Restoring the *Mauri* of Oruarangi Creek

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**Abstract** In recognition of the societal and cultural values of ecological restoration several community-based programs have been developed throughout the world. In particular those with interests in the field of freshwater and riparian management have developed numerous programs to encourage community involvement in their management. While each of these programs gives de facto recognition to an ethos typically espoused by indigenous peoples, the concerns, values and localised knowledge of indigenous peoples continues to remain excluded from the management process. In documenting key aspects of the proposed restoration of Oruarangi Creek this paper aims to provide an example of how the concerns, values and knowledge of local indigenous communities can form a major component of the restoration process.

**Keywords** Community involvement; indigenous knowledge; Maori; waterway restoration

**Introduction**

In the last decade it has been increasingly recognised that the key to effective resource management includes the adoption of a holistic ethic amongst resource managers. This ethic, often espoused by indigenous peoples, places people within and as part of nature (Roberts *et al*., 1995; Ellen and Fukui, 1996). Specifically this ethic argues that long term, sustainable restoration practices need to occur at the local level, involving both local knowledge and local resources. “Action needs to occur at the local level being owned by the local community and implemented through the networks and support available to them” (Hett and Fraser, 1995).

The practice of ecological restoration has only very recently begun to embrace this ethos. A recent review of current literature has revealed that an increasing number of restoration academics and practitioners recognise the societal and cultural value of restoration (e.g. Cairns, 1993, 1998; Kane, 1994; Turner, 1994; Edwards *et al*., 1997; Parker and Pickett, 1997; Harker *et al*., 1999; Williams, 2002). As Craig and Stewart (1994) and Sauer (1998) have stated, the most important conditions for a restoration project are that it be community based. In their words “the act of restoration is one of the most powerful vehicles for fostering awareness of place and environment”. Encouraging local information-gathering as part of this process can increase knowledge and empower people through “ownership” of the problem. Through active involvement volunteers learn about the cultural history of a specific site in addition to its natural history. Through active involvement, volunteers not only help to ensure restoration outcomes, but also in the process they develop a conservation ethic. As Kane (1994) puts it “restoration theory champions a model of community participation”.

In recognition of the above, restoration managers throughout the world have sought to actively involve local communities in the restoration process. In particular, those with interests in the field of freshwater and riparian management have developed numerous programs to encourage community involvement in their management.

In Australia for example, a number of local and nationwide examples have been developed which specifically aim to promote water quality monitoring as a means of creating and/or enhancing an ownership ethic for broad scale land and water management by the
community. These include the Melbourne Parks and Waterways Program as well as the “Streamwatch Program” developed by the New South Wales Department of Land and Water Conservation (refer Mobbs, 1995).

Similarly, the United States has a number of “Streamwatch” programs. These include the Adopt-a-Stream Foundation in Washington, “Streaminders” in California, and many others (refer Riley, 1998). The success of the United States programs is evident in the fact that in 1995, there were more than 26,000 participants involved in stream restoration across 38 states (Riley ibid).

New Zealand also has a number of similar community-based programs. Examples that have had particular success include the Environment Waikato monitoring assessment programs for schools and community groups called “Stream Sense” (refer Environment Waikato, 1998); the Christchurch City Council developed waterways and wetland restoration programs, which seek to create partnerships with community stakeholders (refer Morland et al., 1999). And the Waiicare program developed by the Auckland Regional Council, which runs a number of community workshops that seek to educate and provide resources for basic water quality testing (refer ARC, 2001).

In spite of the fact that such community-based programs give de facto recognition to an ethos typically espoused by indigenous peoples, the concerns, values and localised knowledge of indigenous people generally remain excluded from the restoration process (Berger, 1976; Smith and Prystupa, 1997; Shindler and Cheek, 1999; Natcher, 2000). This is certainly evident in New Zealand. Despite the existence of the Treaty of Waitangi (1840) whose second Article guarantees Maori absolute authority over their resources, and of legislation such as the Resource Management Act (1991) which mandates the involvement and identification of the concerns, values and knowledge of Maori, many restoration programs continue to be developed without local Maori involvement. In a recent study it was found that only 12% of government departments involved in restoration involve Maori at any level (Mills, unpublished data).

While there are numerous cases where Maori have been excluded as partners in the restoration process, the proposed restoration of Oruarangi Creek serves as a particularly relevant example of how the concerns, values and knowledge of the local indigenous community can form a major component of the restoration process. The aim of this paper is to briefly outline the cultural and historical background to this restoration project, and the process whereby a restoration plan for Oruarangi is being developed.

**Oruarangi Creek**

Located within Auckland City close to the international airport at Mangere, Oruarangi Creek drains a catchment of 615 ha into the south-eastern corner of New Zealand’s second largest harbour, the Manukau. Largely low relief, this creek system extends for 2.2 kilometres and in its former tidal condition was up to 150 m wide in its lower reaches. The catchment area is surrounded by extensive agricultural, horticultural and industrial practices as well as the small residential village of Ihumatao (Figure 1).

Since European settlement in the 1800s, the catchment has been subjected to an increasing array of adverse land and water uses, of which the most severe and detrimental was the construction of the Mangere Wastewater Treatment Plant (MWTP) in 1959.

Constructed in response to public concerns about the discharge of untreated sewerage into the neighbouring Waitemata harbour, the MWTP was developed on the south-eastern shores of the Manukau Harbour. The treatment plant consisted of four oxidation ponds and in constructing pond number one a bund was placed at the mouth of Oruarangi Creek. This subsequently closed the creek to tidal flow, a process that forced the creek to rapidly convert from an estuarine system to one totally comprised of freshwater. As a consequence of
the rapidly changed conditions much of the catchment’s estuarine-associated vegetation underwent mass die-off. All saline-dependent fin and shell fish within the creek were killed and the lifecycle of migratory species such as eels was obstructed through construction of the concrete bund.

Today the creek’s catchment and aquatic system is visibly degraded. In a recent analysis commonly used indicators were employed to determine the catchment’s “health”. The following is a list of key findings.

• Riparian vegetation throughout the catchment has been extensively fragmented
• Indigenous forest remnants have been largely replaced with exotic plant species
• Several weed species with the ability to suppress native regeneration are present throughout all forest tiers of the catchment
• Due to a lack of quality and quantity food sources within the catchment, only vagrant and sporadic, rather then resident, native bird communities are present
• Several species of predatory and herbivorous mammals have invaded the catchment
• Dissolved oxygen levels as low as 1.27 mg/l–1 during summer, being below the ANZECC (2000) recommended minimum level of 3.5 mg/l–1
• Extreme fluctuations in nitrate (range: 0.79 mg/l autumn – 29.18 mg/l–1 spring) and phosphate (range: 0.4 mg/l–1 winter – 5.25 mg/l summer)
• Summer water temperatures (mean 20.5°C) above the tolerance levels (20–22°C) of many New Zealand native fish (refer Richardson et al., 1994)

Today the MWTP is managed by Watercare Services Ltd (WSL), which is currently undertaking Project Manukau, a project that will see all oxidation ponds decommissioned and replaced with a land-based treatment system. In gaining resource consent for the works associated with the upgrade, WSL has been obliged by the Auckland Regional Council (the consenting authority) to restore “to its former condition” a defined restoration area which includes the Oruarangi Creek.

In addition to complying with the conditions stated within resource consents pertaining to Project Manukau, WSL are also required by Sections 6(e) of the Resource Management Act (1991) to “recognise and provide for the relationship of Maori to their ancestral lands, water, sites, waahi tapu and other taonga”. Section 8 of this Act also requires WSL to “take into account the principles of the Treaty of Waitangi”. Foremost among these is the principle of “active protection” of Maori interests. Recognition and implementation of these provisions of the Act is particularly relevant to this case, given the location of Makaurau Marae in the lower reaches of Oruarangi Creek.

Relationship between Oruarangi Creek and the people of Makaurau Marae

The people of Makaurau Marae descend from Auckland’s oldest tribal occupants (Te Wai O Hua) who controlled the isthmus throughout the 17th and 18th centuries (Stone, 2001). Traditionally the people of Makaurau Marae lived a self-sufficient lifestyle based on the abundant resources provided by Oruarangi Creek and the adjacent waters of the Manukau Harbour. Oruarangi contained several hoopua (pools) which were renowned fishing spots. Shell fish were regularly collected using traditional gathering methods and tuna or eels were found here in abundance. Three haupapa (landing and launching places) were located within the creek while several puna or springs within the vicinity were highly valued for their constant supply of freshwater. Most importantly, on the banks of the creek the people of Makaurau Marae buried their ancestors in their tribal urupa (cemetery).

To the people of Makaurau Marae therefore, this creek and its surrounding catchment had both cultural and spiritual values, which form the basis for their relationship with this creek.

Fundamental to the spiritual side of this relationship is the concept of mauri, which can be translated as “life force” (Harmsworth, 1995; James, 1995). To Maori everything inanimate and animate has a mauri, or life principle. The concept of mauri has particular relevance to the restoration of Oruarangi Creek, for Maori believe that every waterway carries its own mauri that is guarded by separate spiritual and tribal caretakers (Tipa, 2000). Mauri is integral to and conceptualised in another concept, that of whakapapa (loosely translated as a “genealogy”). As depicted in Figure 2 the concept of whakapapa links all aspects of the universe through the union of Ranginui, the male principle or “sky father” and Papatuanuku, the female principle or “earth mother”. It was through the union of these two primal parents that several offspring, being all supernatural beings, were born and ultimately became responsible for, or the guardians of, particular natural phenomena (Roberts et al., 1995). Offspring of direct relevance to the issue of waterways are Tutewehiwehi the tutelary being (sometimes called an atua or “god”) of inland waters, and Tane Mahuta, the atua of forest trees, birds and insects.

In addition to the concept of mauri and whakapapa is that of kaitiakitanga, or the act of guardianship. Through their common ancestors Maori traditionally saw their role in the universe as the interface between the secular and spiritual worlds, they were therefore responsible as kaitiaki (guardians) to protect the realms of their atua (refer Harmsworth,
These atua are at one and the same time progenitors, personifications and supernatural kaitiaki or guardians of their creations. Humans, the last born of Tane have responsibility for being earthly kaitiaki. The act of guardianship, called kaitiakitanga is also legislated for in the RMA (1991) Section 7(a). This requires WSL to have particular regard for the role of the people of Makaurau Marae as kaitiaki of Oruarangi Creek.

The concepts of mauri, whakapapa and kaitiakitanga all underlie and cement the physical and spiritual relationship between the people of Makaurau Marae and Oruarangi Creek. However, with the creation of the MWTP and its resultant pollution and degradation of Oruarangi Creek, the mauri of this creek has been severely affected. The ill health of the creek has impacted in turn on the health of the people, so that they too believe they are suffering spiritual and physical ill health. Their inability to provide food for themselves and their wider iwi (tribe) from the creek and adjacent sea has also meant a loss of mana (esteem; status).

Restoration of the mauri of Oruarangi and the mana of its people

1. The Deed of Benefit. It was through the cultural and spiritual value of the creek that the people of Makaurau Marae first became involved in the creek’s proposed restoration. In 1997 they sought legal advice on the formation of a deed to mandate their involvement. Known as the Deed for the Benefit of Makaurau, this legally enforceable document states that WSL, in addition to meeting other statutory requirements, are required to

- Consult in good faith with the Makaurau Marae Trustees with a view to taking reasonable steps to enable active working participation by Makaurau (s. 3.1f)
- Ensure the restoration of Oruarangi Creek as far as possible to its former intertidal state (s. 3.1h)
- Develop in conjunction with Manukau City Council (the local city council) and Makaurau Marae Trustees a staged program for the restoration work (s. 3.1hi)

The Deed therefore recognises both the cultural and spiritual significance of this creek to the people of Makaurau Marae and ensures that the concerns, values and knowledge of the local community are integrated within the restoration process.

Outcomes of the Deed to date include

- Open and closed meetings of Makaurau Marae representatives with key WSL staff with the purpose of “airing” concerns of the local Maori community.
• Incorporation of the practice of cultural rituals by local *kaumatua* (elders) in the decommissioning of the oxidation ponds and their resultant reinstatement to tidal flow
• Formation of an iwi participation plan that details matters in regards to the active involvement of the people of Makaurau Marae in the restoration process
• Establishment of a native plant nursery on Marae land to be funded and resourced by WSL
• Employment and training of members of Makaurau Marae in horticultural practices in regards to the development of a future horticultural enterprise by the Marae

2. *A proposed restoration plan combining cultural and biophysical values.* Restoration of Oruarangi Creek is scheduled to commence in 2004 as part of the works associated with the MWTP upgrade. With this timeframe in mind, the University of Auckland was approached several years ago for assistance with developing a restoration plan for Oruarangi which included the cultural values of its people in addition to the biophysical parameters typical of restoration projects.

A survey to determine the values of the people of Makaurau Marae place on this creek and wish to see manifested in any restoration project has been undertaken as part of a Ph.D research project by the author.

Gaining information on Maori values in a context suitable for resource management has many associated difficulties (Harmsworth, 1995). Social anthropological methodologies are often deemed inadequate and/or inappropriate for documenting cultural and spiritual information. Given this, Harmsworth (1997) set out about developing a methodology suitable for use in resource planning. His methodology aims to assess *mauri* and establish inventories of *taonga* (all things prized, both tangible and intangible (Williams, 1992)). As part of this process, the methodology requires Maori communities to fill out a monitoring form that includes the scoring of key cultural and spiritual values (refer Harmsworth, 1997).

Using this approach, a methodology suitable for determining the cultural and spiritual value of Oruarangi Creek to the people of Makaurau Marae was developed. By asking the Maori community to record the degree of change that they have observed and to rate the impact such changes have had on the creek and its surrounding catchment it was possible to determine the degree of cultural and spiritual significance this creek has to the people today, the degree of their knowledge base and the importance they place on the creek’s restoration. Although only tentatively analysed at this stage key findings include that all respondents blame the creek’s degradation on the construction of the Mangere Wastewater Treatment Plant. It was at this time that the community noticed a decline in both fin and shell fish species as well as an overall reduction in native birds within the catchment. In terms of the importance of this creek the community state that the creek was once a “source of pride and pleasure” but today it is a “disgrace”. In terms of rehabilitating the creek the community agreed that given the cultural and spiritual value of this creek it was extremely important that Oruarangi Creek be restored not only to enhance its ecological values but also to enhance the mental, emotional and social health of the local Maori community. In regards to the process which the creek’s rehabilitation should follow, the majority of the community felt it was important that efforts concentrate on improving water quality, removing excess sediment, planting native plants, improving habitats and ensuring that all local stakeholders are involved. In concentrating efforts on these factors the people of Makaurau Marae felt that the flow on effects would ensure that the creek’s cultural and spiritual values would be subsequently enhanced. They also expressed their desire to be involved in each stage of the restoration process and in particular in the decision making and management process.
Plate 1  Oruarangi Creek in 1955, prior to the placement of the MWTP at the creek’s mouth. *Photo courtesy of WSL*

Plate 2  Oruarangi Creek 1999, showing surrounding industrial, agricultural and residential land uses and the oxidation ponds (top left). *Photo courtesy of WSL*

Plate 3  Wandering jew (*Tradescantia fluminensis*) infestation along stream banks

Plate 4  Upper reaches of Oruarangi Creek showing recent weed eradication measures

Plate 5  Rubbish sites such as this are featured throughout the catchment

Plate 6  The mouth of Oruarangi Creek showing extent of exotic macrophyte infestation

Plate 7  The mouth of Oruarangi Creek showing the oxidation ponds in the background, pump station (top right) and the extent of macrophyte infestation

Plate 8  Makaurau Marae, the ancestral meeting place of the local indigenous community. *Photo courtesy of Mrs Haupuru Harwood*
In determining the concerns and values of the people of Makaurau Marae, it is now possible to set about making appropriate provisions for such values to be incorporated into the restoration process. While a number of these have already been achieved it is essential that provisions are now made to ensure that level of involvement by the people of Makaurau Marae remains continuous.

**Conclusions**
This project affirms the role that local communities should have in the restoration process and furthermore highlights the specific value of local indigenous community involvement in ecological restoration. The success of this project to date reflects not only a recognition of the knowledge and values of the people of Makaurau Marae by all stakeholders involved, it also reflects the genuine commitment the people of Makaurau Marae have to the ecological, cultural and spiritual restoration of this creek. In order for the benefits of this project to be gained in all restoration projects, restoration managers need to begin to genuinely recognise the value in community-based restoration efforts and begin to give more than de facto recognition to indigenous value systems. Until then the site-specific knowledge of indigenous peoples will continue to be lost and restoration efforts will continue to proceed on a trial and error basis and in the absence of essential historical information.

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