



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Rainer J. Sexton	Project Number J0925
Project Title To Drink or Not To Drink Cayucos Creek Water	
Abstract Objectives/Goals The objective is to determine which of six Cayucos creeks contain the highest nitrate levels and to determine if they are safe for human consumption. I believe Toro Creek will be the most contaminated because it runs through more agricultural and ranching operations than the other creeks. Methods/Materials Two water samples were collected from each site plus a control creek during a 4 week period after the rainy season. Each test was taken ¼ - ½ mile inland from the creek mouth. A Nitrate-Nitrogen test (using sulfamic acid and zinc) procedure was used to obtain ppm (parts per million) nitrogen-nitrate readings which were then converted to get nitrate levels. Results According to the California State Water Board, nitrate levels of 6ppm are not unusual, but levels of 10ppm can be fatal to infants and dangerous to others. Average ppm readings for Cayucos were 0, 4.4, 5.5, 6.6, 7.7, and 8.8, with Toro Creek as the highest, as I predicted. All the creeks are considered safe for humans, although 50% of the readings were above normal. Cayucos Creek and Toro Creek are close to the danger level and people should avoid getting water from these creeks into their bodies. Conclusions/Discussion The findings of this project lead to questions concerning what affected the contamination, such as rain or lack of rain, amounts and types of pesticides used, number of animals along creeks, and other existing contaminants. Another important aspect to study would be the affects of eutrophication (when high nutrient supplements cause abnormal growth of plants and algae and robs the oxygen supply system needed for the natural environment). This was a challenging project, but the bigger challenge would be for Cayucos to have a monitoring program in order to successfully protect our creeks.	
Summary Statement My project is to determine the safety of water in Cayucos creeks by testing for nitrates.	
Help Received My mother drove me to the National Estuary Program, the creek sites, and proofread my writing. Ann Kitajima from the National Estuary Program taught me how to do the nitrate testing.	