

## Mātauranga Māori and decision-making in the context of the Te Arawa Lakes

How aligning cultural values, cultural health indicators and scientific models could help achieve the goals of the NPS-FM and RMA



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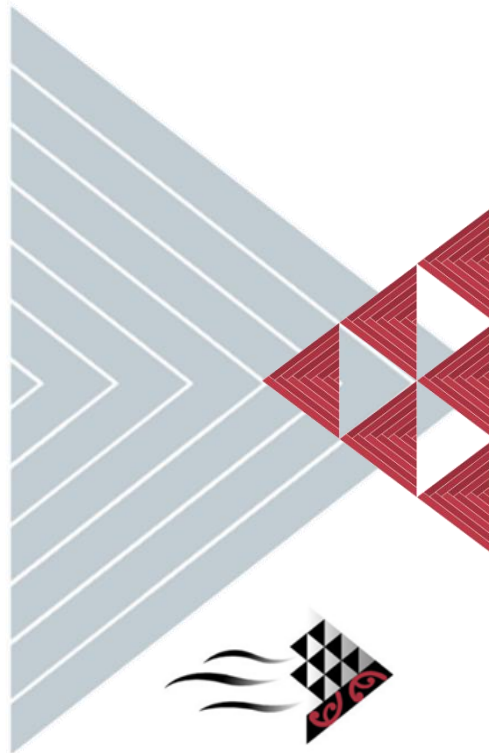
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**Koheri ra! Kohera e!  
Tutapa mai nuku, tutapa mai whiti  
Kia rongo te pō, kia rongo te ao  
Kia pā tata mai tō hau manawa  
Ki tōku aronga manawa  
Hai puta ki te whai ao, ki te ao mārama  
Tihē Mauri Ora!**

*Toitū te wai,  
toitū te whenua,  
toitū Te Arawa*



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***Ka tanuku, ka tanuku***



*Te tihi o Matawhau ka tanuku  
Te keho o te marama ka whati.  
Ka whati taku manu kōtuku te huia nō runga i a Te Arawa haere rā, haere rā.  
Haere rā te mana o te whenua  
Ka maunu te puru o te waka  
Ka taupoki te waka ki raro rā e  
Ka taupoki e...!*

*Moe mai rā e te Rangatira o Ngāti Rangiuuora, Ngāti Pīkiao, Te Arawa whānui.  
Hoki wairua atu rā ki te ope o te rua matariki.  
Hoki atu ki ō tīpuna, hoki atu ki ō mātua ki ō tuākana.  
No reira, haere, haere, whakaoti atu.*



Willie Emery (Ngāti Pīkiao, Ngāti Te Rangiuuora, Ngāti Rongomai, Ngāti Mākino) a pillar of Te Arawa Lakes Trust and the previous Te Arawa Māori Trust Board. First elected to Te Arawa Māori Trust Board in 1985, Willie helped navigate our lakes settlement with the Crown, transferring to Te Arawa Lakes Trust board in 2007 once this process was complete.

Willie was renowned for his knowledge of traditional Tau Kōura and we are blessed to carry this mātauranga of traditional monitoring of our kōura within our Te Arawa Lakes. He leaves a legacy for our people and our Te Arawa Lakes that is enduring and will never be forgotten.



## Executive Summary

Te Arawa Lakes Trust have spearheaded an investigation into how cultural health indicators, science models and cultural values frameworks have informed decision-making for Te Arawa Lakes. The paper dives into the dual processes of Western science and mātauranga Māori to highlight the strengths of Iwi and Hapū ways of knowing and how they can contribute to the national objectives for natural resource management. Empowering Māori to align cultural knowledge in policy will give Iwi and Hapū a substantive voice in decision-making and this paper explores that through:

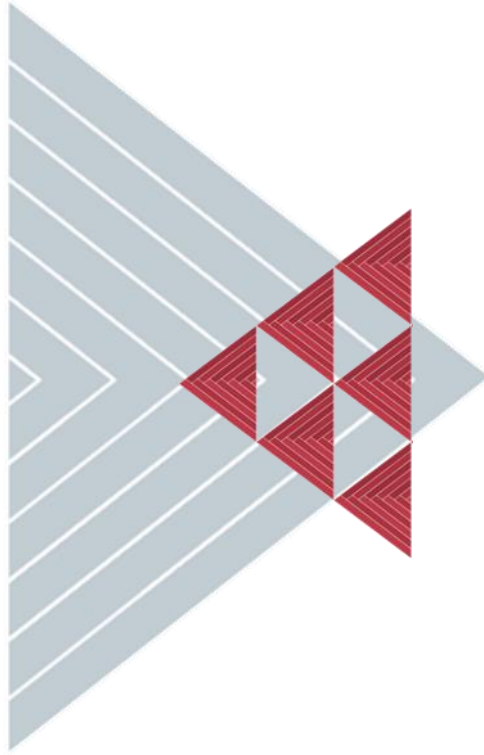
- Background on policies, Māori-led values framework, Māori-led science and Māori-led Cultural Health Indicators (CHIs)
- Three Te Arawa case studies
- Critical limitations and mechanisms for Iwi and Hapū

A suite of critical recommendations then follows from the experiences of Iwi and Hapū to optimise the interaction between Māori and the Crown in a Tiriti context as policies and legislation are introduced and implemented:

- **Optimising future policy enactment by empowering Iwi and Hapū** - the increase in the requirements for active involvement will need to be matched by increases in capacity and capability in Hapū and Iwi entities and organisation and will require implementation programmes led in regions by Hapū and Iwi to build this capacity and capability across their rohe. Examples for this are given in the report discussion.
- **Each authority needs to audit existing Freshwater Management Units (FMUs) explicitly to give effect to Te Tiriti o Waitangi** - Hapū and Iwi will require resourcing to be able to co-develop FMUs which will support in providing protection to wāhi tapu and additionally to determine how these FMUs align with Hapū and Iwi well-being.
- **Including CHIs and cultural values to measure Iwi and Hapū inclusion** - research and active use of cultural values and CHIs in decision-making by Hapū and Iwi shows a directly proportional relationship to participation of Iwi and Hapū in the design, development and undertaking of programmes that benefit ecosystems which is a significant aim of the Natural and Built Environments Act (NBA) and the National Policy Statement for Freshwater Management (NPS-FM).
- **For regional councils, staff capability needs to be enhanced so that their understanding of Māori worldviews will meaningfully incorporate Iwi and Hapū values into their processes and methods** - Internal support, education and development of a kaupapa Māori and Mana Whenua relations component to all operations. All upskilling is strictly for authorities to better understand and communicate with Iwi and Hapū, not for authorities to attempt to shape cultural frameworks or disregard Te Tiriti obligations.
- **Government bodies will need to actively involve Iwi and Hapū so that they work within or alongside government bodies to have greater impact** - it's hoped that more government agencies support Iwi and Hapū in co-designing, co-developing and co-managing programmes that affect their rohe. Examples of how this may look are provided in the discussion of this report.

These recommendations are centred around impacts, highlighted limitations and optimisations envisioned to benefit Te Arawa Lakes, however, some of these may resonate with other Iwi and Hapū across Aotearoa in their respective pursuit to better engage in freshwater management. Nevertheless, this paper remarks on how mātauranga Māori and Māori values and can better inform decision-making in a Te Arawa context.







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Lastly, an acknowledgement to all of our Whānau that have been working relentlessly hard over the years to give us this platform to stand on, for us to demand action that betters our people and our homes through whakapapa and through a deep connection inherent in Te Ao Māori.



## 1. Introduction

There is an increasing focus on Iwi participation and the inclusion of mātauranga Māori in freshwater planning, management and decision-making. Te Arawa Lakes Trust (TALT) has a mandate to improve cultural and environmental outcomes for Te Arawa Lakes. TALT has developed the Te Arawa cultural values framework, Te Tūāpapa o ngā Wai o Te Arawa, to inform a range of their activities and interactions with decision-making processes. This paper explores how the dual processes of Western science and mātauranga Māori aligned in policy for freshwater decision-making can improve outcomes for Iwi, Hapū, communities and the environment. The scope of analysis will range between cultural health indicators (CHIs) to science models and values frameworks in a Te Arawa context. Ultimately, this paper will seek to show that there is a greater opportunity for the expression of mātauranga Māori and Māori values in decision-making.

The Resource Management Act (RMA) is currently being reformed with the clear intent of transforming the system of natural resource management in Aotearoa New Zealand. The newly developed Natural and Built Environments Act (NBA) is currently before the Select Committee and open to public submissions on its way to becoming an integrated statute for land use and environmental protection. The new Act also significantly acknowledges Te Ao Māori and mātauranga Māori and will 'give effect to' the principles of Te Tiriti o Waitangi; a much stronger emphasis than the previous RMA. The NBA enables and promotes Te Oranga o te Taiao in its Purpose. These changes support the establishment of expectations for greater Māori participation in the implementation of the National Policy Statement for Freshwater Management (NPS-FM), and the importance of Te Mana o te Wai in decision-making. This increasing focus on Māori participation in all aspects of natural resource management opens avenues for the integration of mātauranga Māori into the social, economic and scientific frameworks that inform decision-making.

We will investigate how a Māori-led values framework, Māori-led science and Māori-led CHIs are contributing to the greater well-being of ecosystems, including people, in Aotearoa New Zealand. This will be undertaken by exploring:

- How TALT utilised their cultural values framework as a strategic tool to inform programmes.
- The flexibility of scientific models to integrate mātauranga or cultural indicators.
- The evolution of CHIs and their impact on decision-making frameworks.
- Opportunities for greater integration within the new resource management system.
- Opportunities for delegation of powers under Section 33 of the RMA.

We will then identify a path forward for Iwi, Hapū, communities and the environment by:

- Analysing cultural values against referenced or recommended science attributes and CHIs in parallel for three studied TALT programmes and how they benefit these cases.
- Identifying critical points for Iwi and Hapū to highlight gaps and limitations.
- Providing a suite of recommendations that may be considered by the Iwi and Hapū engaging in freshwater management.

By discussing the inclusion of Iwi and Hapū views, actions and processes in policy development and subsequent implementation, Te Arawa hopes that all Māori will have a more substantive voice in policy, planning and processes that affect their lands and waters. This will lead to better outcomes for the environment, Hapū and Iwi and the wider community.





## 2. Background

### 2.1 Statutory Framework

#### 2.1.1 Resource Management Act 1991

The purpose of the RMA is to promote the sustainable management of natural and physical resources. Early Waitangi Tribunal Report recommendations (the majority of the first ten reports concerned environmental impacts that were considered culturally offensive) indicated that significant New Zealand environmental law reform was needed in the early 1980's. The Environment Act 1986 introduced the need to consider the intrinsic values of ecosystems (originally the mauri of ecosystems in the Bill) and led to a more holistic consideration of impacts upon well-being set out as the purpose of the Resource Management Act 1991.

The RMA includes a provision for the transfer of powers of territorial and regional authorities to Iwi (Section 33), however this provision was not given effect by any authority until late 2020 almost thirty years after the Act became law. The Section 33 transfer of powers in the case of Tūwharetoa water sampling for water quality monitoring is described separately at a later point in this paper but represents an important precedent for other Iwi and Hapū that are looking to emulate.

#### 2.1.2 Draft Bill of the Natural and Built Environments Act

A further extensive reform of New Zealand environmental law is now required to properly accommodate the ways of knowing that Iwi and Hapū have brought to Resource Management. Through successful challenges in the Environment Court and as a result of redress secured in Waitangi Tribunal Report recommendations, the RMA is currently being revamped into the NBA. The reform aims to transform our relationship with the environment while better enabling developments and infrastructure. There are three proposed acts which will replace the RMA:

- NBA, to protect and restore the environment while better enabling development, as the primary replacement for the RMA.
- Strategic Planning Act (SPA), to help coordinate and integrate decisions made under relevant legislation, through requiring the development of long-term regional spatial strategies; and
- Climate Adaptation Act (CAA), to address complex issues associated with managed retreat.

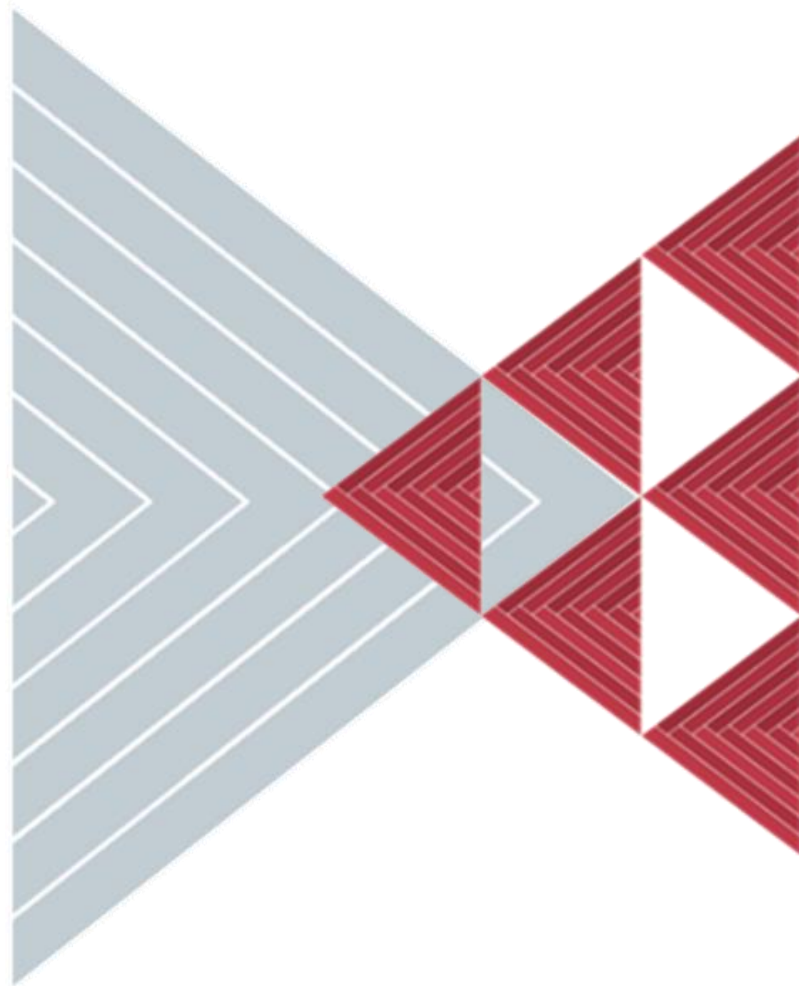
Key reform objectives seek to:

- Protect and where necessary restore the natural environment, including its capacity to provide for the well-being of present and future generations.
- Better enable development within environmental biophysical limits including a significant improvement in housing supply, affordability and choice, and timely provision of appropriate infrastructure, including social infrastructure.
- 'Give effect to' the principles of Te Tiriti o Waitangi and provide greater recognition of Te Ao Māori, including mātauranga Māori.
- Better prepare for adapting to climate change and risks from natural hazards, and better mitigate emissions contributing to climate change.
- Improve system efficiency and effectiveness, and reduce complexity, while retaining appropriate local democratic input.



### 2.1.3 National Policy Statement for Freshwater Management and Te Mana o te Wai

First introduced in 2011 and amended in 2014 and 2020, the NPS-FM intended to establish objectives and policies for freshwater under the RMA to improve the management of freshwater and reduce the degradation of water bodies. The inclusion of Te Mana o te Wai as a group of guiding principles in the NPS-FM since 2014 then prioritised the well-being of waterbodies first so that a baseline of freshwater health can be achieved and empowers the values, authority and actions of Tangata Whenua through inclusion. Under the upcoming repeal of the RMA, Te Mana o te Wai will still be in effect and any guidance taken from this policy-influencing piece may help to address concerns of equity in the freshwater management space, particularly to do with allocation.



## 2.2 TALT cultural values framework and three case studies

TALT represents a federation of Te Arawa tribes, comprising 56 Hapū and Iwi, located from coastal Bay of Plenty and inland south to Taupō. It was formerly known as the Te Arawa Māori Trust Board (est. 1922) until TALT was established under the Te Arawa Lakes Settlement Act 2006. This legislation also resulted in:

- Transfer of ownership of 13 lake beds in the Rotorua and Waikato Districts from the Crown back to TALT. An additional lakebed was transferred from Rotorua Lakes Council to TALT in 2019.
- The Rotorua Te Arawa Lakes Strategy Group, a co-management group comprising TALT, Bay of Plenty Regional Council and Rotorua Lakes Council.
- 14 Statutory Acknowledgements - formal acknowledgement by the Crown that recognises the particular cultural, spiritual, historical and traditional association of Te Arawa in relation to the 14 lakes.

TALT led the development of a cultural framework for Te Arawa Lakes called, Te Tūāpapa o ngā Wai o Te Arawa (Te Tūāpapa). It is a holistic and values-based approach to managing Te Arawa lakes and the surrounding land. It was initiated and driven by Goal 4 of the Vision and Strategy for the Lakes of the Rotorua District, which states: “The lakes catchment is managed through Te Arawa values”; Te Tūāpapa explores practical approaches to that Goal. Through engagement with Te Arawa Hapū and Iwi over the course of six months and the guidance of an advisory group, a framework was born and centred around the well-being of water. The guiding values outlined in Te Tūāpapa are structured and layered like whakapapa and reflect the voice of Te Arawa. Lodged with Rotorua Lakes Council (RLC) and Bay of Plenty Regional Council (BOPRC) in 2015, it is now a recognised Iwi Planning Document under the RMA. The accompanying policy document, He Mahere Taiao o ngā Wai o Te Arawa (TALT Environmental Plan) was added to Te Tūāpapa in 2019.

Te Tūāpapa proposes how cultural outcomes can be supported by a range of contributors to freshwater health, including: TALT, district and regional councils, central government agencies, and community and stakeholder groups. Throughout Te Tūāpapa are mentions of how cultural health-centred programs embedded with mātauranga and science in harmony could support the inclusion and empowerment of Te Arawa values.

TALT has led various programmes which show how cultural values have contributed to three different contexts - regulation, assessment and planning. Three of these programmes were analysed in a series of case studies:

1. **Te Arawa (Fisheries) Bylaws 2020** – bylaws created to protect taonga species and allow for greater information gathering and oversight of species’ population health.
2. **Tarawera Collective Impact Project** – a collaborative effort by Te Arawa Hapū, Iwi, agencies and communities of residents to improve the health and wellbeing of the Tarawera Lakes System (comprising 8 Te Arawa Lakes).
3. **Plan Change 10 (PC 10)** – the objective is to reduce the annual nitrogen load to Lake Rotorua from 755 tonne per annum to 435 tonne per annum by 2032.



## 2.3 Overview of Scientific Models

A key part of the strategy to manage water quality in Te Arawa lakes is the application of lake water quality (process) models. A combination of aquatic ecosystem models is currently used to simulate lake responses to management activities affecting catchments and in-lake nutrient recycling processes:

- ROTAN
- CLUES
- SimCLIM
- DYRESM-CAEDYM

These dynamic process-based lake ecosystem models require complex configuration and calibration/verification for each new application. In addition, these models are mainly focussed on water quality and do not incorporate taonga species or their habitat requirements. However, they do provide a basis for discussions of habitat relating to fisheries management (e.g., Dissolved Oxygen (DO) concentrations in the bottom waters that can affect kōura and kākahi distribution).

A combination of these methods offers the most potential for Te Arawa to assess, manage, monitor and protect the health of Te Arawa Lakes. Knowledge Network conceptual models (KNs) can incorporate CHIs, cultural monitoring methods and water quality (process) models. Seven aspirations outlined in Appendix 3 of Te Tūāpapa for the "Health and Wellbeing of the Lakes" were used to align these scientific mechanisms to the cultural values of Te Arawa. The aspirations include:

1. Lakes in a healthy state
2. Kua mā te mauri o te wai
3. To be able to swim, drink the water and collect kai in all lakes again
4. Healthy, plentiful food resources
5. Pest free, and pollution free
6. Kōura on the table
7. Healthy and balanced ecosystem of the lakes

Having these cultural aspirations/values at the centre, highlights the gaps and limitations of these science models in a cultural context.

The use of KNs can be helpful for organising traditional ecological knowledge into a framework that can interface with Western science methods. KNs have been developed for the taonga species kōura, kākahi, kōaro, wai inanga (common smelt) and tuna in Te Arawa Lakes which is shown in Figure 1 below. These models define three key factors - habitat quality, food supply and predation - which collectively contribute to the abundance of taonga species in the lakes and are a holistic, graphic representation of a system.

Ultimately, decisions with respect to protection, management and restoration of Te Arawa Lakes will rely on water quality (process) models to determine appropriate and effective management actions to achieve desired outcomes. Incorporating key cultural health indicators (e.g., the habitat requirements of kōura) would make the water quality (process) models more relevant to Te Arawa Iwi and Hapū, particularly if they are on a user-friendly, open-access platform. An advantage of these models is that they can be used for testing future management scenarios which has great potential for engaging stakeholders.



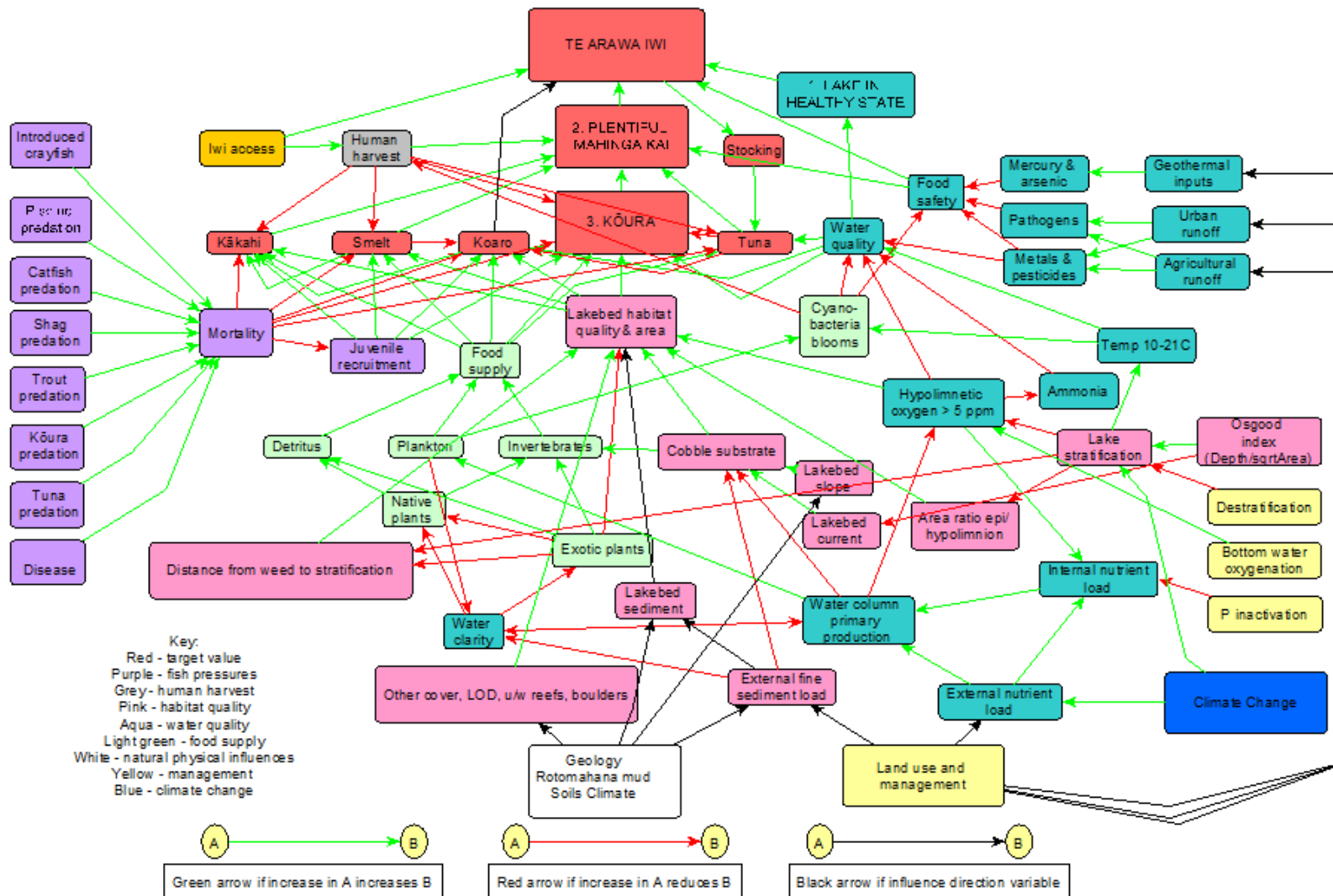


Figure 1. Knowledge Network of the Rotorua Te Arawa Lakes.





## 2.4 Overview of Cultural Health Indicators

When the RMA was introduced in 1991 it emphasised the importance of the relationship that Māori had with their ancestral lands, waters, sites, wāhi tapu and other taonga (Young et al 2008). Cultural Health Indicators emerged as one of the first components of mātauranga Māori introduced into scientific domains. The Cultural Health Index for Streams and Waterways (Tipa & Teirney, 2006) was the first framework to demonstrate interpretive equivalence between cultural indicators and scientific indicators. Since then an increasing number of frameworks and cultural health indicators have been developed from the Tiakina te Taiao Cultural Assessment Framework (Young et al, 2006) to Wetland Cultural Health Index (Robb, 2014), Waikato River Report Card (Williamson et al 2016) to Wai Ora Wai Māori Kaupapa Māori Assessment Tool (Taura et al 2017). Bishop (2019) completed a comprehensive review of indicators used for 'cultural health' monitoring of freshwater and wetlands for the Auckland Council and Kēpa Morgan provided TALT with a paper summarising the development of cultural health indicators and providing thoughts on future directions.

Mātauranga Māori cannot be assimilated and generalised within reductionist scientific paradigms. Te Arawa Iwi and Hapū are wary of the adoption of reductionist science-based interpretations of mana, mauri, taonga species and whakapapa. Yet these are all commonly shared ways of understanding the relationships that Te Arawa Hapū have with their wai māori. These culturally-derived ways of knowing are beyond the realm of reductionist science and require decision-making approaches that can include culturally-specific knowledge.

If cultural health indicators are a geographically specific means of enabling the measurement of a particular attribute of a Hapū or Iwi, then to be appropriately recognised, the method of inclusion in any framework is at least as important. Culture is defined here as a geographically specific expression of identity. Cultural health indicators are the appropriate geographically specific means of representing that identity and its flourishing which enables that culture to be recognised and measured. Therefore, cultural indicators, their definition and their measurement must be the sole prerogative of the relevant Hapū. Moreover, how these ways of knowing are effectively empowered in decision making processes and frameworks is critical as decisions are no longer being made by Iwi and Hapū in isolation.

Mana, mauri, taonga, whakapapa, Te Tiriti o Waitangi and the many forms of wai contribute to the understanding of knowing one's identity and belonging in Aotearoa. Nō wai koe, of what waters are you? These ways of belonging are understood to differing degrees amongst the people of Aotearoa. These different understandings create bias which must be differentiated in frameworks to clearly describe the different ways that a decision is experienced within the community. The Tangata Whenua are those that made allowance for Tangata Tiriti to live in Aotearoa. Tangata Whenua in their own rohe are responsible for the appropriate expression of their identity and are the Hapū whose mana is asserted with regard to cultural health indicators. Tangata Tiriti are educated in their way of belonging and acknowledge the privilege afforded them by Te Tiriti o Waitangi. Others who are manuhiri are developing their understanding of their place in Aotearoa. These different ways of belonging create the need to represent these different worldviews and how they experience decision-making impacts.

Best practice, therefore, would require that cultural health indicators are used within a decision-making process that can accommodate the complexities identified. Models of reality



created by a framework must be developed and verified by and with the relevant Hapū. While some indicators may be readily transferable across models, the accuracy and appropriateness of a model cannot be assumed unless the cultural indicator sets to be used are verified with the impacted Hapū.

#### CASE STUDY: KOURA AS A CULTURAL HEALTH INDICATOR

Koura are an excellent example of a cultural health indicator for Te Arawa Lakes. The development of cultural health indicators to assess the effectiveness of aquatic weed management over the next decade saw koura and aspects of koura habitat as critical indicators of success (Milestone 4 Report Cultural Monitoring Plan, TALT) which are exhibited below:

##### Cultural Indicators:

- Native aquatic plants
- Taonga species koura, koaro, kakahi, tuna, morihana and inānga
- Cultural materials raupo and kuta
- Recreational sites for swimming and waka ama launching areas
- Water quality
- Ohau channel frog \*note this species is part of wider research being undertaken by Tangata Whenua o Te Ohau. Cultural monitoring of this species will begin upon completion of research

Cultural Health Monitoring led by TALT has been undertaken throughout Te Arawa Lakes and yielded the below key findings:

- The project has enabled Te Arawa Hapū and the project working group direct input into the spray programme with the inclusion of sites of cultural importance
- It is considered that whole lake monitoring would be of benefit rather than the current areas (which are restricted to recreational monitoring).
- The current spray plan focussed on public and or private recreational areas or swimming areas> It does not account for cultural values and activity
- Set baseline monitoring and data for all lakes
- There is currently four (4) months of tau koura monitoring undertaken in Lake Rotoiti
- Observations of the weed spraying include a positive effect on koura harvesting grounds with improved access for tau retrieval and movement of koura between tau feeding grounds. It is noted that this is limited to 2 months before weeds returned
- All data collated in this monitoring plan to be used for wider TALT research and data initiatives.
- Pre-notification of spraying works is required to enable sufficient time to notify whanau and Hapū



### 3. Critical points for Iwi and Hapū

#### 3.1 Three TALT Case Studies – values, attributes and indicators in parallel

Each of the three TALT case studies have been tabulated to align cultural values specified by Te Arawa tangata whenua (in the case of PC 10) or through Te Tūāpapa with associated scientific attributes and CHIs. Table 1 below attests to the benefits of pursuing environmental work focussed through Māori participation.

**Table 1.** Intersecting cultural values, scientific attributes and CHIs for each TALT case.

	Te Tūāpapa / tangata whenua values	Scientific Attributes	CHI
<b>1. Bylaws</b>	Waiora / Wai Ora - Ensure the sustainability of customary fishing	Limits on the size and amount of taonga species harvested and restrictions on harvesting methods and season. Total ban on certain species	Taonga species are fished exclusively by Te Arawa and enjoyed by all
	Waiata / Wai Ata - Obtain information on the customary fisheries	Maintain database of fisheries to be monitored and researched	Monitoring and research to be done by Iwi and Hapū and aligned mātauranga
	Wairua / Wai Rua - Promote customary fishing	Data clarifies how cultural fishing aligns to sustainable practices	Iwi and Hapū are connecting to their Lakes by traditional methods
	Waiariki / Wai Ariki - Prevent degradation and support restoration of fisheries	Science and tools used for protection, forecasting and monitoring	Science and tools are accessible to Iwi and Hapū and co-designed, co-developed, co-managed
	Wai - Safe consumption of customary fisheries	Testing fish and water quality, modelling local land-use	Iwi or Hapū are ill or dying due to unsafe consumption
<b>2. Tarawera</b>	Waiora / Wai Ora - Health and well-being of our Lakes and everything they support, especially kai	Water quality e.g. N, P, DO etc.	Taonga species and traditional practices are thriving
	Wairua / Wai Rua - The connection between Te Arawa whānau and our Lakes are enhanced	Monitoring and modelling changes in land use and changes in built environment	More walkways, our people are fully engaged and active in management and restoration of Lakes
	Waiata / Wai Ata - Sites of significance are identified and protected	Changes in landscape over time via drone survey of lake shorelines	History and traditional knowledge is passed onto our young people, place names are identified/used



	Waiora / Wai Ora - The health and wellbeing of our people is improved including social, cultural and economic	Rate of community participation in projects, quality of life of residents	Employment opportunities for Iwi and Hapū, community awareness and buy-in in relation to our historical connections, aspirations and values
<b>3. PC 10</b>	Managing the whole system (holistically) including the land and rivers that affect the Lakes	Monitoring and modelling changes in land-use and changes in built environment	A holistic system approach is used to model land and water to enhance the mana and mauri of both
	Kaitiakitanga	Assessing data for benevolent trends and advocating for practices to enable those	Taonga defined by Iwi and Hapū are considered by all and prioritised to be protected
	Rangatiratanga	Draw data on Māori land in the area and model land use capabilities	Te Arawa has equal opportunities and a voice at the table to influence decision-making
	Tauutuutu	Trading nitrogen and offsetting schemes	Biodiversity and cultural factors are integrated
	Mauri	Achievement of short-term targets	Momentum is maintained for Iwi and Hapū to push and advocate for change

Table 1 articulates the following:

- Cultural values frameworks are significant for setting the purpose and aligning Iwi and Hapū aspirations to a project/programme. They set the historic context for Iwi and Hapū and their respective visions moving forward and provide the scope for work to abide by.
- Scientific attributes will objectively attain, hold and model the quantitative and qualitative measures associated with a given cultural value. These support the project and help achieve the vision. Depending on the method of measurement and post-result analysis tools, there may be bias associated with data attainment and processing. Therefore, ensuring Iwi and Hapū are involved in all steps is critical to delivering sound results that are consistent with tikanga.
- CHIs assess the amount of inclusion and participation of Iwi and Hapū in any given project/programme as long as they have been involved in the co-design, co-development and co-management of CHIs in the system. CHIs both support a project/programme practically and also measure how thoroughly the aspirations set by the cultural values framework are being realised. As the NPS-FM and NBA aim to involve Iwi and Hapū through greater participation in environmental management, supporting the development of CHIs would be an ideal mechanism for Iwi and Hapū to engage in decision-making and for councils to show they are meeting regulatory obligations.

If Iwi and Hapū methodologies are genuinely included and actively being used then that exhibits active engagement and contributes to many of the aspirations of Te Tūāpapa and the policies that are set to follow through in this political term. Increased focus on engagement and acknowledgement of Iwi and Hapū ways of being has been advantageous for Māori-led



research and Māori-led advocacy, however, these have been limited by processes, policies and the capability of councils and government agencies.

### **3.2 Limitations outlined in the TALT case studies:**

- Lack of capability and resources for councils to effectively engage with tangata whenua to incorporate cultural values and aspirations into policies in a timely manner.
- Voluntary positions for Te Arawa kaitiaki, i.e. Poutiriao etc., are not financially supported although these positions are significant roles with respect to resource management processes.
- Councils drafting freshwater management units may divide culturally important locations for a specific sub-catchment approach. This could lead to the development of different goals for Iwi/Hapū that whakapapa to a rohe that is split into different systems and may create tensions and extra work for Tangata Whenua.
- The BOP Regional Policy Statement and associated implementation Plans rely on a single measure for lake health, the TLI index which does not reflect the cultural values or holistic view of Te Arawa as outlined in Te Tūāpapa. The Lake Tarawera Action Plan is significantly out of date meaning that it has limited relevance to current and changing policies and requirements.
- Lack of a requirement in the RMA for councils to engage with Hapū and Iwi means the environment is not centred in decision making and the role of Hapū and Iwi as kaitiaki is undermined.
- Te Tiriti weighting is not recognised strongly enough in the RMA and therefore does not appropriately reflect the role of Iwi and Hapū as Treaty partners.
- The Statutory Acknowledgements hard fought for by Te Arawa as part of the settlement of the grievances associated with the taking of the Lakes and other taonga are not weighted appropriately in the RMA process.

### **3.3 Limitations in Policies, Legislation, Councils and Government Agencies:**

- Councils may hinder Iwi and Hapū by creating barriers rather than supporting them to undertake a Section 33 transfer of powers and functions through the RMA.
- Crown agencies, research institutions and councils hold funding to develop and deliver programmes that Iwi and Hapū seek to participate in as partners or in their own autonomy. This privileges the role of councils and other agencies resulting in Iwi and Hapū who have the capacity and capability to undertake this work, having to negotiate, and justify for the right and empowerment of bettering the environments they whakapapa to;
- This also results in a constraining of resourcing, capacity and capability for Iwi and Hapū representative entities and often detracts their ability to apply for funding, plan for works and undertake the broad range of works that aligns with their values supporting their mana on the whenua.
- CHIs have been studied at a preliminary level so far with respect to Kusabs work within Te Arawa, while there are plenty of potential research topics to investigate more accurately defining CHIs across various ecosystems.
- CHIs are often solely aligned with Western science indicators based on biophysical variables and are disconnected from social and cultural outcomes i.e. housing, employment opportunities, connection to people and place etc.
- Councils are unsure how to effectively apply specified values by Iwi and Hapū while training and engagement on cultural issues for staff responsible for this work is lacking.





These constraints are based around functions and experiences of Te Arawa and Tūwharetoa, however, with the reform of the RMA and the drive to exercise Te Mana o te Wai within the NPS-FM, these may also be relevant at a national level. From these gaps we hope to provide a suite of suggestions to advocate for the empowerment of Iwi and Hapū in environmental management.

### 3.4 Section 33 of RMA as a Critical Mechanism

Section 33 of the RMA - Transfer of powers - is a tool for local authorities to transfer any one or more of its functions, powers, or duties to another public authority, including Iwi authorities. The function of water quality monitoring, specifically water sampling, was transferred to Tūwharetoa Māori Trust Board (TMTB) from Waikato Regional Council (WRC).

#### CASE STUDY: TŪWHARETOA UNDERTAKING SECTION 33 OF RMA

TMTB have been the first Iwi-representative entity to work with a regional council, specifically WRC, to utilise the Section 33 transfer of powers of the RMA. Through a short interview undertaken with Maria Nepia, Natural Resources Manager at TMTB, we hoped to understand the process of engaging with a regional council to transfer the functions of water quality monitoring. A range of aspects were expressed from this experience:

#### **Advantages of this process:**

- Provides the opportunity for Iwi to connect to their taonga, their Lake.
- Council was eventually supportive in handing over this function and supported the handover through training once Section 33 was enacted and the mahi signed over to TMTB.
- Opens the door to potentially undertake more council functions in the future.
- Saves the council time and money to allow council staff to focus on other work.

#### **Disadvantages of this process:**

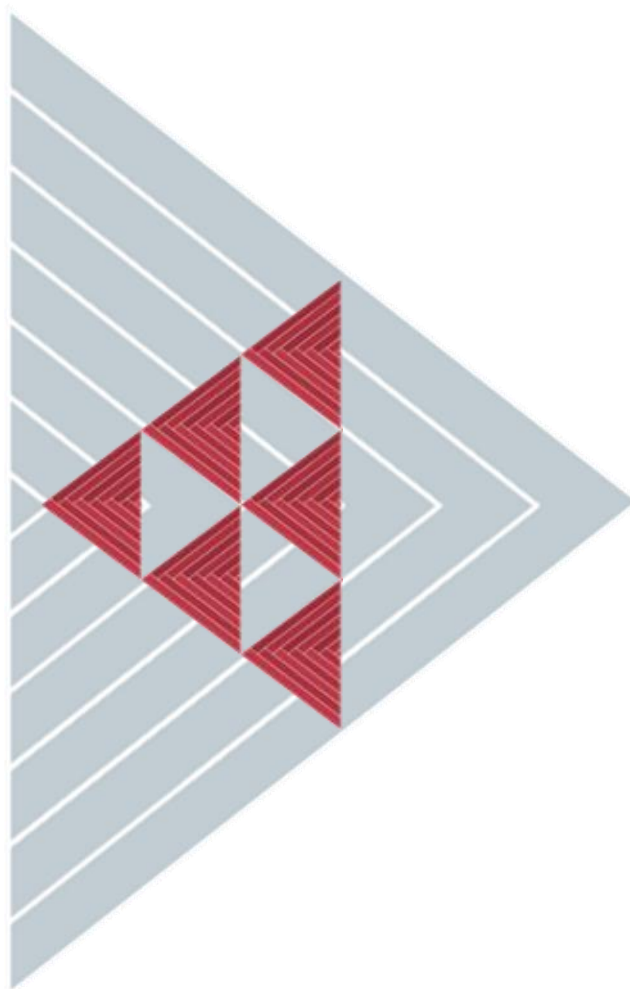
- Initially was met with barriers when engaging with WRC about potentially transferring powers and functions so TMTB sought legal support to navigate the processes involved.
- TMTB experienced staffing and resourcing issues and needed more time to allow capacity building for the work ahead before Section 33 was enacted.

#### **Interesting considerations that were also noted were:**

- Moving forward and taking on more functions/powers from council are expected to change as councillors and internal TMTB staff change and relationships form and shift.
- Cultural health monitoring by the Iwi done alongside water quality monitoring showed a directly proportional relationship (as cultural health increased, so did water quality). Formalisation of this process by reforming water quality monitoring processes to align a process for CHI data collection would enrich the data set.



Section 33 was useful to show how opportunities to increase Iwi and Hapū participation in resource management can provide economic, social, cultural and environmental benefits. Although in regards to monitoring, a further transfer can be applied to other council functions e.g. re-configuring the measuring and data collation/analysis process to include new data points inclusive of mātauranga Māori. Future progressive programmes are potentially started by councils that are keen to co-design and co-develop innovative systems that account for Tiriti appropriate ways of managing our natural resources alongside Iwi and Hapū.



## 4. Recommendations

These critical points that have emerged from the experiences of Iwi and Hapū are significant in guiding future endeavours. Limitations in the policies, processes and knowledge are seen as opportunities to lead the kaupapa of environmental well-being and resource management. As the proposed draft NBA is being disseminated and discussed, it is key for these recommendations to be in sequence with the evolving resource management system. This includes the implementation of the NPS-FM with Te Mana o te Wai that will frame freshwater management for all of Aotearoa. The only way to meet the new requirements of the NBA and NPS-FM is to increase and enhance the role of Hapū and Iwi in decision-making, planning and monitoring of the environment through the resource management system. This will require equal power-sharing between the Crown, and Iwi and Hapū.

### 4.1 Policy, planning and implementation processes

#### i. Optimising future policy enactment

It is recommended that each council be required to set up two implementation programmes in their long-term plan budgets. The first implementation programme is on decision making for the Natural and Built Environment Act including the NPS that sit under them. The second is on implementation of goals and intended outcomes identified.

A key aspect of the transformation of the Resource Management system is the role of Hapū and Iwi across all levels of the system from decision-making, to plan-making, monitoring to permissions. The NPS-FM also requires engagement with tangata whenua across the National Objectives Framework (NOF) process. This is a significant shift and requires an approach that focuses on increasing the capacity and capability of all of the future actors in the system to adapt to this increased role of Hapū and Iwi.

This will require investment from central government and local authorities in programmes and initiatives that build the capacity of Hapū and Iwi. There are mechanisms for this level of engagement now, however the investment to initiate and progress this greater level of engagement has not been made evenly across central or local governments. The investment required in the current transition will be challenging, but the transformation sought in this new system will only be realised if this investment is made and the channels for that investment are to Hapū and Iwi. In the past the attempts to increase the participation of Hapū and Iwi in the resource management system have been provided for in policy. However, poorly resourced implementation programmes resulted in these new policy interventions not having the desired effect, and therefore the participation of Hapū and Iwi has not improved.



*CASE STUDY: Te Mana Whakahono a Rohe*

*In the 2017 Amendments to the RMA, Mana Whakahono-a-rohe (MWAR) mechanisms were introduced to provide for increased and improved participation of Hapū and Iwi without settlements in the RMA system. The recommendation included resourcing Hapū and Iwi to pursue the MWaR to ensure they were able to be implemented quickly and have the intended effect of increasing participation of Māori in the natural resource system. This recommendation was not taken up and 4 years later only 2 Mana Whakahono a Rohe are in place with only 2 in development.*

Participation and involvement also mean in a technical capacity on planning committees and on Hearing panels, or as technical experts in planning processes, policy development, engineering or science advice. Mātauranga-based monitoring and measurement expertise will all be needed to ensure this system is delivering the transformative outcomes anticipated for Iwi and Hapū, the environment and the wider community. This increase in the requirements for active involvement will need to be matched by increases in capacity and capability in Hapū and Iwi entities and organisation and will require an implementation programme led in regions by Hapū and Iwi to build this capacity and capability across their rohe, populated by their own members.

**Recommendation for a Two-Piece Implementation Programme:**

**a. Decision making programme.**

Each region needs to establish a Joint planning committee. For each of these committees, Hapū and Iwi must be represented. Importantly, as indicated by the NPS-FM, Hapū and Iwi are to be included in decision-making processes to the extent they wish to be involved. This means that even if Hapū and Iwi are currently unable to be included to the extent they desire, there needs to be a process established to enable the involvement Hapū and Iwi wish to see.

Establishment of processes and structures that support the involvement and participation of Hapū and Iwi in decision-making will be critical in ensuring that the opportunities enabled through the legislation and policy settings are maximised.

**b. Implementation of goals and intended outcomes identified.**

To meet the intended plans, goals and policies aligned with the NPS-FM and the resource management reform programme including the NBA, Te Arawa Hapū and Iwi may seek a number of ways to build capacity and capability;

- From an environmental unit that has capacity and capability to facilitate the involvement and participation of Te Arawa in the resource management system.
- Establish, through co-design, a governance model and structure to ensure there are seats and roles for Te Arawa in the setting of direction in the National Planning Framework (NPF), have members on the joint planning committee and hearing commissioners on the hearing panels to be actively engaged in decision making processes.
- In terms of implementation of the NBA and NPS-FM, an operational Unit will enable Te Arawa to monitor councils and central government implementation and provide feedback



on the efficacy and effectiveness of the system based on the feedback and participation of Hapū and Iwi across the system.

- Develop partnerships with Crown agencies, businesses, community organisations and local authorities to implement operational programmes designed to deliver on Te Mana o te Wai including projects such as the catfish monitoring programme, aquatic weed management and control, Ohau Channel trout surveys, wetland restoration and potentially lake-alum dosing.
- A significant part of the Strategic Planning Act is the development of the Regional Spatial Strategy which is considered a long-term strategic plan to be delivered through a Crown / local government / Hapū and Iwi partnership in the region. This provides the opportunity for partnerships in infrastructure development, housing, renewable energy and transport links. Te Arawa already has a number of these programmes underway and could continue to influence regional scale development for the health and well-being of the environment, Hapū and Iwi and the wider community.
- Partner with universities, research institutes and the National Science Challenge Programme to grow and develop tribal members to pursue careers in resource management fields, our Te Arawa taiao and increase kaupapa Māori research fields to support the ongoing health and wellbeing of our lakes, lands and whānau.
- Promote and practice contemporary work guided by Te Tūāpapa, integrating Te Arawa mātauranga and mohiotanga across the resource management system.
- The definition and determination of Freshwater Management Units (FMUs) must be undertaken with Hapū and Iwi rather than determined solely by councils applying Western science or geographical overlays. This will enable the inclusion of significant water bodies on the cultural landscape to be included in these processes such as wāhi tapu.

## ii. **Cultural Impact Assessments (CIAs) as mandatory for resource consenting**

The NBA in its draft form has yet to establish the process of resource consents, now named permissions in the new system. Where the resource consenting process for the RMA would require an assessment of effects of the environment, little emphasis was placed on the cultural impacts. Requiring CIAs as a mandatory component of the new permissions regime at the early stages of the application process would ensure that Iwi and Hapū are able to participate in the process and influence developments in their rohe. Ideally the increased and enhanced participation roles for Iwi and Hapū in the decision making and plan-making processes will mean that there is less need for this “ambulance at the bottom of the cliff” approach to resource management. A CIA will be an option for Hapū and Iwi to utilise should they need to. The following considerations should be made:

- Cultural impacts and effects should be managed through policy processes rather than being managed at the consenting stage (permissions in the new Act) where they are then managed as conditions. This in the past has led to identified adverse effects being pushed down the road where they are later unresolvable.
- Iwi and Hapū should not be limited in the format by which these assessments are presented i.e. stories, haka, waiata to convey cultural views in the most appropriate manner.
- Councils should assist Iwi and Hapū to establish rohe-based environmental units which would be contracted to undertake CIAs by resource consent applicants. These environmental units would work closely with councils to also determine FMUs.





- Support and consideration should also extend to the timelines in which these CIAs may have to be produced. Iwi and Hapū often put time towards cultural commitments which sit outside standard working days and hours and should be considered.
- The wealth of knowledge held in our kete mātauranga includes worldviews and beliefs intrinsic to practices and reasonings. Due to this, cultural values and knowledge in the form of health indicators must be considered equal with Western science under the eyes of decision-makers.
- To meet section 5(3) of the NBA, all resource management plans should outline the Holistic Impact Assessment that combines the impacts on all four well-beings acknowledging the interconnectedness of the environment and the intrinsic relationship of Iwi and Hapū to the environment.

iii. **Each authority needs to audit existing FMUs explicitly to give effect to Te Tiriti o Waitangi**

- The definition and determination of Freshwater management units (FMUs) must be undertaken with Hapū and Iwi rather than determined solely by councils applying Western science or geographical overlays. This will enable the inclusion of significant water bodies on the cultural landscape to be included in these processes such as wāhi tapu.
- Each FMU must give effect to Te Mana o te Wai, this includes empowering Iwi and Hapū in decision-making processes and that Hapū and Iwi freshwater values must be identified and provided for.
- Objective 2.1(b) identifies “the health needs of people (such as drinking water)” and this objective must be interpreted at place by Hapū and Iwi to include a Te Ao Māori health model which is broader than public health. Likewise, Objective 2.1(c) identifies the well-being (social, economic, cultural) of now and future generations. In the NOF process Hapū and Iwi need to be provided with opportunity and resource support to identify the way that FMU aligns to Hapū and Iwi well-being.
- Te Mana o te Wai will mean that where over-allocation is identified it will be phased out and prevented in the future. The resource management system reform will address this as well as make provision for the allocation of waters, and management of this to Hapū and Iwi.
- Communities’ well-being is consistent with the NPS-FM which therefore requires strong and clear articulation about the well-being of Hapū and Iwi, especially when their well-being is adversely affected.
- 3.2 outlines that every regional council must actively involve Tangata Whenua to determine how Te Mana o te Wai applies in the region, the long-term visions and how councils will enable the diverse application of values and knowledge including mātauranga.
- 3.4 outlines significant work programmes for Hapū and Iwi involvement. In order for this to occur, local and regional authorities must financially support this involvement by including these programmes in their long-term plans. This will ensure that Hapū and Iwi will be able to meaningfully contribute, enabling capacity, capability and outcomes to be achieved.
- The attributes must be set with Hapū and Iwi to ensure that wāhi tapu are included as an attribute where they consider this appropriate. This will require councils to set plans, frameworks or policies to ensure outcomes are achieved which may be socially, culturally and environmentally accounted for significantly in a given rohe by Hapū and Iwi.



#### iv. **Including CHIs and cultural values to measure Iwi and Hapū inclusion**

The purpose statement of the draft NBA includes Te Oranga o te Taiao. A concept applied to the desired achievement of an overarching environmental outcome for intergenerational sustainability.

This concept and its supporting provisions in the Act create a future inclusive of Hapū and Iwi cultural frameworks, cultural values as expressed by Hapū and Iwi in their various forms and the development and use of CHIs.

For example, the implementation principles and environmental outcomes outlined in the draft Bill (see clauses 8 and 18) will be critical to ensure Te Oranga o te Taiao will be upheld throughout the decision-making, planning and consenting processes. These include:

- restore and protect the relationship of Iwi and Hapū, and their tikanga and traditions, with their ancestral lands, water, sites, wāhi tapu, and other taonga;
- restore and protect the mana and mauri of the natural environment;
- promote the integrated management of the environment;
- recognise and provide for the application, in relation to te taiao, of kawa, tikanga (including kaitiakitanga), and mātauranga Māori;
- promote appropriate mechanisms for effective participation by Hapū and Iwi in processes undertaken under this Act; and
- recognise and provide for the authority and responsibility of each Hapū and Iwi to protect and sustain the health and well-being of te taiao.

The National Planning Framework - expected in the draft NBA for the resource management system - anticipates the setting of limits at the national level. This will undermine the ability of Hapū and Iwi to apply CHIs and cultural values that ensure the environmental outcomes sought for in their respective rohe. The National Planning framework can support the development of regional and catchment-level limits; the inclusion of CHIs to set the limits and to support the ongoing measurement and monitoring of these limits by Hapū and Iwi will therefore be enabled.

The effectiveness of the new system to 'give effect to the Treaty' can only be monitored by establishing a representative body of Hapū and Iwi to monitor this compliance. This would enable monitoring and accountability which gives certainty to the anticipated outcomes. A potential avenue to measure the inclusiveness of Iwi and Hapū from a local to regional scale would be through the research and active use of cultural values and CHIs in decision-making. Greater inclusion of these shows a directly proportional relationship to participation of Iwi and Hapū in the design, development and undertaking of programmes that benefit freshwater ecosystems which is a significant aim of the NBA and NPS-FM.



## 4.2 Future research

The Research sector has been working on the participation and involvement of Māori and kaupapa Māori research development, design and implementation for almost a decade. This has included the inception of the National Science Challenge programme, the Vision Mātauranga policy and the investment in Research Centres of Excellence in Mātauranga Māori and a range of interdisciplinary research programmes including mātauranga Māori.

The new resource management system and the NPS-FM relies on the integration and inclusion of mātauranga alongside the current Western paradigm resource management. It is critical for the environment, for Hapū and Iwi and for the community at large that work on the integration and alignment of cultural values and CHIs continues to grow and there is support to do this.

- i. **Iwi and Hapū should be enabled and supported to study CHIs and research methods of aligning cultural values and scientific models together**
  - This is Kaupapa Māori research and therefore should be Māori-led and Māori-centred.
  - Funding and support should be equal with the opportunities provided for Western research.
  - Co-design approach when aligning with science - refrain from “trimming” traditional Māori knowledge to integrate or assimilate into Western models or paradigms e.g. re-configuring data measurement, collation and analysis processes to include data points for mātauranga which could support the future build of a Cultural Health Indicator framework.
  
- ii. **Ensure Iwi and Hapū are supported to develop their own cultural values frameworks setting aspirations to guide the work of the Crown, councils, community or any stakeholders**
  - Requirements for Long Term Plans should ensure that resources are provided so that Hapū and Iwi can provide training and support to decision-makers and policy and programme developers on how to understand, empower and implement the values to reach the set aspirations.
  
- iii. **Hapū and Iwi collectivise to establish centres of excellence for research and kaupapa Māori based ways of knowing that are Te Taiao focused**
  - Funding and support should be equitable with the opportunities provided for Western research.



### 4.3 Iwi and Hapū becoming decision-makers

- i. **Government bodies will need to actively involve Iwi and Hapū so that they work within or alongside government bodies to have greater impact. It's hoped that more government agencies support Iwi and Hapū in co-designing, co-developing and co-managing programmes that affect their rohe. Some examples of how this could be done are:**
  - Working with MPI and council enforcement units to build Iwi and Hapū enforcement units as officers for lakes or other ecosystems.
  - Designing the times and places to check for species that are endangered or particularly susceptible through research and mātauranga. Utilising specialised knowledge of places and communities to protect taonga species specifically. Developing and managing relationships with people and places to support the restoration of the native ecosystem.
  - Enabling co-management of areas currently managed by the Department of Conservation, regional and district councils, LINZ and other agencies. This would involve co-designing new environmental and cultural management plans moving forward for these areas based on a Tiriti approach.
  - Transferring functions and powers such as how TMTB accomplished through the RMA Section 33. Co-design of the monitoring scheme that integrates Tangata Whenua values and mātauranga Māori such as CHIs would support the participation of the wider Iwi and Hapū.
  - Communicating the health of the ecosystem in culturally meaningful terms - not solely through scientific attributes - would likely support a better connection of whānau to their places of belonging.
  
- ii. **For regional councils, their staff capability needs to be enhanced so that their understanding of Māori worldviews will meaningfully incorporate Iwi and Hapū values into their processes and methods. This aspiration could be met while considering:**
  - Internal support, education and further development of a kaupapa Māori and Mana Whenua relations component to all operations.
  - It is critical to prevent further breaches of Te Tiriti and that authorities do not attempt to identify mātauranga frameworks or cultural monitoring for either the NBA or NPS-FM. That space is solely for Iwi and Hapū to fill. It may be pragmatic for those authorities to upskill themselves through wānanga or training provided by Hapū and Iwi so that they may understand the information that these groups will be sharing back as empowered decision-makers.
  - To give effect to Te Tiriti there is a need for equitable investment across the Kawanatanga sphere and the Rangatiratanga sphere. The role of the Government as provided for in Article 1 and 3 means that this increase in capability of Government and its agents is an essential part of ensuring Hapū and Iwi are able to participate in the decision making and processes that have an effect on Hapū and Iwi. The investment in matters pertaining to Article 2 must be determined by Hapū and Iwi but must occur to ensure the system of resource management is transformed.



## 5. Conclusions

This paper looked to explore how Māori-led values, Māori-led science and Māori-led CHIs can influence decision-making. The NBA and NPS-FM have created more potential than ever in contemporary times for Hapū and Iwi to be engaged in freshwater management. It is now up to Hapū and Iwi to determine their level of decision-making to translate that potential into environmental outcomes through setting plans and policies that enable Iwi and Hapū to engage meaningfully and put in place support measures for those that cannot contribute due to hurdles in the process.

A key consideration is that Iwi and Hapū values, Western science and CHIs have not often been interwoven but aligning the TALT case studies showed how the integration of cultural concepts works across various contexts and can help achieve the national objectives, particularly for freshwater. Despite these processes having a bias towards Western conduct, Hapū and Iwi ways of knowing can help to transform the environment into something better. The well-being of Te Arawa Lakes will certainly be enhanced if Iwi and Hapū are empowered and supported in the ways specified in this report.





## Bibliography

Agrawal, A. (1995). Dismantling the divide between indigenous and scientific knowledge. *Development and Change* 26, (413-439).

CBD Guidelines, Secretariat of the Convention on Biological Diversity (2004). *Akwé: Kon Voluntary Guidelines for the Conduct of Cultural, Environmental and Social Impact Assessment regarding Developments Proposed to Take Place on, or which are Likely to Impact on, Sacred Sites and on Lands and Waters Traditionally Occupied or Used by Indigenous and Local Communities* Montreal, 25p.

<https://www.cbd.int/doc/publications/akwe-brochure-en.pdf>

Challenger, I. (2013). *A Process for Developing Sustainability Indicator Sets*. Report No. 2224. Nelson, NZ: Cawthron Institute.

Harmsworth, G. (2013). *Indigenous Māori knowledge and perspectives of ecosystems*.

Morgan, T.K.K.B. (2006) *Decision-support tools and the indigenous paradigm*. *Engineering Sustainability*, 159(ES4), 169-177.

Morgan T.K.K.B. (2007). *Waiora and cultural identity: water quality assessment using the mauri model*. *AlterNative* 3(1), 44–69.

Morgan, T.K.K.B., Manuel, R.D. (2020) *Western Science and Indigenous Wisdom: Is integration possible, practical, plausible?* *New Zealand Science Review* Vol 76 (1–2).

Morgan, T.K.K.B., Reid, J., McMillan, O.W.T., Kingi, T., White, T., Young, B., Snow, V., Laurenson, S. (2021) *Towards best-practice inclusion of cultural indicators in decision making by indigenous peoples*. *AlterNative: An International Journal of Indigenous Peoples*. 17(3). <https://doi.org/10.1177/11771801211015686>

Nelson, K. & Tipa G. (2012). *Cultural indicators, monitoring frameworks & assessment tools*. Tipa and Associates.

Te Arawa Lakes Trust (2019). *Te Tūāpapa o ngā Wai o Te Arawa. Te Arawa Cultural Values Framework*.

Te Arawa Lakes Trust (2020). *Aquatic Weed Control Cultural Monitoring Plan. Milestone 4 – Output Report*.



## Appendix 1. Natural and Built Environments Bill sections with specific relevance to Iwi and Hapū

### Part 2

#### Purpose and related provisions

##### Section 5 Purpose of this Act

- (1) The purpose of this act is to enable -
- (a) Te Oranga o te Taiao to be upheld, including by protecting and enhancing the natural environment; and
  - (b) people and communities to use the environment in a way that supports the well-being of present generations without compromising the well-being of future generations.
- ...
- (3) In this section, Te Oranga o te Taiao incorporates -
- (a) the health of the natural environment; and
  - (b) the intrinsic relationship between Iwi and Hapū and te Taiao; and
  - (c) the interconnectedness of all parts of the natural environment; and
  - (d) the essential relationship between the health of the natural environment and its capacity to sustain all life.

##### 6 Te Tiriti o Waitangi

All persons exercising powers and performing functions and duties under this Act must give effect to the principles of te Tiriti o Waitangi.

##### 7 Environmental limits

- ...
- (4) Environmental limits must be prescribed for the following matters:
- (a) air:
  - (b) biodiversity, habitats, and ecosystems:
  - (c) coastal waters:
  - (d) estuaries:
  - (e) freshwater:
  - (f) soil.

##### 8 Environmental outcomes

- ...
- (f) the relationship of Iwi and Hapū, and their tikanga and traditions, with their ancestral lands, water, sites, wāhi tapu, and other taonga is restored and protected:
  - (g) the mana and mauri of the natural environment are protected and restored:
  - (h) cultural heritage, including cultural landscapes, is identified, protected, and sustained through active management that is proportional to its cultural values:
  - (i) protected customary rights are recognised:
- ...
- (k) Urban areas that are well-functioning and responsive to growth and other changes, including by -
    - (i) enabling a range of economic, social, and cultural activities: and
- ...
- (m) in relation to rural areas, development is pursued that-



- (i) enables a range of economic, social, and cultural activities; and
- (ii) contributes to the development of adaptable and economically resilient communities; and
- (iii) promotes the protection of highly productive land from inappropriate subdivision, use, and development

...

- (o) the ongoing provision of infrastructure services to support the well-being of people and communities, including by supporting-
  - (i) the use of land for economic, social, and cultural activities:
  - (ii) an increase in the generation, storage, transmission, and use of renewable energy:

...

#### **Section 14 strategic directions to be included**

the provisions required by sections 10, 12, and 13 must include strategic goals such as -

- (a) the vision, direction, and priorities for the integrated management of the environment within the environmental limits; and
- (b) how the well-being of present and future generations is to be provided for within the relevant environmental limits.

...

#### **Section 18 implementation principles**

...

(b) recognise and provide for the application, in relation to [te taiao], of [kawa, tikanga (including kaitiakitanga), and mātauranga Māori]:

...

(d) promote appropriate mechanisms for effective participation by Iwi and Hapū in processes undertaken under this Act:

(e) recognise and provide for the authority and responsibility of each Iwi and Hapū to protect and sustain the health and well-being of [te taiao]:

...

#### **23 Planning committees**

- (1) A planning committee must be appointed for each region

...

#### **24 Considerations relevant to planning committee decisions**

- (1) A planning committee must comply with this section when making decisions on a plan.
- (2) The committee must have regard to-
  - (a) any cumulative effects of the use and development of the environment
  - (b) any technical evidence and advice, including mātauranga Māori, that the committee considers appropriate:
  - (c) whether the implementation of the plan could have effects on the natural environment that have, or are known to have, significant or irreversible adverse consequences:
  - (d) the extent to which it is appropriate for conflicts to be resolved generally by the plan or on a case-by-case basis by resource consents or designations.
- (3) The committee must apply the precautionary approach.
- (4) ...
- (5) ...
- (6) In **subsection (2)(d), conflicts-**



- (a) means conflicts relating to the environment; and
- (b) includes conflicts between or among any of the environmental outcomes described in **section 8**

**Schedule 3**  
**Planning committees**

**S 23**

**Membership**

**1 Membership of planning committees**

- (1) The members of a region's planning committee are-
- (a) 1 person appointed under clause 2 to represent the Minister of Conservation;
  - (b) mana whenua representatives appointed under clause 3;
  - (c) either-
    - (i) 1 person nominated by each local authority that is within or partly within the region; or
    - (ii) [placeholder for appropriate representation if the regional council is a unitary authority].

...

**3 Appointment of mana whenua members**

[Placeholder] This section sets out-

- (a) how many mana whenua representatives may be appointed to a planning committee; and
- (b) how those representatives are selected and appointed.

...

From the 3 TALT Case Studies and potentially other resources (Tuwharetoa with s33, TALT NPS-FM workshops, Rangiwewehi Kaitiaki Flows project)

**3.8 Identifying FMUs and special sites and features**

- (1) Every regional council must identify FMUs for its region.
- (2) Every water body in the region must be located within at least one FMU.
- (3) Every regional council must also identify the following (if present) within each FMU:
  - (a) sites to be used for monitoring
  - (b) primary contact sites
  - (c) the location of habitats of threatened species
  - (d) outstanding water bodies
  - (e) natural inland wetlands.
- (4) Monitoring sites for an FMU must be located at sites that are either or both of the following:
  - (a) representative of the FMU or relevant part of the FMU
  - (b) representative of one or more primary contact sites in the FMU.
- (5) Monitoring sites relating to Māori freshwater values:
  - (a) need not comply with subclause (4), but may instead reflect one or more Māori freshwater values; and
  - (b) must be determined in collaboration with tangata whenua.

Every regional council must identify FMU for the region. Every body of water must be contained in at least one FMU covering all of the compulsory values. A value that can also apply to FMU is Wai Tapu.



## Appendix 2. Relevant components of NBA draft for Te Arawa

Section 5 (1)	The general purpose of the act is to uphold the wellbeing of the environment including people or communities use that supports the well-being of present and future generations.
So what	Each Iwi and Hapū need to be able to communicate their well-being requirements both for present and future generations. This ensures that activities that will undermine or adversely affect this well-being are avoided.
Section 5 (3)	Te Oranga o te Taiao includes the intrinsic relationship between Iwi and hapū and te Taiao, including the interconnectedness of all parts of the natural environment.
So what	Iwi and Hapū need to be able to articulate the intrinsic relationship that they have to te Taiao in enough detail to inform decision making. This means being able to articulate what the relationship is, how it can be strengthened and how threats to this relationship can be managed.
Section 8	Part of the environmental outcomes that are intended is that the relationship, tikanga and traditions of Iwi and Hapū to their ancestral lands, water, sites, wāhi tapu and other taonga is restored and protected. Included in this section is that rural and urban areas provide for cultural activities.
So what	Iwi and Hapū have the opportunity to build upon their statements of issues and treaty claims to demonstrate the conditions of the various relationships that they have. This includes identifying at a high level which relationships are needing restoration and/or protection. Importantly the allowance for cultural activities as an intended outcome means there is room for continuous activities to continue into the future and ones that have stopped for various reasons to be started again.
Section 14	Strategic goals for sections 10, 12 and 13 include integrated management within environmental limits and the well-being of present and future generations.
So what	A key goal is the well-being of present and future generations. This means if Iwi and Hapū can articulate precisely what is required for their wellbeing this can be set as a strategic goal and progress measured against.
Section 18	The implementation of the act makes explicit cultural values and the role of Iwi and Hapū as mātauranga holders. The implementation also includes promoting appropriate mechanisms for effective participation by Iwi and Hapū. Furthermore, there needs to be recognition and provision for the authority and responsibility of each Iwi and Hapū to protect and sustain the health and wellbeing of the Taiao.
So what	Iwi and Hapū are empowered to be the cultural experts via mātauranga. Furthermore, it is recognised that Iwi and Hapū have specific responsibilities/obligations in the management of te Taiao beyond the general community. The recognition of this authority for the responsibility of each Iwi and Hapū sets a pathway for them to implement the principles of the act.



Section 23, 24 and Schedule 3	A planning committee for each region enables sign off and decision making. The committee must comply with any technical evidence including mātauranga that the committee considers appropriate. The committee must include mana whenua representatives.
So what	Schedule 3 requires that Mana Whenua are part of the decision-making committee. Their role will be critical in understanding which aspects of mātauranga are appropriate on a case-by-case basis. To meet the requirements of section 18 it is also necessary for each Iwi and Hapū to be represented on the committee. Besides 1 person representing DOC and 1 person for each local authority there is not a stated limit on the number of Mana Whenua representatives.





### Appendix 3. Relevant components of the NPS-FM to Te Arawa

Part 2 policy 2	Policy 2: Tangata whenua are actively involved in freshwater management (including decision making processes), and Māori freshwater values are identified and provided for.
So what	There is clear direction for Iwi and Hapū to be decision makers and to provide for their values. The key thing will be to ensure that Iwi and Hapū have the ability to be decision makers which means that they may need capacity or capability support.
	Policy 5: Freshwater is managed through a National Objectives Framework (NOF) to ensure that the health and well-being of degraded water bodies and freshwater ecosystems is improved, and the health and well-being of all other water bodies and freshwater ecosystems is maintained and (if communities choose) improved.
So what	This allows for Iwi and Hapū to articulate the aspirations for their waterways. It also allows them to strongly signal the improvements that are required. As raised further on, there is a gap in that wai tapu values do not have a set action framework or policy drive to establish a local based one.
	Policy 15: Communities are enabled to provide for their social, economic, and cultural wellbeing in a way that is consistent with this National Policy Statement.
So what	Iwi and Hapū need to identify what their needs are for social, economic and cultural wellbeing. This will ensure that it can be provided for and other activities that may adversely affect these can be avoided.
	Part 3 (2) Every regional council must give effect to Te Mana o te Wai, and in doing so must: (a) actively involve tangata whenua in freshwater management (including decision making processes), as required by clause 3.4; and (b) engage with communities and tangata whenua to identify long-term visions, environmental outcomes, and other elements of the NOF; and (c) apply the hierarchy of obligations, as set out in clause 1.3(5): (i) when developing long-term visions under clause 3.3; and (ii) when implementing the NOF under subpart 2; and (iii) when developing objectives, policies, methods, and criteria for any purpose under subpart 3 relating to natural inland wetlands, rivers, fish passage, primary contact sites, and water allocation; and (d) enable the application of a diversity of systems of values and knowledge, such as mātauranga Māori, to the management of freshwater.
So what	Iwi and Hapū must be actively included in decision making. In addition, application of mātauranga māori must be enabled. This allows for a strong drive of Iwi and Hapū decision making informed from their knowledge systems.
	3.4 Tangata whenua involvement (1) Every local authority must actively involve tangata whenua (to the extent they wish to be involved) in freshwater management (including decision-making processes), including in all the following: (a) identifying the local approach to giving effect to Te Mana o te Wai (b) making or changing regional policy statements and regional and district plans so far as they relate to freshwater management



	(c) implementing the NOF (see subclause (2)) National Policy Statement for Freshwater Management 2020 13 (d) developing and implementing mātauranga Māori and other monitoring.
so what	Iwi and Hapū can on their choosing articulate the local interpretation of te mana o te wai. In a Te Arawa context this may for example mean Te Tūāpapa o te wai - “te mā o te wai e rite ana kia kite i nga tapuwae ā te koura”
	(2) In particular, and without limiting subclause (1), for the purpose of implementing the NOF, every regional council must work collaboratively with, and enable, tangata whenua to: (a) identify any Māori freshwater values (in addition to mahinga kai) that apply to any FMU or part of an FMU in the region; and (b) be actively involved (to the extent they wish to be involved) in decision-making processes relating to Māori freshwater values at each subsequent step of the NOF process.
so what	Iwi and Hapū must be enabled to collaborate and work with regional councils. This is for both identifying Māori freshwater values and actively involving tangata whenua in decision-making.
	(3) Every regional council must work with tangata whenua to investigate the use of mechanisms available under the Act, to involve tangata whenua in freshwater management, such as: (a) transfers or delegations of power under section 33 of the Act (b) joint management agreements under section 36B of the Act (c) mana whakahono a rohe (Iwi participation arrangements) under subpart 2 of Part 5 of the Act.
so what	Iwi and Hapū can work with regional councils to decide the options of transfers and delegations under section 33 and joint management agreements.
	(4) To avoid doubt, nothing in this National Policy Statement permits or requires a local authority to act in a manner that is, or make decisions that are, inconsistent with any relevant Iwi participation legislation or any directions or visions under that legislation
so what	This critically makes it clear the local authorities cannot act in a manner or decision making that is inconsistent to Iwi participation generally (treaty settlement) and the directions under the NPS-FM.
	3.7 NOF process (1) At each step of the NOF process, every regional council must: (a) engage with communities and tangata whenua; and (b) apply the hierarchy of obligations set out in clause 1.3(5), as required by clause 3.2(2)(c). (2) By way of summary, the NOF process requires regional councils to undertake the following steps: (a) identify FMUs in the region (clause 3.8) (b) identify values for each FMU (clause 3.9) (c) set environmental outcomes for each value and include them as objectives in regional plans (clause 3.9) (d) identify attributes for each value and set baseline states for those attributes (clause 3.10) (e) set target attribute states, environmental flows and levels, and other criteria to support the achievement of environmental outcomes (clauses 3.11,



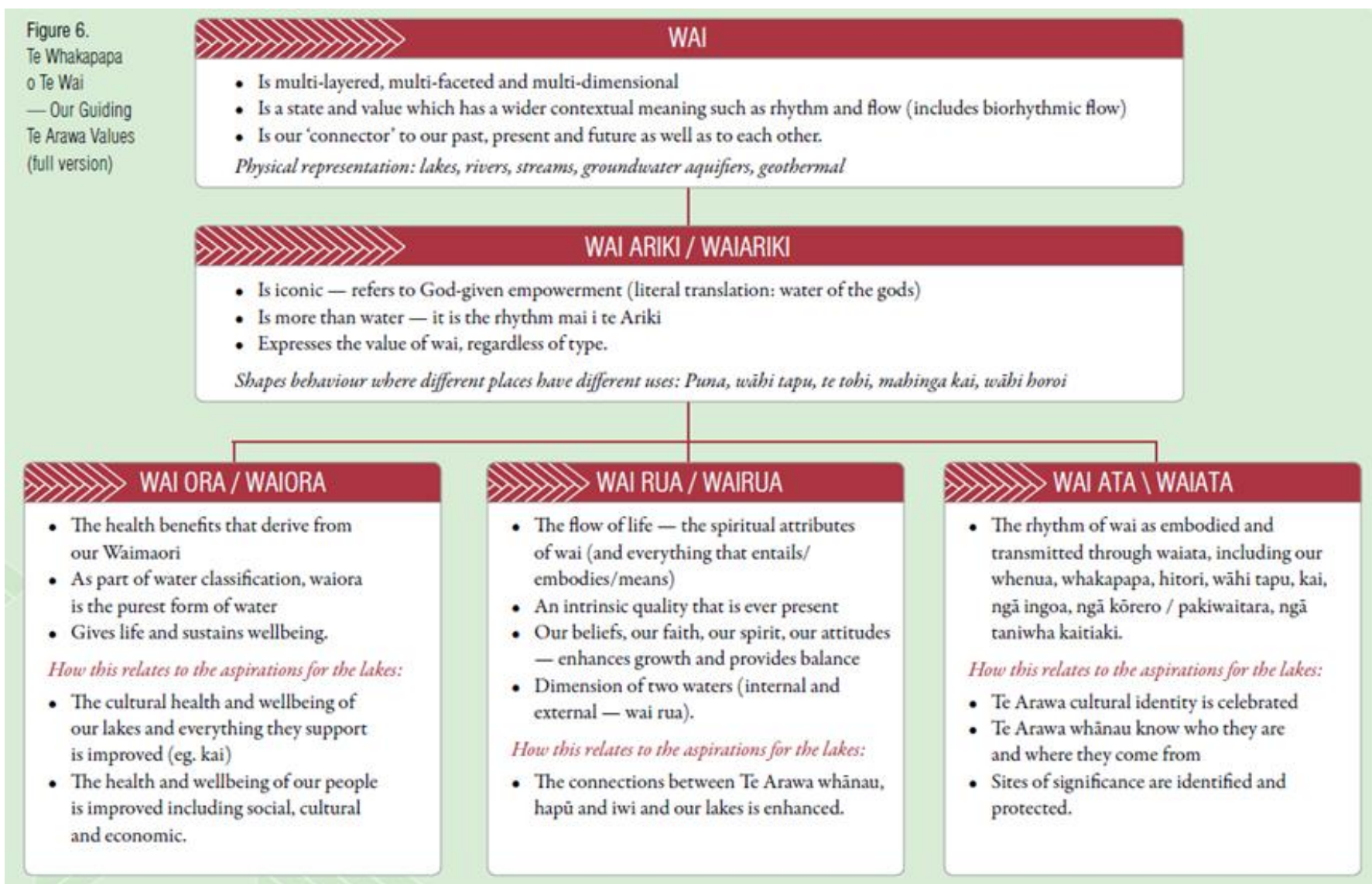
	3.13, 3.16) (f) set limits as rules and prepare action plans (as appropriate) to achieve environmental outcomes (clauses 3.12, 3.15, 3.17).
so what	Iwi and Hapū as tangata whenua must be engaged at each step of NOF process.
	3.8 Identifying FMUs and special sites and features (1) Every regional council must identify FMUs for its region. (2) Every water body in the region must be located within at least one FMU. (3) Every regional council must also identify the following (if present) within each FMU: (a) sites to be used for monitoring (b) primary contact sites (c) the location of habitats of threatened species (d) outstanding water bodies (e) natural inland wetlands. (4) Monitoring sites for an FMU must be located at sites that are either or both of the following: (a) representative of the FMU or relevant part of the FMU (b) representative of one or more primary contact sites in the FMU. (5) Monitoring sites relating to Māori freshwater values: (a) need not comply with subclause (4), but may instead reflect one or more Māori freshwater values; and (b) must be determined in collaboration with tangata whenua.
	3.18 Monitoring (1) Every regional council must establish methods for monitoring progress towards achieving target attributes states and environmental outcomes. (2) The methods must include measures of: (a) mātauranga Māori; and (b) the health of indigenous flora and fauna. (3) Monitoring methods must recognise the importance of long-term trends, and the relationship between results and their contribution to evaluating progress towards achieving long-term visions and environmental outcomes for FMUs and parts of FMUs
so what	Iwi and Hapū will need to be enabled to monitor based on mātauranga and the monitoring can include long-term trends picking up treaty settlement information.
	appendix 1b other values that must be considered
So what	This includes wai tapu as a value that must be considered. However, all of the other values have attributes that directly feed into or contribute to the value. The wai tapu value which relates directly to Iwi and Hapū does not. This means that there could be missed opportunities or further adverse effects towards wai tapu areas.
	Appendix 2B – Attributes requiring action plans
	Does not require wai tapu areas to have action plans - potential gap? Each of the values with an action plan includes the following:



	Value	human contact or ecosystem health
	Freshwater body type	river or lake or stream or lake bed
	Attribute unit	quantitative measure generally ratio of some component within another
	Attribute band and description A-D	



## Appendix 4. TALT's guiding Te Arawa values





## Appendix 5. Aspirations identified by whānau for the Te Arawa Lakes

Aspirations for Te Arawa Lakes		Aspirations for Te Arawa	
Cultural Identity	Place names of origin are identified and used by all.	Governance	Te Arawa being at the decision making table: having a say, being heard, having a tangible effect.
	Celebrate Te Arawa identity on the water e.g. waka ama tournaments.		Being recognised as kaitiaki / hunga tiaki of the Lakes and being consulted on all matters regarding the Lakes.
	Our history and traditional knowledge is passed onto our young people.		Lakes Strategy Group to adopt a Māori name.
	Increase traditional sports on Lakes.		Show leadership in the restoration of our Lakes so they can be taonga tuku iho.
	More explanations about significant sites.		Our voice is worthy within local government.
Economic Wellbeing	To realise business opportunities with the Lakes, create employment for our people e.g. eco-tourism.	Kaupapa Māori is integral in the development of policies and laws.	Ownership.
	Te Arawa are not unfairly disadvantaged in relation to Māori land development around the Lakes.		
	Balance prosperity with the health and wellbeing of the Lakes.		
Reconnecting Te Arawa:	Working together as one.	Education / Awareness / Research	Community awareness and buy-in in relation to our historical connection, values and aspirations regarding the Lakes.
	Te honohonotanga — Ngā Pumanawa e Wāru.		Kaupapa Māori driven research that helps us to answer our patai — Lakes centre.
	Education — Wānanga on all marae.	Recreational Use	More walkways.
	Maintain access to the Lakes.		
	More waka! Less motors.		
Health & Wellbeing of the Lakes	Lakes in a healthy state.	Revitalise Traditional Practices	Maintenance, expression and control by Māori of our traditional customs and practices — Rāhui / Tapu / Mahinga Kai.
	Kua mā te mauri o te wai.		More wānanga for māra kai, rongoa and harvesting.
	To be able to swim, drink the water and collect kai in all Lakes again.		Harvest like our tūpuna used to.
	Healthy, plentiful food resources.		Our people are fully engaged in our tikanga and kawa, cultural practice and kōrero around our Lakes.
	Pest free, pollution free.		Active Involvement
Koura on the table.			
	Healthy and balanced ecosystem of the Lakes.		

Activat  
Go to Set

Consultation Feedback Feb–Mar 2015





## Appendix 6. Measures and Methods for CHIs in TALT Cultural Monitoring Plan

### Measures:

1. Native aquatic plants
  - a. Presence/absence (abundance) pre and post spray
2. Taonga species
  - a. Ability to harvest (accessibility) pre and post spray
  - b. Numbers (availability) pre and post spray
3. Cultural materials
  - a. Ability to harvest (accessibility) pre and post spray
  - b. Presence pre and post spray
4. Recreational & Traditional Activities
  - a. Ability to practice waka ama (accessibility from launching areas) pre and post spray
  - b. Ability to swim (water quality and without obstruction) pre and post spray
5. Water quality
  - a. Overall health and mauri o ngā roto

### Methods and frequency:

1. Native aquatic plants
  - a. Visual/Diving, plot assessments - concurrently with pre-spray site assessments
2. Taonga species
  - a. Koura
    - i. Tau – 3 monthly
    - ii. Rama – monthly
    - iii. Hinaki - monthly
3.
  - a. Kakahi
    - i. Visual/Diving - 20m<sup>2</sup> quadrats - concurrently with pre-spray site assessments
  - b. Tuna
    - i. Hinaki – monthly
  - c. Koaro
    - i. Hinaki – monthly
  - d. Inanga
    - i. Hinaki – monthly
  - e. Morihana
    - i. Hinaki – monthly
4. Cultural materials
  - a. Raupo
    - i. Visual/small plot assessments – monthly/concurrently with pre-spray site assessments
  - b. Kuta
    - i. Visual/small plot assessments – monthly/concurrently with pre-spray site assessments
5. Recreational & Traditional Activities
  - a. Visual
6. Water quality
  - a. SCHMAK - monthly

