



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

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| Name(s) Quinn B. Procter | Project Number J0921 |
| Project Title Coliform Counts! In the Tule River Watershed | |
| <p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective was to determine if surface water at lower elevations within the Tule River watershed had higher coliform counts than surface water at higher elevations.</p> <p>Methods/Materials Water samples were collected from nine different locations along an elevation gradient of the watershed. The control was a water sample from purchased distilled water. The dependent variable measured for each sample location and the control was the density of coliforms and E. coli using Coliplates, which provided a quantitative measure of the number of colony forming units per 100ml water sample. Each Coliplate has 96 wells, each capable of testing positive or negative for coliforms in general, and E. coli in particular, providing 96 replications at each site.</p> <p>Results The highest sample site elevation, 2,138m at Quaking Aspen Campground, had the lowest number of wells testing positive for total coliforms (1) and E. coli (1). The lowest sample site elevation, 179m at Lake Success, had the highest number of wells testing positive for total coliforms (90) and E. coli (59). Generally, there was a trend of increasing coliform counts with decreasing elevation.</p> <p>Conclusions/Discussion According to some standards, water at all sample sites except one was unsuitable for drinking and water at the lowest elevation, Lake Success, was also unsuitable for recreational use. Coliform bacteria, which can cause gastroenteritis, hepatitis, typhoid fever, and other diseases, may be a threat to drinking water and bodies of water used for recreation. E. coli, a type of coliform bacteria, is a specific indicator of fecal contamination by warm-blooded animals. The results suggest that untreated water from the watershed should not be consumed, and that further monitoring is needed since Lake Success is used for recreation.</p> | |
| Summary Statement The project showed that coliform bacterial counts, and E. coli counts in particular, generally increased with decreasing elevation within the Tule River watershed. | |
| Help Received Father drove me to sample locations. | |