MFA Mussel Restoration Project - June 2021 Update

Trialling Intertidal Mussel Restoration

Background

Wild mussel beds once covered extensive areas of Pelorus Sound but were dramatically overharvested in the 1960s and '70s. The Pelorus Sound Mussel Restoration Project has successfully trialled restoration efforts for these lost beds and so far, has focused on the subtidal zone, or areas that are always underwater even at low tides.

However, the intertidal zone, or areas that are exposed at low tides, were a very common habitat for historical mussel beds making them a promising area for restoration. The intertidal zone is also easier and less expensive to monitor, meaning more data for lower costs.

Despite these benefits, intertidal mussel restoration elsewhere in the world has seen poor results as mussels are eaten by predators or dislodged by waves, confirming that we need to trial the restoration at a smaller scale before moving onto large restoration efforts in the area. Specifically, we are running a small-scale intertidal restoration trial in Kenepuru Sound, an area with protection from extreme waves and few predatory starfish.

Experimental Design

With generous support from the crew at Just Mussels Ltd, we deployed five tonnes of mussels in May to three locations in Kenepuru Sound (Goulter Bay, Nopera, and Double Bay). At each location six subtidal plots were each filled with 250kg of adult mussels. We then allowed the mussels one month to acclimate from the farm to the seabed. Finally, in late June we transferred half of the mussel plots into the lower intertidal zone, ultimately creating three subtidal plots and three intertidal plots at each location.

Monitoring

We plan to monitor these restored mussels monthly for up to one year for survival, density, growth, and condition index. The results of our first monitoring have shown strong survival (~98%) after the one-month subtidal acclimation period, but we will rely on future monitoring to reveal the survival of the mussels that have been newly translocated to the intertidal.

I hope this has provided an interesting look into some of the work going on in the area and I'll 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!

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Mussels were deployed from bags into each location in Kenepuru Sound with the help of Just Mussels Ltd.

The intertidal plots are fully exposed on low spring tides, allowing for easier monitoring, but adding additional stress for the mussels.

Subtidal plots remain covered by water on low tides, allowing us to directly compare restoration success at the two depths.