CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)

Chloe Berrysmith; Courtney Bishop

Project Number

J1003

Project Title

Desalination Across the Nation

Abstract

Objectives/Goals

There is a huge debate in Monterey right now about whether or not we should have a desalination plant. People say it is our only hope because of the drought--but is it really? Our hypothesis is that desalination using solar power to evaporate the water is more efficient and uses less energy than reverse osmosis and cogeneration. Currently, desalination is powered by fossil fuels, which we are running out of quickly, so if we are going to use desalination, it will have to be powered by renewable energy resources like the wind or the sun.

Methods/Materials

We have tested which version of desalination is the most effective. Our three different setups were: one inside at room temperature, one outside using solar power, and one inside powered by a heat lamp that is 150 watts. The controls in our experiments are the water, and the same level of salt, and the time. The time was five hours, and the trial did not have enough time, so we tried ten hours instead. The variable in our experiment was the level of energy and how much was used.

Results

The solar and heat lamp desalination got the same results: 311 parts per milliliter of salt. The room temperature did not work at all.

Conclusions/Discussion

In the future, with more advanced technology, desalination could be a good choice. Evaporation desalination, with more time than ten hours, is a also a possibility. Right now, though, the economical and environmental impacts are too large for it to be a main water source.

Summary Statement

Our project explored the pros and cons of ocean desalination and a more sustainable alternative process.

Help Received

Daryl Lauer, an employee of the Carmel Wastewater Facility, and Carol Reeb, a scientist at Hopkins Marine Laboratory, gave us opinions and knowledge about desalination; Karen Hansen, our sixth grade science teacher, loaned us her heat lamp.