



The resilience of deep-sea benthic communities to the effects of sedimentation

Tēnā koutou katoa, nau mai ki tēnei pānui tuatahi. Ma te waka eke noa, kia mahitahi ai!



WAIKATO
Te Whare Wānanga o Waikato



TE WHARE WĀNANGA O TE PŌRU O TE LĀ A RAU
VICTORIA
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The Programme

Uncertainty about the effects of sediment plumes created by human activities in the deep sea, such as from potential deep-sea mining and bottom trawling, is a major environmental concern. This led to funding from the Ministry of Business, Innovation and Employment to support a 5 year research programme (2017-21): The Resilience Of deep-sea Benthic communities to the Effects of Sedimentation (shortened to ROBES). In this project we will undertake research on the effects of sedimentation, and inform options for how to manage such effects on the environment.

The research programme has two components, a field survey experiment with in situ observations of a sediment plume, and laboratory-based experiments. In combination, the two approaches will provide information on the concentrations and distances over which impacts of suspended sediment on faunal communities become 'ecologically significant', as well as assess the short to medium term resilience and recovery of species and communities.

The field work has begun this year with a disturbance experiment on the Chatham Rise, which also collected sponges for initial laboratory studies. These will be described in further information sheets.

The Team

The Programme Leader of ROBES is NIWA scientist **Dr Malcolm Clark**, but there is a large team involving a range of research disciplines – oceanographers, toxicologists,

benthic ecologists, geologists, geochemists, and acousticians.

Collaborators include Victoria University of Wellington (VUW) and Waikato University, with a VUW student undertaking PhD research on the laboratory experiments with sponges. Oversea scientists are also involved.

Tangata Whenua Engagement

Following an initial delay with equipment for the survey, planning began in earnest in early 2018.

Malcolm Clark and Pou Ārahi Lee Rauhina-August visited Wharekauri/Rēkohu in April to outline the project, the survey scheduled for 2018, and opportunities for groups to be involved. Malcolm presented to the board and staff of Hokotehi, and addressed questions and Moriori concerns about work on the Chatham Rise. Unfortunately, we were unable to secure a meeting with Ngāti Mutunga o Wharekauri Trust at that time, but were invited to speak to Te Aitanga o Ngā Iwi o Wharekauri. The whānau members that we spoke to about the project also debated a number of other concerns with environmental issues on the island. The discussions concluded with a meeting in May at Te Whare o Te Waipounamu in Christchurch, with Ngāi Tahu.

Through these meetings, Malcolm and Lee were better able to gauge and understand the viewpoint and any concerns of Moriori and tangata whenua. The project team is now considering opportunities to work with them for the 2018/2019 year.



Pou Ārahi – Māori Development Leader Lee Rauhina-August with Dr Malcolm Clark during their visit to Wharekauri – Rēkohu: Chatham Islands.

Stakeholder Engagement

The research programme has an "EndUser Advisory Group" (ENDAG) that provides feedback on the research; and developments in policy, commercial activities and management to ensure relevance of the work. The ENDAG has representatives from government agencies, the fishing industry, a commercial mining operator, the minerals industry, an environmental group, and the research team including NIWAs Te Kuwaha Group.

Plans for a wider one day workshop with interested parties has been delayed but is planned for early 2019.