



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

<b>Name(s)</b> Ariana Ceballos	<b>Project Number</b> <b>J0903</b>
<b>Project Title</b> <b>Water Water Everywhere: Which One Is the Most Contaminated Out There?</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Which water source is the most contaminated? Different sources of water were tested to determine which was the most contaminated.</p> <p><b>Methods/Materials</b> To obtain results, several steps were taken. To find the bacteria, samples of each source were spread over agar and bacteria was allowed to grow. In determining the levels of ammonia, ammonia dry tablets were mixed in the water and the change in color determined its concentration. Algae colonies in the water were observed under a microscope. Finally to determine the pH, pH paper established whether the water was an acid, neutral, or a base.</p> <p><b>Results</b> It was found that no one source was free of pollution. The average results were taken from each test and calculations were made to see which source was the most contaminated in each test. For the bacteria test, ocean water had the most grown colonies, 2,426. In the ammonia test, river water had the most ammonia with 4.0 ppm (parts per million). In the pH test, rain water was an acid having an average pH of 5 and river water was a base with an average pH of 8. Finally, in the algae microscopic test, rain water was the only water source to show traces of algae existing in the water.</p> <p><b>Conclusions/Discussion</b> From this project, no one water source was found to be free from contamination. Bottled water had more bacteria than expected. Lake and Ocean water, however, had the basic outcomes that were expected. Rain water had traces of algae that were not expected to occur. River water had the most shocking results in having ammonia of 4.0 ppm. Tap water was not predicted to have as much ammonia as it had as well. Therefore, further testing must be conducted to have one final answer. If no attention is called, the water sources will continue to increase in contamination.</p>	
<b>Summary Statement</b> Different water sources were collected and tested to determine which was the most contaminated.	
<b>Help Received</b> Mother helped grow agar.	