



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> Kyle N. Markfield	<b>Project Number</b>  31794
<b>Project Title</b> Round Two Algae Attack	
<b>Objectives/Goals</b> The objective was to determine if Iron or Nitrogen Fixing Bacterium will cause the most growth of algae in slough, river, or ocean water. <b>Methods/Materials</b> I collected three gallon water samples from San Benito River, Elkhorn Slough, and Salinas River Beach. I then placed 12 oz. of San Benito River water in 3 labeled quart containers. I repeated this for the Elkhorn Slough and the Salinas River water samples. I set aside one 12 oz container of each water sample, and labeled them Controls. I then placed 1 iron Tablet in another quart container for each water sample. These were labeled Iron added. I then added 30ml of Nitrogen Fixing Bacterium Fertilizer to the remaining three containers. These were labeled Nitrogen Fixing Bacterium added. I then took 30ml samples of each container and placed each in a Petri dish which was labeled the same as the container the sample came from. All the Petri dishes were placed on a window sill and observed over 5 days. I measured the amount of algae growth in each Petri dish. <b>Results</b> The river water control Petri dish had 1.2% algae growth in its Petri dish, while the river water, that had iron added, had 11% algae growth and the river water, with the Nitrogen Bacterium added, had 1.2% algae growth. The slough water control Petri dish had 1.2 % growth, while the slough water, with iron added, had 20% algae growth, and the slough water, with the Nitrogen Bacterium added, had 5% algae growth. The beach water control Petri dish had .3% algae growth, while the beach water, with Iron added, had 11% algae growth, and the beach water, with Nitrogen Bacterium, had 8% algae growth. <b>Conclusions/Discussion</b> My conclusion is that Iron added to river, beach and slough water samples does increase algae growth. The Slough water with iron added did produce the most algae growth than the other water samples. I also concluded that the Nitrogen Fixing Bacterium though it did not produce as much growth as the iron did, did produce more algae growth than the controls did, and also may have a negative affect on the environment.	
<b>Summary Statement</b> My project is the affects Iron and Nitrogen Fixing Bacterium Fertilizer have on algae growth in river, slough, and beach water samples.	
<b>Help Received</b> Mother helped me collect water samples, bought supplies and helped me download picturesw onto my charts.	