



CALIFORNIA STATE SCIENCE FAIR 2014 PROJECT SUMMARY

Name(s) Amy C. Nguyen	Project Number 34112
Project Title It's the Acid	
Objectives/Goals My objective was to determine how ocean acidification, the increase in the oceans' acidity, effects marine life. Abstract Methods/Materials In my experiment, I divided 9 jars into groups of 3 to satisfy three classifications of basic with a pH about 8, neutral with a pH of about 7, and acidic with a pH of about 6. Each jar contained 1 ounce of quarter-sized mussel shell fragments. I created my own solutions where 3 buckets were assigned either basic, neutral, or acidic and started out with an equal amount of tap water and Instant Ocean Sea Salt. They were then titrated by either adding baking soda to raise the pH or vinegar to decrease the pH. The solutions were read using pH indicator strips. Each bucket's solution was transferred into their 3 jars. The 9 jars remained undisturbed for 3 weeks; 3 weeks later, the jars were drained, reweighed and observed. Results I found that the shells fragments in jars A, B, and C with a pH of 8 did not decrease in weight or change appearance, and therefore all the shell fragments weighed 1 ounce. The shells in the neutral jars D, E, and F also has no deterioration in weight, but the shells in all 3 jars had a slight discoloration. The shell fragments in acidic G and I weighted 0.9 oz., and jar H weighted 0.8 oz. The mussel shells in the acidic jars obtained a subtle white cast and discoloration. Conclusions/Discussion As a result, ocean acidification causes the shells of mussels degrade in weight and can affect their stability. The shells immersed in the basic and neutral solutions (pH of 8 and 7) had no diversity in terms of weight, remaining at 1 ounce. The shells in acidic jars G, H, and I did meet differentiation with weight of 0.8 and 0.9. Although the difference is not significant, in years the shells would have been consumed and in unhealthy conditions.	
Summary Statement My intensions in my project was to explore if there was an impact on the mussel shell fragments due to the acidity of the solutions' pH.	
Help Received Teacher let me borrow pipette; Neighbor let me borrow digital scale and help drain jars; High school teachers helped calibrate pH meter, failed, and lent me pH strips; Sister helped take pictures.	