



# How institutions frame mātauranga Māori

*Report commissioned by the Waikato Regional Council*

Hēmi Whaanga, Jordan Waiti, Māui Hudson, Julian Williams, Tom Roa

January 2017



THE UNIVERSITY OF  
**WAIKATO**  
*Te Whare Wānanga o Waikato*

Contract Number:  
Organisation:

SAS2016/2017-1695  
Te Pua Wānanga ki te Ao:  
Faculty of Maori & Indigenous Studies  
University of Waikato

He Mihi

Tuia ai i runga! Tuia ai i raro!  
Ka rongō te ao; ka rongō te pō i te Kōrero – i te Wānanga.  
Pūātakataka! Pūāwhiwhio!  
He mārama-ā-hunuku – He mārama-ā-hūrangi –  
Te rangi-e-tū-iho-nei; Te papa-e-takoto-nei;  
Ngā iwi e pae nei – ngā whakawhitiwhitinga whakaaro, ngā whiringa kōrero  
Mai i ngā mātauranga o runga, o raro; o roto, o waho  
Ki te whei-ao – ki te ao-mārama ...

Me wehi ki Te Atua. Kia whakahōnoretia te Kīngi Māori; kia tau iho ngā manaakitanga ki runga ki a rāua ko tana Makau Ariki, te Whare Kāhui Ariki, ki runga ki ngā āhuatanga o te wā, otirā te Tini o Mate – haere!

Ki a tātou te hunga ora, tēnā tātou.

Ko ēnei tirohanga i ngā tuhinga e pā ana ki tēnei take nui whakaharahara te Mātauranga Māori he whakawhitiwhitinga whakaaro i te pānga o aua Mātauranga ki Te Kaunihera ā-Rohe o Waikato tūturu, ēngari hei whakaaro hoki mō runga, mō raro, mo roto mō waho!

Ko te tūmanako o te whakaaro he rauemi a ia, heoi anō ko te mea nui ake, ko tōna whakatinanatanga ki roto o Te Kaunihera me ōna wewehenga, ki tua atu anō, ki Te Motu, ki te Ao!

Tīhei mauri ora!

**Contents**

Executive Summary \_\_\_\_\_ 4

Indigenous Knowledge & Mātauranga Māori \_\_\_\_\_ 6

    Introduction \_\_\_\_\_ 6

    Indigenous Knowledge \_\_\_\_\_ 6

    Mātauranga Māori \_\_\_\_\_ 7

    How institutions frame and operationalise mātauranga Māori \_\_\_\_\_ 9

        What is mātauranga Māori in these Contexts? \_\_\_\_\_ 9

        Government Agency definitions \_\_\_\_\_ 9

        Research Institution definitions \_\_\_\_\_ 9

        Regional Council definitions \_\_\_\_\_ 10

        Co-Governance Entity definitions \_\_\_\_\_ 11

        Why is incorporating mātauranga Māori important? \_\_\_\_\_ 11

        Some Examples \_\_\_\_\_ 12

Mātauranga Māori in the context of regional councils: \_\_\_\_\_ 13

Towards a framework of understanding \_\_\_\_\_ 13

    Discussion \_\_\_\_\_ 13

        Acknowledging contemporary relevance and application \_\_\_\_\_ 13

        Acknowledging cultural validity \_\_\_\_\_ 13

        Accepting epistemological difference \_\_\_\_\_ 13

        Acknowledging mana whenua responsibility for mātauranga Māori \_\_\_\_\_ 13

        Developing a more nuanced understanding of mātauranga Māori \_\_\_\_\_ 14

        Exploring the interface of mātauranga Māori and Science \_\_\_\_\_ 14

        The incorporation of mātauranga Māori within regional council workstreams \_\_\_\_\_ 14

References \_\_\_\_\_ 16

APPENDIX 1: How Central Government Agencies frame Mātauranga Māori \_\_\_\_\_ 19

APPENDIX 2: How Research Institutions frame Mātauranga Māori \_\_\_\_\_ 22

APPENDIX 3: How Regional Councils frame Mātauranga Māori \_\_\_\_\_ 26

APPENDIX 4: How Co-Governance Entities frame Mātauranga Māori \_\_\_\_\_ 31

## Executive Summary

The **primary questions** for this report are:

- 1) How is **Mātauranga Māori framed by Institutions**?
- 2) How is **Mātauranga Māori being operationalised** by Institutions in New Zealand?

**Mātauranga Māori** is the **intellectual capital generated** by **whānau, hapū** and **Iwi** over **multiple generations**. It is a **shared-community knowledge** that is **embedded in lived experience** and carried in stories, song, place names, dance, ceremonies, genealogies, memories, visions, prophesies, teachings and original instructions, as and **learnt through observation** and copying of other community members. It is a **holistic system** of **orally passed knowledge, concepts, beliefs** and **practice**. **Mātauranga Māori, mātauranga ā-iwi, mātauranga ā-hapū, and mātauranga ā-whānau** are **dynamic, innovative, and generative systems of knowledge**.

**Mātauranga Māori** has been **defined, framed, and operationalised** with **varying success** by Institutions. Although the overall definitions vary somewhat, the **general premise** is that these government agencies **acknowledge** that mātauranga Māori is **Māori-specific knowledge** that is **adaptive** and **regionally distinct**. This recognition is important as it reinforces the notion that **Māori are not a homogenous group**, and that mātauranga Māori will **differ across Iwi**.

For the vast majority of **institutions**, **improving their understanding** of mātauranga Māori is an **important strategic aim** that can help **guide their decision making, management, and monitoring** procedures. Achieving this aim helps **recognise the innovative potential** of Māori knowledge, its **contribution to council activities**, and the **usefulness of culturally appropriate data**.

This report has identified **seven factors** that contribute towards a **framework of understanding**:

- 1) *Acknowledging contemporary relevance and application*: **Iwi partners value mātauranga Māori** not only for its **historic significance** but its **contemporary relevance** in times of **political change**. **Legislative requirements, iwi expectations, and a desire to build respectful relationships** also contribute to current moves to understand and incorporate mātauranga Māori across regional council planning and decision-making activities.
- 2) *Acknowledging cultural validity*: Mātauranga Māori **informs** not only **traditional practices** but also **Māori and iwi participation** within **Council activities**.
- 3) *Accepting epistemological difference*: **Eurocentric values and scientific disciplines** tend to have **primacy** in a **regional council context** in part through historical tendencies and political representation. **Mātauranga Māori** brings a **different value set** and way of **understanding** phenomena to the table.
- 4) *Acknowledging mana whenua responsibility for mātauranga Māori*: The **management and use of mātauranga** represents a core responsibility of **mana whenua**. **Relocating mātauranga and responsibility** to act as a **kaitiaki from a whānau, hapū or iwi to an institution**, is a **sensitive topic**. **Mātauranga** is often **vested** with specific people (**kaitiaki**) or with **local whānau and hapū** to **ensure the responsibilities for protecting the environment** remain with those that **live there**.
- 5) *Developing a more nuanced understanding of mātauranga Māori*: Developing a more nuanced understanding of the **different disciplines and content** that exist under the **broad definition of mātauranga Māori** is **necessary** if **Councils** are to **incorporate mātauranga Māori across a greater range of their work programmes**.

- 6) *Exploring the Interface of mātauranga Māori and Science:* While there are **differences** there are also significant **similarities with science** in terms of types of **information** and **content**. **Recognising** the **difference** between **science** as a **content**, science as a **process**, and science as a **community** is **vital** for **understanding mātauranga** as a **body of knowledge**, mātauranga as a **system of knowledge**, and mātauranga as a **community of knowledge**.
- 7) *The Incorporation of mātauranga Māori within regional council workstreams:* **Regional councils** have a diverse **range of responsibilities** and **programmes** of work which are being **expected to incorporate mātauranga Māori**. **Relationships** with **mana whenua**, **recognition of cultural intellectual property**, and **processes of knowledge management** all present **significant issues** which must be **addressed in partnership** with **mana whenua**, the kaitiaki of the whenua, the kaitiaki of the wai, and the kaitiaki of the mātauranga.

## Indigenous Knowledge & Mātauranga Māori

### Introduction

Every society, culture and language has developed its own knowledge system for describing the world and universe. Drawing from traditional understandings and enhanced through local experience and practical use, these knowledge systems are today often referred to as Indigenous or Local Knowledge (IK). Traditional Ecological Knowledge (TEK) is a well-recognised component of IK, and its cousins, Traditional Knowledge (TK) and Wisdom (TKW), and Local Ecological/Environmental Knowledge (LEK), all encompass a holistic system of inter-generationally and orally passed knowledge, concepts, beliefs and practice.

### Indigenous Knowledge

IK is a shared-community knowledge that is embedded in lived experience and carried in stories, song, place names, dance, ceremonies, genealogies, memories, visions, prophecies, teachings and original instructions, as and learnt through observation and copying of other community members (Smith, Maxwell, Puke, & Temara, 2016). IK, however, is not always shared equally among the community with certain knowledge, skills and information being the domain of a particular gender or age group. IK systems hold high intrinsic value and are context-dependent and localised to particular communities, places and regions earth (see, for example, Berkes, 1995, 2008; Cajete, 1999, 2000; Grenier, 1988; Houde, 2007; Isaac, 2015; Latulippe, 2015; Menzies, 2006; Reo, 2011; Sillitoe, Dixon, & Barr, 2005; Smith et al., 2016; Wehi, Whaanga, & Roa, 2009; Whyte, 2013).

Latulippe (2015), provides a typology of the literature on traditional knowledge (TK), which is divided into four orientations: ecological, critical, relational and collaborative. These categories are not fixed or mutually exclusive, but “operate under differing sets of assumptions and towards particular ends” (p. 118).

*Table 1: Typology of Traditional Knowledge*

<b>Orientations</b>	<b>Description</b>
<i>Ecological</i>	TK supplements Western science, offering unique insights into ecological processes
<i>Critical</i>	TK is embedded in uneven, colonial relations of power
<i>relational</i>	TK emphasises the relationship between knowledge, place and practice recognising the kincentric relationship with the natural world
<i>collaborative</i>	TK holds a position of empowerment for Indigenous peoples that enable Indigenous peoples to create conversations, spaces, institutions, and mechanisms across knowledge systems in order to protect their own knowledge systems

Castellano (2000, p. 24), describes IK as knowledge that:

*has been handed down more or less intact from previous generations. With variations from nation to nation, it tells of the creation of the world and the origin of clans in encounters between ancestors and spirits in the form of animals; it records genealogies and ancestral rights to territory; and it memorialises battles, boundaries, and treaties and instils attitudes of wariness or trust toward neighbouring nations. Through heroic and cautionary tales, it reinforces values and beliefs; these in turn provide the substructure for civil society.*

## Mātauranga Māori

In Aotearoa, this cumulative body of knowledge is generally referred to as ‘mātauranga Māori’. Smith et al. (2016, p. 137), note that IK mātauranga can be understood as knowledge that is not “simply ‘old’ and irrelevant but knowledge and its applications that have had meaning for generations, that have evolved over generations and that are still applied and adapted to contemporary conditions and have meaning for communities” adding that IK mātauranga experts were (p. 147):

*specialists in particular forms of knowledge, and developed their knowledge through a range of formal and informal instruction, apprenticeships, and mentoring, and even being sent to live in another tribe for further instruction. There were different knowledge requirements for the specialisms; for example, a navigator needed to know how to read the sea and the stars, a weaver needed to know how to source materials, how to dye fabric and how to create garments. Each of these speciality areas developed their own methodologies within the wider philosophies and world views of their communities.*

There are many manifestations of mātauranga Māori from its historical origins when our Polynesian ancestors brought a body of knowledge with them and developed it according to life in Aotearoa (Royal, 2009), to knowledge pertaining to applications such as gardening, fishing, house building, warfare, navigation, musical instruments, ethics and so on (Royal & Museum of New Zealand. National Services., 2007, p. 19). Mātauranga Māori is often defined as “the unique Māori way of viewing themselves and the world, which encompasses (among other things) Māori traditional knowledge and culture” (Waitangi Tribunal, 2011b, p. 6). In the past 20 years the term mātauranga Māori has, as Distinguished Professor Sir Hirini Moko Mead notes, become (Mead, 2012):

*increasingly important as more and more people are engaged in efforts to understand what it means. Put simply, the term refers to Māori knowledge. However, once efforts are made to understand what the term means in a wider context it soon becomes evident that Mātauranga Māori is a lot more complex. It is a part of Māori culture and, over time, much of the knowledge was lost .... Mātauranga Māori is ... linked to Māori identity and forms part of the unique features which make up that identity. Because this is so, it also means that Mātauranga Māori is a unique part of the identity of all New Zealand citizens. Some citizens may deny it, some may not realise it is*

*there, some may reject it, but a good many will embrace it and be proud to be part of the revival process.... It is my belief that Mātauranga Māori is a cultural system of knowledge about everything that is important in the lives of the people. Lessons learnt in the past are added to the knowledge system and sometimes remembered in literary forms, such as proverbs. It could be that an important value is incorporated into the range of values that are an essential part of the knowledge system. Or, it might be a survival issue that is remembered, such as making judgements about the behaviour of the sea (Tangaroa’s domain) and knowing when to go out fishing and when it would be unsafe to challenge the changing nature of the ocean.*

In this sense the orientation emphasises the relationship between knowledge, place and practice. This stance is supported by Distinguished Professor Sir Mason Durie where he notes (Durie, Hoskins, & Jones, 2012, p. 23):

*Some people think Māori knowledge is something ancient, and therefore static. We sometimes see this in kura and elsewhere, when actually Mātauranga Māori is about an evolving knowledge. What students of Mātauranga Māori should come away with is a sense that knowledge is always changing, and that there are different approaches to it. The values might be derived from long ago, but knowledge changes. There is a difference between discovering, developing, and being excited by new knowledge, and simply being told the old knowledge... But when you look back on ancient times, Mātauranga Māori was an evolving form of knowledge. You didn’t survive otherwise. You had to adapt to new situations all the time. You had to learn something pretty quickly to deal with the frosts; to deal with the lagoon that wasn’t there; to climb the cabbage trees that had no coconuts on them. These were new forms of knowledge that people had to get used to. Mātauranga evolved with the environmental shift, and with the social development that occurred. Simply learning about ‘things Māori’ is not the same as being guided by an evolving knowledge system called Mātauranga Māori.*

Research and writing on mātauranga Māori focuses on a range of areas and topics including mātauranga Māori theory, methodology and practice; health and well-being; environmental issues and change; sustainable resource management; restoration, conservation and biological diversity; and resource governance amongst others things (see Table 1 for a summary).

**Table 2: Examples of mātauranga Māori research**

Focus	Examples
<i>Mātauranga Māori theory, methodology and practice</i>	(e.g., Awatere, 2008; Hokowhitu, 2010; Mercier, 2007; Mika, 2012; Royal, 2009; Smith, 2012; Smith et al., 2016; Waitangi Tribunal, 2011a, 2011b)
<i>Health and well-being</i>	(e.g., Durie, 1994; Edwards, 2010; Kepa et al., 2014; McNeill, 2009)
<i>Environmental issues and change</i>	(e.g., Allen, Ataria, Apgar, Harmsworth, & Tremblay, 2009; Berkes, 2009; King, Skipper, & Tāwhai, 2008; Lyver & Moller, 2010; Selby, Moore, & Mulholland, 2010)
<i>Sustainable resource management</i>	(e.g., Coombes & Hill, 2005; Hudson et al., 2016; Moller, Kitson, & Downs, 2009; Moller & Lyver, 2010; Tipa, 2009; Wehi & Wehi, 2010)
<i>Restoration, conservation and biological diversity</i>	(e.g., Allen et al., 2014; Lyver et al., 2016; Lyver, Taputu, Kutia, & Tahī, 2008; Mccarthy et al., 2014; Smith, 2011; Wehi, 2009)
<i>Resource governance</i>	(e.g., Memon & Kirk, 2012; Muru-Lanning, 2012)

At a Māori epistemology level Hardy, Patterson, Smith, and Taiapa (2015, pp. 48-49) present four overarching features of mātauranga Māori:

- (i) *The interconnectedness of people and nature:* Whakapapa places Māori within an ecological sphere at the same level and linked to the natural world. This relationship cannot be separated or ignored. A whole-of-system approach that takes into account the human-ecology relationship, how they relate, influence and impact each other, is necessary when investigating environmental issues.
- (ii) *Sacredness of nature:* All things have a life force of their own, and as such have their place in the order of things. All living things and natural resources are taonga derived from the supernatural world, which in turn evokes ethical concepts of reverence for creation as a whole, kinship of all things, reciprocity, and responsibility for all taonga.
- (iii) *Guardianship/kaitiakitanga:* Māori ancestral connections to the natural world confer the responsibility an obligation to sustain and maintain the well-being of people, communities and natural resources. Thus,

kaitiakitanga is the active practice of spiritual and physical guardianship based on tikanga. Therefore, the role bestowed on certain kaitiaki in each rohe necessitates the wise management and custodial care of the natural resources in that rohe in a manner that is beneficial to that resource.

- (iv) *Intergenerational passage of knowledge:* Indigenous peoples possess a rich knowledge of ecological systems and relationships with the natural world, accumulated through their long history of resource use in specific locales, typically spanning many centuries. Mātauranga Māori is an all-embracing concept combining knowledge, identity and place. The inter-generational connections between people and nature is further strengthened as mātauranga is passed down through generations combining practice, knowledge and belief systems.

The features identified above emphasise the locally specific nature of mātauranga Māori. Doherty (2012), articulates a tripartite framework incorporating mātauranga Māori, mātauranga ā-iwi (tribal knowledge and its relationship to its land base) and Kaupapa Māori theory (a theoretical context and space that allows for Māori knowledge forms to exist and survive in) (pp. 15-17). Mātauranga ā-iwi, tribal knowledge operates within tribal context – “it is premised on the tribal knowledge forms that are unique to the differing tribal identities” (p. 33). According to Doherty, it is through this field that: “answers to questions that mātauranga Māori poses are able to be answered. It is here that the different versions of Māori protocol and processes are rationalised, explained and located to the tribal entities. It is by full engagement and participation within the tribe that informs the tribal knowledge forms, producing an environment where elements are lived as opposed to learned.”

Hence, mātauranga Māori, mātauranga ā-iwi, mātauranga ā-hapū (sub-tribe knowledge and expertise), and mātauranga ā-whānau (family based knowledge and expertise) are dynamic, innovative and generative. Mātauranga Māori does not exist in a vacuum; rather it exists on a continuum that has “expanded in response to exploring, theorising and understanding at local whānau, hapū and iwi levels. As an experiential system, it emphasises relationship-based learning using whānau and hapū understandings in our own environments. It is a complete knowledge system that includes science” (Broughton & McBreen, 2015, p. 83).

## How institutions frame and operationalise mātauranga Māori

As mātauranga Māori is the foundation of the academic discipline of Māori Studies it has been a focus of research for a number of years. Research often provides the setting for testing the incorporation of mātauranga Māori into new contexts. This has been evident in the health, education, environment and policy domains where research and/or pilot projects provide early examples or templates before adoption across the broader system. Treaty Settlement legislation empowering Iwi relationships and Māori participation in decision-making has provided an additional impetus to fostering both new research as well as the incorporation of mātauranga Māori into the operations of government agencies and regional councils.

### What is mātauranga Māori in these Contexts?

This section describes how mātauranga Māori has been defined, framed, and operationalised by Institutions. Given the different functions and responsibilities the institutions have been separated into Government Agencies, Research Institutions, regional councils, and Co-governance Entities.

#### Government Agency definitions

Government agencies are increasingly expected to acknowledge mātauranga Māori and a number are making explicit reference to it within their documents (Appendix 1).

**Table 3: Agency definitions of mātauranga Māori**

Agency	Definition
Ministry of Primary Industries (MPI)	Mātauranga Māori is knowledge that is holistic, integrated, open and adaptive (MPI, 2015).
Ministry of Business, Innovation and Employment (MBIE)	Uses the existing MoRST definition which defines mātauranga Māori as a 'Māori body of knowledge that has grown and changed over time' (MoRST, 2007, p. 24)
Department of Conservation (DOC)	Originally defined mātauranga Māori as 'traditional Māori knowledge' (DOC, 2000).

DOC <i>Mātauranga Kura Taiao Fund</i>	Traditional Māori knowledge that relates to ecosystems, and the acknowledgement of regional differences.
DOC New Zealand Coastal Policy	Uses the term 'customary knowledge', and also refers to 'inter-generational knowledge' (DOC, 2010).
Environmental Protection Agency (EPA)	The EPA Act 2011 does not refer specifically to mātauranga Māori, but rather 'tikanga Māori' – as Māori customary values and practices (EPA, 2011).

While these definitions vary somewhat, it is clear that these government agencies acknowledge that mātauranga Māori is Māori-specific knowledge that is adaptive and regionally distinct. At a government and national level, this recognition of regional differences is important as it reinforces the notion that Māori are not a homogenous group, and that mātauranga Māori will differ across iwi creating expectations that government agencies will be responsive to regional variation.

#### Research Institution definitions

In the national research environment mātauranga Māori has been framed by the *Vision Mātauranga* Policy which focuses on the ability to unlock Māori potential, Māori innovation, Māori knowledge, Māori knowledge and the Māori people to assist New Zealand and New Zealanders to create a better future (MoRST, 2007). *Vision Mātauranga* is divided into four themes (MoRST, 2007, p. 4):

- (i) *Indigenous Innovation: Contributing to Economic Growth through Distinctive R&D.* This theme concerns the development of distinctive products, processes, systems and services from Māori knowledge, resources and people.
- (ii) *Taiao: Achieving Environmental Sustainability through Iwi and Hapū Relationships with land and sea.* Like all communities, Māori communities aspire to live in sustainable communities dwelling in healthy environments. Much general environmental research is relevant to Māori. Distinctive environmental research arising in Māori communities relates to the expression of iwi and hapū knowledge, culture and experience – including kaitiakitanga – in New Zealand land and seascapes.

- (iii) *Hauora/Oranga: Improving Health and Social Wellbeing*. Distinctive challenges to Māori health and social wellbeing continue to arise within Māori communities.
- (iv) *Mātauranga: Exploring Indigenous Knowledge and RS&T*. This exploratory theme aims to develop a body of knowledge, as a contribution to RS&T, at the interface between indigenous knowledge - including mātauranga Māori - and RS&T.

*Vision Mātauranga* is infused across the government’s research, science and technology investment programme and has become more prominent in its funding application and assessment processes. Despite the importance of *Vision Mātauranga* to the various Crown Research Institute investment portfolios, only Landcare Research and NIWA provide comprehensive definitions of mātauranga Māori.

Scion refers to mātauranga Māori as ‘traditional knowledge’ (Scion, 2016), however AgResearch, the Institute of Environmental Science Research (ESR), the Institute of Geological and Nuclear Science (GNS Science), and the Callaghan Institute provide no definition.

The Landcare Research definition identifies both the tangible and intangible features of mātauranga Māori - ‘the knowledge, comprehension, or understanding of everything visible and invisible existing in the universe’ (Landcare Research, 2016). Like other definitions, it also extends to include ‘present-day, historic, local, and traditional knowledge; systems of knowledge transfer and storage; and the goals, aspirations and issues from an indigenous perspective’ (Landcare Research, 2016).

The NIWA definition acknowledges the geographical differences that exists within mātauranga Māori and its ability to evolve over time, "a range of different forms and expressions, based on different tribal histories, different geographies, different practices, different values...incorporates both traditional and non-traditional knowledge....dynamic, constantly evolving." (NIWA, 2012, p. 24).

Again it is important to note the recognition of tribal and regional differences. For CRI’s in particular, who are tasked with working closely with various Māori communities throughout the country, recognising that each iwi have their own unique bodies of mātauranga Māori helps to ensure that the objectives of both parties are achieved.

**Regional Council definitions**

The Northland, Bay of Plenty, Waikato and Hawke’s Bay regional councils provide definitions of mātauranga Māori (see Appendix 3). However, definitions of Mātauranga Māori could not be easily located for Auckland Council and Environment Canterbury.

**Table 4: Regional Council definitions of mātauranga Māori**

Agency	Definition
<i>Northland Regional Council (NRC)</i>	The knowledge, comprehension or understanding of everything visible or invisible that exists across the universe...in modern context as Māori research, science and technology principles and practices (NRC, 2016, p. 150).
<i>Bay of Plenty Regional Council (BOPRC)</i>	System of knowledge supported by tikanga Māori (customs), whakapapa (genealogy) and practices... recognises the relationships to the taiao, ngā tangata whenua and Te Ao wairua and draws on observations and experiences (BOPRC, 2016, p. 15).
<i>Waikato Regional Council (WRC)</i>	Holistic, dynamic and a continually evolving knowledge system involving generational observations and experiences (WRC, 2015).
<i>Hawke’s Bay Regional Council (HBRC)</i>	Māori knowledge originating from Māori practices, observations, science, ancestors, including the Māori world view and perspectives, creativity and cultural practices (HBRC, 2011).
<i>Greater Wellington Regional Council (GWRC)</i>	The recognition and use of Māori knowledge and practices (GWRC, 2010, p. 2).
<i>Environment Southland</i>	Information, knowledge, education (Environment Southland, 2012, p. 159).

The Northland Regional Council (NRC) definition recognises that mātauranga Māori involves 'everything visible or invisible that exists across the universe' (NRC, 2016, p. 150). In the modern context, mātauranga Māori can be considered as Māori research, science and technology principles and practices (NRC, 2016).

The Waikato Regional Council defines mātauranga Māori as a holistic, dynamic and a continually evolving knowledge system involving various cultural practices (WRC, 2015). When applied to the Waikato and Waipa rivers, mātauranga Māori becomes context specific, in that it is associated with the 'historical and spiritual association that iwi have with the river, the range of activities undertaken, the different relationships with the river, the dependence of these activities and relationships on the state of water quality and the health of aquatic ecosystems, and the changes that have been observed over the centuries' (WRC, 2015, p. 1).

The BOPRC definition identifies specific components of mātauranga Māori (e.g., tikanga Māori and whakapapa), and recognises the relationships to the taiao (the environment), ngā tangata whenua and Te Ao wairua (spiritual world) (BOPRC, 2016).

The HBRC definition is comprehensive in its explanation of mātauranga Māori, however there is no mention of its adaptability and dynamic nature. Nevertheless, it is informative in that mātauranga Māori is 'Māori knowledge originating from Māori practices, observations, science, ancestors, including the Māori world view and perspectives, creativity and cultural practices' (HBRC, 2011, p. 40).

Finally, the Greater Wellington Regional Council provides a succinct definition, or rather a translation of mātauranga Māori as 'the recognition and use of Māori knowledge and practices' (GWRC, 2010, p. 2).

### **Co-Governance Entity definitions**

An increasing number of Treaty Settlements are resulting in the establishment of co-governance entities between councils and Iwi.

Sea Change, in conjunction with local mana whenua Tikapa Moana/Te Moananui ā Toi have developed a conceptual model of mātauranga Māori to help guide the development of the Hauraki Gulf Marine Spatial Plan. It draws on the knowledge and understandings of mana whenua

and includes; Wairuatanga (metaphysics), Te Ao Turoa (ecological), Whakaaroaro (logic), whakaponotanga (epistemology), tikanga (ethics), kaitiakitanga (governance), and te ao hurihuri (modern) (Sea Change, 2015). While it may differ slightly from the general definitions provided by conventional organisations (i.e., government agencies and CRI's), it is nevertheless representative of the values and beliefs of the mana whenua.

For the Waikato Raupatu River Trust, the Waikato-Tainui Environmental Plan provides a comprehensive definition of mātauranga Māori from a Waikato-Tainui perspective. Traditional and contemporary Māori knowledge, knowledge systems, and knowledge bases... originating from Māori ancestors...Māori worldview and perspectives, Māori creativity, and cultural and spiritual practices...organic...ever growing and expanding (Waikato-Tainui Te Kauhanganui Incorporated, 2013, p. 260). As with the Sea Change definition, these iwi-specific definitions ensure that mana whenua perspectives underpin the conceptualisation and usage of mātauranga Māori.

The Waikato River Authority provides room for change in their definition of mātauranga Māori by stating that "*Maatauranga Māori is usually used to mean 'Māori knowledge' – distinctive knowledge created by Māori in history and arising from their living circumstances, their world view and their experiences*" (Waikato River Authority, 2016, p. 14).

### **Why is incorporating mātauranga Māori important?**

#### **A. Understanding the body of knowledge**

For the vast majority of these institutions, improving their understanding of mātauranga Māori is an important strategic aim that can help guide their decision making, management, and monitoring procedures (see Appendix 2.). Achieving this aim helps recognise the innovative potential of Māori knowledge, its contribution to council activities, and the usefulness of culturally appropriate data. For some organisations such as BOPRC, their aim is to help staff understand mātauranga Māori and how it can be applied in the Council's role to manage the environment (BOPRC, 2016).

#### **B. Respecting relationships with mana whenua**

The desire for relationships and/or collaborations with tangata whenua and mana whenua is a strategic aim for the majority of these institutions. These relationships may involve co-governance, co-management and co-planning (e.g., the Sea

Change initiative, Waikato River Authority) through the use of advisory boards or higher level committees involving Māori. These engagements can help identify mutual research priorities, recognise the role of tangata whenua as kaitiaki, allow for skills and knowledge sharing, and also allows these institutions to engage directly with Māori decision makers. For example, the Waikato Regional Council are working collaboratively with local tāngata whenua in order to help maintain and enhance ‘indigenous biodiversity’ within the Waikato region (WRC, 2016). It is clear that close and secure relationships are integral to the success of councils, and such relationships provide the opportunity to reconcile differences and reach mutual understandings for the benefit of both parties.

**C. Fostering interface with science**

A number of institutions also state a desire to explore the interface between mātauranga Māori and Western Science. Some Government agencies (e.g., the MPI Science Strategy: Rautaki Putaiao, DOCs NZ Coastal Policy Statement), CRI’s, regional councils (e.g., NRC, HBRC, WRC), and co-governance organisations (e.g., Sea Change, Waikato River Authority) aim to explore this interface so that the combined knowledges can better guide national and local policies for the management of resources.

**How is Mātauranga Māori being operationalised within Institutions?**

The way in which these institutions operationalise mātauranga Māori largely reflects their strategic aims. By in large, this involves partnerships and collaborations with local iwi and mana whenua which helps provide a greater understanding of mātauranga Māori. These relationships can help facilitate the integration of mātauranga Māori and science. Indeed, this enables these institutions to utilise mātauranga Māori in their decision making, management, and monitoring of the environment. There are a range of examples across Government Agencies, regional councils, and Research Institutions which illustrate different ways in which mātauranga Māori can be incorporated in their activities.

**Some Examples**

**Recognising Mātauranga Māori**

The BOPRC are in the process of a 2 year project to develop a framework capable of recognising, receiving, recording and utilising mātauranga Māori to inform Council decision-making (BOPRC, 2016). It involves interviewing tangata whenua (especially kaumatua and practitioners) as it is

crucial that the project is informed by local perspectives and expertise (BOPRC, 2016).

**Incorporating Māori values**

A report by Te Taiwhenua O Tamatea for the HBRC focussed on mana whenua values and uses in regards to the Tukituki river. The aim of this report was to clarify and to define key Māori environmental cultural values and their application within the Tukituki River catchment. This report in fact, was the first time the HBRC had considered of Te Ao Māori perspectives in regional council planning within the Tukituki River catchment (Te Taiwhenua O Tamatea, 2012). The outcome was the development of a Kaupapa Māori environmental values framework based on Māori principles and values - in the form of environmental outcomes, indicators and measures for monitoring improvements. This now enables the HBRC to assess whether tangata whenua cultural values are being acknowledged and incorporated into regional council planning processes (Te Taiwhenua O Tamatea, 2012).

**Incorporating Māori within Collaborative Processes**

Landcare Research outlines the necessary steps involved in integrating mātauranga Māori into the management of resources, in this case, freshwater management. The table highlights how tāngata whenua or mana whenua are involved throughout the process, and the inclusion of tāngata whenua values such as kaitiakitanga are implemented (Robb, Harmsworth, & Awatere, 2015).

*Table 5: Steps for integrating mātauranga Māori into freshwater management*

1. <i>Mana Whakahaere</i>	A Treaty-based planning framework is used for engagement and policy development
2. <i>Whakamāramatia ngā Pou Herenga</i>	Tāngata whenua values are defined and reflected in engagement processes
3. <i>Whakamāramatia ngā Huānga</i>	Outcomes are defined at the beginning of the engagement process
4. <i>Whakamāramatia ngā Uaratanga</i>	Goals and objectives are established
5. <i>Whakamāramatia ngā Aroturukitanga</i>	Monitoring approaches are developed and implemented
6. <i>Whakamāramatia ngā Mahi:</i>	Actions on the ground that demonstrate kaitiakitanga and progress iwi/hapū towards their goals/objectives/aspirations through tangible projects

## **Mātauranga Māori in the context of regional councils: Towards a framework of understanding**

---

### **Discussion**

Mātauranga Māori is recognised and acknowledged across a broad spectrum of agencies in New Zealand. The nature and purpose of the recognition varies between institutions however there are a number of factors which will contribute towards a framework of understanding.

### **Acknowledging contemporary relevance and application**

Iwi partners value mātauranga Māori not only for its historic significance but its contemporary relevance in times of political change. The question of how mātauranga Māori should be framed within the regional council context emerges from the increasing recognition of Treaty relationships, central government direction, the development of co-governance frameworks, and models of collaborative governance for natural resources. Legislative requirements, iwi expectations, and a desire to build respectful relationships also contribute to current moves to understand and incorporate mātauranga Māori across regional council planning and decision-making activities.

### **Acknowledging cultural validity**

At one level incorporating mātauranga Māori within regional council activities is a natural consequence of the increasing number and types of partnerships between council's and iwi (e.g. Co-Governance Entities, JMA's, Ministerial Accords). As the body of knowledge which sustains their unique culture and distinctive identity, mātauranga Māori informs not only traditional practices but also their participation within Council activities. Central Government agencies and regional councils increasingly acknowledge mātauranga Māori as a source of information that supports their relationships with mana whenua and can contribute to decision-making processes.

### **Accepting epistemological difference**

Eurocentric values and scientific disciplines tend to have primacy in a regional council context in part through historical tendencies and political representation. Mātauranga Māori brings a different value set and way of understanding phenomena to the table. This difference need not get in the way of a productive relationship and the

differences can often be reconciled by taking the time to understand the logic, context and assumptions underpinning different points of view. This level of respect is a necessary pre-cursor to incorporate and balance mātauranga Māori in decision making.

Mātauranga Māori develops and evolves through a range of formal and informal mechanisms including general observation, experience through application, and testing through research. With less formally organised institutions for generating new mātauranga the criteria for determining valid information is much associated with the who (experience and standing in the community) as the how (methods and approach).

### **Acknowledging mana whenua responsibility for mātauranga Māori**

Mātauranga Māori is the intellectual capital generated by whanau, hapū and iwi over multiple generations. The management and use of mātauranga to enhance the environment represents a core responsibility of mana whenua. Mātauranga Māori traditionally operated under a model of knowledge management that devolved responsibility to kaitiaki and communities creating distributed and localised knowledge networks. Relocating mātauranga, and therefore the responsibility to act as a kaitiaki from a whanau, hapū or Iwi to an institution, is a sensitive topic.

Mātauranga is often vested with specific people (kaitiaki) or with local whanau and hapū to ensure the responsibilities for protecting the environment remain with those that live there. While this information would fall under the definition of mātauranga Māori it might be more appropriately termed mātauranga a Iwi, mātauranga a hapū, or mātauranga a whanau, depending on the area or group to which it applies. Determining the roles and responsibilities of institutions in the management and use of mātauranga Māori is a key challenge which must be addressed in partnership with iwi.

**Developing a more nuanced understanding of mātauranga Māori**

Most institutions and councils provide a general definition of mātauranga acknowledging it as a valid body of knowledge, important in the context of its relationship with mana whenua, and needing to understand how it can be used alongside scientific information to inform work programmes.

Just like science, it is difficult to appreciate the value of mātauranga in a general sense without understanding the range of content which might be applied to the various specific contexts across Council work programmes. Developing a more nuanced understanding of the different disciplines and content that exist under the broad definition of mātauranga Māori is necessary if councils are to incorporate mātauranga Māori across a greater range of their work programmes.

**Table 6: Dimensions of mātauranga Māori relevant to freshwater management**

<i>Governance</i>	Treaty relationships, mana whenua status
<i>Goals</i>	Māori values, whakatauki, Māori environmental concepts
<i>Objectives</i>	Māori aspirations, historical accounts, Māori conceptual frameworks
<i>Actions</i>	Traditional Ecological Knowledge, cultural management practices, Māori modelling tools
<i>Limits</i>	Traditional Ecological Knowledge, Cultural protocols (Tikanga), Māori assessment frameworks
<i>Monitoring</i>	Cultural indicators (Tohu), Māori monitoring tools

(Hudson, Collier, Awatere et al, 2016)

This includes understanding the difference between general principles of mātauranga Māori and its specific local application as mātauranga-a-iwi and when it might be appropriate to use each aspect.

**Exploring the interface of mātauranga Māori and Science**

While there are differences in the way this knowledge is framed and organised there are also significant similarities with science in terms of types of information and content. Recognising the difference between science as a content, science as a process, and science as a community is vital for understanding mātauranga as a body of

knowledge, mātauranga as a system of knowledge, and mātauranga as a community of knowledge.

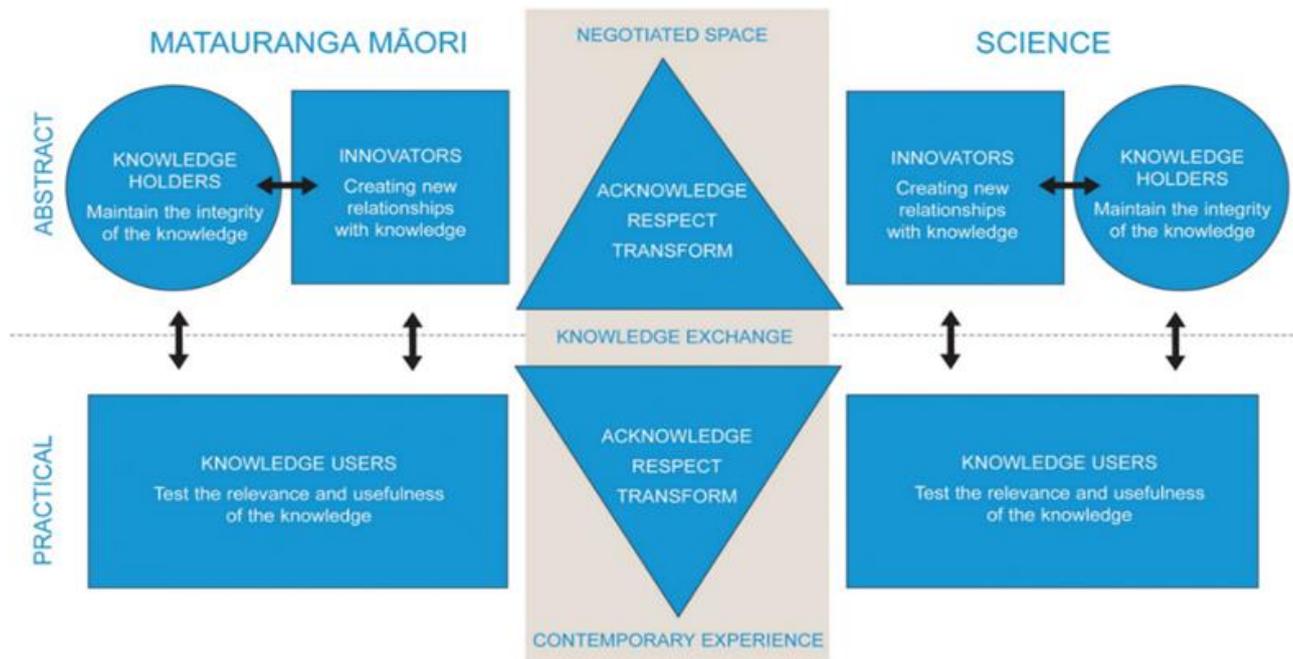
Iwi have as much interest in understanding how their mātauranga relates to scientific information and how both sets of knowledge can be used to realise their aspirations. Smith, Hemi, Hudson et al (2013) discuss the idea of a negotiated space as a place where processes of knowledge exchange can occur between bodies of mātauranga Māori and science. Acknowledgement, respect, and transformation are key principles underpinning any collaborative activities at this interface.

One of the reasons that mātauranga is not as readily accessible as scientific information is the lack of resourcing and capacity to collect and organise it, a situation which creates challenges for advancing collaborative activities.

**The incorporation of mātauranga Māori within regional council workstreams**

Regional councils have a diverse range of responsibilities and programmes of work which are being expected to incorporate mātauranga Māori. Cultural intelligence and capacity are likely to be significant constraints on the ability of a regional councils to collect, interpret and utilise mātauranga Māori in a culturally appropriate and respectful manner. Relationships with mana whenua, recognition of cultural intellectual property, and processes of knowledge management all present significant issues which must be addressed in partnership with mana whenua, the kaitiaki of the whenua, the kaitiaki of the wai, and the kaitiaki of the mātauranga.

Figure 1: Negotiated space for mātauranga Māori and science



## References

- Allen, W., Ataria, J. M., Apgar, J. M., Harmsworth, G., & Tremblay, L. A. (2009). Kia pono te mahi putaiao – doing science in the right spirit. *Journal of the Royal Society of New Zealand*, 39(4), 239-242.
- Allen, W., Ogilvie, S., Blackie, H., Smith, D., Sam, S., Doherty, J., . . . Eason, C. (2014). Bridging disciplines, knowledge systems and cultures in pest management. *Environmental Management*, 53(2), 429-440. 10.1007/s00267-013-0180-z
- Awatere, S. (2008). *The Price of Mauri: Exploring the validity of Welfare Economics when seeking to measure Mātauranga Māori* (Doctor of Philosophy (PhD)). University of Waikato, Hamilton, New Zealand.
- Bay of Plenty Regional Council. (2016). *Komiti Māori agenda 29 June*. Whakatane, New Zealand: Bay of Plenty Regional Council (BOPRC).
- Berkes, F. (1995). Traditional ecological knowledge in perspective. In J. T. Inglis (Ed.), *Traditional Ecological Knowledge Concepts and Cases* (pp. 1-9). Ottawa, Ontario, Canada: Canadian Museum of Nature.
- Berkes, F. (2008). *Sacred ecology* (2nd ed.). New York: Routledge.
- Berkes, F. (2009). Indigenous ways of knowing and the study of environmental change. *Journal of the Royal Society of New Zealand*, 39(4), 151-156.
- Broughton, D., & McBreen, K. (2015). Mātauranga Māori, tino rangatiratanga and the future of New Zealand science. *Journal of the Royal Society of New Zealand*, 45(2), 83-88.
- Cajete, G. (1999). *A people's ecology: Explorations in sustainable living*. Santa Fe, NM: Clear Light Pub.
- Cajete, G. (2000). *Native science: Natural laws of interdependence*. Santa Fe, NM: Clear Light Pub.
- Castellano, M. B. (2000). Updating Aboriginal traditions of knowledge. In G. Dei, B. Hall & D. G. Rosenberg (Eds.), *Indigenous knowledges in global contexts: Multiple readings of our world* (pp. 21-36). Toronto, Canada: University of Toronto Press.
- Coombes, B. L., & Hill, S. (2005). "Na whenua, na Tuhoe. Ko D.o.C. te partner" – Prospects for comanagement of Te Urewera National Park. *Society and Natural Resources: An International Journal*, 18(2), 135-152.
- Department of Conservation. (2000). *New Zealand Biodiversity Strategy 2000-2020*. Wellington, New Zealand: Department of Conservation (DOC).
- Department of Conservation. (2010). *New Zealand Coastal Policy Statement 2010*. Wellington, New Zealand: Department of Conservation (DOC).
- Durie, M. H. (1994). *Whaiora: Māori health development*. Auckland: Oxford University Press.
- Durie, M. H., Hoskins, T. K., & Jones, A. (2012). Interview: Kaupapa Maori: Shifting the social. *New Zealand Journal of Educational Studies*, 47(2), 21-29.
- Edwards, W. J. W. (2010). *Taupāenui: Māori positive ageing* (PhD). Massey University, Palmerston North, New Zealand.
- Environmental Protection Authority. (2011). *Environmental Protection Authority Act 2011*. Wellington, New Zealand: Environmental Protection Authority (EPA).
- Environment Southland. (2012). *Proposed Southland Regional Policy Statement 2012*. Invercargill, New Zealand: Environment Southland.
- Greater Wellington Regional Council. (2010). *Māori values and regional resource management*. Wellington, New Zealand: Greater Wellington Regional Council (GWRC).
- Grenier, L. (1988). *Working with indigenous knowledge: A guide for researchers manual*. Ottawa, ON, Canada: IDRC
- Hardy, D., Patterson, M., Smith, H., & Taiapa, C. (2015). Cross-cultural environmental research processes, principles, and methods: Coastal examples from Aotearoa/ New Zealand. In R. Matthias (Ed.), *Handbook of research methods and applications in Environmental Studies* (pp. 44-80). Cheltenham, UK; Northampton, Massachusetts, USA: Edward Elgar Publishing.
- Hawkes Bay Regional Council. (2011). *Land water us: Hawke's Bay land and water management strategy*. Napier, New Zealand: Hawkes Bay Regional Council (HBRC).
- Hokowhitu, B. (Ed.). (2010). *Indigenous identity and resistance: Researching the diversity of knowledge*. Dunedin, New Zealand: Otago University Press.
- Houde, N. (2007). The six faces of traditional ecological knowledge: Challenges and opportunities for Canadian co- management arrangements. *Ecology and Society*, 12(2), 34.
- Hudson, M., Collier, K., Awatere, S., Harmsworth, G., Henry, J., Quinn, J., . . . Robb, M. (2016). Integrating Indigenous Knowledge and freshwater management: An Aotearoa/New Zealand case study. *The International Journal of Science in Society*, 8(1), 1-14.
- Isaac, D. (2015). *Values and Co-production: Examining the interface of Indigenous Peoples' understandings and scientific understandings*

- (Master of Arts in Philosophy (MPhil)).  
University of Waterloo, Waterloo, Ontario,  
Canada.
- Kepa, M., Kepa, C. A., McPherson, B., Kameta, H.,  
Kameta, F., Port, W., . . . Reynolds, L. (2014).  
E kore e ngaro nga kakano i ruia mai i  
Rangiatea: The language and culture from  
Rangiatea will never be lost in health and  
ageing research. *AlterNative: An International  
Journal of Indigenous Peoples*, 10(3), 276-287.
- King, N. T., Skipper, A., & Tāwhai, W. (2008). Māori  
environmental knowledge of local weather  
and climate change in Aotearoa-New  
Zealand. *Climatic Change*, 90, 385-409.
- Landcare Research. (2016). *What is Maturanga Māori?*  
Retrieved from,  
[http://www.landcareresearch.co.nz/about  
/sustainability/voices/matauranga-  
maori/what-is-matauranga-maori](http://www.landcareresearch.co.nz/about/sustainability/voices/matauranga-maori/what-is-matauranga-maori)
- Latulippe, N. (2015). Situating the work: A typology  
of traditional knowledge literature.  
*AlterNative: An International Journal of  
Indigenous Peoples*, 11(2), 118-131.
- Lyver, P. O., & Moller, H. (2010). An alternative  
reality: Māori spiritual guardianship of New  
Zealand's native birds. *Ethno*, 241. In S.  
Tidemann & A. Gosler (Eds.), *Ethno-  
ornithology birds, Indigenous peoples, culture  
and society* (pp. 241-264). London, UK.:  
Earthscan.
- Lyver, P. O., Timoti, P., Jones, C. J., Richardson, S. J.,  
Tahi, B. L., & Greenhalgh, S. (2016). An  
indigenous coMātauranga Māoriunity-  
based monitoring system for assessing  
forest health in New Zealand. *Biodiversity  
and Conservation*, 1-30. doi: 10.1007/s10531-  
016-1142-6
- Lyver, P. O. B., Taputu, T. M., Kutia, S. T., & Tahi, B.  
(2008). Tūhoe Tuawhenua Mātauranga of  
kererū (*Hemiphaga novaseelandiae  
novaseelandiae*) in Te Urewera. *New Zealand  
Journal of Ecology*, 32(1), 7-17.
- Mccarthy, A., Hepburn, C., Scott, N., Schweikert, K.,  
Turner, R., & Moller, H. (2014). Local people  
see and care most? Severe depletion of  
inshore fisheries and its consequences for  
Māori communities in New Zealand.  
*Aquatic Conservation: Marine and Freshwater  
Ecosystems*, 24(3), 369-390.
- McNeill, H. (2009). Māori models of mental wellness.  
*Te Kaharoa*, 2, 96-115.
- Mead, H. M. (2012). Understanding Mātauranga  
Māori *Conversations on Mātauranga Māori*  
(pp. 9-14). Wellington: New Zealand  
Qualifications Authority.
- Memon, P. A., & Kirk, N. (2012). Role of indigenous  
Māori people in collaborative water  
governance in Aotearoa/New Zealand.  
*Journal of Environmental Planning and  
Management*, 55(7), 941-959.  
10.1080/09640568.2011.634577
- Menzies, C. (Ed.). (2006). *Traditional ecological  
knowledge and natural resource management*.  
Lincoln: University of Nebraska Press.
- Mercier, O. (2007). Indigenous knowledge and  
science: A new representation of the  
interface between Indigenous and  
Eurocentric ways of knowing. *He Pukenga  
Kōrero*, 5(2), 12-16.
- Mika, C. T. H. (2012). Overcoming 'being' in favour  
of knowledge: the fixing effect of  
'Mātauranga. *Educational Philosophy and  
Theory*, 44(10), 1080-1092.
- Ministry of Primary Industries. (2015). *MPI Science  
Strategy – Rautaki Putaiao*. Wellington, New  
Zealand: Ministry of Primary Industries  
(MPI).
- Moller, H., Kitson, J. C., & Downs, T. M. (2009).  
Knowing by doing: Learning for sustainable  
muttonbird harvesting. *New Zealand Journal  
of Zoology*, 36(3), 243-258.
- Moller, H., & Lyver, P. O. (2010). Traditional  
ecological knowledge for improved  
sustainability: Customary wildlife harvests  
by Māori in New Zealand. In K. Walker-  
Painemilla, A. B. Rylands, A. Woofter & C.  
Huges (Eds.), *Indigenous peoples and  
conservation: From rights to resource  
management* (pp. 219-234). Arlington, VA:  
Conservation International.
- MoRST. (2007). *Vision Mātauranga: Unlocking the  
innovation potential of Māori knowledge,  
resources and people*. Wellington, New  
Zealand: New Zealand Ministry of Research  
Science and Technology (MoRST).
- MoRST. (2009). *Evaluation of Vision Mātauranga and  
the Māori Knowledge and Development output  
class*. Wellington, New Zealand: New  
Zealand Ministry of Research Science and  
Technology (MoRST)
- Muru-Lanning, M. (2012). Māori research  
collaborations, Mātauranga Māori Science  
and the appropriation of water in New  
Zealand. *Anthropological Forum*, 22(2), 151-  
164. 10.1080/00664677.2012.694171
- National Institute of Water and Atmospheric  
Research. (2012). Alternative Wisdom. *Water  
and Atmosphere*, 6, November. Wellington,  
New Zealand: National Institute of Water  
and Atmospheric Research (NIWA).
- Northland Regional Council. (2016). *Regional Policy  
Statement for Northland*. Whangarei, New  
Zealand: Northland Regional Council  
(NRC).
- Reo, N. (2011). The importance of belief systems in  
traditional ecological knowledge initiatives.  
*The International Indigenous Policy Journal*,  
2(4), 1-4.
- Robb, M., Harmsworth, G., & Awatere, S. (2015).  
*Māori values and perspectives to inform  
collaborative processes and planning for*

- freshwater management*. Hamilton, New Zealand: Landcare Research.
- Royal, T. A. C. (2009). *Mātauranga Māori*. Porirua, Wellington: Mauriora-ki-te-Ao/Living Universe Ltd.
- Royal, T. A. C., & Museum of New Zealand. National Services. (2007). *Mātauranga Māori and museum practice: A discussion*. Wellington, N.Z.: National Services Te Paerangi.
- Ruamāhanga Whaitua Committee. (2014). *Community Engagement*. Masterton, New Zealand: Ruamāhanga Whaitua Committee.
- Scion. (2016). *Statement of Corporate Intent 2016 - 2021*. Rotorua, New Zealand: New Zealand Forest Research Institute Limited.
- Seachange. (2015). *Mātauranga Māori Roundtable SWG hui*. Retrieved from, <http://www.seachange.org.nz/PageFiles/675/Matauranga%20Maori%20RT%20PP%20handover.pdf>
- Selby, R., Moore, P., & Mulholland, M. (Eds.). (2010). *Māori and the Environment: Kaitiaki*. Wellington, New Zealand: Huia Publishers.
- Sillitoe, P., Dixon, P., & Barr, J. (2005). *Indigenous knowledge inquiries: a methodologies manual for development*. Rugby, U.K: ITDG Pub.
- Smith, I. (2011). Pre-European Māori exploitation of marine resources in two New Zealand case study areas: species range and temporal change. *Journal of the Royal Society of New Zealand*, 43, 1-37.
- Smith, L. T. (2012). *Decolonising methodologies. Research and Indigenous peoples* (2nd. ed.). London, UK.: Zed Books.
- Smith, L., Hemi, M., Hudson, M., Roberts, M., Tiakiwai, S., & Baker, M. (2013). *Dialogue at a Cultural Interface: a Report for Te Hau Mihi Ata: Mātauranga Māori, Science & Biotechnology*. Te Kotahi Research Institute University of Waikato.
- Smith, L. T., Maxwell, T. K., Puke, H., & Temara, P. (2016). Indigenous knowledge, methodology and mayhem: What is the role of methodology in producing indigenous insights? A discussion from Mātauranga Māori. *Knowledge Cultures*, 4(3), 131-156.
- Te Taiwhenua o Tamatea. (2012). *Tukituki river catchment: Cultural values and uses*. A report prepared for Hawke's Bay Regional Council.
- Tipa, G. (2009). Exploring Indigenous understandings of river dynamics and river flows: A case from New Zealand. *Environmental CoMātauranga Māoriunication*, 3(1), 95-120. 10.1080/17524030802707818
- Waikato Regional Council. (2015). *Healthy rivers wai ora infosheet: Mātauranga Māori*. Hamilton, New Zealand: Waikato Regional Council.
- Waikato Regional Council. (2016). *Waikato Regional Policy Statement*. Hamilton, New Zealand: Waikato Regional Council.
- Waikato River Authority. (2008). *Restoring and protecting the health and wellbeing of the Waikato river*. Hamilton, New Zealand: Waikato River Authority.
- Waikato River Authority. (2016). *Waikato River Clean-up Trust Funding Strategy 2016*. Hamilton, New Zealand: Waikato River Authority.
- Waikato-Tainui Te Kauhanganui Incorporated. (2013). *Waikato-Tainui Environmental Plan*. Hamilton, New Zealand: Waikato-Tainui Te Kauhanganui Incorporated.
- Waitangi Tribunal. (2011a). *Ko Aotearoa tēnei: A report into claims concerning law and policy affecting Māori culture and identity (Te taumata tuarua - Vol 2): Wai 262 Waitangi Tribunal Report 2011*. Wellington: Legislation Direct.
- Waitangi Tribunal. (2011b). *Ko Aotearoa tēnei: A report into claims concerning law and policy affecting Māori culture and identity (Te taumata tuatahi - Vol 1): Wai 262 Waitangi Tribunal Report 2011*. Wellington: Legislation Direct.
- Wehi, P. M. (2009). Indigenous ancestral sayings contribute to modern conservation partnerships: Examples using *Phormium tenax*. *Ecological Applications*, 19(1), 267-275.
- Wehi, P. M., & Wehi, W. L. (2010). Traditional plant harvesting in contemporary fragmented and urban landscapes. *Conservation Biology*, 24(2), 594-604.
- Wehi, P. M., Whaanga, H., & Roa, T. (2009). Missing in translation: Maori language and oral tradition in scientific analyses of traditional ecological knowledge (TEK). *Journal of the Royal Society of New Zealand*, 39(4), 201-204.
- Whyte, K. (2013). On the role of traditional ecological knowledge as a collaborative concept: A philosophical study. *Ecological Processes*, 2(7), Retrieved from <http://www.ecologicalprocesses.com/content/2/1/7>.

## APPENDIX 1: How Central Government Agencies frame Mātauranga Māori

Government	Conceptualised	Strategic Aim	Operationalised Process	Examples	Source
MPI (MPI Science Strategy: Rautaki Putaiao)	Holistic, integrated, observation, open and adaptive (MPI, 2015, p. 13)	To understand similarities b/w MĀTAURANGA MĀORI and science, and build relationships (p. 13). Science advice criteria and policy documents include Māori perspectives and mātauranga as appropriate (MPI, 2015, p. 22).	Adopt a systematic approach and build internal capability so staff have an understanding about Māori as partners, and an understanding of how the Treaty of Waitangi applies to their work (MPI, 2015, p. 22).	<p><a href="https://www.mpi.govt.nz/funding-and-programatauranga/Maories/maori-in-the-primary-industries/maori-agribusiness/">https://www.mpi.govt.nz/funding-and-programatauranga/Maories/maori-in-the-primary-industries/maori-agribusiness/</a></p> <p>The majority of the examples above do not mention MĀTAURANGA MĀORI or tikanga, hence they are based on 'relationships' and 'collaborations'. A similar fund is available for Fisheries management, which seems to have more emphasis on MĀTAURANGA MĀORI. See, <a href="https://www.mpi.govt.nz/funding-and-programatauranga/Maories/maori-in-the-primary-industries/customary-fisheries-research-fund/">https://www.mpi.govt.nz/funding-and-programatauranga/Maories/maori-in-the-primary-industries/customary-fisheries-research-fund/</a></p>	<a href="file:///E:/Downloads/2015-MPI-Science-Strategy-web.pdf">file:///E:/Downloads/2015-MPI-Science-Strategy-web.pdf</a>
MBIE (Vision Mātauranga Fund)	Māori body of knowledge that has changed over time (MORST, 2007)	The Vision Mātauranga policy aims to unlock the science and innovation potential of Māori knowledge, resources and people to assist New Zealanders to create a better future (MBIE, 2016, p. 4)	Mātauranga Māori can exist and be applied at a national level through to tribal and whānau levels and encompasses rules and processes for how this knowledge should be managed (MBIE, 2016, p. 8)	<p>A successful funding application intending to articulate the relationship between tikanga Māori and ecosystem health (volcanic eruptions). <a href="http://www.mbie.govt.nz/info-services/science-innovation/investment-funding/te-punaha-hihiko-vision-matauranga-capability-fund/documents-and-images-library/ka-rongo-te-ha-o-ruaumoko.pdf">http://www.mbie.govt.nz/info-services/science-innovation/investment-funding/te-punaha-hihiko-vision-matauranga-capability-fund/documents-and-images-library/ka-rongo-te-ha-o-ruaumoko.pdf</a></p>	<p><a href="http://www.mbie.govt.nz/info-services/science-innovation/pdf-library/vm-booklet.pdf">http://www.mbie.govt.nz/info-services/science-innovation/pdf-library/vm-booklet.pdf</a> (MORST, 2007). <a href="http://www.mbie.govt.nz/info-services/science-innovation/investment-funding/te-punaha-hihiko-vision-matauranga-capability-fund/?searchterm=matauranga%2A">http://www.mbie.govt.nz/info-services/science-innovation/investment-funding/te-punaha-hihiko-vision-matauranga-capability-fund/?searchterm=matauranga%2A</a></p>

DOC (‘New Zealand Biodiversity Strategy 2000-2020’)	Traditional Māori Knowledge (DOC, 2000, p. 9)	<p>Recognise and respect the role of mātauranga Maori in biodiversity management and provide for its retention and protection. (DOC, 2000, p.96)</p> <p>‘State of the Takiwā’ reporting framework using culturally appropriate data will be developed to assist in the monitoring, management and enhancement of the environment through mātauranga Māori (traditional knowledge) (DOC, 2016, p.45)</p> <p>Continue to support projects relating to the revival, use or retention of tikanga (i.e. traditional knowledge and practices in the management of biodiversity or natural resources) through the Mātauranga Kura Taiao fund (DOC, 2016, p. 51)</p>	<p>The Ngā Whenua Rāhui fund provides protection for Māori landowners through the use of 25 year renewable kawenata (covenants).</p> <p>The Mātauranga Kura Taiao Fund seeks to preserve the customs, history and stories associated with Māori land and tikanga (see below).</p>	<p>Kids Greening Taupo – relationships with Iwi and learning about MĀTAURANGA MĀORI (DOC, 2016, p. 10)</p> <p>The Te Urewera Act 2014 heralded a new era for conservation management in New Zealand, addressing proper governance and how traditional knowledge (MĀTAURANGA MĀORI) and values can be incorporated into supporting biodiversity and conservation. (DOC, 2016, p.41)</p>	<p><a href="http://www.doc.govt.nz/Documents/conservation/new-zealand-biodiversity-action-plan-2016-2020.pdf">http://www.doc.govt.nz/Documents/conservation/new-zealand-biodiversity-action-plan-2016-2020.pdf</a> (DOC, 2016)</p> <p><a href="http://www.doc.govt.nz/nature/biodiversity/nz-biodiversity-strategy-and-action-plan/new-zealand-biodiversity-strategy-2000-2020/part-three-action-plans/theme-seven/">http://www.doc.govt.nz/nature/biodiversity/nz-biodiversity-strategy-and-action-plan/new-zealand-biodiversity-strategy-2000-2020/part-three-action-plans/theme-seven/</a></p>
DOC (Mātauranga Kura Taiao Fund)	Fundamental beliefs, Traditional Māori knowledge that relates to ecosystems, Regional differences exist	<p>IBID</p> <p>The fund supports hapū and iwi to retain and promote traditional Māori knowledge and its use in biodiversity management.</p>	Mātauranga Kura Taiao Fund has been offered since 2002. The fund acknowledges that spirituality and cultural history are inseparable in biodiversity.		<p><a href="http://www.doc.govt.nz/get-involved/funding/nga-whenua-rahui/matauranga-kura-taiao-fund/">http://www.doc.govt.nz/get-involved/funding/nga-whenua-rahui/matauranga-kura-taiao-fund/</a></p>
DOC	Customary knowledge, traditional	Take account of the Treaty of Waitangi, recognise the role of tangata whenua as	Regional policy statements, regional plans		<p><a href="http://www.doc.govt.nz/about-us/science-publications/conservation/">http://www.doc.govt.nz/about-us/science-publications/conservation/</a></p>

(NZ Coastal Policy Statement)	knowledge and/or inter-generational knowledge (DOC, 2010, p. 27).	kaitiaki. Incorporate MĀTAURANGA MĀORI into sustainable management practices (DOC, 2010, p. 9)	and district plans must give effect to the NZCPS.		<a href="https://www.mtauranga.govt.nz/publications/marine-and-coastal/new-zealand-coastal-policy-statement/">n-publications/marine-and-coastal/new-zealand-coastal-policy-statement/</a>
EPA	The EPA Act 2011 only refers to 'Tikanga Māori' – as Māori customary values and practices (EPA, 2011, p. 7).	Recognise that: Māori cultural practices have a strong environmental basis, which enhances environmental management processes Iwi feel an obligation, as kaitiaki, to protect the natural world. Spirituality is integral to the connection between Māori culture and tradition and the environment.	<b>Ngā Kaihautū</b> provides advice to the EPA to help ensure Māori perspectives are taken into account.  The <b>Kaupapa Kura Taiao</b> team aims to ensure that Māori perspectives are <b>incorporated internally</b> and <b>externally</b> within the EPA.	Burials at sea – see <a href="http://www.epa.govt.nz/Publications/Te_Putara_Issue_37.pdf">http://www.epa.govt.nz/Publications/Te_Putara_Issue_37.pdf</a>  Building relationships in Taranaki - see <a href="http://www.epa.govt.nz/Publications/Te_Putara_Issue_36.pdf">http://www.epa.govt.nz/Publications/Te_Putara_Issue_36.pdf</a>	<a href="file:///E:/Downloads/Environmental%20Protection%20Authority%20Act%202011.pdf">file:///E:/Downloads/Environmental%20Protection%20Authority%20Act%202011.pdf</a> (EPA, 2011)

### Additional Information

#### **MPI:**

“Māori take a very integrated approach to resource management, where environmental, economic, social and cultural values are considered holistically... This integrated approach is of considerable value to western science and is increasingly being looked to in strategy development and investment decision-making. While mātauranga Māori is based on intense and long term observation, it is also open and adaptive to new observations and information... To be able to use bodies of tikanga and mātauranga Māori knowledge effectively, MPI needs to understand the similarities and differences between mātauranga Māori and western science, and the challenges inherent in reconciling these different world views. We also need to be open to its incorporation into science programmes, and build trusting relationships with iwi/Māori to whom that knowledge belongs, to ensure this knowledge is used appropriately.” (MPI, 2015, p. 13)

#### **MBIE:**

MBIE refers to the mātauranga Māori definition provided in the 2007 Vision Matauranga document published by MORST, as a; “body of knowledge that was first brought to New Zealand by Polynesian ancestors of present-day Māori. It changed and grew with the experience of living in these islands. Following encounter with the European in the late 1700s and early 1800s, it grew and changed again before becoming endangered in many substantial ways in the 19th and 20th centuries. The elements that remain today – including the Māori language – have catalysed a renewed interest in this body of knowledge.” (MORST, 2007, p. 24)

“Mātauranga Māori can exist and be applied at a national level through to tribal and whānau levels and encompasses rules and processes for how this knowledge should be managed” (MBIE, 2016, p. 8).

## APPENDIX 2: How Research Institutions frame Mātauranga Māori

CRI's	Conceptualised	Strategic Aim	Operationalised Process	Examples	Source
AgResearch	N/A	Operating principle: enable the innovation potential of Māori knowledge, resources and people. <a href="http://www.agresearch.co.nz/about/statement-of-corporate-purpose/">http://www.agresearch.co.nz/about/statement-of-corporate-purpose/</a>	Collaborations and partnerships with Māori. See 'examples'.	Develop a strategic and co-learning approach to farm system design was tested with Nga Uri o Te Ngahere Trust (the Trust). Developed a draft kaitiaki farm process based on Te Ao Māori.  <a href="http://www.agresearch.co.nz/news/exploring-our-differences-and-similarities/">http://www.agresearch.co.nz/news/exploring-our-differences-and-similarities/</a>	<a href="http://www.agresearch.co.nz/wp-content/uploads/2014/05/Statement-of-Core-Purpose.pdf">http://www.agresearch.co.nz/wp-content/uploads/2014/05/Statement-of-Core-Purpose.pdf</a>  <a href="http://www.mbie.govt.nz/info-services/science-innovation/research-organisations/crown-research-institutes">http://www.mbie.govt.nz/info-services/science-innovation/research-organisations/crown-research-institutes</a>
Institute of Environmental Science Research (ESR)	N/A	Explore the interface between MĀTAURANGA MĀORI and science so our combined knowledges can better guide national and local policies for environmental management (ESR, 2016, p. 4)	Collaborations and partnerships with Māori. See 'examples'.	<a href="http://www.esr.cri.nz/assets/Uploads/ESR-0279-Te-Mahi-Tahi-Maori-engagement2016-WEB.pdf">http://www.esr.cri.nz/assets/Uploads/ESR-0279-Te-Mahi-Tahi-Maori-engagement2016-WEB.pdf</a>	<a href="http://www.esr.cri.nz/assets/Uploads/ESR-0279-Te-Mahi-Tahi-Maori-engagement2016-WEB.pdf">http://www.esr.cri.nz/assets/Uploads/ESR-0279-Te-Mahi-Tahi-Maori-engagement2016-WEB.pdf</a> (ESR, 2016)
Institute of Geological and Nuclear Science (GNS Science)	N/A	Effective engagement of Māori and MĀTAURANGA MĀORI: • capture and utilisation of traditional and	GNS Science is joining with Māori partners in research and commercial initiatives centred around our mutual interests in <i>nga taonga tuku iho</i> – the treasures of our heritage.  Vision Mātauranga included in all relevant research (GNS, 2015).	<a href="https://www.gns.cri.nz/Home/News-and-Events/Events/Past-Events/Nga-hua-o-papatuanuku">https://www.gns.cri.nz/Home/News-and-Events/Events/Past-Events/Nga-hua-o-papatuanuku</a>  Completed project - The project team is working combining technical, scientific and Mātauranga-a-iwi information for the Awahou groundwater	

		<p>distinctive Māori knowledge;</p> <ul style="list-style-type: none"> <li>• recognition of the creative potential for the development of new knowledge;</li> <li>• identification and enhancement of commercial and economic opportunities and outcomes for Māori, GNS Science and New Zealand. (GNS, 2011, p. 7)</li> </ul>	<p>Projects achieving outcomes or creating opportunities for Iwi/Māori. N= 25 (2013), 26 (2014), 25 (2016). Remained constant (GNS, 2015, p. 23).</p>	<p>catchment into an integrated data repository and knowledge resource.</p> <p><a href="https://www.gns.cri.nz/Home/Our-Science/Environment-and-Materials/Groundwater/Research-Programatauranga-Maories/Ka-Tu-Te-Taniwha-Ka-Ora-Te-Tangata">https://www.gns.cri.nz/Home/Our-Science/Environment-and-Materials/Groundwater/Research-Programatauranga Māories/Ka-Tu-Te-Taniwha-Ka-Ora-Te-Tangata</a></p> <p>Bringing together both traditional MĀTAURANGA MĀORI and scientific knowledge to inform wise and sustainable management of Aotea greenstone.</p> <p><a href="https://www.gns.cri.nz/Home/News-and-Events/Media-Releases/Vision-Matauranga">https://www.gns.cri.nz/Home/News-and-Events/Media-Releases/Vision-Matauranga</a></p>	
Landcare Research	<p>‘the knowledge, comprehension, or understanding of everything visible and invisible existing in the universe’..... In the contemporary world, the definition is usually extended to include present-day, historic, local, and traditional knowledge; systems of knowledge transfer and storage; and the goals, aspirations and issues from an</p>	<p>Continue to work closely with other Maori organisations to add value to cross-sector work supporting the development of Māori land. Focus on knowledge transfer to Māori. Engaging directly with Māori decision makers. Work with Māori to identify research priorities. Build MĀTAURANGA MĀORI capacity and capability within Landcare</p>	<p>Landcare Research has had a long association with Māori through our relationships with iwi and hapū in projects such as the sustainable harvest of seabirds and of indigenous timber (Landcare, 2016, p. 7).</p> <p>Policy Brief 7, outlines 6 recommended steps for integrating MĀTAURANGA MĀORI into freshwater management. Have also developed Mātauranga Māori and Māori perspectives (Harmsworth &amp; Awatere, 2013), see <a href="http://www.landcareresearch.co.nz/_data/assets/pdf_file/0003/74433/Policy-Brief-7-Using-Maori-to-inform-freshwater.pdf">http://www.landcareresearch.co.nz/_data/assets/pdf_file/0003/74433/Policy-Brief-7-Using-Maori-to-inform-freshwater.pdf</a></p>	<p>How to work collaboratively with Māori</p> <p><a href="http://www.landcareresearch.co.nz/_data/assets/pdf_file/0011/84692/Policy-Brief-10-Collaborative-Freshwater-Planning-Insights-from-Hawkes-Bay.pdf">http://www.landcareresearch.co.nz/_data/assets/pdf_file/0011/84692/Policy-Brief-10-Collaborative-Freshwater-Planning-Insights-from-Hawkes-Bay.pdf</a></p> <p>Collaboration for freshwater management –</p> <p><a href="http://www.landcareresearch.co.nz/_data/assets/pdf_file/0005/98384/Maori_values_FW_collaborative_processes_May-2015.pdf">http://www.landcareresearch.co.nz/_data/assets/pdf_file/0005/98384/Maori_values_FW_collaborative_processes_May-2015.pdf</a></p>	<p><a href="http://www.landcareresearch.co.nz/science/portfolios/enhancing-policy-effectiveness/vmo/planning-and-decision-making/matauranga-maori">http://www.landcareresearch.co.nz/science/portfolios/enhancing-policy-effectiveness/vmo/planning-and-decision-making/matauranga-maori</a></p> <p><a href="http://www.landcareresearch.co.nz/_data/assets/pdf_file/0003/74433/Policy-Brief-7-Using-Maori-to-inform-freshwater.pdf">http://www.landcareresearch.co.nz/_data/assets/pdf_file/0003/74433/Policy-Brief-7-Using-Maori-to-inform-freshwater.pdf</a> (Landcare, 2013)</p> <p><a href="http://www.landcareresearch.co.nz/_data/assets/pdf_file/0009/111042/PB_14_Maori_Values_Per">http://www.landcareresearch.co.nz/_data/assets/pdf_file/0009/111042/PB_14_Maori_Values_Per</a></p>

	indigenous perspective.' <a href="http://www.landcareresearch.co.nz/about/sustainability/voices/matauranga-maori/what-is-matauranga-maori">http://www.landcareresearch.co.nz/about/sustainability/voices/matauranga-maori/what-is-matauranga-maori</a>	Research (Landcare, 2016, p. 7).			<a href="#">pectives.pdf</a> (Landcare, 2015)
National Institute of Water and Atmospheric Research (NIWA)	"A range of different forms and expressions, based on different tribal histories, different geographies, different practices, different values...incorporates both traditional and nontraditional knowledge...dynamic, constantly evolving." (NIWA, 2012, p. 24) <a href="https://www.niwa.co.nz/publications/wa/water-atmosphere-6-november-2012/alternative-wisdom">https://www.niwa.co.nz/publications/wa/water-atmosphere-6-november-2012/alternative-wisdom</a>	Meet the needs and aspirations of Māori through incorporation of Vision Mātauranga (NIWA, 2015, p. 7).  Continue collaborations and partnerships with Māori.	Te Kūwaha, NIWA's Māori Environmental Research Group: Partnerships/collaborations, increase NIWA capacity/capability, develop distinct body of knowledge incorporating MĀTAURANGA MĀORI and Western science. <a href="https://www.niwa.co.nz/te-kuwaha/our-services">https://www.niwa.co.nz/te-kuwaha/our-services</a>	Validating MĀTAURANGA MĀORI techniques for koura monitoring. <a href="https://www.niwa.co.nz/publications/wa/water-atmosphere-6-november-2012/alternative-wisdom">https://www.niwa.co.nz/publications/wa/water-atmosphere-6-november-2012/alternative-wisdom</a>	
Scion	Traditional knowledge (SCION, 2016, p. 18)	Vision Mātauranga is incorporated in all Scion programmes (SCION, 2016, p. 26).	Development of SCION'S Te Papa Tipu Māori Plan: Mai i te ngahere (SCION, 2016, p. 26).  SCION's Hangarau Ropu (Maori technical advisory group) – ensures MĀTAURANGA MĀORI and tikanga is appropriately	Scientists acknowledge the value of MĀTAURANGA MĀORI as a source of relevant knowledge. <a href="http://www.scionresearch.com/data/assets/pdf_file/0005/43907/HTHF_Kauri_dieback.pdf">http://www.scionresearch.com/data/assets/pdf_file/0005/43907/HTHF_Kauri_dieback.pdf</a>	

			incorporated, and correct Māori engagement procedures are followed. <a href="http://www.scionresearch.com/general/publications/scion-connections/previous-issues/past-issues-list/issue-3/maori-bring-new-forestry-perspective">http://www.scionresearch.com/general/publications/scion-connections/previous-issues/past-issues-list/issue-3/maori-bring-new-forestry-perspective</a>		
Callaghan Innovation	N/A	N/A	Help Māori business grow a competitive edge - in New Zealand and internationally <a href="http://www.callaghaninnovation.govt.nz/business-collaborations/maori-economy">http://www.callaghaninnovation.govt.nz/business-collaborations/maori-economy</a>	Traci Houpapa - MĀTAURANGA MĀORI key to growing industry <a href="http://www.callaghaninnovation.govt.nz/accelerate-ezine/accelerate-march-2014/matauranga-maori-key-growing-industry">http://www.callaghaninnovation.govt.nz/accelerate-ezine/accelerate-march-2014/matauranga-maori-key-growing-industry</a>	

**DEFINITIONS****Landcare Research:**

'the knowledge, comprehension, or understanding of everything visible and invisible existing in the universe', and is often used synonymously with wisdom. In the contemporary world, the definition is usually extended to include present-day, historic, local, and traditional knowledge; systems of knowledge transfer and storage; and the goals, aspirations and issues from an indigenous perspective.' (<http://www.landcareresearch.co.nz/about/sustainability/voices/matauranga-maori/what-is-matauranga-maori>).

Some other helpful models and frameworks for co-management -

[http://www.landcareresearch.co.nz/\\_data/assets/pdf\\_file/0009/111042/PB\\_14\\_Maori\\_Values\\_Perspectives.pdf](http://www.landcareresearch.co.nz/_data/assets/pdf_file/0009/111042/PB_14_Maori_Values_Perspectives.pdf)

**NIWA:**

"Mātauranga Māori had shown - or more correctly, reasserted - its value. Any description of the concept must accommodate a wealth of meanings and perspectives. It's sometimes described as Māori science, but this is misleading. Mātauranga Māori, says NIWA scientist Darren King, instead represents: "a range of different forms and expressions, based on different tribal histories, different geographies, different practices, different values. Mātauranga Māori incorporates both traditional and nontraditional knowledge, so it's dynamic, constantly evolving." (NIWA, 2012)

### APPENDIX 3: How Regional Councils frame Mātauranga Māori

Regional Councils	Conceptualised	Strategic Aim	Operationalised Process	Examples	Source
Northland RC	Traditional context means the knowledge, comprehension or understanding of everything visible or invisible that exists across the universe...in modern context as Māori research, science and technology principles and practices (Northland Regional Council, 2016, p. 150).	Provide opportunities for the use and incorporation of MĀTAURANGA MĀORI into decision-making, management, implementation, and monitoring of natural and physical resources under the RMA 1991 (Northland Regional Council, 2016, p. 133).	Support tangata whenua if they choose to develop and implement a regional MĀTAURANGA MĀORI-based environmental monitoring framework by: (a) Providing information and advice during the development of the monitoring framework; (b) Providing training to assist tangata whenua to promote and implement the monitoring framework on an ongoing basis; and (c) Incorporating the results and recommendation (Northland Regional Council, 2016, p. 136).		<a href="http://www.nrc.govt.nz/Your-Council/Working-with-Maori/">http://www.nrc.govt.nz/Your-Council/Working-with-Maori/</a>  <a href="file:///E:/Downloads/May%202016%20Regional%20Policy%20Statement%20for%20Northland%20-%20operative%20(except%20GE)%20Website%20Version%20(A837958).pdf">file:///E:/Downloads/May%202016%20Regional%20Policy%20Statement%20for%20Northland%20-%20operative%20(except%20GE)%20Website%20Version%20(A837958).pdf</a>
Auckland Council	N/A	N/A	N/A	Please refer to 'Seachange' below	
Waikato Regional Council	Mātauranga Māori is holistic, dynamic and a continually evolving knowledge system involving generational observations and experiences. This can include te reo (Māori language), taonga tuku iho (treasure	Identify and integrate mātauranga Māori indicators and measures as part of the information and monitoring regime (WRC, 2016).  Protocols for information sharing and transfer including of mātauranga Māori (WRC, 2016).	Strategic partnerships with iwi authorities. Ensure that tāngata whenua have appropriate opportunities to be involved in relevant resource management processes (WRC, 2016).  Assist territorial authorities (including tangata whenua) to develop 'local indigenous biodiversity strategies', as per the	Healthy Rivers Waikato <a href="http://www.waikatoregion.govt.nz/healthyrivers/">http://www.waikatoregion.govt.nz/healthyrivers/</a>	<a href="http://www.waikatoregion.govt.nz/PageFiles/40248/M%C4%81tauranga%20M%C4%81ori.pdf">http://www.waikatoregion.govt.nz/PageFiles/40248/M%C4%81tauranga%20M%C4%81ori.pdf</a> (WRC, 2015)  <a href="http://www.waikatoregion.govt.nz/PageFiles/6777/2016/WaikatoRegionalPol">http://www.waikatoregion.govt.nz/PageFiles/6777/2016/WaikatoRegionalPol</a>

	handed down) and mātauranga (traditional environmental knowledge) and knowledge of cultural practises, such as rongoa (healing and medicines) and mahinga kai (hunting, fishing and cultivation of food) (WRC, 2015).	Resource management decision making is holistic and consistent, and based on the best available information, including mātauranga Māori (WRC, 2016).  Advocating for consistent application of best practices standards and processes, including best practice tikanga and mātauranga Māori (WRC, 2016).	Te Tauāki Kaupapa here ā-Rohe (WRC, 2016).		<a href="#">icyStatement2016.pdf</a> (WRC, 2016)
BOP Regional Council	System of knowledge supported by tikanga Māori (customs), whakapapa (genealogy) and practices... recognises the relationships to the taiao, ngā tangata whenua and Te Ao wairua and draws on observations and experiences (BOPRC, 2016, p. 15).	Develop a MĀTAURANGA MĀORI framework for council use. The intent of these tools is to help staff understand mātauranga Māori and how it can be applied in Council's role to manage the environment. (BOPRC, 2016, p. 16).	Work in progress – refer to <a href="https://www.boprc.govt.nz/media/536725/komiti-maori-agenda-29-june-2016.pdf">https://www.boprc.govt.nz/media/536725/komiti-maori-agenda-29-june-2016.pdf</a>	A 2-year project – to develop a framework capable of recognising, receiving, recording and utilising mātauranga Māori to inform Council decision-making. <a href="https://www.boprc.govt.nz/media/536725/komiti-maori-agenda-29-june-2016.pdf">https://www.boprc.govt.nz/media/536725/komiti-maori-agenda-29-june-2016.pdf</a>	<a href="https://www.boprc.govt.nz/media/536725/komiti-maori-agenda-29-june-2016.pdf">https://www.boprc.govt.nz/media/536725/komiti-maori-agenda-29-june-2016.pdf</a>
Greater Wellington Regional Council	The recognition and use of Māori knowledge and practices (GWRC, 2010, p. 2).	N/A	Through MOU with mana whenua – partnership, skills and knowledge sharing. <a href="http://www.gw.govt.nz/assets/DEMOCRATIC-">http://www.gw.govt.nz/assets/DEMOCRATIC-</a>	Engagement - Connect Western science and Mātauranga Māori	<a href="http://www.gw.govt.nz/assets/council-reports/Report_PD_Fs/2010_175_1_Report.pdf">http://www.gw.govt.nz/assets/council-reports/Report_PD_Fs/2010_175_1_Report.pdf</a>

			<a href="#">Services/MemorandumofPartnership2012.pdf</a>	<a href="http://www.gw.govt.nz/assets/Plans--Publications/Regional-Plan-Review/Whaitua/ComātaurangaMāoriunityEngagementSumātaurangaMāoriaryPaper.pdf">http://www.gw.govt.nz/assets/Plans--Publications/Regional-Plan-Review/Whaitua/ComātaurangaMāoriunityEngagementSumātaurangaMāoriaryPaper.pdf</a>	
Environment Southland	Information, knowledge, education (Environment Southland, 2012, p. 159).	N/A	Recognises and provides for mātauranga (Environment Southland, 2012, p. 19)		<a href="http://www.es.govt.nz/Document%20Library/Plans,%20policies%20and%20strategies/Regional%20policy%20statement/Proposed%20Regional%20Policy%20Statement%20(2012)/Decision%20reports/psrps%202012%20-%20decision%20report.pdf">http://www.es.govt.nz/Document%20Library/Plans,%20policies%20and%20strategies/Regional%20policy%20statement/Proposed%20Regional%20Policy%20Statement%20(2012)/Decision%20reports/psrps%202012%20-%20decision%20report.pdf</a>
Environment Canterbury	N/A	N/A	N/A	Co-management examples, <a href="http://ecan.govt.nz/publications/Plans/cultural-flows-report-waihao-river-wainono-lagoon-2006.pdf">http://ecan.govt.nz/publications/Plans/cultural-flows-report-waihao-river-wainono-lagoon-2006.pdf</a>	

				<a href="http://ecan.govt.nz/services/environmental-planning/Pages/te-waihora-openings.aspx">http://ecan.govt.nz/services/environmental-planning/Pages/te-waihora-openings.aspx</a>	
Hawkes Bay Regional Council	Māori knowledge originating from Māori practices, observations, science, ancestors, including the Māori world view and perspectives, creativity and cultural practices (HBRC, 2011).	<p>Land and Water Management Strategy: Matauranga Maori (Maori knowledge) and approaches to resource management will be recognised and incorporated into strategy implementation and plan change processes (HBRC, 2011, p. 14).</p> <p>HBRC will seek and consider science and information on land and water resources; social science to inform policy and decision making direction; and Matauranga Maori to inform both (HBRC, 2011, p. 14).</p> <p>Coastal Environment Plan: Access to the coast is maintained where appropriate for tangata whenua to preserve matauranga Maori and enable kaitiakitanga and its practical benefits to people, communities, and the management of coastal resources (HBRC, 2014, p. 18).</p>	N/A	<p>Tukituki River Catchment Cultural Values and Uses, <a href="http://www.hbrc.govt.nz/assets/Document-Library/RWSS-Final-RMA-Reports/Assessment-Reports/RWSS-A5a-Cultural-Values-Assessment-Taiwhenua-o-Tamatea-and-Taiwhenua-o-Heretaunga-June-2012.pdf">http://www.hbrc.govt.nz/assets/Document-Library/RWSS-Final-RMA-Reports/Assessment-Reports/RWSS-A5a-Cultural-Values-Assessment-Taiwhenua-o-Tamatea-and-Taiwhenua-o-Heretaunga-June-2012.pdf</a></p>	<p><a href="http://www.hbrc.govt.nz/assets/Document-Library/Strategies/HB-Land-and-Water-Management-Strategy.pdf">http://www.hbrc.govt.nz/assets/Document-Library/Strategies/HB-Land-and-Water-Management-Strategy.pdf</a></p> <p><a href="http://www.hbrc.govt.nz/assets/Document-Library/Plans/Regional-Coastal-Environment-Plan-RCEP/Current-RCEP-Part-B.pdf">http://www.hbrc.govt.nz/assets/Document-Library/Plans/Regional-Coastal-Environment-Plan-RCEP/Current-RCEP-Part-B.pdf</a></p>

		Marine & Freshwater Fisheries Strategic Plan.			
--	--	---	--	--	--

**NRC:**

Traditional context means the knowledge, comprehension or understanding of everything visible or invisible that exists across the universe...in modern context as Māori research, science and technology principles and practices (Northland Regional Council, 2016, p. 150).

**WRC:**

“Mātauranga Māori is holistic, dynamic and a continually evolving knowledge system involving generational observations and experiences...This can include te reo (Māori language), taonga tuku iho (treasure handed down) and mātauranga (traditional environmental knowledge) and knowledge of cultural practises, such as rongoa (healing and medicines) and mahinga kai (hunting, fishing and cultivation of food)” (WRC, 2015, p. 1).

**BOPRC:**

System of knowledge supported by tikanga Māori (customs), whakapapa (genealogy) and practices... recognises the relationships to the taiao, ngā tangata whenua and Te Ao wairua and draws on observations and experiences (BOPRC, 2016, p. 15).

**GWRC:**

The recognition and use of Māori knowledge and practices (GWRC, 2010, p. 2).

**Environment Southland:**

Information, knowledge, education (Environment Southland, 2012, p. 159).

**HBRC:**

Māori knowledge originating from Māori practices, observations, science, ancestors, including the Māori world view and perspectives, creativity and cultural practices (HBRC, 2011).

### APPENDIX 4: How Co-Governance Entities frame Mātauranga Māori

Co-Governance Organisations	Conceptualised	Strategic Aim	Operationalised Process	Examples	Source
Sea Change	Wairuatanga (metaphysics), Te Ao Turoa (ecological), Whakaaroaro (logic), whakaponotanga (epistemology), tikanga (ethics), kaitiakitanga (governance), te ao hurihuri (modern) (Sea Change, 2015).	Protection of resources, access for mana whenua (Sea Change, 2015).	MĀTAURANGA MĀORI Roundtable Advisory Group – involving mana whenua reps. Recognition of Mana Whenua property Rights. Co-governance, co-management and co-planning.	N/A	<a href="http://www.seachange.org.nz/PageFiles/675/Matauranga%20Maori%20RT%20PP%20handover.pdf">http://www.seachange.org.nz/PageFiles/675/Matauranga%20Maori%20RT%20PP%20handover.pdf</a>
Waikato Raupatu River Trust	Traditional and contemporary Maaori knowledge, knowledge systems, and knowledge bases... originating from Maaori ancestors...Maaori worldview and perspectives, Maaori creativity, and cultural and spiritual practices..organic..ever growing and expanding (Waikato-Tainui Te Kauhanganui Incorporated, 2013, p. 260).	Application of both maatauranga Maaori and latest available scientific methods to all aspects of the river (Waikato-Tainui Te Kauhanganui Incorporated, 2013, p. 86).	Environmental Plan - as a tool to provide clear high-level guidance on Waikato-Tainui objectives and policies with respect to the environment to resource managers, users and activity operators (Waikato-Tainui Te Kauhanganui Incorporated, 2013, p. 14).	N/A	<a href="http://www.wrrt.co.nz/wp-content/uploads/EBook_FINAL_EP_Plan_sp.p">http://www.wrrt.co.nz/wp-content/uploads/EBook_FINAL_EP_Plan_sp.p</a>
Waikato River Authority	Usually used to mean 'Maaori knowledge' – distinctive knowledge created by Maaori in history and arising from their living circumstances, their	To restore and protect the health and wellbeing of the Waikato River using maatauranga Māori applications (Waikato River Authority, 2008).	Establish what the current health status of the Waikato River is by utilising maatauranga Maaori and latest available scientific methods (Waikato River Authority, 2008, p. 9).	The Waikato river and Waipa river restoration strategy - <a href="http://www.waikatoriver.org.nz/projects-and-">http://www.waikatoriver.org.nz/projects-and-</a>	

	world view and their experiences (Waikato River Authority, 2016, p. 14).		Develop targets for improving the health and wellbeing of the Waikato River by utilising maatauranga Maaori and latest available scientific methods (Waikato River Authority, 2008, p. 9).	<a href="http://www.waikatoriver.org.nz/tools/waikato-river-and-waipariver-restoration-strategy/">tools/waikato-river-and-waipariver-restoration-strategy/</a> Maurea Islands Restoration – although no specifics on MĀTAURANGA MĀORI. <a href="http://www.waikatoriver.org.nz/wp-content/uploads/2011/07/Final-Maurea-report-FINAL.pdf">http://www.waikatoriver.org.nz/wp-content/uploads/2011/07/Final-Maurea-report-FINAL.pdf</a>	
Rangitaiki River Forum (BOPRC)	N/A	N/A	N/A	N/A	N/A
Te Maru o Kaituna (BOPRC)	N/A	N/A	N/A	N/A	N/A