## **Rosario Beach Marine** Laboratory

MacKenzie Tapley Summer 2022

## **RBML** Internship

I assisted the graduate students by...

- Observing and collecting data on the California sea cucumber, *Parastichopus californicus*.
- Collecting Muus octopus, *Muusoctopus leioderma* and East Pacific red octopus, *Octopus rubescens*.
- Collecting different species for the general biology class.
- Surveying invasive clam species in Lake Crescent.



## Sea cukes!

#### Parastichopus californicus

I did several measurements and observations to help determine if there were indications of sea star wasting disease:

- Depth, length, and width of the cukes
- Skin coloring (solid, bicolor, piebald, or any combination of the three)
- Skin condition (clean, mucus covered, and/or lesions)



## Octos!

From left to right... *Muusoctopus leioderma*, *Octopus rubescens* and *Enteroctopus dofleini*.







# Octopuses for the Graduate Students

Muusoctopus leioderma and Octopus rubescens

Two of the graduate students needed scuba divers to collect two different species of octopuses for their research:

- 1. A project based around the burrowing rates of the Muus octopus.
- 2. A project looking at how the genetic coding of the red octopus may change under different ocean acidification conditions.



#### Muusoctopus leioderma Muus Octopus

Collecting Muus octopuses:

- Where? About 60' deep at Burrows Bay, WA on a mud bottom
- How to find them? Look around at the bottom of Burrows Bay during the night!
- Muus were put in bags then brought to the surface where they would be put in red bottles with a mesh top then brought to the laboratory with us on the boat. They would be kept in tanks in a dark lab room with red light only (and dim green light during the day to simulate daytime underwater).



#### Octopus rubescens Red Octopus

Collecting these octopuses:

- Where? About 60' deep at Driftwood Park, WA in glass bottles
- How to find them? Shine a light in the bottle. If you see suckers, put the bottle in a plastic bag, then in your mesh bag!
- Once the collection bags were full, we brought them to the surface where they would be put in red bottles (to reduce brightness) with a mesh top then placed in a cooler with a bubbler for transport to the laboratory.



## Assisting in the lab

- I would weigh and determine the sex of all of the octopuses. To determine the sexes of the reds, I would look for enlarged suckers and a modified arm (hectocotylus). If they had these traits, they were male. To determine the sexes of the Muus, I would look for the hectocotylus.
- I would feed the red octopuses daily. Their favorite meals were the purple shore crabs we would collect!
- I helped determine the pH, salinity and alkalinity of each of the red octopuses' tanks, as well as monitor the temperatures of the tanks.



## Collecting different species

- I would dive in different locations in Puget Sound (such as Coffin Rock, Skyline Wall and Sares Head) to collect several different organisms for the general biology lab.
- The top left photo is of me holding the largest *Pisaster* sea star I had found all summer!
- The top right photo is a little kelp crab I found.
- The bottom photo is me with two vermillion stars I found.



### Lake Crescent

- A group of divers went to Crescent Lake in the Olympic National Park to do a survey of freshwater clam species to determine if there were any invasive clams... Unfortunately, we found the invasive clams have reached part of the lake.
- We went diving in a few areas around the lake looking at the different clam and snail species.





## In Conclusion...

- I learned a lot about species that live in Puget Sound and how to take care of some of them in a laboratory.
- I learned how to operate inflatable boats to transport divers.
- Catching sculpin can leave holes in your glove, and the store may not have the same color glove to replace the original.
- I was photobombed by a juvenile orca that Emily Stone caught on video.



• I went on 60+ dives!

## Thank you QBC!

QBC's support is what made it possible for me to participate in the Rosario Beach Marine Laboratory Internship. I learned more than I could've imagined, and the experience I gained is invaluable.

