



# Cultural River Health

ICM AGM Nelson  
April 2010

**Garth Harmsworth**

(Te Arawa, Ngāti Tūwharetoa, Ngāti Raukawa, Tuhourangi)  
Landcare Research, Private Bag 11-052, Palmerston North  
[HarmsworthG@LandcareResearch.co.nz](mailto:HarmsworthG@LandcareResearch.co.nz)

**Dean Walker**

Projects Manager  
Tiakina Te Taiao Ltd  
[dean@tiakina.co.nz](mailto:dean@tiakina.co.nz)

# Cultural River Health

How can we reconcile Māori and Pākeha values for improved water quality?



# A Māori world view

- A natural order to the universe, overarching principle of balance
- Whakapapa (central thread)
- (W)Holistic – Inter-relationship of all living things to each other (interconnection between all parts)
- Kete o te wānanga – The three baskets of knowledge by Tāne (kete aronui, kete tuauri, kete tuatea)
- Tikanga (custom, protocols, values)
- Mātauranga Māori, Māori values, Māori issues
- Traditional concepts and values integral (e.g., whakapapa, mauri, taonga tuku iho, kaitiakitanga, whānaungatanga, manaakitanga, rangatiratanga, mana whenua, mana moana, wairua, tapu, etc.)
- Maori wellbeing linked to the health of the environment

# Cultural monitoring in Motueka (2005 – 2010)

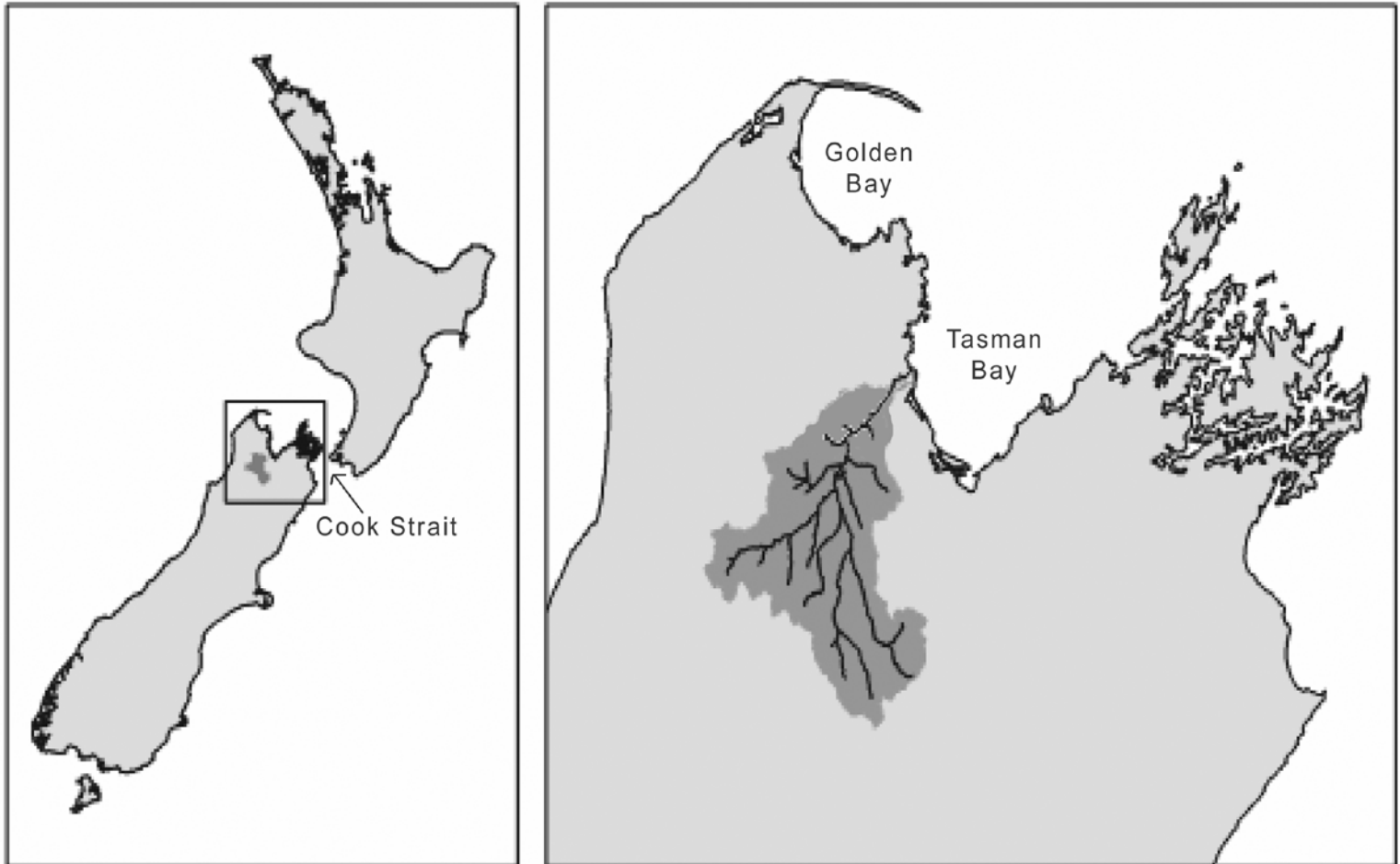
Cultural monitoring/reporting can:

- Provide an indigenous knowledge/perspective on the environment;
- Articulate cultural values & aspirations;
- Identify trends/change from a Maori perspective;
- Be collated/aggregated to report on the iwi/hapū state of the environment (from a cultural perspective);
- Help contribute to responsibilities under kaitiakitanga, whakapapa, tino rangatiratanga, etc;
- Give responsibilities and importance of tangata whenua engaged in Resource Management (RMA 1991);
- Build iwi /hapū/whānau capacity in RM;
- Feed into other SOE reporting (i.e. local, regional, national)

*In future environmental monitoring programmes could be classed into three main types that are complementary:*

<b>Māori knowledge based</b>	<b>Community – scientific based</b>	<b>Scientific based</b>
<p><b>Māori indicators –</b> In depth Māori understanding and knowledge of particular environments. Understanding of Māori values, goals, and aspirations required. Examples:</p> <ul style="list-style-type: none"> <li>• Taonga lists;</li> <li>• Key sensitive taonga indicators;</li> <li>• Te Mauri;</li> <li>• Knowledge on uses and preparation of taonga;</li> <li>• Land-uses, point discharges, modification, impacting on cultural values and uses.</li> </ul>	<p><b>Community based indicators –</b> requiring low levels of technical input and skill but scientifically robust and part-value based. Cost effective, relatively simple and short duration. Examples:</p> <ul style="list-style-type: none"> <li>• Hydrology;</li> <li>• Soils/Nutrients;</li> <li>• Intactness of wetland;</li> <li>• Connectivity/Buffering or Fragmentation;</li> <li>• Introduced plants;</li> <li>• Animal damage;</li> <li>• Modifications to catchment hydrology;</li> <li>• Water quality within catchment;</li> <li>• Other landuse threats;</li> <li>• Key undesirable species;</li> <li>• % catchment in introduced vegetation;</li> <li>• Animal access.</li> </ul>	<p><b>Scientific indicators –</b> requiring higher levels of technical input and skill, robust sampling strategies, analysis and interpretation. May be time consuming. Examples:</p> <ul style="list-style-type: none"> <li>• Chemistry, water quality, nutrients;</li> <li>• Hydrology;</li> <li>• Water table modeling;</li> <li>• Botanical mapping, classification of plants;</li> <li>• pH;</li> <li>• Bacterial counts;</li> <li>• Giardia;</li> <li>• Cryptosporidium;</li> <li>• GIS applications;</li> <li>• Satellite imagery;</li> <li>• Studies of fish, macro-invertebrates, macrophytes.</li> </ul>

# Location: Motueka catchment across to Nelson



# Cultural River Health

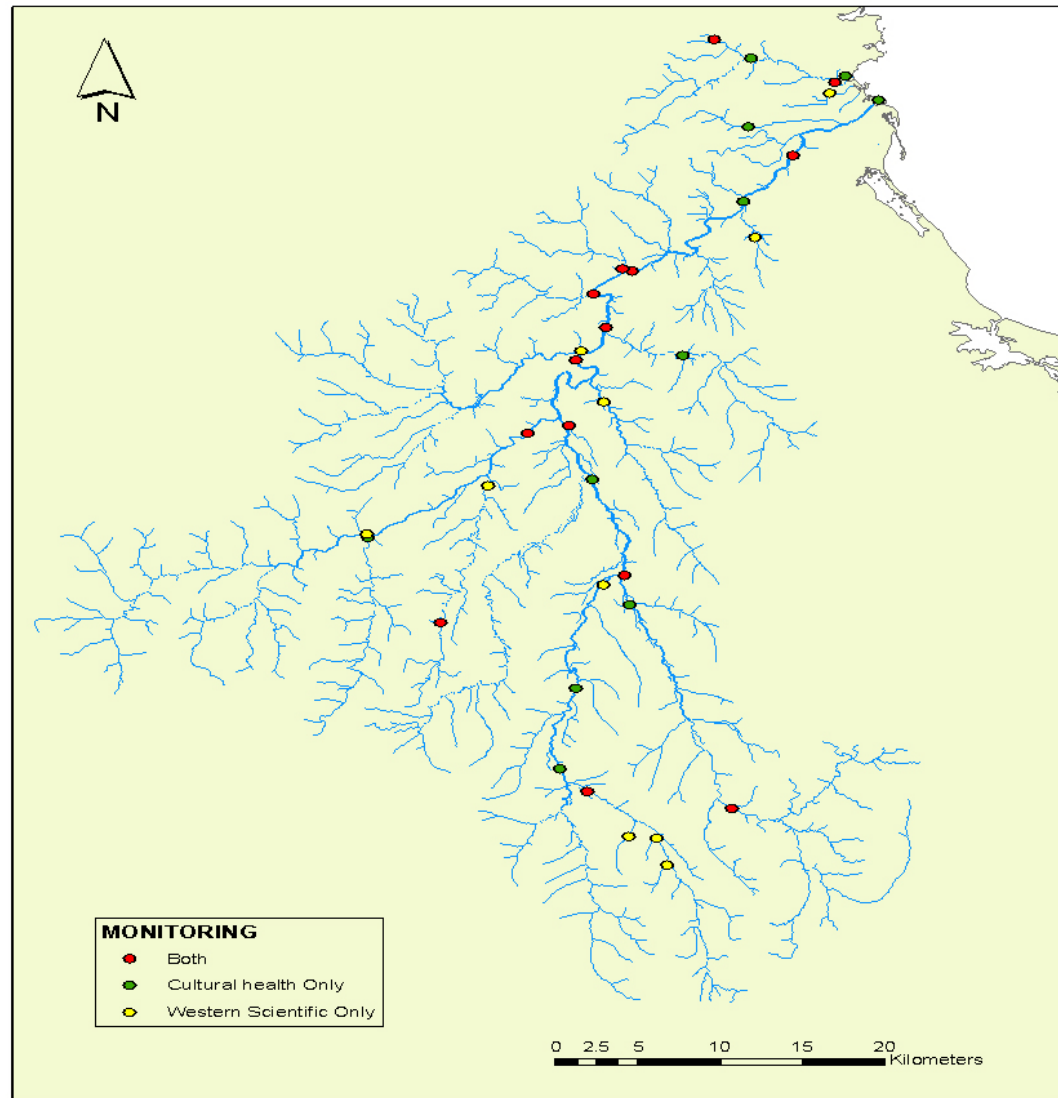
- Provides a Māori perspective of rivers/streams – Māori aspirations and goals
- Use of mātauranga Māori (knowledge) and Māori values (relationship or connection to place)
- Identifies issues and change from Māori viewpoint
- Links Māori wellbeing and river/stream health
- Use of indicators and assessment
- Reporting
- Planning and policy
- Actions (e.g., restoration projects, mahinga kai, capacity building, GIS)

# Cultural indicator assessment

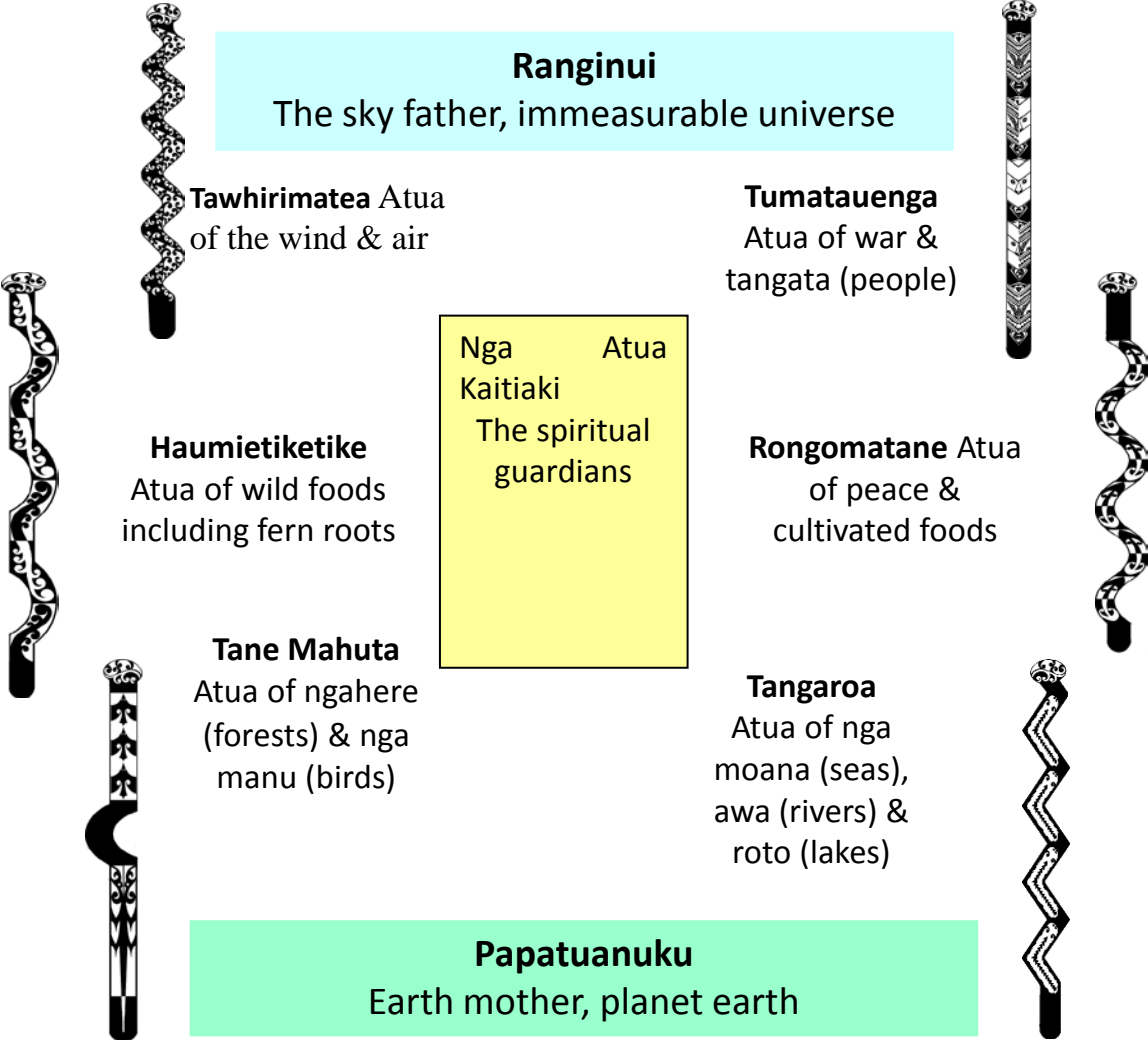




# Motueka and Riwaka catchments



# Ngā Atua domains framework



**Figure 1:** Atua (departmental gods) domain framework Source: Tiakina te Taiao, Dean Walker.

# Methods

- Training, field assessment (geo coordinates, place), reporting, and GIS entry and analyses;
- Assessment forms (iwi indicators), score sheets–ratings.
- Inventory: Site status, mahinga kai, total CHI score, Score 1-5: 1 – poor; 5 – excellent



# Indicators (examples)

## **Tangaroa**

- Water Clarity
- Water Flow
- Water Quality
- Shape and form of river, riverbank condition, sediment
- Insects
- Fish

## **Tāne Mahuta**

- Riparian vegetation
- Catchment vegetation
- Bird life (species)
- Ngahere/Taonga
- Pests

## **Haumie tiketike**

- Mahinga kai
- Rongoa

## **Tūmatauenga**

- Human activity, Use of river
- Access
- Cultural sites

## **Tāwhirimātea**

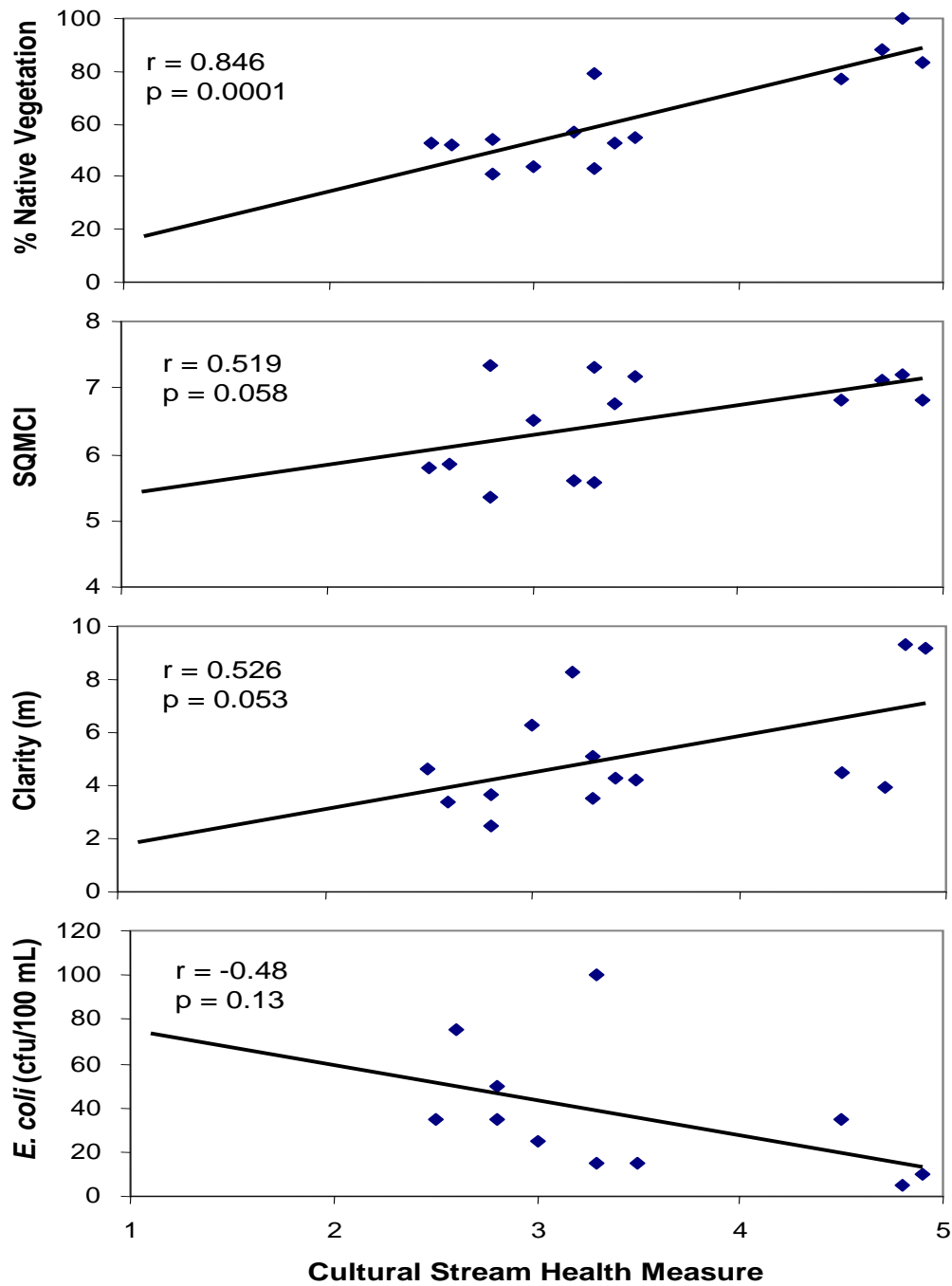
- Smell
- Weather

## **Ora**

- Feeling, taste, wellbeing

# Links between science and cultural indicators





# Results

- Links between science and cultural indicators;
- Some good correlations, some poor;
- Strong correlation between cultural health and increasing % of catchment area natural/indigenous cover;
- Science /cultural monitoring together gives a rich, full picture of river health (and the environment)
- Cultural indicators impose stricter environmental standards
- We can use complementary monitoring and reporting