



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Bryan E. Truitt</b>	<b>Project Number</b> <b>J0927</b>
<b>Project Title</b> <b>The Effects of Nitrogen and Phosphorus on Eutrophication and Aquatic Primary Productivity</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The purpose of this experiment was to determine a numeric correlation of the effects of nitrogen and phosphorus on eutrophication and aquatic primary productivity. Although in the past experiments have shown that nitrogen and particularly phosphorus affect eutrophication and aquatic primary productivity, there is no definitive numeric correlation established.</p> <p><b>Methods/Materials</b> 4 ponds were sampled approximately 4-5 inches below the surface of the water in an area which accurately represented the entire body of water and the water temperature recorded. The values of dissolved oxygen, nitrogen, phosphorus, pH, and aquatic primary productivity subsequently were tested using the La Motte test kit.</p> <p><b>Results</b> the level of nutrients such as phosphorus rise, the net and gross primary productivity also rise. As the temperature rises there is more dissolved oxygen as a result of the increased temperature allowing the oxygen to be saturated even more.</p> <p><b>Conclusions/Discussion</b> The analysis of the data has determined that, in general, as the variables contributing to primary productivity (DO, Nitrogen, and Phosphorus) increased, the gross and net primary productivity decreased relatively uniformly. While looking at the variables contributing to primary productivity individually, similar results were obtained. The relationship between net and gross aquatic primary productivity corresponded by each decreasing and increasing as the other increased or decreased. Between phosphorus, net and gross aquatic primary productivity, and nitrogen, net and gross aquatic primary productivity, there was no observable correlation. The experiment was unable to establish a specific numeric correlation as to how the specific variables could contribute to net and gross aquatic primary productivity. These experiments are useful because they describe some of the relationships of the variables contributing to net and gross aquatic primary productivity.</p>	
<b>Summary Statement</b> The purpose of this experiment was to establish a definitive numeric correlation of the effects of nitrogen and phosphorus on eutrophication and aquatic primary productivity.	
<b>Help Received</b> Various university professors aided with providing information and ideas for the experimental design; Father aided in transportation to the ponds and with monetary support; Sister aided in suggesting possible project ideas.	