CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)
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Project Number
J1206

Project Title
Using Enterococcus Bacteria as an Indicator to Determine the Level of Fecal Bacteria in Arroyo Burro Creek

Abstract

Objectives/Goals
The object of this experiment was to examine the levels of fecal bacteria in Arroyo Burro Creek using Enterococcus bacteria as the indicator. Theoretically, the water should have the least bacteria upstream before rainfall while the most bacteria should be found downstream during rainfall.

Methods/Materials
I performed my testing at El Estero Water Treatment Plant using Enterolert products. I diluted my creek water samples with 95 mL. of sterile water and added the Enterolert powder to make the bacteria glow with phosphorescence. That liquid was sealed and incubated for 25 hours and then placed under a UV light to show the most probable number of bacteria per 100 mL. of water.

Results
After doing thorough testing of the creek water before, during and after rainfall at three locations up and down the creek, I found that the water at the top of the creek before rainfall had the least bacteria while the water downstream during rainfall had the most.

Conclusions/Discussion
After my testing, I determined that my hypothesis was correct. The water at the top of the creek before rainfall had 9465 MPN per 100 mL. more than the water downstream during rainfall. This was because with the large rainstorms we have had this year; most of the animal feces have been washed from the hillside into the watershed. The water was more contaminated during the rainfall than after the rainfall because the contaminants had not yet flushed out.

Summary Statement
I examined the levels of fecal bacteria in Arroyo Burro Creek using Enterococcus bacteria as the indicator.

Help Received
I used lab equipment at El Estero Water Treatment Plant under the supervision of Dr. John sNielson.