CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)
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Project Number
J1004

Project Title
Cleaning Oil Spills in the Deep Blue Sea

Abstract

Objectives/Goals
The purpose of this science project was to see which eco-friendly method would have a stronger and more efficient effect in taking the motor oil out of seawater. These methods were absorption, filtration and freezing. It was hypothesized that the freezing method would have the stronger effect because dry ice is made of carbon dioxide and could hopefully freeze the oil quickly leaving me to just scoop it out.

Methods/Materials
Making a few improvements to the three methods, my materials were for Absorption: pantyhose, human and pet hair and as my improvement, biodegradable cat litter. For Filtration: 2 lt. plastic bottle, sand, gravel, coffee filters, a straw, cotton batting, and my improvement adding activated carbon. For Freezing: Dry Ice with my improvement being, smashing the dry ice from pellets to dust. In all my methods I used Sea Water, Motor Oil, Measuring Instruments, and Safety Equipment.

Results
As a result of my project I found that my improvements helped each method individually. The biodegradable cat litter made the absorption process fast but too messy. The changing of the dry ice from blocks, to pellets, to dust, made the freezing process very effective both cleaningwise and timewise. The activated carbon made the filtration process the most effective because the water was 99.9% free of the oil however it took the most time.

Conclusions/Discussion
In the end I found out that my hypothesis was incorrect. The Freezing process, although was very effective, was the most dangerous due to the low water level at the end of the experiment. The Absorption process was fast but very messy in each experiment. Lastly, the Filtration process was the method that had a stronger and more effective effect in cleaning the motor oil out of the seawater.

Summary Statement
This science project is about using green methods to clean oil spills in seawater.

Help Received
Mother and Father helped me with parts of the experiment that required two people.