



# CALIFORNIA STATE SCIENCE FAIR 2010 PROJECT SUMMARY

<b>Name(s)</b> Amy H. Lee; Thomas T. Wooding	<b>Project Number</b> <b>S0821</b>
<b>Project Title</b> <b>Are the Fish We Eat Killing Us?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of this project is to determine if pollution from fishing weights, plastic, fishing line, aluminum, pesticide and sewage are absorbed by the digestive systems of fish and are subsequently absorbed by humans when they ingest fish.</p> <p><b>Methods/Materials</b> To represent the pollution, fishing weights, plastic, fishing line, aluminum, pesticide, and sewage (dog fecal matter) were used. The stomach solutions were simulated at a pH level of 2 for fish and a pH level of 4 for humans. The pollutants were collected and placed into the respective simulated stomachs and heated on a hot plate to 37 degrees C for the appropriate digestive periods. These fluids were then filtered through acid-free filter paper and the resulting solutions were placed in beakers. The solutions were allowed to evaporate for 24 hours and a precipitate formed at the bottom of the beakers. A qualitative and quantitative test was conducted for the amount of absorption occurring in the digestive fluids. To test the amount of bacteria in the sewage solution, a streaking method was used on blood and chocolate agar plates. The plates were observed at 24, 48, and 72 hours. The tests were repeated three times for accuracy.</p> <p><b>Results</b> For the fish digestive fluids, all the pollutants showed positive results. The fishing line was absorbed the least and was shown through the thin layer of precipitate at the bottom of the beaker. The next least absorbed pollutant was the plastic. Although the fish line and the plastic showed the least amount of absorption, these pollutants are the leading causes of fish death because the fish is unable to digest the plastic and it is consequently lodged in the fish's digestive tract. Aluminum was the next least absorbed and showed a thick layer of precipitate. The fish weight showed a great amount of absorption. The pesticide showed the greatest amount of absorption as a thick black layer of precipitate. The human stomach showed similar results to that of the fish. No bacteria growth at the 24, 48 hrs. period, and a rare bacteria growth at the 72 hrs. period on the fish. The human stomach had no bacteria growth at the 24 hrs. period, rare bacteria growth at the 48 hrs. period, and a few bacteria growth at the 72 hrs. period.</p> <p><b>Conclusions/Discussion</b> The pollutants are absorbed into the fish digestive system and then, in turn, absorbed in the human stomach.</p>	
<b>Summary Statement</b> This project is to determine if pollutants from the ocean are absorbed in fish and human digestive system.	
<b>Help Received</b> Mr. Cosner, our science teacher helped us run the project.	