



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) Nathan John Fay	Project Number J0306
Project Title Seizing the Tsunami Surge	
Objectives/Goals The purpose of my science fair project is to see if a physical man-made structures built a barrier below the surface of the ocean will affect the energy of the tsunami waves before it hits the shoreline. If the structure can reduce the energy of the tsunami wave then there will be less damage and possible loss of life.	
Abstract	
Methods/Materials Built model wave tank (8ft x18 in): including clear acrylic model shore with scale of lines 8.6 mm apart from each other, model ocean floor covered with 6mm of plasticine modeling clay, mechanical wave-maker consisting of a wave-making flap, a pulley system, and an 11.4 kilogram weight. 1. Mount GoPro video camera on the side of the wave tank with the lens focused on the scaled lines of the model shore and film the water action. 2. Fill tank with dyed blue water. 3. Using mechanical wave maker, create a uniform tsunami wave. (Note: by fastening an 11.4 kilogram dumbbell through a pulley system to the wave-making paddle and created were the same from one test to another.) 4. Using the GoPro video, video the simulated tsunami wave as it hits the model shore. Print a screen shot. 5. Using the "line of the best fit" method, take a taut piece of fishing line, place parallel to the graduating scale and slide up or down to determine the weighted-average value of the wave's run up on shore. Record the measurements. 6. Test each man-made structure: one straight wall perpendicular to the wave's path and submerged 1 cm below the surface water, two V shaped walls, staggered walls, and then test one straight wall submerged in deeper water.	
Results The results of my experiment was that the shallow straight wall was the most effective in reducing the energy of the tsunami wave while the other three selected variables-the four staggered variables, two V-shaped walls, and one deep straight wall- had very little effect.	
Conclusions/Discussion After testing, I can conclude that a man-made straight wall structure submerge in the shallow ocean water would reduce the energy of a tsunami wave.	
Summary Statement Tests to see if a man-made structure submerged in the ocean can reduce the energy of a tsunami wave.	
Help Received	