

CO-GOVERNANCE, CO-MANAGEMENT & COLLABORATION

AN OUTCOME OR A STRATEGY TO AID AQUATIC RESTORATION?



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PART 1: CO-GOVERNANCE, CO-MANAGEMENT & COLLABORATION

1.0 INTRODUCTION

Tangata whenua have experienced loss of land and restrictions in their use of resources¹. Post settlement, trees were cleared, wetlands were drained, streams and river dammed and diverted, synthetic chemicals were applied to improve the fertility of the soil and large portions of land were offered for lease or sale. Among the consequences of the enclosure of private lands was an increase in economic productivity of the land, coupled with benefits for those who could afford to buy or lease land. In parallel, however, the cost for Tangata whenua was significant. Tangata whenua participate in many resource management processes to redress the history of degradation and where possible restore valued environments.

To be heard, the systems of Tangata whenua in contemporary society are by necessity a puzzle of old and new knowledge, practices, and tools and represent syntheses of knowledge and practices of different historical and cultural origins. As in any process of cultural change, this synthesis mostly takes place through a trial and error process, whereby new elements are adopted, old elements dismissed, and system structures re-arranged. Co-management and co-governance are examples of innovative systems that are being implemented increasingly worldwide.

The sharing of responsibilities assumes that a range of complex and contentious issues have been resolved. But in practice this often overstates the position as many indigenous communities still face difficulties realising their aspirations. Delivering opportunities and outcomes to indigenous communities requires a redefinition of the relationship between indigenous and non-indigenous communities in a number of different forums, including the courts, political arena and in the wider community. It requires the clear articulation of what, from an indigenous perspective, might constitute effective co-management or co-governance and an anticipation of the outcomes sought by communities.

1.1 Report Objective

The principal objective of this report is to provide a cultural interpretation (of which there will be many) of the evolution of collaborative systems in New Zealand. It then draws in the experiences of Tangata whenua in one region to illustrate how collaborations have been applied in their takiwa to coordinate their environmental management activities, with a particular focus on aquatic restoration.

1.2 Structure of this report

This report has been divided into a number of sections:

PART 1: Examines co-governance, co-management and collaborations

Section 1 Sets out the background and the objectives of this report.

¹ The many reports prepared by the Waitangi Tribunal summarise the losses experienced by whanau and hapu. Further detail and personal experiences can be found in the evidence that was submitted to the Tribunal at the respective hearings of claims around the country.

Section 2 Discusses co-governance from an indigenous (and in the case of New Zealand, a Tangata whenua) perspective and draws from the literature a number of fundamental issues that need to be understood and accommodated when engaging with Tangata whenua in collaborative processes.

Section 3 Discusses the range of potential participants in collaborations and the shape that collaborative agreements could take

PART 2: Describes how collaborations can aid aquatic restoration

Section 4 Describes how collaborations have been used by Tangata whenua to facilitate a region wide approach to aquatic restoration,

Section 5 Concludes with an analysis of how report cards can aid collaborations and restoration initiatives.

1.3 Co-governance, co-management and collective action.

There are multiple definitions for the terms “co-governance” “comanagement” and “collaboration”. Te Aho (2009) explains that co-governance and co-management both recognise indigenous interests (in the environment), acknowledge different world views and provide for:

- Participation at all levels of decision-making that affect our natural resources; and
- Negotiated arrangements by defined, identifiable Maori groups and Crown agencies, regional government, and/or territorial authorities.

However Te Aho makes a distinction by explaining that co-governance describes the processes and structures by which people participate in direction setting, decision making, power sharing, and monitoring outcomes. “Co-Management” in contrast describes the day to day decisions and implementation. In reality however Tangata whenua use multiple terms often interchangeably including joint management, co-management, and collaborative management to describe the nature of their relationships with others.

We also need to be cognisant of the terminology used by members of the Iwi Leaders Group (ILG). Tukuroirangi Morgan (Waikato Tainui) – when speaking on Native Affairs² stated the need for there to be **power sharing**. Mark Solomon (Ngai Tahu) – stressed the need for participation of Tangata whenua in **decision making**³. With respect to power sharing, in every society, power and control are distributed across many layers and multiple individuals and groups with some more powerful than others. The uneven dispersal of power involves jurisdictional, statutory, historical, human rights, resource, capacity, age and gender dimensions that have their source in the wider social environment, not just within a group’s own internal governance arrangements.

² In 2009 Mr Morgan was asked to represent the Iwi Leaders Group in a discussion of the ownership of water.

³ Mr Solomon stated this at the Te Runanga o Ngai Tahu meeting in Invercargill in 2011.

Fundamentally governance is about power, jurisdiction, control and choice—its about the relative scope and extent of power, who has influence, who makes the decisions and ‘calls the shots’, and how decision-makers are held accountable, both internally and externally (Plumptre & Graham 1999). Western models of the state usually assign government super-ordinate public power and jurisdiction within a nation’s boundary. In New Zealand, Tangata whenua systems of governance have their own political processes, and the State and Tangata whenua have sought to negotiate a space for these within the complex jurisdictions of the nation.

The research is concerned with Tangata whenua participation in collaborations. In the sections that follow we explore what some of the cultural considerations may be.

1.4 A cultural dimension

A human culture consists of a set of institutions, practices, behaviours, technologies, skills, knowledge, beliefs and values. As such, a culture is received, lived, refined, and reproduced at any given moment in history. In indigenous communities, many of the features defining a culture can be interpreted primarily as a response to the specific environment where they live. As has been stated this report is concerned with considering co-governance and co-management from the perspective of Tangata whenua

1.5 A tikanga based system

Tikanga Maori regulates the interplay between Tangata whenua and the natural environment. Its major outputs over generations have included:

- whanau and hapu **survival** and the **satisfaction of needs** through productive activities, such as fishing, gathering, and cultivations to manaaki whanau and manuhiri;
- the **transformation** of the natural environment into a domesticated environment (through cultivation) enabling permanent settlements;
- control of natural environmental **hazards** (e.g. distancing *kaika*, *nohoanga* and *marae* from hazards); and
- the minimisation of **degradation** caused by human pressure on the environment, through for example the use of mechanisms such as *rahui*.

Within whanau and hapu, values such as *mauri*, *tapu*, *mana*, *whanaungatanga*, *whakapapa*, and *manaakitanga* have shaped management and decision making processes and the relative sharing of costs and benefits among individuals and groups⁴. In most indigenous communities, culture-based relationships of solidarity and reciprocity, the prevalence of communal property regimes and the collective building of local knowledge and skills through experience in managing the resources, succeeded in producing cohesive and sustainable systems.

But in a New Zealand context, loss of control over land and natural resources following settlement — in particular alienation and the consequent limitation of access to use resources — has also been a pervasive area of struggle for some whanau and hapu.

⁴ A brief discussion of values is provided in Appendix 1.

2.0 COLLABORATIONS FROM THE PERSPECTIVE OF TANGATA WHENUA

The imposition of external values, technologies and livelihood systems was a significant feature of colonisation. Today's new ideas and concepts, such as "sustainable use" could be perceived as a newer version and a perpetuation of such imposition. It is important the "collective action" and "collaboration" is not seen in this light.

2.1 Indigenous Governance

Jan Kooiman (2003) distinguishes three modes of governance: self-governance, co-governance and hierarchical governance.

- Self-governance is 'the capacity of social entities to govern themselves autonomously'.
- Co-governance means utilising organised forms of interactions, such as collaboration and co-ordination, for governing purposes.
- Hierarchical governance is bureaucratic government with control coming from the top.

Indigenous governance relates particularly to the first two modes of governance. It refers to the decisions indigenous communities make individually or collectively about how they might govern themselves including the way they observe and practice their own laws independently of any obligations they have under mainstream laws. It is also about how Indigenous people negotiate the intersection of their rights and interests with obligations they have under a nation's legal system. Identity and governance must necessarily be self-determined. The Crown has no role in establishing the criteria for judging the existence, membership or representation of Indigenous societies⁵.

The National Centre for First Nations Governance has identified 17 principles for effective indigenous governance that they group into 5 components many of these are consistent with principles for collective actions as described by Ostrom (2008). These are summarised in Table 1.

⁵ This is a sentiment stressed by Ta Tipene O'Regan.

GOVERNANCE COMPONENTS & PRINCIPLES	EXPLANATION
THE PEOPLE Strategic Vision Meaningful Information Sharing Participation in Decision Making	<p>A <i>Strategic Vision</i> is the shared, future state that the people hope to achieve collectively. It charts the course to where they want to be and is relevant to present generations time and to future generations.</p> <p><i>Meaningful Information Sharing</i> recognises that information is power. Information ensures power is also shared. Meaningful information sharing occurs when the exchange of information occurs frequently, openly and in all directions.</p> <p><i>Participation in Decision Making.</i> Indigenous communities engage in decision making in many different ways. What is important is that Indigenous communities determine the best way(s) for their communities to contribute to important decisions, and that the process of decision making be open, inclusive, appropriate to the community, and understood and endorsed by all members of the community.</p>
THE LAND Territorial Integrity Economic Realization Respect for the Spirit of the Land	<p><i>Territorial Integrity.</i> The deep connection to the Land is vital to Indigenous communities as their authority and identity come from the Land. It is the Land that gives a deep sense of place and a sense of self. It is vital to extend connections across the areas utilized historically.</p> <p><i>Economic Realization.</i> Effective governments possess the right and tools to develop their Land into sustainable economies. They realize wealth through development and through leveraging those resources to access additional sources of revenue. Customary rights and interests include an inescapable economic component. This is a legal right that indigenous communities must realize to benefit their citizens and finance their governments.</p> <p><i>Respect for the Spirit of the Land.</i> indigenous communities are positioned to take back their legitimate place on the Land. This will be accomplished by asserting rights to protect the Land and its resources, and by optimizing the economic opportunities the Land provides.</p>
LAWS and JURISDICTION Expansion of Jurisdiction Rule of Law	<p><i>Expansion of Jurisdiction</i> refers to exercising authority beyond the current limited parameters of a nation's laws. The expansion of jurisdiction can be done in different ways: through accepting offers of delegated authority, through negotiation, and through exercising the right of self-governance. Authority can be assumed incrementally and gradually, or come suddenly thorough a significant legislative change. What is important is that jurisdiction is appropriately expanded consistent with achieving the vision.</p> <p><i>Rule of Law</i> provides clear instruction on acceptable behaviour – behaviour that benefits the community – and the recourse when behaviour is unacceptable. The Rule of Law exists to minimize conflict, between individuals, corporate entities, and individuals and corporate entities. The latter is critical to the realization of successful economic development projects on indigenous communities.</p>
INSTITUTIONS Transparency and Fairness Results-Based Organizations Cultural Alignment of Institutions Effective Inter-Governmental Relations	<p><i>Transparency and Fairness</i> make certain that institutions and the ways they operate are understood by those they are designed to serve. Fairness does not mean that all decisions will be the same, but that set criteria will be applied consistently in making all decisions. It is in the implementation of a policy that its fairness is revealed. Transparency minimizes the opportunity for preferential treatment and the advancement of private interests over collective good.</p> <p><i>Results-Based Organizations</i> are imperative for any governing body to measure the effectiveness of its governance. In measuring the effectiveness of indigenous governance, a key result would be the extent to which the structures have moved toward their strategic vision.</p> <p><i>Effective Inter-Governmental Relations</i> result in productive and satisfying working relationships where the goal is a "win-win"; the collaborative advancement of the interests of all governments whenever possible.</p>
RESOURCES Human Resource Capacity Financial Management Capacity Performance Evaluation Accountability and Reporting Diversity of Revenue sources	<p><i>Human Resource Capacity</i> speaks to the skills and abilities of the people that govern communities and implement community programmes and services. With the right to govern comes the responsibility to govern well. The expansion of human resource capacity, including the professional development of the next generation of leaders and managers, is a necessary investment to see that indigenous communities possess the knowledge, skills and abilities to govern effectively.</p> <p><i>Financial Management Capacity</i> ensures that activities are supported by an ability to plan, monitor, and account for financial resources, enabling long-term, multi-year planning and proactive decision making.</p> <p><i>Performance Evaluation</i> allows for the recognition of achievement, while identifying the adjustments to be implemented. Parallel to the significance of evaluating performance, is the need to report results back to the community. Through rigorous and transparent systems of <i>Accountability and Reporting</i> partners are provided with the information they need to participate in informed decision-making.</p> <p>Expanding the <i>Diversity of Revenue Sources</i> is critical to financial management.</p>

It must be recognised however that indigenous communities live and function within heterogeneous communities. Therefore for Indigenous groups, their governance and jurisdictional control is also subject to many external conditions imposed by the wider societies in which they live.

For Tangata whenua wanting to engage in collaborations the principles identified can form the basis of criteria that provide a starting point for assessing governance in practice:

- (a) Power—its scope and exercise;
- (b) Cultural geography and legitimacy—how workable cultural legitimacy is designed, refined and sustained;
- (c) Leadership—how leaders and decision-makers (male and female) are selected, monitored, held accountable and replaced;
- (d) Decision-making—processes, consensus orientation, events and outcomes;
- (e) Organisational performance—how governance structures and goals are established and reviewed, organisational capacity to formulate and deliver policies and services to meet need for transparency, and for stability, innovation and risk management;
- (f) Strategic direction—how communities and organisations develop long-term perspective of their social, economic and cultural development along with a sense of what is needed for such development;
- (g) Participation and voice—the extent of involvement in decision-making; the respect of Indigenous constituents and of the state, for Indigenous governance institutions;
- (h) Accountability—internal and external
- (i) Resource governance—the extent and management of resources and economic development;
- (j) The ‘governance of government’—government’s capacity to formulate and implement enabling policy and service delivery frameworks; funding mechanisms; downwards accountability;
- (k) The governance environment—the relationships with external parties, impact of wider regional, state and national environment; and
- (l) Governance capacity development—processes for, relevance and outcomes.

2.2 Collective action is not new for Tangata whenua

In the New Zealand context, a starting point is to acknowledge the long history of Tangata whenua working collectively. At least four broad groupings of governance arrangements can be identified (using the typology proposed by Hill et al (2012).

- 1 **Tangata whenua governance** encompasses the Tangata whenua initiatives that bring whanau, hapu, iwi and/or Maori organisations together to address common issues, including common political agendas. Tangata whenua initiatives can occur at multiple levels

- whanau Maori Councils, Marae komiti
- runanga (local and regional level) for example Kai Tahu Ki Otago (the four runanga in Otago working jointly in a formal collective via a legally constituted Trust and Company.
- runanga (iwi level) for example Te Runanga o Ngai Tahu (comprises the 18 papatipu runanga)⁶
- iwi to iwi level for example the Iwi Chairs Group, the Iwi Leaders Group⁷

⁶ See Te Runanga o Ngai Tahu Act 1996.

- iwi to iwi level working collectively for a specific kaupapa for example Treaty Tribes Coalition for iwi fishing Interests⁸
- Maori economic interests Aotearoa Fisheries Ltd – governing Maori commercial fisheries
- Maori social interests Collectives of providers working in Maori health or the Maori Women’s Welfare League

It is important to note that many of these collective remain accountable to whanau and hapu. For example:

- the participants in the Iwi Leaders Group have stressed that their collective actions do not usurp the rangatiratanga of individual iwi.
- Similarly Te Runanga o Ngai Tahu, despite being recognised in statute as the representative of Ngai Tahu whanui on all matters⁹, recognises the rangatiratanga rests with Manawhenua.

2. **Tangata whenua also lead a number of collective arrangements**, for example mataitai and taiapure (both being area management tools under the fisheries legislation). The management komiti can include non-Maori representatives. However, the kaupapa and the means of engagement and operating respects the rights, interests and tikanga of Tangata whenua.
3. More typically within contemporary resource management, however, **Tangata whenua experience the governance of agencies**. Of concern to Tangata whenua, are situations where they are viewed as a stakeholder (like farmers or an NGO, or an industry representative) rather than as a group with a distinct political status recognised in Treaty and in law, which arguably necessitates a different approach to engagement.
4. Increasingly there are **co-governance arrangements that are led by agencies and Tangata whenua**, which seek to recognise the rights and interests of Tangata whenua through new institutional arrangements, for example the Waikato River Settlement.

With respect to the last two types of governance, Tangata whenua may find that the drive to meet the aspirations of multiple parties sidelines the rights and interests of Tangata whenua.

When promoting new collaborations it is essential that time is taken to identify and characterise the different types of collectives that Tangata whenua currently

- have the capacity to sustain;
- participate in or choose not participate in;
- aspire to engage in; and
- need to engage in to realise their outcomes.

⁷ See <http://iwichairs.maori.nz/>

⁸ See <http://www.manamoana.co.nz/>

⁹ Pursuant to section 15(1) of the Te Runanga o Ngai Tahu Act 1996.

Hill et al (2012) expanded upon the different types of collaborations that indigenous communities engage in and the characteristics of each type. This is adapted in Table 2.

Table 2: Summaries of differences among types of Indigenous engagement in environmental management

	INDIGENOUS-GOVERNED COLLABORATIONS (IG)	INDIGENOUS-DRIVEN CO-GOVERNANCE (ICOG)	AGENCY-DRIVEN CO-GOVERNANCE (ACOG)	AGENCY GOVERNANCE (AG)
POWER SHARING				
Decision making level and control	Decision making between Tangata whenua agencies; high Tangata whenua control	Decision making defined by tikanga and partner requirements; substantial Tangata whenua control	Decision making by agency and Tangata whenua according to agreed structures, typically committees; substantial agency control	Depends on specific project, usually agency controlled but local scale provides Tangata whenua input
Rules-definition	Rules defined by Tangata whenua working together to shape contemporary Tangata whenua governance	Rules defined by Tangata whenua as constrained by partner requirements	Rules defined by agency as constrained by legislative and policy recognition of Tangata whenua rights	Rules defined by agency constrained only by legally enforced Tangata whenua rights
Resource cultural values and property rights	Resources highly valued by Tangata whenua; rights may be defined/constrained but viewed as open to transformation	Resources of lesser value in industrial economy (hinterlands of first world economies); Tangata whenua rights strong	Resources of contested value between industrial and Tangata whenua economies; Tangata whenua property rights defined and contained	Resources highly valued by industrial economy, e.g., water in heavily used systems; few Tangata whenua property rights
PARTICIPATION				
Participatory processes and functions	Inclusivity that engages Tangata whenua in new Tangata whenua institution building	Inclusivity that engages Tangata whenua in new environmental institution building	Tangata whenua rights-based negotiation	Participation through "stakeholder" mechanisms, e.g., committees, projects
Organizations engaged	Diverse Tangata whenua organizations at multiple scales	Diverse Tangata whenua and non Maori organizations at multiple scales	Government agencies and NGOs, with defined Tangata whenua roles	Government agencies and NGOs with defined environment management roles
Coordination	Cross-regional and cross-jurisdictional empowerment of Tangata whenua groups	Tangata whenua holistic place-based empowerment	Whole-of-government coordination	"Silo", agency accountability for specific mandate
PURPOSE				
Environmental management project purposes	Overall purpose of strengthening Tangata whenua through environmental management	Multiple purposes, reflecting Tangata whenua-centred holistic planning	Multiple purposes, reflecting outcomes of negotiated agreements	Usually single or dual purpose, managing specific threats, species or areas
Purpose of Tangata whenua roles	Expression of rights and responsibilities	Long-term, lasting resolution of issues	Equity plus recognition of specifically defined rights	Equity with other parties in environmental management
Capacity-building	Focus on building trust and relationships between diverse Tangata whenua groups	Focus on Tangata whenua and non Maori functionality in both Tangata whenua and societal processes	Focus on Tangata whenua functionality in societal processes and cross-cultural training for no Maori	Focus on training Tangata whenua to ensure functionality in societal processes.

Table 2 enables Tangata whenua to analyse the nature and extent of their participation in collaborations that are already part of, or proactively define the nature of the collaborations they wish to participate in.

2.2 Fundamental Issues from the Perspective of Manawhenua

In the section we pull out key themes from the literature that discusses Maori perspectives on co-governance, co-management or collective action. The six themes to be discussed are:

1. the rights and interests of Tangata whenua;
2. power sharing
3. differing world views;
4. the evolution of institutions within Maori society;
5. whanau, hapu and iwi capacity; and
6. the need to deliver outcomes

2.2.1 Recognising and providing for the rights and interests of Maori; and

In practical terms, it is essential that the rights and interests of Tangata whenua are duly respected, recognised and provided for. It should be acknowledged that the process of recognising and providing for rights and interests will also serve to avoid the “acculturation” of Tangata whenua, which may be seen as one of the most insidious dangers of collective action for Tangata whenua.

Aspects of participatory models may proceed from a mainstream logic and value system that, in an attempt to accommodate multiple interests, may overshadow or uproot the fundamental tenets of a tikanga based society. For example, practices such as assigning only economic value to natural resources may be perceived as appropriate to many participants but objectionable and destructive to some whanau and hapu.

These different views should be handled with respect. To this end, the parties have to be well informed about the values, beliefs, lifestyles and management systems of Tangata whenua, and aware of the structures giving local cultural cohesion.

It also ensures that collective action remains an opportunity to review and improve resource management practices, and not an active promoter of social restructuring and cultural change. The collaboration may assist different groups within a society to develop their own views on the resource management issues at stake. But the ultimate decisions about how to handle issues of internal consensus and representation belong to Tangata whenua themselves.

Ruru (2011) in discussing co-governance states that all present rights of Tangata whenua are vulnerable to being trumped by other competing interests. This reinforces the need for Tangata whenua to address the ‘big issues’ such as the current government following through with their commitment to better define and resolve Maori rights and interests in water. But as one of those big issues, in reforming water management and allocation models, through a co-governance future, iwi and hapu will need to be regarded as Treaty partners, (not stakeholders), with rights to better influence the decision-making concerning all aspects of water take and use.

2.2.2 Differing world views

Morris (2009) believes the difference in worldviews may lead to disagreements over approaches and fundamental philosophies. Tangata whenua are often confronted by a dichotomy when many valued environments are viewed as a collection of “natural resources”, to be “managed” through dismembering and biological and social simplification (Scott, 1998). From the perspective of Tangata whenua the science of parts (reductionism), as opposed to

knowledge and ways of knowing that integrate the parts, has largely failed to come to terms with dynamic complexity and variation within and among ecosystems. It has also failed to recognise that the perceptions of both problems and solutions are value laden and differ enormously within society, and “experts” may no longer be better equipped than any other groups to decide on questions of values and interests. Importantly reductionist perspectives are incompatible with the holistic perspectives of Tangata whenua and indeed other indigenous communities (Posey, 1991, Te Runanga o Ngai Tahu, 2003).

Ulrich Klein (2000) describes a clear difference between the western mechanistic and Maori holistic worldviews. For example, Maori are likely to employ methods such as *rahui* to restore the *mauri* (life force) of a resource. Klein contends that often such approaches are incompatible with conservation ideas that focus on the preservation of the resource only, without taking into account the wider context and effect on communities. The example of rivers from both points of view is also illustrative: the western construct of the ‘elements of a river’ (for example, the water, the bed, the space the water occupies, the air above it), compared to a traditional Maori view of a *tupuna awa* (the river as an ancestor) as described by Muru-Lanning (2009), or the river as an undivided and indivisible entity (Durette, 2009).

Conversely however, there may also be scepticism of the Maori worldview by mainstream public, which may also be a political barrier to realising Tangata whenua aspirations. Berkes (1991, 1994) and Stevens (1998) noted that customary management is not usually recognised as a proper science, which Berkes (1994) puts down to being a “symptom of the deep schism between the two parties regarding the validity of native peoples’ world view.”

2.2.3 The evolution of new Maori entities

Tangata whenua governance usually includes a body of norms (e.g., tikanga and kawa), procedures (e.g., decisional processes, conflict management and dispute resolution processes), knowledge, and individuals playing specific roles. Complicating Tangata whenua governance, land and resource tenure are normally ascribed at the same time to several actors, which include whanau, hapu, iwi, iwi entity, Maori Komiti, Marae Komiti, Maori land incorporations, Maori land trusts, runanga etc. These entities each represent a tested structure and representation system and generally enjoy a broad social recognition— what some commentators called social capital—to take on an effective role in resource management.

However identifying the existing Tangata whenua entities may be challenging. New entities are continually being created to manage the diverse affairs of whanau, hapu and iwi. Settlement of Waitangi Tribunal Claims has also led to the creation of new entities with varying accountabilities to iwi. The changes in the fisheries sector and the management of customary fisheries in particular highlight changes as a result of the “Sealords Settlement”¹⁰.

If Judge Paterson was correct when determining that “Fishing rights were held by hapu, not iwi, and, ...it is, in the main, rights which were vested in hapu which were infringed the question that emerges is how the interests of hapu are recognised and provided for in the plethora of Acts and

¹⁰ Walshe (2010) provides an excellent description of changes to the fisheries sector in New Zealand.

entities that now govern New Zealand's fisheries? The expectation could be therefore that hapu would be explicitly provided for in the management framework. Further the Fisheries Act 1996 defines "tangata whenua", "tikanga Maori" and "kaitiakitanga" and includes spatial management tools (rahui, taipure and mataitai) for application by tangata whenua at a local level. This serves to strengthen the expectation that hapu interests will be provided for. However, there is variable recognition of tangata whenua and hapu in the statutes governing coastal, marine and fisheries management. New entities such as "Mandated Iwi Organisations" now have a prominent role in fisheries as a result of the settlement. With the emergence of iwi authorities since the 1990s and the creation of new iwi entities through the Maori Fisheries Act 2004 multiple representative bodies of Maori are afforded the opportunity to participate in the fisheries management.

Despite the observations of Judge Paterson, arguably the interests of hapu have been marginalized as the fisheries and marine management structures have evolved and new entities have been created.

There are two further issues that need to be considered with respect to entities and representation. A wide range of interests and concerns are likely to be represented in a collaboration including:

- Affected groups - Those communities, groups or individuals actually or potentially affected by the management decisions.
- Concerned groups - Those communities, groups or individuals with specific concerns about management decisions.
- Dependent groups - Those communities, groups or individuals dependent on the resources at stake.
- Groups with claims - Those communities, groups or individuals upholding claims, (including Manawhenua with customary rights, Treaty rights and legal jurisdiction over the territory, area or resources at stake).
- Impacting groups - Those communities, groups or individuals whose activities impact on the territory and its resources. There are also likely to be activities that take place outside the territory that impact on its resources and their sustainability.

Tangata whenua may be represented in all groups. However, they become "participants" by expressing their interests and concerns and organising for action. The latter point is particularly important, as Tangata whenua may be powerless simply because they are not sufficiently or effectively organised. The process of organising requires time, financial resources and human skills that may not be readily available. A single head of a whanau may be a careful resource manager, possess a wealth of Maturanga (expert knowledge and skills), have rights over a given set of natural resources, and uphold ahika. Yet they may have little spare time to take part in meetings, no transport facilities to travel to a meeting, limited opportunity to read and analyse on background material or little self-confidence to speak in public.

Those promoting or facilitating collective action need to be aware of the difference between Tangata whenua, manawhenua, iwi authorities, iwi entities, Maori economic entities, Maori collectives etc. Similarly, Tangata whenua need to be aware of those who they will want to participate and the capacity in which they will want to be represented.

2.2.4 Whanau, hapu and iwi capacity

As the previous section explain, whanau and hapu have adapted themselves, developed new capacities and woven political and economic alliances, including government (central and local), international organisations, individuals and corporate businesses.

In practice, whanau and hapu are principally concerned with the status and management of a specific, and usually local environment. Yet, even for local environments, recognising values, opportunities and risks is not a simple matter. Tangata whenua may not be fully informed or aware of all phenomena, activities and decisions affecting their rohe or resources at stake. Capacity constraints may mean they lack the time, resources, self-confidence and organisation to articulate their concerns and express them forcefully. We use the term “capacities” to encompass the attitudes, knowledge, skills, resources and social recognition that allow whanau and hapu to take part meaningfully in the collaborative process. If a whanau or hapu lacks the resources to travel to a meeting, or lacks a good translation of the discussions into every day terminology or Te Reo (if needed), it would do it little good to have been identified as a “legitimate participant” or to possess local knowledge of the resources at stake.

Financial capacity

- Financial capacity is necessary for Tangata whenua involvement at a significant level of authority and control. It is important to recognise that Maori settlement monies and other iwi finances are private funds, they are not necessarily available for collaborative initiatives to be used for which might be seen as public functions. Collaborative arrangements in New Zealand need to acknowledge that government funding for Maori involvement may be necessary – a fact that and Local Government New Zealand has recognised (LGNZ, 2011)

For some matters and in some areas Tangata whenua may believe that a degree of financial independence is necessary for effective participation in governance. The greater reliance whanau and hapu have on iwi and/or government financial assistance, the less autonomous they may be. As a result of an imbalance in the financial relations between the iwi (which may be the recipient of settlement assets) and whanau and hapu, whanau and hapu risk being subordinate both in terms of the ambition they can bring to their programmes, and in terms of their ability to bargain over the terms and conditions of programmes which are within the control of either the iwi, whanau and hapu. If runanga, whanau and hapu are highly dependent on either Crown or iwi funding, this may put them in a weak position and could hamper their effective participation in collective actions. If the iwi steps in to fulfil any “void” in capacity, it could be seen to further disenfranchise hapu and whanau.

Human capacity

- Ostrom (2008) acknowledges that collaborative processes demand energy, passion, willingness, creativity, sacrifice, continuity... and it needs at least one and possibly more “champions”. Personnel capacity (or ‘staffing’) and institutional knowledge refers to whether a specific Tangata whenua community are available to be involved and whether they have background skills. Institutional knowledge includes experience of processes and regimes, such as the Resource Management Act 1991 and other legislation.

Tangata whenua internal structures, or the lack thereof, may inhibit the effectiveness or negotiation of collaborative arrangements. For Tangata whenua collaboration also depends crucially on the capacity of individuals to communicate with whanau and hapu (whom they represent), to elicit their confidence, trust and support. In addition specific capacities and technical support may also be required for a variety of tasks— from mediating conflicts to understanding ecosystem functioning, from social organising to setting up economic enterprises. Those representing Tangata whenua need to be able to recognise when such forms of support are needed, and from where they can be accessed.

Drawing from the earlier sections, Tangata whenua need a number of capacities to participate in a collaboration, including the following

- world view: a coherent frame of reference that the hapu uses to interpret the environment in which it operates and define its place within it. This includes a vision providing a rationale for all other aspects of capacity.
- Tikanga and kawa: a way of doing things that enables the whanau and hapu to achieve its objectives, and believe it can be effective and have an impact;
- Structure and mandate: a clear definition of roles, functions, lines of communication and mechanisms for accountability;
- Adaptive strategies: practices and policies that enable the hapu to adapt and respond to changes in its operating environment;
- Skills: the necessary knowledge, abilities and competencies;
- Resources: the necessary technology, finance and equipment;
- Linkages: an ability to develop and manage relationships with individuals, groups and organizations in pursuit of the hapu vision and mission.

It is the collective sum of these elements that constitutes capacity. Assessing these capacities may help to determine the extent to which the hapu is able to participate meaningfully in collective processes and where capacity building is necessary. Capacity-building initiatives in collaborative processes can support hapu to:

- understand what collaboration entails and how a hapu can organise to participate;
- knowledge and information about the resources at stake, including knowledge of existing environmental problems, needs, constraints and opportunities (comprising the costs and benefits of various management options), and assess relevant change;
- deal with secretarial matters such as the agenda of meetings, records, accountings, financial reports, proposals, etc.;
- communicate, listen to them and think afresh, including about new management options on the basis of various points of view;
- participate in preparatory and negotiation meetings

There are two final considerations. First, the capacity building process is inevitably time-consuming and effective results may take years to unfold, a fact that may clash with the shorter time spans of usual “projects”. Second, while external support is often important to stimulate new capacities and action, care should be taken that such support, for instance to attend meetings do not become an “end in itself”. In the long run they may even prove

counterproductive, as they “take the space” that could be productively occupied by other types of discussion platforms and organisations. Tangata whenua participate to achieve outcomes.

At the beginning of the process it is important to identify the human and financial resources that Tangata whenua can count on. Having previously explained the number of entities that today may purport to represent the interests of Tangata whenua, it is also important to identify those that are resourced. For example, a settlement for an iwi may not mean that whanau and hapu are resourced. Similarly, a commercial fishing entity may have resources but Tangata Tiaki managing the customary fishery may not. Time needs to be invested in identifying where the resources lie and where the resourcing needs are.

Worksheet 1 enables hapu to identify the capacity to sustain collaborations

2.2.5 Power sharing

Sharing power is a stated aspiration of whanau, hapu and iwi. Tangata whenua dimensions of this issue are discussed. The first consideration is a discussion of New Zealand's resource laws. Secondly, theoretical aspects of power sharing are discussed.

With respect to New Zealand's resource laws, Ruru has written extensively about the recognition of the rights of Maori in New Zealand's resource laws and the role of the Environment Court in shaping such recognition and provision (a matter of national importance). Ruru (2010) summarises the outcomes of court decisions where Maori voiced their concerns about resource applications to take and use water. She notes that there are several instances where Maori, as objectors, have appealed council decisions that approved resource consents to take water, discharge wastewater into water, or dam water. In all of these cases Maori speak of the importance of the water to them culturally.

Of the 19 court cases Ruru surveyed, only two produced clear wins for Maori with resource consents being adjusted or revoked in accordance with Maori wishes. The remaining 17 cases resulted in partial or outright losses where Maori concerns could not be accommodated. Although the RMA was enacted in 1991 the first clear win for Maori did not occur until 2002.

Ruru (2011) concludes that the fact that Maori often lose in the courts is not because the courts lack awareness of the importance of the RMA protections to Maori, rather the case law illustrates that while it is definitely a strong starting point to have legislative rights, it requires significant time and resources on the part of Maori to pursue these rights. This clearly reinforces the need for enhancing capacity and considering other issues to resolve conflicts.

The propositions of Ruru are supported by Kapua (2006) who stated that recognition of Maori interests in resource management has not carried through to outcomes. Sections

6(e), 7(a) and 8 of the RMA do provide scope to advance recognition of the Maori relationship with water in RMA processes. However, situated in Part II, they form only one of many competing considerations to be **balanced** in any given decision. Wikaira (2010) contends that interpretation of the Maori concepts in these provisions has often resulted in Maori beliefs conceding to otherwise beneficial proposals when presented with an impasse between the two. Such concessions are often the result of a reduction of the meaning of a given term to catchphrase categories of mythical, spiritual, symbolic or metaphysical.

This recognition removes the focus from the significance of the concept in its cultural base and the resulting weight that it should be accorded, and focuses the consideration on its intangible and unquantifiable nature, to then be weighed against others (that may be measured and quantified) in the balancing process. Such an approach dilutes the nature of these provisions, and their subsequent value for Maori in RMA processes (Wikaira, 2010).

The issue that arises is whether power sharing in itself is sufficient if decision are still to be made within the context of New Zealand's resource laws. Does legislative reform need to accompany power sharing? It also suggests that other strategies need to be employed to minimise the risk of power imbalances.

A separate issue raised by Muru-Lanning (2009) draws our attention to the issue of terminology that is being used in settlements and legislation. She highlights in her thesis how a subtle change in term from "Tupuna Awa" (River Ancestor) to "Awa Tupuna" (Ancestral River) can lead to changes in the power of different entities and their role in future governance and management. The in-depth analysis in the thesis highlights potential issues for Tangata whenua to avoid.

Tangata whenua rights and interests are challenged by the emergence of competing "entitlements" that may result from the exercise of power by others which could be the result of:

- power of position (having authority, being in a position to make or influence decisions);
 - power of knowledge (having information unavailable to others);
 - personal power (being personally forceful, persuasive);
 - household power (being from a well-connected family);
 - group power (being a member group that has a dominant social position for example, a farmer in a rural community);
 - economic power (commanding financial and other economic resources in overwhelming amount with respect to the resources of others);
 - political power (having a powerful supportive constituency or access to political leadership); and / or
 - legal power (having strong expert legal counsel)
- (adapted from Lewis, 1997)

To protect whanau members the following could be considered;

- Tangata whenua are informed fully about who the sponsor of the project is and to whom facilitators are accountable;
- Tangata whenua are given the options of not participating in negotiations (to avoid being more “visible” to powerful stakeholders);
- Opportunities are created for Tangata whenua to use alliances with more powerful groups in negotiations;
- The right of Tangata whenua to identify “non-negotiable” topics, or items they view as inappropriate for discussion in the negotiations is recognised and provided for;
- Tangata whenua may not wish to support fully and unconditionally the agreements to be developed. This right has to be recognised and provided for. Tangata whenua and indeed other participants will be encouraged to express their doubts about impending agreements. A “consensus” too easily reached may mask differences in perspective and discount the input of Tangata whenua;
- The likelihood that external events require revisions in agreements has to be assessed and provisions for Tangata whenua to be involved in those revisions need to be made;
- Negotiations will be seen as one strategy among several that Tangata whenua may pursue simultaneously. It will be important to help them identify alternative strategies in case the good will of other participants does not last;
- Negotiations are to be viewed as a long-term, iterative process and be ready to monitor impacts and adjust strategies to assist Tangata whenua accordingly.

Finally, it should be noted that power imbalances could also be the driver for Tangata whenua participation in collaborations. Collaboration for Tangata whenua may be a form of self-defence a means in a changing world to be able to withstand the dangers of environmental degradation and socio-cultural impoverishment.

2.2.6 Delivering outcomes

Whanau and hapu will enter collective processes to achieve specific outcomes which may include the following.

- 1 *Outcomes that strengthen cultural identity including customary practices, and customary governance and management systems* - Cultural strength and integrity generate credible institutions, which perform their governance duties, with confidence and public support. This is true for a wide range of contexts, but particularly so for Tangata whenua, for whom cultural identity, Te Reo, tikanga and kawa help conserve a shared body of Mātauranga. Policies in support of collective action can take advantage of this, and build upon cultural identity and Tangata whenua governance systems.
- 2 *Outcomes that recognise and provide for the cultural dimension of resource management* - Policies that support inclusion of the cultural dimension of resource management are based on generating and disseminating information on values, knowledge, skills, resources and institutions and promoting awareness about the resource management capacities embedded into whanau and hapu.

- 3 *Outcomes that recognise and respond to the rights of indigenous peoples* - The right to self-determination is important for Tangata whenua. Tangata whenua have consistently argued that they are not against development per se, but cannot accept use, development or protection of resources that leads them towards cultural loss and disassociation and threatens to turn their rohe into ecological wastelands. They wish a different kind of development, related to their needs and aspirations. In this sense, their call for the “right to self-determination” can be interpreted as their wish to decide what type of development shall happen in their takiwa and to retain control over their lives, which is intimately related to their land and natural resources. For many hapu the right to self-determination thus appears a fundamental condition towards re-assuming responsibility for resource management. This implies that collaborations need to provide scope for whanau and hapu to make informed decisions about their own future.
- 4 *Outcomes that set the rules and conditions of participation and collective action* - In order to provide effective direction for and support to collaboration, natural resource policy and other instruments often go beyond the mere expression of objectives and desired situations. For instance, they stipulate specific provisions to promote the development and functioning of successful collaborative arrangements and agreements. Effective participation requires the provision of information suitable for the particular group recognising that different groups will have different levels of technical expertise and local knowledge. Effective communication provides occasions for Tangata whenua not only to receive information but to share it, discuss it and make sense of it in a collective context.

Explicit recognition of the range of outcomes sought by Tangata whenua is essential because participation needs to deliver outcomes which have to be more diverse than simply an accepted regional plan, or an agreed set of conditions for a resource consent, or agreement to a new development.

2.3 Grouping the issues into a framework

The issues discussed above can be grouped into three categories

Power sharing

- Differing world views
- Rights and interests of Tangata whenua

Outcomes

- A range of economic, social, cultural and environmental outcomes

Participation

- Capacity to participate
- Evolving Maori entities.

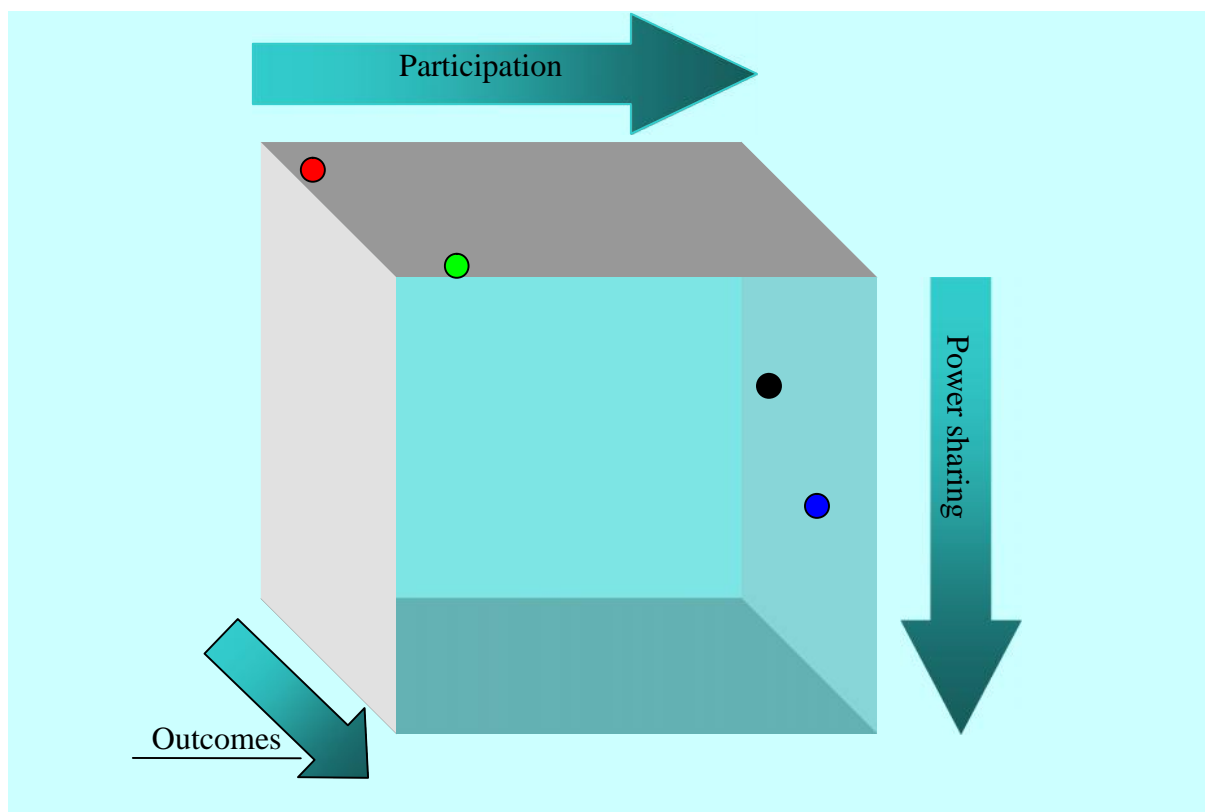
It is possible to graphically illustrate the three categories as three dimensions and use this to help answer a fundamental question – Given their level of capacity, what level of participation and power sharing is necessary to realise their outcomes?

It can also be used retrospectively to identify where Tangata whenua believe a particular governance initiative lies, as shown in Figure 1.

This framework can also be used to assess the capacity of whanau, hapu, iwi and Maori entities.

- Do they have the capacity to participate? To what degree?
- Do they have the capacity to share power?
- Have they defined the range of outcomes that they seek? If so where?

Figure 1: A framework to assess how levels of Tangata whenua Participation might be analysed



The direction and darkness of the arrow indicates the greater the

- extent of power sharing;
- level of participation; and
- greater the level of delivery of outcomes to Tangata whenua.

If this is 3 dimensional graph, the dots are examples of where a collective could lie¹¹

- No power sharing, limited participation, limited outcomes.
- 50 – 50 power sharing, high level of participation, a range of outcomes
- Limited power sharing, high level of participation, some outcomes,
- No power sharing, limited participation, significant outcomes

¹¹ The four examples shown are examples that whanau in Otago have participated in and assessed as a small group.

3.0 TANGATA WHENUA ENGAGEMENT IN CO-MANAGEMENT

In this section we move from a general discussion of co-governance, co-management and collaboration to examine how Tangata whenua can initiate their own processes.

The first step involves identification of the problem or issue that will require the collaborative efforts of a number of parties to manage it. The focus of this report is collaboration aiding aquatic restoration so the drivers of the case described in Part 2 are:

- degraded waterways impacting cultural use;
- limited capacity within the hapu to restore valued habitats;
- aspirations to restore the resource base to a level where it sustains cultural use;
- participation in a plethora of agency led resource management forums

The second issue is the identification of potential partners in a collaboration. Davis (pers com) suggested that an issue that confronts tangata whenua is that while organisations might be expected to share a commitment to the Treaty and its principles, in practice they have quite different levels of responsiveness. These differences are reflected in the behaviour of resource managers. The challenge is compounded by the fragmentation of environmental responsibilities across a wide range of resource management agencies, and the variable nature of organisations' responses to statutory obligations to work with tangata whenua.

It is also important to realise that collaborations are not restricted to state-community partnerships. Collaborative approaches can be and are applied among and within communities as well.

3.1 The status of tangata whenua

People have diverse perceptions of the same environment. These different perceptions correspond to different understandings of the values, opportunities and risks that the same environment has to offer. The very recognition of certain values, opportunities and risks and not others is a social phenomenon. It may also create challenges for Tangata whenua.

- 1 How will Tangata whenua be recognised?
- 2 A key question of Tangata whenua is whether they will be "participants" on the same level as all others, such as a private landowner or a governmental agency? Many whanau and hapu would stress that they are not. Tangata whenua hold whakapapa based rights to the environments where they have lived and worked for centuries and Treaty rights deriving from guarantees from the Crown. But they may not possess the economic strength and legal backing enjoyed by other users including entrepreneurs and more affluent people. Yet, importantly, many of them today retain valuable local knowledge and skills.
- 3 "Stakeholder" is a term which, over the last few years, has come into common usage. It was first used in business management theory and has since been widely adopted as a further

refinement of the “user” concept. It is an umbrella term, which covers all the people and organisations who have a stake in, and may be affected by, an activity, a development programme or a situation, or who may have an impact or influence on it (Hobley, 1996). Although the term “stakeholder” is widely recognised, it is not accepted by many Maori. There are two reasons for not referring to Tangata whenua as stakeholders:

- As noted previously, Tangata whenua are likely to demand recognition as the Crown’s Treaty partner with both customary and Treaty rights.
 - Some know that the term derives from the times of land grabbing in North America, when ownership titles were distributed to people who would demarcate new lands with stakes. “Stakeholders”, then, were the individuals who ran with a stake in hand to cover as much land as possible within a given time often at the expense of the pre-existing rights and concerns of indigenous inhabitants. The term “stakeholder” carries a negative connotation for some Tangata whenua in much the same way as the “rule of thumb” is not supported by many women.
4. With the settlement of many claims to the Waitangi Tribunal, Maori are increasing their asset base. This has led to the creation of new iwi / Maori entities that may be participants in any collaborative process but they may not be representing manawhenua, nor will they have mana whenua status. Those facilitating the collective process need to know what groups are participating and what their mandates are.
 5. Elinor Ostrom offers another demarcation criterion between resource “appropriators” and resource “providers”. The appropriators are the ones who simply harvest or pull out resource units. The providers are instead engaged in the process of creating, maintaining, or restoring a resource and suggests the providers have stronger grounds to claim resource entitlements than pure appropriators do. Tangata whenua are likely to be in the position of being both provider and appropriator.

3.2 Other participants

Other participants in a resource management collaboration could include

- Local actors, including the communities, organisations, groups and individuals who live and work close to the resources, the ones who possess knowledge, capacities and aspirations that are relevant for their management, and the ones who recognise in the area a unique cultural, religious or recreational value.
- Natural resource users, including local and non-local, direct and indirect, organised and non-organised, actual and potential users, as well as users for subsistence and income purposes.
- National authorities and agencies with explicit mandate over the territory or resource sectors (e.g., Government ministries or departments).
- Sub-national administrative authorities (e.g., district or regional councils) dealing with natural resources as part of their broader governance and development mandate.
- Non-governmental organisations and research institutions (e.g., local, national or international bodies devoted to environment and/ or development objectives) which find the relevant geographic areas and resources at the centre of their professional concerns.

- Businesses and industries local, national or international (e.g., tourism operators, farmers, irrigators, international corporations) which may significantly benefit from natural resources in the area.
- Non-local actors, national and international, indirectly affected by local environmental management practices (e.g., absentee landlords, downstream water users, environmental advocates).
- Individual professionals employed in environment and development projects and agencies dealing with the management of natural resources in the area.

The responsibility of Tangata whenua is to identify who is best placed to assist them to realise the outcomes they seek. Worksheets 2 and 3 are included to assist Tangata whenua with their analysis.

3.3 The characteristics of co-management systems

Borrini Feyerabend (1996, 2008), has identified characteristics pertaining to co-management approaches.

- Co-management capitalises on multiplicity and diversity. Different participants possess different capacities and comparative advantages in management, which a partnership builds upon. However, because they may also possess contrasting interests the collaboration has to provide greater benefits for everyone involved than they would have achieved through adversarial approaches.
- Co-management can be multi-party multi-level and multi-disciplinary. Processes, agreements and institutions are inclusive rather than exclusive, and attempt to include all with interests and concerns who wish to participate. Yet, inclusiveness may be problematic for Tangata whenua who have a distinct status. Secondly inclusiveness has to be balanced by the requirement to contain the costs of the process (information provision, individual consultations, large facilitated meetings, time and skills to negotiate, etc.).
- Co-management is based upon a negotiated, joint decision-making approach and some degree of power-sharing and fair distribution of benefits among all. The type and extent of power-sharing and benefit distribution will need to be negotiated from situation to situation.
- Co-management strives to provide all with the chance and capacity to express concerns and take part in decisions. In short, it attempts to achieve more equitable management. Yet, equity does not mean equality and from the perspective of tangata whenua different rights and interests need to result in different roles in resource management.
- Co-management stands on the principle of linking management rights and responsibilities. Murphree (1996) contends that “Authority and responsibility are conceptually linked. When they are de-linked and assigned to different institutional actors, both are eroded”. This strikes accord with the ethic of kaitiakitanga where rights are accompanied by responsibilities.
- Co-management stands on the concept of “common good”, the trust that it is possible to follow a course of action that reconciles different interests while responding, at least to some extent, to all of them.

- Effective co-management depends on people understanding the consequences of their choices (risks and opportunities) and are willing to pay for those. Both an excellent flow of relevant information and transparency in the management process are essential for this. Yet, different people hold true different values and aspirations even on the same basis of “factual” information. Co-management strives to recognise such cultural differences while building upon some underlying commonalities.
- Co-management initiatives can take on a large variety of shapes and forms and need to be sensitive to their specific historical, cultural and socio-political contexts and tailored to fit the unique needs and opportunities of each context.
- Co-management builds upon what exists, in particular local, institutions for resource management. It usually begins with an analysis of existing management systems, including problems and opportunities. The next step is to strengthen what can be strengthened.
- Co-management is a process requiring on-going review and improvement, rather than the strict application of a set of established rules. Its most important result is a management partnership, capable of responding to varying needs in an effective and flexible way. In addition, a process of “learning by doing” generally leads towards a better recognition of specific needs, and new opportunities..

3.4 Formalising the collaboration

Finally, it needs to be acknowledged that a collaboration can be formalised in a number of ways, including the following:

- ad hoc and non legalised pacts (e.g., via public declarations, handshakes, etc.) among various parties interested in managing a given body of natural resources;
- written bylaws or customary rules concerning natural resource management, developed cooperatively by local governing bodies, such as towns or district councils;
- management plans for a body of natural resources, such as a local indigenous forests, fishing area;
- legislative protection and regulation of sustainable use rights as framework within which to develop management plans;
- agreed provision of management assistance from government to resource users (e.g., a Memorandum of Understanding, Charter or Relationship Agreement);
- agreed settlements of conflict among various parties, from government to resource users;
- legal contracts between two or more parties regulating the costs and benefits of resource use, development or protection;
- project-based agreements between developers, affected communities and relevant authorities;
- conditional permits / consents / concessions / licences issued by public sector agencies following negotiation with actors and interest groups on resource use, development or protection;
- Memoranda of Understanding between local communities and agencies;
- formal and informal agreements among local parties and public or private sector agencies and organisations, specifying their rights and duties;

- contracts between different levels of government (e.g., regional, district, community, Tangata whenua) or between various government agencies within a level;
- international treaties and conventions concerning biodiversity and environmental issues.

4.0 THE PIVOTAL ROLE OF INFORMATION

4.1 Data for the collective

Many environmental opportunities and risks are known and acted upon on a daily basis. Others, however, are not known at all, possibly because of lack of specific information or awareness of conditions and consequences. An issue is thus assuring that the relevant information is available to everyone potentially concerned, including Tangata whenua. The collective may begin by gathering and sharing data and information on the “management unit”. From the perspective of Tangata whenua it is important that this includes historical data and reports, which could include early ecological baselines, journals, archival material, anthropological studies, maps (including old maps such as the original survey maps), copies of property and usufruct records (including information on Maori lands, reserves, easements etc). Among documents made available, a Cultural Values Report¹² for the area and resources could be particularly useful as it could describe their value, the threats, the impacts of current activities, current trends, and the performance of ecological functions. Hill et al. (2012) contend that different types of collaborations can impact the extent to which the knowledge of indigenous communities can be integrated or interfaced with agency led environmental management. Worksheet 4 is a list of possible sources of historic data.

Table 3. Analysis of manifestations of Indigenous Ecological Knowledge (IEK) and science integration according to governance types

Dimensions of knowledge integration	Means of integration between IEK and science	Appearance of amalgams representing new, converged forms of IEK and science knowledge	Means of managing the integrity of IEK	Means of integration of IEK and science into environmental management
Governance type				
Indigenous-governed collaborations	Collaboration between IEK and science; distinction between the two blurred	Amalgams emphasized, e.g., ethno-ecology, ethno-science; digital data-bases with both IEK and science	Indigenous law and custom; exercise of traditional authority; tight contemporary governance structures specified	Combination of western science and Indigenous knowledge tools, principles of application specified
Indigenous-driven co-governance	Collaboration between IEK and science; joint projects as means of integration	Amalgams utilized, e.g., maps that amalgamate painting of Indigenous knowledge with western scientific data	Ditto	Simultaneous application of both into environmental management; principles sometimes specified
Agency-driven co-governance	“Validation” of IEK by science; separate documentation of IEK and science	Jointly authored scientific papers; reports targeting both scientific and Indigenous audiences	Protocols; agreements; respect for Indigenous law; informed consent	Negotiated approaches; Indigenous emphasis on preventing cultural appropriation
Agency governance	Separation of IEK and science; little or no documentation of IEK	No amalgams identified	Loose, not specified; e.g., involvement of elders in on-country knowledge transfer	Management based on western science; IEK present but its utilization kept separate

¹² These are described on the Quality Planning website.

Table 3 can be used by Tangata whenua to clarify their expectations with respect to how their knowledge is to inform the decisions of the collective.

4.2 Communication

A related consideration is the value of mechanisms that can minimize conflict – one of which Borrini Feyerabend et al (2000) calls “social communication”. The heart of a collective process is the negotiation among the representatives of various groups on concrete decisions. Negotiations, however, are not meaningful if they happen in an “information vacuum”, with only a few people aware and concerned about what is being discussed and what consequences the decisions will entail. On the contrary, the groups that participate in the negotiation need to be well informed, knowledgeable and aware of issues and reciprocal concerns— all of which can be achieved by well-designed social communication efforts. Successful social communication can help not only to better understand perspectives and learn from different knowledge bases. Well-designed communication efforts may not completely eliminate these problems but can reduce them considerably.

Borrini-Feyerabend et al. (2000) explains that social communication is about fostering the sharing of information and the discussion of problems, opportunities and alternative options for action, which may overcome the top down expert authority approach.

- If we wish to communicate with people we need to understand the language(s) by which they describe their own reality, including fundamental beliefs, values and concepts (such as time, space, matter (Fuglesang, 1982).
- Effective communication processes and tools do not discriminate. In this sense, a hui on a marae with audiovisual presentations may be less discriminatory than the printed media.
- Any information conveyed should be truthful, fair and reasonably complete. Fairness in communication depends on completeness of information as much as on strict adherence of information to “facts”.
- Initiatives should be respectful of cultural beliefs that should be treated with respect and not made to appear inadequate, irrelevant or ridiculous.
- Any capacity building initiative should be offered with an eye to its implications. Training a few whanau members in new skills can originate important power changes and imbalances within the whanau, and should be done to enhance not only available skills but also equity in the relevant cultural context¹³.
- Most importantly, social communication initiatives should include plenty of occasions for dialogue and discussion, and the opportunity for everyone to express their own views, to ask questions and to dissent. This, in fact, represents the main difference between social communication and conventional information, education and training initiatives.

Effective communication is critical to making sound and meaningful decisions. Providing clear and understandable messages to the decision-makers at many levels requires innovative and creative techniques. Increasingly “report cards” are being used to convey information to decision makers.

¹³ There is discussion within some indigenous communities of the effect of GIS on relations within the community.

Report cards

Integrated report cards are increasingly being used around the world to define and measure progress towards environmental sustainability. Report cards can be an effective communication and engagement tools and when used effectively, can be a key driver in securing commitment and action. There are numerous examples of reporting frameworks e.g.

- Environment Southland State of the Environment (SoE) reporting;
- the Chesapeake Bay Program (CBP, 2006); and
- the San Francisco Bay Index (TBI, 2005).

Although there is no formal definition of an integrated report card, a number of principles that should underpin a report card can be identified. It should:

- Be simple to understand, yet be underpinned by sound, quality-assured science;
- Integrate a range of data types and have indicators that have a sound conceptual basis;
- Harness existing long-term data collection systems enabling trends to be identified;
- Incorporate model outputs from catchment, hydrological, ecological and social models;
- Provide information not only on resource condition, but also on causality and management options;
- Support evaluation of the effectiveness of actions from sub-regional to landscape scales;
- Include social and economic dimensions to inform decision frameworks;
- Identify, address and incorporate knowledge gaps in our understanding; and
- Not only detect change in indicators of environmental health, but to diagnose causes and the system interactions among causes so as to provide useful feedback to support adaptive management responses.

Despite identifying common principles, each reporting framework will address issues specific to a given region and a given area and set of issues.

Three types of challenges are applicable to the communication of data. The first is the **knowledge** challenge as Tangata whenua need to be able to understand the information. To meet this challenge results must be presented in a variety of the ways and through the use of multiple media. Second the **process** challenge requires that Tangata whenua be involved in the management of the resource or area – in other words they can use the data to manage. The third is the **communications** challenge whereby Tangata whenua and those who are communicating the information need to communicate effectively with each other. But it could be argued that success ultimately relies on the process of translating knowledge to decision-makers. The communication of data also presents numerous additional challenges, including the need to generate timely information, to convey the uncertainties inherent in results and express the dynamic nature of knowledge, to build trust and credibility with audiences, and to simplify complex messages (Environment Canada 1999). As noted above, the accomplishment of this goal may require that reporting extend beyond traditional information media to include information technologies such as DVDs. Ten key principles are communicating results are detailed in Table 4 (Environment Canada 1999).

Table 4: Ten Principles for Effective Communication

TEN PRINCIPLES FOR EFFECTIVE COMMUNICATION
Approach communication as a mutual shared responsibility.
Use expert, non technical communicators facilitators when possible.
Strengthen relationships and networks among scientists, managers and community groups.
Identify the target audience and tailor the message accordingly.
Use multiple media.
Pitch the message.
Be honest.
Address uncertainty and variability in the data and conclusions.
Promote sound science.
Make the information meaningful.

Finally, it needs to be recognised that Tangata whenua are likely to want to be more than “informed” and seek to appropriate for themselves what management is all about, and transform it as they see fit¹⁴. In other words, social communication initiatives should be much more open and dialogue-oriented and should not merely aim at “passing a message about an issue” but at promoting its critical understanding. In line with this, the most important result sought by a genuine collective initiative is not for Tangata whenua to behave in tune with what some experts believe is right for them, but for Tangata whenua to understand, think, find agreements and act together on their own accord. Ultimately they are accountable to the whanau that mandated them to participate.

Finally it is also important to consider that collaborative processes can expose Tangata whenua to the risks of manipulation and control by others, as the more advantaged in societies are also likely to be the people best capable of exploiting participatory approaches. The politics at work should be discussed openly.

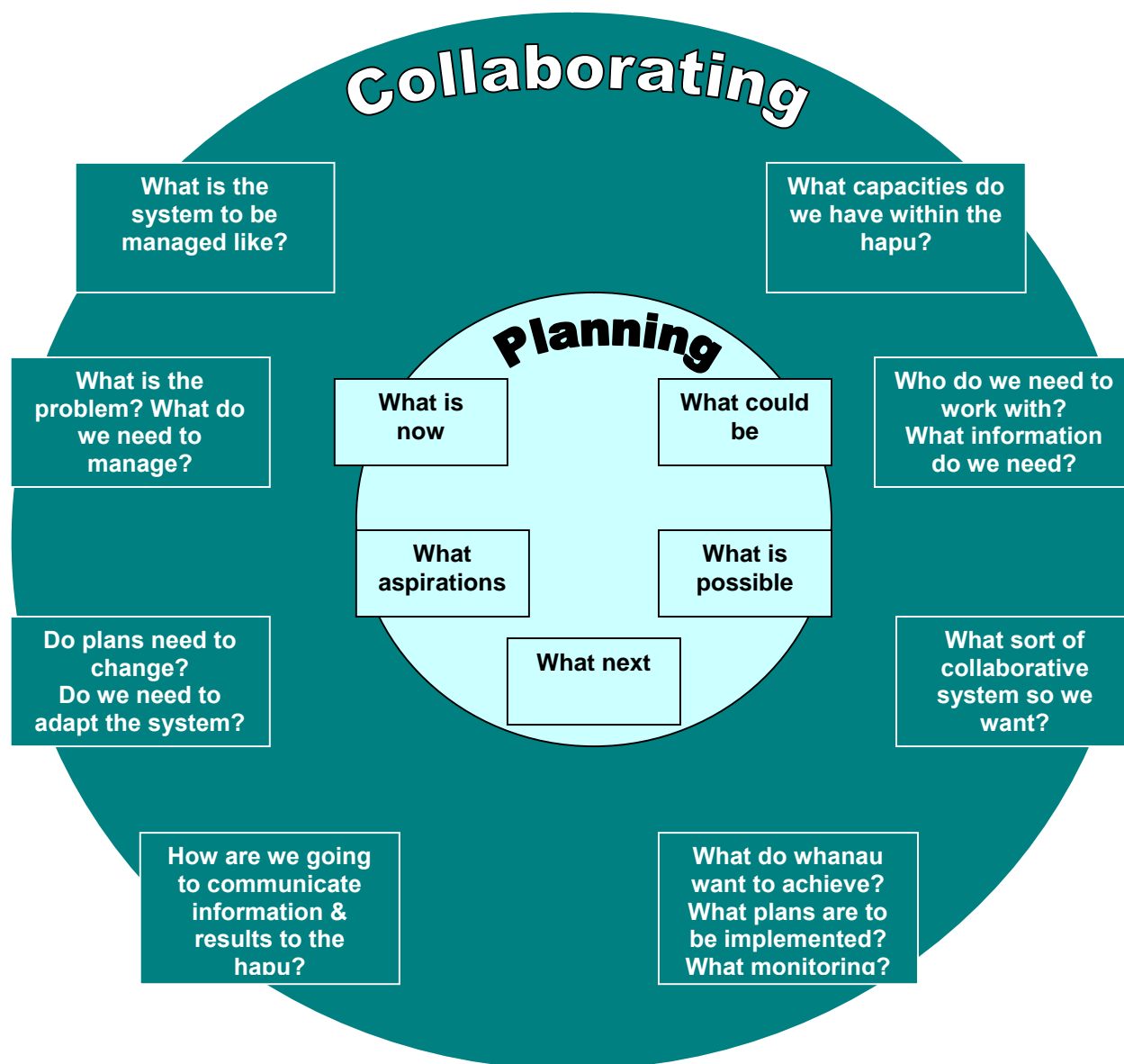
¹⁴ This is seen in many forums where Tangata whenua discuss water quality standards in the context of their mahinga kai practices.

5.0 SUMMARY OF KEY POINTS

Figure 2 that follows illustrates how Tangata whenua will find themselves running two parallel processes:

- their own internal planning processes; and
- development of the collaborative system.

Figure 2: Processes in which Tangata whenua will be engaging

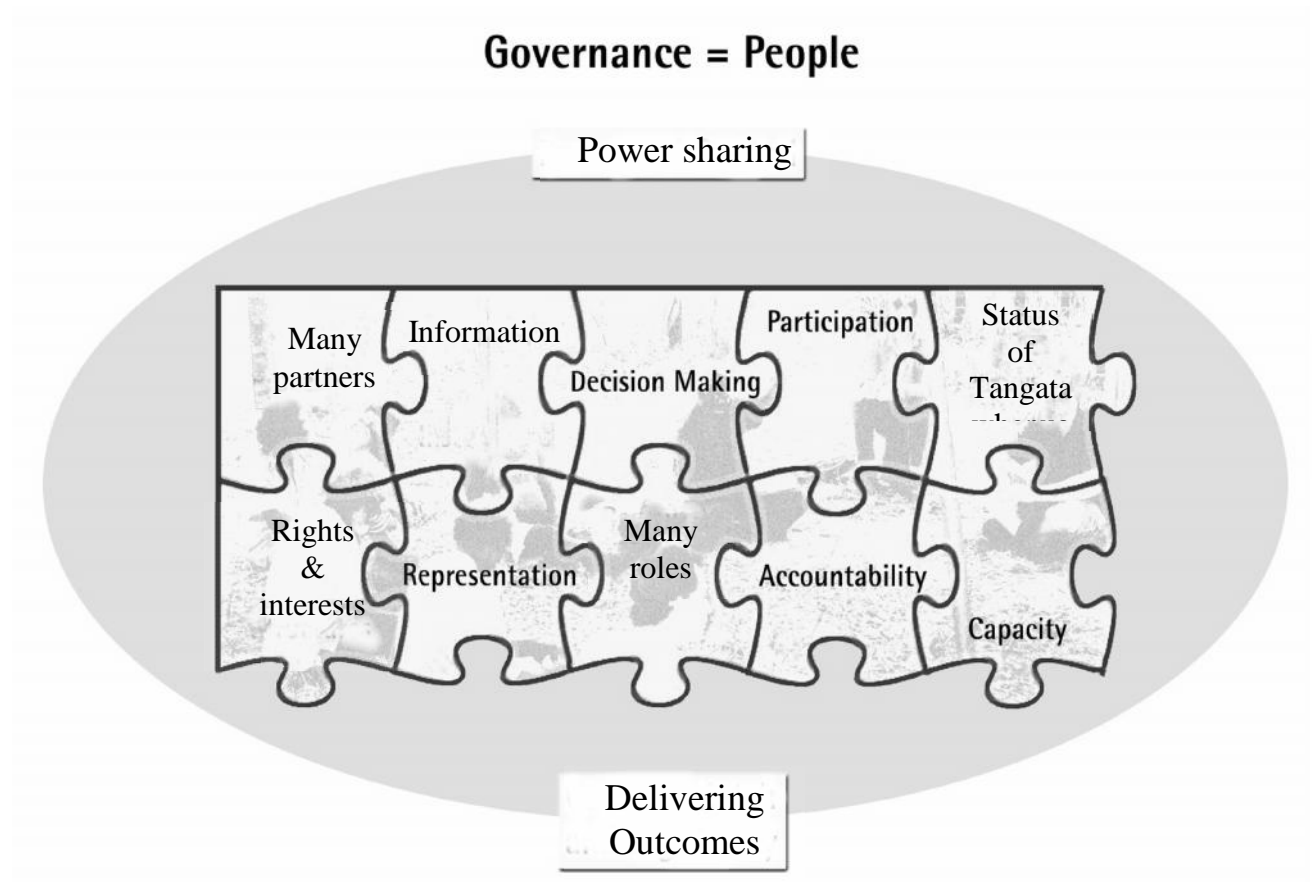


In Figure 3 we have pulled together the various factors shaping Tangata whenua participation in collaborations. It contends that:

- Governance is about power sharing.
- Tangata whenua have a distinct status that needs to be recognised and provided for.
- Participation in decision making is essential.

- The nature of participation will be negotiated on a case by case basis and depend largely on capacity.
- Representatives will be mandated to participate.
- Tangata whenua fulfil multiple roles and may be represented by members, Directors, Trustees etc.
- Collaborating parties can be individuals, groups, corporations, or agencies.
- Underpinning the system will be sound information.
- The collaboration is accountable to its constituents.
- Ultimately the collaboration needs to deliver outcomes.

Figure 3: A Collation of Key Factors Important to Successful Collaborations with Tangata Whenua



PART 2: CO-GOVERNANCE, CO-MANAGEMENT & COLLABORATION AS A STRATEGY TO AID AQUATIC RESTORATION?

6.0 A NORTH OTAGO CASE STUDY

6.1. Introduction

In this part of the report we examine a case in North Otago where collaborations with a variety of parties are integral to one hapu restoring aquatic environs within their takiwa.

6.2 Background

Historically Ngai Tahu¹⁵ utilised the lakes, wetlands and streams and developed use patterns in designated whanau (familial) and hapu (sub-tribe) managed territories (Evison 1993). Today the landscapes and patterns of settlement and activity throughout the lower part of the South Island of New Zealand bear little resemblance to the places known and valued hundreds of years ago. This part provides insights to the nature and extent of cultural connections with a takiwa of one runanga before describing how collaborations are being used to aid restoration endeavours. The present research sought to develop a process that explicitly grounds restoration (and other freshwater management) in the cultural beliefs, values and practices of Maori. This is consistent with the proposition of Long (2001) that cultural traditions need to inform and guide restoration rather than being seen as a constraint. We started with a consideration of a number of theoretical approaches of relevance to Maori, the New Zealand context, and aquatic restoration.

6.3. The International Context

Three approaches promoted in international contexts can guide development of a responsive framework for tangata whenua, specifically: eco-cultural restoration; cultural keystone species; and cultural landscapes/aboriginal cultural landscapes.

6.3.1 Eco-Cultural Restoration

The term “eco-cultural restoration” was introduced by Dennis Martinez (1995) to overcome the artificial divide between culture and nature, or between humans and the environment, and to reinforce the need for collaboration between indigenous knowledge and western science. Driscoll (2003) and Underwood et al (2003) explain that eco-cultural restoration initiatives range from initiatives involving tribal lands and waters, utilising solely indigenous knowledge and involving indigenous peoples, to partnerships involving government and / or NGOs in the restoration of tribal lands and waters.

The theories espoused by Martinez are reflected in the mission statement of the Indigenous People’s Restoration Network (IPRN), a chapter of the Society for Ecological Restoration International, founded by Martinez in 1995. Their mission statement states that:

Indigenous peoples bear a cultural and spiritual tradition that integrates culture and nature. While this tradition has been badly fragmented under the impacts of modern industrial civilization, it persists to some degree in most traditional communities and has been maintained largely intact in remote places scattered throughout the world (Indigenous People’s Restoration Network 2005).

¹⁵ The indigenous people of the lower South Island of New Zealand as defined in the Te Runanga o Ngai Tahu Act 1996, Ngai Tahu Claims Settlement Act 1998, and see www.ngaitahu.iwi.nz

When initiating an ecological restoration project, goals and objectives are defined. Kimmerer (2000) contends that the starting point when seeking to restore an ecosystem must be developing an understanding of the relationship of indigenous peoples and the lands and waters to be restored. Because ecosystems evolved outside of and separate from the western worldview she believes those undertaking restoration must engage in a process of understanding different knowledge bases. She further observes that the goals of indigenous people may be much broader than simply restoring ecological processes. As the term “eco-cultural restoration” suggests, both ecosystems and cultures are restored. This concept of reciprocity or reciprocal benefits is acknowledged by the Indigenous People’s Restoration Network (2005) who state that the goal of eco-cultural restoration is to enhance the survival of indigenous people and culture in conjunction with restoring damaged landscapes. As Tudge (2006) explains “integral to the survival of indigenous culture is restoring the ecological communities that are central to their traditional life-ways and that are woven into stories, ceremonies, songs and practices”.

Eco-cultural restoration approaches are therefore reliant on community participation. With respect to New Zealand, the case described seeks to deliver both ecological and cultural outcomes within a defined takiwa and is premised on the active participation of tangata whenua.

6.3.2 Cultural keystone species

Garibaldi and Turner (2004) explain that there are species that are embedded in the cultural beliefs, values and uses of indigenous peoples which can legitimately be considered as cultural icons. More specifically they describe cultural keystone species as

the culturally salient species that shape in a major way the cultural identity of a people, as reflected in the fundamental roles these species have in diet, materials, medicine, and/or spiritual practices...Keystone species may serve a particular culture materially in a host of different ways: as a staple food or a crucial emergency food, in technology, or as an important medicine. As well, such a cultural keystone species may be featured in narratives or have important ceremonial or spiritual roles. It would also likely be highly represented in a culture’s language and vocabulary”.

The identification and characterization of cultural keystone species is challenging as environmental factors (such as climate, natural disturbance, and fluctuations in populations and productivity) and social factors (such as economic systems, social organization, access to land and resources, and knowledge transmission) all impact the relationship of humans with species. In the New Zealand context, what constitutes cultural keystone species has not been articulated by Tangata whenua, although many do define specific species as taonga. In the case of one iwi, Ngai Tahu, taonga species are designated in Schedule 97 of the Ngai Tahu Claims Settlement Act 1998.

6.3.3 Cultural Landscapes

Memmott and Long (2002) credit geographer Sauer (1925) with one of the earliest definitions of ‘cultural landscape’, although in contrast to the perspectives of indigenous peoples, he viewed people and the environment to be mutually exclusive. Fowler (1987) argues that Sauer and others also view the cultural landscape from an historic perspective, which again conflicts with

indigenous perspectives that emphasise historical, contemporary and continuing people–environment interactions (Anderson and Gale, 1992). More recently in Canada, the concept of Aboriginal Cultural Landscapes has emerged. An Aboriginal cultural landscape

is a place valued by an Aboriginal group (or groups) because of their long and complex relationship with that land. It expresses their unity with the natural and spiritual environment. It embodies their traditional knowledge of spirits, places, land uses, and ecology. Material remains of the association may be prominent, but will often be minimal or absent (see http://www.pc.gc.ca/docs/r/pca-acl/sec4/index_e.asp).

This definition emphasises the complexity and intensity of the association of indigenous peoples with tribal lands. With respect to Maori, they infuse natural and physical resources within their lands with mental and spiritual dimensions, and in setting restoration priorities are likely to seek to maintain, protect and/or restore culturally significant landscapes.

6.3.4 Summary

While this section introduces three theoretical propositions, they should not be viewed in isolation or be seen as mutually exclusive. For example, Tudge (2006) suggests that eco-cultural restoration restores both ecosystems and the human relationship to the cultural landscape. In the case of the South Island of New Zealand, taonga species (akin to cultural keystone species) are often a fundamental component of a significant cultural landscape that Ngai Tahu wants to restore as part of an eco-cultural restoration. Underpinning all these however is the belief that restoration of valued environments will ultimately enhance the cultural health and wellbeing of whanau.

6 4. Conceptualisations of cultural well-being

“Well-being” has attracted attention from researchers across many disciplines seeking to provide a contrasting perspective to that historically found in health-science approaches that typically involve sub-disciplines of psychology, social epidemiology, public health and variants of medicine (e.g. Baskett, 2000; Daaleman et al., 2001). Culturally-specific conceptions of well-being open up rich, new terrain for well-being studies by acknowledging the value of culturally-specific notions of well-being.

Within a New Zealand context, two conceptualisations are frequently referred to. Firstly, Durie (1994) and then Ministry of Health (2004) discuss Te Whare Tapa Whā - a four sided house - or the four cornerstones of health, which are: hinengaro (mental well-being), wairua (spiritual well-being), whanau (family well-being) and tinana (physical well-being). Durie (2004) proposed a second conceptualisation, Te Pae Mahutonga (the Southern Cross). The constellation itself comprises four central stars arranged as a cross with a further two stars pointing to the cross. Durie contends that the four stars represent fundamental components of health promotion.

- Mauriora is dependent on a secure cultural identity;
- Waiora relates to healthy air, land and water environments which requires a balance between use and development and protection;
- Toiora focuses on personal behaviours and responsibilities; and

- Te Oranga recognises that health promotion (in particular increasing well-being) requires increased participation by Maori in contemporary society.

Durie's work supports place-specific conceptualisations of well-being. As Panelli & Tipa (2007) explain, conceptualisations such as that by Durie may be crucial to researching (and enabling improvements in) the composite of human-environment conditions that characterize life in different places.

Another account of Maori well-being, conveyed by Pere (1997) describes reciprocity and interconnection between individual selves and wider social and other entities. Each experience of well-being would vary from place to place reflecting whenua (earth), turangawaewae (standplace), whanaungatanga (kinship), whanau (family), wairua (spirit), hinengaro (mind, heart), whatumanawa (feelings) and tinana (body). Again Pere's conception of well-being has implications for aquatic restoration confirming the need to understand connection between specific understandings of whenua and the social and cultural relations developed in particular places.

Panelli & Tipa (2007) describe how an appreciation of place is also becoming established in geographies of well-being (see Airey, 2003; Curtis, 2004; Gesler, 1992; Williams, 1999) and draw on the work of Gesler (1992) and Gesler & Kearns (2002), to identify the following "four dimensions of a place-focussed sense of well-being".

- First, an analysis of personal and collective livelihoods as they are played out in different locations shows variation both within and between places;
- Second, wellbeing requires an understanding of how place-particular social relations and structures affect a sense of well-being and are affected by wider social norms and infrastructure;
- Third, the variations in particular cultural beliefs and practices that are embedded in contrasting locations are to be identified (Richmond et al., 2005); and
- Finally, the significance of human-environment specificity – where particular relations with, and understandings of, environments affect people's way of life and their sense of well-being needs to be understood (see the study by Crighton et al. 2003).

These dimensions are interdependent and collectively represent the lives and well-being of populations in various places. In the case of the aquatic restoration, these four dimensions plus the conceptualisations of Durie and Pere provide a framework that enables the intersecting place-specific relations between Maori and their valued environments within the catchment to be examined.

6.5 The local context

Aquatic environments continue to be, a dominant 'environmental' context for work, leisure, culture, life, and death. A powerful sense of belonging to whanau and hapu has been nurtured over many generations, that reinforces ancestral connections to whenua, turangawaewae, and

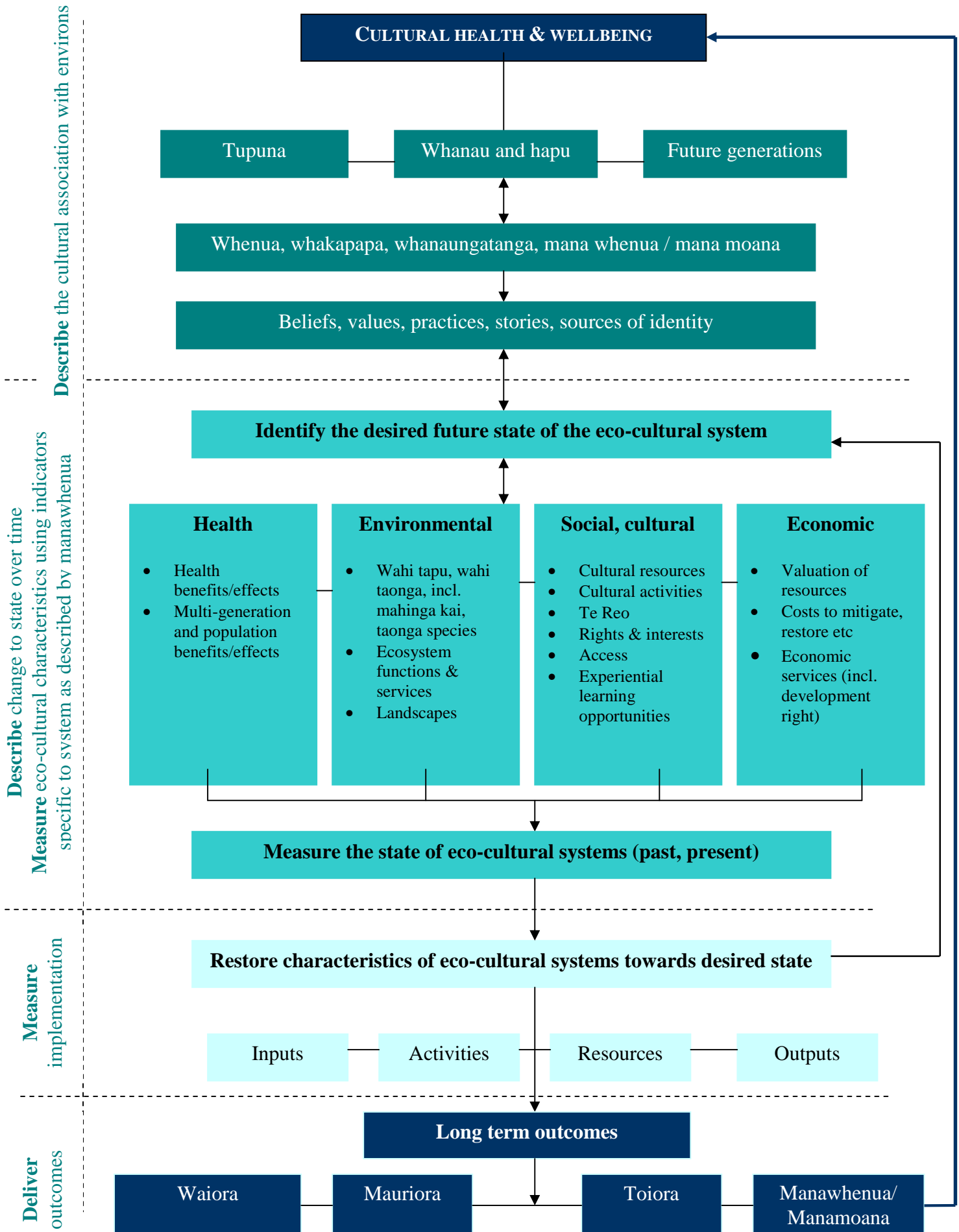
particularly their connection with their takiwa from which many whanau derive sustenance and some whanau their livelihood. However, aquatic environments have undergone changes. There are concerns within the hapu that traditional motivations, m tauranga Maori, learning/teaching opportunities, cultural practices and processes are slowly being eroded. Some of the reasons for this relate directly to physical changes in local environments (e.g., pollution, agricultural and horticultural developments, electricity generation, stock depletion), and the alienation of lands and access from the hapu.

The impact of environmental change of the mahinga kai patterns of Tangata whenua can be used to illustrate the consequent impact on the wellbeing of whanau, hapu and iwi. Many remain dependent upon mahinga kai both physically and culturally. Mahinga kai has been the primary food and the basis of the economy of Ngai Tahu for generations. Ngai Tahu have relied directly on the land and rivers for food. Eel, weka, aruhe, whitebait, plants, seeds, and game were plentiful and healthy sources of food for generations. Today Maori are denied access to a significant percentage of their traditional foods. When obtainable these former staples of their highly nutritious diet are available in quantities insufficient to even approach being their primary food sources. Often the quality is compromised as well. Most glaring is the loss of entire species, such as the loss of weka from the Waitaki catchment.

Acquiring kai provided exercise that kept people in good physical condition. Because hunting, gathering, fishing, storing and preparing food was an integral part of daily life and seasonal celebration, kai held great cultural and social meaning. These activities served as an important social glue by bringing people together to work, socialize, and pass down values and information from one generation to the next. Food is central to some of the most serious social obligations of Ngai Tahu for hospitality and caring for kaumatua. Overall the benefits of mahinga kai include better nutrition, the availability of key essential nutrients, physical activity during harvesting, lower food costs, the prevention of chronic disease by consumption of more nutritious food, and multiple socio-cultural values and traditions that contribute to mental, spiritual and cultural health. The activities of managing, gathering, preparing and consuming kai also serves the functions of passing on knowledge within the hapu thus ensuring cultural continuity from one generation to the next.

The present decreasing access to rivers for cultural uses must therefore be understood in the broader context of cultural loss. Further, the loss of kai is now recognised as being directly responsible for a host of diet related illnesses. Without doubt, resources and mahinga kai in particular play an important role in cultural continuity and identity - the loss of the same resources can lead to cultural, social and economic stress experienced by whanau.

Figure 4 integrates many of the components and principles of co-governance referred to in this part of report, with the theoretical propositions in the preceding paragraphs of 6.3 to illustrate how governance and management can deliver meaningful outcomes for Tangata whenua and ultimately impact their cultural health and wellbeing.



6.6 Getting started - linking ecological health and cultural well-being in aquatic restoration

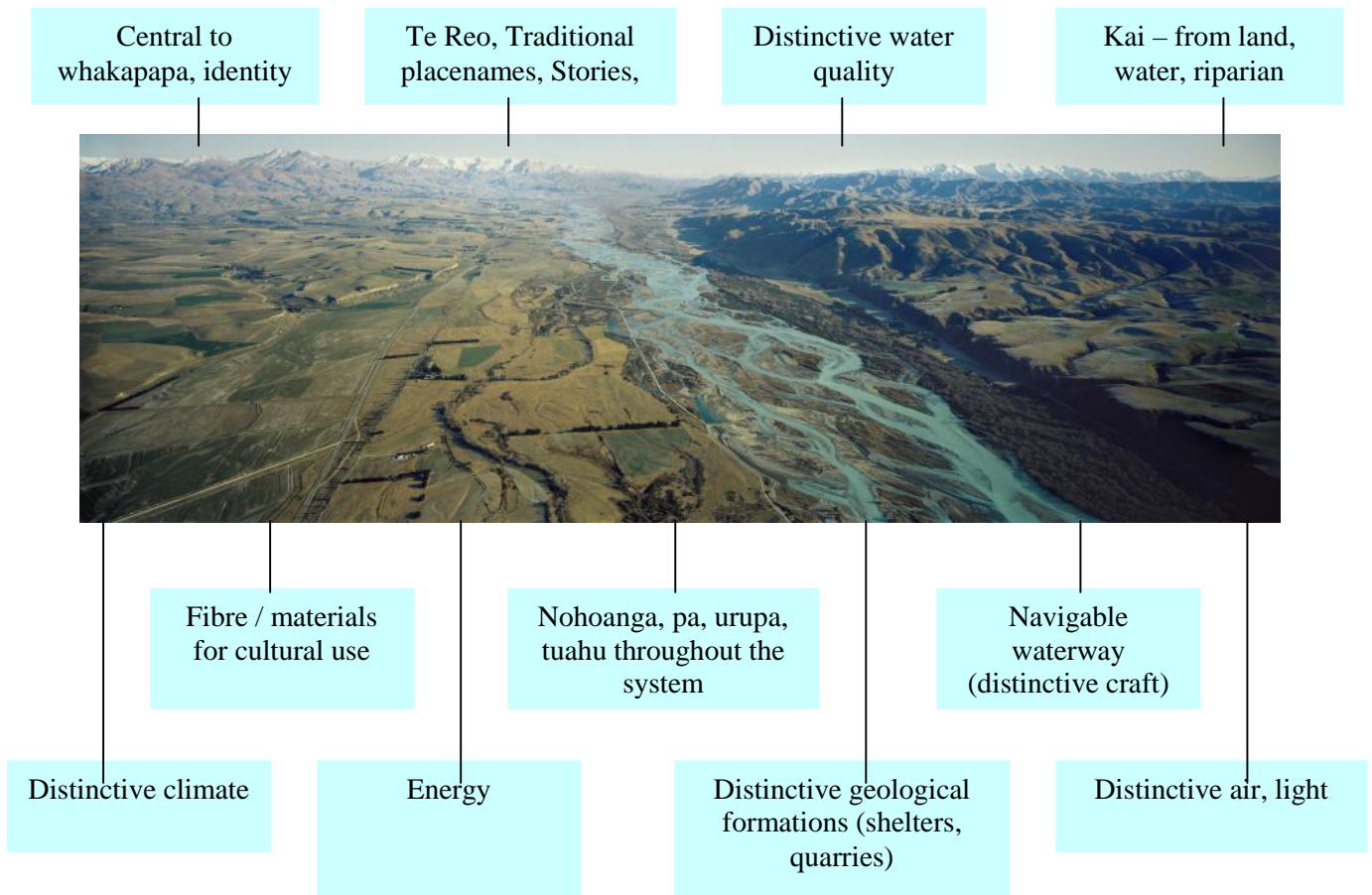
Scientists and communities are highly proficient in describing the ecological characteristics of water bodies. A range of techniques are now available to assess and restore ecological health. But such assessment and restoration may be problematic for Maori. Arguably the link that is often missing is the articulation by tangata whenua of the eco-cultural attributes of the ecosystem to be restored. Consistent with the propositions of Burger (2008) it is these attributes that in turn sustain cultural beliefs, values and practices of tangata whenua.

A culture incorporates spiritual, economic, political, communication, and kinship systems, as it is the whole set of learned behaviour patterns common to the whanau and hapu, their art, their material goods, their individual and collective health and well-being, and the natural resources and environment on which all of this depends. Any adverse change to those systems or resources represents a cultural impact (Harris, 1998). Cultural impacts may arise from:

- impaired quality of a resource or area;
- ecological harm or lost environmental functions and services;
- avoidance or restriction of access for Tangata whenua or use;
- harm due to environmental contamination; or
- social and cultural ramifications of the costs of a response, replacement of lost functions and services, avoidance, restriction, or restoration.

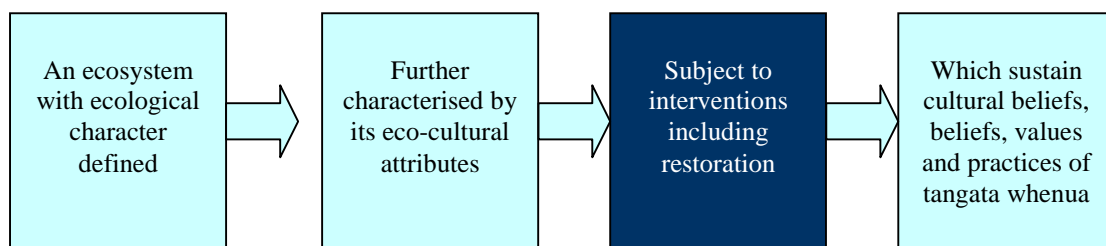
Eco-cultural systems as described in section 6.3 are living systems that serve to help sustain the ways of life, cultural integrity, whanaungatanga (social cohesion), and well-being of whanau and hapu. Eco-cultural systems represent the set of services provided by intact, functioning ecosystems and landscapes. Eco-cultural systems are also the landscapes with culturally familiar features defined by cultural knowledge, experience and use. Figure 5 illustrates the attributes that Ngai Tahu overlay the ecological functioning of the Waitaki and which collectively start to explain its cultural significance to Ngai Tahu.

Figure 5: An Example of the Eco-cultural Attributes of the Waitaki Catchment



It is this eco-cultural perspective that Tangata whenua convey in discussions about aquatic restoration. It follows that it is the eco-cultural attributes of a system that are to be restored. It is then for tangata whenua to determine if ecological conditions and (eco-cultural attributes) enable them to uphold their cultural values and practices in the restored aquatic ecosystem. This distinction (illustrated in Figure 6) also enables a clear articulation of what is to be restored, and how it contributes to cultural health and well-being as determined by tangata whenua as?

Figure 6:



In the sections that follow we explain how this philosophy helped structure the activities of a whanau in North Otago.

6.7 An integrative way forward for Tangata whenua enabling a takiwa wide approach to restoration

In this part of the paper we present a step by step framework that was used to structure the “on the ground” participation of Ngai Tahu in restoration endeavours.

6.7.1 The problem

The impetus for needing a new approach was concern that the takiwa of the runanga (which approximates the region of North Otago) has been altered and degraded by resource use and development over the last one hundred and fifty years. The causes of many of the alterations can be identified by tangata whenua, with the incremental degradation experienced over successive generations also described. Although Tangata whenua were active in a number of resource management forums and had multiple initiatives underway, what was at issue, was the extent to which these initiatives informed and shaped contemporary resource management. Despite having the human resource and a commitment to do more, not all whanau were confident engaging in structured resource management settings. As a result whanau engagement was largely reactive in their engagement with others. There was a desire within the whanau to be pro-active, to do what matters most to them, to engage as many whanau members as possible, and to work with others with the ability and resources to make a difference “on the ground”. With limited capacity within whanau and hapu it is imperative that the projects undertaken do deliver outcomes. An integrative process that has been trialled by the runanga is shown in Figure 7. This process has three parallel streams –

1. understanding the cultural context - identifying the opportunities tangata whenua want to see delivered that need to drive their engagement in resource management forums;
2. documenting the causes of changes being experienced by tangata whenua; and
3. examining the nature and extent (or scale) of alterations to valued environments.

Figure 7: An example of an integrative planning framework for tangata whenua

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This process has, as its central tenet, delivering a range of outcomes to tangata whenua. However it also requires examination of the causes of alterations to the takiwa and their scale that have resulted in cultural impacts - both positive and negative - which ultimately may serve to limit realisation of the outcomes. Each of the components in Figure 7 is described in the paragraphs that follow where it is applied to a spatial case – the catchments in North Otago which lies largely within the Waitaki District.

6.7.2 Case Study: the catchments of the Waitaki District

We chose to focus on part of the North Otago region and the Waitaki district (as shown in Figure 8) which lies in North Otago, in the South Island of New Zealand. The district, in which agriculture is the predominant land use, comprises the wide alluvial fan of the Waitaki River, and runs inland along the banks of the river, this forming a roughly triangular region. The population is 20,800 (June 2010 estimate), with Oamaru being the largest town in the district. The Waitaki district, is located in both the Canterbury and Otago regions and straddles the traditional border between the two regions, the Waitaki River.

To Ngai Tahu the Waitaki River is sourced from a stream known as Ko Roimata na Aoraki (the “Tears of Aoraki”) that feeds into Lake Pukaki. While Aoraki (Mount Cook) and the Waitaki River continue to provide Ngai Tahu with a sense of communal identity and purpose, the land tenure changes of the mid nineteenth century, however, saw many Maori, including Ngai Tahu, driven to waged employment usually found in urban or peri-urban areas resulting in the shift away from the rural Tangata whenua bases. As a result, the vast majority of members who whakapapa to lands in South Canterbury and North Otago, live outside these regions. This limits the capacity available to the hapu.

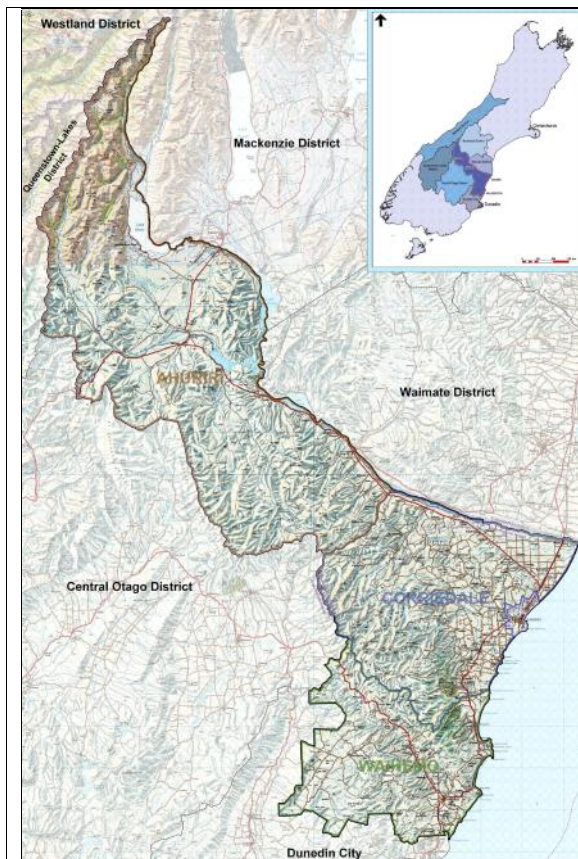


Figure 8 - The Waitaki District

The focus is the takiwa of Te Runanga o Moeraki which is one of the 18 papatipu runanga as defined in the Ngai Tahu Claim Settlement Act 1998. The takiwa extends from the Waitaki River in the north to the Waihemo River (as its southern boundary) and inland to the Main Divide. The Waitaki catchment however is a shared takiwa. Te Runanga o Moeraki is one of the kaitiaki runanga but shares this responsibility with its northern neighbours: Te Runanga o Arowhenua and Te Runanga o Waihao.



6.7.3 Understanding the cultural context & delivering cultural opportunities

What are the values and significance of the area / resource?

What are the aspirations of Tangata whenua? What opportunities are to be provided going forward?

What are the changes, impacts, and threats?

It is essential that all participants have the relevant background information needed to plan and implement actions necessary to achieve the desired outcomes. Areas are restored in response to special values, so understanding these values and their significance is vital for both management planning and implementation. At the same time, we need to know how secure these values are, what changes have already occurred, are presently occurring and what threats are they likely to face in the future. Some context elements are likely to be fairly constant, but others will have changed over time.

Values, significance, opportunities

‘Value’ is a subjective concept, but one that lies at the heart of the reason for restoring areas at all and hence is of critical importance to planning their restoration.



Given management planning will usually identify objectives and actions designed to protect values, evaluation of outcomes will be concerned with how well these values are conserved overtime. The critical point from Figures 4 and Figure 7 was that cultural values, beliefs and practices from which the later assessments and responses were constructed were directly linked to values, including site specific values. Attributes of the respective beliefs, values or cultural practices were documented (Tipa, 2010). The cultural values agreed by the three kaitiaki runanga in the Waitaki, which have been detailed in a number of resource management documents including Cultural Impact Assessments¹⁶ and Cultural Values Reports¹⁷ are summarised in Table 5.

Table 5: Cultural Beliefs, Values and Practices for which Attributes were considered
(adapted from Crengle 2002)

A Selection of Cultural Beliefs, Values, Practices, Uses, Features	
Whakapapa (genealogy). Whakapapa describes bonds, relationships, and connections. Water is the medium flowing through a catchment that makes connections.	Whanaungatanga (kinship, familial relationships). Whanaungatanga describes the principle of kinship, connectedness, and inter-dependence between all things within the natural world including people. The concepts of sustainable management and integrated management are consistent with whanaungatanga as they reflect and give life to the inter-relationship between all things.
Manaakitanga (show kindness and respect to, look after, entertain).	Mauri (Essential life force or principle; a quality inherent in all things both animate and inanimate). Ngai Tahu believe that people, flora, fauna as well as natural phenomena such as forests, waters, mists, winds and rocks, possess a <i>mauri</i> or life force (Te Runanga o Ngai Tahu 2001)
Rangatiratanga (Chieftainship, decision-making rights) which in the case of freshwater means having the right to make decisions of use, development and protection of water resources within	Mahinga kai (places where foods are procured and or produced). “Kai awa” and “kai roto” refers to the foods and resources sourced from rivers and lakes respectively.

¹⁶ See the Quality Planning website.

¹⁷ See the Quality Planning website.

one's tribal area.	
Kaitiakitanga (The exercise of customary custodianship, in a manner that incorporates spiritual matters, by those who hold mana whenua status for particular area or resource). This includes ensuring the waters within one's tribal area are respected and cared for.	

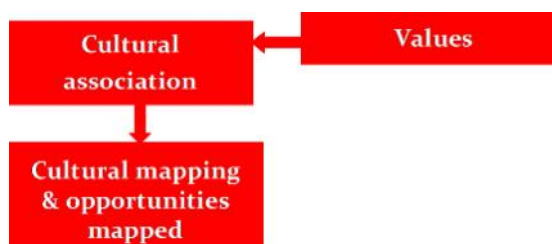
Although section 6(e) requires managers to recognise and provide for these cultural concepts, it is not always explicit how this occurs within current management processes, especially restoration projects. The project started with articulation of the linkages between their cultural values and the principles of restoration (see Table 6).

Table 6: Hapu Values and their Relationship to Aquatic Restoration Principles & Strategies		
Te Ao Maori <ul style="list-style-type: none"> Take a catchment wide approach Restore awa to their historic reference condition where practicable Whanaungatanga <ul style="list-style-type: none"> Restore system health – not ad-hoc site by site solutions Protect riparian areas that connect healthy areas to each other Whakapapa <ul style="list-style-type: none"> Restore connections <ul style="list-style-type: none"> ki uta ki tai awa – riparian - whenua Prohibit damaging activities and where possible minimise intervention to let the awa heal itself Reconnect whanau to the awa 	Mauri <ul style="list-style-type: none"> Protect from the headwaters downstream – ki uta ki tai Secure and protect the remaining “good places” first Secure and protect the critical areas (e.g. refuges / kohanga etc) Prioritise critical areas that are degraded but are close to healthy protected areas Identify the long term restoration needs of degraded lowland reaches Rivers need water <ul style="list-style-type: none"> Advocate for flow regimes Mimic pre-control flows in regulated awa Bring back water where practicable 	Rangatiratanga <ul style="list-style-type: none"> Manage people and their effects, not the awa. Develop feedback processes. Monitor, learn and adapt. Enforce compliance Promote collaboration Taonga Tuku Iho <ul style="list-style-type: none"> Work for the long term Protect diversity Mahinga kai <ul style="list-style-type: none"> Extend number of reaches supporting cultural uses Prioritise taonga species Meet life cycle needs (passage, spawning) Manaakitanga Restoring taonga species that traditionally have sustained whanau, hapu and manuhiri.

This step provided a general overview of the relationships of tangata whenua with the defined area or resource and as noted above was akin to a Cultural Values Report. Methods of data collection included hui and interviews with key informants (mandated by tangata whenua) to explore the diversity and complexity of cultural relationships with a catchment before defining how their relationship and interactions were affected by aquatic conditions. Gaining perceptions of changes to conditions over time, and the impact of these changes on values and practices, was fundamental.

Cultural mapping

The first cultural mapping task involved preparation of a base map or aerial photograph upon which sites throughout a catchment were identified together with the values of each - in other words, the reasons for the site being of cultural significance were recorded.



Participants accept that this style of mapping is concerned with graphically recording memories and observations in specific areas. Not all participants know and access every site drawn on these maps.

Graphically representing interests has been used successfully in environmental conservation (Puginier, 1999). Using a participatory mapping methodology also recognises that visual depictions, especially maps and aerial photographs, are an important tool for communicating with hapu and whanau. They can be used at a variety of scales and also have the potential to integrate with GIS to further manipulate and analyse data in different themes or layers to produce an overall map/dataset that can be useful for a range of planning purposes. Figure 9 is an example of an aerial photograph on which tangata whenua marked their cultural interests during a mapping exercise.

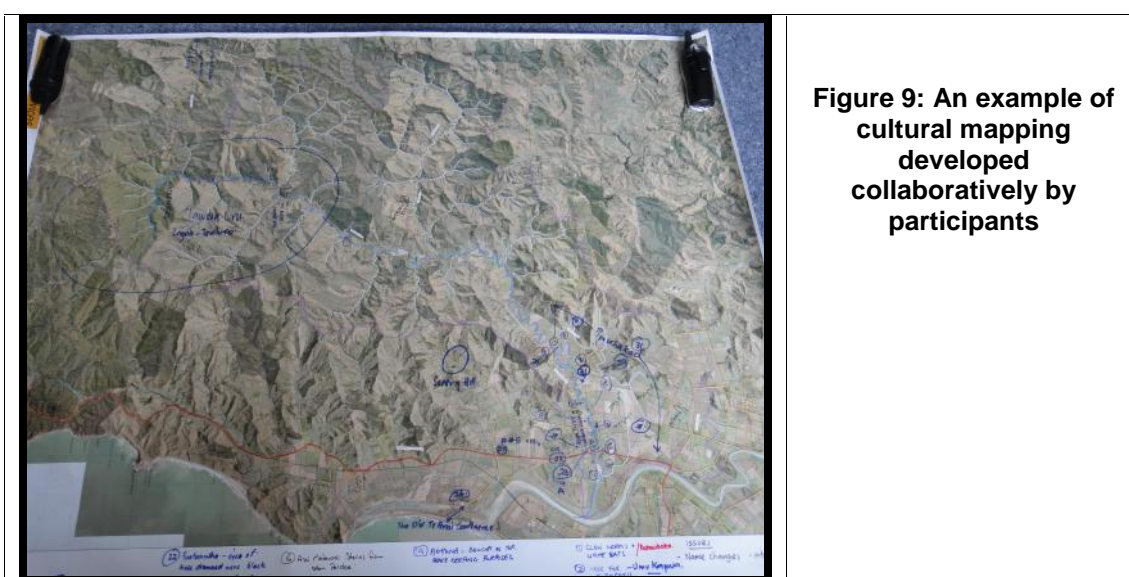


Figure 9: An example of cultural mapping developed collaboratively by participants

Usually a range of wahi taonga is earmarked for protection. While Figure 9 shows the raw data, Figure 10 summarises the cultural association with one catchment found in the Waitaki District. In a facilitated process, qualitative data were collected as whanau members were encouraged to talk about their experiences in the catchment and at a number of sites. They also had to explain how their experiences have changed over time. Data – at different levels of specificity – were derived through the exercise. However while this information is of value, the risk is that without further analysis, resource managers may struggle to understand how this is relevant to restoration.

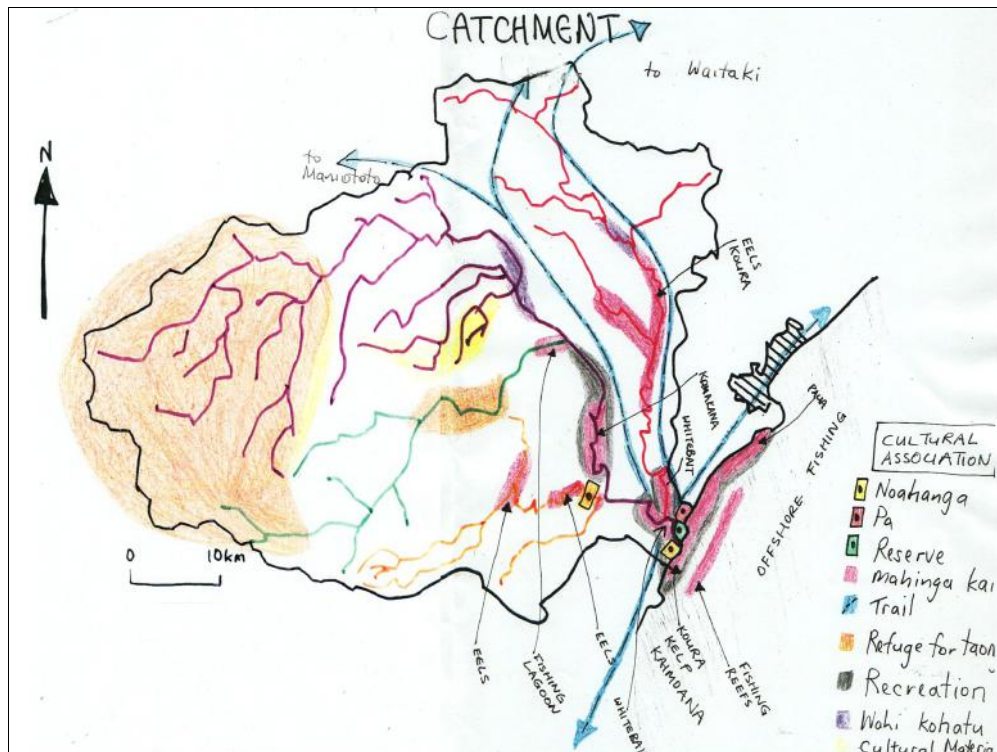


Figure 10:
Documenting
the cultural
association
with a
catchment in
North Otago

Significance

According significance may be problematic. Sites can be recognised as significant at national, regional or local levels. It must be acknowledged however that this may be of little relevance to Tangata whenua, for whom a site or resource may be highly significant to a whanau or hapu yet fail to meet the threshold for regional or national significance.

Cultural Opportunities

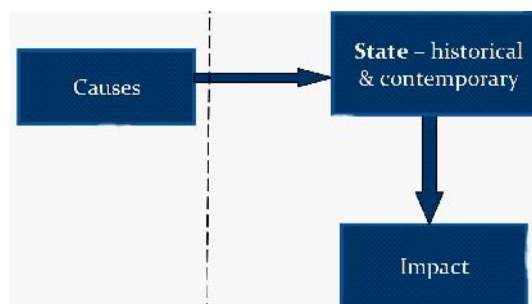
To ensure that Tangata whenua articulate the opportunities that they want to see provided a key step is cultural opportunity mapping. Diversity of belief, value and practice is accommodated within the process as the cultural opportunities sought are informed by traditional, historic and/or contemporary values of participants, and may be akin to ecological, economic, recreational, aesthetic and social opportunities sought by others, while some are distinctly cultural. Importantly it does not separate economic aspirations from a cultural context. Figure 11 provides an example of the opportunities associated with ten sites within the lower reaches of a catchment in the Otago region.

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Figure 11: An example of cultural opportunities sought in an Otago catchment

Changes, impacts, threats

Maori, because of their experiential and interactive relationship with aquatic ecosystems are able to describe changes observed over time, often over successive generations. With the goal being restoration, the focus of Tangata whenua often turns to a discussion of the condition that tangata whenua should be rehabilitating the state to. Often tangata

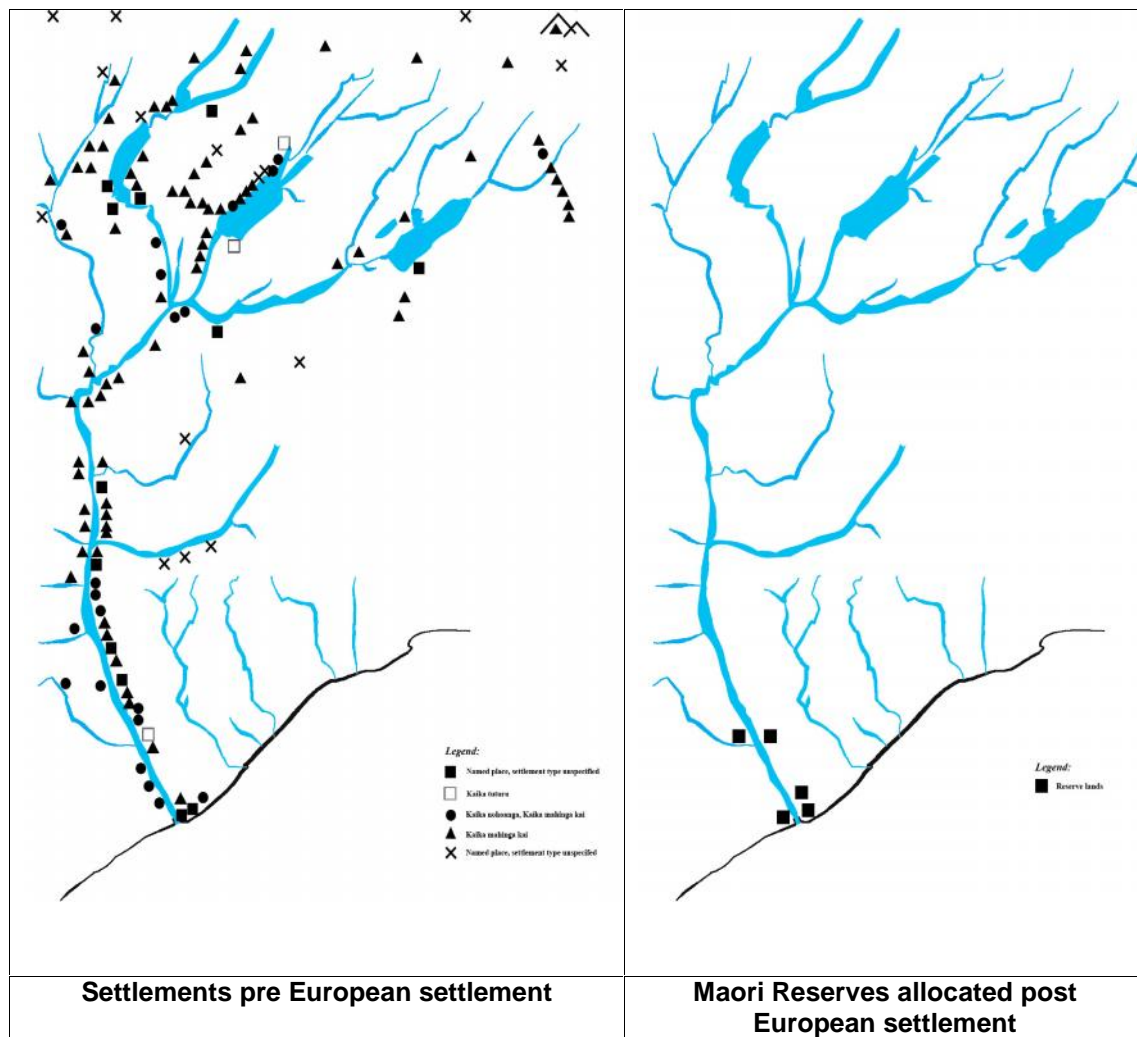


whenua aspire to a historic reference condition. This necessitates an understanding of both historic and contemporary states. Changes to the state have impacts which may or may not be acceptable to tangata whenua. Unacceptable impacts (especially cultural impacts) call for responses that mitigate an impact, restore the state, or reshape the drivers of change. Many whanau and hapu comment that they are reactive rather than proactive in resource management forums. Although the process in this report has the potential to change this by seeking to deliver cultural opportunities sought by tangata whenua, they still risk continually being caught in a reactive cycle unless they reshape the drivers of the alterations being experienced in their takiwa.

Changes - Vuorela (2000) supports an analysis of changes to environments over time, arguing that it requires information of both natural and anthropogenic variables to be obtained from several sources, such as landscape descriptions, maps, historical records and photographs. Russell (2000) and Jongman (2000) contend that over time land use changes inevitably result in changes to the character of landscapes that have been built up over centuries, together with observable changes to ecosystem composition and structure. Consistent with this proposition, changes observed and experienced in the Waitaki can be compiled from an assortment of historical texts (see Worksheet 4). Table 7 summarises, in the form of a timeline, key events in the history of the Waitaki, providing insights to the changes experienced by Ngai Tahu since the nineteenth century post European settlement.

- Landuse change had a significant impact on the waterways of the Waitaki. More recently, whanu have seen the increase in dairying in the upper catchment (see photo next page).
- Water was expropriated as settlers claimed springs for their livestock and diverted flows to supply farms and towns.
- Eventually fences to control livestock; and
- European concepts of private ownership of land and the placement of reserves for Tangata whenua in the lower catchment impacted Ngai Tahu access to mahinga kai and constrained the mobility on which a mahinga kai based economy had depended (see Figure 12 below).

Figure 12 – Settlement patterns in the Waitaki – pre and post European settlement



Source: adapted from map of Beattie (1920) in the Hocken Library

Table 7: Some key dates for events & changes in the Waitaki Valley

DATE	DESCRIPTION OF EVENT
	Aoraki and his brothers visit and are unable to return to the heavens
850-950	Arrival of Waitaha
1100 – 1500	Rock art drawn in the Waitaki
1550	Ngati Mamoe came south
1700	Ngai Tahu came south
1750	Battle at Lake Ohau
1770	Captain Cook sees fires on land (near the mouth of the Waitaki)
1773	Captain Cook introduces potato, cabbage and onions to New Zealand
1836	Matiaha Tiramorehu comes south to Moeraki
1840s	Gorse introduced for fencing
1843-44	Shortland visits the Waitaki
1848	Kemps Purchase – the sale of land to the Crown. Mantell identifies reserves to be allocated
1849	Matiaha Tiramorehu lodges the “Ngai Tahu Claim” against the land purchase
1851	Lands are opened up for settlers
1851	Mantell writes of his intent to allocate insufficient lands to Ngai Tahu, thus preventing the perceived “barbarism” of their former lifestyle
1852	Mantell first European to travel inland and finds moa bones and rock art at Takiroa
1853 – 56	All land holdings up to Kurow Gorge taken up
1857	First sheep introduced on a Waitaki run
1859	First sowing of English style grass
1860	Rabbits introduced to island in Ohau River for sport. By 1880s range extended to Tasman & Hopkins Valley
1860s	Shooting ducks and quail a popular sport. Quail extinct in the Waitaki by 1880.
1861	Te Huruheru dies
1861	Most land holdings in the Waitaki taken up
1864-65	Sweet briar introduced
1867	Deer liberated in the Waitaki
1868	Gorse and broom planted
1868	Gold found in the Maerewhenua
1868	Fenton decision in the Native land court awarding more reserves to Ngai Tahu
1869	3 tons of harvested birds floated downriver from Station Peak
1870	Moa skeleton found
1870s	Cats released
1872	Acknowledgement that in relation to Kemps Purchase “a promise of important character was not kept”
1873	Roads constructed
1876	Petition by Moeraki and Arowhenua Maori re Kemps Purchase and the failure to honour its terms
1876	Trout widespread in New Zealand
1877 – 1879	Heke to Omarama in 1877 with eviction in the winter of 1879
1877	Waitaki Acclimatisation Society formed
1879-1880	HK Taiaoroa recorded mahinga kai sites across the Central South Island
1882	Matiaha Tiramorehu dies
1884	Hermitage built
1885 & 1887	Hooker and Tasman Valleys taken as national reserves
1886	Weasel released
1887	Stoat released
1887	A Royal Commission into the land sales and allocation of reserves in the South Island
1888	Japanese Deer introduced to Otekaieke
1889	Chamois introduced
1889	Last weka harvest in the Pukaki Valley
1892	Mining still in the Maerewhenua and Otekaieke
1891	Ferret released at Lake Pukaki for rabbit control
1891	Another Royal Commission
1894	Aoraki climbed
1895	Opossums released
1893-1910	First irrigation scheme on the Lower Waitaki
1900	Quinnat salmon hatchery in the Hakataramea
1902	Sockeye salmon released into Lake Ohau
1904	Hay Report identifies hydro potential of the Waitaki Valley
1914	A Royal Commission into the SILNA (South Island Landless Natives Act) land allocation
1916	Rainbow trout introduced into the Hakataramea
1916	Last sighting of weka in the Godley Valley
1928-1934	Waitaki Dam constructed
1944	Government paid £300,000 for settlement of the Ngai Claim (to be paid over 10 years)
1951	Tekapo Power station operational
1952	Lake Pukaki raised enabling storage for hydro power generation
1960s	Mid Waitaki (Benmore and Aviemore) power stations constructed
1970s – 80s	Upper Waitaki hydro scheme constructed
1989	The Ngai Tahu Claim heard by the Waitangi Tribunal
1998	The Ngai Tahu Claim Settlement Act

Looking from Lake Benmore towards Ohau C



(Source: David Wall Photographer)

The loss of land, changing environments and the movement to urban areas, impacted other Maori conceptualizations such as *mana* (prestige, authority, influence) and *rangatiratanga* (chieftainship, decision-making rights).

Impacts - Tangata whenua frequently prepare Cultural Impact Assessments.

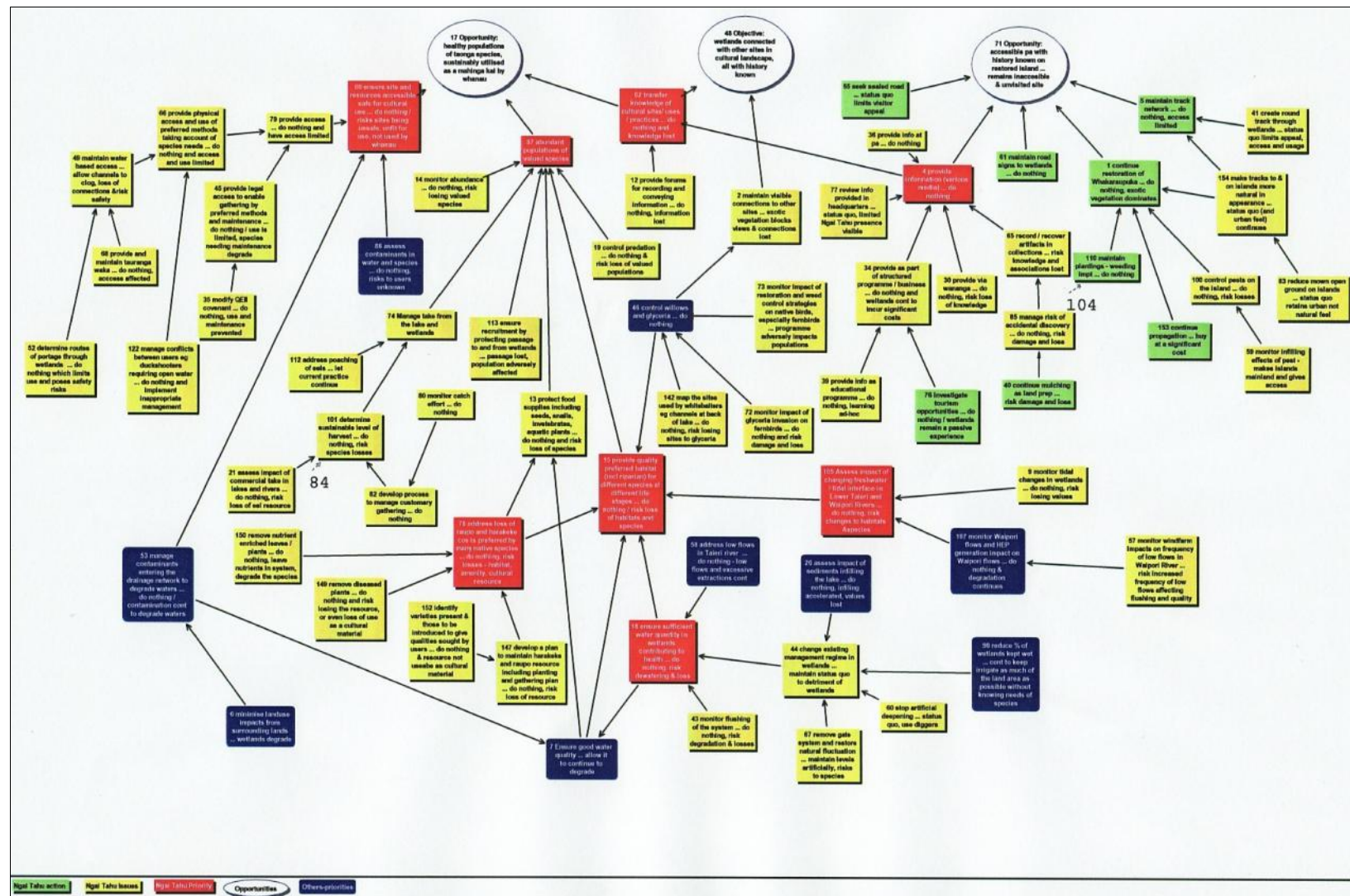
A CIA is a report documenting M ori cultural values, interests and associations with an area or a resource, and the potential impacts of a proposed activity on these. CIAs are a tool to facilitate meaningful and effective participation of M ori in impact assessment. A CIA should be regarded as technical advice, much like any other technical report such as ecological or hydrological assessments¹⁸.

A CIA may identify the effects of a proposed activity on tangata whenua cultural associations with the environment; identify or assist identification and formulation of methods to avoid, remedy or mitigate adverse effects on cultural values. Although usually associated with resource consents, a CIA can aid restoration by identifying the impacts to be mitigated through restoration.

Threats - Few if any areas are immune from one type of threat or another – and many are vulnerable to a range of different pressures. Threats include global threats (e.g. climate change), regional-scale issues such as habitat fragmentation, and localized problems such as pollution, overfishing, excessive water extraction). Recognising the sources of threats – that is, the underlying or root causes – and the impacts (or stresses) caused by the threats can both be important for a more complete understanding of the context. It is important to understand what Tangata whenua see as being threats. One technique used is the development and analysis of concept maps.

¹⁸ (Extracted from the Quality Planning website <http://www.qp.org.nz/consents/cultural-impact-assessment.php>)

Figure 13: An example of a concept map for a wetland in one Otago catchment



The concept map was subject to a number of different analyses, some of which are discussed in the next section.

The final mapping task – concept mapping – required Tangata whenua to identify concerns / threats / risks they perceive to impact the provision of cultural opportunities sought at the sites they have previously mapped as significant to them. These are represented as a concept map which is recognized as an effective tool to elicit the belief systems that are used to perceive and analyse situations (El Sawy & Pauchant 1998, Weick 1979, 1995). Graphically depicting the complexity of issues that tangata whenua believe impacts realization of their aspirations is essential. This step is essential if the data collected is to enable a transitioning to a responsive management / restoration focus. Figure 13 represents a concept map that was constructed to examine the complexities concerning the cultural health of a wetland in Otago and to help focus restoration on delivering cultural outcomes.

Using mahinga kai to illustrate the link between values, changes, impact and the wellbeing of whanau

Before proceeding to describe further steps in the process we use mahinga kai in the Waitaki catchment to illustrate how we can pull together data pertaining to values, changes and impacts to help us understand the context within which restoration will occur.

Values

Mahinga kai is a value that lies at the heart of Ngai Tahu culture and identity. From historic records we know that more than 30 species were gathered across 160 sites in the Waitaki catchment as shown in Figure 14.

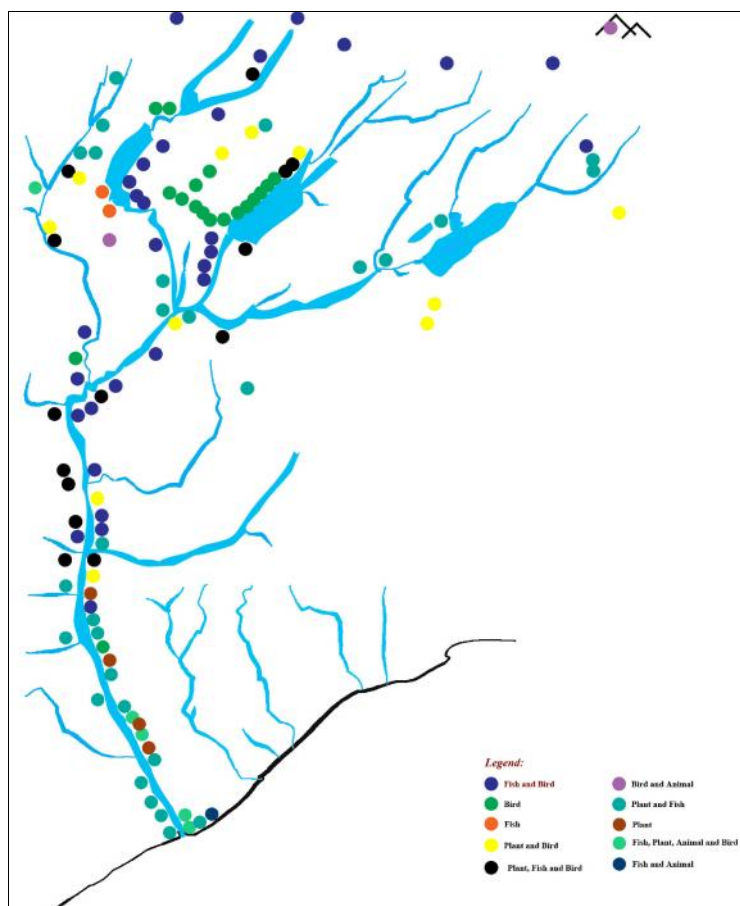


Figure 14 – The resources gathered by Ngai Tahu pre European Settlement

Table 8 shows the ten most commonly gathered species gathered from the sites in the Waitaki, which are shown in Figure ?.

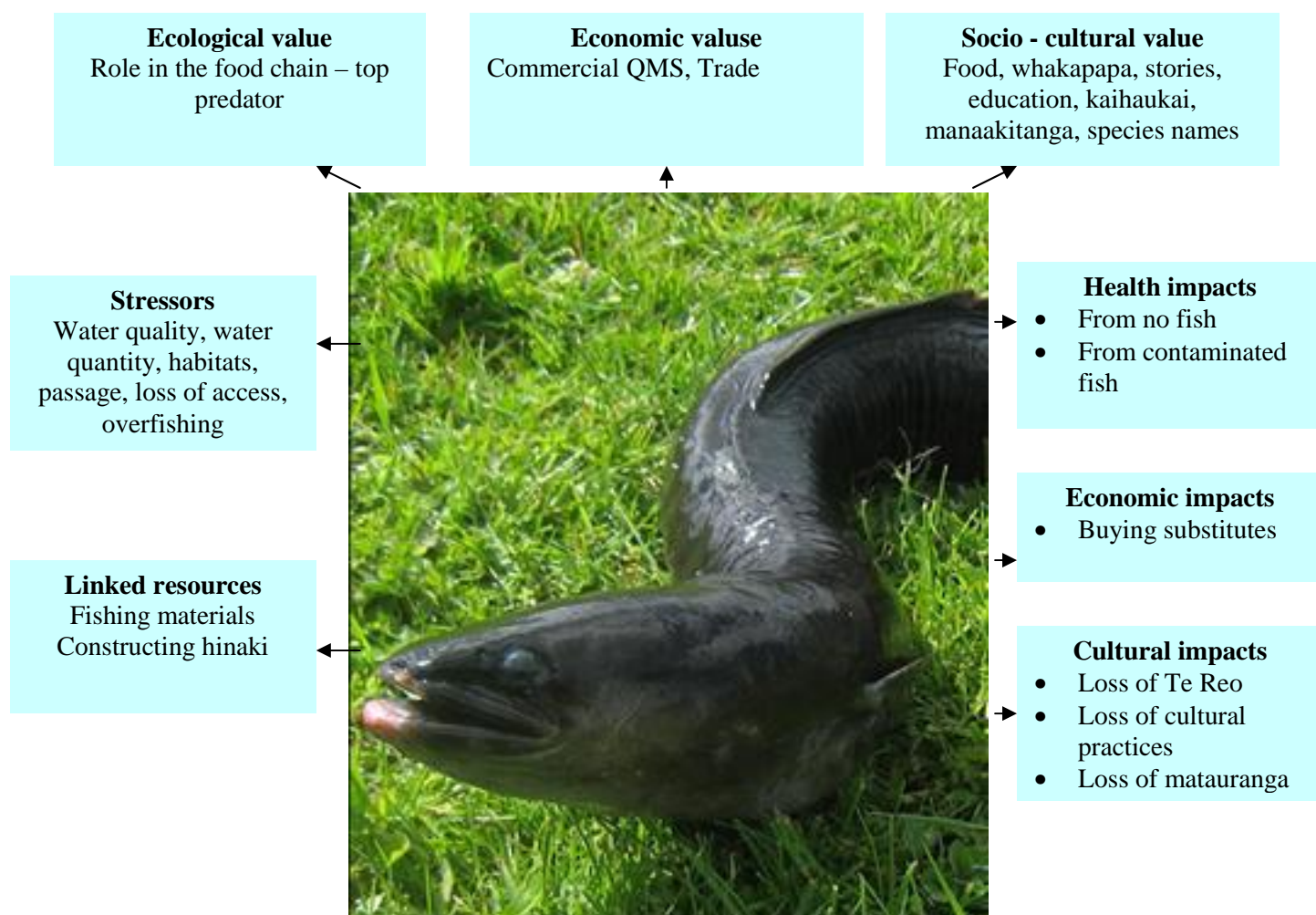
Table 8: Percentage of sites from which species gathered in the Waitaki

SPECIES	PERCENTAGE OF SITES
Eels	69%
Weka	53%
Turnip / potato	20%
Aruhe	17%
Koareare	8.6%
Birds	8.6%
Kakapo	7.9%
Pirau	6.4%
Kauru	5.7%
Papai	4.3%

Significance of mahinga kai

Understanding the significance of a species to tangata whenua and its historic range enables the identification of possible sites to be restored, and to which a particular species could be reintroduced. Eels were gathered from approximately 70% of the sites in the Waitaki. They remain a taonga that whanau want to see restored. Figure 15 summarises its significance to whanau and hapu.

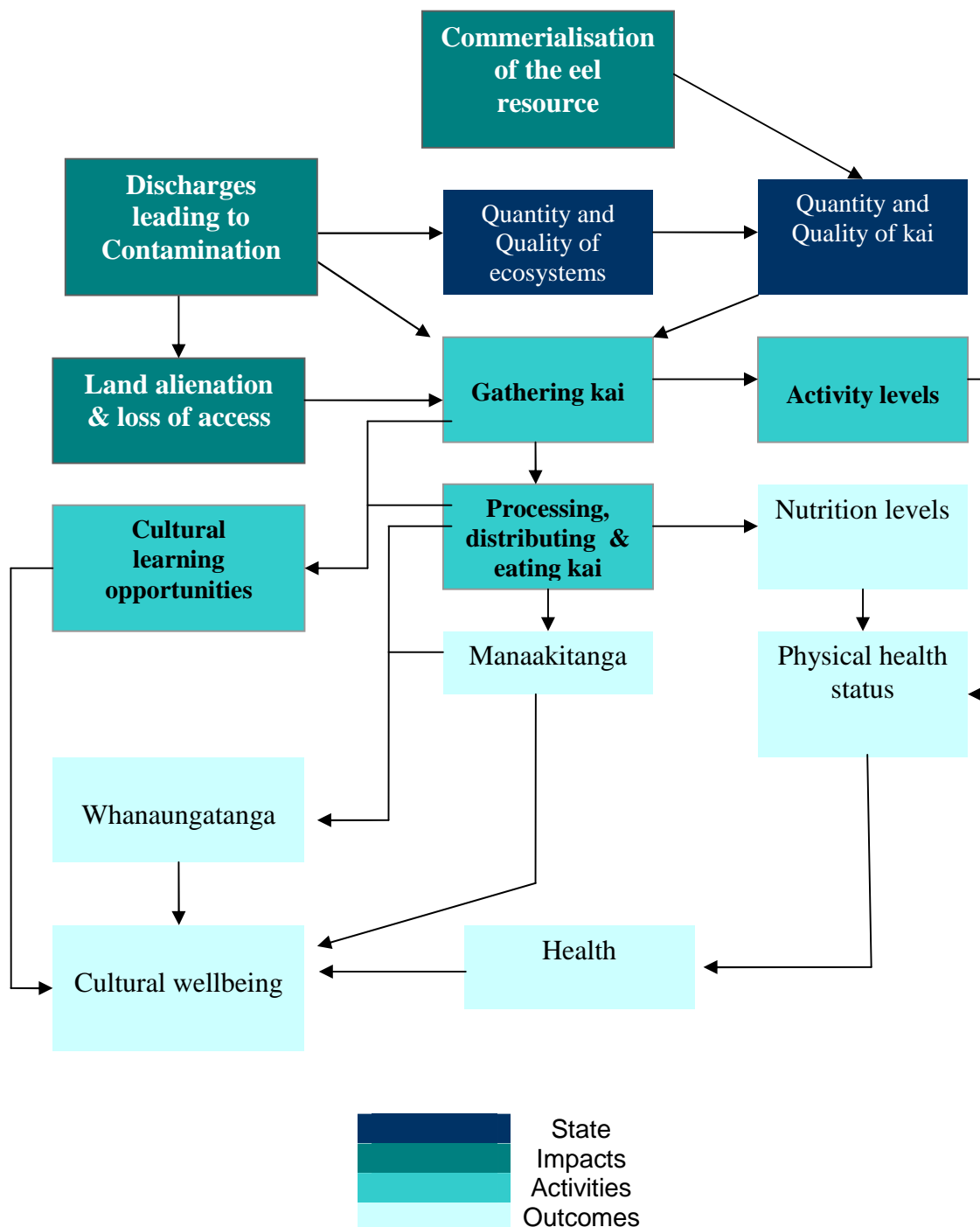
Figure 15: The significance of eels as a taonga species



Impacts

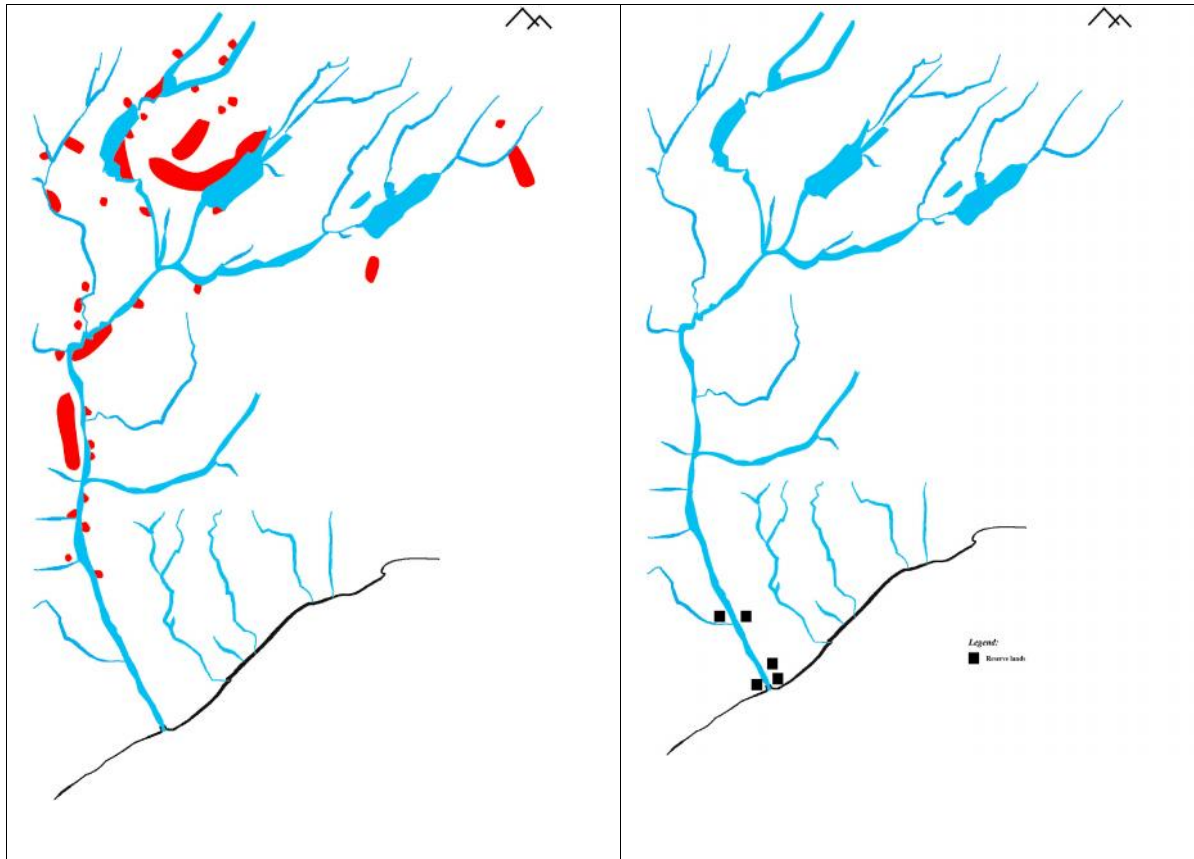
Figure 15 shows, in addition to the focus on the changes to a specific species, it is necessary to know how the impact on a species can impact a cultural practice, and know how that in turn impacts the cultural well-being of whanau and hapu. We have tried to capture the consequent impacts in Figure 16.

Figure 16: An Illustration of the Cultural Impacts resulting from the Impact of Environmental Change on Mahinga Kai, affects Cultural Well-being



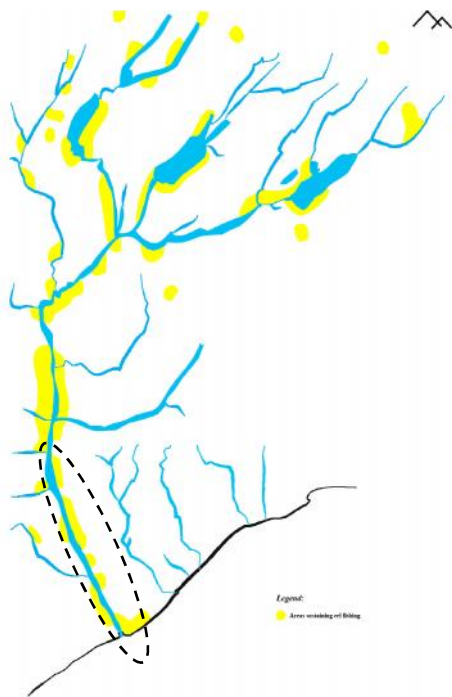
Having collected data about historic and contemporary state, a range of comparative analyses also enable the identification of impacts on tangata whenua. For example, Figure 17(a) shows the distribution of sites from which eels were taken, which after the allocation of reserves in the mid nineteenth century were dislocated from the reserves awarded which are located mainly in the Lower Waitaki (see Figure 17(b)).

Figures 17(a) – Left: the weka grounds pre European settlement that were dislocated from the reserves allocated in the Waitaki post-European settlement 17(b)right.



Weka were a valued resource that were gathered from the Waitaki historically

Site specific analyses of contemporary and historic data can also be undertaken in order to understand the nature and scale of the change and the impact on Tangata whenua. For example Table 9 below summarises the results of eel surveys of streams in the Lower Waitaki (as highlighted on the map). The map on the left shows the historic distribution of the eel resource (as recorded in 1880) while the sites identified in the Table are enclosed by the dotted line.

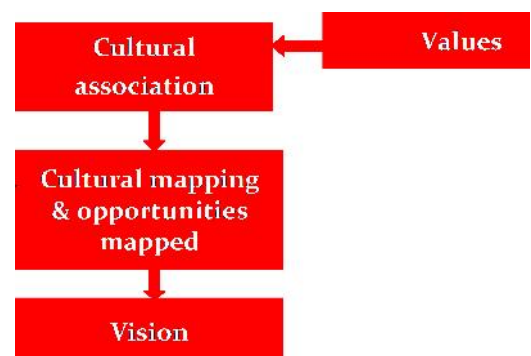


A selection of sites in the Lower Waitaki from which eels taken historically	Results of eel surveys in 2009	Results of eel surveys in 2010
Kurow	0 (site dewatered)	0 (site dewatered)
Oteake	0 (site dewatered)	0 (site dewatered)
Otekaike	4 eels all longfin	4 eels all longfin
Wai koura	0 (site dewatered)	0 (site dewatered)
Maerewhenua	5 eels all longfin	5 eels all longfin
Hakataramea	2 eels both longfin	2 eels both longfin
Awamoko	-	-
Whakapapa Ariki	-	-

Visions and aspirations

It is important that Tangata whenua feel free to describe their vision in Te Reo, as Te Reo very rich and in translation may lose part of the meaning that a common vision needs to convey.

For example the vision for the Waikato River succinctly describes how coming generations are going to see the river.



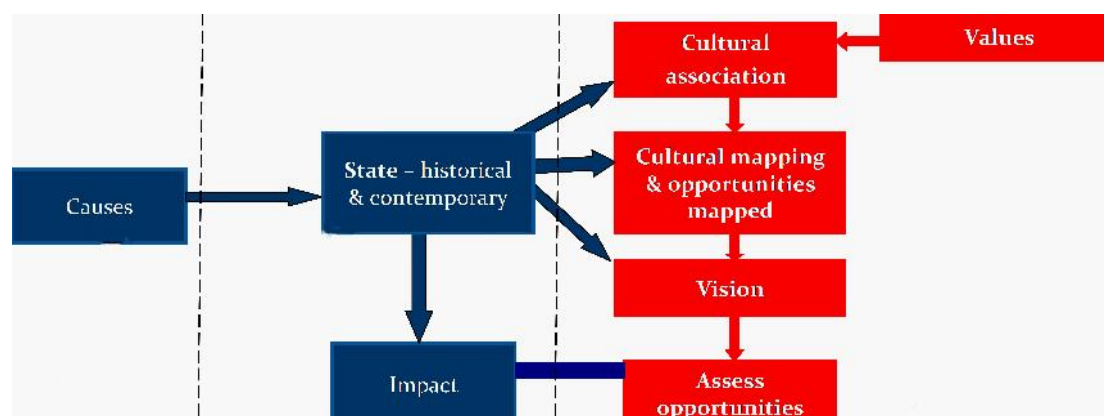
Tooku awa koiora me oona pikonga he kura tangihia o te maataamuri

"THE RIVER OF LIFE, EACH CURVE MORE BEAUTIFUL THAN THE LAST"

Our vision is for a future where a healthy Waikato River sustains abundant life and prosperous communities who, in turn, are all responsible for restoring and protecting the health and wellbeing of the Waikato River, and all it embraces, for generations to come.

Vision statements can also be found in Iwi Resource Management Plans, other planning documents (e.g. Eel Management Plans, and statements of whanau). For the Waitaki, objectives and policies are found in three Iwi Resource Management Plans, and an Eel Management Plan. In addition many of the place specific visions of whanau have been graphically depicted in an Aspirations Map. The opportunities sought by whanau also describe the future they want to see provided.

Assessments, including cultural assessments



Cultural Assessments utilise the outputs of the mapping exercise, specifically the maps and aerial photographs and is premised on sites of cultural significance being assessed using indicators (of attributes) that tangata whenua believe are relevant to their values. A variety of cultural assessment tools are currently in use by tangata whenua, for example:

- The Cultural Health Index for streams (Tipa & Teirney 2003, 2006);
- Cultural Impact Assessments (see www.qualityplanning.co.nz);
- A Cultural Flow Preference Study (Tipa 2010);
- State of Takiwa (Pauling 2003);
- Eel surveys (with training provided by NIWA);
- Cultural Indicators for wetlands (Harmsworth 1999)

The key point, is that there is no single assessment method or one cultural assessment tool recommended. A range of tools and a range of assessments will be needed. However, it is envisaged that a number of cultural assessments will complement the assessments.

Consistent with this proposition a number of cultural assessment tools have been applied by tangata whenua in the Waitaki District and the wider Otago region. These assessments are summarized in Table 10. Importantly, given limited resources and human capacity, each assessment was undertaken for a specific purpose and guided development of targeted management responses. Table 10 also highlights those parties that Tangata whenua are collaborating with.

Table 10: The range of cultural assessments undertaken in North Otago

Type of cultural assessment	Location	Purpose	Collaborating partner
Cultural Health Index (CHI) for Streams	Kakaunui (17 sites) Waitaki (15 sites) Trotters (3 sites)	To assess stream health at a variety of sites of significance prior to identifying resource management priorities for each catchment	<ul style="list-style-type: none"> Representatives of the three kaitiaki runanga doing assessments in the Waitaki Te Runanga o Moeraki undertook the Trotters and Kakaunui Assessments Assistance with tool development <ul style="list-style-type: none"> Ministry for Environment (funder) Laurel Teirney (joint project manager) University of Otago (Advisory role)
State of Takiwa	Waianakarua (3 sites)	As part of a research programme to test the SOT tool	TRONT NIWA
Environmental flow studies	Trotters Creek Waianakarua Kauru	<ul style="list-style-type: none"> To recommend flows to the ORC 	N/A – the Otago Regional Council is leading these studies. The runanga has the opportunity to participate in community meetings. There is no separate engagement with whanau. This will link with the Cultural Flow Study whanau are undertaking.
Water quality studies	Kakaunui	<ul style="list-style-type: none"> To establish a baseline 	N/A – the Otago Regional Council is leading these studies. There is no separate engagement with whanau. This will link with the CHI assessments that whanau have undertaken
Questionnaire - nature and extent of cultural uses of Waitaki District waterways	Across the North Otago region	<ul style="list-style-type: none"> To determine the level of use across multiple catchments in the district. To compare historic patterns to contemporary behaviours. 	
Eel surveys	Across the North Otago region	<ul style="list-style-type: none"> To assess population stocks in advance of developing restoration priorities To compare historic patterns to contemporary distributions. 	NIWA
Cultural Flow Preference Study	Kakaunui (6 sites)	To provide data to enable tangata whenua to input to allocative decision making processes	NIWA
Monitoring weed infestation	Trotters Creek	To monitor the cycle of weed growth for two problem species as the first step in how to control remove the species	NIWA
Harakeke Strength Tests	Waitaki (3 sites)	To assess the strength and value of the resource for cultural use	University of Otago Meridian Energy Ltd.
Cultural Impact Assessments	Waitaki	To assess the impact of <ul style="list-style-type: none"> Hydro development in the lower Waitaki Land use intensification in the Upper Catchment 	Commissioned by a client e.g. <ul style="list-style-type: none"> Meridian Energy Ltd MacKenzie Research Ltd.

In addition to undertaking the field assessments, concept maps that were used to structure and graphically depict issues, are analysed. Having presented a concept map of the complexities associated with management of the wetlands complex in Figure 13, different types of analyses were undertaken to identify management priorities. The concept map was developed in Decision Explorer and two analyses were undertaken were:

1. Domain analysis which analyses each concept and calculates how many concepts are immediately related to it; and

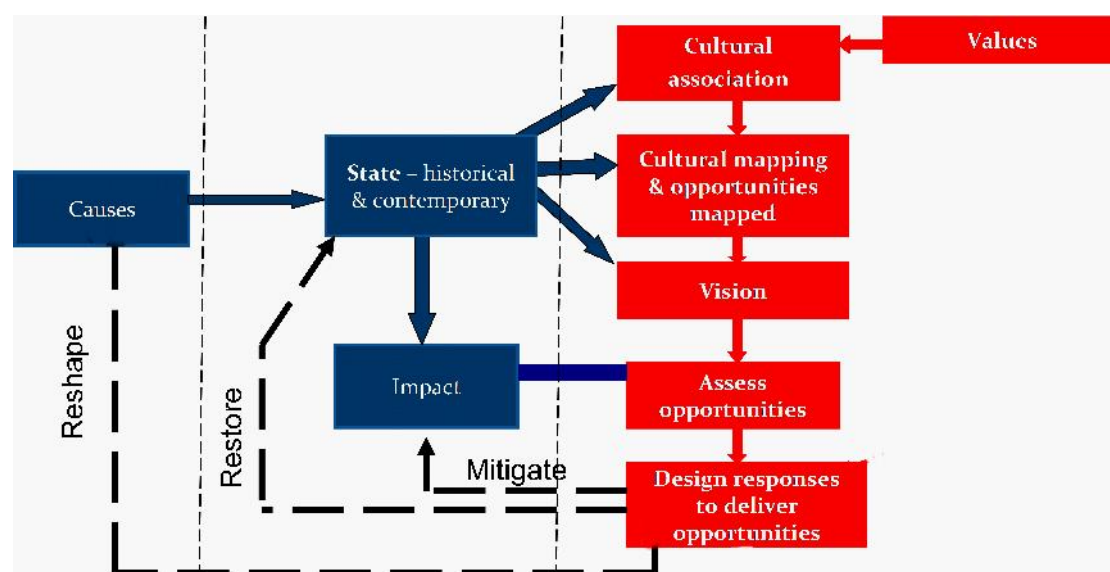
2. Centrality analysis which calculates relationships between concepts using more than one level. This identifies the centrality of a concept to the whole model rather than just its immediate vicinity.

Using these analyses, the priorities for the wetlands (and the resulting changed management responses) are

1. Provide quality habitat
2. Address loss of raupo and harakeke, plus prepare a maintenance plan for harakeke – previously raupo had been sprayed to create open water for duck-shooting rather than seeing it was a valued cultural resource.
3. Ensure good quality water
4. Determine sustainable levels of harvest – this required a change to the management philosophy. Although a mahinga kai historically, under the [then] existing management regime, gathering of kai and cultural materials was prohibited.
5. Ensure sufficient water quantities - Previously, water quality had been identified as a concern but the interrelationship with flows in contributing streams was not considered.
6. Minimise willow and glyceria spread – Prior to this analyse the focus had only been willow management. Glyceria was added as a priority and control initiated.
7. Restore riparian habitats
8. Ensure sites & resources safe for cultural use – Safety issues arose because of the health risk of gathering contaminated species from contaminated waters.

A number of strategies for each of these priorities were subsequently detailed in a restoration plan developed for the complex.

3.6 Developing Targeted Responses



The data gathered needs to be woven together to inform the development of responsive restoration strategies. Some examples of responses developed in Otago are listed below.

Species restoration - Understanding the significance of a species to tangata whenua and its historic range enables the identification of possible sites to be restored and if necessary sites to which species could be reintroduced. Some examples of initiatives underway with respect to species historically found in North Otago are shown in Table 11.

Table 11: Sites from which species were historically gathered from North Otago compared to current status

Species	Contemporary status	Cultural assessments completed	Restorative actions	Collaborating party
Eels	Classed as a species in gradual decline	Fish surveys	<ul style="list-style-type: none"> Prioritized fish passage as an issue <ul style="list-style-type: none"> Trap and transfer of elvers and Trap adult migrants Prioritized protection of riparian wetlands Identified and secured aquatic sites to enhance Wananga held to introduce whanau to matauranga and science of eels Relocations of elvers to other catchments (that are barrier free) are being investigated Advocated for flow regimes that maintained connections between mainstem, tributaries, wetlands etc. 	Meridian Energy Ltd NIWA
Weka	<ul style="list-style-type: none"> Not gathered in Waitaki since 1889 Last sighting of weka in the Godley Valley in 1916 	Comparative analysis of historic and present abundance and distribution	A reintroduction programme has been initiated in Otago – The benefits of this programme to Ngai Tahu are being monitored	Department of Conservation Te Runanga o Ngai Tahu Private landowners
Koareare (raupo)	No longer gathered	<ul style="list-style-type: none"> CHI Comparative analysis 	<ul style="list-style-type: none"> A wananga to trial the process of extracting & using the pollen is planned Wetlands to be protected as a pa raupo were identified and agreement reached with the landowner 	Private landowners
Birds	Only duck shooting allowed not traditional gathering methods	Questionnaire	<ul style="list-style-type: none"> Given the legal status of many bird species, a first step was identifying, via the questionnaire, the level of contemporary use. A permit for gathering is being sought. 	Ngai Tahu has one member on the Fish and Game Council.
Harakeke		Comparative analysis Harakeke assessments	<p>Secured a pa harakeke and initiated restoration (removed exotics, sourcing and growing seeds)</p> <p>Using seeds from the pa harakeke to reestablish the cultivar elsewhere</p>	Private landowners Meridian Energy Ltd University of Otago
Kauru (from cabbage tree)	No longer extracted	Comparative analysis	<ul style="list-style-type: none"> Environment Canterbury has supported the establishment of whanau based nurseries to make replanting sustainable in the long term. Trialing the process of extracting & using the sweetener is identified as a wananga topic. 	Environment Canterbury University of Otago

Aquatic habitat restoration - Restoration of species is dependent, in part, on the restoration of their preferred habitats. In relation to the priorities for restoring the wetlands as described in Figure 13, the responses that were formulated by analysing the concept map, together with a description of how current management practices had to be reshaped, are included in Table 12

Table 12: Wetland management strategies to restore habitats

Priority	Developing responses - changes required of management practices
Provide quality habitat	There had been no restoration within the wetland as a home of taonga species, including those valued as mahinga kai. Restoration had focused on one island and not on habitats within the wetlands.
Address loss of raupo and harakeke	As noted above, restoration activities had not focused on the wetlands as such. Because of their value as habitat for taonga species and their value for cultural use there is a need to manage harakeke and raupo. This changes the current practice of spraying raupo to provide more open water (for duck shooters). Because the wetland is subject to a covenant the harakeke had not been tended for over 20 years. It was diseased and damaged by pests. The covenant is to be modified to allow tending of plants and to enable cultural use of this taonga species.
Ensure good quality water	Water quality has been a priority for many agencies. However exploration of this concept identified concerns with respect to farm drains discharging to the wetlands, the impact of flows in adjacent rivers that impact the retention time of water in the lakes, and the need to examine the changing tidal / freshwater interface. All of these were new dimensions that were not being addressed by the existing management body.
Determine sustainable levels of harvest	<p>If the site is to be a mahinga kai, identification of the sustainable level of gathering for different species is needed. Setting levels for eels is a priority. However it was noted that an issue requiring immediate attention was illegal poaching from within the wetlands.</p> <p>If the site is to be used as a mahinga kai the resources needed to be accessible to tangata whenua with resources fit for use. Legal access needs to be provided which requires a change to the covenant. Testing of contaminant levels in mahinga kai species is underway.</p>
Ensure sufficient water quantities	Before an in-depth analysis of concepts, the focus had been water quality not quantity. Minimum flows in the two adjacent rivers (that affect retention times) is a priority along with securing protection of inflows to the wetlands.
Minimise willow and glyceria spread	Willow had previously been identified as a priority. Funding was to be available for alder and willow control. Glyceria has been elevated in priority and a control programme initiated.

In addition to the analyses enabling formulation of a targeted restoration plan for the wetlands, the data collected also enabled Ngai Tahu to engage more meaningfully in collaborations with landowners, resource managers, and scientists providing collaborative management of the whole complex, which incorporates two lakes, two main river systems, and the wetlands.

Access restoration - Use of the catchments in the Waitaki District by Ngai Tahu is dependent upon access to the river, and specifically the sites that tangata prefer to use. This has led to Ngai Tahu negotiating with agencies, the Crown and landowners for improved access arrangements. An example is one landowner “opening up” a 2km reach of a waterway valued as a mahinga kai.

Creating learning opportunities - Historically, engagement in mahinga kai practices created opportunities for experiential learning in which knowledge of ecosystems and

species was shared. The changing face of mahinga kai however has resulted in fishing practices, decision-making and knowledge generating processes associated with mahinga kai being changed or alienated from Ngai Tahu whanui. If mahinga kai is to remain an integral part of Ngai Tahu cultural identity, the need to source a variety of data (of different media) to complement the knowledge still held within whanau and hapu, is reinforced. This has led to the implementation of a programme of regular hikoi and wananga. NIWA has been a key collaborator as eel restoration endeavours have been accompanied by eel wananga.



Jacque Boubée (NIWA) in centre with whanau from Moeraki at their eel wananga (January 2012)

Political engagement - If restoration of ecosystems, which are valued as mahinga kai is to be realised, the ability of tangata whenua to self determine use of lands and resources, will be dependent on them having enough control over both economic and the legal aspects of their day to day life to assure the perpetuation of their authority and to defend them politically and legally. Tangata whenua are engaging with agencies at local, district and regional levels.

Retaining cultural practices - To understand ecological knowledge one must participate in the processes of hunting, fishing, gathering and processing of kai. In other words whanau with a history of use and those who continue to use waterways and resources are those that retain and continue to generate the matauranga. For example, whanau have also expressed a desire to learn how to extract specialty foods, for example kaura from the Ti Kouka (Cabbage Tree). Wananga play a vital role in retaining cultural practices.

Tangata whenua have also identified what they want to achieve at specific sites, as the opportunity arises. For example, Figure 18 shows the aspirations with respect to a river in the Waitaki catchment.

Figure 18: Collation of eco-cultural data and restoration needed to restore opportunities - (ecological features are numbered, ec-cultural features are in italics, restoration opportunities are in capitals and labelled A, B, C, D)

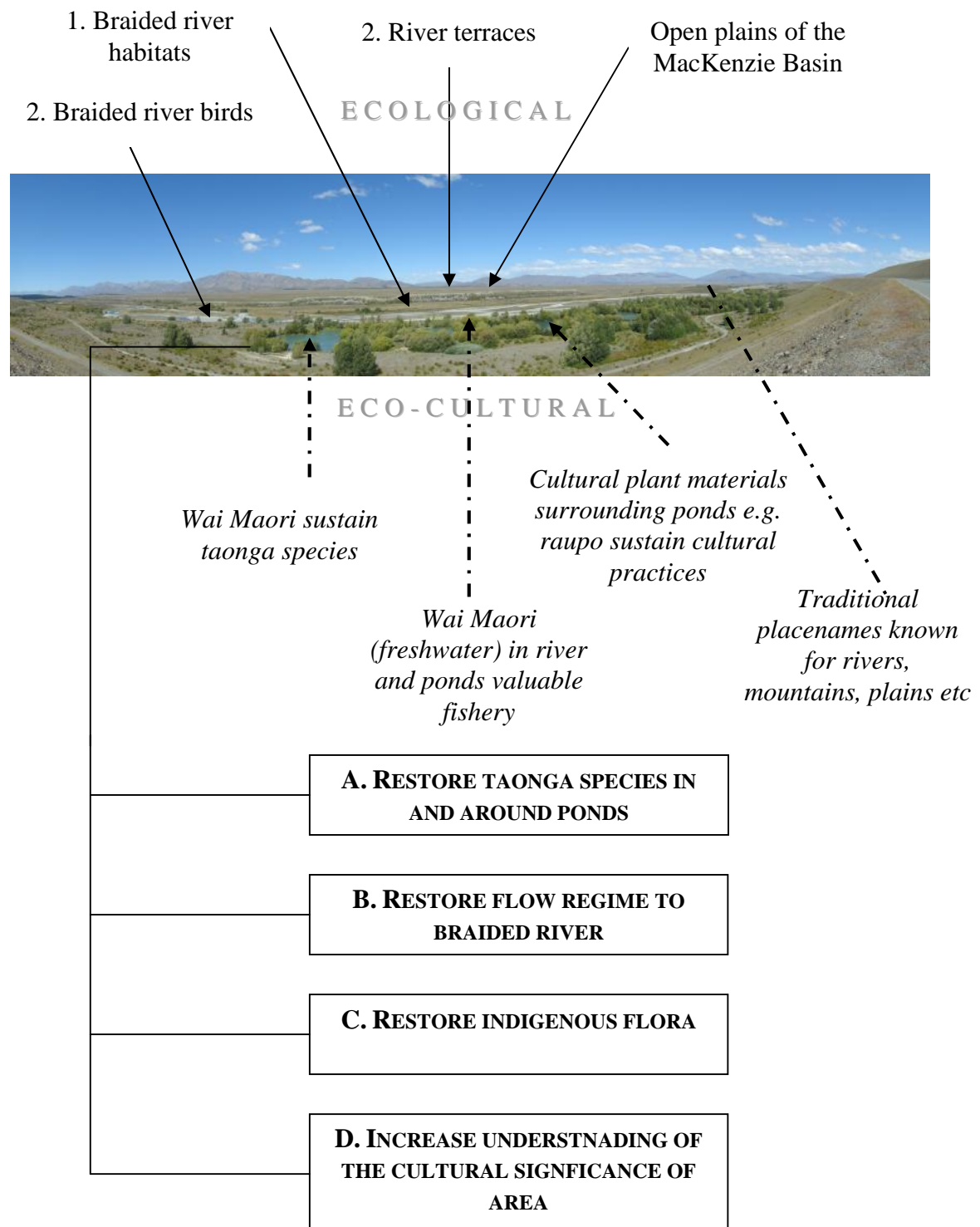
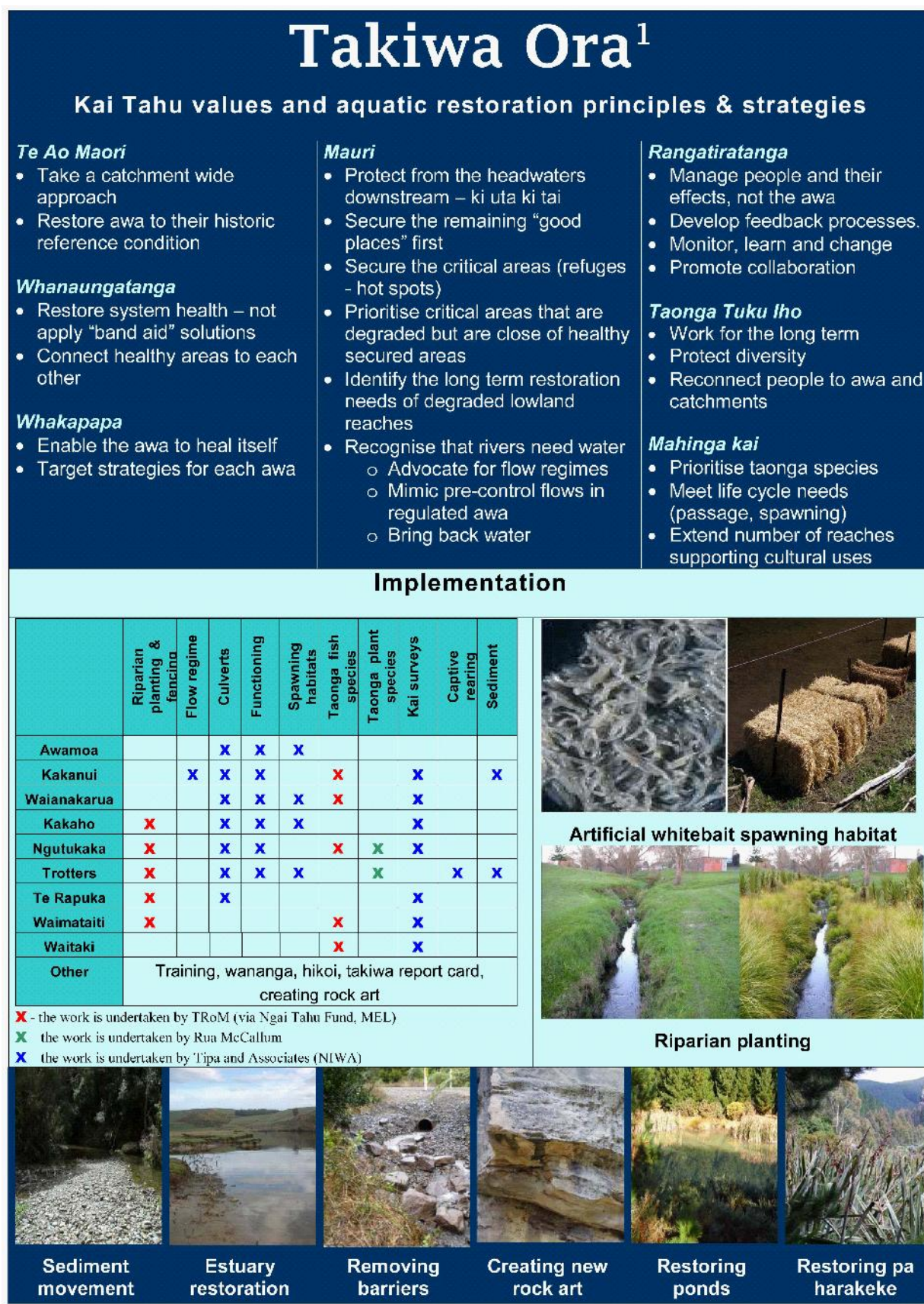


Figure 19 summarises the strategies being implemented across the catchments of North Otago.



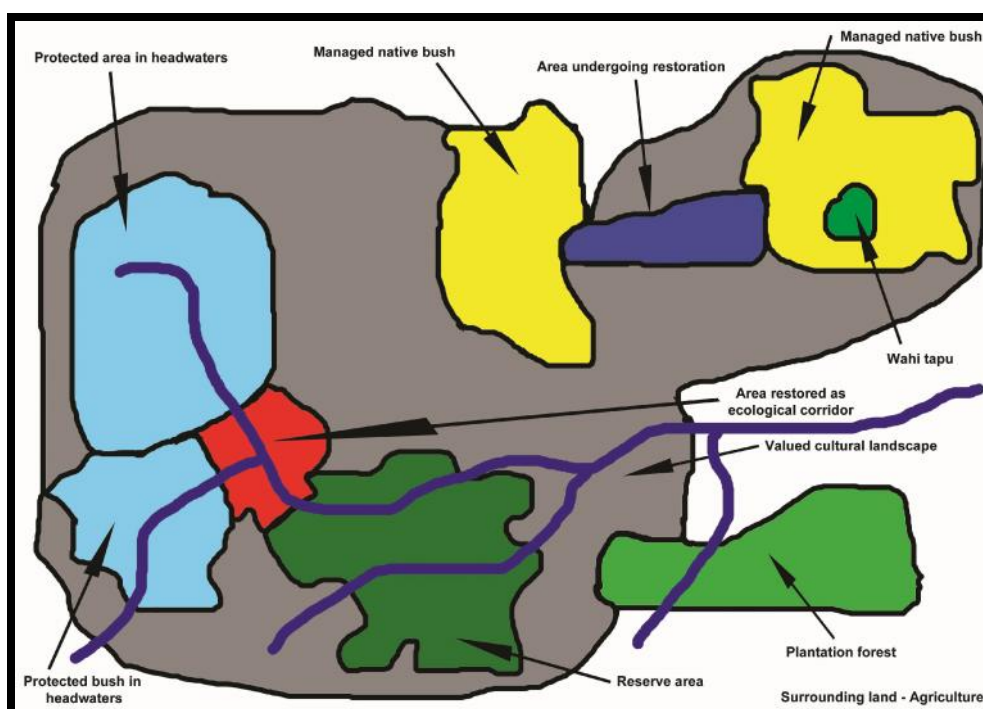
Implementation and monitoring

In Part 1 it was stated that whanau participate to achieve outcomes. They need to be assured that actions will be implemented and that they will see results “on the ground”. A key step for Tangata whenua

is to assess their capacity which will dictate their role and the extent to which they will lead an initiative.



Figure 20: Implementation of Restoration Initiatives in North Otago.



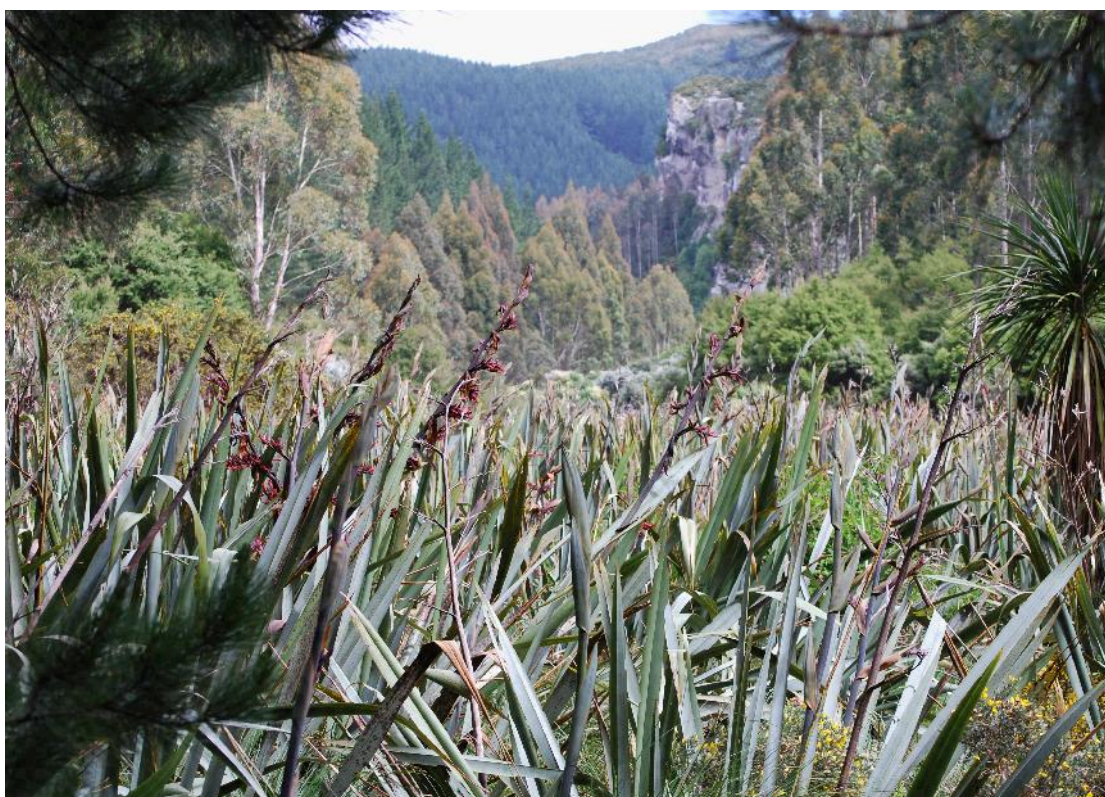
A runanga led restoration

Figure 20 represents the approach taken in one catchment within the takiwa. In reality, the runanga has the capacity to work and lead the restoration in one catchment at a time. Consistent with the values and restoration principles identified in Table 6 the runanga has identified key areas that need to be restored to connect habitats ki uta ki tai. Importantly, collaborations are crucial to Tangata whenua achieving the outcomes sought.

- Private landowners have given permission to access their properties and undertake restoration of the aquatic habitats found on their lands, principally with clearing exotic vegetation, fencing, and replanting;
- One private landowner provided native plants, and the heavy machinery necessary to clear invasive weeds.
- Department of Conservation assisted with preparation of the planting plan.
- The iwi authority (Te Runanga o Ngai Tahu) assisted by funding the purchase of native plants in Year One.



Whanau planting around ponds in Trotters Gorge



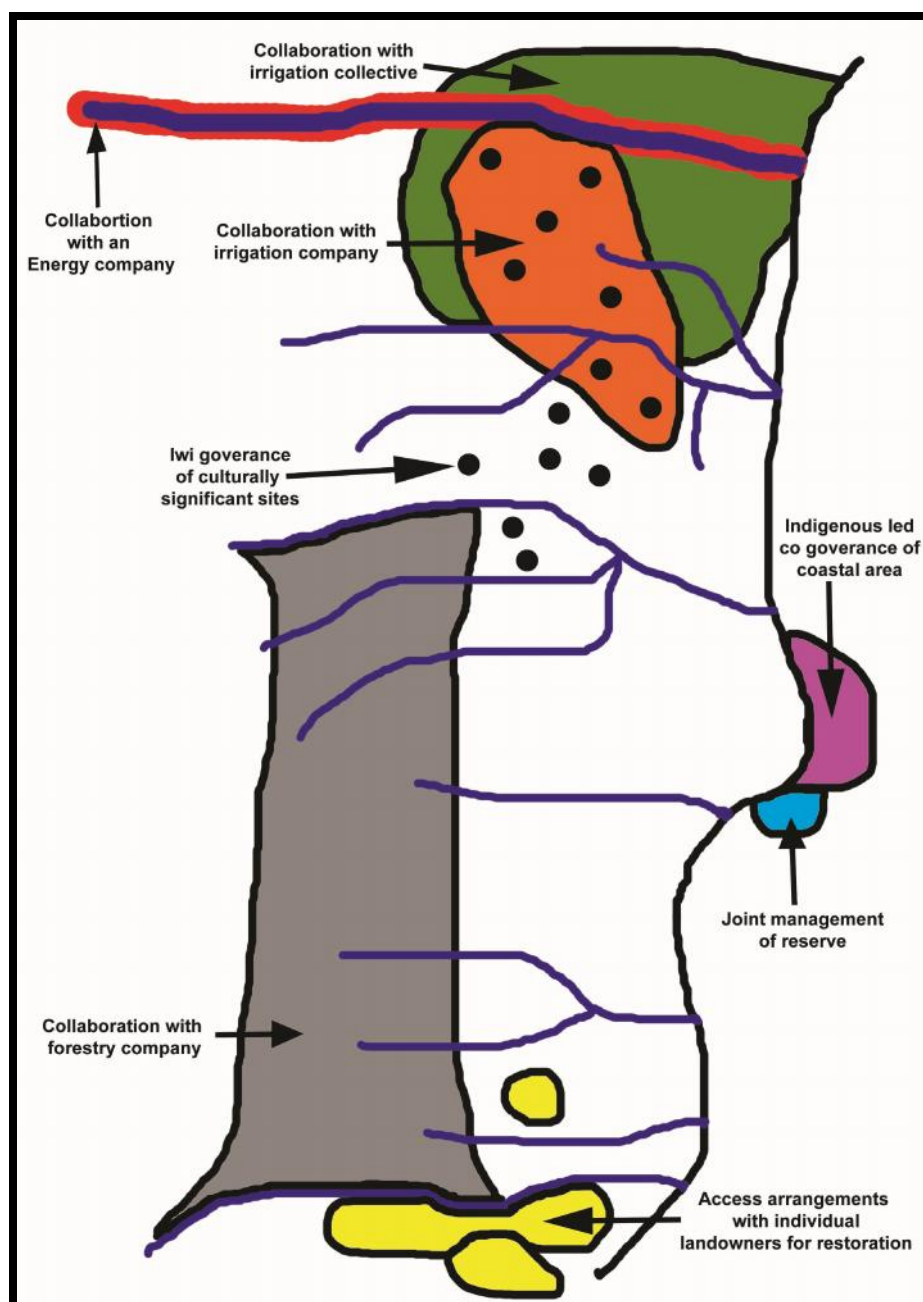
The pa harakeke in the Ngutukaka Catchment (adjacent to Trotters Creek) that is being restored

- Environment Canterbury provided funds to enable whanau to establish nurseries to make the programme self reliant as the whanau cannot purchase plants indefinitely.
- NIWA has assisted with technical advice to guide the restoration.
- Department of Corrections assisting with planting.

Tangata whenua participation in environmental collaborations

While leading the restoration in one catchment, the whanau remains keen to progress initiatives in other catchments within their takiwa. Despite not having the capacity to lead projects or lead additional collaborations, it is participating in multiple initiatives across their takiwa, as shown in Figure 21

Figure 21: An example of a range of environmental collaborative initiatives underway in North Otago.





Whanau have secured access to limestone faces to add to the legacy of rock art in North Otago.



Two species the runanga is keen to enhance in North Otago.

Monitoring

A report card for the Waitaki catchment is currently being prepared. Unlike some report cards which focus on ecological parameters, the intention is to adopt an eco-cultural approach and ground the report card in ecological processes **and** the values of Tangata whenua. As explained earlier the term “eco-cultural restoration” suggests, both ecosystems and cultures are restored.



6.8 A overview of collaborations underway

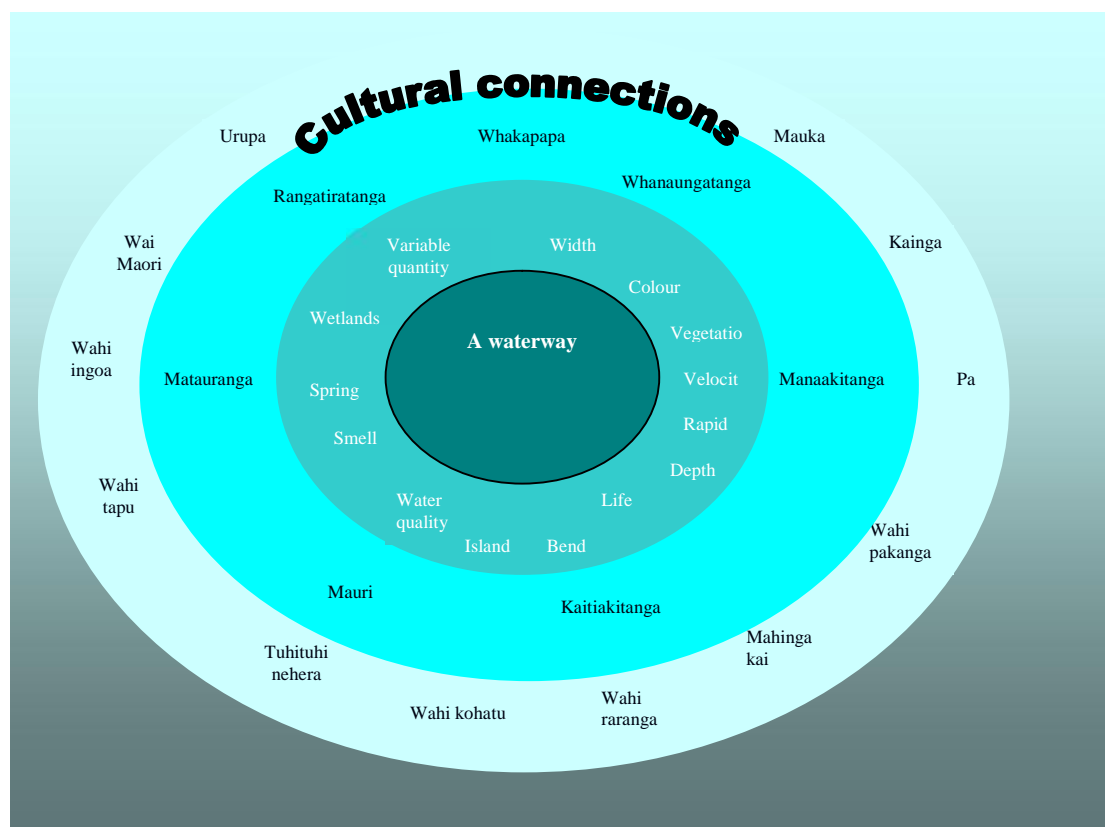
This report has highlighted that multiple relationships with a diverse range of organisations can aid restoration. Listed in Table 13 are the main players assisting Te Runanga o Moeraki.

Table 13: Parties that Te Runanga o Moeraki engages with to restore aquatic habitats across its takiwa

Agency	Catchment	Mechanism to formalise
Meridian Energy Ltd	Waitaki Catchment Rock art across North Otago	<ul style="list-style-type: none"> Te Runanga o Ngai Tahu has a MOU. Te Runanga o Ngai Tahu and the three runanga are signatories to a Relationship Agreement.
Department of Conservation	Across North Otago	Te Runanga o Moeraki is one of four runanga with Otago that has a MOU.
Irrigation Company	Waiareka Creek	Te Runanga o Moeraki has a MOU with the company.
Irrigation collective	From the Kakaunui River to the Waitaki River	This is yet to be formalised.
Department of Corrections	Trotters	This is yet to be formalised.
Forestry Company	Trotters Creek to Waianakarua River	The relationship has grown since an encumbrance was placed on the forestry land in 1998.
Private landowners	Across North Otago	This is often a personal relationship that is not formalised in an agreement.
University of Otago	Across North Otago	Te Runanga o Ngai Tahu has a MOU.
NIWA	Across North Otago	Te Runanga o Ngai Tahu has a MOU.
Environment Canterbury	Waitaki	Te Runanga o Ngai Tahu has a MOU.

6.9 A summary of the process

Working through the steps described in this part of the report represents a means to engage with tangata whenua. It helps everyone understand the connections that Tangata whenua have with aquatic environments. It is ultimately these connections (some of which are shown in Figure 22) that will be restored.



It is a relatively simple process of engagement that relies on the experiences of tangata whenua historically, currently, and ideally those sought in the future being recorded. It provides a level of specificity that enables more effective collaboration with scientists, managers, resource users and groups within the community because the focus is on articulating and delivering the outcomes whanau want. It also provides a context within which to monitor implementation.

The focus on providing “opportunities” is deliberate. Today, many whanau no longer live in close proximity to a river, mahinga kai is not their livelihood, and mahinga kai species may no longer be their staple diet. Despite these changes, it is important to emphasize that many traditional behaviours have survived and today are complemented by other water based activities. This part describes how it is possible to reconstruct the past and provide descriptions and graphic depictions of the history and life ways of tangata whenua, the changes they experienced over time, the consequent impact of these changes on whanau and hapu, and how these have shaped contemporary behaviours. Such reconstructions, comparing historic and contemporary behaviours, represent a valuable resource for Ngai Tahu whanui, the wider public and more specifically resource managers, and help explain why particular landscapes and resources remain of particular cultural significance, and the focus of restorative initiatives today. In effect, restoration represents a very tangible means of “bringing the past into their own future” (Larsen 2006, 320).

7.0 CONCLUSIONS

Ngai Tahu is cognizant of the fact that the escalating demands for natural resources, especially freshwater have the potential to further erode valued ecosystems and their mahinga kai, a process that had its beginning 160 years ago. This awareness underpins contemporary efforts to protect remaining mahinga kai habitats and achieve a sustainable use of resources. However, often tangata whenua and communities have limited human and financial resources available to enable participation in resource management forums. While they may seek to influence management regimes, and restorative initiatives in particular, limited capacity creates a number of challenges.

Tangata whenua contend that a conscious effort is needed to reverse the history of degradation of habitats and alienation from an active role in the freshwater management. In the midst of this search for new and creative ways of doing it better, Tangata whenua will draw on its historical data and relate these to the contemporary realities facing whanau and hapu. Importantly Tangata whenua will continue to seek to protect their connection to valued lands and waters.

Collaborations afford Tangata whenua the opportunity to maximise the resources they do have to achieve the vision they have for their takiwa.

7.1 Tangata whenua need to consider the potential costs and obstacles of their participation in a collective

- For whanau and hapu that are in the pre settlement phase, collaborations may require an early and substantial investments of time, financial resources and human resources. This could be a serious issue, as the requirement may be unaffordable.
- There may be explicit conflicts among participants who have different power bases, which, in the absence of protection measures, may bring about negative outcomes for Tangata whenua;
- There could be a risk of unsustainable outcomes resulting from negotiated agreements because of underestimated problems or new intervening factors (e.g. changes in the economic conditions).

7.2 Some considerations for Tangata whenua engagement in collaborations

Legal feasibility

- Is there a legal mandate as well as a tikanga based mandate to represent Tangata whenua interests?
- What are all the structures representing Tangata whenua interests within existing legal frameworks?

Political feasibility

- What is the traditional history of resource management and resource use in the area?

- Is there political will and the capacity to implement decisions of the collective?
- Do Tangata whenua have confidence in the participatory process?
- Are Tangata whenua better served by the absence rather than the presence of collective processes?
- Are Tangata whenua better served by negotiating directly with the Crown?

Institutional feasibility

- What is the status of the inter-organisational relations (and are their historic or possible conflicts)?
- Are Tangata whenua already a party to existing examples of multiparty resource management entities and rules?
- Are Tangata whenua confident they can organise themselves and identify representatives to convey their interests and concerns?
- Are Tangata whenua better served by an iwi led governance / co-governance initiative?

Economic feasibility

- Do Tangata whenua have an interest in economic opportunities and alternatives to the current use, development and protection of resources?
- Are Tangata whenua confident they can convey their economic interests and balance these with their social, cultural and eco-cultural aspirations?
- Are Tangata whenua economic interests better served by participation in the collective?

Cultural feasibility

- What are the outcomes sought by Tangata whenua? How have these been articulated?
- What are the alternative means of achieving these outcomes if Tangata whenua do not join the collective?
- What are the Tangata whenua systems of resource management in this context?
- What are (or were) their main features and strengths?
- Who is keeping them alive? Who has a living memory of the systems (for instance, are there kaumatua who practiced them and still remember “how it was done”)?
- What is sustaining or demeaning them?
- What factors affect communication and engagement with Tangata whenua in collaborations, including:
 - language and terminology barriers
 - degrees of access to information
 - attitudes, for example with regard to speaking in public or defending cultural positions
 - media used in the particular context

8.0 REFERENCES

PART 3: WORKSHEETS TO GET STARTED

WORKSHEET 1: IDENTIFYING CAPACITIES WITHIN THE HAPU

Steps	Some questions to ask	What can we do
Identify the strengths in your whanau	What talents? Skills? Knowledge? Kaumatua? Men? Women? Rangatahi?	
	What are the strengths and resources of members?	
	What are the strengths and authority in <ul style="list-style-type: none"> • tikanga based governance • matauranga? 	
	What are the hapu resources, new capacities and opportunities?	
	What are the main components of the wider governance system? Rules for the organisation? Policies? Infrastructure?	
Identify who are the people important to achieving hapu aspirations that you may need to work with	What are the local knowledge and skills specifically relevant to the hapu initiatives?	

Identify the people important to building your governance systems	Who are your emerging leaders and managers and what strengths do they have?	
	Who are the people who have special skills and abilities related to governance?	
Identify important relations and connections	What are the connections between your emerging leaders, managers and hapu members – individuals and whanau	
	What are the connections between hapu members and those on the governing board?	
	What are the connections between the organisation's members and others in the community?	
	What are the connections between your leaders, managers and those in the wider regional and national levels?	
	What are the connections between your organisation and others such as NGOs?	
	What are the common problems?	

Build on the knowledge and skills you have identified	What capacities do you need to address these problems? Who in the wider environment has these capacities?	
	Who can you work with collaboratively to address these problems? What resources, skills, talents could they bring to a collaboration	
	How do you want the collaboration to work? What will your role be?	

WORKSHEET 2: EVALUATING DIFFERENT RESOURCE USERS, MANAGEMENT AGENCIES AND GOVERNANCE TYPES WHO CAN HELP REALISE CULTURAL OUTCOMES

Governance type	Governance managed area and resources			Co-managed areas and resources	Privately owned areas & resources			Community areas / resources	
Categories	National – Ministry or Dept managed	Regional government managed	Government delegated management to NGO	Various forms	Run by individual landowner	Run by not for profit organisation (e.g. Trust, NGO)	Run by for profit organisation (corporate or individual)	Declared and run by local community	Run by representatives of Manawhenua
Mahinga kai sites									
Mahinga kai resources									
Wahi tapu / wahi taonga									
Cultural landscapes									
Historic sites									
Ancestral lands									
Mahinga kai gathering sites									

WORKSHEET 4: A MATRIX TO HELP WITH IDENTIFICATION OF THE DRIVERS WHY POTENTIAL PARTNERS WILL WANT TO COLLABORATE

	Legal	Physical	Ecological	Scientific / Technological	Socio-cultural	Infrastructural	Economic
Local							
Regional							
National							
International							

WORKSHEET 5: SOURCES OF HISTORIC DATA

CULTURAL BELIEF, VALUE, PRACTICE	DATA SOURCES
Whakapapa	<ul style="list-style-type: none"> • Maori whakapapa files • Whanau manuscripts • Iwi resource management plans • Maori Land Court records
Te Taiao	<ul style="list-style-type: none"> • Original survey maps (e.g. Black maps) • Maps drawn by explorers • Journals of early explorers and surveyors • Examples of indigenous cartography • Newspapers • Paintings (sourced from National Library) • Photographs (sourced from national and regional libraries) • Historic text • NZAA site records
Rangatiratanga	<ul style="list-style-type: none"> • Original Purchase Agreements • Maori Land Court minute books • Original land titles • Evidence submitted to hearings including Waitangi Tribunal • Petitions to Government (found in AJHR) • Legal descriptions for lands found in the New Zealand Gazette
Mahinga kai / resource base	<ul style="list-style-type: none"> • Cultural map (e.g. the 1880 map) • Whanau manuscripts • Text from early ethnographers (e.g. Beattie) • Paintings (sourced from National Library) • Photographs (sourced from national and regional libraries) • NZAA site records
Socio – economic	<ul style="list-style-type: none"> • Petitions to Government (found in AJHR) • Journals and reports of Government employees tasked with allocating reserves and assessing living conditions of Ngai Tahu • Evidence submitted to hearings including Waitangi Tribunal

WORKSHEET 6 - PARTICIPATORY MAPPING

Again a flexible interviewing style recognises that attention had to be paid to both mapping techniques and mapping elements. Maps were made based on a participatory mapping method, to explore and document indigenous knowledge related to spatial locations that could then be linked with GIS. Key informants were asked to draw data directly onto a topographical map. Environmental characteristics of sites were also recorded.

Those using participatory mapping need to accept that this style of mapping differs from conventional digital mapping in terms of accuracy because it is concerned with memories and observations of specific areas. Not all informants knew and accessed every fishing ground. Selecting informants who represented the diversity within the hapu was important and the group of informants was carefully selected composed of kaumatua, fishermen and tangata tiaki. Using this technique also recognised that visual depictions, especially maps, are an important tool for communicating with hapu and whanau. They can be used on a small scale within a specific area but also have the potential to integrate with GIS to further manipulate and analyse data in different themes or layers to produce a map that can be useful for a range of planning purposes.

Participatory mapping starts with collective discussions among groups of community members and then proceeds to drawing maps of their perceptions about the geographical distribution of environmental, demographic, social and economic features in their territory.

The participants are usually requested to draw their own map, e.g., on a flipchart or on the ground, plotting features with symbols that are understood and accepted by all members of the group, regardless of literacy. In certain cases, purchased maps, aerial photographs or basic drawings on paper or on the ground can be used as a basis for the participatory exercise.

Purposes

Participatory mapping is useful for providing an overview (or 'snapshot') of the local situation. It can also serve as a good starting point for environmental and social assessment.

Periodically repeated participatory mapping may help in monitoring and evaluating changes in the distribution of social resources (e.g., infrastructures like schools and health units) and in the use of natural resources. 'Historical' and 'anticipated future' mapping (i.e., drawing a series of maps referring to different moments in time) are versions of participatory mapping that are helpful in describing and analyzing trends over time.

Steps in using the technique

Explain the purpose of the exercise to the interest group. Agree on the subject of the mapping exercise and on the graphic symbols to be used; participants choose their own symbols. Ask a participant to be responsible for drawing or plotting symbols according to the suggestions of the group. Promote participation of all interest group members by posing questions to several individuals; allow the group to discuss different opinions and perceptions.

Once the map is finalized, ask participants to interpret the overall picture; if appropriate, suggest that they identify the main problems revealed by the map and ask them about possible solutions within the locally available resources (which are already drawn, or could now be drawn, on the map).

Remember that the map is Tangata whenua property; leave the original in them and make copies of it if other uses are foreseen and Tangata whenua give permission.

Strengths

- Mapping and the associated discussions quickly provide a broad overview of the situation.
- They encourage two-way communication. They help people in seeing links, patterns and inter-relationships in their territory. Individuals who are illiterate can also participate.

Weaknesses

Subjectivity and superficiality: mapping exercises must be complemented by information generated by other participatory assessment tools. Some cultures may have difficulties in understanding graphic representations.

WORKSHEET 7 - HISTORICAL MAPPING

Historical mapping uses a series of participatory mapping exercises to portray the demographic and natural resources situation of the community at different moments of its history. Usually, three maps are drawn, showing the situation as it existed one generation ago, at the present time, and what is expected after one generation's time in the future. Demographic information can be plotted as household symbols or circles to represent 10 or 100 people.

Purpose

Historical mapping can be extremely helpful to introduce the time dimension in participatory environmental appraisal and/or participatory census exercises. It can provide visual evidence of changes that have occurred and expected trends. In this way it can help identify determinants of environmental degradation and population dynamics and enables participants to consider suitable means of moving towards a desired future.

Steps in using the technique

1. A map of the current demographic and environmental situation is drawn with participants.
2. With the help of elderly community members, the same exercise is repeated to show the situation as it was approximately twenty years ago. The current and past maps are then compared, often with a brainstorming, to collectively identify major changes and their root causes. Based on the list of changes and causes, a prospective map can be drawn by the participants to show their expectations of the situation which will exist in the community in 20-30 years from now, if the current trends are maintained.
3. The future map can be reviewed to explore differences between what is projected and what a desirable future status would be. The discussion can progress to identify potential means for addressing environmental degradation and population dynamics.

Strengths

The technique can be very appropriate to summarize the results of a comprehensive participatory appraisal on environment and population dynamics. It may increase participants' understanding that most positive and negative changes in environments and populations are shaped by historical, man-made actions. It can help to identify mid- or long-term solutions to the population and environment problems affecting the community.

Weaknesses

The exercise is long and complex. Three sessions with the group may be needed to get through the whole sequence of mapping and discussion. Sensitive issues from the past may be raised, including conflicts within the community and between the community and outsiders. The analysis is likely to identify effects and causes which are beyond community control. Discouragement and frustration may develop among participants.

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WORKSHEET 9 – DEVELOPING CONCEPT MAPS

What are Conceptual Models?

Restoration is a dynamic intervention that takes place in complex situations. The context within which they occur usually involves an intricate interaction of social, political, economic, cultural, and environmental factors. Moreover, conservation project managers are forced to learn more about and adjust to the constantly changing context within which their projects take place. Given these complexities, it is particularly important for conservation practitioners to carefully consider the situation in their project sites when they plan their interventions. Unfortunately, practitioners rarely have the time or resources to conduct this level of project planning. A conceptual model, however, is an easy-to-use tool that can help a project team understand and logically illustrate the circumstances occurring within their project site.

Conceptual models – or variations of them – have been used in fields like international development and public health for at least two decades. Recently, this tool has been utilized in the project planning processes of major conservation organizations across the world. Similar tools that have historically been used for the same function are decision trees, concept maps, and logic models. Among these tools, conceptual models do the best job of explicitly depicting the interrelatedness among the factors affecting the biodiversity of a given site (Margoluis et al. 2009).

A conceptual model is a tool for visually depicting the context within which a project is operating and, in particular, the major forces that are influencing the biodiversity of concern at the site. A conceptual model is a diagram that uses a series of boxes and arrows to succinctly represent a set of causal relationships among factors that are believed to impact one or more opportunities. A well-developed model explicitly shows the relationships among the main contributing factors that impact the opportunities.

Why Conceptual Models Are Useful

A conceptual model is an illustrative yet succinct way of documenting the textual results of your situation analysis. Ideally, you will have already completed a situation analysis that details your team's understanding of the project site – including the biological environment and the social, economic, political, and institutional systems that affect the conservation targets you want to conserve. Your conceptual model can then serve as a tool for documenting the results of your situation analysis in a clear and concise manner. You and your project team can also develop a conceptual model based on your collective, existing knowledge, regardless of whether you have completed a formal situation analysis. Either way, a conceptual model cannot replace a situation analysis, and must be based on sound information and data. Conceptual models can further be used to identify which factors at your site (indirect

or direct threats, opportunities, or conservation targets) are the most strategic factors for you to try to influence, and what type of strategies would be most appropriate for doing so.

A conceptual model is one of the most helpful and versatile tools you will use for your project planning. The process of building a conceptual model with your project team helps all team members explicitly state their assumptions about what is happening at your site and collectively come to an understanding about your site and what you need to do as a team. The model itself is a useful communications tool for your project team, as well as for people outside of your project. It provides a quick, easy-to-understand overview of your project site and the rationale for your project's goals, objectives, and strategies. Ideally, your conceptual model should reflect information from your situation analysis, as well as input from key stakeholders. At a minimum, your project team should consult with stakeholders and other experts and then reconvene to discuss how you might change your model based on this outside input. Additionally, you should revisit your conceptual model at least once a year to determine if there are any new threats or factors (or ones that you may have missed in your earlier model) that are now affecting your targets. If so, you will need to make decisions about if and how you will address them.

Components of a Conceptual Model

Opportunity sought: An element of biodiversity at a project site, which can be a species, ecological community, or habitat/ecological system on which a project has chosen to focus.

Impact: A factor that positively or negatively influence one or more opportunities sought

Cause: The activity or action that whanau believe is impacting the extent to which the aspirations of whanau will be realised.

Building a concept model

The conceptual model is essentially made up of three parts—

7. the opportunity sought by whanau (at the top);
8. the causes of potential problems (at the bottom);
9. and the impacts of the causes (or the steps/relationships between the cause and opportunities (in the middle)).

1. Aspirations of whanau

Go to the top Start listing the opportunities sought. List the opportunities in boxes at the top of the next page.

2. Start at the end: Define the causes as perceived by whanau

The causes are the endpoints for the conceptual model. Add the causes in boxes at the bottom of the next page. Put each cause in its own box on the worksheet. Be as specific as possible. Keep the causes on the same sheet (don't make a separate model for each cause). You might find that the causes are linked in unexpected ways.

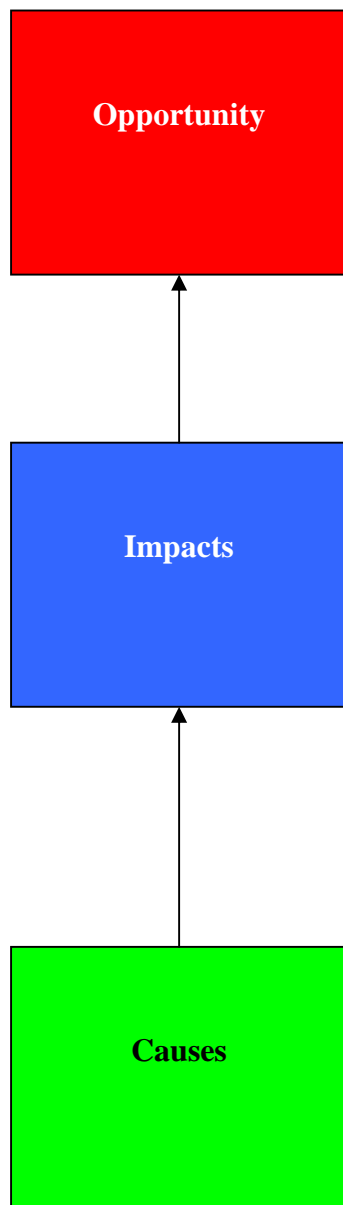
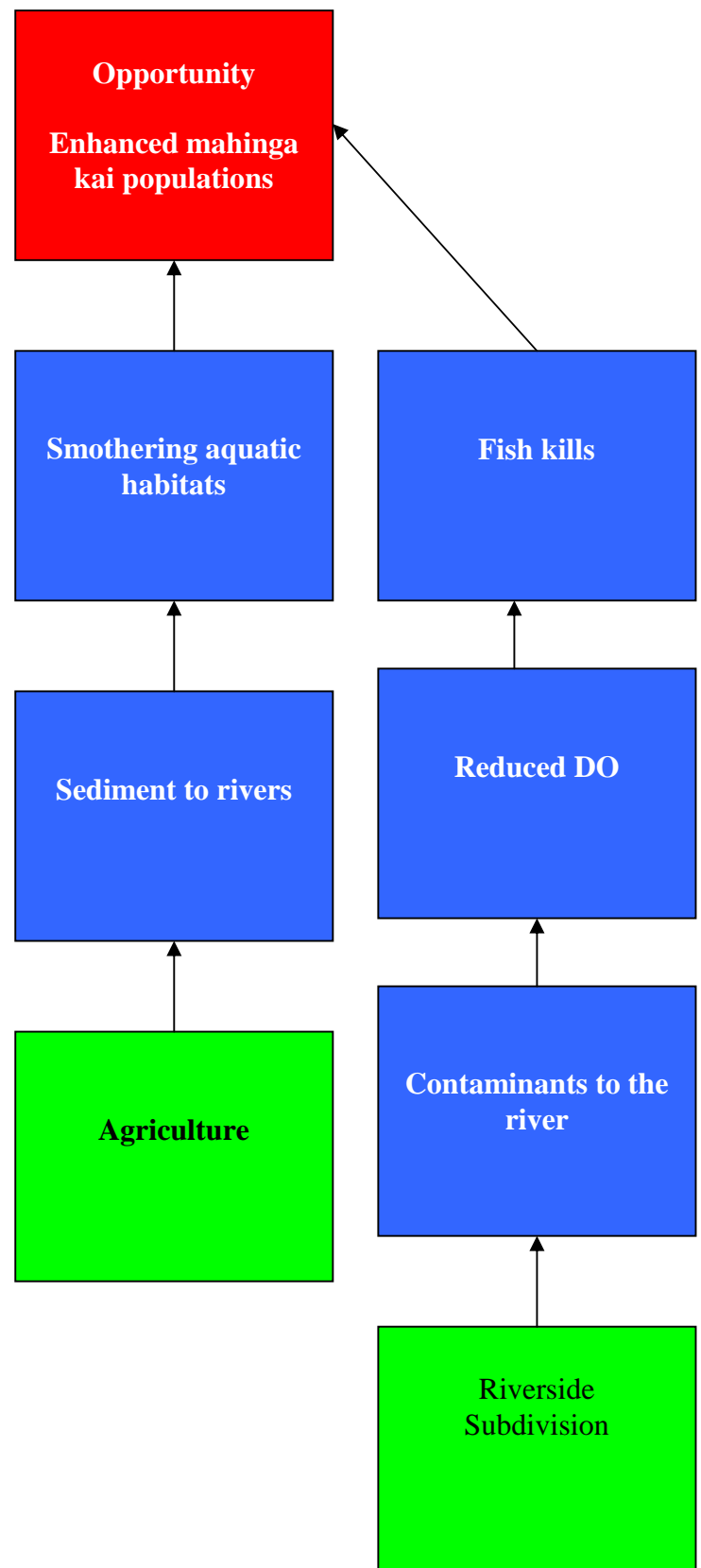
3. Identify the impacts that link opportunities to causes

These boxes provide the links between the cause and the opportunity.. Draw in as few or as many impacts as are needed to show cause and effect so that you can see what causes the impacts that will determine whether or not the opportunities sought are going to be realised. .

4. Connect the opportunities, impacts, and causes

Start drawing arrows between the opportunities , impacts and causes.

The purpose is to record the perceptions of whanau. Some of the causes, impacts or relationships – when investigated may prove to be incorrect. However it is important to understand how whanau see the issue.

Components of the model**Example**

Opportunity 1:

[illegible]