



# Hawaiian Village

Sept. 2023 Water Quality Report to Residents



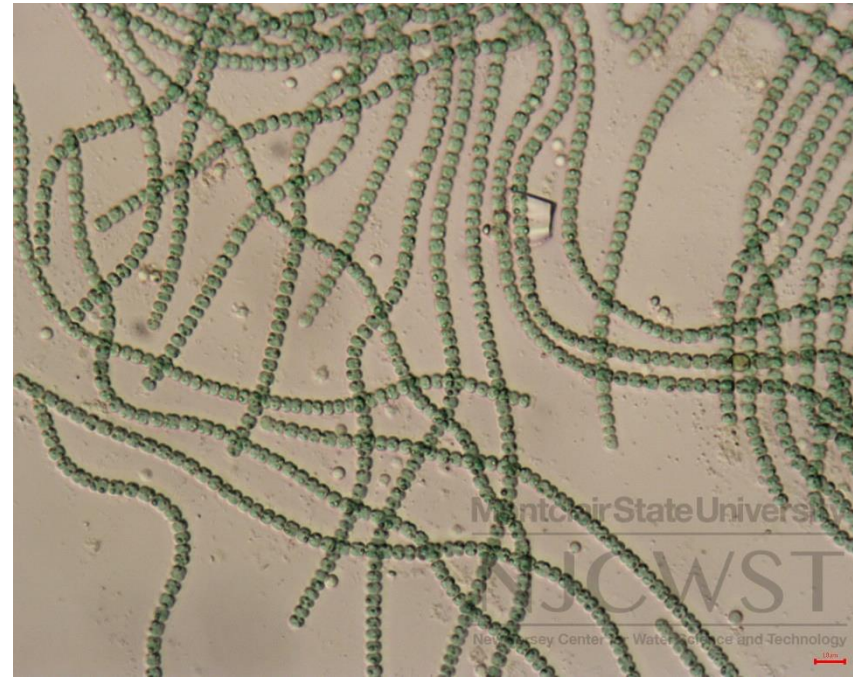
# The Problem

- Increasing frequency and severity of algae blooms in the lake
  - Occurring earlier than past years
  - Effects of 2019 flood?
  - In the past August & September (higher water temps)
  - First week of May this year, and repeatedly throughout the summer
- HV water tested in May 2023
  - Identified 2 types of algae that can become toxic when conditions are right
  - Testing has not been done frequently or consistently in the past, and usually for other contaminants
  - Some residents have reported illness after swimming/water activities at HV

# Types of potentially toxic algae at HV



Planctothrix



Anabaena



# Hawaiian Village West lake

May 2023



# Hawaiian Village West Lake

June 2023



# Hawaiian Village East Lake

July 2023



# Hawaiian Village East Lake

August 2023



# Hawaiian Village East Lake

August 2023



# The Problem, cont'd...

- HABs are happening more frequently across the U.S. It is not just HV (reporting is voluntary and likely under-reported)
  - In 2019 and 2020, less than 250 reported nationwide
  - In 2021, 368 reported nationwide
  - Untreated water with algae see approx. 30% growth annually
- Exposure to Harmful Algae Blooms (HAB's) can cause illness and death (often pets)
  - Symptoms:
    - Diarrhea
    - Nausea or vomiting
    - Skin, eye or throat irritation
    - Allergic reactions or breathing difficulties
  - 100's of known dog deaths per year from reporting states.

# The Problem, cont'd...

- Recommendations for actions during an algae bloom, across all states:
  - **AVOID CONTACT WITH THE WATER. KEEPS PETS AND PEOPLE OUT OF THE WATER.**
  - Handouts available after the meeting

**How many days each summer  
do we want to be prevented from  
using the lake?**

# The Problem, cont'd...

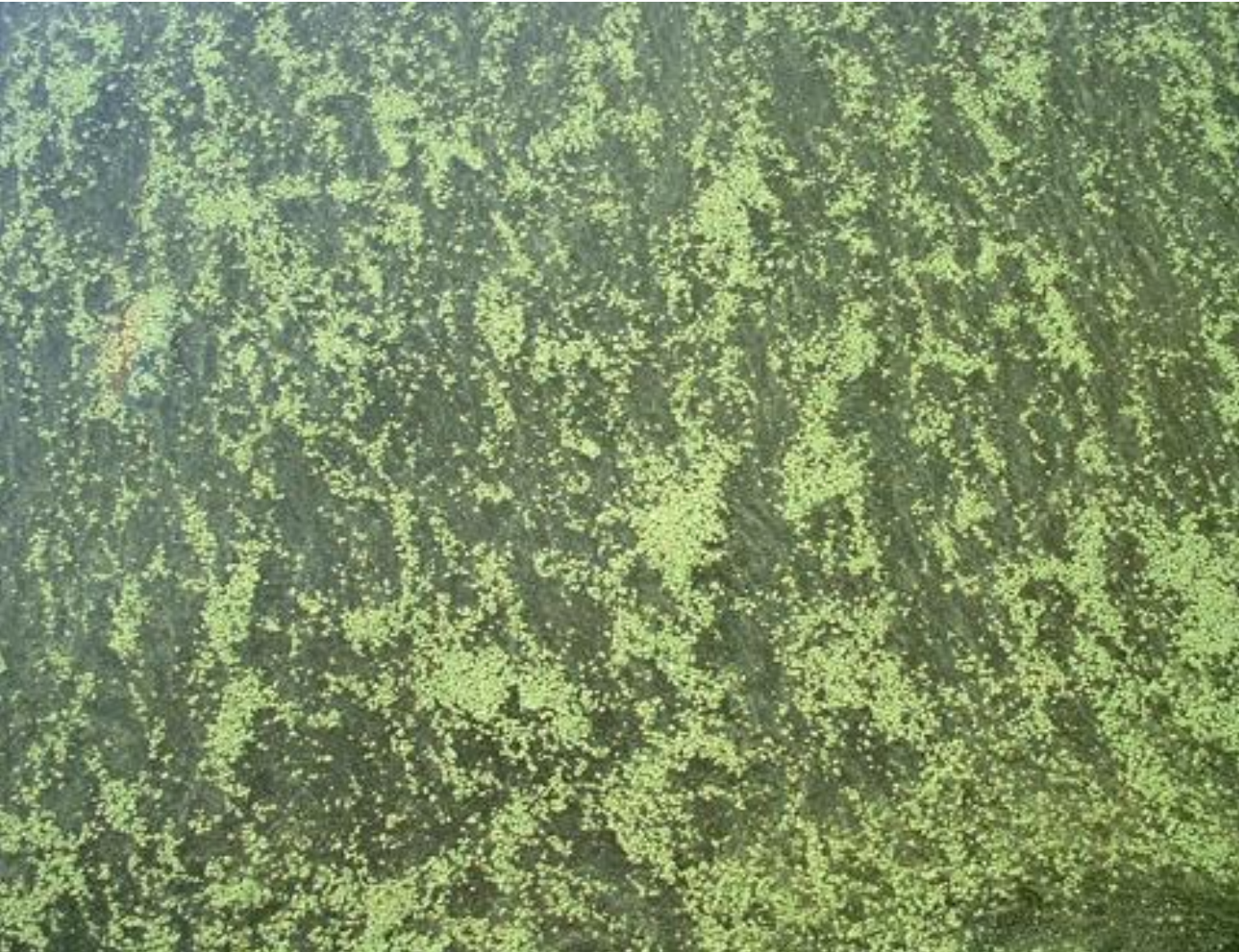
- Do we know we have reached toxic levels? No, but.....
- We don't know we haven't either.
- NE Dept of Environment & Energy describes HAB as:
  - Distinct blue-green color but may also appear to be green, brown or red.
  - Water may have a bad odor.
  - Foam, scum or a thick paint-like appearance on the water surface.
  - Green or blue-green streaks on the surface.



## HAB-Blue, green or white spilled paint

*Image from New York Dept. of Environmental Conservation website*

<https://www.dec.ny.gov/chemical/81962.html>



## HAB-Green dots or chunks

*Image from New York Dept. of Environmental Conservation website*

<https://www.dec.ny.gov/chemical/81962.html>



## HAB-Pea Soup appearance

*Image from New York Dept. of  
Environmental Conservation website*

<https://www.dec.ny.gov/chemical/81962.html>



## HAB-Green Streaks

*Image from New York Dept. of  
Environmental Conservation website*

<https://www.dec.ny.gov/chemical/81962.html>



# Treatment Options





# Treatment Option: Alum

- Chemical treatment, avg. effectiveness 8 yrs. (if no excessive internal load).
- Binds to phosphorus denying algae cells some of the food needed to grow and multiply.
- Forms a gelatinous substance as it settles to the bottom, removes phosphorus and particulates from the water column on the way.
- Cannot treat coves, too shallow; will be disturbed by boats/human activity.
- Safe for fish, wildlife and other aquatic organisms.
- No water contact for 48 hrs. after treatment.
- Toxins can still be released from algae cells that remain.
- Cost: \$150,000-200,000 (2021 estim).

# Treatment Option: Copper Sulfate

- Chemical algaecide, avg. effectiveness 5-10 days
- Acts on algae by interfering in chlorophyll reproduction in cell.
- Must be applied at time of active blooms or used prior to major holiday weekends.
- Requires multiple applications per summer, not preventative.
- No water contact for 24 hrs. after treatment.
- Has maximum dosages, which may/may not treat large blooms.
- Algae cells release toxins (if present) when they die.
- Some negative impact on “non-target aquatic species” (fish) recorded.
- Cost: approx. \$3500/treatment; if Memorial Day, July 4<sup>th</sup>, Labor Day=\$10,500

# Treatment Option: Ultrasonic

- Non-Chemical, unit lifespan 7-9 yrs.
- Sustainable year after year, 65-75% reduction in algae counts.
- Treats & prevents blooms all summer.
- Acts on algae by interfering in reproduction of cells.
- Installed in the spring, removed in the fall.
- Algae cells do NOT release toxins (if present) when they die.
- Safe for fish, wildlife and other aquatic species.
- Cost: \$45,000-\$47,000 to purchase 7 units; \$3500/yr. monitoring dashboard plus budgeting for replacements. Less than \$50/household per year.

# Area Lakes adopting Ultrasonic

- Ginger Cove
- Valley Shores
- Blue Water
- Timber Lodge
- Timber Shores
- Eagle Woods
- Riverside



# Carly Dana

Ginger Cove, 9 years Water Quality Manager



# QUESTIONS?