



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Rosalind N. Cox	Project Number J0904
Project Title Water Quality of Big Chico Creek	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of my project was to determine if the water quality of Big Chico Creek is better above the development of the City of Chico than below town using benthic organisms and water analyses.</p> <p>Methods/Materials I chose five sample sites along Big Chico Creek starting at Alligator Hole, above development, and continuing downstream through town to Bidwell Drive, below development. I collected benthic organisms using a dip net at each site, preserved them in denatured alcohol, and later categorized and counted them. Also, at each site, I ran four water analysis tests, dissolved oxygen, nitrate, phosphate and pH. I recorded the results of the benthic organism counts and water tests.</p> <p>Results At the five sites I sampled, I found six orders of insect larvae, Ephemeroptera, Odonata, Plecoptera, Trichoptera, Coleoptera and Diptera. The numbers of benthic organisms were fairly high at all of the sites, except Site #5. The highest count of insect larvae was 136 at Site #4, near the middle of town. The lowest count was 3 at Site #5, the site most downstream. The average number of insect larvae was 51. According to my water tests, there were high levels of dissolved oxygen at all sites. The average pH was 7.4. I found no phosphate at any of the sites and only traces of nitrate at two sites.</p> <p>Conclusions/Discussion My results suggest that the water quality of Big Chico Creek is healthy throughout the whole testing area, not just above the developed area of town. This is shown by the high levels of oxygen at all sites and low or no levels of nitrate and phosphate. The traces of nitrate found at two sites are so small that they probably did not affect the health of the creek much. I also found fairly high levels of insect larvae at all sites except Site #5. This was probably due to the silty substrate and not pollution because the chemical analysis tests showed healthy results.</p>	
Summary Statement The purpose of my project was to determine whether the water quality of Big Chico Creek is better above or below the developed area of the City of Chico.	
Help Received I used books and water test kits provided by Anne Stephens, Marsh Jr. High. My father drove me to the test sites and helped construct my backboard. My sister helped me with my tables and graphs on the computer and my mother helped type my final draft.	