Linking land, river and moana: Collaborative research between Te Whakatōhea and Lincoln University within the coastal rohe

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Te Karoro a Tamatea

Te Karoro a Tamatea-Matangi hārō te rangi,

Pākihikura ki uta, Pākihikura ki tai.

Ko Rongo, ka rongo i te kai he pikopiko, he aruhe, he tāwhara kai atua.

E rere te manu i te Raukūmara, ki reira ka kūkū te kererū, kākā te kākā, tūī te tūī, kekā te weka.

E rere rā Waioweka he tuna, he kōkopu, kei runga ko Amokura.

Ka tau taku manu ki te mōmonatanga o te whenua, kai Kiore-Kino, ko te Riu o Kānapanapa, ki Te Houhi he ahuwhenua, he ahu whakamua.

E rere te Ōtāra he matamoe, he īnanga.

Kei runga rā ko Ōparāoa, ko Pāpakanui, kei raro ko Ōtūtaopuku.

Ko te Hikuwai ka kapakapa te ika nui, ka tau ki te ana o Tamaariki ki Te Tirotirohanga a Ngātorohaka ki āna māra.

I whakataukī ai e Tapuikākahu; “Te kai hoki i Waiaua!” Kōeaea, tītīko, pātikitiki.

E rere te Kōtukutuku ki te rae ki Ōpape, he koura, he kina, he toitoi, he tāmure.

Ko ahau ko Tūtāmure ka tutū ngā Tamatea o te Moana ā Toi

Papaki kau ana ki te Koko ki Ōhiwa ko ngā pipi, ko ngā tuangi, ko ngā kuku auē “Ngā Tamāhine a Te Whakatōhea”, “Te umu tao noa a Tairongo. Takahia te kirikiri ko ngā pipi o Waiotahe.

Ka huri taku manu he huringa āhuarangi ki Te Papa ki Amokura, tuia pito ora, he papakāinga.

Ka hoki kē mai te Karoro a Tamatea ki Pākihikura, ki Pākōwhai, ki Ōpōtiki Mai Tawhiti ko te nōhanga tērā o Te Whakatōhea.

"Te toto o te tangata he kai, te oranga o te tangata, he whenua"

Tohe-Ora-Wānanga-Whenua!

E ko, ko, ko ia e ara e! Te manu ka tau!

Tamatea-matangi: The husband of Muriwai.

The seagull of Tamatea-Matangi soars the skies,

The fertile soils are proverbialized here; Pākihikura inland and Pākihikura on the coastline.

Rongo the provider of the edible ferns, and the tāwhara Freycinetia banksii (Pandanaceae) is the fruit of the gods.

The bird flies to the Raukūmara Ranges where the kererū, kākā, tui and weka are numerous.

The Waioweka flows, rich with fish life, above is the pā site of Amokura.

My birds hovers above the pastoral plains at Kiore-Kino, and Riu o Kānapanapa, ki Te Houhi where there is agriculture, and diversification, healthscapes.

Ōtara River is fill with fish types also, up above are the ancient pā sites Ōparāoa, Pāpakanui, Ōtūtaopuku these names are in reference to kai sovereignty.

At the Hikuwai Beach the water is alive with shoals of fish, at Tirohanga is where Tamaariki te kaitiaki lives.

Tirohanga is in reference to the large gardens of Ngātorohaka.

The proverb of Tapuikākahu refers to the bounty of kai at Waiaua, whitebait, tītiko (Amphibola crenata), and flounder.

The Kōtukutuku flows east to Ōpape where there is crayfish, kina, toitoi (shellfish), snapper.

I am the famed Tūtāmure the causes the seas to become boisterous.

Waves crashing at Ōhiwa Harbour, where pipi, cockles and mussels are proverbialized as “The daughters of Te Whakatōhea”. At Ōhiwa the “Cooking fires of Tairongo burn consistently”.

My bird sets flight to Te Papa and back to Amokura here is where landscape architecture and climate change is the focus.

The seagull returns to Pākihikura, to the confluence where the Waioweka and Ōtara rivers meet that encircle Pākōwhai and the capital of Te Whakatōhea, Ōpōtiki Mai Tawhiti.

"While food provides the blood in our veins, our health is drawn from the land"

And a shared vision; Tohe-Ora-Wānanga-Whenua ; Healthscape the new potential!

My bird now ends its flight.

Pākihi: Fertile land (Te Whakatōhea)

Rongo: Rongomātāne, the god of uncultivated kai

Te Papa: The pā site where the former Ōpōtiki Hospital stood. Known as Hospital Hill

Tohe-Ora-Wānanga-Whenua: The concept name for the research collaboration that celebrates Mātauranga Māori & Western Sciences.

A pātere is an ancient genre within the Māori repertoire of song styles. Its function is to take the listener on a metaphoric journey across the land, identifying geographical features of significance that connect deeply to the theme of the song. In this context, the pātere seeks to promote the content of this article, which highlights the research collaboration between Te Whakatōhea iwi, Lincoln University, and Waikato University. Central to this work are the themes of *kai* sovereignty, climate change, and integral health farming.

1 Te Whare Wānaka o Aoraki Lincoln University, Center of Excellence Designing Future Productive Landscapes

2 Te Whare Wananga o Waikato

3 Te Tāwharau o Te Whakatōhea

Our collaborative research story

In the eastern Bay of Plenty, where the land yields to the Pacific and the Waioeka and Ōtara Rivers meet Te Moana a Toi (the Bay of Plenty), a research partnership is flourishing between Te Whakatōhea iwi, Lincoln University Centre of Excellence Designing Future Productive Landscapes (DFPL), and Waikato University. This collaboration has grown over several years into a suite of multidisciplinary research projects focused on agricultural systems design, urban planning, and climate resilience. While distinct in their objectives, these research threads are united by a deeper, unavoidable theme: the interconnection between whenua (land), awa (river), and moana (sea). For Te Whakatōhea, these are not separate domains but a continuous space of identity, sustenance, and economy, an ethos that sits well with DPFL.

The contemporary commitment of Te Whakatōhea to integrated land-sea stewardship has deep roots, grounded in a legacy of entrepreneurial leadership stretching back throughout their history.

One such leader was Hira Te Popo of Ngāti Ira, a hapū of Te Whakatōhea, whose economic success in the mid-19th century was based on the establishment of extensive wheat cultivations on the fertile Waioeka flats near Ōpōtiki and the development of a flour mill[1]. Recognising the importance of controlling supply chains, he and his iwi acquired schooners and cutters to transport produce to the Auckland market. By the 1860s, Te Whakatōhea owned or operated between 19 and 22 ships representing a significant portion of the national fleet at the time[2].

This golden era of agriculture and economic independence was ended by the Crown's confiscation of Te Whakatohea land, commencing in 1865. By the following year, its commercial infrastructure was destroyed and over 58,000 hectares of Whakatōhea land were confiscated – including its most productive soils. The iwi was largely sequestered to the marginal lands of the Ōpape Native Reserve, a coastal area of around 8,200 hectares stretching from Ōpape to Ōmarumutu. Today, travellers may recognise Ōpape as the coastal settlement that marks the end of Te Moana a Toi before the road turns inland toward East Cape. It was here, on this land of both dispossession and resilience, that the collaboration between researchers from Lincoln University and Te Whakatōhea began.

An initial project gathered oral histories from kaumātua who had grown up on the Ōpape Reserve. These interviews revealed a deeply ingrained ethic of kai self-sufficiency, seasonal knowledge, and community-based resource distribution. This foundational research laid the groundwork for a funded project exploring whenua planning for kai security in and around Ōpōtiki township.

Kai Whakakitenga-nui o Te Whakatōhea: Whenua planning for kai security

Supported by both the Ministry of Business, Innovation and Employment through the Te Pūnaha Hihiko: Vision Mātauranga Capability fund, and Toi Moana Bay of Plenty Regional Council Community-Led Adaptation fund, this project was developed based on the strategic vision established in the Te Whakatōhea Iwi Kai Strategy (2022) commissioned in response to COVID-19.

Serving as a call to action to support a shift of whānau, hapū, iwi from a state of food insecurity and dependency to food security and sovereignty, this project is a step in visioning and planning whenua systems for increased assess to local kia for Te Whakatōhea whānau by integrating local kai production and access as critical urban components of Ōpōtiki.

Focused on both short term (1 to 10 years) and longer term (60+ years) spatial planning strategies, the research soon highlighted the projected impact of environmental change due to climate dynamics on the landscapes within the Te Whakatōhea rohe and it became clear that the relationship between whenua, awa, and moana could not be separated when considering kai security.

Figure 1: Whenua planning design wānanga, August 2024 (Photo: Mo+Co).

One senior kaumātua interviewed emphasised long-standing concerns about sedimentation where the Waioeka and Ōtara Rivers enter the Bay of Plenty – a process accelerated by decades of land-based activities upstream. These observations resonated strongly with the current environmental challenges facing the region and formed the focus of a second whenua planning project, outlined below.

Ka Mate Kāinga Tahi Ka Ora Kāinga Rua: From adversity arises the opportunity for change

A case study of iwi-led long-term whenua adaptation planning in response to climate change

The second project applies a Te Whakatōhea perspective to the future urban design of Ōpōtiki township in light of sea level rise and flood risk. It considers how the transition of floodplain lands into productive wetlands might allow for both ecological restoration and continued human habitation.

These projects are not only technical in nature, they seek to re-centre Indigenous knowledge and authority in spatial planning, climate adaptation, and ecological design. For Te Whakatōhea, this is not a return to the past but an investment in the future – one rooted in deep-time relationships with land and sea. In partnership with DFPL, they are actively reimagining the contours of settlement, economy, and environmental care in Te Moana a Toi.

Integral health farming: Te Whakatōhea dairy farm

The other key research project currently underway is located on the Te Whakatōhea Dairy Farm, looking at how, amongst other things, vegetation (such as constructed wetlands, riparian buffers, on-farm patches including rongoā and medical species, and shelterbelts) can be integrated into the dairy platform to improve water quality and modulate peak river flows.

This work is situated in the Waioeka River catchment and therefore impacts downstream sediment loading and water entering the moana. Additionally, one of the

1 Walker, R (2007). *Opotiki-Mai-Tawhiti: Capital of Whakatohea*. Auckland, NZ: Penguin Books.

2 Te Tāwharau o Te Whakatōhea, & The Crown (2023). *Whakatōhea deed of settlement of historical claims*. New Zealand Government.

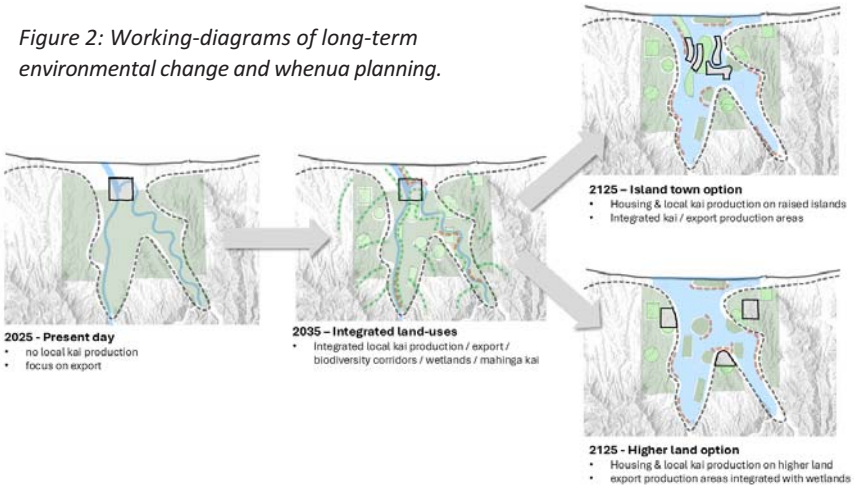

Figure 2: Working-diagrams of long-term environmental change and whenua planning.

goals of phase two of this project seeks, through a new design implementation, to understand impacts on vegetative biodiversity, habitat and the wellbeing of livestock through vegetation and forage diversity.

Figure 3: Kaumātua Julie Lux showing researchers her whānau whenua.

In an age of rising seas and fractured food systems, such place-based collaborations offer lessons far beyond Ōpōtiki. They remind us that resilience lies not in technical fixes alone, but in the integrity of relationships: between people and whenua, awa, moana – and with one another.

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