



**CALIFORNIA STATE SCIENCE FAIR  
2015 PROJECT SUMMARY**

<b>Name(s)</b> Maxime J. Kawawa-Beaudan	<b>Project Number</b>  35753
<b>Project Title</b> The Effect of Iron Sulfate Fertilization in Ocean Water on Phytoplankton Growth	
<b>Objectives/Goals</b> The goal of this experiment was to test the effectiveness of iron fertilization as a method of fighting ocean acidification. As the ocean absorbs nearly 30% of the carbon dioxide in the atmosphere annually, it has become saturated in recent years with carbon dioxide, and subsequently carbonic acid, which robs marine animals of the building blocks for their shells. By adding iron sulfate, thus artificially creating phytoplankton blooms, one would decrease the levels of carbon dioxide through photosynthesis and restore balance to the system. This experiment tests whether, indeed, iron sulfate increases levels of phytoplankton. <b>Abstract</b> The goal of this experiment was to test the effectiveness of iron fertilization as a method of fighting ocean acidification. As the ocean absorbs nearly 30% of the carbon dioxide in the atmosphere annually, it has become saturated in recent years with carbon dioxide, and subsequently carbonic acid, which robs marine animals of the building blocks for their shells. By adding iron sulfate, thus artificially creating phytoplankton blooms, one would decrease the levels of carbon dioxide through photosynthesis and restore balance to the system. This experiment tests whether, indeed, iron sulfate increases levels of phytoplankton. <b>Methods/Materials</b> Powdered iron sulfate from Alpha Chemicals <b>Results</b> This experiment showed that, following with the predictions, as the parts per million of iron sulfate increased, the biomass of phytoplankton increased accordingly. <b>Conclusions/Discussion</b> These results show that iron fertilization is indeed a promising technique for combating ocean acidification. Although this experimenter was unable to measure carbon dioxide levels, because of the expensive nature of carbon dioxide measuring systems, the large blooms of phytoplankton allow one to follow the logic that, because phytoplankton performs photosynthesis, absorbing carbon dioxide as a reactant, the sudden increase in phytoplankton would require a large intake of carbon dioxide.	
<b>Summary Statement</b> This experiment explores the effectiveness of a new method of fighting ocean acidification, and perhaps global warming: Iron fertilization.	
<b>Help Received</b> Parents purchased materials	