CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)
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Project Number
J1207

Project Title
Sea Shells by the Sea Shore

Abstract

Objectives/Goals
The purpose of my science fair project is to make people more aware of the effects of global warming and how it impacts sea life. I used clamshells, mussel shells, razor clam shells and carbon sand. The carbon sand was given to me to test by David Schwartz, a professor at Cabrillo College.

Methods/Materials
I measured the density of the shells and carbon sand with a digital scale and graduated cylinder. I put them in simulated ocean water and altered the pH to that of real ocean water. Using vinegar and soda water (carbonated water), I altered the pH levels to demonstrate what will happen to marine life containing carbonate if humans continue to expel as much carbon dioxide into the environment as they do currently. The chemicals that I used were to collaborate the pH meter to find the acidity level. I let these solutions sit for one month and then measured the density of them again to see the percentage difference from before they were put into the acidic environments. This demonstrates what happens to mollusks and coral reefs because of global warming.

Results
The vinegar and controls on average changed the density an equal amount with 17%. Soda water changed the density the least. It changed by 14%. On average, the controls decreased -5% and soda water pH increased by 2% and the vinegar cause the pH to increase by 42%.

Conclusions/Discussion
My hypothesis that the densities will decrease as the pH level decreases was partially proven. I thought that the vinegar would decrease the density the most, then the soda water and then the control. On average, the soda water and control switched by having the control decrease the density more than the soda water. The clams had the same order on density changes as the average. The mussel control changed the density the most and then vinegar and then soda water. For the carbon sand, the control and soda water decreased evenly and the vinegar was a little less. For razor clams, the control made the density increase the most and soda water made them increase the second most. Vinegar went as expected

Summary Statement
The replication of ocean acidification by putting different kinds of shells in acidic ocean water.

Help Received
Ms. Q. let me use her room and helped me work the pH meter; David Schwartz gave me carbon sand and information.