

Mussel Restoration Project for the Marlborough Sounds – February 2022

One-year for mussels restored onto recycled mussel shell

Around 80% of mussels have survived for a year after being restored onto areas of muddy seabed in Pelorus Sound that were firstly covered in mussel shell from Sanford's processing factory. Interestingly, similar high survival was found for mussels placed directly onto muddy seafloor without the shell that were nearby.

In January 2021 around 20 tonnes of adult mussels we experimentally deployed at two locations in Pelorus Sound with different types of seabed. Kenepuru Entrance is very muddy, and Fairy Bay has sandy mud. The sites also differed in the abundance of predatory eleven-armed starfish, which prey on mussels, with the Fairy Bay location having more than double the amount of starfish than Kenepuru Entrance.

This recycled shell experiment has confirmed that mussels can survive in deeper areas of Pelorus Sound (12 metres deep) and that the use of recycled shell does not appear to influence survival of mussels in these environments after one year. The higher presence of starfish predators outside Kenepuru Sound matches the results of our first mussel restoration experiment. This may help to explain why historically the inner Pelorus, especially Kenepuru Sound, had the largest wild mussel populations.

The next steps for this experiment are to continue to analyse the data collected over the year on mussel condition, growth, and mussel bed areas and densities. This information will give us a further understanding of the use of recycled mussel shell for restoration and allow us to make recommendations for future restoration efforts.

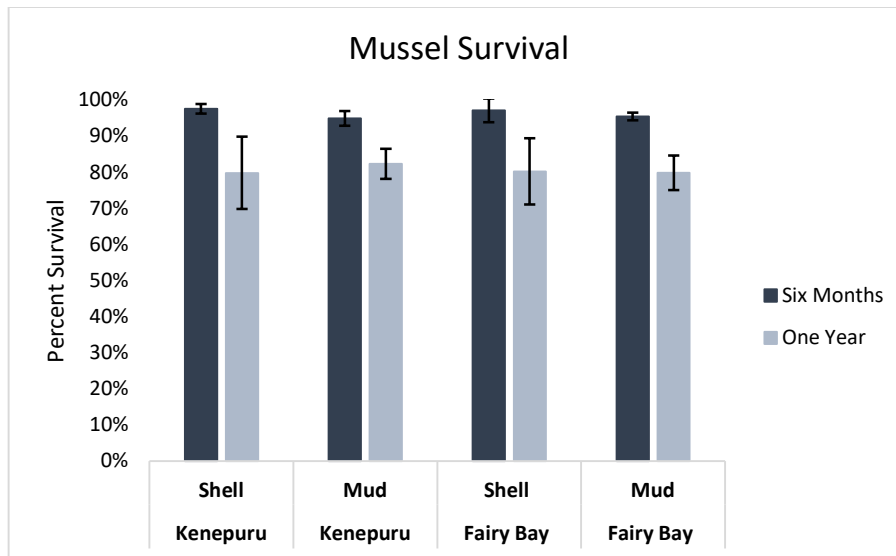


Figure 1: Mussel survival after six months and one year on the seabed on either recycled shell or mud at two locations.

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: Mussels on recycled shell at Fairy Bay with lots of algal growth.



Figure 3: A nudibranch that was spotted near our restored mussel beds at Kenepuru Entrance.



Figure 4: A seahorse that was wrapped around a mussel in a mussel bed at Kenepuru Entrance.