Journal *of* Student Research *on* Puget Sound

Bremerton High School
9th Grade
Bremerton, WA

Spring 2014

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

Turbidity or not turbidity, that is the question.

Bremerton High School Apr. 13-15

- What is the effect of turbidity on Zooplankton and Phytoplankton?
- We wanted to know if the clarity of the water had anything to do with the zooplankton’s ability to hunt the phytoplankton and their ability to receive light to photosynthesize.

Things you need to know

If the turbidity is too high, then the phytoplankton, an important part in the food chain, will not be able to access light, and will die due to this. That will cause all of the animals depending on these plankton die, such as zooplankton, certain whales, and nearly all life because they provide oxygen for the water.

Zooplankton: plankton consisting of small animals and premature stages of other animals

Phytoplankton: plankton consisting of microscopic plants

Turbidity: the cloudiness or haziness of a fluid due to various particles in the water.

Our background knowledge

We thought that the hazier the water was, the more difficult it would be for the different planktons to survive.

Question and Prediction

- If: The turbidity is high
- Then: the phytoplankton and zooplankton will die
- Because: Turbidity will decrease zooplankton’s ability to find food and will decrease the phytoplankton’s light source.

Variables

Manipulated: The turbidity of the water
Responding: The phytoplankton and the zooplankton in the water.
Controlled: depth of water, time equipment is in water, and location.

Materials

We used: graduated cylinders, a secchi disk, a phytoplankton and zooplankton net, and a niskin bottle.

Method

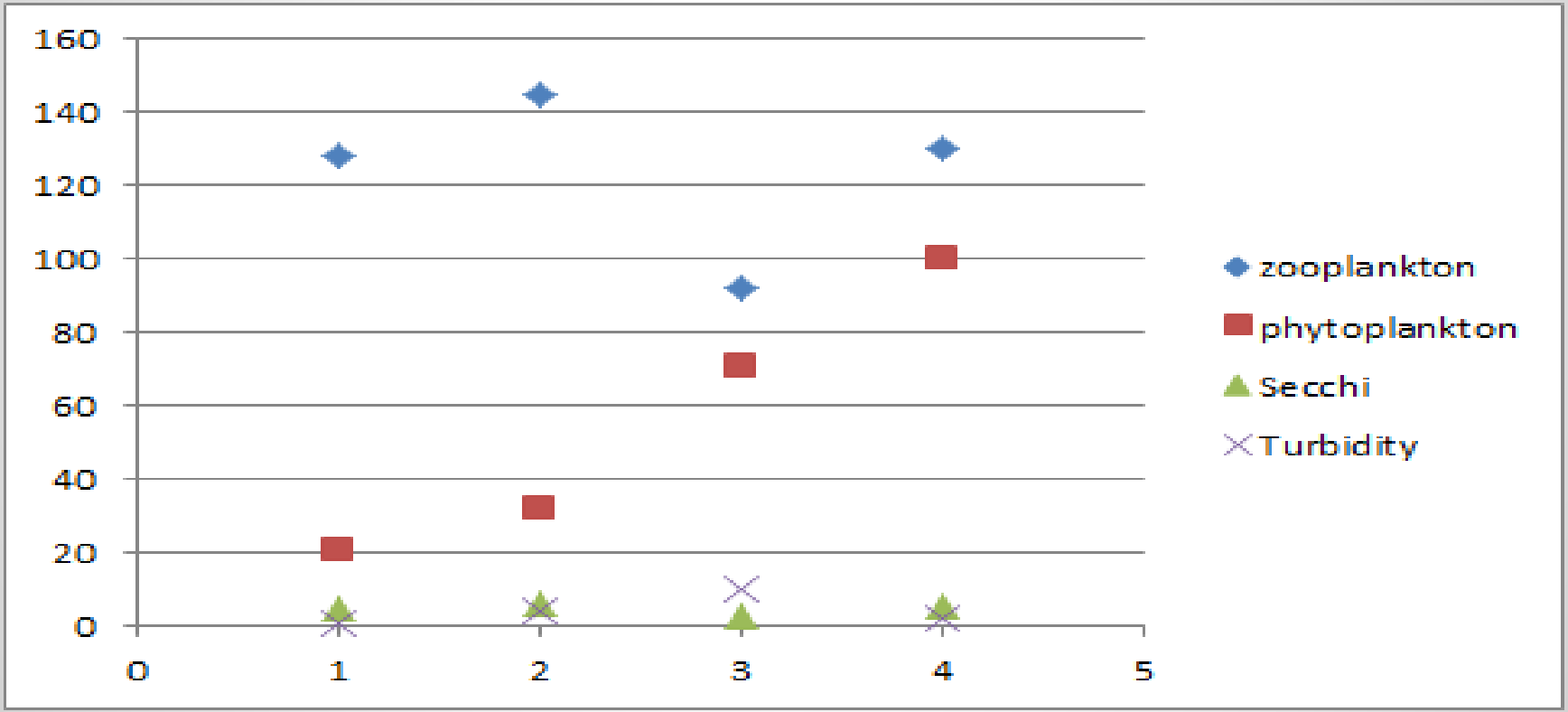
- We measured at the same depth, 6 meters. We did all of your data collection in the Puget Sound around Blake Island. It was sunny and windy the entire time.
- Our deployments were 3 minutes and 40 seconds each. We used the nets, the niskin bottle, and the secchi disk.
- After we collected our planktons, we put them in graduated cylinders, counted them, and then examined them under microscopes.

Data Analysis

Our Data Table

Station #	Zooplankton	Phytoplankton	Secchi	Turbidity
1	128 mL	21 mL	5 meters	1.0 formazin turbidity unit
2	145 mL	32 mL	5.75 meters	4 ftu
3	92 mL	71 mL	3 meters	10 ftu
4	130 mL	100 mL	5.5 meters	2 ftu

Data Cont.


160
140
120
100
80
60
40
20
0
0
1
2
3
4
5
zooplankton
phytoplankton
Secchi
Turbidity

Analysis

1. Our data always shows more zooplankton that phytoplankton
2. There doesn't seem to be a connection between the secchi disk measurements and the niskin bottle measurements.
3. There is either a big gap or a small gap between the different plankton populations.

Conclusion

After reviewing our data, we decided that we were undecided. However, on most occasions, the clearer the water was, the more zooplankton that we found.

Evaluation

If we could do this again, we would like to also study the dissolved oxygen in the water. Also, we wouldn’t use the secchi disk again, because that can be influenced by human error.

Ideas for the future

New Questions

What effect do the seasons have on the phytoplankton and zooplankton population?

Are there variations due to the depth of the water?

New Methodologies

Use less water to get the plankton out of the nets

More control over dependent (manipulated) variables