

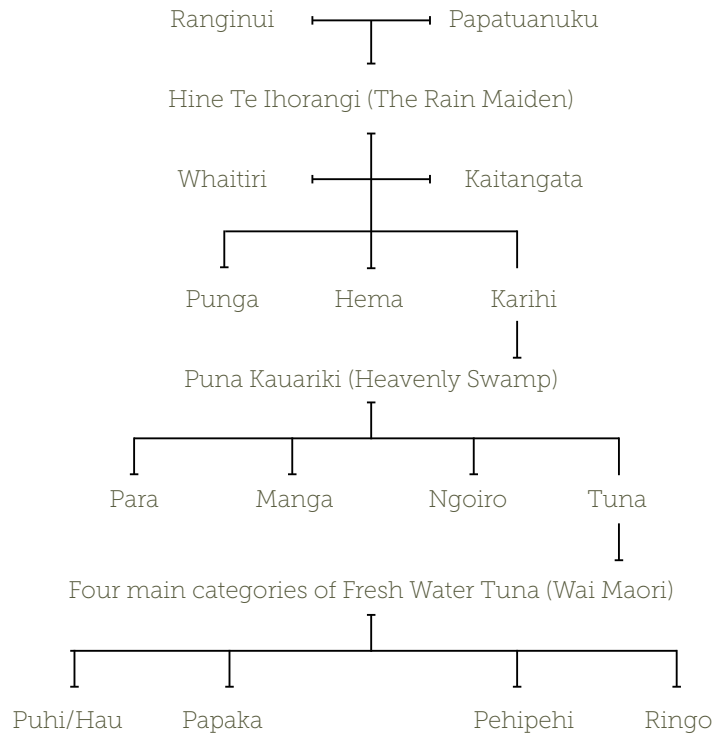
— Urban Eels

OUR SUSTAINABLE CITY

IMPLEMENTATION PLAN

2018

– Whakapapa O Tuna



109 named varieties of tuna:
 Ruahine / Kokopu tuna / Tarehe / Karaerae / Matamoe
 Huamate / Matawera / Hao / Pakauhokio

SOURCE: Terry Hapi, Tanenuiarangi Manawatū Incorporated (TMI) - July '17



Date: 28 April '18

ISBN: 00-0000-0000-00

Report Number: RN 12-345-6789-01

Credit for front cover and carving images throughout document:
 "Photos of carvings at Tuturu Pumau at Te Hotu Manawa O Rangitaane O Manawatu Marae."

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New Zealand Transport Agency and the Palmerston North City Council Cycleway Project.

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– Whakatauki ¹

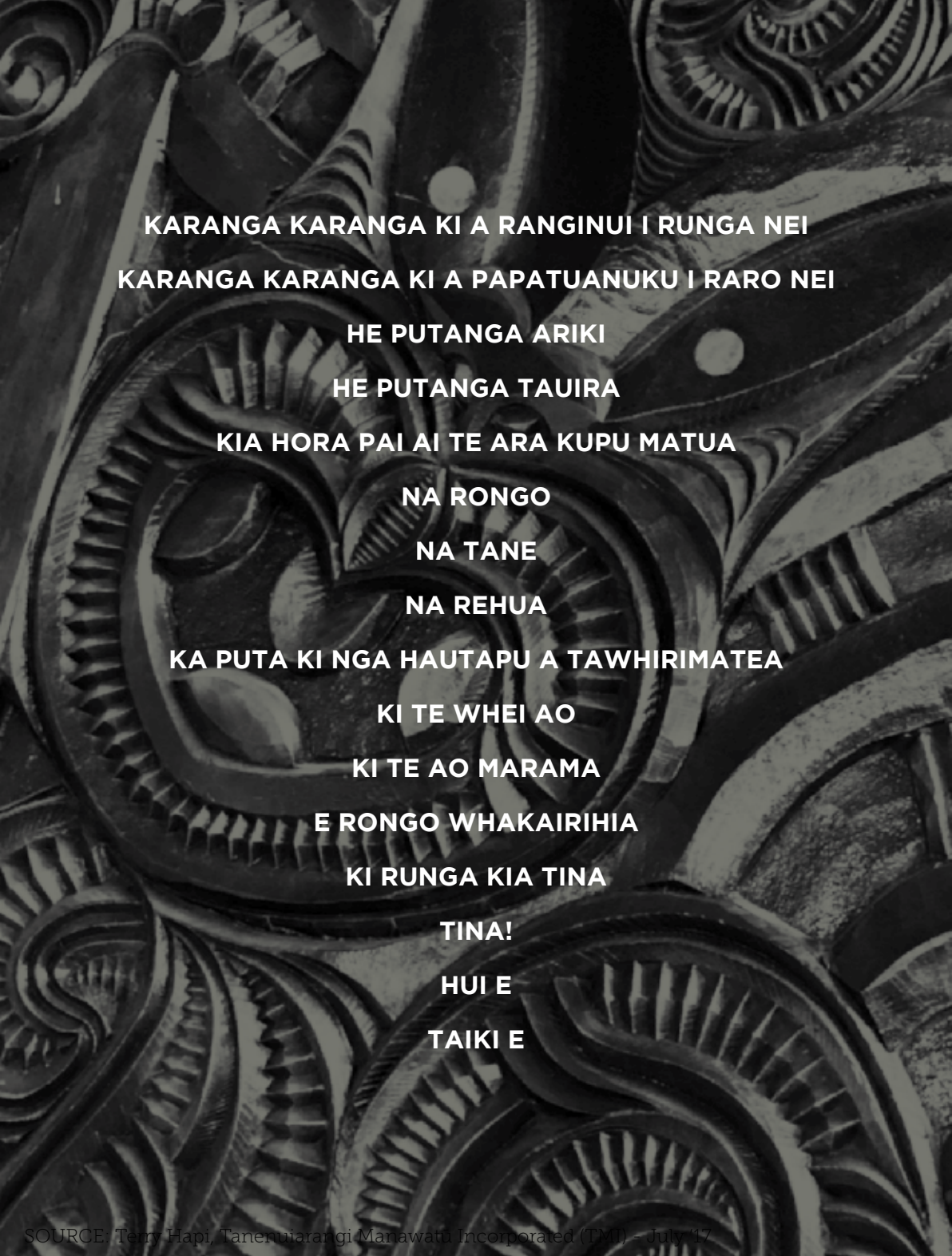


¹ "Whakatauki" - to utter a proverb.

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– Karakia ²

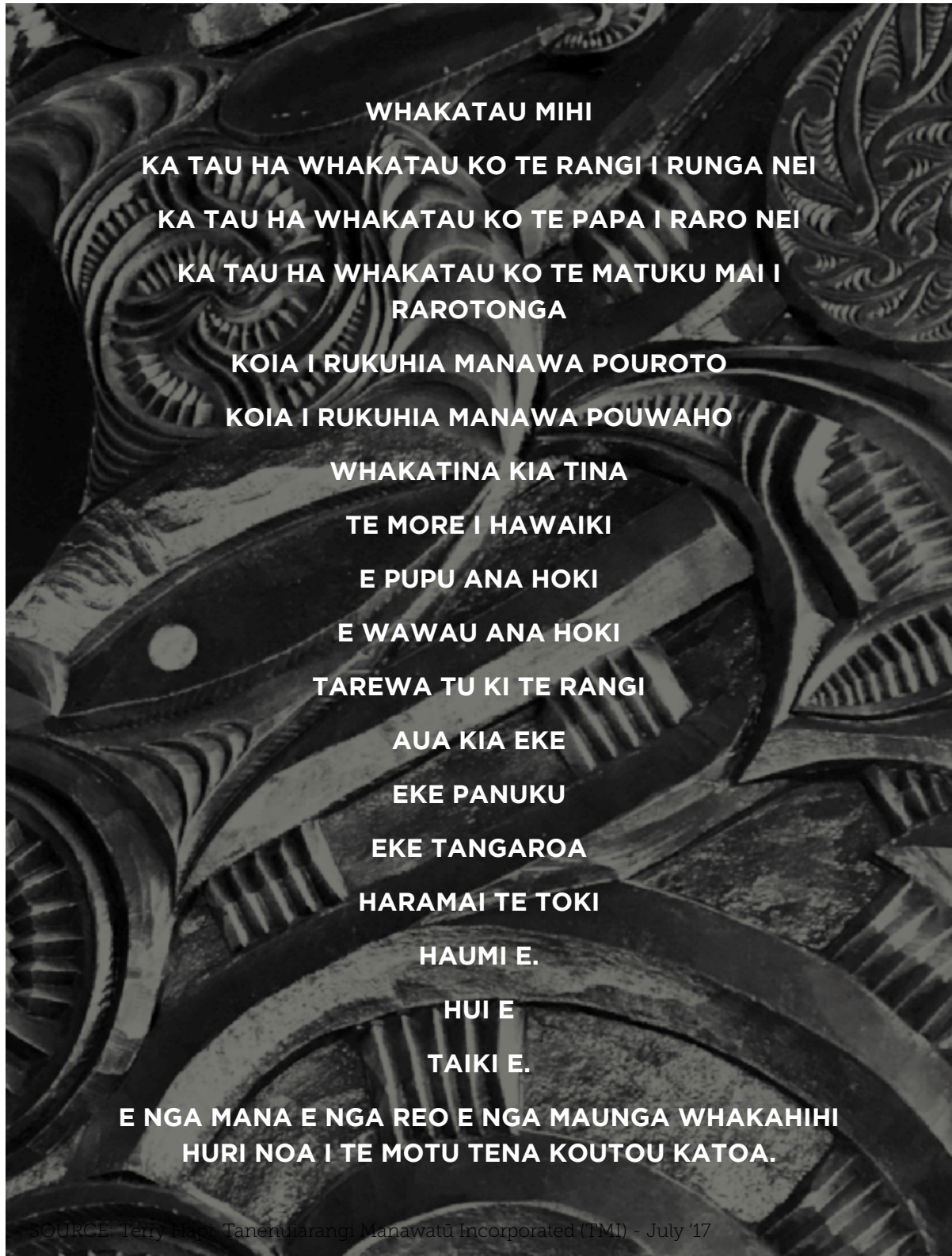


KARANGA KARANGA KI A RANGINUI I RUNGA NEI
KARANGA KARANGA KI A PAPTUANUKU I RARO NEI
HE PUTANGA ARIKI
HE PUTANGA TAUIRA
KIA HORA PAI AI TE ARA KUPU MATUA
NA RONGO
NA TANE
NA REHUA
KA PUTA KI NGA HAUTAPU A TAWHIRIMATEA
KI TE WHEI AO
KI TE AO MARAMA
E RONGO WHAKAIRIHIA
KI RUNGA KIA TINA
TINA!
HUI E
TAIKI E

SOURCE: Terry Hapi, Tanemuiarangi Marawatu Incorporated (TMI) – July 17

² "Karakia" - to recite ritual chants, say grace, pray, recite a prayer, chant.

– Whakataau Mihi ³



³ "Mihi Whakataau" - greeting, official welcome speech.

– Acknowledgements

GORDON CONSULTING AND TANENUIARANGI MANAWATŪ INCORPORATED (TMI)

WISH TO THANK AND ACKNOWLEDGE OUR PARTNERS AND SPONSORS:

Te Rangimarie, Wiremu Te Awe Awe. Ngāti Hineaute Hapū Authority, Chris Whaiapu. Te Manawa Museum of Art Science and History, Andy Lowe.

Horizons Regional Council, Logan Brown & Lucy Ferguson. Palmerston North City Council, Aaron Phillips. Massey University, Allan Still. Palmerston North City Environmental Trust. The Manawatū River Leaders' Accord - Community Project Grant.

– Foreword

NGĀ TAONGA TUKU IHO – TE TUNA

THE EEL – AN ANCIENT GIFT FROM THE GODS

For a people who relied on seasonal foods, tuna (eel) was a gift from the gods. From the records of our ancestors we know that tuna lived in abundant numbers throughout the waterways of the lower North Island - a landscape with numerous swamps, lakes, streams and rivers providing an ideal home for tuna, within which they thrived⁴.

Tuna were much bigger, easier to catch, available all year round and were everywhere⁵, providing an important source of nutrition along with crops, edible plants, berries, birds, rats and fish⁶.

Sadly, the longfin eel (tuna kawharuwharu or tuna reherehe) is in steady decline due to the historical destruction and degradation of its habitat – primarily due to swamp drainage, pollution of freshwater bodies, loss of feeding grounds and degradation of riparian margins.

In addition, tuna were historically viewed as a threat to the establishment of a trout fishery by the Acclimatisation Society, established by European colonists in the 1860s. As a result, tuna were regularly killed when encountered and contests for the biggest tuna were commonplace.

In-stream barriers such as dams prevent migration

and breeding, while ongoing pressure from commercial fishing⁷ continues to negatively affect tuna populations. Historically, long-finned eels were reported as weighing as much as 40 kg yet today tuna bigger than 10 kg are unlikely⁸.

While tuna still inhabit our local streams, declining populations mean few people readily encounter tuna and some consider them “scary”. People today are most likely to encounter tuna in nature reserves such as Ngā Manu in Waikanae and Pukaha Mt Bruce in the Wairarapa, where tuna are afforded relative sanctuary with few threats – human or otherwise – good habitat and a reliable food source⁹.

Tuna maintain a special place in Māori culture and are an important part of preserving the practice of cultural traditions¹⁰. The enduring relationship

4 Joseph Potangaroa (2010) Tuna kuwharuwharu – the longfin eel. An educational resource Facts, threats and how to help' pg 4

5,6 Joseph Potangaroa (2010) Tuna kuwharuwharu – the longfin eel. An educational resource Facts, threats and how to help' pg 5

7-9 <https://envirohistorynz.com/2010/06/19/eels-and-eeling-in-our-environmental-and-cultural-history/>

10 Joseph Potangaroa (2010) Tuna kuwharuwharu – the longfin eel. An educational resource Facts, threats and how to help' pg 5

– Foreword cont.

between man and tuna is illustrated on meeting houses throughout New Zealand and maintained through the stories contained in tribal histories. Images of tuna appearing beside tribal ancestors mark their importance to Māori¹¹. Such images and carvings act as a record of important events, people and animals¹².

Māori are keen to express their cultural world views, and understanding these beliefs and values represents an important aspect of sustainable development in New Zealand¹³. Māori language, art, spiritual and cultural perspectives serve as a means of transferring cultural values between generations and they instil an individual and collective identity. Māori are keen to actively engage in the enhancement of tuna stocks and the protection of this taonga.

We must look to provide opportunities and spaces for the education and re-acquaintance of our people with the enduring relationship between man and tuna, our customary fishing practices and the importance of ritenga¹⁴, tikanga^{15, 16} and Rangitaanenuirawa¹⁷.

By working together, we can make "Urban Eels: Our Sustainable City" such a space.

Paul Horton
Tanenuiarangi Manawatū Incorporated.

Fiona Gordon
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– Purpose of Document

The purpose of this document is to set out the implementation plan for the development of "Urban Eels": Our Sustainable City". This document includes:

- Background information relating to tuna and the relationship between man and tuna;
- The agreed vision, mission and objectives of "Urban Eels: Our Sustainable City";
- The agreed key actions, funding, timeframes and management required to develop "Urban Eels: Our Sustainable City" on-the-ground.

11,12 Joseph Potangaroa (2010) Tuna kuwharuwharu – the longfin eel. An educational resource Facts, threats and how to help' pg 4

13 Joseph Potangaroa (2010) Tuna kuwharuwharu – the longfin eel. An educational resource Facts, threats and how to help. pg 5

14 "ritenga" - likeness, custom, customary practice, habit, practice, resemblance, implication - the normal way of doing things.

15 "tikanga" - correct procedure, custom, habit, lore, method, manner, rule, way, code, meaning, plan, practice, convention, protocol - the customary system of values and practices that have developed over time and are deeply embedded in the social context.

16 Rangitaane (North Island) Iwi Fisheries Plan 2012 – 2017 (2012) p30

17 "Rangitaanenuirawa" - the expression of kitiakitanga in Rangitāne way (as per comms Paul Horton). Kitiakitanga - the guardianship, stewardship, trusteeship, trustee.



– Part I

BACKGROUND

ENVIRONMENT AND MANA WHENUA

Māori perspectives, particularly those practices and philosophies of kaitiakitanga¹⁸, provide a key element for the development of a wider sustainability practice in New Zealand.

Kaitiakitanga provides a framework based on culturally defined obligations and duties of care. Central to this framework are Māori values, a strong sense of cultural identity and the retention, development and use of Māori knowledge¹⁹.

While Māori have diverse perspectives on the practice of kaitiakitanga there is a shared cosmology that links all parts of the earth and nature. People exist in a relationship with the non-human world and are connected by whakapapa or genealogy. All interactions with our environment evoke these relationships whereby environmental, social, economic and spiritual values are interconnected and interdependent²⁰.

Kaitiakitanga provides an alternative to the more 'effects based' approach to sustainable development promoted widely within the Western world. Kaitiakitanga measures progress through a number of culturally defined indicators which include improved Māori wellbeing and

standards of health, increased human and social capacity, strength of cultural identity, sustainable management of natural resources, and culturally appropriate strategies for achieving economic self-sufficiency for communities²¹.

Māori cultural values reflect a unique worldview. Māori language, art and spiritual and cultural perspectives serve as a means of transferring cultural values between generations and they instil an individual and collective identity.

As mana whenua for an area that encompasses the City of Palmerston North²², Rangitāne o Manawatū (RoM) maintain an ancestral connection to this area, providing leadership in terms of tikanga and kaitiakitanga²³. Tikanga Māori – Māori philosophies and practices – shape standards and behaviour. Because of this, access to culture can positively influence the lifestyles of whanau, contribute to social wellbeing and social cohesion. Hence, specific areas of interest to RoM include:

- increased environmental health, related to land and water quality;
- increased access to and maintenance of traditional cultural knowledge; and
- increased contemporary expression and interpretation of cultural heritage²⁴.

18 "Kaitiakitanga" - guardianship, stewardship, trusteeship, trustee.
19-24 Palmerston North Maori Community Profile (PNCC) Nov 2011
<http://www.pncc.govt.nz/media/1726593/maori-profile-2011-pdf.pdf>

THE REALM OF ATUA TANGAROA AND DESCENDANTS OF WHĀTONGA

The relationship with the realm of the Atua Māori evolved from time immemorial, forming part of the fundamental cultural environmental practices of rangitaaenuirawa, tikanga, ritenga, tino rangatiratanga, kawanatanga (governance) and tiaki tangata.

It captures such things as the mauri of the waterway, the whakapapa to the fish, the abundance and health of the oceans seaweeds and the way that man interacts with the whole²⁵.

The oldest known inhabitants of Manawatū are the Rangitāne people, who settled the area in the 13th Century. The people of Rangitāne are descendants of Whātonga, captain of the Kurahaupō canoe

a-Tara. He then made his way up the west coast to the Manawatū River and through the gorge, to return to his home in Heretaunga (Hawke's Bay).

Rangitāne was the grandson of Whātonga. Descendants of Rangitāne included Tāwhakahiku and Māngere, and their cousins Rākaumāui, Poutoa and Tamakere. They were the first of this line to settle in Manawatū. A marriage between Whakarongotau, another cousin, and a Ngāi Tara chief cemented links with the descendants of Whātonga already in the region²⁷.

Rangitāne o Manawatū (RoM) hapu are Ngāti Hineaute, Ngāti Kapuarangi, Ngāti Rangitepaia, Ngāti Mairehau, Ngāti Rangiaranaki and Ngāti Taurira. RoM is today represented by the iwi authority Tanenuiarangi Manawatū Incorporated (TMI) and operates under the guidance of the Council of Elders Te Mauri o Rangitāne o Manawatū (TMoROM) to protect and develop the mana of RoM²⁸.



Whakapapa (genealogical chart) showing Rangitāne's relationships to Whātonga and Tara, the ancestor of the Ngāi Tara (Muaūpoko) tribe ²⁹.

which arrived at Māhia Peninsula on the East Coast of the North Island. The tribe take their name from Whātonga's grandson Rangitāne (also known as Tānenui-a-rangi)²⁶. Tradition recalls that the explorer Whātonga travelled this route from the East Coast. He named the area now known as Wellington after his son Tara – Te Whanganui-

RoM tradition says the name "Himatangi" was derived from a legend about a famous warrior chief, Matangi, who fished up and killed a taniwha (water monster) responsible for eating his relatives. The taniwha lived in a lake near the present village of Rangiotu³⁰.

25 Rangitāne (North Island) Iwi Fisheries Plan 2012–2017 (2012) p30

26 Source: <http://www.teara.govt.nz/en/Rangitāne>

27 Source: <http://www.teara.govt.nz/en/manawatu-and-horowhenua-region/page-4>

28 Source: <http://www.horowhenua.govt.nz/Council/Iwi-Relationships/Partnerships/>

Rangitāne-O-Manawatu

29 Source: Whakapapa from information provided by Mason Durie and Meihana Durie <http://www.teara.govt.nz/en/whakapapa/1490/Rangitāne-lineage>

30 Source: Paul Horton.

Rangitāne o Manawatū are mana whenua of this region, arriving in the area in the 1200's. The river is a great taonga to Rangitāne as it contains the mauri (spiritual essence) of the tribe. There are a number of Rangitāne origin stories of relevance to the river.

The origins of the river: The creation of what was to become the Manawatū River is attributed to the taniwha Okatia and is retold in this extract from Buick's historical account of early Manawatū;

"Away upon the slopes of the Puketoi Ranges there grew in the days of old a giant Totara tree, into which the spirit of a God called Okatia suddenly entered and endowed it with the power of motion, whereupon it gradually wormed its way over the land, gouging out a deep bed as it went, until it came to the mountain chain which separates the East from the West Coast. There it drove a course for itself through this huge barrier, which the mighty Okatia split as easily as a child would break a twig, and on passed the inspired tree, ploughing its irresistible way with many serpentine wanderings towards the sea, leaving the turbulent waters and still reaches of the Manawatū River flowing in its wake."

(Buick T.L (1903) *The Wild Days of the West*, Buick and Young Palmerston North.)

The naming of the River can be traced through Rangitāne tribal history; the Manawatū River received its name from a tohunga (priest) named Haunui nanaia. Haunui travelled down the coast from Taranaki chasing after his wife, Wairaka, and her lover. Although Hau had already crossed a number of large rivers he was so in awe of the breadth of the latest river that he named it Manawatū; heart standing still.

The Manawatū River is of great historical, cultural, spiritual and traditional significance to Rangitāne o Manawatū. It's the river by which the iwi has built its tribal identity, its mauri sustains the wellbeing of the hapu, and in a practical sense, it was the main route for travel and communication and was a key source of obtaining food (a mahinga kai). Sources of information from historic maps and records, archaeological survey and oral tradition show that the major occupation sites were clustered along the river edge of the terrace cliffs.

A number of settlements and numerous Rangitāne o Manawatū Pa were situated along the margins of the river. As the Manawatū River was prone to flooding and shifting, albeit that these were of different character, and intensity than floods of today, inundation became part of the seasonal routine for Rangitāne.

SOURCE: Manawatū River Framework Master Plan 16 Feb 2015 (PNCC) pg 6

"Manawatū" means "heart standing still"³¹. The Manawatū River is a great taonga to RoM as it contains the mauri (spiritual essence) of the tribe. The Manawatū River, 160 km long, rises on the eastern (Hawke's Bay) slopes of the Ruahine Range. Downstream 50 km it enters the region through the Manawatū Gorge. The name Manawatū is attributed to the explorer Haunui -a-Nanaia, from

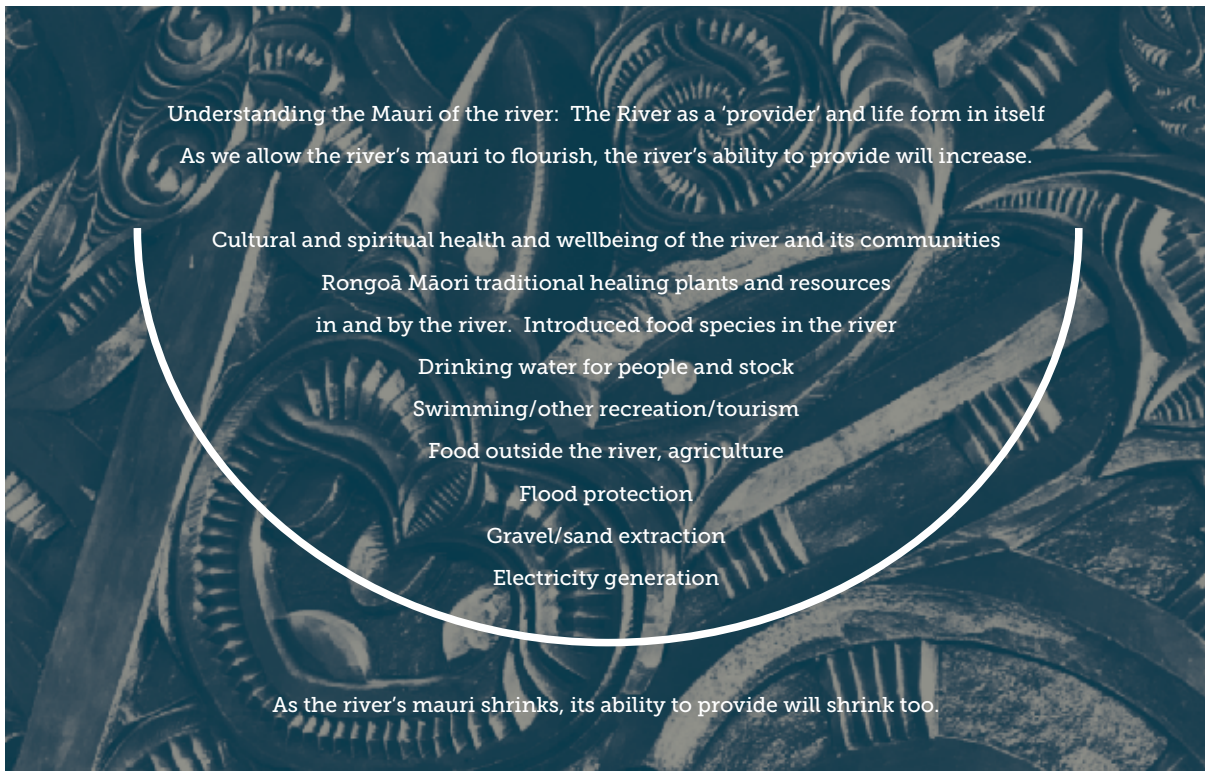
a place where he took breath and tripped: manawa (heart), tatu (stumble)³². The creation of what was to become the Manawatū River is attributed to the taniwha Okatia (see above).

"Turitea" means "clear bright water"³³. The Turitea Stream is a tributary of the Manawatū River. From its source in the Tararua Ranges to its confluence with the Manawatū River, the Turitea Stream

31 SOURCE: Manawatu River Framework Master Plan 16 Feb 2015 (PNCC) pg 6

32 Source: <http://www.teara.govt.nz/en/manawatu-and-horowhenua-places/page-6>

33 Ref: "A timely lesson in te reo pronunciation" Talia Shadwell (2013) <http://www.stuff.co.nz/manawatu-standard/news/8867500/A-timely-lesson-in-te-reo-pronunciation>



SOURCE: Manawatū River Leaders' Forum Action plan (2011) pg 4

flows through farmland, Bledisloe Park (Massey University) and the Fitzherbert Science Centres' farmland before meeting the Manawatū River in Palmerston North City, opposite Paneri Park.

The values identified for the Turitea Stream include mauri; site of significance for aquatic biodiversity; main water supply to Palmerston North City; Trout Spawning; Trout Fishery; contact recreation; stockwater; and capacity to assimilate pollution³⁴. Careful, complex current and future management of land use and water quality is required to successfully provide for all the values the community place upon the Manawatū River and its tributaries.

The Turitea Stream is located within the 'Urban Environment Area' of the Manawatū River Framework, which includes a focus on enhancing our physical connection to the river and expressing RoM's connection with the river³⁵.

As tangata whenua, kaimoana is an important traditional food source for hapu and whanau of RoM whom maintain a special and enduring relationship with the roto (lakes), awa (rivers), moana (sea) and the plants, animals and fish that make up the realm of Tangaroa³⁶.

Before European settlement the waterways, lakes and coastal waters of the lower North Island provided an abundant supply of fish to Rangitāne

34 Values identified in Horizons' One Plan for the Turitea Stream.
 35 Manawatū River Framework (Feb 2016) PNCC and PNCC WEBSITE: [http://www.pncc.govt.nz/yourcouncil/projects-and-initiatives/ur-](http://www.pncc.govt.nz/yourcouncil/projects-and-initiatives/urban-design-initiatives/manawatu-river-framework/)

[ban-design-initiatives/manawatu-river-framework/](http://www.pncc.govt.nz/yourcouncil/projects-and-initiatives/urban-design-initiatives/manawatu-river-framework/)
 36 Rangitāne (North Island) Iwi Fisheries Plan 2012–2017 (2012) p30

tupuna. Fish were caught, using hooks, nets, spears and traps or harvested by hand from rock pools and sandy beaches. No activity was undertaken without due ritual (karakia and reciprocity). Knowledge was closely guarded and taught in confidence³⁷.

The traditional RoM approach, like all tangata whenua was to use maramataka (lunar cycles) and tohu (seasonal cues) to assess availability of fish. Certain species had greater value, where value and use might relate to rongoa (medicinal properties), mauri (protein content) and wairua (spiritual importance)³⁸.

Though now much diminished there are mahinga kai and places of customary food gathering that still have relevance today. It is through the retention of Rangitaanenuirawa in educating and reacquainting our people with customary fishing practices and the importance of ritenga, tikanga and kaitiakitanga that the management goals set out in the Rangitāne (North Island) Iwi Fisheries Plan 2012–'17 (2012) will be better realised at the local level³⁹.

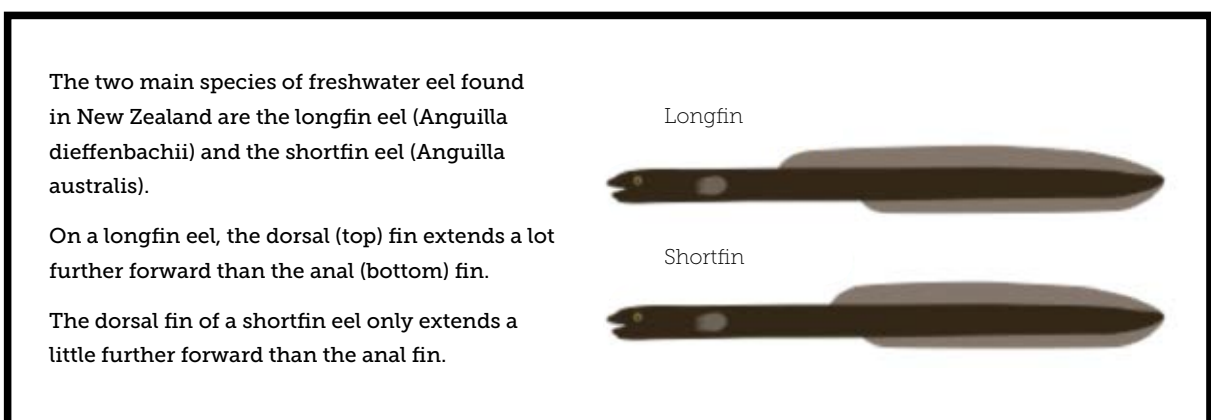
TUNA (EEL)

Māori recognise more than 109 names for tuna, reflective of their different life stages, or sizes or varieties⁴⁰.

While a few important food species may have had up to a dozen Māori names, most have only one or two and the large number of names associated with freshwater tuna reflects their socioeconomic importance⁴¹ to Māori and the special place of tuna in Māori culture.

In one tradition, tuna came from Puna-kauariki, a spring in the highest heavens. The families on the spring were Para (frostfish), Ngoiro (conger eel), Tuna (freshwater eels) and Tuere (hagfish or blind eel). The waters of the heavens dried up, and this group made their way down to Papatuanuku (the earth). Tuna remained in fresh water, but Para, Ngoiro and Tuere all went to the sea⁴².

Western science identifies two indigenous tuna species in New Zealand – the shortfin eel (scientific name: *Anguilla australis*), the longfin eels (scientific name: *Anguilla dieffenbachii*)⁴³ and an Australian species. The long-fin eel is one of the largest eels in the world and is unique to New Zealand. It is found well inland in rivers and streams. The shortfin eel



SOURCE: *Freshwater Eels in New Zealand (Pamphlet) Riverscapes Freshwater Ecology, Massey University, Dept. of Conservation.*

37-39 Rangitaane (North Island) Iwi Fisheries Plan 2012–2017 (2012) p30
 40-41 SOURCE: Chris D. Paulin (2007) Perspectives of Māori fishing history and techniques. Ngā āhua me ngā pūrākau me ngā hangarau ika o te Māori. Tuhinga 18: 11–47. Museum of New Zealand Te Papa

Tongarewa, PO Box 467, Wellington, New Zealand. pg 20. https://www.tepapa.govt.nz/sites/default/files/tuhinga.18.2007.pt2_p11-47.paulin.pdf
 42 Information supplied by Paul Horton.
 43 <http://www.doc.govt.nz/nature/native-animals/freshwater-fish/eels/>



Fig. 3 Catching the legendary eel at Tangahoe. While eels of legendary size were uncommon, non-migratory female eels do occasionally attain lengths of up to 2 m and were revered as gods (atua), feared as devils (tipua), or even fed and tamed, as well as being caught and eaten. Watercolour by Thomas William Downes, 1868–1938 (watercolour: Alexander Turnbull Library, A-076-016. Reproduced with permission).

SOURCE: Chris D. Paulin (2007) Perspectives of Māori fishing history and techniques. Ngā āhua me ngā pūrākau me ngā hangarau ika o te Māori. Tuhinga 18: 11–47. Museum of New Zealand Te Papa Tongarewa, PO Box 467, Wellington, New Zealand. pg 19.

(tuna hao, tuna heke, tuna papakura) is limited more to coastal areas and is found in New Zealand, Australia and some Pacific Islands⁴⁴.

The tuna life cycles begins as an egg, becoming a leptocepholus, then a glass eel. As the glass eel pigment develops it becomes a juvenile (elver)⁴⁵. These elvers migrate from the sea into freshwater streams, where they live as adults⁴⁶. After many years (15-30 years for shortfins, 25 for longfins and sometimes up to 80 years) they migrate to the Pacific Ocean to breed and die. Tuna are secretive, mainly nocturnal and prefer habitats with plenty of cover⁴⁷.

Through the records of our ancestors we know that tuna lived in abundant numbers throughout the waterways of the lower North Island, providing

an important source of nutrition along with crops, edible plants, berries, birds, rats and fish⁴⁸.

Today however, longfin eels are considered "At Risk - Declining"⁴⁹ in the New Zealand Threat Classification System listings (2009)⁵⁰ while the shortfin eel is classified as "Not Threatened."⁵¹

The life cycles, ages, habitat and migration patterns of tuna were studied intensively by RoM to determine how many tuna could be taken for food and to ensure sustainability.⁵² While the taking of tuna was an important industry throughout the year, harvesting only occurred at special times of the month and year using maramataka (lunar cycles) and tohu (seasonal cues)⁵³.

46,47,49 <http://www.doc.govt.nz/nature/native-animals/freshwater-fish/eels/>
45 Source: As per comms Paul Horton.

46,52,53 <https://envirohistorynz.com/2010/06/19/eels-and-eeling-in-our-environmental-and-cultural-history/>

48 Joseph Potangaroa (2010) Tuna kuwharuwharu – the longfin eel.

50,51 An educational resource Facts, threats and how to help' pg 5
SOURCE: Freshwater Eels in New Zealand (DOC Pamphlet pdf) Riverscapes Freshwater Ecology, Massey University, Dept. of Conservation.

Maori Lunar Calendar Activity		
Day following New Moon	Name of day	Effects
1	Whiro	Moon entering new phase – an unfavourable day for planting food or fishing.
2	Tirea	A reasonably good day for crayfishing.
3	Hoata	A very good day for eeling, crayfishing and planting kumara and seed crops.
4	Uenuku	A good day for establishing tuber beds, planting food and fishing.
5	Okoro	This is another good day for planting food and fishing.
6	Tamatea-kai-ariki	A day for planting food. West winds that only rain will quell.
7	Tamatea-a-ngana	Eels are voracious tonight. A good day for planting food and fishing but beware of the weather.
8	Tamatea-a-aio	Eels, fish and kumara are abundant but small. A productive day to collect shellfish. Fishermen beware!
9	Tamatea-whakapau	A good morning for planting food. Not very good for fishing.
10	Ariroa	A disagreeable day. One for marking time.
11	Huna	Don't plant food. Not a good fishing day. Eel and Crayfish are wary.
12	Mawharu	A most favourable day for planting food. Kumara are very large but rot quickly. A good day for fishing and a good night for trapping crayfish and eels.
13	Ohua	A very good day for planting food.
14	Atua whakahaehae	Not a good day for planting or fishing.
15	Oturu	A very good day for bobbing eels. A good day for fishing and planting food in the afternoon.

Activities: Plowing garden beds Crayfishing Planting Kumara Planting Seed crops
 Boat fishing Rock fishing Sailing west Sailing east Trapping Eels Catching Eels
 Collecting shellfish Staying indoors

Day following New Moon	Name of day	Effects
16	Rakau-nui	A very good day – crops are bountiful. A good day for fishing but not eeling.
17	Rakau-matohi	A very good day for fishing but not eeling. Seedplants grow vigorously.
18	Takirau	Food is bountiful but small.
19	Oike	Not a good day for planting food.
20	Korekore te whiawhia	An unproductive night on the shore – winds sweep the sea.
21	Korekore te rawea	Not a fruitful night. Food is scarce, but await the turn of the tide.
22	Korekore te piri ki Tangaroa	A good day from midday to sundown. A productive period for taking eels. Most foods are plentiful.
23	Tangaroa-a-mua	A good day for fishing, eeling and planting food.
24	Tangaroa-a-roto	A productive day for fishing and planting food.
25	Tangaroa-whakapau	A good day for fishing and cultivating seed beds.
26	Tangaroa-a-kiochio	A good day for taking eels, fishing and for setting crayfish and eel traps.
27	Otane	A good day for fishing, eeling and crayfishing. A reasonable day for planting food.
28	Orongonui	A very productive day for planting food, fishing and eeling.
29	Mauri	Not a productive day – food is scarce, fish are restless.
30 (same as 1)	Mutuwhenua	Unproductive day and night. The moon has diminished and the night is in total darkness.

Activities: Plowing garden beds Crayfishing Planting Kumara Planting Seed crops
 Boat fishing Rock fishing Sailing west Sailing east Trapping Eels Catching Eels
 Collecting shellfish Staying indoors

SOURCE: Stardome Observatory http://astredu.nz/images/downloads/Maori_Lunar_Calendar_Activity.pdf

TUNA FISHING METHODS

Tuna were highly sought after and Māori developed highly specialised fishing technologies for catching them in rivers, streams and the outlets of lagoons and lakes⁵⁴.

Capture methods were intensified during migratory runs⁵⁵ to take full advantage of the seasonal abundance of tunaheke (migratory tuna)⁵⁶. Once harvested, tuna were preserved by drying on lines or were smoked over fires⁵⁷.

Tuna fishing methods in Te Tapere a Whātonga

(Manawatū Region) would have required a variety of methods - from pa tuna (eel weir) to taumata tuna (eel stands) on rivers and lakes where hinaki (set netting), mounu tui toki/huhu (eel bob with worm or huhu grub bait) is better suited; to aratuna (blind stream channels) where rou (gafts) and matarua (spears) came into their own. In shallow water catching fish by hand was a handy way of getting a meal as was the method of rapu tuna/ika (seeking by hand or feet).

A similar method to rapu tuna is the takahi method, where a group stand in a semi-circle in the water; one person stamps on the bank to scare the eels out of their hiding places and the others grab

54,55,56 SOURCE: Chris D. Paulin (2007) Perspectives of Māori fishing history and techniques. Ngā āhua me ngā pūrākau me ngā hangarau ika o te Māori. Tuhinga 18: 11–47. Museum of New Zealand Te Papa Tongarewa, PO Box 467, Wellington, New Zealand. pg 20. <https://>

www.tepapa.govt.nz/sites/default/files/tuhinga.18.2007.pt2_p11-47.paulin.pdf

57 <https://envirohistorynz.com/2010/06/19/eels-and-eeling-in-our-environmental-and-cultural-history/>



Fig. 4 Pā tuna eel weirs were designed to harvest tunaheke or migratory eels; the fence structures were up to 400 yd (370 m) in length and guided eels moving downstream into a funnel-shaped net (purangi). Eel-pots (hīnaki) attached to the net were emptied regularly from canoes. Whanganui River (photo: Te Papa, MA_B.000826, by James McDonald, 1921).

SOURCE: Chris D. Paulin (2007) Perspectives of Māori fishing history and techniques. Ngā āhua me ngā pūrākau me ngā hangarau ika o te Māori. Tuhinga 18: 11–47. Museum of New Zealand Te Papa Tongarewa, PO Box 467, Wellington, New Zealand. pg 20.

them as they escape. The eels are killed with a strong bite to the head and thrown to a kaimahi on the bank who bags the catch. The eels too large to bite would be killed with a patu tuna (eel club, or eel striking) which used a thin rod to kill eels in shallow water. The patu tuna method of harvesting could also be done at night in shallow streams by two people with the aid of torch light, with the companion stringing the eels together and dragging them along.

Catching eels with a threaded worm on a rod

(bobbing) is called toi. To make a bob the fisherperson threads flax or cabbage-tree leaf through a large worm or grubs and attaches this to a short rakau, usually of manuka. When the eel's teeth catch on the fibres, the person bobbing swings it ashore or into a whakarino (submerged basket) before any further processing. Eel-bobbing was done at night and sometimes in the day when the water was muddy or discoloured.

A made-up eel bob is called mounu (bait) or tui (to thread). Tui toke is a bob made from earthworms,



This historic photograph shows several hinaki and the hull of a large waka. The photograph was taken about 1906. Major Tunuiarangi Brown, who was active in the movement to protect scenic and historic sites standing at the left.

SOURCE: Joseph Potangaroa (2010) "Tuna kuwharuwharu – the longfin eel. An educational resource Facts, threats and how to help" pg 12 & 13

while tui huhu is made from huhu grubs. Today, bobs are made from worms sewn together on man-made taura⁵⁸.

Permanent weirs were highly valued and protected from unauthorised persons, as mass capture of tuna during the autumn migrations provided a major contribution to the Māori diet as a valuable source of fat⁵⁹. The number and health of tuna in a river were protected by hanging symbols of mauri, usually stones, at the downstream end of eel weirs. Farming and reseeded were common practices

whereby waterways were restocked or tuna were held in specially built enclosures⁶¹.

While some Māori may have had particular customs, only two tuna varieties, ruahine and tuhoro, are recorded as not being eaten⁶². Restrictions of tapu applied to tuna in certain circumstances, some of which still apply today. These include cooking tuna in separate ovens for ceremonial feasts at which women were not present, and ritual cleansing prior to setting traps⁶³.

58 Source: Information supplied by Paul Horton.
59,62,63 SOURCE: Chris D. Paulin (2007) Perspectives of Māori fishing history and techniques. Ngā āhua me ngā pūrākau me ngā hangarau ika o te Māori. Tuhinga 18: 11–47. Museum of New Zealand Te Papa Tongarewa, PO Box 467, Wellington, New Zealand. pg 20. <https://>

www.tepapa.govt.nz/sites/default/files/tuhinga.18.2007.pt2_p11-47.paulin.pdf
60,61 <https://envirohistorynz.com/2010/06/19/eels-and-eeling-in-our-environmental-and-cultural-history/>



– Part II

URBAN EELS: OUR SUSTAINABLE CITY

INTRODUCTION

'Nature' cannot be narrowly interpreted as 'biodiversity' alone because it encompasses the much broader considerations of geological and geomorphological features and processes, aesthetic, historical, spiritual and other cultural elements, including landscapes, and wild plants and animals appreciated for their beauty, along with the history and legends associated with them.

People living in cities have diminishing contact with 'nature', yet effective conservation depends on support from urban voters, consumers, donors and communicators.

Connecting our urban population to 'nature' on an increasingly regular basis will be vital in achieving our goal as a Sustainable City and our conservation goals as well. We can help make this connection by creating urban spaces that bridge the gap between the compelling requirement of conservation and the social and economic imperatives of our times.

Māori wish to express their cultural world views. Understanding these beliefs and values represents an important aspect of sustainable development in New Zealand⁶⁴. Māori language, art, spiritual and cultural perspectives serve as a means of transferring cultural values between generations and they instil both individual and collective identity.

Tuna maintain a special place in Māori culture and are an important part of preserving the practice of cultural traditions⁶⁵. We must look to provide opportunities and spaces for the education and re-acquaintance of our people with the enduring relationship between man and tuna, our customary fishing practices and the importance of ritenga⁶⁶, tikanga⁶⁷ and Rangitānenuirawa⁶⁸.

"Urban Eels: Our Sustainable City" seizes on such an opportunity. The planned Manawatū River Cycle and Pedestrian Bridge and the Turitea Stream Crossing will bring increased access and linkage to He Ara Kotahi (shared walkway). A specific site along He Ara Kotahi has been chosen for the development of "Urban Eels: Our Sustainable City" - a place that will enable Māori to express their cultural world view with a focus on the education and re-acquaintance of people with the enduring relationship between man and tuna.

64 Palmerston North Maori Community Profile (PNCC) Nov 2011 <http://www.pncc.govt.nz/media/1726593/maori-profile-2011-pdf.pdf>

65 Joseph Potangaroa (2010) Tuna kuwharuwharu – the longfin eel. An educational resource Facts, threats and how to help" pg 5

66 'ritenga' - likeness, custom, customary practice, habit, practice, resemblance, implication - the normal way of doing things.

67 "tikanga" - correct procedure, custom, habit, lore, method, manner, rule,

way, code, meaning, plan, practice, convention, protocol - the customary system of values and practices that have developed over time and are deeply embedded in the social context.

68 Rangitānenuirawa" - the expression of kitiakitanga in Rangitāne way (as per corrms Paul Horton 2017). Kitiakitanga - the guardianship, stewardship, trusteeship, trustee.

– Issues

The three key issues that “Urban Eels: Our Sustainable City” seeks to address are:

ISSUE 1:

People living in cities have diminishing contact with ‘nature’ – Effective conservation and sustainable management depend on support from urban voters, consumers, donors and communicators.

ISSUE 2:

Lack of access to and expression of Tikanga Māori or Māori philosophies and practices – Tikanga Māori or Māori philosophies and practices can positively influence standards, behaviour and lifestyles of whānau and the wider community, while contributing to social wellbeing and social cohesion.

ISSUE 3:

Lack of linkage between the physical environment experienced within our City and the related Te Manawa permanent exhibitions, “Manawatū Journeys” and “Te Awa – The River, Heart of the Manawatū” – Better physical connection between these two experiences can enhance our understanding of the history, culture, art and science that shape our Region.

– Vision

OUR DESIRED
FUTURE
POSITION

“Urban Eels: Our Sustainable City” is a unique urban destination that leaves visitors with:

- A wider knowledge base to better enable the contemplation of how we might attain sustainability of our waterways and native species, in particular tuna, and attain the sustainability of our interaction with our waterways and native species, in particular tuna;
- An increased respect for nature and an improved understanding of ritenga⁶⁹, tikanga⁷⁰ and Rangitānenuirawa;
- A sense of “ihi” of tuna (in awe of eel), and the historical and cultural significance of tuna and of the relationship between man and tuna;
- An increased understanding of the significance of mauri (life force) of water;
- An experience of Tikanga Māori, Māori philosophies and practices that may positively influence lifestyles of whānau and positively contribute to social wellbeing and to social cohesion;
- A sense of Māori world view;
- A deeper understanding of the history, culture, art and science that shape our Region.

– Mission

OUR OVERALL
APPROACH TO REACH
OUR OBJECTIVES

To work together to create a space that ‘brings nature to the people’ in a way that:

- Reconnects our urban population, wider community and visitors with ‘nature’, with a focus on Rangitānenuirawa, mauri and tuna;
- Provides a new avenue for the active exploration of our heritage, culture, native biodiversity, aesthetic values and expression of these values through in situ art, science and storytelling;
- Bridges the gap between the compelling requirement of conservation and our current and future social and economic imperatives;
- Enhances access to the Turitea Stream and provides a new recreational and cultural opportunity along the Turitea Stream and Manawatū River;
- Is highly accessible.

69 “ritenga” - likeness, custom, customary practice, habit, practice, resemblance, implication - the normal way of doing things.

70 “tikanga” - correct procedure, custom, habit, lore, method, manner, rule,

way, code, meaning, plan, practice, convention, protocol - the customary system of values and practices that have developed over time and are deeply embedded in the social context.

– Objectives

WHAT WE AIM TO ACHIEVE

Urban Eels: Our Sustainable City will:

1. Promote Māori perspectives, in particular those practices and philosophies of Rangitānenuirawa which provide a key element for the development of a wider sustainability practice;
2. Increase access to and maintenance of traditional cultural knowledge;
3. Provide an opportunity for the contemporary expression and interpretation of cultural heritage;
4. Provide for the education and re-acquaintance of our people with tuna and the enduring relationship between man and tuna, our customary fishing practices and the importance of ritenga⁷¹, tikanga⁷² and Rangitānenuirawa;
5. Raise awareness about the complex management of water resources, and the values we place on them, that is required to maintain and/or enhance such resources for future generations;
6. Highlight the geomorphological and geological features and processes of biodiversity – particularly the extraordinary lives of tuna and native freshwater fish – the history and aesthetic elements associated with the surrounding landscape;
7. Highlight the connections between this project, biodiversity projects and cultural initiatives in the vicinity and the permanent Te Manawa exhibitions that together provide a cumulative expression of the history and culture of the Manawatū environment and its people;
8. Assist in improving the health of the Turitea Stream and Manawatū River through riparian planting with the support of Green Corridors;
9. Help bridge the gap between the compelling requirement of conservation and our current and future social and economic imperatives.

⁷¹ 'ritenga' - likeness, custom, customary practice, habit, practice, resemblance, implication - the normal way of doing things.

⁷² 'tikanga' - correct procedure, custom, habit, lore, method, manner, rule,

way, code, meaning, plan, practice, convention, protocol - the customary system of values and practices that have developed over time and are deeply embedded in the social context.

– Part III

ACTION PLAN

KEY ACTIONS, TIMEFRAMES AND FUNDING

Actions	Timeframe	Partners Responsible	Estimate Funding	Funding Sources	Contribution
1. Site Design					
Design of area including: Planting schedule Eel Observation Platform Eel Feeding Mechanism Concept	Sep '17 - Feb '18	PNCC, TMI	\$5,000	PNCC	\$5,000
2. Eel Observation Platform					
Resource Consent	Sep '17 - Jun '18	PNCC, TMI	\$5,000	PNCC	\$5,000
Construction	Jun '18 - Jun '19	PNCC, TMI	\$25,000	PNCC FIF (via PNCC)	\$3,000 \$22,000
3. Tracks, Rest Areas & Seating					
Seating and Picnic Tables Purchase	Jun '18 - Jun '19	PNCC & TMI	\$5,000	TMI (external funding/grant)	\$5,000
Track Construction & Seating Installation	Jun '18 - Jun '19	PNCC	\$6,000	PNCC	\$6,000
4. Art work & Sculptures					
Design	Jun '18 - Jun '19	TMI	\$13,000	TMI (external funding/grant)	\$13,000
Construction	Jun '19 - Jun '20	TMI	\$22,000	FIF (via PNCC)	\$22,000
Installation	Jun '19 - Jun '20	PNCC	\$5,000	PNCC	\$5,000
5. Story Boards on site (Urban Eels: Our Sustainable City)					
Content development	Nov '17 - Jun '18	TMI, Gordon Consulting	\$3,000	Gordon Consulting, TMI (external funding/grant)	\$3,000
Design	Jun '18 - Jun '19	TMI, PNCC	\$2,000	PNCC	\$2,000
Installation	Jun '18 - Jun '19	PNCC	\$1,000	PNCC	\$1,000
6. Information at other sites (eg. Wildbase and Te Manawa)					
Content development	Nov '17 - Jun '18	TMI, Gordon Consulting	\$3,000	Gordon Consulting, TMI (external funding/grant)	\$3,000
Design	Jun '18 - Jun '19	TMI, PNCC	\$2,000	PNCC	\$2,000
Installation	Jun '18 - Jun '19	PNCC	\$1,000	PNCC	\$1,000
7. Planting:					
Plant purchase	Jun '18 - Jun '19	HRC, PNCC, TMI	\$6,000	PNCC HRC	\$5,000 \$3,000
Planting	Jun '18 - Jun '19	TMI	\$2,000	PNCC HRC	\$1,000 \$1,000
8. Pest Management					
Pest Management	Annual	TMI	TBC	PNCC TMI (external funding/grant)	TBC TBC
9. Site Maintenance					
Site Maintenance	Annual	TMI, PNCC	TBC	PNCC	TBC
10. Project Management					
Project Management	Annual	TMI	TBC	TMI (external funding/grant)	TBC
11. Citizens science "Project Tuna"					
Design	Jun '19 - Jun '20	TMI	TBC	TMI (external funding/grant)	TBC
Implementation	Jun '20 - Jun 2021	TMI	TBC	TMI (external funding/grant)	TBC
12. Eel Feeding Mechanism					
Design	Jun '18 - Jun '19	TMI, PNCC	\$4,000	PNCC	\$4,000
Construction	Jun '19 - Jun '20	TMI	\$5,000	PNCC	\$5,000
Installation	Jun '19 - Jun '20	TMI	\$1,000	PNCC	\$1,000
13. Educational Tour					
Design	Jun '19 - Jun '20	TMI	TBC	TMI (external funding/grant)	TBC
Implementation	Jun 2021 - Jun '22	TMI	TBC	TMI (external funding/grant)	TBC

Project Management

The day-to-day management of “Urban Eels: Our Sustainable City”

















project and physical area is the responsibility of Tanenuiarangi Manawatū Incorporated (TMI). A review on progress will be carried out by Tanenuiarangi Manawatū Incorporated (TMI) on a six-monthly basis and will aim to coincide with financial planning requirements of the key funding sources.

The land that “Urban Eels: Our Sustainable City” occupies is in the current ownership of Massey University and will be subject to a Memorandum of Understanding between Palmerston North City Council and Massey University in the future.

Project Membership

Tanenuiarangi Manawatū Incorporated (TMI)
Te Rangimarie
Ngāti Hineaute Hapū Authority
Gordon Consulting
Te Manawa Museum of Art Science and History
Horizons Regional Council
Palmerston North City Council
Massey University

Signatories

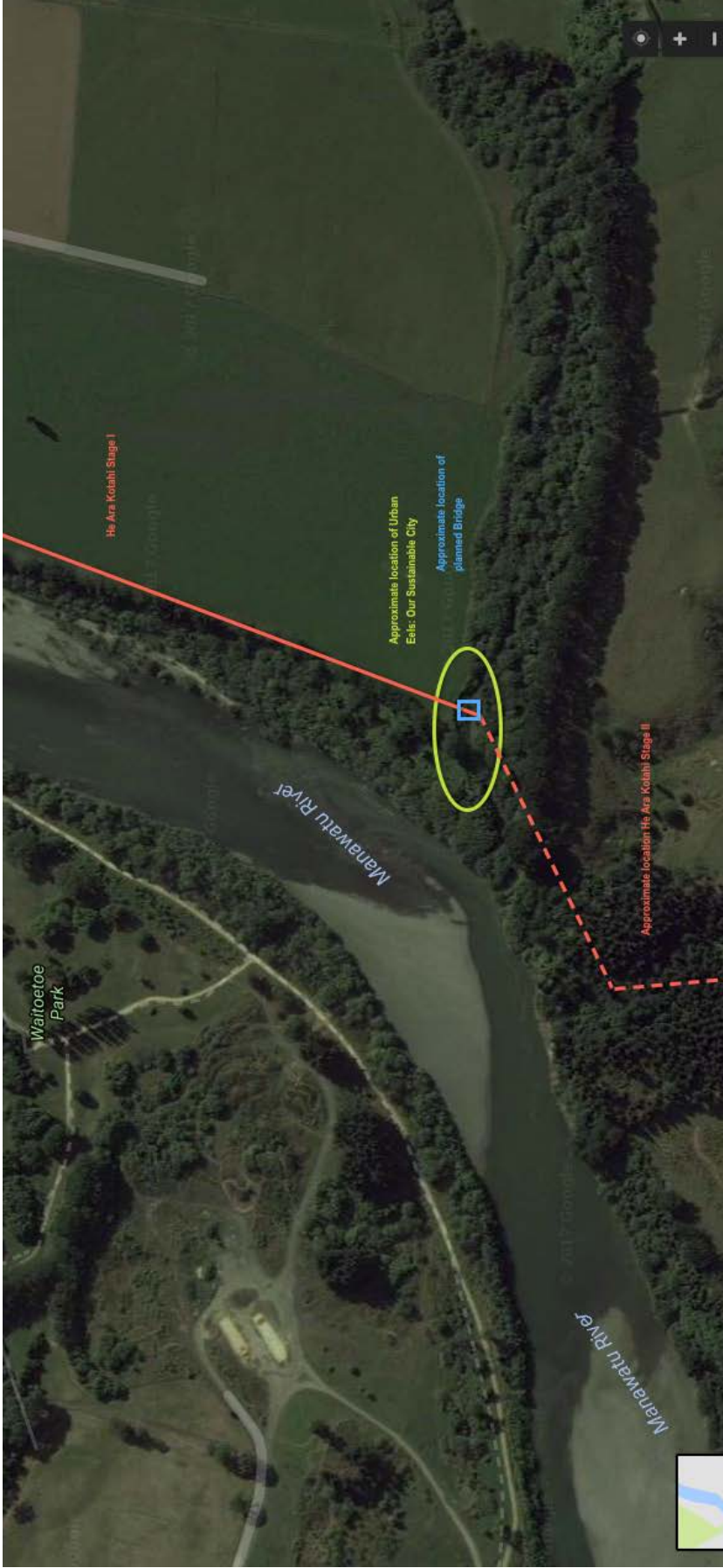
  DANIELLE HARRIS Tanenuiarangi Manawatū Incorporated (TMI)	  PAUL HORTON Te Ao Turoa Environmental Officer Tanenuiarangi Manawatū Incorporated (TMI)	  WIREMU TE AWE AWE Te Rangimarie
  CHRIS WHAIAPU Kaiurungi Ngāti Hineaute Hapū Authority	  FIONA GORDON Director Gordon Consulting	 GRANT SMITH Mayor Palmerston North City Council
 BRUCE GORDON Chairman Horizons Regional Council	  ANDY LOWE Chief Executive Te Manawa Museum of Art Science and History	  ALLAN STILL General Manager Massey Agricultural Experiment Station Massey University

APPENDIX 1

Map: Turitea Stream confluence with Manawatū River



Location: Confluence of Turitea Stream with Manawatū River.



Location: Close up of confluence of Turitea Stream with Manawatu River.

APPENDIX 2

Map: Specific location of "Urban Eels: Our Sustainable City"



Location: Close up of confluence of Turitea Stream with Manawatu River showing approximate location of "Urban Eels: Our Sustainable City".

APPENDIX 3

Key Actions Additional Detail

Actions
<p>1. Site Design:</p> <ul style="list-style-type: none"> Design of physical area including general placement of art, sculptures, signage, planting, shade trees, seating, rest areas, observation platform, tracks, access points, any parking requirements, increased mobility access requirements, etc. Design of Eel Observation Platform including consideration of health and safety, flood risk, increased interaction with eels (visual and physical), eel feeding mechanism, access and mobility.
<p>2. Eel Observation Platform:</p> <ul style="list-style-type: none"> Resource Consent. Construction of observation and eel feeding platform overlooking the Turitea Stream.
<p>3. Tracks, Rest Areas & Seating:</p> <ul style="list-style-type: none"> Tracks and rest areas: Installation. Picnic tables and seating: Design and Installation.
<p>4. Art work & Sculptures:</p> <ul style="list-style-type: none"> Design and installation of artwork and sculptures. Interactive installations. Art work, sculptures. Consideration of access and mobility.
<p>5. Story Boards on Site:</p> <ul style="list-style-type: none"> Develop, design and install informative story-boards/interactives in situ at "Urban Eels: Our Sustainable City" site. Topics to include: <ul style="list-style-type: none"> Tuna and man and tuna Cultural: including the significance of Turitea to Rangitāne o Manawatū (RoM), RoM arrival in Manawatū via Pahiatua Track and Te Motu-o-Poutoa Pa. Historical: including RoM, pre-European, European (for example, Scandinavian, eel fishing competitions). Native biodiversity. Water management, values and priorities, science, innovation, technology. Linkage to adjacent cultural areas (including area under development). Linkage back to relevant Te Manawa exhibitions, Wildbase Recovery Centre, local/regional biodiversity projects and other Manawatū River and Turitea Stream enhancement projects
<p>6. Information at Other Sites:</p> <ul style="list-style-type: none"> Develop and make arrangements for relevant information regarding "Urban Eels: Our Sustainable City" to be made available at other sites such as Te Manawa and Wildbase Recovery Centre.
<p>7. Planting:</p> <ul style="list-style-type: none"> Plant purchase and planting on site, including riparian planting for amenity and improved tuna habitat: Reflective of the original vegetation. Including flaxes for local weaver requirements. Shade trees (seating and rest areas).
<p>8. Pest Management:</p> <ul style="list-style-type: none"> Assessment of pests (and status of culverts for fish passage). Development of an appropriate pest management plan. Undertake pest animal and plant management (including removal of unwanted plants such as willows).
<p>9. Site Maintenance:</p> <ul style="list-style-type: none"> General site maintenance (mowing, weeding, fencing, upkeep, etc). Future consideration of security measures required on site.
<ul style="list-style-type: none"> 10. Project management: <ul style="list-style-type: none"> General Project Management (Monitoring progress, plan reviews and budgets).
<p>11. Citizens Science "Project Tuna":</p> <ul style="list-style-type: none"> Develop a citizen's science project for tuna monitoring that encourages people to visit "Urban Eels: Our Sustainable City" and the many streams that run through the City to count/monitor eels and report back: Specific marker points along walkways. Facebook page (or other system) for feedback/reporting.
<p>12. Eel Feeding Mechanism:</p> <ul style="list-style-type: none"> Design, construction and installation of a tuna feeding mechanism that delivers food at regular intervals or on activation, with consideration of increased mobility.
<p>13. Educational Tour:</p> <ul style="list-style-type: none"> Development of a tuna feeding /observation/educational opportunity: Guided tours, "Eel Encounters". Installation of solar powered lighting for night time "Eel Encounters". With consideration of access and mobility and parking.