BALL POND ADVISORY COMMITTEE
Monthly Meeting
December 6, 2023, at 7:00 pm
Virtual Meeting via ZOOM
ZOOM link- https://zoom.us/j/99876635274
ZOOM recording-https://vimeopro.com/user53774442/town-of-new-fairfield-board-of-selectmen/video/892262242

The Ball Pond Advisory Committee closely monitors the water quality and living community comprising Ball Pond: applying best lake management practices, and encouraging good stewardship by the watershed community, to ensure the health of the lake for current and future generations, as well as for the wildlife that relies upon it.

In attendance:

Committee Members: George Buck, Mary Yulo, Frank Yulo, Monica Santos

Moderator: Quintin Flower

Presenters: Larry Marsicano and Dr. Edwin Wong

Members of the public: Debi Kilcourse, Hannah Schiering, Beatrice , Stuart Orsher, Jackie Orsher, Cliff Orsher, Ashley Kepping, Irv Becker, J. Randall Tarasuk, Charles Pavarini, Khris Hall, Sue Corbone, (& 3 unknown participants by phone/iPad.)

1. Call to Order- Monica Calls meeting to order 7:04.

2. Approval of November 15, 2023 meeting minutes- Mary requests change of spelling-Tapenzee to Tappan Zee. Mary motions, Frank seconds, all in favor; motion passes.

3. Meeting schedule for 2024- Committee agrees to the first Tuesday of each month, save January due to the time in which the 2024 schedule has been submitted.
-Mary motions, Monica seconds, all in favor; motion passes.

4. Vote on WestConn 2024 budget- $800 budget.
-Mary motions to approve, George seconds, all in favor; motion passes.

5. New Business- Proposal from Frank for an anchor to mark the deepest point in Ball Pond; estimated cost is $205.02, depending on supply and demand of necessary materials.

-Frank makes the point that the committee should get someone from the town to approve.
-Monica motions to add the cost to the budget, Mary seconds, all in favor; motion passes.

6. 2023 testing summary presentation from Brawley, presented by Larry Marsicano-2023 testing and data collection spanned from May to October at the deep-water site; tested Secchi transparency, created temperature/oxygen profiles, tested cyanotoxin levels.
-UConn Center for Engineering and Environmental Science is now the go-to for analysis.
-Temperature/water graph is used in order to understand the stratification process.
-Levels of depths are as follows, from the surface level to the deepest level: epilimnion, metalimnion, thermocline, and hypolimnion; the greatest difference in temperature density being between the thermocline and hypolimnion.
-Density difference between layers creates a resistance barrier for algae.
-Hypolimnion doesn't change much thanks to the barrier created by the temperature density difference.
-Same stratification pattern in oxygen levels.
-Early on in the testing season, water is anoxic.
-Ice melts can create a mixing pattern, but those do not last very long at Ball Pond.
-Nitrogen in the top level and bottom levels are elevated, anoxic conditions are created by the pond's sediments.
-Phosphorus is the most limiting, it is generally low in the top layer; until the day in August when it spilled over into the thermocline.
-Chlorophyll levels are a surrogate for algae volume in top three meters.
-Volume is low in the first part of summer, 9-10,000 cells per mill.
-0-10,000cpm is low risk; other bodies have reported over 100,00cpm.
-Ball Pond is a mesotrophic lake, like Candlewood, and many of the lakes in Connecticut.
-The highest concentration of cyanobacteria in Ball Pond is below thermocline, 6-8 meters; the concentration of cyanobacteria starts to increase by June.
-Ball Pond has most problems on the shoreline, having some fairly intense blooms on the surface.
-2023 saw notable September and October blooms.
-Cyanobacteria go through exponential growth in summer, in the top 1-4 meters of water.
-Cyanobacteria is everywhere, and can create gas vesicles to regulate buoyancy.
-Cyanobacteria can change buoyancy within hours.
-Wind will push surface blooms into one corner.
-In the future, we need to try to better understand the frequency and locations as well as conditions to when blooms occur.
-The conductivity of Ball Pond jumped from 283 to 427 in 30 years.
-Greatest change in conductance is based on groups of organisms.

-How much dissolved salts are in lake water are a measure of resistance to electrical flow.
-Conductance dropped in 2023 from May to October due to the abundance of rain and the upper layer of water being flushed away.
-Calcium levels were high, which could pose a problem in regards to invasive zebra mussels, which can thrive in calcium rich water.
-Secchi Disk transparency has not experienced much change.
-Little change in magnesium, calcium, and phosphorus.
-In the future, we should try to understand phosphorus levels in the lowest point of the pond; such as adding more depth points to collect phosphorus and treat the pond at those depths.
-Sodium and chloride, however, have changed significantly.
-In 2022, sodium and chloride were highest, likely due to icing road salts draining into the water.
-Carey institute is investigating the impact that road salts have on bodies of water.
-As opposed to using copper sulfate in the lake, Larry suggests to treat with a peroxide-based treatment in spring to reduce the amount of cyanobacteria that grows exponentially during late spring and early summer.
-Larry also pointed out that the Army corps is using peroxide-based oxide, which is more expensive than copper sulfate as it is in its early phases of testing. But it does put a significant dent in cyanobacteria numbers.
- Generally, if the water looks clear, it's fine. Anything from cloudy water to a layer of scum on the surface is decidedly not fine and should be noted.
-2103 algae bloom in Candlewood was so massive that Dr. Wong was brought on.

7. 2023 testing summary presentation from West Conn, presented by Dr. Edwin Wong- The monitoring program began in 2016.
-Lake Waubeeka joined this year and more testing sites were added to Lake Zoar.
-Not all cyanobacteria are bad. They have existed for billions of years, producing oxygen, and still do.
-Only a small fraction of types of cyanobacteria possess the genetic capability to produce toxins.
-Microcystin is most common type and like some other cyanotoxins, has a federal limit for recreational exposure and drinking water exposure.
-Microcystin had a federal limit of 4parts per billion, but it was raised to 8ppb in 2019.
-Microcystin is a hepatotoxin, which inhibits liver enzymes.
-Human deaths are less common than animal deaths; as animals, specifically dogs, will eat and play in the blooms and become ill, deathly or otherwise.
-If a body of water is found to exceed legal limits of cyanobacteria, it will be forced to close until it can be dealt with.
-ELISA (enzyme-linked immunosorbent assay) is the process in which anti-cyanotoxin antibodies are introduced to cyanotoxins bound to a testing plate and a sample of water.
-If a sample contains no cyanotoxin, the anti-cyanotoxin antibodies bind to the plate-bound cyanotoxin and by adding HRP enzymes, will bind to them as well; but when the HRP antibody binds to a cyanotoxin rather than the anti-cyanotoxin antibody,

HRP converts a colorless TMB molecule to a blue colored TMB molecule, which results in a blue color on the plate.
-No color means little to no cyanotoxin in the sample, and the degree of color can determine amount of free cyanotoxin in the sample.
-Saxitoxin is a neurotoxin, but has no federal limits in place.
-Microcystin levels in Ball Pond had been mild for 2023, even coming in below detectable limits in July.
-Dr. Wong conducted a saxitoxin test in Ball Pond, and levels were below detection; as opposed to the 1.6 ppb that was detected in 2022.
-Bantam Lake saw .936ppb in July, and the lake is having problems using copper sulfate, which costs thousands of dollars a year, and is looking into peroxide-based treatment.
-Treating blooms with copper sulfate kills the bacteria, but toxin levels showed no change.
-Beseck Lake saw 10.5ppb in August, high levels of saxitoxin and lots of blooms warranted shutting down the lake.
-Candlewood Lake saw .499ppb in August and never had to close.
-Barkwood Lake saw 1ppb in August.
-Lake Waubeeka saw 1.03ppb in July.
-Lake Zoar, the poster child for bans, saw 2.23ppb cyanotoxin blooms.
-22ppb was the level reached in Jackson Cove in August.

8. Adjournment- 8:30

Received by email on 12/12/2023 @ 4:37 p.m.
by Chrystie M. Bontempo, Asst. Town Clerk, New Fairfield