

Restoring Water Quality in an Urban Swimming Lagoon



Naturalake Biosciences Case Study



Project Overview

Location: Humboldt Beach Swimming Lagoon, Chicago, Illinois- 1.5 acres

Management Objective: Control persistent filamentous algae blooms and reduce *E. coli* outbreaks

Solution: Bi-weekly Pondzilla Pro and chelated copper treatments, monthly MD Pellet applications. Additional collaboration to reduce goose presence.

Results: Disappearance of algae blooms for the entire 2018 season

Problem Humboldt Beach swimming lagoon is a man-made waterbody, which is filled with municipal drinking water for community recreation. Water quality in the pond has been a concern for years. Waterfowl often flock to the pond, leading to dangerously elevated *e. coli* levels as well as increased nutrient concentrations in the water. Additionally, the municipal water is very high in phosphorus to protect lead pipes from leaching. Municipal water ortho-phosphorus levels are typically around 0.5 mg/l, which is more than sufficient to promote excessive algae growth.

In previous years, *E. coli* concentrations were elevated to unsafe levels for two-thirds of the summer¹ and the pond was covered in large algae mats, creating aesthetically unpleasant conditions as well as a risk to human health. Community residents are proud of having a public space for recreation and have fought to keep the pond operational, but have expressed exasperation that the water quality has remained poor despite previous attempts to improve conditions.

Objectives The goals of this project were to improve aesthetics by reducing algae presence in the pond and decrease the number of days where *E. coli* concentrations reach hazardous levels.



Before: Typical algae coverage, 8-5-2017



After: No algae present, 8-2-2018

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Before: Algae mats on pond, 8-1-17



After: Clear swimming water, 7-19-18

Management Plan Because Humboldt lagoon was stressed by a variety of issues, an extensive and collaborative management strategy was proposed. Tall vegetation was established along the shoreline to discourage goose presence and an egg-oiling program was initiated. The lagoon was drained in the spring of 2018 and algae and plant material from the previous year was manually removed to start the season with a “clean slate”. To control algae, ILM staff visited the pond on a bi-weekly basis to apply Cutrine Plus at a rate of 1.7 gallons per surface-acre (SA) and Pondzilla Pro at a rate of 1.7 gallons per SA to aid in algae breakdown. Additionally, MD pellets were applied monthly at a rate of 17 pounds per SA. This was done to reduce organic matter in the sediment and increase water clarity, as *E. coli* can reside in sediment and sunlight exposure kills the bacteria.

Results The concerted effort employed for the summer of 2018 led to a striking improvement in water quality at Humboldt Beach. Whereas *E. coli* concentrations were at hazardous levels for two-thirds of the summer in 2017, they were only at hazardous levels 25 percent of the time in 2018². The water remained free of algae for the entire summer, signifying that the treatments were having the desired effect. Residents have been pleased with the changes. Continued management is planned to further improve water quality in this lagoon for the enjoyment of the community.

Community Response and Media Coverage The encouraging outcomes of this project have been featured in news outlets² and residents have provided positive feedback regarding the look and safety of the pond. This project was conducted in collaboration with other organizations, leading to increased awareness in the community regarding best management practices for water resources.

After ‘Long Legacy’ Of Poor Water Quality, Humboldt Park Beach Sees Major Improvement

The park district's multi-pronged improvement plan appears to be working.

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LOGAN SQUARE, HUMBOLDT PARK, AVONDALE

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Logan Square, Humboldt Park & Avondale reporter



1. <https://www.dnainfo.com/chicago/20170828/humboldt-park/humboldt-park-beach-water-quality-swim-advisory-why-is-humboldt-park-unsafe>
2. <https://blockclubchicago.org/2018/10/19/after-long-legacy-of-poor-water-quality-humboldt-park-beach-sees-major-improvement/>