



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

Tēnā koutou katoa, nau mai hoki mai ki tō tātou pānui. Ma te waka eke noa, kia mahitahi ai!




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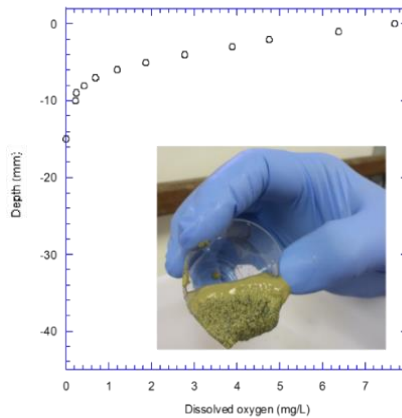
We describe some results from **Sedimentation experiments** carried out during the May-June 2018 survey on the Chatham Rise and outline plans for the **next Tangaroa voyage** in June 2019.

Some 2018 results

Sediment samples collected in 2018 by the **multi-corer** (top image) are providing significant insights into plume effects.

Among the experiments carried out onboard was one where fine sediment (generated in the plume) was layered on top of existing sediment to see what effects this additional sediment load might have.

The images show the depth of oxygen penetration into the sediment prior to, and after, capping with a layer of fine sediment.



Sediment capped with fine material generated by the Benthic Disturber.

The plot shows markedly reduced sediment DO penetration to less than 15 mm depth post disturbance. This could impact animals that live within the sediment, such as small crustaceans and worms.

Next Tangaroa voyage

In the upcoming June 2019 survey, there will be a combination of repeated disturbance, and monitoring previous disturbance. Components will include:

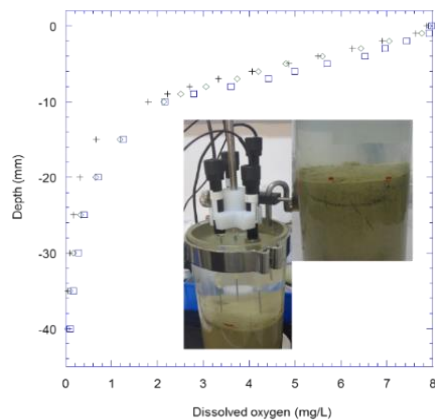
- Repeat sampling of sites from 2018 to monitor any changes over the 12-month period.
- A new mechanical Benthic Disturber will be used to create a sediment cloud. Its effects will be monitored primarily with:
- A **multi-corer** to measure sediment and in-faunal characteristics.
- A deep towed camera to measure changes in animal communities on

and above the seafloor before and after disturbance. The camera will also locate sponges and corals for collecting **live specimens for** experiments back at NIWA's Marine Environmental Manipulation Facility (**MEMF**) in Wellington.

- Other equipment to be used during the survey include an ocean glider, benthic landers, instrumented moorings, and a conductivity-temperature-depth probe and rosette.



Deep-sea sponge and stony branching coral *Goniocorella dumosa*, Chatham Rise.



Core and apparatus for dissolved oxygen (DO) and pH micro-profiling with results for DO profiles for natural sediment.

The plot shows natural DO penetration to 40 mm depth in the sediment.



NIWA's Marine Environmental Manipulation Facility (MEMF) experimental set up.