The Impact of Fertilizer on pH and Dissolved Oxygen in Freshwater Ecosystems

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This project investigated the extent to which fertilizer alters the pH and dissolved oxygen levels of freshwater. For pH testing, I used a Wide Range pH Indicator solution with 10mL of sample water, and watched as the solution changed colors to identify the pH. For testing dissolved oxygen, I used a wrinkle titration, first stabilizing the water sample with a mix of Manganous Sulfate (8 drops), Alkaline Potassium Iodide Azide (8 drops) and Sulfuric Acid (8 drops). The samples were oxidized by the combination of chemicals, which prevented further dissolved oxygen from getting into the sample. Once the previous step was completed, I poured 20mL of the fixed sample into a testing tube and filled my titrator with 10g of Sodium Thiosulfate to titrate the sample until it turns a pale yellow color. To prepare for further titration, I used 8 drops of Starch Indicator to turn the solution a deep blue. With the leftover Sodium Thiosulfate in the titrator, the blue solution was titrated until it turned colorless. These portions of the experiment were done for the control group, initial and fertilizer based testing. The data showed that both V and L increased the pH of the water, making it more alkaline, and decreased the amount of dissolved oxygen. However, L slightly increased pH while V significantly decreased the dissolved oxygen. My hypothesis was partially incorrect because, rather than becoming more acidic and losing dissolved oxygen, the samples became more alkaline and lost the dissolved oxygen.

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