



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) Chayslin R.M. Johnson	Project Number 34372
Project Title Tsunami Barrier Designs and Their Effectiveness	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of my first year's project was to determine if a barrier will lessen the impact of an average tsunami, and this year I continued and tested the effectiveness of different designed barriers against an average tsunami. Now that I know, from my year one project, that barriers protect against tsunamis, my goal this year was to determine which of my six barrier designs were most/least effective.</p> <p>Methods/Materials For my first year, my grandfather helped me design and build the wave box and wave mechanism that we used to test three trials with and without a barrier. For my second year project, my grandfather helped again with building another wavebox and wave mechanism. I expanded my testing this year by, designing six different barrier designs including a full barrier and no barrier. Each barrier design was tested against an average tsunami twenty times. The wave heights, for both years, were measured using chalk dust.</p> <p>Results My results for year one, was that the barrier was significantly better at lowering the wave heights of the tsunami. My results for year two, showed that Barrier #4 was most effective (not including full barrier) at lessening the impact of the tsunami. Barrier #2 was least effective (not including no barrier). I determined the effectiveness/results by comparing the average wave heights for each trial.</p> <p>Conclusions/Discussion My hypothesis for year one was correct because a barrier did lessen the impact of an average tsunami. My year two hypothesis was also correct in saying that Barrier #4 would do best and Barrier #2 would do worst. My year one project assured that barriers in the water will provide protection from tsunami barriers, and as I continued into my second year, my project confirmed that some barrier designs are more effective than other. Not only more effective, but some are more practical than others.</p>	
Summary Statement Testing the effectiveness of various tsunami barrier designs in lessening tsunami impact.	
Help Received Grandfather helped build wavebox and mechanism.	