



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Peach S. Gerthoffer	Project Number J1107
Project Title Brine Shrimp and pH	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My project objective was if I had five tanks, of equal size also holding equal volumes of water, and I changed the pH to different extremes (acidic, more acidic, neutral, basic, more basic) how will it effect the growth and population of one gram (to begin with) of brine shrimp. I believe that the tank with the more acidic pH (pH 4) and the tank with more basic pH (pH 9.0 *on basic pH scale) will have the strongest decline of brine shrimp growth/population, towards the end of my experiment. On the other hand, the tank with an acidic pH (pH 5) and the tank with the basic pH (pH 8.5) with have a more climbing growth/population, and the one unchanged tank (pH 6-7=neutral) will have the highest growth/population of brine shrimp towards the end because it is not too high or too on either of the pH scale ends.</p> <p>Methods/Materials The primary materials for this project consist of five small plastic tanks all the same size and holding the same volume of water (48 fluid ounces), one large jug of purified/filtered water (240 fluid ounces), Aquarium salt, pH up and pH down solution, An air pump, 5 t-splitters, 5 small valves, air-tubing, and 5 air-stones. Also a gram scale, plankton net, petri dishes, stir sticks, a magnifying glass, a camera. Each tank was given pH solution except for the neutral for the experiment.</p> <p>Results Over time, my original hypothesis became slightly flawed. The More Acidic had a higher number of population/growth in the 3.0 gram range (weight of brine), ranging widely in the five hundreds (amount of brine), the acidic went up and down in numbers and weight, ranging again in a similar range to the more acidic (slightly less than). The neutral stayed at a constant population/growth, going only from 1.0 grams to 1.85 grams (in the 100-200 range). The more basic was also higher than expected, in the high 2.0s' to the low 3.0 grams. Mostly around 2.7 grams (with a population of brine in the 300-400 range). And lastly, the basic came in slightly lower than the more basic at a 2.0 gram average, and a 200-300 count range.</p> <p>Conclusions/Discussion My conclusion is, Brine shrimp can live in very extreme pHs such as very acidic (pH 4) and acidic (pH 5), and very basic pHs (pH 9.0 * on a basic scale) and basic pHs (pH 8.0-8.5 *on a basic scale). They can also thrive at a neutral pH such as pH 6-7. If we know this information about our marine ecosystems/wildlife, our ocean may finally be on the road to recovery.</p>	
Summary Statement My project is about testing pH effects on Brine shrimp growth/population over time.	
Help Received My mentor Connie Griffith volunteer manager/sea center interpreter helped to provide some of the resources needed in order to perform this experiment.	