



**CALIFORNIA STATE SCIENCE FAIR  
2017 PROJECT SUMMARY**

<b>Name(s)</b> <b>Rhitishah Yuva Raju</b>	<b>Project Number</b> <b>S2399</b>
<b>Project Title</b> <b>Saving the Delta by Managing the Natural Ecosystem of Marshland: Sustaining the Population of Eurytemora affinis</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My project focuses on increasing population of zooplankton(copepods) in the San Francisco Delta to sustain native fish species in these marshes. The delta has been facing issues due to agricultural use and hydraulic mining during the gold rush. Currently, there is a new initiative to restore the marshes, however there are many unanswered factors. One of the biggest questions is: How do we feed the fish in the marshes? What do we feed the fish? And how much do we feed the fish? My project aims to find the right amount of algae or leachates (depending on the results) to feed the copepods (zooplankton). This will increase the growth of the copepods for the fish to feed on, increasing the fish population because the fish have more food to feed on. With a small population of copepods other organisms (fish) will die because they do not have enough food. Zooplankton is at the bottom of the food chain meaning that a lot of other animals and organisms feed on. Without copepods we would not be fully restoring marshes as they are a crucial part to the marsh habitat. I will be feeding the copepods leachates from the marshes and algae. Then, I will be able to compare both of my results against each other and determine what type of food to feed the zooplankton and how much.</p> <p><b>Methods/Materials</b> My methods were as followed: I started with a preliminary experiment to gain background knowledge, then I did my main growth experiment (2 trials) , and finally I did my fecundity experiment (2 trials). The materials I selected were Algae, Tule, Brazilian Waterweed, and Cattail. Additionally, I used a mortar and pestle, De-ionized water, and the latest industry graphing software.</p> <p><b>Results</b> The hypothesis of this experiment was not disproven. Meaning that, the algae provided and sustained the copepods the best. In regards to the mortality rate, we can observe that the presence of algae helped sustain the copepods. On the other hand, the detritus/leachates had the highest mortality rate.</p> <p><b>Conclusions/Discussion</b> Keeping in mind that the algae does the best, an open water environment where the algae can thrive will be the most beneficial to the restoration of the delta and the sustainability of the copepods and their predators (fish).</p>	
<b>Summary Statement</b> My project is about restoring the marshes in the delta by improving the sustainability of zooplankton (or copepods) through various food sources.	
<b>Help Received</b> I worked in multiple lab environments.	