

Crystal Lake Water Quality

The problem broken down...

A crystal clear problem.

- The green water color observed in the summer is a result of lake eutrophication.
- The green surface color is actually a coat of blue-green algae!

Crystal Lake's water quality: a recently unpleasant history

- In recent years, Crystal Lake's water has been all but clean.
- The lake shows mass quantities of mucky, polluted water housing several species of fish and plants. (Newton Conservators).
- Near shores, there have been several reported cases of dead fish, and musty seaweed floating around and even coating the floor of the lake.
- Newton conservators claim the greatest sign of water quality degradation is it's weird color scheme. Photos taken throughout many years and a variety of seasons show the water color is by no means static...

Crystal Lake: a photographic timeline (Newton Conservators)



Winter, 2011



Summer, 2012



September 28, 2014



Winter, 2012

(Note the green color in the summer)

What is Eutrophication?

- Eutrophication is the process by which fresh water bodies compromise water quality due to algae blooms.
- Algae blooms become a threat to the lake because they have several harmful effects on the ecosystem.
 - Competition with marine fauna and other plants.
 - The indirect consumption of dissolved oxygen, leads to the eradication of various fish species and other marine animals. These fish are apex predators!
 - Algae acts as an invasive species to the ecosystem.

How eutrophication occurs.

- The algae rely on phosphorus and nitrogen as their primary nutrition.
- P and N make their way into the lake by runoff streams.
- The algae thrive in warm, still water environments, making Crystal Lake a perfect habitat.

Why Newton?

- A vast majority of P and N runoff is a result of plant fertilizers having excess, synthetic chemical compounds that runoff into Crystal Lake.
- Newton's income level and real estate scale allow homeowners to care about their lawns, this creates a demand for fertilizers and the landscaping industry as a whole.
- The rainy climate in the spring and the melting snow help wash the nutrients into the lake.
- Crystal Lake is one of the few water bodies in Newton, thus making it one of the few places runoff can go.