Mussel Restoration Project for the Marlborough Sounds - March 2022 Update

Testing Mussel Recruitment

Background

Wild mussel beds once covered extensive areas of Pelorus Sound, but were dramatically overharvested in the 1960s and 1970s, leaving only around 3% of wild mussels. The Pelorus Sound Mussel Restoration Project has successfully trialled restoration methods for these lost beds and has restored over 50 tonnes of mussels. One of our key goals for this restoration project is establishing self-sustaining populations, which means we need new mussels to recruit into the mussel beds. However, recruitment is difficult to monitor efficiently without destroying some of the restored bed. Instead, we have designed and deployed a smaller-scale method to test whether recruitment is occurring locally, which should tell us whether we can expect our mussel beds to also recruit and grow!

Experimental design

In mid-March we harvested wild seaweeds and hung them off a dock in Double Bay for two weeks. We have previously found this method to lead to good spat catches and had good luck this year as well with each seaweed sample catching hundreds of spat (both blue and green mussels). At the end of those two weeks we brough 24 small trays out to Double Bay and filled them each with large rocks. Additionally, half of the trays each had 20 mussels (extras from a prior restoration effort) placed on top of the rocks. Finally, half of the trays (six with mussels, six without) each had a piece of the spat-laden seaweed strapped onto a rope suspended above them. All 24 trays were brought into the water in Double Bay and placed 2 m from one another in about 1 m of water depth on the low spring tide.

Looking forward

We will take half of the trays out of the water after one month and then take them back to the laboratory to look for any new mussel recruits. Then another six weeks later we will check the last of the trays in to see whether new recruits survived long enough to grow. This data will help us see whether recruitment is occurring in Pelorus Sound and whether it can be improved with the presence of other mussels or by artificially seeding the area with spat-laden seaweed. Ultimately this should tell us a lot about what we can expect for our restored beds and what they may look like in the future!

I hope this has provided an interesting look into some of the work going on in the area and I will continue to update with more information and results! As always if you have any comments or feedback, please feel free to reach me at ttoo112@aucklanduni.ac.nz!

Cheers,

Trevyn Toone, Ph.D. Researcher, University of Auckland (based in Nelson)

The four experimental treatments we are trialling (clockwise from top left): Mussels and spat-laden seaweed, mussels without seaweed, no mussels and no seaweed, and seaweed without mussels.

The experiment is currently running at Double Bay (near Raetihi Lodge) and each tray is marked with a white float visible at low tides.