CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY

Name(s)
Celine Izsak

Project Number
J0913

Project Title
Save Our Seas 4

Abstract

Objectives/Goals
I have been studying different ways of remediation for oil spills, for the past 4 years. This year my project was comparing two components of one form of a severity and a weathering process. Third component was the temperature. I compared warm temperatures (Gulf of Mexico) to freezing temperatures (Gulf of Alaska), trying to find which environment has the highest amount of oil loss with the use of oil-hungry bacteria that is a result of the degradation of the oil over a 6-day period. I hypothesized the Bacteria Warm environment would have the highest amount of weight loss over the 6-day period.

Methods/Materials
I used 100 sterile containers with caps, 25 for Bacteria Warm Environment, 25 for Control Warm Environment, 25 for Bacteria Freezing Environment, 25 for Control Freezing Environment. All my controls contained saltwater and crude oil. Half of the controls were placed in an environment of 70-75 degrees Fahrenheit, and the other half were placed in a freezer of 0-5 degrees Fahrenheit. My containers labeled bacteria are the same as the controls just with bacteria; half were placed in a warm environment and the other half in a freezing environment. Then over a 6-day period I weighed each container with a postal scale to see if there was a reduction of oil in any of the environments.

Results
On Day 6 Bacteria Warm Environment lost .05 ounces bringing its total weight loss to date .24 ounces and its weight at 2.99 ounces, Bacteria Freezing Environment lost .04 ounces bringing its total weight loss to date .19 ounces and its weight at 3.03 ounces, while both controls did not experience any weight loss.

Conclusions/Discussion
My hypothesis was correct that a warm environment with oil-hungry bacteria would exhibit the highest amount of weight lost as a result of oil degradation over a 6-day period. From this experiment I have learned that an important factor of oil spills is understanding the severities, characteristics, and tactics needed for each and every different oil spill.

Summary Statement
My project is about the effectiveness of oil-hungry bacteria when removing oil from oil spills in diffrent climatic regions.

Help Received