



CALIFORNIA STATE SCIENCE FAIR 2002 PROJECT SUMMARY

Name(s) Tara M. Torcaso	Project Number J0933
Project Title What Are the Effects of Pollutants on Aquatic Life?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective is to determine what substances pose as the greatest threat to aquatic life in this bioassay test.</p> <p>Methods/Materials For the Acute Test, which lasted for 24 hours, divide beta cups containing seven daphnia and 115 ml of spring water into categories by the volumes of pollutants in each category- (Milk category- 1.15ml, 2.3 ml, 3.45 ml.) (Oil-.575 ml, 1.15 ml, 1.72 ml.)(Glass Cleaner- .575 ml, 1.15 ml, 1.72 ml.)and record the death rate. This test is conducted twice for accuracy. For the Chronic Test, which was a five day exposure of pollutants to daphnia, follow the same steps as the Acute Test except add 13 daphnia and use these volumes of pollutants- (Milk- .575 ml,1.15 ml,1.32 ml.)(Oil- .23 ml,.575 ml,.69 ml.) (Glass Cleaner- .23 ml, .575 ml, .69 ml.) and wait five days. After the five day period, observe under a microscope and record the heart rate per minute, take the PH of the water aqnd conduct 15 times per volume of every pollutant before and after exposure, and record the fatalities.</p> <p>Results Pollution does indeed affect aquatic life tremendously.In the Acute Test, oil and glass cleaner ranged at the highest death rate. In the Chronic Test, oil had the highest death rate and milk and glass cleaner were similar. The Ph changed in both the milk and glass cleaner at the greatest volume of concentration of pollutants and became more acidic. Also, the heart rate increased greatly and because daphnia are transparent and give live birth as well, in high concentration, the young daphnia still growing inside the adult were dead.</p> <p>Conclusions/Discussion The by-products from the biological breakdown of petroleum releases toxins that can greatly affect aquatic life. Car products such as oil and gasoline highly contaminate strom drains that lead to oceans. Cleaning products can cause birth defects, liver damage, and heart difficulties that can terminate an aquatic organism after a long period of time although in some cases it occurs rather quickly. Milk also greatly effects daphnia and probably other forms of marine life for after many days milk decomposes and releases bacteria causing problems. Pollution needs to be prevented from the incredibly toxic substances to the supposedly subtle substance such as milk, for the effects are life threatening.</p>	
Summary Statement It proves how dangerous pollution is and the long-term problems that arise from various volumes of the pollutants.	
Help Received Used grauated cylinders, microscope, and petri dishes from school supplies; Daphnia were provided by Berkshire Biological.	