TE MAURI O WAIWAIA

A Maniapoto Freshwater Cultural Assessment Framework

TE NEHENEHENUI

NIWA
Taihoro Nukurangi

OVERVIEW OF THE PROJECT

Te Nehenehenui (previously Maniapoto Māori Trust board) and NIWA have been working collaboratively for over five years with three objectives in mind:

- Engaging and exciting Maniapoto whānau into reconnecting with their freshwaters
- Developing a framework to assess the state of their freshwaters that reflects the unique values of Maniapoto whānau
- Building the capability and capacity of Maniapoto whānau to participate in the assessment of their waterways according to their freshwater values.

The goal of this project was to develop and test a Maniapoto Freshwater Cultural Assessment Framework alongside Maniapoto whānau.

Ko te mauri, ko te waiora o te Waipā ko Waiwaia. Ko Waipā te toto o te tāngata! Ko Waipā te toto o te whenua, koia hoki he wai manawa whenua! Ko Waipā tētehi o ngā taonga o Maniapoto whānui.

— Ngā Wai o Maniapoto (Waipā River) Act 2012


WHAT IS A CULTURAL ASSESSMENT FRAMEWORK?
A framework that specifically responds to the needs and aspirations of whānau involved (e.g. to support in decision-making and influencing action in others), and is whānau-led and/or co-developed
Acknowledges whānau as place-based experts
Recognises and empowers whānau as co-leaders, co-governors, researchers, knowledge holders and teachers
Creates outcomes (not just outputs) that are useful and benefit the participating community and future generations
Enables Māori to share what is known, felt and understood by whānau (their mātauranga) in a way that helps to communicate their story

TE MAURI O WAIWAIA

A MANIAPOTO FRESHWATER CULTURAL ASSESSMENT FRAMEWORK

is a framework derived from Ngāti Maniapoto values, that incorporates Ngāti Maniapoto ways of assessing the state of those values, as well as assessment tools and approaches that draw on mātauranga Māori, community and scientific knowledge

This timeline highlights key milestones in the development of Te Mauri o Waiwaia as a Maniapoto Freshwater Cultural Assessment Framework (CAF).

Te Nehenehenui plans to continue to grow the network of whānau involved in monitoring towards Te Mauri o Waiwaia to increase both understanding about the state of the key values identified, and to continue to support whānau and hapū engagement with their waterways.

2018 - 2019

Training wānanga held for whānau on the tools available from Te Ao Pūtaiao (e.g. SHMAK, tuna monitoring, invertebrate identification and *E.coli*)

2019

Developed initial Te Mauri o Waiwaia CAF and identified appropriate tools to measure priority indicators (tuna, swimming and drinking water)

2020

Field testing of initial Te Mauri o Waiwaia CAF, gathered site specific data alongside whānau, identified watercress as another priority value to develop

2021

Refined data collection, developed a data management system and visualisation of the tuna value

2022

Refined the data management systems for storage, analysis and visualisation

2023

Planned induction wānanga for interested members/groups; utilise outward facing tools to socialise and communicate data with the wider community

2024 onwards

Recruit new members/groups; explore and develop the remaining values (e.g. kōura, sites of significance, birds, rongoā and riparian plant indicators)

Figure 1 Values included in Te Mauri o Waiwaia CAF. Values highlighted have been developed in the initial stages.

Initially four values were proposed based on existing Maniapoto documents (e.g. Iwi Environmental Management and Fisheries Plan), including tuna, swimming, kōura and sites of significance.

In wānanga, whānau added drinking water, birds, watercress and culturally and ecologically important plants. In addition, whānau identified and prioritised four values to explore more in depth highlighted in Figure 1.

Kōura, sites of significance, birds and plants remain included in the framework to demonstrate their importance and future development needs.

FIELD TESTING METHODS

Each value was developed further into attributes and indicators, which were then matched with readily available tools and methods for initial field testing.

During the field testing whānau explored:

- Which **indicators** for each value made sense?
- What **methods** worked for assessing the current state of indicators?

Each method was assessed for whether it was:

- **Achievable** - including if whānau could do what they set out to do when planning their monitoring event
- **Practical** - including whether the methods/tools worked in the field and at the sites whānau were assessing
- **Safe** - including understanding the health and safety aspects of each method, tool and site.

CULTURAL HEALTH INDICATORS

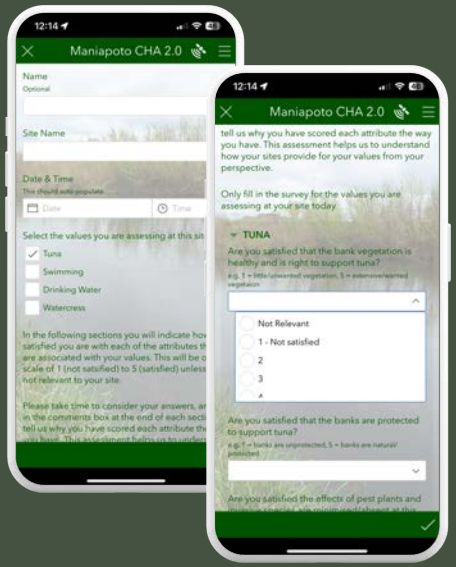

Figure 2 Example CHI survey form.

One of the main methods used in Te Mauri o Waiwaia was a cultural health indicator (CHI) approach.

For each of the cultural health indicators, whānau were provided with questions that asked them to explore how satisfied they were with that indicator by responding on a scale of 1 – 5, where one was not satisfied, and five satisfied (Figure 2).

The following diagrams (Figures 3-6) demonstrate each value, the indicators and the methods utilised to assess them.

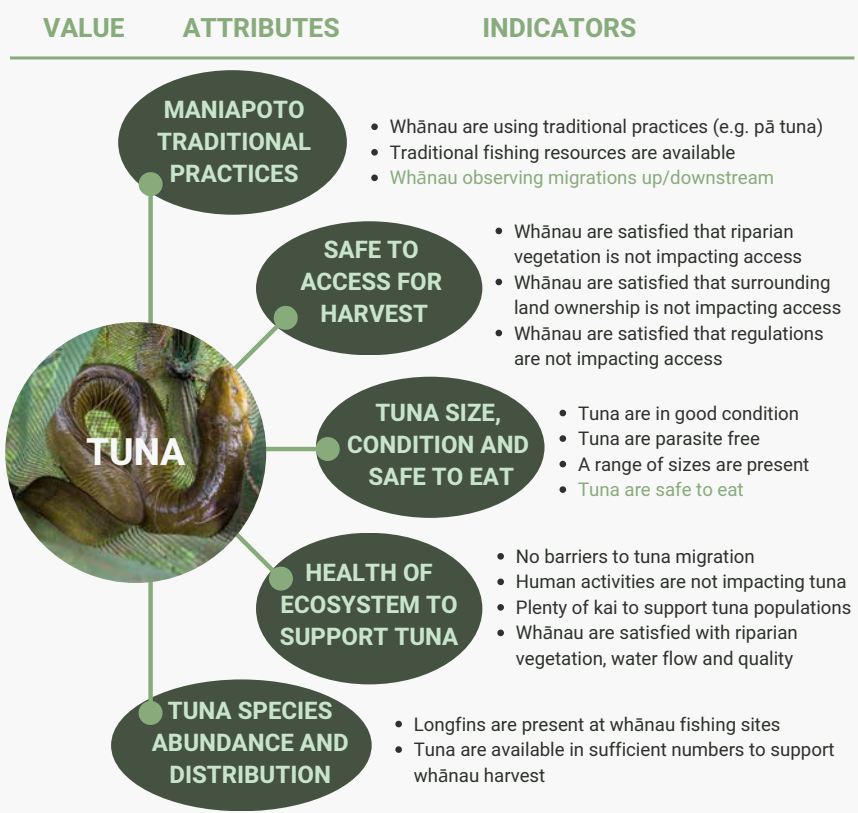

Figure 3 The tuna value mapped to attributes, indicators and methods. Indicators in green highlight where a tool/approach still needs to be developed by whānau.

METHODS

TRADITIONAL PRACTICE
Cultural Health Indicators (CHI)

TUNA AVAILABILITY
Standardised fyke-netting

TUNA CONSUMPTION
Standardised fyke-netting

ECOSYSTEMS
CHI, invertebrate assessment, gee minnow trapping

ACCESS
CHI

Figure 4 The swimming value mapped to attributes, indicators and methods. Indicators in green highlight where a tool/approach still needs to be developed by whānau.

METHODS

SAFE TO SWIM
CHI, clarity tube, depth & flow measurements, visual assessment, periphyton assessment, Wolman walk, *E. coli*

HEALTH OF ECOSYSTEMS
CHI, catchment visual assessment, riparian visual assessment

ACCESS & AMENITIES
CHI, riparian visual assessment

Figure 5 The drinking water value mapped to attributes, indicators and methods. Indicators in green highlight where a tool/approach still needs to be developed by whānau.

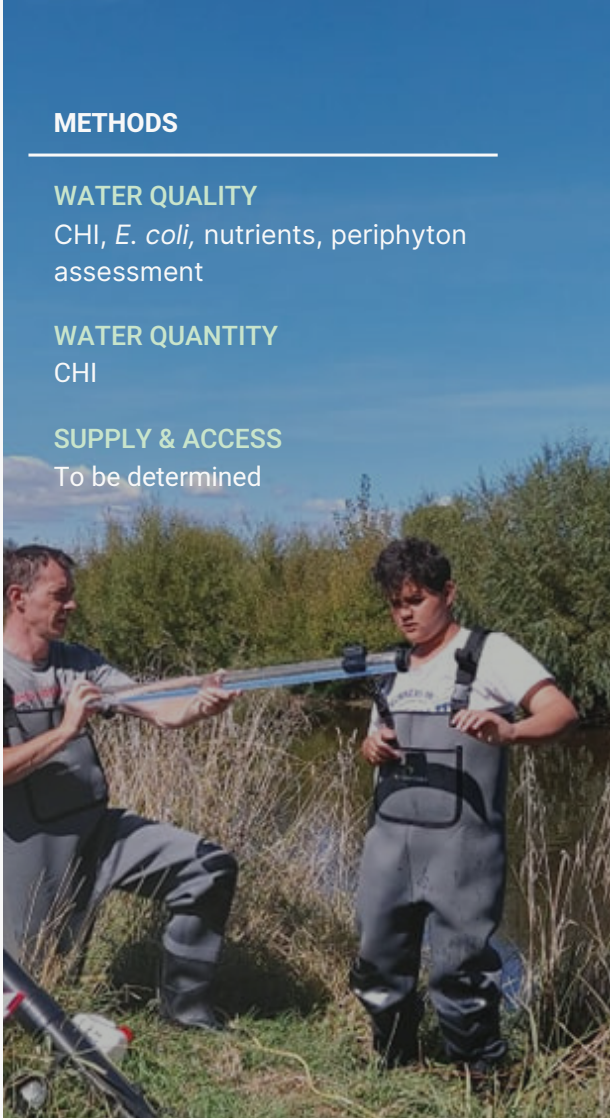

Figure 6 The watercress value mapped to attributes, indicators and methods. Indicators in green highlight where a tool/approach still needs to be developed by whānau.

METHODS

HEALTH OF PATCH
CHI

HEALTH OF ECOSYSTEMS
CHI, SHMAK water quality assessment, Wolman walk, visual watercress assessment

SAFE TO HARVEST
CHI

DATA COLLECTION

During field testing, whānau collected data on each value for a site utilising a combination of data collection forms (Figure 7) and an online data collection platform utilising the ArcGIS Survey123 application. Each form was refined with feedback from the whānau to ensure flow, usability and robust data collection.

Figure 7 A sample of data collection forms developed and refined during field testing.

DATA MANAGEMENT

Management of data collected by whānau included key elements that contributed towards our ability to utilise the data effectively. This work commenced in 2021 and included developing:

- Data storage protocols (for both digital and paper forms)
- Data analysis approaches
- Data visualisation templates.

Databases were created to house the raw data collected via paper and digital forms during monitoring events. Once data collected during field testing was entered into the databases it was prepared for analysis.

This raw data is currently being stored by Te Nehenehenui.

DATA ANALYSIS

The analysis of the data collected was completed by drawing together all available lines of evidence for each of the indicators being assessed. In some cases (e.g. water flow) there are multiple lines of evidence (e.g. flow measurements and CHI), and in some instances (e.g. access due to land ownership) there was one line of evidence (CHI).

Raw data was entered into a 'lines of evidence' table, then analysed and scored using a traffic light colour coding system (Figure 8) to measure current state.

Figure 8 Traffic light scoring key.

DATA VISUALISATION

Visualising the data collected and analysed was important to enable whānau to communicate the current state of each value at a given site. Assessment templates were developed for each value using a wheel assessment template.

Each wheel demonstrated each value, its attributes and indicators, as well as the types of assessments and methods that provided data for the lines of evidence used in analysis and scoring (Figure 9).

The value wheel assessment template was also designed to be able to portray a quick overview of the traffic light scores by attribute and indicator (Figure 10).

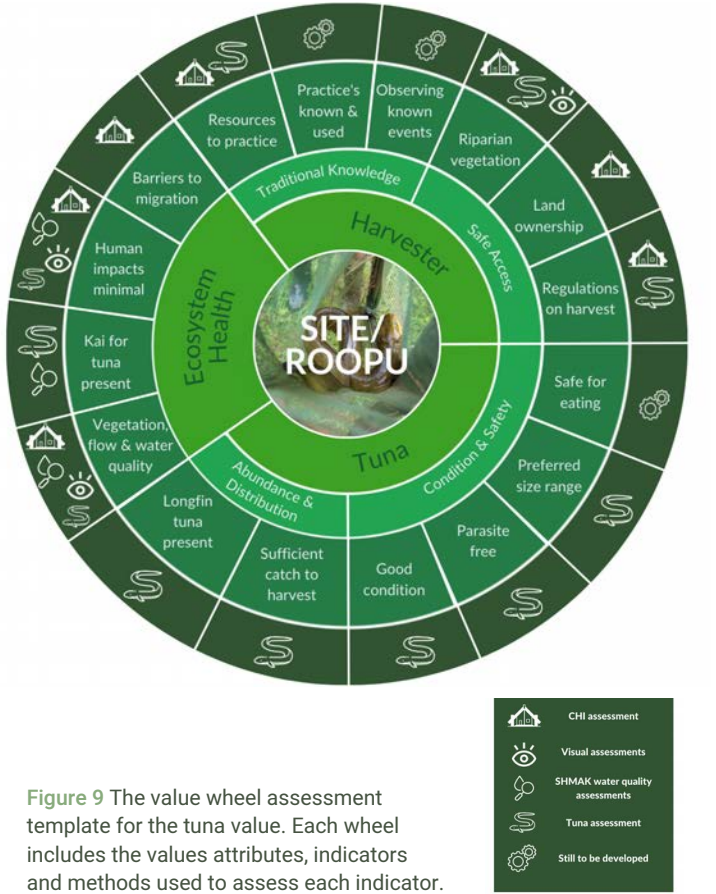

Figure 9 The value wheel assessment template for the tuna value. Each wheel includes the values attributes, indicators and methods used to assess each indicator.

Figure 10 An example of the data visualisation using the traffic light scoring for the tuna value. Here both harvester and tuna attributes are considered āhua pai (average/alright) while the ecosystem health attribute is considered pai (good).

ASSESSMENT TEMPLATES

A value wheel assessment template was developed for each of the other three initial values (Figure 11) and will be used similar to the tuna value for communicating current state.

SWIMMING

KEY CHI assessment Visual assessment

DRINKING WATER

WATERCRESS

Watercress assessment

SHMAK water quality and stream bed composition assessment

Still to be developed

Figure 11 Value wheel assessment templates for the swimming, drinking water and watercress values.

CHALLENGES

Throughout the development of Te Mauri o Waiwaia and during field testing whānau faced some key challenges, including:

- **Weather** – a lot of rainfall and high river levels meant it was often unsafe to monitor as much as whānau wanted
- **Data capture** – unsafe conditions meant that whānau weren't able to capture data in the intended seasons
- **Sites** – accessing desired sites on privately owned land was difficult.

Despite these challenges whānau were committed to continuing monitoring when and where possible.


FMG

NEXT STEPS AND IMPLEMENTATION

Some of the key next steps identified by whānau and Te Nehenehenui are:

- To continue to develop and refine the data management systems, including storage, analysis and visualisation tools long term
- To utilise outward facing visualisation tools to socialise and communicate the data with the wider community including whānau, hapū, land trusts and councils
- To explore and develop the remaining values - kōura, sites of significance, birds and plants (e.g. rongoā and riparian).

FURTHER READING

Maniapoto documents:

MMTB (2015) He Mahere Ika - Maniapoto Upper Waipā Fisheries Plan.

MMTB (2016) Ko tā Maniapoto Mahere Taiao - Maniapoto Environmental Management Plan.

Ratana, K., Herangi, N., Rickard, D. (2020) Maniapoto Freshwater Cultural Assessment Framework - Developing the Framework. NIWA Client Report 2020189HN. 28p.

Tipa, G., Williams, E., Herangi, N., Dalton, W., Skipper, A., Iti, W. (2014) Maniapoto priorities for the restoration of the Waipā River catchment. NIWA Client Report, WEL2015-3.

Kaitiaki Contributors, Ratana, K., Herangi, N., Rickard, D. (2020) Maniapoto Freshwater Cultural Assessment Framework. Science Communication Summary Report prepared for Maniapoto Māori Trust Board. Published by National Institute of Water and Atmospheric Research (NIWA) Ltd, Hamilton, New Zealand. ISSN 1174-264X. NIWA Information Series 96

Other guiding documents:

Cain, A., Manihera, D., Kitson, J., Whaanga, D., Blair, S., Murihiku Rūnanga Advisory Group., Young, R., Williams, E. (2019) Policy Brief 1: Applying He Puna Whakaata o Mātauranga. Murihiku Cultural Water Classification System. September 2019. Te Ao Marama, Invercargill: 4.

GET IN TOUCH

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HE MIHI AROHA

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Image credits: Te Nehenehenui, Ngahuia Herangi, Stuart McKay (NIWA)

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