



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY**

Name(s) Eric R. Dubois	Project Number J0106
Project Title The Best Seawall to Save Our Highways	
Abstract Objectives/Goals I wanted to learn which type of seawall is the most efficient to prevent coastal erosion. Methods/Materials The idea for this project was to find the most efficient seawall to use to protect the highway and bluffs. I built a homemade wave tank out of wood and plexiglass and tested the following seawalls: The rock wall, which we already have. The standard wall, which is the most common. The rock wall submerged, which is experimental and hasn't been used before. And finally, the recurve wall, which was predict to be the most effective. For each wall, there were ten trials. In each trial, six consistent waves were created and sent towards the wall that was in place, and the water that flowed over the top of the wall was collected and recorded in a reservoir in the back of the tank. Results I predicted that the recurve wall would have the least amount of overflow because the water would go up the wall like a skateboard on a halfpipe, then fall over itself. I predicted that almost no water would go over the wall. My hypothesis was correct. This wall worked very well, with almost no overflow, as I predicted. The average overflow on the recurve wall was 11 ML of water, the 2nd best wall was the rock wall, with an average overflow of 39.5 ML of water. The average overflow for the standard wall was 360 ML, whereas the average overflow for the rock wall submerged was 158.9 ML. Conclusions/Discussion Based on the results, if you want to reduce erosion in your area, and if you had the money, you should go for the recurve wall, because it is the most efficient, and almost no water went over the top of the wall. But, if you don't have the money, you should go for the rock wall because it works almost as well as the recurve wall, and is a lot cheaper.	
Summary Statement I tested different types of seawalls in order to prevent coastal erosion. I found that the most efficient seawall was the recurve wall.	
Help Received Both of my parents helped me in this project. My dad helped me build the wave tank and my mom helped me edit my writing.	