CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY

Name(s)

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Project Number

36516

Project Title

Which Has More Plankton, the Santa Cruz Wharf or the Santa Cruz Harbor? How Much of that Plankton in Toxic

Abstract

Objectives/Goals

The objective of this study is to count the number of plankton found in water samples from the Santa Cruz Harbor and the Santa Cruz Wharf. To determine which location has more plankton, and what percentage of the plankton samples contain toxic plankton.

Methods/Materials

I created a plankton collector from a soup can, & thick string, which was attached through to holes I made in the can.The string was about 40 feet long, long enough to throw the can into the harbor or lower to the water from the Wharf. Samples were transferred to jam jars from the soup can, Using a permanent marker I wrote the sample date and location on each jar. After the contents settled overnight in a jar, a pipette was used to take 2 drops from a jam jar to put on a slide. On each slide the date and location was written.Using my microscope I counted plankton, and recorded data and drew pictures in my log book. I used reference books, and UCSC Professor Kudela's plankton ID online to identify the plankton. Then the slides were placed in my micro slide box.

Results

I found more plankton in the Santa Cruz Harbor then at the Santa Cruz Wharf. The percentage of toxic plankton was higher at the Santa Cruz Wharf.

I counted:

1732 plankton from the Santa Cruz Wharf ,
of which 441 were Pseudo-Nietzsche, about 25 percent of the plankton counted at the wharf was Pseudo-Nietzsche.

2305 plankton from the Santa Cruz Harbor ,
of which 438 were Pseudo-Nietzsche, about 19 percent of the plankton counted at the Harbor, was Pseudo-Nietzsche.

Conclusions/Discussion

Although the Santa Cruz Wharf and the Santa Cruz Harbor are only a mile apart, the environments are very different.Both share water with the Monterey Bay, and the samples show they have a similar number of toxic plankton, Pseudo-Nietzsche which produces domoic acid. Twenty-five percent of the sampled plankton found at the Wharf, were Pseudo-Nietzsche.

Summary Statement

By counting plankton samples I showed Santa Cruz Harbor has more plankton than Santa Cruz Wharf, and the main toxic plankton is Pseudo-Nietzsche.

Help Received

Clifton Herman, MS in Applied Marine Science, Emily Green BA in Anthropology, were consultants on collecting plankton, and identification, Anne Rumbaugh, helped with transportation, docent at Seymour Labs, in Santa Cruz, explained Domoic Acid, Online Plankton Identification site.

Preliminary