

A Cultural Health Index for Reservoir Creek

Indicators for recognising and expressing
Tangata Whenua ki Whakatu values



A report prepared by Tasman District Council with financial support from the Minister for the Environment's Sustainable Management Fund, which is administered by the Ministry for the Environment.



Sustainable Management Fund

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JUNE 2007

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Cover

Photograph of a harakeke at Keith's Walkway following a demonstration by iwi on how to tidy and manage the plant. Taken by T Kroos (2006)

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1. BACKGROUND

The Ministry for the Environment, through the Ministers Sustainable Management Fund, has agreed to financially support a community project sponsored by Tasman District Council (TDC) called Reservoir Creek: Restoration of an Urban Stream. The project overview states:

Reservoir Creek is a small-modified urban taonga that joins the maunga (Richmond Hills) to the moana (Waimea Estuary). The waterway has indigenous aquatic fauna and aesthetic values (TDC 2001).

By collectively promoting sustainable management the project aims to strengthen partnerships between future kaitiaki including community groups, schools, Tangata Whenua and local government.

The project will maintain and enhance natural habitats, water quality and public access while recognising that maintenance of the ability to transport floodwaters is essential.

By its very nature Reservoir Creek is very visible to the community in an urban setting. Surrounding land use has generated considerable interest in recent years. In particular Community social and cultural wellbeing has been degraded by sedimentation created by subdivision, lack of adequate riparian zones and esplanade reserves, pollution by way of stormwater drains and direct discharge, channelisation and invasive introduced self seeding noxious vegetation.

Prior to project implementation TDC representatives attended two hui's to present Reservoir Creek project to tangata whenua ki Whakatu. Tangata whenua supported the project in principal and requested that an assessment of cultural health indicators (CHI) be formally considered for Reservoir Creek involving their participation.

The purpose of this CHI assessment is to develop a tool to facilitate the input and participation of tangata whenua ki Whakatu (the six iwi affiliated to the Whakatu Marae) into the land and water management processes and decision making on Reservoir Creek.

Wai (water) is an essential element of life-life can not survive without wai. For tangata whenua ki Whakatu, the six iwi affiliated to Whakatu Marae (whose rohe includes Reservoir Creek), wai represents the lifeblood of Papatuaanuku (Earth Mother) and the tears of Ranganui (Sky Father). Wai symbolises the spiritual link between past and present. Nga awa (rivers) have mauri (life force) and mana (status) of their own and therefore are taonga (treasures) to tangata whenua ki Whakatu. The mismanagement of Reservoir Creek impinges directly on the ability of tangata whenua ki Whakatu to practice customs and traditions associated with wai. Loss of access to wai and the life it sustains therefore prevents tangata whenua ki Whakatu from maintaining undisturbed possession of their culture.

To facilitate the CHI on Reservoir Creek it was first necessary to recognize the tangata whenua environmental indicators for nga taonga tuku iho ki Whakatu (the sacred resources of Nelson). The foundation for the development of these environmental indicators is based on a tangata whenua worldview statement-an introduction to tangata whenua beliefs, values and practices associated with the natural environment. This worldview statement was completed in May 2003 and is attached as Appendix 1.

In conjunction with the worldview statement, tangata whenua ki Whakatu focused on developing environmental indicators for wai Maori (freshwater) and a report was commissioned in 2004. Using the Maitai River in Nelson as a case study to identify and test possible indicators the

project was completed in August 2005.¹ The indicator form developed from this evaluation was used on Reservoir Creek and is attached as Appendix 2.

The following details are taken from are taken directly from the above source;

1. Tangata whenua ki Whakatu

Tangata whenua ki Whakatu are the six iwi affiliated to Whakatu Marae. Each iwi is autonomous and is represented by one of the following organisations;

Ngati Rarua Iwi Trust
Te Runanga o Toa Rangatira
Te Runanga o Ngati Kuia Charitable Trust
Te Atiawa Manawhenua Ki Te Tau Ihu Trust
Ngati Koata No Rangitoto Ki Te Tonga Trust
Ngati Tama Manawhenua Ki Te Tau Ihu Trust

2. Principals and values linked with wai

This section is not intended to be a comprehensive discussion of tangata whenua principals and values associated with wai (water). Rather, it is a brief overview of key concepts.

i. Nga atua kaitiaki

Nga atua kaitiaki are the spiritual guardians who created nga taonga tuku iho (the treasured resources) by breathing life into them. All natural resources including wai are regarded as the uri (descendants) of the atua and are taonga (treasures). There are many atua kaitiaki (spiritual guardians), but the ones that provide context for the examination of indicators are those, which form the cornerstone of the tangata whenua management plan:

Tawhirimatea (atua of the wind and air);

Tumatauenga (guardian of tangata whenua);

Tane Mahuta (atua of the trees and birds);

Tangaroa (guardian of the rivers, lakes and of the sea);

Rongomatane (atua of cultivated foods); and

Haumie-tiketike (guardian of wild foods)

There are other atua associated with natural resources-some are mentioned in relation to specific taonga, such as Tawhirimatea (the grandson of Tangaroa; he is the guardian of water creatures.

All the atua are in balance with each other. If there is an imbalance in the domain of one atua, this impacts on the realms of the other atua.

¹ Tangata Whenua Ki Whakatu Environmental Indicators for Wai

ii. Kaitiakitanga

As descendants of nga atua kaitiaki (spiritual guardians), tangata whenua have inherited the responsibility to take care of places, natural resources and other taonga (treasures) for their tupuna (ancestors), but also for the generations to come; this responsibility is called kaitiakitanga. Tangata whenua are therefore kaitiaki (guardians) of the natural resources in their rohe (area), including wai (water).

iii. Tangata whenua values associated with wai

a) Ancestral rights

Te Tiriti O Waitangi promised the protection of Maori custom and cultural values—a right that extends to the protection of tino rangatiratanga, being the full authority, status and prestige as regards Maori possessions and interests. Wai (freshwater) is a taonga (treasure) to tangata whenua—a resource, which is integral to all life and to tangata whenua customs and traditions. Therefore, maintaining, protecting, and enhancing wai is vital for the well being of tangata whenua; mismanagement impinges directly on the ability of tangata whenua to practice customs and traditions associated with wai. Loss of access to wai and the life it sustains therefore prevents tangata whenua from maintaining undisturbed possession of their culture.

b) Protecting the mauri of wai

As kaitiaki (guardians), tangata whenua are responsible for protecting the mauri (life force) and wairua (spirit) of wai (water). Mauri is the life force that gives being and form to nga awa (the rivers), streams and other water bodies. The wairua of wai is closely associated with the mauri, because the physical and spiritual elements of wai are joined together by the mauri. Therefore protecting the mauri and wairua of wai is the overriding management principal for tangata whenua.

Environmental indicators or tohu are essential for measuring the health and well-being of water (wai). The health of a water body is also an indication of the health of nga atua kaitiaki (the spirit guardians) and of tangata whenua. Where a water body has been compromised by human activities, this is an affront to nga atua kaitiaki and to tangata whenua. In such cases, tangata whenua are concerned with enhancing the mauri (life force) to a level where physical and spiritual health of the water body can be sustained. Maintaining the integrity of wai is central to maintaining the cultural identity of tangata whenua.

c) Protecting biodiversity and associated matauranga and tikanga

For tangata whenua, the protection of biodiversity and associated matauranga (knowledge) and tikanga (customary practices) is another important principal in the management of wai (water). Healthy water bodies sustain a diverse range of habitats and species. The matauranga associated with those habitats and species underpin the cultural identity of tangata whenua—this matauranga forms the basis of tangata whenua tikanga. Loss of biodiversity is not only an affront to nga atua kaitiaki (spiritual guardians) of those taonga (treasures); it also results in the loss of matauranga and tikanga connected with those resources.

d) Maintaining customary use

One customary practice associated with water bodies is the tradition of gathering food and resources. Using wai (water) and the resources wai sustains is fundamental to being Maori. Traditionally, mahinga mataitai (food gathering places) were used to sustain the spiritual and physical needs of tangata whenua. Although fewer mahinga mataitai exist today, they are still an important part of tangata whenua cultural life. Tangata whenua maintain customs such as providing hospitality to guests, by providing local specialities from the rohe (area).

e) Protecting waahi tapu and waahi taonga associated with wai

Wai (water) is valued by tangata whenua because of its mauri (life forces), its relationship to nga atua kaitiaki (the spiritual guardians), and /or an association with tapu (sacred) events, koiwi (human remains) or tapu objects. Waahi tapu (sacred places) provide tangata whenua with a physical and spiritual link to the tupuna (ancestors). Waahi tapu can also signify ahi kaa roa (long-term residency) in an area-they are indicators of tangata whenua identity, confirmed and protected by the use of tapu. As kaitiaki, tangata whenua are responsible for the protection of waahi tapu in their rohe (area).

Other water bodies are not tapu, but have taonga (treasured) status because of the uses the water body supports, such as mahinga mataitai (food gathering places), waka (canoe) routes or landing sites, trails, camping sites, working areas and rongoa (medicinal plant) gathering areas.

2. HISTORY OF RESERVOIR CREEK

*Ko Maungatapu te maunga
Ko Reservoir Creek te awa
Ko Tainui mei Tokomaru mei Kurahaupo nga waka
Ko Ngati Kuaia, Ngati Koata, Ngati Tama, Te Atiawa, Ngati Rarua, mei Te Runanga o Toa
Rangatira nga iwi
Ko Katati te whare tupuna*

Ko Whakatu te marae

E nga uri o Ranginui raua ko Papatuanuku. Nga Atua kaitiaki:

*Tangaroa, Tane Mahuta, Tawhirimatea, Haumietiketike, Rongomatane, Tumatauenga,
Ruamoko, Tutewehiwehi*



Acknowledgements

As there is nothing written of the Tangata Whenua history of the part of the Waimeha Plain that this report covers, much of our research is based on other research done in the general area.

Our thanks go to.

John and Hillary Mitchell for the use of various written works.

Ngati Kuia for allowing access to their Tribunal claims research.

George McMurtry, Phyliss Field and Yelvin Sutton for giving their time for oral interviews and also for sharing their Taonga with us.

Shannel Courtney of The Department of Conservation for the use of his montage on the front cover and his knowledge of the vegetation.

NIRMAK and MIRMAK for the use of their Cultural impact assessments.

Tom Kroos and Claire Webster for allowing us to have input in the project utilising the Cultural Health Index and also for the on site visits with some of the School groups and volunteers while planting the various areas.

The volunteers and T.D.C. for their help with the clean up of the Harakeke.

TANGATA WHENUA (IWI)

Some of the earliest Iwi recorded in the area of the Waimeha Plains were Rapuwai and Waitaha.

One of the first recorded legends is that of Rakaihautu who landed in Nelson around 800AD and travelled through the Waimeha Plains on his way down the South Island digging out the lakes as he went.

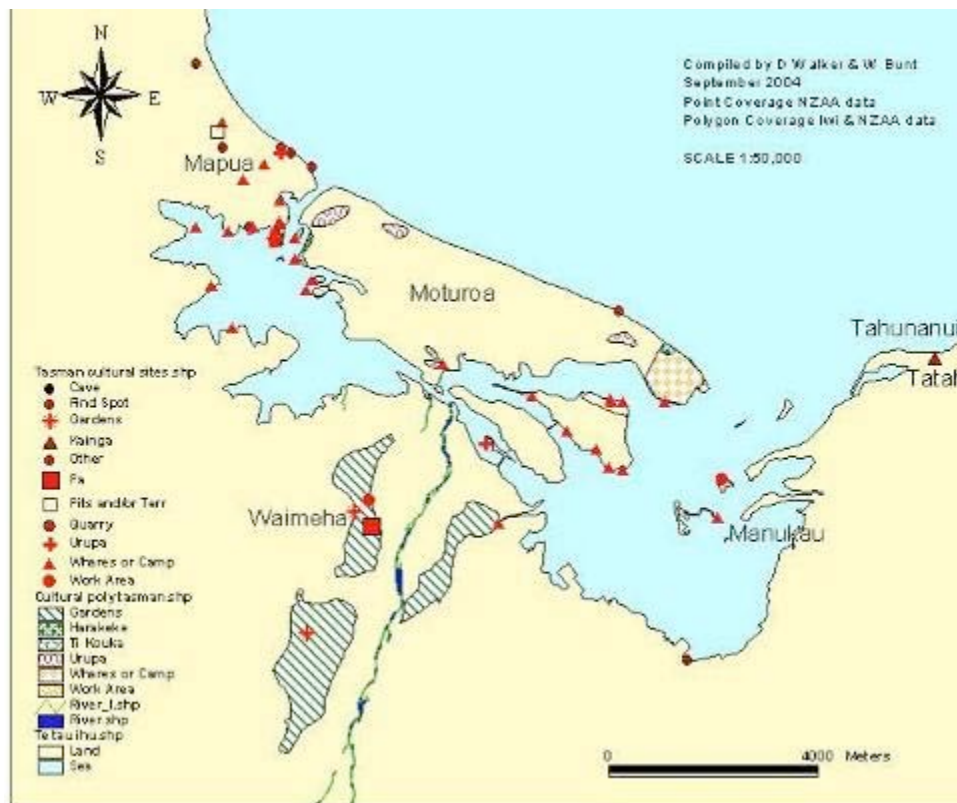
Some implements and Taonga have been found in the area that date back over 800 years to the archaic period one of these being the Adze pictured that was found by George McMurtry around the area now known as Templemore Ponds.

In the late 1500s Ngati Tumata kokiri arrived from The Wanganui district and controlled a lot of the Top of the South for about 200 hundred years until Ngati Kuia and Ngati Apa absorbed them in the early 1800s.

There was a small group of Ngai Tara based on the Waimeha Plains around this time and they are credited with building the Pa that was at the back of where Appleby School now stands possibly called Tapuwae-nuku. They were agriculturalists and had extensive gardens on the plains.

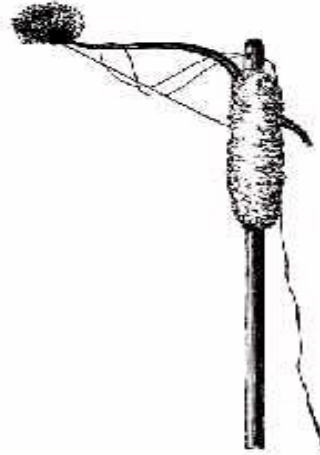
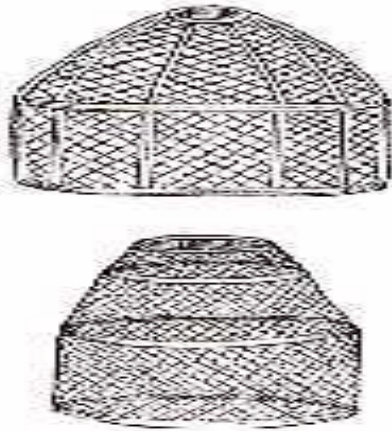
Another Small seasonal Pa was situated at the joining of the Wa-iti and Wairoa Rivers. This was called Pohare after its Chief.

Maori Cultural Sites –Waimea Estuary



KAI (FOOD)

Enanga (fish traps) and Manu (bird) traps



The Waimeha plain was used extensively for the production of food and the adjoining estuary was a never ending supply of Kai Moana. Seasonal Pa was established along the shores and on one of the many Islands in the estuary. The plain was also the main trading route for Iwi from Whakatu to Te Tai Poutini.

There were Ika (fish), Pipi, Tuangi (Cockles), Titiko (Mud Snails), Tio (Oysters), Kuku (Mussel), Enanga (Whitebait) and Kawari (Whelks) in the estuary. Sea birds would also have been harvested.

In the Rivers and freshwater creeks there were Koura (freshwater Crayfish) Tuna (eel) the wetland areas would supply Pukeko and Duck and in the bush there would be Kereru (pigeon), and Tui. As well as fern root, Kumera and other crops that were cultivated.

Maori were natural conservationists and knew their limits when harvesting Kai.

TAONGA (TREASURES)



During our oral interviews with both George McMurtry and Phyliss Field we discovered that they held Taonga (Treasures) that had been found along the Creek when they were children.

George had an archaic adze that he found under a Willow tree near Templemore Ponds when he was a child.

Phyliss' Brother found a Pakohe Argillite) adze while excavating a swimming hole at Easby Park near the top of the Creek.

The Archaic adze was of the type used in the construction of Waka (Boats) and the Pakohe one is similar to others we know were used for a wide range of jobs from opening Kaimoana (Seafood) to dressing Harakeke (Flax).

NGAHERE (BUSH)



Although most of the indigenous forest has disappeared from the area now we know that there would have been plentiful Harakeke (flax) in the swampy lowlands and Tuatara, Nihau, Beech, Matai, Kahikatea, Pocketed, and Ferns through the dry flats to the hills in the Barnicott Range. In this range runs the Pakohe (Ardulite) vein and several working sites are situated nearby.

Many of these species would have been used for kai (food) as well as Ronga (medicine) and making various items for the capture and preparation of Kai.

Totara trees and others were used for constructing wakas (canoes). Harakeke had many uses from clothing to baskets for gathering and cooking Kai. The Muka (fibre) was used for Taaniko (weaving) and rope/binding for things such as bird traps and Hinau (eel/fish traps).

Much of the bush was used in various forms for Rongoa.

Kereru Korowai



Taaniko



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Whakaahua.maori.org.nz Images Library for several of the images used in this report.

3. DISCUSSION OF INDICATORS

This section examines each indicator and the factors tangata whenua ki Whakatu considered when looking at the health of Reservoir Creek on the seasonal site visits. These indicators are all tohu (signs) of the health of nga atua kaitiaki (the spiritual guardians) and therefore each indicator has been grouped under the appropriate kaitiaki.²

Tangaroa

Tangaroa is the guardian of inland waters, such as nga awa (the rivers), streams, nga roto (lakes) and wetlands.

- **Riverbank Condition**

The health of the riverbank relates to the degree of erosion that can be seen at each site and the amount of cover or vegetation that exists to reduce the effects of erosion and shade the water.

- **Sediment on Riverbed**

Sedimentation occurs naturally, but is also caused by human activity. Therefore, the health of wai (water) can be measured by looking at the degree to which growth and the type of sedimentation cover the river stones, whether the sediment is in the form of green or brown slime and whether there are mossy growths in the water.

- **Water Clarity**

This indicator relates to watercolour, whether the water is clear or discoloured and whether the stones and river gravel can be seen through the water. Human pollution may also be measured if it appears in the form of foam or oil on the surface of the water.

- **Water Flow**

A healthy river is always flowing and wai (water) can be measured by the nature of its movement. Key considerations are whether the sound of flowing water can be heard, whether the water is moving and at what rate. Where the flow of the river is fast and the gradient steep, it is more likely that the sound of the current can be heard and visible movement can be seen.

- **Water Quality-Temperature**

Water temperature is a critical factor of river health, as life within a waterway can only be maintained within a specific temperature range. Shading from indigenous vegetation protects wai (water) from extreme heating. The amount of wai in a waterway is also a factor; there must be sufficient water to sustain life. Water temperature is directly linked to the extent of riparian vegetation and the volume of water in the waterway.

² From Tangata Whenua Ki Whakatu Environmental Indicators for Wai August 2005

- **Insect Life**

Tutewehiwehi is the guardian of insects and lizards. Insects are significant indicators of river health, as many insects rely on high water quality for their survival. The degree to which insects can be seen in the water, rising off the water and/or in the surrounding environment are key considerations.

- **Fish Life**

The abundance and diversity of fish and eels indicates whether the river environment is able to sustain life. A river with few or no fish will have a severely degraded mauri (life force). Therefore, it is important to monitor the number and type of indigenous populations present and whether mahinga kai (food gathering places) exist in a healthy state.

Tane Mahuta

Tane Mahuta is the atua (guardian) of the forests, trees and plants. Tane is also the father of many manu (bird) species including kiwi, kaka and tui.

Riparian Vegetation

Riparian vegetation creates habitat for species associated with wai (water). Plant life also provides shading to protect wai from over heating. Flowing plants are important indicators of the time for harvesting certain species. In addition, plant litter is an important part of the food chain. Assessing the health of riparian margins, whether there is shading for indigenous species within the river, and the types of vegetation that exists along riverbanks is a significant measure of river health.

- **Bird Life**

A healthy waterway has nga manu (birds) present, both on the river and in the surrounding environment. For tangata whenua, it is important to monitor the number and type of bird species living in a river environment.

Haumietiketike/Rongomatane

Haumietiketike is the atua (guardian) of wild foods and Rongomatane of cultivated foods.

- **Mahinga Kai or Rongoa Species Present**



The abundance of mahinga kai species is an indication of the mauri (life force) of a river-a healthy river flows with life as well as wai (water). Where indigenous species exist in populations to support customary harvest, the mauri of nga awa (the river) is strong. Discharges to the water, surrounding land use, the sight of rubbish and pollution in and around water, the “feeling in the puku” (stomach) and taste, are all factors tangata whenua consider when assessing whether mahinga kai species are safe to eat.

Tumatauenga

Tumatauenga (Tu) is the guardian of nga tangata (the people). Traditionally, Tu was called upon throughout the lives of tangata whenua. Tangata were often dedicated to him in tohi (the baptismal rite).

- **Use of the River**

The use of the river may impact on the health of the river environment. Therefore, identifying different uses and associated impacts on wai (water) provides another strand of information to determine whether a waterway is healthy or not.

- **Use of the River Margins**

Activities undertaken on the river margin can have major impacts on the health of life supported by nga awa (the rivers). It is therefore important to consider what the river margin is used for and whether these activities enhance or degrade the river environment.

- **Access to the River**

Access is an important factor in the relationship between tangata whenua and nga taonga tuku oho (the treasured resources). Where access is limited or non-existent, the health of tangata whenua is greatly reduced; the ability of tangata whenua to practice kaitiakitanga (guardianship) is also lost. Where vehicles have access to water, the ability of tangata whenua to practice kaitiakitanga is also compromised.

Tawhirimatea

Tawhirimatea is the spiritual guardian of the air. Air links the different elements of the natural world and is therefore a taonga (treasure) to tangata whenua.

- **Smell**

A healthy freshwater environment has a distinctive smell. Therefore discharges of foul-smelling and/or hazardous contaminants to air will ultimately contaminate freshwater environments and the waahi tapu associated with wai (water). A polluted waterway with a high level of contaminants and low flows may also result in an unpleasant smell.

Overall Health

- **Feeling in Puku³**

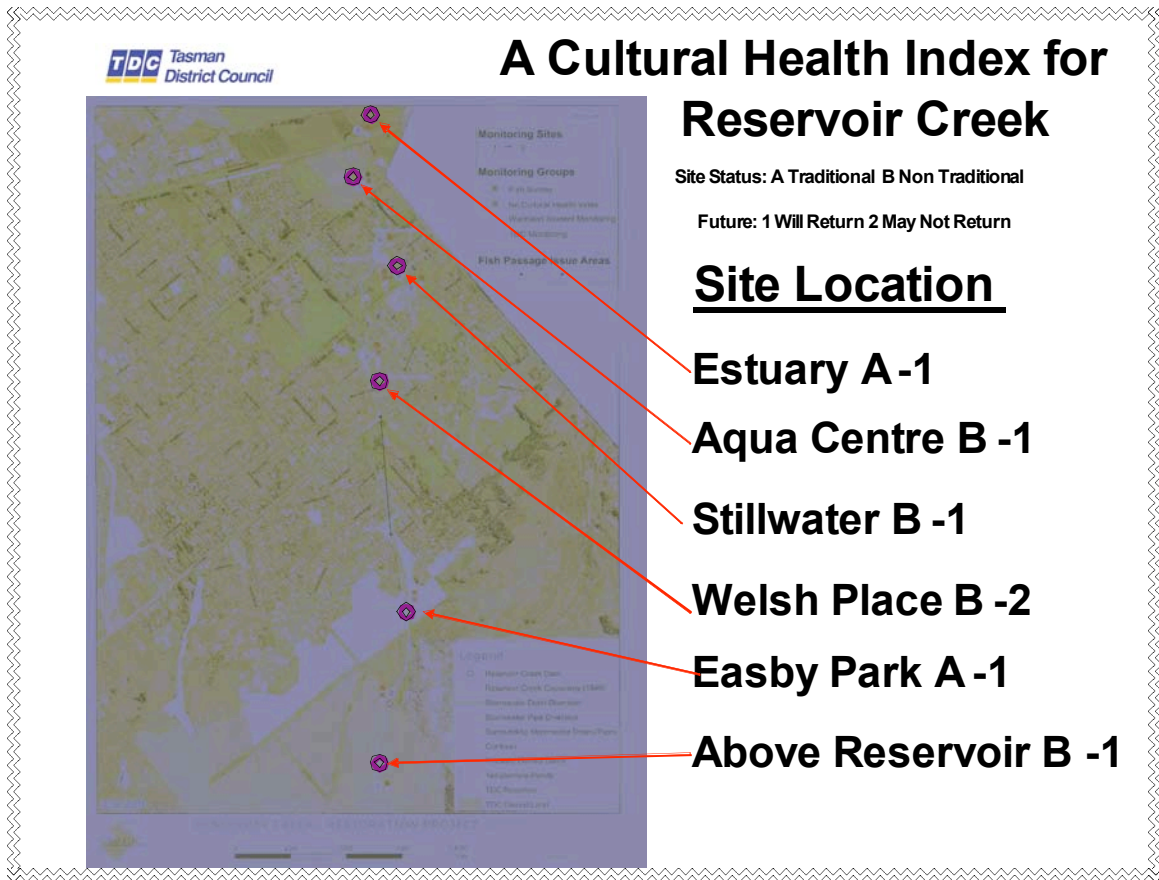
The “feeling in your puku” refers to the feeling tangata whenua have deep in the stomach when standing by a river. This feeling may be sad or heavy, or it may be strong and light; where the mauri (life force) of nga awa (the river) is felt to be healthy.

4. SITE SELECTION AND LOCATION

³ This also falls under the atua Tumatauenga

Site selections were discussed with Reservoir Creek project partners and iwi monitors with the aim complement other monitoring locations along Reservoir Creek. This included Waimaori Streamcare stations, electric fishing and TDC water quality monitoring sites. In addition research on the history of Reservoir Creek identified several sites that had traditional associations with tangata whenua ki Whakatu.⁴

Sites were selected from the maunga (Richmond Hills) to the moana (Waimea Estuary) to provide for a wide range of tangata whenua values, habitats, land uses and to benefit from other project monitoring sites for comparison purposes.



5. RESULTS

a. Estuary

The estuary site is tidal and this had implications on the observations recorded. For example a site visit on an incoming spring tide⁵ resulted in the observation of inanga “running” and birds

⁴ Templemore Pond was identified as a waka building site but was not included in the river CHI assessment

⁵ Site visits were random and river conditions (e.g. tides, river flows) were not targeted to any event



Pukaki

Reservoir Creek Site 1 Estuary CHI A-1

Site Status: A Traditional

Future: 1 Will Return



- Mahinga Kai**
- Enanga
 - Tuna
 - Titiko
 - Ika
 - Pukaki
 - Parera
 - Putangitangi
 - Seabirds/eggs



Sites	Estuary						
	Winter Index	Spring Index	Summer Index	Autumn Index	Overall Rating	Site Status	Future Visit
M Stevens C Hemi T Kroos							
TANGAROA							
1. Riverbank Condition	3.33	3.00	3.83	3.00	3.29	A	1.00
2. Sediment on Riverbed	3.33	3.00	3.00		3.11		
3. Water Clarity	5.00	4.00	3.00	2.00	3.50		
4. Water Flow	4.00	4.00	5.00	4.00	4.25		
5. Water Quality	3.67	3.50	4.00	3.50	3.67		
6. Shape and Form of River	4.00	4.00	5.00	3.50	4.13		
7. Insect Life (method, no. & species)							
8. Fish (method, no. & species)							
TANE MAHUTA							
9. Riparian Vegetation	4.00	4.00	2.67	3.25	3.48		
10. Catchment Vegetation	4.00	4.00	3.00	3.50	3.63		
11. Bird Life (method, no. & species)							
12. Ngahere/Taonga							
13. Pest plants/animals							
HAUMIE TIKETIKE and RONGO							
MATANE							
14. Mahinga Kai (no. & species)							
15. Rongoä (no. & species)							
T_ MATAUENGA							
16. Use of River	1.00	3.00	4.33	5.00	3.33		
17. Use of River Margins	3.00	3.00	2.67	2.50	2.79		
18. Access to River	4.00	4.00	5.00	4.00	4.25		
19. Cultural Site							
TAWHIRI MATEA							
20. Smell of River	3.00	4.00	4.00	4.00	3.75		
21. Weather	3.00		4.00	2.00	3.00		
OVERALL HEALTH							
22. Feeling in puku	3.50	4.00	4.00	3.50	3.75		

feeding on them. Public access is good. The following comments were recorded;

Tangaroa

(7) Insects-moth, midge, flies (diptera), and damselflies.

(8)Crustaceans and Fish-snail, crab, shrimp, inanga (juvenile and adult), banded kokopu (juvenile), bully and yellow-eyed mullet.

Tane Mahuta

(11) Bird Life-plover, gull, tern, kingfisher, white-face heron, black shag, spotted shag, little shag, pukeko, sparrow, yellow hammer, gold finch, mallard, grey duck, paradise shelduck, starling, oyster catcher and pied stilt.

(13) Pest Plants/Animals-gorse on true left upper bank, fennel.

b. Aqua Centre

This site adjacent to the ASB Aquatic Centre was the focus of a total restoration project throughout the year. As a result the index improved as the project progressed. Restoration work included rubbish collection, removal of noxious vegetation such as willow trees and gorse, and re-planting with natives that involved four individual schools and TDC Parks and Reserves. Public access improved with the removal of noxious vegetation.

**Reservoir Creek
Site 2 Aqua Centre
CHI B-1**



Freshwater Shrimp



Inanga



White-Faced Heron



- Mahinga Kai**
- Enanga
 - Tuna
 - Pukaki
 - Parera
 - Putangitangi

Site Status: B Non Traditional
Future: 1 Will Return



Garin College Arbor Day

Sites Name of iwi monitor	Aqua Centre						
	Winter Index	Spring Index	Summer Index	Autumn Index	Overall Rating	Site Status	Future Visit
M Stevens C Hemi T Kroos							
TANGAROA							
1. Riverbank Condition	2.00	2.33	2.67	2.50	2.38	B	1.00
2. Sediment on Riverbed	2.00	3.00	3.00	4.00	3.00		
3. Water Clarity	3.00	3.00	3.00	4.00	3.25		
4. Water Flow	3.00	3.00	2.00	4.00	3.00		
5. Water Quality	2.33	2.50	2.00	3.00	2.46		
6. Shape and Form of River	3.00	3.00	2.33	3.00	2.83		
7. Insect Life (method, no. & species)							
8. Fish (method, no. & species)							
TANE MAHUTA							
9. Riparian Vegetation	3.00	2.83	3.00	3.00	2.96		
10. Catchment Vegetation	3.00	2.00	2.00	2.00	2.25		
11. Bird Life (method, no. & species)							
12. Ngahere/Taonga							
13. Pest plants/animals							
HAUMIE TIKETIKE and RONGO							
MATANÉ							
14. Mahinga Kai (no. & species)	2.00		2.00	2.00			
15. Rongoā (no. & species)							
T_ MATAUENGA							
16. Use of River	4.00	4.00	3.00	3.00	3.50		
17. Use of River Margins	3.00	3.00	3.00	3.00	3.00		
18. Access to River	4.00	5.00	5.00	5.00	4.75		
19. Cultural Site							
TAWHIRI MATEA							
20. Smell of River	3.00	3.00	4.00	4.00	3.50		
21. Weather	3.00		4.00	3.00	3.33		
OVERALL HEALTH							
22. Feeling in puku	3.00	3.00	2.67	2.50	2.79		

Tangaroa

(7) Insects-bloodworm (chironomid), midge (sand fly), water boatmen, bumblebee, damselfly and butterfly.

(8) Crustacean and Fish-shrimp (abundant), inanga (abundant), banded kokopu (whitebait run), tuna and redfin bully.

Tane Mahuta

(11) Bird Life-sparrow, goldfinch, yellowhammer, chaffinch, starling, blackbird, mallard, white-face heron, kingfisher and black-backed gull.

(13) Pest Plants/Animals-old man's beard, willow, gorse and cat

c. Stillwater

This site immediately below the Stillwater Creek confluence has been heavily modified and the creek is not in its original channel. This reach is managed as a stormwater channel. Extensive rock armouring does not look natural. The rocks act as a heat sink. Public access excellent.

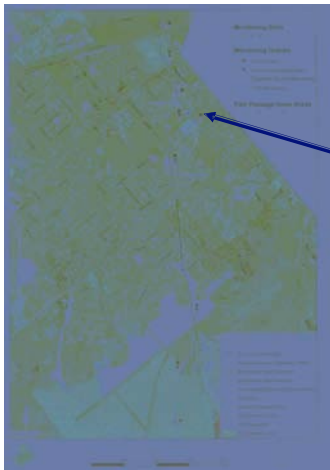
Longfin/Shortfin Eel



Reservoir Creek Site 3 Stillwater Confluence CHI B-1

Site Status: B Non Traditional

Future: 1 Will Return



Mahinga Kai

- Enanga
- Tuna
- Watercress



Damselflies

Removing Watercress

Sites Name of iwi monitor	Below Stillwater					Site Status	Future Visit
	Winter Index	Spring Index	Summer Index	Autumn Index	Overall Rating		
M Stevens C Hemi T Kroos							
TANGAROA							
1. Riverbank Condition	1.00	2.00	3.00	2.00	2.00	B	1.00
2. Sediment on Riverbed	2.00	2.00	3.00	3.00	2.50		
3. Water Clarity	3.00	3.00	3.00	3.25	3.06		
4. Water Flow	4.00	2.00	3.00	2.50	2.88		
5. Water Quality	2.67	2.00	2.33	3.00	2.50		
6. Shape and Form of River	2.00	2.00	2.33	2.50	2.21		
7. Insect Life (method, no. & species)							
8. Fish (method, no. & species)							
TANE MAHUTA							
9. Riparian Vegetation	3.00	2.00	3.00	3.00	2.75		
10. Catchment Vegetation	2.00	1.00	2.00	2.00	1.75		
11. Bird Life (method, no. & species)							
12. Ngahere/Taonga							
13. Pest plants/animals							
HAUMIE TIKETIKE and RONGO							
MATANĒ							
14. Mahinga Kai (no. & species)		1.00	2.00	1.00			
15. Rongoā (no. & species)							
T_ MATAUENGA							
16. Use of River	3.00	4.00	3.67	4.00	3.67		
17. Use of River Margins	4.00	4.00	3.00	5.00	4.00		
18. Access to River	5.00	5.00	5.00	5.00	5.00		
19. Cultural Site							
TAWHIRI MATEA							
20. Smell of River	2.00	3.00	4.00	3.00	3.00		
21. Weather	3.00		5.00	3.00	3.67		
OVERALL HEALTH							
22. Feeling in puku	3.00	3.00	4.00	3.00	3.25		

Tangaroa

- (7) Insects-midges, damselfly, butterfly, and caddis fly and round worm
- (8) Crustacean and Fish-common bully and tuna


Tane Mahuta

- (11) Bird Life-sparrow, mallard, paradise shelduck, yellowhammer, gull, thrush, one pair of Canada geese flew overhead.
- (13) Pest Plants/Animals-periphyton growth, watercress infestation and cat

d. Welsh Place


This reach follows a public walkway with some meanders in a very urban park-like setting

Inanga




**Reservoir Creek
Site 4 Welsh Place
CHI B-2**

Site Status: B Non Traditional
Future: 1 Will Return

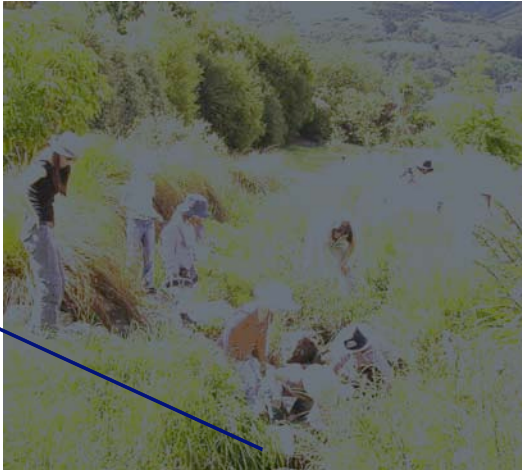


Koura



Mahinga Kai

- Enanga
- Tuna
- Watercress
- Koura
- Rongoā**
- Harakeke



Waimaori Streamcare Henley School

Tangaroa

- (7) Insects-midges, butterfly, damselfly, bumblebee, honeybee, round worm and annelid.
- (8) Crustacean and Fish-snail, tuna, inanga and banded kokopu (juvenile)

Tane Mahuta

- (11) Bird Life-pied shag, mallard, sparrow, thrush, gull, paradise shelduck and spur-wing plover
- (13) Pest Plants/Animals-exotic grass, daffodils, buttercup, mustard, clover, thistle, watercress infestation and cats

Sites Name of iwi monitor	Welsh Place						
	Winter Index	Spring Index	Summer Index	Autumn Index	Overall Rating	Site Status	Future Visit
M Stevens C Hemi T Kroos							
TANGAROA							
1. Riverbank Condition	3.00	2.17	3.00	3.25	2.85	B	1.00
2. Sediment on Riverbed	3.00	3.00	3.33	4.00	3.33		
3. Water Clarity	3.00	2.00	4.00	4.00	3.25		
4. Water Flow	4.00	3.00	4.00	4.00	3.75		
5. Water Quality	3.00	2.00	2.67	2.50	2.54		
6. Shape and Form of River	2.00	2.00	3.00	4.00	2.75		
7. Insect Life (method, no. & species)							
8. Fish (method, no. & species)							
TANE MAHUTA							
9. Riparian Vegetation	2.00	2.00	2.33	3.00	2.33		
10. Catchment Vegetation	2.00	2.00	2.00	2.00	2.00		
11. Bird Life (method, no. & species)							
12. Ngahere/Taonga							
13. Pest plants/animals							
HAUMIE TIKETIKE and RONGO MATANE							
14. Mahinga Kai (no. & species)		2.00	2.00	2.00			
15. Rongoā (no. & species)							
T_ MATAUENGA							
16. Use of River	4.00	4.00	4.00	4.00	4.00		
17. Use of River Margins	3.00	3.00	3.00	3.00	3.00		
18. Access to River	5.00	5.00	5.00	4.00	4.75		
19. Cultural Site							
TAWHIRI MATEA							
20. Smell of River	4.00	4.00	5.00	3.00	4.00		
21. Weather	4.00		5.00	2.00	3.67		
OVERALL HEALTH							
22. Feeling in puku	4.00	3.00	4.67	3.50	3.79		

e. Easby Park

This site is located along Keith's Walkway near the TDC boundary with private property. A large number of middens have been reported in the area (Dellside) along with the discovery of an adze.

Tangaroa

(7) Insects-mayfly, caddis fly, moths, butterfly, damselfly, ladybugs, swarms of flying insects and cicada.

(8) Crustacean and Fish-koura, banded kokopu (adult) and tuna

Tane Mahuta

(11) Bird Life-fantail, California quail, grey warbler, silvereye, tui, bellbird, keru (pigeon), paradise shelduck, sparrow, chaffinch, blackbird, goldfinch and starling.

(13) Pest Plants/Animals-gorse, hawthorn, old man's beard, banana passion fruit, blackberry, honeysuckle, pine trees and tobacco plant.

Reservoir Creek Site 5 Easby Park CHI A-1

Piwakawaka



Site Status: A Traditional

Future: 1 Will Return



Iwi Monitors M Stevens C Hemi



Mahinga Kai

- Tuna
- Watercress
- Koura
- Rongoā
- Harakeke
- Manuka
- Koromiko
- Puha



Sites	Keith's Walkway					Overall Rating	Site Status	Future Visit
	Winter Index	Spring Index	Summer Index	Autumn Index				
M Stevens C Hemi T Kroos								
TANGAROA								
1. Riverbank Condition	3.00	4.00	4.00	4.00	3.75	A	1.00	
2. Sediment on Riverbed	3.00	4.00	3.00	3.00	3.25			
3. Water Clarity	3.50	4.00	3.67	4.00	3.79			
4. Water Flow	4.00	4.00	4.00	4.00	4.00			
5. Water Quality	4.00	4.00	4.00	4.00	4.00			
6. Shape and Form of River	3.00	4.00	4.00	4.00	3.75			
7. Insect Life (method, no. & species)								
8. Fish (method, no. & species)								
TANE MAHUTA								
9. Riparian Vegetation	3.50	4.00	3.67	4.00	3.79			
10. Catchment Vegetation	3.00	3.00	2.67	4.00	3.17			
11. Bird Life (method, no. & species)								
12. Ngahere/Taonga								
13. Pest plants/animals								
HAUMIE TIKETIKE and RONGO								
MATANE								
14. Mahinga Kai (no. & species)			1.00	1.00				
15. Rongoā (no. & species)								
T_ MATAUENGA								
16. Use of River	4.00	5.00	4.00	5.00	4.50			
17. Use of River Margins	3.00	4.00	3.00	5.00	3.75			
18. Access to River	5.00	5.00	5.00	4.00	4.75			
19. Cultural Site								
TAWHIRI MATEA								
20. Smell of River	4.00	5.00	5.00	5.00	4.75			
21. Weather			5.00	4.00	4.50			
OVERALL HEALTH								
22. Feeling in puku	5.00	5.00	5.00	5.00	5.00			

f. Above Reservoir

This site is located near the source of Reservoir Creek. It is surrounded by pine forestry but the riparian margin is mostly native shrubs and trees. Public access is on a small unformed track along the creek.



Kiekie

Reservoir Creek Site 6 Above Reservoir CHI B-1

Site Status: B Non Traditional
Future: 1 Will Return



Totara



Banded Kokopu



Mahinga Kai

- Tuna
 - Kokopu
 - Watercress
 - Koura
 - Fem
- ### Rongoā
- Harakeke
 - Manuka
 - Koromiko
 - Puha
 - Kiekie



Tangaroa

(7) Insects-mayfly, caddis fly, stonefly, crane fly, water spider (native), midges, damselfly, butterfly, diptera sp. and cicada

(8) Crustacean and Fish-koura, banded kokopu (adult) and tuna

Tane Mahuta

(11) Bird Life-fantail, kereru, grey warbler, bellbird, tui, California quail, thrush, sparrow, chaffinch and silvereye.

(13) Pest Plants/Animals-pinus radiata, Douglas fir, old mans beard, banana passion fruit, cattle from adjacent farm

Sites Name of iwi monitor	Above Reservoir						
	Winter Index	Spring Index	Summer Index	Autumn Index	Overall Rating	Site Status	Future Visit
M Stevens C Hemi T Kroos							
TANGAROA							
1. Riverbank Condition	4.33	4.00	5.00	4.00	4.33	B	1.00
2. Sediment on Riverbed	4.00	4.00	4.00	3.00	3.75		
3. Water Clarity	4.00	5.00	5.00	5.00	4.75		
4. Water Flow	4.00	5.00	5.00	4.00	4.50		
5. Water Quality	4.00	5.00	5.00	4.50	4.63		
6. Shape and Form of River	5.00	5.00	5.00	5.00	5.00		
7. Insect Life (method, no. & species)							
8. Fish (method, no. & species)							
TANE MAHUTA							
9. Riparian Vegetation	4.00	4.00	4.00	5.00	4.25		
10. Catchment Vegetation	4.00	3.00	3.00	4.00	3.50		
11. Bird Life (method, no. & species)							
12. Ngahere/Taonga							
13. Pest plants/animals							
HAUMIE TIKETIKE and RONGO MATANE							
14. Mahinga Kai (no. & species)		1.00	1.00	1.00			
15. Rongoā (no. & species)							
T_ MATAUENGA							
16. Use of River	3.00	4.00	5.00	5.00	4.25		
17. Use of River Margins	4.00	4.00	4.00	5.00	4.25		
18. Access to River	5.00	4.00	4.00	4.00	4.25		
19. Cultural Site							
TAWHIRI MATEA							
20. Smell of River	5.00	4.33	5.00	5.00	4.83		
21. Weather			5.00		5.00		
OVERALL HEALTH							
22. Feeling in puku	5.00	5.00	5.00	4.00	4.75		

6. COMMENT

Traditional association, mahinga kai and stream health are the three components that make up the Cultural Health Index. To derive the index at a particular stream site, first the iwi association is identified, then mahinga kai values are assessed, and finally cultural stream health is evaluated. Almost all the necessary data for these measures are derived from the recording forms.

Component 1: Stream site classification according to traditional association has been identified for all six sites. Two sites have been acknowledged as having traditional significance. Other sites may also have a traditional association and only tangata whenua ki Whakatu can decide this for themselves. Templemore Pond also has a traditional association but was not included in this assessment. This should be considered once indicators are developed for still water taonga's.

Component 2: All sites have been evaluated for the mahinga kai features. At time of this assessment there was not a rating (1-5) to score these features. Physical and legal access is excellent at all of the six sites and tangata whenua ki Whakatu can use these results as they wish.

Component 3: The average scores from each of the team members have been calculated for 14 indicators of stream health for six sites. There is an average index score for every indicator at each site during the four seasons and these have been averaged into an overall rating. Tangata whenua ki Whakatu can now condense these results further to encapsulate overall stream health⁶ for Reservoir Creek.

⁶ For cultural stream health 1 is poor and 5 the highest cultural stream health rating



Thank you Claire Webster of Tasman District Council for your support, time and energy. This project could not have been undertaken without TDC and MfE sponsorship and financial assistance. To our iwi monitors Chris Hemi of Ngati Kuia and Moetu Stevens of Ngati Tama it has indeed been an awarding pleasure to journey up and down Richmond's special taonga with you. I have learned much from your mātauranga and tikanga.

Thank you also iwi members who attended site visits, Reservoir Creek project partners and tangata whenua ki Whakatu for your support.

*Tom Kroos
Richmond
June 2007*

APPENDIX 1

A Maori Worldview

Introduction

Each culture in the world has a basic perspective or set of fundamental beliefs that forms the framework of that culture. These perspectives or beliefs are sometimes referred to as their worldview. Worldviews help cultures and individuals within cultures to understand and make sense of the world around them and their place in it. Generally a culture's worldview is so pervasive and inherent that most people live out their world view perspective without ever realizing it. Individuals are usually unable to articulate their own worldview even if they are asked about it. Individuals within a culture rarely question their own worldview let alone acknowledge that other valid worldviews do or may exist. This often leads to inherent difficulties in cross-cultural communication and people from different cultures "talking past each other".

Chris Gousmett in his essay: "What is a Worldview and Why Would I Want One" says "a worldview is an everyday, ordinary-language description of the world, that shapes and guides our lives, helping us to understand, explain and explore that world around us, and everything in it, and how these are all related to each other, by giving us away in which we see them. In this sense then, it is *"the comprehensive framework of ones basic beliefs about things and their relationships."*"

Even though the majority of people in Western countries today do not particularly subscribe to religious beliefs this worldview is so pervasive it colours the way we think and see the world. Unfortunately the spread of the Western worldview has often been at the expense of indigenous worldviews. The subjugation and marginalisation of the Maori worldview in New Zealand/Aotearoa is typical of the fate of worldviews around the world. Today, however, the Maori worldview is re-emerging as a valid and relevant perspective of the world. This has come about both out of respect for the people and culture but also for more pragmatic reasons. For instance, the holistic nature of the Maori worldview is increasingly being recognised as having the ability to deal with quite complex environmental and cultural issues that the Western scientific⁷ worldview struggles with.

Te Ao Maori

Te Ao Maori is based on philosophical premises often quite different to those held by Western science and culture. In Maori philosophy creation plays a fundamental role. According to the Io tradition⁸; Io is the Supreme Being from whence Papa and Rangi originated. Much of the Io tradition is deeply sacred. In former times Io was only discussed between those who could be entrusted with this sacred knowledge. In fact it was so intensely sacred in that even the utterance

⁷ Also called the reductionism scientific worldview after Western science's tendency to reduce things to smaller and smaller parts for analysis.

⁸ The existence or non-existence of this tradition is open to debate.

of “his” name was avoided on all ordinary occasions. The Io tradition has a degree of complexity and sacredness that is way beyond the scope or business of this report.

The account of Rangi and Papa is generally the one used to describe creation. Irwin (1989) gives his version that is quoted below, however, it should be noted that there are different versions of the Rangi and Papa narrative. Some also involve Tangaroa.

“Ranginui (Sky father) looked down upon Papatuanuku (Earth mother) and, loving her, descended and mated with her. Locked in deep embrace they produced numerous progeny (in some accounts 70 in number) all of whom were male. These offspring were imprisoned between the primeval parents in stifling darkness. Faint glimpses of light filtered in and the children became restless and anxious to escape to the world of light (*Te ao marama*). After much discussion amongst the brothers some agreed to force the parents to release them if *Rangi* and *Papa* would not agree to set them free. Those sons (some 28 in number) made a number of abortive attempts to escape. *Tumatauenga* considered the most effective means would be to slay the parents but the others disagreed. ... Finally *Tane* lay down on *Papa*, bracing his feet against *Rangi* and extending his arm against *Papa*. Upside down and struggling fiercely, with the brothers giving him support, as they were able, the reluctant parents were inexorably forced apart. Finally separated, *Rangi* became the Sky Father and *Papa* the Earth Mother. Following the forcible separation, *Rangi* and *Papa* grieved for each other, *Rangi*’s tears becoming the rain and *Papa*’s the rising mists.” (Irwin, 1989, p13).

The other important fundamental concept of creation is the creation of humankind. Once again referring to and paraphrasing Irwin (1989). The offspring of Rangi and Papa were all male. “*Tane* produced trees, birds, insects and a wide range of natural phenomena ... but always the female element eluded him. Finally he inquired of Earth Mother who bade him go to the beach *Kurawaka*, and there gather the red earth into human form. This, with the aid of his brothers, he did. They made a figure resembling themselves. *Tane* then breathed into the form *hauora* (life giving force) and it stirred, sneezed and breathed and woman had entered the world. Following purification rites to remove the *tapu* of creation, *Tane* named this first woman *Hineahuone* (earth-formed maiden). *Tane* now mated with *Hineahuone* and she conceived and bore a daughter, *Hinetitama*. Subsequently *Hineahuone* bore *Tane* a further ten daughters and it is from these that humankind (*te ira Tangata*) is descended.” (Irwin, 1989, p14).

All things in the natural world are seen by Maori as the progeny of Papa and Rangi including humankind. People are thus seen as directly related and thus connected to all (living and non-living) things. This common bond places people firmly inside the natural environment; they do not exist outside it. If something is done to the natural environment (whether positive or negative) then it is done to oneself. The personification of the natural environment through various atua (spirits) reinforces this belief. If a water body is polluted for example then not only is the water body polluted but it is an affront to the atua as well as oneself.

The Waitangi Tribunal in the Muriwhenua fishing report outlined the following principles governing the basis for Maori and their relationship with the environment (from James, 1993):

- A reverence of the total creation as one whole.

- A sense of kinship with all fellow beings. This is illustrated through genealogical (whakapapa) ties of all natural resources in the universe.
- A sacred regard for the whole of nature and its resources as being gifts from the gods.
- A sense of responsibility for these gifts as the appointed stewards, guardians and rangatira (collectively kaitiaki).
- A distinctive economic ethic of reciprocity. What you take from the environment you return in kind.
- A sense of commitment to safeguard all of nature's resources (nga taonga tuku iho) for future generations.

At a recent Tangata Whenua ki Whakatu hui the topic of a Maori worldview was raised. It was generally agreed by those attending the hui that:

- There is a lack of understanding about Maori beliefs and values, lore's and laws (Tikanga Māori and Mātauranga Māori).
- Tangata Whenua beliefs are unique.
- Tangata Whenua inherits kaitiakitanga obligations⁹.

Components of the Maori perspective on the environment.

There are a number of central components of the Maori worldview that affect the way the natural environment is both perceived and managed. These include (but are not restricted to) tikanga, kaitiakitanga, whānautanga, mātauranga, mauri, wairua, tapu, utu, whakapapa, kotahitanga, manaakitanga, and mana. Each of these will be briefly discussed. In later chapters these words or concepts will be used as tools of analysis in examining the issues.

Before doing so a number of things must first be acknowledged. These are:

- That these concepts cannot be directly translated from Maori to English (due in no small part to differences between the worldviews of each). When one attempts to describe the concepts and values of one culture using the language of another culture misinterpretations invariably arise.
- That many of these words are both amorphous and contextual. They are concepts similar to the English word "sustainability" which can be defined by different people in different ways within different contexts. This makes the concepts extremely difficult to define outside of a context. These Maori concepts like the word "sustainability" are best explained within a context.
- And that the properties and characteristics of these words differ from iwi to iwi, hapū to hapū and whanau to whanau. They are best described in direct discussion with iwi, hapu or whanau. Each iwi, hapu or whanau therefore reserves the right to define these concepts in any way they wish to do so and change the definition and use of these concepts at any time. As such these definitions are relevant to this document only. They may or may not be relevant or true for other discussions or documents.

⁹ refer to Chapter 1.2 in relation to kaitiakitanga

Tikanga or *Tikanga Maori* is a general concept to describe Maori customs or customary practices. These practices evolved down through the centuries as Maori developed a relationship with and learned to live sustainably within the environments of Aotearoa. The word *kawa* is often used in association with tikanga. *Kawa* can be described as “the etiquette” or “the right way of doing things”. *Kawa* is how Tikanga is implemented and it is usually specific to a marae, an iwi, a hapū or a whanau.

Kaitiakitanga is about the stewardship or guardianship of the environment (or *ngā taonga tuku iho*). It includes the more modern term “sustainable management”. Though the terms “sustainable management” and “sustainability” are new the concept is ancient. In former times kaitiaki (or tiaki) were on one level represented by an atua (spirit), on another level by the manawhenua iwi¹⁰ and on another level by an individual. The role of each was to manage a particular natural resource in a healthy and productive state. The three: atua, people and individual acted in unity to exert a control on each other and maintain the resource and its physical and spiritual productivity, potential and balance.

Whānautanga (or sometimes whanaungatanga) is derived from *whanau* or family and refers to relationships or bonds of kinship. In the traditional Maori worldview relationships were all important – relationships between people; relationships between people and the physical world; and relationships between people and the spiritual world. In traditional society it emphasized the role and responsibility of the individual as part of a collective. It gave people a sense of belonging, togetherness, and relatedness. *Whānautanga* remains a strong part of modern Maori society and continues to shape the relationships between Maori people and the environment.

Mātauranga or *Mātauranga Maori* can be described simply as “traditional and contemporary knowledge”. Mohi (1993) defined *Mātauranga Maori* in both traditional and modern contexts. In a traditional context *Mātauranga Maori* is “the knowledge, comprehension or understanding of everything visible or invisible that exists across the universe”. Within a modern context he described it as “Maori research, science and technology principles and practices” (Mohi, 1993). *Mātauranga Maori* is not based on Western “objective” notions or models of science, however. Its parameters are wider than this and includes such things as traditional religion, belief and ceremony. Its role is to preserve and protect (while utilising) the environment and all taonga related to the environment. It is not simply to understand things in a cool objective way.

Mauri is a central component of the Maori perspective on the environment. It can be defined as the life principle, life supporting capacity, or life force present in all things both animate and inanimate. The presence of Mauri in all things requires people to appreciate and respect that resource. The overuse, depletion or destruction of natural resources leads to a diminishment of Mauri. This is generally unacceptable to Tangata Whenua. As such things that diminish the Mauri of a resource cannot be supported and things that enhance Mauri are to be encouraged. *Mauri* and *ora*¹¹ are often used together as in the exclamation *Mauri ora!* This phrase being used in karakia to evoke the Mauri in things.

¹⁰ More usually hapu or whanau.

¹¹ *Ora* translates to “life”.

Wairua (or sometimes wairuatanga) is closely associated with Mauri. It can be described as the spiritual element or the spirit of things, matters and deeds.

Tapu is often translated to English as “sacred”, however the concept is much wider than this. The term *wāhi tapu* is used to describe sacred sites. Tapu is also used to protect the Mauri in things. James (1993) described tapu as “the status accorded to all elements of the natural world in recognition of the Mauri that exists in them. Recognition of tapu involves an appreciation of and respect for another life force and other life in general”. Further, “Tapu is also used as a protective measure, a social control, a means for developing an understanding and awareness of spiritually and the divine origin of all things” (James, 1993). The complementary word *noa* is often associated with tapu: meaning “free from tapu”. The word *rahui* is also linked to tapu meaning “a temporary restriction”.

Utu (or tau utuutu) can be defined as “revenge”. This is a limited understanding of the concept particularly as it relates to the environment. More correctly it can be defined as “reciprocity” or an “ethic of reciprocity”. This is expressed in acts of always giving back or replacing what you take or receive. If one takes something from the environment then one is obliged to give back to it. In this way the physical and spiritual environment is kept in balance. It also includes the principle that one should only take enough for ones own needs i.e. enough to feed oneself and ones family.

Whakapapa is often simply defined as “genealogy” in reference to people. However in the Maori worldview whakapapa is not only about the relationship between people through generations but also about the relationships of all life forms and phenomenon to each other as well as to people and the atua (spirits and gods). In the Maori worldview all flora and fauna have a whakapapa. Whakapapa thereby assembles the natural world in a fashion similar to modern biological classification systems. However, the classification system of whakapapa relates life forms and phenomenon¹² back to their place in ecology. It also demonstrates the connectivity of all life and that “all things are connected” not only to each other but also to the atua and Tangata Whenua. In contrast the Western scientific model uses the Latin language to codify flora and fauna based on similarities between genera and species. That model draws no links between people and the spiritual side; in fact it serves to take them out of any understanding.

Kotahitanga (or Whakakotahitanga) is usually defined as one or some of the following; “oneness”, “unity”, “solidarity” or “holism”. On one hand kotahitanga is about acknowledging and respecting individual differences but on the other hand it is about the desire to reach consensus and seek unity. It is about accepting and keeping in balance both the perspectives of the individual as well as the community.

Manaakitanga can be defined simply as “hospitality”. It is about reciprocal and unqualified acts of giving. It includes the concept of *koha* or giving and accepting gifts. It is often expressed through the provision of local delicacies of *kai* by Tangata Whenua to *manuhiri* (visitors). The inability to provide manaakitanga to manuhiri can be an intense source of embarrassment and loss

¹² Soils, rocks and minerals and other phenomenon also have classification systems that are whakapapa based.

of *mana* (status and pride) to Tangata Whenua. This is invariably due to a loss or degradation of the resource base both in terms of people and food (or other life giving resources).

Mana is often defined simply as status and pride. It is much more than this, however. It also includes the ideas of authority and legitimacy as in *Mana Motuhake*, *Mana Whenua*, and *Mana Moana*: these being legitimacy to control, manage, and administer land, water and marine resources. Mana is gained both through whakapapa and the management and utilisation of these resources. The wise management of resources will lead to a rise in mana within an individual, whanau, hapu or iwi. Poor management and/or the degradation of a resource will lead to a loss of mana.

Tino rangatiratanga (or rangatiratanga). *Tino rangatiratanga* means “self determination” or the ability to determine ones own destiny. It is a source of mana. The loss of tino rangatiratanga leads to a loss of mana.

Conclusion

This chapter has attempted to demonstrate that the Maori Worldview and the concepts it employs are quite different to the Western Worldview. Several authors consider that the most basic aspect of Maori culture which distinguishes it most sharply from that of the Western Worldview is that it puts spiritual and communal matters ahead of material and individualistic needs.

Over the last 200 years the importance of the Maori Worldview has been eroded across the political landscape of Aotearoa/ New Zealand. This began with the denigration of Rangi, Papa and the other Atua with the arrival of the early Christian missionaries. This continued with the gradual loss of control by Tangata Whenua over land and other resources. The strengthening of the Western Worldview’s focus over this time on the individual and his material needs has further eroded the values inherent in the Maori Worldview. It is of no coincidence that over this time the condition of natural resources have generally degraded and the amount available for use have diminished. The reversal of this trend both in the condition of natural resources and the relevance of Te Ao Maori is most welcomed by Tangata Whenua.

APPENDIX 2

Whakatu Iwi Indicators form – Freshwater/Wai

Name of Waterway:		Landholder: DoC, Public, Private		
Catchment:		Adjacent landuse: 1 Pasture 2 Horticulture		
Site Number:		3 Native 4 Exotic forest 5 Scrub 6 Residential		
		7 Commercial 8 Industrial 9 Recreational (circle as appropriate)		
Date:		Site Status: A Traditional B Non Traditional		
Time:		Mahinga Kai: 1 Present 2 Absent		
Coordinates:		Future: 1 Will return 2 Probably won't return		
Name of iwi monitor :				
TANGAROA	Rating 1-5	Rating 1-5	Rating 1-5	Comments
1. Riverbank Condition				
2. Sediment on Riverbed				
3. Water Clarity				
4. Water Flow				
5. Water Quality				
6. Shape and Form of River				
7. Insect Life (method, no. & species)				
8. Fish (method, no. & species)				
TANE MAHUTA	Rating 1-5	Rating 1-5	Rating 1-5	Comments
9. Riparian Vegetation				
10. Catchment Vegetation				
11. Bird Life (method, no. & species)				
12. Ngahere/Taonga				
13. Pest plants/animals				
HAUMIE TIKETIKE and RONGO MATANE				
14. Mahinga Kai (no. & species)				
15. Rongoā (no. & species)				
TŪ MATAUENGA	Rating 1-5	Rating 1-5	Rating 1-5	Comments
16. Use of River				
17. Use of River Margins				
18. Access to River				
19. Cultural Site	(Yes/ No) Type			
TAWHIRI MATEA	Rating 1-5	Rating 1-5	Rating 1-5	Comments
20. Smell of River				
21. Weather				
OVERALL HEALTH	Rating 1-5	Rating 1-5	Rating 1-5	Comments
22. Feeling in puku				

Iwi conduct health assessment on Reservoir Creek

Local iwi are carrying out a cultural health assessment on Reservoir Creek in Richmond as part of the restoration and enhancement programme being managed by Tasman District Council.

Ngati Tama representative Moetu Stephens and Ngati Kuia's Christine Hemi are conducting the assessment using a plan that was originally developed for the Maitai River and was further refined on the Motueka River. Input was also received from other South Island iwi in the initial stages of planning. The visitors were also able to take away ideas from the local Nelson Tasman iwi.

Tasman District Council Environment Education Officer Claire Webster and Environmental Consultant Tom Kroos, who is managing the Reservoir Creek project, helped Moetu and Christine identify six assessment sites along the river.

"The sites represent the different aspects of the creek environment from the suburban end near Stillwater Gardens where the environment is totally artificial, right up to the top end where the natural environment is relatively intact," said Moetu.

"The assessment is all done by sight and feel. We look at the riverbank condition, water quality and flow, insect life, and what fish are living in the creek. We rate each aspect from 1 to 5. We also look at the food and medicinal aspects of the area," Moetu said.

Council is working closely with iwi to see if improvements to the health of the stream can be made from an iwi perspective. "The Maori way of looking at the health of the creek is more holistic than a straight scientific assessment. It has a lot to do with the feel of the area," said Claire.



Moetu Stephens, Tom Kroos and Christine Hemi evaluate insect life in Reservoir Creek

Half of the funding for the restoration project at Reservoir Creek has come from the Ministry for the Environment's Sustainable Resource Fund – the rest is in-kind from Council, Department of Conservation, Keep Richmond Beautiful, Waimaori, local schools and several other groups.

The restoration team is interested in hearing from anyone who has information about the history of Reservoir Creek.

For more information contact Claire Webster on 543 8484 or Tom Kroos on 544 3242.