



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Erik L. Kreeger	Project Number J1414
Project Title What Pollutant Affects Daphnia pulex the Most: Bleach, Motor Oil, or Liquid Soap? A Study of Marine Pollution	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The goal of this project was to find out, from a group of three, which pollutant affected marine life the most. Daphnia pulex were used to determine which pollutant had the greatest effect on marine life. I hypothesize that bleach will have the greatest affect because it can easily mix with the water.</p> <p>Methods/Materials Initially I used cups filled to 100ml with distilled water and enough pollutant to make four different concentrations of each pollutant for an acute test and a chronic test. Two cups were used for each concentration as well as two for control. The initial concentrations proved too high though as all the daphnia, except in the control, died the first day. I modified the procedures three times, including increasing the sample size to 800ml, using air pumps, reducing concentrations and finally using water directly from the stock tank, where the daphnia were thriving.</p> <p>Results In my first three tests, except for the controls, they all died the first day. In the fourth test, six in the soap lived, two in the bleach and ten in the control through the first day. On the next day, two soap, one bleach and ten control lived. On day three, one liquid soap was living as well as nine control.</p> <p>Conclusions/Discussion My conclusion is that motor oil is the worst pollutant of the three. Additionally, I learn that developing good procedures is as important as having the initial idea. Finally, I determined that very small amounts of a pollutant can easily affect marine life.</p>	
Summary Statement My project was about finding out which pollutant affects marine life the most, using daphnia pulex.	
Help Received Dad helped measure pollutants, type report and layout display board; neighbor offered advice on feeding daphnia pulex.	