CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY

Name(s)
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Project Number
J0631

Project Title
Washed Away: The Effect of Underwater Structures on Tsunami Wave Characteristics

Abstract

Objectives/Goals
My objective was to find a way of stopping a tsunami wave in the open ocean using man-made structures.

Methods/Materials
For this project, I built a 7 foot long wave tank out of plywood. I caulked its joints to prevent leaks and built an incline of sand to simulate the ocean floor. I placed nails at 1 inch intervals on the simulated beach as reference points to measure the waves.

I generated waves using the wave tank#s underwater paddle, which was attached to bungee cords. For each configuration of ocean floor structure # short wall, tall wall and canyon # I generated and measured 10 waves.

Results
The six inch wall stopped the tsunami waves more than any of the other obstacles. When the wave came towards the six inch wall it sucked most of the water from the top of the wall. The waves that made it past the wall were in scale with normal wind waves.

Conclusions/Discussion
My hypothesis was, #If a tsunami encounters a taller wall, it will be stopped more effectively than in an encounter with a shorter wall, a canyon, or no obstacle.# I accept my hypothesis because the data supported it.

Summary Statement
My project explores using man made structures to stop Tsunamis in the open ocean before they reach land.

Help Received
My dad cut the plywood I used to make the wave tank.