



Hononga ki Wharekauri / Rēkohu: engagement on the Chatham Islands

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Ngā mihi o tēnei wā hurihuri ki a koutou

Our ROBES science team members — Malcolm Clark, Di Tracey, Lee Rauhina-August travelled to Rēkohu /Wharekauri /Chatham Island in mid-October. This was the 3rd visit by the Team to present to Te Aitanga o Ngā uri o Wharekauri and the Hokotehi Moriori Trust.



NIWA team at Kopinga Marae with Hokotehi Moriori Trust.

ROBES Science Approach

Malcolm described the science approach that had 2 components: **Field disturbance** experiments (direct physical disturbance, monitoring of the plume, sedimentation rates and composition, biological effects), and the **Laboratory Experiments**.

The **3 surveys** on *Tangaroa* were summarised. Survey 1 in 2018 was a baseline, disturbance, monitoring study. Surveys 2 and 3 in 2019 and 2020 were focussed on monitoring Impacts over days-weeks, 1 year, 2 years.



The **Laboratory sedimentation experiments** looked at coral and sponge species in tanks. The suspended sediment concentrations were manipulated and monitored over 4 to 6 weeks.



Valeria Mobilia, who recently obtained her PhD as part of the ROBES Programme, working on the impacts of sedimentation on corals laboratory experiment

Summary of results

- there is a highly variable and dynamic environment on the Chatham Rise - both spatially and temporally, with communities faced with persistent and occasionally high sediment loading.
- **relatively small sediment plumes had marked effects on near-bed sediment fluxes and water column characteristics (turbidity increase and water chemistry change).**

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

Tēnā tātou katoa, whakatōrea te pūtaiao, kia kimihia ai e te rangahau tika!



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- Indirect impacts (e.g., sediment capping) can be significant for environmental conditions.
- **Clear direct impact on infauna, but relatively quick recovery (around 1 year).**
- Experimental results were informative for epifauna, showing impacts at high and prolonged suspended sediment levels (100 and 500 mg/l), resilient at low and short exposure.

Overall deep-sea species and communities are reasonably resilient especially in an already dynamic environment.



Malcolm with George Goomes (Te Aitanga)

Together results can provide a suite of information on sedimentation effects, duration, thresholds and disturbance patterns to assist management of human activities in the deep sea

Ngā mihi - Acknowledgements

Thanks to Te Aitanga o Ngā uri o Wharekauri and Hokotehi Moriori Trust for their partnership and support of the programme, and for their time during our visits to the island. More results from ROBES Team Members will be presented in the next lot of Information Flyers.

Kia whiria te mātauranga o te moana