



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

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Project Title Habituation in Mosquito Larvae Response to Water Disturbance: A Two Year Study	
Objectives/Goals The objective of my study is to investigate the response of mosquito larvae to the same disturbance, motion, in different kinds of water and in different water temperatures, and determine if a pattern of habituation, decreasing response, results. In the first year my hypothesis was that the larvae would adjust to the pond water sooner than in other waters tested and resurface faster after the disturbance. In the second year of study, I tested my hypothesis that that the larvae would show habituation in both 25°C water and 30°C water, but take longer to resurface in the 30°C water than in the 25°C water. Abstract Methods/Materials I tested Culex quinquefasciatus #2 mosquito larvae stage because I know that larvae naturally surface to breathe and they will swim downward if they are disturbed. The first year, I put ten larvae in different sources of water, and after letting them get used to the water for a set time, I stirred each water surface equally. I timed the seconds for the first larva to resurface. I repeated the test ten times for each water sample, comparing response time for each batch of larvae. The second year, I compared response times for larvae in water temperatures, 25°C and 30°C. For each run I put ten larvae in a container of tap water floating in a water bath, checked temperature and pH. I timed the time for the first larva to resurface five times for each of five runs, for a total of twenty-five runs at each temperature. Results First year: Percolation pond (chlorinated) tests 1-5 averages resulted in lowest total average of all water samples tested (13.36 seconds); Final Effluent (un-chlorinated) tests resulted in highest average time (15.97 seconds). Second year: The 25°C water had 163.11 T-test average; The 30°C water had a 15.84 T-test average, showing tremendous difference between the two temperature averages. Conclusions/Discussion First Year: My hypothesis was correct in that pond water showed a decreased response time, but, there was more of a decrease in other waters tested. Second Year: My hypothesis was incorrect; tests did not show a decreased resurfacing time and no obvious pattern of habituation in either temperature, but, after applying T-test to results, the difference between the two temperatures is over 100%. I believe that the temperatures, even though only five degrees apart, affect larvae habituation differently.	
Summary Statement The purpose of my project is to investigate mosquito larvae response to the same disturbance, motion, in different kinds and temperatures of water, and determine if a pattern of habituation, results.	
Help Received I used the water bath at Sanger High with help from Mr. Whittington; Mom helped with board; Kearny Mosquito Lab gave me larvae.	