



California Science Center  
**CALIFORNIA STATE SCIENCE FAIR**  
**2001 PROJECT SUMMARY**

<b>Your Name</b> (List all student names if multiple authors.) <b>Virginia R. Dick</b>	<b>Science Fair Use Only</b>  <h1 style="margin: 0;">J0807</h1>
<b>Project Title</b> (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9) <b>Can the Application of a Clay Flocculate Mitigate a Harmful Algae Bloom?</b>	<b>Division</b> <input checked="" type="checkbox"/> <b>Junior (6-8)</b> <input type="checkbox"/> <b>Senior (9-12)</b>
<b>Preferred Category</b> (See page 5 for descriptions.) <b>12 - Microbiology</b>	
<b>Abstract</b> (Include Objective, Methods, Results, Conclusion. See samples on page 14.) Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.	
<p><b>Objective:</b> To prove that an application of a clay flocculate onto a harmful algae bloom will mitigate the number of cells in the bloom, thus reducing or eliminating the effects of the bloom on the surrounding environment.</p> <p><b>Materials and Methods:</b> A net was used to collect a two liter sample of plankton and water from San Diego Bay. This two liter sample was separated into two 1,000 milliliter graduated cylinders, one was a control, the other was for the experiment. Three drops of water were drawn from the top, middle and bottom of the control cylinder, and the abundance and diversity of plankton was noted using a Swift field microscope. A measured quantity of a clay slurry (flocculate) was then applied to the surface of the target cylinder. Three drops of water were then drawn from the top, middle and bottom of the target cylinder and the plankton were counted using the same methodology.</p> <p><b>Results:</b> Three out of five tests showed successful mitigation of plankton in the water column. It was also discovered that the clay flocculate ionized (bonded) with the cells of both harmless and harmful plankton. The plankton population in the target cylinder was reduced from 9 to 83 percent.</p> <p><b>Conclusion:</b> The application of a clay flocculate would be successful in mitigating or maybe even stopping a harmful algae bloom (HAB) event. Red and brown tides (HAB) contain dangerous amounts of naturally occurring toxins that can cause symptoms ranging from seizures to death in both aquatic and land mammals.</p>	
<b>Summary Statement</b> (In one sentence, state what your project is about.) Determining the feasibility of using a clay slurry to reduce the effects of a harmful algae bloom.	
<b>Help Received in Doing Project</b> (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4. Mom cut my board for me, dad drove me to sampling site, I borrowed plankton net and microscope from Ca. Dept. of Health Services, Phytoplankton Monitoring Program.	