



**CALIFORNIA STATE SCIENCE FAIR  
2010 PROJECT SUMMARY**

<b>Name(s)</b> <b>Anastasia B. Leopold</b>	<b>Project Number</b> <b>J1214</b>
<b>Project Title</b> <b>Plastic Beach: An Analysis of Marine Debris in the Capitola Beach and Soquel Creek</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My objective is to determine what is the most prevalent type of marine debris found on Capitola Beach and Soquel Creek and whether the local polystyrene foam ban effectively reduced marine debris.</p> <p><b>Methods/Materials</b> I collected marine debris from Capitola Beach and two sites along the Soquel Creek using plastic garbage bags and latex gloves. I weighed and sorted each collection on a tarp and recorded all materials on a modified Marine Debris Data card. This process was repeated five times.</p> <p><b>Results</b> My results show that the most prevalent type of marine debris are Styrofoam pieces at Capitola Beach; plastic food wrappers at the Soquel School creek site; and smoking items at the Center Street Bridge creek site. Compared to historical data from Save Our Shores, the amount of food containers found at Capitola Beach has gone down, but the amount of polystyrene foam pieces has risen significantly.</p> <p>Total weight of the marine debris: Capitola Beach: 28 pounds; Soquel School creek site: 2 pounds; Center St. Bridge: 3.35 pounds</p> <p><b>Conclusions/Discussion</b> My hypothesis that hard, plastic pieces from bottles, etc. will be the most prevalent was incorrect.</p> <p>My hypothesis that the polystyrene foam ban is working was correct. A polystyrene foam ban for take-out food packaging was established in Santa Cruz in 2007/08. The amount of full polystyrene foam cups, etc. has gone down, but the amount of polystyrene pieces has risen. This makes sense because polystyrene goes through a photodegradation process and breaks down into smaller pieces, yet never goes away. In addition, people often smoke and eat at creeks and their trash enters the creek if not thrown away properly.</p> <p>This is a very important subject because marine debris in the ocean is hurting many organisms. An estimated 80% of plastic in our oceans comes from our watersheds on land. My study shows the ban is working and should be continued. Officials could create more bans on other plastics and find eco-friendly solutions like biodegradable food wrappers and smoking related items.</p>	
<b>Summary Statement</b> My project is an analysis of the marine debris found locally on Capitola Beach and Soquel Creek and whether the local polystyrene foam ban is effective at reducing the local source of plastics entering the ocean.	
<b>Help Received</b> Interview with Emily Glanville from Save Our Shores; Mom drove to sites and helped collect marine debris; sister taught me how to make charts on Excel	