



**CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY**

Name(s) Amanda Herbst; Kelsey Warren	Project Number S2201
Project Title The Effects of Increasing Water Temperatures on Planarian Regeneration	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of this study was to investigate the regenerative response of Brown Planarian worms to increasing global water temperatures.</p> <p>Methods/Materials 45 brown planarian worms of <i>Dugesia tigrina</i>, adjustable aquarium heater, five-gallon buckets, smaller jars, kettle/stove to boil water for cleansing, ruler, pipette, microscope/stereoscope, petri dish, refrigerator, fresh water supply, scalpel. Separated worms into 5 temperature groups and cut each worm in half. Measured the length of each worm after 15 days in heated water bath.</p> <p>Results The lowest and highest water temperatures were best suited for planarian regeneration. Variance in regeneration was shown in the middle temperature groups. All worms regenerated in stunted forms at temperatures above room temperature (20 C).</p> <p>Conclusions/Discussion As water temperatures increase due to global warming, planarian worms may regenerate in stunted forms. This may serve as an adaptive benefit to the worms because they will need fewer resources to survive. However, the worms are decomposers at the bottom of the food chain, and their smaller sizes may decrease biomass transfer to organisms higher up the food chain.</p>	
Summary Statement We tested the effects of increasing water temperatures on planarian worms and determined that warmer waters will cause stunted forms of worms.	
Help Received We devised our project idea and testing setup by ourselves, as well as tested alone. Our mentor, Patricia Sadeghian, lent us a scalpel and petri dishes and suggested we use a microscope for measuring.	