



# CALIFORNIA STATE SCIENCE FAIR 2008 PROJECT SUMMARY

<b>Name(s)</b> Navdeep S. Dhaliwal	<b>Project Number</b> <b>J1002</b>
<b>Project Title</b> <b>How Safe Is Our Water to Swim?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Objective of my science project is to find out the level of total coliform bacteria, E. Coli bacteria, chlorine, heterotrophic plate count (HPC) in my friend's swimming pool water, Kern River water, and water in the lakes inside the local Riverwalk City Park and based on the results, determine if it would be safe to swim at these locations and whether or not it would be safe to drink water from these locations during a crisis.</p> <p><b>Methods/Materials</b> Methods: Collection of water samples from various locations in the City; testing of pH, temperature, chlorine residual in water samples; testing for total coliform and E.Coli bacteria in water samples using Quanti-Tray method; Heterotrophic Plate Count (HPC) in Colony Forming Units per milli liter (CFU/mL) using petri dishes.</p> <p><b>Results</b> Inlet Source for Riverwalk Park Lakes showed the highest (1299.7 MPN/100 mL) followed by Kern River, Riverwalk Park Eastside Lake, Riverwalk Park Westside Lake, and Swimming Pool water with lowest (1.0 MPN/100 mL) total coliform bacteria. Riverwalk Park Westside Lake showed highest (17.1 MPN/100 mL) E.Coli bacteria followed by Kern River, Inlet Source for Riverwalk Park Lakes, and Riverwalk Park Eastside Lake and Swimming Pool both with the lowest (less than 1 MPN/100 mL) E.Coli. bacteria. Swimming Pool water showed highest (4000 CFU/mL) average HPC followed by Inlet Source for Riverwalk Park Lakes, Riverwalk Park Eastside Lake, Kern River, and Riverwalk Park Westside Lake with lowest (295 CFU/mL) average HPC.</p> <p><b>Conclusions/Discussion</b> All water samples collected from the Swimming Pool, Kern River, Riverwalk Park Eastside Lake, Riverwalk Park Westside Lake, and Inlet Source for the Riverwalk Park Lakes showed E.Coli bacteria lower than 235 MPN/100 mL (maximum level considered safe for swimming in fresh water per State and EPA guidelines). Swimming Pool water showed the highest average HPC possibly due to the reason that there was no chlorine present in the swimming pool water. Due to winter weather, the pool was not in use. The Swimming Pool water could be used for drinking in a crisis after adding chlorine in the water or after boiling it for one minute.</p>	
<b>Summary Statement</b> My project is to determine if our local fresh water from various locations in the City would be safe for swimming based on testing for total coliform bacteria, E.coli bacteria, and HPC.	
<b>Help Received</b> Help from dad in transportation of water samples from different locations and delivery to laboratory, analysis of water samples by McRay Laboratory, parents' help in proof reading of project documents, review of graphs, charts, and tables, cutting and pasting on the board.	