CALIFORNIA SCIENCE & ENGINEERING FAIR
2019 PROJECT SUMMARY

Name(s)

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Project Number

S1106

Project Title

Sweet Erosion: Analyzing Coastal Erosion Prevention Methods

Abstract

Objectives

The goal of our experiment was to determine the best coastal erosion prevention method based on three criteria: effectiveness at mitigating erosion, aesthetic appeal, and cost.

Methods

We built a wave machine out of recycled materials.We tested the effectiveness of four different erosion prevention methods at protecting a model cliff. The methods were sandbags (tea bags filled with sand), tetrapods (small, hand made cement structures), riprap (pieces of gravel), and beach nourishment (extra sand). We performed an anonymous survey asking adults which erosion prevention methods they found to be the most and least aesthetically pleasing. Finally we researched the cost and durability of the various erosion prevention methods.

Results

Sand bags were the most effective method for preventing coastal erosion. Beach nourishment was the most aesthetically pleasing method, and the most cost effective (over a fifty-year period) as well.

Conclusions

We concluded that beach nourishment was the overall best method because it was the second most effective at mitigating erosion, the least expensive, and the most aesthetically appealing.

Summary Statement

We found that beach nourishment was the best coastal erosion prevention method by comparing cost, aesthetic appeal, and effectiveness.

Help Received

We received no help; we designed, built, and tested our erosion prevention methods ourselves.