CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY

Name(s)

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Project Number

36784

Project Title

Save Our Beaches: Man-Made vs. Natural Erosion Prevention Solutions

Abstract

Objectives/Goals

The objective of this study is to determine whether man-made or natural structures are more effective at preventing beach erosion.

Methods/Materials

3 plastic bins, beach sand, small rocks, Ceanothus plant, water, and scale. Erosion was simulated for 3 conditions: small rocks with sand, Ceanothus plant with sand, and sand only. The degree of erosion was then assessed by measuring the weight of sand "eroded" in each of the 3 conditions.

Results

The man-made rock seawall's ability to reduce erosion was tested against the native Ceanothus' plants ability to reduce erosion. After three trials, it was determined that the rock seawall reduced erosion by seven fold while the Ceanothus plant reduced erosion by four fold.

Conclusions/Discussion

It was concluded that both the seawall and the native plant had a positive impact in preventing erosion. However, the man-made rock seawall was determined to be more effective than the natural Ceanothus plant in preventing beach erosion.

Summary Statement

We determined that the man-made rock seawall was more effective than the natural Ceanothus plant in preventing beach erosion.

Help Received

My partner and I designed our experiment with the help of Barkev Meserlian, an engineer from the Irvine Ranch Water District. Anthony Malek, a Horticulturist from Roger's Garden, helped us select an appropriate native beach plant.