



**CALIFORNIA STATE SCIENCE FAIR  
2013 PROJECT SUMMARY**

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<b>Project Title</b> Fecal Coliform: A Study of Water Contamination in the San Lorenzo River	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Our goal is to identify and measure the presence of fecal coliform bacteria in the San Lorenzo River, with collected data to be used to answer our investigative questions: Our goal is to identify and measure the presence of fecal coliform bacteria in local water supplies, with collected data to be used to answer our investigative question: What is the main source of fecal coliform in the San Lorenzo River? We hypothesized that fecal coliform would be present at levels safe enough for swimming. We predicted that human waste is a contributing factor to the fecal coliform levels and that the cleaning up of the campsites would reduce the amount of contamination.</p> <p><b>Methods/Materials</b> We have been monitoring in four different locations about once every week. We have taken samples in the San Lorenzo River in two different locations starting directly under the Covered Bridge in Covered Bridge Park in Felton, California. Our next three locations are upstream from the Covered Bridge at 50 meter intervals. We use sterile whirl-pak bags to collect water samples, and then we take them to the lab and perform membrane filtration. After filtration, we put the filters on petri-pads saturated with m-FC media inside petri dishes and incubate them at 44.5°C for 24 hours. We have been using Escherichia coli as a positive control, and we run phosphate buffer through the membrane filtration system, as a blank, proving there is no outside contamination.</p> <p><b>Results</b> There is fecal coliform presence in the river at all four of our sample locations. Comparing data taken before and after the clean up of the campsites, we saw a significant drop in contamination levels after the clean up.</p> <p><b>Conclusions/Discussion</b> The water at all four locations is safe for swimming. The clean up of the homeless camps appeared to help decrease the amount of fecal coliform in the San Lorenzo River at the Covered Bridge Park.</p>	
<b>Summary Statement</b> We have been identifying and measuring the presence of fecal coliform bacteria in the San Lorenzo River to determine whether a clean up of homeless campsites along the river helped decrease the amount of fecal coliform contamination.	
<b>Help Received</b> Jennifer Slaughter, Water Quality Specialist, answered some of our questions through emails and gave us a tour of her lab and a demonstration of professional water contamination testing; Mother helped with transportation; Mrs. Orbuch provided supplies, storage space; Mr. Hearn provided lab space	