

NORTHLAND TANGATA WHENUA FRESHWATER VALUES

A FRAMEWORK TO GUIDE DECISION- MAKING



August 2015

This is the second of two reports completed as part of the Northland tangata whenua freshwater values study. The first is titled “Northland Tangata Whenua Freshwater Values: A Literature Review”.

The study was undertaken as part of a joint venture between the Northern Regional Council, the Ministry for Primary Industries and the Ministry for the Environment.

The study will contribute to Northland Regional Council’s Waiora Northland programme, its integrated programme for freshwater management in the region. It will also inform the current review of the Northland regional plans.

August 2015

PREFACE

Northland is a long and narrow region, and nowhere there is very distant from the coast. The west coast is known as te tai tame tane; the east coast is te tai tama hine: the male and female coasts. Between these coasts are numerous rivers, lakes and catchments. The rivers and lakes are not as large as they are in other regions, and their close proximity to the coast has always provided opportunities for harvest of kaimoana. Each one of those water bodies is in the rohe of specific tangata whenua – whānau, hapū and iwi – and is of high importance and value to them.

During the work on this study, we learnt that, while there are local issues and values that differ from river to river and from whānau to whānau, there is also a high degree of agreement on the overarching values associated with fresh water including on the day-to-day issues that affect tangata whenua communities.

We learnt that freshwater is essential to the fabric of those communities. It is essential for human health and prosperity but also for identity through pepeha and other means of connecting people to their environment. We learnt that the pervading values at all levels of consideration include the spiritual dimensions of tapu and wairua.

Changes to the quality of the water bodies in the region are relatively recent in the lives of tangata whenua in Taitokerau. Many of the responses we received indicated a desire for a return to the state of the fresh water that was earlier experienced.

We heard about many issues and aspirations. But one of those aims encapsulated the findings of this study more than any other: kia pai te kaukau i nga awa nui, kia inu pai i nga awa iti – swim safely in the big rivers, drink safely from the small rivers.

The framework developed for tangata whenua freshwater values in this study provides a means to inform management decisions for fresh water in the region. This study is a start towards achieving the goals arising from the tangata whenua values. Reaching those goals will require ongoing work and engagement with tangata whenua of the region.



Photo courtesy of Northland Regional Council

Contents

1	Summary	1
2	Introduction	2
2.1	Background	2
2.2	Objective of the study	2
2.3	Northland region	3
2.4	Northland Regional Council	3
2.5	Tangata whenua	3
2.6	Interests	4
2.7	Property rights	4
3	Methodology	6
3.1	Literature review	6
3.2	Hui	6
3.3	Development of the framework	7
3.4	Purpose of the framework	8
3.5	Reports	9
4	Values and the framework	11
4.1	Terminology in the NPS-FM and NOF	11
4.2	Overarching values	11
4.3	Values in freshwater environments	13
4.4	Freshwater management categories	14
4.5	Management processes	15
4.6	Tangata whenua values framework structure	16
5	Values determining aspects to be managed, indicators and management responses	18
5.1	Crystal clear water	18
5.2	Fish stocks (other than tuna)	19
5.3	Tuna	21
5.4	Repo	21
5.5	Safe swimming and safe drinking water	22
6	Implementation of identified management processes	24
6.1	Rahui	24
6.2	Monitoring	24
6.3	Duration of consents	25
6.4	Wastewater management	25
7	Examples of application of the framework	28

7.1	Cascade effect of tangata whenua values	28
7.2	Examples of applications of the framework.....	29
7.3	Catchment groups	29
7.4	Regional planning.....	30
7.5	Consent processing.....	30
8	Integration of mātauranga with science in the framework.....	32
8.1	Integrating mātauranga and science.....	32
8.2	Tangata whenua frameworks and environmental management.....	33
8.3	Values framework and integration of mātauranga with science	33
8.4	Is integration a useful goal?.....	34
9	Further work.....	35
10	Conclusions	36
	Glossary of Māori words	37
	Appendix One – Hui presentation, responses and attendees	39
	Appendix Two – Peer review and guidance	42
	Bibliography	43

1 Summary

This study is one of a series supporting the implementation of the National Policy Statement – Freshwater Management 2014 (NPS-FM) in Northland.

The objective of this study is to identify and describe tangata whenua values associated with Northland's freshwater bodies and associated coastal waters and aspects to be managed to support those values; and to develop a framework to inform decision-making by the council and community for freshwater management.

Through a literature review, a series of hui and informal discussions, a set of tangata whenua values associated with fresh water were identified. These included high level and overarching values for which the relationship to fresh water needed to be interpreted. These overarching values provided the context for the freshwater environment values identified, which then determined the specific freshwater resource management categories for which management provisions can be developed.

During the study, tangata whenua affirmed that all the values identified are of relevance to fresh water, and therefore all have been included in the framework development. However, different values lead to different response options, some lying outside the scope of the NPS-FM and the Resource Management Act 1991 (RMA).

For the values determined and represented in the framework, management responses in terms of indicator use and development, and in terms of regional planning provisions, are proposed. Identified management responses are discussed and proposals made for how they can assist in the ongoing engagement of tangata whenua in freshwater management.

The framework can be used by the community and the Northland Regional Council (NRC) in developing freshwater management processes and provisions. Examples are provided of how the framework can inform the work of catchment groups, regional planning and consent processing.

From the literature review and the hui, the challenges of working with both mātauranga and science were recognised. The framework of this study has been developed with the aim of ensuring the Northland tangata whenua values for freshwater are able to be provided for in the region's formal resource management. While it is not claimed that the framework of this study integrates mātauranga and science, it can contribute to understanding how that synthesis might be developed.

Further work is needed after the completion of this study. This includes the use of the results of this study in the NRC's current review of its regional plans and the implementation of the Regional Policy Statement. Further development of indicators for the NPS-FM's objective framework will require the council to develop responses to give them effect, and the framework provides a means of ensuring the tangata whenua values and perspectives are appropriately included.

2 Introduction

2.1 Background

The Ministry for Primary Industries and the Ministry for the Environment have formed a partnership with the NRC to conduct a series of studies to support the implementation of the NPS-FM in Northland.

Northland's fresh water and associated coastal waters have a number of values that are important to tangata whenua, including mahinga kai, historic and cultural associations, provision of habitat for a range of plants and animals for cultural purposes, recreation, as well as uses that support economic development such as irrigation. The majority of Northland's rivers flow into estuaries or harbours rather than to the open coastline. This means that the state of fresh water, both quality and quantity, can affect the health of these associated coastal waters, which in turn impacts on tangata whenua values within the marine environment.

The NRC is about to develop a new regional plan for managing the region's water resources. The starting point is identifying the values of water and the aspects to be managed in order to set water-quality objectives and limits. This project will provide valuable input into that process.

2.2 Objective of the study

The objective of this study is to identify and describe tangata whenua values associated with Northland's freshwater bodies and associated coastal waters and aspects to be managed to support those values. This includes the development of a framework to inform decision-making by the council and community when setting objectives and limits for fresh water.

The framework has been developed in conjunction with the NRC and iwi and hapū to ensure that it is practical and can be used in planning and decision-making processes. The framework could also be applied or developed further in the future by tangata whenua and others for more specific and/or localised decision-making processes, for example, Māori agribusiness.

The NPS-FM was developed in response to national concerns over the quality of fresh water. The changes to the water management regime followed work done by the collaborative Land and Water Forum, and were informed by specialist groups including the Freshwater Iwi Leaders Group.

In 2014, new provisions were added to the NPS-FM. These included a National Objectives Framework (NOF), which addresses national values and establishes water-quality measures to ensure the compulsory values it identifies are maintained. Regional councils are able to include provisions in their planning for other values they identify, including tangata whenua values.

The NPS-FM requires councils to have provisions to safeguard the ecological health of freshwater bodies and to protect human health. The NOF establishes minimal standards for councils for the relevant freshwater attributes, but councils can set targets above those minima.

2.3 Northland region

Northland has an extensive network of rivers and streams. None of them are considered major on a national scale as Northland's narrow land mass means most rivers are relatively short with small catchments. Most of the major rivers flow into harbours, rather than discharging directly to the open coast, which means contaminants tend to take longer to disperse from these sheltered environments.

The Northern Wairoa River is Northland's largest river, draining a catchment area of 3650 square kilometres or 29 percent of Northland's land area.

Flows in rivers vary considerably, with rainfall and high intensity storms causing flash floods, while prolonged dry spells lead to very low flows in many smaller catchments. Northland's rivers are generally characterised as being slow flowing and muddy because the land is dominated by deeply weathered geology and fine clay soils.

Northland also has a large number of small, shallow lakes and associated wetlands. Most of these have been formed between stabilised sand dunes on the west coast. These dune lakes are grouped on the Aupōuri, Karikari and Poutō peninsulas. Most are between 5 hectares and 35 hectares in area and are generally less than 15 metres deep. However, Lake Taharoa of the Kai Iwi group near Dargaville is one of the largest and deepest dune lakes in New Zealand. It covers an area of 237 hectares and is 37 metres deep. A few volcanic and man-made lakes also exist. Northland's largest lake is Lake Ōmāpere, which is 1160 hectares in area and located to the north of Kaikohe.

2.4 Northland Regional Council

Regional councils are required to give effect to national policy statements, which means in practice they must implement them in their regional policy statements and regional plans.

The NRC has revised its Regional Policy Statement with strengthened provisions for freshwater management.

The regional plans are now being reviewed, with a single consolidated plan proposed to include provisions for freshwater management. The NRC can use the values and interests, the framework and the specific attributes identified in this study to inform how its regional plan gives effect to the NPS-FM, and for its development of other provisions for freshwater management relevant to tangata whenua.

2.5 Tangata whenua

Tangata whenua across Taitokerau have a special relationship with water as one of their taonga. Pepeha, used by people to establish their identity, recognise awa as an essential part of that identity.

Tangata whenua have comprehensive customs to manage resources and for the protection and use of their resources. Environmental management is exercised through the practice of kaitiakitanga and is integrated and holistic. People are viewed as part of the natural environment not separate from it. The natural world, including people, is connected through whakapapa, and the natural world is itself connected to atua. This integrated perspective, which includes spiritual values such as tapu and wairua, is the basis for kaitiakitanga.

2.6 Interests

“Interests” can be understood in an informal sense, and providing for tangata whenua values is likely to be consistent with, or identical to, providing for tangata whenua interests.

The NPS-FM uses the term “value” with respect to beneficial uses of water and its intrinsic values. “Interest” is used to refer to resource use and commercial development opportunities.

A dictionary definition of “interest” is “the state of wanting to know about something...” or “the advantage or benefit of someone” or “a share or involvement in an undertaking” or “a group having a common concern, especially in politics or business”.¹ Inclusion of the term “interest” in the NPS-FM can refer to freshwater use and development.

The NPS-FM provides for “values and interests” for tangata whenua in the Preamble, in Objective D1 and in Policy D1. The framework development in this study includes both tangata whenua values and interests.

2.7 Property rights

Property rights in fresh water are the subject of as yet unresolved claims. Tangata whenua from Taitokerau have been involved in a claim to the Waitangi Tribunal, and iwi in the region are engaged with the issue through the national Freshwater Iwi Leaders Group.

This study focuses on the management of fresh water arising from tangata whenua values and interests. Perspectives on property rights can influence perceptions and, hence, the expression of values. This study aims to be sensitive to those issues but does not directly address them.

¹ *Oxford English Dictionary* (10th edition).

Lake Tangonge

Historically, Lake Tangonge was part of a wetland system in the Kaitaia area, which was alienated through a pre-Treaty of Waitangi sale. The lake and its adjacent swamp and gardens had abundant food resources. Oral histories² record water levels being managed to provide land for gardens. “Even though it appears that Europeans preferred the raised parts of the surrounding area for farming, local Maori tended to gather at the edges of the Tangonge wetland, from which they obtained ‘pipiwai, eels, fresh water mullet, ducks, swans, raupo, flax and other fish and birds.”³

“Part of Tangonge was brought before the Native Land Court in 1933 in response to an application by Herepete Rapihana and others requesting ‘a full enquiry and investigation of all the circumstances in connection with our land “Tangonge” by the Native Land Court.’⁴ By the time of the petition, Lake Tangonge no longer existed as the claimants had known it. A major Government controlled drainage scheme had exposed the bed. The Pukepoto outlet had been constructed to drain the lake into the Awanui River and the lake had become only an emergency ponding area.⁵ Local Maori claimed the work of the Kaitaia Drainage Board had deprived them of their ancestral foods. Though the claimants maintained that no part of Tangonge had ever been alienated, the claim before the court was limited at that time to the bed of the lake, which was approximately 693 acres.”⁶

Today, the area of the lake is dry for most of the year.



The area today. (Source: *Te Rarawa*)



A shooting party on the lake in 1912. (Source: *Te Ahu Heritage Museum and Archives*).

² From taiao.terarawa.iwi.nz.

³ Waitangi Tribunal (1997) *Muriwhenua Land Report Wai 45*, p 258.

⁴ Petition, Herepete Rapihana and Others, 8 September 1932, Petition No. 183/32, Tangone Block 1913–1946, MA 1, 38/18/5, Vol 1, Part 1, National Archives Wellington.

⁵ R P Boast 2004 *The Muriwhenua South and Ahipara Purchases. Report to the Waitangi Tribunal*, p 36.

⁶ Te Runanga o te Rarawa (2004) *Te Rarawa Historical Overview Report*, 201, p 51.

3 Methodology

3.1 Literature review

A literature review was the first stage of this study.

The purpose of the literature review was to identify and describe tangata whenua values related to fresh water and associated coastal water in Northland, based on existing information.

Where possible, literature specific to tangata whenua in Taitokerau was sourced, but there is a limited range of this material. *The Woven Universe* by Maori Marsden is the key work for kaitiaki in Taitokerau. Other written sources included iwi and hapū management plans, relevant consent applications and local studies.

Literature from other regions, which contained values consistent with those of tangata whenua in Taitokerau, was also surveyed and the results included.

A set of provisional values was identified in the literature review.

As well collating published information on freshwater values, the literature review presented a number of kaitiakitanga frameworks that have been used for fresh water or other environmental management analysis. Many of these frameworks were developed as mechanisms to address specific environmental impacts. Others codified high-level values and interests but did not create direct links to freshwater management provisions. These were therefore not suitable for direct use in the study, but all offered guidance for framework development. (The literature reviewed and frameworks considered are included in the Bibliography for this report.)

3.2 Hui

Three formal hui were held in Whangarei, Kaikohe and Kaitaia to enable collation of further information to identify and describe the freshwater values. The hui provided an opportunity to test and confirm the relevancy of the identified values of the literature review, identify further values and identify aspects that could be managed along with relevant indicators and attributes. Where possible, identification of the specific locations relevant to the values was sought. A copy of the literature review was provided to the hui attendees before each hui.

Seeking to confirm the proposed values, or to add further values, in a hui of necessarily limited duration is challenging. The implementation details of the NPS-FM needed to be discussed, as did the difficulties of developing from mātauranga a framework for use in a science-based model as well as in the NRC planning processes.

While attendance was not high for the hui, a range of tangata whenua with various backgrounds and experience in natural resource management contributed an overall perspective of regional freshwater concerns. The three locations for the hui provided opportunities for attendance across the region. Attendees were from iwi, hapū and marae, and, overall, the hui attendees were representative of these groups across the region.

The first hui in Whangarei focused on the values identified in the literature review and sought feedback on whether they were relevant and appropriate. The values of the literature review were confirmed and examples of management needs were identified. In order to ensure there was more time available for discussion of values, and for identification of aspects to be

managed, a different approach was used in the second hui at Kaikohe. In that hui, a single high-level value – manākitanga – was presented to initiate discussion. Evaluation after the Kaikohe hui identified that an important result was hearing the stories from tangata whenua. At the Kaitaia hui, an approach similar to the Kaikohe hui was used, but with mauri as the focus value, and more time was provided for attendees to relate relevant stories.

The change of focus in the different hui noted above – from response to the literature review to discussion on the range of values triggered by a single value – led to the provision of more and better information than might have been produced from a single consistent approach.

The information from the three hui resulted in a lot of commonly agreed support for the range of values in the literature review, and further values were identified.

Similarly, the list of attribute-related issues derived from iwi planning documents and the NRC hui for its regional plan review were supported as having importance and relevance. Some of those attending had a lot of experience with addressing resource consent issues and could cite examples of specific problems. Others compared historic water resource qualities with the current status. Some had information specific to local water bodies.

The difficulty and challenges of using mātauranga-based information in a science-based framework was recognised.

The responses from the evaluation forms were positive. The hui were seen to be of value and well managed. More time for consideration of the literature review would have been valuable, and an ongoing concern about managing the intersection of mātauranga and science was noted.

All hui agreed to the aim of swimming in the big rivers and drinking from the small rivers.

While the hui did not directly identify a small set of priority values for fresh water, evaluation after the three hui suggested that wairua and mauri were the consistent and high-level values underpinning all the other value-related statements.

A draft report on the hui was provided to attendees for their feedback.

See Appendix One for detail on hui presentations, responses and attendees.

3.3 Development of the framework

The framework development went through a number of iterative steps. Categories and structures from frameworks identified in the literature review were all considered and provided guidance for the framework development. Setting out the values and interests in a structure, from the high-level and overarching values to those relating to specific freshwater attributes, can have numerous combinations and permutations. These different options for a structure were trialled with peer reviewers and resource managers.

During the hui and subsequent follow up, none of the values presented were considered to be irrelevant to fresh water, and every effort has been made for a comprehensive inclusion of them all in the framework.

3.4 Purpose of the framework

While the aim of this study is to inform and support the implementation of the NPS-FM, all care has been taken to ensure that the process for identifying values has not been driven by the regulatory provisions. The reverse process has been used. The full set of values provided by the literature review, hui and other engagement processes has been used to develop the framework. Important decisions in constructing a hierarchy of the values had to be made in developing the framework, and, in arriving at the final construct, its effectiveness in being able to inform and support the NPS-FM implementation was an important factor. But that factor was applied after an examination of the nature of values and interests, not before.

The purpose of the framework is to represent and describe the freshwater values and interests, and to identify and relate these to consequent attributes that need to be managed. This includes identification of appropriate indicators and, where they do not exist, the need for their development.

Many of the values identified in the literature review and hui are of a high-level nature and need interpretation and analysis in order to connect them to freshwater management specifics. Conversely, other proposed values are expressed in terms of attributes or issues for which the background values need to be identified and connections determined.

While not all of the values may be able to be directly linked to indicators and attributes for fresh water, they all form part of the background value system, which gives these end results meaning and relevance. Therefore, none of the values identified and supported by tangata whenua in Northland have been excluded from the overall framework, although there are different ways in which they affect management and other responses.

Most environmental management is implemented in terms of specific resources, impacts, locations and measurements. Frameworks are useful for providing a matrix of quantitative and/or qualitative aspects for categorising these factors and considering inter-relationships between them. The NOF is an example of a framework of this type.

In attempting to create a framework for tangata whenua water values, there are theoretical challenges to consider. The tangata whenua concept of the environment perceives it as a connected whole, which is itself connected with and includes people. Isolating specific qualities and measures in a scientific approach will generally fail to provide for this connectivity.

The framework for this study needs to present the tangata whenua values in a useful format and to link those to aspects of fresh water that can be managed to support those values. In seeking guidance for the development of a framework for this study, the examples in the literature were of limited assistance. Some are focused only at a highly conceptual level and codify components such as mana and manākitanga but do not provide direct detail to management responses. Others provide checklists of qualities that can be observed or measured and managed but do not provide the interconnections within and between them and to higher level values. The values and management of aspects of fresh water are juxtaposed in these frameworks but linkages and relationships are not established between the values and management. The framework presented in this report links the values to management responses appropriate for NPS-FM and RMA implementation.

The framework sets out a hierarchy of values with connections between those at a higher level to those linked with environmental categories or activities, through to the aspects that

can be managed. Further, methods and processes for tangata whenua involvement in freshwater management are included in the framework.

Choices had to be made on how to represent the many values presented from the literature review and the hui, and where to place them in a hierarchy. Little guidance for this was provided through the hui, in which a perspective was consistently expressed that all freshwater values and attributes identified are of high importance. The choices for placement of values in different parts of the framework were based on how closely they can be linked to the management provisions.

Those values for which management aspects and attributes can be directly linked sit at the lower level of the framework. Management for these values can be through implementation of the NPS-FM or through general RMA provisions. These are referred to as “Freshwater Management Categories” in the framework.

Above the “Freshwater Management Categories” in the framework are the “Values in Freshwater Environments”. Associated with these values are multiple attributes for their relevant habitats or environmental niches. While each of these specific attributes may be individually measurable, no collective measure exists for the habitat or ecological niche itself. The directly measurable attributes are those of the “Freshwater Management Categories”.

Above the “Values in Freshwater Environments” are the “Overarching Values”. Not all of these are directly related to aspects that can be managed. However, they represent the high level societal values of tangata whenua in Taitokerau that underpin the freshwater values identified at lower levels of the framework. They therefore provide the tangata whenua social context within which the lower level values are determined.

These “Overarching Values” also directly relate to the processes through which tangata whenua engagement in freshwater management is achieved. For instance, kaitiakitanga provides the basis for the imposition of a rāhui for a resource or area; maintaining oranga drives the need for involvement in monitoring and wastewater management.

3.5 Reports

Drafts of the literature review, the hui report, the framework development and this report were first circulated to peer reviewers, a reference group and officials in the Ministry for Primary Industries, Ministry for the Environment and NRC. The documents were amended in response to feedback, then provided to the hui attendees and others who had shown an interest in the work. Final versions were then confirmed.

This final report was independently peer reviewed.

Members of the Reference Group, peer reviewers and others who had input into the work of the study are listed in Appendix Two.

Life in the rivers

When we were children, we had our favourite swimming places. These were at places the rivers turned almost back on themselves and created the big swimming holes.

Above and below the rivers there was life – insects and birds above, fish and other life below the water. We would collect kawai and kokopu for our snacks.

Behind the sounds of the children swimming, the rivers had their own sounds, sounds of water over stones, water lapping against the banks. And the rivers had their own special smell. It was distinctive and different from the smell of the bush around the river. It was almost a musty smell, which stays in my memory, but it is a smell which I have not experienced for a long time.

We had our special rivers to drink from. These were separate from our swimming rivers, and were small, small enough to jump over. Getting a bucket of water from a stream like that for the kitchen was one of the children's household chores. And like the smell of the swimming river, the taste of that drinking water stays with me still.

There may still be rivers like that, but they are probably well away from where people live. Whether it is the effects of farming, of forestry, or of possums in the bush, those rivers are not there in the same way for our children now.

Maiki Marks



4 Values and the framework

This section of the report outlines the values included in the framework and the relationships between them. Section 5 identifies specific manageable attributes determined by the framework and proposes indicator development and management responses. Section 6 describes the traditional and current management processes through which tangata whenua can have ongoing engagement with freshwater management. Section 7 provides examples of how the framework could be applied by the NRC to particular water bodies.

4.1 Terminology in the NPS-FM and NOF

The term “value” in the NPS-FM is used in a broad sense, often relating to freshwater function or use, such as for navigation.

The NOF prescribes how regional councils are to set water quality and quantity objectives for the two compulsory and optional values.

Water quality and quantity objectives must be written in numeric terms or, where that is not practicable, in narrative terms with reference to attributes of values.

An attribute is defined in the NPS-FM to mean “a measurable characteristic of fresh water, including physical, chemical and biological properties, which supports particular values”.

For many values of water, attributes can be readily defined, for example, drinking, healthy aquatic ecosystems and reliability of flows for extraction. This is generally not possible for higher level tangata whenua values. The challenge, therefore, is to identify attributes that can relate to the NOF while retaining their basis in, and connection to, the higher level values. These are needed for water quality and quantity management because they:

- can provide a focus for tangata whenua engagement in practicalities of freshwater management;
- provide a neutral basis for comparison of alternative management options; and
- can help to prioritise monitoring and research needs.

The task of this study has been to identify **values**. The NPS-FM and the NOF are implemented in terms of **values** and **interests**. Many of the “values” presented in hui and found in the literature are more accurately “interests”. Many “values” from those sources are also able to be considered as principles or kaupapa. For simplicity, in what follows in this framework, the single term “values” is used to encompass the full range of those potential meanings.

4.2 Overarching values

These overarching values are held by tangata whenua in Northland. Many of these values exist across Māori society, apply to any or all aspects of life and are not constrained to natural resources or freshwater issues. However, values that are not able to be applied directly to the management of fresh water nevertheless provide the context within which the tangata whenua freshwater values and associated attributes are determined in this study. The overarching values include high-level kaupapa, general cultural values and values with more specific relevance to fresh water.

The two key high-level values identified from the hui are wairua and mauri:

- Wairua
 - Wairua was identified as an important issue through the hui.
 - Wairua is intrinsic to Māori society and affects all perspectives. It must, therefore, be recognised in any set of values.
 - Wairua does not fit easily within a scientific paradigm. In this framework, a value or concept such as wairua is not, and should not be, subject to measurement. Measurement belongs at the lower levels of the framework where attributes are relevant.
 - The wairua associated with water bodies is a fundamental perceptual component of a tangata whenua assessment of values and applies through all levels of the values framework.

- Mauri
 - The mauri of a resource is the most comprehensive value relevant to a resource and refers to its life principle and vital essence.
 - In and of itself, mauri is more likely to be perceived, understood and appreciated rather than specified and measured.
 - Mauri can align with the NOF National Values.

Other high-level values are:

- Mātauranga
 - Mātauranga is the basis for knowledge and understanding.
 - Mātauranga, as knowledge in general, includes kaitiakitanga as environmental knowledge.

- Mana and rangatiratanga
 - These terms both relate to status and authority.
 - Within a rohe of a whānau, hapū or iwi there is mana and rangatiratanga over natural resources, including fresh water.

- Taonga
 - Taonga are valued and treasured. The literature and hui assigned taonga status to some water bodies.
 - If something is a taonga, it is necessarily valued. Water bodies given taonga status will have significant value.

- Oranga
 - Human and environmental health apply to all resource categories.
 - Oranga links human and environmental health as interdependent.

- Tapu
 - Tapu is the strong force that is implemented as spiritual restriction or prohibition.
 - Any recognition of tapu must be complemented by recognition of noa, the freedom from or removal of tapu.

- Tiriti
 - Both Article Two and Article Three of the Treaty of Waitangi are relevant to freshwater management.
 - Interests and property rights arise from Article Two.
 - The RMA in section 8 requires that the principles of the Treaty of Waitangi are taken into account.
 - Objective D1 and Policy D1 of the NPS-FM are responsive to Article Three of the Treaty of Waitangi. These provisions require the involvement of tangata whenua in freshwater management, and that “local authorities take reasonable steps ... to reflect tangata whenua values and interests”.

“There are two sacred obligations of care: kaitiakitanga, a sacred obligation to protect Papatuanuku; manākitanga, a sacred obligation to care for people.”⁷

- Aroha and manākitanga
 - Caring for one’s own people – aroha – is another intrinsic social value; as is caring for others, visitors – manākitanga.
 - The ability to provide is fundamentally connected to the health of the environment. This can be in terms of providing traditional food – for example, tuna. It can be by having swimmable rivers for one’s own and visiting children.
- Kaitiakitanga
 - Kaitiakitanga is the traditional practice of sustainable management and use of natural and physical resources.
 - Kaitiakitanga must underlie the development of this framework.
 - Intergenerational responsibilities include:
 - exercising responsibility for descendants and future generations (a value identified in the literature and through the hui);
 - expressing the understanding of the current generation in needing to develop freshwater management that will re-establish historic water quality states for future generations;
 - providing the underlying basis for the development of this framework.

It should be noted that many of these values are interdependent. For instance, mana can be compromised by failure in manākitanga, and mana has a tapu dimension.

4.3 Values in freshwater environments

While the overarching values and interests provide a context they do not in general relate directly to freshwater management. This next level of values and interests applies directly to fresh water. They provide the link between the overarching values and interests and the specific resource management categories in the next level.

In this category, there are four values: mahinga kai; akoranga and tākaro; whakapakari ōhanga; and “swim in the big rivers – drink from the small rivers”.

⁷ Kingi, T (2015) Personal communication.

Mahinga kai:

- Mahinga kai are places for food gathering, food production and sources of rongoa; they require healthy ecosystems.
- The overall habitat, and not only the target species for those uses, must be maintained or enhanced.
- Indigenous biodiversity is a necessary component of the mahinga kai locations.
- Integrated catchment management provides a methodology that is largely consistent with a kaitiakitanga approach and can support mahinga kai identification and management.

Akoranga and tākaro

- While these specific terms were used by only one group,⁸ they are reflected in many of the other literature sources and hui responses. Water has values beyond its consumption, utilitarian use and provision of flora and fauna.

Whakapakari ōhanga

- Economic development is supported, but it must be sustainable and maintain or enhance water quality.
- Tangata whenua in Northland with development aspirations are developing sustainable management processes for water resources.
- Economic development opportunities can have impacts on both water quality and quantity management.

Swim in the big rivers; drink from the small rivers

- Bigger rivers used for swimming, with swimming sites often in bends of the rivers, were a well-used community resource.
- Smaller rivers with water valued for its taste or purity were selected for drinking water.

4.4 Freshwater management categories

Resources associated with the values and interests identified require appropriate management for their restoration, maintenance or enhancement. The freshwater management categories identified in this study are:

- crystal clear water;
- fish stocks – including existing and former stocks – an abundance of these stocks is dependent on healthy habitats;
- tuna – which have many issues in common with other fish stocks but some specific issues;
- repo – drainage, restoration, access to resources for food and weaving, nursery habitats;
- safe swimming, safe drinking water.

⁸ Ngā Kaitiaki o Ngā Wai Māori.

4.5 Management processes

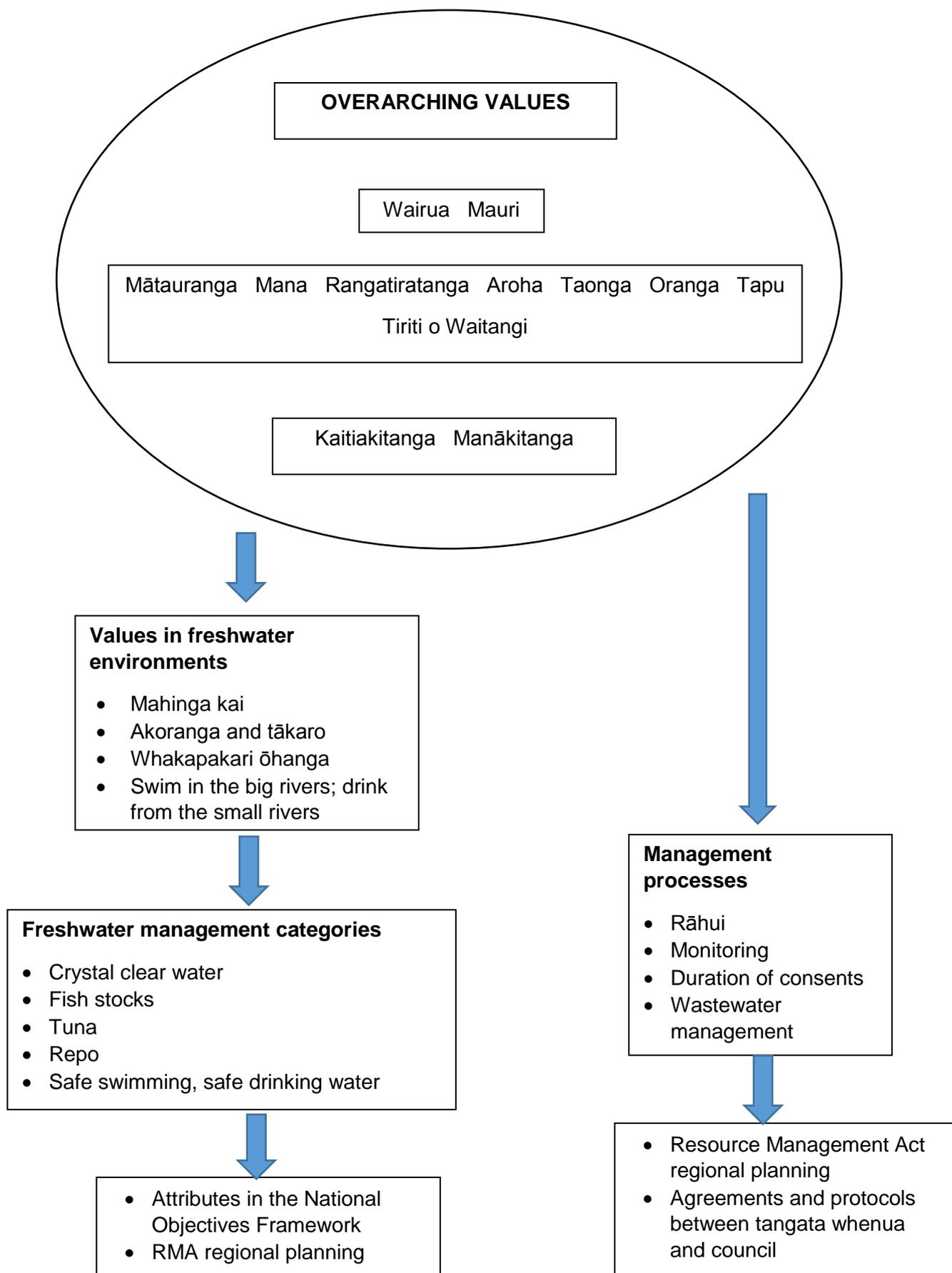
From the literature review and the hui, management processes were identified. These include traditional and contemporary methods. While not in themselves values and, therefore, not included directly in the values framework, these processes are driven by values. They are the means by which tangata whenua can actively engage in management. Establishing a values framework, and establishing aspects that need to be managed to support the values, should be the start of a process of tangata whenua engagement in freshwater management. Ongoing engagement in management requires recognition of, and provision for, processes identified by tangata whenua.

The management processes are identified in the framework structure but are implemented separately from the values and interests and their associated attributes.

The processes identified in the study are:

- Rāhui – a temporary or permanent restriction on use of a resource, can be targeted at a specific resource and/or species but can require broader restrictions. Rāhui is an expression of values such as mana and kaitiakitanga.
- Monitoring – includes use of tangata whenua indicators as well as participation in standard environmental monitoring. Monitoring is a practical expression of kaitiakitanga.
- Duration of water take consents – this concern arises from consideration of property rights which, in turn, are derived from the Treaty of Waitangi and from values such as mana and rangatiratanga.
- Appropriate disposal of wastewater – low-impact discharge to land is supported; and discharge to fresh water or the marine environment is opposed.

4.6 Tangata whenua values framework structure



The source of water

Before talking about values for water, you have to know where water comes from and where all values come from.

Kiwa, who is the source of all water – Te Moana Nui a Kiwa.

The whakapapa:

Ranginui – Papatuanuku

Kiwa – Hinemoana

Pipuhura

Re Urukahikahika

Wharerimu

Hinetapiritea

Te Raungawha

Te Kiripakapaka

Whatumaomao

Te Kohurangi

Kapuwai

Kaiwahawaha

Te kakano i ruia mai e Rangiatea, e kore rawa e ngaro – I will never disappear, a seed sown in Rangiatea.

So what are those seeds – those kakano? These 12 kakano are the source of our values:

- **Wanawana – tutuki:** Mana, the esoteric virtue that emanates from the wairua dimension and establishes a metaphysical authority over your own destiny
- **Tokatumoana:** Physical and moral strength
- **Mohiotanga wananga:** Knowledge, mātauranga
- **Whānau:** Human perpetuity
- **Maranga i areare:** Sacredness of values and honour
- **Huka rerenia nga whakaro:** Purity of thought
- **Aroha:** Human compassion
- **Putake:** Purpose in life
- **Nui whakaherahera:** Without bounds and boundaries
- **Uhi tangata:** Personal responsibility
- **Herekore:** Freedom from restrictions
- **Maramatanga:** Higher consciousness, serene state, respect.

So now you know the origins of our water and our values.

Tepania Kingi

5 Values determining aspects to be managed, indicators and management responses

5.1 Crystal clear water

Crystal clear water would have been a feature of many water bodies in the past, but certainly not all water bodies, and not at all times. Sediment loading can occur naturally and, historically, would have affected the crystal clear nature of water bodies. Maintaining this attribute, or re-establishing it in specific water bodies, could be a planning objective in regional plans.

Crystal clear water could, in fact, contain a number of pollutants or toxins that are not visible. This quality is therefore distinct from others, such as swimmable or drinkable water.

Identification of specific water bodies for which crystal clear water is an appropriate and achievable outcome is needed.

There is no direct provision for sedimentation in the NPS-FM.⁹ Until there is a measurable water-quality dimension to this attribute, for example, sedimentation, it is currently more appropriately considered in RMA terms as an amenity value.

There are monitoring methods for sedimentation, such as use of a black disk or Secchi disk.¹⁰ These could be adapted for determining “crystal clear water” and progress towards its achievement in specific water bodies.



The RMA, in section 2, defines amenity values as “those natural or physical qualities and characteristics of an area that contribute to people’s appreciation of its pleasantness,

⁹ Sediment impact is mentioned in the NOF as having potential impacts on Te Hauora o te Wai and on wai tapu, but no attribute or indicator for sedimentation is included in the NOF at this stage.

¹⁰ The operative NRC Water and Soil Plan in Method 7.6.7 has sedimentation and turbidity measures. These could be adapted for crystal clear water.

aesthetic coherence, and cultural and recreational attributes”; and section 7(c) requires particular regard to “the maintenance and enhancement of amenity values”.

There is a relevant attribute in the NOF, Te Hau o te Taioa, which considers natural form and character, in the context of the mauri of the environment. No measures are provided at this stage for this value in the NPS-FM.

- *Indicator development:*
 - Sediment indicators defining “crystal clear water” and progress towards its establishment can be determined.
 - Measures for natural character and mauri in this context could be developed. These could be narrative indicators.
- *Management responses:*
 - Identification of specific water bodies for which crystal clear water should be an objective.
 - Provisions in regional planning for amenity values related to crystal clear water.

5.2 Fish stocks (other than tuna)

Traditionally, a range of native freshwater fish stocks were available, harvested and used. Some, such as inanga (whitebait), continue to be available to an extent, but many others such as torewai (freshwater molluscs) and kēwai (freshwater crayfish) are scarce or have disappeared from traditional harvest areas.

As with tuna, habitat and safe consumption are relevant attributes, and similar indicators and measures could be considered.

- *Indicator development:*
 - Indicators for Te Hauora o te Wai can be developed to ensure that the habitat and ecological values needed for a range of freshwater fish species habitat health can be measured.
 - Indicators for Te Hauora o te Tangata can be developed to ensure that freshwater species harvested can be safely consumed.
 - A freshwater abundance measure for a range of freshwater species in identified water bodies could be developed.
 - Other freshwater species habitat indicators, including tangata whenua indicators, may need to be developed.
- *Management responses:*
 - Identification of specific water bodies where freshwater fish species were traditionally plentiful but are no longer.
 - Set limits for contaminants that impact negatively on fish species.
 - Set minimum flows to protect fish species.

Lake Ōmāpere

In the 1980s, a permit was applied for to fish tuna commercially from Lake Ōmāpere. The application was opposed by the tangata whenua, and a local kaumatua gave evidence to a hearing and told a story of the lake.

In ancient times, the Hokianga Harbour was a straight river with no tributaries. The two kaitiaki of Hokianga, the taniwha Niwa and Arai Te Uru at the mouth of their harbour, heard that the Ngati Whatua taniwha, Pokopoko, was coming to claim dominion over every lake and waterway in Taitokerau. They said to their children “haere huna ai” – “go and hide”. All except the youngest, Mapere, swam up the Hokianga then went north and south, creating today’s many estuaries.

Mapere went inland and used his special powers. Each of his fingernails contained a mighty fire. He flung two of his fingernails, but they stuck below ground with no immediate effect. But he threw the next three and they blew out a huge hole in which he hid. This hole filled with water and became Te Roto o Mapere – Lake Ōmāpere.

The other fingernails, which remained underground, created the thermal area known as Ngawha.

As children, we fished for tuna in the Utakura River, which flows out of Lake Ōmāpere. During the annual eel drive, we would first catch the small korokoro. These we would throw to the old people who would cook them straight away on fires and eat them on the spot.

Then we would seek the bigger tuna tere. And then the bigger tuna heke; then the bigger still katua; and finally we tried to catch the very biggest to be harvested, the matapo. But these were not the biggest of all – those were the kirikopuni. We knew we must leave them, and in a day when we saw the kirikopuni we knew that eeling for the season had to stop. These were the kaitiaki of Ōmāpere, the descendants of Mapere. The kirikopuni made sure that Lake Ōmāpere was kept in the best possible state.

The opposition of the tangata whenua and the evidence of the kaumatua did not prevail, and the fishing permit was granted. There was no restriction on what could be taken – from korokoro to kirikopuni. And the kirikopuni were all fished out. The kaitiaki of the lake were gone and, from then on, the lake deteriorated until it reached the highly degraded state it is in today.

Tepania Kingi



Photo courtesy of the Northland Regional Council

5.3 Tuna

Tuna are recognised as being under extreme pressure. For inland hapū, tuna were a significant food source that became progressively unavailable. A wide range of measures are needed to revive tuna and tuna habitats, as well as measures such as bypasses to enable tuna mobility.

Tuna are a product from mahinga kai, and not only are actions needed to enhance tuna habitats they are needed to ensure that any tuna harvested are safe to consume. Ecological health and human health indicators, applied to and adapted for specific water bodies where tuna were abundant, could measure habitat and safety. The human health measures would need to be set higher than those currently compulsory in the NOF.

Considering overall tuna population at a specific level is insufficient, because there are stages in their life cycle with different traditional names applied and for which different harvest constraints are applied.

To fully measure attributes of the tuna population, a range of indicators are required other than those in the NOF. These could include information on the age structure of the population but also their practical availability. Fisheries management uses “catch per unit effort” as one indicator for fish stock abundance. Similar measures could be developed for tuna harvest.

➤ *Indicator development:*

- Indicators for Te Hauora o te Wai can be developed to ensure that the habitat and ecological values needed for tuna health can be measured.
- Indicators for Te Hauora o te Tangata can be developed to ensure that tuna harvested can be safely consumed.
- A catch per unit effort indicator could be developed.
- A tuna abundance measure for specific water bodies and specific tuna life stages could be developed.
- Other tuna-specific habitat indicators, including tangata whenua indicators, may need to be developed.

➤ *Management responses:*

- Identification of specific water bodies where tuna were traditionally plentiful but are no longer.
- Provisions in regional planning for diversions and passages for tuna mobility and safety.
- Set limits for contaminants that impact negatively on tuna.
- Set minimum flows to protect tuna.

5.4 Repo

Repo were traditionally areas for a range of resources including freshwater fish and other fauna, weaving materials and medicinal plants.

Many of these resources need to be considered at a sub-species level. For instance, a plant such as flax may be present, but flax for traditional uses is identified at a sub-species level. Flax for uses such as piupiu making requires a strong underlying fibre – that is, muka flax.

As well as ecological health and human health indicators, attributes for repo would need a range of other measures based on traditional uses.

- *Indicator development:*
 - Indicators for Te Hauora o te Wai can be developed to ensure that the habitat and ecological values needed for repo habitat can be measured.
 - Indicators for Te Hauora o te Tangata can be developed to ensure that edible flora and fauna harvested in repo can be safely consumed.
 - A range and abundance of species that should be anticipated in repo could be developed. Measurement at sub-species levels needs to be considered.
 - Other repo-specific habitat and ecology indicators, including tangata whenua indicators, may need to be developed.
- *Management responses:*
 - Identification of priority repo where maintenance or enhancement is required.
 - Stronger provisions in regional planning for maintaining and enhancing repo.

5.5 Safe swimming and safe drinking water

The intents expressed in the values for swimming and drinking are clear, but the detail needs to be further clarified. What constitutes a “big” or “small” river can vary with location. Specific rivers will need to be identified to enable practical responses. It would be impractical to achieve comprehensive implementation for these aspects immediately, and a staged and incremental approach, first for priority rivers, would be needed.

The compulsory NOF value is for safety for wading or boating, not for swimming or drinking. The measures in the NOF attribute tables are therefore too low for achieving implementation of this value.

- *Indicator development:*
 - Indicators for Te Hauora o te Wai can be developed to ensure that specified rivers are swimmable.
 - Indicators for Te Hauora o te Tangata can be developed for specific water bodies to ensure water is safe to drink.
- *Management responses:*
 - Development of criteria for “big rivers” and “small rivers”.
 - Identification of specific water bodies with priority for safe swimming and/or drinking.
 - Provisions in regional planning for specific identified water bodies for safe swimming and drinking.



The Hikurangi Swamp

We were studying the Hikurangi Swamp and were talking about the tuna when we were camping there one night. I mentioned that, today, the skin of the tuna were all clean and clear, and the others did not know what I meant.

Today, people catch tuna in what they often call hinaki, but we always called punga. But ourselves, we caught them by spear. And often when you had speared a tuna, you found that there were marks on the skin, scars from when someone had earlier snagged them with a spear but they had got away. Today, with almost nobody using spears, the tuna we catch all have clear skin.

Allan Halliday



6 Implementation of identified management processes

In the literature review and the hui, management processes relevant to tangata whenua engagement in freshwater management were identified. These were rāhui, monitoring, duration of consents and wastewater management.¹¹

6.1 Rahui

Rahui is a mechanism to implement high-level values such as mana and kaitiakitanga.

Rahui impose a temporary or permanent constraint on use of a resource. Rahui can be for environmental management purposes, such as a temporary ban on the harvest of a depleted species to enable regrowth. Rahui can also be imposed for other reasons, such as closure of use of a water body following a drowning.

Although rahui is an important traditional environmental mechanism, it is not directly enabled in statute. A form of rahui can be established under some legislation, such as the Fisheries Act 1996 through temporary closures or use of regulation, but no similar opportunity is provided under the RMA. An activity can be prohibited using the RMA, but as most rahui are established for a limited time only, and prohibited status for an activity lasts until there is a plan change to remove its status, RMA prohibition would in general not be an appropriate mechanism for imposing a rahui.

Determining detailed implementation options for rahui is beyond the scope of this study.

Implementation of the NRC's Regional Policy Statement, Chapter 8 (Policies and Methods – Tangata Whenua) includes a requirement for determining “common meanings and methodologies for key Māori concepts, values and processes”.¹² This will provide an opportunity for clarification of the nature of rahui and its implementation under the RMA, including for freshwater management.

6.2 Monitoring

Involvement in monitoring is a consequence of high-level values such as rangatiratanga and mauri.

Monitoring by tangata whenua can include use of any of traditional indicators, contemporary tangata whenua indicators or conventional science indicators.

The need to consider use or development of tangata whenua indicators is noted in Section 5 of this report.

Development of a mātauranga Māori-based environmental monitoring framework is supported in the Regional Policy Statement.¹³

¹¹ Note that other tangata whenua processes for engagement in RMA freshwater management include: participation in catchment management groups, consultation, Treaty of Waitangi settlement provisions, iwi planning documents, council committee membership and submissions to consent and planning decisions.

¹² Regional Policy Statement, Method 8.1.6.

¹³ Regional Policy Statement, Method 8.1.8.

6.3 Duration of consents

Concern over the duration of water take consents is driven by high-level values, such as mana and kaitiakitanga, and has been given recent support from Waitangi Tribunal reports on property rights in water.

Some of the issues arise from the assertion of those rights, thus challenging councils to consider the consequences of any change in “ownership” on long consent periods. These issues are beyond the scope of this study.

Other concerns are over flexibility of conditions with respect to external changes. These can arise from environmental changes, such a change in climate; from demographic or activity changes, placing different use demands on the resource; or from opportunities for Māori development being denied if the resource is allocated long term to other users.

Consenting decisions should take into account the need for certainty for economic development and, hence, consider the long durations. The operative NRC Water and Soil Plan is silent on duration of consents, and provisions could be considered for guidance. Similar provisions are often included in coastal plans for duration of consents for aquaculture space. The detail of these issues is beyond the scope of this study.

Consent decisions need to retain flexibility with respect to external changes, and review conditions in consents for water extraction can be of critical importance. In practice, review of conditions take place, but more direction could be given in provisions that support the values identified in this study.

6.4 Wastewater management

Disposal of treated wastewater to land is supported by tangata whenua, and discharge to fresh or marine water bodies is always opposed, even when used as an emergency measure. Discharge of untreated wastewater is opposed, but it is most vigorously opposed when the discharge is into any water body. This belief is underpinned by high-level values such as ora and tapu.

Effective management of wastewater requires planning provisions – standards and rules – that ensure wastewater discharge is of a required quality and into an appropriate location and environment. This applies to municipal, community¹⁴ and individual wastewater treatment plants and septic tanks. Monitoring and compliance processes need to be appropriate and effective. Some water bodies will have higher priority for these water-quality measures to be maintained or enhanced.

Engagement of tangata whenua in the processes of wastewater management and monitoring can be achieved through agreements and protocols between tangata whenua and councils. However, some freshwater attributes and indicators can be developed.

The NOF has water quality measures for human health that must not be exceeded. These include monitoring for *Escherichia coli* and cyanobacteria. The location of monitoring sites for this data needs to be prioritised so that information on key water bodies that could potentially be impacted is collected.

¹⁴ “Community” here refers to subdivisions or similar facilities that are not publicly owned but serve more than one household.

- *Indicator development:*
 - Indicators for Te Hauora o te Tangata can be developed to ensure specific water bodies with potential for impact are monitored and have appropriate water quality.¹⁵
- *Management responses:*
 - Identification of specific water bodies where monitoring and management is needed to ensure sewage discharge does not compromise tangata whenua values.
 - Provisions in regional planning requiring discharge of sewage to land.¹⁶

Millan Ruka river patrols

Millan Ruka patrols Northland rivers and regularly reports on their condition. Many of his reports and pictures record examples of negative impacts on fresh water from effects such as erosion and cattle in waterways. The following (including the photos) are cited from his River Report 100.

On 25, 26 and 27 October 2014, the Environmental River Patrol completed a 203 kilometre return trip on motor boat “Kiorewai”



Departed Dargaville, headed up the Northern Wairoa River 63km to the confluence of the Mangakahia and Wairua rivers.

¹⁵ The operative NRC Water and Soil Plan has provisions for water quality and sewage discharge, but these need to be evaluated for their effectiveness in terms of tangata whenua values.

¹⁶ Current NRC provisions are weighted to support land-based discharge, but these are not binding.

From the confluence of the Mangakahia River and the Wairua River travelled 8 km up to the Wairua (River) Power Station and camped the night at the Karukaru Stream.



Back up to the Station in the morning and checked out the immigration of elvers. Back down the Wairua and turned right up the Mangakahia for 20.5 km.

At 2 km past the Mangakahia–Titoki Bridge we ran into three poplar tree log jams, cut through two but could not get through the third. This has left some 40 km of river that will be navigated by kayak at a later date.

We turned around and went back down the Mangakahia River and camped the second night on the river. On the morning of the third day, left and travelled back down and onto the Northern Wairoa River. Turned right and went 10 km up the Manganui River. Turned around, back down river and onto the Northern Wairoa River and back to return to the Dargaville boat ramp.



7 Examples of application of the framework

7.1 Cascade effect of tangata whenua values

Each of the five aspects to be managed, which determine attributes, indicators and management responses, are derived from the “Values in Freshwater Environments” (Section 4), which can, in turn, be derived from the high-level freshwater and social values.

For instance, tuna and fish stocks, as sources of food, are specific resources from mahinga kai. Activities in a mahinga kai, such as harvesting, are subject to the controls of kaitiakitanga. And kaitiakitanga, in this instance, provides for manākitanga.

Similarly, swimming in the big rivers is an activity that is part of learning and playing; learning and playing is a manifestation of mātauranga; which is itself the repository for knowledge of all societal values.

The five aspects to be managed can have multiple connections within the framework.

For instance, tuna and fish stocks can provide economic opportunities and thus link to economic development. Economic development can be regarded as the right use of resources from Article Two of the Treaty of Waitangi and an Article Three development right; and the activities must be constrained by kaitiakitanga. Similarly, repo can be areas for mahinga kai but also for learning and playing. Crystal clear water can be an economic value (for example, for water bottling or tourism) or it can be important for learning and playing.

This analysis and these categories form a basis for establishing linkages between the various levels. From values associated with specific resources, connections can be made to specific attributes and indicators.

The categorisation of values, which is a cascade from higher to lower ranking, is not absolute and judgement as to placement of values has had to be made. For instance, “oranga” could be considered a general societal level value or, alternatively, a second level value applicable across a range of resources.

7.2 Examples of applications of the framework

There are a number of potential uses that the NRC can make of the framework:

- The NPS-FM requires identification of “units of management”. The NRC has been working with community groups in priority catchments to develop consensus on freshwater management.
- Regional planning needs to give effect to the NPS-FM and to be responsive to tangata whenua values.
- Decisions on the granting of consents need to consider the relevant tangata whenua values.

7.3 Catchment groups

Catchment groups, which have tangata whenua representatives, can use the framework for determining catchment values. It is beyond the scope of this study to identify each and every location for application of the values in the framework, although some specific locations were identified in the hui. Detailed identification of further locations can be achieved through the work of catchment management groups.

Catchment management groups can, for instance, determine locations where application of the framework’s “Values in Freshwater Environments” apply and need implementation. From the Framework Structure, in 4.6 these are:

Values in freshwater environments

- Mahinga kai
- Akoranga and tākaro
- Whakapakari ōhanga
- Swim in the big rivers; drink from the small rivers

The following locations can be identified: historic and current mahinga kai; areas of importance for learning and playing; potential activities for tangata whenua commercial developments; and specification of “big” and “small” rivers for safe swimming and drinking.

Also, for “Tapu” and “Wairua” in the Overarching Values, locations for wai tapu can be defined.

Catchment management groups do not determine technical details of management but rather the values and needs that underpin them. The “Freshwater Management Categories” can then be used by the NRC to develop management responses.

7.4 Regional planning

Regional planning, including but not only through giving effect to the NPS-FM, needs to determine planning provisions to respond to the framework’s “Freshwater Management Categories”. Where specific locations have been determined, such as through the work of the catchment management groups or otherwise, these can be recorded in a schedule. For those scheduled locations, plan provisions for crystal clear water, fish stocks, tuna, repo and safe drinking can swimming and be developed.

Resource management categories

- Crystal clear water
- Fish stocks
- Tuna
- Repo
- Safe swimming, safe drinking water

For sites that have not been scheduled but can be subsequently identified as appropriate for the same management processes (such as during a consent application process), provisions including policies and rules, can be developed.

Further, assessment criteria for these sites are needed to guide consent processing.

Methods in the regional plan could include use of the processes identified – rāhui, monitoring, duration of consents and wastewater management. For instance, methods could require development of tangata whenua indicators for monitoring.

7.5 Consent processing

Consent processing, guided by the plan provisions, including the assessment criteria and the scheduled sites, can be assisted by the framework. When either the schedule or criteria determine the need to be responsive to tangata whenua values, information needs to be sought on the framework values relevant to the consent. These can be identified through a cultural impact assessment. This assessment, which can be required as a component of the

Assessment of Environmental Effects for the proposed activity,¹⁷ would need to assess the relevance of any of the framework values, but must consider the framework's "Values in Freshwater Environments" and "Freshwater Management Categories". The cultural impact assessment, in proposing avoidance, remedying or mitigation of the activity's impacts, can propose use of the framework's processes.

¹⁷ Pursuant to Schedule 4 of the RMA.

8 Integration of mātauranga with science in the framework

8.1 Integrating mātauranga and science

Any proposal for integration of mātauranga and science needs first to determine what is meant by “integration”. This would need full consideration of the epistemologies of each knowledge system, determination of the commonalities and differences, and development of a model to encompass any synergies and contradictions. That work has not yet been done for mātauranga Māori nor comprehensively for traditional environmental knowledge anywhere.¹⁸

There are major challenges to achieving this aim:

- For centuries scientific method has been well documented as has the philosophy and epistemology of science. Mātauranga has not been documented to anywhere near this extent and is largely reliant on oral sources.
- There is an international consensus on the nature of the scientific method. While mātauranga may well have significant commonalities across Aotearoa, that common ground has yet to be defined.
- While scientific method and epistemology is fully documented that has been achieved within the science paradigm. Developing integration would require either that mātauranga was similarly modelled within the science paradigm or that science was modelled within a mātauranga paradigm, or preferably that both those modellings were achieved. This could then allow an understanding of each knowledge system from the perspective of the other and enable integration processes.

In the context of this study, kaitiakitanga is tangata whenua environmental management informed by mātauranga. Kaitiakitanga is an integrated and holistic discipline. Western science is analytical, and its implementation reduces the environment down to its component parts. Integration across these differences is challenging.

There can be resistance to modelling mātauranga:

A key challenge in contemplating the modelling of mātauranga Māori is deciding whether this is a valid pathway to pursue and whether modelling can be conducted in a culturally appropriate manner. Modelling will inevitably involve the deconstructing of mātauranga and korero into component parts that are appropriate to inform ecologically based models. Given the sensitivity of this activity there will have to be a clearly defined value proposition before it could be progressed. We would also have to consider the consequences of exposing mātauranga to the prospect of being tested for its accuracy and robustness. Some would consider this a way of enhancing the mana o te mātauranga Maori while others would feel it undermines mātauranga.¹⁹

¹⁸ There have been studies of partial integration, but no modelling or other relevant work has, at this date, demonstrated actual integration.

¹⁹ University of Waikato (2013) *Ngā Tohu o te Taiao: sustaining and enhancing wai Māori and mahinga kai*, page 7.

Therefore, there are practical and theoretical challenges to reconciliation of the diametrically opposed elements of the two knowledge systems, and hence an integration of mātauranga and science is beyond the scope of this study.

8.2 Tangata whenua frameworks and environmental management

The tangata whenua concept of the environment is as a connected whole, which is itself connected with and includes people. Isolating specific qualities and measures in a reductionist scientific approach will generally fail to provide for this connectivity. However, while creating a fully integrated mātauranga and science model is not currently achievable, and any reductionist process applied to kaitiakitanga will inevitably devalue it to some extent, enabling the expression of tangata whenua values to help determine environmental management considerations is still of high importance.

A purpose of this study is to identify tangata whenua values and develop a framework to inform decision-making by the council and community when setting objectives and limits for fresh water. The NPS-FM, NOF and RMA planning provisions in regional plans are the mechanisms available for setting those objectives and limits.

In the implementation of the RMA, and in other contexts in which kaitiakitanga inputs are required for environmental management, information or evidence sourced from mātauranga or kaitiakitanga can be and often is used to inform policy development and decision making. Those exercising kaitiakitanga have often been open to a reciprocal process, readily receiving science-based information that can assist them. Tangata whenua evidence can be valuable, as it is sourced from different perspectives and can have a long historic profile. It is at this level of evidence and information that a degree of integration can be achieved. But this is a practical and operational result not a systemic and epistemological result.

The inputs from kaitiakitanga into mainstream environmental management can have dual benefits. They provide the opportunity for Māori environmental concerns to be addressed and offer enhanced responses for mainstream management. As well as providing an alternative source of evidence and information, kaitiakitanga provides a constant reminder that integrated management is both its and the RMA's objective.

8.3 Values framework and integration of mātauranga with science

Most environmental management is implemented in terms of specific resources, activities, impacts, locations and measurements. Frameworks are useful for providing a matrix of quantitative and/or qualitative means of categorising these factors and for considering the inter-relationships between them. The NOF is an example of a framework. The framework in this study provides commentary on specific matters, for instance, mahinga kai. A table is then presented with attributes and their numerical measures, either as measured values or on a relative scale.

It should be noted that the NPS-FM has provisions that move from values to policies to attributes and indicators. For instance, Objective A1(b) is for the "health of people and communities"; and Policy CA2 relates to developing freshwater objectives that may require standards greater than those mandatorily required; and the NOF gives the measures that determine those standards. The science component in this cascade is only directly applied at the end, in the NOF.

A parallel implementation of the framework developed in this study can be considered. The cascade from values to attributes and indicators is similar to that of the NPS-FM. Also, since development of tangata whenua indicators is a management option for assessing the attributes, some degree of integration of mātauranga and science could be achieved at an operational level.

It should be noted that the NPS-FM allows for use of “narrative” indicators,²⁰ which may be most suitable for some tangata whenua values.

The framework developed in this study can contribute to work on integration of mātauranga and science, but it does not itself achieve more than a means of inputting mātauranga-derived values and attributes into the implementation of the NPS-FM.

8.4 Is integration a useful goal?

While integration of knowledge systems has been a result many have aimed for, it may not be an appropriate target. A leading international expert in the field says: “I am not a fan of ‘integrating’ two different knowledge systems. I think one can deal with different kinds of knowledge in parallel”.²¹

²⁰ Policy CA2(e)ii.

²¹ Berkes, F (2015). Personal communication.

9 Further work

Further work could include:

- **Identification of specific water bodies:** Detailed identification of specific water bodies for which various management provisions are relevant is beyond the scope of this study. While hui attendees and others who have responded to this study have identified water bodies with local importance, this can only produce an incomplete and non-representative list. Working with catchment groups provides one opportunity for this.
- **NRC development of indicators:** A range of indicators for development by the NRC are identified in the study.
- **Regional Policy Statement implementation:** Implementation of the tangata whenua provisions of the Regional Policy Statement will support use of the results of this study. This includes, for instance, the meaning of tangata whenua concepts and methods. The Regional Policy Statement implementation could also lead to identification of specific sites for scheduling.
- **NOF development:** As further indicators are developed for the NOF, planning will be needed to give them effect. This study has identified a need for indicators that address the tangata whenua values.
- **Integration of mātauranga and science:** This study can contribute to the understanding of what is meant by this integration and to the need for integration; but more fundamental work is required to achieve an integration model.



Photo courtesy of the Northland Regional Council

10 Conclusions

General conclusions:

- Tangata whenua identified a range of values relevant to fresh water, all of which were of importance to them and needed to be included in a framework to inform freshwater management.
- The framework in this study includes those values and identifies responses to them. The study is focused on the implementation of the NPS-FM. Some of the responses lie outside this focus, and they have been identified.
- The framework is structured as a cascade from high level overarching values through to resource management categories for which management responses are proposed.
- The framework can be used by the NRC for a range of freshwater management responses. These include the work of catchment management groups, regional planning and resource consent processing.
- The framework does not represent a comprehensive integration of mātauranga and science but contributes to that process.
- The results of this study provide the basis for further work necessary to develop mechanisms for support of the freshwater values identified.

Conclusions with relevance for the NRC:

- The framework of this study can provide a basis for ongoing policy development.
- The indicator development and management responses proposed in Section 5 of this study can be considered in the regional plan review.
- The management processes in Section 6 of this study can be considered when implementing the tangata whenua provisions of the Regional Policy Statement and in engagement and formal agreements with tangata whenua entities.
- The proposals in Section 7 of this study can be used in work with catchment management groups, in regional planning and in consent processing.
- Relevant further work identified in Section 10 of this study can be considered for implementation.

Glossary of Māori words

The following are derived from the *Maori Dictionary* (maoridictionary.co.nz).

Akoranga	learning, discipline, class, lesson
Aroha	affection, sympathy, charity, compassion, love, empathy
Atua	god, supernatural being
Awa	river, stream, creek
Hapū	subtribe
Hinaki	eel trap
Hui	gathering or meeting
Iwi	kinship group, tribe
Kaimoana	seafood
Kaumatua	elder
Kaupapa	policy, purpose, programme
Kewai	freshwater crayfish
Kokopu	freshwater fish (galaxid)
Mahinga kai	places for food gathering
Mana	prestige, authority, power, control, influence, charisma
Manākitanga	hospitality, kindness, generosity, support, care for others
Mātauranga	knowledge, wisdom, understanding, skill
Mauri	life principle, vital essence
Noa	freedom from or removal of tapu
Ōhanga	economics or economic
Oranga	health, welfare
Pepeha	tribal saying, tribal motto, proverb
Piupiu	flax skirt
Rāhui	temporary ritual prohibition, closed season, ban
Rangatiratanga	chieftainship, right to exercise authority, chiefly autonomy
Repo	swamp, bog, marsh
Rohe	boundary, district or region
Rongoa	remedy or medicine

Tākaro	play, game, recreation
Tangata whenua	local indigenous people
Taniwha	water spirit, monster
Taonga	treasure, anything prized
Tapu	sacred, prohibited, restricted, under atua protection
Wairua	non-physical spirit distinct from the human body and mauri
Whakapakari	strengthen or develop
Whakapapa	genealogy
Whānau	extended family, family group

Appendix One – Hui presentation, responses and attendees

Information on the following was provided to the hui in PowerPoint presentation and discussion.

- Background to the project
- Alignment with the NRC regional plan review processes
- Property rights issues were acknowledged, but not as central to the project
- Relevant sections of the NPS-FW
- Nature of values in the project; relating to people, the natural and physical environment and economic development
- Mātauranga and science interface
- Values – with a different focus for each hui as noted above
- Mahinga kai, including local understandings of the term
- Range of uses, resources, processes and activities relevant to freshwater values
- Location and resource-specific issues
- Nature of frameworks and models
- Subsequent stages of the project

The hui have provided further evidence and information for identification and description of the Taitokerau tangata whenua freshwater values.

- The hui confirmed the values of the literature review as relevant and appropriate:
 - While there has been confirmation of the values, no ranking of their importance is established.
 - There was some discussion about a number of values, but more about the issues and attributes that have importance because of the values. While this is not of itself a direct description of values, it provides a basis for description.
- Wairua and mauri are the principal values identified:
 - These are both high-level values but with some specific application to freshwater.
 - The connection between these higher level values and values directly relevant to freshwater management will be informed by the hui discussions.
- The issues and attributes identified in the NRC Regional Plan report were confirmed:
 - Some further issues and attributes were derived from the hui.
 - There are a large number of issues and attributes determined, and these need to be linked directly to the values identified. The hui discussions will inform this connection.
- Swimming in the big rivers and drinking from the small rivers was affirmed as an objective:
 - There is no definition of “big” and “small” in this statement, but one will be developed with assistance from the hui discussions.
 - This objective can be directly implemented in the NPS-FW and the NOF.

- Identification and location of specific rivers were not made in the hui. However, criteria can be derived from the hui discussions.
- The interface between mātauranga and science is of critical importance:
 - Tangata whenua engagement and consultation in subsequent processes, for this project and the NPS-FW and NOF implementation, can provide checks on the consistency of interpretation and application.
 - The development of a framework from the identified values needs to, as far as practicable, maintain the link between mātauranga and science.
- Effective and early engagement and consultation is essential:
 - This is required by the NPS-FW and provisions in the NRC Regional Policy Statement.
- Time factors, including intergenerational responsibility, are important:
 - The length of term of water take consents is a concern when it interfaces property rights issues.
 - The detail of consenting, in particular, monitoring and review of conditions, can mediate some concerns.
 - The intergenerational nature of the kaitiaki responsibility needs to be reflected in the freshwater management provisions.
- Historic mahinga kai need to be re-established:
 - Examples such as the Otaika River can clarify the nature and extent of historic mahinga kai.
 - Use of mahinga kai as a proxy for some freshwater values is supported.
 - The term “mahinga kai” may apply more in Taitokerau to activities other than just hunting and gathering, for instance, in construction of weir for tuna. Care needs to be exercised in the context of the NOF provisions and in use of the term in the Taitokerau context.
- There are conflicts between economic development and water-quality management:
 - There are tangata whenua entities involved in economic development that are developing policies and processes for management of freshwater impacts.
 - Those economic development interests were not generally represented in the hui.
 - The potential for conflicts identified are with the private, public and iwi sectors.
- Some activities have greater potential impact and require specific management responses:
 - Impacts of forestry and deforestation can have significant impact on tangata whenua values.
 - Data specific to individual water bodies, and specific to parts of those water bodies, needs to be determined and made available.
 - Discharge of wastewater, in particular sewage, continues to be a matter of significant concern. This applies to activities in the private and public domains.

Hui attendance register

Name	Organisation	Iwi/hapū
Abraham Witana	Northland Regional Council	
Allan Halliday		Ngati Hau
Anaru Toia		Te Pupuri Putea Ltd, Te Rarawa
Arena Heta		Te Runanga O Whaingaroa
Charles Nathan		Te Mahurehure
Henry Murphy		Ngatiwai Trust Board
Jane White	Ministry for Primary Industries	
Jo Armstrong	Ministry for the Environment	
Kaio Hooper		Te Runanga O Ngai Takoto
Keir Volkerling	Independent	
Mike Hayward	Ministry for Primary Industries	
Mira Norris		Te Parawhau
Natalie Glover	Northland Regional Council	
Natasha Clarke	Ministry for Primary Industries	
Rebecca Tayler	Ministry for Primary Industries	
Rowan Tautari		Ngati Manaia
Steve Sanson	Far North District Council	
Tania Pene		Te Runanga A Iwi O Ngapuhi
Theresa Burkhardt	Far North District Council	
Tina Latimer		Environs Holdings Ltd, Te Uri O Hau
Tokorua Leaf		Waikaretu Marae; Te Uri O Hau
Violet Walker		Te Whare Wānanga o Awanuiārangi Whangaroa Health
Wendy Henwood		Te Hiku Development Trust

Appendix Two – Peer review and guidance

Drafts of reports and the framework development were peer reviewed by:

- Louisa Kopa, Planner (Department of Planning, Transport and Infrastructure, South Australia)
- Glenn Mortimer, Planning Consultant. (Mortimer Consulting, Whangarei)
- Northland Regional Council
- Ministry for Primary Industries
- Ministry for the Environment.

External peer review:

- April Bennet, Massey University.

The Reference Group:

- George Riley, Northland Inc
- Maiki Marks, Kororareka Marae
- Millan Ruka, Environment River Patrol – Aotearoa.

Further discussions feedback and direction:

- Tepania Kingi
- Meryl Carter
- Te Tuhi Robust
- Percy Tipene.

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