

The Scientific Expeditions of the S/V Carlyn

# Journal of Student Research on Puget Sound



Peak to Peak - Spring, 2009

## Water Temperature and Zoo-Plankton in Jelly Habitats



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



# Salish Science

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# The Scientific Method

- Ask a question: Where are the jellyfishes' habitats?
- Hypothesis: Jellyfish prefer higher temperatures and/or Silica, and like to live around lots of zooplankton
- Design an experiment: We will use various instruments to measure the temperature, silica, and plankton. We will do this in multiple areas, but at the same depth. (6 meters)



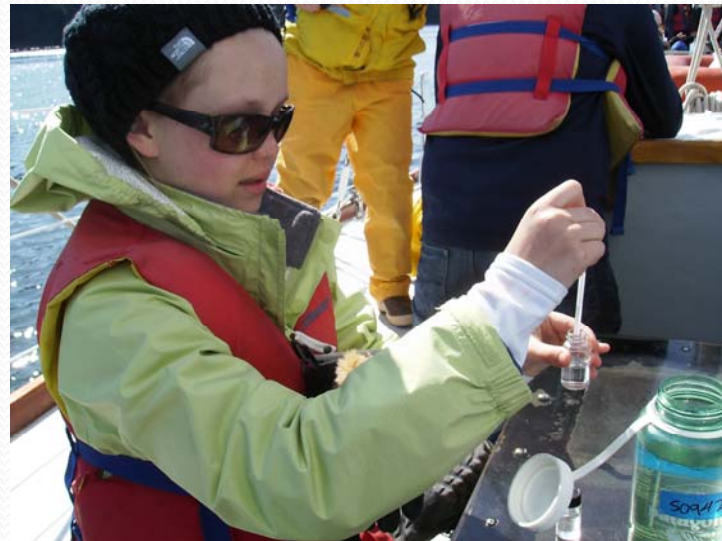
# Plankton

- Plankton is any living body that that can't decide whether or not to fight the current; another term is 'drifter'.



# Temperature and Silica

- Silica is a nutrient. Nutrients are minerals that an animal or plant can use.
- We chose Silica because it is a major resource for zooplankton. The small animals (mainly crustaceans) absorb it, then use it to build their exoskeletons.



# Temperature and Silica Con.

- Temperatures can affect the rate they absorb silica, the amount of silica in the water, the planktons' metabolism, etc.



# Materials

- Niskin bottle: used to collect water samples from deeper areas.
- Plankton net: used to collect plankton
- Silica test kit: used to measure silica
- Storage containers to hold samples
- Labeling kits
- Line: rope
- Graduated cylinder: used to measure water volume



Niskin Bottle

# Procedure

1. Prepare the equipment for deployment
2. Ask the Captain which side to deploy off of (starboard or port)
3. Tie instruments to safety line with a jib knot
4. Tell the captain “ready to deploy”
5. When captain yells, “deploy away”, carefully deploy each instrument properly
6. Plankton net is held at 6m for 4 minutes/ Niskin bottle is held at 6m, then close Niskin bottle.
7. Carefully haul the equipment back onto the boat



# Procedure Continued

9. Use the special kit to collect plankton from plankton net, place it in a water bottle, then record and label.
10. Test the amount of silica and temperature of water sample, then record and label
11. Record the data on the Mother Board
12. Map your location
13. Repeat steps 1-12 many times as needed
14. Graph the data
15. Analyze the results
16. Design new experiment(s)



Plankton Net

# Data

Station Number	Temp. in Celsius	Silica-ppm	Zoo Plankton-ml
S0939	8.6	1.23	5
S0940	8.9	2.74	4
S0941	8.5	.83	5
S0942	8.7	1.98	5.5
S0943	8.2	2.13	7
S0944	9.5	.90	4

# Conclusion

According to our data,

- Zooplankton are found generally found in areas high amounts of Silica
- We also found there was more Zooplankton in areas of lower temperature

# Future Experiments

- Same experiment, but with more focus on temperature control
- Same experiment, but launch equipment in areas with similar turbidity
- Look for one specific type of zooplankton
- Same experiment, but research during nighttime and daytime- which time has most zooplankton?
- More research on bio-luminescence

# A Special Thanks

All the participants of Salish wish to thank the Salish crew and Captain for taking the time to educate us.

We hope Salish will continue to educate future generations.

We would also like to thank Peak to Peak, staff, parents, Ms. Sugden, and Mr. Knox for sponsoring our trip.

