

# HE POU TUĀRONGO

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INSIGHT INTO AN AO TŪROA APPROACH TO  
AQUATIC CULTIVATION PRACTICE AND  
HAPŪ-BASED ECONOMY WITH LEARNINGS  
FROM OUR TUĀKANA IN HAWAI'I

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# WHAKATAKINGA



## Whakaika te moana

Whakaika Te Moana (Whakaika) is a project funded by the Sustainable Seas National Science Challenge (the Challenge) to investigate traditional aquatic cultivation practice. The Whakaika project aimed to explore and revitalise Indigenous Māori aquatic cultivation practices through a deep understanding of both mātauranga (knowledge) and mōhiotanga (application-based wisdom) Māori. This project also sought to highlight new understandings of hapū-based economies and explore the barriers and opportunities that whānau, hapū and iwi face in reclaiming both knowledge and practice that support those economies.

This infographic report **He Pou Tuārongo** builds on the foundational context described in the **He Pou Kai Āwha** report, and the overview of the practice, barriers and opportunities for whānau hapū and iwi with regard to their aquatic cultivation practices outlined in the **He Poutokomanawa** report.

We worked alongside whānau from Ōeo Pā in South Taranaki and various marae of the Tamaūpoko (middle reaches) region of the Whanganui River to develop this series of reports.

## Purpose and scope

The role of aquatic cultivation in a 'blue economy', can be described as,

“ *Marine activities that generate economic value and contribute positively to ecological, cultural and social well-being.* <sup>[1]</sup> ”

This description largely focuses on activities that make money, but are not wholly aligned with hapū and hapū practitioners sense of value. The purpose of this infographic report is to draw on the foundational Te Ao Tūroa concepts and the practice, opportunity and barrier narratives detailed by whānau, to provide insight into a hapū-defined approach to aquatic cultivation as a part of their blue economy.

The following sections of the report will discuss briefly the broad context that sits around a hapū economy (Te Ao Tūroa framework components) and will provide background for how we have positioned this work within a blue economy context. It will then describe what aquatic cultivation practice looks like when framed within a Māori world view, how it is placed to support a hapū-defined blue economy, and how it differs from the current dominant perspective.

[1] As defined by the Sustainable Seas National Science Challenge

# HE AO MĀORI, HE AO TŪROA

## Positioning our definitions

The work completed in Whakaika is firmly rooted in, and privileges a Māori worldview. It draws heavily on mātauranga (knowledge), mōhiotanga (practice based wisdom) and experiences of the research team, the whānau from Ngā Tāngata Tiaki o Whanganui, Ōeo Pā, and is complimented by learnings from our tuākana in Hawai'i. The overarching aim to re-establish a flourishing Ao Tūroa, is a move closer towards the world enjoyed by our tūpuna and described in the many stories, songs, landscapes, names and art-forms they left behind. It was the aim of Whakaika to create space and begin to shape what the core principles and definitions of aquatic cultivation and hapū-defined economy might be. However, we do not claim this to be *the only* way it should be described. We have prioritised wānanga as a method to develop these descriptions and re-tell our narratives from a hapū perspective and it is in this light that we position our report.

## A framework for life in balance

The 'Te Ao Tūroa' framework has three key pou (pillars), the **wao atua**, the **wao tūpuna**, and the **wao tāngata**. The wao atua pou emphasises that human life is entirely dependent on the natural expression of our atua, and therefore highlights the significance of the source points of energy in the natural world. The wao tūpuna pou delves into the varied and vast wisdoms and knowledge that were left to us by our ancestors, while the wao tāngata pou brings forward the importance of the implementation and practice of that knowledge inclusive of kawa, tikanga and ritenga (see He Pou Kai Āwha report for more detail).

In order for Te Ao Tūroa (the long-standing natural world) to exist, and for us to co-exist as a part of this living system, these three pou must be functioning together. Our atua and their many manifestations are the source points for mauri, and mauri is required for us to live, linking our very survival to the balance required between our atua and us (tāngata). Fortunately, the blueprint provided by our tūpuna is encoded in all aspects of our culture, and whakapapa can help us to trace lines of mauri, connection and interactions vital to finding that balance.

WAO  
ATUA

WAO  
TŪPUNA

WAO  
TĀNGATA

“Me kaha tātou ki te hāpai i ngā wao katoa, kia tūroa ai te tātou ao Māori.”

# HE TUĀKANA, HE TEINA



## Tuākana wisdom

Part of the Pou Tuārongo was making connection with our tuākana from Hawai'i, as both senior relatives and living examples of a continuous and unbroken line of practitioners of Indigenous aquatic cultivation practice. Utilising online wānanga, we sought to understand what some of their practices of fish cultivation involve and how it contributes to the economy of their communities.


## Loko i'a as an aquaculture technique

Loko i'a are traditional Hawaiian aquatic cultivation ponds (fishponds). There are many types of loko i'a, that describe different functions, forms of construction, and salinities. The aim of loko i'a is to amplify the natural conditions of wao atua to support in creating abundance that overflows for sustained harvest. In wānanga with two active practitioners who have both worked in the restoration of loko i'a, they described how freshwater run-off from the various sources in the catchment (e.g. Hawaiian agricultural wetlands, natural springs, and streams), brings nutrients that stimulate a bloom of food (both algae and plankton), creating 'wai momona' (fertile waters). This bloom amplifies the carrying capacity of that space as a fish nursery and consequently the entire fish population of nearshore coastal areas. Hawaiian ancestors observed and masterfully engineered their aquatic cultivation practices to enclose and closely manage their interactions with these spaces. This practice supported their communities with food, resources and 'ike (wisdom) and highlights their Indigenous ingenuity. Loko i'a principles aligned closely with the kinds of practices we experienced in Whakaika.

## Key take away from our wānanga

There were many lessons in exploring the practice of loko i'a, foremost being that as Indigenous practitioners, our ancestors were not focussed on cultivating 'fish' alone, but instead cultivating productive and abundant wao atua space through time. This highlights 'mauri' as the primary 'currency' of our natural resource base and hapū economy, where efforts to protect and enhance mauri are the main 'work opportunity'. This lesson was reinforced in our wānanga with whānau in both Whanganui and Taranaki, where the interconnectedness of all things in the Te Ao Tūroa framework converged to inform our description of aquatic cultivation and hapū economy.

“In an indigenous economy you spend your effort to create mauri to grow fish, not spend money to buy fish”



*The quantity of fish does not determine the success of our loko i'a, but it's what we do in the space that matters. You have to realize that you are part of an ahupua'a, (catchment) and a wider intergenerational system.*

*- K. Pi'iohia, 2023*

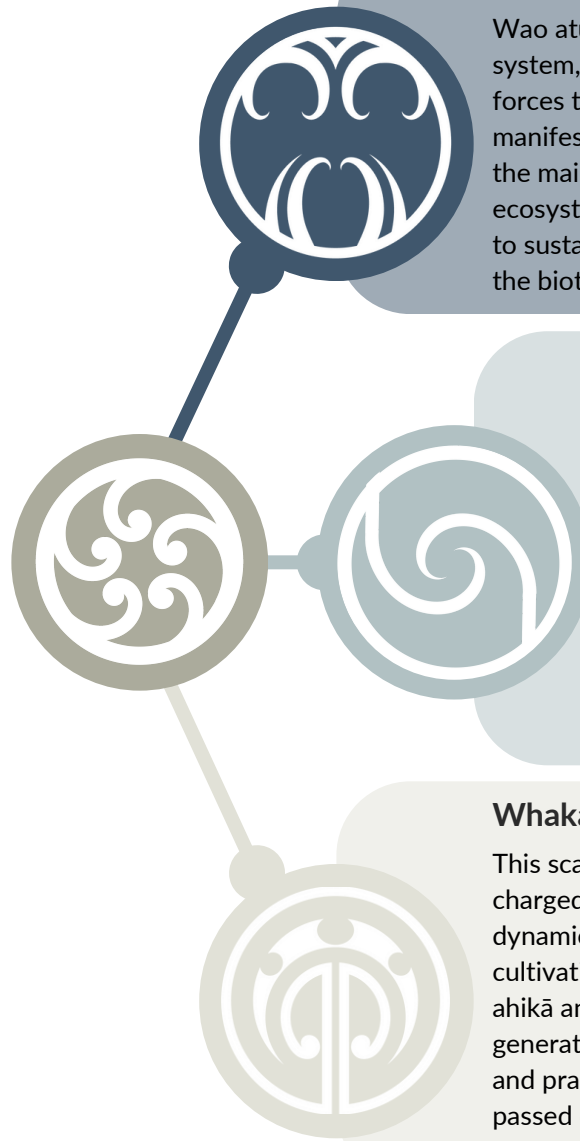
He'eia loko i'a, O'ahu

# KO TE WHAKAPAPA TE TAUIRA

## Whakapapa analysis

With the understanding that from a Te Ao Tūroa point of view, Māori aquatic cultivation is not just about cultivating fish, but cultivating source points or wao atua and therefore mauri, we begin to unpack what our tūpuna understood when they were developing Māori aquatic cultivation practice. We can also begin to align the understanding of whakapapa as a core component of the management system based on interrelationships and genealogical connections between all things.

We know that whakapapa helps to contextualise the relationship between humans, natural resources and the environment, and to trace the lines of connection back to wao atua. Therefore whakapapa can help us to understand and define the requirements and elements that define our aquatic cultivation practice. This diagram demonstrates some of those we identified in our research, at three different scales of whakapapa - atua, taonga and tāngata tiaki.



## Whakapapa of the wao atua

Wao atua holds the source points of life, and according to our belief system, represents the realm of the divine and houses the elemental forces that shape our environment. These elements of atua are manifested in soil, water, air, sun, flora and fauna, all contributing to the maintenance of ecological balance, trophic cascades and ecosystem health. This scale of whakapapa tells us what is required to sustain ecosystems, the symbiotic relationships between both the biotic and abiotic parts of our environment.

## Whakapapa of the taonga

This scale of whakapapa looks to taonga species, such as tuna (eel), piharau (lamprey), or īnanga (whitebait), and focuses on their evolution and life cycle. This lineage reveals knowledge about the species' inherent resilience, adaptations, behaviours, and characteristics. It further encompasses understanding of their habitats and life cycles, providing insights into their inter and intra-species relationships. These insights provide a blueprint for the preservation and nurturing of these species, underlining their role within the wider ecosystem.

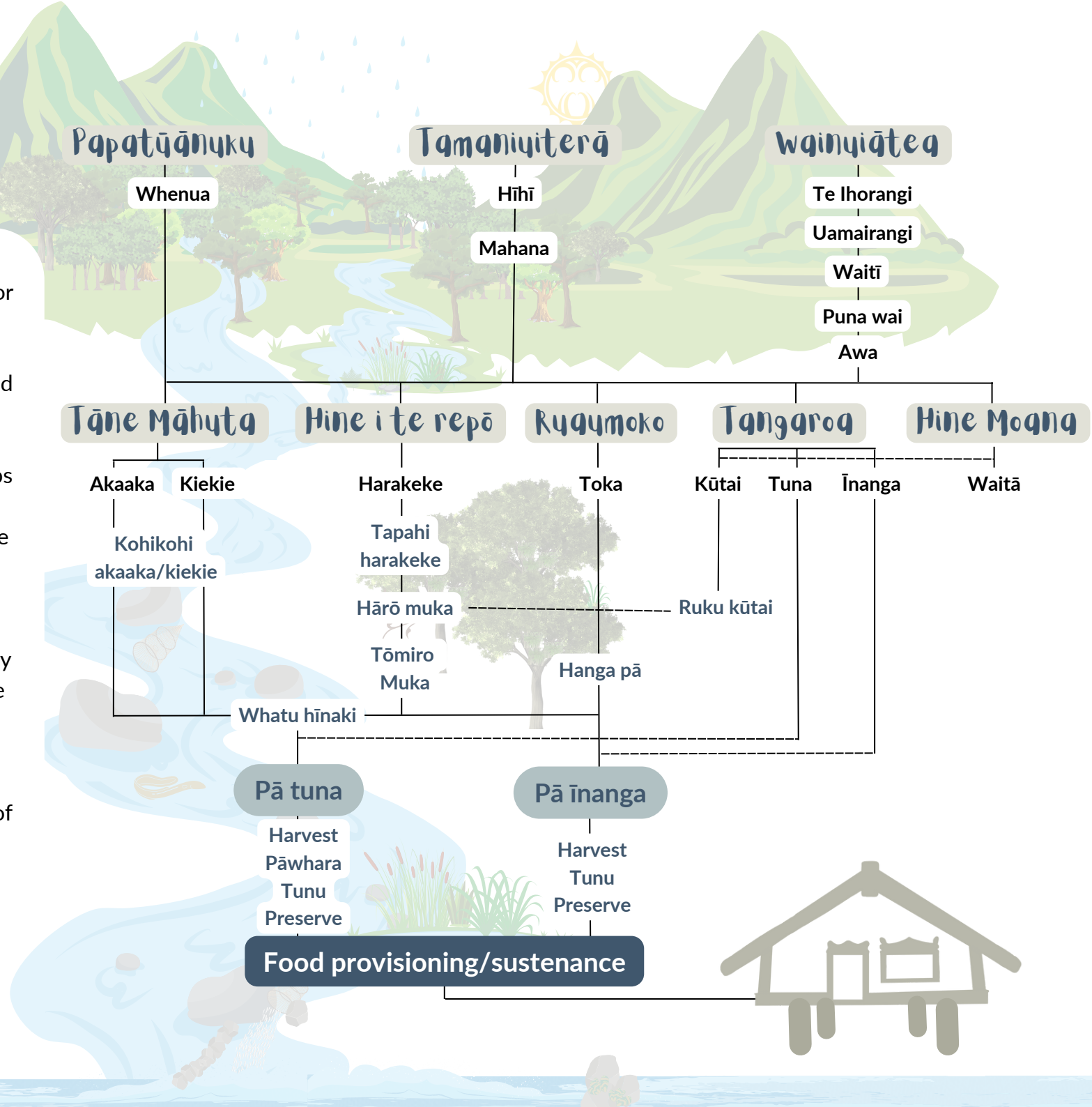
## Whakapapa of the tāngata tiaki

This scale of whakapapa speaks to the genealogy of the people charged with the legacy and responsibility of maintaining the dynamic relationships between the atua, taonga and practice of cultivating and harvesting kai (nourishment). This is referred to as ahikā and considered a sacred duty handed down through generations. It's their responsibility to ensure that the knowledge and practices of sustainable use and respect for these resources are passed on to future generations. This unbroken line of succession is crucial for the sustainability of these practices.

“ He whakapapa tō ngā mea katoa, nānā i whakamārama kei te tika, kei te hē rānei te atua, te taonga, me te tāngata ”

The commonality of all three of these scales is their innate need for intergenerational and perpetual progression. The wao atua, the taonga, and tāngata tiaki are bound together in a continuum that upholds and strives for the ability to nourish and feed. This also helps us to understand the tapu (sanctity) of certain places because of their ability to generate life.

This understanding informs all other tikanga, like rāhui (temporary restrictions) to restore the balance and mauri of all three scales of whakapapa. It is in understanding the layers of whakapapa that we begin to understand the essence of Māori aquatic cultivation.



# NGĀ MAHINGA A NGĀ TŪPUNA

## Aquaculture

The Food and Agriculture Organisation (FAO) of the United Nations describes aquaculture as “farming of aquatic organisms” where “farming implies some form of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators” and “also implies individual or corporate ownership of the stock being cultivated.” Using the phrase 'Māori aquatic cultivation practice' was intentional within Whakaika to create distance from the term 'aquaculture', its conventional descriptions and to provide space for our whānau to rewrite their unique narrative.

## Māori aquatic cultivation practice

Although there are Māori organisations that are engaged in conventional aquaculture, Whakaika has focused on understanding what an authentic Māori aquatic cultivation practice is, separate from the dominant and more widely accepted form of aquaculture described by the FAO. While 'intervention to enhance production' was a concept fully understood and utilised by our tūpuna, the focus on 'farming of organisms' and 'ownership of stock' go directly against the Ao Tūroa approach described in this report. The right to harvest within Te Ao Tūroa, as distinct from the idea of ownership, is only accessed through exercising whakapapa responsibilities and obligations to cultivate as tāngata tiaki. Below we outline some of the core principles of Māori aquatic cultivation practice that were developed within the Whakaika project alongside the whānau from Ōeo Pā, Ngā Tāngata Tiaki o Whanganui and Hawai'i [2].

## Principles of Māori aquatic cultivation practice

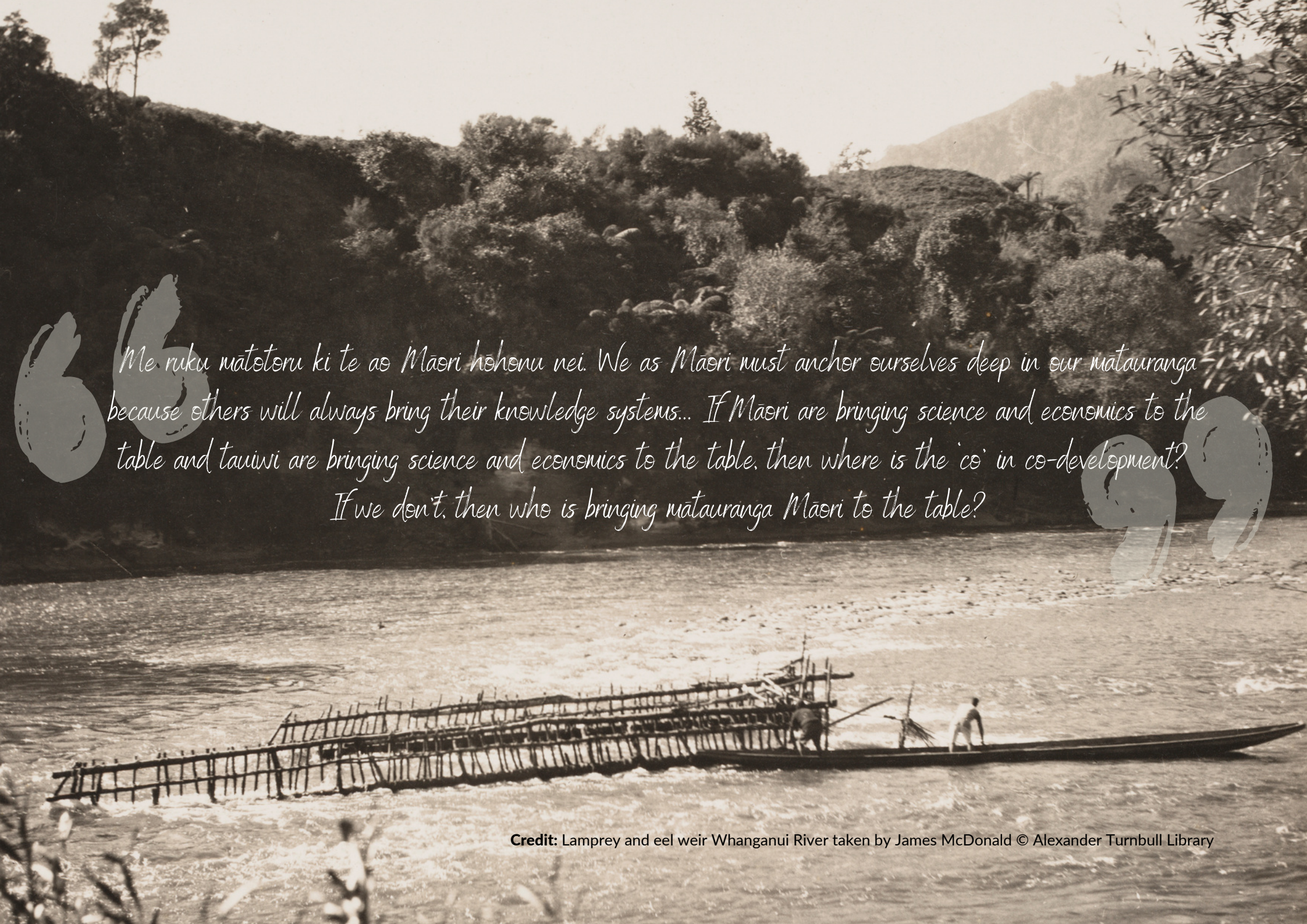
### Māori aquatic cultivation practices

- Are localised, place-based cultivation practices grounded in a Māori ecological worldview, grounded in Te Ao Tūroa.
- Maintain a strong focus on the integrity of the entire hydrological and ecological system, rather than isolating or focussing efforts solely on resource production.
- Never advocate for this growth of a resource at the expense of its wider ecosystem.
- Integrate mauri, whakapapa relationships, maramataka and natural ecological rhythms, and the dynamics of closed circular systems that encompass entire catchments.
- Respect and enhance the mauri required for optimal, healthy, and resilient wao atua that generates an abundance of resources for harvest or use.



[2] These principles and definitions are grounded in the context of wānanga with our whānau and are not for use outside of this context.



A black and white photograph of a river with a weir and a boat. The weir is a long, narrow structure made of wooden posts and beams, extending across the river. A person is standing on the boat, which is positioned near the weir. The background shows a forested hillside. The text is overlaid on the image, enclosed in large, stylized quotation marks.

*Me ruku mātotoru ki te ao Māori hōhōnu nei. We as Māori must anchor ourselves deep in our mātauranga because others will always bring their knowledge systems... If Māori are bringing science and economics to the table and tauriwi are bringing science and economics to the table, then where is the 'co' in co-development? If we don't, then who is bringing mātauranga Māori to the table?*

**Credit:** Lamprey and eel weir Whanganui River taken by James McDonald © Alexander Turnbull Library

# HE ŌHANGA HAPŪ



## Hapū economy

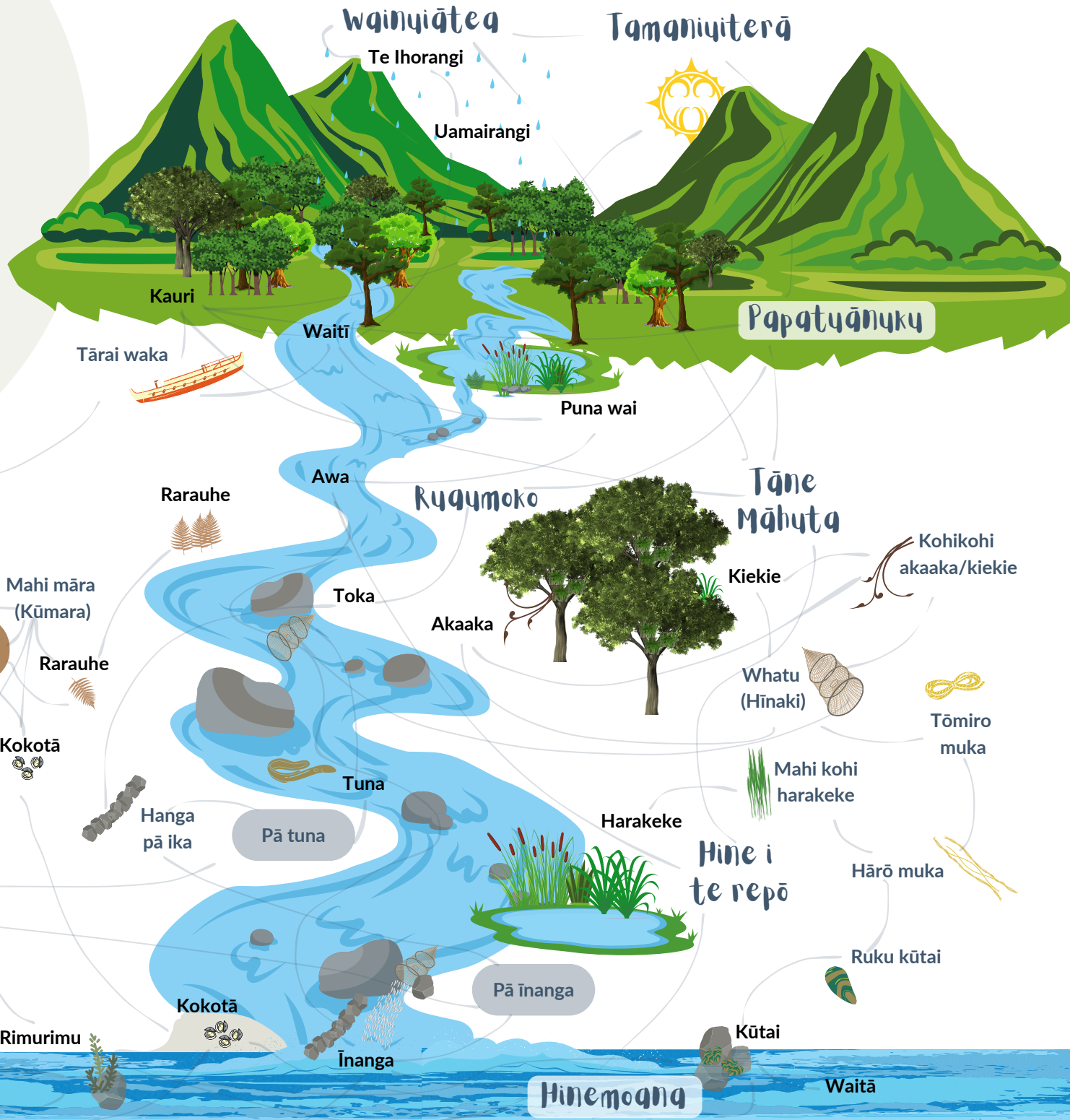
Our work within Whakaika has provided space to better understand some Māori aquatic cultivation practices and sought to highlight new understandings of these within hapū-based economies. A hapū definition of 'economy', as seen through the lens of Te Ao Tūroa, re-conceptualises the framework of the dominant narrative centred around money exchange. It positions mauri as the vital energy and primary resource and highlights the importance of water as the medium through which this energy is exchanged. Viewed in this light, a hapū economy is more than an activity "*that generates economic value and contributes positively to ecological, cultural and social well-being*". In a hapū economy, prioritising the health and vitality of the ecosystem - and therefore the abundance of mauri - ensures intergenerational viability at all scales of whakapapa, that goes hand-in-hand with an intergenerational, regenerative and resilient environment.

## Hapū blue economy

A hapū based **blue** economy, similarly emphasises the regenerative use and preservation of aquatic spaces and resources. It works on the premise that when mauri is abundant, there is an over-flow that can provide for wao tangata activities like utu piharau, whakaparu and pā īnanga. It also opens the way for 'economic value' to mean what it needs to for the whānau, hapū and iwi that it aims to serve. Those benefits may include resources (e.g. īnanga, piharau, clean uninterrupted freshwater) that support a multitude of cultural practices, but also language development and the continuation of kawa, tikanga and ritenga described in wao tūpuna. These values do not necessitate the accumulation of monetary wealth to determine success. As demonstrated in this diagram (right) the aquatic cultivation practices are a significant but small part of a huge network of interrelationships and connections in Te Ao Tūroa which is considered in a hapū blue economy.



Hapū economies are circular and closed loop systems. Circular economy must include circular ecology.



# NGĀ MĀTĀPONO O TE ŌHANGA

Below we outline some of the core principles of a hapū economy developed through the exploration of Māori aquatic cultivation practices alongside the whānau from Ōeo Pā, Ngā Tāngata Tiaki o Whanganui and Hawai'i [1].

## Principles of a hapū blue economy

### Recognises mauri as an invaluable 'energy capital'

Wao tūpuna tells us mauri is the most potent, viable, and usable form of energy, gifted to us by wao atua. The healthier the ecosystem, the more potent the mauri it generates, fostering a resilient and regenerative ecosystem.

### Understanding water as the currency of mauri exchange

Water is vital for all life forms, and serves as the currency and conduit for the exchange and flow of mauri. Water facilitates the movement of mauri ora, or life-giving capacity, through whakapapa lines and promotes a thriving network of interdependence and mutual sustenance.

### Interventions to enhance mauri

Wao tāngata intervention employs practice that enhances mauri and promotes the growth of food and other natural resources. The cultivation practices are guided by the health and availability of mauri, promoting sustainable and mindful harvesting that does not deplete this vital energy source.

### Provides benefit to hapū

The abundant resources grown and nurtured through ensuring the flow of mauri serve the needs of whānau, hapū and iwi. They form the basis for practice that can generate not only resources, such as food provisions and other natural materials that can be utilised, but can also develop language, maintain culture and can create opportunities for economic prosperity. The benefits generated must first be self-sustaining without creating an imbalance in the local Ao Tūroa and must be prioritised for local whānau, hapū and iwi, before considering being shared outside of the community they are generated in.

### Enables intergenerational viability

Intergenerational viability through all scales of whakapapa (wao atua, taonga species and tāngata tiaki) is integral to ensuring regenerative outcomes. The unique characteristic of this economy is its emphasis on preserving and enhancing the mauri first, and ensuring the ecosystem continues to thrive and provide for future generations.

[1] These principles and definitions are grounded in the context of wānanga with our whānau and are not for use outside of this context.



Credit: Waingongoro River taken by Unknown photographer © Alexander Turnbull Library

# WHAKAIKA TE MOANA

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**Report:**

*He Pou Tuārongo: Insight into an Ao Tūroa approach to aquatic cultivation practice and hapū-based economy with learnings from our tuākana in Hawai'i*

**Prepared by the Whakaika Research Collective:**

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