CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY

Name(s)

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Project Number

J1202

Project Title

Invasion of the Microplastics!

Abstract

Objectives/Goals

test environment waters to see if plastic microfibers are in waterways and water sources. hypothesis: there are microplastics in waterways leading to Monterey Bay.

Methods/Materials

13 gallon jugs
1 glass measuring cup
1 clear plastic sheet with printed grid
1 plastic funnel (1.1 cm diameter spout)
1 microscope (Leica# MZ6 dissecting microscope w/light, 6.3-40x magnification)
1 microscope eyepiece camera (AmScope# Microscope Eyepiece Camera 50 mA USB 2.0 DC 5v)
13 plates
13 coffee filters (basket style, approx. 6 micron filter)
1 permanent marker
2 gallons of Arrowhead# Distilled Water
13 Ziploc# Pint Containers (used as filter covers for storage)
1 measuring collection bottle (Nalgene# 13 oz)
1 roll of painter#s tape
1 rubber band

Collect samples with measuring cup, fill one gallon jug
Record time and location on jug

Wash out funnel with distilled water, clean grid with painter#s tape if necessary
Filter water samples
Analyze water samples under microscope with plastic grid on top of the filter
Scan filter square-by-square at 30-40x magnification, counting numbers of fibers
Record results

Results

Microfibers found in every water sample, including those from beaches, rivers and creeks, residential water and water treatment plant effluent.

Summary Statement

successfully located microfiber plastic pollution by analyzing &comparing samples from local waterways, treatment plant, clothes washer, tap water, and ocean water.

Help Received

thank staff at Santa Cruz Water Treatment Plant, Pacific Collegiate School, and my parents, Gabriela Arredondo and Bill George