HIMOES Presentation Konawaena Middle School

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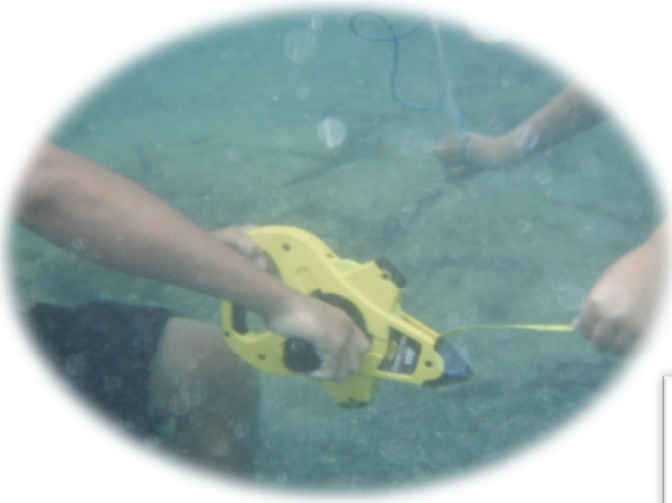
Experiment

Question: How does the distance from shore, affect the Nitrite, Nitrate, Phosphate & Salinity levels?

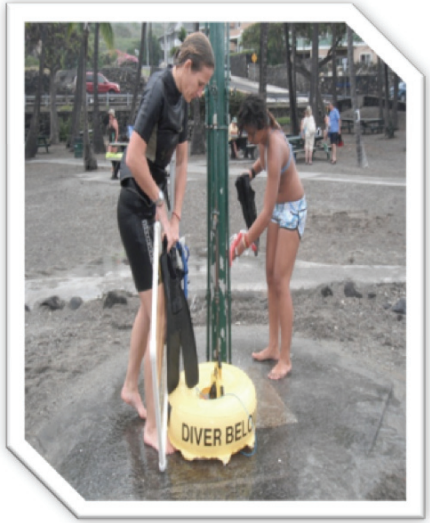
Hypothesis: We predict that all the levels will increase the further away from shore we go.

About: We went to Kahaluu beach and took water samples. We then tested them for different water pollution indicators and wrote the results down on a data chart which was converted into a graph. From there, we analyzed the data to see if our hypothesis was correct. This would tell us if our ocean is polluted. If so, we hope to find out what we can do to help.

Materials



- Measuring tape
- Water proof paper
- Pencil(s)
- 12 water sample bottles
- Mesh bag (to carry sample bottles)
- Snorkel gear
- “Diver Below Buoy”
- La Motte test kits for Nitrates & Phosphates
- Salinity Probe



Procedure:

1) Gather Materials
2) Label 3 sample bottles as follows:
3) Nitrate #1, Nitrate #2, Nitrate #3
4) Do the same for phosphate & Salinity tests
5) Gather bottles, mesh bag, measuring tape, safety buoy and snorkel gear and go to ocean to collect samples
6) Swim to designated collection areas (15', 30' and 45' from shore)
7) Collect water samples using the following procedure:
   - Dunk bottle under the water and fill (should be facing any current). Bring to surface and empty it. Do this 3 times. On the 4th time, fill the bottle completely and cap underwater.
   - Swim back to shore and clean off equipment before conducting tests.
   - Use Nitrite/Nitrate tests first, and follow directions as said. When testing, test bottles in chronological order. Then do the same but for Phosphate & Salinity

Results

- Nitrite/Nitrate- Morning: Afternoon:

  #1: 0ppm #1: 0ppm

  #2: 0ppm #2: 0ppm

  #3: 0ppm #3: 1ppm (For Nitrite: 4.4ppm)
- Phosphate- Morning: Afternoon:

  #1: 0.2ppm #1: 0.1ppm

  #2: 0.5ppm #2: 0.2ppm

  #3: 0.5ppm #3: 0.2ppm

- Salinity- Afternoon:

  #1: 34.08ppm

  #2: 33.79ppm

  #3: 33.73ppm

Conclusion

- Since we had several tests results to look at, we found out that our hypothesis was incorrect for some & correct for others. With the nitrate/nitrite results, our hypothesis was correct, but it was hard to determine since more than half of the data was 0. Phosphate levels were also found to increase as we went further from shore. According to the results, the levels in the afternoon also decreased. An interesting thing to point out here is that the difference was .3 in all trials. Salinity was not supported by the hypothesis because the levels got lower not only in distance from shore, but also from morning testing to afternoon testing. In other words, salinity decreased away from the shoreline instead of increasing like we had predicted.

What we learned…

- Through this experiment & experience we learned what nitrite, nitrate, phosphate & salinity are from researching. Also how bad pollution can get if we don't do anything to help our ocean. Not only did we learn about pollution and find the answer to our question. But, from the "Reef Teach" we also learned how our coral reefs are getting destroyed and what we can do to protect it. Overall this was a fun experience and we will never forget it. We learned a lot and got the chance to conduct an experiment outside of the classroom, which is always exciting.

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