



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY**

Name(s) Haidyn N. Washburn	Project Number S2213
Project Title Analysis of Chronic Toxicity of Glyphosate on Fecundity and Mortality of Daphnia magna	
Abstract Objectives/Goals The present study aims to assess the impact of Glyphosate on the fecundity and mortality of Daphnia magna in an aquatic environment. Methods/Materials Daphnia magna were exposed to varying concentrations of glyphosate to assess fecundity and mortality. The tests were monitored closely and mortality of Daphnia magna was documented every 24 hours over the course of 15 days. After the 15 day testing period, the Daphnia were observed under a microscope to assess fecundity. Results The control group, consisting of 600mls water repeatedly had the highest rate of fecundity averaging 2.98 eggs per clutch and only an 8% mortality. While test group 3 (5µg/L) had an average fecundity of 1.12 eggs per clutch with 17% mortality. This indicates that glyphosate adversely affects fecundity while increasing mortality. Conclusions/Discussion Although mortality was proven to be dose dependent, changes in terms of fecundity and death rate were significant at 5µg/L glyphosate exposure. These findings are compelling in the argument that glyphosate causes increased toxicity to a vital part of the aquatic food web. The results of this study contribute to a growing number of studies that prove the need for considerably more testing of Glyphosate and glyphosate formulas on their effects in aquatic ecosystems.	
Summary Statement I demonstrated that glyphosate negatively affects fecundity while increasing mortality of Daphnia magna.	
Help Received Former student Titus Patton helped design my testing tanks. I built the testing system and performed all experiments myself.	