Water IQ Progress Report at HVLA Annual Meeting (6-7-24)
by Water Quality Committee Rep. Meaghen Wostoupal

All 7 Water IQ Units have been in place as of 4-14-24 (see map of placements). There were some start-up issues on 2 units for the first couple weeks, from electrical/installation issues, GFCI tripping, power signals, and cell reception challenges. As of two weeks ago, that has all been resolved.

We've learned some important things from water samples taken in the past month:
(1) We have 2 types of algae that can become toxic (release cyanobacteria) under the right conditions: Planktothrix and Dolichospermum. Planktothrix has a short reproduction cycle which makes new algae cells faster than others; this makes it a "stubborn" type to get rid of when ultrasonic is first used. Ultrasonic is effective against it, it will just take time to reach the point where death of Planktothrix cells outpaces births.
(2) We have significantly elevated algae concentrations (both types); as much as 4 times the recommended levels (depending on which of 4 sampling locations).
(3) The stormy/rainy weather of this spring contributes to algae growth by stirring up the lake and bringing what would otherwise be dormant cells into the light where they start reproducing. Until the units have been operating for a longer period, they will struggle to keep up with the huge population of algae cells reproducing at the same time. Another measure within the water testing shows that we do have elevated levels of dying algae, so we know the units are doing what they should be doing.
(4) Water Clarity tests, taken using a secchi disk, were done before the units were installed, and ranged from 14"-16". We are testing weekly, as other lakes report it is one of the first measurements that will reflect improving water. Our latest clarity test showed an improvement of 2" since installation.
(5) Water tests also show high levels of phosphorus, the main food source for algae. While some phosphorus occurs naturally, it also comes from groundwater, agricultural run-off, organic matter breaking down, and us. We live on a sand bottom lake so the soil beneath our lawns is also sandy; anything we put on our lawns will filter through to the lake water. Everyone should be diligent in using Zero Phosphorus fertilizer on their lawn. Look for Zero Phosphorus fertilizers (middle number on a bag) and if using a lawn service request Zero Phosphorus Fertilizer. Any detergents/additives used on our driveways and lawns, as well as grass clippings, small branches, leaves, etc., will end up in the lake via streetside stormwater outlets, too. Please use trash receptacles when doing cleanups and opt for natural detergents when possible.

Other phosphorus contributors which could be a factor include the feedlot on the 87th Street hill above the lake, as well as the storm drainage opening by Lot 100. Our Board SID Representative is looking into this further, to make sure they are not affecting our lake.

One last contributor to phosphorus levels that we can control is geese. Goose poop can contain around 1.3% phosphorus. A single goose can produce up to 3 lbs. of fecal matter per day, which can contribute to algae blooms, excessive plant growth, and declining fish populations. Duck poop can also contribute to higher phosphorus, but just not as significantly as geese.

HVLA initiated a goose population reduction effort a few years ago, in consultation with the NE DNR, which significantly dropped the numbers on our lake. The population has started climbing again. This year additional volunteers have been equipped with bangers/poppers around the lake to scare the geese away. This is humane and there is plenty of good habitat nearby, we just don't want them on our water. Once a goose spends a winter on a body of water they will return year after year.

What can we expect?

One thing to keep in mind is our lake has had zero preventative treatments in the past (hence the high algae counts & high phosphorus). Many of the lakes we consulted had treated their lake with chemicals annually to suppress algae/phosphorus prior to adopting ultrasonic technology, so they experienced faster results than we might see. It is just going to take time, starting with the conditions we have.

Reasons to be hopeful:

(1) Every lake using ultrasonic technology that we talk to says "Our water is the clearest it's ever been." We're just at the very beginning and still believe we will see significant improvement in time. Several lakes suggested at the 3 month point they had more noticeable improvement.
(2) A west-Omaha lake, Woodcliff Lakes, which is spring fed, installed 2 units in their fishing lake this spring (about the size of the east water in front of our beach). In one month their clarity went from 1' to 4'. Of course, they had previously been treating their lake chemically so their starting point was likely far better than ours.
(3) The first algae blooms were seen this year on May 20th. Last year they were seen on May 5th. There are many factors that could affect this, but it is still hopeful.
(4) Clarity has already improved 2" according to secchi disk measurements (a standard tool used by water quality managers).

Safety

If you see Algae Blooms on the surface, which may look like green swirls, spilled paint, streaks or chunky bubbles, please keep pets and children out of the water until it has dissipated. This is usually seen in early mornings until there is wind/wave action on the lake. Do not "stir up" the bloom yourself, as this can actually release the cyanobacteria (if present) into the water, wait for natural wave action to break it up more subtly.

We are documenting blooms for future comparison. If you are inclined, please send pictures and a short note of your location on the lake to a Water Quality Committee member via PM on NextDoor.

Volunteers are needed. We need to be out testing the blooms. This is a very simple process. We will show you how. Please contact a Water Quality Committee member if you are interested.

Questions on the placement of the units were also brought up. There is a detailed map of the placement of each of the units on this site, as well as a picture of what the control boxes look

like. Please do not fish around docks with these white boxes. This could harm the units and cause further expense. (The committee is exploring putting up signs or flags by the units.)

Again, water testing at the lake hasn't been performed since the flood. We are dealing with a lot of past issues, and are hopeful we are going in a positive direction.