



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) Lauren Kim	Project Number <div style="text-align: right;">34977</div>
Project Title The Effect of Increased Salinization on the Production of Voltage through Wave Power	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> Objectives/Goals <p>It is believed that with the increased salinization of water there will be an increased production of voltage because higher salinized water will be of a higher density. The waves will be stronger, heavier and have more ions for reactions in the solution with a higher concentration of salt.</p> </div> <div style="width: 45%;"> Abstract <p>It is believed that with the increased salinization of water there will be an increased production of voltage because higher salinized water will be of a higher density. The waves will be stronger, heavier and have more ions for reactions in the solution with a higher concentration of salt.</p> </div> </div> Methods/Materials <p>Materials: Cuts of Wood Wooden Spool Copper Coils Masking Tape Neodymium Magnets Plastic Container Salt 1N4148 diodes Cen-Tech Digital Multimeter Capacitor Triple-Beam Balance Water Methods: A wooden spool was attached to a rectangular piece of wood to make waves. A wave power generator was constructed in order to measure the voltage produced. The variable that was altered to test the hypothesis was the amount of salt added to the water. The salt was increased by 100g after five trials. Five trials were conducted at each increment of salt. The increments of salt were 0g, 100g, 200g, 300g, and 400g. The experiment was controlled and there were no outside factors which could have affected the results. The amount of voltage produced was measured in Volts through the Cen-Tech Digital Multimeter</p> Results <p>The mean value for trials with 0g of salt was 1.7 V, 100g 2.2 V, 200g 2.5 V, 300g 2.7 V, and 400g 3.2 V. After 400g of salt was added and dissolved in water, there was an increase in the mean production of voltage by 1.7 V. For all trials of different salinities, the percent deviation was all under 10% so the trials were completed with precision.</p> Conclusions/Discussion <p>After experimentation, the data supported the hypothesis and the amount of voltage produced increased when more salt was added. The mean values of the voltage produced increased by 1.7 V after the addition of 400g of salt. Wave amplitude and frequency are factors that cause an increase the production of electricity, and it can be inferred that the salinity of water is another contributing factor to this. The data supports the fact that water with increased salinity can produce more electricity and therefore bodies of water with higher salinization should be studied as locations for potential wave farms.</p>	
Summary Statement <p>The increased salinization of water resulted in an increased production of voltage through a wave power generator.</p>	
Help Received	