



# CALIFORNIA STATE SCIENCE FAIR 2003 PROJECT SUMMARY

<b>Name(s)</b> <b>Lea Bond; Carynn Milne</b>	<b>Project Number</b> <b>S1303</b>
<b>Project Title</b> <b>Is Santa Cruz Harbor Safe? Phytoplankton Monitoring</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> To identify, study, and document the fluctuations of the toxic phytoplankton, Pseudo-nitzschia spp., Alexandrium catenella, and Dinophysis in the Santa Cruz harbor over the course of several months (September to June) to see if the Santa Cruz area is safe from Domoic Acid Poisoning (Shellfish poisoning). Does abiotic factors have an effect?</p> <p><b>Methods/Materials</b> Samples were taken from the Santa Cruz harbor biweekly, unless there was unsafe conditions. One sample was sent to the California Department of Health Services and the other was taken to our science lab to observe. Using identification books and a powerful microscope, the sample was observed and phytoplankton found were classified and photographed and/or sketched. Qualitative analysis of the samples was recorded to see if there was any presence of harmful phytoplankton in the Santa Cruz harbor. We quantified our sample with relative abundance.</p> <p><b>Results</b> There was Psuedo-nitzschia blooms in the final months of winter and beginning months of spring (February to April/May) resulting in samples containing over a 1000 specimens per 2 mL of Psuedo-nitzschia. This was to be expected because of upwelling but as of April 7, 2003, no Alexandrium was ever found and only on specimen of Dinophysis was encountered (January 28, 2003). Sense the first storm of the year in Santa Cruz, Psuedo-nitzschia was a constant species found in samples. In times before, it was not.</p> <p><b>Conclusions/Discussion</b> It was found that the harbor was relatively safe from dangerous phytoplankton up until the late winter where Psuedo-nitzschia populations exploded. This supports our hypothesis that the harbor and Santa Cruz area are safe from the toxins released by such phytoplankton until late winter where upwelling of colder waters and nutrients are ideal for such species. No Alexandrium was found and Dinophysis never was of much concern. Our conclusion is that abiotic affects such as temperature and upwelling does, in fact, effect phytoplankton numbers but not necessarily all three deadly phytoplankton.</p>	
<b>Summary Statement</b> To collect and monitor toxic phytoplankton and environmental factors in the Santa Cruz Harbor, in specific such species as Psuedo-nitzschia, Alexandrium and Dinophysis	
<b>Help Received</b> 1)San Lorenzo Valley High School - Jane Orbuch- Camera, computer and lab access, 2) UCSC Marine Biology Department - Susan Coale - Microscope, 3) California Department of Health Services - Gregg L.- collection net and confirmations on species, and 4) Apri	