



**CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY**

Name(s) Allison A. Chung	Project Number 35047
Project Title Extracting Nitrates from Water	
Objectives/Goals The purpose of my science fair project was to find which plant, Duckweed, Water Hyacinth or Water Lettuce would extract the most amount of Nitrates from fertilizer contaminated water. I decided to do this experiment to ultimately help prevent ocean algae blooms. My hypothesis was: If I purify water polluted with liquid fertilizer using Duckweed, Water Hyacinth, and Water Lettuce, then Duckweed will eliminate the most Nitrates from the polluted water, compared to Water Hyacinth and Water Lettuce. Abstract Methods/Materials Important materials include: Duckweed, Water Hyacinth, Water Lettuce, Liquid Fertilizer, and Nitrate test strips. Results The results of the experiment were that the Water Lettuce filtered the most Nitrates from the contaminated water in the testing period of five days. The results show that my hypothesis should be rejected because it was proven wrong, Duckweed did not filter the most Nitrates. Conclusions/Discussion Duckweed didn't filter the most Nitrates because the roots were not big enough to suck up the Nitrates and in turn it didn't make a large change in the level of Nitrates, like the Water Lettuce did. I can interpret that my results showed that Water Lettuce filtered the water the most amount of Nitrates because the plant created a thick mat on the surface of the water and its thick fuzzy leaves were all slightly submerged in the water. This meant that the roots and the leaves were able to suck up more of the nutrients into their leaves and roots. It is also possible that Water Lettuce uses more Nitrates and nutrients than the other plants to grow or that it grows more rapidly than the other plants, and therefore used more Nitrates during the course of the experiment compared to the other plants. If I were going to do this experiment again in the future or expand on this experiment I would test multiple tubs of the same type of plants for a longer period of time, and I would try to find a more exact way to measure the levels of Nitrate.	
Summary Statement My project is focused on naturally filtering Nitrates from water in order to stop algae blooms.	
Help Received Ben Pitterle, my mentor helped design the project; San Marcos Growers provided plants; Santa Barbara Koi provided testing strips.	