CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY

Name(s)

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Project Number

S0801

Project Title

Beach Grooming: Does It Banish the Beachhoppers?

Abstract

Objectives/Goals

The objective was to determine whether beach grooming, the removal of wrack from beaches, decreases the population of macrofauna found on the beach. We compared the macrofauna population found on groomed beaches to that on ungroomed beaches, in quantity, mass, and variety.

Methods/Materials

We chose to test two groomed and four ungroomed beaches. We established two ways to measure the amount of macrofauna on a beach. We tied three kelp blades together with surf grass and placed three of these kelp blade sets in three different quadrats at the tide line on each of the six beaches. We had traced each kelp blade on paper before placing the kelp on the beach overnight. We returned the next morning and traced the blades again. By massing the pre vs. post consumption traces, we calculated the percentage eaten by the macrofauna. Secondly, we placed 3 pitfall trap cups in each quadrat, above, at and below the tide-line, on one groomed and two of the ungroomed beaches. We then analyzed and compared the quantity, mass and variety of macrofauna found.

Results

From weighing our original kelp blade sketches and the morning after/eaten kelp blade sketches, we calculated the percent change. We found that the following ungroomed beaches had a larger percent change than groomed beaches. Isla Vista Beach had a 96% change from pre to post consumption, Arroyo Burro Beach a 79% change, Campus Point West Beach a 47% change and Campus Point South a 33% change. The groomed beaches, Leadbetter and East had a 35% and 26% change, respectively. The pitfall trap cups, left for one hour after sunset, resulted in 5,105 macrofauna samples at ungroomed Isla Vista, 1,863 macrofauna samples at ungroomed Arroyo Burro, and on the groomed East Beach, 391 macrofauna.

Conclusions/Discussion

We concluded that the grooming of a beach decreases the amount of wrack on the beach. Because the food source is diminished, the macrofauna population on groomed beaches decreases, as was evidenced by our pre vs. post consumption measurements and our massing of the actual macrofauna accumulated in the pitfall trap cups. We question whether beach grooming is necessary, and are concerned if macrofauna disappear from our beaches, what other bird and wildlife populations will be affected by a reduced food supply and diminish as well.

Summary Statement

The objective of this science project is to determine whether the grooming of beaches, removing wrack with tractors and rakes, decreases the macrofauna found on the beach.

Help Received

Dr. Jenifer Dugan of the UCSB Marine Science Institute served as a mentor and allowed us to use her lab to analyze our data.