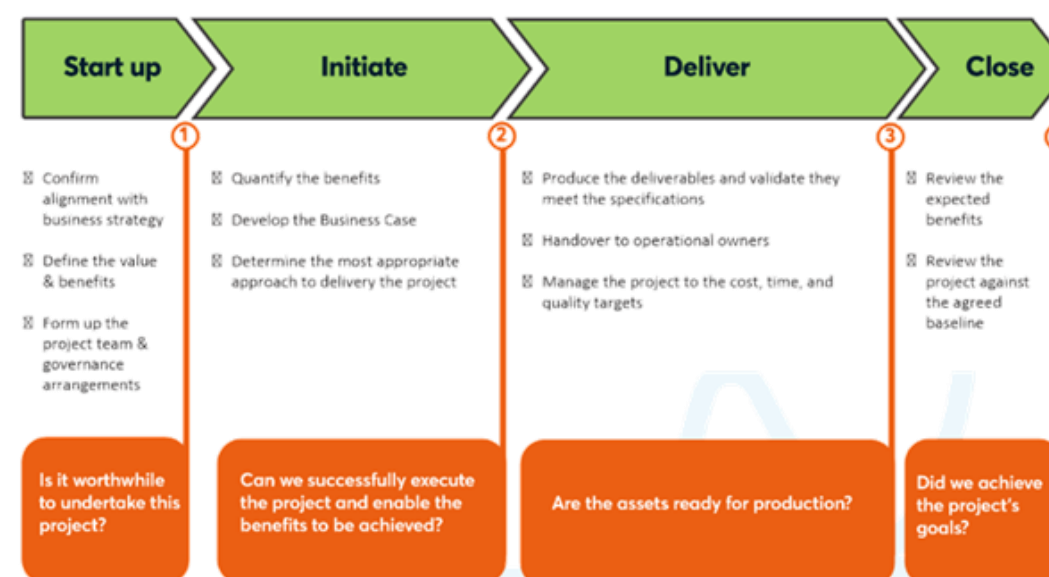
- High level and detailed requirements for the facility and the experiences are developed
- Vendors are engaged to assist with the design of the facility and the experiences, as described in the Commercial Case
- Contracts for the construction of the facility and the development of the experiences are let, using the agreed procurement processes
- Construction of the facility and its required infrastructure occurs, in accordance with the contract

- The experiences are constructed and commissioned, and the appropriate species are homed at the National Aquarium and Oceans Centre once the correct care and management systems and processes are operational
- Staff and volunteer recruitment and training occurs
- Operation of the National Aquarium and Oceans Centre commences and the completed facility is handed over to the National Aquarium and Oceans Centre Trust.

Throughout the phase, the standard controls embedded in Te Kaunihera o Ahuriri Napier City Council project management framework are applied, which occurs through a mixture of processes and systems. Copies of the relevant artefacts are available on request.

Close Phase

The close phase ensures that all deliverables are complete, that costs have been allocated correctly, that the benefit realisation plan is in place, and that all residual risks are allocated and are being managed. The final step in the process is to ensure that the lessons learned from the project are incorporated into the appropriate Te Kaunihera o Ahuriri Napier City Council registers so that future projects can benefit from the knowledge that has been acquired.



Kaupapa Whakahaere | Management Case

Project delivery work packages

The project has been divided into a set of work packages.

Funding, Communications and Te Reo me ōna Tikanga



Communicates the objectives and benefits of the National Aquarium and Oceans Centre to external audiences

Provides for Māori language capacity and promotes normalization of te reo Māori in all project communications and marketing materials

Develops the detailed fundraising plans and initiatives for the capital and operational costs of the facility

Manages the fundraising initiatives and solicits the funding necessary for the project to proceed

Reports to the Project Manager, the Steering Group and the Council on progress towards the fundraising targets

Infrastructure, Construction and Cultural Design Outcomes



Develops the detailed plans for the National Aquarium and Oceans Centre, working with the required advisors and Council officers

Resources and enables ongoing engagement with Ngāti Kahungunu designers for full inclusion of cultural design outcomes and stories

Confirms construction budgets and costs for the facilities

Obtains the appropriate consents and approvals for the construction and commissioning

Issues and manages the contracts for all aspects of the infrastructure and construction, in conjunction with the procurement team

Is responsible for construction of the facility on time, within budget and to the required quality standard

Commissions the facility and hands it over to the National Aquarium and Oceans Centre Trust to operate

Experiences, Education and Mātauranga Māori



Designs the experiences, educational features and species for the National Aquarium and Oceans Centre

Designs the visitor experience to provide the best possible platform to interpret Te Ao Māori to a mainstream audience

Provides the requirements and specifications for the experiences and species to the infrastructure and construction team

Oversees the delivery of the internal and external elements of the design that are integral to the experiences and the care of all the species at the National Aquarium and Oceans Centre

Designs the operational processes associated with the species housed at the facility and ensures these meet all required standards

Hands over operation of the facility to the National Aquarium and Oceans Centre Trust

People, Capability and Cultural Intelligence



Designs the organisational structures and job roles necessary to meet the operational requirements

Understands the need for a high level of cultural intelligence reflected in the role descriptions and cultural KPIs of each role.

Designs the systems and processes that enable volunteers to participate in the National Aquarium and Oceans Centre

Implements the ICT systems necessary for the facility to operate, working with the Napier City Council

Puts in place the employment contracts for staff and volunteers and hands these over to the National Aquarium and Oceans Centre Trust

Procurement and Commercial Management

Provides requirements, advice and assurance on the procurement and contracting for all elements of the facility. Works with appropriate external vendors to ensure contractual obligations are being met, and coordinates validation and audits as required. Indigenous procurement is critical to the successful development of Project Shapeshifter

Project Management

Manages the planning and delivery of the work to ensure the required outcomes are delivered on time, within budget and to the required quality standard. Manages project scope, deliverables, risks, dependencies, resources, schedules and budgets, and is responsible for the outcomes.

Kaupapa Whakahaere | Management Case

Project timeline

High Level Project Plan (Timelines)	2021	1/4 2022	2/4 2022	3/4 2022	4/4 2022	1/4 2023	2/4 2023	3/4 2023	4/4 2023	1/4 2024	2/4 2024	3/4 2024	4/4 2024	1/4 2025	2/4 2025	3/4 2025	2026	2027	2028 +
DBC Accepted																			
Funding - Timelines																			
RGS - Phase one fundraising programmes																			
RGS - Phase two fundraising programmes																			
NCC - Contribution																			
PGF - Contribution																			
RGS - Funding streams (RGS)																			
Shortfall Top Up																			
Expenditure by year	\$1m		\$14.7m				\$29.0m				\$24.70			\$11.80		\$0.2m			
Debt Funding							0.1m				\$0.4m			\$0.8m		\$0.9m	\$0.8m	\$0.3m	
Build Timelines																			
Design and QS detailing and pricing confirmation																			
Resource & Building consent Process																			
Building tender and Approval																			
Shell Construction																			
Exhibit Installation & Prep																			
Theme Fit Out																			
Landscaping																			
Animal transfer from old facility																			
Opening and full operation begins																			
Removal part of old building																			
Repurpose remaining old building																			

Kaupapa Whakahaere | Management Case

Project governance and management

Governance Framework

The diagram at right shows the project governance and management structures, which are in line with Te Kaunihera o Ahuriri Napier City Council's project methodology and social enterprise development best practices.

Overall governance of the project rests with the major partners contributing to the project and who seek to be involved in bringing Project Shapeshifter to life including the Mayor and Councillors, Ngāti Kahungunu Iwi Inc., the Government and others. Oversight of the project will be delegated to a Project Steering Group led by the Te Kaunihera o Ahuriri Napier City Council Chief Executive. There is a clear reporting line from the responsible Project Manager to the governance authority for the project.

As the diagram indicates, there are multiple points where external advice and input can be received. These range from external assurance at governance level, through to project and technical advisory groups providing input at the management level.

This arrangement will shepherd the project through to opening the independently owned facility and collaborating with the new Trust(s) as and when they are established.

govern

steer

manage

deliver



Project Sponsors

Mayor and Councillors Te Kaunihera o Ahuriri Napier City Council
Ngāti Kahungunu Iwi Inc.
Central Government
Other Partner representatives

External assurance

Project Steering Group

Wayne Jack | Chief Executive
Kauhautū | Principal Māori Advisor
Te Kaunihera o Ahuriri Napier City Council Senior Leadership Team
Ngāti Kahungunu Iwi Inc. Representative

Technical Advisory Groups

Project Manager

Funding,
Communications and
Te Reo me ōna
Tikanga

Infrastructure,
Construction and
Cultural Design
Outcomes

Experiences,
Education and
Mātauranga Māori

People, Capability
and Cultural
Intelligence



External vendors and advisors

Tūtohutanga Recommendations

Tūtohutanga | Recommendations

1. That existing National Aquarium of New Zealand should be decommissioned and a nationally and internationally significant National Aquarium and Oceans Centre be built on Marine Parade in Ahuriri Napier that repurposes the newer parts of the existing National Aquarium of New Zealand (2002 expansion).
2. That the proposed ownership structure (Trust) be explored further and considered against funding source and partner perspectives, expectations and commercial structures. Project Shapeshifter has received feedback that it preferably be a model that is ultimately co-owned by a range of interests across Ngāti Kahungunu whānui, Napier City Council, (a combination of) the other four councils in the region, and as such can attract a wide range of funding/funders.
3. That relationships are strengthened with Ngāti Kahungunu whānui, and that Ngāti Kahungunu lead a national dialogue with Iwi to fully realise the potential of, and issues related to, the proposed National Aquarium and Oceans Centre and that a new and appropriate Māori name is bestowed on this facility.
4. That an outreach process is undertaken with Iwi Taketake, Pacific Rim indigenous nations to establish relationships and explore potential mutual collaboration.
5. That central government partner to:
 - Commit \$15 - \$35 million from the Provincial Growth Fund towards the project to overcome issues with timing, funding shortfall and the project's national importance.
 - Contribute resources (funds, expertise, policy as required etc.) from other central government funds and agencies including but not limited to: Māori Economic Development, Vision Mātauranga, Education, Conservation, Culture and Heritage, Tourism New Zealand, Science and Innovation, and the Ministry of Foreign Affairs and Trade towards the further analysis required until opening day and in regular grants to the operational facility.
 - Explore the legal basis for a nationally significant facility to assess whether the Museum of New Zealand Te Papa Tongarewa Act 1992 should be amended to enable the National Aquarium and Oceans

Centre, whether a new Act is required or whether a Trust (social enterprise model) suffices.

6. That a bold fundraising programme be designed to encompass a blended capital model including:
 - Te Matau-a-Māui Hawke's Bay councils
 - Central Government
 - The Ngāti Kahungunu Post Settlement Governance Entities and Ngāti Kahungunu Iwi Incorporated
 - Domestic and international philanthropists
 - Innovative financing models including but not limited to Impact Investment and raising an Endowment (to generate income towards operational costs).

7. That a formal strategic planning process be implemented for the National Aquarium of New Zealand, with a focus on conservation and education, to guide its transition to the National Aquarium and Oceans Centre.



Appendices & Supportive Correspondence

Document Lists

Appendices

1. Project Shapeshifter Supportive Correspondence listed below (various)
2. Presentation: Moana Tuatahi Concept 30 Oct 2019 (Terra Moana Ltd and Arahia)
3. 2019-10 FINAL Project Shapeshifter Phase One Community Engagement Activities report (Te Kaunihera o Ahuriri Napier City Council)
4. 20191022b NANZ RGS Review National Aquarium of New Zealand update (AskRight)
5. 20191105 NANZ Implementation Plan FINAL - Revised (AskRight)
6. Colmar Brunton Redefining our National Aquarium Survey report 23 Oct 2019 (Terra Moana Ltd and Colmar Brunton)
7. Project Shapeshifter Sectoral Outcomes - All Workshops Summary (Terra Moana Ltd)
8. Proposed National Napier Aquarium „Shapeshifter Demand Study FINAL (Terra Moana Ltd)
9. PWC - National - Aquarium - draft 28 August (PWC Governance Report)
10. PWC - NANZ_playback (PWC NCC Governance workshop report)
11. Project Shapeshifter Research Dialogue Report (Vince Kerr and Terra Moana Ltd)
12. Cultural Case (Terra Moana Ltd, Arahia and Te Kaunihera o Ahuriri Napier City Council)
13. Oceans First Kaupapa Conservation Education Messaging (Terra Moana Ltd and National Aquarium of New Zealand)
14. Timeline of engagements (Terra Moana Ltd, Te Kaunihera o Ahuriri Napier City Council)
15. Financial Model Te Whare Tangaroa o Aotearoa (KPMG and Terra Moana Ltd)

16. Extract Economic Impact Model V4.2 Monte Carlo (Ian Dickson and Terra Moana Ltd)
17. Project Management Framework (Te Kaunihera o Ahuriri Napier City Council)
18. Rider Levett Bucknall Quantity Survey Estimates
19. EHDD Design Package (Separate Folder)
20. M van den Belt Review of Moana my Ocean SROI

Supportive Correspondence

- A. Office of the Prime Minister's Chief Science Advisor, Participatory Science Platform
- B. Moana New Zealand
- C. Hawkes Bay Regional Council
- D. WWF NZ
- E. New Zealand Oceans Foundation
- F. East Coast Lab
- G. Mountains to Sea Conservation Trust National Office
- H. University of Waikato
- I. Eastern Institute Technology
- J. SPCA
- K. THL - Tourism Holdings Ltd
- L. X-craft
- M. Sally Carson Director Marine Studies Center, Otago University





TABLE OF CONTENTS

1	CONTEXT + APPROACH
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CONTEXT + APPROACH

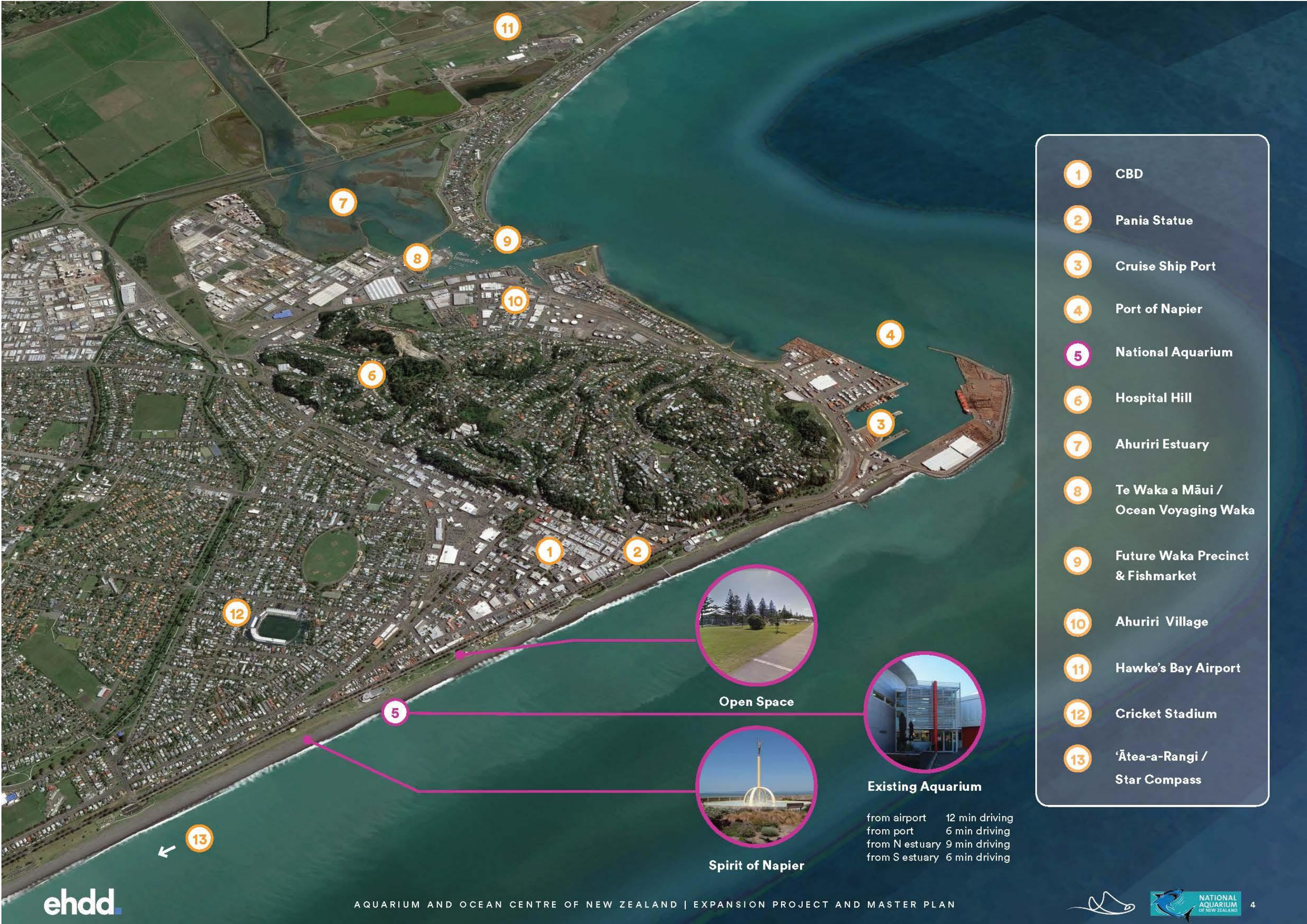
CONTEXT

SITE STRATEGY + RESILIENCY

AQUARIUM IN A NATURAL LANDSCAPE

PROPOSED SITE

SITE FORCES + APPROACH



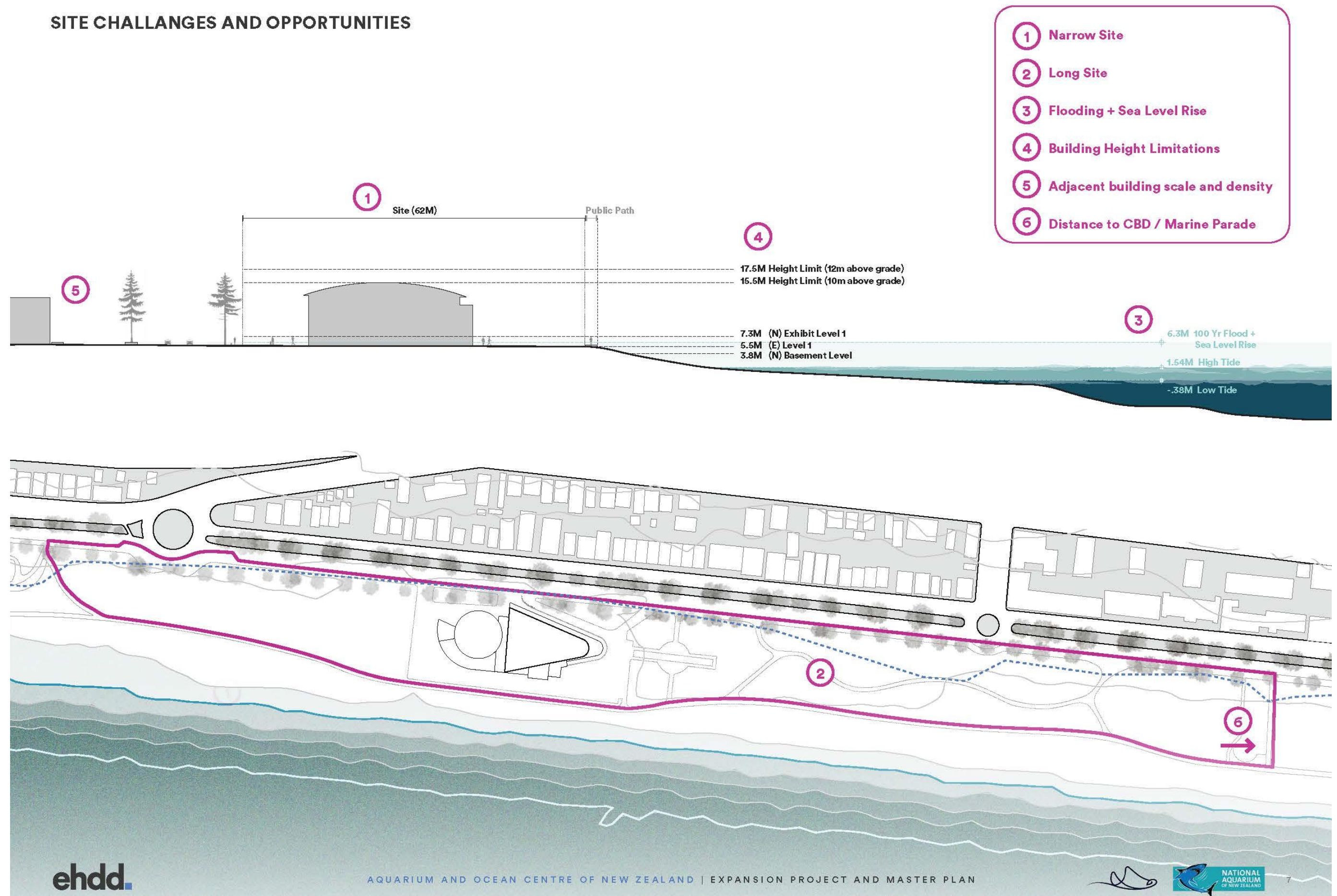


REGIONAL NATIVE HABITATS
ALONG THE COASTLINE

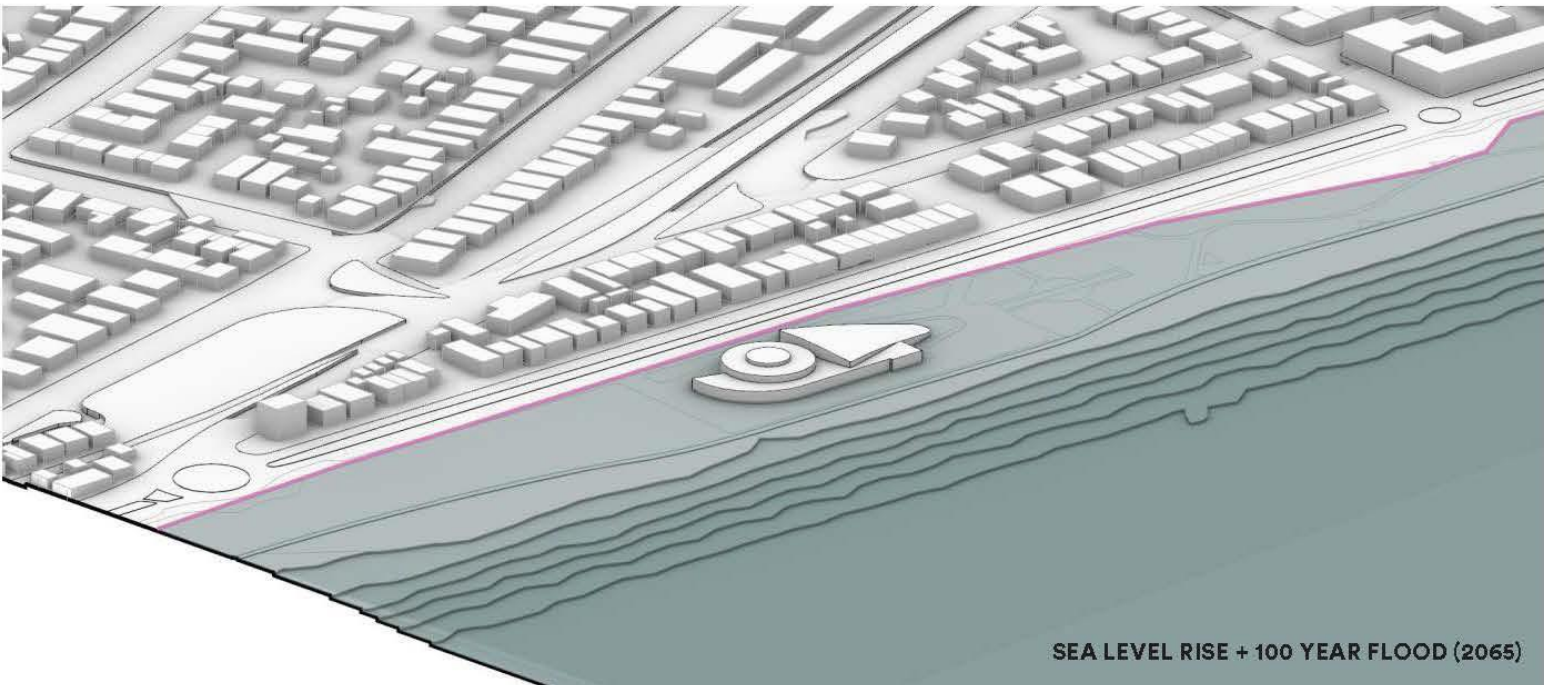
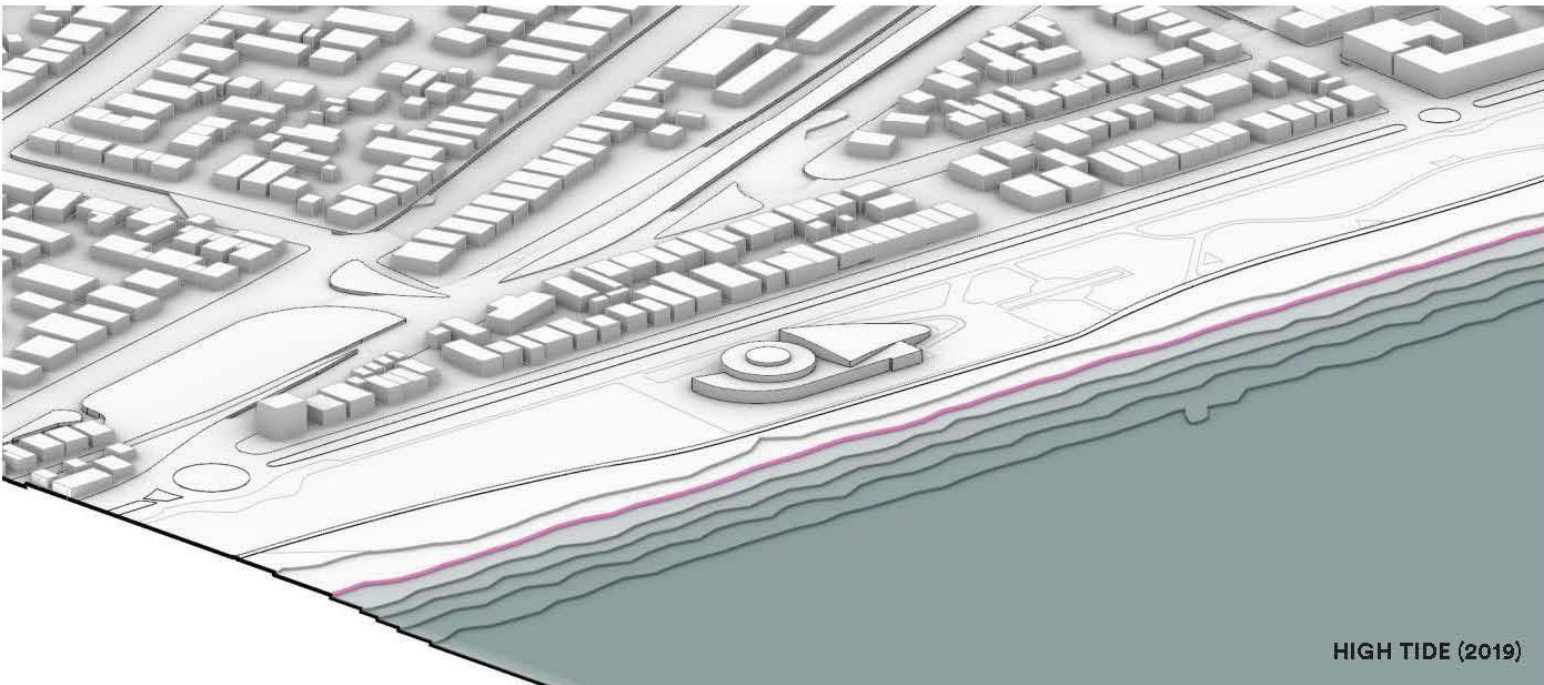


- The proposed site development strategy is based on a restorative approach to the local ecology of Hawke's Bay. Restoring native habitat on site will:
- Highlight a native context that transitions visitors' frame of mind as they approach and serves as a spectacular backdrop to the outdoor exhibits.
 - Create a landscape that is a buffer between the ocean and the city while acting as a regional example for resilient development.
 - Promote the presence and diversity of wild life on-site.
 - Celebrates the beauty of nature and inspires in visitors a sense of stewardship.

SITE CHALLENGES AND OPPORTUNITIES



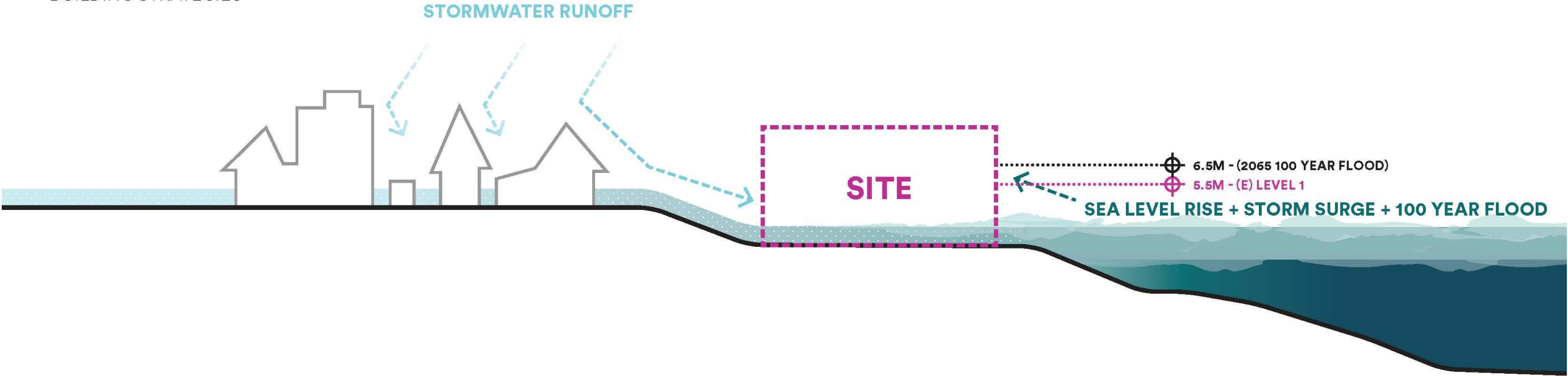
RESILIENT DESIGN
SEA LEVEL RISE



Over the last 10 to 15 years we have witnessed an increased frequency of extreme weather on a global scale. As we look towards future development, it's critical to incorporate resilience planning and strategies into the design of this project and others.

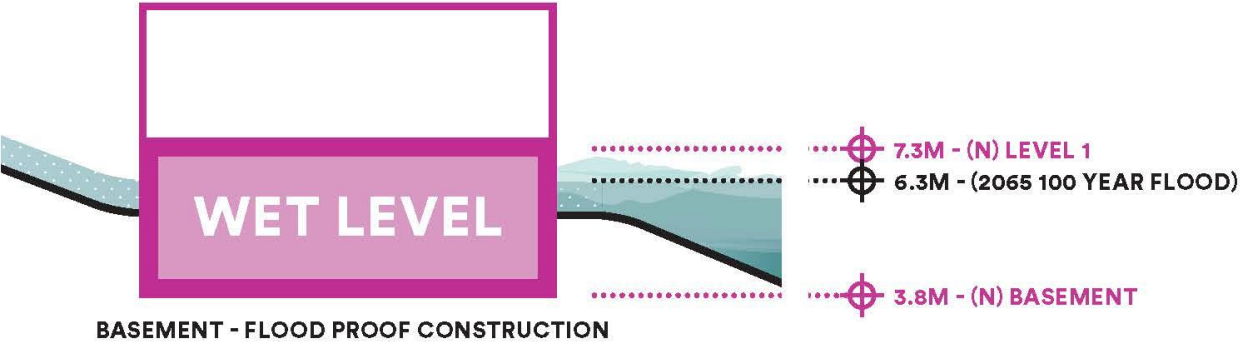
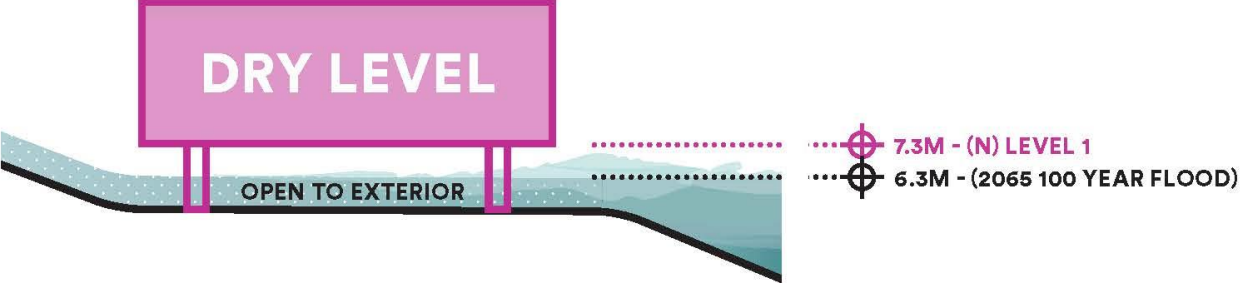
It is common for aquaria to occupy coastal sites. They have a symbiotic relationship with the ocean that surpasses any other building type. This proximity promotes a visitor's appreciation of and stewardship for the sea, while allowing the exhibits within to thrive off the raw sea water – a strategy that reduces reliance on additional resources. However, given the trajectory of climate change, using a coastal site means that adapting to sea level rise must be at the forefront of our resilience planning.

RESILIENT DESIGN
BUILDING STRATEGIES



The current 100-year flood level along the Napier coast is 5.7 meters above sea level. Research suggests that sea levels will rise as much as .6 meters in the next 50 years, and up to 1.35 meters in the next century. The corresponding 100-year event projections will be 6.3 meters at the 50-year mark, and 7.05 meters in the next century. In anticipation of this projection we propose the following design considerations:

- Raise the main floor level of the aquarium to 7.3 meters above sea level. This level is anticipated to remain dry during a flood event. All mission critical equipment such as electrical panels, on-site power generation, etc. is to be located at this level or higher.
- The lower level is to be designed as a “wet” level, or a level that could sustain flooding without significant damage. The design will still work to minimize flooding risk at the lower level, through sealed penetrations, backflow preventers on all drains, and flood doors on any required access hatches. All electrically powered equipment, such as pumps are to be installed on platforms 1 m above the floor slab.
- Site development will incorporate features designed to attenuate the impact of storm surge, and channel flood waters into lower-lying areas away from the building.
- A robust structural design that exceeds code requirements. During a major seismic event the building would remain standing with minimum structural damage. This increase in structural resistance will also make the building more resistant in the event of a tsunami.
- The envelope will be designed incorporating passive design principals, so that in the event of power loss the building will stay comfortable and occupiable with minimum reliance on the generator.
- The mechanical system will be designed with the ability to add increased filtration on air intakes to ensure that poor air quality from regional wildfire can mitigated, should this become a long term issue from an increase in regional drought.



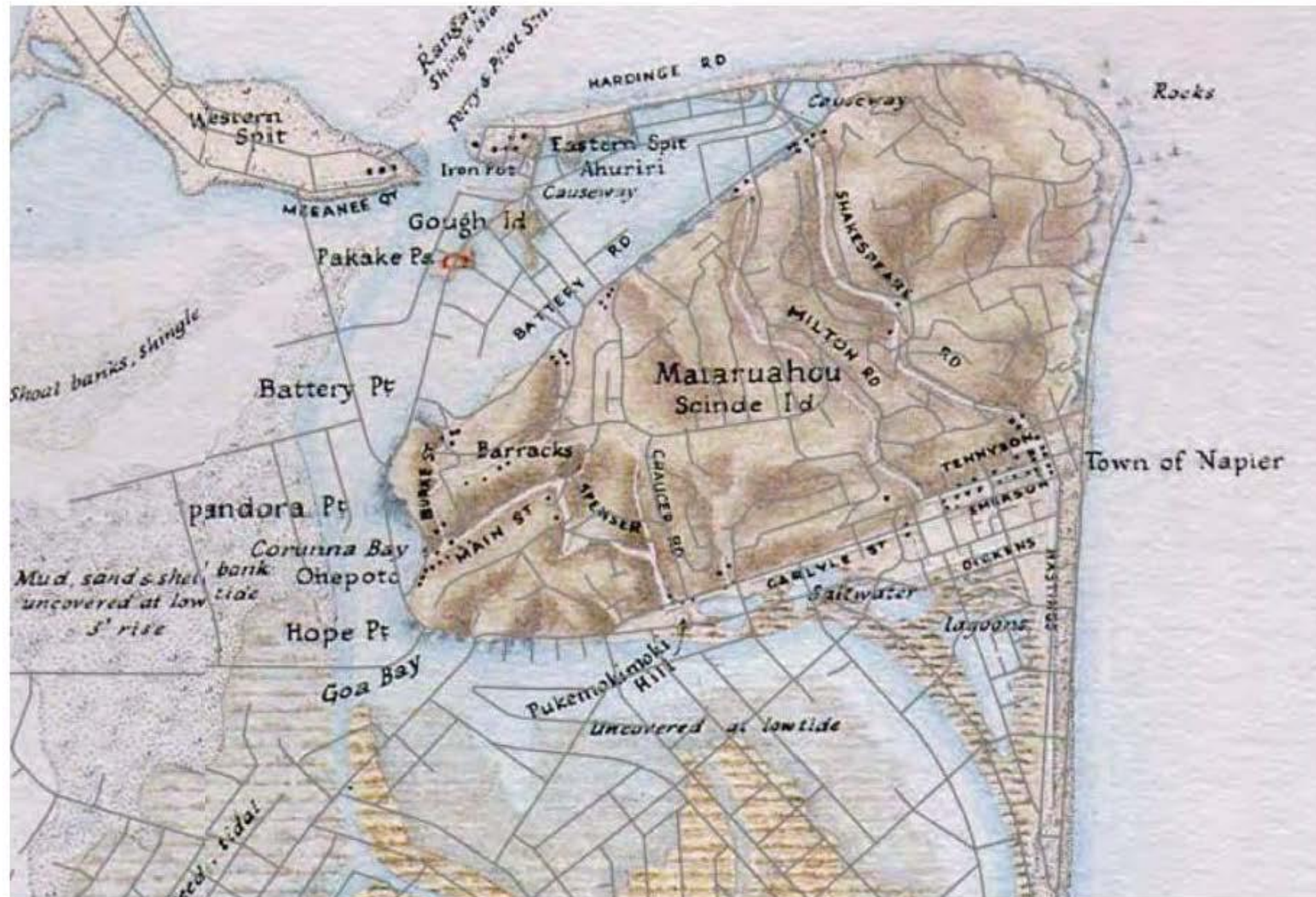
SITE STRATEGY
AQUARIUM IN A NATURAL LANDSCAPE



The revitalization of the natural habitat around the Aquarium and Ocean Centre of New Zealand sets it apart from most major aquaria, which are typically embedded in dense urban contexts. This strategy creates an experience that uniquely connects visitors to the ocean, offers an authentic approach to resiliency and environmental stewardship, and creates the opportunity for deeper ties into Maori cultural heritage.

HISTORICAL LANDSCAPE

PRE 1931 EARTHQUAKE

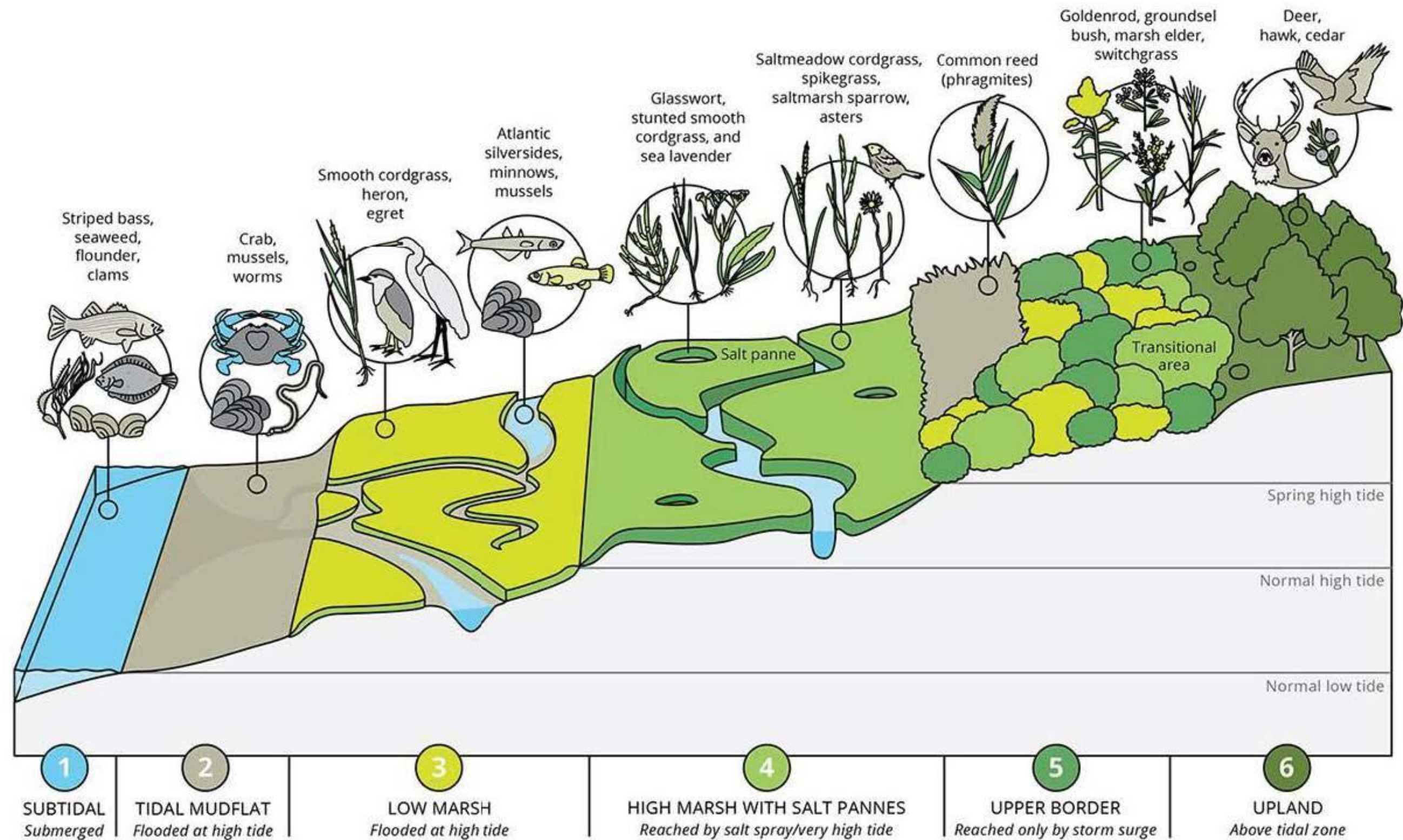


In restoring the native habitat the proposed site design serves as an interpretive landscape that captures two key habitats that were common to the Napier area prior to the 1931 Landslide: the rippling dunes (pingao) of a sand spit and the dynamic, ecologically productive tidal marsh (raupo).

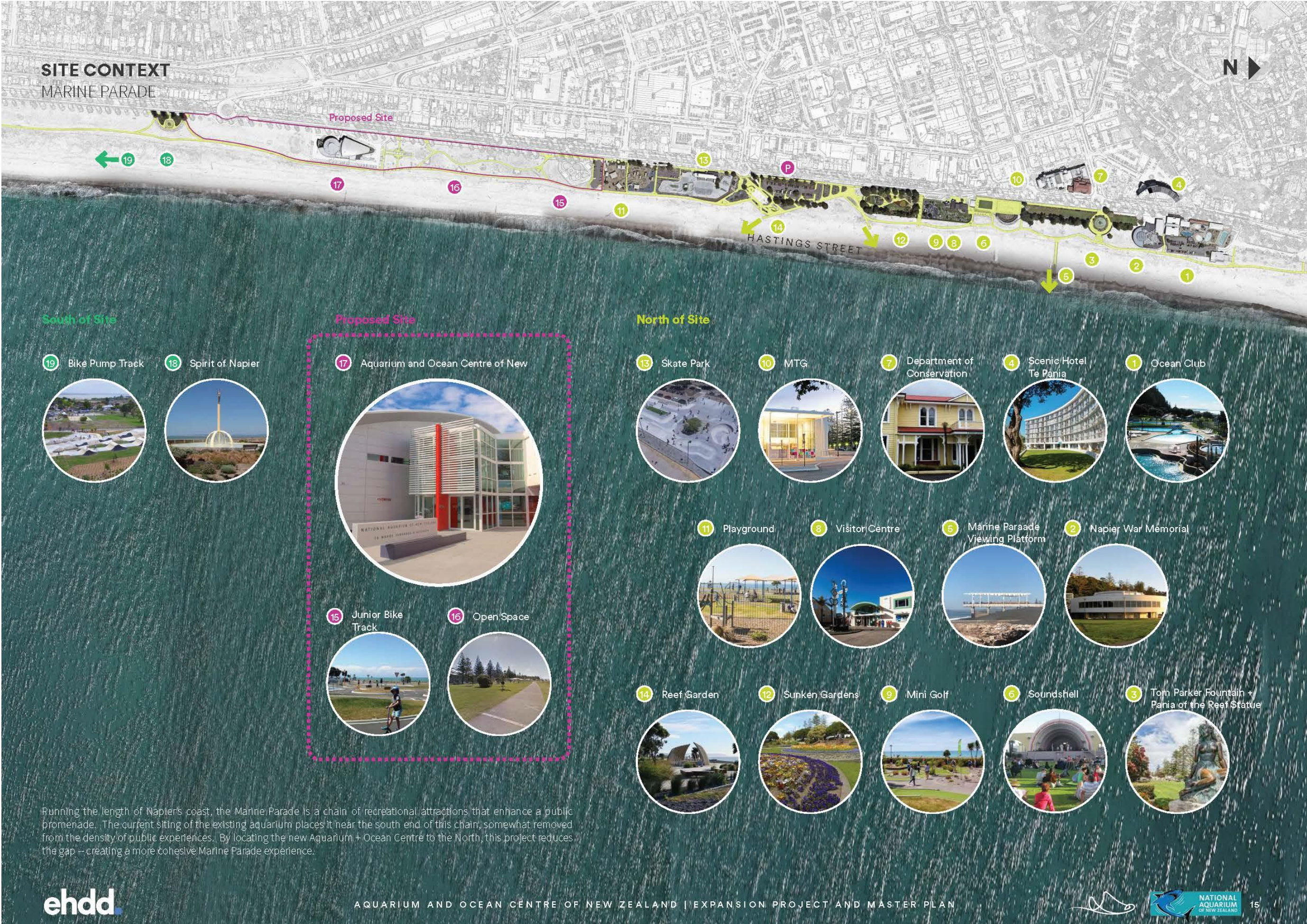


SITE RESILIENCY

RECONSTRUCTED TIDAL MARSH EXAMPLE







SITE CONTEXT
DEFINING THE EDGES OF THE SITE

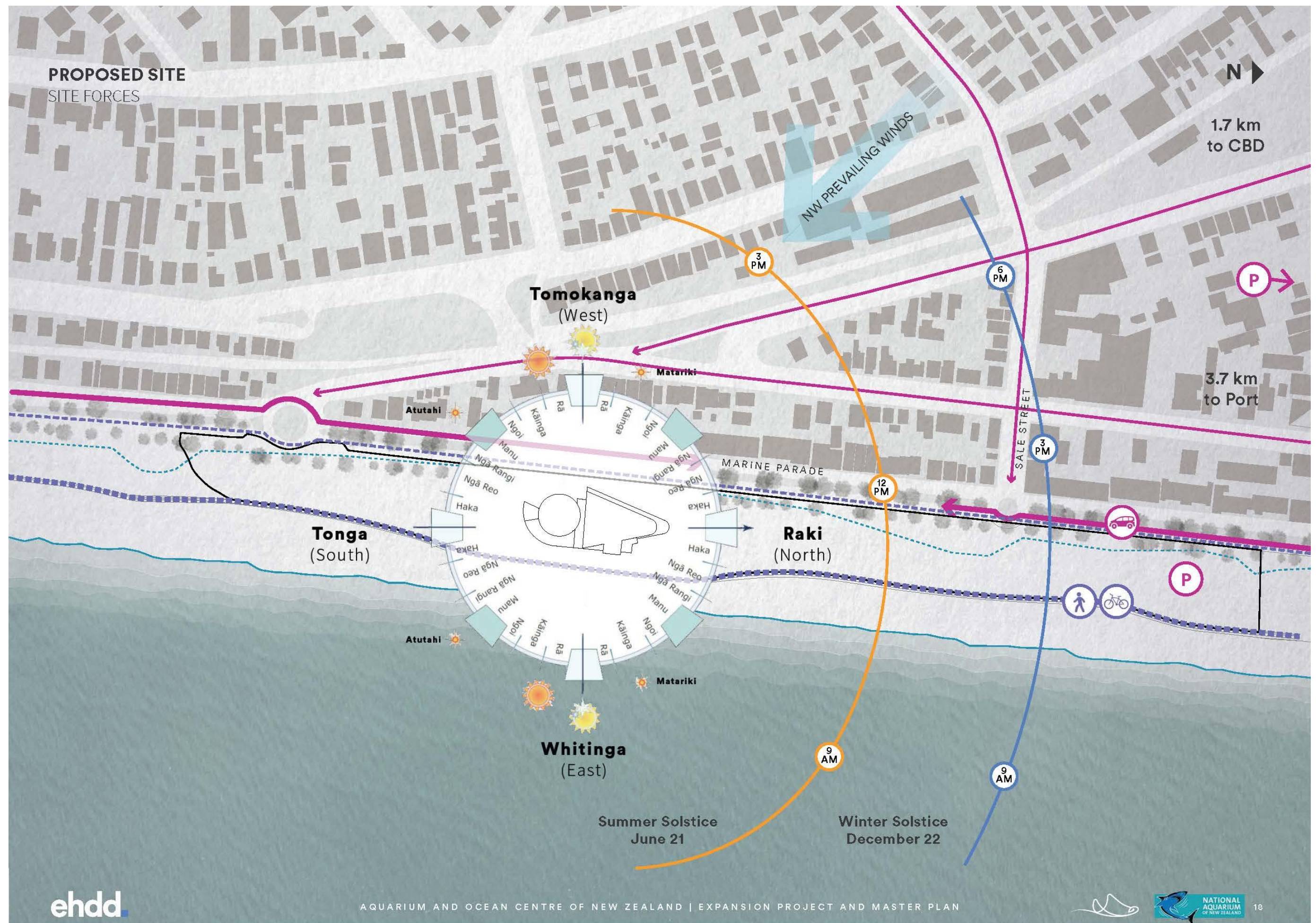
- Marine Parade Character Zone**
 - Residential
 - Travelers' accommodation
- CBD**
 - Offices and retailing
 - Travelers' accommodation
 - Industrial
 - Residential
- Main Residential Zone**
 - Residential
 - Day Care
 - Travelers' accommodation
 - Education
- Suburban Industrial Zone**
 - Industrial
 - Offices and retailing

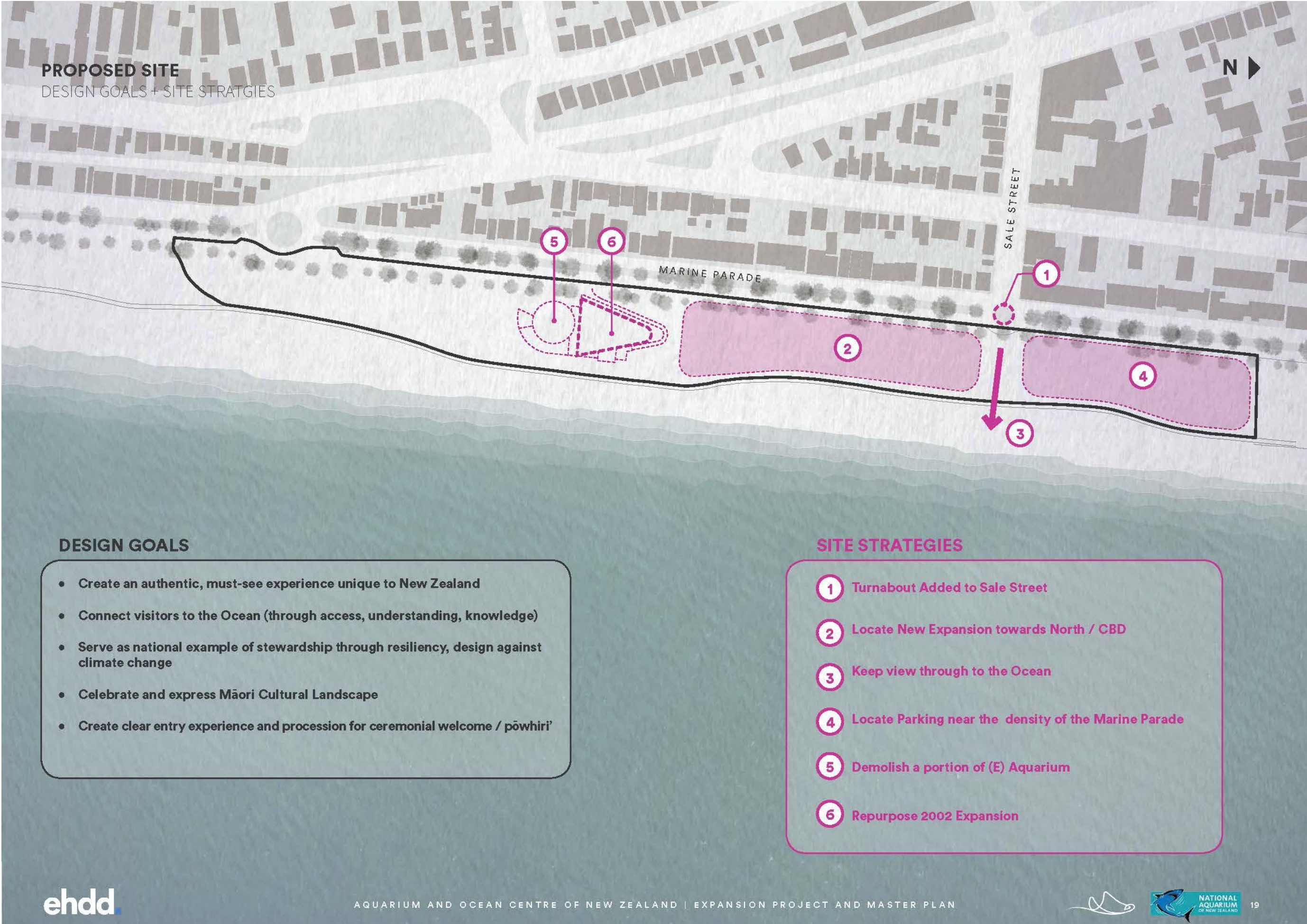
This expansion proposes to extend the National Aquarium site from the car park north of the Junior Bike track to the Spirit of Napier sculpture at the south in an effort to:

- Allow the Aquarium to build a symbiotic relationship with the Central Business District by improving access to the aquarium and allowing local business to benefit from an increase in aquarium traffic.
- Leverage the existing density of program on the Marine Parade by bring the Aquarium closer to the existing recreational and civic program.
- Consolidate Aquarium parking with other existing parking areas to the north.
- Promote access at Sale Street via a proposed turnabout.
- Connect the Aquarium with other nature reserves along the Hawke's Bay (Ahuriri Estuary and Waitangi Park).
- Create a campus that fosters future expansion of the Aquarium and the Oceans Centre of New Zealand, including the opportunity for research partners to be located on-site.
- Create a learning landscape that demonstrates best practices around resilient design at an urban scale.













VIEW AT PUBLIC PATH

The architectural approach is a manifestation of NANZ's institutional mission to marry scientific and indigenous knowledge. By embodying this confluence of information, the form draws inspiration from both vernacular and biomorphic influences.



MASSING CONCEPT

VERNACULAR ARCHITECTURE



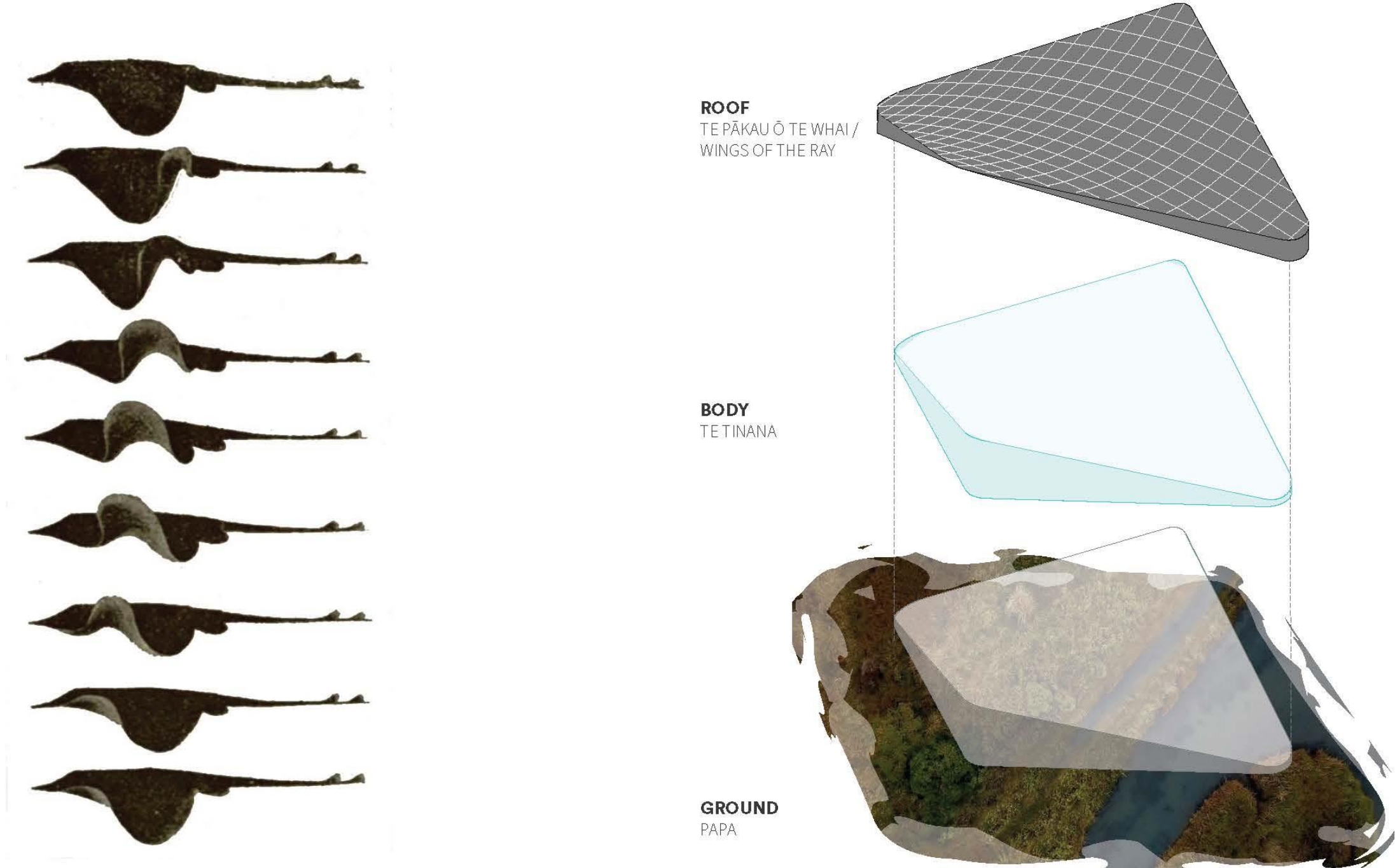
As national caliber aquarium, Project Shapeshifter holds a special role as a place to come together, learn, and exchange ideas. This idea is the root of the architectural form, which rather than taking the shape of a singular mass is composed as a congregation of smaller volumes. This clustering of buildings draws on the local vernacular of the 'Kainga' or 'Village', a collective of buildings.

MASSING CONCEPT
SCHOOLING + GATHERING



The individual volumes that form the overall building composition draw inspiration from New Zealand's deep cultural connection to Māui, the shapeshifter. A Māori demigod who personifies innovation and change, Māui is often affiliated with the Whāi (stingray). 'Huihuinga Whāi' references the idea of the gathering of rays and the term Huihuinga is used in Māori cosmology for star clusters but also used for gathering of people.

INDIVIDUAL COMPONENT
FORM + FLEXIBILITY

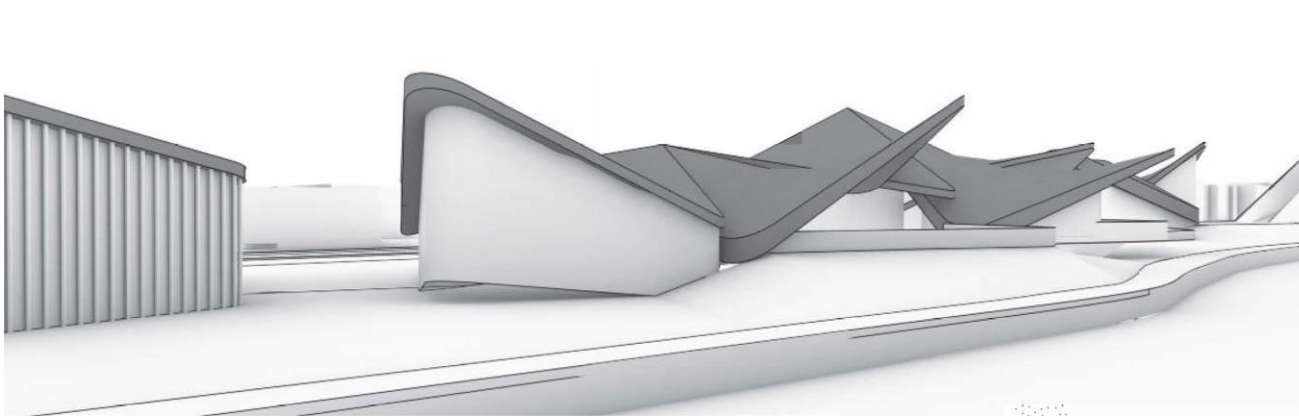
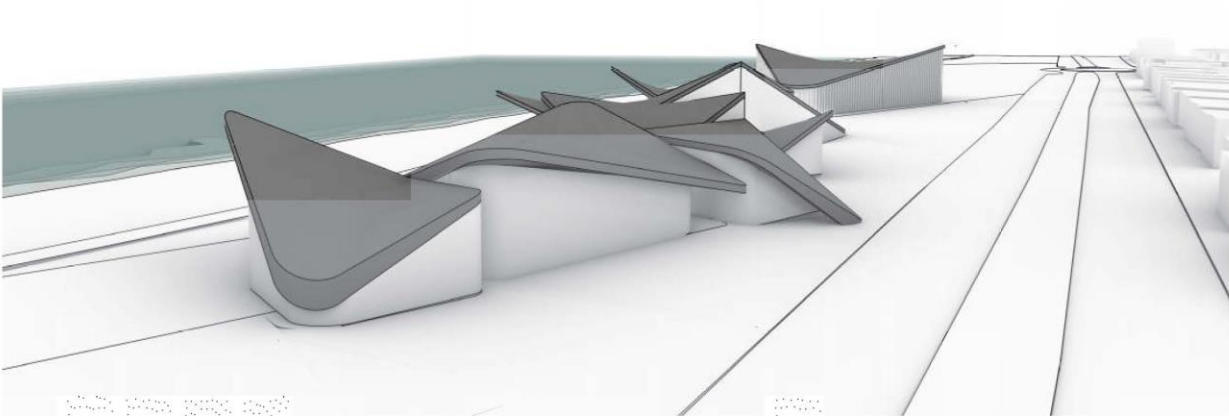


The biomorphic inspiration the Whāi (stingray) informs a building block that is highly adaptable to programmatic needs of the interior, while maintaining a distinct identity. In drawing formal inspiration from this species, the building develops a dynamic and varied spatial quality. The resultant spatial language is as flexible as it is iconic.





MASSING CONCEPT
SCHOOLING + GATHERING

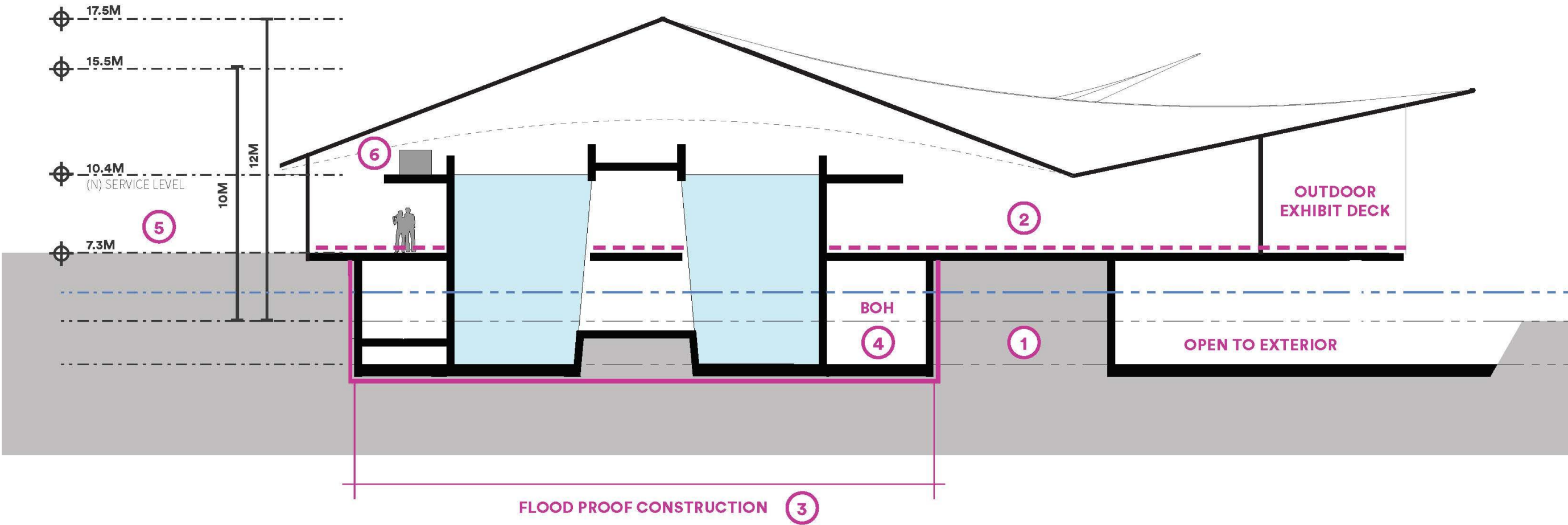


VIEW FROM OUTDOOR EXHIBIT
CONNECTING WITH THE BORROWED LANDSCAPE



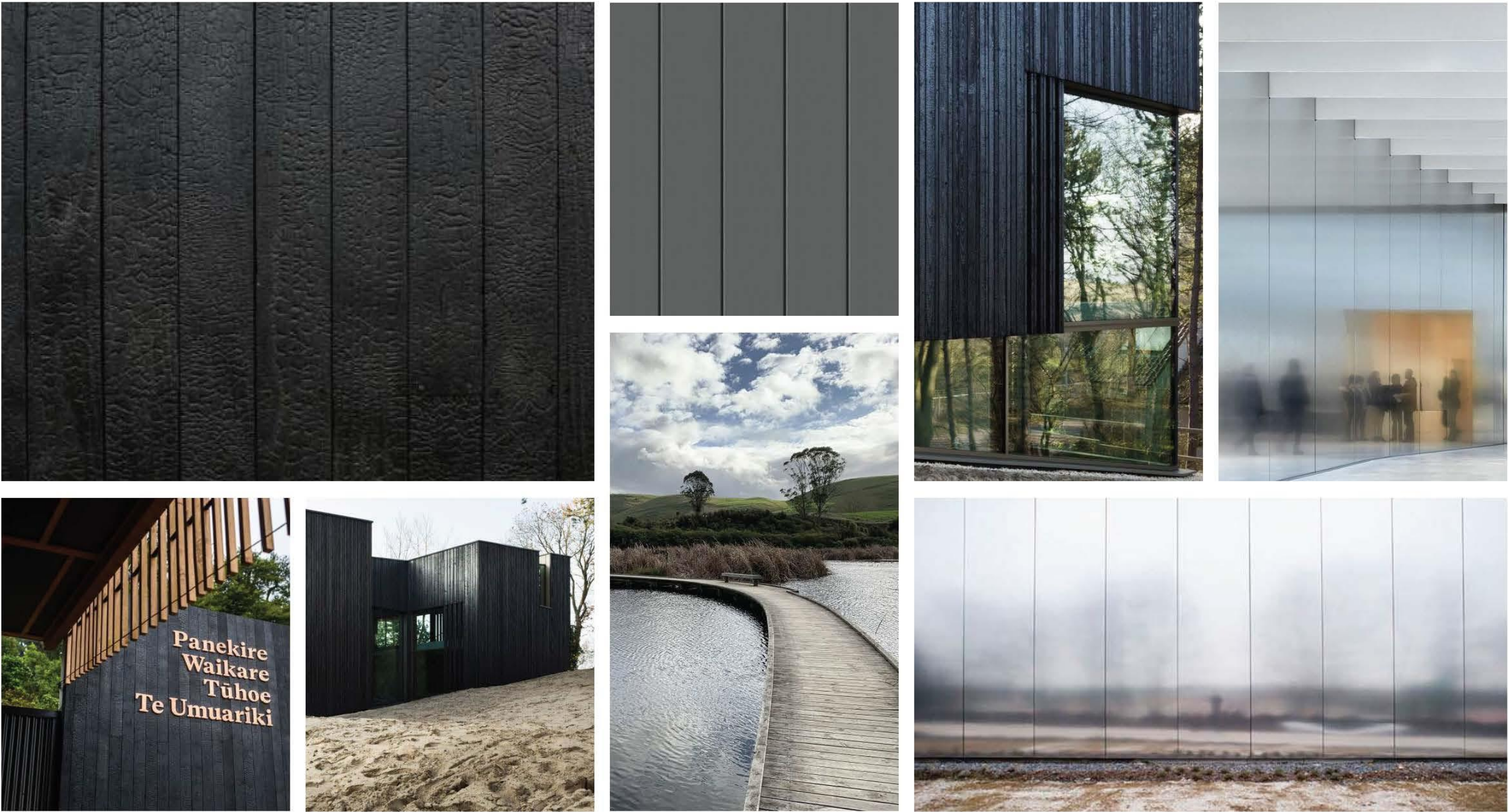
DIAGRAMATIC BUILDING SECTION
BUILDING STRATEGIES

- 1 Cut + Fill of Site
- 2 Main Exhibit Level Raised to 7.3m
- 3 Flood Proof construction at or below grade
- 4 Locating non critical pieces of program at or below grade
- 5 Landscape as a retention basin
- 6 Locating equipment above the floodplain

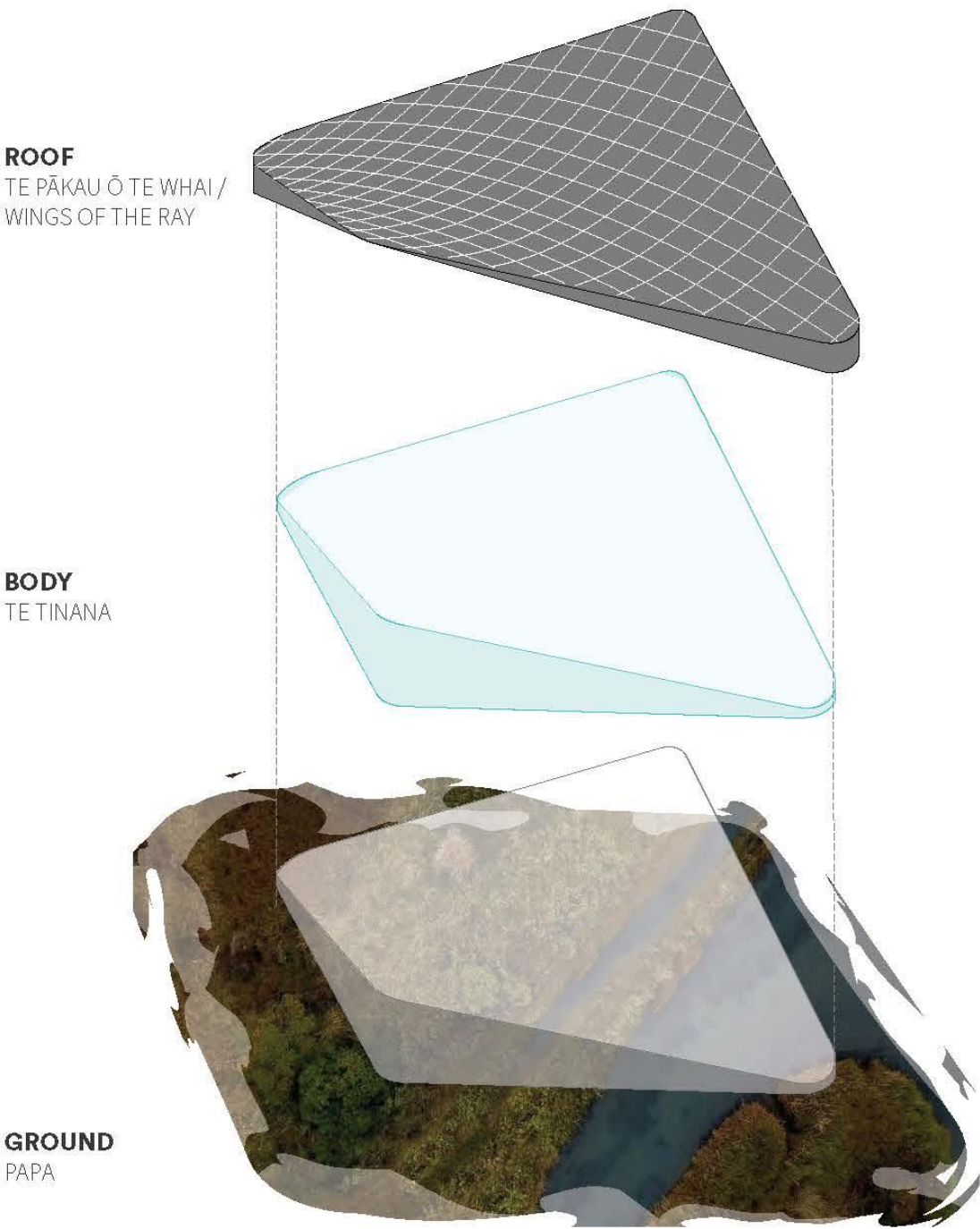




MATERIAL PALETTE
INSPIRED FROM LANDSCAPE

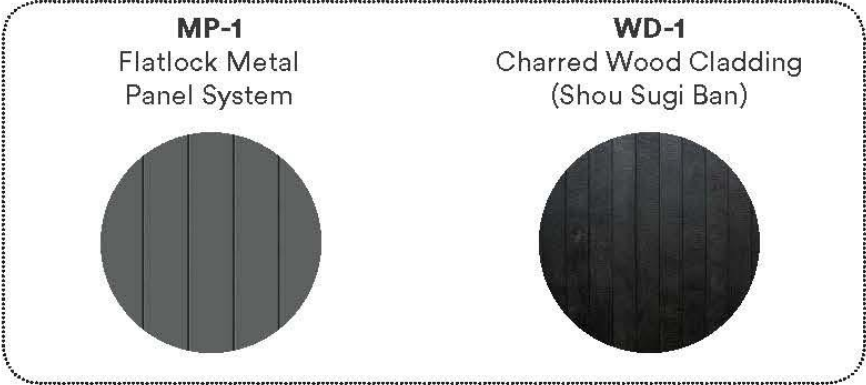


MATERIAL PALETTE

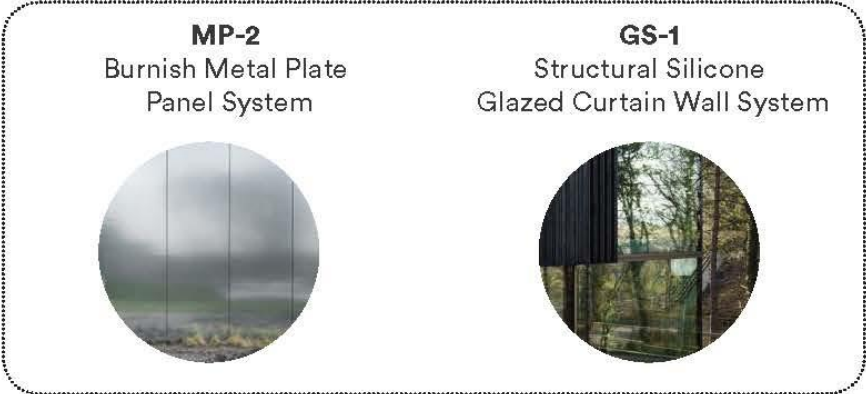


The building's material palette is selected to celebrate the beauty of the surrounding habitat. Divided into three sections, each draws on a unique contextual relationship. The skin (the roof and soffit), uses natural materials with the durability to withstand a harsh marine setting. The body becomes immaterial, alternating between transparency and diffused reflectivity. The ground becomes part of the habitat itself, as the dunes become a seamless backdrop for open air exhibit decks. By utilizing "materials of nature", such as 'rākau' (wood) and 'pōhatu' (stone), these materials provide depth and texture that make the building feel like it belongs to the environment.

ROOF



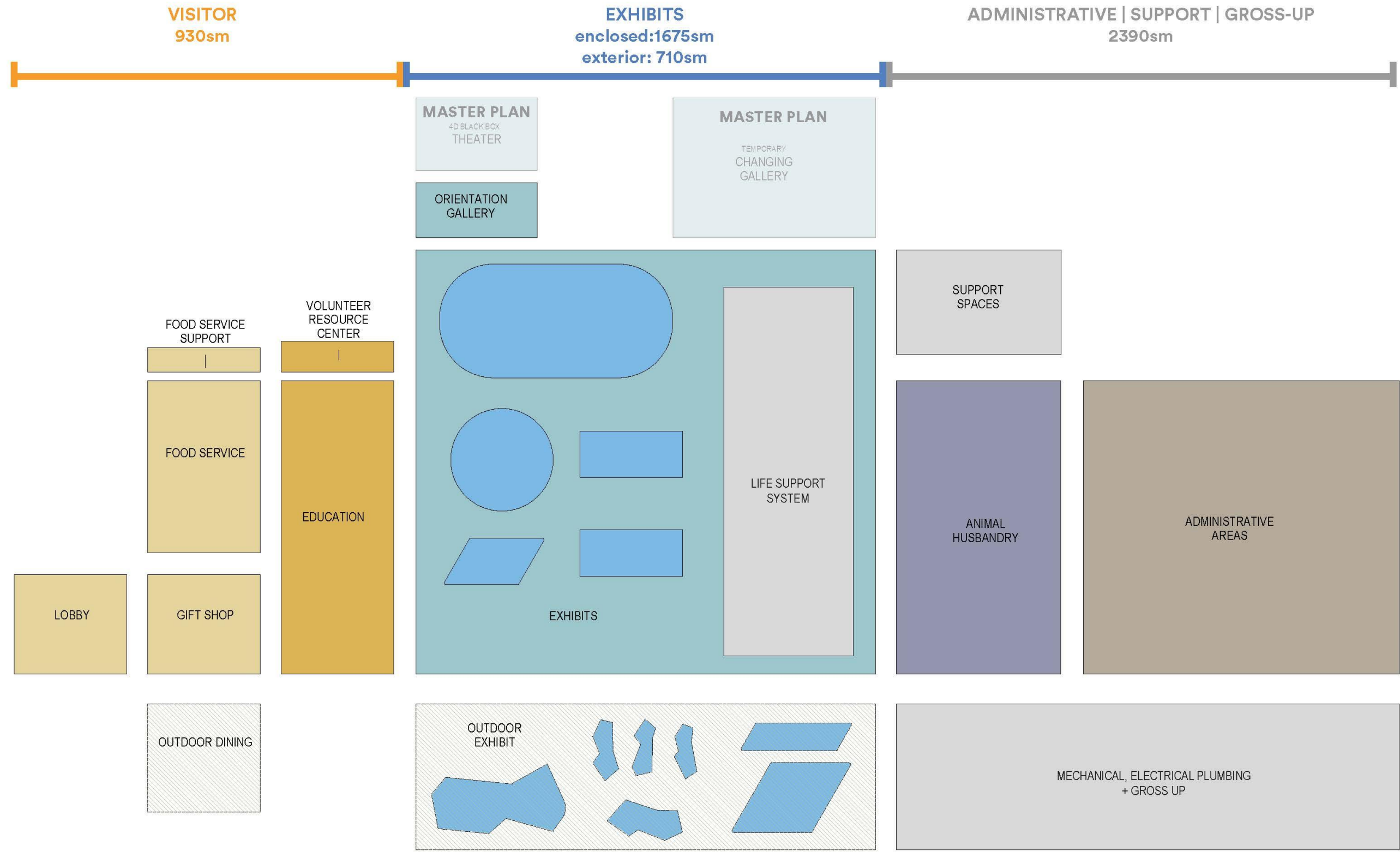
BODY



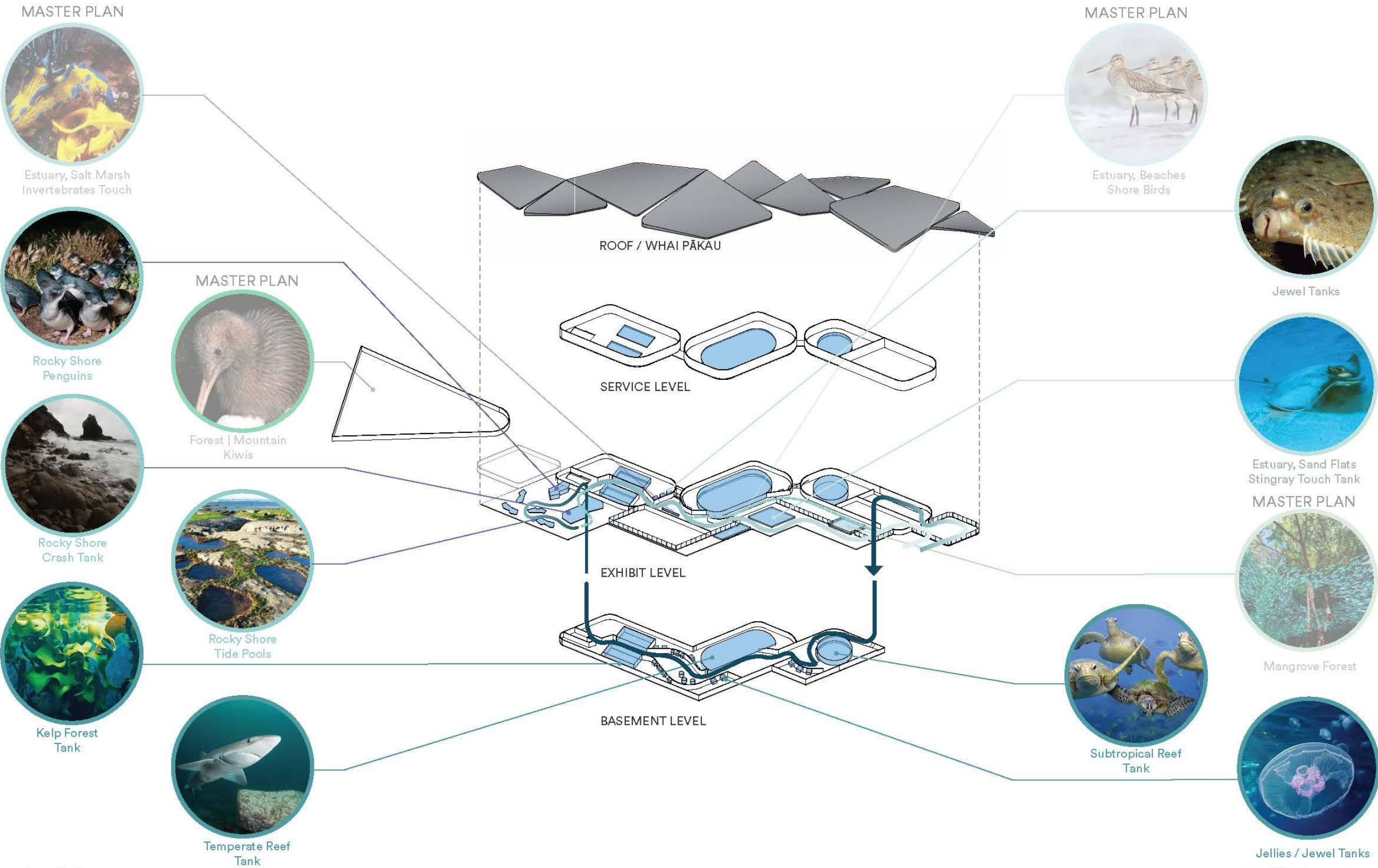
GROUND



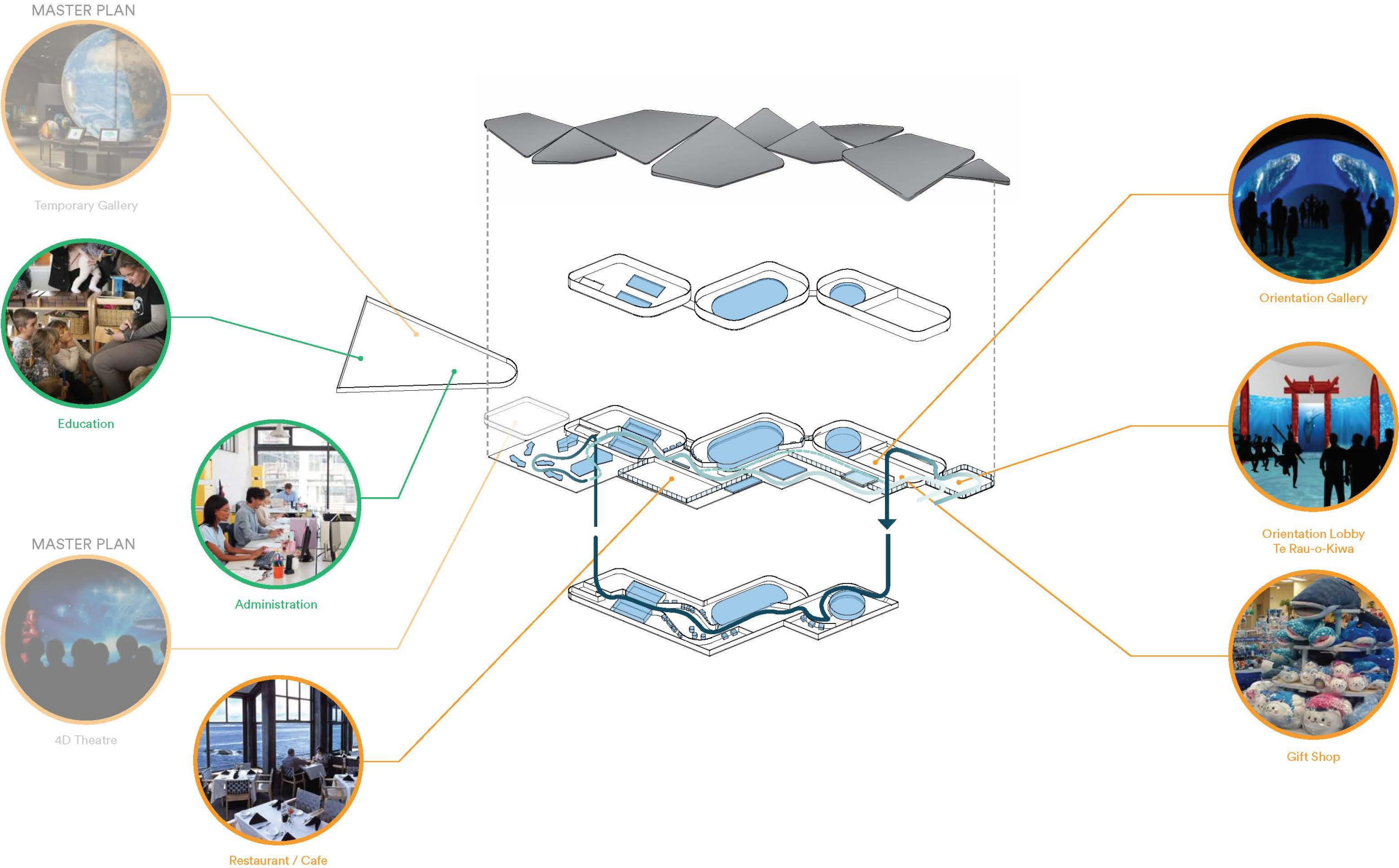
PROGRAM DIAGRAM
EXPANSION PROJECT



HALLMARK HABITATS
EXPANSION PROJECT



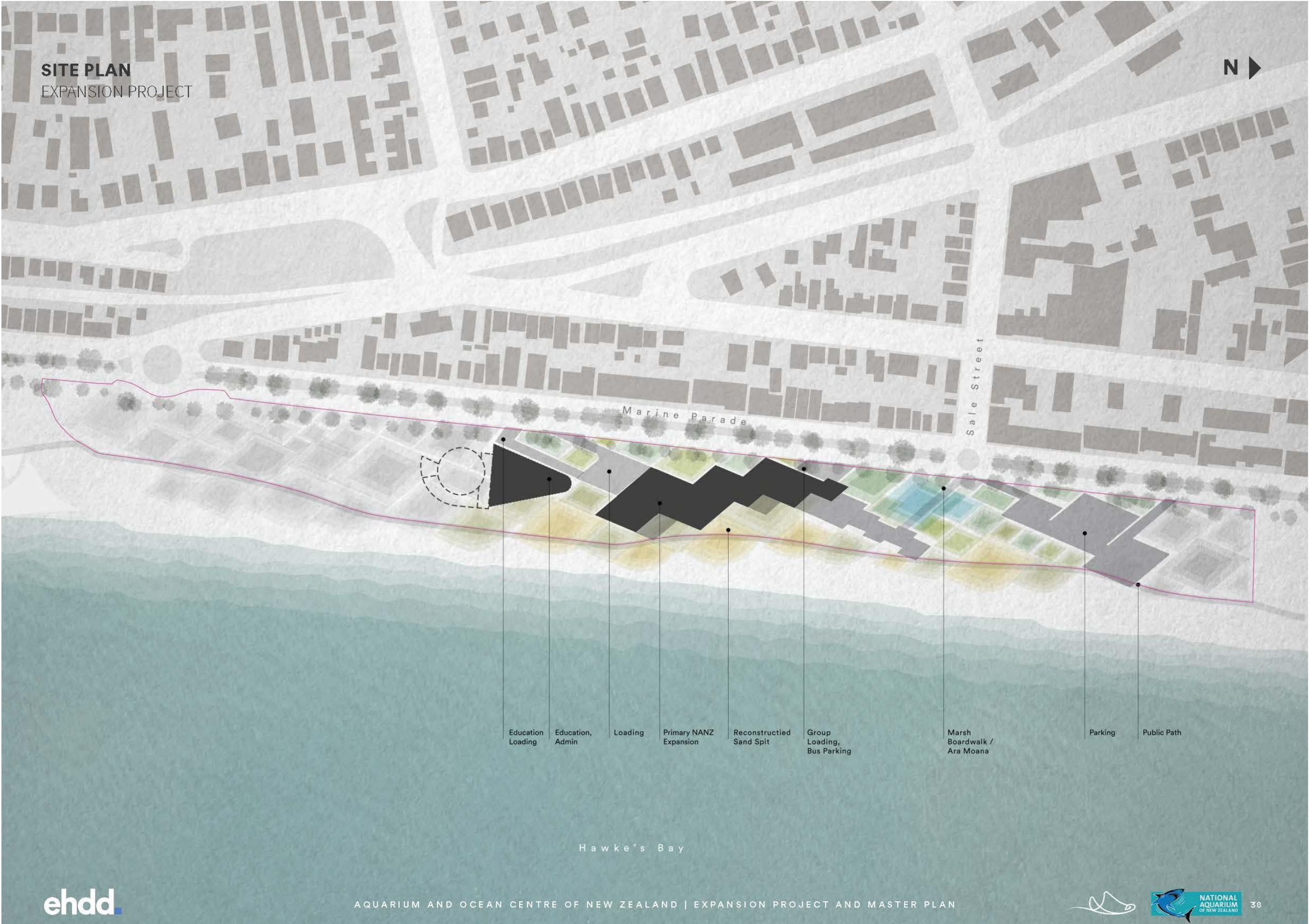
VISITOR AMENITIES
EXPANSION PROJECT



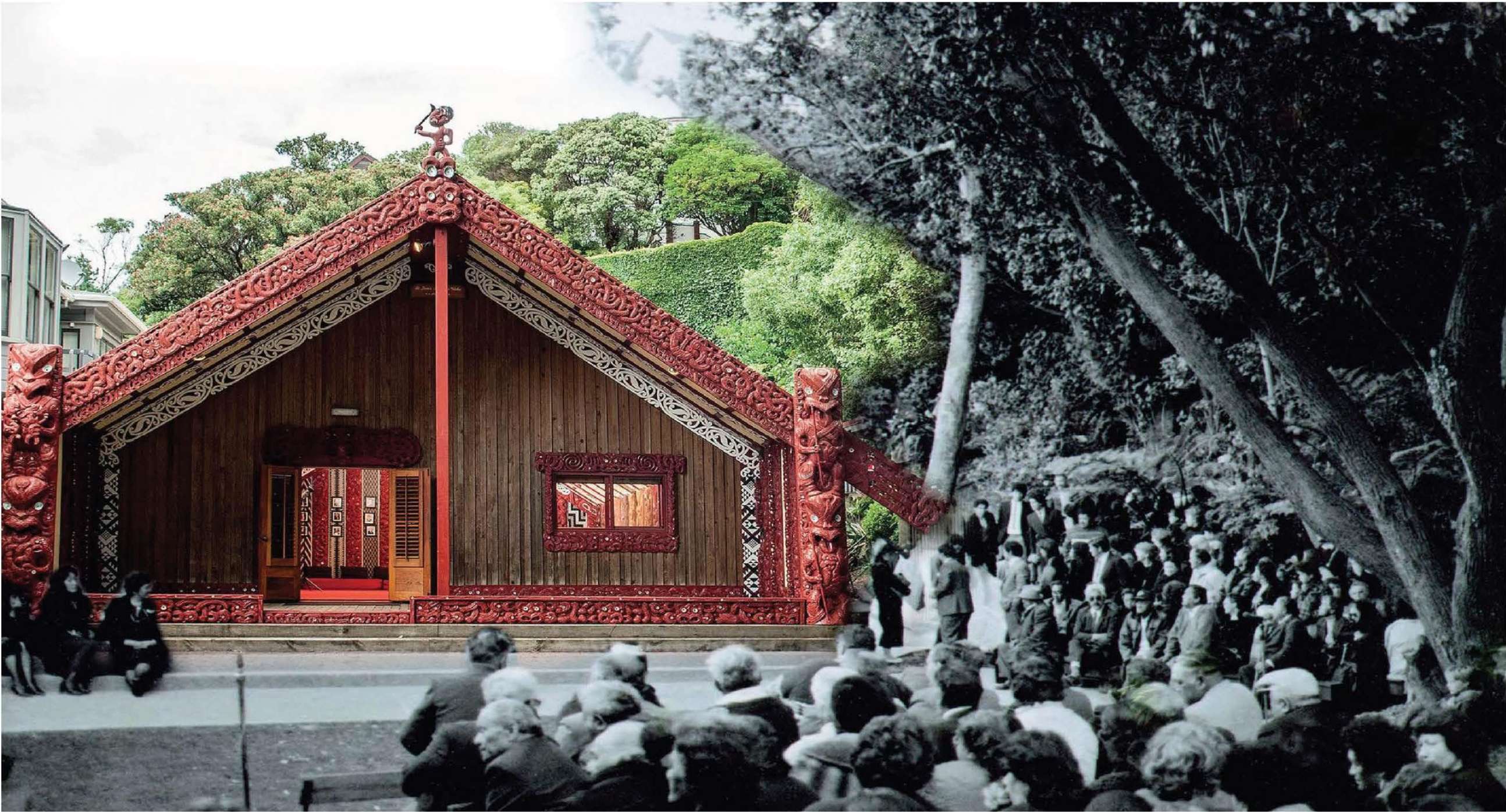
CULTURAL + ECOLOGICAL LANDSCAPE REFERENCES
PATIKI PATTERN + BRAIDED RIVERS



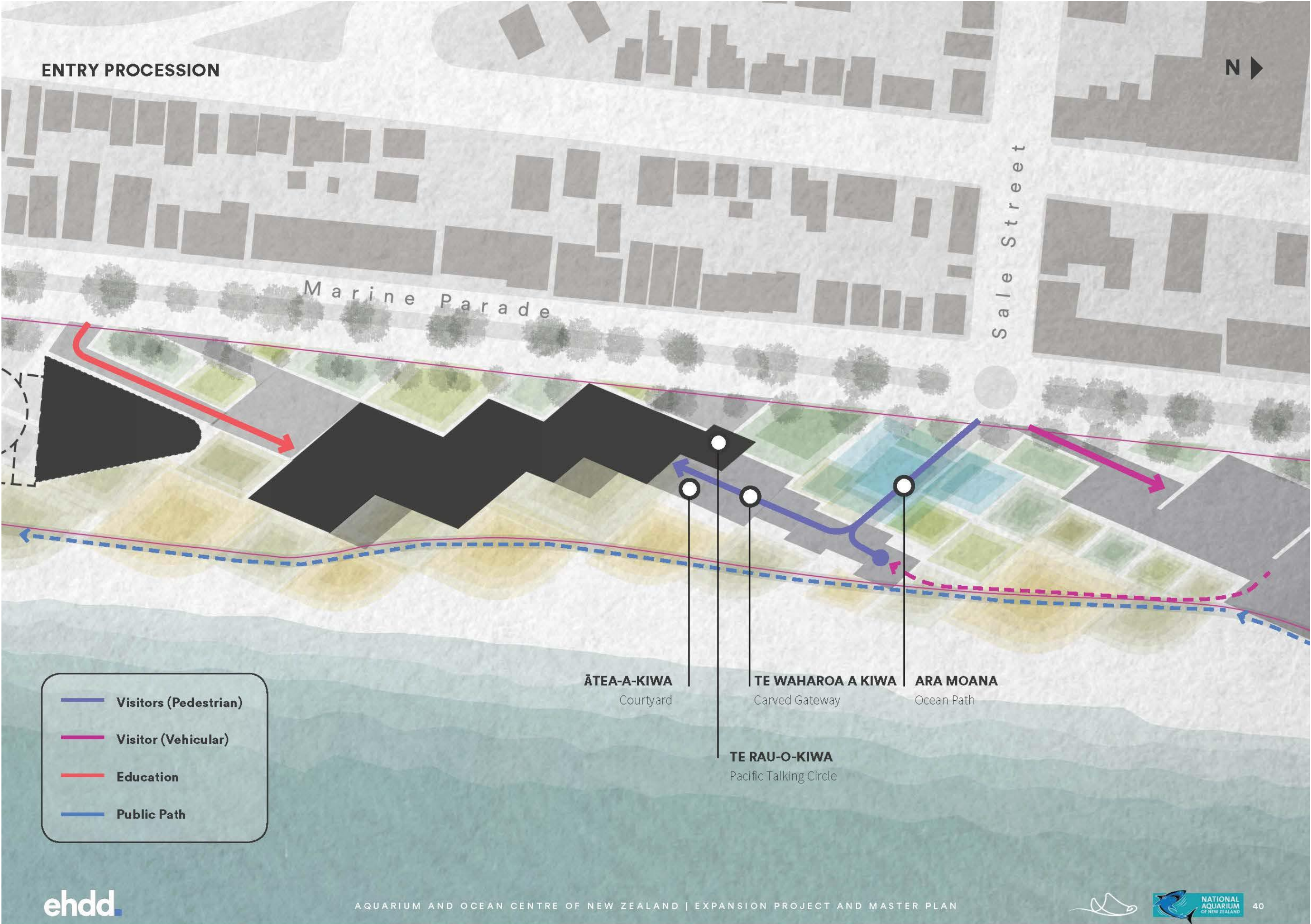




CEREMONIAL PROCESSION AND RECEPTION



The processional entry provides for gathering in accordance with tikanga for the purposes of powhiri. As visitors proceed down the path they will be able to assemble or pause at Te Waharoa o Kiwa, gateway of Kiwa, to denote entry to the Pacific Ocean.







A PLACE WHERE WE SHARE OUR
UNIQUE PACIFIC NARRATIVE
AND
STORY OF MĀUI
WITH THE WORLD

TE RAU-O-KIWA
ORIENTATION LOBBY



Te Rau-ō-Kiwa, the gathering circle of Kiwa, makes reference to Te Moana nui-a-Kiwa, the great Ocean of Kiwa, divine ocean guardian and high priest.

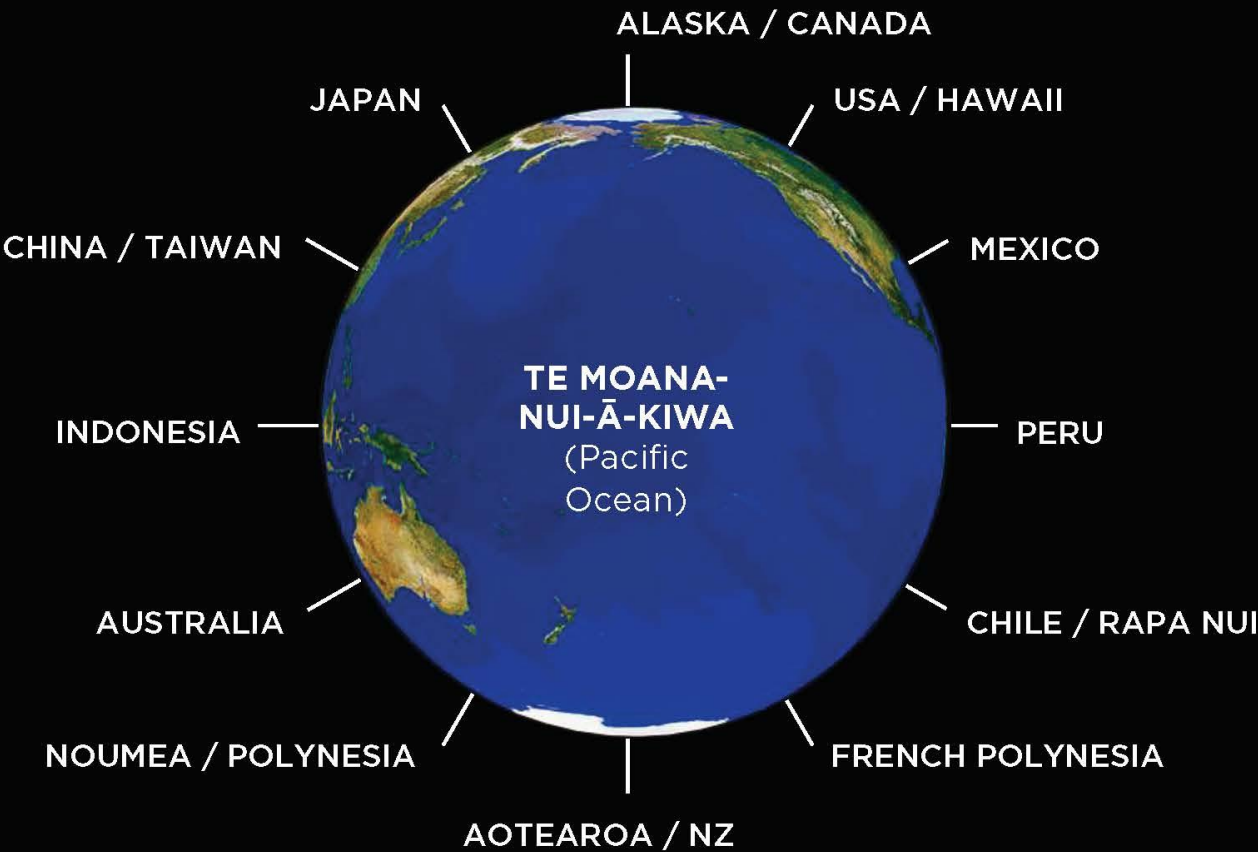
The New Zealand Oceans Centre is about positioning us within Te Moana-nui-a-Kiwa, the worlds largest Ocean containing 50% of the worlds ocean water and covering over 30% of the surface of the planet.

Te Rau-ō-Kiwa creates a ‘talking circle’, a place where indigenous voices of the Pacific Rim convene, each represented by a pou of their making, which will come to life when they are ‘in residence’ during forums, displays or programmes.

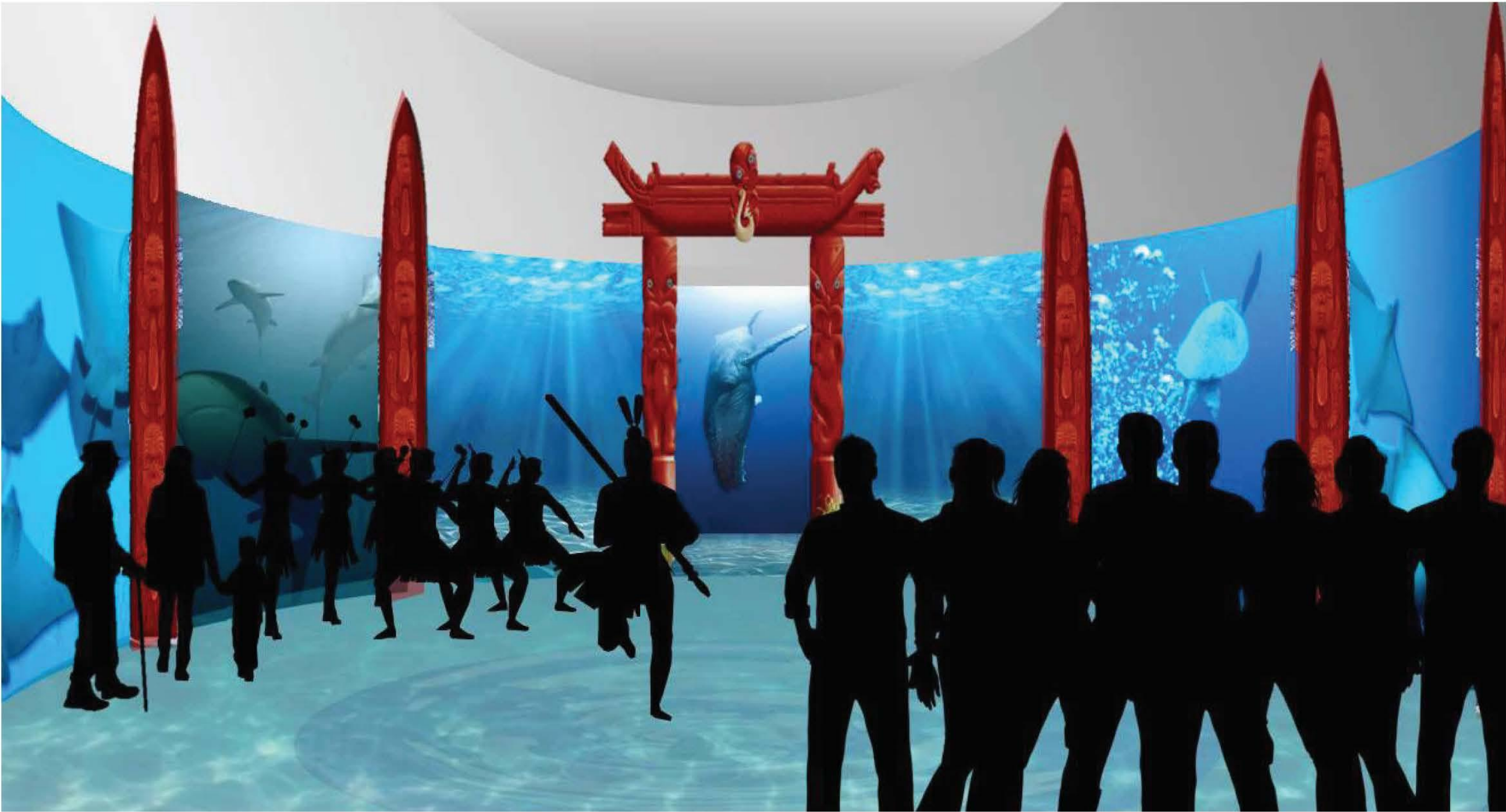
In this place Māori feature as a collective, as one of many indigenous Pacific Rim peoples represented, with Ngāti Kahungunu as the kaitiaki of this place as mana whenua.

This place can be closed and used for ceremonial welcome, functioning as a talking circle, and when not in use is open to the public who can listen to indigenous voices of the Pacific Rim sharing their views and knowledge of the Pacific Ocean.

Digital screens will provide a view into the oceans of each location.



TE RAU-O-KIWA
ORIENTATION LOBBY



VISITOR EXPERIENCE CONCEPT

MOANA TUATAHI / PUTTING THE OCEAN FIRST

Let us take you around New Zealand's Oceans Centre – a place that puts ocean care first.

Begin your adventure by being welcomed into Te Rau-ō-Kiwa, our Pacific speaking circle. You will hear indigenous voices of the Pacific Rim talk about this ocean we know as Te Moana-nui-a-Kiwa, the great ocean of Kiwa. This is a place of welcome, of gathering and sharing knowledge, a place for convening Pacific voices. This is where speakers gather to share their views and knowledge.

Then, tentatively entering the darkness of the domain of Tangaroa, god of the ocean, you will be immersed in the sights and sounds of enormous marine mammals swimming overhead as you journey towards the coast of Te Ika-a-Māui, the great fish of Māui, our North island.

Along your journey you will encounter graceful Turtles, our connection and link across the Pacific, and be awed by the silent stealth of our Sharks and Rays, before arriving at the domain of Hinemoana, ocean goddess. Truly mesmerized by her swaying hair in our giant kelp forest, you will be anchored in place watching the diverse array of wildlife in front of you, schooling, swimming, hiding and exploring.

Emerging through our exhilarating wave crash pool, you will encounter fascinating rock pool life before strolling across to our Penguin encounter to be entertained by our cute little waddling characters of the coast. Are you brave enough to pop up in the middle of their enclosure?

Let little bluey, our penguin guide, show you around the rest of our tidal pools and on to our Ray touch pool, to see and touch Rays as they gracefully glide past. Discover the story of Māui, fishing up the largest Ray, the North island of New Zealand.

You will discover our taonga species, species of incredibly important cultural value that have sustained people for generations, Pātiki / Flounder, Tuna / Eel, Wai Koura / Freshwater Crayfish, and Inanga / the juvenile Galaxids we know as whitebait.

Then lie back and rest your legs in our immersive theatre experience that brings to life Māori knowledge of astronomy, Maramataka – the lunar calendar, and how these relate to seasons and the migration of species. This knowledge helped Polynesians navigate the vast Pacific, governing seasonal practices and celebration, in tune with the environment.

In every step of your journey you will gain conservation insights from both scientific and indigenous knowledge systems and understand better the contribution you can make, link with conservation action and become part of the solution.

Finally, take some time out for retail therapy, buy some unique mementos of your journey, and enjoy a coffee, wine or meal.

INTERPRETIVE LENS

KI TE AO MARAMA

Let us take you on a journey of enlightenment.

In the Māori creation story, first there was a void, **te kore**, then a long period of darkness, **te pō**, within which energy stirred until **te whaiao**, the moment of separation of Rangi and Papatūānuku, sky father and earth mother, allowing the space in between to be filled with light, **te ao marama**. The tears of Rangi's grief at being separated, **te iho rangi**, introduced water into the world.

This is not only a creation story, that some compare to 'big bang' theory, it is also creative, thought and birth process. From nothingness anything is possible, into darkness where molecular energy and our subconscious stirs, where conception occurs, and then the moment of cognition, ignition or birth, where ideas are born, emerging into the conscious and physical expression in the world of light, the physical world, the world of knowledge, wisdom and enlightenment, **maramatanga**.

It is also a journey from a deep sensory space of 'feeling' to a physical space of doing.

So, our journey starts in a dark sensory space and progressively takes you into light and more physical and tactile environments, and finally a space of learning.

TANGAROA
Start in the deep dark ocean, the domain of Tangaroa, god of the ocean.

HINEMOANA
Progress towards the coast in the underwater domain of Hinemoana, ocean goddess.

TE KORE

TE WHAIAO

RANGI
Look to Rangi, the sky, in our immersive theatre experience that shares Māori astronomy, lunar calendar and environment knowledge.

TE AO MARAMA

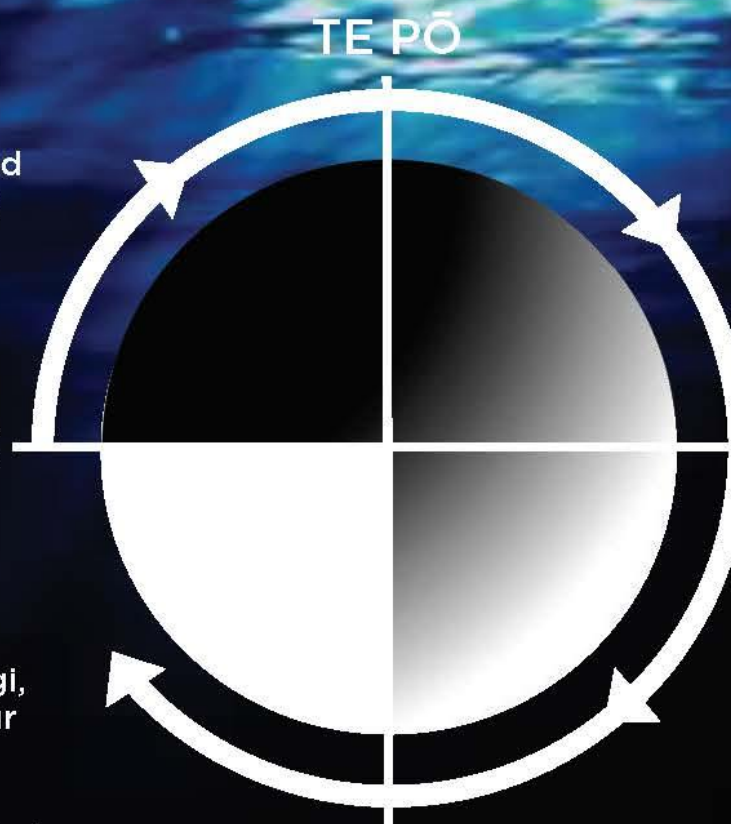
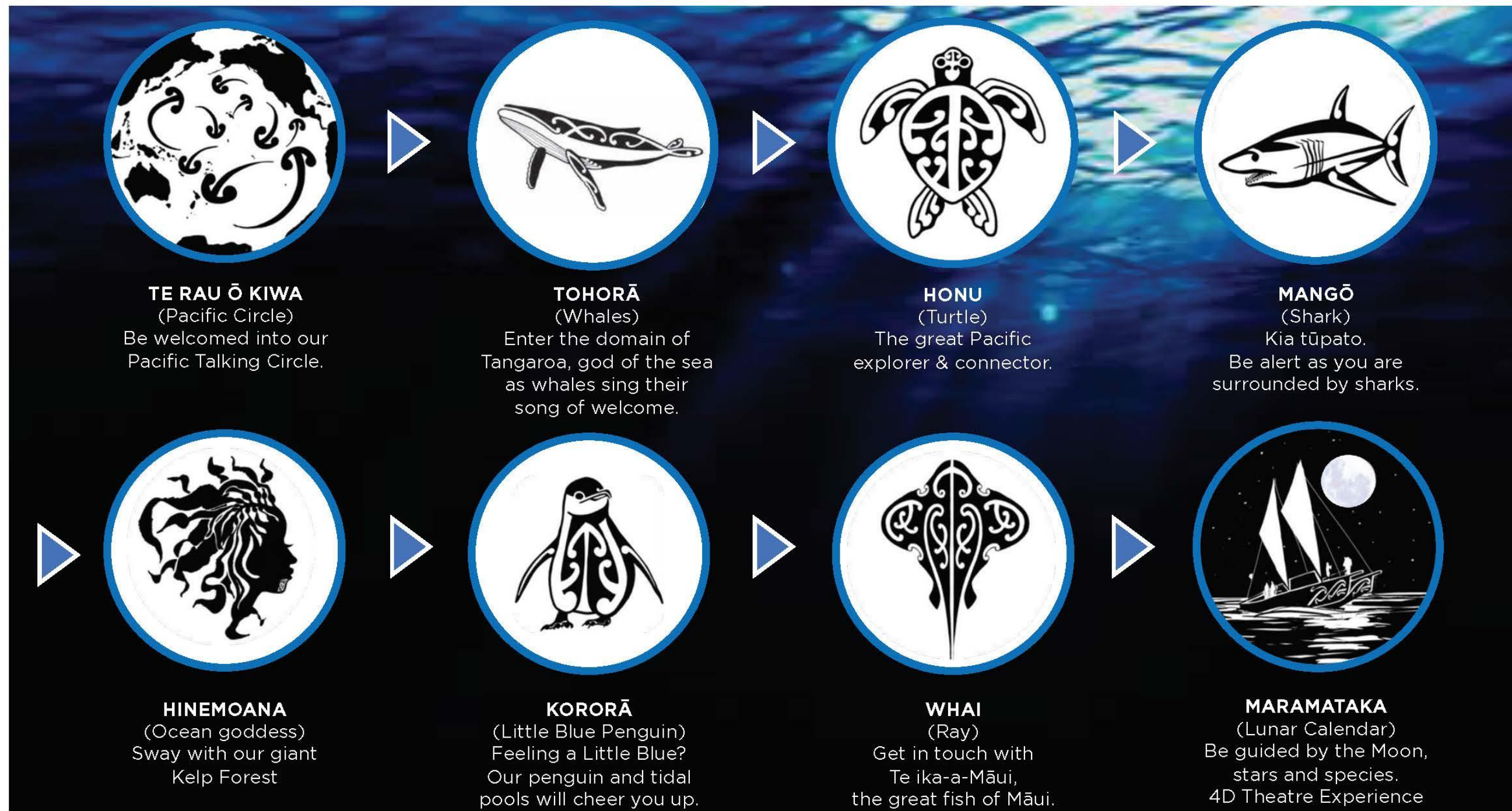


EXHIBIT FLOW

CULTURAL CONNECTIONS



COASTLINE HABITATS
EXPANSION PROJECT

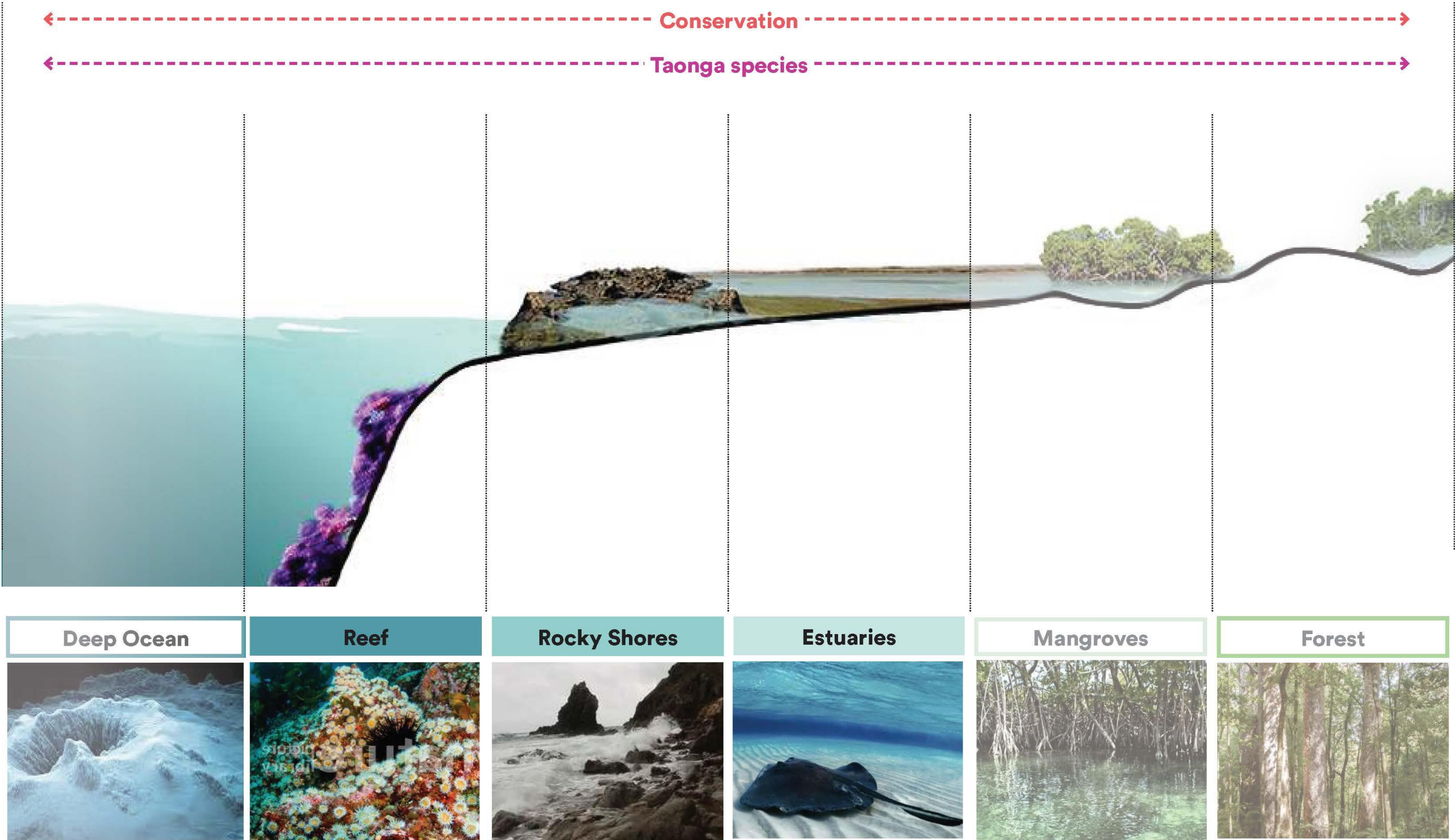
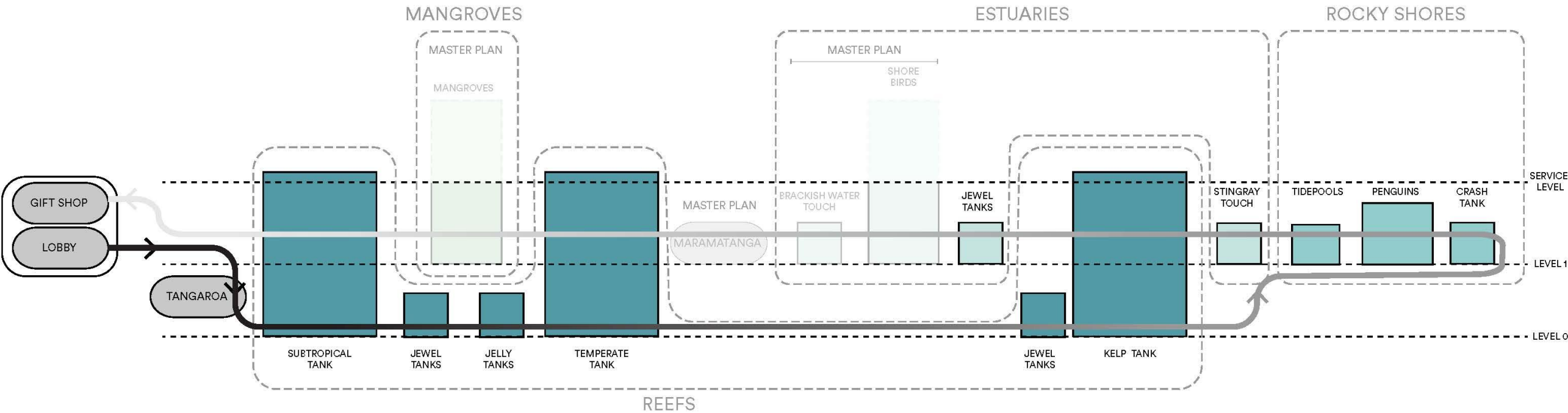


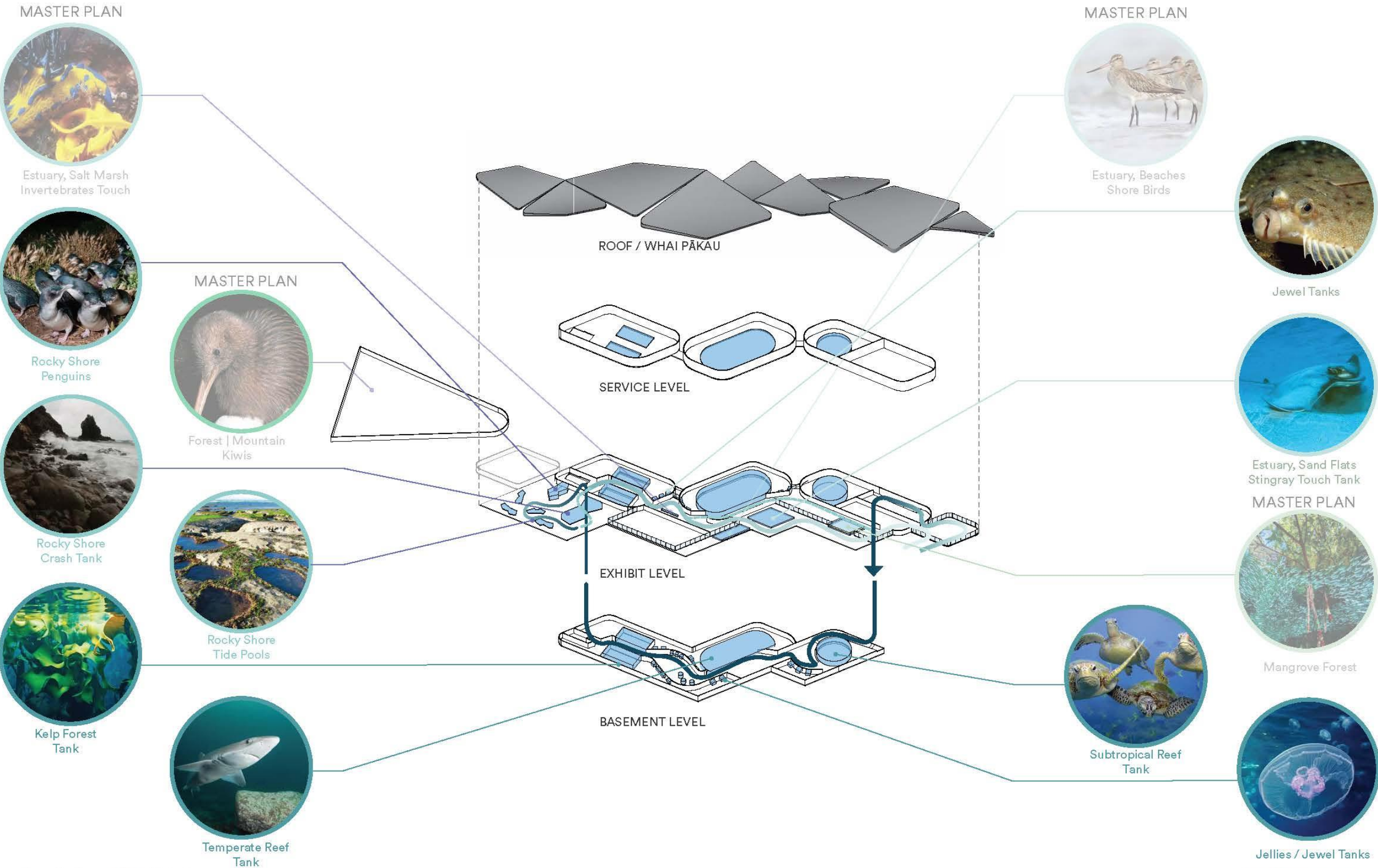
EXHIBIT FLOW
EXPANSION PROJECT

COASTLINE EXHIBIT
...CIRCULATE ON L1 FOR
THE COASTLINE STORY



NEAR COAST EXHIBIT
ENTER AT L1
CIRCULATE DOWN TO L0 THEN...

HALLMARK HABITATS
EXPANSION PROJECT

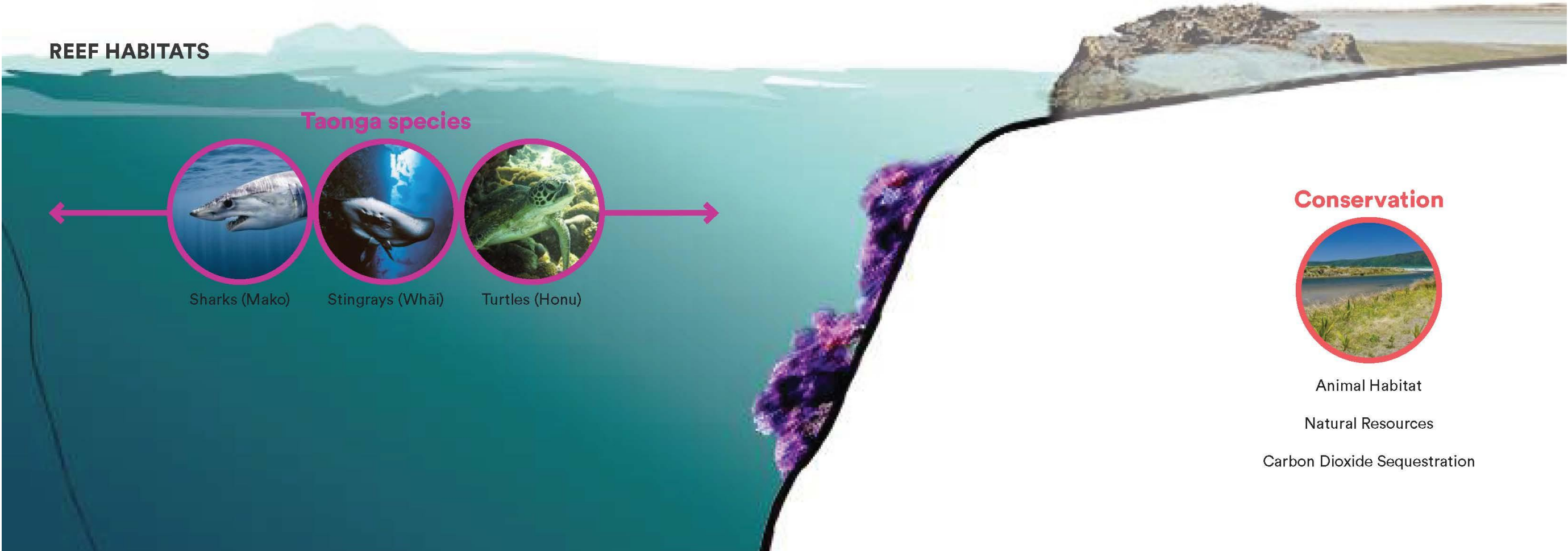




DEEP SEA: THE REALM OF THE TANGAROA

Orientation Gallery/Lobby: Enter the deep, dark and mysterious Deep Ocean. Ocean health is critical to all of humankind. Room depicts whales, schools of large pelagic tuna, sharks, jellies, sea turtles and stingrays presented as video projections and as sculptures in the round. Teaser views of sea turtles in the Subtropical Habitat foreshadow the upcoming immersive animal experience.





Conservation



Animal Habitat

Natural Resources

Carbon Dioxide Sequestration

Subtropical Reefs



Turtles (Honu)



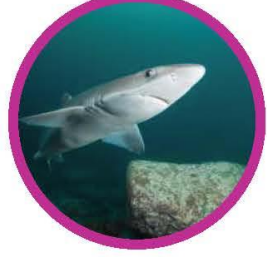
Schooling Fish

Kelp Forest

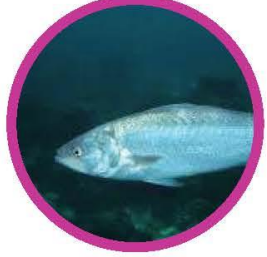


Kelp
(Rimurimu and Rimurapa)

Temperate Reef

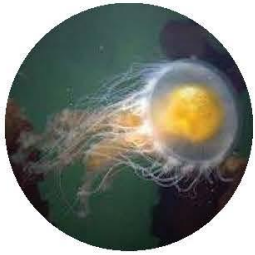


Sharks (Mako)



Arripis trutta
(Kahawai)

Jellyfish (Petipeti)



Egg Yolk Jellyfish



Moon Jellyfish



Sea Snakes



Corals



Red Seaweed
(Rimurimu and Rimurapa)



Seahorse

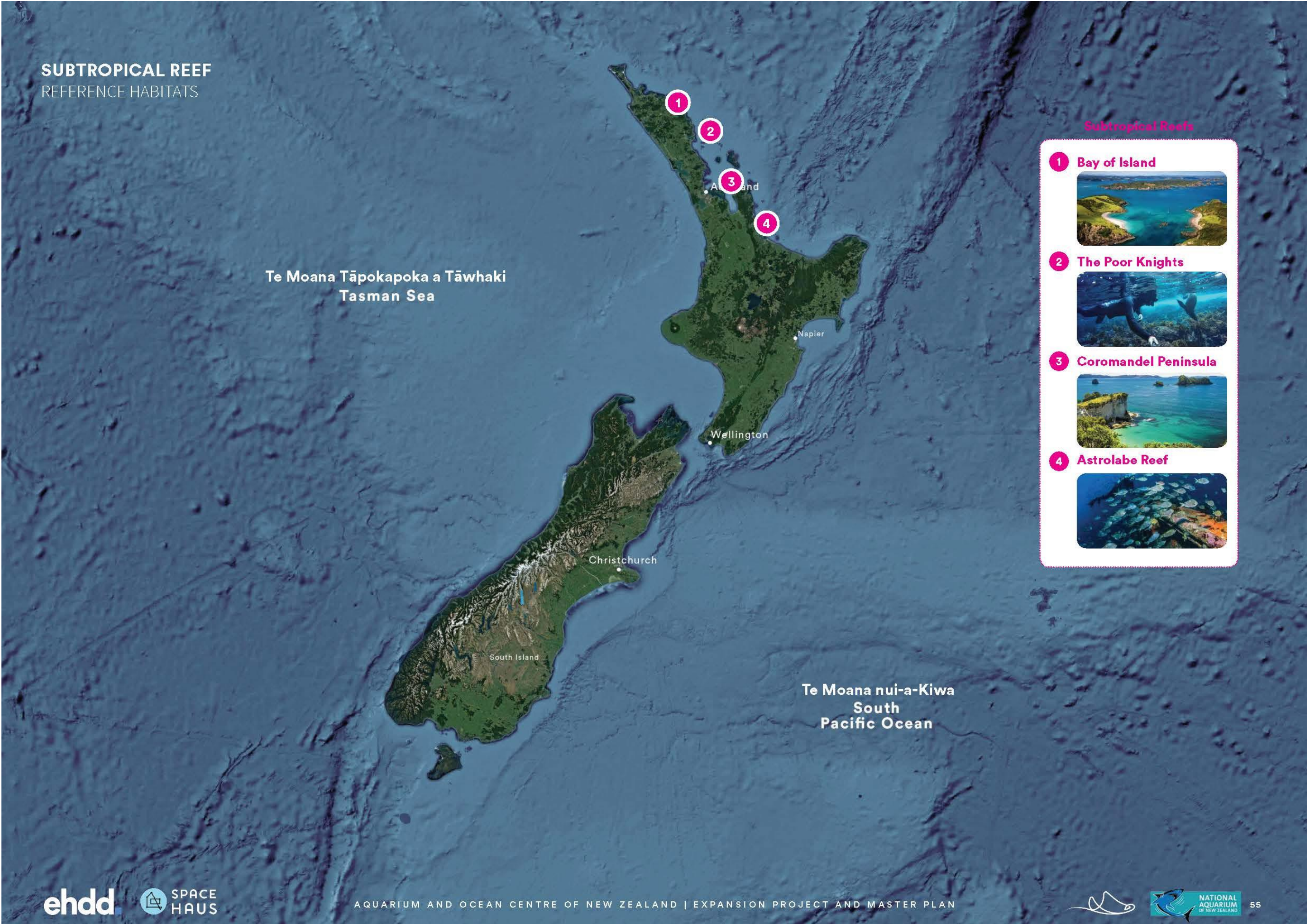


Invertebrates



SUBTROPICAL REEF HABITAT

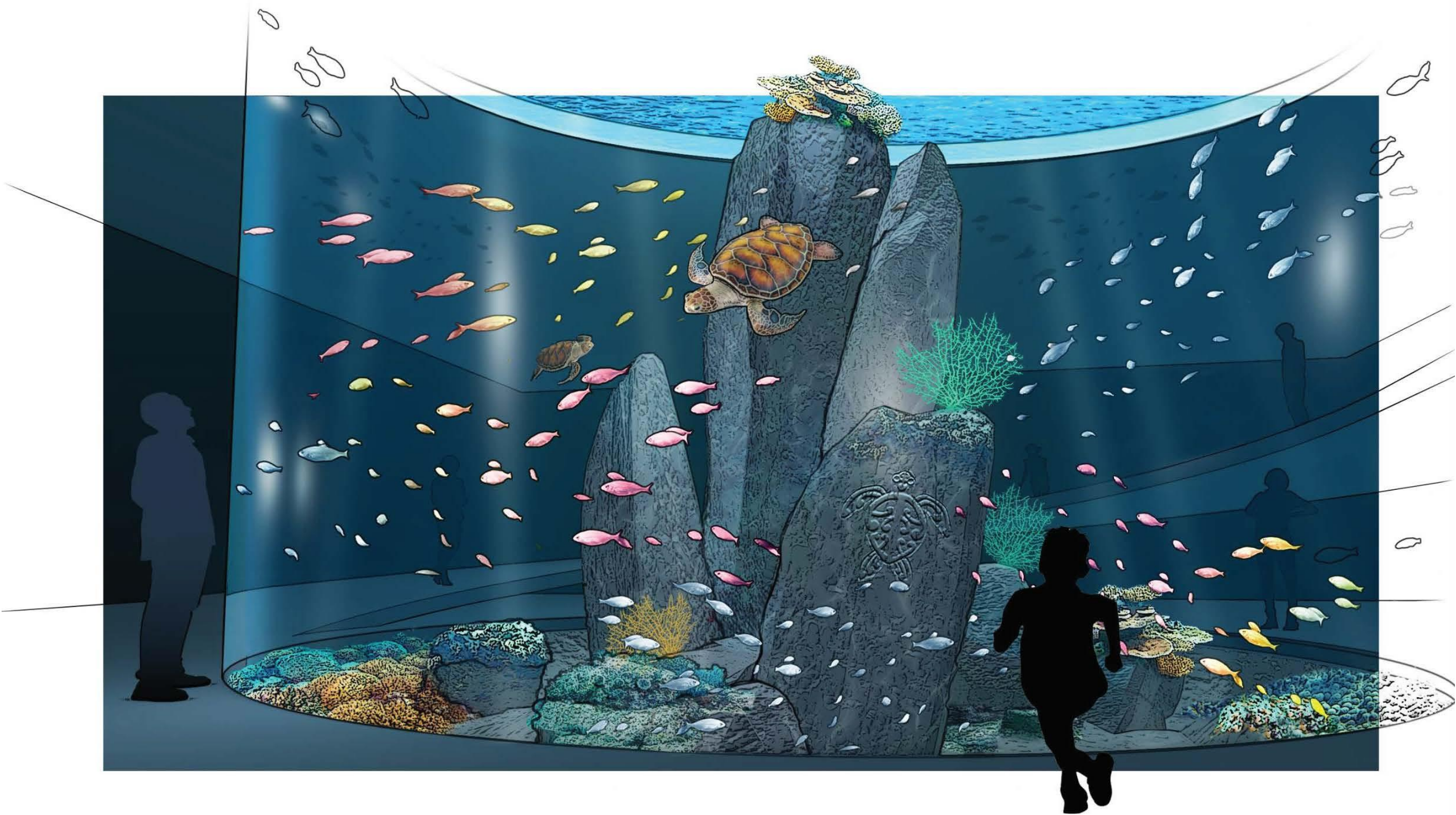
Turtles and colorful reef fishes inhabit this important reef ecosystem. Increasing ocean temperatures threaten this vital coastal habitat and the livelihood of many New Zealanders that depend on these important fishing grounds.





SUBTROPICAL REEF HABITAT

A spiral ramped pathway circulates the 12.5M diameter subtropical reef habitat.



SUBTROPICAL REEF HABITAT

SUBTROPICAL REEF HABITAT
SPECIES MIX



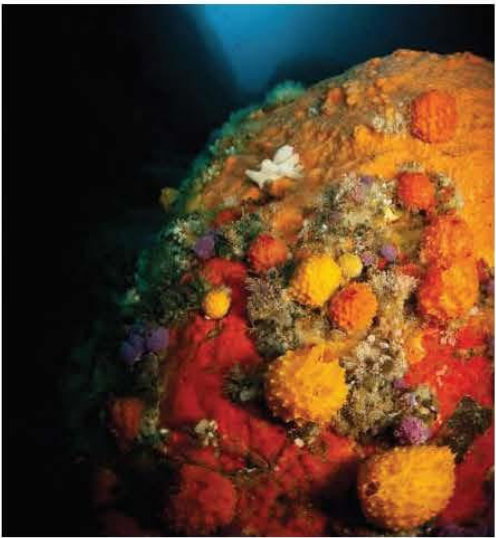
Turtles
Hawksbill turtle



Fish
Red Pigfish, Wrasse, Maomao, Triplefin, Leather Jacket, Porcupinefish, Angelfish, Silver drummer



SUBTROPICAL REEF
SUPPORTING EXHIBITS



Invertebrates

Soft Coral, Sponges, Anemones, Cowrie

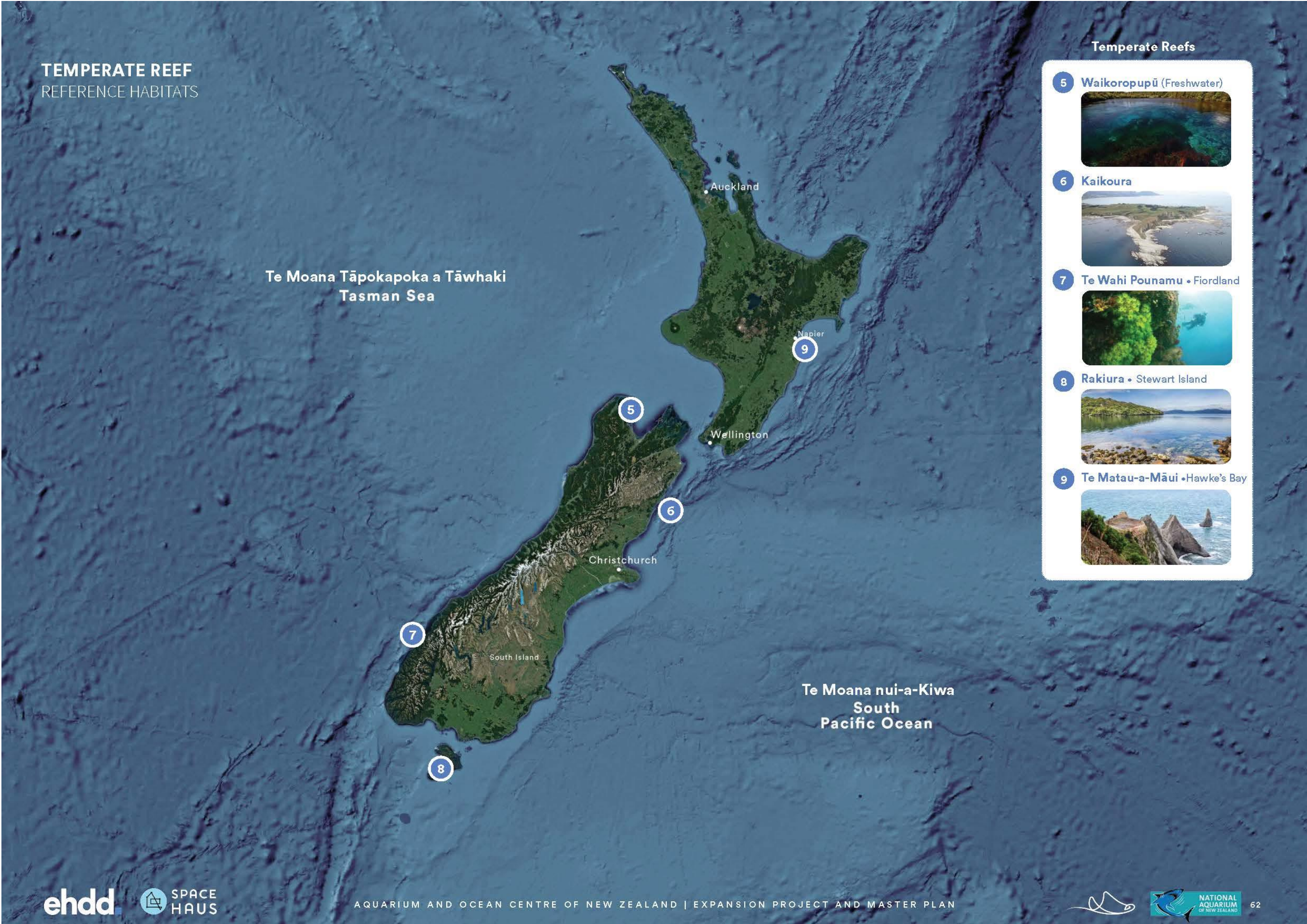
SUBTROPICAL REEF
INTERACTIVES

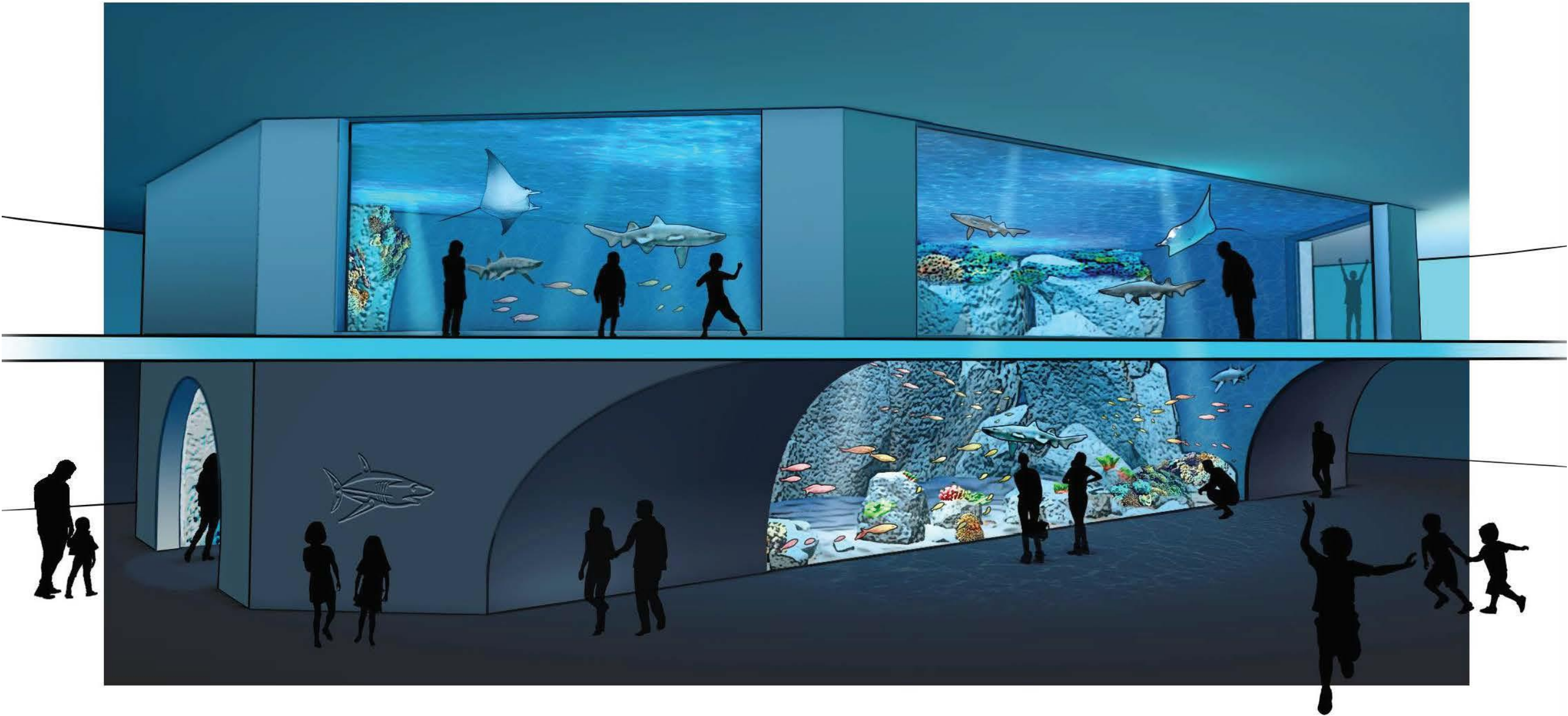




TEMPERATE REEF HABITAT

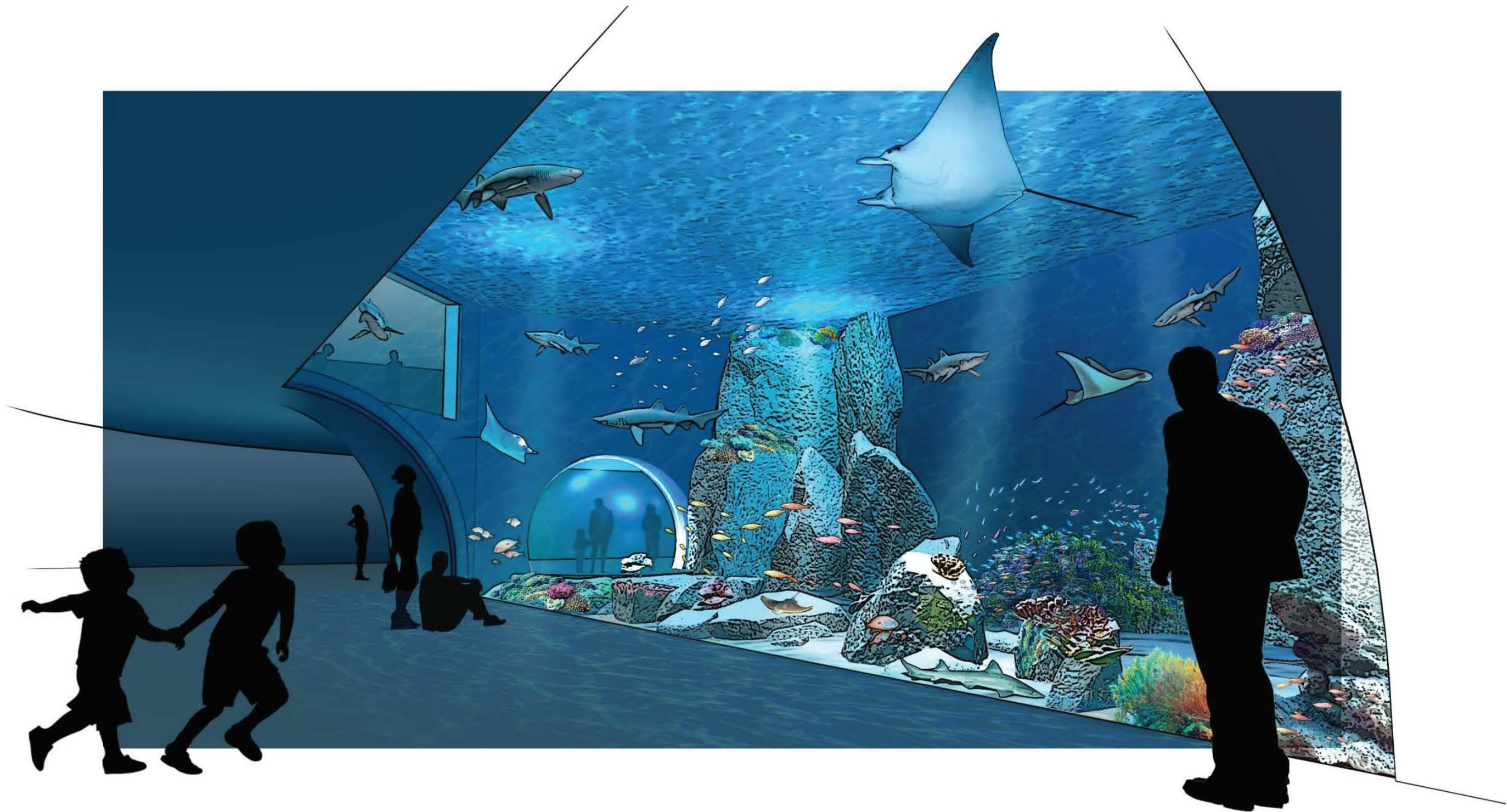
Temperate reefs are hard-bottom marine ecosystems found in cool waters between the tropics and the poles. Many species of sharks and rays are unique to these reefs that surround New Zealand. Of immediate concern, though, are urbanism, fishing, invasive species and climate change of which all are threatening the fundamental functioning and ecological integrity of temperate reefs.



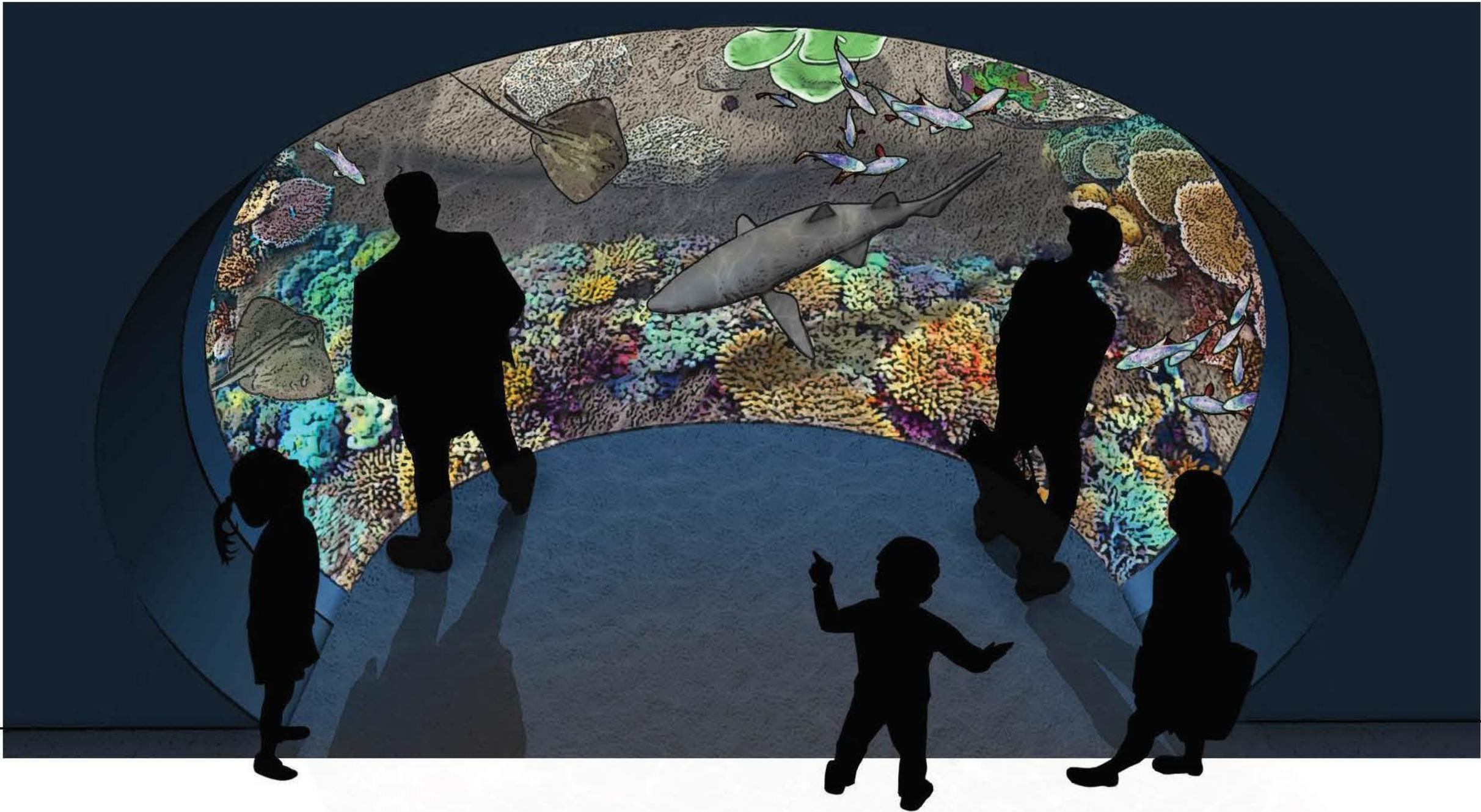


TEMPERATE REEF HABITAT

Large acrylic viewing windows showcase the mysterious and dramatic sea life and landscape of this deep ocean ecosystem

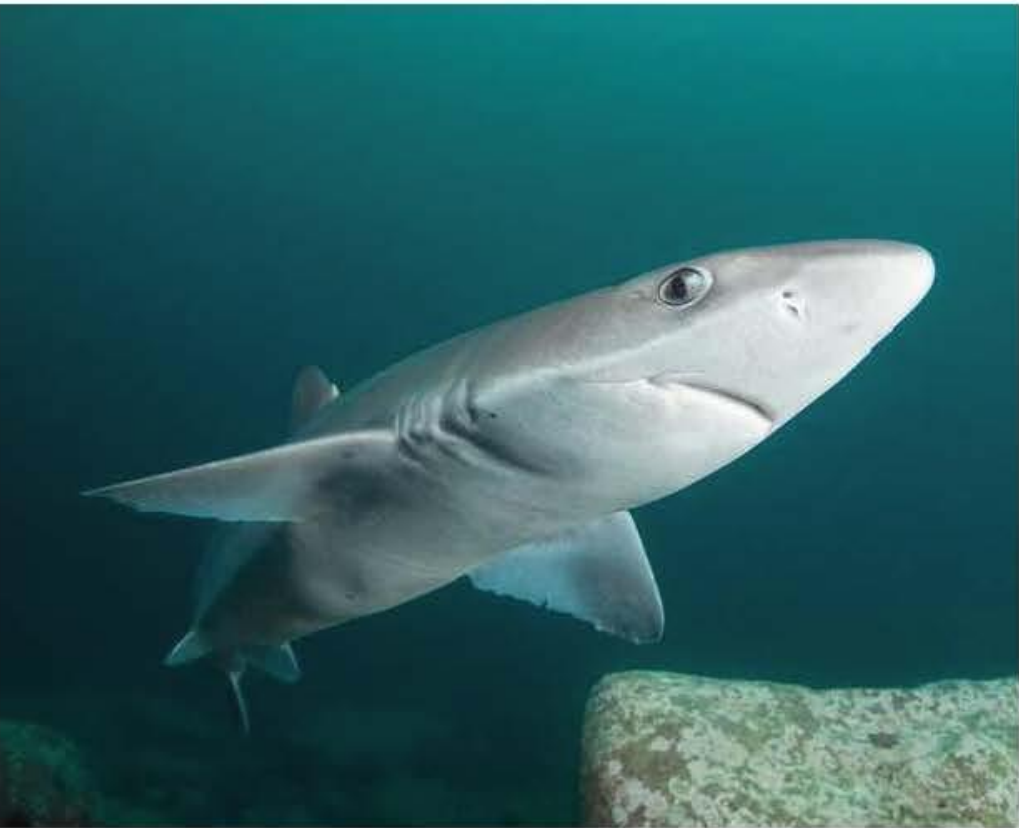


TEMPERATE REEF HABITAT



TEMPERATE REEF HABITAT

TEMPERATE REEF HABITAT
SPECIES MIX



Sharks (Mako)
Rig Sharks, Spiny Dogfish, King Fish Carpet Sharks



Stingrays (Whāi)
Eagle Ray, Long Tailed Stingray, Short Tailed Stingray



Fish
Tarahiki, Kahawai, Snapper, Gurnard, Trevally

TEMPERATE REEF
SUPPORTING EXHIBITS



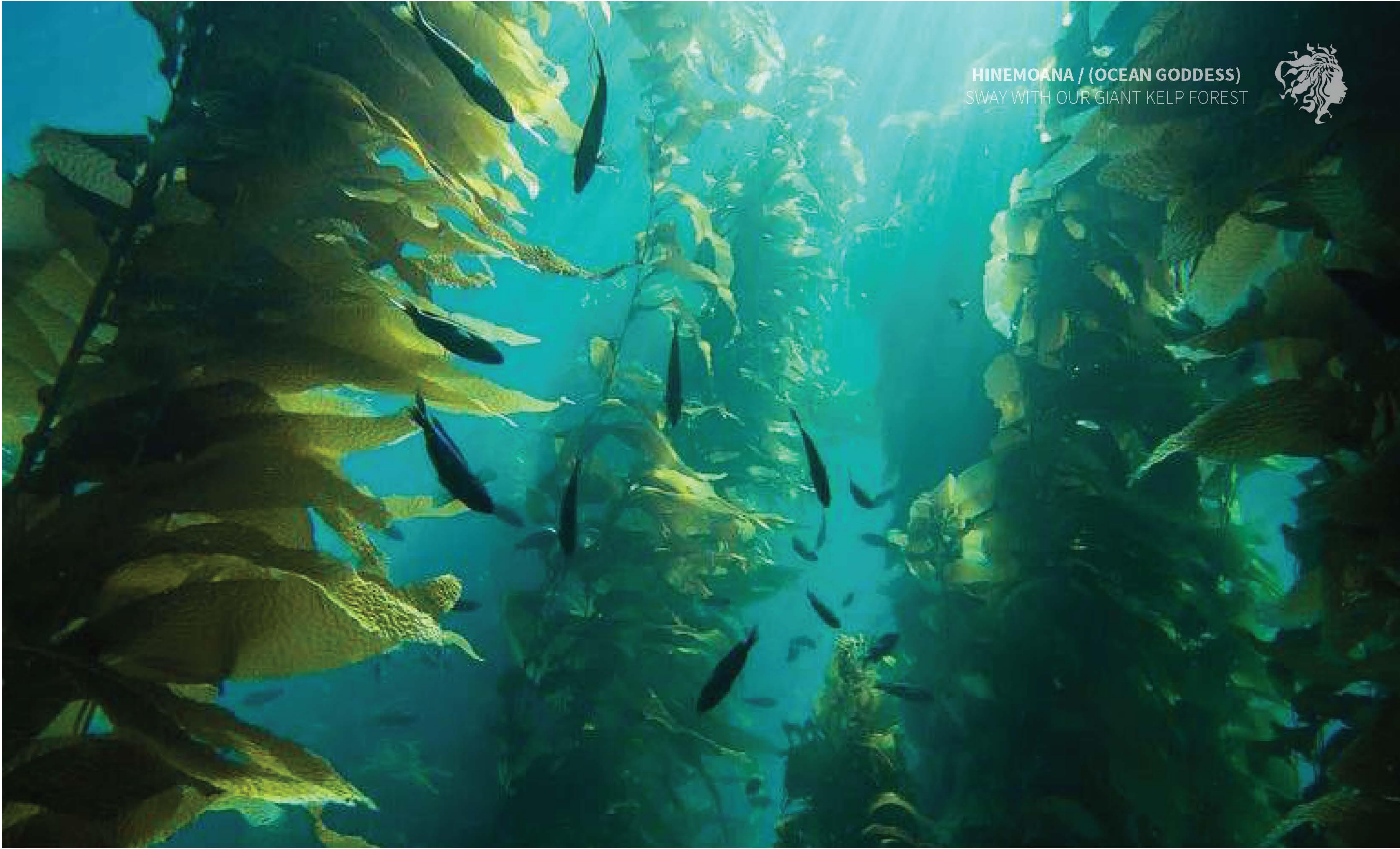
Seahorses



Invertebrates



Sea Jellies (Petipeti)
Lion's Mane Jelly, Moon Jelly

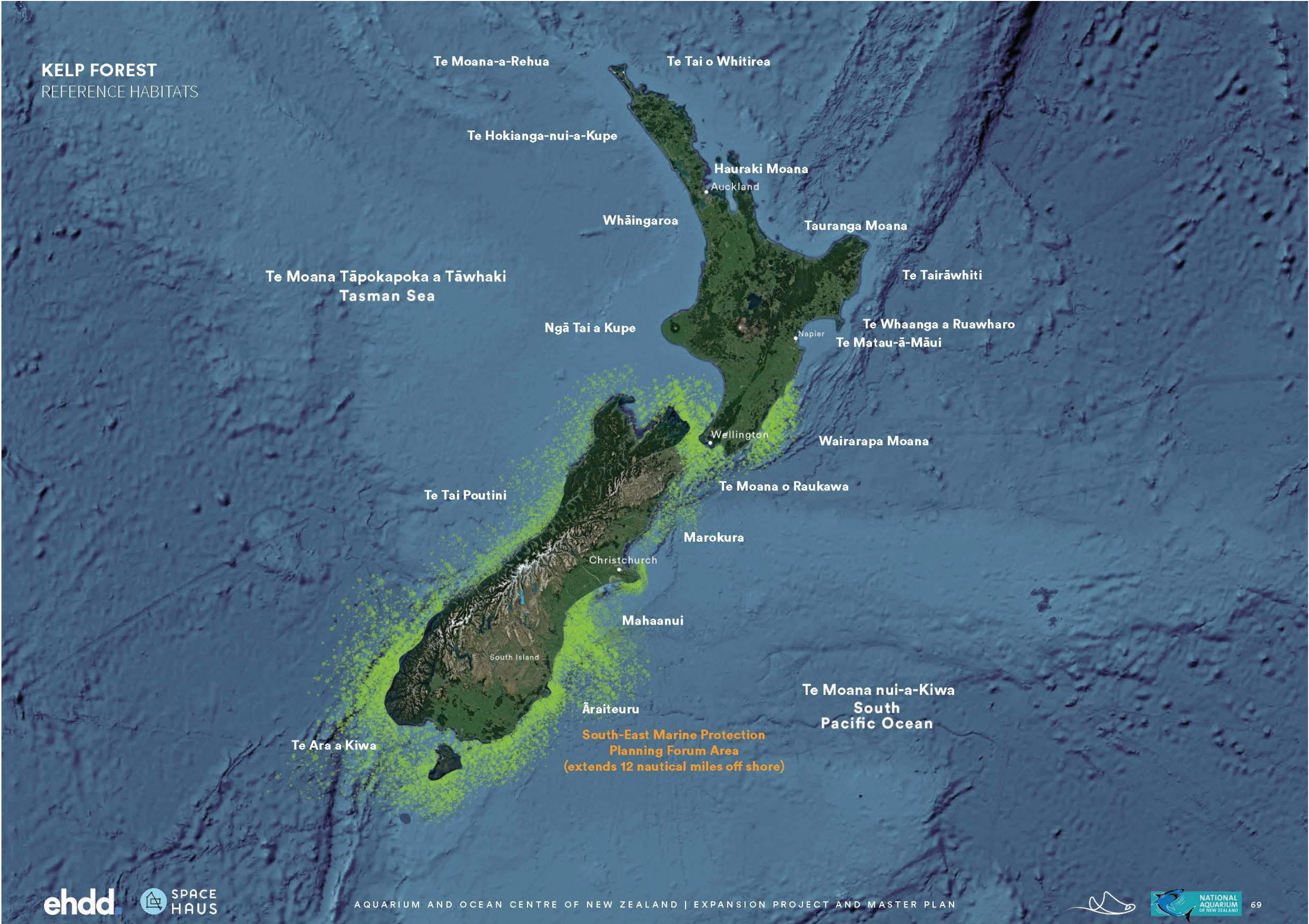


HINEMOANA / (OCEAN GODDESS)
SWAY WITH OUR GIANT KELP FOREST



KELP FOREST

The largest and most dominant forest seaweed is giant kelp, which forms towering pillars from the ocean floor to the surface. Kelp is home to juvenile marine life of many types. Adult pāua feed on the kelp species that grow in their home range. The crabs hang on to the kelp like branches of trees, living their lives suspended in the water column. The forests are hunting grounds for New Zealand sea lions that are attracted by the plentiful fish and crabs. Kelp forests help support fishing industries by providing a nursery for pāua, fish and crayfish. They are also a key food source for sea urchins. Kelp forests protect the land by slowing or dampening storm surges and reducing coastal erosion. They also capture and store nutrients thereby improving water quality. Kelp forests are suffering from the multiple stressors of sediment, climate change and changes to ecosystems from fishing. The good news is that they can regenerate!





KELP FOREST

Large two level acrylic viewing windows separate two species of giant kelp

KELP FOREST HABITAT
SPECIES MIX



Kelp
Bull Kelp, Bladder Kelp

Fish
Giant Boarfish, Red Moki, Tarakihi, Trumpeter, Marblefish, Goatfish, Jack Mackerel, Red Gurnard, Koheru, Spiny Dogfish, Todstood Grouper

ROCKY SHORE + ESTUARY HABITATS

Hallmark Exhibit



Little Blue Penguin (Kororā) Stingray (Whāi)

Taonga species



Godwit (Kuaka) Muttonbird (Tītī)

Conservation



Breeding
Water Quality



Rocky Shore



Albatross (Toroa) Petrel (Takahikare)



Yellow-eyed Penguin (Hoiho) Fur Seal (Kekeno)

Estuary, Salt Marsh:
Invertebrates



Sharks (Mako) Flounder (Pātiki)



Snapper (Tāmure moana) Whitebait (Kokopu, Inanga, Koaro)

Estuary, Beaches:
Shorebirds



Oystercatcher (Tōrea) Tuatara




Gannet (Tākapu) Heron (Matuku moana)

ROCKY SHORE + ESTUARY HABITATS
REFERENCE HABITATS

Estuaries


1

Pārengarenga Harbour




2

Kaipara Harbour




3

Tikapa Moana-o-Hauraki • Firth of Thames




4

Ahuriri Lagoon



5

Te Kauae-a-Māui • Cape Kidnappers





Southern Rocky Shores

6

Waikaawa • Curio Bay



7

Catlins



8

Otākou • Otago Harbour



Unique Estuaries

9

Whakaari • White Island



10

Waitutu Forest



11

Piopiotahi • Milford Sound



12

Te Oneroa • Mason Bay





ROCKY SHORE: WAVE CRASH TANK

The rocky shore is one of the best-studied marine ecosystems, and scientists who study the complex marine communities that live in this system made many of the earliest discoveries about marine ecology. Early on, some of these researchers discovered vertical zonation in rocky shore communities. Species closer to the high tide mark are often the best at being exposed to air and sunlight without drying out but are some of the worst at avoiding predation by marine predators. Species closer to (and below) the low tide mark are some of the best at avoiding predation but the worst at surviving long periods out of the water. The main environmental threat to rocky shore is pollution coming from many forms, in particular pollution related to oil spills. Rubbish such as plastics and metals being left behind by people in touristic areas also put sea lives in danger.



ROCKY SHORE: WAVE CRASH TANK

A unique experience allowing visitors to hear, smell, and feel the water crashing on a rocky shore



ROCKY SHORE: WAVE CRASH TANK



ROCKY SHORE: TIDE POOLS

There are a number of advantages to living in a tide pool ecosystem. Algae and other intertidal plants grow in the abundant sunlight and support an entire food chain of animals. Constant wave action supplies the tide pool with nutrients and oxygen. A varied substrate provides hiding places and surfaces to cling to. The rocky shore is also at risk from human-made problems like climate change, pollution and loss of habitat.



ROCKY SHORE: TIDE POOLS

Crouch down or lean over to touch incredible tide pool critters in the context of the nearby ocean

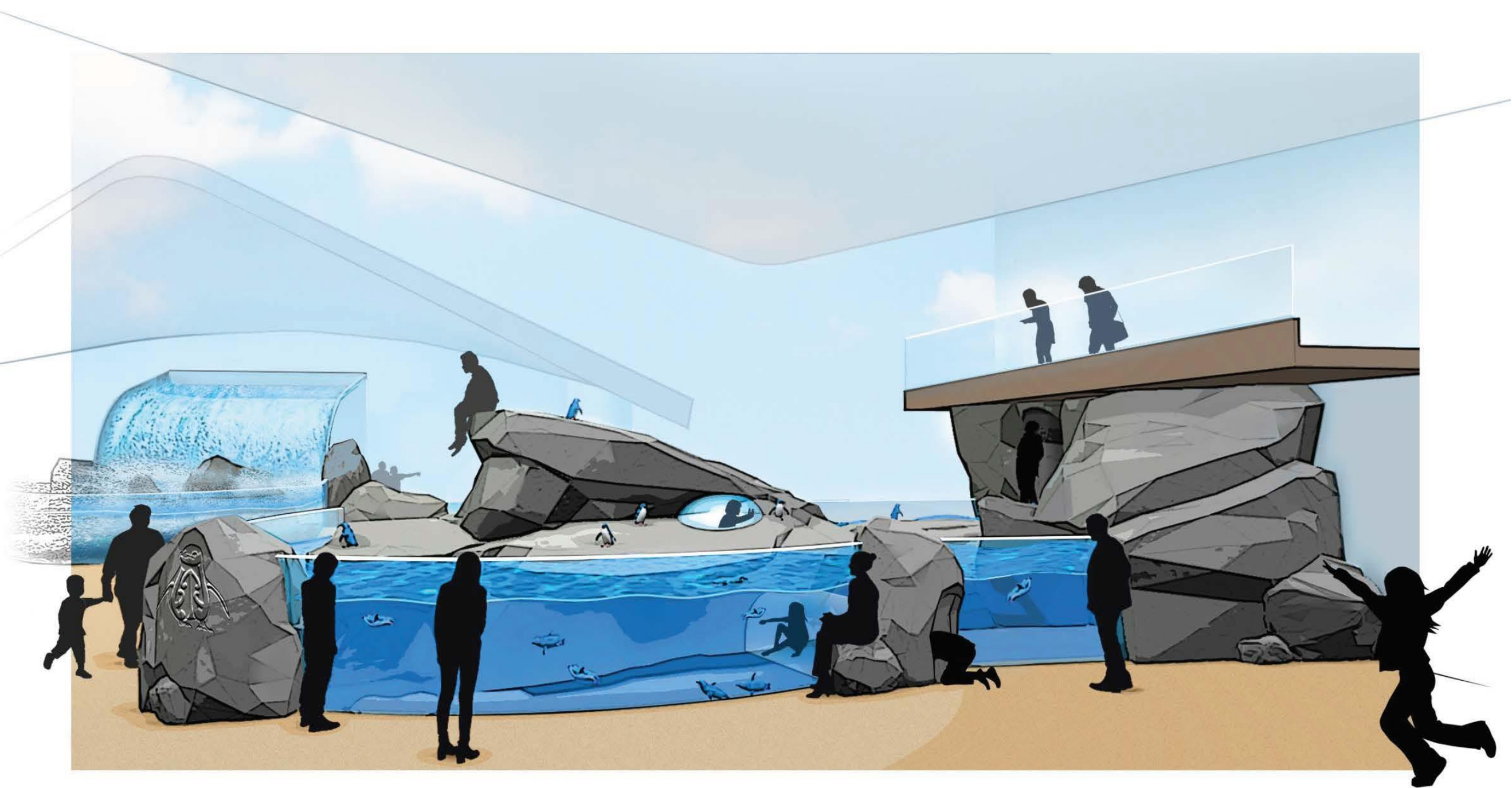


ROCKY SHORE: TIDE POOLS



ROCKY SHORE: PENGUINS

As their name suggests, the little penguin is the smallest species of penguin. They are also the most common penguin found around all coasts of New Zealand’s mainland and many of the surrounding islands. Primarily nocturnal on land, they are sometimes found close to human settlements and often nest under and around coastal buildings, keeping the owners awake at night with their noisy vocal displays. They live up to their scientific name ‘Eudyptula’ meaning “good little diver”, as they are excellent pursuit hunters in shallow waters. Introduced animals like rats, dogs, and cats can be a problem for both chicks and adults. Major threats include forgotten fishing nets and other marine pollution that cause choking in these small penguins.



ROCKY SHORE: PENGUINS

Generous viewing, including a crawl to bubble window, of fast swimming Little Blue Penguins



ROCKY SHORE: PENGUINS

ROCKY SHORE
INTERACTIVES: GANNET (TAKAPU) COLONY





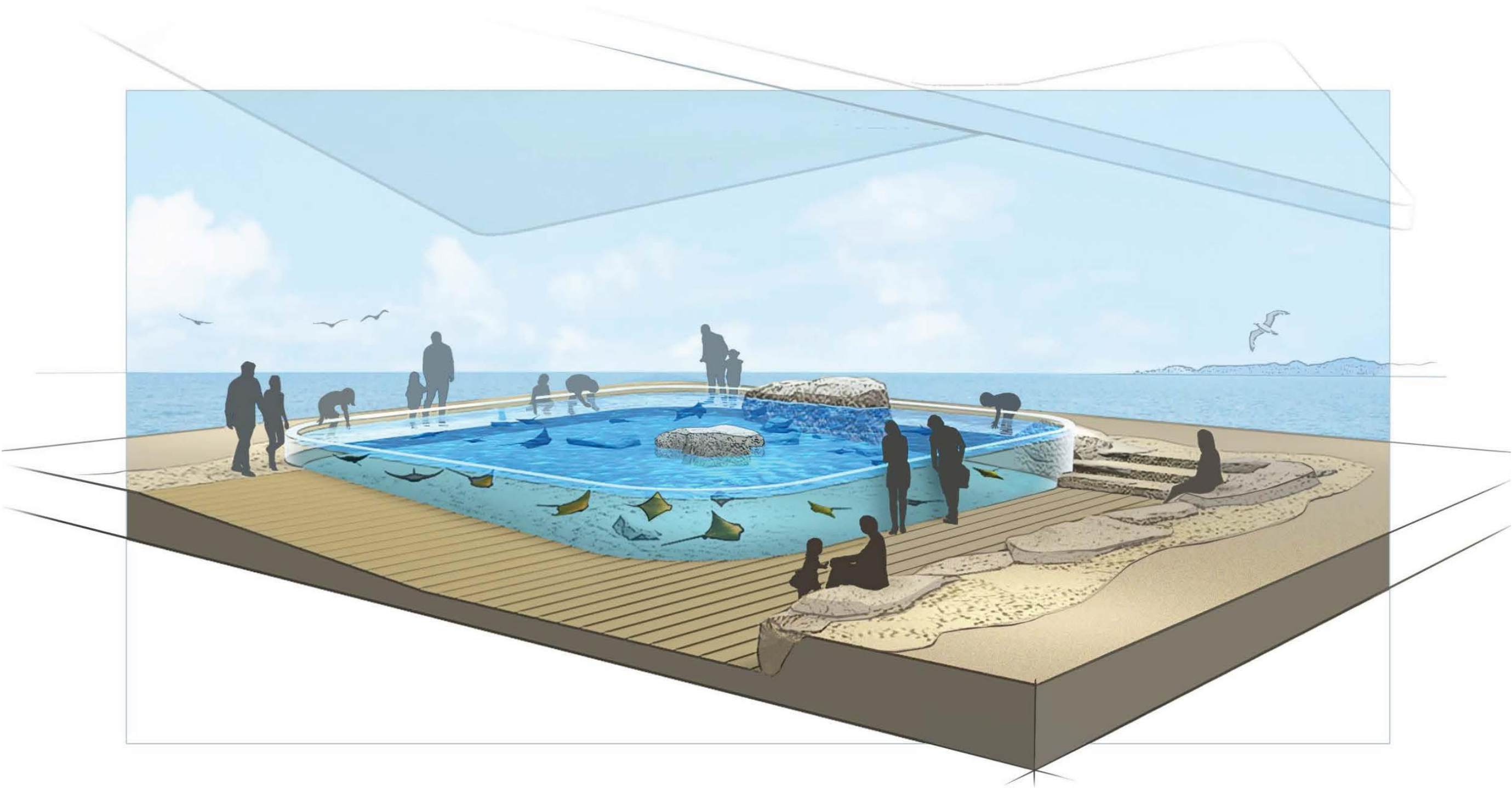
ESTUARY HABITATS (SAND FLATS): STINGRAY INTERACTIVE TOUCH

Beaches serve as buffer zones or shock absorbers that protect the coastline, sea cliffs or dunes from direct wave attack. It is an extremely dynamic environment where sand, water and air are always in motion. Beaches, at risk of inundation by sea level rise or erosion are unable to provide protection for communities along coastlines and important habitat for sea animals, birds, and other species. Sand Flats are home to many Stingrays that are feared because of the serrated, poisonous spines at the base of their tails, which they thrust into anything that tries to catch them. The barbs are trimmed or removed for Stingrays in this touch tank experience. During some summers, short-tailed and long-tailed stingrays congregate in large numbers around the underwater arches and pinnacles of the Poor Knights Islands off Northland’s east coast. Scores of stingrays, with wingspans up to two meters, “fly” like a squadron of bombers throughout the water column, —it is a dramatic sight, and one of the few places in the world where this behavior can be witnessed.



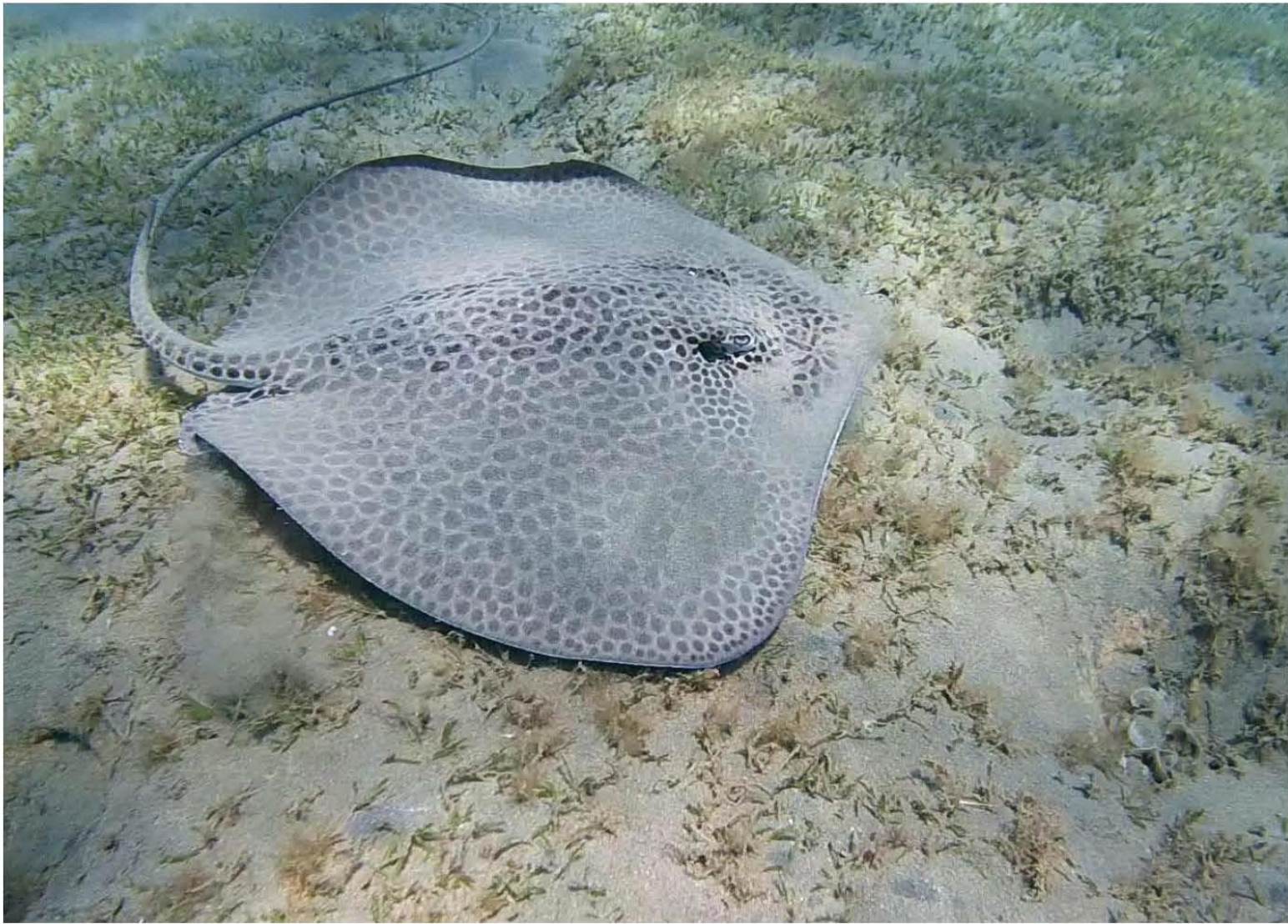
ESTUARY HABITATS (SAND FLATS): STINGRAY INTERACTIVE TOUCH

Accessible and interactive Stingray touch experience with expansive views of the nearby ocean.



ESTUARY HABITATS (SAND FLATS): STINGRAY INTERACTIVE TOUCH

ESTUARY HABITAT (SAND FLATS)
STINGRAY INTERACTIVE TOUCH SPECIES MIX





ESTUARY HABITAT (BEACHES)
SHOREBIRDS

MASTER PLAN



Shorebirds
Exhibit will be populated by birds needing rehabilitation

ESTUARY HABITAT
SUPPORTING MEDIA EXPERIENCE - PINNIPED STORY

MASTER PLAN



Pinnipeds
Fur Seals, New Zealand Sea Lion, Southern Elephant Seal, Leopard Seal

ESTUARY HABITAT
INTERACTIVE - KUAKA / BAR-TAILED GODWIT MIGRATION

MASTER PLAN




ESTUARY HABITAT (SALT MARSH)
BRACKISH WATER INVERTEBRATES TOUCH TANK

MASTER PLAN




Brackish and Diadromos Fish
Whitebait (Kokopu), Mullet (Kanae), Flounder (Pātiki), Crayfish (Koura), Eels (Tuna), Lamprey (Manakana)


MANGROVES HABITATS



Taonga species




Migratory Eels
(Tuna)




Kingfisher
(Kotare)

Conservation




Ground
Stabilization


Canopy




Purple Swamphen
(Pukeko)



Admiral Butterfly
(Paruparu)




White-faced Heron
(Matuku moana)




Air-borne Moss


Roots




Yellow-eye Mullet
(Kātaha)



Black Flounder
(Pātiki)




Luderick
(Parore)





Crabs
(Kāunga)



Hallmark Exhibit



Pathways:
Above and Below



AQUARIUM AND OCEAN CENTRE OF NEW ZEALAND | EXPANSION PROJECT AND MASTER PLAN



93




MANGROVE FOREST HABITAT

New Zealand is home to the world's smallest species of Mangrove. Recent studies have shown that the temperate mangrove forests of northern New Zealand support high abundances of small fishes with most of the small fish assemblage dominated by juveniles of the ubiquitous yellow-eyed mullet as well as juvenile grey mullet in the west coast estuaries. Nineteen fish species are 'confirmed' to be associated with mangroves.


MANGROVE FOREST
REFERENCE HABITATS

- 1


Whangarei Harbour


- 2


Rangaunu Harbour


- 3


Hokianga Harbour


- 4


Kaipara Harbour


- 5


Herekino Herbour


- 6

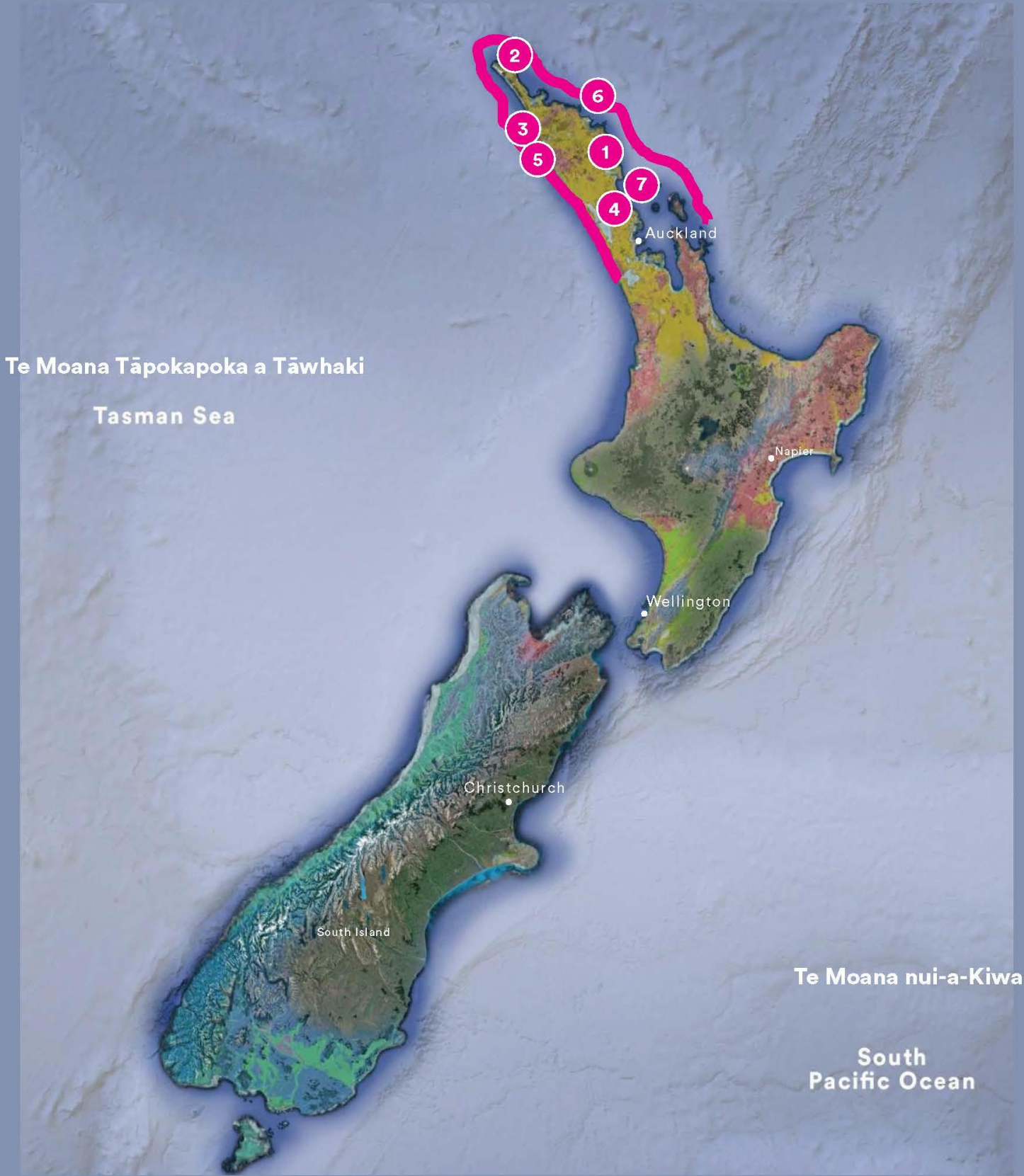
Pewhairangi • Bay of Islands


- 7

MangaWhāi



MASTER PLAN



MASTER PLAN



MANGROVE FOREST HABITAT

A unique sunlit and living New Zealand Mangrove habitat with views from inside and outside of the building.

MANGROVE FOREST HABITAT
SPECIES MIX

MASTER PLAN



Brackish Species
Grey Mullet (Kanae), Yellow Eye Mullet ((Kātaha), Black Flounder (Pōtiki), Crab (Kāunga)

MANGROVE FOREST HABITAT
SUPPORTING MEDIA EXPERIENCE - CANOPY

MASTER PLAN



MANGROVE FOREST HABITAT
INTERACTIVE - PATHWAYS

MASTER PLAN



4D IMMERSIVE EXPIERIENCE
MARAMATAKA MARAMATANGA

MARAMATAKA / (LUNAR CALENDAR)
LIE BACK IN OUR DOME THEATRE AND BE GUIDED BY THE MOON,
STARS AND SPECIES.



MASTER PLAN



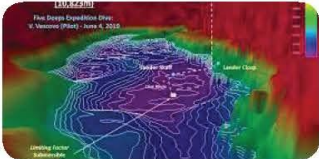


DEEP OCEAN
REFERENCE HABITATS

Deep Sea Trenches

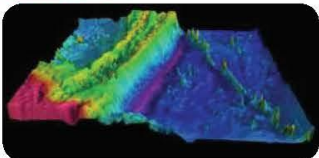
1

Tonga



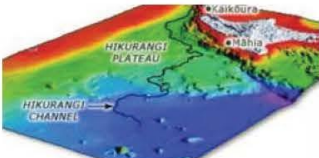
2

Kermadec



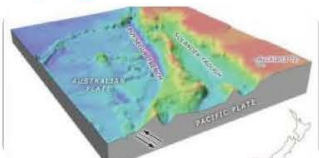
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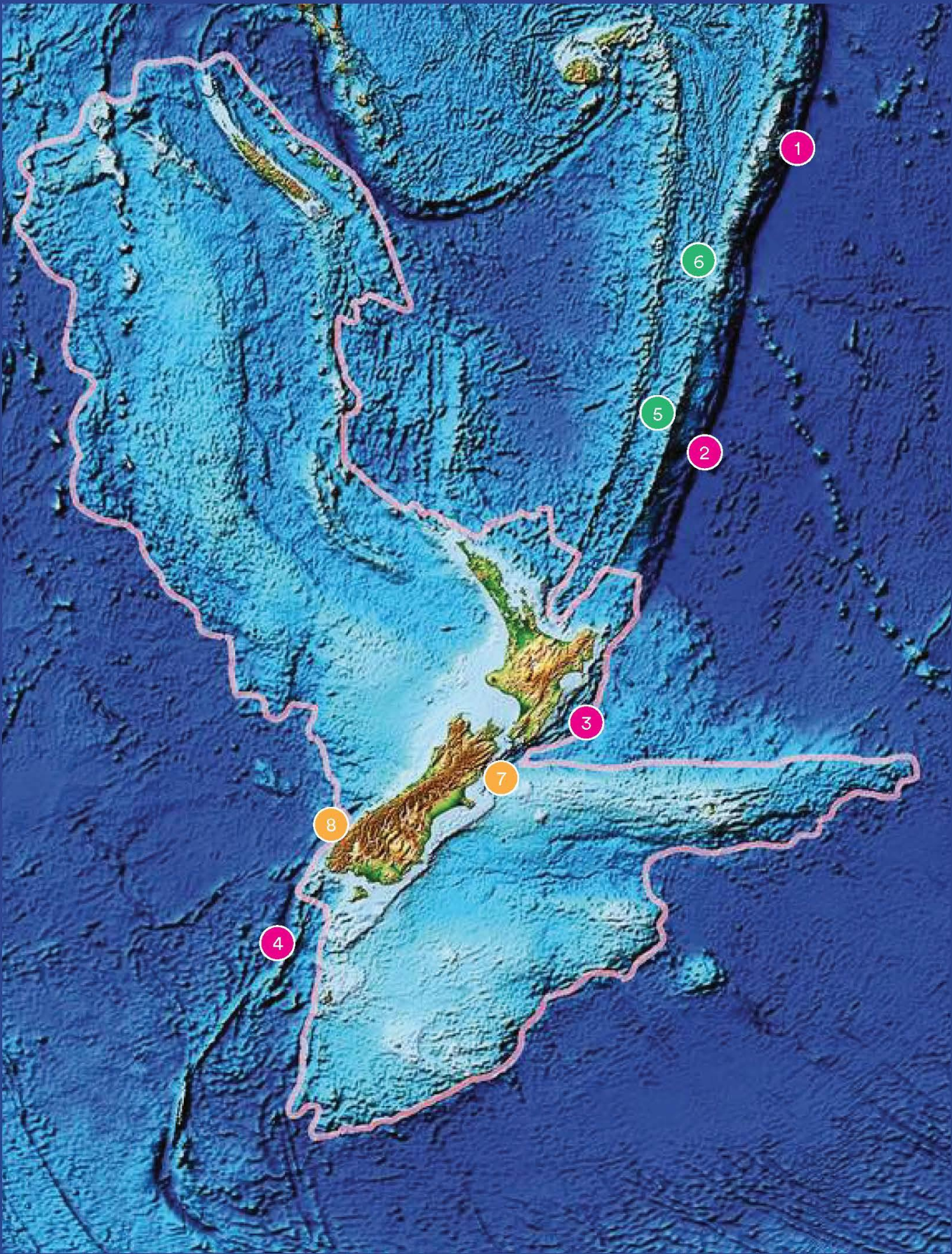
Hikurangi



4

Puysegur





MASTER PLAN

Volcanos/Vents

5

Havre Volcano



6

Monowai Volcano



Unique Deep Ocean Environments

7

Kaikoura



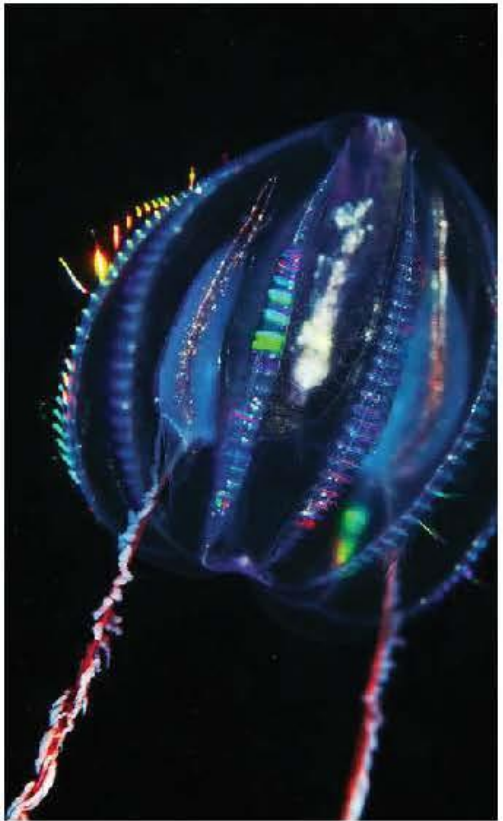
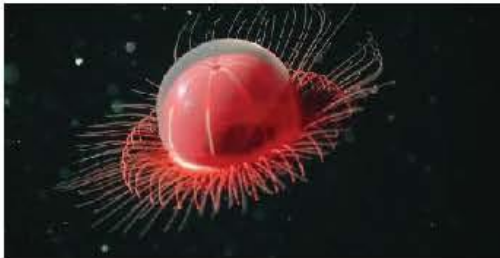
8

Fiordland basins



DEEP OCEAN
LIVE EXHIBITS + INTERACTIVES

MASTER PLAN



Deep Sea Fish
Anglerfish, Phantom Anglerfish, Hogfish, Dragonfish, Barrele

Deep Sea Jellies

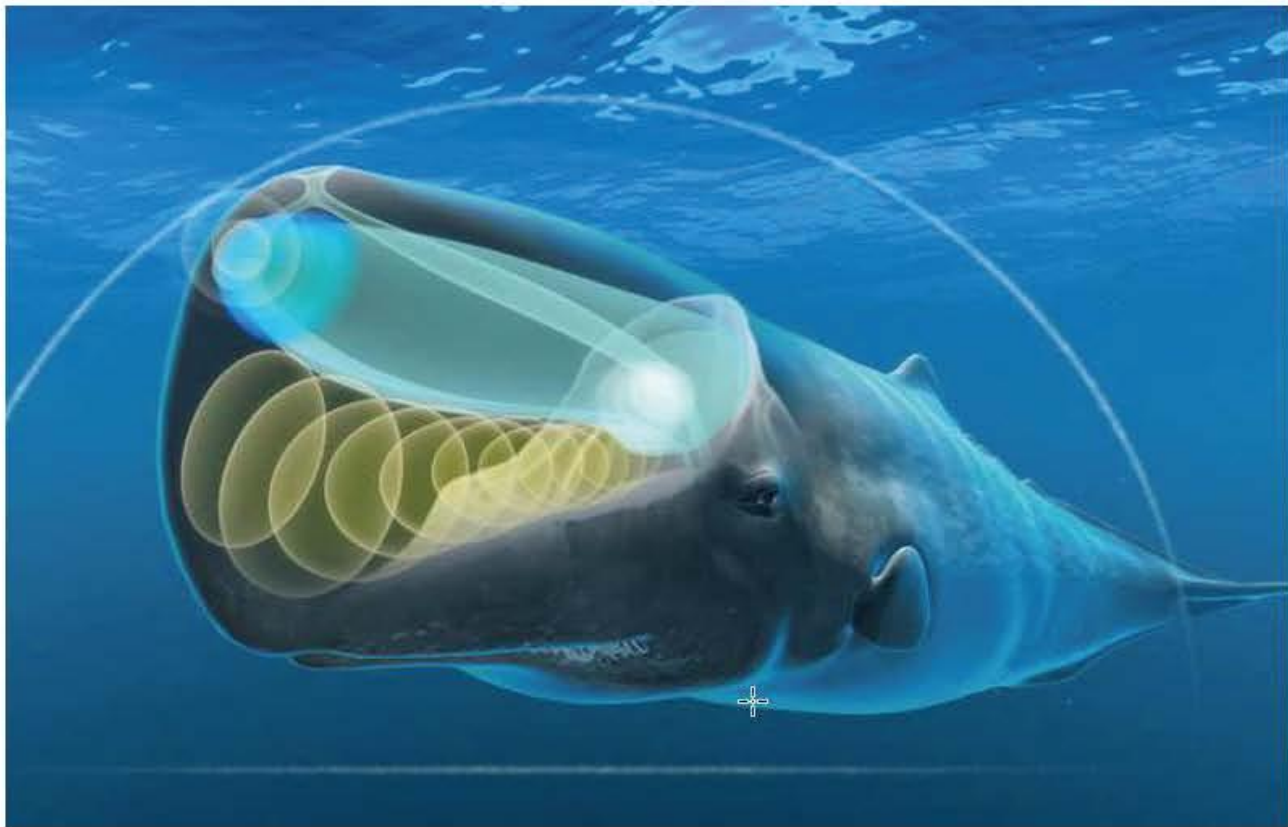
DEEP OCEAN
IMMERSIVE ENVIRONMENT - JELLIES

MASTER PLAN



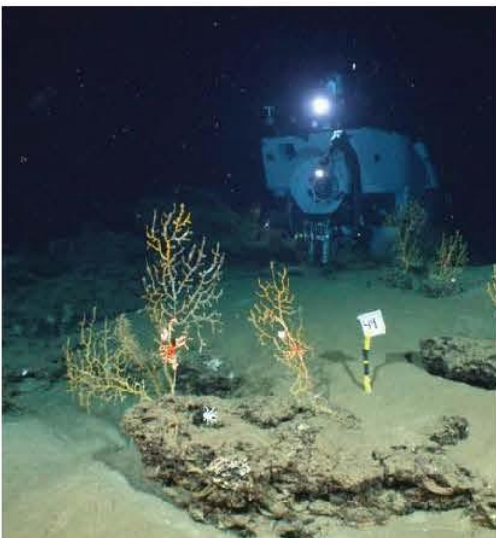
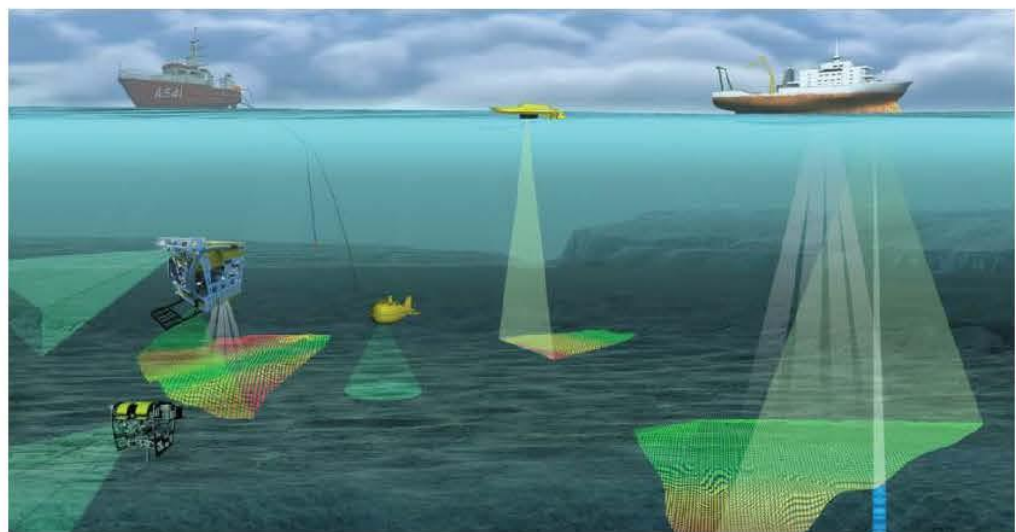
DEEP OCEAN
MEDIA EXPERIENCE - MAKING THE INVISIBLE VISIBLE

MASTER PLAN



DEEP OCEAN
INTERACTIVE TECHNOLOGIES - EXPLORATION

MASTER PLAN



ZEALANDIA
MEDIA EXPERIENCE

MASTER PLAN



Bringing Te Riu-A-Maui To Life
Sharing stories and insights into "Te Riu-a-Māui Zealandia" - the 8th continent

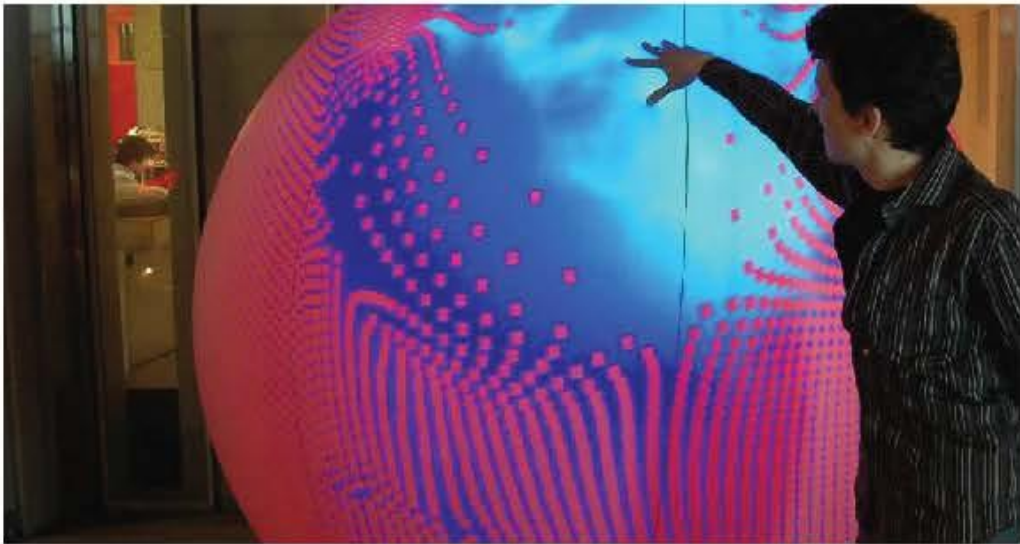
PACIFIC RIM
MEDIA EXPERIENCE - MIGRATION

MASTER PLAN



PACIFIC RIM
INTERACTIVE - MIGRATION

MASTER PLAN



PACIFIC RIM

TEMPORARY EXHIBITS - IWI IN RESIDENCE

MASTER PLAN

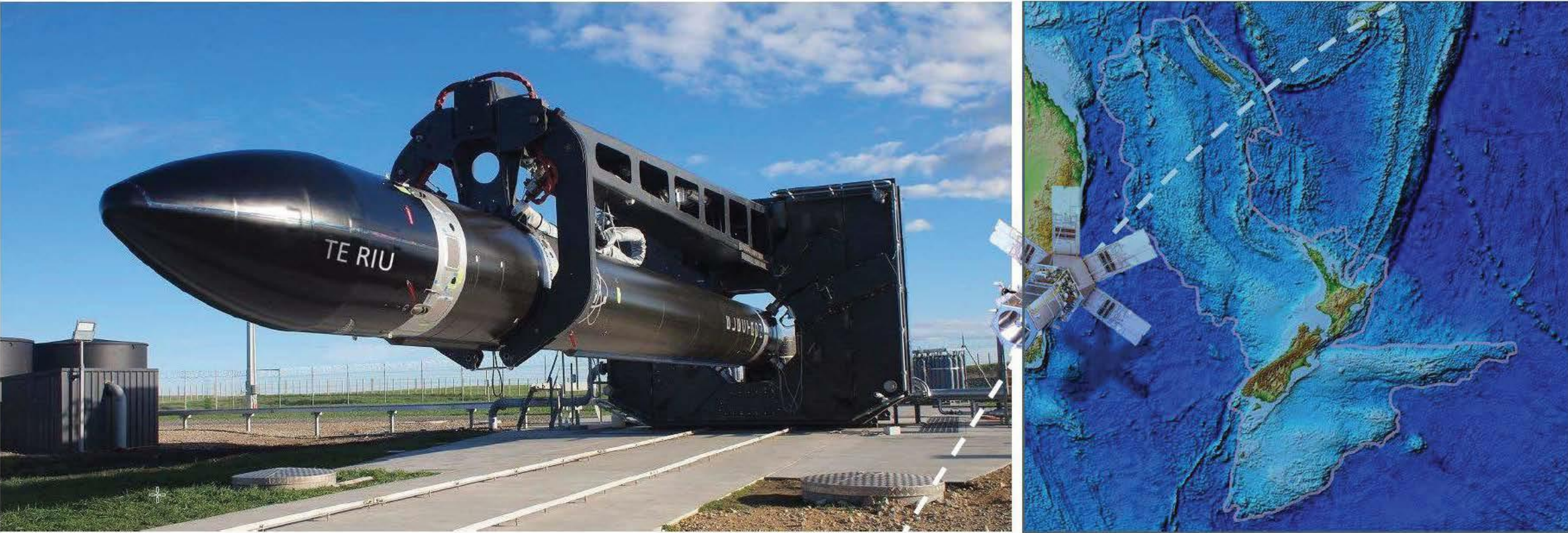


IWI IN RESIDENCE

Connecting Across the Pacific

BEYOND
MEDIA EXPERIENCE

MASTER PLAN



Linking with Local Technology
To bring our environment and connections to life

FOREST HABITATS
LONG TERM VISION



River's Edge Habitat



Gecko (pāpā)



Hochstetter's Frog (pepeketua)



Whitebait (Kokopu, Koaro, Inanga)



Powelliphanta

Forest at Night



Tuatara



Kiwi



Bats (Pekapeka)



Morepork Owl (Koukou)



Glow worm



Kakapo

FOREST

REFERENCE HABITATS

Alpine and High Altitudes

1

Te What Pounamu • Fjordland



2

Tongariro



3

Taranaki






Lakes and Caves


4

Lake Taupo




5

Waitomo Caves




6

Rawhiti Cave



7

Te Waikoropupu Springs



MASTER PLAN

Rain and Lowlands Forest

8

Waipoua (Kauri Forest)



9

Rotorua (Redwood Forest)



10

Whanganui



11

Paparoa (Cloud Forest)





FOREST AT NIGHT

FOREST AT NIGHT HABITAT
SPECIES MIX

MASTER PLAN



Nocturnal Species
Kiwi, Nocturnal Tours, Bats (the only terrestrial mammals in New Zealand)

FOREST AT NIGHT
INTERACTIVE - SOUND EXPERIENCE

MASTER PLAN



FOREST AT NIGHT
INTERACTIVE - CANOPY AT NIGHT

MASTER PLAN





RIVERS EDGE

RIVERS EDGE HABITAT
SPECIES MIX

MASTER PLAN



Aquatic Species
Kōkahi, Brown mud fish, Inanga, Mussels (Kōkahi), Crayfish (Kōura), Underwater vegetation

Terrestrial Species
Gedros, Hamilton, Archer Frog, Hochstetter's Frog, Powelliphanta, Pānaphrops

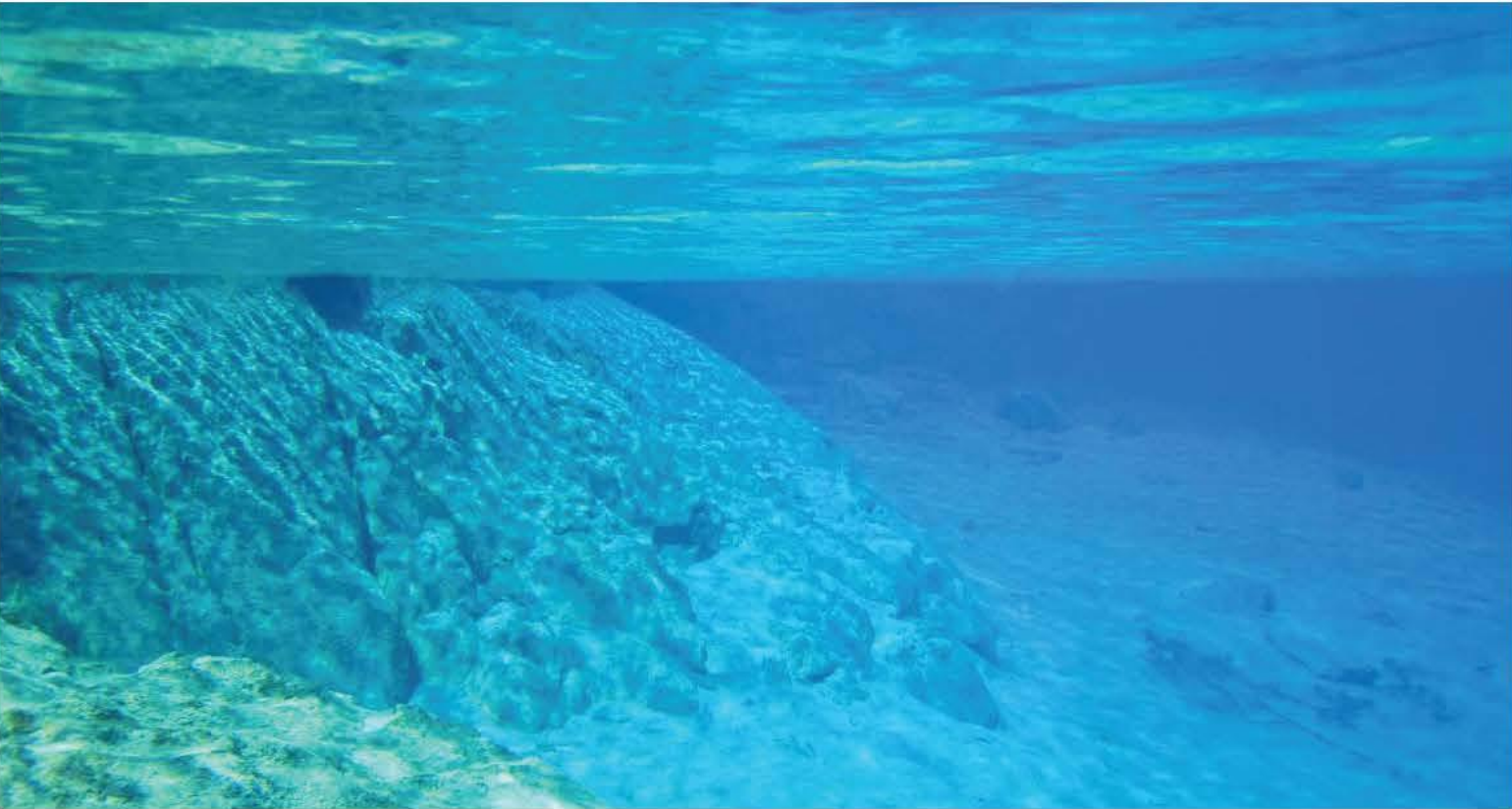


MASTER PLAN

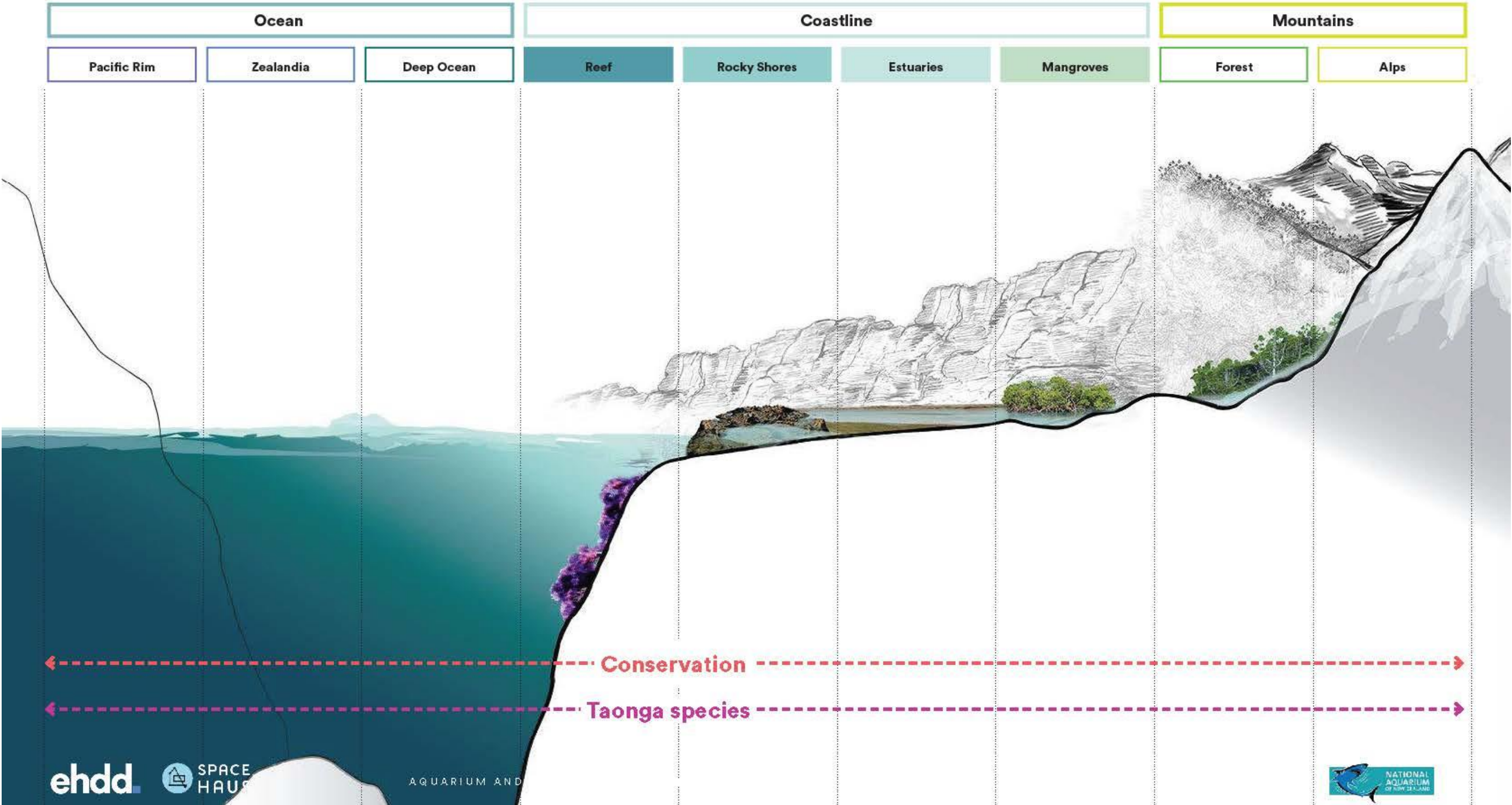
LAKES AND CAVES

LAKES AND CAVES

MASTER PLAN



Beyond Ecosystems
Geo-thermal Activity, Geologic Formations, Water Quality,
Cultural Interface





SUPPLEMENTAL MATERIAL

MASTER PLAN

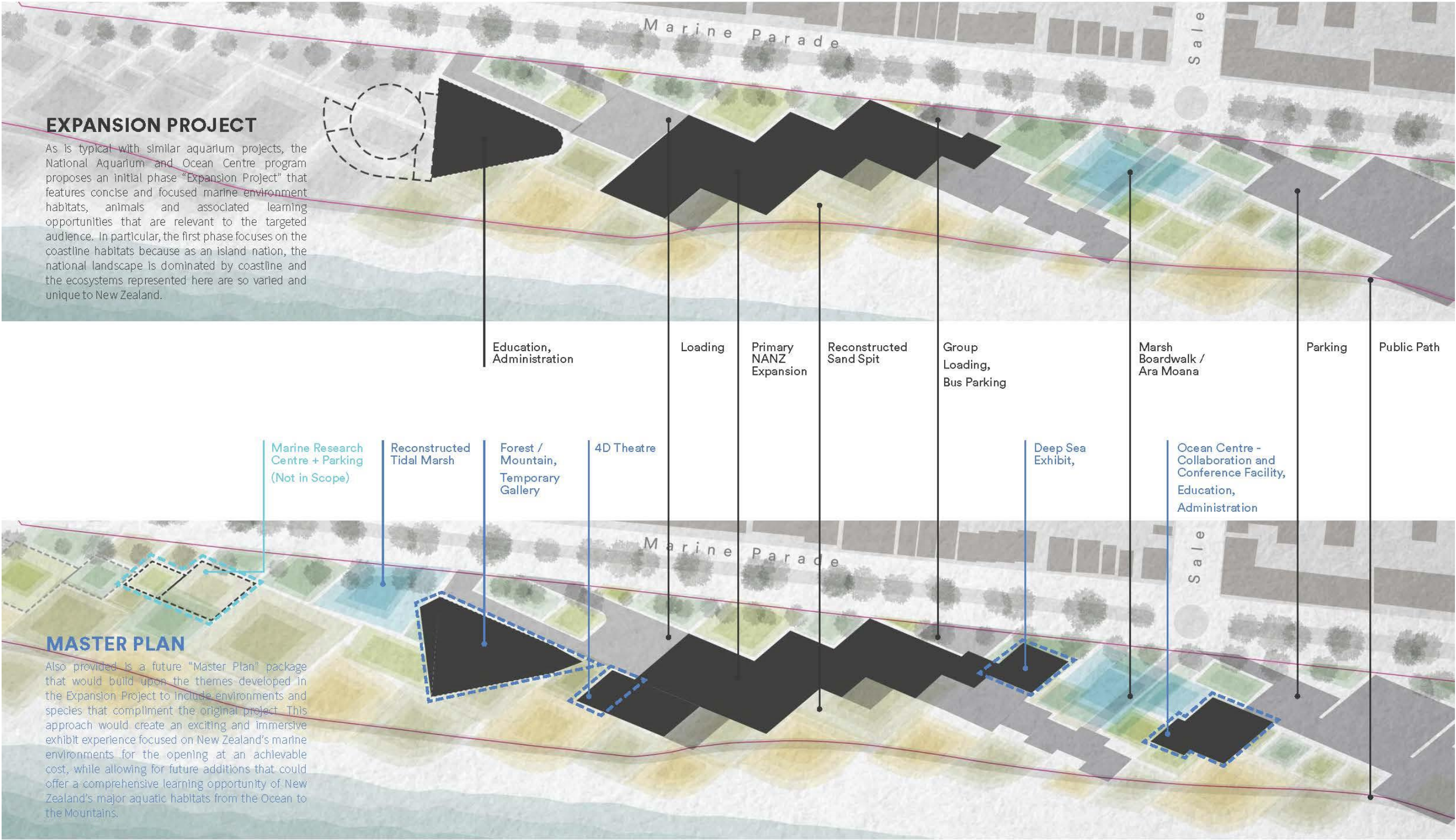
TANK SCHEDULE

DETAILED PROGRAM

SPECIES PROCUREMENT

PROCESS

COMPARISON
EXPANSION PROJECT | MASTER PLAN





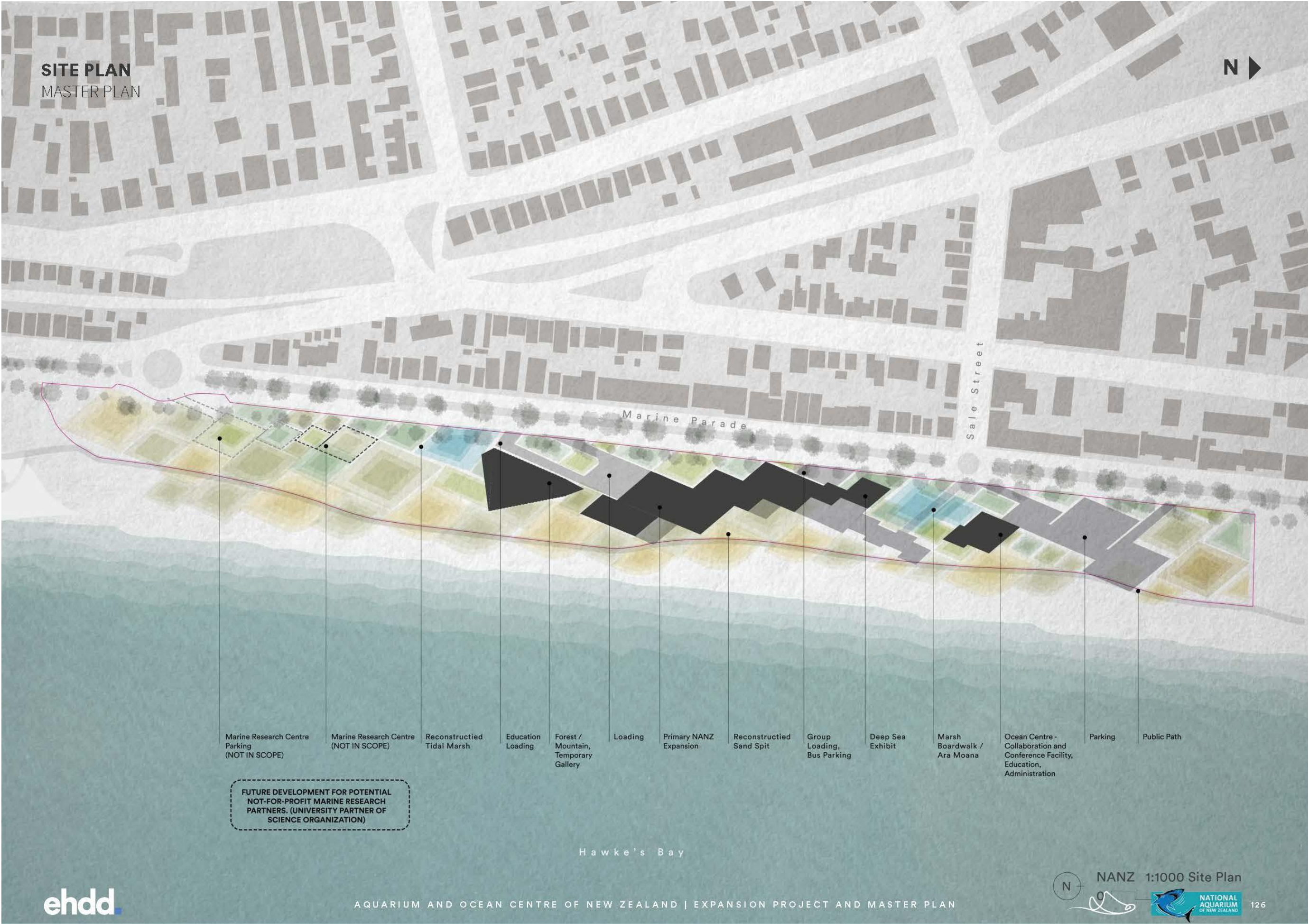
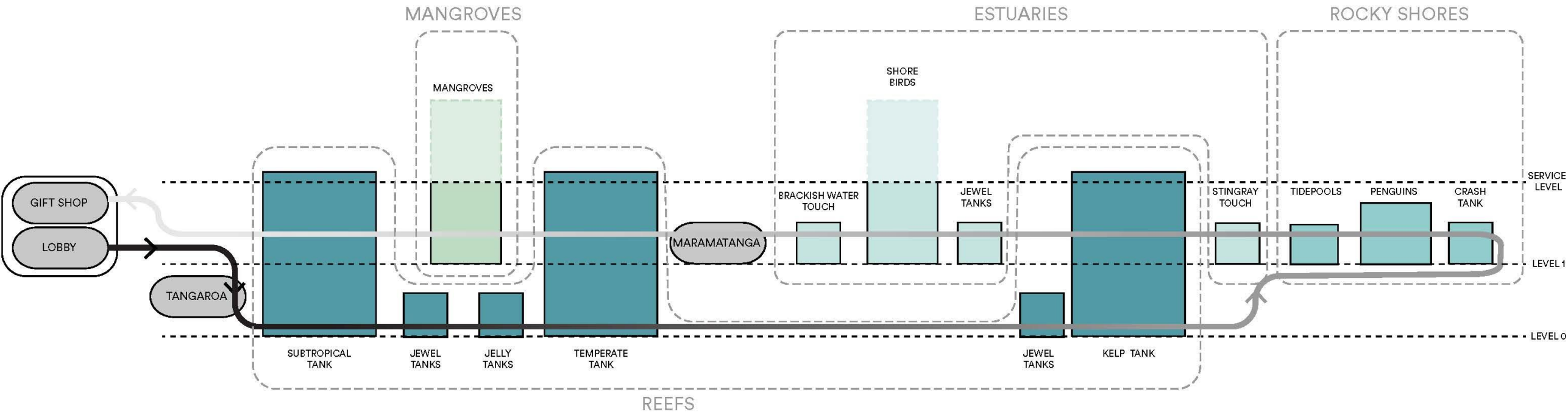


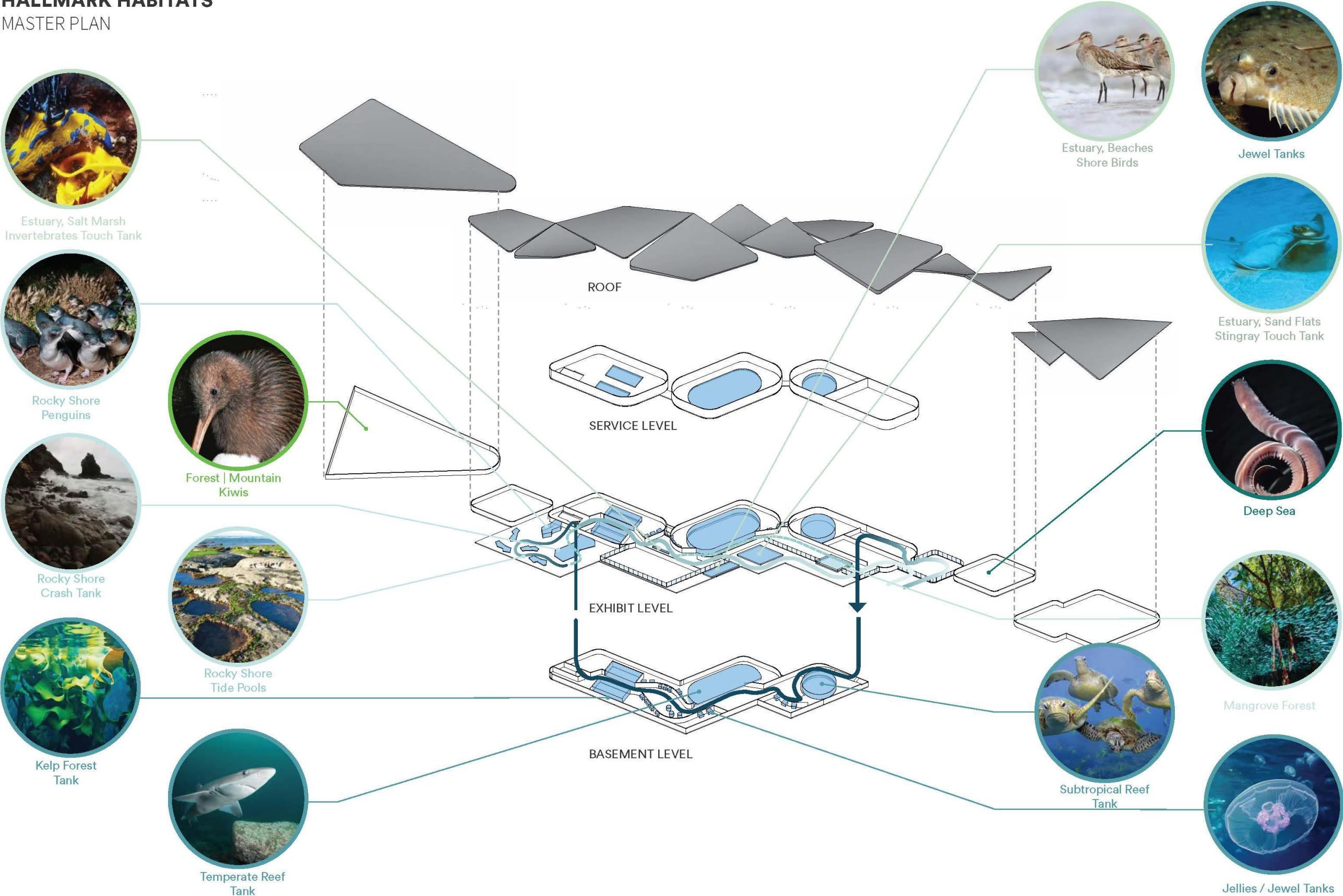
EXHIBIT FLOW
REPRESENTED HABITATS IN MASTER PLAN

COASTLINE EXHIBIT
...CIRCULATE ON L1 FOR
THE COASTLINE STORY

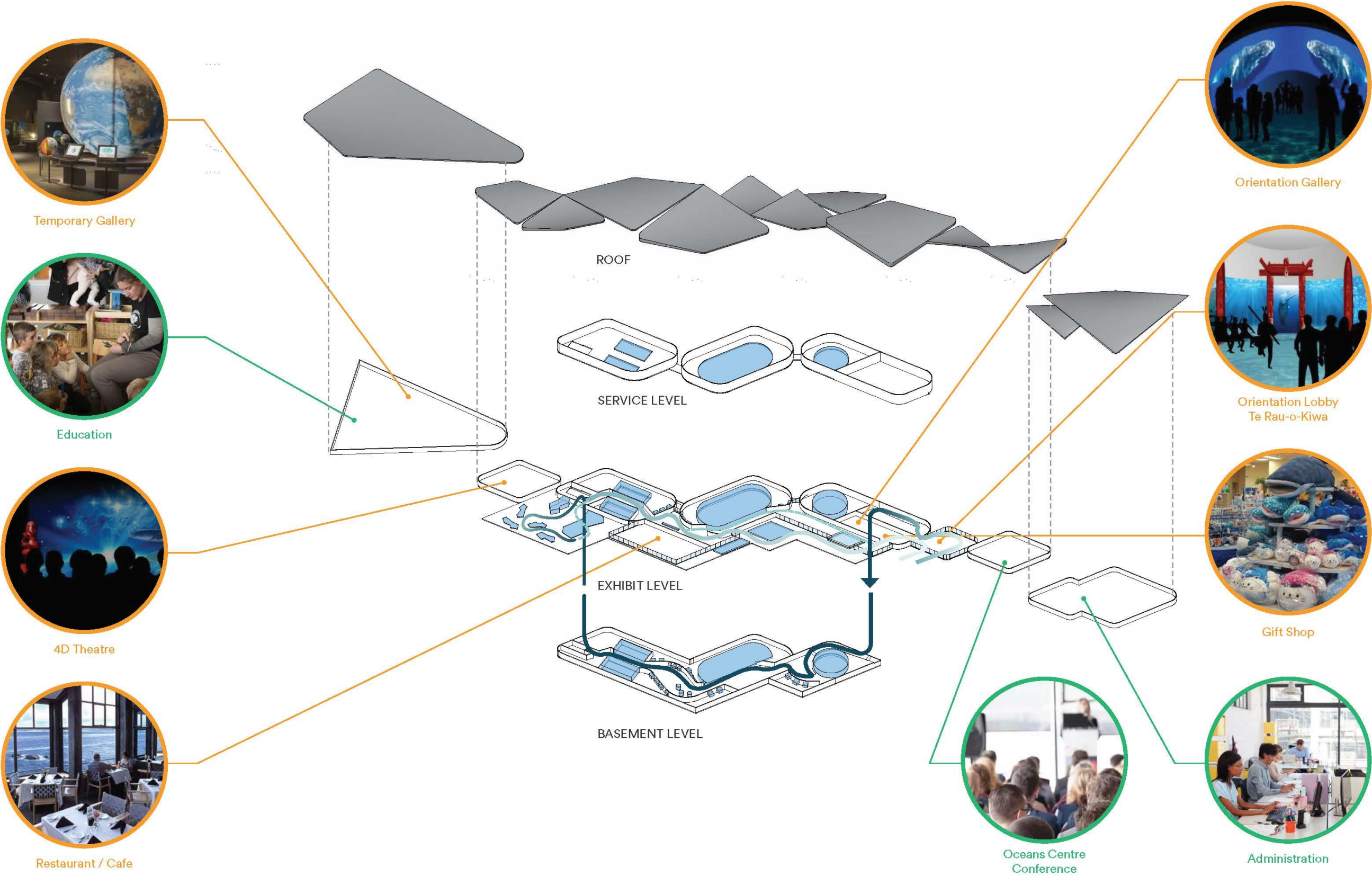


NEAR COAST EXHIBIT
ENTER AT L1
CIRCULATE DOWN TO L0 THEN...

HALLMARK HABITATS
MASTER PLAN



VISITOR AMENITIES
MASTER PLAN



TANK SCHEDULE

3 TANKS PER HABITAT		PRELIMINARY SPECIES	Total Liters	Width	Length	Depth	Acrylic Panel 1 (Big Viewing)	Acrylic Panel 2	Acrylic Panel 3	Acrylic Panel 4	Acrylic Panel 5	Notes	Life Support System
3.1	COASTLINE	PHASE 1											
3.1.1	Reef												
	Shark (Temperate reef)	Large Rays, rig sharks, bronze whaler, school sharks, spiny dogfish, slender roughy, golden snapper john dory sea perch, king fish carpet sharks, blue cod, silver drummer, butterfly perch	2,220,000	12	25	7.4	14w x 3.8h / r3	14w x 3.8h	4.5w x 4.5h / r2.25 (bubble)			sand tigers not reported Rachel says no Bronze Whalers, but does not leave any large sharks	90 minute simple turnover (13850 l/m) with 8000 l/m sand filtration + 5850 l/m parallel flow through foam fractionators (+ozone). Both feed to deaeration tower. Heat exchanger for heating/cooling temperature control. 10 l/s make-up seawater. (turnover includes shark medical tank volume) (Temperate Jewel tanks fed from this system)
	Shark holding (medical)		75,000	10	2.5	3							Fed from Temperate Reef system @1250 l/m.
	Seahorse	pot belly seahorse long snout pipefish, bigeye	2,000	1.1	1.1	1.5							Small local system with make up seawater
	Schooling/Sea Turtle (Subtropical reef)	red pigfish,scarlet wrasse, green turtle,triplefin,leather jacket,sharpnose pufferfish,Porcupinefish, Sandagers wrasse	703,000	11 Ø	na	7.4	11w x 6.5 / r3.7					part of Subtropical reef tank	60 minute simple turnover (5850 l/m) with 3500 l/m sand filtration + 2850 l/m parallel flow through foam fractionators (+ozone). Both feed to deaeration tower. Heat exchanger for heating/cooling temperature control. 5 l/s make-up seawater. (Subtropical jewel tanks fed from this system)
	Sea snakes	Banded Sea Krait, Yellow bellied sea snake										Could be walled off section of tropical reef tank	Recirculation feed from Tropical reef system - could be walled off section of temperate reef tank so snakes have room to dive
	Kelp forest	boarfish, two spot damselfish, angelfish, kelpfish, red moki, porae, tarakihi, trumpet, marblefish lord Howe coralfish, blue maomao, goatfish, jack mackerel, Koheru, toadstool grouper, red gurnard, yellow moray eel, spotted dogfish	735,000	4.5	11	7.4	(2) @ 7w x 6.5h					walk through tunnel ~40% Verify all species are kelp forest.	70 minute simple turnover (10000 l/m) with 6000 l/m sand filtration + 4000 l/m parallel flow through foam fractionators (+ozone). Both feed to deaeration tower. Heat exchanger for cooling only temperature control. 8 l/s make-up seawater. (Kelp Forest Jewel tanks fed from this system)
	Marine holding/quarantine	tbd											Multiple small systems with make-up seawater recirculation feeds from temperate & subtropical systems for flexibility
	Jelly jewel tanks	Moon Jellies, Egg Yolk Jellies											Separate recirculation pumps and filters on each tank, with small common recirculated water system with heat exchanger for chilling, particulate filtration and UV sterilization. Similar to small version of PDZA system
3.1.2	Mangrove	yellow eyed mullet, flounder, snapper, kokopu, bully, sole, greenback Flounder, grey mullet	45,500	5	7	1.3	(2) @ 4.8w x 3.1h	(2) @ 6.8w x 3.05h					45 minute simple turnover (1350 l/m) with 735 l/m sand filtration + 500 l/m parallel flow through foam fractionators (+ozone). Both feed to deaeration tower. Heat exchanger for heating/cooling temperature control. 5 l/s make-up seawater. Possible this could be recirculation loop off subtropical system
	Holding	tbd											
3.1.3	Estuary/Rocky Shores												
	Penguins	Little blues and Yellow-eyed	120,000	8.5	14	3.4	(2) @ 5.61w x 1.47h / r7.43	5.48w x 1.47h / r10	4.29w x 1.50h	2.5w x 1.50h	(2) 1.43w x .88h / r0.74 (BUBBLE)	exterior	60 minute simple turnover (1850 l/m) with 735 l/m sand filtration + 500 l/m from skimmers through foam fractionators. Both feed to deaeration tower. Heat exchanger for heating/cooling temperature control. 2 l/s make-up seawater. UV sterilization (could be freshwater system, but seawater probably preferred)
	Shore birds (rescue/ rehab program)	tbd	15,000									exterior	Flow through using make-up seawater at 8 l/s and/or small 500 l/m recirculation filter system with UV sterilization
	Shore bird holding											exterior	
	Sting Ray touch tank	long tailed stingray, eagle ray, goatfish	60,000	8.5	14.5	1	8.5w x .45h	14.5w x .45h	8.5w x 1h	14.5w x 1h		exterior	40 minute simple turnover (1875 l/m) with 1200 l/m sand filtration + 675 l/m parallel flow through foam fractionators (+ozone). Both feed to deaeration tower. Heat exchanger for heating/cooling temperature control. 1 l/s make-up seawater. UV sterilization. (Maybe possible to do this fed from temperate reef system)
	Invertebrates touch tank (tidal touch)		4,000	8	0.6	0.6						exterior	Recirculation feed from temperate reef system + UV sterilization
	Rocky Coast Crash Tank	butterfish, Indo Pacific Sergeant, Crimson Cleanerfish, Banded Wrasse, blue moki, sweep, pink maomao, scorpionfish	50,000	8.9	9	1.4	8.73w x 1.4h / r4.45	3.97w x 4.97h / r2.5	(2) @ 4.46w x 1.4h			exterior. Tsunamis and sea level rise interpreters	1200 l/m wave crash pump + Recirculation feed from temperate reef system
	Brackish water jewel tanks												
	Eels	shortfin and longfin											
	Brackish water holding												
3.4	CHANGING EXHIBIT GALLERY	Initial Budget Capacity Phase											
	Kiwi (Nocturnal- Forest + Mountain)												
	Tautara (Nocturnal- Coastal)												
3.2	DEEP OCEAN	MASTER PLAN											
	Jelly Jewel tanks	Pelagia, Lion's Mane, Ctenophores, etc	7,500	5								5-7 tanks	Part of Jelly System above
	jewel tanks	Hagfish, Invertebrates	6,600	4.5								5-6 tanks of various tank sizes 200-2000 liters	2-3 Separate chilled seawater water systems grouped by temperature requirements. Some tanks may require low O2, sealed systems
3.3B	FOREST + MOUNTAIN	MASTER PLAN (long term vision)											
	Nocturnal exhibit	Kiwi, tautara											
	Reptile house												
	Freshwater stream/river exhibit	bully short fin eels (invasive trout) kokopu koaro inanga	30,000	10	2	1.5	3w x 2h	3w x 1.5h	(2).75 h x 2 w)				Possible multiple separate systems for different areas that only look connected. 1000 lpm net circulation through sand filters, + UV + sidestream zeolite filter + 1500 lpm waterfall pump
	Freshwater holding												
	Amphibian Tanks	Endemic frogs- Archey, Hamilton, Hochstetter		1	1	1							Terrarium exhibits All acrylic or glass tanks, 1,2,3 or 4 sided viewing
	TOTAL NSM												
TOTAL Water volume													
TOTAL LITERS			4,073,600										

DETAILED PROGRAM
SUMMARY

			Proposed Program	Concept Package - Proposed Program Allocation			
	by PROGRAM	notes	2019	(e) Facilities	Expansion (int)	Expansion (ext)	Total
(1)	PUBLIC		0	40	625		666
(2)	EDUCATION		363	363			363
(3)	(int) EXHIBITS	(includes LSS)	2,293	325	1,968		2,293
	(ext) EXHIBITS		801			801	801
(4)	ANIMAL HUSBANDRY	(includes food prep, lab, dive, vet, quarantine)	556	150	406		555
(5)	SUPPORT (not lss)	(loading dock, storage, animal collection...)	198	28	170		198
(6)	ADMINISTRATION		1,067	1,067			1,067
(7)	EXTERIOR AREAS	(entry court, loading, site program...)	n/a	n/a	n/a	n/a	n/a
		SUBTOTAL NSM	5,277	1,974	3,169	801	
(8)	gross up factor	(excludes existing building and exterior program)			1.20		
	TOTAL GSM			1,974	3,802	801	6,576
		INITIAL BUDGET CAPACITY by LOCATION					
		Repurpose existing 2002 facilities	1,974				
		Primary Expansion- Interior	3,802				
		Primary Expansion- Exterior	801				

		MASTER PLAN by LOCATION					
		Major renovation of existing 2002 facilities	1,350				
		Education		350			
		Forest and Mountain exhibit		700			
		Temporary/ Changing gallery		300			
		Expansion- Interior	4,452				
		Primary Expansion- Interior (see above)			3,802		
		Deep Sea exhibit			500		
		Oceans Center conferencing			150		
		Expansion- Exterior (see above)	801			801	
		Expansion- Administrative	1,200				

DETAILED PROGRAM

(1) VISITOR SERVICES

				2019 Proposed Program
1 PUBLIC AREAS		#	each (SM)	total (SM)
1.1 Lobby Hub		#	NSM	T. NSM
entry lobby		1	80	80
ticket sales		1	20	20
safe room		1	5	5
concierge/memberships		1	4	4
stroller parking + coat		1	13	13
first aid/quiet, nursing, special		1	7	7
storage		-	-	-
subtotal				129
1.2 Exhibit lobby/hub				
see item 3.0, orientation gallery			30	
subtotal				0
1.3 Children's Play Area				
play area		1	20	20
family seating		1	5	5
subtotal				24
1.4 Gift Store				
sales area		1	95	95
stock room + office		1	33	33
subtotal				128
1.5 Food Service Dining				
inside dining for 80-90		1	95	95
outside dining (ref. ext program)		-	-	-
central kitchen		1	60	60
servery		1	30	30
storage		1	20	20
catering support area		1	10	10
net assignable				195
internal ciruclation		15%		29
subtotal				224
1.6 Food Service Support				
manager		1	10	10
staff area and lockers		1	20	20
subtotal				30
1.7 Volunteer Resource Center (in existing building)				
volunteers lounge + work station		1	30	30
volunteers lockers		1	10	10
subtotal				40
1.8 restrooms				
main restrooms		2	28	56
family restroom		1	6	6
exhibit restrooms		2	14	28
subtotal				90
TOTAL NSF (Initial Budget Capacity)			Program	665
1.9 Oceans Centre				
Conferencing				150

DETAILED PROGRAM

(2) EDUCATION

				2019 Proposed Program
2 EDUCATION		#	each (SM)	total (SM)
2.1 Classrooms & Support Areas				
Education Center Lobby		1	55	55
Orientation Space		1	55	55
Orientation Support Storage		1	10	10
Common Animal Holding Area		1	10	10
Media Room/Video Studio		1	10	10
Integrated Classrooms		1	35	35
Wet Classrooms		2	70	140
Classroom Storage		1	10	10
Life Support Area		1	5	5
net assignable				330
internal circulation		10%		33
subtotal				363
2.2 Exhibit Breakout Spaces (see Exterior Exhibits)				
Breakout Space in Exhibit Areas		2	15	30
subtotal				
TOTAL NSM				363

DETAILED PROGRAM

(3) EXHIBIT

3	ECOSYSTEMS EXHIBITS			
		#	each (\$M)	total (\$M)
3.0	Exhibit Orientation Gallery			
	Orientation Gallery*	1	75	75
3.1	Coastline habitat			
3.1.1	Reefs			
	Shark (Temperate reef)	1	300	300
	Shark holding (medical)	1	25	25
	Temperate reef viewing	1	330	330
	Schooling/Sea Turtle (Subtropical reef)	1	95	95
	Subtropical reef viewing	1	67	67
	Kelp forest	1	132	132
	Kelp viewing	1	92	92
	Marine holding/quarantine	1	25	25
	Seahorse	1	1	1
	Jelly jewel tanks	2	1	2
	Sea snakes	1	1	1
	Variety of Jewel Tanks (note: assume multiple tanks)	12	1	12
	Viewing, general			32
	Life Support Systems +Access + Misc. Support	40%		236
	subtotal			1,350
3.1.2	Mangroves			
	Mangrove	1	35	35
	Mangrove viewing	1	40	40
	Holding	1	10	10
	Life Support Systems + Circulation + Misc. Support	40%		18
	net assignable (interior)			93
Exterior	Exterior viewing, general	1	20	20
Exterior	Breakout Space in Exhibit Areas	1	15	15
	net assignable (exterior)			35
	subtotal			128
3.1.3	Estuaries and Rocky Shores			
Exterior	Rocky Coast Crash Tank	1	80	80
Exterior	Crash Tank viewing	1	56	56
Exterior	Penguins	1	119	119
Exterior	Sting Ray touch tank	1	123	123
Exterior	Shore birds	1	35	35
Exterior	Shore bird holding	1	10	10
Exterior	Tidepool (Invertebrates)	1	33	33
Exterior	Exterior viewing, general			310
	net assignable (exterior)			766
	Brackish water and jewel tanks (assume multiple tanks)	1	20	20
	Brackish water holding	1	25	25
	Breakout Space in Exhibit Areas	1	15	15
	Viewing, general			22
	Life Support Systems + Circulation + Misc. Support	40%		137
	net assignable (interior)			219
	subtotal			984

3.2	Deep Ocean			
	Jelly jewel and sealed tanks	6		
	Multimedia experience			
	Life Support Systems + Circulation + Misc. Support	1		
	Immersive theater experience (see item 3.6)			
	subtotal			500
3.3	Forest + Mountain	1		
	Forest nocturnal exhibit	1		
	Reptile house	1		
	Freshwater stream/river exhibit	1		
	Freshwater holding	1		
	Amphibian Tanks	1		
	Variety of Jewel Tanks (note: assume multiple tanks)	12		
	Life Support Systems + Circulation + Misc. Support	1		
	subtotal			700
3.4	Changing Exhibit Gallery (in existing building)			
	Changing Exhibit Gallery (Kiwi, Tautara in Phase 1)	1	325	325
	subtotal		325	325
3.5	LSS Infrastructure			
	LSS Infrastructure (waste treatment, make-up)	1	130	130
	subtotal		130	130
3.6	4D immersive black box experience			
	Maramataka Maramatanga, 40-50 reclining seats	1	100	100
	subtotal		100	100
	TOTAL NSM (ext)			801
	TOTAL NSM (interior, excludes)		Program	2,293

DETAILED PROGRAM

(4) ANIMAL HUSBANDRY

				2019 Proposed Program
4 ANIMAL HUSBANDRY	#	each (SM)		total (SM)
4.1 Food Storage				
Food Preparation Kitchen	1	25		25
Main Freezer	1	33		33
Dry Storage	1	5		5
food prep	-	-		-
net assignable				63
internal circulation	15%			9
subtotal				72
4.2 Remote Food Preparation				
Food Preparation & Cleanup Counter w/ Sink	2	5		10
Remote Combo Ref/Freezer	2	2		4
Remote Refrigerator	2	2		4
subtotal				18
4.3 Laboratories				
Marine Science/Water Quality Lab	1	25		25
Research Freezer/fridge	1	5		5
larval Fish/Invertebrate Rearing Lab	1	50		50
laboratory	-	-		-
subtotal				80
4.4 Central Dive Services				
Staff Dive Lockers	8			4
volunteer/temporary lockers	4			2
Washer/dryer/general storage	2	2		5
locker room (Toilet/shower/changing)	2	15		30
Toilet/shower/changing/ADA	2	7		15
main drying for field operations	1	5		5
subtotal				60
4.5 Central Diving Support/Storage				
compressor room	1	10		10
main gear storage	1	23		23
collection gear wash/storage	1	13		13
gear maintenance bench/room	1	10		10
subtotal				56
4.6 Veterinary Hospital				
surgeries	1	20		20
surgeries preparation	1	5		5
necropsy	1	10		10
exam/treatment	1	15		15
warm water LSS for turtle treatment				
radiology	1	25		25
showers/lockers toilet	1	10		10
pharmacy/storage	1	5		5
ICU/quarantine	1	20		20
vetinary touch down station				
net assignable				109
internal circulation	10%			11
subtotal				120
4.8 Animal quarantine (in existing building)				
animal quarantine	2	75		150
subtotal				150
TOTAL NSM		Program		556

DETAILED PROGRAM

(5) SUPPORT

				2019 Proposed Program
5 SUPPORT SPACES				
5.1 Loading Dock				
Wet Compactor Room*	1	26		26
Garbage Compactor*	1	35		35
Raised Dock or Dock Leveler*	1	18		18
Recycle Center*	1	10		10
Composting Room*	-	10		10
Animal Collection Equipment Storage		10		10
Animal Collection Washdown		5		5
Emergency Generator		16		16
General Unassigned Storage		40		40
subtotal				170
5.2 Horticulture				
Plant Holding Area	1	10		10
subtotal				10
5.3 Custodial Storage				
Custodial Storage	1	18		18
subtotal				18
5.3 Building Support				
BDF (IT)	1	5		5
subtotal				5
Total Assignable Area				
TOTAL NSM				198

DETAILED PROGRAM
(6) ADMINISTRATIVE

				2019 Proposed Program total (\$M)
6 Administrative Areas	#	each (\$M)		
6.1 Common Areas				
Large Conference Room	1	35		35
Medium Conference Room	1	20		20
Private Mini Conference Rooms	2	5		10
Computing/File Server	1	10		10
Lunch Break Room	1	20		20
Copier Space	2	5		10
Reception Waiting	1	10		10
subtotal				115
6.2 Executive				
President/CEO	1	13		13
Deputy Director	1	13		13
Policy/Planner	1	10		10
Executive Admin. Assistant	1	10		10
subtotal				45
6.3 Human Relations				
Manager	1	10		10
HR Generalist/Recruiter & Payroll/Benefits	3	10		30
Conference Room	1	10		10
subtotal				50
6.4 Finance & Administration				
Director	1	10		10
Managers	1	10		10
IT Staff	2	10		20
Accounting	2	10		20
CFO Assistant	1	10		10
Conference Room	1	10		10
subtotal				80
6.5 Life Sciences				
Director	1	10		10
Curators	2	13		25
Researcher	3	10		30
Life Science Leads	3	10		30
Staff Work Spaces	14	6		78
subtotal				173
6.6 Facilities and Maintenance				
Security/Safety Manager	1	10		10
Facility Manager	1	10		10
Wood Shop	1	130		130
Engineering Shop	1	50		50
subtotal				200

6.7 Development			
Director	1	10	10
Managers	1	10	10
Staff	4	10	40
Storage	1	35	35
Conference Room	1	10	10
subtotal			105
6.8 Education/Conservation			
Director	1	10	10
Manager	1	10	10
Staff	4	5	20
Storage	1	50	50
Library	1	30	30
subtotal			120
6.9 Marketing/Public Affairs			
Manager	1	10	10
Digital Content Studio	1	60	60
Staff	1	10	10
subtotal			80
Total Assignable Area			970
Internal Circulation	10%		97
TOTAL NSM			1,067

DETAILED PROGRAM

(7) EXTERIOR

7 Exterior			2019 Concept Program
7.2 Entry Court			
Entry Court	1	100	100
Covered Entry/Ticketing Queue	1	30	30
Public Bicycle Storage	1	15	15
Landscape & Seating			n/a
Public Art			n/a
subtotal			145
7.3 Truck Loading			
Delivery Truck Pads	1	45	45
Vehicle Maneuvering (Ldg. Dock)	1	170	170
subtotal			215
7.4 Educational Center Exterior			
Student Covered Entry	1	40	40
Exterior Eating for 40 Children	1	55	55
subtotal			95
7.5 Outside Dining			
Outside Dining	1	45	45
subtotal			45
7.6 Animal Collection Dock			
Animal Collection Dock	1	100	100
subtotal			100
7.7 Vehicle Storage			
Employee/Volunteer Bicycle Storage (Exterior)	1	20	20
Van Storage	1	30	30
Mini-Vans	3	30	90
Flatbed truck	1	25	25
16' Boat	1	15	15
subtotal			160
TOTAL NSM		Proposed	760

1/6

SPECIES PROCUREMENT

SUBTROPICAL TANK

Exhibit	Common name	Species name	Location	Permit?	No.?	Procurement type?	Notes	Cost
Subtropical reef tank	Hawksbill turtle	<i>Eretmochelys imbricata</i>	NANZ	N/A - not MPI	1	N/A	Terry - presently 45 years old?	N/A
	Red pigfish	<i>Bodianus unimaculatis</i>	Kermadecs	Min Fish	10	Boat	NANZ currently has 3	
	Scarlet wrasse	<i>Pseudolabrus miles</i>	Widespread NZ	Min Fish	80	Boat	NANZ currently has 9	
	Pink Maomao	<i>Caprodon longimanus</i>	Kermadecs, three kings, BOP	Min Fish	10	Boat	Kermadec Islands, Three Kings but can also be found as far south as Hawkes Bay.	
	Triplefin species	Family <i>Tripterygiidae</i>	Kermadecs	Min Fish	30	Boat	26 native species - may want to focus on Kermadec triplefin (<i>Enneapterygius kermadecensis</i>)	
	Leather Jacket	<i>Parika scaber</i>	Local	Min Fish	30	Boat	NANZ currently has 10	
	Porcupinefish	<i>Allomycterus jaculiferus</i>	Widespread NZ	Min Fish	5	Boat	NANZ currently has 4	
	Angelfish	Mixed species -	Eastern Marine	N/A	30	Purchase	https://easternmarineaquariums.co.nz/collections/angelfish	\$7,500
	Black angelfish	<i>Parma alboscaphularis</i>	Northern NZ	?	?	Boat		
	Silver drummer	<i>Kyphosus sydneyanus</i>	Northern NZ	Min Fish	10	Boat		
	Porae/blue morwong	<i>Nemadactylus douglasii</i>	Northern NZ	Min Fish	10	Boat	NOTE - in 2 tanks, so only 5 individuals in each	
	Parore	<i>Girella tricuspidata</i>	Northern NZ	Min Fish	10	Boat	NANZ currently has 1	
	Blue finned butterflyfish	<i>Odax cyanoallix</i>	Three Kings	?	?	Boat		
	Sandagers wrasse	<i>Coris sandeyeri</i>	Kermadecs	?	?	Boat	Big trip - may need to see if can source from another aquarium?	
	Sea Anenomes	Order <i>Actiniaria</i>	Local	Min Fish	100	By hand?	Rocky shore collection NOTE - shared with invert and rocky shore touch tanks	
	Cowries - tbc	tbc					<i>Phenacovolva wakayamaensis</i> - spindle cowries? Tbc	
	Soft corals?	?		?	?	?		
	Two spot damoiselle	<i>Chromis dispilus</i>	North cape to East cape	?	?	Boat		
	Lord Howe coralfish	<i>Amphichaetodon howensis</i>	Kermadec Islands; Three Kings to Mahia Peninsula	?	?	Boat		
	Yellow moray eel	<i>Gymnothorax prasinus</i>	North island coastal	?	?	NANZ	NANZ currently has 1	N/A
	Porae/blue morwong	<i>Nemadactylus douglasii</i>	NE coast of north island	Min Fish	15	Boat	Bladder kelp tank	
	Blue maomao	<i>Scorpius violaceus</i>	Kermadecs and NE NZ	Min Fish	80	Boat	NANZ currently has 1	

SPECIES PROCUREMENT

TEMPERATE TANK

2/6

Exhibit	Common name	Species name	Location	Permit?	No.?	Procurement type?	Notes	Cost
Temperate reef tank	Spotted Gummy Shark	<i>Mustelus antarcticus</i>	Local	Min Fish	15	Boat		
	School sharks	<i>Galeorhinus australis</i>	Local	Min Fish	20	Boat	NANZ currently has 2	
	Spiny dogfish/koinga	<i>Squalus acanthias</i>	Local	Min Fish	40	Boat	NANZ currently has 4	
	Carpet sharks	<i>Cephaloscyllium isabellum</i>	Local	Min Fish	10	Boat		
	Elephantfish	<i>Callorhynchus millii</i>	Local	Min Fish	10	Boat		
	King fish	<i>Seriola lalandi</i>	Local	Min Fish	50	Boat		
	Short-tailed rays	<i>Dasyatis brevicaudata</i>	Local	Min Fish	10	Boat	NANZ currently has 2	
	Blue cod	<i>Parapercis colias</i>	Local	Min Fish	60	Boat	NANZ currently has 10	
	Butterfly perch	<i>Caesioperca lepidoptera</i>	Widespread NZ	Min Fish	150	Boat	More common northern NZ?	
	Sea perch	<i>Helicolenus percoides</i>	Local	Min Fish	20	Boat		
	John dory	<i>Zeus faber</i>	Local	Min Fish	10	Boat		
	Trevally	<i>Pseudocaranx dentex</i>	Local	Min Fish	70	Boat		
	Red gurnard	<i>Chelidonichthys kumu</i>	Around NZ	Min Fish	60	Boat	Large population hotspots around the Bay of Plenty, Hawke Bay - both bladder and bull kelp tanks - NANZ currently has 9 - SHARED WITH KELP TANK	
	Kahawai	<i>Arripis trutta</i>	Around NZ	Min Fish	150	Boat	Can be very aggressive when feeding and with other fish - limit numbers	
	Slender roughy	<i>Optivus elongatus</i>	Local	Min Fish	10	Boat		
	Rig sharks	<i>Mustelus lenticulatus</i>	Local	?	?	Boat	NANZ currently has 2	
	Golden snapper	<i>Centroberyx affinis</i>	Local	?	?	Boat		

3/6

SPECIES PROCUREMENT

KELP FOREST

Exhibit	Common name	Species name	Location	Permit?	No.?	Procurement type?	Notes	Cost
Kelp Forest	Bull kelp	<i>Durvillea willana, D. antarctica</i>	Southern?	Min Fish	50 plants	SCUBA - boat	Partner to harvest or aquarium staff? Cost to transport back to HB?	
	Bladder Kelp	<i>Macrocystis pyrifera</i>	Local	Min Fish	50 plants	SCUBA - boat		
	Giant Boarfish	<i>Paristiopterus labiosus</i>	BOP, East Cape, HB	Min Fish	5	Boat	Bladder kelp tank	
	Red moki	<i>Cheildocatlus spectabilis</i>	North island	Min Fish	15	Boat	Bladder kelp tank	
	Tarakihi	<i>Nemadactylus macropterus</i>	Widespread NZ	Min Fish	30	Boat	Both bull and bladder kelp tanks	
	Trumpeter/kohikohi	<i>Latris lineata</i>	Southern north island and south	?	?	Boat	From the Three Kings Islands around all of mainland NZ to the Auckland Islands, but are rare north of East Cape and Cape Egmont - Bull kelp tank?	
	Marblefish	<i>Aplodactylus arctidens</i>	Around NZ	Min Fish	10	Boat	NANZ currently has 2	
	Goatfish	<i>Upeneichthys lineatus</i>	Around NZ	Min Fish	10	Boat		
	Jack mackerel	<i>Trachurus novaezelandiae</i>	Around NZ	Min Fish	60	Boat		
	Red gurnard	<i>Chelidonichthys kumu</i>	Around NZ	Min Fish	60	Boat	Large population hotspots around the Bay of Plenty, Hawke Bay - both bladder and bull kelp tanks - NANZ currently has 9	
	Koheru	<i>Decapterus koheru</i>	East Coast	Min Fish	20	Boat	East Coast from North to East Cape	
	Spiny dogfish	<i>Squalus acanthias</i>	Local and south	Min Fish	40	Boat	NANZ currently has 2 NOTE - in 2 tanks, so only 5 individuals in each - south of HB distribution	
	Toadstool grouper	<i>Trachypoma macracanthus</i>	Rare!	?	?	?	RARE IN NEW ZEALAND - Hapuka instead, but will it feed on the moki etc.?	

SPECIES PROCUREMENT

STING RAY / INVERTEBRATES TOUCH TANK

4/6

Exhibit	Common name	Species name	Location	Permit?	No.?	Procurement type?	Notes	Cost
Sting ray touch tank	Smooth Skate???	<i>Raja innominata</i>		Min Fish	5		Widespread around NZ	
	Short-tail Stingray	<i>Dasyatis brevicaudata</i>	All NZ				Widespread around NZ - <u>NANZ currently has 2</u>	
	Long-tail Stingray	<i>Dasyatis thetidis</i>	North Island	Min Fish	10		Widespread around north island	
Invertebrates touch tank	Biscuit Star	<i>Pentagonaster pulchellus</i>	Local	Min Fish	20	By hand?	Rocky shore collection	

5/6

SPECIES PROCUREMENT

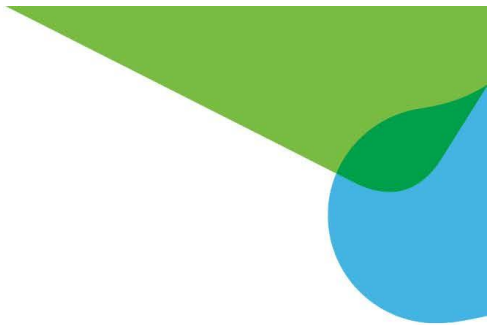
ROCKY SHORES

Exhibit	Common name	Species name	Location	Permit?	No.?	Procurement type?	Notes	Cost
Rocky Coast crash tank	Blackfoot Paua	<i>Haliotis iris</i>	Local	Min Fish	40	Snorkel		
	Brine Shrimp	<i>Artemia salina</i>	Local	Min Fish	No Limit	By hand?	Rocky shore collection	
	Brown marine Flatworm	<i>Leptoplana brunnea</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Cake Urchin	<i>Arachnoides zelandiae</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Cat's Eye	<i>Turbo smaragdus</i>	Local	Min Fish	60	By hand?	Rocky shore collection	
	Chiton	Class <i>Amphineura</i>	Local	Min Fish	100 (mix)	By hand?	Rocky shore collection	
	Common Mussel	<i>Mytilus edulis</i>	Local	Min Fish	100	By hand?	Rocky shore collection	
	Cook's Turban	<i>Cookia sulcata</i>	Local	Min Fish	30	By hand?	Rocky shore collection	
	Crab species	<i>Porcellanidae, Dromiidae</i>	Local	Min Fish	30 each	By hand?	Rocky shore collection	
		<i>Majidae, Cancridae</i>	Local	Min Fish	30 each	By hand?	Rocky shore collection	
		<i>Partunidae, Xanthidae</i>	Local	Min Fish	30 each	By hand?	Rocky shore collection	
		<i>Bellidae, Grasiidae</i>	Local	Min Fish	30 each	By hand?	Rocky shore collection	
		<i>Pinnotheridae, Ocypodidae</i>	Local	Min Fish	30 each	By hand?	Rocky shore collection	
		<i>Hymenosomatidae</i>	Local	Min Fish	30	By hand?	Rocky shore collection	
	Cushion Star	<i>Patiriella regularis</i>	Local	Min Fish	60	By hand?	Rocky shore collection - NANZ has 5	
	Dark Top -Shell	<i>Melagraphia aethiops</i>	Local	Min Fish	100	By hand?	Rocky shore collection	
	Fire Salp	<i>Pyrosoma</i>	Local	Min Fish	10	By hand?	Rocky shore collection	
	Friiled Marine Flatworm	<i>Thysanozoon brocchii</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Globe Sponge	<i>Tethya fissurata</i>	Local	Min Fish	10	By hand?	Rocky shore collection	
	Green-lipped Mussel	<i>Perna canaliculus</i>	Local	Min Fish	500	By hand?	Rocky shore collection	
	Grooved Limpet	<i>Tugali elegans</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Hairy Seaweed Crab	<i>Notomithrax ursus</i>	Local	Min Fish	30	By hand?	Rocky shore collection	
	Heart Urchin	<i>Echinocardium australe</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Hermit Crab	Family <i>Paguridae</i>	Local	Min Fish	100	By hand?	Rocky shore collection	
	Horse Mussel	<i>Atrina zelandica</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Knobbed Whelk	<i>Austrofusus glans</i>	Local	Min Fish	50	By hand?	Rocky shore collection	
	Large Shore Crab	<i>Leptograpsus variegatus</i>	Local	Min Fish	30	By hand?	Rocky shore collection	
	Long Finger Sponge	<i>Chalina ramosa</i>	Local	Min Fish	10	By hand?	Rocky shore collection	
	Opal Top-Shell	<i>Cantharidus opalus</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Paddle Crab	<i>Ovalipes catharus</i>	Local	Min Fish	60	By hand?	Rocky shore collection	
	Pale Tiger Shell	<i>Maurea cunninghami</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Paua (virgin)	<i>Haliotis virginea</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Paua (yellow foot)	<i>Haliotis australis</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Periwinkle	<i>Melarhaphe oliveri</i>	Local	Min Fish	100	By hand?	Rocky shore collection	
	Purple Cockle	<i>Venericardia purpurata</i>	Local	Min Fish	50	By hand?	Rocky shore collection	
	Radiate Limpet	<i>Cellana radians</i>	Local	Min Fish	50	By hand?	Rocky shore collection	
	Red Rock Crab	<i>Plagusia chabrus</i>	Local	Min Fish	30	By hand?	Rocky shore collection	
	Sand-Tube Worm	<i>Pectinaria antipoda</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Sea Anenomes	Order <i>Actiniaria</i>	Local	Min Fish	100	By hand?	Rocky shore collection	
	Sea Centipede	<i>Nereis amblyodonta</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Sea Cucumber	<i>Australostichopus mollis</i>	Local	Min Fish	30	By hand?	Rocky shore collection	

SPECIES PROCUREMENT
ROCKY SHORES

6/6

Exhibit	Common name	Species name	Location	Permit?	No.?	Procurement type?	Notes	Cost
	Sea Tulip	<i>Boltenia pachydermatina</i>	Local	Min Fish	50	By hand?	Rocky shore collection	
	Sea Urchin	<i>Evechinus chloroticus</i>	Local	Min Fish	100	By hand?	Rocky shore collection	
	Shield Shell	<i>Scutus breviculus</i>	Local	Min Fish	50	By hand?	Rocky shore collection	
	Shrimps and Prawns	Order <i>Euphausiacea</i>	Local	Min Fish	200	By hand?	Rocky shore collection	
	Siphon Whelk	<i>Austrosipho mandarina</i>	Local	Min Fish	50	By hand?	Rocky shore collection	
	Slit Limpet	<i>Emarginula striatula</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Small Opal Shell	<i>Micrelenchus dilatatus</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Spanish Lobster	<i>Parnabacus antarcticus</i>	Coromandel and Northland	Min Fish	5	SCUBA - boat?		
	Spiny Crayfish	<i>Jasus edwardsii</i>	Local	Min Fish	80	SCUBA - boat?	NANZ currently has 13	
	Spiny Tubeworm	<i>Vermilia carinifera</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Spiral Worm	<i>Spirorbis zelandica</i>	Local	Min Fish	10	By hand?	Rocky shore collection	
	Starfish	Class <i>Asteriodea</i> and <i>Ophiuroidea</i>	Local	Min Fish	150	By hand?	Rocky shore collection	
	Striped Stalked Barnacle	<i>Conchoderma virgatum</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Sun Star	<i>Stichaster australis</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Tiger Shell	<i>Maurea tigris</i>	Local	Min Fish	10	By hand?	Rocky shore collection	
	Triangle Crab	<i>Eurynolambrus australis</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
	Warty Sea Slug	<i>Archidoris wellingtonensis</i>	Local	Min Fish	20	By hand?	Rocky shore collection	
Jewel tanks?	Common Jellyfish?	<i>Aurelia aurita</i>	Local	Min Fish	20	Boat		
	Seahorses?	<i>Hippocampus abdominalis</i>		Min Fish	30	Purchase or Kelly's	NANZ currently has 9 - need more?	\$5,000
	Common Octopus?	<i>Octopus maorum</i>	Local	Min Fish	5	Boat		
Penguins	Little penguins	<i>Eudyptula minor</i>	Local	DoC	19	N/A	NANZ currently has 15 - resticted to 19 due to the size of current enclsoure. Water and land area needs to meet DoC husbandry manual requirements	



Communications and Engagement Plan

Project Shapeshifter

20 January 2020

Document Control

Document Information

Project ID/Name	Project Shapeshifter
Author	Natasha Mackie (Manager Community Strategies) Michele Grigg (Senior Advisor Policy)
Filename	

Revision History

Version	Date	Author	Description of Changes

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1. Introduction

A detailed business case has been prepared for a proposed major redevelopment of the National Aquarium of New Zealand (NANZ). This development would create a facility that promotes educational and environmental opportunities grounded in indigenous knowledge and Te Āo Māori.

During the development of the business case, a communications and engagement process was undertaken primarily targeting key stakeholders and potential partners of the proposal. In addition, a series of idea generation workshops were completed involving key expert groups, Iwi and youth.

There are a number of dependencies that will affect the approach for the communications and engagement process and could change the direction of the plan as it is being implemented. A two-phase process will be undertaken to address this. Phase One focuses on providing information about the current status of the proposed project. Phase Two is dependent on confirmation of Council and government support for the proposal, and will focus on generating widespread understanding of the proposal, its potential impact and provide mechanisms to give feedback.

2. Purpose

To update the proposed project status and generate interest in the proposal with Napier residents. The process provides an opportunity to gauge the community's view on possible options for the future of the facility.

3. Principles

The way in which the communications and engagement process will be undertaken.

- Provide levels of information relevant to different audiences (i.e. generic vs detail).
- Recognise partnership with Māori.
- Recognise special interest groups/individual and affected parties.
- All feedback is good feedback.

4. Objectives

Phase One:

- Share new information found during development of the Detailed Business Case.
- Encourage the whole community to give feedback.
- Generate interest in the proposed project and the future of the Aquarium.

Phase Two:

- Generate interest in the proposed project and the future of the Aquarium.
- Build on relationships established with Māori throughout Aotearoa during preparation of the Business Case.
- Understand the community's attachment to the current facility.

- Create a national conversation.
- Generate support from partners and benefactors.
- Pre-engagement for the Long Term Plan (2021-2031).

5. Audiences

The following audiences are identified for Phases One and Two.

5.1 Key Partners and Stakeholders

Stakeholder	Their interest	Our interest	Communications and Engagement Method
Napier community	Understand how they will be affected, timeframes, costs, options and how to give feedback	Keep informed and involved in providing feedback on options. Encourage submissions to LTP.	Phase one: Media release Phase two: to be confirmed following Govt/Council decisions
NANZ staff	Understand how they will be affected, including timeframes, costs, options and how to give feedback	Keep informed and involved in the proposal and future options	Phase one: Staff email Phase two: to be confirmed following Govt/Council decisions
Stakeholders – nearby residents,	Understand how they will be affected, including timeframes, costs, and options	Keep informed and involved in providing feedback on options. Encourage submissions to LTP.	Phase one: Media release, letter Phase two: to be confirmed following Govt/Council decisions
Stakeholders - Friends of the Aquarium	Keep up to date on progress and opportunities to be involved	Keep informed and involved in providing feedback on options. Encourage submissions to LTP.	Phase one: Media release, email Phase two: to be confirmed following Govt/Council decisions
Iwi, hapu	Understand project timeframes and decision steps and opportunities to participate in decision making and/or project	Keep informed of decision making steps and process, and encourage partnerships	Phase one: Media release Phase two: to be confirmed following Govt/Council decisions
Media	Hear about project updates and decision points	Keep media abreast of decision making steps and process, and feedback options for informing community and stakeholders	Phase one: Media advisory, media release Phase two: to be confirmed following Govt/Council decisions
Stakeholders - government, local Mayors, content	Understand project timeframes and decision steps	Keep informed of decision making steps and process,	Phase one: Media release

Stakeholder	Their interest	Our interest	Communications and Engagement Method
experts, potential sponsors/partners / funders	Opportunities for investment to achieve shared outcomes	and encourage continued involvement Understand level of support/interest in the proposed project	Phase two: to be confirmed following Govt/Council decisions

5.2 Media

The project sponsor will act as the spokesperson to the media. A full media engagement plan with timings will be developed.

6. Key Messages

Phase One:

- The Detailed Business Case is complete.
- Council is considering the Business Case in February 2020.
- Things have changed since the proposed project was initiated (the Business Case has discovered new issues and opportunities).

Phase Two:*

- There are a limited number of options for the aquarium facility.
- Status quo is not sustainable.
- Napier residents are directly affected and we want to hear from them.
- This is a nationally significant project.

**Note: these messages are dependent on the outcome of Council and Government decisions on the project.*

7. Risks

The following risks and mitigations have been identified at this stage of the project.

Risk	Mitigation	Impact (after mitigation)	Likelihood (after mitigation)
The proposal is not viewed as a high priority in the community's view (e.g. competes with water)	Provide clear information about costings, timings, and approach to reduce impact on community and other projects. Encourage submissions to LTP.	High	High
Misinformation about the future of the NANZ	Provide easy accessible information to all stakeholders and community	Medium	Medium

Risk	Mitigation	Impact (after mitigation)	Likelihood (after mitigation)
	at each step of proposed project		
Delays in decision making	Keep stakeholders and community informed with detailed information about decision points	Low	Medium

8. Approach

The communications and engagement processes will be implemented through two phases.

Phase One (informing) – January to mid-March 2020:

- Contact with affected residents
- Media release
- Social media posts – focus on history and stories about the NANZ.

Phase Two (engagement) – from mid-March 2020 (following Council and government decisions):

- Survey (including Peoples Panel)
- Open days
- Special events
- Facebook live chats
- VR – virtual tour of potential new Aquarium
- Standard communication channels
- Potential Special Consultative Procedure / Long Term Plan.

Note: A full implementation plan will be developed for phase two including a project plan, risk management analysis and stakeholder plan, once Council and government decisions are known.