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**Te-ia-o-te-Rangi: Exploring Tūhoe astronomical knowledge in relation to the localised environmental management of water.**

**A thesis presented in partial fulfilment of the requirements for the degree of**

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**Neihana Matamua**

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## Abstract

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Kōkōrangī Māori (Maori astronomy) is the traditional Māori practice of observing patterns within the celestial spheres, to anticipate and predict events occurring within the natural environment. Knowledge of these celestial patterns, in conjunction with localised environmental knowledge, offers deeper insight into understanding kaitiakitanga (guardianship), an Indigenous Māori environmental philosophy that promotes sustainable, holistic, and culturally appropriate forms of environmental management. Giving space for local voices elevates perspectives associated with unique local knowledge bases, and thus offers a more contextualised environmental understanding, free from a broader and generalised application of kaitiakitanga. Applying a Kaupapa Māori approach, this qualitative research explores Tūhoe astronomical knowledge in relation to localised environmental management. With a particular focus on Tūhoe water systems, this research explores the perspectives of two tohunga (experts) using an unstructured wānanga (forum, discussion) process. The research aims were to understand how the lived experiences and knowledge of these tohunga informed a Tūhoe perspective of water management. Through this meaning and understanding, how might the local community be better empowered to enact kaitiakitanga? Collected data was analysed using a phenomenological informed thematic analysis, with findings interpreted via the explanatory framework of Te-ia-o-te-Rangi (the current of the sky). Findings indicated water management reflected the realities of the participants as members of their local community, which included their lived experiences; Tūhoe ontologies; and local history, events, knowledge, cultural expressions, places, spaces, and social dynamics. Secondly, improving quality of relationships with the environment was considered key to both improving understandings of water and empowering people to care for it. Finally, the application of Māori astronomical knowledge was perceived as a relevant and innovative way to create new narratives that enhance people's ability to have a relationship with water. This research emphasises the value of drawing on local knowledge bases for localised environmental solutions, and highlights the potential utility of Māori astronomical knowledge to understanding and forming relationships with other environmental phenomena.

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## Glossary

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The following glossary provides an English translation of Māori words used throughout this thesis. It should be noted, in the first instance where a Māori word has been used in-text, a bracketed translation in English is provided. Terms that require a more contextual or nuanced response, also have footnotes applied in-text.

<b>Aotearoa</b>	New Zealand
<b>Aroha ki te tangata</b>	Respect for people
<b>Atua</b>	God, deity
<b>Hapū</b>	Sub-tribe
<b>Harakeke</b>	Flax
<b>He wai ki te tāne, he whenua ki te wāhine</b>	Alignment of masculine energy with water, and the alignment of feminine energy with the land
<b>Hinaki</b>	Eel net
<b>Hinepūkohurangi</b>	Mist Maiden
<b>Ihi</b>	Emanating energy
<b>Ihorangi</b>	Star name
<b>Iwi</b>	Tribal group
<b>Kai</b>	Food
<b>Kaitiaki</b>	Guardian
<b>Kaitiakitanga</b>	Guardianship – predominantly through an environmental context
<b>Kanohi kitea</b>	A seen face, to be seen in person
<b>Kanohi ki te kanohi</b>	Face to face
<b>Karakia</b>	Incantation, prayer
<b>Kaumātua</b>	Elderly
<b>Kererū</b>	Native wood pigeon
<b>Kia tūpato</b>	To be careful, to be safe
<b>Koekoeā</b>	Pacific long tailed cuckoo

<b>Koha</b>	Offering
<b>Kōkōrangī Māori</b>	Māori Astronomy
<b>Kōrero</b>	Discussion, conversation
<b>Kūmara</b>	Sweet potato
<b>Mahi manu</b>	Harvesting of birds
<b>Mahi tuna</b>	Harvesting of eels
<b>Mahinga kai</b>	Food gathering
<b>Mana</b>	Authority, Prestige
<b>Manāki ki te tangata</b>	Sharing, hosting and being generous to people
<b>Mana whenua</b>	Local Māori communities or tribes who have authority over their territories
<b>Manuhiri</b>	Visitors or guests
<b>Māori</b>	Indigenous population of Aotearoa New Zealand
<b>Marae</b>	Specific open area in tribal communities where people formally greet and have discussions
<b>Maramataka</b>	Māori lunar calendar
<b>Matamoe</b>	Star name
<b>Matariki</b>	Star constellation known as Pleiades
<b>Mātauranga Māori</b>	Māori knowledge
<b>Mauri</b>	Life force, essential energy
<b>Mihimihi</b>	Greeting
<b>Muaūpoko</b>	Tribal people associated with the area around the town of Levin, in the Horowhenua district, lower north island of Aotearoa New Zealand
<b>Ngahere</b>	Forest
<b>Papa (tūānuku)</b>	Primordial earth mother
<b>Parawhenuamea</b>	God associated with water from the earth
<b>Pā tuna</b>	Eel weir
<b>Puanga</b>	Star commonly known as Rigel
<b>Punakauriki</b>	Star name

<b>Rangatahi</b>	Youth
<b>Rangi (nui)</b>	Primordial sky father
<b>Raranga kōrero</b>	Stories
<b>Rongo</b>	To sense
<b>Tāne</b>	God of the forest
<b>Tangaroa</b>	God of the sea
<b>Te-ia-o-te-Rangi</b>	The current of the sky
<b>Te Maunga</b>	Tūhoe ancestor commonly identified as the mountain named Maungapōhatu
<b>Te Urewera</b>	Large area of native rain forest within the Eastern Bay of Plenty region and the homelands of the Tūhoe people
<b>Te wai tuku kiri</b>	To bathe in the water, to have one's skin caressed by water
<b>Tikanga</b>	Custom, practice
<b>Tino Rangatiratanga</b>	Self-determination
<b>Tohu</b>	A guiding signal or sign
<b>Tohunga</b>	An expert, skilled person
<b>Tūhoe</b>	Tribal people of Te Urewera, located in the Eastern Bay of Plenty, North Island of New Zealand
<b>Tūhoetanga</b>	To enact one's Tūhoe identity
<b>Tūhoe mana motuhake</b>	Tūhoe independence, sovereignty
<b>Tuna</b>	Eel
<b>Tunanui</b>	Star name
<b>Waiata</b>	Song, to sing
<b>Waka</b>	Voyaging canoe
<b>Wānanga</b>	Forum
<b>Wana</b>	To be excited or aroused (response to ihi and wehi)
<b>Wehi</b>	To be in awe (response to ihi)
<b>Whaitiri</b>	Star name

<b>Whakapapa</b>	Genealogy
<b>Whakataukī</b>	Saying, proverb
<b>Whakawhanaungatanga</b>	Being relational
<b>Whānau</b>	Family
<b>Whare wānanga</b>	Place of higher learning

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## Research Background (Positionality Statement)

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The heart of this research draws its inspiration from my own life journey and long held desire to (re)connect with my tribal roots. By nature of my birth, I inherited an identity descended from both my parent's whakapapa (genealogy). My father of Tūhoe tribal descent and mother with Scottish heritage, being the dominant markers of self-identity. Given these identities are central to who I am, it comes with some difficulty to describe what it really means to be Tūhoe, and maybe more so to be Scottish, as participating in these identities has been limited by having never resided within the cultural context or location associated with these identities. Therefore, knowing who I am has required an ongoing relationship with distant places and people, in particularly my Tūhoe identity, in trying to maintain some form of connection.

Growing up with my siblings in the small town of Levin, we had a particular affinity with our Māori grandparents who were connected and active kaumātua (elderly) within the local community. Living alongside our grandmother's people of Muaupoko, we enjoyed an upbringing with many uncles, aunties, and cousins. Running parallel to these relationships was the ongoing understanding that we were of Tūhoe descent. A narrative reinforced by both our parents and grandparents, reaffirming our connection back to our tribal homelands. Although rarely seen and visited, I was familiar with our immediate Tūhoe relatives, our marae Waimako and lake Waikaremoana.

To identify as Tūhoe has come with a huge amount of pride. The isolation and beauty of Te Urewera, along with my growing awareness of Tūhoe knowledge, customs and language have contributed to my perceptions of a Tūhoe uniqueness. Having lived my entire life outside Tūhoe tribal borders, and given my limited lived experiences within a Tūhoe context, has challenged me in conceiving my own Tūhoe uniqueness. To call myself Tūhoe has been one thing, but to enact it seemed to be on a whole other level. Inadequacies with my own limited understanding of Māori language and culture and having no real ongoing active relationships with those within my tribal home, reinforced a self-perceived fear that I would struggle to live up to being Tūhoe.

Shifting this internalised narrative through my academic journey, and to a greater extent this thesis, has evolved my desire for a connection with my tribal homelands that extends beyond naming myself as Tūhoe, to actively engage with my Tūhoetanga. What is meant by this, is to have a relationship with not only my relatives, but with Tūhoe places and spaces of significances, its history and knowledge, to inform a way of being that reflects a Tūhoe nature. The National Science Challenge Bio-Heritage Group, SO2, wanted to understand 'how mana whenua (local Māori with authority over their territory) can be better empowered to enact kaitiakitanga (guardianship)'. This therefore provided me with an opportunity to explore this understanding within a localised Tūhoe context. To engage in a relationship with my Tūhoetanga.

My motivations for this research are therefore two pronged. I wanted to empower voices of localised Tūhoe experts from within the Tūhoe community of Ruatāhuna by sharing their knowledge and experiences, but also in doing so felt it empowered my own journey of reconnection with my identity.

The particular Tūhoe astronomical knowledge referred to in this thesis is also part of my identity, attached to a family legacy passed down over numerous generations and associated with the Tūhoe community in this research. For myself and for my siblings, this legacy has emerged with responsibility and obligation, in keeping it safe whilst maintaining its relevance, so not to be lost to the world. With support from my whānau (family), the exploration of localised Tūhoe astronomical knowledge in relation to the localised environmental management of water, has not only been important to making a connection, but to also maintaining the responsibility and obligation of this legacy.

Although I may be perceived as well positioned as a research 'insider' with various personal connections to this research project, time, distance and limited lived experiences within my home tribal context has blurred the lines of my researcher status between the insider and outsider. The irony is that to fully bridge this gap from outsider to insider requires a trust built upon having a relationship between myself, the participants, places and spaces of importance, its history and knowledge. In this sense, the success of this project is in my view, largely dependent on my journey of reconnection, and the ability to be relational. To complete this project will be to take an important step towards reclaiming my Tūhoetanga.

## 1 Introduction

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This exploration of Tūhoe astronomical knowledge in relation to the localised environment management of water, is a research project underpinned by the wider intent to understand how mana whenua can be better empowered to enact kaitiakitanga. The research explores the lived experiences and knowledge of identified experts from within the Tūhoe community of Ruatāhuna, by making sense of the connection between the cosmos and water and attempting to understand through this sense making how such connections can enable kaitiakitanga.

The potential to offer alternative environmental solutions using Indigenous localised environmental understandings are noted by Paton et al. (2010), with local knowledge systems, beliefs, experiences, and local voices and actions as fundamental to navigating new environmental pathways. Such application of a localised Māori environmental perspective has seen the redistribution of authority and prompted a bottom-up system of governance, resulting in new actors being involved in decision making (Talbolt-Jones et al., 2014). As a bottom-up approach, voice of local communities talk directly to their ontologies, use their own local knowledge, history and experiences, and thereby become empowered when doing so. In wanting to explore localised Tūhoe environmental perspectives, there is support in the literature for approaches that are bottom-up, co-operative, collaborative, free of power dynamics and enabling space and place for voice.

Tūhoe history and environmental perspectives suggests that Tūhoe lived experiences are contextualised through relationships with their cosmology, ontology, histories and knowledge associated with their places and spaces of importance. Tūhoe localised environmental perspectives are therefore not limited to local ecology, but are intertwined with Tūhoe origins, relationships, struggles and aspirations. When focusing on Tūhoe interpretations and understandings of ecology, approaches are not restricted to observations alone, but rather privileging of experiences that are connected to the interpretation of mauri (life force). Underpinning these experiences is the centralised philosophy of Tūhoe mana motuhake (Tūhoe sovereignty) (Williams, 2011), the inherent sustained characteristic of Tūhoe resistance to maintaining their connection to Te Urewera

and its waters, and therefore responsibility for its ongoing care. Thus, Tūhoe interpretations of their realities are not isolated to a single phenomena, but rather contextualised and understood through the inextricably interconnected Tūhoe worldview, and the lived experiences of the people.

Recent collaboration of engaging localised Tūhoe communities has been helpful to understanding localised Tūhoe environmental perspectives. For example, Timoti et al. (2017) represented a Tūhoe Tuawhenua worldview for guiding environmental conservation. Yet, such perspectives have primarily focussed on land, forest and bird life, with extensive research yet to be conducted on Tūhoe water systems. Equally, focus has tended to be on presenting a worldview and the ecological value it has, giving minimal attention to making meaning associated with experience. Opportunity to explore a localised Tūhoe environmental worldview related to water management, not only builds upon current Tūhoe environmental understandings, but also provides meaning related to Tūhoe lived experiences.

Knowledge and experiences of *kōkōrangī Māori* and its synchronistic relationship with the natural world, offers potential to understand relationships with the environment, including water. The application of *kōkōrangī Māori* into the public sphere has had social impact, particularly through the establishment of Matariki – Māori new year - as a national holiday in Aotearoa New Zealand. Its associated cultural narratives and practices have become widely accepted, and further etched into the Aotearoa New Zealand national identity, having been applied in schools, city councils, organisations, promoted on screen, radio and in print (Whanga et al., 2016).

Beyond Matariki, *kōkōrangī Māori* can be applied as a medium for understanding and interacting with the environment, directing such activities as planting, hunting and fishing (Matamua, 2017). Such networks of relationships between celestial bodies in the sky and environmental activity presents opportunities to explore these relational dynamics and therefore enhance environmental knowledge. These associated relationships combined with the potential transformability of *kōkōrangī Māori* as noted through Matariki, offers a gateway to new and innovative ways of understanding water. Given the local Tūhoe community in this research project has an extensive localised astronomical knowledge base, there is opportunity to explore relationships between Tūhoe star lore and localised environmental knowledge related to water.

Wanting to understand what empowers Māori communities to be more effective in enacting localised forms of kaitiakitanga, led me to engage with the voices of those who reside, originate from, are knowledgeable about, and have lived experiences with specific places and spaces. Situating Tūhoe voice within its own context, this research drew on local Tūhoe astronomical and environmental knowledge to understand care of water. In particular, I sought to address the following questions:

- How do the lived experiences and knowledges of Tūhoe experts contribute to a localised Tūhoe perspective of water management?
- How might this perspective be utilised by the local Tūhoe community to enact kaitiakitanga?

With these research questions in mind, the thesis will proceed in the following way. Following this introduction, chapter 2 will provide a literature review exploring the term kaitiakitanga and its related concepts, a description of issues that impact on kaitiakitanga agency, followed by a discussion of the potential for engaging local communities to enhance kaitiakitanga. A brief overview of Tūhoe history and Tūhoe environmental perspectives will then be given, to contextualize Tūhoe lived experiences and understandings related to their enactment of kaitiakitanga. The literature review will conclude by discussing kōkōurangi Māori and its potential to enhance environmental connection. A research methodology is then provided in chapter 3, outlining and explaining the application of Kaupapa Māori research and its principles, including a wānanga data collection process, and considerations of how this aligns with action research cycles of action and reflection. The research process is detailed and followed by a description of the phenomenological informed thematic analysis applied to this research. A discussion of ethics and a personal reflexive statement in relation to the research process completes the chapter. Chapter 4 overviews the various themes that were constructed from the thematic analysis, with quotes provided as examples of such themes. Finally, chapter 5 discusses and consolidates the research findings with existing literature. Strengths, limitations, recommendations, and the implications of the research, and a final personal reflection are offered to conclude this chapter and the thesis overall.

## 2 Literature Review

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This chapter will firstly discuss kaitiakitanga and some of its particular dynamics, including some of its relevant associated concepts, application to water management, and the potential voice it gives to communities. An overview of Tūhoe history will then be provided to situate and give contextuality to the research project and wider Tūhoe aspirations. A localised Tūhoe environmental perspective will also be given, highlighting Tūhoe ways of engaging with, understanding and interpreting the environment. Kōkōurangi Māori will then be discussed, outlining its growth and potential application within a localised Tūhoe context. A summary linking all of these aspects along with the research intent, will conclude the chapter.

### 2.1 Kaitiakitanga

Indigenous peoples have long aspired to (re)establish their autonomy. This has included a desire to obtain some control managing their environmental resources, as reflected in article 29 of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) (United Nations, 2007). This declaration states, “Indigenous people have the right to the conservation and protection of the environment and the productive capacity of their lands or territories and resources” (p. 21). Such aspirations are accompanied by ways of thinking and acting that transcend dominant physical and socio-economic perspectives, to include, “...the right to maintain and strengthen their distinctive spiritual relationship with their traditionally owned or otherwise occupied and used lands, territories, waters and coastal seas and other resources, and to uphold their responsibilities to future generations in this regard” (United Nations, 2007, p.19). Such statements reflect Indigenous peoples’ need to (re)connect with their associated environments, and assume responsibility and obligation for its care. It emphasises a duty that extends beyond creating space for Indigenous voice, to include culturally appropriate and relevant holistic approaches that reflect an Indigenous philosophy to resource management.

Reflecting these wider Indigenous aspirations, Indigenous Māori environmental perspectives seek autonomy to apply a Māori worldview that promotes sustainable, holistic

and culturally appropriate forms of environmental management. It is a worldview that is predominantly encapsulated, articulated and applied through the Māori concept of kaitiakitanga, a philosophical approach to environmental management informed by a Māori onto-epistemological perspective, and built upon relationships with the environment that have been maintained by Māori over numerous generations (Walker et al., 2019). As a culturally informed, dynamic and time honoured way of understanding the environment, kaitiakitanga is a considered and holistic approach to resource management, that privileges the well-being of communities and natural ecosystems, including Māori worldviews situated within the metaphysical and spiritual realms (Harcourt et al., 2021).

### **2.1.1 Defining Kaitiakitanga**

Translating exactly what kaitiakitanga is, what it means, or how it works is often articulated and understood through dominant Western culture and language. With no full English equivalent, the true meaning of the custom or word is often debased and detracted from its cultural setting, so the proper meaning and function becomes impaired (Roberts et al., 1995). The devalued and isolative effect of this impairment is noted by Lyver et al. (2017), who suggest that notions of whakapapa and wairua (spirit) that are important to a fuller understanding of what kaitiakitanga is and means are often considered as ‘cultural constructs’ (p.100). The consequence of this is that it limits the understanding of kaitiakitanga and indeed the notions of whakapapa and wairua to their respective cultural context, rather than them being considered as actual phenomena. Given kaitiakitanga is frequently used in both legal and environmental contexts, where its full meaning and understanding is not widely known (Kawharu, 2000), there is significant potential for the mis-interpretation and therefore the mis-application of this concept.

The word kaitiakitanga is centred around the word ‘tiaki’, a verb translated as meaning to guard, protect, conserve, care for, look after, have custody of, hold in trust or to watch over (Te aka, n.d.). Applying the prefix of ‘kai’, the word becomes the noun ‘kai’-‘tiaki’, assigning the verb to a person, object or thing, to become a guardian, protector, conservator and so on. The suffix ‘tanga’ alters the noun to become a way of being or doing as reflected through a state, condition, duty, skill or ability. In this way, ‘kai’-‘tiaki’-‘tanga’ can be translated as guardianship, protecting or conservation (Marsden et al., 1992).

As I will argue below, such translations in the absence of understanding a Māori worldview, emphasize power relations, where the state or condition of enacting kaitiakitanga implies a relationship that positions the environment as under the authority and decision making of humans. This is highlighted by Marsden et al. (1992), who argue the definition of stewardship applied to kaitiakitanga within the Resource Management Act has tones of a master-servant relationship, premised on the master having rights as a land owner. In this case, protection is a matter of up-keep to benefit the master, rather than protection of the environment for the sake of the environment. As with many of the associated translations given to kaitiakitanga, they have much of their application within a legal context, bound by Western laws that privilege individuals with discretionary powers and authority.

### **2.1.2 Māori perspectives of Kaitiakitanga, Whakapapa and Mauri**

Understanding kaitiakitanga cannot be done in isolation to Māori epistemologies, as it links to numerous other Māori concepts (McAllister et al., 2023). In particular, is the concept of whakapapa, a genealogical framework informing our connection to all things animate and inanimate. Whakapapa, according to Walker et al. (2019), is the initial thread that establishes our role as environmental kaitiaki (guardians). This is premised on kin relationships between humans and the natural world, which extend back to the primordial parents of Rangi and Papa and their supernatural offspring, who are responsible for all the various natural phenomena (Roberts et al., 1995). Traditionally, these offspring are considered the original kaitiaki, from whom humans seek propitiation prior to harvesting resources from the guardians respective domains (e.g., forest, sea, etc.) (Marsden et al., 1992).

Humans are considered the younger siblings of this original kaitiaki, and thus are the lowest on the genealogical hierarchy of natural phenomena. Viewed as part of this larger interconnected familial whole, humans share relationships with everything in the universe. Because this ontological perspective informs Māori worldviews, it also means that Māori in general are relational and see value and importance beyond ourselves, thus prioritising environmental well-being in decision making (Kennedy et al., 2020). This perspective centres relational reciprocity between humans and the environment based on a philosophy of giving and receiving, being gifted and gifting in return, every action having an equal or opposing action, and every insult having retribution (Roberts et al., 1995). Knowing our place within the

greater context of Māori cosmogeny through whakapapa, emphasizes our responsibility as a family member in maintaining relationships. As kaitiaki, it implores we consider, act and behave in ways towards the environment that is consistent with how we would treat one of our own (human) family members. Having relational reciprocity therefore, forces our thinking to become integrative about how we engage in environmental practices and their flow-on effects (Hutchings et al., 2020).

The balancing ethos of such relational dynamics infers kaitiakitanga could be interpreted as a type of sustainable management. However, Kawharu (2000) asserts this can not be implied without referencing whakapapa as a time and space mapping paradigm. That is, kaitiakitanga, as understood against the context of whakapapa, is not limited to managing relationships between humans and the environment in the present, but is equally inclusive of managing such relationships in the past and future (Kawharu, 2000). In this sense, linking through whakapapa to the past and its associated narratives, provides a genealogical connection back to our spiritual origins, which situate atua and other metaphysical phenomena as important to the relational dynamics informing Māori approaches to environmental management. It connects us to our past histories, knowledge, events and people to inform our present position in the world. Operationalised, kaitiakitanga becomes the enactment of our spiritual connection through whakapapa, along with our accumulated experiences across time, to provide a reference point in the present, to project ourselves into a sustainable future.

Mauri is another important concept to kaitiakitanga, and can be defined as a life force, essence or elemental energy by which all things in nature cohere (Marsden, 1992). Durie (2001) notes mauri as a “dynamic force” and that “it recognises a network of interacting relationships” (p.x). These definitions present mauri as an inherent, intrinsic and interconnected aspect present in humans and all other living and non-living things. As a “dynamic force”, the condition or state of all things hold an implied potential to change, vary or fluctuate. While “interacting relationships” imply there is a flow of energy or information between the environment and humans. In this sense, mauri is relational, in that beyond acknowledging our connection to the environment, we can actually interpret its state and the affect we have on it, through our actions and behaviours. Therefore, maintaining the energetic potential of mauri in objects is not solely reliant on its own intrinsic qualities, but also dependant on its relationship with the mauri of others (Durie, 2001).

Enacting kaitiakitanga, according to Roberts (1995), is to ensure that the mauri or life force of our unique environmental resources are healthy and strong. Given the dimensions of mauri are part of the metaphysical realm, assessing environmental states and understanding what actions and behaviours are necessary to maintaining or revitalising the health of the environment, requires a sensory engagement beyond what is objectifiable. For Māori, this sensing, known as rongo, occurs not only through our vision, smell, hearing, taste or touch, but also with such highly valid cultural intuitive sensing via the heart, mind and spirit (Dell, 2021; Matamua et al., 2023). Such sensing is often related to *tohu* (signs) within the environment, creating a feedback loop via emotive states occurring within the observer, to interpret and ascribe meaning to the mauri of a particular person, object, thing or event. Kaitiakitanga therefore, assumes our openness to alternate ways of perceiving the environment, and the ways we can engage with it. It reframes the nature of environmental care beyond reductionist thinking, to assert a holistic worldview premised on relational reciprocity and respect between humans and the environment.

### **2.1.3 Challenges to Kaitiakitanga application and agency**

As noted above, kaitiakitanga is integrated into Aotearoa New Zealand government policy. Most relevant to this study is the emergence of kaitiakitanga within the Resource Management Act (1991), which was in part to recognise and make provision for Māori cultural values, applied through traditional Māori guardianship over natural resources (Marsden et al., 1992). This intent implies kaitiakitanga as not simply about cultural consideration or consultation, but is also connected to reframing Māori agency, in that it emphasizes Māori enacting their own unique form of environmental management (Forster, 2013). This importance is also highlighted by Kawharu (2000), who considers kaitiakitanga both an affirmation and expression of *rangatiratanga* (self-determination, autonomy). The potential of kaitiakitanga as noted here, is attached to the agency of Māori to enact it, which is a point highlighted by Parks (1998), who argues that kaitiaki are unable to enact their role to its fullest in the absence of self-determination. Therefore, this assumes that Māori, in particular local Māori communities, require a degree of empowerment to enact kaitiakitanga. In light of this, the following five sections discuss various challenges that exist with kaitiakitanga application, and its impact on Māori agency.

### **2.1.3.1 Kaitiakitanga and Māori ontology**

Derived from the traditional role of a kaitiaki, kaitiakitanga is considered a contemporary term (Forster, 2013), applied within a modern context to encapsulate and elevate a Māori environmental worldview. It implies a state or condition by which people can adhere to the attributes and qualities associated with traditional kaitiaki, normally situated within the realm of the spiritual and associated with Māori Gods. In doing so, human roles in environmental management potentially become perceived as equivalent to those of traditional kaitiaki. Such framing, as Wihongi (cited in Roberts et al., 1995) notes, is incorrect, as it implies humans are the kaitiaki of nature, when historical understandings of kaitiaki held nature and the earth, as the kaitiaki of humans. Yet, the contemporary ascension of humans to the elevated state of kaitiaki, as is often implied by the contemporary use of the kaitiakitanga, infers a change to the nature of the relationship between people and the environment. This shift away from the reciprocal relationship of giving and receiving to the more human centred influence of deciding/controlling and receiving, evokes a power dynamic. In this sense, it may be perceived that Māori have flexed their worldview to accommodate new relationship standards that involve deference to the economy, politics, commercial and private enterprise. Therefore, the application of kaitiakitanga can be perceived as not truly reflective of a traditional Māori ontology, but rather about Māori needing to assume power to gain agency within a Westernised neoliberal system that privileges humans over the pantheon of Māori gods.

### **2.1.3.2 Kaitiakitanga as a singular narrative**

Kaitiakitanga further imposes the perception of a singular narrative to Indigenous environmental management, overshadowing the multitude of variations and nuances within localised environmental perspectives. Roberts et al. (1995) acknowledge there is no universal Māori perspective, and therefore no singular way that Māori understand and enact environmental management. Indeed, Māori are heterogenous, comprised of discrete tribal groups with their own local variations (Roberts et al., 1995). Failing to account for variations in tribal perspectives characterises kaitiakitanga as a generalization of the Māori environmental worldview, and therefore potentially acting as a tool of power in defining and

universalising localized forms of kaitiakitanga. For those with limited knowledge and experience with kaitiakitanga, such singular narratives become the social norm, shaping the greater discourse of kaitiakitanga and the reality of what it means to care for, or relate with, the environment. The challenge with this is that knowledge is imported to inform (the application of) kaitiakitanga, rather a knowledge base being built from personal or local experience.

### **2.1.3.3 Kaitiakitanga as top-down/bottom-up approach**

When treated as a generalised concept in laws and policies, kaitiakitanga is perceived as a bottom-up approach. Talbott-Jones et al. (2014) notes bottom up approaches incorporate the social norms, values, beliefs, traditions and customs associated with individuals connected with societal groups. Given variations in Māori tribal ontologies and their unique forms of cultural expressions relative to their particular locations, kaitiakitanga is not entirely bottom-up in being truly reflective of these norms, but neither is it fully top-down. In this respect, kaitiakitanga sits within the spectrum between bottom-up and top-down. As top-down it infers, “the planned co-ordination of intentions and actions to achieve specific outcomes imposed by a central authority” (Kim et al., 2014, p. 464). This represents kaitiakitanga as determining environmental philosophy, often attached to laws and policies that prescribe generalised ways of interpreting and enacting Māori environmental management. At the same time, being a bottom-up approach, kaitiakitanga elevates the collective social discourse of a Māori environmental worldview, creating greater space for diversity in voice and engagement around environmental matters. The problem that emerges is that depending on who has the greater power between top-down and bottom-up, will decide what kaitiakitanga will look like, and how it will best serve local communities.

### **2.1.3.4 Kaitiakitanga and Western frameworks**

Kaitiakitanga in legislation and policy, is often centred in the contrasting Western ontology of the nature/culture hierarchy that assumes dominion over the natural environment for its utilitarian, resourcist and economic potential (Charpleix, 2018). The result of adding, rather than centering, a culturally informed environmental philosophy is environmental management becomes focused on extraction by external entities, who cherry

pick relevant knowledge for their own enterprise (McGregor, 2021). Such piecemeal application of kaitiakitanga is diminishing to its depth of understanding as noted by Ruru (cited in Walker et al., 2019), with legal definitions de-emphasizing such aspects as spirituality, kinship and place-based narratives that are integral to encapsulating the essence of kaitiakitanga.

Marginalisation of an environmental Māori worldview through the misuse and under representation of kaitiakitanga, emphasises a resistance to incorporating Māori ways of knowing and understanding reality. Frameworks that assume superiority of Western knowledge, and the expectation that the less dominant system will conform to the more dominant (Charpleix, 2018), limit those aspects of kaitiakitanga that inform its holistic nature. Therefore, the way people can know and understand kaitiakitanga becomes confined to Western thinking around what can and cannot be real.

Despite the positive intent of incorporating Māori concepts like kaitiakitanga into policy, McAllister et al. (2023) note that when they are used incorrectly, they are harmful, and potentially compromising to Indigenous peoples connection with the environment. This is particularly evident via a Western conservation perspective of kaitiakitanga, whereby aspects of the environment are compartmentalised and isolated, so all human influence is removed except for those related to its protection and restoration (McAllistar et al., 2023). In this context, culturally relevant and sacred customs, such as the traditional harvesting of the kererū<sup>1</sup> (native wood pigeon) by Tūhoe are no longer practiced due to the Government implementing prohibition of this species (Lyver et al., 2008). Such environmental knowledge risks becoming redundant, further isolating Māori and their relationship with the environment. Failure to adequately account for and recognise such aspects as the spiritual, relational and place/based dynamics of kaitiakitanga, disempowers and marginalises Māori from enacting forms of environmental management associated with their all inclusive, interconnected and relational worldview.

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<sup>1</sup> More commonly known as the wood pigeon, kererū are endemic to Aotearoa New Zealand, and a culturally significant bird species to Tūhoe.

### 2.1.3.5 Ways of knowing kaitiakitanga

The aforementioned challenges and the ongoing functioning of kaitiakitanga as a concept within a more dominant Westernised framework, raises concerns over how people come to know about and understand a Māori environmental perspective. When making sense of kaitiakitanga, the dominant collective discourse related to this term becomes a point from which people interpret and conceptualise this environmental philosophy. If the collective discourse does not adequately account for the deeper meaning attached to kaitiakitanga, the semantics of this concept evolves to become perceived in new, often problematic ways. Void of localised understandings, agency to enact kaitiakitanga becomes informed by theoretical guidelines that are inadvertently and inconspicuously contentious with the localised environmental worldview of particular individuals, communities or even tribal contexts. The danger is, kaitiakitanga becomes a trojan horse, whereby Western centered environmental thinking infiltrates kaitiakitanga narratives, potentially creating situations where unsustainable practices stay regulated under the guise of being culturally condoned.

Additionally, much of the reviewed literature on kaitiakitanga is often articulated through privileged forms of knowing such as research, policy and laws, informing people of the conceptual nature of this environmental philosophy. Knowing what kaitiakitanga is becomes limited to perceptions based on the articulation and interpretation of others. In this sense, intellectualising kaitiakitanga becomes a cognitive process limited to externalised information, rather than inclusive of experiences and practices that inform a person's sense of knowing. Within a limited context of intellectualising kaitiakitanga based on informed guidelines and narratives, the world can become perceived as existing independently of our own internal experience. The particular issue with this perspective is outlined by Haggstrom (2018), in that we take for granted all the things that make up our world and therefore we are unaware of the entirety of information available to our sensors. Kaitiakitanga void of experiencing phenomena for ourselves, limits the use of internalised sensory information for interpreting, making it difficult to form connections imbued with feelings and emotions that make people enamoured or in awe of the environment. Sensing in this way, privileges a personalised perspective that centres one's own truth as arising from one's own experiences. Therefore, not only does kaitiakitanga need to be known intellectually and personally through all the senses, it also needs to be understood through community knowledge comprised of collective personal experiences. For localised communities, the accumulation of shared

personalised experiences of local environments, informs their own unique truth and reality, making them authorities over their environmental experiences and therefore empowering their understanding of what kaitiakitanga looks like for them.

#### **2.1.4 Potential in localising kaitiakitanga**

As repositories of local historical and cultural knowledge, communities are best positioned to understand and manage their unique localised environmental relationships. Indeed, Hutchings et al. (2020) note such localised sources of wisdom in collation with narratives, create a richer collection of learnings and teachings for the future. Wider benefits in 'Storying Kaitiakitanga' are further noted by Hutchings et al. (2020), as they bring together individual stories to form a collective understanding that sheds light on otherwise hidden dimensions of kaitiakitanga. As experiences across whānau, hapū (sub-tribe) and iwi (tribal group) vary, more narratives are required to depict how Māori communities enact kaitiakitanga today (Walker et al., 2019). Drawing on a collective of localised perspectives and experiences, kaitiakitanga moves beyond a generalised static understanding to be perceived in a more dynamic and nuanced way. Therefore, the need to give voice to local communities is about the creation of space for alternative perspectives to be heard, transforming perceptions of kaitiakitanga to be more diverse and relative to context.

##### **2.1.4.1 Kaitiaki voice**

Valuing marginalised voice is part of emancipatory approaches centred around participation and situated knowing (Sonn et al., 2011). Knowing that is situated refers to the embedded knowledge associated with the historical, cultural, linguistic and value context of a person as the knower (APA, n.d.). Importantly, situated knowing does not privilege specific voices (Sonn et al., 2011), therefore it offers local communities and even individual voices of those who have knowledge attached to places and spaces the right to be heard equally.

Elevation of such voices decentres the taken for granted power, privilege and normativity associated with the more dominant voice (Quayle et al., 2016). Alternate voice free of such power dynamics makes space for new perspectives, contextualising and diversifying how different social groups interpret the world. Paying attention to alternate voices of localised Māori communities, therefore enables kaitiakitanga to be understood

within a variety of contexts, rather than as a dominant universal phenomena. Considering the contentious ontological positioning of kaitiaki as previously discussed in section 1.4.1, such voice enables localised ontologies to become heard, and therefore normalised amongst other variations of kaitiakitanga ontologies. Furthermore, localised voice enables the singular understanding of kaitiakitanga to become informed by a multitude of narratives. In this sense, kaitiakitanga becomes understood as not only a collective Māori concept, but also a geographically localised environmental philosophy, where variation to such aspects of ontology, practices and cultural expressions play major roles in localised forms of kaitiakitanga.

Dick et al. (2012) note localised voices of kaitiaki express a strong awareness of the interconnected nature of life and a long-term focus on the future, while also emphasising local beliefs and values. In this sense, understanding the environment is not only informed by environmental phenomena, but also by what is happening within the social context. This wider consideration empowers local Māori to elevate and navigate their environmental thinking and practice in more meaningful and holistic ways. Indeed, Walker et al. (2019) suggest this enables communities to draw on the hopes and aspirations of past ancestors and future generations to inform current activities and practices. Therefore, voice of local Māori communities not only brings to light the diversity attached to the ontology and narratives that surround local forms of kaitiakitanga, but it also enables communities to be active in charting a more holistic and considered course for improved environmental relationships.

Thus, engaging voices of local knowledge holders and experts to explore kaitiakitanga offers insight into a unique worldview. Such voice provides dynamism to kaitiakitanga understanding, in that it is not simply informed by a unique ontological perspective or by historical events situated in the distant past, but rather includes individuals' lived experiences within our recent past, contextualising and giving richness to kaitiakitanga experiences in relation to contemporary influences and issues.

#### **2.1.4.2 Localised kaitiakitanga**

Local voice of communities has seen significant development in recent legislation related to kaitiakitanga, through the creation of both the Te Awa Tupua (Whanganui river) Act (2017) and Te Urewera Act (2014), where legal personhood and rights have been given to

these ecological systems (Harcourt et al., 2021). These ground breaking bills are the by-product of collaboration that draws from localised, historical and cultural knowledge, enabling communities to meet the responsibilities and obligations of kaitiakitanga. The use of bottom-up approaches at the localised level has seen transformation and empowerment to communities. This is highlighted by Talbott-Jones et al. (2014), where the instigation of a localised perspective via Te Awa Tupua Act (2017), has relocated authority and prompted a bottom-up system of governance. This has resulted in new actors being positioned as authorities and being involved in decision making (Talbott-Jones et al., 2014). The implication of such legislation is that more authentic bottom-up approaches for water management can be facilitated by engaging local communities. The importance of this approach is that kaitiakitanga becomes informed by experiences and knowledge of local people, rather than dictated by external interpretations.

#### **2.1.4.3 Kaitiakitanga holism**

Transformation of environmental thinking and practice requires a holism inclusive of the spiritual, relational and place-based dynamics of kaitiakitanga (Harcourt et al., 2021). Aspects of spirituality, being relational and sharing place-based narratives provide insight into Māori environmental thinking. Such insight offers a pathway for understanding relationships with others and the wider environment, helping to transform and innovate beyond the confines of conventional thinking (Spiller et al., 2011). It enables a way of thinking and seeing the world that is beyond a reductionist and positivistic approach, in that it draws understanding and meaning through relationships and privileges intuitive thinking.

Referencing this ability to think beyond, kaitiakitanga has been considered a form of wisdom, involving “the enlightened weaving of knowledge, expertise and authority to nurture and unfold the life force to achieve well-being” (Spiller et al., 2011, p.232). In much the same way, the transition from knowledge into wisdom is described by Marsden et al. (1992) as a spiritual experience, where through momentary divine inspiration, unorganised ideas transform into an instantaneous integrated whole from which conflicts are resolved. One advantage of wisdom is its ability to create spaces to bring together both Indigenous and Western perspectives (Spiller et al., 2011). Exploring environmental wisdoms offers not only

an alternate and holistic way of thinking about the environment, but also creates space and opportunity for seeking collective solutions.

Building upon the spiritual experience attached to wisdoms, Harcourt et al. (2021) advocates for a mindshift that acknowledges and is conscientious of the inherent reciprocal relationships between the well-being of people and environment. Acknowledging relationships as reciprocal involves shifting power relations, de-escalating human authority over nature, and accepting responsibility and obligation as part of a unified whole. Reframing human well-being as needing to work with rather than dominate nature, emphasises the importance of establishing responsibilities and obligations that protect the mauri of the environment (Forster, 2013). Being protective as part of relational reciprocity therefore, provides critical responses that are helpful to the declining environmental health and biodiversity of local ecosystems (Forster, 2013; Kawharu, 2002; Selby et al., 2010).

Understandings of reciprocal relationships originate from communities who hold extensive knowledge about their environments through an accumulation of observations and experiences over generations (Artelle et al., 2018). This implies relational kaitiakitanga as place-based, with physical locations, communities and local environmental practices that are inextricably linked to Māori narratives (Walker et al., 2019), encoded with their own unique environmental ethos and knowledge. Accessing such place-based knowledge and practices offers alternate approaches helpful in managing natural and cultural landscapes (Walker et al., 2021). Rayne et al. (2022) note that collaborating with others adds contextuality to the interpretation of data and creates opportunities for (re)connection of people to place. The importance of its inclusion for exploring kaitiakitanga is therefore necessary for not only attaining a depth of understanding and connection to ecosystems, but also to provide local Indigenous-centric explanations.

The literature review above demonstrates that privileging the aspects of kaitiakitanga that are spiritual, relational and place-based is important for providing a more complete and detailed understanding of kaitiakitanga, but also for offering alternate ways of understanding and enacting environmental management. Being inclusive of such holistic aspects challenges the dominance of Western environmental knowledge and its authoritative assertion over the environment. It validates localised worldviews, empowering local communities to enact their inherent forms of kaitiakitanga, free of prejudice.

### 2.1.5 Kaitiakitanga of water

The state of Aotearoa New Zealand's water ways are considered generally poor (Larned et al., 2016), with recent research on the water quality of urban streams indicating 84 out of 88 tested sites registered under the national threshold on at least one indicator, and around a quarter below on all indicators (Gadd et al., 2020). Human influence is both directly and indirectly related to pressure on freshwater systems' quality, with notable contributors being agriculture, hydropower, urban development, pest invasions and climate change (Gluckman et al., 2017). Gluckman et al. (2017) note the assessment of water quality as based around the three metrics of physical-chemical variables, measures of ecosystem health, and measures effecting human health for recreational use. Notably, all three of these measurable categories are premised on scientific testing for chemical and biological markers, making it void of any social or even spiritual contextualisation. Gluckman et al. (2017) further note that despite the extensiveness of this testing, there is a lack of systematic monitoring, resulting in potential bias and gaps that limit the ability to draw cohesive conclusions about water quality. Given there is already a lack of consistency around physical water monitoring, the additional absence of any social and cultural considerations presents an opportunity to contribute new approaches to water management that are more holistic.

In contrast, Māori perspectives of water and water quality are connected to people and well-being. This is evidenced by Māori descriptions of water as a lifeblood that flows over the earth mother (Taylor et al., 2021), emphasizing water's life giving properties and its reference to being the essence of life. Water is considered integral, on account of its spiritual and physical properties (Callaghan et al., 2018), and is linked to numerous forms of cultural expression and the sustainment of life. Embedded within a Māori worldview, water, as with all other things, shares a connection and relationship with humans, and therefore is part of the interconnected worldview that requires attention to the mauri of water for its well-being and maintenance. Therefore, working to invigorate the mauri of water is at the heart of Māori environmental ethics and values (Stewart-Harawera, 2020).

Despite Māori being recognised as kaitiaki in legislation and policy, there remains limitations to how kaitiakitanga values materialise (Durette et al., 2009). Supporting this, Henwood et al. (2011) note that the effects of colonisation mean the criteria of Western science and agencies have been privileged when it comes to water quality monitoring and

restoration, thus providing interpretations and solutions in the absence of Māori environmental knowledge.

More recently, steps have been taken to elevate attention to water quality through the application of a Māori environmental ethos. Encouraging inclusiveness of Māori values has seen a National Policy Statement for Fresh Water Management issued by the government, acknowledging Te Mana o te Wai (TMOTW) (Stewart-Harawera, 2020). It prioritises the mana (authority or status) of water itself (Taylor et al., 2021), ensuring any discussions and decisions are centred first and foremost around the health and well-being of water (Te Aho, 2018). Despite this focus, Taylor (2022) notes TMOTW as silent with regards to the mana of people, particularly Māori whose obligation and responsibility it is to care for water, and to maintain its relationship with humans. It relegates Māori authority as guided by the will of regional councils (Taylor et al., 2021), limiting formalised Māori agency for water management to the confines of local government agendas.

Moving beyond these legislative and political dynamics, notable impact has occurred when communities have empowered themselves to engage in fresh water management. Stewart-Harawera (2020) notes the transformative effects on water monitoring and treatment across numerous sites and locations throughout the country when Māori water based ethics and values have been applied. Such localised community engagement can be seen through the restoration of Lake Omāpere in the far north of Aotearoa New Zealand, with the application of kaitiakitanga practice as paramount to this small community's initiative and its effect in shifting attitudes towards the environment (Henwood et al., 2011). This has led to increased interest around localised environmental issues and (re)application of customary knowledge (Henwood et al., 2011). Therefore, engaging local communities to participate in kaitiakitanga becomes not only an important part of improving and maintaining water quality, but also transformative in the restoration of relationships between individuals, communities and water ways (Stewart-Harawera, 2020).

### **2.1.6 Summary**

Māori environmental philosophy is commonly enacted via the concept of kaitiakitanga, a term most commonly referred to as 'guardianship'. Derived from a Māori ontology, it emphasises an interconnected reciprocal relationship between humans and the

environment, and draws on such holistic aspects as spirituality, relational reciprocity and place based narratives/knowledge to understand and enact various forms of environmental management. Kaitiakitanga also has a relationship with power, in that it both enables Māori, but can also be limiting to empowerment. Kaitiakitanga plays a significant role in water management, with TMOTW, currently applied to water governance with the purpose of acknowledging the vital and inherent importance of water. While this has been progressive for better inclusiveness of kaitiakitanga values and practice, greater impact and transformation in kaitiakitanga praxis has been noted through the engagement of local communities. Given Māori communities have their own localised, historical and placed based narratives related to their unique forms of kaitiakitanga, an opportunity exists for giving voice to local environmental experts and knowledge holders. Space for these voices is to not only empower, but to engage in ways that reflect an openness and understanding towards the holism of kaitiakitanga and the worldviews and experiences of local people. It allows local communities to decide how they want to articulate and express their environmental views and the meaning they make of it.

## **2.2 Brief Tūhoe history**

The following section provides a perspective of Tūhoe history. From its origins, through to outlining Tūhoe aspirations for the future. It is a history that affirms the unique relationship Tūhoe share with their homelands, and the many historical struggles they have encountered in having their mana acknowledged.

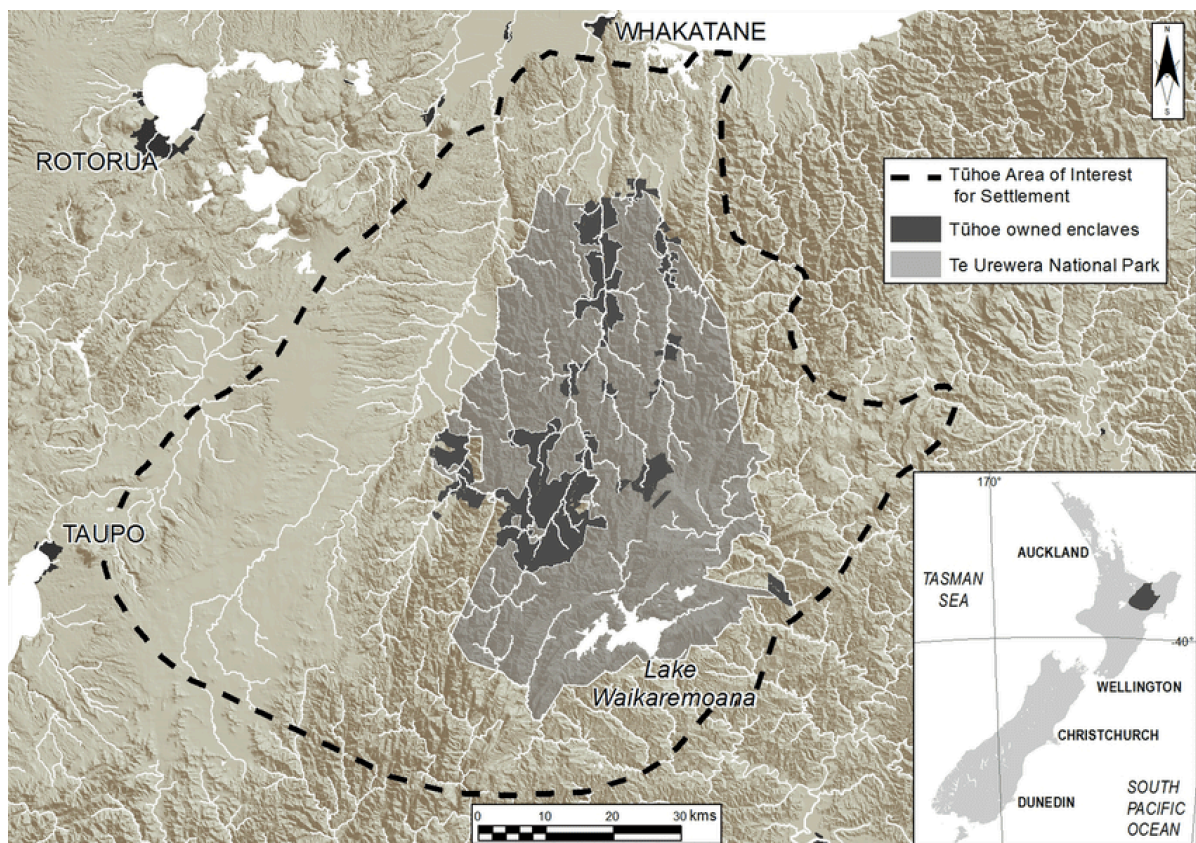
### **2.2.1 Tūhoe and Te Urewera**

Tūhoe people are a conglomerate of hapū, located geographically within the Eastern Bay of Plenty of Aotearoa New Zealand's North Island (Fig.1). Within Tūhoe tribal boundaries and central to their identity, is Te Urewera, one of the largest remaining expanses of native bush covering 2,127sq kms (Bataille et al., 2020). Deeply carved countryside containing numerous streams and waterfalls (Webster, cited in Miles, 1999), the area is well supplied with water from which various affluents flow into the Whakatāne, Rangitaiki, Tauranga and Wairau rivers (Best, 1913). Inclusive of both the Waikaremoana and Waikareiti lakes, it is a landscape described by the early European anthropologist, Best (1913), as "extremely rough,

broken, mountainous forest country” (p. 157). It’s beauty is untamed and rugged, prized by all New Zealanders as having significant national value and intrinsic worth (Te Urewera Act, 2014). Tūhoe people are the original inhabitants, with their presence in Te Urewera currently maintained by its four main community outposts of Waikaremoana, Ruatāhuna, Rūātoki and Waimana (Ngai Tūhoe Iwi, n.d.). The interconnected depth and extent of the relationship between Te Urewera and Tūhoe is often expressed and acknowledged as one in the same, with Tūhoe implying Te Urewera, and Te Urewera implying Tūhoe (Doherty, 2010).

**Figure 1**

*Tūhoe area of interest*



### 2.2.2 Early Tūhoe identity, authority and connection to environment

Tūhoe connection to Te Urewera is encribed within the whakatauaki (proverb):

*‘Nā Toi rāua ko Pōtiki te whenua. Nā Tūhoe te mana me te rangatiratanga’<sup>2</sup>*

It acknowledges the link to the land through the principal ancestors Toi and Pōtiki, and the authority Tūhoe assumes through their namesake ancestor Tūhoe-Potiki (Williams, 2011). Important to understanding Tūhoe identity, connection and self-determination to Te Urewera, these ancestor lineages constitute various sections of Tūhoe history, with the first inhabitants, Ngā Pōtiki, followed by early migration ancestors, Te Tini a Toi, and then the arrival of ancestors on the Mataatua waka (canoe) (Doherty, 2010).

Ngā Pōtiki are the original peoples of Te Urewera and are descendants of the union between Te Maunga (The Mountain) and Hinepūhokurangi (The Mist Maiden). Their son, Pōtiki, is from whom Ngā Pōtiki derive their name, and is the principal ancestors that Tūhoe link themselves back to. Doherty (2010) identifies Te Maunga as the sacred Tūhoe mountain of Maungapohatu, and Hinepūkohurangi as the celestial mist maiden. As a divine entity manifested as the phenomenon of mist, Hinepūkohurangi emphasises Tūhoe connection to both the spiritual and physical realms, and symbolises a Tūhoe connection to water. Her union with Te Maunga, situates Tūhoe origins as emerging from, and being born of, the natural world. The significance of this environmental relationship can be noted through the Tūhoe expression of, ‘nga tamariki o te kohu’ or ‘children of the mist’. The phrase eludes to Tūhoe being descendants of Hinepūkohurangi (McNeil, 2005), accentuating their connection and identity as constructed from the divinity of the landscape and mist, and therefore positioning Tūhoe connection with Te Urewera as inseparable.

Situated predominantly inland at altitude and amongst dense hill-laden bush unsuitable for agricultural crops, Nga Pōtiki were considered bush people, almost fully dependent and subsisting on produce from the forest and streams (Best, 1913). Because of this, Best (1913) further concludes that it would not be possible to densely populate their lands. As Indigenous inhabitants having implemented ways of living within their environment that are both intimately connected and sustainable (Tassell-Matamua et al., 2023), Ngā Pōtiki is exemplary of the accumulated knowledge and relational reciprocity required for sustained living in Te Urewera over generations. It highlights their connectivity to Te Urewera and its ecology, through knowing when best to gather food, hunt and fish in accordance with

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<sup>2</sup> Translation – ‘From Toi and Pōtiki comes the land. From Tūhoe comes the authority and sovereignty’

environmental rhythms, ensuring the ongoing supply of produce and therefore ongoing presence of human life.

Toi is another principal ancestor of Tūhoe, who travelled to Aotearoa New Zealand from Hawaiki<sup>3</sup> (the original spiritual home of Māori) and is considered the first to settle around the Whakatāne district (Doherty, 2010). Through intermarriage with the Indigenous inhabitants such as Ngā Pōtiki, Toi received the title of Te Tini o Toi (The multitude of Toi) (Miles, 1999), building alliances and connections throughout the land. Although Polynesian migrants with their own environmental knowledge, it is noted that Toi and his descendants adapted to a subsistence lifestyle with Te Urewera. This is reflected in Toi also being referred to as Toi-kai-rākau (Toi the wood eater), which is in reference to the extent his people lived off the foods of the forest (Best, 1913) and its associated water ways.

The estimated arrival of the Mataatua waka in 1350AD (Best, 1925), again saw the expansion of the people, with earlier inhabitants eventually becoming dominated by iwi and hapū founded by ancestors of this voyage (Miles, 1999). The particular purpose underlying the arrival of Mataatua was part of a return journey to Hawaiki to obtain the kūmara (sweet potato), the first of which to reach these shores (Best, 1925). With its arrival came the integration of new environmental knowledge, agricultural practices and customs. Williams (2013) notes the arrival of kūmara as important to Māori, and its cultivation as associated with the star constellation of Matariki (Pleiades)<sup>4</sup>, potentially undermining the relevance of the more traditional new year in accordance with the star Puanga (Riegel)<sup>5</sup>.

Numerous ancestors that have come to be seen as important, disembarked Mataatua and settled. Of particular note to Tūhoe was its captain Toroa, as his great grandson, Tūhoe-Pōtiki, became the eponymous ancestor of Tūhoe. Miles (1999) notes the far reaching effects of this genealogy on the early Te Urewera tribes, and therefore the influence and power they held. However, the first realisation of independence for Tūhoe, according to Williams (2011),

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<sup>3</sup> Original homelands from which Māori migrated to Aotearoa New Zealand. Often referred to as the place spirits return to upon death.

<sup>4</sup> Matariki is the Māori star constellation more commonly known by the Greek name of Pleiades. Its pre-dawn rising within the months of June and July signals the winter solstice, and therefore the start of the Māori new year. For Māori, Matariki shares a connection with the kūmara which is generally harvested prior to Matariki being seen in the morning sky.

<sup>5</sup> Puanga is a prominent star, known by the Greek name of Riegel, and is often associated with the more commonly known constellation of Orion. For some iwi, this particular star signals the start of the Māori new year.

came upon Tūhoe-Pōtiki killing his older brother and consuming his heart, thereby attaining his mana and mana for his descendants.

Stemming from the earliest inhabitants right up until the arrival of Europeans, these relevant ancestral connections have maintained Tūhoe rights and authority to Te Urewera and its waters. Although numerous encounters have seen shifts in power, enduring conflict, new relationships and new knowledge, these social and political dynamics have not overshadowed the relationships and environmental significance that Te Urewera represented to these people. Through maintaining their inherent responsibility as descendants of Te Urewera, Tūhoe communities had formed a traditional economy premised upon the sustainable use of Te Urewera (Te Urewera Board, n.d.). An approach that reflects a more authentic form of kaitiakitanga, due to its coherence with the ebb and flow of the environment and its maintaining of balance between nature and people.

### **2.2.3 European arrival and the disconnection of Tūhoe from Te Urewera**

The arrival of Europeans in the late 1700's and early 1800's saw Tūhoe form new relationships and embrace many new things from Western civilization, without compromising the strength of connection with Te Urewera (Ngai Tūhoe Iwi, n.d.). In 1840, the Crown<sup>6</sup> sort to establish a treaty<sup>7</sup> with Māori, which Tūhoe did not sign. Maintaining their autonomy, Tūhoe remained in control of their own affairs with no Crown presence prior to 1860 (New Zealand Government, 2013).

Although the precolonial era of Tūhoe had previously endured conflict, new relationships and new systems of knowledge from migratory Polynesians, the European settlers environmental worldviews were somewhat different. The desires of settlers to obtain land required a system of law that recognised their individual rights to occupation and ownership; a system foreign to Māori (Marsden et al., 1992). The opportunity for Europeans to obtain Tūhoe lands occurred post-1860's through the gross over-exertion of Crown powers and land confiscations. Most notably was unjust confiscation of the majority of Tūhoe agricultural and cropping lands in 1866 (New Zealand Government, 2013), limiting Tūhoe

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<sup>6</sup> Refers to the British Crown, who in 1840 claimed sovereignty over New Zealand. Over time however, the Crown has become associated with the New Zealand Government.

<sup>7</sup> Refers to Te Tiriti o Waitangi (The Treaty of Waitangi); a legal agreement between the British Crown and representatives of various Māori tribes who signed it. In recent years, it has been a critical document for processing numerous claims Māori held and still hold against the Crown.

access to their traditional sea food grounds at Ohiwa. Contestation of land dealings for Tūhoe was at the mercy of British law, forcing the assimilation of Tūhoe to legal frameworks. This undermined the worldview of environmental management as collective responsibility, to one of individual authoritative rights over the environment. Legal ownership and legal proceedings with the Crown did not only bring dissonance to a Tūhoe/Te Urewera relational worldview, but has been an instrumental mechanism by which detachment and disconnection of Tūhoe from Te Urewera has occurred.

The Crown's lack of environmental awareness and well-being for Tūhoe is perhaps best exemplified through their 'scorched earth policy' between 1869 and 1872. Employed as a means to cripple the Tūhoe tribal economy (Miles, 1999), this policy was enacted via a military strategy that deliberately destroyed the resources that Tūhoe relied on. It resulted in tragic casualties to both the environment and innocent Tūhoe people. Although these actions emphasise negligence toward the environment and human life, they perhaps best encapsulate the regulative destructive environmental mind set of the colonials, and their intentions to not just overcome Tūhoe, but to exterminate the people (Kruger, 2017).

Miles (1999) notes the years between 1896 and 1928 as an intensely damaging and harmful period for Tūhoe, with land loss and failure of the Crown to genuinely accommodate Tūhoe aspirations for autonomy. Armed invasions, ongoing unlawful land confiscations, dodgy land deals and sales, implementation of biased Crown acts and policies, and unfulfilled promises by the Crown, all contributed to the erosion of Tūhoe autonomy and rights to their lands, and compromised connection to Te Urewera.

Such acts were not limited to land but inclusive of Tūhoe waterways, with Lake Waikaremoana trespassed by the Crown from 1911 to 1954, during which time they installed hydro-electricity, lowering the lake bed and damaging its mauri (Ngai Tūhoe Iwi, n.d.). Crown control of the lake was inhibited for Tūhoe, and by the 1930's Tūhoe were denied the ability to regulate the taking of trout, an introduced supplementary food source for Tūhoe that required them to obtain a fishing licence (New Zealand Government, 2013).

The extent of the Crown's impact on Tūhoe is highlighted in the Deed of Settlement of Historical Claims (New Zealand Government, 2013), which showed that beginning from the 1930s the majority of Tūhoe needed to leave Te Urewera to search for work opportunities. Such migration can be associated with the loss of knowledge and identity, which compromised Tūhoe connection to their local landscapes. These effects have endured

through to contemporary times, with an estimated 81% of Tūhoe now living outside their tribal boundaries (Lyver et al., 2008; Nikora et al., 2004; Stats NZ, 2006).

Despite attempts at peace and re-establishment of Tūhoe authority, the Crown would eventually position themselves to take control over the majority of Tūhoe lands. However, the unsuitability of Te Urewera for settlement eventually led to the Crown in 1954 and 1957 setting it aside to become a National Park, with Lake Waikaremoana being added to it in 1971 (Ngai Tūhoe Iwi, n.d.). This act restricted Tūhoe customary use of Te Urewera, making traditional customary practices an offence (New Zealand Government, 2013), and inhibiting Tūhoe from making economic use of the lands. This further isolated Tūhoe within their own boundaries, breaking down Tūhoe ability to enact their environmental values and practices.

Ongoing limiting of Tūhoe autonomy continued into the 1970's. This is exemplified by Tūhoe seeing the overpopulating of red deer as an opportunity to supplement both their incomes and food supplies, where as outside interests sort mass cullings to generate big profits (Doherty, 2010). Doherty (2010) notes Tūhoe motivations as offering lifestyles that promote environmental balancing, while outside profit-driven interests disregarded the impact to community and the environment. Privileging of such commercial and private enterprises further underscored the ongoing suppression of Tūhoe by the Crown during this period.

#### **2.2.4 Tūhoe settlement and the pathway to re-connection with Te Urewera**

Despite these struggles, history has shown Tūhoe strength and resolve through their ongoing desire for self-determination (Williams, 2011). The establishment of various Tūhoe entities to address Tūhoe aspirations, has been part of a sustained resistance by Tūhoe and their quest to affirm their connection to Te Urewera. The years following their 1985 Waitangi Tribunal Claim (Wai 894) have led to the Tūhoe deed of settlement signing in 2013, settling all historical claims carried out by the Crown on Tūhoe. Resulting from this deed, and perhaps most significant to Tūhoe and their aspirations for Te Urewera, was the creation of Te Urewera Act (2014), investing Te Urewera as a legal entity with all the rights, powers, duties and liabilities of a legal person. One of its major objectives is to “strengthen and maintain the connection between Tūhoe and Te Urewera” (Te Urewera Board, n.d.), navigating away from the Westernised infiltration of environmental praxis, to becoming more relational in creating

a foundational shift in the way Tūhoe view, respect and co-inhabit with the land (Ngai Tūhoe Iwi, n.d.).

Te Urewera Act positions Tūhoe as the voice of Te Urewera, upholding Tūhoe mana whenua status, and recognising them as the people of the land and kaitiaki for it (Te Urewera Board, n.d.). Although Te Urewera Act removes the barriers that have imposed disconnection between Tūhoe and Te Urewera, Kruger (2017) notes a dis-ease with where Tūhoe see themselves in relation to living up to their own standards associated with the ideals of Tūhoe authority and self-determination. This discomfort is reflective of the damage incurred on Tūhoe links with Te Urewera over the course of the last 177 years (Kruger, 2017). Therefore, Te Urewera Act outlines its strategy through the publication of Te Kawa o te Urewera (Te Urewera Board, n.d.), to reinstate and reinvigorate these relationships.

For those Tūhoe who are disconnected or living outside its tribal boundaries, Te Kawa o te Urewera (Te Urewera Board, n.d.) is a calling, “offering an attractive and compelling invitation to those Tūhoe and manuhiri (visitors) who wish to have a relationship with her” (p.106). Initial steps to re-connection as outlined in Te Kawa o te Urewera (Te Urewera Board, n.d.), encompass the need to fill a knowledge gap and develop expertise in Tūhoe ability to understand the impacts of human activities. These understandings also apply to Tūhoe water ways, and the meanings they hold for local communities. Therefore, exploring localised Tūhoe perspectives of water management becomes an important contribution to the re-establishment of Tūhoe connection to Te Urewera.

### **2.3 Tūhoe environmental perspectives**

Understanding local community perspectives means engaging with Tūhoe environmental experts, their knowledge systems and lived experiences. An example of such engagement has occurred via collaborations with the Tūhoe Tuawhenua Trust, a collective of hapū located within the region surrounding the Ruatāhuna valley, in the heart of Te Urewera. The strategic intent of the collective is centred around the mission statement that “people and the land are intune and thriving” (Tuawhenua, n.d.). It presents a localised kaitiakitanga philosophy, that accentuates both the interconnected and interdependent nature of relationships in attaining collective well-being between humans and the environment. As the original inhabitants, such communities feel strongly about using their knowledge and customs to inform decision making that impacts both the land and their lives (McGregor, 2004).

Therefore, the need to understand Tūhoe localised perspectives, such as those of the Tuawhenua, is about empowering local communities to use their local knowledge to enact their own unique forms of kaitiakitanga.

The value of exploring local Tūhoe perspectives highlights the necessity of local indicators for interpreting environmental health. Akin to a sensory ethnographic approach, Tuawhenua locals are noted as detailing the character and qualities of the environment through both physical and biological indicators, inclusive of the decline or abundance of species, to then accumulate this knowledge into a form of ‘feeling’ about the environment (Lyver et al., 2016). This innate sensory ability to collate and process environmental information in holistic ways, emphasises Tūhoe perceptions of environmental health as requiring human interpretation of the relationship between all things. In this way, well-being of Te Urewera is not isolated to data itself, but centred on local people interpreting information and making meaning of it.

Understanding key Māori values when relating to the environment, has also emerged from research with a local Tūhoe community. Lyver et al. (2017) note locals as most often referring to the values of mauri and mahinga kai (food procurement) when considering the four community based themes related to place, ability of the forest to provide, connection between community and forest, and future aspiration. This situates the lived reality of Tūhoe environmental perspectives as constructed around the active process of engaging with and interpreting mauri, particularly with the forest and the ability of the community to harvest sustainably from it. It suggests that exploring localised Tūhoe environmental perspectives requires understanding these interpretations, and therefore the local experiences associated with mauri and other customs and practices such as mahinga kai that engage Tūhoe with Te Urewera.

Experiences of mauri within Tūhoe communities are also linked with the emotive states of people, with Timoti et al. (2017) positing the assemblage of ihi, wehi and wana<sup>8</sup> as emotional indicators in assessing the vitality of mauri and mana. Such emotive sensing engages our ability to rongo, to ‘feel’ ihi, wehi and wana. Sensing the vitality of mauri, Boasa-

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<sup>8</sup> Ihi refers to a type of inherent energy that emanates from the world around us, including all things within an ecosystem and the landscape itself. Wehi is when we become cognisant to ihi, therefore responding to it in an emotional way that makes us feel in awe. Wana is the bi-product of both ihi and wehi, through amalgamating these responses into an elevated state, connecting people to the environment, and therefore its mauri.

Dean et al. (2020) mention that we become “enamoured by life itself” (p. 99), when we sense an abundance of *ihi*, *wehi* and *wana*, suggesting feelings of euphoria when encountering the *mauri* of a thriving natural environment. The benefits of experiencing vibrancy of an ecosystem’s *mauri*, is the positive correlation it has with other factors such as identity, spirituality and cultural expressions (Timoti et al., 2017). Therefore, interpreting experiences related to *mauri* is not only crucial to understanding Tūhoe relationships with the environment, but also important to enhancing Tūhoe holistic well-being.

Tūhoe understandings of the environment are also embedded within Tūhoe traditional knowledge and practices, and therefore is an ongoing part of Tūhoe cultural expression. Limiting cultural expression inhibits Indigenous peoples’ ability to connect with environments, and thus to become disengaged. An effect of this disengagement has been described by Lyver et al. (2019) as a biocultural hysteresis, whereby ongoing decreased environmental engagement by local Indigenous communities, driven by environmental, social and economic factors, has had a detrimental effect on the cultural expression that links people back to the environment. This phenomenon has been noted by Tūhoe with regards to the decline of the *kererū* population over the past 100 years. With the community having not maintained traditional customs, protocols and practices associated with the *kererū*, due to colonisation and the Crown taking *mana* over this bird species (Lyver et al., 2008). Understanding and making meaning of localised Tūhoe disengagement therefore requires the exploration of local knowledge and cultural expressions, to understand the impacts, issues and meaning they have, and to seek potential opportunities to (re-)connect people to their environments.

Although insightful, these Tūhoe environmental perspectives have predominantly focused on ecological issues pertaining to land, forest and bird life. Yet to be explored are Tūhoe interpretations and understandings surrounding local water systems, and the meaning they hold. Having spiritual value, healing properties and being a source of food, water is of much significance to Tūhoe. Therefore, the opportunity to explore Tūhoe environmental perspectives and lived experiences related to water has the potential to (re-)invigorate Tūhoe understandings of connection to its water systems and thus strengthen Tūhoe connection with Te Urewera.

Insights gained from local Tūhoe perspectives, depicts the holistic, relational, interconnected and interdependent environmental worldview of Tūhoe. It highlights the

potential in giving voice to local communities who have history, knowledge and experiences associated with places and spaces. In exploring environmental themes related to Tūhoe water systems, it assumes the need to be open to the holism of a Tūhoe worldview, and the application of their knowledge systems and cultural expressions, to understand and make meaning of their unique forms of kaitiakitanga. One such knowledge system associated with Tūhoe that has become recently popularised is kōkōrangī Māori.

## **2.4 Kōkōrangī Māori**

Indigenous Māori cosmologies, ontologies and epistemologies are inextricably linked to te taiao (natural world), which include the many celestial bodies (sun, moon, constellations and stars) that adorn the skies. For Māori, these astronomical objects represent an intricate interrelated system, whose movements and presence in the sky signify patterns and changes in the environment, that are interpreted through the observational and time keeping practices of kōkōrangī Māori. Perceived as indispensably both spiritual and material in nature (Hardy et al, 2019), such celestial bodies are a medium for understanding and interacting with the environment, directing such activities as planting, hunting and fishing, that were embedded as a knowledge base into Māori culture, language and landscapes (Matamua, 2017).

Synchronicity of kōkōrangī Māori with the environment and its ability to anticipate environmental phenomena can be noted via the maramataka, or Māori lunar calendar system. Roberts et al. (2006) notes the maramataka as a time keeper, a system of observing the interplay between environmental signs, rhythms and cycles that have been informed by generations of knowledge, observation, and trial and error (Warbrick et al., 2023). Its ability to co-ordinate human activity into different astronomical phases and periods, is essential to optimising the interdependent relationships we share with the environment to ensure sustainability. The importance of its predictive capabilities in former times is highlighted by Hikuroa (2016), with its accurate planning of activities such as food procurement as critical to Māori continued success.

Maramataka and the various other celestial bodies and markers that inform kōkōrangī Māori, can therefore be seen as a form of environmental management; a system by which people interpret the stars, sun and moon through various phases, to inform how

best to engage with the environment. When guided by celestial and environmental signs, the environment becomes privileged, and power relations between humans and nature are repositioned to become more reciprocal.

Organising activities based on celestial and environmental observations, challenges us to consider how we understand and navigate our time. Māori perceptions of time are noted as relative to location, environment and what localised communities consider important (Matamua, 2020). This positioning of time relative to context implies that our lives can be organised and driven by numerous local phenomena, as opposed to the current isolative and universal system of time that assimilates people to order and conformity for the purpose of industrial, capital and global expansion (Matamua, 2020). Using Māori astronomical knowledge to understand and drive environmental activity enables the possible reconfiguration of how we understand and use our time to benefit not only the environment, but to also liberate people.

Despite the potential of this knowledge base, impacts of colonisation have seen Māori astronomy supplanted, redefined by Western knowledge and then lost, resulting in only a handful of individuals being knowledgeable on the subject matter today (Harris et al., 2013). However, the on-going renaissance of Māori language and culture has created space for a resurgence of interest in *kōkōrangī* Māori, recently resulting in the Māori new year of Matariki being established as a national holiday in Aotearoa New Zealand. Having expanded its influence over the country's national identity (Matamua, 2020), Matariki knowledge and its associated narratives have been applied in schools, city councils, organisations, promoted on screen, radio and in print (Whanga et al., 2016). The re-vitalisation and practice of the Matariki ceremony has become a nationally televised event, centering Māori cultural expression and giving space and voice to Māori environmental worldviews. It has reconnected people with traditional practice, spiritual beliefs, community, environment, those who have passed and the promise for the future (Matamua, 2020). The appeal of Matariki and the meaning it offers has seen over half (51%) of the Aotearoa New Zealand population in 2022, do something to celebrate it (Behive.govt.nz, 2023). It is a phenomenon that owes much of its success to a Tūhoe astronomical knowledge base, from which the majority of the knowledge attached to what is known about Matariki today is derived.

This growing interest to apply Māori astronomical knowledge into the life routines of people and the environment, suggests a high level of social acceptance for *kōkōrangī* Māori.

Drawing on narratives, making meaning and partaking in cultural expression related to all facets of Māori beliefs and values, emphasises the potential of kōkōrangī Māori to instill and invigorate not only Māori, but society in general to create new collective identities helpful to improved environmental management.

Such astronomical knowledge and narratives are part of Tūhoe history, as noted within a comprehensive manuscript related to Tūhoe astronomical knowledge compiled between 1898 to 1933 (Matamua, 2017). It suggests that around the turn of the twentieth century, some Tūhoe were still practicing kōkōrangī Māori, and it is much of this knowledge that is being revitalised today.

As observations of the stars informs people of the right time to harvest (i.e., land management), they can also be used to understand of water management. Although, to date, much of this knowledge has been lost/not comprehensively identified because of the colonial history described above. Given there is a particular Tūhoe astronomical knowledge base that has been passed down in a manuscript that specifically deals with star lore (Matamua, 2015), there is potential for investigating the relationship such knowledge has for contemporary Tūhoe environmental phenomena. As seen with the maramataka and Matariki, star lore has the potential to empower, connect, predict, unify and engage people with the environment. It provides an opportunity to consider how Tūhoe astronomical knowledge could be transformative to local Tūhoe water management.

## **2.5 Summary**

The better enactment of kaitiakitanga emphasises a need for local Māori community engagement. Such communities hold place based knowledge and lived experiences helpful to enhancing localised forms of kaitiakitanga. Tūhoe are identified as having strong links with their environments and aspirations to strengthen connections with it. Drawing on the strengths of particular knowledge bases associated with the Tūhoe community of Ruatāhuna, situates the possibility of exploring Tūhoe astronomical knowledge in relation to the local management of water, and is thus the premise of this thesis.

## 3 Research Methodology

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### 3.1 Introduction

This chapter will provide an overview of the methodological approach taken to explore Tūhoe astronomical knowledge in relation to the local Tūhoe management of water. Firstly, an overview of a Kaupapa Māori (KM) approach is provided, outlining relevant principles and their justification for being applied to this research. Wānanga as a relevant method of inquiry is also discussed, along with the addition of co-operative inquiry research practices. Participant recruitment and the data collection procedure involving a two-day wānanga with two knowledge holders from Tūhoe iwi, facilitated by myself, is also detailed. This is then followed by a description of the principles and application of a phenomenological informed thematic analysis of the data, with a particular focus on exploring the participants' views, perceptions, understandings and experiences from which certain themes were constructed. A description of the ethics relevant to this research is provided, followed by a personal reflection of the data collection.

### 3.2 Kaupapa Māori approach

Kaupapa Māori (KM) has often been described as research, “by Māori, with Māori and for Māori” (Smith, 2015, p. 47). The referenced preposition of the words, by, with and for, emphasises the extent of influence and authority Māori exert through this research approach. Research ‘by’ Māori, reflects Māori agency and control in designing and administering Māori appropriate research. ‘With’ Māori, highlights the relational nature by which Māori research thrives, enabling approaches that are collective, participatory, and collaborative. Ensuring Māori are the benefactors of carefully considered research, speaks to the idea of ‘for’ Māori. The mere nature of this descriptor, in accentuating and privileging the active positioning and roles of Māori within research, not only proclaims Māori need for space and voice within the hegemonic confines of dominant Western research, but also imbues researchers with responsibility and obligation. It empowers researchers to take control in applying culturally informed knowledge and practice to determine who the research will be done ‘by’, ‘with’ whom and ‘for’ what purpose. Adhering to this ethos requires researchers to become

cognisant and sensitive to not only their position and conduct, but also to the duty and service they seek for the collective. It emphasises KM's conscious centralising of a Māori worldview in research, to enact a way of doing research that is described by Smith (1997) as a Māori way of thinking and acting that reflects cultural appropriateness and is committed to Māori aspirations.

KM is derived from an Indigenous cultural perspective, recognised as a distinctly unique research framework to Aotearoa New Zealand (Thompson et al., 2008). Described as a body of knowledge with its own unique epistemological and metaphysical underpinnings linked to Māori cosmology (Nepe, 1991), KM is interwoven into the fabric of a traditional Māori ethos, connecting to Māori philosophies, worldviews, ways of operating, and understandings on which Māori values and beliefs are based (Pihama, 2010). In this sense, KM originates from a Māori way of doing things that predates modern theoretical and methodological approaches to researching, and therefore is not considered a hybrid or extension of any other theories, but rather its own unique theory evolved from its own cultural context. Within such culturally informed thinking, Māori researchers pose questions and gain understandings about Indigenous phenomena in ways that align with, support, and validate a Māori reality. It offers a framework whereby Māori endeavour to articulate their own reality, experiences, and personal truth (Mahuika, 2008).

KM opposes dominant Western approaches that impose standardised mechanistic laws in the quest for universal understanding of human experiences. Differences in approaches accentuate dichotomous epistemological power relations, not only suppressive to Māori ways of thinking and doing research, but also inherent across Aotearoa New Zealand's historical, social, cultural, economic, political and health spectrums. Revealing and contextualising these oppressive societal forces within Māori research, KM has evolved to serve a dual function, applied as both a methodological strategy and form of resistance (Walker et al., 2006). By the nature of its contestation, KM inherently becomes more than just a Māori way of doing research. It commits to assuming positions aligned with the critical analysis of the current unequal power relations within our society (Bishop, 2011), arguing against and agitating commonly accepted forms of research as a means to privileging unique Māori approaches and perspectives (Mahuika, 2008). Consequently, KM becomes about social justice (Thompson et al., 2008), redressing societal power imbalances.

Drawing on these aspects of a KM framework enables Māori research logic to be applied in creative and innovative ways when addressing the wider research intent of wanting to understand, 'how mana whenua can be empowered to enact kaitiakitanga'. Trying to define who exactly mana whenua are, what are the disempowering forces that effect the multitude of those who identify as mana whenua, and how do the multitude of mana whenua enact kaitiakitanga, becomes complex given the diversity of Māori and their worldviews. Rather than generalising this intent, the exploration of localised Tūhoe astronomical knowledge in relation to the local management of water, is the creative and innovative approach to ascertaining a specific and localised understanding of how one particular Māori community can become empowered to enact their own forms of kaitiakitanga. KM's agency in deciding who the research will be done by, with whom and for whose benefit, has enabled the opportunity to locate this research within my own tribal context. In this sense, mana whenua becomes operationalised as those located and affiliated with the Tūhoe tribal area of Ruatāhuna, and the particular localised experts and knowledge holders relevant to this community.

Utilisation of both localised Tūhoe astronomical and environmental knowledge emphasises the incorporation of a Māori, or even more specific, a Tūhoe epistemology by which to interpret and understand what a localised form of kaitiakitanga could look like. What we are doing here is not simply applying a KM framework informed by a unique Māori ontology and epistemology, but using systems of knowledge that are derived from the same location the research is being conducted. Merging KM methodology and localised Māori knowledge enables the research to follow a culturally appropriate process to applying traditional forms of knowledge into the current context for interpretation and understanding.

Explicitly stating 'Tūhoe astronomical knowledge' and 'localised environment management', emphasises our privileging towards alternate ways of knowing and understanding the world beyond dominant scientific understandings of the cosmos and mechanistic science informed environmental practices. Tūhoe knowledge and lived experiences thereby assume the position of being most optimal and valid in making sense of localised Tūhoe understandings of water and its management.

'Localised' further implies a bottom-up approach to researching that gives voice to a particular Tūhoe community, as the means by which to understand, interpret and articulate

their own truth. It empowers them to offer their understandings of what it means to care for the environment beyond a universalised understandings of kaitiakitanga.

### **3.2.1 Kaupapa Māori Research Principles**

Nuanced and customised approaches to initiating research with KM are highlighted by Durie (2017), with individuals applying their own interpretation of KM, ascribing it with different meanings, within different contexts. In this respect, KM constitutes an ongoing constructive process that requires researchers to not simply go out and design research, but rather engage with culture and communities, as a means to understand the best approach. Smith (2015) suggests that approaches to researching with Māori should be underpinned by KM principles. In relation to this research project, the following KM principles of tino rangatiratanga (self-determination), Whakapapa (genealogy), Whakawhanaungatanga (being relational) and Tikanga (customs) have been considered and applied.

#### **3.2.1.1 Tino Rangatiratanga**

Tino rangatiratanga is the foremost principle underpinning KM. Considered a 'control' principle (Kerr, 2012), this concept is commonly associated with self-determination, autonomy, sovereignty, and independence (Pihama et al., 2002). Operationalised through KM, tino rangatiratanga becomes about the empowerment of Māori, in not only deciding how research should progress, but to also consider the ways such decisions are transformative for Māori. From this perspective, tino rangatiratanga is more than just privileging Māori and Māori ways of enacting research, it encompasses broader thinking around how our ability to enact self-determination has an effect on outcomes for Māori. This suggests researchers critically assess their intent in researching with Māori, to ensure that research is not being done simply for research's sake, but rather has the intent to create positive change for Māori.

Smith's (2017) five tests to ascertain the veracity of KM is offered as a quick measure of validity, effectiveness and understanding of researchers using a KM approach. Summarized below are the five tests, which consist of the research(ers) positionality, structuralist and culturalist factors, criticality, praxicality and transformability:

1. *Positionality* – in questioning one's role and understandings of their position within a KM approach. This includes such things as understanding researcher limitations and capabilities in what they bring to the research.
2. *Structuralist & Culturalist* – noting that the struggle within research is not only cultural, but also structural, leading us to consider how Māori are impacted by factors such as power and economics.
3. *Criticality* – the need to think critically and interpret critical perspectives to elucidate new forms of colonial power dynamics. The need to understand what it is that we are resisting.
4. *Praxicality* – Ensuring researchers are producing transformative work that is current and relevant, through an on-going critical cycle of action, reflection, and reaction.
5. *Transformability* – with Māori research and researchers being navigated towards making change and becoming the change. This involves thinking more critically, to enable better analysis of societal thinking, to generate real effective solutions and outcomes for Māori.

(Simth, 2017)

*Positionality:* As a researcher with tribal connections to Tūhoe, this shaped the possibilities of who I could collaborate with on this research project, and what knowledge I brought to it. The added dynamic of being born, raised and living outside a Tūhoe geographical context has also contributed to an insider/outsider dichotomy (discussed at the beginning of this thesis). Here I note that this duo-positionality meant the research created my own personal journey. In this sense, my motivation for doing this project became two-fold: not only am I trying to understand how local communities might enact their own form of kaitiakitanga, but also that the journey to this research was about bridging my own personal connection to my identity. Therefore, the project is an enactment of my own self-determination, committing me in ways beyond the research project, to give meaning and purpose in transforming my identity through reconnecting with my people, our homeland, and our histories.

*Structuralist and culturalist:* With Māori already being collectively and voluntarily active in relation to an environmental ethos of care, an assumption is Māori have always been self-empowered in aligning their thinking and behaviours with kaitiakitanga. The predicament

then, of being self-empowered, but not empowered, accentuates the issue of empowerment as not centred within the control of Māori themselves, but rather regulated by an external power. For this project, it prompts a shift in centring self-determination as located in solely the culturalist perspective of the Tūhoe people themselves, to include and place emphasis on structural systems and hierarchies that prevent Tūhoe from enacting their self-determination as a legitimised form of empowerment.

*Criticality:* raises questions as to why unique, local ways of enacting environmental care are not part of the dominant discourse when thinking about and practicing current environmental management. Exploring what environment care looks like for this local Tūhoe community using their astronomical and environmental knowledge, demonstrates strategic autonomy, as it draws on unique local knowledge systems, histories, identity and ways of doing things, which is in contrast to dominant systems and structures. It therefore exposes the numerous ways power relations create and perpetuate dominance over local ways of enacting environmental management. The intent is to become cognisant of what is oppressing localised Tūhoe kaitiakitanga, to identify what it is being resisted, and what needs focus to create change.

*Praxicality:* Smith (1997) emphasises this through the need to engage in cycles of critical action, reflection and reaction as a collective. The purpose of praxicality is to ensure the transformation being created is an ongoing reflection and recalibration of aspirations of those we are researching with. For this project, bringing together experts in Tūhoe astronomical knowledge and localised environmental management, as part of a co-operative inquiry consisting of cycles of reflections, emphasises a focus on research effectiveness. It ensures what is found is being converted into meaningful action and therefore adding value to the aspirations of the Tūhoe community the research was built around.

*Transformability:* Smith (1997) notes the need to be deliberate and intentional about change, therefore indicating the need to conduct research that will be transformative. The reason for this, according to Smith (1997), is that by and large the current approaches have not worked. Therefore, to be self-determining in creating research transformability, the esoteric knowledge related to Māori astronomy has been applied, thus offering a point of difference. This deliberate act reflects an intent to be innovative and creative with our self-determination. Given this unique and different application to exploring the environmental

management of water, transformation becomes about (re)creating new ways of thinking and doing environmental care that meets the needs of a specific community.

These measures offer a way to enact self-determination in meaningful ways. From this perspective, self-determination becomes strategic, requiring ongoing (re)calibration, as a way to maintain and maximise the potential of the research, so that it is not merely non-conformist, but rather transformative non-conformist; thus, yielding beneficial outcomes for those we research with.

As a fundamental principle that underpins KM research, *tino rangatiratanga* encourages Māori research and researchers to be meaningful with their intentions. It gives consideration to how our research has an effect on everything else, and given Māori worldviews are interconnective, it therefore aligns with the second foundational KM principle of *whakapapa*, which is discussed below.

### **3.2.1.2 Whakapapa**

The principle of *whakapapa* is premised on notions of connectedness. It relates to how Māori identify and understand their place in the world through genealogy. Stretching back to the primordial parents of Rangi and Papa from whom all things descend (Roberts, 2013), *whakapapa* spans time and space, enabling those who are connected by ancestral lineages to have shared history and narratives (Walker, cited in Te Huia, 2015). This reflects the continuity of identity as more than just about how one relates to another by birth, but rather includes connections to past events, places, and particular knowledges. *Whakapapa* knowledge and understanding are therefore dependent on maintaining *whānau*, *hapū* and *iwi* identity, and initiating relationships with both people and places (Mahuika, 2008). Its importance to research is highlighted by Mead (cited in Mahuika, 2008), with *whakapapa* being a significant part of the selection process of both Māori researchers and participants. Locating and positioning one's identity through shared connection, implies nuanced levels of appropriate connectedness may be required to determine who can or should conduct research with particular Māori groups or communities. Exploring Tūhoe astronomical knowledge in relation to the localised environmental management of water, denotes research that shares connections to a particular people, place and space, and therefore requires a particular set of connections beyond simply being Māori. In this context, the appropriateness of conducting

research by, with and for people with genealogical connections to Tūhoe from Ruatāhuna and its localised astronomical and environmental knowledge, is essential.

### 3.2.1.3 Whakawhanaungatanga

The principle of whakawhanaungatanga is associated with the establishment and maintenance of relationships. It encompasses whakapapa and concentrates on relational dynamics (Mead, 2015). In this sense, it is the active process and manifestation of identity, because as we share and engage within the depths of who we are, we begin to locate, position and connect ourselves in relational ways to other people and context. A Māori perspective is offered by Bishop (1998) who states, “whakawhanaungatanga identifies how our identity comes from whakapapa and how our whakapapa and its associated *raranga korero* (stories) link us to all other living and inanimate creatures and to the very earth we inhabit” (p. 203). In this way, our ability to connect becomes grounded in not only how we engage with and experience relationships with other humans, but also to the wider context of places and spaces, to the past and present, enabling a more holistic form of relationship whereby shared collective vision for the future can transpire.

The concept *whānau* (family) is embedded within and linked to the concept of whaka-‘whanau’-ngatanga, emphasising the importance of relationships in terms of forming familiar bonds both with and beyond our immediate whānau. Māori values, customs and practices that underpin whānau and its collective responsibility, are relevant to Māori survival (Pihama et al., 2002), and therefore relevant to successful Māori research. Whakawhanaungatanga strives to create a whānau with common goals and outcomes, positioning it as the consultative process by which goals and outcomes are attained (Rewi, 2014). It seeks collaboration in research, whereby strong and meaningful relationships set a foundation for responsibilities and obligations to the research project to be shared by both researchers and participants.

According to Bishop et al. (1999), research strategies containing whakawhanaungatanga encompass three interconnected aspects. Firstly, the establishment and maintenance of relationships are paramount, and potentially extensive and ongoing throughout research. This reflects the notion of needing to form genuine relationships beyond simple research objectives, possibly long after the research is completed. It assumes

commitment and responsibility within the relationship to be what Smith (1997) describes as, reciprocal obligation in which the whānau structure supports individual members, and individual members contribute back to the group. Whakawhanaungatanga puts people before research, positioning access to understanding localised phenomena as premised on forming relationships with local people. Secondly, Bishop et al. (1999) note the formation of relationships within a Māori context as addressing both power and control dynamics in research, leading to what is termed 'participant driven research'. This aspect of whakawhanaungatanga challenges the participant/researcher power dynamic, in that participants can assume lead roles or are viewed as the experts. From this position, the researcher becomes less directive, in turn focusing on relationships for both guidance and support throughout the research process, aligning with a more collaborative approach. Lastly, Bishop et al. (1999) note that researchers see themselves as involved holistically in research, suggesting that whakawhanaungatanga requires them to connect beyond the intellectualisation of the research process, to encompass its spiritual, physical and cultural ethical elements.

#### **3.2.1.3.1 Insider/outsider dynamic**

Whakawhanaungatanga in research is also related to the active positioning of the researcher as a member of the ingroup being researched. Traditional Māori knowledge acquisition privileges those with tribal, hapū and whānau genealogical connections, as observed by Best (1934), with tohunga of prized tribal lore being tasked with transmitting and preserving their knowledges to a select few of each generation. This privileging of knowledge acquisition based on close familiar and relational connections is still the preferred method when conducting research with Māori.

Qualitative research, underpinned by interpretivist epistemologies, understands all research to be shaped by the researcher, and that valued knowledge is contextualised within its local cultural, socio-historic, environmental, and political settings. In this sense, possessing prior knowledge and connection to participants, sharing and collaborating with them, and maintaining such relationships, arguably positions the researcher as more in depth with respect to 'representing things as they really are'. Representing the worldview of others, is therefore intertwined with who we are, how we relate to our participants and the wider

research phenomena in question. It requires our deliberate attention to understanding our research relationships through either our collective interactions or individualised seclusion, so we may better understand what this will do for the research.

This binary, between the immersive collective and restrictive individualised dynamics of the researcher relationship, is respectively designated the terms of insider and outsider. Breen (2007) notes the insider as someone who chooses to study the group they belong to, whilst the outsider does not belong to the group they are studying. In working with Māori, Rewi (2014) defines insider as someone in a privileged position through both close and extended kinship relationships, and therefore through this status gains access to deeper levels of knowledge.

Rewi (2014) further notes, in her experience such a position is not immediately given, implying that insider membership is not predicated on just a simple set of identity markers or whakapapa, but additionally requires researchers to build trust, and commit themselves in relational ways to insider members beyond simple research. As a researcher of Tūhoe descent, it requires transforming my connection beyond simply identifying myself as Tūhoe, to becoming an active agent in experiencing the nature of my Tūhoe identity through relations with my whānau, our places of significance, our histories, and our knowledge. This aligns with Bishop's (1999) aforementioned understandings of research strategies using whakawhanaungatanga, in that relationships are foundational and extensive, that power dynamics are addressed, and that researchers are embracing of holistic approaches.

Contextualised against the nature of this research journey, insider membership through whakapapa connection is only an entry point. The importance of engaging in relational ways with participants and their worldview not only reaffirms our 'insider' status, but also deepens our understandings of who we are, those we are researching with, and the phenomena in question. Rather than a hindrance to research, who I am and the worldview I bring, becomes essential to interpreting collective observations with meaning and purpose.

For this project, reaffirming my insider status has been premised on returning in person, *kanohi ki te kanohi* (face to face) to my tribal home and forming extensive relationships spanning the width of my whakapapa, including my connection to the people and places of Ruatāhuna, Tūhoe iwi, the cosmos as understood by my people, and the local environment from which we descend. It has involved reflexive thinking in understanding my position within the context of wanting to research alongside my whānau, acknowledging

them as expert participants with their own culturally appropriate methods and approaches to this subject matter, and researching alongside and with them to (re-)create interesting ways of seeing and understanding the world.

#### **3.2.1.4 Tikanga**

The concept of tikanga can simply be considered as a set of guidelines, rules and procedures when engaging in specific activities or processes. For Māori, this concept is often thought of as, a 'Maori way' or 'Māori customary approach' to how things are done (Mead, 2016). As a principle within KM, tikanga is considered as embedded within peoples' thinking and behaviour (Smith, 2015), therefore the application of Māori processes and ways of doing research that is both culturally safe and appropriate, requires the incorporation of customs and practices that validate Māori ways of engaging with the world. This involves such practices and customs as reciting karakia (incantations), mihi (greeting), waiata (singing/chanting) and kai (partaking in food). Importantly, the application of tikanga re-engages us in cultural expression and practice, not only enabling Māori to produce research in ways that are consistent and relevant to their ontologies and epistemologies, but to also do research that feels inherently 'right' with who we are. Being 'right' in this way assumes various processes must occur for the right outcome to transpire, as pointed out by Bishop et al. (1999) who states, "if the procedure is correct, then the project and the product will be correct". (p.177)

Mead (2016) emphasises the ways tikanga are understood and enacted as varying between tribal regions, and to a more nuanced extent between hapū or even whānau. Rewi (2014) notes tikanga is the right or most suitable way that is appropriate to the particular situation, often navigated by our inner sense of knowing or intuition. From this perspective, tikanga is not necessarily a prescriptive or a tick box exercise adjudicated by any one particular individual, but rather involves an ongoing reflective process in collaboration with experts, participants or kaumātua, to ensure we are moving with the energy or flow of the research project in a culturally considered way.

From the conceptualisation through to the submission of this thesis, tikanga was considered and applied in numerous ways, sometimes predetermined, and at other times as an impromptu practice of initiating as activities unfold. This required me to be flexible in

drawing on my intuition in different situations, seeking advice, and being guided by experts and elders. Given my desire to research with localised knowledge associated with Māori astronomy and the environment, it is appropriate to apply localised customs and practices to ensure relevant and meaningful outcomes in a safe and appropriate manner.

Given the nature of the knowledge used, location in which data collection was to occur, and the various tikanga applied, wānanga was deemed the most appropriate process for information acquisition.

### **3.3 Wānanga**

Wānanga (forum, gathering) is a dynamic Māori cultural process to engaging in knowledge creation and sharing with others. The term itself is noted for its dual functionality as both a verb and a noun (Smith et al., 2020; Mahuika & Mahuika, 2020), positioning wānanga as more than just an act of doing, but also potentially a thing, person, or place. This dual application aligns with notions of space/place (Smith et al., 2020), whereby people come together in places to create space and immerse themselves in seeking deeper insight and understanding about the world.

The way places are engaged with and the processes by which space creation occurs, are associated with the origins of wānanga and therefore attached to Māori cosmology and ontology (Matamua et al., 2023). Informed by Māori beliefs and values, Māori ways of thinking and acting become inherently prioritised in facilitating the wānanga process. Therefore, employing cultural expressions through wānanga, such as tikanga, whakawhanaungatanga, kai and karakia, is not limited to the act of meeting people and discussing subject matter, but rather connecting in holistic ways with others that is inclusive and acknowledging of the wider interconnected world around us. Wānanga is therefore multifaceted in connecting people, place, space and knowledge simultaneously, creating an intellectual, physical and spiritual environment where collective thinking can be voiced and validated (Matamua et al., 2023).

Becoming immersed in wānanga enables an extended way of perceiving the world. When exploring phenomena, what it might mean to us and how it connects with everything else, it becomes normalised to rongo (to sense), to use our innate ability and emotions to elicit a sense of knowing. This can be thought of as 'whole body listening', where we take in

information that occurs externally, then interpret and ascribe it meaning (Dell, 2021). From this perspective, the internalised subjective experience of knowing is as valid as the observable externalised world. In addition to this and in line with a Māori worldview, these subjective interpretations can often be described in metaphysical ways, as links between ways of knowing and understanding the world void of any materialist objective truth. Therefore, wānanga endorses our innate abilities to understand the world and the types of causal links and meaning we can make. With its aetiology derived from Māori cosmology and ontology, wānanga is arguably the quintessential time-considered and evolved methodological approach to engaging with Māori ways of knowing. Wānanga, by all accounts, is both a culturally customised and an appropriate process of inquiry when exploring Māori phenomena.

Wānanga, as applied to my data collection process, has involved returning to places of significance and to the creation of space for collaboration. Exploring localised Tūhoe knowledge pertaining to the cosmos and the environment evoked a naturalist approach, as knowledge exchange occurred in Ruatāhuna; the place where the knowledge originated, is practised, and was the site where traditional wānanga pertaining to these phenomena occurred. Situating data collection within the very environment where the phenomena has derived creates meaningful and purposeful space for knowledge production. Spending time in person at these places of significance enhances relationality, not only with others and locations, but also to histories and knowledges. Being relational in this way and partaking in such practices as karakia and the consumption of kai, creates space to wānanga and facilitates articulation and interpretation of the relationship between local Tūhoe astronomical and environmental knowledge to deeper, esoteric levels.

### **3.4 Co-operative inquiry**

The research design was also informed by a co-operative inquiry (CI), a research strategy in which all people involved work together as an inquiry group as both co-researchers and co-subjects (Heron et al., 2008). Much like KM, the sentiment of a CI approach is focused on “research ‘with’ rather than ‘on’ people” (Heron et al., 2006, p. 144). The emphasis on ‘with’ denotes the aspirational collective input by all as being shared, and the desire to acquire

knowledge in ways that are inclusive and free of power relations. Described by Reason (1999) as a way of working with others who share common interests and concerns with the researcher, this collective approach not only implies shared roles, but also shared motivations and intent. The extent of involvement by all spreads the breadth of the research, from the inquiry design and management, to the experiencing and action of what it is that is being researched, including the research analysis and conclusions (Heron, 2008). Using this approach to research, CI aims to produce transformative and beneficial outcomes, with its function highlighted by Reason (1999) as creating not only new understandings and ways to interpret the world, but also understanding how to be agents for change, or to do things better.

Central to the process of CI, and for the purposes of this research project, is the engagement in cycles of reflection and action, which occur across four phases. Heron and Reason (1995) detail these phases beginning with phase 1, as focused on coming together to agree on research activities and therefore to collectively develop research ideas and questions, and apply a method in action, through practical experience. Phase 2 is where the co-researchers engaging in their designed research actions and becoming cognisant of the variations in experiences and how this aligns with the original research ideas. In Phase 3, co-researchers become engrossed in their experience, with a degree of freedom from preconceptions, deepening their insight and understanding, and therefore offering potentially new and creative ways to see phenomena. Co-researchers in phase 4, share data from phases 2 and 3 to assess against their original research ideas and decide if they need to be tweaked or change. Heron and Reason (1995) further note the repeating of these cycles as enhancing the validity of findings, and thus providing a more considered representation of the meaning derived from this research.

As an insider, having genealogical and relational connection to this project positions my aspirations, interests and concerns as shared with the other co-researchers. Therefore, we come together with the shared intent of creating new understandings through collaboration, around how kaitiakitanga can be interpreted through a localised approach of Indigenous astronomical and environmental knowledge. As co-researchers we partake in and experience the research as experts, learners and producers of knowledge. We immerse ourselves in places and spaces of importance to connect in deeper ways, such as returning to our tribal homelands within the Ruatāhuna valley, to draw on our own tribal knowledge

systems, experiences and reasoning, to unearth unique ways of understanding how the cosmos and its connection to water can contribute to the better enactment of kaitiakitanga.

Allowing time via cycles of reflection, can be considered integral in providing insight about various phenomena and the questions we seek about them, and as such central to the process of knowledge building (Lazard et al., 2020). In this way, being reflexive and taking time to ponder the meaning we make, assists in a more critical analysis of the research findings. Therefore, the application of cycles of reflection to our KM led research, is to formalise a feedback loop that ensures as co-researchers, we are satisfied in what we have contributed to the research, and the meaning we have made from it.

### **3.5 Participants**

Recruitment of participants was through personal networks of both whakapapa and whakawhanaungatanga. Whakapapa emphasised sharing genealogical connections and it's appropriateness to researching with those who are part of the in-group. Therefore, for this research it was important to ensure that both the participants and the researcher had appropriate connections to each other, to iwi, to spaces and places related to exploring Tūhoe astronomical knowledge in relation to the localised management of water.

Engaging in various discussions with kaumātua, knowledgeable Māori experts and whānau, assisted to develop an understanding of how to address this kaitiakitanga question. Through this emerging practice, two potential participants with specific expertise to enable this project to be a possibility were identified, and then sent a formal invitation.

Both participants were knowledgeable in many aspects related to Māoridom. In addition, they had specific expertise relevant to the study, with one considered an expert in kōkōrangī Māori and the other an expert in localised Tūhoe environmental management. The limited expertise in these respective fields, elevated the risk of exposing participants' identities, therefore no pseudonyms were applied. Both participants work in roles that support and reflect their respective areas of expertise. They also have residence in Ruatāhuna, however due to their work commitments they currently reside in an urban centre. Both make regular return trips to their home tribal context, where they are currently active in teaching, supporting and mentoring others within the community.

### 3.6 Procedure

Following acceptance to partake in the project, a research proposal outlining the initial who, what, where, why and how the research would be conducted was presented to participants. As a co-designed, collaborative and co-producing process, this enabled participants the opportunity to contribute to and help guide the research process, thereby ensuring the project met the collective aspirations of all involved. Minor tweaks were made, along with the request to hold our data collection in person at Ruatāhuna. Therefore, our wānanga was arranged and took place during the holiday period when both participants had returned and were based at this location.

The wānanga was planned for two days, to allow flexibility around establishing the right conditions for engaging in conversation, and the desire to not work to a strict prescriptive schedule when evoking meaning making. Upon arrival in Ruatāhuna, the practices of whakawhanaungatanga and shared kai were prioritised, with almost no mention of the research. This time was solely committed to visiting and connecting with my whānau, not as participants, but as whanaunga (as a relative), seeing me in the flesh and catching up. This lay the foundations for discussing our collective intent around when, where and how the wānanga should unfold.

It was considered appropriate to hold the wānanga at the homestead belonging to one of the participants, located next to the community marae, and the exact location where the ancestors related to this specific astronomical knowledge lived. Following a morning of physical labour around the homestead, I came together with both participants in the late afternoon to wānanga. After going through the participant information sheet (see Appendix B) and completing consent forms (see Appendix C), the participants were then asked and agreed to having the discussion audio recorded.

Given the flexible nature of KM and under the guidance of the participants, an unstructured interview process was applied through a discussion, initiated by myself about the research topic and seeking the thoughts of the participants. Brinkman (2020) notes unstructured interviews as having little pre-set structure, requiring the researcher to listen and hold back from interjecting. Punch (2014) further adds how unstructured interviews are holistic in maintaining the wider context of experiences, at the cost of producing large amounts of data that can be difficult to analyse. This was the start point of a naturally evolving

conversation, and further questioning was added to gain a deeper understanding of both the participants' experiences. The recorded interview lasted for two hours and 10 minutes and involved further whakawhanaungatanga and shared kai.

The following day, rather than interviewing, discussions occurred unscheduled and sporadically amongst spending time. In the evening, I was taken by one of the participants atop the mountain upon which ancestors observed the night sky and practiced rituals related to Māori astronomical knowledge. This was another site of important discussions and field notes captured these understandings.

The wānanga discussion was transcribed by re-listening to the recording and typing it into a word document. This enabled me to familiarise myself and become intimate with the data, whilst editing for accuracy. The transcription along with field notes were then analysed using a phenomenologically informed thematic analysis (as discussed in the next section), with findings organised into a power point presentation for the SO2 group. Following this, a more detailed analysis was written up and given to both participants as part of cycles of reflection. This mapped onto their sense making and how, in framing their talk through this analysis, they were able to generate further knowledge and expectations, in line with cycles of action-reflection that seek to develop knowing at a deep level.

### **3.7 Phenomenological informed thematic analysis**

A phenomenological informed thematic analysis was applied to the transcripts exploring participants lived experiences in relation to understanding the research subject matter.

Braun et al. (2006) note a thematic analysis (TA) as a process for the identification, analysis and reporting of patterns in the form of themes within qualitative data. As a systematic procedure in generating themes, TA is not confined to just summarising data, but to the identification and interpretation of meaningful aspects of data as informed by the research question (Clark et al., 2015). Therefore, TA requires finding re-occurring patterns in the data that signify some form of thinking or understanding that is not always immediately transparent. In this sense, deeper meaning attached to the phenomena in question can emerge, shedding new or interesting light on the subject matter.

Braun et al. (2006) note that using TA with some qualitative analytic methods is tied to a particular epistemological position. As a research project exploring participants lived experiences and meaning making, the underpinning epistemology to this TA draws on phenomenology, as it is applied in psychology. As a phenomenologically informed thematic analysis, this research was looking for re-occurring patterns in the data that enabled interpretation of the nature of participants' experiences.

From phenomenology, participants are seen as interpretive beings, intrinsically self-reflexive and sense making in understanding their worldly interaction (Smith, 2019). It places a particular focus on how people perceive and talk about things, rather than giving descriptions of phenomena against pre-established reductionist criteria (Pietkiewaicz et al., 2014). This perspective positions the participants as both the knower and manufacturer of knowledge, in that they have their own unique lived experience, the inherent ability to consider what these experiences mean and the ability to articulate it.

Making sense of participant's experiences requires an awareness of the hermeneutics associated with being interpretive, that is aimed at making meaning intelligible (Eatough et al., 2017). This emphasises the complicated nature of interpretation through a double hermeneutic (Smith et al., 2007), as the participant interprets and makes sense of their experiences, then the researcher applies a second layer of interpretation by making their own sense of the participants' sense making. Therefore, making sense as the researcher was connected to my own lived experiences and sense making.

Braun et al. (2006) phases of TA outline the six steps applied to this systematic process of finding patterns of meaning. It begins with: 1) data familiarisation by (re-)reading over or (re-)listening to experiences, 2) generating codes to emphasise interesting aspects of the experiences, 3) collation of codes into potential themes, 4) reviewing of themes to ensure they are relevant, 5) naming the themes and defining the detail that inform them, and 6) collating our analysis into a final report.

*Data familiarisation:* This step emphasised the need for data to be produced in context. Thus, returning in person to the location of Ruatāhuna for a data collection wānanga placed attention on the experience of place associated with the research and participants' experiences. Immersed within wānanga, participants made connections with the localised knowledge related to the subject matter and my own identity, personalising my connection to the data. Data familiarisation was therefore an act that implored the KM principle of

whanaungatanga, or being relational with the data. Re-listening to the recorded wānanga multiple times, typing up and editing the transcript, further deepened my connection with the data, offering a broad set of initial ideas. This was informed by paying attention to how the participants talked about their lived experiences, and their interpretation of them. This included observing participants' emotional tone, when they emphasised or reiterated particular points of interest, when they discussed the local environmental phenomena, the cosmos and its relationship to water, and when sharing their localised Tūhoe knowledge. As the researcher, data familiarisation was not only limited to the repetitive and attentive focus applied at the data familiarisation stage, but was also inclusive of my own personal lived experiences and relationship with the research that privileged me as an insider. This privileged connection invested me in the research, committing me and enhancing my ability to be more deeply connected with the data. Therefore, when discussing important or significant things, my ability to connect with this data was often bolstered through my own lived experience, in some cases having even experienced the particular things participants may be talking about (e.g., when talking about the river, I was able to familiarise myself with the landscape through my own lived experience of having swam in the river and knowing particular narratives associated with it).

*Generating codes:* Being data-driven, themes are dependent on the data (Braun et al., 2006). With data privileging a phenomenological focus, the raw data was reviewed, highlighting the exact points in the transcript text where participant experiences emphasised particular points, repeated particular aspects of discussion, and when they talked about things in interesting ways. Various aspects of interest in the data were initially identified and attributed a multi-worded descriptive code, reflecting the nature of its content (e.g., state of relationships, giving back to ourselves, and finding deeper connection to water). Numerous ideas emerged that were both directly and indirectly related to the research subject and the interconnected nature of the participants' experiences. As the researcher, interesting data was also considered in relation to what stood out to me as important or significant. Sensing this data was not limited to identifying a pattern, but inclusive of using my intuition, or as discussed in the aforementioned sections, to 'rongo'. Considering what was relevant data was therefore a combination of repetition, attention to detail, and the inherent feeling of knowing when the data was speaking to a greater purpose.

*Collating codes into potential themes:* Coded data was printed out, placed on a large display board, and predominantly aggregated by experiential and meaning making content. After reviewing and re-grouping of coded data to ensure consistency with similarities and differences, potential theme names were then considered that might best reflect the grouped nature of the coded data (e.g., the data coded from the example about 'state of relationships, 'giving back to ourselves' and 'finding deeper connection to water' was grouped into the theme of 'quality of relationship'). Braun et al. (2006) note it is important to consider the relationship between codes, themes, and the different level of themes. Therefore, themes were influenced and shaped by coded data similarities, how grouped coded data best represented the participants' experiences as a theme, how the various themes stood out as either being more or less dominant, and what possible relationship these themes shared with each other. Lines and arrows were drawn on the display board to highlight these relationships and understand how the data might fit together in a broader sense.

*Reviewing themes:* Revisiting these potential themes for coherence and consistency was to ensure theme data was meaningfully related and that obvious distinctions could be made between the themes (Braun et al., 2006). Although for clarity, this analysis is presented as a linear process, in reality I moved back and forth, circling between these phases as I developed my thinking around theme interpretation and to consider in more detail how themes linked together. In some cases, this involved creating new superordinate themes (e.g., placing the aforementioned theme of 'quality of relationships' under the superordinate theme of 'reconnection') to provide a higher level of insight into the nature of experience.

Additionally, critical assessment through the principle of tino rangatiratanga was applied using Smith's (2017) aforementioned five tests of veracity, analysing theme importance in relation to research positionality, structural and cultural dynamics, criticality, praxicality and the potential to be transformational. Reviewing against these tests provided greater attention to both the obvious and subtle patterns of meaning that could assist in the self-determination of the participants, their community and the research, in becoming transformational.

At the same time, Braun et al. (2006) highlight the need to ensure themes work in regards to the whole data set, therefore all themes needed to not only serve their own independent relevance associated with the participants' experiences and meaning making, but also their collective relevance to the entirety of the project.

*Naming themes and defining details:* Finalising of theme names and building a narrative around the themes, provided a foundation to construct a broad story that spoke to the data as a whole. Facilitated by a suggestion from one of the participants during an excursion as part of the wānanga, the concept of Te-ia-o-te-Rangi (The current in the sky, referencing the celestial movement of stars across the night sky) was put forward as a possible framework for understanding Tūhoe connection between the cosmos, the environment and water systems. Feeling comfortable with theme names and the added detail that underlay its meaning, theme names were then placed onto an image that was reflective of Te-ia-o-te-Rangi, depicting a current akin to the Milky Way. Superordinated themes were arranged as star constellations within Te-ia-o-te-Rangi, with subordinate themes represented as stars within the constellation. As Te-ia-o-te-Rangi represented a flowing current, patterns and meaning within the themes became arranged in a linear fashion to depict this flow.

Through this process, themes could be arranged and analysed within the context of time, in moving from the past, to the present and into the future. It also enabled a perspective that portrayed the flow of actions or causes from its headwaters, as having a particular effect downstream as outcomes. Such ideas as the damming of water, changing its flow, the speed of the current and the course of water, all began to feed into the detail of the themes and how they could be articulated. An example of following this process in forming a cohesive narrative around Te-ia-o-te-Rangi, resulted in the overarching theme of disconnection being placed upstream in Te-ia-o-te-Rangi, reflecting participants' lived experiences and knowledge related to the past, and how these historical events have resulted effects and circumstances downstream today. Thus, the opposing overarching theme of (re-)connection was positioned downstream in Te-ia-o-te-Rangi, to reflect a response or an effect to the theme of disconnection. As a result, the overall analysis was encapsulated and ordered within Te-ia-o-te-Rangi, making it possible to collate all relevant theme in to one cohesive narrative.

*Collating analysis into final report:* The analysis was firstly collated into a presentation that provided a logical and coherent account of the data as a complete narrative. As part of cycles of reflection, this analysis was given to participants to review, ensuring the data and collective narrative accurately reflected their views. Following feedback and edits from participants, this analysis was then presented as part of a power point presentation to the SO2 group for feedback. Cycles of reflections and doing a presentation and receiving feedback, assisted in reaffirming as well as developing the structure of the narrative

supporting the analysis. Using the presentation as a guide, a more detailed version of the analysis was written up and again shared with participants as part of cycles of reflections. Following minimal feedback, the analysis was written into the analysis section of this thesis.

### **3.8 Ethics**

Applying ethical codes of conduct throughout this research project required negotiating the dualism between appropriate Māori cultural conduct, and ethical expectations in accordance with the academy. The varying ethical limitations from the academic to the cultural context is emphasized by Smith (2015) as not limited to questioning around informed consent and individual rights, but also associated with the 'conduct' of the researcher and the research project. Conduct in this context, extends beyond engagement with participants at the data collection phase, to include an ongoing and applied ethical way of thinking and acting throughout the research project as a whole, enhancing both the credibility of the research and researcher. Credibility in conducting ethical research with Māori is noted by Kerr (2012) as closely associated with culture and connection, therefore requiring ethical research with Māori as not only fulfilling the ethical obligations attached to the academic institution, but also prioritising Māori ways of thinking and acting that meet Māori cultural norms and the relationships that inform research.

Smith (1999) lists several practices that reflect Māori values and ways of behaving when researching, of which *aroha ki te tangata* (respect for people), *kanohi kitea* (meeting in person), *manaaki ki te tangata* (sharing, hosting and being generous to people) and *kia tupato* (being careful), have been considered in the ethical approach to this research.

*Aroha ki te tangata* reflects peoples' autonomy in being able to think and act for themselves, therefore neutralising power relations between people through respecting and acknowledging others as both research advisors and value added co-producers of knowledge. As an ethical approach to this research, *aroha ki te tangata* was indicative of our natural inclination to be relational in seeking advice and gaining approval from *kaumātua* (elders) and localised experts and *whānau*, as valued sources of wisdom and knowledge. As the researcher, showing respect was part of the normalised process in gaining access to Māori understandings, thereby informing my sense of 'knowing' or 'feeling' what was ethical in terms of understanding the relevant pathways with who, what, where and how this research

could be conducted, whilst addressing major ethical concerns pertained to the cultural appropriateness, benefits and safety of all involved.

*Kanohi kitea*, as referred to in previous sections, relates to being present in the flesh, or to be seen by those you intend to research with. This ethical consideration was enacted through our inclusion of wānanga, and therefore the opportunity to return in person to my tribal homelands. In person not only refers to being seen by others, but also seen in places and spaces of significant, and in relationship to the research project. It emphasises not only my commitment to the participants, the wider community and the research project itself, but also to my desire to connect beyond the research, in ways that are more holistic. This approach constitutes a larger part of the research relationship integrity, by signalling my intent to be known and therefore held accountable to producing work that is meaningful and beneficial to my people.

*Manaaki ki te tangata* is the conduct associated with elevating the integrity of others whilst at the same time humbly elevating one's own integrity. Pipi et al. (2004) refer to it as applying a collaborative approach to research, in which all involved are cared for in reciprocal ways that enhance the collective ability to conceive, design and conduct research. Being reciprocal through this process implies such acts of sharing, hosting and being generous to people, and is perhaps best exemplified via our process of wānanga. The act of providing food, eating together, sharing both time and knowledge, and giving of koha as gratitude, are ways wānanga evokes the ethical consideration of caring for others in research and therefore our ability to be responsible carers when researching.

*Kia tūpato* was the most significant practice of ethical consideration in seeking ethics approval and is referred to by Pipi et al. (2004) as our ability to be politically astute, culturally safe, and reflexive regarding our insider/outsider positioning. As a project centred in Māori ways of thinking and acting, privileging an ethical Māori approach whilst maintaining academic integrity becomes the narrow path. Careful management of relationships and navigating middle ground relevant to progressing the research, while not breaching ethical guidelines, was important. Contentiously as an insider, the inherent conflict of seeking ethical approval from the academy, as a precursor to if and how I could engage with my own kin about research that involves them, created a cognitive dissonance around what it means to be ethical. Therefore, negotiating power relations that scrutinise the relational and non-standard ethical approach required submitting within my application for ethics, additional

justification of my cultural thinking and actions, despite them being the natural course of doing research with Māori. Although negotiating this required that I be cautious in my approach to meeting non-Māori centred ethical expectations, it illuminated particular power dynamics and therefore the opportunity to consider this ethical approach as a form of social justice.

The application of these Māori practices to informing my ethical approach, led to this research being endorsed and supported by kaumātua, experts in subject matter related to the research, and from both immediate and extended whānau. Research plans were also shared with the SO2 group (as extended whānau) within the Biological Heritage arm of the National Science Challenge, to provide an external perspective regarding appropriateness and the institutional ethical approaches to researching.

Ensuring the research met mainstream ethical standards, the ethical application also addressed issues associated with consent, data storage and right to withdraw. This was enacted via ethical guidelines that ensured participants were well informed and aware of their rights. This included an information sheet that was provided to both participants and followed shortly after with a consent form. This was followed up with both participants being asked if they wish to discuss or were unsure of any information, of which they both indicated they were happy to proceed. To avoid any ongoing formal administration, a koha (offering) of a \$50 prezzi cards was also given to both participants, signifying appreciation for their time and commitment in returning to Ruatāhuna for the wānanga. The participants were then asked and agreed to have the discussion recorded on an audio device.

Upon consideration of all the above factors that informed the ethical approach and administration of the research, and with the support of my research supervisor, an ethics application SOB 22/55, was submitted and approved by the Massey University Human Ethics Committee (see Appendix A).

### **3.9 Reflection**

My experience of returning to Ruatāhuna for a wānanga was reaffirming to my connection with my Tūhoe tribal roots. It was an experience not only centred on the wānanga process, but was part of just being present in person and partaking in various activities around and supporting of the wānanga. Being present and active, I was able to spend time being

relational with the participants and my whānau. Catching up was not motivated by the research project itself, or centred on the co-ordination of the wānanga, but rather centred around how people had been, what they were up to, and what was happening in the valley. This made me feel at ease about our upcoming wānanga and reinforced the notion of allowing events to naturally unfold, as opposed to feeling the requirement to coordinate and predict when things would occur for the research.

The physical element of helping to do maintenance work around one of the participants' properties was also a valuable time to discuss not only life, but to share intentions for the wānanga. During this time, the participant asked what I thought the project was really about, and what question did I feel I was trying to answer. Feeling insufficient with my response, I came to appreciate from this questioning the need to be active rather than passive in understanding the deeper meaning of this project. Simply asking questions and getting answers within the wānanga would not be enough. I would need to consider my own meaning that would derive from the meaning made by the participants, to best answer these questions.

The administrative procedures at the beginning of the wānanga associated with ethical research (i.e., informed consent, signing of form, etc) felt quite awkward, having been unconsciously and naturally relational with the participants since my arrival. This feeling made it difficult to be relaxed when opening the discussion. Using an unstructured interview process helped shift this focus and allowed the participants to share. The most striking aspect of the participants' discussion was the broad range of interconnected topics and issues they discussed in relation to the research. Retrospectively, I was anticipating a particular line of thinking and responses that were quite narrow in literally answering the research question, relating to the cosmos and the environmental management of water. Although there were responses that did address this, the deeper meaning of the participants' discussion highlighted numerous unseen aspects that underlay the Tūhoe experience, and what has been and still is impacting on localised forms of kaitiakitanga.

An important personal indicator for this research was the spiritual connection I made following the wānanga, during a hike with one of the participants upon the hill where my ancestor conducted astronomical observations. Whilst observing the landscape, the rarely

seen but often heard, Koekoea<sup>9</sup> (long-tailed cuckoo), presented itself on a tree in front of us, sounding its distinctive call. The participant pointed out to me that this was a *tohu* (sign), calling me back to my home. The participant noted the annual migration of the Koekoea from the Pacific and attributed this journey to my own. This event made me feel connected to place and the greater environment. For me, it gave purpose to my presence in my tribal home and provided intrinsic approval from both the environmental and my ancestors to undertake this research project.

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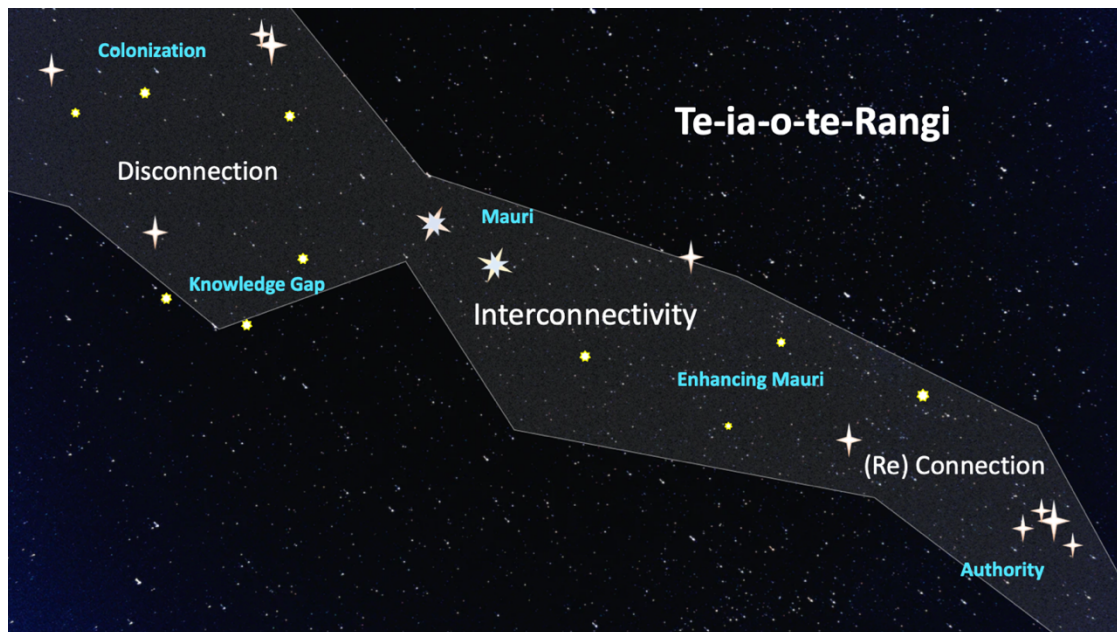
<sup>9</sup> The Koekoea, also known as the Pacific long-tailed cuckoo, migrates to Aotearoa New Zealand from the Pacific Islands in summer, to breed. It lays its egg in the nest of other birds, leaving them there to be raised. The Koekoea returns in the winter months to the Pacific.

## 4 Analysis

The analysis is embedded within a narrative given by one of the participants, referred to as Te-ia-o-te-Rangi, the current of the sky. It references the movement of celestial bodies as akin to the current of a river, flowing from east to west across the night sky. Te-ia-o-te-Rangi elicits the notion of needing to read the current, to understand and interpret what the current is doing, and how we are positioned with regards to interacting with it. Using Te-ia-o-te-Rangi (see figure 2), the analysis reflects a journey of related themes through the understanding of participants' lived experiences associated with understanding localised astronomical Tūhoe knowledge, localised Tūhoe environmental knowledge, and its relationship to water.

**Figure 2**

*Representation of my themes as Te-ia-o-te-Rangi*



Te-ia-o-te-Rangi is divided into three main flows (or major themes) of *Interconnectivity*, *Disconnection* and *(Re-) Connection*. *Interconnectivity* spans the entire current in the sky, linking all things together. *Disconnection* contains the two constellations

(or subthemes) of *Colonization* and *Knowledge Gap*, while (Re-) Connection contains the three constellations of *Mauri*, *Enhancing Mauri* and *Authority*. Each of these are discussed in detail below. At times, quotes are provided as exemplars of the various themes, but not all themes and sub-themes have quotes. The purpose of presenting the findings in this way is to highlight more my interpretation of the kōrero overall, rather than seek objective metrics (i.e., quotes) as validation for my interpretation.

#### **4.1 Interconnectivity - underpins everything**

Interconnectivity is the theme represented by participants ways of understanding and connecting with the world. Interconnectivity was a dominant theme that provided contextuality for reflexive thinking around the various ways this community had become disconnected, and the potential pathway forward for (re-) connection. At various stages throughout the interview process, both participants elicited interconnection through *whakapapa*, *narratives*, *cultural expression*, *knowledge application* and *written accounts*. For the purposes of this research, these are considered sub-themes within the broader theme of interconnectivity, and are discussed below.

*Whakapapa*: Participants referenced their cosmological connection as descending from Ranginui (the sky father), down to Te Maunga and Hinepūkohurangi, and onto their son Pōtiki-tiketike. This connection was not only important to understanding the link with the environment, but explicitly detailed a connection to water, through the cohabitation of both Te Maunga and Hinepūkohurangi at Onini, a physical location within the Ruatāhuna valley. One participant noted (O)Nini, as the Atua that resides below the harakeke (flax) and is representative of the connection between earth and water. With Pōtiki-tiketike conceived at this location, it is noted as one of the nexus points from which Tūhoe interpret their connection to the heavens, earth, and water.

*Narratives*: These were also alluded to by participants when expressing interconnection of phenomena. Tāne (God of the forest and central to Tūhoe cosmology) was referenced as using the sky as a water way, sailing a cosmic waka (canoe) to ascend the heavens in his quest to arrange the celestial bodies and bring light to the world. In referencing this, participants noted interconnection via a mirroring effect, with waterways in the night sky reflecting the waterways on earth, and vice versa.

*Cultural expression:* Participants referred to such expressions as “Te wai tuku kiri” (to be caressed by or bath in water), highlighting the importance and utility of water to Tūhoe well-being and healing. It was a practice done on occasion by one participant, and important to connecting with their own waters. One participant also shared the localised expression of “He wai ki te Tāne, He whenua ki te Wāhine”. The phrase emphasises the alignment of masculine energy with water and feminine with the land, informing Tūhoe customs that privilege particular foods derived from water and land, as prioritised to men and women respectively. The identification of the participants’ own masculine energy was noted through water, depicted through the characteristics of the tuna (eel).

*Knowledge application:* Participants knowledge and its applied understandings also reflected an interconnected view of the world. Of note, was their understanding around the migration of eels, and how this could be interpreted, understood and observed in accordance with cosmological knowledge, customs, practices and experiences.

*Written accounts:* Building upon this interconnection, was knowledge that had been handed down through generations both orally and in written form. Such accounts were particularly important for one participant, for whom the recorded ancestral knowledge provided insight into how celestial bodies drove daily life within their localised context.

Despite these understandings, both participants raised concerns about understanding this interconnection and ways of interpreting the world. Influence of the modern context and current ways of living was noted as having shifted or weakened understandings of such relationships. This shift is described by one participant through the decreased use of localised star lore:

*“...lunar stellar system of time was something that, in this tribe, drove our interactions with our environment, and we have moved away from that. We have moved away from that as we’ve Westernised ourselves.”*

The significance of this shift is highlighted in that it ‘drove’ actions and behaviours and therefore was historically central to this community’s lived experiences. Understanding the forces that create such a shift and the ability to (re-)integrate this knowledge back into a way of engaging with environment, informs the following themes of *Disconnection* and *(Re)connection*.

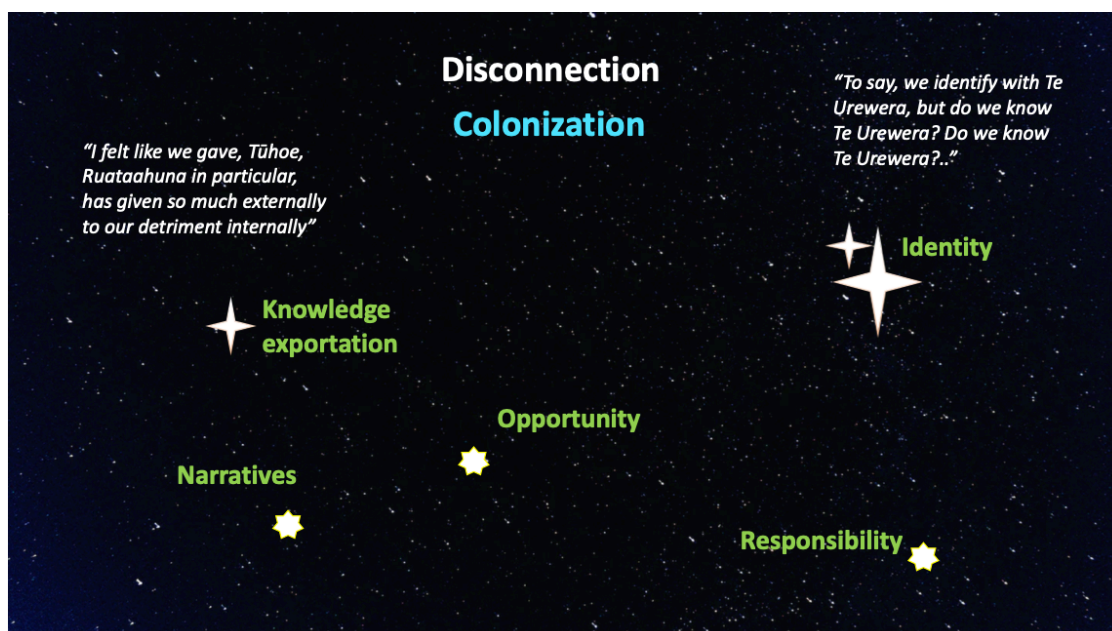
## 4.2 Disconnection - through the past

The analysis then explored reasons for a shift away from certain ways of connecting with the world, and looked into the dynamics of what disconnection may look like, or the current state of Te-ia-o-te-Rangi. The two constellation subthemes of colonisation and knowledge gap were identified as underpinning disconnection.

The first constellation (subtheme) within disconnection is **Colonisation** (see figure 3). Five stars (or headings) within the constellation emphasise different aspects related to colonial influence that has placed pressure on Te-ia-o-te-Rangi. These stars entail: *knowledge exportation, identity, opportunity, responsibility, and narratives.*

**Figure 3**

*Constellation subtheme of colonisation situated within the overarching theme of disconnection*



*Knowledge Exportation:* Participants referred to the colonial, political and structural pressures that led to the historical exodus of local Tūhoe out of Ruatāhuna, and thus led to a wealth of knowledge being exported and adopted by others. Tūhoe knowledge relevant and

beneficial to its localised context, was viewed by participants as having been incorporated into the wider sphere of Māoridom, with little or no benefit to its' origins.

*“I felt like we gave, Tūhoe, Ruatāhuna in particular, has given so much externally to our detriment internally”*

This personalised perspective of having ‘given so much’, emphasises inequitable or unfair circumstances that surround the wealth of knowledge and contribution this localised community has made outside its tribal context. This response reflects participants interconnected and relational worldviews, situating this outcome as linked to Tūhoe historical events in the past because of colonial suppression, and emphasising the frustration of giving (knowledge) outside of a Tūhoe context without adequate reciprocation. In stating this position, it implies notions of wanting to rebalance this effect, feeling justified and wanting to empower the community, by taking the time and space to give back to the local community.

*Identity:* This speaks to the notion of how identifying oneself has become separated from the need for relationship. With the majority of Tūhoe residing outside their tribal context because of historical colonial influence, identifying as Tūhoe has often occurred with no or little lived experience within tribal borders. This was noted by one participant as reflected by the ease with which Tūhoe often associate themselves to places and spaces, but have no real experiential engagement with them.

*“To say, we identify with Te Urewera, but do we know Te Urewera? Do we know Te Urewera?..”*

Questioning the static nature by which people often identify themselves, this participant posits the idea that to know something or someone, there is the need to have an active relationship with it/them. In this case, to know Te Urewera is to spend time with her, to feel all the sensations that arise in experiencing her and to feel something for her. By effect of having such a relationship, identifying oneself moves beyond whakapapa and its associated narratives, to be validated through lived experience.

*Opportunity:* As a result of knowledge exportation, participants noted a lack of opportunity for those within the local community to learn, or to be mentored by experts and knowledge holders. Limited opportunities have therefore inhibited the local community from enacting their cultural expressions and thus limited the community's ability to assume responsibility.

*Responsibility:* A lack of capacity has created pressure upon those who have knowledge, and therefore participants felt an overwhelming sense of obligation to counter what was described as a visible decline in connection and knowledge.

*"Yeah, well definitely, I can feel the weight coming my way, cause I'm starting to speak on my marae, on behalf of my mārae. And my uncles, and in fact my grand uncles are still alive, and are there sitting by me."*

Referencing the responsibility to 'speak on the marae' alongside older generations, infers a sense of dissonance with how localised customs are being enacted today. Pressure of this responsibility reflects the (re-)arrangement of social dynamics, that have eventuated as a result of knowledge exportation, and the current need for people to 'step up' to maintain the cultural integrity associated with their identity, places and spaces.

*Narratives:* Colonial influence and ongoing political dominance were also noted as over-shadowing localised voice and environmental standards associated with water quality. Having no control over how water quality is managed and delivered, emphasised not only a lack of inclusiveness for local views on water quality, but an avoidance of pursuing water quality targets aspirational to localised Māori communities.

*"....And they say stuff like, 50 percent of New Zealand waterways are swimmable? They need to make 100 percent of water ways drinkable. See, we don't control the narrative. So, they're thinking 50 percent, that's pretty good. That's shit."*

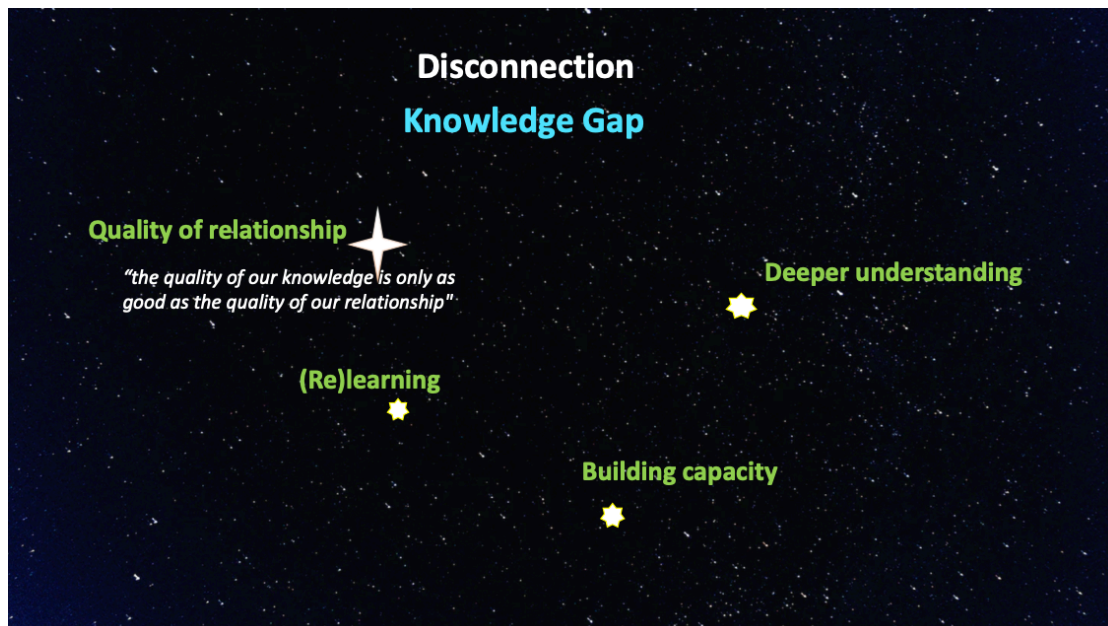
The participant here is emphasizing the manipulation of dominant power structures in controlling the social discourse regarding water quality. This is accentuated by juxtaposed messaging of, 50% swimmable water ways against what is considered by the participant as the minimal metric of being able to ingest water from any water way. Framing some water

ways as good enough to touch, avoids a commitment to water quality that is good enough to be drinkable, questioning the values and integrity of those who control the narratives. The placement of the word thinking in “...they’re thinking 50 percent”, emphasises a process that reflects water quality standards as a conveniently considered and rationalised metric, designed to be palatable in the public sphere. The participant highlighting, “we don’t have control”, reflects their disempowerment in resisting such narratives, therefore enabling dominant environmental discourses to maintain the status quo.

Four stars make up the next constellation subtheme of **Knowledge gap** within disconnection (see figure 4). These stars relate to concerns and gaps identified within Te-ia-o-te-Rangi. These stars entail; *quality of relationship, (re-)learning, deeper understanding, and building capacity.*

**Figure 4**

*Constellation subtheme of knowledge gap, situated within the overarching theme of disconnection*



*Quality of relationship:* Both participants stressed concerns regarding the quality of relationships Tūhoe have with their traditional homeland ecosystems, and its effect on people’s ability to acquire a level of knowledge adequate for exploring localised water management.

*“The quality of our knowledge is only as good as the quality of our relationship...85% of Tūhoe live outside their place of identity, and if that’s the state of the relationship, what’s the state of the knowledge?...Maybe the priority is to look at the quality of our relationship with the water, with our environments, before we grow anything else.”*

The statement makes a link between relationships and knowledge, suggesting that to have a better understanding of water, people must enter a relationship with it. The example given by the participant emphasises a gap in relationship as affected by geographical distancing, in referencing the majority of Tūhoe as residing outside their tribal context, and therefore unable to adequately engage with the landscape. Quality relationships from this stand point, require bridging the gap of people being able to return in person to Ruatāhuna, and become active in experiencing ecosystems that nurture one’s sense of knowing through lived experience. Situating the importance of relationships as a possible precursor or dominant factor in the quest for knowledge, further privileges a phenomenological approach to understanding water quality. Bearing this in mind, the participant’s statement reflects a desired shift in theoretical perspective when wanting people to understand the phenomena of water from a localised perspective.

*(Re-)learning:* The need for better relationships was identified by participants as related to the need to (re-)learn various past Tūhoe customs, practices and knowledge. Separation, isolation, and lack of opportunity had eroded potential for knowledge transmission and circumstances for learning. Thus, the need to re-learn highlights the need to bridge this gap in knowledge.

*Deeper understanding:* Despite various members within the local community of Ruatāhuna already having an existing relationship with the local environment, it was stressed by participants that a deeper understanding of knowledge and traditions were still required to form stronger relationships to places.

*“I think that there are people still out there practicing, not necessarily the depth of knowledge that we read in books, or that we’ve heard in the past. But, those people that are out there doing the mahi, don’t realise the weight of some of that*

*responsibility, or even the depth of the kōrero that's associated to some of those places."*

Opposed to the aforementioned theme that speaks to the quality of relationships, gaining deeper understanding or depth of knowledge was also highlighted as a gap for those who were considered local, or as having a geographically localised relationship with the environment. This emphasised that relationships also require knowledge to elevate understanding to new levels, therefore positing both knowledge and relationships as interdependent. Limitations in understanding water systems was not solely viewed as a geographical issue that impinged on relationships, but also as an access issue; that is, a lack of opportunities to accumulate knowledge relevant to lived experiences, places and spaces. Thus, participants alluded to the point that, in light of locals having experiences and relationships with the environment, without the contextualised, unique and relevant knowledge, that deeper meaning and quality of relationship cannot be truly realised and therefore enacted.

*Building capacity:* This theme is about addressing the knowledge gap, the need to future proof and the sharing of responsibility and obligation collectively. It was an aspiration expressed by both participants and in part derived from their experiences and concerns around the current state of the general knowledge and customary practice within the local community.

### **4.3 (Re-)Connection - into the future**

The aforementioned aspects of disconnection logically lead to considerations about (re-)connecting with environments, as a means to effectively interpret Te-ia-o-te-Rangi. The three constellation subthemes of mauri, enhancing mauri and authority were identified as underpinning (re)connection.

Within (re-)connection, is the constellation of **Mauri** (see figure 5). It consists of two stars representing both *whakapapa* and *mauri*, highlighting the need to acknowledge both aspects in forming relationships. The interconnection between *whakapapa* and *mauri* is described in the following participants' quote:

*“Whakapapa is just whakapapa. It’s two things right, the thing that interacts, is that Mauri. And it’s your responsibility to the relationship to ensure that that thing is nurtured.”*

**Figure 5**

*Constellation subtheme of Mauri, situated within the overarching theme of (re-)connection.*



Given whakapapa is often acknowledged as the point of connecting people to places and spaces, the participant here is emphasising that whakapapa alone represents a static connection, requiring the active process of engagement with mauri to give it meaning. Being active in this way is to have a relationship beyond simply describing your connection, to having experiences between people, places, and spaces. Stating ‘...it’s your responsibility’, situates each individual as having the potential and autonomy to maintain and strengthen these connections. The implied nature of needing to ‘nurture’, evokes a considered and well-meaning intent towards developing such relationships, and therefore to actively engage in reciprocal ways.

The nature of mauri and its relationship to building connection is not only seen as constructed by human interaction with environment, but also as a construction by the environment itself, as highlighted in the following quote:

*“The ngahere (forest) is saying, please, please come here, please eat this bird, I'm giving this to you, please take this tree and carve it, please come here, please trample on me, please be in my realm, so I can tell you who I am and you can carry that with you.”*

Voicing the intentions of the forest in this way reflects nature as possessing its own consciousness, intelligible to the dynamism of the human/environmental relationship. The need for this connection is emphasised via the reiterating of ‘please’ in conjunction with encouraging people to come into, to use, and to take the resources the forest has to offer. In this sense, the forest is wanting to nurture people, to care for them, by offering it resources for human survival. Thus, this statement depicts the forest as enacting its role as a kaitiaki or traditional guardian.

The notion of the forest wanting to express ‘who I am’ and for people to ‘carry’ this knowledge, may signify the desire to not be forgotten about, or to not be undervalued by humans. Pleading for humans to accept the various offerings of forest resources, as noted in the participant’s statement, elevates awareness in people’s consciousness of the value the forest holds. Therefore, such value places importance on being remembered, acknowledged, and engaged with.

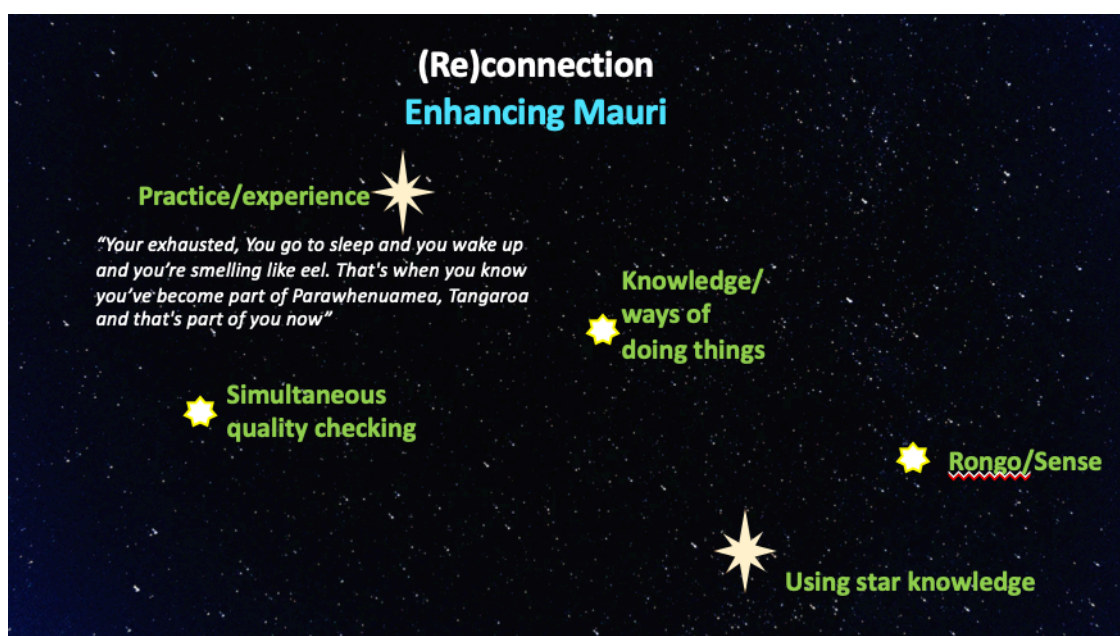
Beyond this, the notion of the forest wanting a relationship, stresses the importance of humans constructing, maintaining and developing a reality in which the identity of the forest and humans becomes interconnected. To know who the forest is, and to carry that understanding with us, implies lived experiences as an integral part of constructing reality. In this sense, engaging in activities based on what the forest has to offer, becomes an experience we can talk to and hold in our minds and hearts. Identifying who we are becomes part of identifying with the forest. Therefore, to know the forest is to know ourselves.

The interdependent relationship between the forest in needing humans to construct its identity, and the dependence of humans on forest resources, emphasises the potential this relationship holds if we are open to listening to the environment. The implied notion of giving and receiving depicts a mutually beneficial relationship, through which people have the choice to subscribe. It is a relationship premised on the forest offering its resources to the people, and people reciprocating by elevating the forest in their consciousness, identifying themselves with it, and singing its praises.

Ways of **Enhancing Mauri** is the second constellation theme within (re-)connection. It highlights various ways relationships might be restored with environment (see figure 6). The five stars within relate to *practice/experience, knowledge/ways of doing things, simultaneous quality checking, rongo/to sense, and using star knowledge.*

**Figure 6**

*Constellation subtheme of enhancing mauri, situated within the overarching theme of (re-)connection*



*Practice/experience:* Participants emphasised the importance of actively engaging with and experiencing the places and space that are associated with their identity. Traversing the intellectualisation of what it might mean to connect with environment, to actually having a physical sensory experience in it, was viewed as fundamental to building a relationship with localised environments. In the quote below, the participant reveals that by immersing oneself within environmental experiences and practices, such as eeling, people become connected to the experience or practice.

*"You're exhausted. You go to sleep and you wake up and you're smelling like eel. That's when you know you've become part of Parawhenuamea (God associated with water from the earth), Tangaroa (God of seas), and that's part of it, you know."*

This statement speaks to investing oneself and committing to a particular practice or experience to build stronger relationships. The immersive nature described by the participant in referencing the opposing states of 'sleep' and 'wake', imply the notion of all day and all night. Being undeterred by how one might smell because of eeling, signifies a particular focus and persistence that draw one's attention to take time in being in the experience or practice, as opposed to focusing on oneself. The participant notes the byproduct of this commitment and focus as being able to align oneself with, or embody the essence of, the Atua associated with their specific environmental domains. Participant's reference to the Atua, suggest that lived experiences and the enactment of cultural practice offer potential re-engagement with localised ontological perspectives, representing the ability for people to interpret the world through a spiritual Māori or Tūhoe specific lens.

*Knowledge/ways of doing things:* Building upon experiences and practices, participants expressed the importance of re-applying localised knowledge and the ways such knowledge can be transmitted. Referencing the traditional Tūhoe institution of the whare wānanga, participants emphasised this localised approach to knowledge sharing as an appropriate forum for increasing relationships and knowledge bases related to water:

*"There's whare wānanga (sites/places of learning), there's places of higher learning here, right throughout this community, all around. All the way down the river, places that our ancestors went to get discourse, and to critically analyse, and to unpack stuff, and to debate and to theorise."*

Of interest in this participant's statement, is how ancestors 'went to get' or retrieve knowledge at specific locations, rather than knowledge transmission confined to a central hub of learning. Knowledge acquisition as described here, is not limited to an isolative intellectual process occurring between people. But, is inclusive or even dependent on specific places and space within the environment, such as along the river, where people can relate with the environment in a way that enhances their ability to know. Framing discourse, critical analysis, and even theorising as dependent on attending particular environmental locations, suggests that answers to questions about the environment are reliant on experiencing the environment itself. This further emphasises the importance of being relational with

environments and engaging with water systems, as part of a wider more holistic approach to learning. In discussing the *whare wānanga*, the participant is putting forth a time-tested approach that originates from their community and is customised for their particular environment, to bridge the knowledge gap and improve Tūhoe environmental relationships.

The statement also positions the community as already having a suitable and appropriate method for transforming their relationship with the environment. In suggesting this, the focus shifts away from investing resources in external entities and experts to sort local issues, to investing internally with local groups and local experts who have unique localised and innovative solutions. In offering this approach, the participant is highlighting their aspirations for the community in becoming self-determining in their journey of (re-)connection.

*Simultaneous quality checking:* Accessing and understanding water quality through other means of engagement or forms of practice was also discussed by participants. Avoiding looking at water in isolation from all other things, participants noted the ability to draw meaning from what was happening in the environment around them. Therefore, cross referencing phenomena was important to understanding the environment, and was considered appropriate and pragmatic to do whilst engaging in other activities:

*“A lot of (water) management...is proposedly going down to monitor it (water/river). You know, but for many of us, going down (to the river/water), he mahi tuna (to eel), we get our monitoring in that framework. So, there’s different frameworks. You might be going down, he mahi manu (to harvesting birds) at a particular time and you get your readings as you’re going through the forest, or going through those rivers.”*

Water monitoring in this context becomes related to activity, in that while people are engaging in practices such as eeling, they are also participating in data collection. Data collection or ‘readings’ as described by the participants here, is not restricted to or emphasising any particular scientific metrics, but rather focused on people’s interpretations, as assessed through their relationship with environments. This approach to monitoring is consistent with research by Lyver et al. (2016), who notes Tuawhenua Tūhoe as accumulating environmental data to establish a ‘feeling’ about the state of the environment. This implies having relationships with the environment as important to quality checking and assessment,

through people being sensitive and attuned to the various states and conditions of the environment, from which assumptions about the quality of water can be made.

*Rongo/to sense:* Use of innate sensory perception was important to understanding environmental states and therefore connecting with mauri. Drawing on personal experience, this participant describes using innate feelings and intuition when interpreting the state of the environment:

*“...actually, the earth is yearning as well. You know, (I) get there (referencing a particular location in the forest), I feel lonely. You know it’s like, its calling for interaction, that’s my experience.....And when you start to feel that, you know your earth is calling you back into those areas, then you have to make connection.”*

Emphasis on the inherent and intuitive ability of individuals to interpret and make meaning of environmental states can be noted with the participant interpreting the environment through their own emotional state of ‘I feel lonely’. The follow-up phrase of ‘that’s my experience’ situates the participants as the authority over these feelings and therefore privileging a self-validating approach. Adding ‘when you start to feel that, you know’, suggests there is an internalised process of transforming feelings into knowing. The ability of people to sense in this way, draws attention to interacting with the mauri of objects, places and space, as noted by Timoti et al. (2017) via the assemblage of ihi, wehi and wana when assessing mauri vitality. Therefore, to draw on our innate ability to sense mauri, we are able to reveal gaps in relationships with the environment, from which people can (re-)establish and maintain connections.

*Using star knowledge:* Tūhoe astronomical knowledge was noted as having the potential to influence peoples’ relationships with environments, including water systems. This knowledge was seen as new and different, and thus providing an innovative and creative pathway for developing understandings related to water management:

*“51% of the country, of New Zealand, not Māori, the New Zealand population did something to celebrate Matariki (Māori new year) this year. Most of them was, go outside and look at the stars. And I thought to myself, that’s winning. Out of 51%, that’s two and a half million people going out, looking at the sky during Matariki. You*

*know, and I think to myself, that's what mātauranga Māori (Māori knowledge) does, it forms a connection. And people are going, I want to be a part of that."*

Reflecting on the recent impact of Matariki, the participant draws on statistics to emphasise the effect of mātauranga Māori, in particular Māori astronomical knowledge. Applying statistics as validation is not only about quantifying the magnitude of effect, but highlighting the behaviour of going outside and looking at the stars. This draws attention to people wanting to have an experience, in being present and observing Matariki in the early morning sky, as part of a larger collective experience that can be associated with various New Year practices and celebrations unique to Aotearoa New Zealand. Referencing 'winning' is suggestive of overcoming a struggle, battle, or competing with other forces, that have opposed, potentially over-looked or positioned mātauranga Māori as a lesser form of knowledge. Winning here, is therefore reflective of the ability to infiltrate dominant discourses, to recreate a shift in people's consciousness that makes them feel open to alternate ways of knowing the world, and the potential for that knowing to be transferred into behaviour that increases people's ability to be relational with the environment.

The effect of Māori astronomical knowledge is also noted in the participant's deliberate referencing of, "New Zealand, not Māori", to describe the sample data. This emphasises the potential reach of including Māori cosmological and ontological perspectives as going beyond just Māori, to being a unifying phenomenon that can assist with raising people's awareness of the environment.

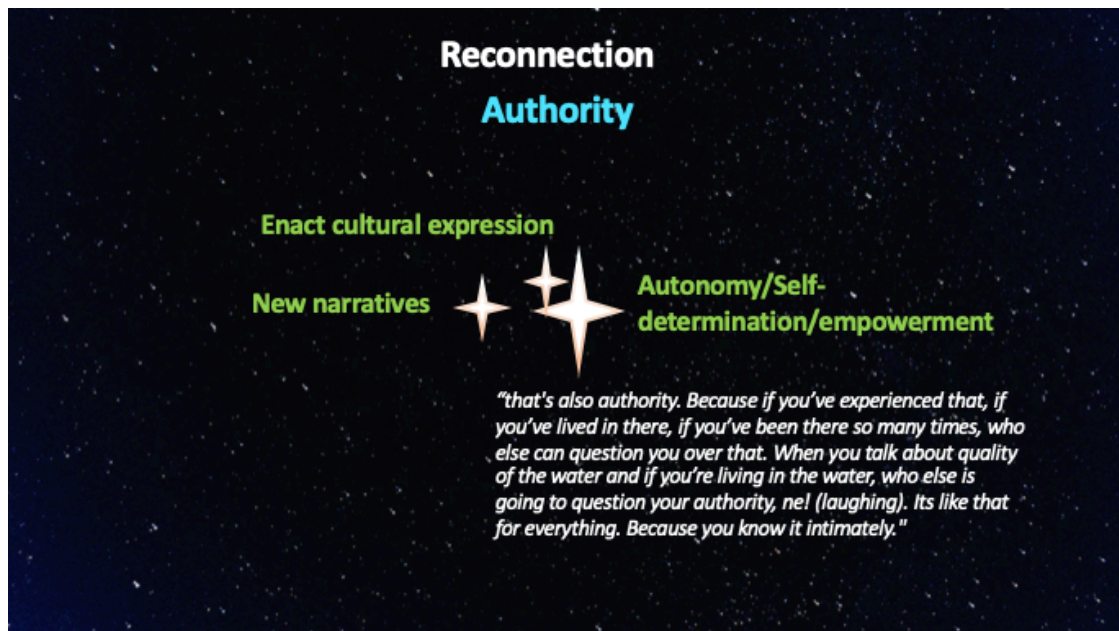
Noting people as, 'wanting to be a part of that', emphasises a desirability or demand in people wanting to form relationships with the environment using Māori astronomical knowledge. This situates the perceptions of Māori star lore as part of a growing in-group trend that, through ongoing individual and collective experiences, further grows and stimulates people to connect in transformative ways. Given this potential, participants advocated for the use of kōkōrangi Māori to not only creatively and innovatively increase peoples' relativeness with the environment, but to also become self-determining in expanding their knowledge and exploring the interconnectivity of the cosmos through using their own local knowledge.

The final constellation is **Authority**, and relates to a state of enhanced mauri through relationships (see figure 7). Authority constitutes three stars within this constellation related

to *autonomy/self-determination/empowerment (tino rangatiratanga)*, enactment of cultural expressions and new narratives.

**Figure 7**

*Constellation subtheme of authority, situated within the overarching theme of (re-)connection*



*Autonomy/self-determination/empowerment (tino rangatiratanga)*: is about the creation of opportunities for the local community to enact their own forms of water management, in ways that empower local communities. It reaffirms identity and validates a sense of inner knowing about the state of water, facilitated through strong relationship to local environments.

*“That's also authority. Because if you've experienced that, if you've lived in there, if you've been there so many times, who else can question you over that, ne?! It's like that for everything. Because you know it intimately. You know it so well, that you can question it straight away. When someone puts an assumption out there, you can say, no that's incorrect. Not according to my experiences.”*

This statement emphasises the power of lived experience, and in the case of this project, experiences associated with having a relationship with the environment that extends

from the cosmos, down to both people and water. Here, the participant is outlining the value of a 'quality relationship', in that we can be 'intimate' with the environment and 'know it so well', that our interpretations and understandings of it becomes our truth. This is challenging to dominant discourses, as knowing is not limited to being factual or informed by some outside expert or system of knowledge derived from a different ontology, but rather an inherent sense of knowing, interpreting, and meaning making is informed by local lived experiences. Challenging standardised thinking in this way, imbues the experiencer with a sense of authority centred within their own understanding of the environment. It positions people who live within this local community, and who have a quality relationship with the environment, as authorities in speaking to the nature of the environment and its association with their lived realities.

*Re-enactment of cultural expressions*: is the potential to re-introduce various cultural expressions (knowledges, practices, waiata, ceremonies, etc), that re-invigorate and maintain peoples' relationships with environments. Empowering this local community to (re-)instigate and revitalize such culturally relevant expressions, offers an approach to understanding water and its on-going value through a medium of lived experiences, rituals or practices. Knowing and understanding water becomes a form of enactment, whereby we do the knowledge, we become the knowledge. Therefore, peoples' actions and behaviours come to have purpose that is not only symbolised in a physical sense, but also as something spiritual:

*"...there are people when talking about practices, they'll go to the water when they're sick. You know, they'll actually go down. Every now and again I'll shoot down and I'll bath in the water...there's a saying you know, when you go down, ka tuku, kei te haere au te tuku i au ki te wai. So I go and give myself across to the river. You know, so you kind of give yourself, who you are back to the waterways."*

This participant's experience of cultural expression through the practice of bathing in the water when sick, highlights how such practices can be empowering. Here, the giving of oneself to the water can be viewed as a personalised act of self-care, emphasising not only the autonomy of the participant in using the relationship they share with water as a healing mechanism, but also privileging such expressions as 'wai tuku kiri' for healing. Stating "they'll

actually go down (to the river or water)”, emphasizes the literal and simple nature of self-healing as requiring access to water systems, in contrast to the current medical system which evokes dominant discourses of ‘going down to the doctor’. In this sense, participants are not limited to healing practices that prioritise the Western medical system when dealing with sickness, but rather promote a holistic approach to well-being that is centred within local cultural expressions.

Giving oneself ‘back to the waterways’, implies there is a relationship between water and people. Giving back, means something has been received, be it water or food for sustenance, spiritual and physical healing, or providing identity to people. Giving in this context is a response to these offerings. Giving ‘across’ to the river, implies there is a void to bridge to receiving the healing powers of water. It implies notions of trust, belief or commitment that further re-emphasises need for a quality relationship. Importantly, it brings into context spirituality, emphasising our relationships with the environment as not only associated with the physical and intellectual processing of data, but to prioritising peoples’ inherent ability to make sense of what is going on in the world through their own form of spiritual experience.

*New narrative:* Having self-determination over applying approaches to understanding and interpreting water management, was considered an opportunity to instigate new and more meaningful narratives around water for this local community. New narratives were seen as an opportunity to be both innovative and creative in sharing knowledge that local people could better relate with. Therefore, this theme reflected an openness to change, by evolving cultural knowledge around water to be more relevant, appropriate and stimulating for this community within the context of the environmental challenges of today:

*“...we’ve had all of the knowledge, which informs the practice. Now, we’ve got a bit of the practice and we’ve forgotten all about that stuff. It doesn’t mean as much. You can weave that in (weave narrative/knowledge with practice) and say, bro there’s Whaitiri (star name), look there’s Matamoe (star name), that will be the next one that migrates out, and on the next rains, its gonna go (eels migrate).....There’s Ihorangi (star name) which is the rains that come to make the tuna go. There it is there, which means it’s going to rain in the next week. They’ll go in the next week, and the moons are getting*

*dark, so they'll be starting to stir. So, you go down and you watch them go (migrate). So, it's all of that stuff right, and then they have Ihorangi calling them to go home, there's Punakauariki (star name) calling them to go home, there Tunanui (star name) telling them to go. And they're (eels) on their way. There's a connection to that. That's what I want people here to know. Not just, summer time (go) eel(ing). Cause you know, that's what it is (currently). It's warm, I'll set my hinaki (eel net). As opposed to, there's a hinaki in the sky as well. There's a pa tuna (eel weir) in the sky. These are these bloody practices I want them (the community) to learn."*

Here, the participant is emphasising the potential for 'weaving in' or blending astronomical knowledge with knowledge of the eel migration process. Detailing the greater story of what, why and when events are occurring within the environment in accordance with various stars, the participant offers a narrative that gives deeper meaning and purpose to understanding the migration process of eels. From this, people obtain a new way of perceiving their relationship with water, helping to order and align their environmental behaviours and engagement with astronomical observations. The participant suggests that when the environmental conditions are right, people can observe the eels migrating or 'watch them go', creating opportunity for people to not only witness the migration phenomenon, but to put knowledge into practice, linking such narratives with experience.

In wanting 'people here to know' about this information, the participant is sharing their aspirations for empowering their local community through star knowledge. By effect, empowerment through incorporation of Māori astronomical knowledge becomes about deepening the purpose and meaning of peoples' experiences associated with environmental engagement. In this sense, it has the potential to move this community beyond oversimplified indicators such as the season of summer driving current eeling practices, to embed and give greater effect to the relationship between people, the cosmos, and water systems. Therefore, autonomy in creating new narratives is about creating alternate discourses around water quality that connect people through relationships, thus enabling people to be better kaitiaki.

## 5 Discussion

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The aim of this research was to explore localised Tūhoe astronomical knowledge in relation to localised Tūhoe environmental understandings of water. Underlying this exploration, was the wider research intent of wanting to understand how mana whenua can be better empowered to enact kaitiakitanga. The initial research question put forward was therefore to understand;

- What happens when we bring together both a local Tūhoe kōkōrangī expert and a local Tūhoe environmental expert to discuss water management?.

To assist in addressing this question, the following subsidiary questions were applied;

- How do the lived experiences and knowledges of Tūhoe experts contribute to a localised Tūhoe perspective of water management?
- How might this perspective be utilised by the local Tūhoe community to enact kaitiakitanga?

Therefore, the following section will discuss in detail the major research findings in relation to both the aforementioned subsidiary questions above, and link these findings with existing literature. Research strengths and limitations will then be discussed, followed by recommendations, personal reflection, and a conclusion.

### 5.1 Relationships across space and time

In addressing the first subsidiary question related to understanding what participants lived experiences and knowledge could uncover about a localised perspective, the research found that Tūhoe water management reflected the all-inclusive realities of the participants as members of the local Tūhoe Ruatāhuna community. Participants interpretations of the connection between localised Māori astronomical knowledge and localised environmental

management of water were relational and interconnected. This emphasised participants' high degree of multifaceted relational thinking when describing their experiences. Making sense, was not isolated to understanding connections between water and the cosmos, but rather inclusive of connecting to the wider context in which lived experiences, Tūhoe ontologies, localised histories and events, local knowledge, cultural expressions, places and spaces, and social dynamics all significantly contributed to shaping participants' interpretations.

Relationships were key to being relational and understanding interconnectivity between participants' lived experiences as Tūhoe and their associated water systems. This was reflected through participants interpreting relationship states relative to their past, present and future. As noted in the literature, Kawharu (2000) states this time mapping process as important to managing relationships, through which she further references the common aphorism of Māori walking backwards into the future. This infers Māori as looking back to what has occurred in the past, to make sense of the present, to chart a course for the future. For this project, it was encapsulated within Te-ia-o-te-Rangi, referencing relationships in the past, to the present state of relationships, and then onto relationships in the future.

Relationships in the past, as related to people's ability to connect with local water systems, were considered by the participants as physically, mentally and spiritually compromised. Reasons for this were located within Tūhoe tribal histories, to particular events and points in time, that restricted the context in which Tūhoe from Ruatāhuna could maintain relationships with their homelands. The resulting exportation of knowledge to external locations was viewed as beneficial to others, whilst limiting opportunities for those still within Ruatāhuna. Sympathy for this past state fuelled motivations for change and feelings of justification to repair relationships. Such emotive justification for driving change that enhances people relationships to enact better environmental care is highlighted in the literature with Kawharu (2000), who notes similar responses of feeling justified in exercising kaitiakitanga when applying historical frameworks for resource protection. This situates Tūhoe past as not only important to understanding the present and future, but also important for engaging Tūhoe to assert their self-determination.

The present state of relationships was attributed to both past histories and current lived experiences, and reflected concern for both the capacity and level of understanding in forming a connection with water. As in the literature review of Tūhoe history, which notes Tūhoe as feeling a sense of discomfort around their current state of being self-determining

(Kruger, 2017), so too the participants noted the communities' lack of capacity in being self-determining in maintaining relationships. As knowledge holders, it created an internalised pressure of obligation within participants, to maintain states of relationships for not only themselves, but for the wider community.

Future relationships were about restoring and rebuilding from the past. It drew on participant experiences and knowledge to understand the potential pathways for re-invigorating relationships with water. For participants, invigorating future relationship was associated with becoming an authority, and therefore to become self-determining in enacting localised forms of kaitiakitanga with water.

Reconciling the past through a course of action in the future, suggests participants experiences and sense making as focused on re-calibrating or rebalancing of relationships across time and space. This is reflective through the opposing realities within the framework of Te-ia-o-te-Rangi, that depicts the potential transitioning of the community and their relationship with the environment from one of despair to hope, suffering to thriving, degenerative to regenerative, and from disconnected to reconnected. The value of this dualism can be understood via the philosophical bridging of opposites as described by Mueller (1958) when discussing the Hegelian triad, in bringing together the thesis (the proposed past) and its anti-thesis (the alternate future) to become a synthesis (transformative actions in the present). This emphasises participants as rationalizing and reconciling their disconnection in the past with their reconnection in the future, to create a mid-point in the present in which sense can be made about people's connection to water and the potential actions that enhance relationships with it. Therefore, participants were able to synthesize their lived experiences and knowledge to obtain discourse and purpose. Evidence of this process can be noted in the literature by Walker et al. (2019), with voice (of participants) as enabling opportunity for local communities to draw on the hopes and aspirations of past ancestors and future generations to inform current activities and practices.

Interpreting via this time and space approach, participants understandings of the connection between localised Tūhoe astronomical knowledge and localised Tūhoe understandings of water (on earth) was not trivialised. Participants noted the relational connection between these phenomena as being unchanged since existence, and could be articulated via such means as whakapapa and narratives. Emphasis was rather placed on the compromised relationships that humans have in relation to both these phenomena, and how

this compromised state inhibits people's ability to make true sense of what is going on in the environment. The exploration between these knowledge bases was therefore not predominantly focused on the phenomena themselves, but rather dominated by human relationships and how people could better connect, understand and become more empowered to enact kaitiakitanga with water.

## 5.2 Quality of relationships

Addressing both the first subsidiary research question and the second, of how might the experts perspectives be utilised by the local Tūhoe community to enact kaitiakitanga, the research found that improving quality of relationships with the environment was key to both improving understandings of water and better empowering people to enact kaitiakitanga. Quality relationships were important in the ability to make sense of, interpret, and to connect with water, and was a significant thread running throughout participants' talk. Relationships were also noted as an active process of connection, recognised as occurring between people, places, spaces and objects. However, much of the emphasis was on relational dynamics centred around the individual person when forming relationships. These relational dynamics could be ordered into the four broad categories of *mauri*, *sensing*, *experiencing* and *reciprocation*, which I discussed below in more detail.

### 5.2.1 Relational dynamics

*Mauri*: The ability to engage with mauri was associated with people's autonomy in wanting to have a quality relationship with the environment. Mauri was the centralised concept that underpinned participants understandings and experiences of relationships with the environment, including water systems. This finding is consistent with the literature review that notes, Tūhoe locals as most often referencing mauri when relating to specific environmental engagements (Lyver et al., 2017). Descriptions aligned with Durie's (2001) definition of mauri as a 'dynamic force', with one participant describing mauri as something that interacts with people. This interactive potential was viewed as an access point for a relationship of sharing and interpreting energy. Particular focus was given to people's responsibility to nurture this sharing and interpretive function, thereby emphasising a need to be committed, giving, attentive and open to engaging with mauri. This emphasised an

aspect of individual choice in wanting to connect with the environment. It also implied the need for a shift in power dynamics from what is described in the literature by Charpleix (2018) as the current nature/culture hierarchy that assumes dominion over the natural environment for its utilitarian, resourcist and economic potential, to embracing qualities that are more reciprocal and relational, therefore mutually beneficial. Responsibility to nurture mauri presents a challenge to people in reconfiguring their perceptions of the environment to incorporating relational dynamics that enhance mauri.

The ability to interpret mauri was also important to constructing both identity of the participant and the environment itself. Participants emphasised this through characterising the forest, and voicing its need for humans to consume and use its resources. The highlighted purpose was to 'know who the forest was' or to become intimate through engagement within its realm. This was followed by the idea that people 'can carry that (knowledge and value of the forest) with them'. An implied message here, is that through mauri people are able to construct an identity of the forest that enhances its intrinsic value and purpose, whilst offering the ability for people to attach their experiences, narratives and practices of the forest to their own identity. When considering the kaitiakitanga of water, engaging with mauri offers an opportunity to re-create and re-invigorate identities related to localised water systems, and to become autonomous in creating personalised relationships with water. This helps to privilege our sense of environmental care as derived from within, rather than dominated by external guidelines.

*Sensing*: Emotive states that arose from the ability to rongo (sense), were noted as helping to draw attention to the quality of connection with the environment and therefore to strengthen relationships with it. Participants emphasised the ability to rongo when being relational, privileging people's inherent intuitive ability to make sense of the world. This was described in the literature by Matamua et al. (2023) as cultural intuitive sensing via the heart, mind and spirit, and noted by Timoti et al. (2017) through the emotive assemblage of ihi, wehi and wana when interpreting mauri. Sensing via emotive states was referenced by one participant, in 'feeling lonely' when visiting a particular location in the forest. Resulting from this state was the knowledge that the forest was calling them back to that area, to strengthen relationships with it. Sensing in this way, therefore encourages and guides people in making a connection with the environment. This aligns with research by Hinds et al. (2007) who noted that the more a person has an affective connection with the environment, the more

their intentions are to engage with it. To rongo, therefore enables a type of emotive kaitiakitanga with water, that encourages relationships where people feel something beyond what is tangible or observable.

*Experiencing:* Having a physical sensory experience with the environment was seen as enhancing people's relationships through an ability to know their environments based on their own lived experiences. Experiencing in person was seen as a precursor to being able to talk about and describe one's emotions and feeling associated with particular places, spaces, events and phenomena. Experiences included cultural expressions and environmental practices, in which people could actively encounter and engage with the environment and form stronger relationships. This view is supported by research on forest spaces by Haggstrom (2019), who noted forest experiences where people are doing and being as creating a greater, more specific response than a standard experience. Haggstrom (2019) further notes such experiences as inclusive of childhood memories, history, former experiences and links to cultural representations. With environmental experiences drawing people to associate and connect with places and spaces in a variety of ways, relationships with environments become more detailed and personalised within our consciousness. Importantly for the participants, such experiences enabled individuals to become authorities, speaking to and describing their own truth via their own lived experience of relationship with the environment. Within the context of kaitiakitanga of water, it enables people to become self-determining in their environmental relationship, and therefore able to discern between different environmental states based on personalised experiences.

*Reciprocation:* Two-way relationships reflected such notions of giving and receiving, often expressed in a spiritual or relational sense. This was noted by one of the participants when describing the reciprocal relationship when using water as a process for healing. The expression of needing to give oneself over to the river when receiving the health benefits of water, can be viewed as a relational commitment between the individual and the river. Giving oneself in this way, reflected a commitment to embedding one's identity with and giving of respect for this natural resource. Through such practices, relationships with water become entangled, as the individual's own health comes to be perceived as part of the health of the river and vice versa. Relationships that are reciprocal therefore, invest people in considering the value of their environmental relationships and how nurturing them can be mutually beneficial. This point is supported by Kennedy et al. (2020) who indicate that being relational

implies people see value and importance beyond themselves, therefore they come to prioritise environmental well-being in decision making. This was also highlighted in the literature as forming a protective mind set, that enabled critical responses helpful to environmental health and biodiversity of local ecosystems (Forster, 2013; Kawharu, 2002; Selby et al., 2010). Through such reciprocal relationships then, the enactment of kaitiakitanga with water becomes both a process of care for the environment and care for the individual themselves.

These dimensions of relationships emphasise a worldview that prioritises the individuals internal processing of data through being relational with the world. In being relational, the participants talked about and viewed themselves as part of the world, rather than the world existing independently of them. In this way, knowledge about water systems was not confined to what could be objectively observed about water, but rather privileging of the interdependent relationship water shares with everything, and how these relationships enable people to use their innate abilities to interpret water states. This approach addresses some of the concern in the literature review raised by Haggstrom (2018), who highlights that people take for granted all the things that make up their world, so consequently are unaware of the entirety of information available to their sensors. Therefore, emphasising these dimensions of relationships, speaks to privileging ways of knowing and understanding the world that are more accommodating to the entirety of the human experience. It further promotes approaches that are self-validating, holistic, and intuitively interpretive, rather than defaulting to the oversubscribed reductionist and positivist approaches that maintain humans as separate from the world in wanting to isolate and quantify phenomena.

### **5.2.2 Empowered relationships**

Improvement in the quality of relationships overtime, evoked an aspirational state of empowered relationships. This state reflected empowered future outcomes as a result of establishing strong relationships with the environment. Related to the theme of authority within the framework of Te-ia-o-te-Rangi, it offered potential insight into what an alternative empowered state could look like for this community.

Becoming self-determining was related to strong relationships, in that people's ability to know and understand water was a process predominantly dependent on their own internal

intuitive abilities in forming a quality relationship. This was explicitly described by one participant who noted peoples' experiences in nature as making them an authority. By alluding to an authority as someone 'being' or 'doing' within specific environmental contexts and locations, understandings and knowledge of those specific environments becomes reinforced at a localised and/or individual level. As authorities, people can talk to the nature of their localised phenomena and thus they become an alternate voice of kaitiakitanga. Quayle et al. (2016) suggest alternate voices as decentering the taken for granted power, privilege and normativity associated with dominant voices. Space for localised voice to be heard promotes a bottom-up form of kaitiakitanga, derived from those who engage with and have lived experiences with their localised landscapes. The benefit of being bottom-up according to Talbott-Jones et al. (2014), is that it assists in creating greater potential for localised participation in kaitiakitanga, and therefore more localised actors contributing to environmental decision-making processes.

The re-introduction and enactment of various cultural expressions resulting from empowered relationships was important to the ongoing re-building, maintaining, and re-affirming of relationships with the environment. Applying place-based practices and narratives was an opportunity to reinforce localised Tūhoe ontologies and ways of do things. This addressed the caution offered by Roberts et al. (1995), in needing to acknowledge that there is no universal Māori perspective, and therefore no singular way through which Māori understand and enact environmental management.

Various localised cultural expressions were described by participants and contained information relevant to localised forms of kaitiakitanga, therefore avoiding importation of non-relevant, outside understandings associated with various other interpretations of a Māori environmental philosophy. The importance of which was discussed in the literature review, where in the absence of localised environmental understandings, kaitiakitanga becomes informed by generalized guidelines, inadvertently and inconspicuously contentious with a localised environmental world view.

Importantly, it reflected the enactment of Tūhoe mana motuhake, through enactment of kaitiakitanga as cultural expression. This aligned with wider Tūhoe aspirations to uphold Tūhoe mana whenua status, and recognising them as the people of the land and kaitiaki for it (Te Urewera Board, n.d.).

New narratives was a by-product of an empowered relationship, and reflected the ability to set new standards and offer tailored messaging that further enhanced peoples' relationships with the environment. Walker et al. (2019) notes Māori narratives as inextricably linked with relational kaitiakitanga, and that they offer alternate approaches to enhancing the management of natural and cultural landscapes. New narratives were a way to encode localised Tūhoe ethos and knowledge, and make the ability to form relationships more relevant and interesting. This potentially not only elevates localised Tūhoe narratives around kaitiakitanga, but supports the need for a more nuanced and contextualised perspective of kaitiakitanga. This point was emphasised by Hutching et al, (2020), with collective understandings as important to shedding light on the hidden dimensions of kaitiakitanga. Similarly, Walker et al. (2019) posit more narratives are required to depict how various localised Māori communities are enacting kaitiakitanga today.

### **5.3 Tūhoe star lore and water relationships**

Further addressing the second subsidiary research question, the research found that the application of Māori astronomical knowledge was perceived as a relevant and innovative way to create new narratives that enhance people's ability to have relationships with water. Knowledge was noted as sharing a connection with relationships, with one participant stating the quality of knowledge around water is only as good as the quality of people's relationships with it. This inferred both knowledge and relationship as interdependent, requiring people to be relational to effect knowledge and for knowledge to influence the direction of relationships.

The incorporation of localised Tūhoe astronomical knowledge was considered relevant for enhancing people's relationships with water. This supports the work of Paton et al. (2010), who note such local knowledge systems, amongst others, as fundamental to navigating new environmental pathways. Advocating for the application of Tūhoe star lore was in part due to the recent introduction of Matariki celebrations and the potential impact Matariki narratives have had on connecting not only Māori, but New Zealanders, with the environment. Participants noted this influence, which was also supported by recent research showing 51% of people in 2022 celebrated Matariki in some shape or form (Behive.govt.nz,

2023). Therefore, Māori star lore was viewed as socially relevant and interesting, providing an innovative and creative alternative that had the potential to capture people's attention.

One participant offered an example of blending astronomical knowledge with water by noting celestial bodies and their movements in the sky and how these observations could assist in describing the eel migration patterns occurring in the water. The emphasis was not so much on the knowledge, but rather how the knowledge was framed to make it more relational, meaningful and digestible for people. Linking local narratives to observable effects within the environment, holds potential for people to link star narratives with experiences of water, thereby expressing the interconnected relationship between the sky and water. The actualisation of enacting star knowledge with experiencing the eel migration in water ways, suggests meaningful knowledge and its active enactment can potentially transform the quality of people's relationships to new and higher levels. This aligns with literature on the formation of higher thinking as wisdom, through the weaving together of knowledge, expertise (experience and practice) and authority (Spiller et al., 2011). With the transition to wisdom noted as a spiritual experience (Marsden et al., 1992), we might infer that relationships underpinned by both experiences and knowledge, have the ability to transcend our relationships to a higher sense of knowing, akin to the spiritual. Therefore, the active application of localised Tūhoe astronomical knowledge through the creation of new narratives, has the potential for this community to enhance relationship with water, and therefore better empower them to a more localised form of kaitiakitanga.

Summarising the research findings, which emphasized participants' understandings of water as related to their all-inclusive realities as Tūhoe and their particular focus and detail on the quality of relationships people have with environments, demonstrates a deeply embedded holism to understanding water and kaitiakitanga enactment. Although elements of this Tūhoe interpretation may vary both within and outside a Tūhoe tribal context, similarities could be noted within wider Māori understandings and with associated literature. However, as a unique perspective, the research contributes to the multitude of ways kaitiakitanga and relationships can be understood and enacted. Importantly, it reflects localised nuances and diversity to environmental management and elevates communities to have voice.

Perhaps a more significant research contribution comes in the form of the potential application of Tūhoe astronomical knowledge in forming new narratives, as a way of

enhancing people's relationships with the environment. Importance of Māori narratives are noted in the literature as offering knowledge and understandings related to various traditional customs and practices. This is noted through the practice of mahinga kai, where Kaan et al. (cited in Phillips et al., 2016) posits mahinga kai as a discourse of knowledge and therefore assisting with knowledge transfer and ongoing practice, enhancing understanding and connection with the environment. Adding to this importance of narrative, Walker et al. (2019) notes that through engagement and cultural practice people start to form their own narratives associated with place in an ever-changing kaitiakitanga knowledge landscape.

Much like mahinga kai knowledge, this study showed how localised Tūhoe astronomical knowledge contains narratives appropriate for knowledge transfer and the continuation of practice. As too with the creation of narratives associated with places, Tūhoe star lore also has the potential for people to overlay their own experiences with the stars to create localised understandings of the cosmos and how this relates to being kaitiaki.

The point of difference in using localised Tūhoe astronomical knowledge is that it is an indirect knowledge base being applied to understanding the phenomena of water. In this context, the potential to enhance knowledge and understandings of water is therefore not derived directly from water itself, but rather synthesised through its relationship with Tūhoe star knowledge. This utility of Māori astronomical knowledge can extend beyond water to include a wider variety of environmental phenomena.

Secondly, while Walker et al. (2019) posit that people form new narratives as a result of past experiences of engagement and practice, the findings of the present research suggest the inverse; that creating new narratives can serve to facilitate and invigorate engagement and practice. Rather than limiting relationships as a by-product of engagement or practice, creating new narratives that blend Tūhoe astronomical knowledge and localised Tūhoe knowledge of water have potential to actively instigate engagement and practice through creative and innovative discourses. The value underlying this approach is not simply in detailing the astronomical/water connection through narrative, but rather fashioning it in ways that people can relate to, identify with and is relevant to this time and space. Fortuitously, there is the potential to create a perpetual cycle for relationship enhancement, in using new narrative to enhance engagement and practice, and for practice and engagement to create new narratives. Therefore, the application of astronomical knowledge

to understanding water through new narratives, potentially assists in closing this loop of enhancing environmental relationships.

#### **5.4 Limitations**

Drawing on experiences from only two participants identified as knowledgeable experts in Tūhoe astronomical knowledge and Tūhoe environmental knowledge, privileged only a small fraction of those who have lived experiences and knowledge in understanding the environment from a Tūhoe Ruatāhuna perspective. Although deliberately designed this way, and with such experts often being identified and supported by their communities in being voices for the community on such subject matters, it limited perspectives and potential solutions to increasing environmental engagement as centred within those who hold particular social status. Understanding disconnection and the ability to (re-)connect, was therefore limited to the lived experiences of those who have had the opportunity and privilege to learn and know such knowledge. While the participants were integral to addressing the research topic, the addition of lived experiences from a wider demographic could have both enhanced and provided alternate insight into such aspects as barriers and issues of accessibility related to relationship (dis)connection. Such insights could have included the perspectives of wāhine (female), rangatahi (youth), kaumātua (elderly), and those living outside a Tūhoe Ruatāhuna context, and may have offered diversity within the context of creating blended narratives.

#### **5.5 Future research recommendations**

In light of the research limitations, and with the majority of Tūhoe residing outside their tribal context, future research could focus on lived experiences related to particular barriers and issues of accessibility that impact on Tūhoe from Ruatāhuna in forming stronger relationships with their tribal landscapes, and therefore the opportunity to enact kaitiakitanga. Including a range of diverse demographics could also account for secondary barriers associated with social positioning. Such research would also be beneficial to trialling and receiving feedback related to the creation of new narratives to enhance Tūhoe environmental engagement.

Findings were predominantly centred around the things the community could contribute to enhancing environmental connection. Therefore, future research could also focus more on the structural and institutional aspect that impinge on local communities and inhibits their ability to be better empowered to enact a localised form of kaitiakitanga.

## 5.6 Research implications

This research lends itself to being an exemplar and possible inspiration for other Māori communities to draw on their own unique knowledge systems as change mechanisms in research. The potential utility of Māori astronomical knowledge to enhancing environmental relationships, also offers a creative and innovative opportunity to branch out into the wider sphere of environmental phenomena, and to create narratives that raise conscious awareness and connects people to places and spaces. Therefore, there is the potential to offer targeted message where particular environmental relationships are in need of attention.

As a result of this research, a framework related to a localised Tūhoe/Ruatāhuna perspective on water engagement was developed within the astronomical narrative of Te-ia-o-te-Rangi and was related to research findings. Below is one potential example of how such creative frameworks can assist various organisations and institutions to navigate their relationships with local communities and and their water system.

### 5.6.1 Considerations to interpreting Te-ia-o-te-Rangi when understanding water management.

Considering the framework Te-ia-o-te-Rangi (the current in the sky), five aspects of engagement with water have been given. These aspects offer a perspective/framework for understanding Tūhoe/Ruatāhuna engagement with water and the wider environment.

- **What happens in one part of the current effects everything else.**

The interconnectivity of all things implies that actions, events and intent, regardless of whether we consider them good or bad, have an effect on the current. Different inputs give us different outputs. If we dam a river, it will change the current. It suggests that the current status of Te-ia-o-te-Rangi is leading this Tūhoe community to

experience alternate realities, limiting their ability to connect with and understand their localised culturally specific environments.

- **To know the flow of the current in the sky, is to know ourselves.**

When considering water quality or ways to improve it, we must also understand and improve everything else connected to it (identity, improved knowledge, practice). If we have a strong relationship with local water systems and possess the knowledge to support them, then we start to know the water systems in ways that improve our own sense of identity. Therefore, understanding water quality or its management from this unique Tūhoe perspective, cannot be understood in isolation from everything else within Te-ia-o-te-Rangi

- **The current in the sky runs deeper than what we can clearly see.**

Understanding water quality and its management from a localised Tūhoe perspective, is to extend our sphere for interpreting and understanding everything associated with water to include the metaphysical realm. Encompassing holistic, spiritual, and culturally nuanced approaches to engaging with water, enhances the ability to see Te-ia-o-te-Rangi for more than what it appears.

- **Jumping into the current is to become one with it.**

Understanding water quality and its management also requires us to have a relationship to our water systems. When we are one with them, we not only identify with such resources but also have sensory experiences that inform deep connections to such places and spaces. It provides a sense of knowing that provides intimate understandings of what water quality looks like and how it might be managed.

- **Those who swim in the current, know the current**

This implies that those who have a strong relationship with local waterways and the wider environment, who have developed these relationships over time and connect these relationships to their identity and well-being, are experts in these matters. Interpreting Te-ia-o-te-Rangi is therefore best facilitated by those who are familiar with or have experienced its current.

## 5.7 Personal reflection

Having the ability to do this research and apply methods relative to my own cultural context, has not only made particular aspects of this research project easier, but has also aided in my aspirations to connect with my Tūhoe identity. I predominantly attribute this to having applied a Kaupapa Māori approach, where Māori beliefs, values and methods are part of doing research. Given my personal worldview is tied to this research philosophy, it was made easier to blend who I was, and to accommodate some of my inherent behaviours into the research. This meant at times, I did not feel as though I was the researcher or that I was engaging with participants or data, but rather that I was collaborating with whānau in a joint venture of making meaning. For me, this was a relational experience, where answers did not simply arise from questions, but rather deeper insight emerged from reciprocal discussions centred around shared identity and collective interpreting, facilitated by various cultural customs and practices. Through this relational approach, I felt intimate with the research.

The importance of returning to my tribal roots in Ruatāhuna, also emphasised the importance of spaces and places to conducting this research. The added dimension of connecting with whānau and discussing this research in its associated locations, created a sense of appreciation when discussing, visualising and engaging with the local environment. The immersive nature of the data collection process was highly effective in stimulating and engaging my focus on the research. A noted result of this, was that after returning from Ruatāhuna, my energy and ability to complete the analysis was highly effective, and was largely completed within a month of my return.

As time and distance has passed from this site of connection (Ruatāhuna), and limited time has been spent catching up with participants following the data collection phase, I noted my ability to relate with the research as waning. Although much time has been required for contemplation and the writing of this thesis, I attribute some of this waning in connection to not having maintained adequate relationships over time. Just as this research has noted the quality of relationships as key to understanding the nature of water, so too I question the quality of my own relationship to the people and places of Ruatāhuna. The key point learned, is that relationships are not an absolute state. They fluctuate and shift, and therefore require ongoing maintenance to not only strengthen and reaffirm connections, but to also constantly feed my understanding and ways of knowing. If I was to undertake this research again, I would

consider the merits of returning to Ruatāhuna to become immersed within that environment, predominantly around writing up both analysis and discussion sections.

The notion of ongoing relationships has also shed light on my position as an insider/outsider researcher, and at what point do I transition between one to the other. Perhaps even more puzzling is actually what constitutes an insider or outsider for someone like myself, especially given the potential fluidity of relationships. Trying to define or situate myself was therefore difficult to articulate and made me feel uncomfortable. I felt in positioning myself as an insider, I was extenuating factors that other Tūhoe in similar situations may not have, positioning them as outsiders. Alternatively, positioning myself as an outsider may have reflected insecurities around my social positioning and my sense of worthiness of being considered part of the ingroup. On reflection, I'm not sure it's helpful to consider myself as either in or out. I believe that if I am Tūhoe, then I am just one part of a large whole. The difference we make is perhaps better situated in how we can exercise our identity. The important aspect of this approach is that it becomes a choice, rather than something we have to prove to ourselves or others. In saying that, this thesis has been a big part of exercising my Tūhoetanga. The challenge now for me, is in maintaining the quality of relationships I have, to not only invigorate my connection with my Tūhoe tribal roots, but to also empower my own enactment of kaitiakitanga.

Finally, the ongoing tension of trying to meet the underlying research intent, often created dissonance and unease for me. The SO2 group research brief of wanting to understand how mana whenua can be better empowered, assumes local communities are not self-empowered or as empowered as they could be when it comes to kaitiakitanga. Trying to meet this brief whilst becoming conscientised to this assumptive oversight, has made writing this thesis complex. Trying not to undermine or disrespect insights from this local Tūhoe perspective, and the ability of this local Tūhoe community to know and seek their own environmental autonomy, challenged my ability to frame the research in ways that avoided positioning this community as dis-empowered and therefore reliant on a research perspective for empowerment. If anything, and as alluded to above, this research project has actually better empowered me as the researcher, and has therefore left me to consider what has been the true reciprocal value for this research given I prize so much my own sense of empowerment.

With kaitiakitanga more often applied as a decentralized environmental philosophy, due to it being an add on feature to environmental management, an alternative focus of this research could instead have been to consider how kaitiakitanga could become a more centralised environmental philosophy. In this sense, it would have removed the focus of kaitiakitanga as restricted to empowering Māori, to focusing on the systemic and institutional barriers that inhibit the fuller inclusion, standards and applied practice of a Māori environmental approach. If Māori are already environmentally self-empowered, then the ability to unleash this potential by changing the structures that currently inhibit it becomes the focus, rather than the focus being on the need for people to change. In doing this, empowered kaitiakitanga becomes not only the domain of local Māori communities, or even Māori in general, but potentially the greater collective of Aotearoa New Zealand.

## **5.8 Conclusion**

This research explored Tūhoe astronomical knowledge in relation to the local environmental management of water via the perspectives and experiences of two local experts from the Tūhoe community of Ruatāhuna. Elevating local voices in discussing these phenomena offered insight into a more context specific way of understanding localised forms of kaitiakitanga associated to water. Interpreted via the framework of Te-ia-o-te-Rangi, the research found that water management reflected the all-inclusive realities of the participants as members of their local community. Interpreting water was therefore inclusive of participants' lived experiences, Tūhoe ontologies, localised history and events, local knowledge, cultural expressions, places and spaces, and social dynamics. Improving quality of relationships with the environment was also considered key to both understanding water and enacting care for it. Lastly, the application of Māori astronomical knowledge was perceived as a relevant and innovative way to create new narratives that enhances people's ability to have relationships with water. The research emphasises the potential value in drawing on local knowledge bases to enhance and create local kaitiakitanga understanding and practice. In particular for this research, is the potential utility of Māori astronomical knowledge to being applied to understanding other environmental phenomena, and the ability to create innovative narratives that enhance peoples connection to the environment.

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## Appendix A - (Ethics Notification)

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 **humanethics@massey.ac.nz** Inbox - Google 12 December 2022 at 12:50 PM  
[HE014] - Human Ethics Application SOB 22/55 Approved [Details](#)  
To: Nathan.Matamua.1@uni.massey.ac.nz, Sarah Riley, Cc: humanethics@massey.ac.nz

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[Link to the application](#)

HoU Review Group:

ReviewerGroup:  
Prof Sarah Riley

Researcher: Nathan Matamua

Project Title: Applying a Māori stellar/lunar approach to exploring Māori astronomical knowledge in relation to the localized environmental management of wai within the Tuawhenua. New Application

Dear Nathan,

Thank you for the above application that was considered by the Massey University Human Ethics Human Ethics Southern B Committee at their meeting held on 12/12/2022.

On behalf of the Committee I am pleased to advise you that ethical approval has been granted for your research.

Approval is valid for three years. If this project has not been completed within three years from the date of this letter, an amendment to extend the approval must be requested by contacting the Research Ethics Office at [humanethics@massey.ac.nz](mailto:humanethics@massey.ac.nz).

If the nature, content, location, procedures or personnel of your approved application change, please contact the Research Ethics Office at [humanethics@massey.ac.nz](mailto:humanethics@massey.ac.nz) to request an amendment form.

If you wish to print an official copy of this letter:

1. Please login to the RIMS system (<https://rme.massey.ac.nz>).
2. In the Ethics menu, select Ethics Applications.
3. Using the Advanced option, select Ethics Applications (Area), Application ID (Search On), enter the ethics notification number in the Value area and select Find on the toolbar.
4. With the application the Results Tab, tick the empty box on the far left of the application and select Reports from the toolbar.
5. Select the "Human Ethics - Low Risk Notification Letter" link, this will open the report viewer.
6. Select the application code from the Report Parameters dropdown and submit. You can then select an export option from the top toolbar (Print, Save).

Yours sincerely  
Professor Craig Johnson  
Chair, Human Ethics Chairs' Committee and  
Director (Research Ethics)

## Appendix B - (Information Sheet)



### **Applying a Māori stellar/lunar approach to exploring Māori astronomical knowledge in relation to the localized environmental management of wai within the Tuawhenua.**

#### **INFORMATION SHEET**

#### **What is this research about?**

Kōkōrangī Māori (Māori Astronomy) carries a depth of knowledge in relation to environmental engagement with resources and ecosystems, as does the world view within the Tuawhenua (central area of Te Urewera) when considering localised environmental perspectives and practices. Considering what this might mean for the resource of wai (water), given that it is central to life, and is currently under threat from ongoing human activity, highlights new opportunities in exploring what potential such knowledge can yield. This project therefore aims to explore understandings and relationships around rituals, practices and narratives between Māori astronomical knowledge and the environmental knowledge and practices of wai within the Tuawhenua.

#### **Who is doing this research?**

This study is being carried out by the primary investigator Neihana Matamua of Tūhoe descent, and is part of a Masters research thesis, funded and supported by the SO2 group within the Bio Heritage arm of the National Science Challenge. SO2 is a research group that is exploring different aspects of environmental management related to water, including the exploration into understandings of Kaitiakitanga and its potential to empower localised Māori. As a Masters project the primary investigator will be supervised by Professor Sarah Riley, who brings a wealth of expertise within the area of qualitative research.

#### **Who can take part in this research?**

The research requires two in-depth specialised experts with connections to the Tuawhenua o Te Urewera, one in Maori astronomy knowledge, and the other who has Tuawhenua environmental knowledge.

#### **What will I be asked to do?**

Participants are requested to attend a 1-2 day wānanga in person, to be held within the small settlement of Ruataahuna. An approximate time of between 2-5 hours for the wānanga has been given, with timing and kōrero to be guided by participants and likely aligned with participants own work/research interests. Participants will have the opportunity to play an ongoing role within this research as co-designers, collaborators and co-producers. This will require attendance to monthly hui (approx. 1hr) throughout the duration of this research, to be

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scheduled for the first Monday of every month beginning in December 2022 and ending in June 2023 (7 hui in total). This will involve giving feedback and helping to guide the project.

#### **Confidentiality and how will information be collected and used?**

Consents, recordings and transcripts will all be saved to a password-protected data file on the primary investigator's laptop, with a back-up copy stored on a password-protected external hard drive. The laptop, data file and back-up external hard drive will only be accessible by the primary investigator, and following completion of the project, data will be securely store by the director for the Massey 'Centre for indigenous psychologies'. All efforts will be made to protect participant identity, however given the specialized expertise required for participation in this project, anonymity cannot be fully guaranteed.

#### **What are my rights as a participant?**

You are under no obligation to participate in this research, but if you choose to, you should know that you can:

- decline to answer any particular questions;
- withdraw from the research at any time before data analysis begins;
- ask any questions about the study at any time by contacting the primary investigator;
- provide information on the understanding that your name will not be used in any information we produce about this research;
- receive a summary of the research findings when it is finished, if you wish to receive one;

Please note, you will also receive a small token of appreciation (gift voucher) in acknowledgement of your time participating in this research.

#### **Who can I contact about the research?**

If you have any further queries or would like to know more about this research, please either contact;

Primary Investigator - **Neihana Matamua**



Supervisor – **Professor Sarah Riley**

[S.Riley@massey.ac.nz](mailto:S.Riley@massey.ac.nz)

*This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern B, Application SOB 22/55. If you have any concerns about the conduct of this research, please contact Dr Gerald Harrison, Chair, Massey University Human Ethics Committee: Southern B, telephone 06 356 9099 x 83570, email [humanethicsouthb@massey.ac.nz](mailto:humanethicsouthb@massey.ac.nz).*

## Appendix C - (Consent Form)



### **Applying a Māori stellar/lunar approach to exploring Māori astronomical knowledge in relation to the localized environmental management of wai within the Tuawhenua.**

#### **CONSENT FORM**

I have read, or have had read to me, and I understand the Information Sheet. I have had the details of the study explained to me, any questions I had have been answered to my satisfaction, and I understand that I may ask further questions at any time. I have been given sufficient time to consider whether to participate in this study and I understand participation is voluntary and that I may withdraw from the study at any time prior to data analysis being conducted.

1. I understand that the interview will be recorded and that the audio file will be stored securely and only listened to by the Investigator.
2. I understand that all personal data about me will be kept confidential
3. I wish/do not wish to have a summary of the results sent to me at the completion of the research.
4. I agree to participate in this study under the conditions set out in the Information Sheet.

#### **Declaration by Participant:**

I \_\_\_\_\_ give my consent to take part in this study.

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

*This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern B, Application SOB 22/55. If you have any concerns about the conduct of this research, please contact Dr. Gerald Harrison, Chair, Massey University Human Ethics Committee: Southern B, telephone 06 356 9099 x 83570, email [humanethicsouthb@massey.ac.nz](mailto:humanethicsouthb@massey.ac.nz).*