



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Nancy Nasrawin	Project Number S0810
Project Title Acidifying the Ocean	
Abstract Objectives/Goals My experiment attempted to answer the question #Do varying pH levels affect shelled creatures in the ocean?# Through my research I discovered that the ocean's pH level was 8.3 and is now about 8.1 and that it is predicted to continue dropping. In addition, acidity can dissolve calcium carbonate, which is what composes seashells. I hypothesized that if the pH level of a solution is acidic then the mass of carbonate seashells will slowly decrease. Methods/Materials In my experiment hydrochloric acid and a calcium carbonate solution were used to adjust the pH level of tap water. Nine different solutions were produced with the following pHs: 4.0, 5.0, 6.0, 7.9, 8.1, 8.3, 8.7, 8.9, 9.9. Nine groups of the same ten different shells for each solution were weighted. Each group of shells was then placed inside one of the solutions within closable containers. Every week for 5 weeks the shells were dried and weighed and results recorded. Results The 4.0 solution produced the greatest decrease: an average of .49 grams. Four out of the six basic solutions had less than half the loss of the most acidic solution. The pH of 8.3 had a .14 gram average decrease, 8.7 had a .17 gram average decrease, and the 8.9 and 9.9 both had an .18 average decrease. Conclusions/Discussion Carbon dioxide emissions cause acid rain, which is lowering the pH of the ocean. An unthought of consequence of burning fossil fuels is that it could thin the shells of creatures in the ocean, and could impede their ability to create a protective cover. Populations of seashell animals in the ocean could be expected to decline.	
Summary Statement My project is about the consequences of carbon dioxide emissions acidifying the ocean.	
Help Received Teacher set up equipment for me so I can adjust the pHs.	