CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY

Name(s)

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Project Number

J1214

Project Title

Pesticide Contamination: Investigating Water Quality in Imperial County vs. San Diego County

Abstract

Objectives/Goals

I have read that frog populations were in trouble due to contamination in water from a herbicide called Atrazine. I also read that high phosphate levels intensified the problem when Atrazine was present. The goal of this project was to see if any rivers, creeks, or lagoons I tested had Atrazine or Simazine present and if the water samples I obtained met water quality standards. My hypothesis was that the New River and Alamo River's water samples I obtained from Imperial County might test positively for Atrazine or Simazine. I also believed the water samples might not meet water quality standards, and the two rivers in El Centro would be higher in phosphates and lower in oxygen than a creek and lagoo in North County San Diego.

Methods/Materials

For my experiment, I performed 154 tests on 14 different water samples. I was interested in evaluating potential farm runoff contamination indicators. I tested pH levels, ammonia, nitrate, nitrite, dissolved oxygen, biochemical oxygen demand, and performed tests for detecting the herbicides Atrazine and Simazine. I used materials made by LaMotte, Hach, and Pesticide Test Co.

Results

None of my water samples tested positive for Atrazine and Simazine, but my results revealed high levels phosphate in all samples tested. The Alamo River, and New River in El Centro, contained the highest levels of phosphates at 12-15 ppm. The Alamo River, New River, and Escondido Creek water samples were low in available dissolved oxygen with values ranging from 2 ppm all the way down to 0 ppm.

Conclusions/Discussion

It is clear that for some bodies of waters the methods of preserving water quality need to be improved. I would like to continue to test multiple local creeks in San Diego County. I would also like to test more Imperial County water sites in different months to see if herbicides appear in the water during other times of the year.

Summary Statement

The purpose of this project was to evaluate water samples in San Diego County and Imperial County, to look for evidence of farm runoff pollution and herbicide contamination.

Help Received

Thanks to my mother who drove me many miles to perform my testing. Thanks to my science teacher who provided scientific kit materials.