



Journal of Student Research on Puget Sound

The collected reports of the student scientific explorations aboard the *SV Carlyn*

Salish Sea Expeditions is a catalyst for students in their inquiry of Puget Sound through boat based-scientific exploration.

**Are there more phosphates near shore
or away from shore?**

**Meadowdale Middle School - 7th Grade
Lynnwood, Washington**



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Date: May 8-11, 2006
Grade: 7
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I. Title

Are there more phosphates near shore or away from shore?

II. Abstract

Our hypothesis was that there will be more nutrients near shore than away from shore because the current carries the nutrients into the shore water. We collected the samples and examined them by using the Niskin bottle and bucket to collect the water. We also used the zoo- and phytoplankton nets, DO probe, secchi disc, and the refractometer to test the water. The data lead us to accept our hypothesis, because there was more nutrients close to shore than far away. Next time someone goes on the trip they should study animals and use microscopes because it would be more interesting and would mean more to the students because we would understand it more.

III. Introduction

We chose our experiment because we thought it would be fun. We chose phosphates other than nitrates or plankton. Our subject relates to Puget Sounds in a couple of ways. One way is that it can be used to figure out where to restock mammals.

Our hypothesis was that there will be more nutrients near shore than off shore. We decided on our hypothesis by voting. We collected information that supports our hypothesis. Other information we collected included: sediment samples, from the bottom of the ocean. Also we took wind observations.

IV. Experimental Design

To start the day you would either sail to a near or a far away from shore location and take your samples. You would organize the information into a data sheet in the morning, then switch (far to near, near to far) in the afternoon. Do this for 6 trials. To gather your data use the Niskin bottle and the bucket. To use the bucket just dunk it into the water until it's full and bring it back up. To use the Niskin bottle you need to open the top and bottom of the bottle, attach the hooks to the trigger, launch 4 feet into the water, attach the weight to the line, throw the weight into the water to activate the trigger, pull the bottle out of the water and pour out the water sample into a container. We analyzed the samples with the phosphate test kit and with the microscopes. We tested each water sample 2-3 times for accuracy.

V. Results

Station number	Bucket (surface)	Niskin bottle (1 m)	Near/far from shore
48	0.1	0.1	Far
	0.1	0.1	
49	0.1	0	Near
	0.1	0	
50	0	0	Far
	0	0	
51	0.2	0.1	Near
	0.2	0.1	
		0.2	
52	0.1	0.4	Near
	0.2		
53	0	0	Far
54	0	0	Far
55	-	-	Near

For this data we acknowledged that the trend is that there are more phosphates near shore, but there is not very much phosphate anywhere, so it may not be important.

VI. Discussion

Our hypothesis was that there are more nutrients near shore than far away from shore. We agree with our hypothesis because there are more nutrients near shore than away! Our data is shown above. We think we got these results because there are more animals that eat different plant life near shore. And maybe things away from shore don't have nutrients because they eat each other. We think this could mean that there are more animals near shore. We also think that there could be more nutrients near shore because nutrients could come from animal poop in rivers, and from the stuff that goes down our (peoples') drains. If we could do another expedition in the future, we would not collect different data. We would take better notes on the data sheet, and especially put where we sailed.

VII. Cruise Summary

Our research project was good and we did some trials (about 2) for near shore and away from shore for nutrients. We then tested the water for amounts of phosphates. Some other questions we had were the amount of salinity or the clearness of the water. If we could come on another expedition, some other questions we'd like to study are different amounts of plankton near and away from shore. In a future expedition, we would keep the close to shore or away from shore variable, but if we did near shore sample sites, they would be on the dock, since that was the highest number with phosphate levels and I think we could actually write if that trial was near shore or away from shore on the data sheet. Lastly I think we could make deployment times at the same time every day. In conclusion this was an overall good experience and would do this again in a heartbeat.