

The Scientific Expeditions of the S/V Carlyn

Journal of Student Research on Puget Sound



Mt. Si School - Spring, 2009

Plankton Population in Relation to Depth



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

Wind & Water Watch

April 18-20 2009

Salish Sea Expedition

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Question

- At what depth is there more plankton?
- How does temperature and oxygen effect plankton levels?

Hypothesis

If you take samples at two meters and eight meters



Then there will be more phytoplankton, zooplankton, and oxygen at two meters

Because phytoplankton need sunlight to survive, and zooplankton need oxygen produced by the phytoplankton



Materials

- **Dissolved Oxygen Probe-** Measures the oxygen in the water
- **Phytoplankton Net-** Collects Phytoplankton
- **Flow Meter-** Measures current speed
- **Niskin Bottle-** Collects water samples
- **Zoo plankton Net-** Collects Zoo plankton



Day 1: Science

- **Went over hypothesis**
- **Learned Materials:**
 - **Plankton nets**
 - **Niskin Bottle**
 - **Flow Meter**
 - **oxygen Probe**
- **Created procedures for the science launch**
- **Learned the weather and tides**
- **Learned knots for tying the equipment**
- **Did our first science launch**



Day 1: Sailing

- **Learned the different types of sails**
 - Main
 - Jib
 - Stay'sl
 - Mizzen
- **Learned the different lines**
 - Halyard
 - Sheet
- **Knots**
 - Square
 - Figure eight
 - Bolin



Day 1: Evening--Camping



- **Anchored at Spencer's Spit and boated to the island**
- **We set up camp, made dinner and ate**
- **We then walked the beach and the spit**
 - **Played "Camouflage"**
 - **Found and played with Geo-Ducks**
- **Campfire Fun**

Day 2: Science



- Completed a launch and gathered information without help from scientists
- Sifted phytoplankton and zooplankton into graduated cylinders
- Observed plankton under microscopes

Day 2: Sailing

- **Raised the sails**
- **Steered the boat**
- **Tacked the sails**
- **Chose a route to James Island**



Day 2: Night on Carlyn

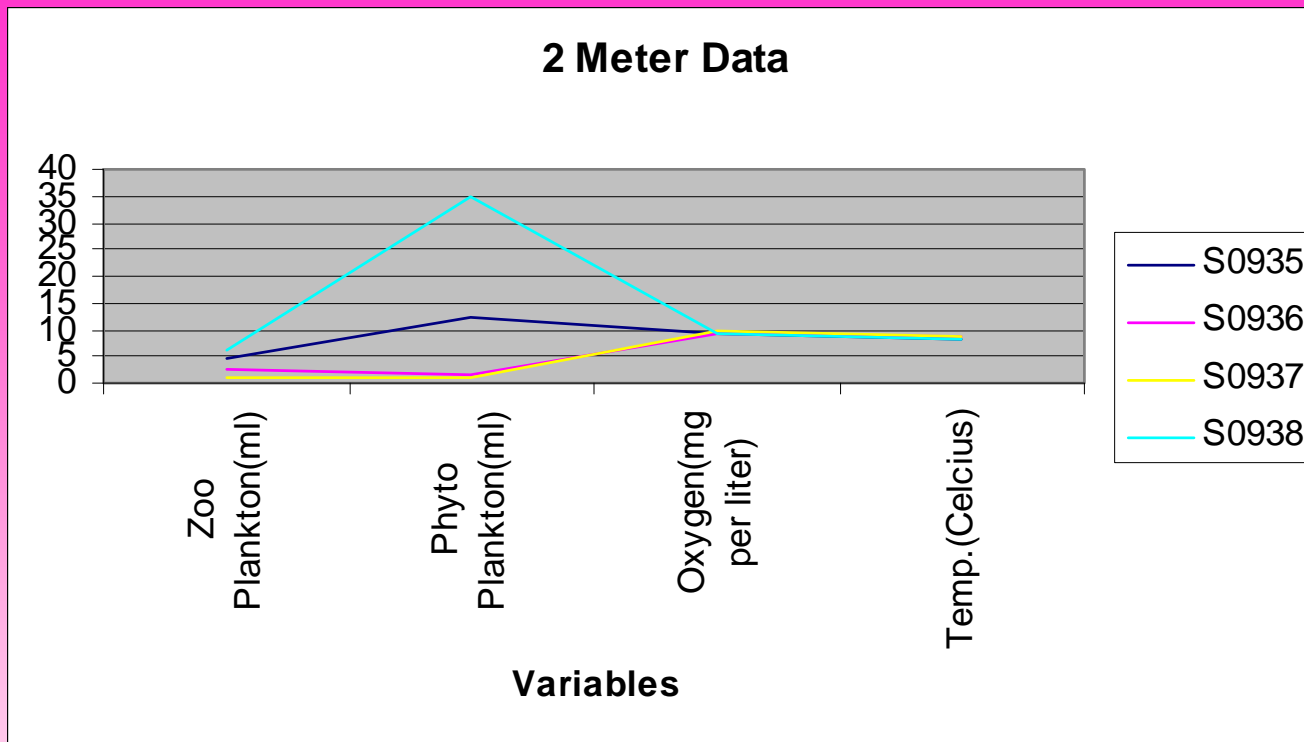
- **Cleaned the Carlyn**
 - **Scrubbed deck**
 - **Wrote log for the day**
 - **Made dinner**
 - **Cleaned the Heads**
- **Hiked around James Island**
- **3 students went out on the row boat**
- **Did some dredging around the dock**
- **Had dinner**
- **Played Games**



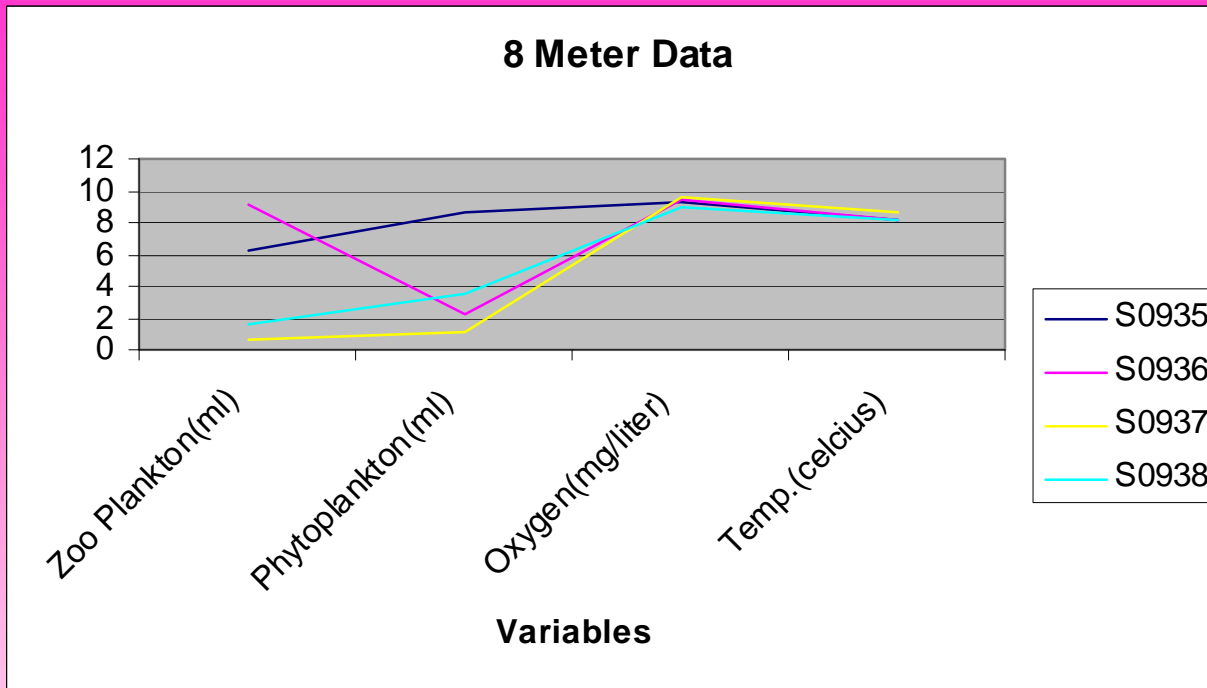
Day 3: Sailing & Science

- **Both groups worked together to divide into jobs**
- **Everyone was doing something**
 - **Setting sails**
 - **Navigate to destination**
 - **Steer**
 - **Deploy science equipment**
 - **Work on flow charts**
- **Sailed into harbor, docked, unloaded**
 - **Major cleaning of the Carlyn and equipment**
- **Final farewells!**





Deployments	Zoo Plankton (ml)	Phytoplankton (ml)	Oxygen/temp Celsius
S0935	4.6	12.15	9.07/8.4
S0936	2.6	1.54	9.48/8.5
S0937	1.17	1.05	9.99/8.9
S0938	6.3	35	9.0/8.3
S0939	100	33	10.25/8.7



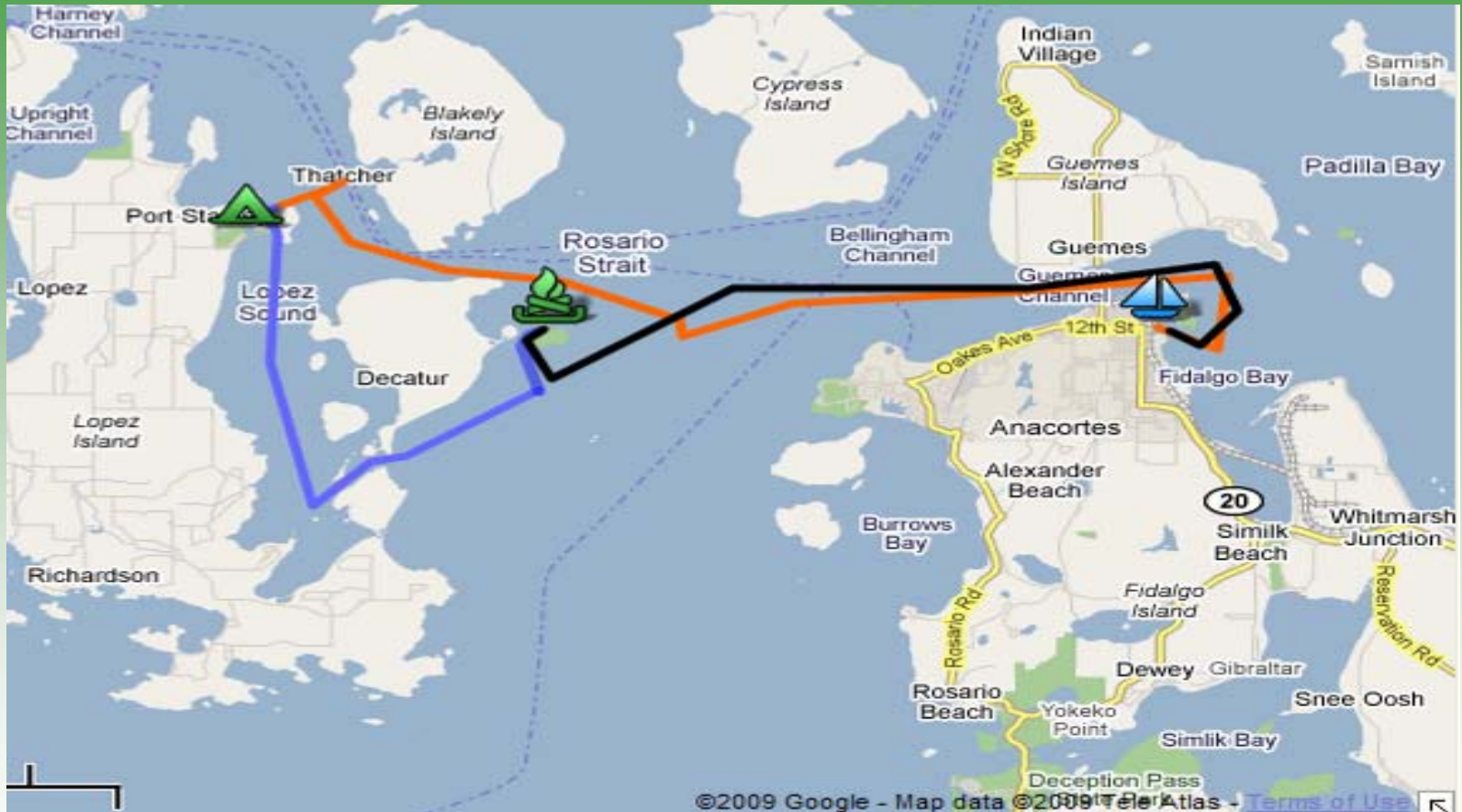
Deployments	Zoo Plankton (ml)	Phytoplankton (ml)	Oxygen/Temp Celsius
S0935	6.3	8.65	9.34/8.2
S0936	9.2	2.2	9.37/8.2
S0937	.59	1.05	9.59/8.6
S0938	1.57	3.5	9.02/8.1
S0939	50	60	10.05/8.4

Science conclusion

- **Our results did not support our prediction.**
- **The plankton levels were actually higher at 8 meters deep.**
- **Our hypothesis was not supported by the data we collected**
- **We were able to gather samples to bring back to other science classes.**



Map of Routs Traveled



The different colored lines represents the 1st (orange), 2nd (blue) and 3rd (black) day trips.

Bibliography

- McColloch, Jenny. Salish Sea Expeditions. 1994. May 13, 2009
<http://www.salish.org/educatorsonly>
- Salish Sea. Mount Si High School. Google Maps. 14 May 2009
<http://maps.google.com/maps/ms?ie>