# Te Whakatōhea Research Wānanga

## 3rd – 4th June 2026



Venue: Te Tāwharau o te Whakatōhea, 122 St John Street, Ōpōtiki

Te Kotahi Research Institute
THE UNIVERSITY OF WAIKATO

TE TĀWHARAU O TE WHAKATŌHEA

# Acknowledgements

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We also express our sincere appreciation to our university partners and collaborating institutions who participated in the wānanga. Your insights, academic rigor, and institutional contributions greatly enriched our collective discussions and strengthened the core of this kaupapa.

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# Tīmatanga

*E kore au e ngaro*
*E kore au e whakamā*
*He kaha nei i ahau*
*Ki te kimi, ki te rapu*
*Ko wai au.*
*Manene ki te motu*

*Manene ki te ao*
*Aha pēhea*
*E kore e wareware*
*Ki taku ūkaipō*
*He uri nō Te Whakatōhea*

*I shall never be lost*
*Nor shall I ever be ashamed*
*For I am keen*
*To seek and to search*
*Who am I*
*Should I roam the expanse of our island*
*Or the expanse of our world*
*Whatever happens*
*I shall never forget*
*My original home*
*I am a descendent of*
*Te Whakatōhea*

Huriwaka, Maxwell & Hata, (1991).

# 1.0. Introduction

## 1.1. Wānanga

The Whakatōhea Iwi Development Research Wānanga was held on the 3rd and 4th of June 2026 at Te Tāwharau o te Whakatōhea offices in Ōpōtiki. This series of wānanga (discussions) brought together whānau (family), hapū (sub-tribe), iwi (tribe) leaders, and Indigenous researchers alongside science partners from Te Kotahi Research Institute, the Cawthron Institute, the University of Waikato, Auckland University of Technology (AUT), Catolica Universidad del Norte (Chile), and University of Milan (Italy). The gathering served as a collaborative forum to explore Indigenous-led research models grounded in mātauranga and tikanga, explicitly driven by the long-term commercial, environmental, and cultural aspirations of Te Whakatōhea.

## 1.2. Historical Context, Colonisation, Raupatu & Revitalisation

To understand the contemporary landscape of research, development, and resource management within Te Whakatōhea, the current initiatives must be viewed against a profound historical backdrop of systemic colonisation, devastating land loss (raupatu), and state-sanctioned economic destruction.

In May 1840, seven Whakatōhea rangatira (chiefs) signed Te Tiriti o Waitangi. By the early 1860s, the iwi had leveraged their maritime capabilities and agricultural acumen to build a thriving regional economy, constructing their own shipping fleet and trading extensively with the growing Auckland settlement. However, this period of self-determined infrastructure development was violently disrupted when Crown forces invaded the Whakatōhea rohe in September 1865 under a declaration of martial law. The ensuing military campaign resulted in the loss of approximately ten percent of the iwi population and the systematic execution of key leadership pillars. Adopting a scorched-earth strategy, Crown troops dismantled the Whakatōhea economic infrastructure, culminating in the wrongful execution of Rangatira (Chief) Mokomoko in 1866 and the immediate confiscation of the iwi's most productive ancestral lands.

The structural impact of this raupatu was compounded over the next century by legal mechanisms designed to erode collective tribal architecture. The individualization of land titles through the Native Land Court fractured traditional communal ownership models, while public works takings left the iwi virtually landless and severed from their awa (river), maunga (mountains), and wāhi tapu (sacred lands). This forced alienation directly disrupted the intergenerational transmission of traditional knowledge (mātauranga), a loss severely compounded by a state education system that actively punished the use of te reo Māori. Starved of their economic base and facing environmental degradation of traditional mahinga kai (food gathering practices, places

and resources) by settlers, mid-twentieth-century economic pressures triggered mass urban migration. Today, approximately ninety percent of the iwi's 16,000 members live outside their traditional rohe, frequently disconnected from their whanaunga (relations/genealogical connections), reo (language), and whenua (land).

Despite navigating these profound historical challenges, Te Whakatōhea enters the 2020s in a period of calculated, sovereign transformation. Following decades of resistance and the recent progression toward a comprehensive historical Treaty of Waitangi settlement, the iwi is actively reclaiming its mana motuhake (autonomy).

The current wānanga series and the proposed establishment of an autonomous research centre are profound acts of cultural reclamation. By bringing together whānau, hapū , and science partners on their own terms, Te Whakatōhea is intentionally utilising its inherent ancestral strengths to revitalise their mātauranga, grow a sustainable local bioeconomy, and build a resilient, self-determining stronghold for future generations.

### 1.3. Today & Future focused context

The wānanga is taking place at a critical juncture for Te Whakatōhea. As the iwi actively advances major economic and environmental initiatives, such as its foundational offshore aquaculture developments and new marine bioproduct collaborations—there is an urgent need to establish clear, iwi-led frameworks for research reciprocity, data sovereignty, and the protection of local taonga species, as well as future aspirations. In a shifting national regulatory landscape, Te Whakatōhea is proactively defining its own terms of engagement to ensure that external scientific partnerships honour the iwi as an equal partner, protect traditional knowledge systems, and deliver tangible, direct benefits back to the whenua and the people.

## 2.0. Purpose and Objectives

The Whakatōhea Iwi Development Research Wānanga was designed to bring together whānau (family), kaitiaki (custodians/stewards), and researchers to:

- Explore the current landscape, practice, and lived experiences of iwi-led research, specifically looking at how Te Whakatōhea aspirations are currently supported within long-term aquaculture and marine bioproduct initiatives.
- Examine the specific structural challenges and challenges faced by whānau, hapū, and Indigenous researchers regarding data extraction, protection of local intellectual property, and institutional regulations.

- Identify key themes, shared aspirations, and areas where collective action is needed to transition scientific collaborations from extractive practices into mutually beneficial, reciprocal relationships (access & benefit sharing, access and benefit sharing [agreements] (ABS)).
- Gather strengths-based recommendations to inform future policy, advocacy, or framework development, ultimately shaping the structural design, local expertise, and governance of a dedicated Te Whakatōhea Centre for Responsible Research and Innovation.

# 3.0. Attendees, Presenters and Sponsors

## 3.1. Attendance Overview

Please view Appendix 1 for specific names and organisations of attendees.

## 3.2. Participant Categories

- Iwi/Māori Trusts & communities
- Whānau & hapū
- Research & science organisations
- Commercial entities

# 4.0. Programme and Presentations Summary

## 4.1. Day One: Wednesday 3rd June 2026




*Figure 1 - Danny Paruru (Te Whakatōhea) giving the opening karakia and mihi whakatau.*

Day one opened with a karakia, waiata and whakatau.

### 4.1.1. Morning Session: Te Punga o te Moana (Cawthron Institute)

The morning session on Te Punga o te Moana (Cawthron Institute) was led by Hēni Unwin. Hēni's kōrero focused on reviewing the outcomes of a five-year project focused on Open Ocean Aquaculture Infrastructure. Ngā Punga o te Moana is an initiative funded by Ministry of Business, Innovation and Employment (MBIE) to research what the future of aquaculture in Aotearoa, especially in the open ocean would look like. This research tried to extend understanding Aotearoa's aquaculture future by not just researching growing seafood, but by growing capability in people, knowledge, and community.

The project started with recognising the shift required when working with a company, Whakatōhea Mussels, to predominately working with iwi, Te Tāwharau o te Whakatōhea. Cawthron ran wānanga based off the values of Te Whakatōhea and how Cawthron aligns themselves to the aspirations and needs of Te Whakatōhea.

Te Ahumoana Whakahihiko programme was developed with the kura (schools) to introduce rangatahi (young people) to the world and the many different pathways of aquaculture because to build an aquaculture industry in Ōpōtiki, it must be built with the people from Ōpōtiki. This programme introduced school kids to biology, boat safety and navigation, aquaculture farms, cooking and processing mussels. This has led to primary ITO (Industry Training Organisation) beginning paid for course to allow students to gain NCEA credits in aquaculture at Ōpōtiki College.

The programme then re-evaluated itself to ensure it was keeping in line with the needs of and values of Te Whakatōhea; there was a misalignment and through several wānanga the project repositioned itself. This wānanga led to a research plan and actions that extend further beyond this programme.

**Priorities and Opportunities for Community Engagement:** As a result of the collective group work, participants identified several core priorities and opportunities for strengthening aquaculture and community engagement:

- **Sector Diversification & Regional Resilience:** Participants suggested diversifying the local aquaculture sector to increase its resilience and create new economic opportunities.
- **Citizen Science & Environmental Monitoring:** The iwi emphasized the importance of involving the community in citizen science initiatives, with local people being trained to document aquaculture activities and other aspects of water management. A key proposed approach was the development of a community-based data application by Whakatōhea to support localised data collection, monitoring, and active community research engagement.

- **Mussel Festival Engagement:** Regarding mussel farming, several young participants proposed organizing a dedicated mussel festival to encourage greater community involvement, celebrate local aquaculture assets, and strengthen shared values across the iwi while increasing awareness and appreciation of local resources.
- **Biosecurity & Cultural Safeguarding:** Participants highlighted the critical need to improve the security of mussel farms and seaweeds by protecting them from invasive species. Crucially, the discussion extended beyond environmental protection to include the safeguarding of knowledge and cultural heritage. One young participant beautifully expressed this idea by stating, *"Protection is keeping it alive."* This perspective underscored the iwi's drive for intergenerational knowledge transmission, reconnecting people with their environment, and creating intentional spaces for sharing stories, experiences, and cultural practices across generations.

### 4.1.2. Afternoon Session: Seaweed Polysaccharides Project (University of Waikato & Partners)

The afternoon presentation covered the MBIE Endeavour program focused on Seaweed Polysaccharides. Dr. Marie Magnusson provided an overview of the research project, the core scientific components, and the areas planned for future sampling. Existing scientific work has been done on historically collected samples that are grown in the University of Waikato Marine Field Station in Tauranga.

Prof. Magnusson explained that the research specifically aims to develop seaweed-based products that could reduce the environmental impacts of commercial kiwifruit production by replacing or reducing the use of copper-based treatments and antibiotics.

This prompted an important discussion regarding different cultural and economic perspectives on the value and use of seaweed. One elderly participant reflected on her family's experience of using naturally occurring seaweed on their organic farm, explaining that seaweed has always been readily available and routinely applied as a natural fertilizer. She expressed difficulty in understanding the need to cultivate, process, and commercialize seaweed when it already exists as a local resource. In response, the researchers noted that processing could also take place locally in Ōpōtiki, potentially creating value and employment within the community rather than exporting raw materials elsewhere.

Maui Hudson provided an overview of the Vision Mātauranga component of the research project including:

- **Project Governance & Team Structure:** The "Taonga Team" delivering Deliverable 1.1: He Whakapapa to te Taonga was introduced, including Maui Hudson, Natalie Kusabss, Danny Paruru, Janette Hamilton-Pearce, and PhD student Michela Anderson. The project is guided by a Kāhui Māori featuring prominent iwi and fisheries leaders: Rahera Ohia, QSM, Peter Rice, Nicole Pakau, Dickie Farrar, and Rikirangi Gage.
- **Global Macroalgae Distribution & Industry Context:** The presentation mapped the global distribution of common kelp genera and reviewed international business trends. Case studies from Canada highlighted Indigenous kelp farming initiatives, such as the Gitxaala Nation's "Guardians of the Seaweed" program, which details the annual lifecycle of kelp farming from seed string nurseries to ocean longlines and processing.
- **Domestic Commercialisation:** The presentation reviewed domestic developments, noting that native red seaweed (Karengo) is positioned to become New Zealand's next major food and export success through funding partnerships like the High-Value Nutrition National Science Challenge. Local market precedents were also shown, including East Coast Seaweeds NZ as wholesale suppliers of edible kelp.

The importance of using te reo kupu for Mussels and biological taonga, such as the Native Red Seaweed, as opposed to the Westernised taxonomy, as a way of reclaiming mana motuhake and kaitiakitanga (stewardship) was emphasised by Indigenous researchers. The presentation also highlighted the importance of aligning Te Whakatōhea knowledge with scientific research, data sovereignty, and commercial frameworks.

- **Data Sovereignty & Practical Tools:** The team shared key tools used to manage research integrity:
    - *Māori Data Audit Tool* to monitor data ownership.
    - *Benefit Sharing Compass:* An interactive digital tool developed for navigating equitable benefits, which was a finalist in the Serious Play Higher Education Market Category Awards.
    - *Local Contexts Framework:* Implementing Traditional Knowledge (TK) and Biocultural (BC) Labels.
- **Ethical Commercialization & Enterprise Case Studies:** PhD student Michela Anderson presented research on upholding the integrity of taonga species within Māori and whānau-led enterprises.
    - The core challenge is navigating the intersection of economic opportunity and cultural responsibility to protect mauri, whakapapa, and mātauranga from potential misappropriation.

- Active business models were demonstrated, including Ōku Whānau herbal teas and Mamaku Skin. Mamaku Skin utilises a transparent consumer tracing system via a QR code scan, showing the complete product journey from harvest, transportation, extraction in Tauranga, and bottling, ensuring total transparency.
- This ethical commercialization pathway is built on the PAT/PACT matrix: Provenance, Authenticity, Certification, and Traceability, tracking the product directly from the whenua to the final consumer.

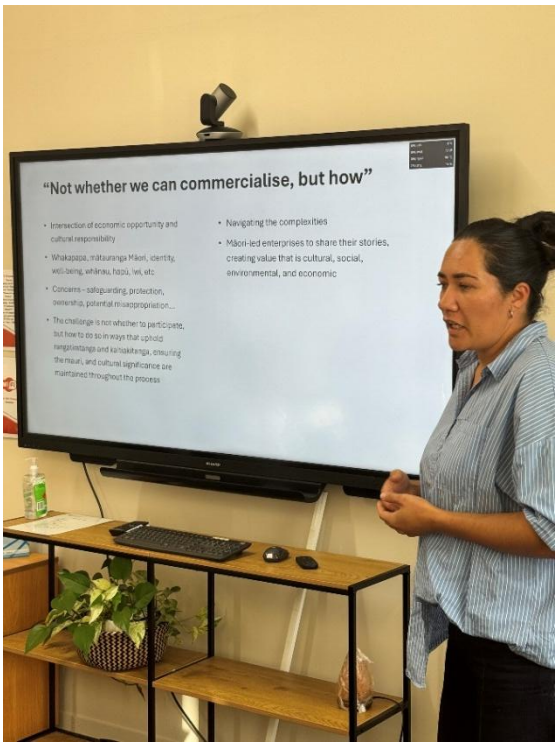



*Figure 2 - PhD student Michela Anderson discussing upholding the integrity of taonga species in whānau and iwi lead enterprises.*

### 4.1.3. Day 1 - Group activity 1– Locating Whakapapa & Relationships

The rōpū (group) was assigned into smaller groups to discuss the relationships between the whenua (land), the moana (ocean), and the Atua (deity/gods). The purpose of this session was to ground the scientific and bio-innovation goals of the Seaweed Polysaccharides Project within the existing cultural realities and knowledge systems of the iwi. Rather than viewing seaweed and kiwifruit purely as isolated commercial commodities, participants were challenged to locate them within a unified matrix of whakapapa (lineage), history, and daily life. Participants were asked to reflect on three specific questions: *What is your relationship to seaweed? To kiwifruit? To the ocean (Moana)?*

One specific group example demonstrates the profound kinship relationships outlined through this activity:

### *The Moana*

The activity began by establishing the spiritual and physical origin of the iwi's connection to the sea. The group recorded that "Hine-ahu-one (the first woman in Māori pūrākau) received toto (blood) from Tangaroa (God of the Sea)," explicitly ordering a spiritual biological connection between humankind, the earth, and the oceans. Participants described their relationship with the Moana in terms of life, health, and wellbeing. Younger participants referred to the ocean as a place they enjoy visiting for recreation, while others highlighted its broader role as a source of energy, environmental recycling, and ecosystem health. This cosmic lineage is bridged directly to the physical migration and historical arrival of the Mataatua waka to the rohe, establishing an unbroken line of ancestral sovereignty and physical kaitiakitanga over the marine environment.

### *The Seaweed (Rimurimu) & Ecological Whakapapa*

Instead of using standard Western biological classifications, the group mapped out a complete genealogical tree (whakapapa) to define the iwi's relationship with seaweed (whakerimu):

- They traced how the union of Hine-ahu-one and Tāne (atua of the forest, trees, and birds) begot Hine-tītama, leading down to Humankind.
- Simultaneously, Tāne's lineages through Hine-tūpari-maunga (atua of the mountains) and Parawhenuamea (atua of freshwater, mountain streams, and rivers) led to Hinemoana (female atua of the sea) and Kiwa (male guardian of the ocean).
- Crucially, the tree reveals that whakerimu (seaweed) and kūtai (mussels) are direct siblings, branching out from Hinemoana and Kiwa.

By establishing this literal kinship, the group identified that seaweed holds a multifaceted, holistic value to the people as Kai (sustenance), Rongoā (healing/medicine), and Hā (the literal breath of life). Seaweed was associated with a wide range of everyday benefits and meanings; participants identified it as a source of health and nutrition—with one student enthusiastically commenting, "We have sushi!" Others described seaweed as a "window into sea life," a digestive aid, a resource with pharmaceutical potential, and a historical contributor to the local economy via a past seaweed processing factory that produced cosmetics. Traditional structural uses of seaweed in building materials were also highlighted.

### *Kiwifruit*

Discussions about kiwifruit highlighted both its nutritional benefits and the environmental challenges associated with its production. Participants associated kiwifruit with vitamin C, gut health, organic production opportunities, and a range of varieties with distinct nutritional profiles. Its application in skincare products and its utility as a natural meat tenderizer were also noted. Reflecting on the crop's historical evolution, participants recalled its original name, the Chinese gooseberry. However, strong concerns were explicitly raised by the group regarding the industry's heavy reliance on chemical inputs and the visual, landscape-altering impact of extensive commercial orchards on the environment.

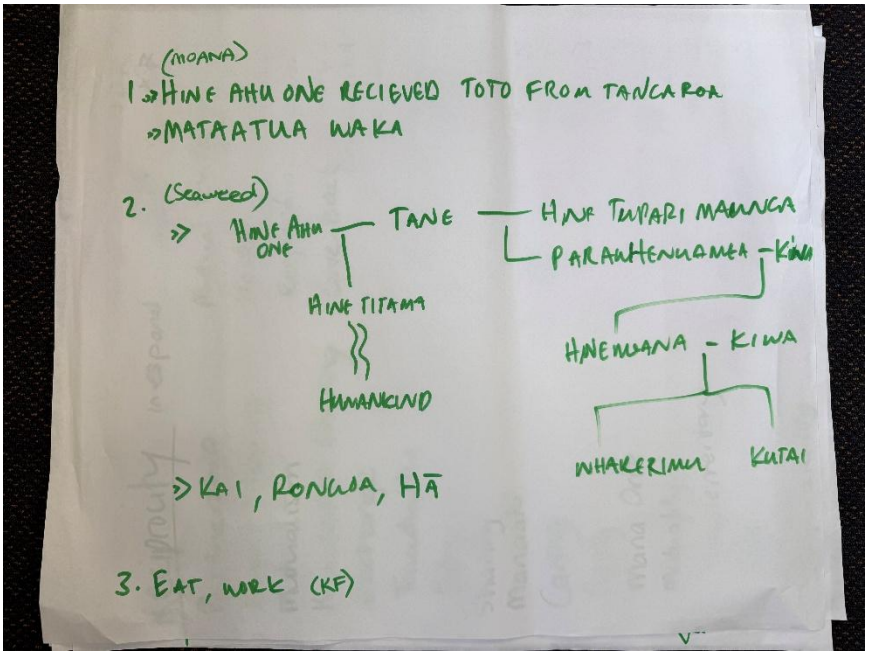



*Figure 3 – Group based activity example demonstrating the whakapapa between nature and iwi.*

In the Whakatōhea knowledge system captured during the wānanga, the environment is viewed through a circular water cycle of kinship (Figure 3). Hine-tūpari-maunga (the mountains) gives birth to Parawhenuamea (the freshwater streams). These freshwater rivers flow downstream, carrying nutrients to union with Hinemoana and Kiwa (the ocean realm). Out of this rich environmental convergence, Whakerimu (seaweed) and Kūtai (mussels) are born.

Therefore, seaweed is not an isolated plant to be commercially extracted; it is a vital strand in an interconnected family tree that binds the mountains, the freshwater rivers, the ocean, and humankind (via Hine-tītama) into a single, living ecosystem

### 4.1.4. Day 1 - Group activity 2 - Bioeconomy of Mana

The objective of this session was to map out a clear iwi strategy to protect mātauranga Māori (traditional knowledge) from misappropriation while designing a high-value, sustainable commercial structure for the iwi's aquaculture assets. The participants answered the challenge by developing an integrated matrix that balances Indigenous stewardship (Kaitiakitanga) with commercial self-determination (tino rangatiratanga/mana motuhake).

The outcome of this group collaborative exercise demonstrated a transition to an economy of mana. The final workshop activity focused on the critical intersection of cultural responsibility and economic self-determination, addressing how to actively use mātauranga Māori while shielding it from institutional misappropriation. Participants rejected standard transactional models in favour of a "Whakatōhea economy of mana," establishing that traditional knowledge should not be kept hidden, but rather used strategically to enhance the iwi's collective mana.

To achieve this, the groups designed a multi-layered protective and commercial ara (pathway):

- **Customary and Digital Governance:** Participants operationalized protection by combining customary ecosystem regulations (rāhui) with modern intellectual property protections (Copyright and Trademarks) and digital TK Labels to maintain total iwi oversight within external databases.
- **The "Farm-to-Plate" Matrix:** The workshop cleanly aligned scientific research criteria (Traceability, Ethics, and Verifying Provenance) with commercial business assets (Quality, Branding, and Uniqueness), showing that the unique geographic and cultural origin of the species serves as the iwi's premium branding feature.
- **Future Intergenerational Wealth:** Moving forward, the iwi demands that all research methodologies are co-designed around local values, requiring the structural involvement of Kaumātua and independent iwi Research Centres. Furthermore, the strategy prioritizes Ahumoana Whakahīhiko (youth aquaculture education) and direct investments into wild Kuku (mussels) to guarantee sustainable prosperity, ownership, and capability for the mokopuna.

The day ended with a karakia, carried out by Danny Paruru, reflections upon the topics discussed and a brief outline of the Kaupapa for Day 2.

## 4.2. Day Two: Thursday 4th June 2026

Day two began with a karakia, waiata and whakatau. As there were some people that attended today that had not attended on Day one, there was an activity outlined where

through whakawhanaungatanga, partners got together, who digital identifiers (DID) not know each other to introduce each other to the rest of the group.



*Figure 4 - Whakawhanaungatanga and relationship building with others from research, science, iwi, and manuhiri from Rapa Nui.*

### 4.2.1. Day 2 – Group Activity 1 – What is research? What is reciprocity?

After whakawhanaungatanga and the introduction of the Research Reciprocity Kaupapa, initial activities were conducted to examine participants understandings of research and reciprocity, before further activities took place. Once introductions were made, Professor Hudson requested that wānanga participants give one word when thinking of a) Research, and b) reciprocity.



Figure 5 - Professor Maui Hudson discussing the Research Reciprocity Kaupapa.

The brainstorming session regarding research reflects a highly dynamic, dual-natured perspective of the word "Research" as defined by the wānanga participants. While the raw terminology includes traditional extractive and mechanical associations such as

*"Information," "Investigation," "Hunting," "Google," "Explore," "Seek," "Uncover," "Discovery,"* and a recognition of its institutional reality as a *"Job"* or something *"Dirty,"* it is powerfully countered by a clear paradigm shift toward collaborative, Indigenous co-production. Participants explicitly anchored the forward-looking definition of research in reciprocal, relational verbs like *"Collaboration," "Knowledge-sharing,"* and *"Acknowledging,"* alongside the foundational reo concept of *"Tuku"* (to give, share, or transfer). By positioning research as an active force meant to *"Catalyse"* and drive *"Innovation"* from a place of genuine *"Curiosity,"* the group successfully redefined the practice away from an extractive process and toward an empowering, shared mechanism designed to generate meaningful, long-term capabilities for the community.

Next, the brainstorming session for the meaning of reciprocity revealed that for the wānanga participants, reciprocity is an active, multi-layered practice grounded in Mana Ōrite (equal mana/status) and Tauutuutu (reciprocal giving, alternating feedback loops). By weaving western concepts of 'Benefit Sharing' and 'Mutualism' with foundational Māori values like Manaaki (care) and Koha (gift), the group established that genuine research reciprocity demands a continuous, respectful cycle of giving and receiving. Participants were clear that any future scientific or commercial endeavours must be built upon a robust architecture of mutual exchange, equal status, and deep collective responsibility.

### 4.2.2. Day 2 Morning Session – Research Reciprocity & Rapamycin Case Study

The presentation part of the day began with a joint kōrero by Professor Maui Hudson and Natalie Kusabss introducing the theme of the day, Research Reciprocity. Professor Hudson outlined mahi about Research Reciprocity, and the Rapamycin example, supported by Natalie Kusabss. It is one of the most famous global examples of biopiracy and scientific colonialism, and as such, carries deep emotional, spiritual and cultural trauma for the people of Rapa Nui. For the wānanga, it serves as a historical warning case study, that the workshop participants referenced when arguing for protective iwi frameworks like the *Māori Data Audit Tool*, *Benefit Sharing Compass*, and legally binding pre-negotiated royalty structures discussed on Day 1.

In their presentation, Maui Hudson and Natalie Kusabs utilised the global biopiracy case of Rapamycin as a foundational warning to illustrate the profound dangers of United Nations (UN) un-reciprocated biological research, and a stark warning with extensive lessons to be learnt. They detailed how in 1964, a Western scientific expedition extracted soil samples from a sacred volcanic crater on Rapa Nui (Easter Island) without obtaining genuine Indigenous consent, later isolating a compound that pharmaceutical companies turned into a multi-billion-dollar global industry for organ transplants and cancer

therapies. Despite these astronomical corporate profits, the Rapa Nui community received absolutely zero financial compensation, royalties, or institutional reinvestment into their local infrastructure or schools. By highlighting this severe exploitation, Maui and Natalie demonstrated exactly why Whakatōhea must reject transactional, hands-off research models.

Attendees from Rapa Nui were able to add to the discussion with personal experiences, sharing stories passed down through generations, and experiences of their island and the injustices that occurred. WHO had met with members of the island during a Leprosy outbreak, under the guise of helping the community. However, this then lead to extractive research, and the following development of the worldwide known Rapamycin drug. Specific kōrero shared by the Rapa Nui whānau included *"the people were treated like sheep, and the sheep were treated like people"*. Additionally, *"they told us they were going to help our people, and then they took from us"*. This emotional kōrero was followed up by questioning from the group to learn more about the personal experiences from the Rapa Nui whānau. Acknowledgements were made of the taonga that the Rapa Nui whānau had shared, as well as the emotional harm endured by their people.



*Figure 6 - The Rapa Nui whānau outside Te Tawharoa o te Whakatōhea (left to right, Natalie Kusabss, Jacinta Arthur de la Maza, Sebastian Paoa, Anaiti Paoa, Lafquen Passalacqua, Maui Hudson).*

### 4.2.3. Day 2 - Group Activity 1 – Was Rapamycin a global success?

Following the Rapamycin example and the Rapa Nui whānau stories, wānanga participants were then instructed to divide into groups, where they were able to discuss the Rapa Nui example. Groups were separated to try to include a diverse range of ages, and a wide range of jobs – e.g. researchers, community members, rangatahi, and Rapa Nui whānau. Questions were posed "Do you think that the Rapamycin was a global

success", "what can be learnt for future research in Rapa Nui?", and "Who should hold authority of biological materials once collected?".



*Figure 7 - Group based activity brainstorming "Was Rapamycin a global success?"*

Whilst the research discussions were robust, overall, from group kōrero, it was discussed the development of Rapamycin for worldwide health and wellbeing was a success, at the expense of the Rapa Nui people. One group of rangatahi (youth), stated "they stole from them". The name, *Rapa*mycin, was explained as another demonstration of appropriation, as it uses the name of the island, and as such, has become known specifically for this medication, rather than the Indigenous and cultural history of the island. For the people of Rapa Nui, which historically received "none" of the knowledge or wealth generated from its own biological heritage, the development of Rapamycin was expressed by participants as a complete failure. To permanently end this legacy of external institutions participants explicitly declared that total stewardship and authority over biological samples, raw data, and copies of all final products must reside directly within local hands, managed via a continuous feedback loop between the Rapa Nui Council and the local people. The ultimate lessons codified by the attendees for future research dictate that all projects must be Indigenous-led from the design phase, moving away from superficial consultation to a model of true consent where "every variation should be renegotiated/consulted over again with every change," while legally embedding Trade Marking, Royalties, and local capability building from the very beginning.

### 4.2.4. Day 2 – Morning session 2 - FREYJA and Extended Community Engaged Research: a Lifecycle Approach

After morning tea, Professor Hudson discussed research collaborations with the FREYJA project. This project is an international research initiative designed to foster genuine

reciprocity, yielded stewardship, just benefit-sharing, and institutional accountability within environmental DNA (eDNA) science and genomic collaborations with Indigenous communities. Operating dynamically out of Te Kotahi Research Institute at the University of Waikato, the project develops practical tools to eliminate historical "gaps" in access and benefit-sharing, creating collaborative research life cycles that protect Indigenous data sovereignty and local knowledge systems globally.

Next, Rebekah Crosswell a PhD student and Research Officer from the University of Waikato gave a presentation on extended community engagement, developed in conjunction with Professor Maui Hudson and Dr Rogena Sterling as part of the FREYJA project. This presentation discussed the newly developed Framework for Extended Community Engagement, outlining a vital pathway designed to transform historically extractive research paradigms into long-term investments that empower Indigenous communities. Rebekah detailed how meaningful, ethical science must follow a strict, sequential five-step pathway—starting with *Community Engagement*, moving through *Building Trust*, achieving *Fair and Equitable Outcomes*, and securing a *Cultural License*, before finally realizing true *Reciprocity*. It was emphasised that traditional research models frequently attempt to liaise with communities in research by offering tokenistic reciprocity at the very end of a project without laying the foundations. Grounded in the theoretical pillars of relational science and data sovereignty—including the R's of Indigenous Research (such as *Respect, Reciprocity, Responsibility, and Relevance*) and localised Aotearoa ethics like *Te Ara Tika* and *Te Nohonga Kaitiaki*—she argued that true community engagement elevates data precision and scientific rigor. By embedding these structures from day one, research shifts from an act of colonial harm into a sustainable, community-directed scientific legacy that secures full autonomy and capacity building for current and future generations.



Figure 8 - Rebekah Crosswell presenting "Framework for Extended Community Engagement", collaboration with the Freyja group, produced in collaboration with Professor Maui Hudson and Dr Rogena Sterling.

Professor Maui Hudson also highlighted a new joint proposal for a research initiative called Moana Genomics. This project presents an unmatched opportunity to co-design mobile genomic laboratories across a broad Pacific network (Hawai'i, Mo'orea, Rapa Nui, Aotearoa), enabling Indigenous caretakers to run advanced sequencing on their own terms.

### 4.2.5. Day 2 Afternoon Session – Te Whakatōhea Research Projects Overview

Professor Hudson discussed the outlines for the current projects that Te Whakatōhea is involved in, as well as the new BaseCamp research collaboration. An outline of the current projects provided by Danny Paruru is shown below in Figure 9.

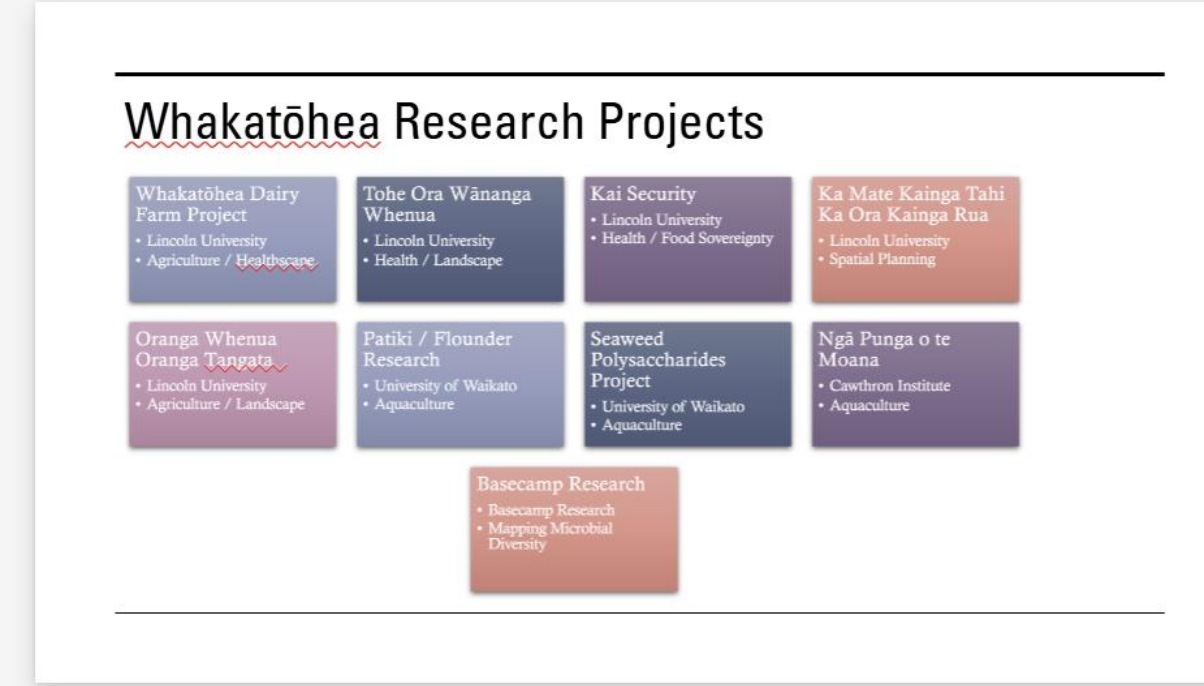



*Figure 9 - Current and ongoing projects Te Whakatōhea is involved in with research institutes and industry.*

#### *4.2.5.1. Basecamp Research*

The Basecamp Research initiative was formally introduced as a novel, pioneering research project, representing a first-of-its-kind collaboration in Aotearoa between an iwi and an international research group. The central focus of the discussion surrounding the Basecamp Research initiative detailed an innovative scientific project aimed at developing new medicines derived directly from local soil samples. Professor Maui Hudson articulated that a primary, foundational benefit to the community would be the structural development of a localized laboratory infrastructure, alongside targeted

capacity building to train local researchers to autonomously analyse the soil samples harvested from their own whenua. Under this operational strategy, the initial sample analysis will be conducted at Te Whare Wānanga o Waikato (The University of Waikato), followed by a deliberate, stepwise transitional framework designed to shift technical operations and research custody entirely into local hands. While Professor Hudson characterized the biological prospecting as a calculated risk—noting that the utility of specific soil samples is somewhat of a "lottery" where only certain specimens will prove viable for pharmaceutical formulation—it was firmly established that the iwi would secure a contractually guaranteed 1% royalty for any successful uses of data that lead to commercialized medicines. The wānanga participants determined that these enduring structural benefits decisively overrode any potential extractive liabilities, positioning the iwi at the absolute forefront of national genomic research through an authentic, self-determined model of *mana Motuhake*. To prevent this medical initiative from repeating the extractive biopiracy of historical clinical models, participants explicitly evaluated the project through the lens of "local mātauranga", dictating that all pharmaceutical development must be structurally guided by *Tikanga*, *Karakia*, and local *Kaitiaki*. By establishing a strict **"**WAY of doing Research**"** that aligns external academic methodologies with shared community values, the findings ensure the iwi retains absolute data and biological sovereignty. This basecamp initiative serves as a vital investment in local capability, guaranteeing that the creation of new medicines remains a self-determined, sustainable scientific legacy that directly benefits the rohe. Much discussion and pātai was involved in the explanation of this mahi, with community members and wānanga participants wanting to know about how the data would be stored, if the company was to be on sold to others, and how kaitiakitanga, and Whakatōheatanga would be upheld.

### 4.2.6. Day 2 Afternoon session - Group Activity 2 – Should Te Whakatōhea have a research centre?

Participants were then separated into groups for another activity, where they would discuss “Should Te Whakatōhea develop its own research centre”, yes or maybe, “What does Indigenous research look like” and “what should we study at the research centre”.

Discussions were thorough, filled with hope and excitement about what a Te Whakatōhea research centre might look like. Based on the workshop analysis, the wānanga participants reached an absolute, unanimous "Yes" regarding the establishment of an iwi-owned Indigenous Research and Innovation Centre. However, there were statements that it would need to be run by, for and with Te Whakatōhea tangata whenua, running their own independent projects, with collaborations when and where appropriate. Participants defined genuine Indigenous research as an innovative, intergenerational process that is strictly Indigenous led, controlled by the community, and executed through a distinct "Whakatōhea lens" (referred to as Whakatōheatanga) grounded in *Tikanga* and

*Mātauranga*. To reject the historical failures of scientific colonialism, the center's core focus areas will directly address operational tribal necessities as brainstormed by participants:

- **Environmental Sovereignty and Testing:** Operating an in-house **Water and Soil Testing Laboratory** to independently monitor the quality of local rivers, waters, and regional aquaculture assets.
- **Advanced Bio-Innovation:** Housing a dedicated **Genomics Lab** and a local **Database Management System** to analyse native biodiversity, manage physical and digital *taonga*, and incorporate formal TK Labels to shield cultural data from institutional exploitation.
- **Holistic and Customary Safeguards:** Conducting research into Rongoā (holistic health systems), Mahinga Kai, and Demographic Health, while utilizing a purpose-built building that incorporates strict protocols allowing the community to dynamically authorize or *revoke* research permissions if ethical guidelines are breached.
- **Investment in future generations –** As the wānanga included generations from Rangatahi (high school age young adults), through to Kaumātua, the inclusion of younger generations is an important part of all Indigenous research. The conclusion was that all research activities and all investments should impact and benefit future generations. The rangatahi rōpū noted “what do we need?”, and to invest in such activities, such as sustainable housing, as well as climate change research with the uncertainty of weather conditions, recent flooding and cyclone events. Further, they discussed things that were of interest to them, such as Sports Science Lab, which may draw some people home. And their sentiments *were “having a research centre will bring people home for jobs”*.

The center was envisioned as a vital *"investment into self"* that acts as a physical *Ukaipō* (home) for their heritage, systematically coordinating all iwi researchers to establish a self-determined, sustainable scientific legacy for current and future generations. After the group activity and reporting back to the wānanga participants, a new Te Whakatōhea project that Professor Hudson is involved in was outlined to the wānanga, Moana Genomics. the Moana Genomics initiative is a multi-partner project submitted to the Wellcome Trust Genomics in Contexts Fund in March 2026, encompassing a network of specific Pasifika project sites across Hawai‘i, Mo‘orea, Rapa Nui, and New Zealand. The project equips communities with community-led mobile genomics laboratories and flexible funding pools to perform advanced DNA metabarcoding, metagenomics, and whole-genome sequencing. This enables Indigenous caretakers to autonomously track soil microbiomes, monitor invasive species, map native biodiversity, and support *kaitiaki* environmental management completely on their own terms.



*Figure 10 - Group haerenga to Pākihikura, featuring Danny Paruru discussing the history and explaining the commercial and cultural importance of the site (see below).*

### 4.2.7. Haerenga to Pākihikura, Whitikau Reserve

Next, a haerenga was made to Pākihikura (the harbour development where the river mouth where the Ōtara and Waiwoeka rivers converge to meet the sea). Danny Paruru described the development of the harbour, the process and the cultural significance behind the development and its placement, and ingoa (name). The ingoa derives from *Pākihikura* waka and the tūpuna who travelled inland to Ōpōtiki. The site employed a local people, involved local schools to paint areas of the harbour structures, and is a means of economic development for the iwi and the region. In recent years, the name Pākihikura has become a symbol of economic reclamation and resilience.



*Figure 11 - Group photo of Te Whakatōhea Wānanga haerenga to Pahikikura.*

Danny also took the group to other sites that were part of the Te Whakatōhea settlement process and asked people to moemoea (dream), about where a possible Research Centre may be developed. Lastly, the group was taken to the skate park and destination playground area in Ōpōtiki, the Whitikau Reserve. This site holds deep ancestral significance as a traditional mahinga kai and place of refuge for Te Whakatōhea. Developed in partnership with local kura and tamariki, the park's modern revitalization explicitly honours this heritage, featuring a design structured around the themes of the Waioweka and Ōtara rivers alongside custom play elements like a carved waka and cultural artistry.

The wānanga culminated in a strategic discussion outlining operational pathways forward, immediate next steps, and the long-term future aspirations of Te Whakatōhea regarding biogenomic research and industry opportunities. Prior to the formal closing, attendees participated in an evaluative reflection process, with each individual identifying and sharing key insights and highlights gleaned across the sessions. The event formally concluded with a poroporoaki that honoured the collaborative relationships established, the collective mātauranga shared, and the mutual institutional commitments forged.

# 5.0. Participant Contribution - Key Themes and Insights

## 5.1. Day 1 – Seaweed, Relationship with the Whenua

### 5.1.1. Cultural Foundations, Whakapapa, and Mātauranga Māori

The wānanga grounded the discussion of the marine environment in ancestral connections and whakapapa connections to the Atua and the people, personifying kaitiakitanga through the reciprocal relationship between the people and the land.

- **Whakapapa of the Moana**: Participants mapped out the divine lineages linking the environment to humankind, noting that *Hine-ahu-one received toto (blood) from Tangaroa*, establishing a direct bloodline to the *Mataatua waka* (seaweed group).
- **Seaweed Lineal Placement:** Seaweed (identified specifically as *Whakerimu*) was explicitly placed within the whakapapa of *Tāne* and *Hine-ahu-one* through *Parawhenuamea (kina)*, *Hinemoana*, and *Kiwa*, establishing it as a sibling to *Kūtai* (mussels). Because of this deep lineage, seaweed is viewed holistically as *Kai* (food), *Rongoā* (medicine), and *Hā* (the breath of life).
- **Preserving Pūrākau:** Group work emphasized that collecting this knowledge prevents historical loss, captures vital *pūrākau* and histories, and dictates the precise *tikanga* of "where and how to gather" to enhance the iwi's collective *mana*.

### 5.1.2. Ecological Kaitiakitanga and Resource Protection

A major theme focused on the localised stewardship of the ecosystem under the banner of *"Te Tapu o Muriwai"*. (Muriwai is one of the revered female tīpuna of Te Whakatōhea and the Mataatua Waka – her image depicted on the front of Te Tāwharau o te Whakatōhea).

- **Environmental Sovereignty:** The group activities called for clear *protection* frameworks, explicitly naming the implementation of a Rāhui (restriction, prohibition, or ban on a specific area, resource, or activity) to manage the marine space. This includes protecting vulnerable mussel beds and managing the ecological footprint of trawling and regional commercial and recreational boats.
- **Ecological Balance:** Participants highlighted the complex local ecosystem dynamics, discussing the interplay between mangroves (as friend or foe), starfish, and over-harvesting.
- **Kaitiaki Integration:** To maintain ecological balance, participants specified that any educational or environmental courses must integrate *Mātauranga, Tikanga,*

*Karakia,* and a dedicated *Kaitiaki* who is deeply and explicitly connected to the local area.

### 5.1.3. Holistic Values: Sustenance, Health, and Innovation

The discussions identified that while the *Moana* is a powerful, grounding, and "calming" recreational space, seaweed specifically represents a vastly under-rated resource with diverse functional applications.

- **Sustenance and General Health**: Local species—including *Kina, Pāua, Karingo,* and *Crayfish*—are abundant at home and provide immediate food security. Seaweed itself was highlighted as a natural source of good iodine that supports digestive health and improves gut microbes. It was even humorously but practically noted as an "anti-farting food for cows" (reducing methane emissions).
- **Future Bio-Innovation:** Looking beyond traditional food gathering, participants brainstormed advanced forward-facing uses for seaweed extracts, including Biofuels, Bioplastics made from seaweed, Pharmaceuticals, and medical/nutritional applications.

### 5.1.4. Commercialisation and Moving Toward Economies of Mana

The group kōrero drew a sharp divide between standard corporate research models and an Indigenous business approach.

- **Traceability vs. Branding:** In the business matrix example provided in group work, participants contrasted the scientific/research requirements (*Ethics, QA/QC, and Verifying Provenance*) with commercial desires (*Quality, Branding, and Point of Difference/Uniqueness*). They noted that for an iwi business, the commercial "point of difference" comes directly from the *locality* and the unique *context and origin* of the product.
- **Farm-to-Plate Sovereignty:** Any commercial supply chain must track the material cleanly "from farm to plate," ensuring that data benefits and controls are secured for the future to "future proof" the iwi's investments.
- **Economies of Mana**: Wānanga group work explicitly stated that future developments must purposefully "move away from colonial-capitalist ideas and towards Whakatōhea economies of mana". This means prioritising equal educational opportunities for youth to ensure future participation and investing heavily in wild *Kuku* (mussels) for future *mokopuna* to protect them from negative aquaculture impacts.

## 5.2. Day 2 – Research Reciprocity, Benefit Sharing, Community Engagement Themes

### 5.2.1. Definitional Shift from Extraction to Indigenous Co-Production

The introductory brainstorming sessions exposed a deep historical tension regarding the traditional impacts of Western research on Indigenous communities, calling for a total inversion of the research paradigm.

- **Deconstructing Extractive History:** Workshop participants associated the historical, raw term "Research" with predatory or invasive concepts such as *"Hunting," "Exploration,"* and *"Uncover"*. Notes explicitly stated that prior institutional behaviours operated like *"Monster Invaders"* or *"Bullies,"* where external commercial priorities overrode local human rights (e.g., *"Sheep were more important than People"*), resulting in a complete failure to return knowledge to the community.
- **The Relational Paradigm Shift:** To correct this extractive footprint, participants re-centered the definition of research around reciprocal, collaborative verbs like *"Collaboration," "Knowledge-sharing," "Acknowledging,"* and the reo concept of "Tuku" (to give, share, or transfer).
- **Operationalizing the Path Forward:** True reciprocity demands establishing clear, bilateral expectations between institutional researchers and Indigenous partners from the very outset. Building genuine, respectful relationships serves to protect and honour cultural values while ensuring that local communities are never again left with "none" of the knowledge generated from their own heritage.

### 5.2.2. Structural Co-Design, Centralised Representation, and Capability Building

True reciprocity mandates that Indigenous authority is actively woven into the baseline design of any scientific or biological initiative, ensuring active partnerships.

- **Comprehensive, End-to-End Inclusion:** Participants firmly asserted that Indigenous representation must be fully embedded and visible *"throughout the whole process,"* actively dismantling historical frameworks that treated local inclusion as a preliminary or concluding box-checking exercise.
- **Central Roles Over Passive Status:** As explicitly articulated by Team Manutara, true reciprocity dictates that community members must not merely be superficially consulted but must actively "participate in the research in central roles" (*"participar de la investigación en roles centrales"*), serving as core researchers and decision-makers rather than passive data sources or local guides.

- **Indigenous-Led Frameworks:** Workshop notes stated that projects involving Indigenous data, flora, or fauna *"should have been Indigenous led"*. Research infrastructures must link directly back to a localized governing body (such as a local Council or iwi authority working directly with local people) to maintain self-determination and prevent external institutional control.
- **Institutional Capacity Building:** Research initiatives must loop directly back into the dynamic "generation of local capabilities" (*"generación de capacidades locales"*) and the structural, active "returning [of] mātauranga". This ensures that when external research teams exit, the local community is left with permanent intellectual, technological, and operational infrastructure.

### 5.2.3. Legal Sovereignty, Intellectual Property, and Economic Reciprocity

To reconcile historical injustices—such as the global commercial exploitation of un-reciprocated biological discoveries (e.g., rapamycin)—participants identified a mandatory need for legally binding protections embedded directly into the research design.

- **Formal Rights and Monetisation Mechanisms:** The workshop sheets identified a clear necessity for formal legal components to secure Indigenous rights from exploitation, specifying the strict integration of "Trade Marking" and "Royalties" to legally protect and monetize Indigenous innovations and biological materials.
- **Pre-Negotiated Benefit-Sharing Infrastructure**: Reciprocity requires the execution of an explicit, pre-negotiated "agreement of collaboration" (*"convenio de colaboración acordado"*). Any financial, clinical, commercial, or agricultural yields generated from local biological materials must not be solely retained by external entities.
- **Long-Term Community Wealth**: The framework requires structured economic reciprocity where commercial outputs directly, equitably, and transparently support local development, creating "balanced benefits" and guaranteed "long-term community benefits".

### 5.2.4. Dynamic, Iterative Consent and Stewardship

The workshop outcomes established that consent must function as an evolving, protective boundary.

- **Consent Versus Superficial Consultation:** Workshop groups drew a sharp distinction between a superficial consultation phase and true, consent (defined as *Given Authorisation or Permission*). True consent requires asking prior informed consent before any material or data collection occurs.

- **Continuous and Dynamic Renegotiation**: Workshop participants concluded that consent is not a one-time, static signature. Crucially, "every variation should be renegotiated/consulted over again with every change," forcing a continuous, iterative feedback and feed-forward loop between institutional researchers and the local community.
- **Sovereignty Over Data, Information, and Samples:** True reciprocity mandates that all information, raw biological data, and copies of final products must remain within the community's territory. Participants outlined that strict "policy [is] needed for [the] stewardship of samples/knowledge/processes" to maintain total ancestral oversight and physical custody of local assets and biological materials

## 5.3. Alignment with the Literature and Scientific Context

### 5.3.1. The Mandate for Self-Determination (Tino Rangatiratanga / Mana Motuhake)

There is absolute rejection of extractive research models where external entities are extractive, demanding that Indigenous peoples operate as the central decision-makers and teachers (Kaiako), leaving external scientists as the learners, outlined by wānanga participants. This is validated by foundational Kaupapa Māori theory and decolonizing methodologies (Hudson et al., 2016; Hudson et al., 2010; Mahuika, 2015; Tuhiwai Smith, 2012), which dictate that research concerning Indigenous communities must be conducted by, with, and for Indigenous peoples. It complements the "Multiple Evidence-Base Approach" within global Citizen Science models (Bhawra, 2022; O'Brien & Denham, 2008; Tengö et al., 2021). Rather than treating whānau as passive field assistants collecting data for Western repositories, this framework ensures the community maintains sovereign control over data validation and ecosystem stewardship.

### 5.3.2. Governance Boundaries

Transitioning governance and consent models to an absolute rejection of open-access, transactional bio-discovery. This aligns with current literature, which fully operationalizes the global CARE Principles for Indigenous Data Governance (Authority to Control, Responsibility) ((Carroll et al., 2021; Rodriguez-Lonebear, 2020) and fulfils the exact legal intent of the international Nagoya Protocol on Access and Benefit-Sharing (ABS) through upfront pre-negotiated royalty and trademark architectures (Buck & Hamilton, 2011; Jonas et al., 2010; Peters, 2025; Smith et al., 2017).

### 5.3.3. Traceability, Authenticity, and Supply Chain Verification

- A business/research matrix mapping Traceability (Ethics, QA/QC) and Provenance to enforce secure "farm-to-plate" sovereignty. This parallels international high-value bio-product literature utilizing analytical verification (genetic barcoding and chemometric spectral fingerprinting) to authenticate organic feedstock origin and protect brand integrity against biosecurity risks (Galimberti et al., 2013).

### 5.3.4. Decolonising Scientific Nomenclature & Linguistic Sovereignty

- Mandatory prioritisation of original ancestral names for marine and terrestrial flora to protect iwi provenance. This aligns with movements toward taxonomic decolonization (e.g., Eunectes akayima naming; (Mabele et al., 2023; Pethiyagoda, 2023; Rivas et al., 2024; Subramaniam, 2024). It maps directly onto landmark genomic research by Hogg et al. (2024), where utilizing the local Indigenous name Ninu instead of generic Eurocentric conventions for the greater bilby genome proved that co-designed nomenclature enhances local conservation impact without sacrificing scientific rigor (Hogg et al., 2024). Successful land management inherently requires returning Indigenous names and ceremonies to the landscape (Gordon et al., 2023).

### 5.3.5. Seaweed as a Bio-Elicitor for Plant Immunity

- **Participants stated that s**eaweed is an under-utilized resource with immense agricultural, pharmaceutical, and health potential. **This** corresponds with Dr. Marie Magnusson's MBIE framework. Biochemical science confirms macroalgal polysaccharides (e.g., ulvans from Ulva) act as potent bio-elicitors that trigger systemic acquired resistance (SAR) to protect plants against pathogens like Psa.

### 5.3.6. Methane Emission Reduction in Agriculture

- Participants noted seaweed as "anti-farting food for cows". Evidence suggests that macroalgae dietary supplementation targets and inhibits methanogenesis in bovines (Brooke et al., 2020; Roque et al., 2021). This aligns with global agricultural data validation within the rumen, drastically lowering livestock greenhouse gas emissions.

## 5.4. Novel Wānanga Insights: Whakatōhea Transformations of Global Science

### 5.4.1. The "Te Tapu o Muriwai" Marine Plan

- Dynamically fuses high-level marine biology with customary Rāhui and Maramataka (lunar cycles). It constructs a highly operationalized, bicultural, self-moderating ecological foundation.

### 5.4.2. Systems Biology and tikanga

- Aligns contextually with advanced Western systems ecology by tracking nutrient flows from mountains to the sea. However, it completely transforms this mechanical data framework by infusing it with spiritual reality, structuring ecological health around mauri, karakia, and ancestral connections.

### 5.4.3. Whakapapa Taxonomy: Kaimoana as Direct Siblings

- Explicitly maps Whakerimu (seaweed) and Kūtai (mussels) as direct siblings branching from Hinemoana and Kiwa. This differs from Western commercial silos that separate biochemistry from aquaculture, forcing resource management to shift from an extractive model into a sacred, protective kinship obligation where damaging one part of the line explicitly harms the other.

### 5.4.4. Redefining Commercial "Provenance" into an "Economy of Mana"

- Flips the high-value biotech definition of provenance from a static, corporate marketing tool used to increase price tags into an active mechanism of tribal sovereignty. The geographic and cultural origin of a species is codified as a protected asset to ensure long-term wealth and educational guardianship are permanently retained for mokopuna.

### 5.4.5. DSI Sovereignty Interception

- Counters international open-access genomics repositories that offer tokenistic community funds. By applying Local Contexts TK Labels, the iwi embeds its ancestral boundaries directly into the digital metadata, ensuring governance limits remain visible wherever the data travels.

### 5.4.6. The Calculated Risk "Lottery Contract" over Bioprospecting

- Differing from standard Nagoya Protocol linear contracts that only share benefits after commercialisation occurs, participants believe recognizing biological prospecting as a calculated "lottery," the iwi decouples immediate research value from final products. The non-negotiable benefit

is shifted upfront, contractually locking in localized lab infrastructure and paid molecular biology training from the very beginning of the project.

### 5.4.7. Digital Space as a Customary Extension of the Marae

- Conceptualizes digital databases, images, and genomic sequence datasets not as cold corporate data files, but as living taonga requiring an absolute physical and spiritual Ūkaipō (sanctuary). While data stewardship is emerging globally (Arnt, 2024; Hudson et al., 2016; Hudson et al., 2021) this framework uniquely operationalizes databases under customary law—integrating Tikanga, Tika, Pono, and Wairua to grant the iwi the dynamic right to revoke research authorization instantly if cultural safety is breached.

### 5.4.8. Intergenerational Future-Proofing as a Geopolitical Tool

- Rejects standard youth program evaluations that measure outcomes via localized social metrics (e.g., NCEA credits). By aligning local high school aquaculture modules directly with trans-Pacific Indigenous educational pipelines (e.g., Rapa Nui), youth education is redefined as a frontline defense network. Training rangatahi to run mobile genomics laboratories directly disrupts the historical legacy of extractive research processes.

### 5.4.9. The Mandated Institutional "Exit Strategy"

- Establishing a paradigm shift far beyond standard academic "collaboration." Any partnership with external universities or international science groups must contractually engineer its own exit strategy from the outset. It mandates a strict, stepwise operational timeline that systematically transfers all physical laboratory hardware, sequencing capacity, and analytical control out of distant academic hands and directly into the iwi-owned Research Centre.

# 6.0. Key Challenges and Opportunities

## 6.1. Current Headwinds

- **Tokenistic Engagement & Consent:** External research bodies frequently treat iwi engagement as a check-box exercise rather than entering into co-design processes. Current academic and Crown research models treat ethical consent as a one-time, bureaucratic "box-checking" milestone signed at the start of a project, completely failing to account for downstream research pivots, secondary data uses, or long-term accountability.

- **The Global Misappropriation of DSI:** Open-access international genomic databases routinely treat genetic sequences as unowned global commodities, enabling commercial entities to exploit tribal *taonga* while bypassing standard Access and Benefit-Sharing (ABS) protocols.
- **Data vulnerability:** Lack of formalized protection structures leaves Whakatōhea intellectual property and mātauranga open to institutional extraction.
- **The Funding Gap:** High-level scientific funding (e.g., crown grants) routinely flows directly to universities and research institutes rather than being held and administered directly by iwi entities.
- **The Commercial Siloing of Indigenous Ecosystems:** Traditional Western scientific classification fragments biological resources into distinct commercial sectors (e.g., separating seaweed biochemistry from shellfish aquaculture), which violently disrupts the integrated, kinship-based reality of *mātauranga Māori* and ancestral *whakapapa*.
- **Asymmetry of Technical and Operational Capability:** Host communities frequently lack localized high-level laboratory hardware, database infrastructure, and molecular biology training, forcing an ongoing structural dependency on distant universities.

## 6.2. Strengths

- **Rich Local Expertise:** The wānanga clearly highlighted that Whakatōhea whānau already possess deep, sophisticated mātauranga regarding local marine ecologies and resource management. Drawing on historical models of *mana motuhake*, the iwi has the internal capability to use its own mātauranga to construct its own research infrastructure.
- **Collective Wānanga Strategy**: The iwi rejects automated, disconnected analysis, favouring human-centered, collective deliberation to ensure absolute alignment with community needs.
- **Transitioning to an "Economy of Mana":** The iwi has the immediate opportunity to shift away from standard colonial-capitalist business structures and deploy its traditional knowledge strategically, using geographical and cultural provenance as a premium, sovereign branding feature.
- **High-Value Environmental Bio-Innovation:** Scientific validation confirms immense local bio-economic opportunities, including utilizing macroalgal polysaccharides as bio-elicitors to boost plant immunity (e.g., mitigating agricultural pathogens like PSA) and using local seaweeds as ruminant dietary supplements to drastically lower agricultural methane emissions.

- **Combining Customary Safeguards with Advanced Ecosystem Modelling:** Fusing advanced systems biology (tracking ecological health from the mountains to the sea) with customary regulatory mechanisms like *Rāhui*, *Karakia*, and *Maramataka* (lunar cycles) provides a revolutionary, bicultural methodology for localised ecological self-regulation.
- **Establishing Sovereign Digital Safeguards:** The deployment of digital data tools, such as the *Māori Data Audit Tool*, the *Benefit Sharing Compass*, and global *TK and Biocultural (BC) Labels*, offers a mechanism to intercept global data flows and embed ancestral boundaries directly into digital metadata.
- **Trans-Pacific Indigenous Knowledge Networks:** Initiatives like the Moana Genomics project present an unmatched opportunity to co-design mobile genomic laboratories across a broad Pacific network (Hawai'i, Mo'orea, Rapa Nui, Aotearoa), enabling Indigenous caretakers to run advanced sequencing on their own terms.

# 7.0. Key Future Recommendations

Based on the challenges, opportunities, and insights generated across the wānanga sessions, the following strategic next steps are recommended to secure *tino rangatiratanga* over Te Whakatōhea research, data, and biological assets:

## 7.1. Collaborative Development & Structural Foundation

- **Establish an Independent Whakatōhea Research and Innovation Centre:** Actively build a standalone, iwi-owned tribal hub run *by, for, and with* Whakatōhea tangata whenua to ensure all research priorities are directed internally rather than dictated by external corporate or Crown funding cycles. This may begin with smaller formal networks, such as an interim steering and advisory committee.
- **Deploy Cross-Disciplinary Structural Teams:** Ensure the steering committee designs the operational framework of the upcoming Research Centre to house multi-disciplinary teams. The centre must permanently co-locate expertise spanning Te Ao Māori, genomics, commerce, patent law, and environmental land/water management, community engagement, population health and genetics, to ensure the iwi can autonomously negotiate future commercial horizons without relying on external corporate advice.
- **Contractualise the Institutional Exit Strategy:** Task the committee with ensuring where necessary all future partnership agreements contain a strict, stepwise exit plan that contractually obligates external institutions to systematically transfer laboratory hardware, sequencing capabilities, and analytical control directly into the iwi-owned center within a designated timeframe where necessary.

- **Leverage Intergenerational Capability Building & the "Te Ara Pōtiki" Pathway:** Anchor the center's strategy in *Ahumoana Whakahīhiko* (youth aquaculture and genomics education), intentionally linking high school biology modules to active projects to generate sustainable, high-value local jobs that will bring the *rangatahi* home to the whenua. Formally couple this with a specialised scientific succession program (*Te Ara Pōtiki*) that links local youth directly with experienced, senior Indigenous scientists via *tuakana-teina* mentoring relationships.

## **7.2.** Advocacy & Representation: The Whakatōhea Research Centre steering committee

- **Upfront Relationship Funding**: Contractually require that any external research application allocates specific, non-extractive funding dedicated exclusively to localized relationship cultivation and *kanohi kitea*—fostering what the sector terms "1000 cups of ti" before sample extraction begins.
- **Upfront "Lottery Contract" Clauses:** Mandate that all future bioprospecting or genomic projects include pre-negotiated legal protections—such as a locked 1% royalty model and upfront investments into local laboratory hardware and molecular training.
- **Universal Non-Monetary Benefit-Sharing:** Explicitly state that benefit-sharing architectures remain legally operational *even if the biological or soil prospecting fails to produce commercialized avenues*. External institutions must guarantee non-monetary returns, including co-authorship on scientific publications, shared public data control, and targeted resource returns to the *taiao* (environment).
- **Implement "Rangakura" Validation Guidelines:** Formally integrate the ancestral concept of *Rangakura* (the cycle of curiosity, systematic discovery, testing, and collective re-discovery) into the core text of the research centre guidelines. This ensures external academic researchers respect the self-contained validation structures of *mātauranga Māori*, preventing Western biotechnologists from overwriting iwi intellectual property or traditional ecological knowledge.
- **Embed Iterative Consent Protocols:** Integrate an explicit clause within the charter dictating that consent is a living boundary and that *"every variation should be renegotiated/consulted over again with every change,"* forcing an immediate halt to external research if scientific targets or data parameters shift.
- **Secure Universal Signature Compliance:** Require that any external entity (e.g., Cawthron Institute, external universities) formally sign and fully align with research guidelines before any *mahi*, biological extraction, or data collection can commence within the rohe.

## 7.3. Future Research / Mahi: Pou Tiaki Taonga Scoping & Repatriation

- **Execute a Comprehensive Data Scoping Project:** Prioritize an immediate, independent audit to track, locate, and map every piece of DSI, environmental data, ancestral imagery, and sensitive historical documentation currently held by outside Crown or academic institutions.
- **Leverage Digital Access Registries:** When mapping out the comprehensive data scoping project under *pou tiaki taonga*, integrate established national digital tools such as Te Pūnaha Taonga. This ensures the iwi possesses a secure, Māori-governed digital registry to monitor, log, and authorize or restrict the utilization of local biological assets across external research networks.
- **Contextualize Downstream Repatriation:** Ensure that the data scoping project explicitly maps out a legal strategy for tracking "know-how" and downstream derivatives. The audit must ensure that when sensitive historical imagery, digital sequences, or texts are located in Crown repositories, the repatriation process brings them back under the localised *Tikanga* governance structures of the iwi-owned center.
- **Construct a Systematic Repatriation Strategy:** Utilize the compiled audit data to establish a formal repatriation pathway under *pou tiaki taonga*, systematically reclaiming physical and digital custody of iwi taonga under Whakatōhea tikanga protocols.
- **Enforce Digital Marae Governance:** Design local database management systems to function as a digital *Ūkaipō* (sanctuary), embedding strict *Tikanga*, *Tika*, *Pono*, and *Wairua* protocols that assert the iwi's right to dynamically revoke external research permissions or data access instantly if cultural safety is compromised. Hardcode all temporary external datasets with Local Contexts TK and Biocultural (BC) Labels to keep tribal boundaries permanently visible.

# 8.0. Conclusion

The Whakatōhea Iwi Development Research Wānanga 2026 successfully demonstrated that the answers to systemic research questions do not reside within external academic text blocks, but within the lived experiences, tikanga, and collective intelligence of the iwi. By asserting absolute authority over aquaculture, marine bioproducts, and data governance, Whakatōhea is tracing a definitive path from structural vulnerability of raupatu, to absolute *mana motuhake*. We extend our deepest gratitude to all the whānau, hapū, and kaitiaki who shared their time and kōrero across these sessions to build a safe, sustainable educational and economic stronghold for future generations.

# 9.0. Appendices

## 9.1. Appendix 1 – Te Tāwharau o te Whakatōhea Wānanga Pānui




# Whakatōhea Iwi Development Research Wānanga

E te iwi, tēnā koutou katoa. You are warmly invited to join this series of wānanga exploring Indigenous-led research grounded in mātauranga and tikanga and shaped by the aspirations of Whakatōhea. Come along to share whakaaro and help guide future pathways for iwi development.

**Wānanga Programme** — session details below.

| KAUPAPA | TAIPITO KŌRERO / DETAILS | DATE | TIME |
|---|---|---|---|
| Te Punga o te Moana – Cawthron Institute (Aquaculture) | An opportunity to view the outcomes of a three-year initiative supporting Whakatōhea aspirations in aquaculture and discuss the next steps ahead. | Wednesday 3rd June | 9am – 12pm |
| Seaweed Polysaccharides Project – University of Waikato | A collaboration with the University of Waikato, Te Kotahi Research Institute and Te Tāwharau o te Whakatōhea, aligning Whakatōhea knowledge systems with a new seaweed polysaccharides product. | Wednesday 3rd June | 1pm – 4pm |
| Research Reciprocity & New Research Projects – Te Kotahi Research Institute | Explore how researchers and Indigenous communities engage with one another and discuss new research initiatives for Whakatōhea. | Thursday 4th June | 9am – 12pm |
| Whakatōhea Research Centre Wānanga | Discuss how a Whakatōhea research centre can draw on local expertise, support iwi aspirations, and shape the way forward. | Thursday 4th June | 1pm – 4pm |
| Whakatōhea Tiaki Taonga Wānanga | Discuss our aspirations for tiaki taonga and how we care for and protect iwi treasures, including taonga, data, images and documents held by other institutions. | Tuesday 9th June | 5pm – 7pm |

**Nau mai, haere mai — all are welcome.** Join us in the kōrero and help shape the future of Whakatōhea research and development.

**Venue:** Te Tāwharau o te Whakatōhea, 122 St John Street, Ōpōtiki (Wednesday 3rd June 2026)

**Venue:** Memorial Park Pavillon, 20 Albert Street, Ōpōtiki (Thursday 4th June 2026)

**RSVP:** Annette Temple | annette.temple@whakatohea.co.nz | 027 319 6159

## 9.2. Appendix 2 – Danny Paruru He Kōrero mō Tāne raua ko Tangaroa – He Tirohanga Whakatōhea

**Draft Research Discussion Document**

**02 June 2026**

**Danny Paruru**

# He Kōrero mō Tāne rāua ko Tangaroa – He Tirohanga Whakatōhea

| Te Reo Māori | English |
|---|---|
| Mai i te tirohanga o Whakatohea, ehara a Tāne rāua ko Tangaroa i te atua tū wehe, engari he tuakana, he teina, he whanaunga e herea tonutia ana e te whakapapa o te ao. Ko Tāne te poutokomanawa o te wao nui, te kaitiaki o ngā rākau, ngā manu, me ngā oranga katoa e tupu ake ana i runga i a Papatūānuku. Ko Tangaroa anō te ariki o te moana, te puna ora o ngā tai, ngā ika, ngā rimurimu, me ngā taonga katoa e kawea mai ana e ngā ngaru. Ahakoa he wā i kōrerotia te wehewehe o ā rāua ara, i roto i te mātauranga Māori ka mārama tonu tātou, kāore he wehenga tūturu i waenganui i a rāua, nā te mea kotahi tonu te mauri e rere nei i te whenua, i te moana, i te tangata hoki. | From the perspective of Whakatohea, Tāne and Tangaroa are not atua who stand apart, but elder and younger relations, kin bound together through the whakapapa of the world. Tāne is the central life force of the great forest, the guardian of trees, birds, and all living things that grow upon Papatūānuku. Tangaroa is the rangatira of the sea, the life source of the tides, the fish, the seaweeds, and all treasures carried by the waves. Although there are traditions that speak of their separation, within mātauranga Māori we understand that there is no true division between them, because the same mauri flows through the land, the sea, and the people. |
| Mō tātou o Whakatohea, he mea nui kia mōhio ko te ora o te whenua e hono tika ana ki te ora o te moana. Ki te kaha te tai, ka ora te takutai; ki te ora te takutai, ka ora anō ngā whenua e whakatupu kai ana mō te tangata. I konei ka kitea te hononga o Tāne rāua ko Tangaroa i roto i tō tātou kaupapa rangahau. Ko ngā polysaccharides o te rimurimu, he taonga nā Tangaroa, ka haria ki te ao o Tāne hei whakapakari i te mate ārai o te hua kiwi ki te PSA. He tauira tēnei o te whakaaro Māori e mea ana, kei roto i ngā taonga o tētahi atua te oranga mō ngā uri o tētahi atu atua. Kāore te | For us as Whakatohea, it is important to understand that the wellbeing of the land is directly connected to the wellbeing of the sea. When the tides are strong, the coastline thrives; when the coastline thrives, the lands that grow food for the people also flourish. Here we can see the relationship between Tāne and Tangaroa within our research kaupapa. The polysaccharides of seaweed, a treasure of Tangaroa, are brought into the realm of Tāne to strengthen the immunity of kiwifruit against PSA. This is an example of the Māori view that within the gifts of one atua lies the wellbeing of the descendants of another. The sea does not |

moana e noho wehe i te wao, kāore hoki te wao e tū motuhake i te moana.

Nō reira, ko tā tēnei rangahau, ehara i te mahi pūtaiao noa iho. He whakahoki mahara kē ki ngā mātauranga tuku iho a ngā tīpuna, arā, kei te noho ngātahi ngā atua katoa i roto i te kotahitanga o te ao. Mā Tangaroa e tuku mai ngā rongoā o te moana, mā Tāne e manaaki ngā tipu me ngā hua o te whenua, ā, mā te tangata e whakakotahi ēnei mātauranga hei oranga mō ngā whakatipuranga e heke mai nei. Koinei pea te tino kōrero a Whakatohea: ko te moana me te whenua, ko Tangaroa me Tāne, ko te pūtaiao me te mātauranga Māori, ehara i te mea e taupatupatu ana, engari e mahi ngātahi ana mō te whakaora, mō te whakatipu, mō te oranga tonutanga o te katoa.

stand apart from the forest, nor does the forest exist independently from the sea.

Therefore, this research is not simply a scientific exercise. It is also a remembering and reaffirming of the ancestral knowledge handed down by our tīpuna, that all atua exist together within the unity of creation. Tangaroa provides the healing resources of the sea, Tāne nurtures the plants and fruits of the land, and people bring these bodies of knowledge together for the wellbeing of future generations. This may be the central message from a Whakatohea perspective: the sea and the land, Tangaroa and Tāne, science and mātauranga Māori, are not in opposition to one another, but work together for healing, growth, and the enduring wellbeing of all.

## Hine-tū-i-te-repo, Tangaroa me Tāne

**Te Reo Māori**

Mai i te tirohanga o te ao Māori, ko te repo te wāhi tūhono i waenganui i te whenua me te wai, arā, ko te wāhi e tūtaki ai ngā mana o Tāne, o Tangaroa, me Hine-tū-i-te-repo. E whakaatu ana ngā rangahau mō ngā repo o Aotearoa he 'in between place' te repo – he takiwā e hono ana i ngā pūnaha whenua me ngā pūnaha wai, ā, he tino wāhi mō te kanorau koiora, te mahinga kai, te rongoā, me te oranga o te tangata. I tēnei horopaki, ka taea te kite i a Hine-tū-i-te-repo hei kaitiaki o taua wāhi whakawhitinga, arā, te wāhi e rere ai te mauri i waenganui i te ao o Tāne me te ao o Tangaroa.

**English**

From a Māori worldview, the wetland is the connecting place between land and water — the place where the domains of Tāne, Tangaroa, and Hine-tū-i-te-repo meet. Research on the wetlands of Aotearoa describes the repo as an "in-between place" — a space linking terrestrial and aquatic systems, and an essential environment for biodiversity, mahinga kai, rongoā, and human wellbeing. In this context, Hine-tū-i-te-repo can be understood as the guardian of that threshold space, where mauri flows between the realm of Tāne and the realm of Tangaroa.

Mai i te tirohanga o Whakatohea, ko te whakamaroke repo me te pana atu i ngā wai māori ki waho i ō rātou ara māori, he takahi i taua hononga tapu. E ai ki ngā puna kōrero hou, kua ngaro neke atu i te 90% o ngā repo o Aotearoa i roto i ngā tau 150 kua pahure, ā, ko tētahi o ngā hua kino ko te hekenga o te mauri, te ngaronga o ngā wāhi mahinga kai, te heke o te kounga wai, me te pakaru o te ara hono mai i

From a Whakatohea perspective, draining wetlands and forcing freshwater away from its natural pathways is a violation of that sacred relationship. Current sources indicate that more than 90% of Aotearoa's wetlands have been lost over the past 150 years, with harmful consequences including the decline of mauri, the loss of mahinga kai, poorer water quality, and the breaking of connections from inland to

uta ki tai. Ka pā tēnei ki a Tangaroa nā te rere o ngā parahanga me ngā waipara ki ngā awa me ngā takutai, ka pā hoki ki a Tāne nā te memeha o ngā tipu, ngā manu, me ngā pūnaha ora o te whenua. Nō reira, ko te repo ehara i te whenua kūare noa iho, engari he manawa ora e pupuri ana i te taurite i waenganui i ēnei atua.

the sea. This affects Tangaroa through the flow of sediment and pollution into rivers and coastal areas, and it affects Tāne through the decline of plants, birds, and the living systems of the land. For this reason, the repo is not wasteland, but a living heart that maintains balance between these atua.

Mō tō whakaaturanga, tērā pea ko te tino kōrero e tika ana kia mau: ko Hine-tū-i-te-repo te here ora i waenganui i a Tāne rāua ko Tangaroa. Ki te ora te repo, ka ora te rere o te wai, ka ora ngā kai o uta me tai, ka ora ngā tipu, ngā ika, me te tangata. Engari ki te whakamaroketia te repo, ka whati te taura i waenganui i ngā atua, ā, ka kitea tonutia ngā pānga kino ki te whenua, ki te moana, me te iwi. I roto i te tirohanga o Whakatohea, ko te whakaora repo he mahi whakaora i te whakapapa, i te mauri, me te whanaungatanga o ngā atua me ngā uri e noho nei i waenganui i a rātou.

The key message to hold onto may be this: Hine-tū-i-te-repo is the living bond between Tāne and Tangaroa. When the wetland is healthy, the flow of water is healthy, food sources from inland and the sea are healthy, and plants, fish, and people all thrive. But when the wetland is drained, the cord between the atua is broken, and the harmful effects are felt across the land, the sea, and the people. From a Whakatohea perspective, restoring wetlands is therefore a way of restoring whakapapa, mauri, and the relationships between the atua and the descendants who live among their domains.

## 9.3. Appendix 3: Attendance Sheet

| **Ingoa (name)** | **Organisation** |
|---|---|
| Maui Hudson | Te Kotahi Research, University of Waikato |
| Danny Paruru | Te Tāwharau o te Whatatōhea |
| Robert Edwards | Whakatōhea |
| Graeme Paki Reisterer | Whakatōhea |
| Damian Papuni | Whakatōhea |
| Natalie Kusabss | Te Kotahi Research, University of Waikato |
| Maria Sapignoli | University of Milan |
| Michela Anderson | University of Waikato |
| Jacinta Arthur | Universidad Catolica del Norde, Chile |
| Paula Black | Whakatōhea |
| Rebekah Crosswell | University of Waikato |
| Tracy Gilmer | Te Tāwharau o te Whatatōhea |
| Janette Hamilton-Pearce | University of Waikato team |
| Geraldine Paretākaka Jefferies | Te Whakatōhea |
| Muriel Ngahiwi Kelly | Te Whakatōhea |
| Anita Kurei-Paruru | Te Tāwharau o te Whatatōhea |
| Agnes Le Port | Whakatōhea |
| Marie Magnusson | University of Waikato |
| Annette Temple | Te Tāwharau o te Whatatōhea |
| Ian MacLeod | Opotiki District Council |
| Dawn Te Hereripine Hill | Te Tāwharau o te Whatatōhea |
| Georgia McLellan | Auckland University of Technology |
| Mere Na | Whakatōhea |
| Anaiti Paoa | Rapanui |
| Sebastian Paoa | Rapanui, Mau Henua |
| Lafquen Passalaqua | Rapanui, Universidad Catolica del Norde |
| Makau Phipps | Whakatōhea |
| Katarina S. | Whakatōhea |
| Yr 12/13 Students x 10 | Opotiki College |
| Others | |
| | |
| | |
| | |

## 9.4 Te Reo Glossary

| Term | Definition* |
|---|---|
| Aotearoa | New Zealand, North Island |
| Atua | Ancestor, God, deity, supernatural being |
| Awa | River, stream, creek, canal, gully |
| Hapū | Kinship group, clan, tribe, sub-tribe; also to be pregnant |
| Haerenga | Journey/travel |
| Hine-ahu-one | The first woman, formed from the earth by Tāne-mahuta at Kura-waka |
| Hine-tūpari-maunga | Ancestress/Atua personifying the mountain ranges and rocks |
| Hine-tū-i-te-repo | Atua and guardian/personification of the swamps and wetlands |
| Hine-tītama | The Dawn Maiden, daughter of Tāne and Hine-ahu-one |
| Hinemoana | Personification of the ocean, female deity of the sea |
| Iwi | Extended kinship group, tribe, nation, people; also bone |
| Kai | Food, meal |
| Kaimoana | Seafood, shellfish |
| Kaitiaki | Trustee, mind, guardian, keeper, custodian |
| Kaitiakitanga | Guardianship, stewardship, trusteeship |
| Karakia | Incantation, ritual chant, prayer |
| Kaupapa Māori | Māori approach, Māori topic, Māori custom |
| Kaumātua | Adult, elder, elderly man or woman |
| Kaupapa | Topic, policy, matter for discussion, plan, purpose |
| Kina | Sea urchin (*Evechinus chloroticus*) |
| Kiwa | Male guardian/Atua of the ocean (Te Moana-nui-a-Kiwa) |
| Koha | Gift, present, offering, donation, contribution |
| Kupu | Word, vocabulary, remark |
| Kura | School, academy, educational course |

| | |
|---|---|
| Kūtai | Mussel, green-lipped mussel (*Perna canaliculus*) |
| Kāhui Māori | Māori advisory group, council, or committee |
| Kōrero | Speech, narrative, story, news, discussion, talk |
| Mahi | Work, occupation, activity, exercise, practice |
| Mahinga kai | Garden, food-gathering place, traditional source of food |
| Mana motuhake | Autonomy, self-determination, independent authority |
| Mana | Prestige, authority, control, power, influence, status |
| Manaaki | To show respect, generosity and care for others |
| Mana Ōrite | Equal status, equal authority, partnership on equal terms |
| Marae | Courtyard—the open area in front of the wharenui; complex of buildings |
| Maramataka | Māori lunar calendar |
| Mataatua | Ancestral waka that carried ancestors to the Bay of Plenty rohe |
| Mauri | Life principle, vital essence, special nature, character |
| Maunga | Mountain, mount |
| Mihi | Greeting, acknowledgment, tribute; to greet, thank |
| Mihi whakatau | Speech of greeting, official welcome |
| Moana | Sea, ocean, large lake |
| Mokomoko (Rangatira) | Significant Chief of Te Whakatōhea, wrongly executed by the crown for the death of missionary Carl Volkner, which would start the culmination of the raupatu process. |
| Mokopuna | Grandchild, grandchildren, descendant |
| Māori | Indigenous person/people of Aotearoa/New Zealand |
| Mātauranga Māori | Māori knowledge—the knowledge, comprehension, or understanding of everything Māori |
| Mātauranga | Knowledge, wisdom, understanding, skill |
| Parawhenuamea | Atua and personification of fresh water, streams, and silt |
| Pātai | Question, query; to ask, enquire |
| Pāua | Abalone (*Haliotis iris*) |

| | |
|---|---|
| Pōwhiri | Welcome ceremony, invitation |
| Pūrākau | Myth, ancient legend, story, traditional narrative |
| Rāhui | Restriction, prohibition, customary reserve set aside |
| Rangahau | Research, investigation; to search out, pursue |
| Rangatahi | Youth, younger generation |
| Rangatira | Chief, noble, leader |
| Rangatiratanga | Chieftainship, right to exercise authority, self-determination |
| Raupatu | Confiscation of land, conquest, seizure |
| Reo | Language, voice, speech |
| Rimurimu | Seaweed, general term for seaweeds and algae |
| Rohe | Boundary, district, region, territory |
| Rongoā | Traditional medicine, remedy, cure, healing |
| Rōpū | Group, party, team, committee |
| Taiao | World, Earth, natural environment |
| Tāne / Tāne-mahuta | Atua of the forests, birds, and living things |
| Tangaroa | Atua of the sea, ocean, and fish |
| Tangata whenua | Local people, indigenous people of the land |
| Taonga | Property, treasure, prized possession, anything highly prized |
| Tapu | Sacred, restricted, set apart, subject to ritual restrictions |
| Tauira | Student, pupil, apprentice; pattern, model |
| Tauutuutu | Reciprocal giving, alternating exchange, turn-taking |
| Te Ao Māori | The Māori world, Māori worldview |
| Te Nohonga Kaitiaki | Framework guidelines for genomic research on taonga species |
| Te Tiriti o Waitangi | The Treaty of Waitangi (signed 1840) |
| Te Whare Wānanga o Waikato | The University of Waikato |
| Tika | Correct, right, just, fair, appropriate |
| Tikanga | Correct procedure, custom, habit, lore, method, manner |

| | |
|---|---|
| Tino rangatiratanga | Self-determination, sovereignty, independence, autonomy |
| Tīpuna / Tūpuna | Ancestors, grandparents |
| Toto | Blood |
| Tuakana-teina | Senior and junior sibling relationship; mentoring model |
| Tuku | To allow, send, release, give, transfer, hand over |
| Tāne | Man, husband, male |
| Tāngata | People, human beings (plural of tangata) |
| Ūkaipō | Mother, origin, real home, source of sustenance |
| Wai | Water, stream, liquid |
| Waiata | Song, chant, hymn |
| Wairua | Spirit, soul |
| Waka | Canoe, vehicle, vessel |
| Whakaaro | Thought, opinion, idea, intention |
| Whakapapa | Genealogy, lineage, ancestry; to lay in layers |
| Whakerimu | Seaweed (specific Whakatōhea/Mataatua dialect variant for rimurimu) |
| Whakatau | Official welcome, greeting |
| Whakawhanaungatanga | Process of establishing relationships, relating well to others |
| Whanaunga | Relative, relation, kin |
| Whānau | Extended family, family group |
| Whenua | Land, country, ground; also placenta |
| Wāhi tapu | Sacred site, sacred place |
| Wānanga | Seminar, meeting, conference, forum, place of higher learning |

* Māori translations sourced from Te Kotahi Research Institute & Te Aka Māori dictionary Moorfield, J.C. (n.d.). Te Aka Māori Dictionary. http://māoridictionary.co.nz

## 9.5 Abbreviations

| Term | Definition / Expansion | Context / Notes |
|---|---|---|
| ABS | Access and Benefit-Sharing [agreements] | Nagoya Protocol & research reciprocity framework |
| AUT | Auckland University of Technology | Partner university in wānanga |
| BC (Labels) | Biocultural Labels | Local Contexts digital rights framework |
| DID | Digital Identifiers | Whakawhanaungatanga & metadata identification |
| DSI | Digital Sequence Information | Genetic data & genomics sovereignty |
| eDNA | Environmental Deoxyribonucleic Acid | FREYJA project & genomic research |
| ITO | Industry Training Organisation | Educational training credits at Ōpōtiki College |
| KM | Knowledge Translation / Knowledge Management | Academic expertise role |
| MBIE | Ministry of Business, Innovation and Employment | Major Crown research funding body |
| NCEA | National Certificate of Educational Achievement | High school qualifications in aquaculture |
| NZ | New Zealand | Geographical / regional context |
| Psa | Pseudomonas syringae pv. actinidiae | Bacterial pathogen affecting kiwifruit vines |
| PSGE | Post-Settlement Governance Entity | Governance status of Te Tāwharau o te Whakatōhea |
| QA/QC | Quality Assurance / Quality Control | Commercial business & supply chain matrix |
| QR (Code) | Quick Response Code | Consumer tracing system (e.g., Mamaku Skin) |
| SAR | Systemic Acquired Resistance | Plant immunity triggered by seaweed extracts |
| TK (Labels) | Traditional Knowledge Labels | Local Contexts cultural IP protection framework |
| TKRI | Te Kotahi Research Institute | Research institute at the University of Waikato |

| | | |
|---|---|---|
| UN | United Nations | Global governance context |
| UNDRIP | United Nations Declaration on the Rights of Indigenous Peoples | International Indigenous rights framework |
| WHO | World Health Organization | Global health body & Rapamycin historical context |

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