



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Daniel P. Ferons	Project Number S0607
Project Title The Effect of Jetties on Sand Deposition	
Abstract Objectives/Goals The purpose of this project was to find the best jetty design that would keep sand on the ever-disappearing beaches. The hypothesis was that the Y-shaped jetty would be most effective at keeping the sand on the beach. The background research emphasized the need to understand ocean currents and sediment transportation since this is what the project is based on. The currents and the effects of jetties interrupting the current are the key components, this project models the typical currents in Newport Beach and compares the erosion with different jetty configurations. Methods/Materials In order to proceed through this project there are two different sets of procedures. The first set was to collect the data needed to determine the currents along the Newport Coast. The second set of procedures was used to set up the model to test the different jetty layouts. Additionally, each jetty design was tested twice, once with only a longshore current and once with the longshore current and additional waves. The second test was more realistic, but harder to control since the waves were produced by hand. Results The most important findings were, even though the Y-shaped jetty was the most effective jetty for beach protection, it significantly reduced the amount of waves that would make it into that area. The results showed that the Y-shaped jetty and the jetty angled off at 80 degrees were almost equal in loss of sand. The jetty angled off at 80 degrees did not have as high of a percentage of erosion protection but the amount of waves that will come is greater. Conclusions/Discussion Design of the jetty will need to be determined not only on beach erosion, but on usage of the beach. If waves are not a concern, then the Y-shaped jetty provides the most protection. If wave activity is a concern, then a different configuration should be considered.	
Summary Statement The project examines four jetty configurations to determine which one provides the most protection from beach erosion.	
Help Received My father helped by driving me to the beach and help construct the model in the garage and my sister helped with setting up the model for each experiment.	