

Journal of Student Research on Puget Sound



TAF Academy
9th-10th Grade
Kent, WA

2014



Developing curiosity and confidence through student-led
scientific research on the waters of the Salish Sea

The 2014 Salish Sea Trip



A 3 day trip on the Puget Sound, researching science and observing sealife



Introduction

- We are TAF Academy. In October we went on the Salish Sea Expedition for 3 days.
- Our question was “Are the plankton levels different at different depths?”
- We chose this because the topic that most people were interested in was plankton. The question seemed like it would be interesting to research.



Background knowledge

- The Salish Sea is the body of water that goes from the coast on Washington to the Pacific Ocean. We took off from Elliot Bay Marina and sailed to Blake Island.
- Some key words that we learned about were things like zooplankton and phytoplankton, which are two kinds of plankton that we measured. We also learned about the different kinds of equipment

Background knowledge

- We were expecting to see water and birds/other sea life. We were also expecting to be cold



Question and Prediction

If we measure plankton at different depths then plankton will be more populated/closer at the surface because phytoplankton need sunlight and zooplankton eat phytoplankton.

Variables



Manipulated: Responding:

Depths

Amount of zoo and phytoplankton.

Location

These variables are related because with the different depths and location, the amount of zoo and phytoplankton will be different.

Materials

- List of science equipment we used on our study

Microscopes

Stopwatch

Sails

Plankton nets
Nets

Plankton

Phyto And Zooplankton

Petri dish

pH Meter

Life Vests

Rope

Weights

Squirty Bottle

Paper

Water

Teachers (Staff)

Bucket

A Boat

Graduated Cylinder

Test Tubes

Bunk Beds

Navigators

Cod-end Jars

Children

Ocean

Test Tubes

Apples

Methods

- We Dropped 2 types of net into the water:
Zooplankton and Phytoplankton
- We Dropped the nets at 2 different depths:
15 meters and 3 meters deep
- We dropped the netts at 2 sites 2 times each:
47 33.5 M/122 30.99M and 47 33.3
M/122.2 29.2 M

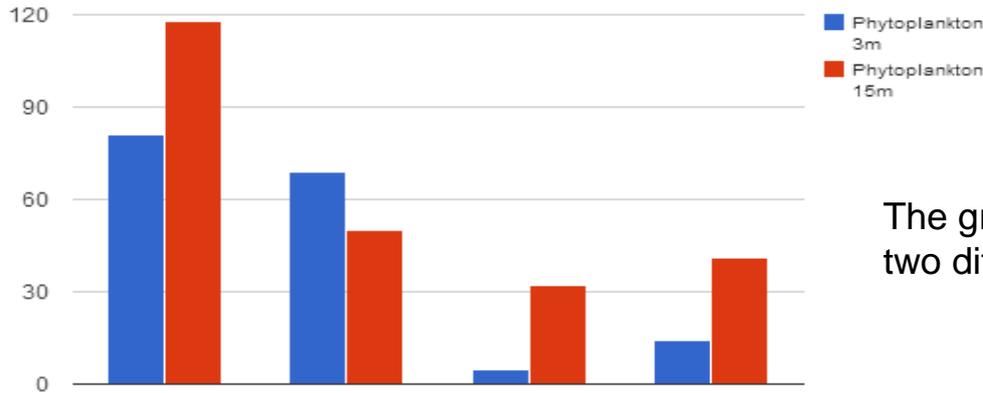
Data Analysis

Site	Phytoplankton 3m	Zooplankton 3m	Total Plankton 3m	Phytoplankton 15m	Zooplankton 15m	Total Plankton 15m	Copper (ppm)
1	20	65	85	118	40	158	0.04
2	29	39	68	22	28	50	0.07
3	3	2	5	13	20	33	0.39
4	3	8	11	23	18	41	0.13

Our hypothesis was wrong because we thought that the plankton would like sunlight and that they would be residing near the sun which means that they would be less in deep areas. The data disagreed with the hypothesis because the data shows that there were more plankton in deeper depths. The data says that, in general, at 15m there were more plankton than at 3m.

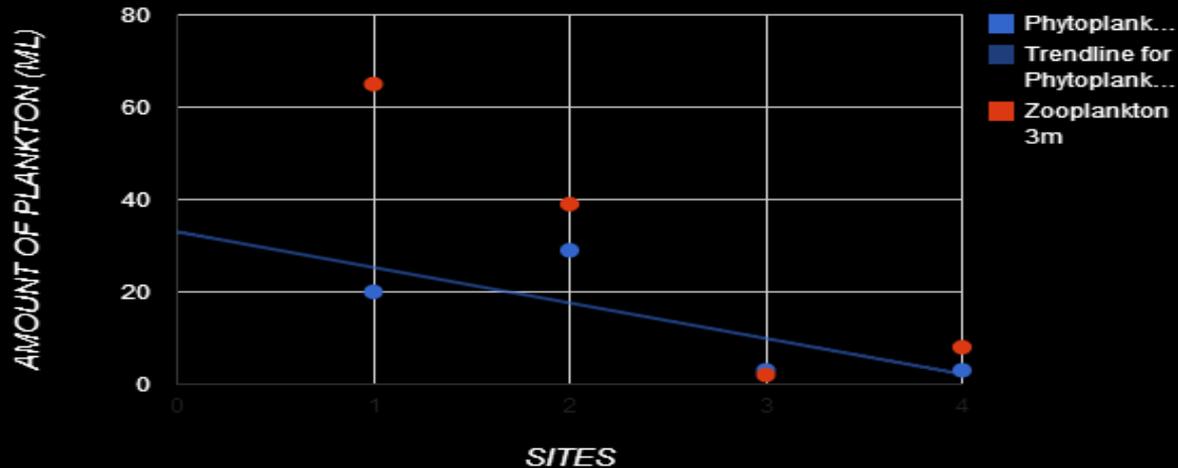
Data Analysis Continued

PHYTOPLANKTON AT 3 METERS & 15 METERS



The graph to the left represents phytoplankton at two different lengths.

ZOOPLANKTON VS. PHYTOPLANKTON AT 3 METERS



The graph to the right shows zooplankton versus phytoplankton at 3 meters.

Conclusion

- We are undecided, as three of the four data sites showed that there was more plankton at 15 meters than at 3 meters, while one site shows the opposite.
- The data we collected shows us that in places with little copper, plankton is more abundant at the surface, while in places with higher copper levels plankton is found more in the lower depths.

Evaluation

- In future experiments we would be interested in studying.....
 - ph level & how the plankton is affected
 - distance to the shore & amount of copper

What would you do differently in this study?

- Consistency in weather through experiment

Ideas for the Future

- How are seagulls affected by phytoplankton and other organisms?
- How is the whole ecosystem affected by a decrease in plankton population?

The End!



Any Questions or
Comments?