CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY

Name(s)
Shivani Bhushan

Project Number
J1002

Project Title
Do Marine Plants Reverse Ocean Acidification?

Abstract

Objectives/Goals
The objective is to determine whether marine plants (seagrass and sea lettuce) reverse ocean acidification.

Methods/Materials
One trial required a total of four aquariums. Aquarium A was the control containing sand and ocean water. Aquarium B had seagrass added. Aquarium C had sea lettuce added and Aquarium D had both seagrass and sea lettuce. The pH, salinity, specific gravity, temperature and calcium levels of these aquariums were tested and compared to the control. A total of four trials were conducted, each lasting two weeks.

Results
The control aquariums in this experiment had fluctuating pH's through all tests. In contrast, the aquariums with sea plants had predictable increasing pH trend lines. The other measurement, were the sanity variable to make sure the ocean water stayed within the natural coral reef range.

Conclusions/Discussion
The control tank's pH did not show any consistency throughout the trials conducted. However, the aquariums with plants showed an increasing trend in the pH values. The pH values of containers with plants would increase until around the 8.6 mark (ideal for coral calcification) where it would stabilize. All the sanity variables stayed within the required range making the entire project valid. If seagrass beds and sea lettuce fields were propagated in coral reefs, this would slow down/perhaps stop ocean acidification from destroying more reefs in the future.

Summary Statement
When seagrass and sea lettuce are added to an ocean environment, they increase the water's pH, therefore reversing ocean acidification.

Help Received
My teacher, Mrs. Gillum, helped by guiding me through this project. My dad helped by driving me from the beach to Petco in order to get the testing equipment. Dr. Jameal Samhouri was my mentor and helped to establish the water parameters to measure. Birch Aquarium provided the test plants.