

Review and evaluation of cultural monitoring approaches in New Zealand

BACKGROUND

Environmental monitoring is a concept, framework, methodology, and contains indicators and a set of applications that follow international approaches and agreements to monitor and report on the state of the environment (SOE). In New Zealand, in line with these concepts, the development of environmental indicators began in the early to mid-1990s. Reasonable progress has been made on the development of approaches, information systems, national and regional networks, and datasets to support state-of-the-environment assessment and reporting at local, regional and national levels.

Cultural monitoring is an assessment method that can identify and articulate iwi/hapū values and perspectives of catchments and freshwater ecosystems spatially, and then be used to monitor environmental-cultural changes through time from an iwi/hapū perspective. As can be seen in the 2011 National Policy Statement (NPS) on freshwater management, such monitoring and indicators can help “reflect tāngata whenua values and interests in the management of, and decision-making regarding, freshwater and freshwater ecosystems in the region” and “involve iwi and hapū in the management of freshwater and freshwater ecosystems in the region”.

A large number of cultural monitoring approaches (many begun in the late 1990s as part of national and regional projects) have been developed in different parts of New Zealand.

A definition of a Māori environmental indicator

An early definition (MfE 1998, 1999) of a Māori Environmental Performance Indicator was:

A tohu created and configured by Māori to gauge, measure or indicate change in an environmental locality. A Māori EPI leads a Māori community towards and sustains a vision and a set of environmental goals defined by that community.

Identifying the part these cultural methods play in monitoring progress towards stated goals and outcomes for freshwater management is research being carried out in the *Integrated Valuation and Monitoring Framework for Improved Freshwater Outcomes* (C09X1003), which follows earlier work (Harmsworth & Tipa 2006) documenting and reviewing these methods. In this latest freshwater science programme, previous cultural monitoring to June 2012 is being reviewed and evaluated with iwi/hapū groups, and some new approaches are being proposed and developed.

CULTURAL MONITORING REVIEW AND EVALUATION

Cultural approaches for recording, expressing and monitoring Māori values have been based on a large number of previous participatory research projects with iwi/hapū across New Zealand, including work in the Integrated Catchment Management (ICM) programme (2000–2010: C09X0305). Many of these previous approaches are being evaluated within a planning and policy context in the MBIE funded programme *Integrated Valuation and Monitoring Framework for Improved Freshwater Outcomes* (C09X1003). Some approaches are being adapted and redeveloped for use in selected case studies (Kaipara, Waikato, Hawke’s Bay, Manawatū).

The main approaches summarised, reviewed, and evaluated to June 2012 include:

- Cultural Health Index (CHI) (Tipa & Teirney 2003, 2006)

- Cultural indicators of wetlands (Harmsworth 1999, 2002)
- State of Takiwa “toolbox” (iwi environmental monitoring and reporting tool), see www.ngaitahu.iwi.nz
- Adaptation of the Cultural Health Index (CHI) by Tiakina te Taiao for their own use and application in the upper South Island (Te Tau Ihu) (Young et al. 2002; Harmsworth et al. 2011)
- CHI for estuarine environments (Tiakina Te Taiao – Walker 2009)
- Significance assessment method for tangata whenua river values (Tipa 2010)
- Kaitiaki tools: an internet-based Iwi Resource Management Planning Tool (NIWA)
- Ngā Waihotanga Iho: Iwi Estuarine Monitoring Toolkit (NIWA)
- Te Mauri model assessment tool (Morgan 2003, 2007)
- KEIAR framework (Waikato case study) (Dixon et al. 2011)
- Development of cultural indicators for lakes (underway by Ngai Tahu)
- Development of coastal and marine health index (presently underway)

KEY FINDINGS TO DATE

Cultural indicators and frameworks

Within a planning and policy context, several iwi/hapū are trialling, testing and refining cultural monitoring approaches and tools for their own use. Iwi/hapū monitoring is based on recording and collating appropriate mātauranga Māori based and science knowledge – to organise, collect, analyse, interpret, and report indicators within appropriate tikanga-based monitoring frameworks (Figures 1 & 2). Once established, mātauranga Māori based monitoring is used to express Māori values, monitor change (spatially and temporally), respond to issues, inform planning and policy, plan actions, and underpin the long-term management of freshwater.

A number of Iwi/hapū are trialling, testing, and refining cultural monitoring approaches and tools for their own use:

1. To identify, articulate values and perspectives of environmental change and issues
2. To help measure progress towards (or away from) stated goals and outcomes

A number iwi/hapū are developing or have developed specific indicators for freshwater management (Table 1), and cultural monitoring approaches and indicators are being developed and used to help measure progress towards stated goals and outcomes.

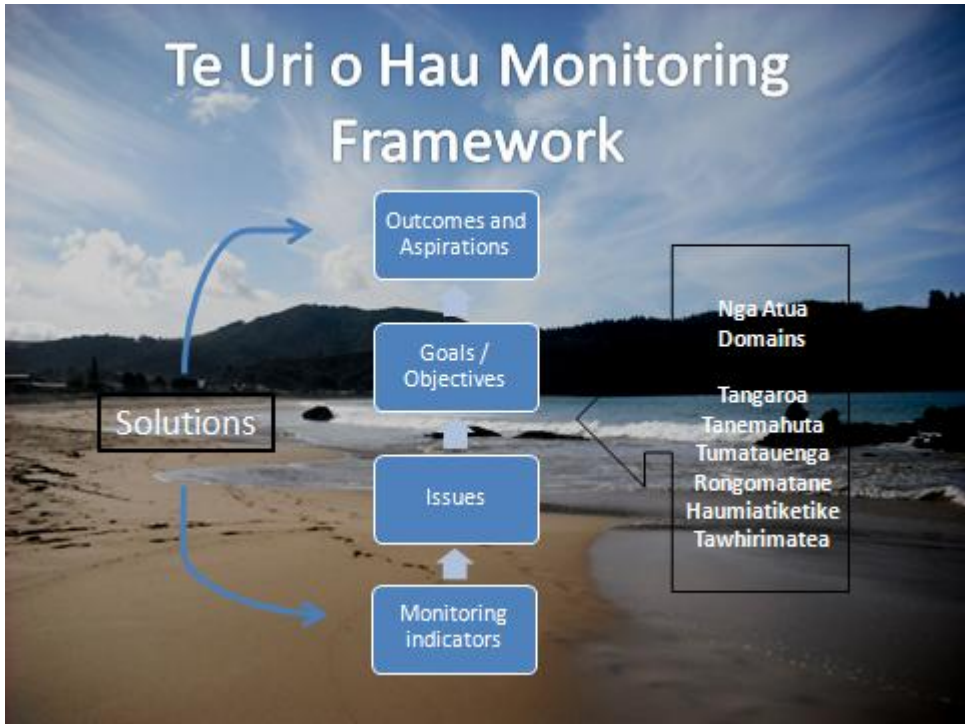


Figure 1. Te Uri o Hau (Kaipara) monitoring framework linking indicators to outcomes and aspirations (Te Uri o Hau environmental management plan).

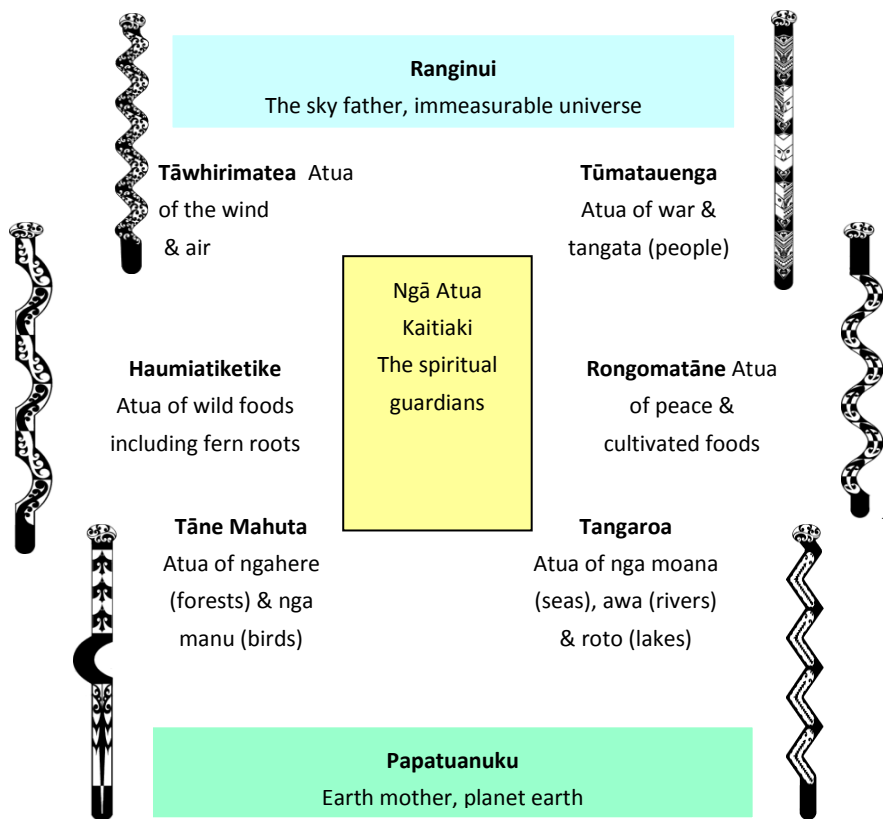


Figure 2. A Ngā Atua domains framework (developed by Tiakina Te Taiao, Nelson-Motueka).

Table 1. Cultural Indicators based on the Cultural Health Index (CHI) and organised by Atua domains (from Tiakiana Te Taiao – Nelson-Motueka region)

<p>Tangaroa</p> <ul style="list-style-type: none"> • Water Clarity • Water Flow • Water Quality • Shape and form of river, riverbank condition, sediment • Insects • Fish <p>Tāne Mahuta</p> <ul style="list-style-type: none"> • Riparian vegetation • Catchment vegetation • Bird life (species) • Ngahere/Taonga • Pests 	<p>Haumia tiketike</p> <ul style="list-style-type: none"> • Mahinga kai • Rongoa <p>Tūmatauenga</p> <ul style="list-style-type: none"> • Human activity, Use of river • Access • Cultural sites <p>Tāwhirimātea</p> <ul style="list-style-type: none"> • Smell <p>Mauri/Wairua</p> <ul style="list-style-type: none"> • Feeling, taste, wellbeing
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WHY MONITOR?

- Provides a Māori perspective on how the environment is changing – based on Māori values
- Identifies issues from Māori perspective
- Measures progress towards Māori goals and aspirations (outcomes)
- Uses mātauranga Māori (knowledge) and Māori values (relationship or connection to place)
- Uses indicators and assessment
- Links environmental health to Māori well-being
- Provides a basis for planning, policy and reporting
- Necessary to plan, implement and monitor actions and activities and show progress to goals (e.g. restoration projects, mahinga kai, capacity building, GIS)

COMPLEMENTARY MONITORING APPROACHES – WESTERN SCIENCE KNOWLEDGE AND MĀTAURANGA MĀORI WORKING TOGETHER

Mātauranga Māori cultural monitoring and indicators can work alongside western science knowledge and tools to assess and measure progress and change in New Zealand’s environment and helps build meaningful long-term relationships between the Crown and iwi/hapū (Figure 3). Complementary monitoring provides:

- a richer picture across NZ of environmental health and environmental change
- an iwi/hapū perspective of environmental change and health
- a way to respond to issues from the ground up
- an opportunity for iwi/hapū communities and the Crown to measure progress towards stated aspirations, outcomes and specific goals and objectives



Figure 3. Building excellent relationships and collaborative research provides the basis for integrating mātauranga Māori in complementary monitoring frameworks in New Zealand.

Cultural monitoring approaches can be systematically used alongside each other by using Māori indigenous knowledge systems, available and refined tools, and western science knowledge such as scientific indicators to assess and show changes in the state of environmental health (state of takiwā) and also to measure progress towards (or away from) defined goals, aspirations and outcomes (Table 2).

Table 2. Complementary monitoring approaches – integrating mātauranga Māori and western science knowledge for freshwater management (after Harmsworth 2002)

Māori knowledge-based	Community–scientific based	Scientific-based
<p>Māori indicators/monitoring approaches In-depth understanding of mātauranga Māori (Māori knowledge) of particular environments. Understanding of Māori values, goals, and aspirations required.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Cultural values mapping • Cultural indicators and frameworks • Cultural health index (CHI) • Taonga lists – key sensitive taonga lists • Te Mauri 	<p>Community based monitoring Requiring low to moderate levels of technical input and skill but scientifically robust and part-value based. Cost effective, relatively simple, and short duration.</p> <p>Examples:</p> <ul style="list-style-type: none"> • SHMAK • Stream and river condition and health • Wetland indicators • Community based indicators • Community values • Community coastal surveys • Non-technical 	<p>Scientific monitoring and indicators Requiring high levels of professional/technical input and skill, robust sampling strategies, data collection, analyses and interpretation. May be time-consuming and expensive.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Chemistry, water quality, nutrients • Hydrology • Water table modelling • Botanical mapping, classification of plants • pH • Pathogens, bacterial counts, Giardia,

<ul style="list-style-type: none"> • Knowledge and uses of taonga/mahinga kai, etc. • Record and monitor Impacts on cultural values and resources • Key pest species • iwi monitoring of cultural-heritage sites 	<p>assessments</p> <ul style="list-style-type: none"> • School monitoring programmes 	<p>Cryptosporidium</p> <ul style="list-style-type: none"> • GIS applications • Satellite imagery • Studies of fish, macro-invertebrates, macrophytes
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USING CULTURAL MONITORING GIS DATA TO REPORT CHANGES TO ENVIRONMENTAL-CULTURAL HEALTH

Cultural monitoring data can be stored and modelled via a GIS, and cultural monitoring data can be reported to assess changes in environmental health and cultural well-being and to measure stated outcomes, goals, and objectives (Figure 4)

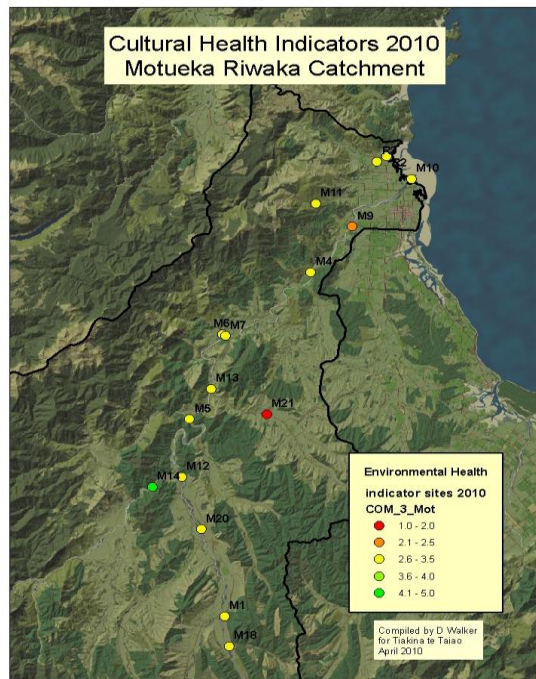


Figure 4. Using the Cultural Health Index (CHI) to report iwi environmental perspectives using a GIS (Tiakina Te Taiao – Nelson-Motueka).

EMERGING RESEARCH AREAS FOR DISCUSSION IN FRESHWATER PLANNING & POLICY

- Indigenous rights, Māori customary rights, property rights (tino rangatiratanga, mana motuhake, whakamana, ōritetanga)
- Māori aspirations, desired outcomes (monitoring towards outcomes)
- Models and new structures of governance, e.g. co-management (NPS – involving iwi and hapū in the management of freshwater and freshwater ecosystems)
- Bridging and integrating mātauranga Maori and western science knowledge
- The practice of kaitiakitanga – translating a concept to making difference through actions

- Policy that supports and catalyses actions and activities on the ground (e.g. collaborative iwi/hapū and community projects)
- Environmental and cultural monitoring
- Limits and standards
- Building capacity for iwi/hapū
- Identifying Maori research needs

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