Algae Science: Analyzing Photosynthesis Rates of Agitated vs. Still Algae

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A dead zone is an area in a body of water in which oxygen has been depleted to an extreme. These zones are caused by algae blooms which is an immense growth of algae. Algae blocks sunlight which deprives primary producers in the water of the ability to conduct photosynthesis, disrupting the food chain. When the algae finally die, oxygen is consumed upon decomposition. Algae blooms cause the death of aquatic life by removing oxygen and disrupting the food chain and fishing industry. Algae blooms can also produce harmful chemicals and toxins that can contaminate drinking water causing illnesses to people and animals. This research project analyzes the impact of agitation on photosynthesis rates in algae because agitation could have a potential impact on photosynthesis rates in algae. Here we show that agitation increases the rate of photosynthesis in algae. Using algae beads and an indicator solution that changes color and pH depending on the amount of photosynthesis happening, the rates of photosynthesis of agitated and still algae were measured and compared. It was expected that agitation decreases the rate of photosynthesis, however, the agitated algae was darker and had a higher pH indicating that more photosynthesis happened, which is the opposite of what was expected. My results show how agitation is a factor in creating algae blooms. Agitation such as that at runoff sites or in the wider area by boats, wind, or people can cause algae blooms to grow. With this in mind, it’s possible to minimize algae blooms by mitigating agitation.

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