

Research Proposal

PROJECT TITLE	WHAKAIKA TE MOANA
“SHORT” TITLE	
THEME / PROGRAMME	Blue Economy Innovation Fund

PROJECT KEY RESEARCHERS			
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Researcher	Kelly Ratana	NIWA	
Researcher	Peter Van Kampen	Independent	

PROJECT PARTNERS		
Name	Organisation / company / agency / Iwi / Māori	Role in project
Rangiroa Rongonui	Ngaruahinerangi Hapū	Iwi & Hapū Mātauranga co-ordinator (South Taranaki)
Gerard Albert	Nga Tangata Tiaki o Whanganui	Iwi & Hapū Mātauranga co-ordinator (Whanganui)

ABSTRACT/SUMMARY

The footprint and innovation of indigenous cultures utilising aquaculture throughout the Pacific Ocean and New Zealand are evident. These forms of ‘*traditional aquatic cultivation practices*’ (TACP) generated a wealth in resource, intergenerational knowledge, and associated te reo, tikanga and kawa. Today, such practices remain throughout the Pacific, in places such as Hawaii (e.g. fishponds) and Canada (e.g. clam gardens). These examples continue to demonstrate how to enhance localised indigenous economies, through active cultural practice.

This proposal endeavours to retrieve these TACP from history and draw on the knowledge and practices held by our hapū partners, and our indigenous relatives to re-explore a current hapū based blue economy in Aotearoa. Our initial engagement with indigenous practitioners of Whanganui and South Taranaki has identified practices such as Pā-auroa and Māra-mātaimai, that we will explore throughout the project, utilising a series of kaupapa Māori-led wānanga.

A wānanga series will be guided by three core research pou or streams of work. These three pou are:

1. Te Pou-Kai-Āwha - using an investigative framework to establish a ‘*Pūna Mātauranga*’ or body of mātauranga Māori for TACP.
2. Te Pou-Toko-Manawa – using interviews with hapū partners to document their interactions with key legislation, policy and planning mechanisms.
3. Te Pou-Tu-a-Rongo - using a ‘*Tuakana - Teina*’ approach to develop practical examples from both hapū based aquaculture and other indigenous cultures throughout the Pacific.

PROBLEM DEFINITION/OPPORTUNITY

Tangata whenua (hapū Māori) have been alienated from their TACP. Consequentially, their rights to exercise Manamotuhake and Kaitiakitanga over their rohe moana have been eroded. Their inherent customary rights as practitioners are undervalued, knowledge not recognised and their contribution to aquaculture not yet explored. Thus, there are no examples of aquaculture operating from a Māori paradigm. This legacy has left Māori TACP and potential hapū-based blue economies dormant. This project explores practices (such as Pā-auroa and Māra mātaimai) which are unique expressions of traditional Māori aquaculture practices.

At present, the involvement of whānau, hapū and iwi in blue economies is limited. Māori maintain a presence in commercial entities, as investors or as owners of space and/or quota. While a money-based economy may enable flow-on benefits, the current intensively farmed, single species focussed aquaculture-based economy is not the preferred option for many of our coastal hapū communities. Additionally, the multi-faceted and complex regulatory context surrounding the blue economy (e.g. Resource Management Act, Conservation Act, Maori Commercial Aquaculture Settlement Act etc...) may hamper the ability of hapū to navigate towards the development of their own blue economy as defined by them.

Given this current context, we do not know what a localised hapū-based blue economy looks like in Te Ao Tūroa (the long standing world), what it entails in practice or the value (as defined by the communities it will serve) it could bring to support localised hapū-based economies. There-in lies the opportunity of the work proposed by this project. We will explore the concept of a hapū-defined blue economy, examining its facets in a modern context while honouring both Te Tiriti (the Treaty of Waitangi) partnership and mātauranga tuku iho (ancestral ways of knowing, doing and being). Not only is this an important step in the current global context as we are isolated from what has become a normal definition of economy (focussed on imports and exports), but as we as a country turn inwards to “*Support Local*”.

Hapū and iwi have long term approaches to their strategic intent with a focus on healthy and sustainable systems. This project seeks to learn from the remaining knowledge and practices hapū hold, revisit our connections to other indigenous cultures, and to ‘learn through doing’ in order to better understand how Māori TACP remain relevant. Ultimately, we aim to begin to demonstrate an alternative to the current status quo blue economy, and to provide a complementary Te Ao Māori approach to building language, culture, food and connection, as a basis for a distinctive contribution to an Aotearoa blue economy. This project is unique as it seeks to reclaim and breathe life into traditional Māori aquatic cultivation practices through cross-cultural wānanga both amongst ourselves and with our indigenous relations across the Pacific.

OUTPUT/SOLUTION

The purpose of this project is not to produce a commercial product. It is to grow our understanding of what hapū-based aquaculture could look like, through the reclamation of te reo, cultural practice, knowledge, tikanga and kawa.

Outcomes of this project will be developed into a series of infographic reports aimed at sharing key transferable learnings with other coastal hapū communities around Aotearoa. These outputs, alongside the practical outcomes sought, will shift our understanding significantly towards growing an authentically Māori aquaculture sector, driven by the unique needs, context and aspiration of hapū. The outputs may include (where appropriate for sharing) the structure and function, te reo, practices, tikanga and kawa associated with TACP currently in use across the Pacific. It will create a demonstration of functional hapū-based aquaculture as a place of learning and teaching for tamariki, rangatahi and other hapū communities.

We will also document key learnings through co-developed communication mechanisms that best describe the shared learnings from this research. This will help elucidate what a hapū-based blue economy and indigenous approach to aquaculture looks like in today’s context.

The key end-users for this project will be our hapū partners with uptake through co-development and iterative co-delivery throughout the project. Our outputs and outcomes will be tailored to the needs of each hapū and what they seek from the research. This will also contribute publicly available resources that aim to inspire and encourage other coastal communities, while not pre-defining what their hapū-based blue economy will look like.

PROPOSED RESEARCH/APPROACH

Tūhonohono

The research team have and will continue to apply a ‘3 points’ engagement strategy by connecting at three key levels, inclusive of iwi, hapū and whānau practitioners. This engagement approach will enable our hapū partners from Ngā Tangata Tiaki o Whanganui, and Ngāruahine (South Taranaki), to co-develop the research. It will enable trusted access to knowledge of pā-auroa and māra-mātaimai that will guide this research. Our approach to hapū engagement will be defined through clear and targeted communications, iterative research process and opportunities for our partners to both guide and lead on aspects of the work.

Note that engagement with the proposed hapū partners began one year prior to proposal submission. This alongside the strong whakapapa and whānau bonds of the research team also provide an obligation to conduct meaningful and ongoing

connection. Our engagement to date has informed the case studies and research partnerships that will investigate pā-auroa and māra-mātaimai as Māori TACP mechanisms alongside our hapū partners. It is imperative to note that these hapū were selected because of their desire to participate in this research and the understanding that their kaitiaki and knowledge holders are significantly versed in depth of Te Ao Māori, its language and disciplines that have retained cultural practice.

Te Kaupapa

“Mā te mōhio, ka mātau, ka mārama”

Through active practice comes understanding and enlightened wisdom.

This whakataukī is associated to the practice of traditional wānanga and is part of the broader whare-wānanga system that houses the knowledge and practices of mātauranga tuku iho. It speaks to how taura (learners) learn, build understanding, and grow wisdom collectively. This project aims to implement this philosophy, and ultimately retrieve and re-initiate Māori TACP through a “practice-first” approach and applied science research methodology.

For our research team, wānanga as a methodology to build mātauranga includes **aronga** (natural observation), **akoranga** (intellectual understanding) and **mōhiotanga** (practical processes). This multi-dimensional approach to research will define the cultural parameters for this project, enabling the exploration of the unique context of each hapū partnership (including their experiences, practices, recorded oral histories), and a foundation of place-based knowledge and practice.

There are three research aims or pou (pillars) of this work:

1. **Te Pou-Kai-Āwha** will use key meaningful engagements and wānanga to record the *aronga* of specific hapū TACP and establish a ‘*Pūna Mātauranga*’ or corpus of mātauranga Māori to draw from.
2. **Te Pou-Toko-Manawa** will examine the *akoranga* around legislative restrictions and limitations for hapū, establish a clear consenting pathway to initiate hapū based TACP.
3. **Te Pou-Tu-a-Rongo** will use a ‘*Tuakana - Teina*’ approach to develop practical examples of hapū (Māori) based restorative aquaculture, through observing the *mōhiotanga* of indigenous practitioners of the Pacific.

We will use wānanga as the key mechanism for this research, recognising it as a methodology employed by hapū to ensure intergenerational knowledge generation and transfer, and critical to *how* we aim to develop the puna-mātauranga (corpus knowledge base) of this project.

Te Pou-Kai-Āwhā: He puna mātauranga

In this pou, we will use two specific types of wānanga as the key methodology; the first are focussed on mōhiotanga, and the second on rūnanga.

Mōhiotanga

These wānanga will examine re-establishing practical exemplars of Pā-Auroa and Mara Mātaimai. The opportunity to trial the construction and use of these aquaculture approaches will initiate transdisciplinary understandings (e.g. mātauranga, restorative aquaculture, ecosystems-based management) and practical learning led by the hapū partners. This kind of investigation will help us to understand the structural and functional efficacy of these approaches. This type of wānanga aims to re-centre hapū customary practitioners into a developmental space that re-establishes these cultural tools and support the practice of kaitiakitanga (processes of enhancement) and tino-rangatiratanga (autonomy) in their rohe (tribal bounds). These wānanga aim to generate the following hapū specific outputs:

1. Compilation of mātauranga relating to material and construction of pā-auroa and māra-mātaimai
2. Mātauranga tuku iho based schematic of pā-auroa and māra-mātaimai
3. Kawa, tikanga and ritenga of the hapū that manage the kaitiakitanga associated with the wider pā-auroa and māra-mātaimai context

Rūnanga:

These wānanga will work alongside each hapū case study to unpack the original mātauranga of pā-auroa and māra-mātaimai, and elucidate these taonga, their construction and application. This process will holistically understand the social ecosystem around hapū communities that focus on the retention and practice of taonga tuku iho (intergenerational treasures). This approach is consistent with Royal (2012)¹ explaining that ‘mātauranga Māori’ refers not only to traditional knowledge, but it also encompasses distinctive circumstances and characteristics of Māori communities (such as their experiences, practices, geography, assets). This wānanga process will also create space for hapū to generate contemporary new mātauranga within their current context, without compromising tikanga and kawa. It will enable their valuable practical and historic experiences to give context and direction to building new mātauranga related aquaculture.

Our activities will also draw on other knowledge sources including restorative aquaculture sciences and aspects such as settlement dynamics, ecological services, bioengineering and polyculture to strengthen and revitalise productive ecosystems. These wānanga aim to generate the following hapū and potentially broader outputs:

1. Compilation of mātauranga, reo, tikanga, kawa, and ritenga relating to pā-auroa and māra-mātaimai
2. An understanding of the functions and structure of these pā-auroa and māra-mātaimai

Ohia-manomano

The Manaia framework will be utilised in wānanga to bring together both the intellectual (knowledge base) and practical (application of) elements of pā-auroa and māra-mātaimai. This framework will help to combine the learnings into the puna mātauranga, and explore mātauranga, as well as other knowledge systems. We will ensure that the research and outcomes remain relevant and accessible to our hapū partners first and foremost.

Pou-Toko-Manawa: He Puna Akoranga

Understanding how traditional Māori cultivation practices interact with modern policy is imperative to finding an enabling pathway for hapū-driven aquaculture. This work builds on wānanga from the Pou-Āwha phase. Our approach to investigating Pou-toko-manawa will be two pronged and will utilise interviews with our hapū partners to document their narratives in relation to key legislation, policy and plans. Secondly, we will look at the mechanisms in legislation (e.g. the Fisheries Act), policy and regional planning in a review that identifies the interactions between hapū experience and the current regulatory landscape. Particular attention will be given to investigating objectives around Marae-based aquaculture space in Regional Plans.

Interviews

We will conduct a series of interviews with hapū practitioners to gain insights and document their experiences of how their Māori TACP interact with relevant legislative policy and planning instruments at various levels. We will co-develop an interview methodology which will draw out perceived barriers, identify gaps in the regulatory landscape, and potential opportunities for hapū to innovate within an Aotearoa blue economy.

Policy Review

The knowledge learnt from the interviews will inform an analysis of how relevant legislation, policy and planning instruments will likely interact with hapū-driven aquaculture. This review will examine the development pathways that are currently available to hapū TACP, like pā-auroa and māra-mātaimai, and if the current framework is enabling and usable, or not.

Pou-Tu-ā-Rongo: He Puna Mōhiotanga

Drawing inspiration and guidance from our tuākana (senior relatives) and the living knowledge that resides with indigenous peoples throughout the Pacific. We will strengthen an international indigenous practitioners’ network (Aotearoa, Hawai’i, Canada where possible), and draw on the collective wisdom to innovate new aquaculture focussed mātauranga alongside our hapū partners. To do this we will build on existing relationships between key researcher Kelly Ratana and traditional marine cultivation practitioners in Hawai’i. Ratana lived and worked in Hawai’i for two years building strong relationships with Kanaka Māoli who continue to rebuild and maintain ancient fish-pond aquaculture

systems. We will connect with these localised fishpond communities whom use ancestral knowledge, historical documentation and 'learning through doing' in a modern Hawai'i context, to continue these aquaculture practices for over 800 years. It is through these relationships and extended networks that we will enable cross-cultural innovation exchange.

Wānanga Tuakana-Teina

A cross-cultural wānanga will establish a multi-dimensional hononga, including hapū to hapū, and, hapū to other current indigenous aquaculture practitioners from the wider Pacific, such as Paepae o He'eia fishpond in Hawai'i. This is based on the wānanga principal of tuākana, tēina (learning from our senior relatives). This will be completed through online wānanga. We recognise the limitations of the current global context (e.g. COVID-19) and will create space for online innovation wānanga to begin to engage with and learn from other indigenous practitioners. We will continue to seek funding (e.g. Royal Society Seed funding) to allow for these connections and knowledge sharing to be reinforced with practical hands-on learning opportunities and to support an exchange of practitioners between Hawai'i and Aotearoa. This will enable another level of practical and meaningful two-way knowledge exchange, with a longer-term aim to provide the opportunity for hapū practitioners to attend the annual fish-pond practitioners conference, 'Hui Malama Loko l'a' – held in Hawaii.

We envisage that the exchange of knowledge, ideas as well as the opportunity to apply traditional wisdom through these connections (online and if/when possible in person) will create innovative approaches to hapū-based aquaculture. The contribution of indigenous practitioners to the puna mātauranga will expose local hapū practitioners to other exemplars of indigenous aquaculture such as 'clam gardens' and 'fish-ponds'. Additionally, this knowledge and practice exchange will provide opportunity for our research collective to cross pollinate mātauranga tuku iho (intergenerational knowledge) to generate a creative and learning dialog between the hapū practitioners and other experienced pacific practitioners.

We will weave together traditional & revitalised practices, knowledge held by hapū and indigenous practitioners and the potential of modern materials and understandings to support our innovative approach to hapū-driven aquaculture. This connection will provide our hapū partners with the following contributions:

1. An example of current Pacific-wide aquaculture (e.g. fishponds and clam gardens) and what it entails, including, indigenous lore's, practices, rituals, customs and protocols that are applied to manage the fishponds and clam gardens

He Kete āhuru kōrero - Knowledge and Practice protection

As a research team, we acknowledge the need to be cognisant of how we work with whānau, hapū and iwi to safeguard the knowledge and practice shared into the project space. We will work to document how we handle both engagement and mātauranga with the hapū research partners. This may include for example:

1. Intellectual property declaration specific to mātauranga from the respective iwi/hapū/whanau/ individual or a mātauranga terms of use.
2. Iwi consent mechanisms to the use of mātauranga in research from individuals, hapū, and iwi.
3. A co-designed code of conduct where applicable for places, knowledge and other culturally significant considerations.

It is anticipated these mechanisms for engagement and operation will enable ongoing safety for our hapū partnerships.

CONTRIBUTION TO BLUE ECONOMY IN AOTEAROA NEW ZEALAND

The collective contribution of the three research pou described above will help us to demonstrate what a hapū-based Blue Economy might look like in Te Ao Tūroa. International models often describe the monetary value of a blue economy. The Challenge defines a blue economy as one that *works innovatively with marine resources to add value, improve livelihoods and enhance ecosystem health*. This definition is broad and the specific implications for Aotearoa, within our

¹ Politics and knowledge: Kaupapa Māori and Mātauranga Māori (2012), Dr Te Ahukaramu Charles Royal

unique Te Tiriti context, have not been explored. This project examines examples where a blue economy can honour the Treaty partnership, create space for mātauranga and indigenous TACP. We anticipate that a 'hapū-based blue economy' will encompass many aspects that are not established in a current modern economic definition.

This would include adding value in areas such as te reo (language revitalisation), tikanga (correct processes), kawa (protocols), active cultural practice, tākoha (gifting), hoko (direct commodity trading), manaakitanga (mana-enhancement of whole ecosystems inclusive of humans), and, kaitiakitanga (processes of enhancement). However, these components of hapū economies won't exclude hapū based aquaculture from the modern monetary benefits of modern economy values. Rather, it includes a multi-dimensional value proposition of creating natural food resources with a clear and distinct provenance, and the potential for Māori ecotourism and eco-education as a value add incentive.

This work aims to add value as defined by hapū, improve livelihoods through localised hapū-based economies (e.g. as identified above) and generate restorative aquaculture to support ecosystems that promote the health, wealth and wellbeing of hapū and their communities, at a scale that is relevant. This research will mobilise hapū customary practices while supporting understanding of the current regulatory pathways to enable EBM by hapū, through active Kaitiakitanga practice. It seeks to provide an innovative model of indigenous hapū aquaculture that will restore and build ecosystems. This will develop new aquaculture mātauranga to encourage similar ventures throughout the country to bring greater meaning and diversification to Aotearoa's Blue Economy. Most importantly, this work will foster a new opportunity for hapū based economies by providing an avenue where hapū can generate a sustainable local economy, while harnessing and retaining their mātauranga tuku iho. We mustn't underestimate the impact that cultural practice and mātauranga Māori can contribute to the fabric of the blue economy in Aotearoa. With the novel approach of cross-cultural exploration of practice proposed by this project, we seek to demonstrate that the indigenization of aquaculture has a valuable place in our distinctive blue economy.

The reconnection of hapū to mātauranga, tikanga, kawa, and traditional aquaculture practice will have cascading impacts. Not only will this expression of kaitiakitanga support an Aotearoa blue economy and an ecosystem based management approach, it will be a catalyst for Māori development, including reinforcing te reo Māori retention, exploring mātauranga-based engineering, as well as supporting kaupapa Māori approaches to aquaculture, indigenous innovation, bilingual education, and potential future economic activities. These will be significant contributions to the Aotearoa blue economy and a unique point of difference benefitting all New Zealanders.

BENEFITS AND CONNECTIONS TO IWI, HAPŪ AND MĀORI ORGANISATIONS

The foundation of this project is the reclamation of traditional knowledge and reactivation of practice. This requires the research to create a space for indigenous practitioners to synthesise and share knowledge and practice. It aims to help define new frontiers of how such knowledge is used innovatively to give precedence in reviving localised hapū-based blue economies. Thus, it will normalise the enhancement of marine ecosystem health through a tikanga Māori lens.

The collaborative nature of this project is reflected in co-delivery by a research team of indigenous practitioners (Ngaruahine Hapū, Nga Tangata Tiaki o Whanganui) as well as emerging and established Māori researchers (Cawthron, NIWA, MTA). Such a collaboration has enabled the research team to draw on previous experiences in conducting research with hapū by initiating early engagement and co-development of the project before commencement.

This has allowed us to shape the project and identify its relevance within each unique case study area making this project kaupapa Māori led. It also enables hapū practitioners of each area to establish and define foundational tikanga and kawa principles to guide, protect and evaluate the project. This process will also create a mechanism for the research group to be informed by associated tribal networks that can also disseminate the findings. It will connect hapū practitioners to other indigenous aquaculture practitioners throughout the Pacific.

This project will create a synergy between science and mātauranga Māori. These established epistemologies will provide innovation to contemporary forms of aquaculture and will aim to contribute to a localised hapū-based economy. This work initiates a platform to support other hapū to define their own localised blue economy. For the wider networks of our hapū partners, we seek to provide a pathway toward an economy that helps to normalise their cultural practice.

With recent global events and the need for innovation in the domestic market, Māori economies need opportunities to bring the market into a new equilibrium.

This work provides a pathway for indigenous practitioners to collaborate and disseminate shared learnings with organisations such as the Cawthron institute, Manaaki Te Awanui, and NIWA as well as connecting with a broader scale of research through the challenge. Such collaborations will present a strategy for funding and the cross-cultural/cross-institutional partnerships needed to research/innovate and pilot, scale and maintain resilient hapū-based blue economy activities which are envisaged to be long term in nature.

COMMUNICATION OF PROJECT RESULTS

This project has potential to both add value and increase diversification of the blue economy in New Zealand. We envisage that the hapū research partnerships will disseminate shared learnings through their respective iwi and hapū networks, governance entities as well as related projects set through the challenge.

It is envisaged that the shared learning will evoke discussions of reinstating the importance of localised Māori economies by:

- Demonstrating the position of mātauranga māori in Aotearoa’s blue economy, and encouraging its reclamation at scale. Identifying economic value chains based on taonga tuku iho, as defined by the hapū involved.
- Introducing a new, revolutionary, synergistic approach to the creation of a blue economy that generates wealth with all the checks and balances of EBM, sustainability (i.e. the remedying, mitigating, avoiding, offsetting of effects) and Kaitiakitanga that will contribute to and prioritise the wellbeing and growth of Māori communities.

The communication of this work will provide for the sensitivities associated with mātauranga and acknowledge the appropriate ownership, control, access and protections required. As such, communication mechanisms will be cognisant of:

- How we communicate – where the mechanism for communication of this work (e.g. huihuinga (gatherings), summaries, videos, reports, formal presentations) will suit the audience, and also be co-developed and co-delivered alongside our hapū partners, or with their permission.
- Audience – where any documentation, guides and other outputs will be tailored specifically to a public audience, or towards encouraging other iwi/hapū practitioners, or kept specifically for the hapū partners we work with.

CO-FUNDING (Source and amount)

We have provided here the co-funding amounts provided by each of the researchers and hapū-partners. This will be made up of time provided in-kind by researchers/organisations in the project to support the overall FTE required to complete the work.

Organisation	Personnel	Co-funding type	Value over project life
Cawthron	Te Rerekohu Tuterangiwhiu	In-kind	\$50,000
Manaaki Te Awanui	Caine Taiapa	In-kind	\$18,500
NIWA	Kelly Ratana	In-kind	\$10,000
Ngā Tangata tiaki o Whanganui		In-kind	\$30,000
Oeo Kaitiaki Ngaruahinerangi		In-kind	\$30,000
Total			\$138,500.00

RISK & MITIGATION

The key considerations for this project are that it depends heavily on collaborative, iterative and trusted relationships. As such, we identify the following risks and mitigations strategies.

Maintenance of cultural integrity and hapū relationships will occur through robust engagement and participation of our hapū partners throughout all aspects of the project (see Engagement - research approach). We will acknowledge the critical nature of these partnerships through resourcing to enable meaningful and valued participation.

In light of current global events, we understand that there is risk that for the duration of the project we may not be able to provide in-person exchanges between hapū kaitiaki and our indigenous relations in Hawai'i. We will utilise digital capabilities (e.g. zoom wānanga) to facilitate these connections and knowledge exchange in order to complete the project and seek further funding in time to complete in person exchanges.

**CONSENTS & APPROVAL
required to undertake
research**

[s part of preparing for the engagement process described in this proposal the research team endeavour to work closely with local kaitiaki to ensure that our activities and processes give appropriate expression to developed ethical guidelines.

The following project will therefore give precedence to tikanga, kawa and ritenga. through meaningful engagement, interviews and wānanga. Through the wānanga process the research team will develop a set of guiding principles that will steer, enhance and evaluate the project.

We acknowledge that mātauranga tuku iho does not fit under the protections of current legal definitions of IP, but commit to ensuring that all knowledge and practice that leaves the project partnership space, will only do so at the express permission of those who contributed the knowledge. How and when this occurs will be guided by the tikanga and kawa defined through the initial stages of the project and by our hapū-partnerships.