

# **Cultural River Health**

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## **Cultural River Health**

Integrated Catchment Management

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/aggregrated 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)

Māori knowledge based	Community – scientific based	Scientific based
Māori indicators – In depth Māori understanding and knowledge of particular environments. Understanding of Māori values, goals, and aspirations required. Examples:	<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:	Scientific indicators – requiring higher levels of technical input and skill, robust sampling strategies, analysis and interpretation. May be time consuming. Examples:
<ul> <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>	<ul> <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 hyrdrology;</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>	<ul> <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>Cryptosporidum;</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 aspriations 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



### 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