Manaaki Taha Moana (MTM) is a research programme to restore and enhance coastal ecosystems and their services of importance to iwi/hapū, through a better knowledge of these ecosystems and the degradation processes that affect them.

We utilise Western Science and Mātauranga Māori and participatory modelling tools and processes to assist iwi/hapū to evaluate and define preferred options for enhancing/restoring coastal ecosystems. This evaluation of options is assisted by innovative IT and decision support tools (e.g. digital libraries, simulation modelling, interactive mapping, 3D depiction, real-time monitoring).

Action plans are being produced for improving coastal ecosystems in each of the case study regions.

The research team works closely with iwi/hapū in the case study regions to develop tools and approaches to facilitate the uptake of this knowledge and its practical implementation.

Mechanisms will also be put in place to facilitate uptake amongst other iwi throughout NZ.

Enhancing the expression of kaitiakitanga with the aid of information technology

MTM Research Providers

Taiao Raukawa

Manaaki Te Awanui

Massey University

CAWTHRON Institute

Waka Digital
Participatory 3 dimensional modelling (P3DM) is a communicative tool Manaaki Taha Moana used and is aimed at facilitating grassroots participation in problem analysis and decision-making. As the bottom photographs below indicate, we have refined and developed this 'grassroots' idea as depicted in the top photographs, into a tool that utilises emerging information technology and systems design. Once the Tauranga case study region have had their respective terrestrial and coastal ecosystems mapped, this digital information can be used by hapū to develop participatory 3 dimensional modelling environments.

The 3D model is based on 3 highly visual components. First, a physical 3 dimensional digital elevation model is draped over a case study base map that includes terrestrial and marine ecosystems relevant to the case study region.

Second, spatially referenced information derived from existing GIS layers, monitoring activities are projected onto the 3 dimensional response surface using a very high resolution digital projector. In this way, the 3 dimension response surface can be used to move between and explore all lines of spatially explicit evidence relevant to a matter or problem being considered.

Participants can not only interact with evidence presented in spatially explicit map layers, they can then choose to 'drill-down' into data archives to retrieve raw data, monitoring results, oral history, and visual multimedia - on-the-fly.

This archival information is visually depicted on two HD-LCD monitors positioned on stands surrounding the 3D model table. Thus, the P3DM is a highly visual, socially mediated and directed - nested information system (Server & Web Server). When this highly dynamic and visual information system is allowed to interact with a collective dialogue process, the potential for shifts in awareness, the emergence of new perceptions of reality and hence, consensus building is high. For the above reasons, we feel that the P3DM table forms an essential complement to community-based monitoring activities and expressions of kaitiakitanga that have as one of their goals the use of research and monitoring data to influence management decision-making.