

**Greater San Diego Science and Engineering Fair
2015 PROJECT SUMMARY**

Name: Bailey Phommavong **Grade:** 8 **School:** Marshall Middle School **Teacher:** Elaine Gillum

Project Title: What Is The Impact of Oil Spills on Water Boatmen?

Abstract

Objectives/Goals

The objective of this experiment was to figure out the affects of oil or diesel on backswimmers, and to observe any behavior changes in the insects, as well as figuring out the least amount of diesel I can use that will not kill the insects.

Methods/Materials

Droplets of diesel were put into the water with micropipettes. A graduated cylinder was used to measure and pour any diesel into the water, and a plastic spray bottle was used to spray the diesel. Using a stopwatch to record times with data. Recording the time was helpful to compare the different time periods in which the insect's behavior changed, with different amounts of diesel.

Results

Water Boatmen are a close species of backswimmers, and though they have some differences, the data collected is similar to the data collected during past experiments. The boatmen showed distinctive changes in behavior during the experiment. In each test group, they showed the same changes such as, sudden movements while swimming, swimming into the sides of the container, swimming frantically in different directions, and slowly paddling in one place. While backswimmers can tolerate oil up to 50mL, the water boatmen died when 10mL was applied, so the diesel amounts had to be decreased for each test to keep the insects alive, but to still have an effect on them.

Conclusions/Discussion

The results show that the tolerance level of water boatmen is much lower than backswimmers, but they do behave similarly once affected by the diesel or oil. When the levels of diesel were decreased for each test, each time, the effects came later than a test using more diesel fuel. For example, the effects observed in the test using 10mL came later when testing using 5mL. The same happened while testing with 2.5mL. All the behavior changes were the same, but using less amounts of diesel made the impact on the boatmen softer and the changes in behavior were close to the insect's regular behavior.

Summary Statement

This experiment showed the tolerance level of water boatmen, as well as how much of an impact oil spills take on these insects.

Help Received

Mr. AJ Shephard helped me collect the water boatmen and informed me about the boatmen, such as their natural behavior and their usual habitats.