



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Emily Dolson; Sanaya Forbes	Project Number S1106
Project Title Anthropogenic Influences on the California Sea Otter (<i>Enhydra lutris nereis</i>) Population in Moss Landing Harbor	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The California sea otter (<i>Enhydra lutris nereis</i>) has been highly endangered since being nearly hunted to extinction one hundred years ago by fur traders. The population is taking far longer to recover than predicted. As the sea otter is a keystone species in the kelp forest ecosystem, it is crucial to understand what factors are inhibiting its growth. Human impacts, though widely suspected, have not been closely examined. The purpose of this project was to determine what effects, if any, humans have on sea otter well-being. What behavioral changes occur in sea otters when humans approach them? The hypothesis was that, if approached, sea otters would dive and swim away, thus inhibiting the thermoregulative abilities which are essential for survival. An important corollary hypothesis was that humans would approach sea otters, even though it is illegal.</p> <p>Methods/Materials A raft of sea otters floating in Moss Landing Harbor was observed over four months, using a time-budget methodology to insure that results were statistically comparable. Every ten minutes, the location and activity levels of all otters were recorded, along with a variety of other factors that could affect sea otter behavior. Human interactions were noted as new entries, allowing comparison of alterations in group dynamics.</p> <p>Results Through a comparison of differences in behaviors between these data points, it was determined that human approach changes otter behavior in a statistically significant manner. Otters tend to expend more energy when humans are present.</p> <p>Conclusions/Discussion Our results suggest that human interaction may pose a threat to otters, by causing them to expend more energy than is available to them. They also suggest that a reexamination of current laws may be in order to more effectively protect otters; reducing the amount of space that boaters must maintain in between themselves and otters may increase compliance without harming the otters.</p>	
Summary Statement This project examines the changes in sea otter behavior that result from humans approaching them illegally.	
Help Received Mentor from Monterey Bay Aquarium helped with project design; parents helped with editing; teacher helped with organization	