



**CALIFORNIA STATE SCIENCE FAIR  
2016 PROJECT SUMMARY**

<b>Name(s)</b> Cecilia P. Bacich	<b>Project Number</b> <b>J0801</b>
<b>Project Title</b> Man vs. Nature	
<b>Abstract</b> <b>Objectives/Goals</b> My project tested whether a sea wall (made of plywood), or a mangrove forest (composed of olive branches) would serve as a better tsunami barrier. <b>Methods/Materials</b> A tsunami simulator was constructed using a water tank with dimensions of 112 cm x 49.5 cm x 42 cm. A piece of plywood (46 cm x 21.5 cm) was placed at a 300 angle and secured to one end of the tank. This represents the beach slope. Then a flat piece of plywood (47 cm x 47 cm) was connected to the top of the beach slope to represent the inland beach and water front land. The sea wall was depicted by a block of wood (53 cm x 6.35 x 3.8 cm) and the forest was represented by olive branches. The newly created tsunami simulator was filled with water and the testing began. A piece of plywood was pushed through the water at a constant rate to create the incoming tsunami waves. <b>Results</b> After 30 trials, the average distance the water traveled past the wall barrier, which represented the sea wall, was 18.5 cm. Then I removed the piece of plywood and replaced it with the olive branches. After 30 trials, the average distance the water traveled past the olive branches, which represented the mangrove forest, was 9.7 cm. <b>Conclusions/Discussion</b> After 30 trials, the average distance the water traveled past the wall barrier, which represented the sea wall, was 18.5 cm. Then I removed the piece of plywood and replaced it with the olive branches. After 30 trials, the average distance the water traveled past the olive branches, which represented the mangrove forest, was 9.7 cm. the data supported my hypothesis, which stated the mangrove forest would serve as a better barrier than a sea wall.	
<b>Summary Statement</b> My project studied the effects of tsunami's waves on man-made concrete barriers versus mangrove forests	
<b>Help Received</b> None	