



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

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| Name(s) Dane L. McFadden | Project Number J0816 |
| Project Title Removing Water Pollution with Plants | |
| Abstract Objectives/Goals The purpose of my project was to find out which of three water plants absorbs the most nitrates and phosphates in water. The three plants I used were: Ceratophyllum demersum (Hornwort), Elodea canadensis (Elodea), and Cabomba aquatica (Purple Cabomba). I thought that Elodea will absorb the most pollutants, Hornwort the second most, and Purple Cabomba the least. Methods/Materials I purchased 36 bundles of Hornwort, Elodea, Purple Cabomba, and 12 38-liter aquariums. I filled each of the aquariums with 30 liters of water, 4 bunches of each plant, and a different mixture of nitrates or phosphates (10 ppm 20 ppm or 40 ppm) and placed them in a greenhouse where I controlled the temperature and lights. Before I put the plants in with the pollutants I had a tissue analysis taken at Fruit Growers Laboratories of each species of plant from each aquarium. I kept the water plants in the greenhouse for three weeks. Then I had a second tissue analysis made for each species in each aquarium and compared the results of both tests. Results I found out that Hornwort absorbed the most nitrates, Elodea absorbed the most phosphates, and Purple Cabomba consistently absorbed the least of the 3 plants. Conclusions/Discussion My conclusion is that water plants could help remove of some types of water pollution problems. Hornwort and Elodea could help reduce phosphates and nitrates. | |
| Summary Statement My project is about removing water pollution using water plants. | |
| Help Received Darrell Nelson, President of Fruit Growers Laboratory, advised me on my project; Fruit Growers Laboratory did plant tissue analysis; my mother purchased materials; my father purchased materials and gave me building advice and help build the greenhouse. | |