



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Kelly Chesus; Joanna Coker	Project Number S1706
Project Title Phytoplankton Populations: Prospering or Perishing?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Through this project, we hope to determine the most favorable conditions for phytoplankton survival in the Santa Cruz Harbor. We believe these conditions to include higher temperatures, higher salinity, and lower turbidity (cloudiness).</p> <p>Methods/Materials Twice a month we collect a sample of phytoplankton from the Harbor using a three-foot mesh net and record the environmental factors of temperature, salinity, turbidity, and several others. We analyze the samples with a compound microscope to identify the individual species and determine abundance. We then graph our data in order to determine the relationship, if any, between species populations and the recorded factors.</p> <p>Results Our data has led us to believe that a lower turbidity and higher temperatures are beneficial factors contributing to phytoplankton growth.</p> <p>Conclusions/Discussion We believe that a lower turbidity increases phytoplankton growth because it allows sunlight to penetrate further into the water, thereby increasing photosynthesis and the phytoplankton's ability to reproduce. A higher temperature might do likewise because it would increase the rate of biological reactions within the phytoplankton, increasing their reproduction rate in a certain amount of time. From our data, we may be able to predict the occurrence of toxic phytoplankton blooms such as red tides. This project was made possible by: Gregg Langlois and the California Department of Health, Susan Coale of University of California Santa Cruz, and Jane Orbuch of San Lorenzo Valley High School.</p>	
Summary Statement The goal of our project is to determine what specific environmental conditions are favorable to phytoplankton growth.	
Help Received Used microscopes and cameras at San Lorenzo Valley High School under the supervision of Jane Orbuch, teacher. Received some advice and reference samples from Gregg Langlois, employee of California Department of Health, and Susan Coale, researcher at University of California Santa Cruz.	