Name(s)
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Project Number

J1219

Project Title

Ocean Acidification and Shell Loss in Marine Calcifying Organisms

Abstract

Objectives/Goals
The purpose of this project was to determine if mass loss would occur to the shells of three marine calcifying organisms when the shells were immersed in sea water with pH levels of 8.0, 7.0, 6.0 and 5.0

Methods/Materials
Shells were prepared and the mass was measured using a gram scale. The sea water was prepared by mixing tap water, dechlorinator and Instant Ocean salt to achieve the control water of pH 8.0. The sea water for pH levels of 7.0. 6.0 and 5.0 were prepared by adding white vinegar as the acidifying agent. The shells were placed in labeled jars and filled with the prepared sea water. The lids were sealed and the jars were left undisturbed for 21 days. After 21 days the pH level was tested and shell loss was measured with a gram scale. Data was recorded and analyzed for individual shell types. Data was also analyzed by grouping all shell types together by pH level.

Results
The results show that all types of shells tested had a mass loss as the acidity level increased. At pH level 8.0 average shell loss was 0.15%. At pH level 7.0 average shell loss was 0.55%. At pH level 6.0 average shell loss was 0.93%. At pH level 5.0 average shell loss was 1.13%.

Conclusions/Discussion
The results of this experiment suggest that ocean acidification is having a harmful effect on the ability of marine calcifying organisms to maintain their shells. Shell loss was greater at lower pH levels. Further studies are needed to predict the long terms consequences and the impacts on the ocean ecosystem.

Summary Statement

This project studied the effect of rising acidity levels in sea water and the corresponding lowering pH levels on the shells of three marine calcifying organisms.

Help Received