



FOWP

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Could pollen collection be more important to White Pond's health than sewerage?

About 20 hearty souls braved the rainy weather to learn about the A-POD technology in White Pond. The A-POD is passively clearing the water of cyanobacteria which can cause harmful algal blooms (HABs). Over 380 pounds of cyanobacteria were collected and removed in 2022; in 2023, two A-PODs are back in the water. A new factor has been identified in 2023: the contribution of nutrients by pollen on the pond ecosystem.

Friends of White Pond hosted a talk by Jon Higgins of Higgins Environmental Associates, Inc. on June 24. Higgins is the creator of the A-POD and suggested an important new way of thinking about how nutrients from pollen feed the cyanobacteria that wind up closing the pond.

For some years, it has been thought that one of the main sources of nutrients (nitrogen, phosphorous) that feed toxic algae blooms has been the septic systems that line the pond. Septic systems are supposed to adhere with Title 5 requirements, but gravity does what gravity does, and we have understood that septic run-off reaches the pond and feeds the blooms. Climate, rainfall, stormwater run-off, fertilizer, rainbow trout fish stocking and human/animal debris all play a role too. It's a complex mix.

Higgins noted that his A-POD technology in the pond is collecting large amounts of pollen. Based on laboratory analysis, the pollen has a similar nutrient content as the cyanobacteria: this is big news. Pollen being deposited into White Pond could be a significant source of nutrients feeding cyanobacteria blooms, perhaps greater than other potential sources such as septic systems or nearby agricultural fields. Higgins referenced an earlier study by the U.S. Geologic Survey of Walden Pond, which documented that pollen accounted for approximately one half the annual external loading of the nutrient phosphorus to there.

The pollen source of nutrients to cyanobacteria in the pond thesis fits with known science about increased pollen counts as a result of climate change. A study published by the [Harvard School of Public Health](#) found that since 1990, pollen seasons have gotten 20 days longer and contain 21%



more pollen per day. The researchers attributed roughly half of the lengthening pollen seasons and 8% of the trend in pollen concentrations to climate changes (increasing temperature and carbon dioxide) driven by human activity.

If nutrients in pollen are the largest external source of nutrients to the pond, feeding cyanobacteria blooms, and the A-POD or similar technology can remove that pollen physically from the pond, then the toxic cyanobacteria bloom cycle in the pond can be broken at its source. This could result in a very significant cost savings for the Town and area residents, compared to other alternatives.

We thank Jon Higgins for his generous time in presenting the current state of the A-POD and thinking about best practices for pond management. We encourage further investigation to validate what is now an interesting idea about the role of pollen as an external nutrient source for cyanobacteria blooms at the pond.