Environmental Science Graduate Program Seminar Series

The Use of Ozone Nanobubble Technology for Treatment of Harmful Algal Blooms (HAB)

Haley Kuhn

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Smith Laboratory, Room 3150

Abstract

Massive accumulations of toxin-producing algae, known as harmful algal blooms (HABs), have recently become spatially and temporally more prevalent worldwide due to increasing nutrient levels from anthropogenic changes in land use, agricultural activity, and climate change. These blooms have serious and sometimes irreversible effects on wildlife and public health. One treatment method includes the use of ozone, a powerful oxidant used to remove several classes of cyanotoxins. Nanobubbles are a newer innovation that can be used to increase oxygen transfer efficiency by providing higher surface area for gas exchange and longer bubble lifetime. Water quality, such as pH and organic carbon, can influence the effectiveness of ozone treatment. This study aims to determine nanobubble persistence, ozone dose, and ozone longevity under a variety of water conditions to determine the efficacy of ozone nanobubble treatment for cyanobacteria control and microcystin destruction.