



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

<b>Name(s)</b> Sierra C. Ford	<b>Project Number</b>  22102
<b>Project Title</b> Fecal Coliform: Surprising Levels in a Reservoir	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> To compare fecal coliform bacteria levels in a reservoir with levels at sites upstream and downstream and to determine why such differences in the fecal coliform levels occur.</p> <p><b>Methods/Materials</b> Methods: COLLECT WATER SAMPLE(S). CLEAN &amp; DISINFECT WORKSPACE. PREPARE STERIFIL APPARATUS. CHECK THAT INCUBATOR READS 44.5° (DEGREES) CELSIUS. PREPARE PETRI DISHES WITH MFC MEDIA. FILTER WATER SAMPLE(S) USING THE VACUUM APPARATUS. INCUBATE AT 44.5° C FOR 22-24 HOURS. COUNT FECAL COLIFORM COLONIES. RECORD THE NUMBER OF FECAL COLIFORM COLONIES PER 100 ML. QUALITY CONTROL-OPTIONAL 1. Run a positive control using E. coli. 2. Run a negative control using Streptococcus. CLEAN-UP</p> <p>Materials: Sterile sample bags; Sterifil apparatus; Vacuum system; Sterile pipettes; Sterile buffer; Forceps; Petri Dishes ; Millipore Type HA 0.45 micron packet; Sharpie pen ; MFC medium; Ethyl alcohol; Bunsen burner; Incubator ; Disinfectant; Anti-bacterial soap; Autoclave; Foil Optional: E. coli broth-positive control; Streptococcus-negative control; Sterile distilled water</p> <p><b>Results</b> My data showed that there were higher levels of fecal coliform bacteria found in the reservoir at compared to the inflow creek. The levels of fecal coliform I found further downstream from the reservoir were not stable, as I hypothesized, but rather declining as the distance from the reservoir increased.</p> <p><b>Conclusions/Discussion</b> Understandably, there was no bacteria found in the inflow creek; this water flows out of the ground in an underground aquifer. The testing site I was using further downstream from the reservoir had very low levels of fecal coliform bacteria as compared to the levels found in the reservoir. I found that the fecal coliform bacteria levels were high at the direct outflow. I also found that there are other creeks that are diluting the direct reservoir outflow water. These other creeks are lowering the</p>	
<b>Summary Statement</b> Fecal coliform bacteria levels in a reservoir are higher than levels both up-stream and further down-stream.	
<b>Help Received</b> Used lab equipment at San Lorenzo Valley High School under Ms. Jane Orbuch.	