CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY

Name(s)

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Project Number

S0607

Project Title

An Analysis of the Effects of CO2 on the Dissolution CaCO3 in Marine Life

Abstract

Objectives/Goals

Carbon dioxide levels in the atmosphere are rising at an alarming rate, putting many marine ecosystems at risk of irreparable damage. The objective of this study was to isolate a correlation between levels of carbon dioxide in an aqueous solution and calcium carbonate dissolution rates.

Methods/Materials

The correlation was calculated by setting clams into tanks with various concentrations of CO(2), with one being a control. The tanks were then all filled with water and CO(2) was pumped into all of the tanks except for the control. The clams were monitored weekly for mass, length, width, and volume loss. The tanks were monitored for CO(2) concentration, pH, and temperature.

Results

The data revealed a direct correlation between CO(2) concentration and CaCO(3) dissolution rates.

Conclusions/Discussion

This corroborates the hypothesis that heightened CO(2) concentrations in the atmosphere could severely damage the CaCO(3) shells of marine invertebrates.

Summary Statement

Clams were submerged in tanks with varying levels of added CO(2) and measured for changes mass, width, length, and volume.

Help Received

The University of California, Riverside supplied us with materials like tanks, CO(2), and a fume hood, but the research performed was performed independently by the authors of this project and without the guidance of the UCR faculty.