

Lake Massapoag Advisory Committee

Meeting of November 1, 2022

Minutes of Zoom Meeting

Members present: Laura Russell, Chair, Debbie Tatro, Vice Chair, Dan Lewenberg, Ken Hyman, Colin Barbera, Gary Bluestein, Stanley Rosen

Also: Josh Philibert, Conservation; Kevin Davis, DPW; Sean McCanty, NepRWA; Matt Ladewig, TRC.

Approval of Minutes of Meeting of October 4, 2022: Motion Dan, Second Gary. **Voted:** approved 7-0-0. Volunteer recorder: Laura Henze Russell. Welcome Kevin, Sean and Matt.

Discussion:

Hot Spot Survey – Sean led a discussion of results of the Hot Spot survey (10 sites up the Salvation Army Camp property where there was water flow and access, inflow at the Lake, and Community Center Beach) collected with Josh 10/6. The map indicated 8 sites (A-G) of 12 sites had high E. coli levels. There is inflow into Sucker Brook just upstream of site G, and downstream of sites H, I and J which had low E coli levels. Future surveys should include this inflow.

E. coli Analysis - Debbie discussed the E. coli and Human DNA tests she did at 4 sites on 10/5, see top section of the map. Kevin reported a septic repair to some of the buildings in 2010 to the south of that site, and said they are in compliance re their discharge permit. They did multiple sites and ran sewer pipes between them, it is all in-ground septic. Gary asked about properties on Highland Ave adjacent to the wetland, Kevin said they are a Salvation Army lot and Sapphire Inn. You would need to look at the gradation of the properties. Josh mentioned homes on Tall Tree Road that are near the wetland. Ken asked if there were potential mitigation actions in addition to source reduction.

Lake Test results –Matt led a discussion. The big takeaway: We consistently have higher P levels at the bottom than at the surface. Indicates release from the sediment. During the summer when lake is mostly stratified (warm water in top portion over colder water in bottom portion. We have P coming in from inflows, but also consistently have higher P levels that concentrates in the sediment that can be released in the summer months, when dissolved oxygen levels fall. If you look at dissolved oxygen DO levels in June, pretty good. By July, biological activity in bottom waters ate up oxygen and not enough to support much life below 4 m = 13 feet, an anaerobic environment. When there is iron-bound phosphorus in the sediment, phosphorus can release into the water column during anoxia. The results suggest this is the case.

Alum Treatment option - Kevin asked if there is a way to remove bound-up phosphorus. Matt said alum treatments can bind it up, and be effective for 10-20 years. Need sediment sample analysis to confirm (first sediment sample analysis due December). Another solution is to add dissolved oxygen back in via aeration/circulation, but expensive in a deep lake, and power is expensive. Laura asked which level of sediment testing is needed to scale an alum treatment. Matt said perhaps could use multiple sediment grabs (\$4K), but multiple coring samples (\$15K) gives a history of P deposits over time that can help fine tune an alum dosing, an estimate on longevity, and can better understand external loading. Gary asked about health impacts, Matt responded not a problem since they have learned how to buffer it properly.

Cost – Kevin asked about cost. Matt said price has bounced around with commodity price volatility. Will be six figures given size of the lake, perhaps a multiple. Matt said effect could last 10-20 years, estimate

over \$200,000 based on cost fluctuations, to be adjusted based on dosing needed and price changes. Ken asked when should be done. Matt recommended spring or fall. Some lakes can be done over one year, some over 2-3 years, less expensive if do at once. In summary, from his perspective as a lake manager, it looks like internal P loading occurs, fueling algal blooms, and could benefit from alum.

Debbie asked about floating wetland islands; Matt said this is starting to be piloted, could be helpful as an adjunct to an alum treatment. He can't speak as much to bacteria. Shading and providing substrate could possibly encourage more bacterial growth. UV light not good for microbes, kills bacteria. Stopping the sources means less problems in the lake.

Weed Findings - Matt said they definitely found fanwort in the South Cove. A handful of other invasive plants around the lake, not a ton. Early October was great for monitoring DASH results, but a little late for the survey. Found a new invasive, Mudmat, a small bright fluorescent green plant from Australia. Not considered a management issue because so small. Main issue is it could potentially compete with habitat for rare species; will not impede recreation. Laura asked about milfoil near the lagoon, may have been too shallow to get to, and some lily pads, which were also observed.

Project/Budget Planning - Laura asked what we might consider for Phosphorus Mitigation Pilot in the FY24 budget, in addition to core sediment testing to dose alum. Matt said good question, depends on nutrients from other potential sources. Expect the streams to be higher. How far up do you want to track? Could be same, or different from E. coli. Put most of energy into egregiously high concentrations of phosphorus. And look at areas contributing a high load via higher flow (we don't know flow rates yet).

Budget Committee Report - Dan presented the budget prepared by the subcommittee, which is a needs-based budget, accompanied by a FY24 CPC grant request; the total ask is split between the two. Dan walked people through the spreadsheet with FY23 core, reserve fund transfer, and CPC fund budget, for a total of \$58,100 in funds for lake expenses this year. About \$30,000 is for testing and consulting, \$21,000 for weed removal and mapping, \$4,200 for equipment and supplies, and \$2,500 for education, and misc. We rolled this projection forward for FY24, with an increased level for weed removal, continued funding for testing (some ongoing and some specialized) and for consulting services, and a TBD pilot for nutrient reduction to add to the CPC request.

FY24 Budget – The needs-based budget for the town is \$52,500. This assumes a significant CPC grant to cover the bulk of catch-up weed removal, certain testing and consulting costs, and the nutrient reduction pilot. Laura said it would be helpful to learn what other towns are spending for benchmarking purposes. Stan said our lake is unique as we are a septic community, with Town drinking water wells.

Voted: FY24 budget request of \$52,500. Motion Gary, Second Colin, approved 7-0-0.

CPC24 Request – After discussion on the proposed CPC grant request of \$80,400, Debbie said that based on an increase in daily rate, the total weed removal cost is \$6,000 higher. Laura said substituting sediment core samples (\$15,000) for the grab samples proposed (\$4,000) adds \$11,000. Debbie recommended considering piloting a floating wetlands island near Sucker Brook inflow, estimated cost \$2,000. The revised CPC total is $\$80,400 + \$6,000 + \$11,000 + \$2,000 = \$99,400$. **Voted:** Motion Gary, second Stan, approved 6-0-0. Debbie, Dan and Laura will work on the CPC grant.

Other Reports – Gary reported that Recreation Advisory Committee, based on frequent high E. coli test results at Community Center Beach, and underutilization of both beaches last summer, would recommend closing it to swimming next season and opening Memorial Beach to residents and nonresidents. Laura said this would also be helpful for DASH to use part of the site during the summer.

Voted to Adjourn at 1:30 pm, Motion Gary, Second Stan, 5-0-0