

## Mussel Restoration Project for the Marlborough Sounds – September 2021

### Subadult/Adult mussel experiment

For our third mussel deployment we deployed 10 tonnes of adult mussels and 10 tonnes of subadult mussels into two locations within Kenepuru Sound at Double Bay and Skiddaw. These mussels were deployed at two depths, subtidally at 5-7 m and intertidally where they are exposed at low tide. After one-month (August) on the seabed the mussels had 81-97% survival at the two locations (Figure 1), despite heavy rain in July. The aim of this experiment is to test the benefits of restoring adult mussels (90-100 mm in length) with subadult mussels (50-60 mm), as subadult mussels are thought to be more adaptable, have stronger byssal anchor threads, and provide more mussels per tonne than adults. We are testing this at two depths, as the intertidal zone historically was populated with large amounts of mussels, and to reduce the risk of starfish predation as the intertidal has shown to have much less predatory 11-armed starfish.

At Double Bay the mussels are higher up on the shoreline than at Skiddaw, so they are exposed at a daily low tide versus Skiddaw where the mussels are exposed twice a month at spring tides. This longer exposure is likely contributing to the slightly lower initial survival in the intertidal mussels at Double Bay. No starfish were seen on the intertidal mussel plots and low numbers of starfish were in the subtidal plots. At this early sampling point, there aren't differences in survival between treatments of mussels with the different size classes, (subadult and adult mussels mixed, subadults alone, adults alone, Figure 1).

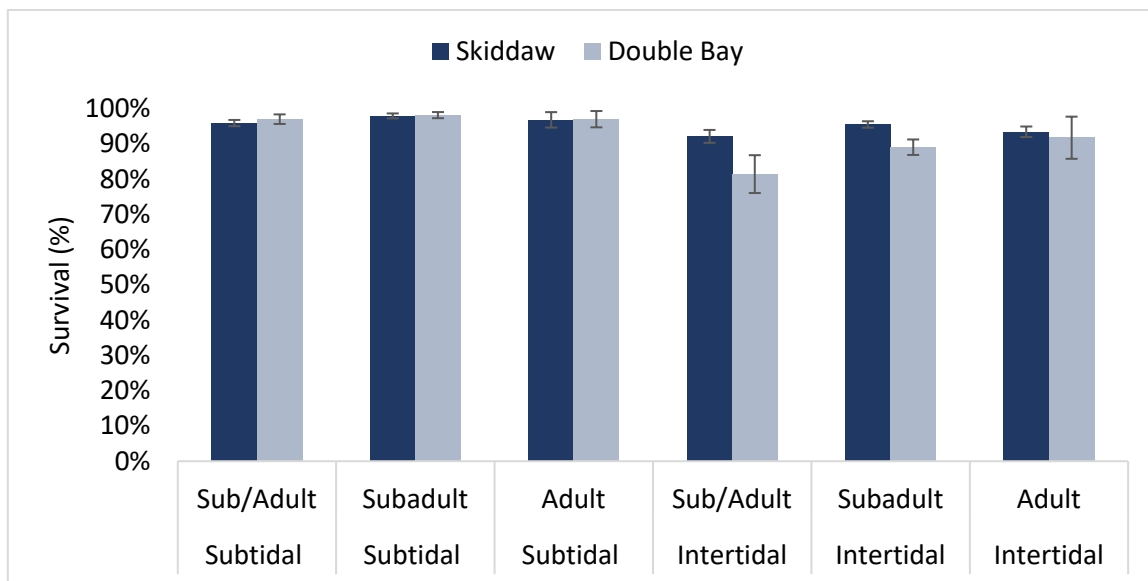


Figure 1: Survival of mussels after one month on the seabed at two locations, Skiddaw (dark blue) and Double Bay (light blue).

The next sampling for these mussels will be in November, but we are placing down temperature loggers on the intertidal plots this week to understand the temperatures that the mussels are exposed to as we move into the summer months. The mussels in the intertidal zone may be free of starfish predators for now, but exposure and warm temperatures might impact the survival going forward. The results of this study will help us to understand further aspects of restoration in Pelorus, including what sizes of mussels to deploy, the benefits of using mixed size classes, and at what depths and temperatures can restore mussels successfully.

## **Community Day**

As part of the Cawthron Marlborough Environmental Awards the MFA will be hosting a community day on 16 October at the Havelock Bowling Club, where the public can come enjoy lunch and learn more about our mussel restoration project that is currently going on in Pelorus Sound. We will be having a panel discussion around the collaboration that has made this project possible, which will include members from industry, the Nature Conservancy, and the University of Auckland. Please join us to learn more about this restoration initiative, along with an opportunity to ask questions and give community feedback on the project. This will be a great networking opportunity and this project is a great starting point for restoring our beautiful backyard.

## **Road Closure**

As many of you might be aware the road into Kenepuru Sound is closed due to many slips on the road from the heavy rain events in July. This has impeded our ability to easily drive out and check on the mussels in the intertidal zone. We have been actively seeking ways to get to Kenepuru during low tide to sample the plots, as we have two other intertidal experiments running as well as this one. This has resulted to two water taxi trips, one in August and one now in October, which is addition cost to the project. Unfortunately, this is looking like a long-term issue and we will be seeking to find alternative transport in the coming months.

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](mailto:egol669@aucklanduni.ac.nz)



# AWARDS FIELD DAY

Marine Award  
winner:

**MARINE FARMING  
ASSOCIATION**



Find out how marine farmers are working with researchers to restore mussel reefs in Te Hoiere/Pelorus Sound, and why this work is important for coastal ecosystems

**Saturday October 16  
10.30am-12.30pm**

**Havelock Bowling Club, 7 Neil Street, Havelock**

**Lunch provided. Bookings essential:  
[bev.doole@icloud.com](mailto:bev.doole@icloud.com) by October 10**

[www.cmea.org.nz](http://www.cmea.org.nz)

*Marine Award sponsored by:*



Figure 2: Flyer providing details for the community day.



Figure 3: Top: A decorator crab defending its new home in a subtidal mussel bed. Bottom Left: Intertidal mussel plot being exposed as the tide goes out. Bottom Right: Sea cucumbers that have moved into a subadult mussel plot.