



**CALIFORNIA SCIENCE & ENGINEERING FAIR  
2019 PROJECT SUMMARY**

<b>Name(s)</b> <b>Joyce Sung</b>	<b>Project Number</b> <b>S0923</b>
<b>Project Title</b> <b>Earth Has a High Fever That Makes It Sour: The Impact of Global Warming on the Concentration of Carbon Dioxide Produced</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives</b> The objective of this study is to explore the relationship of different salinities on earth that contain different levels of carbon dioxide in the ocean due to global warming.</p> <p><b>Methods</b> Made 0.05M of NaOH that is standardized with KHP. Produced carbon dioxide through a soda machine for each salt concentration. Flattened each carbonated solution for 2 minutes then added 3 drops of phenolphthalein, which is used to titrate to find the molarity of carbon dioxide.</p> <p><b>Results</b> As the concentration of saltwater increases, the molarity of carbon dioxide decreases and as the concentration of saltwater decreases, the molarity of carbon dioxide increases.</p> <p><b>Conclusions</b> With a lower concentration of sodium chloride, the ocean absorbs a higher concentration of carbon dioxide, which produced more carbonic acid that lowers the pH level. Higher temperature of the ocean tend to have higher salinity rates and it also increases the density of salt water, whereas the pH level will increase as well.</p>	
<b>Summary Statement</b> I found the relationship where global warming correlates with different levels of salinity and concentrations of carbon dioxide produced in the ocean; as the concentration of saltwater decreases, the molarity of carbon dioxide increases.	
<b>Help Received</b> I conducted the the experiment alone. My science teacher via school provided the chemicals and materials, as well as confirmation of my results.	