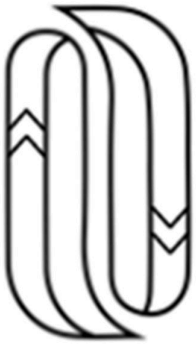


Review Report

# Enabling Te Mana o Te Wai with Cultural Health Assessment Tools


## Authors

Hoani-Waaka, A & Vaka, P

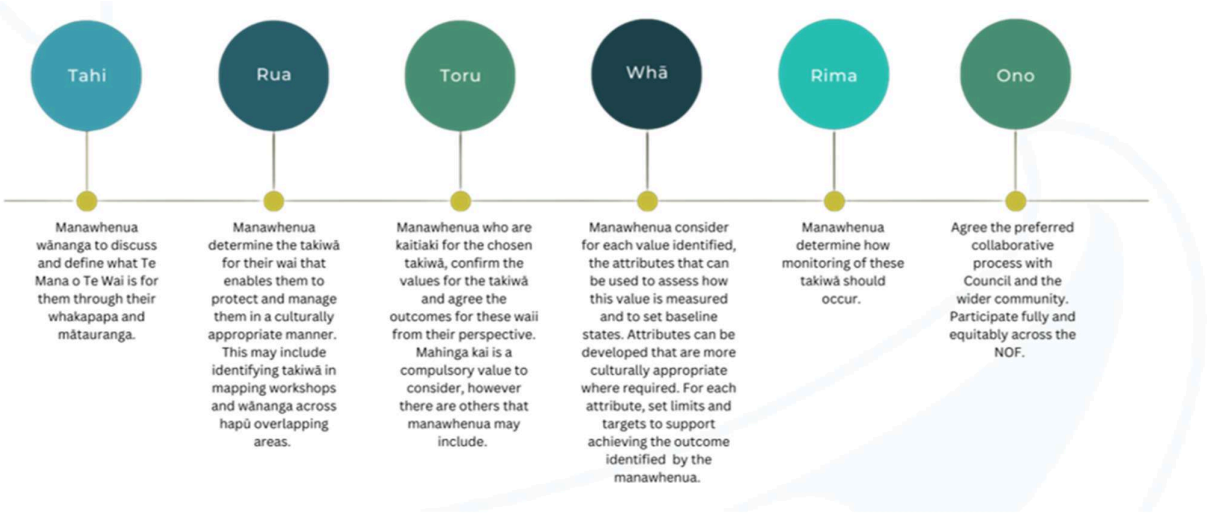
# Table of Contents

## Section One: Introduction

In 2020, Poipoia embarked on research funded by Our Land and Water National Science Challenge with the primary aim of exploring the application of how to give effect to Te Mana o Te Wai. This endeavour culminated in the development of comprehensive guidelines for Te Mana o Te Wai, alongside illuminating case studies sourced from iwi and hapū perspectives. Building upon the success of this initiative, in 2022, Poipoia initiated the second phase of the project, with Our Land and Water. *Enabling Te Mana o Te Wai Project: Matauranga for transformative outcomes for freshwater management,* primarily seeks to integrate iwi and hapū priorities into the National Objectives Framework (NOF) by approaching it through the lens of these tangata whenua communities.

Within the context of this research, a critical need has been identified—to analyse Cultural Health Assessment (CHA) tools, methods, and frameworks. This review is focused on understanding the suitability of each tool in supporting mana whenua to participate in and inform the NOF process in a way that supports their understandings of enabling Te Mana o Te Wai.

The NOF process comprises of several sequenced stages. The progression through these stages involves deep cultural engagement, collaborative decision-making, and a holistic view of waterway management as below:




The report is designed to serve a specialised audience who play a key role in freshwater management under the umbrella of the NOF. Within the NOF, the integration of mātauranga Māori and the importance of achieving Te Mana o Te Wai are gaining increasing recognition. Despite this, there remain numerous challenges and complexities in operationalising these principles, both legislatively and in practice.

This report is timely and relevant for the following reasons.

1. Decision-Making: The insights provided in this report can guide mana whenua and taiao practitioners in making culturally and ecologically sound decisions.
2. Cultural Relevance: The report adopts a culturally sensitive approach, ensuring that the principles of Te Mana o Te Wai and mātauranga Māori are adequately represented and considered.
3. Holistic Understanding: By addressing the interplay between economics, governance, and cultural perspectives, the report helps in developing a comprehensive understanding of the multi-dimensional challenges faced by Iwi and Hapū in freshwater management.
4. Strategic Planning: For those committed to achieving mana whenua-centric solutions, the report provides a detailed analysis of existing methodologies and suggests new approaches that might better align with mana whenua values.
5. Policy Implications: The analysis in this report can be a valuable resource for those involved in policy development and advocacy, particularly for reforms that align with mana whenua interests.

6. Dialogue Facilitation: This report can serve as a conversation starter among different stakeholders and deepen the dialogue about Indigenous-led, sustainable freshwater management.

## Section Two: Objectives

1. This report seeks to provide "developer" and "practitioner" (or user) perspectives and understandings of the support that Cultural Health Assessment provides in terms of enabling Te Mana o Te Wai.

2. The review aims to assist iwi and hapū in considering their options when commencing the NOF process of the NPS-FM in a way that is relevant and well-suited to their individual iwi and/or hapū priorities and nuances in enabling Te Mana o Te Wai. These nuances should consist of those related to their waterways, including but not limited to urban degradation, agricultural degradation, forestry degradation, coastal and inland receiving environments.

## Section Three: Research Scope and Methods

Underpinned by Kaupapa Māori research methodology, this research centres whānau, hapū, iwi Māori and their mātauranga as the focus. It further acknowledges that our research partners/ participants are those who are living and breathing that which we seek to understand and will benefit from the research.

The research partners were:

a) Iwi and hapū – taiao practitioners such as mātauranga Māori practitioners, environmental planners and environmental scientists to guide our approach in not only reviewing CHA tools or frameworks but also other methodologies and perspectives on activating the implementation of Te Mana o Te Wai, and
b) Developers of four CHA tools.

Qualitative methods used included a literature review of CHA tools, methodologies and frameworks, interviews with CHA developers, and group interviews with CHA practitioners (users).

The literature review and practitioner interviews allowed us to identify tools with significant potential compatibility with the NOF process. We subsequently interviewed four subject area experts who participated in the development of these 'NOF compatible' tools. As a result, our review of the CHA tools is in two parts, 1) literature review, and 2) comprehensive review (including findings from interviews).

The following CHA tools were selected to be a part of this project based on available documentation to review and their relevance to the purpose of the project.

a) Significance Assessment Method
b) State of the Takiwā
c) Mauri Model/Mauri-O-meter
d) Māori EPIs for Wetlands
e) Mauri of Waterways Kete
f) Wai Ora Wai Māori
g) Cultural Mapping
h) Te Kete Tuatea
i) Mauri Compass
j) Cultural Water Classification
k) Cultural Health Index
l) Cultural Flow Preference Study

These tools represent a range of methods that align with the National Objectives Framework (NOF), offering both qualitative and quantitative approaches to understanding and managing freshwater ecosystems from a Māori perspective.

## Section Four: Summary Table of Cultural Health Assessment Tools, Methods and Frameworks

| Tool Name | Determine Takiwā (FMU) | Define TMoTW | Define Values | Connect Attributes /Indicators | Set Baseline States | Ongoing Monitoring | Identify Target States | Set Limits | Supports Council Engagement |
|---|---|---|---|---|---|---|---|---|---|
| **Significance Assessment Method** | Not Explicitly | Not Explicitly | Yes | Yes | Yes | Not Explicitly | Not Explicitly | No | No |
| **State of the Takiwā** | Yes | Not Explicitly | Yes | Yes | Yes | Yes | Yes | Not Explicitly | Not Explicitly |
| **Mauri Model/Mauri-O-Meter** | Not Explicitly | Yes | Yes | Yes | Yes | Yes | Not Explicitly | Not Explicitly | Yes |
| **Mauri EPI for Wetland** | Yes | No | Not Explicitly | Yes | Yes | Yes | No | No | No |
| **Mauri of Waterways Kete** | Yes | Not Explicitly | Yes | Yes | Yes | Yes | Yes | Not Explicitly | Not Explicitly |
| **Wai Ora, Wai Māori** | Yes | Yes | Yes | Yes | Not Explicitly | Not Explicitly | Not Explicitly | Not Explicitly | Not Explicitly |
| **Cultural Mapping** | Yes | Not Explicitly | Yes | Yes | Yes | Yes | Not Explicitly | Not Explicitly | Not Explicitly |
| **Te Kete Tuatea** | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Not Explicitly | Yes |
| **Mauri Compass** | Not Explicitly | Not Explicitly | Yes | Yes | Yes | Yes | Yes | Not Explicitly | Yes |
| **Cultural Water Classification Tool** | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Not Explicitly | Not Explicitly |
| **Cultural Health Index** | Not Explicitly | Not Explicitly | Yes | Yes | Yes | Yes | Yes | Not Explicitly | Yes |
| **Cultural Flow Preference Study** | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

# Section Five: Literature Review of Cultural Health Assessment Tools, Methods, and Frameworks.

## Significance Assessment Method

The Significance Assessment Method is described as a tool used to apply cultural values into the RiVAS (River Values Assessment System) framework. RiVAS is a standardised method that helps resource managers grade rivers by their relative importance for different uses, incorporating cultural significance through this method (Rainforth & Harmsworth, 2019).

The tool, therefore, assesses awa values, used by iwi, hapū, and resource managers. It incorporates both quantitative and qualitative data to evaluate the significance of a range of factors, depending on the specific application. This method has been applied in regions such as Murihiku, using the Iwi Resource Management Plan for the area to guide the process. The tool provides a flexible framework for iwi and hapū to assess river values and cultural sites, making it a valuable resource for environmental decision-making.

The tool provides a framework for iwi and hapū to assess river values based on their mana whenua perspectives. The tool does not explicitly facilitate wānanga to define Te Mana o Te Wai. However, it is used to facilitate wānanga and, therefore, could be used as supplementary to an iwi and hapū-led process to ensure alignment with their definition of Te Mana o Te Wai. The framework includes assessing cultural sites, evaluating river condition and reversibility, assessing risks, and applying indicators for attribute assessment.

Development of Assessment Criteria:

- A comprehensive list of 64 initial attributes is identified.
- Primary attributes are selected based on specific criteria, resulting in a refined list.
- Quantifiable indicators are identified and applied to the selected attributes.

Determining the Significance:

- The selected attributes and indicators are placed into a four-part, eight-step framework.
- Scores are given at each step, and the average score determines the overall ranking of the river's significance.

The tool allows attributes to distinguish between catchments and sub-catchments, which could potentially support the determination of Freshwater Management Units, this coupled with its design for use by iwi, hapū and resource managers would be beneficial in FMU identification processes.

The tool emphasises the significance of cultural values and could be adapted to include mahinga kai as a compulsory value. However, it allows mana whenua to agree on outcomes for their specific takiwā.

The tool offers a way to identify quantifiable attributes, which could be customised to be more culturally appropriate for different iwi and hapū. It lacks specific guidelines for setting limits and targets aligned with the outcomes identified by mana whenua, leaving a gap that may require additional work or another tool to fill.

The tool provides a basis for evaluation through indicators but does not specify how monitoring should occur within a takiwā, leaving that up to the users, likely requiring a separate monitoring framework.

While the Significance Assessment Method provides a solid starting point for assessing river values from a Māori perspective, there are gaps in its ability to fully align with the National Objective Framework. These gaps involve defining Te Mana o Te Wai, explicitly outlining collaboration with council and community, and setting culturally appropriate limits and targets. Therefore, it may serve as one part of a more comprehensive approach rather than a

standalone solution. While there are advantages to the tool, further information is needed to clarify certain aspects and potential limitations.

## State of the Takiwā

The State of the Takiwā is a well-established cultural monitoring framework used to assess the health of freshwater environments through a Māori lens. It integrates both mātauranga Māori and scientific approaches to provide a holistic understanding of environmental conditions. The framework has been widely adopted by iwi and hapū throughout Aotearoa to evaluate the state of waterways, combining indicators such as mauri, cultural sites, and species health (Pauling et al., 2007; Rainforth & Harmsworth, 2019). It is a useful tool for identifying the cultural and environmental significance of specific waterbodies, providing an invaluable resource for managing freshwater resources in accordance with iwi values (Tipa & Associates, 2018).

The State of the Takiwā tool is a collaborative framework designed to facilitate the participatory management of waterways with a focus on iwi and hapū values and expertise. Developed by Te Rūnanga o Ngāi Tahu in conjunction with Ngāi Tahu Papatipu Rūnanga, the tool employs both qualitative and semi-quantitative metrics to evaluate the state and trends of water quality. Crown agencies may be involved in its application, at the invitation of mana whenua.

The State of the Takiwā tool is designed to evaluate the wellbeing of water, the needs of people, and the ability to provide for social, cultural, and economic well-being. It is adaptable across different scales—ranging from site-specific to regional levels—and can support the identification of Freshwater Management Units (FMUs) based on interconnections between different water bodies.

The tool is capable of long-term monitoring and trend assessments, enabling mana whenua to collaborate closely with other stakeholders in setting an appropriate flow regime, possibly even aligned with hapū/iwi maramataka.

The initial stage of use ensures that mātauranga-a-hapū/a-iwi are central to the discourse, the success of this stage largely depends on the extent and effectiveness of mana whenua wānanga. By focusing on whakapapa, hītori and mātauranga, the tool ultimately seeks to align water management with cultural values.

The tool focuses on confirming the desired outcomes for a takiwā. While the focus on mahinga kai as a compulsory value is commendable, the tool can be adapted to form a broader set of criteria and cover more comprehensive ecological and cultural considerations.

Mana whenua identify locations to consider each value identified; they then determine attributes that can be used to assess how the values are measured. Culturally appropriate attributes could be developed throughout this process as needed. The State of the Takiwā tool allows for this customisation, respecting the uniqueness of mana whenua perspectives.

The State of the Takiwā tool can facilitate multi-stakeholder involvement, however based on different situations the influence of mana whenua may vary. The tool itself will not fully address the issue of equitable participation in collaborative settings with councils. Thus, additional efforts may be needed to ensure that the voice and influence of mana whenua are adequately represented and respected.

While the tool does an excellent job of balancing scientific methodologies and mātauranga Māori, it does require a certain level of expertise to be effectively utilised. This means that mana whenua may need technical support, including environmental scientists and planners, to use the tool most effectively. Overall, the tool would serve as a valuable component within a Te Mana o Te Wai centric NOF process rather than a standalone solution.

## Mauri Model/Mauri-O-meter

The Mauri Model (also known as the Mauri-o-Meter) was developed by Te Kipa Kepa Brian Morgan to incorporate iwi values into decision-making, especially in engineering projects where environmental, social, cultural, and economic impacts are considered. This tool evaluates the potential effects of projects on the mauri, which is the life force or vitality of an ecosystem, community, or entity. The method uses a scale ranging from mauri-enhancing to mauri-degrading, applying it across multiple dimensions to produce a comprehensive assessment (Rainforth & Harmsworth, 2019). This model is widely recognised for its ability to balance different perspectives, promoting the inclusion of Māori cultural viewpoints in critical infrastructure decisions.

The Mauri Model could serve as a mechanism to facilitate discussions during wānanga sessions to define what Te Mana o Te Wai means for mana whenua and has been used in such a way with Ngāti Mākino. The model's customisation allows for specifying takiwā or regions for specific waters. The model includes dimensions like cultural well-being, enabling mana whenua to identify values, including but not limited to mahinga kai, and setting outcomes for their takiwā.

The Mauri Model is adept at allowing customisation for culturally appropriate attributes and their measurement. Targets and limits could be integrated into the model to track progress toward identified outcomes. The Mauri Model can monitor various indicators such as flow, turbidity, and *E. coli*, thereby aligning with the need for mana whenua to decide how the monitoring should occur.

While the model can include a diverse range of stakeholder perspectives, it does not specify how collaboration with council and the wider community should occur. However, its data could be used as a basis for such dialogues and in many cases this tool has been used in dual processes between other stakeholders including councils and mana whenua to achieve phenomenal outcomes for iwi and hapū.

The Mauri Model has been applied successfully to freshwater management projects, strengthening collaboration between stakeholders, and integrating indigenous perspectives into decision-making. Its advantages lie in its holistic approach, considering diverse dimensions and enabling engagement with mana whenua. Potential challenges may include balancing cultural and scientific perspectives and ensuring effective integration at multiple scales. Further clarification may be required regarding specific methodologies and data collection to enhance the framework's application and effectiveness. Overall, the Mauri Model is a promising tool but may need to be used in conjunction with other methods or adapted through engagement with its developers' methods to fully realise a Te Mana o Te Wai centric NOF process.

## Māori Environmental Performance Indicators for Wetlands

The Māori Environmental Performance Indicators (MEPIs) for wetlands provide a comprehensive framework for assessing wetland conditions from a Māori perspective. Developed to enable iwi and hapū to monitor and manage wetlands, the MEPIs incorporate a wide range of cultural and environmental indicators, including mauri, taonga species, and land-use impacts. The framework is particularly valuable in restoring wetlands, establishing culturally appropriate monitoring systems, and contributing to state-of-the-environment reporting (Rainforth & Harmsworth, 2019). It emphasises the integration of mātauranga Māori with scientific methods, creating a robust approach for both cultural and ecological assessmentsWhile the tool is primed for utilisation by indigenous communities, it leaves room for collaborative efforts with councils and other community stakeholders. The Māori EPIs are designed to engage iwi and hapū in assessing the state of wetlands through their own cultural lens, which may include their understanding of Te Mana o Te Wai.

The tool allows for the mapping and assessment of specific takiwā, in line with mana whenua aspirations to manage these areas culturally. The focus on values like mauri and taonga species indicates that the tool is adaptable to include mahinga kai and other values deemed significant by mana whenua.

The tool provides a methodology for setting both quantitative and qualitative indicators, however, it lacks explicit guidance on setting culturally appropriate attributes, limits, and targets. It offers robust monitoring systems that

could be adapted by mana whenua for specific takiwā however as the tool is largely focussed on wetlands it is restrictive in terms of its overall capability to lead out a Te Mana o Te Wai centric NOF process and therefore would be better used as one piece to a multi-dimensional approach.

## Mauri of Waterways Kete

The Mauri of Waterways Kete is a comprehensive framework developed to assess how well council plans and environmental implementations align with Māori expectations for environmental outcomes. This kete focuses specifically on the mauri, or life force, of waterways, and was created as part of a wider research program aiming to provide a kaupapa Māori perspective in resource management. The framework helps iwi and hapū evaluate environmental outcomes in a way that reflects their cultural priorities and ensures that council plans meet the anticipated environmental results from a Māori perspective (Jefferies & Kennedy, 2009). This method has been trialled with various iwi across Aotearoa, demonstrating its wide applicability in supporting environmental management processes (Rainforth & Harmsworth, 2019).

The Mauri of Waterways Kete and Framework has been jointly developed by mana whenua, including iwi, hapū, as well as experts Richard Jefferies and Nathan Kennedy. The tool assesses plans from an iwi/hapū perspective, is comprehensive and employs a blend of quantitative and qualitative methods to collect essential data for assessing and managing environmental outcomes. Determining assessment sites can be achieved through various methods, including consideration of historical uses, mahinga kai importance, accessibility, among others.

The tool may assist mana whenua to discuss and define "Te Mana o Te Wai" by providing a framework for assessing plans from a Māori perspective, focusing on environmental outcomes. The tool can also support the determination of takiwā for wai, enabling protection and management in a culturally appropriate manner to place. This would ultimately support the identification of FMUs.

Mana whenua can determine how monitoring of these takiwā should occur using the tool, as it allows for assessments and evaluations, both quantitative and qualitative, to be used. The tool can also be used to support the development of culturally appropriate attributes. However, guidance on setting limits and targets is not explicit in the tool's current functions and may require adaptions or to be used in collaboration with another tool.

The tool explicitly encourages engagement between iwi/hapū and councils in shaping regulatory and non-regulatory measures for environmental outcomes, enhancing collaboration and decision-making while emphasising indigenous knowledge and ease of understanding.

The Mauri of Waterways Kete is comprehensive in its approach to culturally sensitive waterway management. In terms of its alignment with each step of enabling Te Mana o Te Wai in the NOF process there are gaps and limitations as this is not what it was designed for, however it could be used effectively in conjunction with other tools, specifically when considering engagement with councils. It should also be noted that accessible resources to assess this tool were limited.

## Wai Ora Wai Māori

The Wai Ora Wai Māori tool is a kaupapa Māori framework developed to assess the health of freshwater systems using both cultural and scientific indicators, and specifically te awa Waikato. Designed by a team that includes Kiri Reihana, Shaun Awatere, and Garth Harmsworth, the tool is intended for iwi and hapū to monitor waterways based on locally specific mātauranga and tikanga. Available in both paper and digital formats, it helps guide decision-making around freshwater management. The tool is highly adaptable, as it is tailored for specific iwi, with versions created for Waikato-Tainui and Ngāti Tahu-Ngāti Whaoa (Rainforth & Harmsworth, 2019)

The tool focuses on primarily on engaging with mana/tangata whenua. It is based on three domains: Taha Kikokiko (Physical/Biophysical), Taha Whanau (Social), and Taha Wairua (Spiritual). Mana whenua are the primary users of this tool, although others can participate at their invitation.

The tool is inherently built around mana whenua values and engages them in defining the well-being of water bodies. This approach seems conducive to discussing and defining what Te Mana o Te Wai means to them. The tool allows mana whenua to specify the sites for measurement, essentially letting them define their own takiwā which would support with the identification of FMUs.

With its focus on a wide range of values like ecosystem health and Mauri, the tool provides a framework where kaitiaki can identify and agree upon outcomes. Mahinga kai and other values identified by iwi and hapū can be incorporated. Using this tool, mana whenua can decide how monitoring should be conducted, which aligns with the tool's adaptability across various scales.

While the tool itself is a platform for mana whenua, it is designed to be inclusive and could be used in collaboration with councils and the wider community, thereby facilitating full and equitable participation across the NOF. Overall, the Wai Ora Wai Māori tool appears to be quite compatible with enabling Te Mana o Te Wai through the NOF process, however, may require significant adaption to be utilised outside of the Waikato rohe. The tool does not expressly assess or develop baseline states, set target, or identify limits and therefore would require more information to assess potential limitation in this regard.

## Cultural Mapping

The Cultural Mapping method is versatile and comprehensive primarily designed for iwi, hapū, and whānau in Aotearoa for the purpose of water monitoring and management. By collecting both qualitative and quantitative data from various sources such as manuscripts, interviews, historical maps, practices, site-specific knowledge, monitoring data and provides for the retention and transfer of important cultural knowledge. Cultural Mapping is a generic tool not attributed to any one group or individual for its development. The information gathered is often layered using Geographic Information Systems (GIS) or Google Earth to create visual representations that can aid in environmental management decisions. For freshwater monitoring, cultural mapping has been applied to determine historical species presence, the abundance of those species, and the cultural significance of specific locations (Rainforth & Harmsworth, 2019).

The tool offers a rich data set that can be instrumental in Freshwater Management Units (FMUs) selection. The granularity and breadth of data it collects—ranging from species distributions to cultural practices—can be applied to set out FMUs effectively. This is particularly crucial for tailoring water management strategies that honour both ecological and cultural values.

The tool is adaptable in terms of scale, with applications ranging from site-specific to regional levels. It captures a wide array of information including mātauranga around resource use, cultural practices, and species distributions, making it effective for assessing the well-being of both water bodies and communities. It plays a pivotal role in resource management, being capable of producing evidence for consenting matters and regional planning.

While it serves as a bridge between traditional knowledge and scientific methods, its application is not limited to iwi, hapū, and whānau. Councils can also make use of the tool, albeit at the discretion of the primary users. However, because it collects culturally sensitive information, access to much of the collected data by iwi and hapū should be restricted, necessitating robust data protection mechanisms.

The tools' role in monitoring is not to be underestimated. Through the gathering of historical and current data, the tool can potentially serve as a robust mechanism for assessing the state and trends of water bodies. This could include monitoring the well-being of water systems, ecological health, and even species abundance over time.

In summary, the Cultural Mapping tool is a robust and flexible method for water monitoring that emphasises the central role of mana whenua, bridging gaps between traditional knowledge and scientific methods, but leaves room for improvement in areas such as governmental engagement and objective-setting beyond assessing baseline and historical states. The tool could be used effectively in collaboration with other tools in an enabling Te Mana o Te Wai NOF process and would be specifically beneficial to define Te Mana o Te Wai and set FMUs for mana whenua.

# Section Six: Comprehensive Review of Cultural Health Assessment Tools, Methods, and Frameworks.

## Te Kete Tuatea

Te Kete Tuatea is a framework developed by Dr. Mahinaarangi Baker that combines scientific methods and mātauranga Māori to support decision-making and management related to water systems. It aligns with the Te Mana o te Wai hierarchy of obligations, giving priority to the well-being of water itself and recognising the importance of Māori values, including mauri, taonga species, mahinga kai, and ecosystem health. The framework uses a combination of quantitative and qualitative tools to assess water well-being and human needs while promoting stakeholder engagement and collaboration (Baker, 2019; Rainforth, 2023).

The framework employs various tools, including the Kaupapa-tikanga-huanga framework, Hua Parakore framework, document analysis, structured interviews, online surveys, and Bayesian Belief Networks (BBNs). These tools are used to gather data, analyse information, and model water systems to make informed decisions (Baker, 2019).

The framework has been applied in Te Āti Awa ki Whakarongotai, supporting the iwi in developing freshwater health indices and kaitiakitanga plans. Baker also emphasizes the importance of engaging mana whenua in all stages of data collection and analysis to ensure that their values and perspectives are at the forefront of freshwater management decisions (Baker, 2023)

The framework is not currently available in a format that is user-friendly for mana whenua and requires significant technical capability to be used to its full capacity. It is centered on the knowledge of the iwi and hapū as the primary users, gathering their values through structured interviews to ensure that the perspectives of Māori communities are represented in decision-making processes (Baker, 2023). This tool has been successfully used to support Te Āti Awa ki Whakarongotai, where internal capacity and capability allowed for its effective application. However, implementing the framework outside of this context would require significant efforts due to the complexity of integrating various tools and modelling approaches to support its intended role in freshwater management, including setting limits and targets (Baker, 2019).

The framework addresses key questions related to water systems, including understanding Māori worldviews and values, developing future visioning tools, considering well-being and needs of water, identifying key attributes, and exploring connectivity among waterbodies and receiving environments. It also examines the integration of scientific and mātauranga Māori methods and the implications of the framework on water governance.

The framework is highly inclusive of mana/tangata whenua, respecting their authority and sovereignty, and ensuring their perspectives are central to water management which could also extend to the management of other resources. The tool is primarily designed for mana/tangata whenua but extendable to other stakeholders like government agencies and researchers. The framework is developed to meet specific objectives and visions and assists in shaping them.

The framework is applicable across various scales, from site-specific to regional and incorporates a wide range of values, including Mauri, Mahinga Kai, taonga species, and others. It specifically focusses on long-term visions and short-term goals, adaptable via an iterative process. The framework openly considers flows and nutrients, linking them to ecological health and offers a multi-scale approach for data collection and monitoring.

The tool gathers historical and current data, this forms the baseline for which future changes are measured against. Discussions with iwi and mana whenua, help set achievable and culturally sensitive targets for water quality and other environmental factors. Scientific models formed through application of the framework also suggest optimal

targets for ecological sustainability. While the tool has not been explicitly used in setting limits, with the large focus on modelling it is possible that data-driven analyses and stakeholder input could define the upper and lower tolerable limits for factors like nutrient levels and water extraction rates.

The tool can be expressly used and encourages its own use in shaping both regulatory and non-regulatory measures, this would support engagement with councils and if done efficiently would help to set Te Mana o Te Wai (as defined by hapū) limits through effective collaboration with willing council partners.

**Advantages:**

- Integration of mātauranga a-iwi/a-hapū and values alongside scientific approaches.
- Prioritisation of water well-being and iwi and hapū defined priorities, objectives and targets.
- Consideration of multiple aspects, such as social, cultural, and ecological factors.
- Stakeholder engagement and participatory decision-making.
- Potential for a more comprehensive understanding of water systems.
- Effective Modelling of target state outcomes.

**Potential Disadvantages:**

- Complex modelling and data analysis will require technical expertise and particularly a statistician with modelling capability.
- Potential challenges in integrating different knowledge systems and value assessments.

Overall, Te Kete Tuatea is a robust framework which effectively and efficiently communicates the hapū centric baseline states, objectives and environmental outcomes through effective analysis and modelling. It aligns comprehensively well with enabling Te Mana o Te Wai through the NOF process however would require a user-friendly framework to be available and a rigorous assessment of technical capabilities and capacity to deliver it well.

### Mauri Compass

The Mauri Compass by Ian Ruru is a comprehensive tool designed to assess the health and mauri (life force) of waterways using 222 attributes and questions. It stands out for its depth, making it one of the most extensive tools for iwi and hapū to measure water quality from a Māori perspective (Ruru, 2023). The Mauri Compass has seen applications in projects such as the Gisborne District Council's freshwater plan and state of the environment reporting for the Waipaoa River, demonstrating its practical use in both iwi-driven and council projects (Rainforth & Harmsworth, 2019; Ruru, 2023).

Originally developed by Ian Ruru, David Wilson, and Bill Ruru, the Mauri Compass integrates both scientific methods and indigenous Māori knowledge, focusing on ecosystem health and water quality. The tool was initially conceived by Bill Ruru as a gift to his grandsons, further enhancing its deep cultural significance for whānau (Ruru, 2023). Councils like the Gisborne District Council and Taranaki Regional Council have employed the tool in water assessments, making it versatile across different iwi and regional applications (Rainforth & Harmsworth, 2019).

The framework uses 12 key attributes and is implemented in Microsoft Excel, which makes it accessible but somewhat dependent on technical capability. The tool includes educational modules and an assessor accreditation process to ensure its proper use by trained individuals (Ruru, 2023). While this technical requirement may pose challenges, the training modules aim to address gaps in capability, ensuring users can navigate the tool effectively. Endorsement from hapū and iwi is crucial for its deployment, which helps maintain cultural integrity in water management assessments (Ruru, 2023). The framework employs a set of 12 attributes and is implemented in Microsoft Excel. It also includes educational modules and has been used in both legal proceedings and local

government evaluations. It is versatile enough to be adopted by various iwi and hapū and offers accredited assessor training.

In terms of flexibility, the Mauri Compass allows for both basic assessments using tools like SHMAK kits and more sophisticated methodologies. It supports long-term monitoring and helps track changes in ecosystem health and mauri over time. For example, the tool was successfully applied to track the decline in tuna (eel) populations in the Waipaoa River between 2008 and 2018, providing a robust means of comparing past and present states (Rainforth & Harmsworth, 2019; Ruru, 2023).

The tool requires endorsement from hapū and iwi and may not be user-friendly for those without specific technical capabilities however the training allows these technical capability gaps to be fulfilled. It incorporates Māori values effectively, ensuring the inclusion of these perspectives in decision-making processes. Key aspects addressed by the framework include ecosystem health, site selection, and cultural relevance. It also examines the blending of mātauranga Māori and modern scientific paradigms. It has been employed in various contexts, including as an expert legal tool and for council training involving planners, scientists, and policymakers.

The tool if used effectively to track change over time can look in depth to track states and trends. The tool is designed to be versatile and adaptable, accommodating various technical sophistication levels for different iwi and hapū takiwā based on need. It gathers data through methods ranging from basic SHMAK kits to more specialised techniques, and it features a data sovereignty-centric dashboard.

**Advantages:**

- Integration of Māori values and scientific methods.
- Versatility across different applications and communities.
- Effective educational modules and assessor training.
- Requires endorsement from hapū and iwi.

**Potential Disadvantages:**

- May require a level of technical capability not accessible to all however this is mitigated through training.

Overall, Mauri Compass serves as a comprehensive tool for assessing mahinga kai, water quality and ecosystem health. It aligns well in establishing iwi and hapū values and has broad applicability but may require further adaptations to be user-friendly across all technical levels and unique challenges. The Mauri Compass is a tool developed to assess and improve the state of mauri in oceans, rivers, and lakes. It combines mātauranga Māori with Western science indicators, providing a comprehensive framework for understanding water well-being and cultural significance. It enables stakeholders to collaboratively address water management challenges and set restoration priorities. While it can be utilised to establish baseline states and environmental outcomes, it has not specifically been used to set limits or targets. Considering the tool is used widely and particularly in collaboration with councils there is strong indication that such use of this tool to set limits and targets that are mana whenua centric is possible.

## Cultural Waterways Classification Tool

The Cultural Waterways Classification Tool is a framework developed to inform the management of waterways from a cultural perspective, particularly focusing on mātauranga Māori around Te Ara Koroka, a historical trail in Murihiku. The framework seeks to reconstruct and revitalise mātauranga Māori to support contemporary freshwater management processes while respecting the rights and values of Ngāi Tahu ki Murihiku (Kitson, 2023; Murihiku Cultural Waterways Classification Report, 2018; Rainforth & Harmsworth, 2019). Although initially designed for mana whenua and tangata whenua, the tool is also beneficial for waterway management experts, local councils, and regional authorities (Kitson, 2023; Murihiku Cultural Waterways Classification Report, 2018).

The tool employs a dual-framework system that combines scientific metrics with mātauranga Māori values to offer a nuanced understanding of Te Mana o te Wai. It captures the spiritual, cultural, and physical dimensions of water,

emphasising its well-being as a living entity. The framework seeks to answer questions related to the historical significance and cultural values of Te Ara Koroka, including kaika (settlements), nohoanga (camping places), methods of travel, and mahinga kai (Kitson, 2023; Murihiku Cultural Waterways Classification Report, 2018). It also explores how Ngāi Tahu ki Murihiku valued and used the environment in the past, identifying changes and impacts brought about by European settlement (Kitson, 2023; Murihiku Cultural Waterways Classification Report, 2018).

The tool enables Mana Whenua to explicitly define what aspects of the waterways are of most significant cultural and spiritual importance. The tool's layered obligation mapping system allows for precise alignment of attributes that matter most, including the health of water plants and animals, water clarity, and the importance of specific sites for cultural rituals (Kitson, 2023; Murihiku Cultural Waterways Classification Report, 2018). Specific zones are then developed which are aligned with these prioritised values and could be considered as Freshwater Management Units or “Managed Zones”.

Utilising its dual-framework system, the framework can collect both scientific and cultural data to establish a robust baseline state against which future waterway health can be measured. The framework uses various tools, including historical literature sources, cultural value mapping, interviews, and contemporary information sources (Kitson, 2023; Murihiku Cultural Waterways Classification Report, 2018; Rainforth & Harmsworth, 2019). By employing different knowledge systems such as science, heritage, and mātauranga Māori, the research program ensures a comprehensive and robust approach to waterway classification and management (Kitson, 2023; Murihiku Cultural Waterways Classification Report, 2018). This baseline is crucial for setting achievable targets and limits.

Through its advanced analytics and data-driven ranking metrics, the tool supports the establishment of both lower and upper tolerable limits for various waterway attributes, such as water quality and species abundance. This is done in consultation with Mana Whenua, ensuring that limits are culturally sensitive and sustainable.

A general process to using this tool is as follows:

1. Pre-Classification Preparation
    a. Initial meetings are conducted with Mana Whenua and other stakeholders to discuss the scope and objectives.
    b. Historical data, traditional knowledge, and scientific metrics are gathered.
2. Attribute Identification
    a. Key elements (which could represent Te Mana o te Wai) are identified. These could include spiritual significance, historical relevance, and ecosystem health.
    b. Different attributes are weighted based on their significance to the community, ensuring that the model accurately reflects mana whenua priorities.
3. Establishing Baseline Values
    a. Both scientific and Māori metrics are used to establish the current state of waterways.
    b. Scientific measurements such as pH levels, turbidity, and biodiversity are recorded.
    c. Community interviews and archival research contribute to understanding the cultural and spiritual health of the waterways.
4. Attribute Alignment
    a. The weighted attributes are mapped onto the geographical information system (GIS), creating a multi-layered attribute map.
    b. Based on attribute alignment, specific zones or what could be considered as Freshwater Management Units are defined, each with its unique set of priorities and attributes.
5. Monitoring Regimes
    a. Customised monitoring protocols are established, employing a mix of real-time analytics, seasonal evaluations, and community feedback loops.
    b. Tools like drones, sensors, or community-sourced data can be incorporated for ongoing monitoring.
6. Classification and Zoning

    a. All gathered data is fed into an analytical model that ranks each FMU based on the weighted attributes.
    b. FMUs are then classified into various zones such as preservation, restoration, and development zones, each requiring different management approaches.
7. Setting of Limits and Targets
    a. The tool can use baseline and ongoing data to establish upper and lower tolerable limits for each attribute in each zone.
    b. Limits and targets would then be validated through community consultation, ensuring they align with the well-being of both the water and the people.
8. Review and Adjustment
    a. Regular audits are conducted to gauge the efficacy of the classification.
    b. The model allows for periodic adjustments based on new data or shifts in community priorities.
9. Documentation and Reporting
    a. All classification decisions, monitoring data, and stakeholder input are documented for transparency.
    b. Reports are prepared to meet regulatory requirements and to update community stakeholders.

**Advantages:**

- Engagement: Fosters partnerships through mātauranga Māori-rooted dialogue, linking local cultural landmarks to collective mana whenua identity.
- Functionality: Features layered mapping for monitoring essential water health metrics, FMU zoning, and adaptability to various geographical conditions.
- Assessment & Monitoring: Incorporates a dual framework that merges scientific methods with mātauranga Māori perspectives for site prioritisation and allows for long-term scrutiny through analytics.
- Utilises diverse knowledge systems, leading to a comprehensive and holistic understanding of the waterway's cultural significance.
- Supports the revitalisation of mātauranga-a-iwi/a-hapū and fosters a collaborative and respectful approach to freshwater management.

**Potential Disadvantages:**

- It may face challenges in reconciling different perspectives and integrating diverse information sources.
- The framework's application to other waterways or regions may require adaptation and further validation to suit specific cultural contexts.
- Complexity may necessitate specialised training or consulting.

In conclusion, the Cultural Waterways Classification Tool presents a comprehensive and culturally sensitive framework that facilitates the incorporation of mātauranga Māori in freshwater management processes. By respecting iwi and hapū inherent knowledge of areas and involving local communities, the framework offers a meaningful approach to preserve cultural heritage and inform sustainable waterway management. The tool's capability to establish detailed and comprehensive baseline states to inform targets and limits and its ability to effectively engage communities in its use as well as its specific integration with FMU setting makes it largely suitable for a Te Mana o Te Wai centric NOF process. As the tool was developed and has been used by Ngāi Tahu ki Murihiku it will require consultation and training to be adapted to other areas.

## Cultural Health Index

The Cultural Health Index (CHI) is a monitoring tool developed to quantify cultural knowledge and assess the condition of local waterbodies. It focuses on the cultural values, traditional practices, and the well-being of water from a Māori perspective. The CHI focuses on three main elements (Tipa & Tierney, 2003)

1. **Site Status**
   Classifies sites based on their traditional significance and potential future use by iwi and hapū.
2. **Mahinga Kai**
   Evaluates the status of traditional resource gathering practices at a site, including species diversity, access, and willingness to return.
3. **Cultural Stream Health**
   Assesses parameters such as land use, riparian vegetation, riverbed condition, and water quality to understand the cultural health of the waterbody (Ministry for the Environment, 2006).

The framework strives to involve mana whenua actively, allowing them to contribute traditional knowledge and perspectives. It aims to be inclusive and culturally sensitive, empowering mana whenua to shape the assessment process (Tipa, 2023). The CHI framework addresses questions related to site significance, mahinga kai values, and the cultural health of waterbodies. It seeks to understand cultural connections, access to resources, and the well-being of water from a Māori standpoint (Tipa, 2023).

The CHI has been applied across Aotearoa New Zealand, both in its original form and as localised variants. It has been used to assess waterbodies at various scales, from individual sites to larger regions, with the involvement of local Māori communities (Ministry for the Environment, 2006; Rainforth & Harmsworth, 2019). Gail Tipa explains that the CHI was intentionally designed to be a tool that can be applied by anyone from the marae, without requiring a formal qualification, allowing whānau members to engage in the assessment process (Tipa, 2023).

**Advantages:**

1. The CHI provides a structured approach to assess cultural values, promotes cultural preservation, and informs decision-making for water resource management. It incorporates indigenous knowledge and perspectives, fostering more inclusive and culturally sensitive practices (Tipa & Teirney, 2003).

**Potential Disadvantages:**

1. The CHI's focus on cultural health may not comprehensively address ecological aspects. It may require complementary tools for comprehensive monitoring. Additionally, the tool's effectiveness is dependent on the extent of community engagement (Tipa, 2023).
2. Additional information may be needed regarding the specific processes for site determination, data analysis, and decision-making based on CHI outcomes.

Overall, the Cultural Health Index (CHI) is a pioneering tool that empowers Māori communities to assess and monitor the health of their local waterbodies, integrating cultural knowledge with environmental monitoring. By focusing on cultural values such as site significance, mahinga kai, and the overall well-being of water, the CHI provides a structured, culturally appropriate approach to water management. Its strengths lie in its ability to incorporate mātauranga Māori into decision-making processes, ensuring that Māori perspectives are central to freshwater management. Uin terms of the NOF specifically, it could be used to identify management zones, iwi and hapū values related to water and to create baseline states and targets relative to the area that it is used to quantify. The tool has not been explicitly used to set limits (Tipa, 2023).

## Cultural Flow Preference Study

The Cultural Flow Preference Study (CFPS) was developed by Rūnaka, hapū, Gail Tipa, Kyle Nelson, Mandy Waaka-Home, and Myra Tipa. The tool employs semi-quantitative and qualitative methods to gather data. Sites are identified through various means, including their historical use, significance for mahinga kai (traditional food gathering), and accessibility (Rainforth & Harmsworth, 2019). The CFPS was developed in collaboration with the National Institute of Water and Atmospheric Research (NIWA) and was funded by the Sustainable Freshwater Allocation Programme and the Ministry of Business, Innovation, and Employment (MBIE). Though crown agents may be involved in its application, their involvement is not always explicit (Tipa, 2013).

**Advantages:**

Advantages of the CFPS include its alignment with the Hierarchy of Obligations, assessing environmental and cultural flows by prioritising the allocation of water to itself first, followed by the health of people, and lastly for community and cultural needs. This is done while maintaining acceptable flow rates that align with identified values, attributes, baseline states, limits, and targets (Rainforth & Harmsworth, 2019). The tool is available for use by both the private and public sectors but cannot be applied without input from mana whenua (Tipa & Nelson, 2012).

The CFPS assesses the well-being of water and the capacity to meet cultural, social, and economic needs. The tool incorporates the ki uta ki tai concept, enabling the identification of Freshwater Management Units (FMUs) based on the interconnectivity of various water bodies within a catchment (Tipa & Nelson, 2011). Through its multi-scale applicability, the CFPS works well for individual sites as well as across entire catchments. The tool identifies and assists with the development of attributes and baseline states for mauri, tāonga species, mahinga kai, ecosystem health/ecological integrity (including fish passage) and flow. Additionally, the objectives can be set by mana whenua though the attribute assessment process, e.g., to achieve a flow that supports an abundance of koura by 2030 (indicative date only). The tool's ability to outline seasonal flow needs to support different mahinga kai periods, or cultural activity requirements, means the tool can be utilised to shape outcomes and objectives.

The tool aids in developing attributes and baseline states for key factors like mauri, taonga species, mahinga kai, ecosystem health, and flow. Additionally, the tool can outline seasonal flow needs for different mahinga kai periods or cultural activities, allowing mana whenua to shape their outcomes and objectives, such as achieving optimal conditions for koura by a specified target date (Tipa & Severne, 2010). The tool effectively considers connectivity across waterbodies and includes waterbodies such as wetlands, riparian areas, tributaries, rivers, springs etc. Links to indicators such as fish barriers, flow barriers, sedimentation, wetland, tributaries, springs are explicit in the tool. CFPS outcomes and particularly when determining the satisfactory measure (in the tool) in terms of cultural flow can contribute to flow limit and target setting within Regional Plans with good advocacy and well-articulated data (Tipa, 2023).

**Potential Disadvantages**:

Potential disadvantages of the CFPS include the requirement for proper training to fully understand and use the tool. While it facilitates mana whenua in establishing flow preferences that align with their values and mātauranga Māori (traditional knowledge), it does not inherently facilitate engagement. Mana whenua may also need technical support, including environmental scientists and planners, to effectively utilise the tool (Tipa & Teirney, 2003).

Overall, the Cultural Flow Preference Study is an essential tool for assessing the well-being of water bodies and ensuring mana whenua values are incorporated into freshwater management decisions. While it has demonstrated considerable advantages, including its alignment with Te Mana o Te Wai and its flexibility across multiple scales, it is important to recognise that the tool's effectiveness depends on appropriate training and collaboration with technical experts. When used effectively, the CFPS has the potential to play a pivotal role in setting culturally aligned flow regimes and freshwater management objectives, making it an asset in Aotearoa New Zealand's freshwater governance landscape. In terms of the NOF, it would play an integral role in forming baseline states and targets and could be used to set limits, however, is yet to do so (Tipa,2023). Thus, making it an optional tool as part of a suite of tools or frameworks to support the NOF process.

# Section Seven: Practitioner Interviews

## Focus group wānanga with practitioners

"Practitioners" have each participated, practiced, or used some of the Cultural Health Assessment Tools, Methods and Frameworks and have largely worked within iwi and hapū centric realms of Kaupapa taiao. The objective of this

focus group session was to understand the 'usability' of the tools and the experience that the practitioners had. We held only one group session and there were five participants from the Bay of Plenty, Taranaki and the South Island. The wānanga was structured around 10 informed questions based on the review of the CHA tools, including:

1. What cultural health assessment/indicator tools/frameworks/methods would you recommend using and why?
2. In terms of the NOF what parts of the NOF do they best support?
3. Outside of the currently available tools/frameworks/methods available do you have a preferred process, method, etc. that you would adopt to specifically address Pou Tuarima (the selection and application of monitoring methods)?
4. In terms of setting mana whenua-centric limits what tools/methods/frameworks or own recognised processes would you take? Is there a mix of tools? How would you frame findings etc.
5. Is there mana whenua-centric tools that can be used to support mana whenua-centric FMU identification?
6. What scenario/arrangement/process/tools will create the best starting point with councils?
7. When looking at tools/methods/frameworks, are there any you would remove immediately given the expected objectives of the project?
8. What sorts of capability/capacity will mana whenua be required to have to adopt these tools/frameworks?
9. Does this change what tools etc. Are they helpful?
10. What monitoring methods are useful to you that can be adopted by Iwi and hapū to monitor the management of their wai beyond the negotiation with councils?

From these questions, the conversation developed largely around the role of mana whenua, the enhancement of known iwi and hapū rights in freshwater including iwi and hapū self-determining and self-governing when driving outcomes that will benefit whole communities through freshwater management (Focus Group Transcript, Hoani-Waaka,2023).

## Summative Answers to wānanga questions:

1. Cultural Health Assessment Tools: The Cultural Health Index and Mauri Compass were most recommended due to their comprehensive nature, which covers ecological, social, and spiritual dimensions, aligning closely with iwi and hapū values. It should be noted that participants were most familiar with these two tools. It was also suggested that due to their use across an array of different ecological and geographical areas for different iwi and hapū they would be best adapted to new environments.
2. NOF Support: Practitioners expressed significant concerns about the inconsistency between the National Objectives Framework (NOF) and Te Mana o Te Wai, particularly in relation to the specific context of the takiwā (region) and the tools or frameworks employed. They highlighted an example from the Taranaki region, where 99% of the awa originates from the maunga. This geographical feature introduces an additional layer of complexity when attempting to measure mauri under the current framework. From a mātauranga Māori perspective, the health of the awa is intrinsically connected to the health of the Taranaki maunga; if the mountain is healthy, so should be the water flowing from it. However, this is not the case and as a result ensuring the health of the takiwā has proven to be a challenging endeavour, where freshwater management does not accurately include the role of whenua in the takiwā.

   Practitioners unanimously called for a simplification of the NOF process, advocating for greater autonomy and leadership from mana whenua in determining which tools, frameworks, and methods best suit their unique needs. They determined that decision-making should be more aligned with the self-identified necessities and priorities of iwi/hapū rather than being a top-down imposition from external authorities.

   The group also flagged issues related to council engagement, identifying a pattern of delays and last-minute interventions that undermined the effectiveness and the opportunity for cultural integrity in the NOF process. The focus group participants were resolute in their demand for early and meaningful engagement

with local councils, citing that the key to a successful NOF process is a strong, trust-based relationship with mana whenua.

3. Preferred Process for Pou Tuarima: Given the lack of specific tools for adopting a methodology specific to each iwi and hapū and their needs, practitioners highlighted that a stepped-out process with different tools at different points would be beneficial. They also highlighted that the tool methodology should be participatory, and inherently aligned with the iwi/hapū worldview.
4. Mana whenua-Centric Limits: Participants discussed that a hybrid approach using both wānanga consultation and GIS-based tools could be effective. This allows for a fusion of traditional knowledge with contemporary spatial data and available data from current monitoring. The findings would be framed within the context of Te Mana o Te Wai and would have to be adopted by council in their entirety for limits to work. They acknowledged that the spatial representations should include modelling over time if limits were not adhered to.
5. Mana whenua-Centric FMU Identification: A notable critique from the participants centred on the very name "Freshwater Management Unit" and the assumptions it carries. The prevailing sentiment was that water itself does not require "management"; rather, what necessitates oversight are the human activities and land use practices that impact water quality. This brings into question the foundational principles of FMUs and challenges the scope and focus of freshwater governance.

   Participants indicated that the current framework for identifying an FMU is too restrictive for Iwi/Hapū. They stressed that the term 'units' imposes a rigid, one-size-fits-all classification that does not accommodate the fluid and evolving nature of specific takiwā. Traditional Māori conceptions of geographical areas are not static; they can change over time due to several factors, both natural and anthropogenic.

   A key suggestion emerging from the session was to reinterpret the concept of FMUs to "Ki Uta, Ki Tai" perspective. This holistic view encourages thinking about water bodies not just as isolated 'units' to be 'managed,' but as interconnected elements of broader ecosystems, influenced by human activity at every level—from the mountains where rivers originate to the seas into which they flow. This change would not only be more in line with mātauranga Māori but would also offer a more dynamic and nuanced method of freshwater governance and guiding human interaction with entire catchments.

   Participants further suggested that GIS technologies integrated with layers of cultural mapping would be effective for mana whenua-centric Freshwater Management Unit (FMU) identification. They were unaware of any tool which specifically prioritised the FMU identification process.

6. Starting Point with Councils
   Initiating with a co-governance model where both council and mana whenua representatives have equal decision-making powers can create a constructive relationship, both parties would need to understand in full the complexities of what influences each other's decision-making process.
7. Unsuitable Tools/Methods/Frameworks
   Participants noted that any tools which lack a focus on mātauranga Māori or the modelling of iwi and hapū centric narratives and values through data or are purely quantitative should be deemed as immediately unsuitable.
8. Required Capability/Capacity
   Mana whenua will require capability and capacity in data interpretation, community and council engagement, and legislative navigation to effectively use any tools and frameworks.
9. Change in Tools' Utility
   A continuous feedback loop with the community can change the utility of selected tools over time. Adaptability is key.
10. Monitoring Methods

11. Citizen Science initiatives that include traditional ecological indicators, alongside modern water quality tests, can provide a holistic picture and can be easily adopted by Iwi and hapū.

## Analysis of Discussion

The full session concluded as a rich tapestry of dialogue among various Taiao practitioners discussing freshwater management within the scope of iwi and hapū mana motuhake, Te Mana o Te Wai and mātauranga-a-iwi, mātauranga-a-hapū. It was determined that Te Mana o Te Wai is a universal concept from a Māori worldview that recognises the innate value and vital role of water.

Of particular interest to participants was the topic of Mauri and its multifaceted contexts of use particularly in the taiao space. Users elaborated on the intrinsic Māori concepts of 'Mana' and 'Mauri' as they relate to 'Wai'. According to participants, 'Mana' can be seen as an external manifestation of one's connection to 'Mauri.' While 'Mana' signifies the political, social, and spiritual aspects of interacting with water, 'Mauri' was described as the "quantum physics of connection" for tangata whenua to their takiwā.

'Mauri' provides a conceptual lens to understand the vitality, essence, or life force of an entity, and in this case, of 'Wai.' Measuring the 'Mauri' of 'Wai' is not just an empirical exercise but a deeply cultural and spiritual one. This view suggests that 'Mauri' is integral to the overall health and well-being of water bodies, and by extension, the communities connected to them.

According to practitioners, it is vital to note that only the uri of a particular takiwā possess the inherent capability to accurately gauge the 'Mauri' of 'Wai.' This is primarily due to their unique responsibilities and intimate relationship with the land and water. The uri are the stewards, carrying the obligation to maintain and protect the mauri of wai thereby ensuring the presence and sustenance of mana.

Mauri was described as having broad implications for freshwater governance models, especially those that aim to be participatory and inclusive. Given that mauri can only be truly assessed by mana whenua their involvement becomes non-negotiable in decision-making processes about water management. This perspective conflicts with existing paradigms that may employ more generic, one-size-fits-all methodologies that neglect these indigenous complexities.

### Themes

| | |
|---|---|
| Inter-generational Trauma and Resilience | Historical traumas have a long-lasting impact on how an iwi and/or hapū views itself and its relationship with the awa.<br>This discussion theme identified the need for practitioners to address these historical issues in any sustainable freshwater management plan. |
| Community Apathy versus Individual Concern | An identified and consistent difference in perspectives between those actively worrying about the environment and those complacent about it signified a challenge across the country in reaching consensus where freshwater outcomes are a priority.<br>For taiao practitioners, this highlights the need for more robust community engagement on impact and for council to lead these discussions in a way that is centred on outcomes for the wai. |
| Economic Incentives and Conflicts | All participants noted that as a practitioner, the challenge lies in de-coupling economic well-being from environmental degradation.<br>Advocacy efforts should focus on long-term sustainability that benefits the entire community and the environment which will significantly improve current state for iwi and hapū. |
| Identity and belonging | It was clearly noted that the degradation of our wai is not just an environmental issue but also a crisis of identity.<br>Māori practitioners are tasked with reconciling this relationship with the support of policy instruments which can only have outcomes when any Freshwater Management |

| | |
|---|---|
| | Plan is centred in the restoration of relationship with water for iwi and hapū and the commitment from council exists to adopt such plans in full. |
| The Role of Mātauranga Māori in Modern Governance | The challenge and responsibility for Māori practitioners to ensure frameworks from our traditional knowledge informs policy and practical approaches to freshwater management and is not conformed to suit current and damaging practices is critical. This will require engaging in dialogues that bridge traditional wisdom and modern governance centred in environmental outcomes. |

Key Comments

"People are still debating actions from past executives rather than focusing on future solutions".

"Expresses concern about community members not recognising the long-term impact of polluted awa on their lives, not just the lives of iwi and hapū".

"Highlights the disconnection and acceptance of the status quo because of short-term benefits like employment or dividends".

The overall session resolved that Taiao practitioners focused on outcomes for iwi and hapū are committed to the holistic well-being of awa and communities and recognise that the challenges confronting freshwater management are multi-dimensional and rooted in complex social, economic, and cultural landscapes. These include the residual impacts of inter-generational trauma, varying levels of community engagement, economic imbalances, identity concerns, and the integration of mātauranga Māori into modern governance.

The role extends beyond conventional environmental stewardship to encompass a broader responsibility of community mobilisation, cultural preservation, and systemic transformation. This includes:

- Addressing historical traumas as an essential precondition for community trust and effective freshwater management.
- Transforming community narratives to shift from short-term survival mechanisms to long-term environmental sustainability.
- Advocating for and developing economic frameworks that align economic sustenance with environmental responsibility, thereby dissolving the conflict between immediate gains and long-term sustainability.
- Prioritising the restoration of awa not only as an environmental objective but also as a pathway to socio-cultural healing and identity restoration for Māori communities.
- Actively ensuring that mātauranga Māori is not merely acknowledged but fundamentally integrated into policymaking and governance mechanisms, challenging existing power dynamics when necessary.

## Section Eight: Summary of Report

The report provides a summative analysis of multiple Cultural Health Assessment tools, methods, and frameworks in scope of the National Objective Framework process integrated with Te Mana o Te Wai. These analyses are intended to support mana whenua in their critical role in shaping freshwater management policies, frameworks, and practices, including engaging with the NOF.

Tools like Te Kete Tuatea, Mauri Compass, and Wai Ora Wai Māori consistently highlight the need to blend scientific methods with mātauranga Māori. This ensures a holistic approach to water and resource management. The frameworks emphasise prioritizing the health and mauri of water while aligning with modern decision-making processes, such as the National Objectives Framework (NOF) (Rainforth & Harmsworth, 2019). Both in the interview

with Hana Rainforth and across multiple reports, there is a strong focus on stakeholder engagement and the participatory decision-making processes. Dr. Baker's tool, Te Kete Tuatea, and the Mauri Compass emphasize working closely with mana whenua to ensure their perspectives and aspirations are reflected in water management (Baker, 2019; Rainforth, 2023). Across the interviews and reports, it is noted that one of the challenges with these tools is the high technical capacity required, particularly in data modelling. While frameworks like Te Kete Tuatea and Mauri Compass offer comprehensive assessments, they need significant expertise to be applied effectively (Rainforth & Harmsworth, 2019; Baker, 2019).

In summary, there are a wealth of cultural health assessment approaches that can be turned to helping iwi/hapū navigate the NOF process. How a tool is selected and applied must always be in the context of the hapū and whānau, and therefore critically requires an analysis upfront of what te mana o te wai and indicators of the health of an awa are to whānau, hapū and iwi. Secondary to this, it is important to assess what resources and expertise are available and apply these in the context of the use of different tools to determine if tools are user-friendly for a hapū and/or iwi, or if they will require sourcing of external skillsets, and if yes, how achievable this is to the hapū and/or iwi.

***"The beauty is there's lots of tools that whānau have developed that can be adapted for your purpose. It's just needing to know the questions that whānau have and then working with them to figure out the best way of answering it for them, and the best way that they want to articulate and visualise it to give it to whatever agency they're working with."***

Different indicators identified by whānau may require the use of a suite of tools or to build off tools that are already in place, like how the State of the Takiwā tool is an extension of the Cultural Health Index with key adaptions and additives to suit the context of the hapū and iwi desired outcomes.

The learnings of this report are relevant to taiao practitioners working with iwi and hapū, complementing their expertise in environmental science and policy and supporting the liaison role they often find themselves facilitating between iwi, hapū, government and other agencies. The learnings are relevant to invested parties driving mana whenua-centric solutions to the NOF. This includes policymakers, academics, and consultants who are dedicated to devising and implementing solutions that align with mana whenua values, particularly with respect to translating and integrating mana whenua values throughout the NOF process, not just at the value setting phase.

This report highlights the significant role cultural monitoring and mātauranga a-iwi/a-hapū have in freshwater management in Aotearoa New Zealand. It demonstrates the role of the National Objective Framework in imploring Te Mana o Te Wai and how this can be done well using a suite of tools and facilitating robust conversations with iwi and hapū as mana whenua and intergenerational knowledge holders of freshwater management through their use and practices related to wai māori.

## Section Nine: Next Steps

To continue the valuable work of building mana whenua capacity and capability to engage in the governance and management of freshwaters in Aotearoa, within an evolving policy context, we identify the vital next steps:

1. Seek resource to develop a database available in an app form that provides information and access to a range of tools, frameworks and methods and their suitability for different contexts.
2. Continue to progress the NOF process across the motu with mana whenua to refine the roles of different tools and establish an interchangeable method for iwi and hapū to adopt.

# Reference List


Baker, M. (2019). Te Kete Tuatea: A framework integrating mātauranga Māori and scientific methods for water systems management [Unpublished PhD thesis].

Baker, M. (2023). Interview transcript on Te Kete Tuatea. [Unpublished transcript].

Black, M. A., Bartlett, A. J., & Wills, B. (2018). Tukituki Mauri Monitoring Framework. Hawke's Bay Regional Council.

Faaui, T., Robb, M., & Harris, R. (2017). Ecological indicators: Ensuring objectivity by applying the Mauri Model to assess ecological restoration [Unpublished report].

Hoani-Waaka, A. (2023). Transcript of focus group session on Cultural Health Assessment Tools. [Unpublished transcript].

Kitson, J., & Associates. (2012). Kanak Havest Mātauranga: The cultural health of Ngāi Tahu waterways. Ngāi Tahu Research Centre.

Kitson, J. (2023). Transcript of interview on Cultural Waterways Classification tool [Unpublished transcript].

Ministry for the Environment. (2006). Cultural Health Index for Streams and Waterways: A tool for nationwide use.

Murihiku Cultural Waterways Classification Report. (2018). Enduring partnerships between people, disciplines, and knowledge systems. Te Ao Marama Incorporated.

Peacock, L., Baxter, G., & Waller, A. (2012). Mauri Model habitat restoration prioritisation: A holistic cultural and ecological framework. Lincoln University.

Rainforth, H. J., & Harmsworth, G. R. (2019). Kaupapa Māori freshwater assessments: A summary of iwi and hapū-based tools, frameworks, and methods for assessing freshwater environments. Perception Planning Ltd.

Rainforth, H. (2023). Transcript of interview on freshwater management and cultural assessment tools. [Unpublished transcript].

Royal, T. A. C., & Associates. (2011). Cultural values for Wairarapa waterways. Greater Wellington Regional Council.

Ruru, I., et al. (2019). Wastewater overflows and mauri: An iwi-led monitoring framework. [Unpublished report].

Ruru, I. (2023). Interview transcript on the Mauri Compass. [Unpublished transcript].

Shortland, T., & Tipene-Thomas, T. (2019). Inventory of iwi and hapū eel research. Ministry for Primary Industries.

State of the Takiwā Project. (2005). Waiau River catchment cultural health assessment report. Te Rūnanga o Ngāi Tahu.

State of the Takiwā Project. (2007). Te Waipounamu freshwater report. Te Rūnanga o Ngāi Tahu.

State of the Takiwā Project. (2008). Lake Ellesmere and Mataura cultural health assessments. Te Rūnanga o Ngāi Tahu.

Tipa, G., & Nelson, K. (2012). Cultural flow preferences for the Opihi Catchment. Journal of Water Resources Planning and Management, 138(6), 660-670.

Tipa, G., & Teirney, L. (2003). Cultural Health Index: Guidelines for stream health assessment. Ministry for the Environment.

Tipa, G. (2023). Interview transcript on the Cultural Health Index and related frameworks. [Unpublished transcript].

Walker, D. (2009). Iwi estuarine indicators for Nelson. Cawthron Institute.

White, M. E., Williams, M., & Reihana, K. (2020). Kaitiaki flow: A case study in sustainable freshwater management. Journal of Hydrology (New Zealand), 59(1), 21-32.