

Bare Hill Pond Watershed Management Committee

Meeting Notes

Date: 17 May 2021

Place: Online Zoom meeting

Members Present: Bruce Leicher (Chair), Brian McClain, Kerry Shrives, Megan Glew, Peter Von Loesecke, Pablo Carbonell

Members Absent: Morey Kraus (Alternate Member)

Others Present:

Ben Baron, Valerie Hurley, Wendy Gendron

Bruce Leicher opened the meeting at 7:35 pm

Secretary's Report

Minutes for April 12, 2021 and April 28, 2021, were approved with minor corrections.

Treasurer Report

\$5,062 in funds are available. Anticipate approximately \$4,500 remaining (after National Grid billing for April, May, and June). Motion voted and approved to authorize the expenditure of the balance of funds after the payment of the electric bills to fund the BMP monitoring this spring, and the balance of remaining funds to fund the monitoring for the draw-down this spring. The remaining funding of the draw-down and sediment proposal will be funded out of next year's budget.

Request for Comments from Conservation Commission Re: 23 Peninsula Road

Bruce Leicher attended the Conservation Commission meeting and a site walk with Bruce Ringwald. The current owners are out of compliance with reporting as specified in the 2017 special permit (possible loss of information transfer due to death of former owner). Request for tree removal, in part to clear a view shed, addition of a pervious walkway, and replacement of a shed on the same foundation (in a current non-disturb zone). The Conservation Commission expressed that precedent shouldn't be set for a view shed and trees should be allowed to die in place and concerns regarding the shed. Another site walk will be scheduled in order to make a determination.

Discuss Sediment Monitoring and Proposal

In a 2020 meeting with the Conservation Commission it was decided that in-lake sediment testing should be conducted. Wendy Gendron expressed that time of year is not important for the sediment work, and a discussion followed regarding the benefits and how long would be needed to see the impact.

Deep lakes, such as Bare Hill Pond become anoxic. A layer of warmer water stays at top, colder unmixed at the bottom. Plant biomass settles into the depths and is broken up by bacteria that consumes oxygen. Stratification creates a condition where the bacteria removes oxygen from the lower levels and it isn't replaced. When the oxygen gets very low 1 mg/litre, iron that naturally occurs no longer binds with phosphorus, and the phosphorus is released from the biomass sediment and grows to great numbers. Sometimes it will stay at the bottom, sometimes it can be buoyant. Seasonal turnover, air temperature changes, winds, density gradient changes, and bottom water coming up to the top and receiving light to trigger expansive cyanobacteria growth are all possible.

Sediment samples of 10cm (4 in.) will be sent to a lab for a phosphorus extraction. Measure iron-bound, loose phosphorus, calcium-bound phosphorus, % moisture, organic matter, etc. This data together with the temperature readings and dissolved oxygen profile will tell us how much phosphorus is sitting in the sediment just waiting for the right conditions to come out and fuel algae bloom. We may be at a tipping point where the anoxic conditions are creating a situation where the phosphorus becomes unbound and is releasing into the water column. Observation made that with the past summer's extreme drought conditions, the ability of the sunlight to reach depths/the thermocline may have been the tipping point to fuel growth.

Possible ways to treat the phosphorus that gets released:

- Alum treatment. Add aluminum sulfate when the phosphorus is freed-up the aluminum will bind so strongly that the bond will not break and the phosphorus becomes inactivated.
- Phoslock treatment. Adding lanthanum will also bind to phosphorus. May be an alternative to avoid potential toxicity of Alum.
- Hypolimnetic withdrawal. Reduce the phosphorus concentration by having enough new almost phosphorus free water coming in, while removing the bottom (12-14ft) to reduce the

concentration of the phosphorus rich layer. Right now the fall drawdown is by gravity to 3.5ft. Drawdown would need to be from the bottom/run the pump to maintain downstream flow.

- Aeration and oxygenation. Take air/or pure oxygen into the bottom. Prevent low oxygen levels from occurring.

Do we have an internal loading problem here? If we do, what are our options? The Sediment sampling and bathymetric mapping would be done once with the goal to delineate the area that potentially goes anoxic. Warmer climate and the drought may have led to the 2020 conditions. Recommend recording temperature and dissolved oxygen as early-late in the season as possible to collect data points/create a profile to help anticipate blooms in future. Moved and voted to accept the proposal for sediment monitoring for performance in the next fiscal year.

Discuss Draft Priority Habitat Map from Dept of Fish and Wildlife

Sent to the Town from the Department of Fish and Wildlife asking for comments. Maps are helpful and important but cautionary in that mapping may overestimate creating a priority habitat that encompasses more area. Example given by Wendy Gendron of a Berkshire town not permitted to draw-down a pond to treat millfoil due to impact of a snail species at the end of its natural range. A risk that desired beneficial actions in the future may be more difficult to accomplish.

The meeting was adjourned at 8:44 pm

Kerry Shrives/Secretary

Next Meeting: June 21, 2021