

Mussel Restoration Project for the Marlborough Sounds – April 2022

Understanding the use of subadult mussels for restoration

Background

Historically mussels were found on the shoreline (intertidal) and below (subtidal) all throughout the inner Pelorus Sound, particularly in Kenepuru Sound. Previous initial experiments have indicated that adult mussels can survive well when transplanted into the intertidal and subtidal in Kenepuru Sound. How well subadult mussels survive transplantation is untested. However, there is a supply of subadult mussels that could be used for restoration that comes from overgrown seed line that results in smaller non-market ready mussels or subadults.

Experimental design

This experiment tested the use of subadult mussels of ~50 mm length for restoration in the intertidal and the subtidal (5-7 m depth). In June 2021 around 10 tonnes of adult mussels and 10 tonnes of subadult mussels were deposited on the seabed into plots. These plots had either all adult mussels, all subadult mussels, or adult and subadult mussels mixed together.

In January 2022, six-months after deployment the mussel survival was assessed and there were dramatic differences between the two depths, but the size of mussels did not affect the survival of mussels. An average of 90% of mussels have survived after six months in the subtidal zone (5-7 m depth), while in the intertidal zone the mussels experienced much lower survival, with the average survival of mussels at Skiddaw at 63% and at Double Bay 19% (Figure 1).

The low survival in the intertidal zone appears to be related to summer heat and time out of the water at low tide. This experiment has confirmed that subadult mussels can be used in restoration. The next steps for this experiment are to continue to analyse and collect data for the first full year until June 2022.

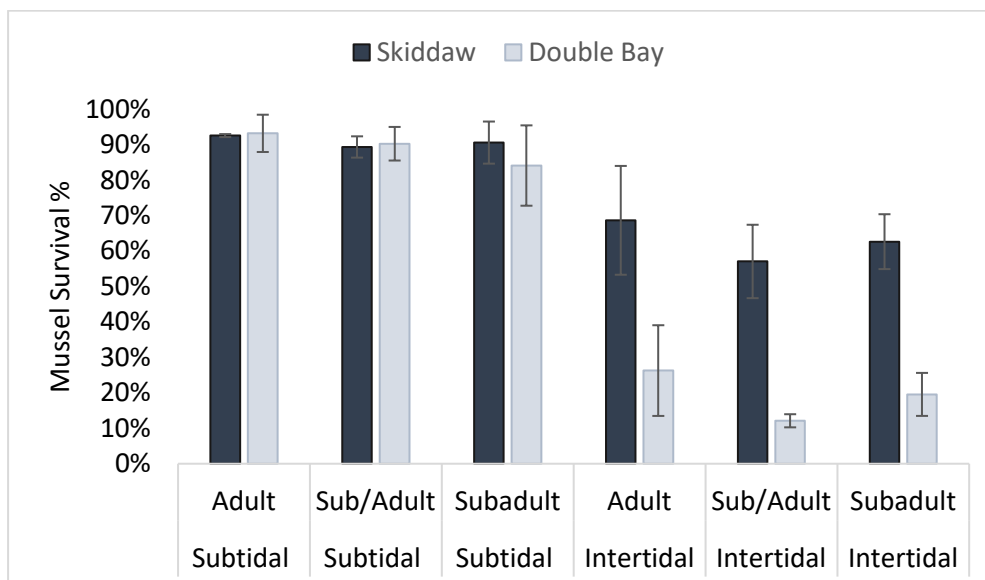


Figure 1: Mussel survival at six months on the seabed in the intertidal or the subtidal at two locations.

As always, if you have any questions or comments on this project, please feel free to reach out to Emilee Benjamin via email at egol669@aucklanduni.ac.nz.



Figure 2: Intertidal mussel plot at Skiddaw.



Figure 3: Subtidal mussel plot at Double Bay.