



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

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Project Title Tsunami Barrier Designs and Their Effectiveness	
Abstract 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. 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. 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. 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.	
Summary Statement Testing the effectiveness of various tsunami barrier designs in lessening tsunami impact.	
Help Received Grandfather helped build wavebox and mechanism.	