



CALIFORNIA STATE SCIENCE FAIR 2009 PROJECT SUMMARY

Name(s) Annie M. Kingman	Project Number J0707
Project Title The Fingerprints of Erosion	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The point of this project was to see if the style of jetty on barrier islands affected the amount of erosion on the beach. I modeled my project after barrier island, Plum Island, for this island tends to have heavy erosion problems. Lately, the island has become so thin it is threatening to wash over. I care about the erosion on Plum Island because I have a house there that is also threatened. I wanted to find out if the jetty had any part in how much erosion occurred.</p> <p>Methods/Materials I used an apparatus to test my question. I used wood for the base, Olympian sand for the landmass, a fish tank pump for the river, and a six gear motor connected to a plank for the wave maker. I tested each jetty in the experiment for thirty minutes. I first took a plank and pushed the sand to the sand starting line, and placed a sheet of tinfoil up to the edge of the sand. Afterwards, I took a picture of the ending land mass and recorded the amount of sand that fell on the tinfoil.</p> <p>Results I found that the high/long jetty caused the least erosion. Next, was the low/long jetty. Third was the high/short jetty, and fourth the low/short jetty. Last, was no jetty. The longer and higher jetties were able to break down the waves as they came in; taking power away from them, and deflecting the waves further down the shore. The shorter jetties didn't take as much power away from the waves because they didn't reach far enough out to sea. No jetty caused the most erosion because the waves were not blocked by an obstacle and the power was not diverted in any way.</p> <p>Conclusions/Discussion Even though the results showed that the longer jetties will make the least erosion and no jetty will make the most, the results for each jetty were fairly scattered. What I found was that the jetty only slightly affected the amount of erosion, but the style of jetty greatly effected were the beach erosion occurred. The longer jetties made a concave semicircle in the middle of the landmass, and the most erosion occurred further down the beach. The short jetties and no jetty created more erosion, but steady everywhere. One problem is that since barrier islands are always changing, the results might have been changed if the experiment had been for a longer period of time. If, for example, I ran the experiment for 24 hours the sand might have circulated back around to the land mass. Also, the results might have varied if there had been a backshore.</p>	
Summary Statement How the jetty affects erosion on barrier island beaches.	
Help Received Dad used power tools to make the apparatus; science teacher helped me get started and answered questions; sister helped lift apparatus to drain it	