CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY

Name(s)
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Project Number
J1117

Project Title
Eco Dive

Abstract

Objectives/Goals
The objective was to determine which type of material works best to construct artificial reefs.

Methods/Materials
Three types of materials were tested: concrete, wood, and stainless steel. The materials were cut into similar small plates that were attached together using a bungee cord in the ocean. Three sets of plates were monitored over a period of 85 days. With a mid period check survey. The placement, monitoring, and collection were done through scuba diving, at the Catalina dive park in Avalon, California.

Results
The concrete plates showed the most obvious signs of marine life coverage. One plate was almost completely covered, 75%, another was only 60% covered, and the third plate had a marine life coverage of 70%. These percentages were very high compared to the other materials that always seemed to have only low and one high percentage in the different plates. Indeed the wood plates had a range of results. One plate was only covered 5% while the other two were in high numbers like 80% coverage. The steel was also inconsistent, ranging from 20% coverage to 85% coverage. The type of marine life ranged from animal growth, like barnacles, to soft seaweed and different types of kelp, to hard growth like coral.

Conclusions/Discussion
In my hypothesis, I had predicted that concrete would be the material with the most marine growth coverage. Overall the concrete did have the most marine growth, and most constant amount developing on it, but an unexpected event did occur in my results. The stainless steel plate number two was covered in marine life and a small kelp piece had even started to grow on the top of the plate. Wood plate number three also showed some major marine life as it was covered in small algae. After my experiment I would still rule that concrete works best in creating artificial reefs, as it was the material with the most consistent growth. Over a longer period of time more life would have developed on all three materials. From my immediate results stainless steel, and wood worked best two out of three times while concrete worked well three out of three times. This verifies my hypothesis that concrete would work best in sustaining marine life.

Summary Statement
How does the type of material, wood, stainless steel or concrete, affect how much marine growth develops on it?

Help Received
Father was my buddy during the scuba diving