

Restoring Mauri to Contaminated Land – Learnings from Rotoitipaku

McMillan, O.W.T. ^{1, 2}, Morgan, T.K.K.B ^{1, 3}

¹*Mahi Maioro Professionals*

²*Ngāti Porou*

³*Ngāti Pikiao, Te Arawa*

The Ministry for the Environment estimates that there are about 20,000 contaminated sites in Aotearoa, typically associated with industrial activities around pesticides, coal, oil and gas, mining, timber treatment, and sheep dipping. These sites can have long-lasting and irreversible impacts on the health of humans and ecosystems. They can also impact mauri in a number of ways, such as reducing the ability of tangata whenua to act as kaitiaki, to practice mahinga kai, and to maintain wāhi tapu. This aspect of contaminated land management has not been widely studied to date.

This research focuses on Rotoitipaku, near Kawerau, Bay of Plenty, which is a taonga site for Ngati Tūwharetoa iwi. The lake and associated wetlands are a part of Te Kete Poutama and include an urupā, a taniwha known as Irakewa, and hot springs used for recreation by tangata whenua. The lake, which drained to Te Awa O Te Atua (Tarawera River), is rich in ecological diversity and geothermal activity. In the 1950s, Tasman Pulp and Paper Mill was given special dispensation to use the lake as a disposal site for solid and liquid paper mill waste, which removed the ability of tangata whenua to act as kaitiaki. By the time the dumping ceased in 2013, it was estimated that about 600,000 tonnes of solid and liquid waste had been dumped into the Lake, which is now entirely buried. Several environmental investigations have been completed to assess the behaviour and leaching of contaminants in the landfill, as well as the stability of the bunds which hold the waste in place. Exceedances of applicable regulations have been found for many parameters, including arsenic, lead and ammonia. The filling has resulted in significant destruction of the Mauri of the site, due to the importing of waste material, the introduction of contaminants, the uncertainty around stability of the bunds, and the destruction of culturally important habitats, recreation areas and food sources.

This presentation will cover the impacts to mauri using the Mauri Model – a tool which has been widely used to measure sustainability using the concept *mauri*. This research builds on a previous assessment in 2011 and takes into account new considerations for the rehabilitation stage of the site. It will highlight the most significant factors relating land contamination to negative impacts on manawhenua, including ability to practice traditional activities such as mahinga kai and kaitiakitanga, and consider broader implications for the management and restoration of other contaminated sites in Aotearoa.

Biography of presenting authors

Oliver McMillan, BE(Hons), PhD.

Oliver McMillan (Ngāti Porou) is an environmental engineer with expertise in contaminated land investigation and remediation, and the use of indigenous decision-making tools. He completed a Bachelor of Engineering (Honours) at the University of Auckland, where his research involved impacts of Rotoiti water level management on Mauri. He then completed a PhD at the University of Cambridge, which focused on developing biochar as a tool for remediating contaminated soil in a sustainable way. He has recently returned to Aotearoa after two years in Canada, which included work with First Nations to develop community-led environmental monitoring programs and decision-making tools.

Kēpa Morgan, BE, MBA, PhD, CPEng, FIPENZ

Kēpa and his whanau are flourishing on traditional lands, Haumingi 10a2b Papakāinga, on the southern shores of Te Roto I kite ai e Ihenga I ariki ai a Kahumatamomoe. Current research focuses on ecosystem impact assessment and empowering Iwi in relationships with regional and local government. Research includes culturally sustainable roading/water supply/wastewater/stormwater infrastructure, mauri o te wai, Pohewa Pae Tawhiti land use change communication framework, rail corridor impacts, mauri monitoring, geothermal development framework, safe to fail wastewater reticulation, climate change impacts, assessments for sustainable dairy and sustainable forestry, marine spatial planning, and creating new maramataka-based understandings of mauri.