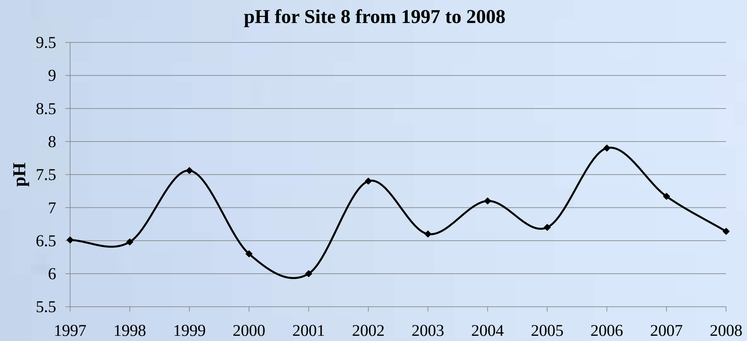
2008 Water Project: pH Analysis

Melvyn Pard, William VanDenHeuvel, Alex Cohen – Honors Chemistry 103

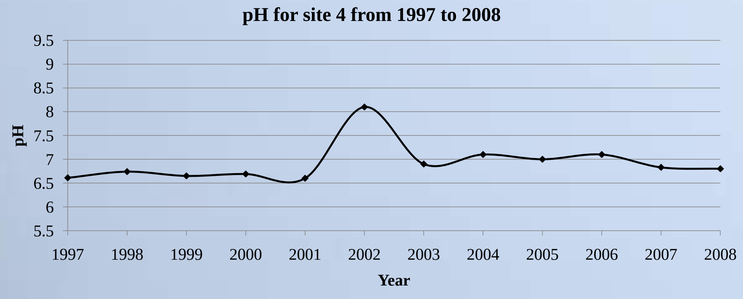
Site 8: North Pond

Site 8 was a large pond located on the northeast side of campus. The pond had large amounts of algae and wildlife living on the pond. The results from our testing showed that this pond was also changing due to weather. The pH of the pond increased as the months progressed. The temperature of the pond decreased during the same time period. On the last sample, the algae were mostly gone along with the wildlife. The DO on our last water sample was more than on our first water sample. An interesting variable our group discovered was during October when there was a large amount of leaves in the pond which could account for the rise in pH.



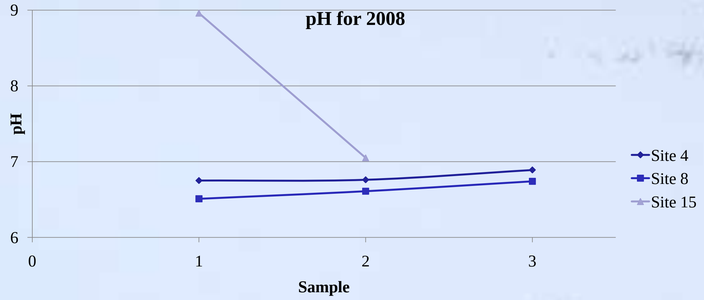
Site 4: Whiskey Pond

The Whiskey Pond is a small pond located near the Bunker Interpretive Center. It is generally covered in algae (in decreasing amounts as the temperature gets colder), and this year, there were a lot of floating branches and debris. We also observed several ducks each time we visited it. The water in this pond seems to be very neutral in terms of pH: around 6.8, as it has been over the last few years. Many of the other ponds in the area have had a higher pH, up to 8 or 9. The conductivity of this pond is also lower than many other surrounding ponds.

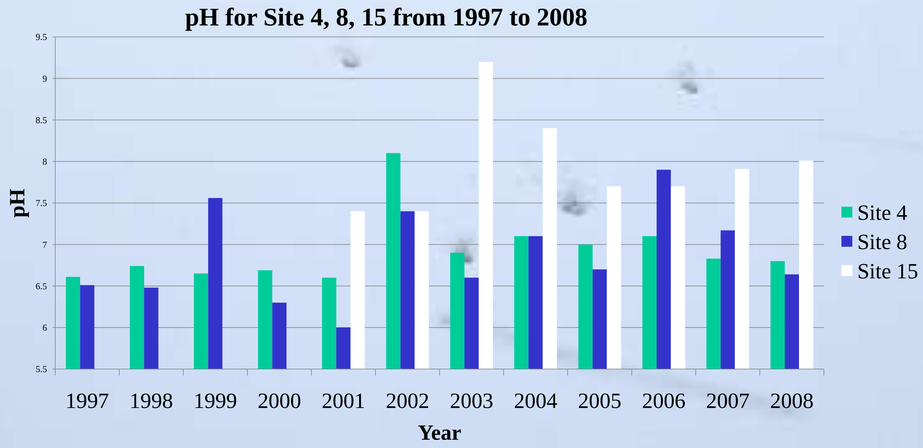


Introduction

The water project, which was started in 1997, is part of the Calvin Environmental Assessment Program (CEAP). The CEAP gets Calvin students involved in projects which assess the environment on campus and beyond, providing valuable information to both Calvin and the neighboring communities. Specifically, the water project studies the quality of the water in many of the ponds on campus. Students take water samples from these ponds over a period of a couple months and analyze them, getting information such as pH, conductivity, dissolved oxygen, and content of dissolved anions such as chloride and fluoride. Our group focused on three different ponds (sites 4, 8, and 15) and put an emphasis particularly on the pH of our samples.

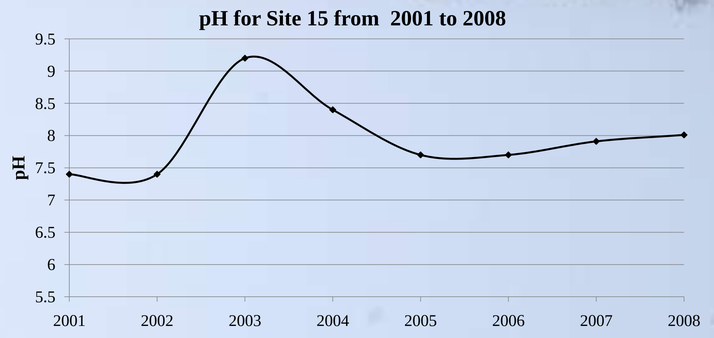


The pH of a liquid is a sample is the measure of how basic or acidic it is, or the amount of dissolved hydrogen ions. In our ponds, the pH was generally very close to 7, which is well within the range of pH that water is generally considered to be safe to drink, swim in, and so on. The ponds are also within the pH range of normal ponds, and as we observed, they are capable of sustaining wildlife. We noticed a general trend throughout the years of this project that the pH of our ponds has generally been increasing. This may be due to the renovations that Calvin has been doing and the runoff due to construction. Some of our ponds are also connected, leading to a correlation between the changes in them. We also found that pH is directly related to temperature, and as the temperatures get colder, the pH of our water increases, becoming more basic.



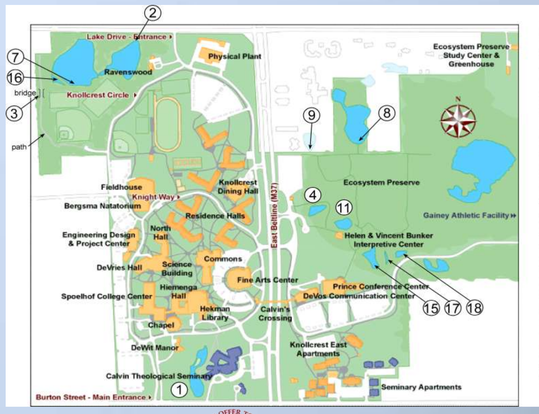
Site 15: Sequestration Pond

Site 15 is a pond that is located on the southeast end of campus. The results from our testing showed that the pond was changing due to the weather. The pH for site 15 was decreasing as the months progressed. When we first started testing the pond there was large amount of algae and animal life such as frogs, water bugs, and birds in the pond. On our last sample the algae mostly was gone and there was less wildlife in the pond. The temperature also dropped as the months progressed. The DO on our last water sample was less than our first water sample. An interesting variable that could have affected our results is that site 15 and site 17 connected when the water levels were high.



Service Learning

Throughout their time at Calvin, all students are encouraged to participate in service learning - serving both the college and the community through their talents and work. This water project is an example of a service learning project: we spent time to help assess and preserve our local environment. Through service learning, we can learn more about ourselves and how we should spend the lives God has given us. It is reciprocal because we can both serve the community and grow ourselves. We appreciate the chance to help serve the community in a scientific way.



Map of Water Sampling Sites at Calvin College

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