



# CALIFORNIA STATE SCIENCE FAIR 2012 PROJECT SUMMARY

<b>Name(s)</b> <b>Angelina B.S. Clinkenbeard</b>	<b>Project Number</b> <b>J1103</b>
<b>Project Title</b> <b>Swimming in Bacteria</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> By collecting and testing various samples of water from fresh water lakes, then I can show that a moderate amount of bacteria will be found in the majority of these lakes, proving that participating in water recreational activities can pose a danger to our health.</p> <p><b>Methods/Materials</b> Collect water samples, 100 ml of water from seven lakes for bacteria and parasites. Bacteria testing is done by using Coliscan Easygel medium to grow colonies of bacteria existing in water samples. After 48 hours of incubation, counts of the number of coliform/E. coli in the collected samples are recorded as MPN#s of E-coli CFU#s. Develop a questionnaire to ask each management of lake source to determine their policy for checking for bacteria</p> <p><b>Results</b> The smallest recorded MPN's was 752 CFU's of E. Coli recorded in Big Bear Lake, with the highest recorded MPN's being 2500 CFU's counted in Jess Ranch. The Average CFU count was 1486 MPN's. 80% of questionnaire participants reported having at least one of the symptoms of E. Coli after swimming in one of the documented lakes.</p> <p><b>Conclusions/Discussion</b> My hypothesis was correct. After testing each of my lake samples, the MPN#s of E-coli bacteria noted in each of the collected water specimens ranged from 750 to greater than 2500 MPN's. Along with E-coli, Cyanobacteria also grew in all samples and a few of the water samples showed parasites. Big Bear Lake had the fewest amount of bacteria at 752 MPN#s. The large volume of water in Big Bear Lake and the cold temperature of the lake most likely played a role in affecting those results. Since 80% of survey participants claim to have had, at one time or another, one of the health ailments associated with E-coli contamination after participating in a water sport activity, it is obvious that our lakes need monthly bacteria checks. Clearly the results of my experiment must raise our state official#s awareness to the potential health problems lurking in our public lakes.</p>	
<b>Summary Statement</b> To determine if high levels of harmful bacteria can be found in lakes used for water recreational sports which can lead to incidents of Water-borne illnesses causing severe health and financial problems	
<b>Help Received</b> Mother helped me gather phone numbers for lake management	