What Are the Effects of Cyanobacteria Blooms on the Taxa Diatoma?

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In the previous decade, cyanobacteria blooms in rivers have grown in both intensity and frequency due to climate change and water pollution, which are results of human activity. These blooms create toxic conditions for a multitude of organisms, including humans. Learning how cyanobacteria blooms affect primary producers like diatoms is especially important because diatoms are excellent indicators of an ecosystem's health. In our research, we focused on Oregon’s Willamette River and its 2021 Ross Island cyanobacteria bloom. We studied two sites over a 6 week period: Poet's Beach, a site affected by the bloom, and Sellwood Riverfront Park, our control site. We used various water quality tests at each site and also took plankton samples, which we later analyzed under a microscope to identify which organisms were present. After analyzing both the data we collected and the Environmental Protection Agency’s Ross Island cyanobacteria data, we found an inverse relationship between cyanobacteria and diatoms. This may have been due to competition for the same resources. Furthermore, an ANOVA test showed that over time, the diatom levels of both our control and affected sites were statistically significant. This reinforces the idea that the blooms caused the change in diatom levels. However, there was no clear correlation between the diversity of the microorganism community and cyanobacteria blooms. Our results show how humans' environmental impact is changing the composition of organisms in our local ecosystems. These data are a snapshot of what our planet could look like if we fail to change our environmental practices.

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