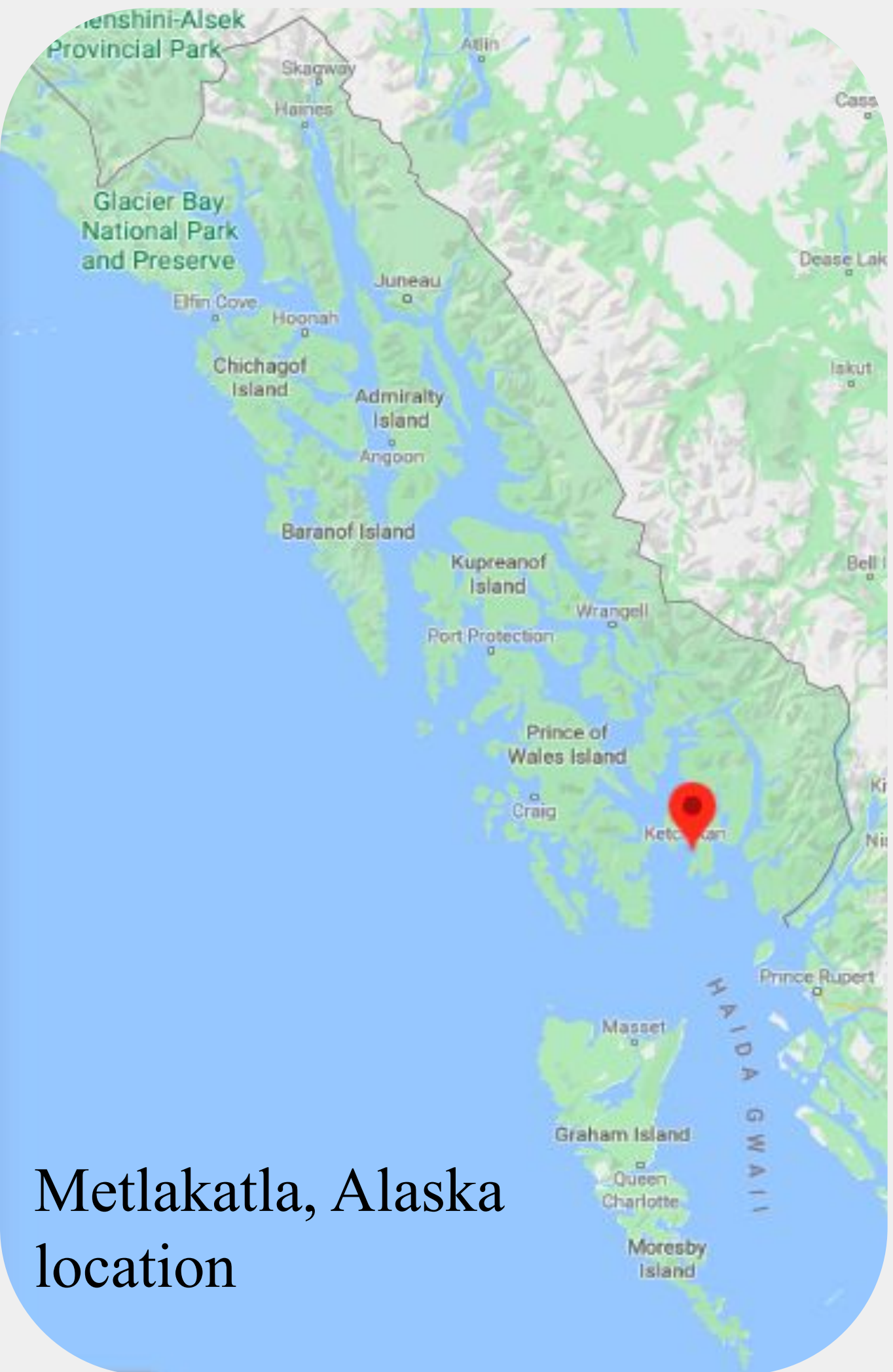




# Paralytic shellfish toxin concentrations through trophic levels

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## Introduction

Not a lot of people will know about the Paralytic Shellfish Toxin (PST) concentrations through the trophic levels. We believe it is essential to know how it affects us all as it moves through the food chain due to the fact that people like to consume them and if PSTs are present, it could cause your nerves stop working, resulting in paralysis. Previous studies have shown that other organisms will bioaccumulate organic molecules (Nendza, et. al. 1997). In fact, previous researchers found this toxin in snails (Turner, et.al. 2014), which leads us to hypothesize that the PST concentrations will increase through the trophic levels due to biomagnification.

## Hypothesis

The PST concentrations will increase through the trophic levels due to biomagnification.

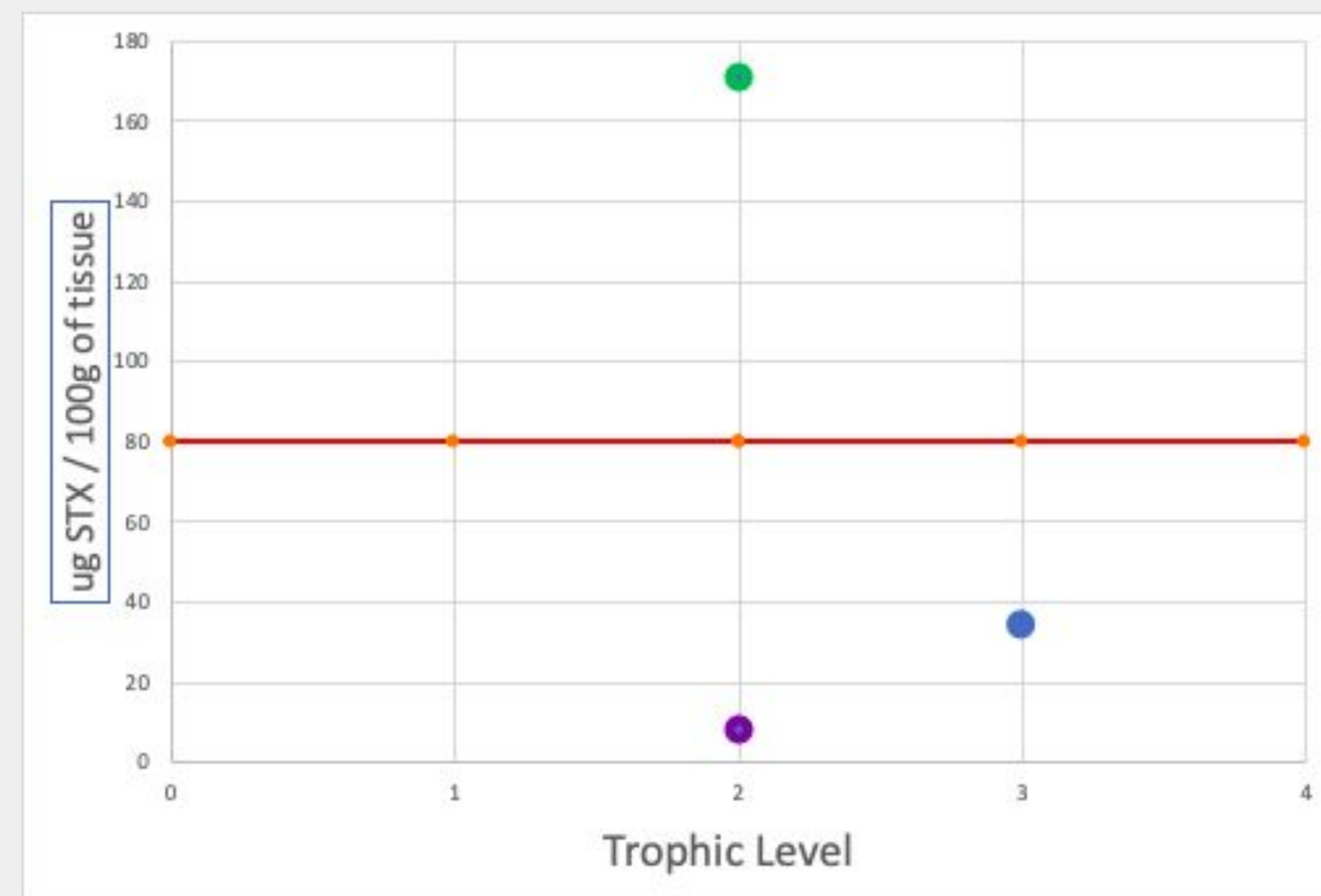
## Methods



Myra and Ewa are doing a plankton tow at Smuggler's Beach

- We gathered our samples from Smuggler's Beach on Annette Island.
- We did a plankton tow on Smuggler's Beach, following SEATOR protocols.
- Littleneck clams, macoma clams and a moon snail were gathered from Smuggler's beach.
- The results of the plankton tow were visually inspected with a microscope slides to see if there is Alexandrium present in the samples.
- Shuck and froze the clams, then sent off our findings and what we collected from the beach to STAERL : Sitka Tribe of Alaska Environmental Research Lab.
- When the samples arrived at STAERL, using the receptor binding assay, they tested the samples to see if they contain any toxins.

## Results



Macoma clam



Moon snail



Littleneck clam



- The macoma clam had the highest level of PSTs and it was above the FDA action level for human consumption. The other shellfish were below the FDA action level. The moonsnail had higher levels than the little neck clams.
- No Alexandrium was detected in our plankton tow samples.

## Discussion

The moon snail had a higher concentration of PSTs than the littleneck clams but not the macoma clams. If the moon snails were primarily consuming littlenecks than our hypothesis is supported by the data. We were able to observe a moon snail consuming littlenecks in captivity. We only tested one moon snail. We would need to test more to have stronger results. We also don't know for sure which shellfish moon snails primarily consume.

Future studies would include obtaining a wet lab and have different tanks with specific food sources for moon snails. PST levels of the prey would be tested before being fed to the moon snails and a receptor binding assay would be performed at the end of the study.

This research only took place over a month, but PST levels are always changing with many different factors such as temperature and sunlight.

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