



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

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Project Title Where Have All the Shells Gone?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of this science fair project is to see what ocean acidification does to the marine environment and marine creatures with shells.</p> <p>Methods/Materials The materials used to conduct this experiment were 15 ml beakers, 10% HCl, concentrated seawater, MQ H₂O, pH meter, small snail shells, sand dollars, scale, oven drier, droppers, and parafilm. The shells were in the 8 different solutions for 3 weeks. Every week, we took the shells out of the solutions, oven dried them, weighed them, and returned them to the appropriate solution.</p> <p>Results There were 8 solutions with 2 samples of each type of shell. Over the course of three weeks we found the following results. For the MQ H₂O with a pH level of 6.50 there was a -2.99% of change. The straight seawater had a pH level of 8.09, there was a 2.19% of change. For the sample that would be the water in year 2100 with a pH level of 7.60 there was a -1.26% of change. Then for the sample with a pH level of 7.16 there was a -1.31% of change. Also the sample that had a pH level of 6.66 there was a -5.44% of change. The next sample had a pH level of 5.75 there was a -5.44% of change. For the sample with a pH level of 3.90, that resembled coca cola, there was a -21.78% of change. The last sample had a pH level of 1.29 there was a -28.39% of change.</p> <p>Conclusions/Discussion As expected, the more acidic the solutions got, the more the shells dissolved. Knowing that the condition of each shell could have changed the results, we tried to get shells of the same look, weight, and condition. The experiment ended like we thought it would, but held some surprises. In the beginning of the experiment, some of the shells gained weight. We thought it was the shape of the shell but it is just the acidity of the water. The more basic the water is, the more the shells can strengthen.</p>	
Summary Statement This project is about how ocean acidification is affecting the marine environment.	
Help Received Used lab equipment at Hartnell College under the supervision of Nancy Wheat	