



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Jennifer C. Wang	Project Number S1326
Project Title The Effect of a Calcium Solution on an Aquatic Plant's Ability to Withstand Acid Rain	
Abstract Objectives/Goals My objective was to see whether a soluble calcium compound impacted Ulva's ability to withstand acid rain. Methods/Materials I had three tanks, 1.5 gallons each. All three tanks had salt water make-up and were at 25 degrees celcius. The pH of the control was kept at 8.2, and the experimental tanks both had a pH of 5.0. This was to simulate the effects of acid rain on aquatic marine ecosystems. A soluble calcium solution that does not change the pH of the water was added to one of the experimental tanks. The experiment ran for 24 hours per trail, with three trials. Results I was successful in finding that a soluble calcium solution does indeed increase the chances of survival for an aquatic algae living in natural acidic conditions. The control showed no signs of change for all three trials, which means that the ulva was healthy and changed only due to the decreased pH. The experimental algae that recieved the calcium solution was significantly healthier than the algae that did not recieve the calcium. The algae lacking the calcium solution was brittle, discolored, and showed signs of depletion. Conclusions/Discussion The depletion that the experimental algae experienced was due to the decreased pH. The other algae that recieved the calcium solution was almost as healthy as the control. Both experimental algaees were kept at a very low pH of 5.0, the recorded standard pH of severe acid rain. The pH was kept at this low level to simulate the long term effects of acid rain.	
Summary Statement My project studies the effects of a soluble calcium solution on Ulva's ability to withstand an acidic environment due to acid rain.	
Help Received Long Beach Aquarium of the Pacific allowed me to use their facilities, tanks, and salt water make-up; Science advisor gave me tips on making a great presentation and display board; Cabrillo Marine Aquarium allowed me to use their healty Ulva.	