

## **Marine Farming Association - June Monthly Update - for the Industry Advisory Group**

### **Exploring the Potential for Restoring Wild Mussels to the Shores of the Marlborough Sounds**

#### **Preliminary surveys**

The last scientific surveys on wild green-lipped mussels in the Marlborough Sounds were conducted in the late 1960's – meaning there's a fifty-year data gap in our understanding of wild mussel populations. While it's widely accepted that intertidal mussel populations have decreased, why they decreased, the extent of the decrease, where they currently are, and how restoration efforts should occur moving forward remains unknown.

To provide some preliminary understanding of the state of wild green-lipped mussels in the Sounds, some surveys were conducted in February at six intertidal areas throughout the Sounds. Each shoreline was sampled in the same way and any mussels present were recorded, their size, other animals present, and the substrate (see figures below). The good news was that green-lipped mussels were found at five out of the six sites! The bad news was that even at the densest site there were only around two mussels per m<sup>2</sup>, far below the densities reported historically and very few of the mussels were juveniles.

The surveys also tested whether green-lipped mussels were found in association with certain substrates or other animals. Rocky surfaces, oysters, and barnacles were more frequently associated with more mussels, while muddy surfaces, limpets, and chitons were not. While only preliminary in nature, these results provided some guidance on the next steps for intertidal restoration and a helpful baseline for the future.

#### **Historical Data and Interviews**

Although scientific surveys are limited to the reports from the late 1960's, anyone who has spent time in the Sound will tell you there is no short supply of people willing and able to tell you their experiences in the area and what they know about the environment. With this in mind, I've begun a project to interview long-term residents of the Sounds (specifically the Pelorus Sound) to compile local knowledge on the historical extent of intertidal mussel beds, potential causes of decline, and currently existing populations. The project is in its final round of ethics approval and interviews should begin in around a month. If you or anyone you know is a long-term resident of the area and would be interested in helping provide local knowledge of shoreline changes, I'd love to hear from you and my email can be found below!

#### **Re-surveys of the Kenepuru**

To supplement the information gained from interviews, I also plan on conducting a series of re-surveys of the coastlines initially surveyed in the reports from the late 1960's. The goal of these re-surveys is to provide a direct comparison between the historical and current extent of intertidal mussel beds in exactly the same area. Additionally, this will help ground-truth some of the information gained during the interviews and, in a similar manner to the preliminary surveys, potentially allow for investigation of factors associated with the surviving wild mussel populations. Finally, in future studies those factors thought to be associated with mussel success and decline will be tested experimentally to shed some light on the exact factors behind the decline and clarify the direction that future intertidal mussel restoration should take.

I hope this has provided an interesting look into some of the intertidal work going on 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 [too112@aucklanduni.ac.nz](mailto:too112@aucklanduni.ac.nz)  
Cheers, Trevyn Toone, PhD Researcher, University of Auckland (based in Nelson)



Figure 1. Preliminary intertidal surveys were conducted by recording everything present in 1 m<sup>2</sup> quadrats placed ten times along the shoreline at each site.



Figure 2. Major species found at each site from the preliminary surveys. Tubeworms and barnacles at Nopera and Duncan Bay; seagrass, cockles and top-shell snails at Mistletoe Bay; seagrass, cockles, and pipis at Whatamango Bay; Neptune's necklace, oyster