



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) Sophia R.R. Moore	Project Number 33106
Project Title Runaway Runoff: Effect of Ammonium Acetate on Phytoplankton in the Oakland Estuary	
Abstract Objectives/Goals The objective is to determine the effect of different amounts of ammonium acetate on the population on phytoplankton living in the Oakland Estuary. Methods/Materials Ammonium acetate was created by combining 50g of household ammonia and 50g of white vinegar. This mixture was at 5% dilution. Using three sets of five cups filled with 0.5 liters of estuary water, drops of ammonium acetate solution were put into each cup in counts of zero, one, five, ten and twenty-five. After leaving the cups for twenty-four hours, a sample from each cup was viewed underneath a microscope at 10 times magnification. A count was made of phytoplankton in each view and recorded. Results It was determined that ammonium acetate in small concentrations between 5 ppm and 25 ppm increased observable phytoplankton numbers in samples of estuary water by 166.7 % and 103 % respectively. When concentrations of ammonium acetate were 50 ppm or higher there was no observable change in population. Conclusions/Discussion The ammonium acetate appears to have acted as a fertilizer by providing the nutrient nitrogen to phytoplankton for photosynthesis at levels from 5ppm to 25 ppm. The population count of phytoplankton rose at lower concentrations but remained unchanged at 50 ppm and above because ammonium acetate was toxic to the phytoplankton at these levels. This experiment suggests that there is a great need for research to be done on the impact of chemicals that runoff into the estuary.	
Summary Statement One of the many chemicals that flow into the Oakland Estuary, ammonium acetate, was tested to see how it affected the estuary phytoplankton population at various concentrations.	
Help Received Father helped with assembling the board and supervised making ammonium acetate.	