

The first week of April 2023 marked the beginning of a collaborative effort to better understand the impact of the subtropical sea urchin *Centrostephanus rodgersii* on rock wall communities at the Poor Knights Islands marine reserve and the potential for urchin removal as a means of actively managing these impacts. Monitoring carried out by University of Auckland has revealed that the number of *C. rodgersii* in the marine reserve has almost tripled since 1999 and is suggesting these urchins are impacting the unique biodiversity of the Poor Knights. Working closely with Ngātiwai, the Department of Conservation (DOC) and the University of Auckland (UoA), an experimental removal was planned at three sites.

The dive team, from DOC and UoA, were joined by mana takutai moana from Te Whanau a Rangiwhakaahu for two days on and in the water. The team started with a karakia before travelling to the Islands to start monitoring. Two dive teams set up and surveyed the the experimental removal area at one of the sites, Ngaio rock. Photogrammetry of selected areas along with fish and urchin measurements were completed to enable comparisons of reef wall and fish communities before and periodically after the experimental removals. Furthermore, time-lapse cameras were deployed to record the fish behaviour during and post removal. After the removal areas were designated, the teams set to work removing the urchins. This was done by piercing the test to expose the roe, which the snapper quickly consumed. There were a total of 1896 urchins removed.



The team returned the next day to observe the fish behaviour and to understand the movements of the urchin remains. There were still a lot of snapper around, eating the urchins, and most of the urchin remains had not moved. Photogrammetry was taken of the control sites and the time-lapse video collected for review.

We ran a community meeting after the trial at the Tutukaka Marina to provide those interested with information about the project and the trial.

The information gathered on this trip, and on a subsequent monitoring trip in a few weeks, will help to answer a number of questions:

1. How do removals change the behaviour of fish, and how long does it last for?
2. How long does it take for the urchin remains to leave the removal area?
3. How quickly do the urchins come back into the area and how far do they forage from their home base?

Once we have the information above, we will be able to share the information and confirm the plan for the removal of the remaining urchin.

The team will be revisiting Ngoio Rock and starting experiments at Riko Riko Cave and Middle Arch from the 26th to the 28th April 2023.

If you have any questions, please contact Evan Davies (edavies@doc.govt.nz) or Monique Ladds (mladds@doc.govt.nz).

