

Crockery Lake Association Board Minutes
August 17, 2022
Chester Township Hall

1. Call Meeting to order: 7:02. Betsy Ludwick welcomed attendees who came to share information. Members of the audience would be able to speak for three minutes.
2. Roll Call: Present Betsy Ludwick, President; Pat Wolters, Vice President; Susan McClure, Secretary; Greg Slater, Treasurer; Directors Carl Elliott, Paula Humphrey, Mollie Gaggin, John DeGeneres. Absent: Bob Blauwkamp, Past President.
3. Approval of Agenda: Pat Wolters moved to accept the Agenda, Mollie Gaggin seconded. Passed.
4. Possible Lake Treatment for algae to replace chemicals
 - a. Presentation by Jaimee Desjardins of PLM Lake and Land Management
Betsy Ludwick introduced Jaimee Desjardins of PLM Lake and Land Management and Pamela Dugan of SePRO Corporation (manufacturer of Phoslock) as speakers who would explain how Phoslock controls algae. The speakers would answer questions after their presentations. Jaimee said she was here because Crockery Lake has a history of declining clarity, quality, and plant diversification. According to CLMP records maintained by the state, in 1981 the average clarity was seven feet, in 2021 the average clarity was four feet. The phosphorous level has risen from 40 ug/L in 1995 to over 100 ug/L in 2020-21. There are two sources for phosphorous, external which includes the watershed runoff, farming, grass clippings and leaves or anything organic, and internal, the release of pH from the sediment in the lake which happens when the cold water on the top sinks down and the warmer bottom water brings the phosphorous to the surface each fall. Phosphorous is released in the anoxic conditions found at the bottom where there is little dissolved oxygen. In the past external sources of phosphorous could be targeted but internal sources could not.
Jaimee said Pamela Dugan would explain how Phoslock binds with phosphorous in the water to create a metal, lanthanum. The lanthanum sinks to the bottom where it creates a cover over the phosphorous laden sediment, preventing the phosphorous from being carried to the upper lake where it is a nutrient for algae. Jaimee cited Morrison Lake, a 330 acre lake near Clarksville, which was on a national list of the most polluted lakes in the United States. It has farmland, a golf course, and a sod farm in its watershed. In three years there has been an 80% drop in internal loading and a successful decrease in algae. Morrison Lake has gone from ten treatments per season to two algae treatments. There has been a return of native plants. PhosLock is also being used in other lakes, channels, and shore lines, but none of these areas are in Michigan.
Pamela Dugan of SePRO Corporation used a handout to illustrate how Phoslock removes phosphorous from the water. She said that 1971 425 lakes in the United States were impaired by phosphorous. A later study showed over 50,000 lakes were impaired. Most sources of phosphorous come from external sources like fertilizer. As phosphorous from external sources sinks to the bottom of the lake and accumulates in the sediment, it becomes an internal source of phosphorous. The good news is there are technologies that have been developed. "Super bags" can be placed at inlets to catch phosphorous. PhosLock binds with phosphorous; the product sinks to the bottom of the lake and forms a thin barrier which stops the phosphorous in the sediment from rising in the water column and becoming a fertilizer for algae. The first step of treatment is to gather data-- to find where the phosphorous is and to learn how much there is. Morrison Lake is an example of a lake entering the maintenance phase. Pamela said it is good that Crockery Lake has a Special Assessment District in place.

Questions:

Question: Cost? Answer: Jaimee said it is premature to talk about cost at this point but she would recommend sampling the two deep holes, a mid depth spot, and a shallow spot. Sediment testing could cost between \$1,000 to \$2,000. After the data is collected a plan is formed, which may be altered as the treatment progresses.

Mollie Gaggin: What happens to the copper that is in the sediment? Answer: Copper stays in the sediment.

Mollie Gaggin: What happens in the bottom of the lake after a PhosLock application? Answer: PhosLock and phosphorous bond, forming granules. The granules fall to the bottom of the lake, creating a thin barrier that stops the unbonded phosphorous in the sediment from rising.

Mollie Gaggin: Why are the phosphorous numbers up? What made the numbers change? Was there a change in the testing? Answer: The deep hole is under the thermocline. The 439 ug/L phosphorous reading is only a snapshot. Also Crockery Lake has five inlets and there are weather changes. Pamela Dugan said Crockery Lake has four main rain events.

Mollie Gaggin: What about after a weekend of boats churning the water? Answer: More data is needed. The CLMP graph does not capture the "dead zone."

Jaimee Desjarden: What kind of equipment is used to gather clarity and dissolved oxygen? Answer: Chuck Lane said he and Linda Lane use a Secchi Disk for clarity and equipment supplied by CLMP for dissolved oxygen measurements.

Pamela Dugan: What kind of phosphorous does Crockery Lake have? There was no answer.

Chuck Lane: What effect does the alkalinity level of Crockery Lake have on phosphorous. Answer: It has none.

Pat Wolters: Does PhosLock act like aluminum sulfate? Answer: PhosLock will not affect aluminum sulfate.

Jaimee: What about alum? Answer: Morrison Lake used alum in 2008. The effects wore off quickly. Plus, there were bad environmental effects.

Pamela works for State approval for a mineral based product. SeClear has a small percentage of lanthanum in its composition. Chuck Lane said that SeClear is not working to control algae. Current technology will not bring nitrates into a better balance.

Rick Glass: What is the cost? Answer: It could be \$12,000 to \$15,000 per season. Mollie added that sixty to seventy percent of the current treatment cost is for algae.

Question: How often is Phoslock applied? Answer: Pamela said that PhosLock is not applied in one big treatment. The phosphorous and the sediment must be measured and that data drives the application.

Paula Humphrey: Does PhosLock remove the phosphorous? Answer: Phosphorous combines with the PhosLock and the new mineral is not available as a nutrient.

Greg Slater: Is all of Morrison Lake treated? Answer: Jaimee said yes. The Morrison Lake Plan has been adapted as the data has been gathered. For example, in year three, Spring treatments have been scaled back while there have been more treatments in late summer.

Greg Slater: How often is there testing? Answer: Pamela recommended waiting two months for the phosphorous to sink to the deepest part of the lake. Data is needed from both deep holes, a shallow spot, and a mid depth spot. Jaimee added that the sediment should be tested at the end of the season. Also the water under the thermocline should be tested.

Betsy Ludwick: What is the timeline? Answer: It depends on the data.

John DeGeneres: How long has PhosLock been available? Answer: It has been available for twenty years.

Mollie Gaggin: Why hasn't it been used? Answer: Betsy Ludwick said the price was too high. Pamela suggested treatment be done by "chipping away." To start, "super bags" to trap the incoming phosphorous could be placed in the inlets. Bags could be placed in ditches along farm fields.

Question: What is the effect on wildlife? Answer: third party studies indicate there is no harm. Pamela said PhosLock is safe. Jaimee added there are no restrictions on the use.

Betsy Ludwick: What can be done about the nitrates coming in the Grose Park inlet? Answer: There is no product to remove nitrates. Filtration might work.

Mollie Gaggin: What is Grose Park's role? Answer: Betsy said the county park people are waiting for us to make recommendations. Pamela said highly motivated citizens who have consensus of the people involved do well to talk to a legislator for special attention. She referred to a lake restoration project in Washington which got \$3.2 from the Washington legislature. Educating lake residents to keep organic material out of the lake is important. Using the services of Grand Valley State University is good. Jaimee said that lake residents can take samples during big rain events. PLM Lake and Land Management will have the water analyzed for \$60 to \$70 a sample.

John Otterbein: What about the goose droppings? Answer: Putting oil on the eggs affects hatching. It is important to leave the egg in the nest. The mother will produce more eggs to refill the nest if the eggs are removed.

Pat Wolters: Is grant money available? Answer: Writing grants is a lot of work, but Pamela Dugan will look for possible grants.

To close, Jaimee and Pamela again stressed the need for phosphorous, water, and sediment data. Betsy Ludwick thanked them for their presentation. She also thanked Linda and Chuck Lane for their work on exploring ways to decrease the phosphorous in the lake and their ongoing data collection.

b. EnBiorganic Technology Review and Test for May 2023

Betsy Ludwick summarized what EnBiorganics is offering--water clarity attained using a chemical free method. They will test the lake to learn what is out of balance, use local bacteria in the treatment, offer a two month free trial (there will be a charge for electricity), and return Crockery Lake to a mesotrophic body of water. The estimated cost is \$95,000. Treatment for following years should be less.

c. Sewer

Betsy Ludwick provided a handout with estimated timelines and costs for a sewer system. She said the costs are prohibitive. It would take three to five years for the preliminary engineering.

b. continued

Chuck Lane explained more about EnBiorganic Technology's process. The bacteria treat the algae in a protected on-shore unit. The water flowing back into the lake creates a "bloom" that will in time cover the lake. Within the bloom there will be a decrease in algae. The process has never been tried on a lake. Crockery Lake does not have good currents to spread the bloom. Crockery Lake has a very low turnover rate. The EnBiorganic Technology process returns 25 liters per hour of bacteria treated water and bacteria back into the lake. The microbes in the returning water keep multiplying and will eat algae producing bacteria.

Paula Humphrey: Does the system work under the ice? Answer: Betsy said yes, that EnBiorganic has a project in Saskatchewan that operates in the winter.

Greg Slater said a cost of \$95,000 per year for treatment would be \$810 per residence annually. Chuck Lane added that Crockery Lake would still need weed treatments. We would still be paying 40% of what we pay now for weed treatments.

Ellen Slater: Are we the first lake to try EnBiorganic Technology? If we don't see improvement, can we walk away? Answer: There will be a charge for the unit to house the machine that introduces the bacteria and for the electricity to run the machine.

Susan McClure asked if the mobilization fee was charged for the set up. Betsy Ludwick said no, not for the free trial.

Chuck Lane said the paragraph in the Letter of Intent about whether the expectations of the CLA Board and EnBiorganic Technology are met is a sticking point. Betsy said she is not signing anything.

Jerome Groglaski: Is there a timeline? Answer: Carl Elliott said there is no obligation until the people around the lake give their approval.

Betsy said EGLE grants are available but they are work to write.

Bill Berenbrock: The Special Assessment District was set up before the trial. What can be done? Answer: Betsy said work could be done to add to the assessment. Carl Elliott said the Special Assessment District is currently limited to \$16,000 annually. It can be increased by 10% per year. Monies do not carry over. Gary Meerman said that to change the Special Assessment there would have to be a special meeting, complete with mailings to every affected residence and dates of the meetings would have to be advertised. Mollie said we already spend 70% of \$16,000 annually to control algae.

Theresa Rogalski: Is Crockery Lake the only lake in Ottawa County? Answer: yes.

Betsy talked to Dr. Jennifer Jones of Restorative Lake Services, Spring Lake, who collects data, assesses problems, and provides solutions. She also gives a list of companies who can do what she prescribes. She charges \$17,000. PLM Lake and Land Management is on the list. Betsy also talked to Sara Nedrich of EGLE and Melanie Manion of the Ottawa Parks Commission. Both people are supportive of bioaugmentation in Michigan.

Mike Mead: Has this treatment been used on lakes? Answer: Betsy said no but the process has been used on waste water treatment plants.

Mollie Gaggin said this is a great opportunity to try the process in a lake.

Tom Ludwick said the process has been used in lagoons for thirty years. Chuck said the average depth of lagoons is about ten feet.

Mike Mead asked if the treatment can be used under ice. Answer: Betsy said yes. Betsy said the process does not depend on moving water.

Chuck Lane said the shortcomings are money and data. PhosLock has been approved by the State; EnBiorganic Technologies has not, although the company is pursuing permits in Michigan. Betsy said that Sara Nedrich of EGLE is confident that they will get approval.

Pat Wolters: At what water temperature do the bacteria work? Answer: Chuck Lane said that the bacteria need oxygen to work. Below 15 to 17 feet the dissolved oxygen is .001. At the bottom it is less. The bacteria are supposed to keep moving. Betsy added that temperature and movement of water are not issues.

Greg Slater: We could get clarity and then get the data.

Chuck Lane said EnBiorganic Technologies wants to test for clarity within the bloom.

Carl Elliott: How far away from the bloom would the company test? No answer.

Question: How far apart will the machines be? Answer: It is not known.

Betsy described SludgeHammer which sells/rents individual residential systems that use microbes and an aeration pump. Once a month SludgeHammer comes to her neighbor's residence and adds microbes. When the tank cover is lifted, there is no odor or crust.

Chuck Lane: There is no data from EnBiorganic Technologies.

Tom Ludwick: How many people would spend \$810? Mollie said we are spending \$130 now but not getting a good job.

Mike Mead is not willing to spend \$10,000.

Betsy said much depends on the wording in the contract.

Paula Humphrey: Once the phosphorous is covered (not removed) and the lake becomes cleaner, the people here would support spending the money.

Carl Elliott: The technology is not new but what is new is how the EnBiorganic Technologies equipment works.

Jody Hyde: The proposal is still a band aid. Septic tanks should be checked.

Chuck Lane: We are working with a lake. We need a plan, data, and to work with professionals. We need to know all phosphorous sources. We may spend \$35,000.

Karen Elliott: PLM has not done a good job.

Chuck Lane: If we get the contract we want with EnBiorganics Technologies with a two month walk away, this will not be a bad deal for us but it will be a huge cost for EnBiorganic Technologies.

Mollie Gaggin: If EnBiorganics Technologies is successful in controlling algae in Crockery Lake, other lakes will line up for treatment.

Question: How far apart will the machines be? Answer: It is not known. Chuck Lane said we need to agree on parameters, to test in the bloom or to test outside the bloom, or even on how far away from the bloom.

John Otterbein: We can't do anything we heard about tonight without a special assessment.

Mollie Gaggin: How does the special assessment work? Answer: Assessment money can not be used in any year it is not budgeted for. The expenses for a public hearing are attached to Special Assessment District costs. A cap is set at the time of voting for a Special Assessment.

Susan McClure: Will the CLA consult a lawyer? Betsy Ludwick said she has a lawyer who is a friend and also lives on a lake. The lawyer might be willing to review the contract with EnBiorganic Technologies.

6. Secretary's Report

The minutes of July 20, 2022, were approved as amended. Greg Slater moved, Paul Humphrey seconded. Passed.

Amendments

Se/clear to SeClear

A new item, Board Member Responses, was created to follow # 5. Report and Discussion on EnBiorganic Technologies for Algae Control.

Board Responses

Pat Wolters noted cyanobacteria has not been found in Crockery Lake for 28 years (1994).

The CLA Board thinks to have a trial in late summer/early fall would give misleading information about algae control because as the lake cools to under 60 degrees, there is less algae.

Greg Slater wanted to see the PLM report on the testing at two inlets. The report has been mentioned at the May, June, and July Board Meetings.

7. Treasurer's Report

CLA has 44 members. Sixty-four members are needed to meet the budget. Two ads to benefit the fireworks fund have been sold--Ravenna Lumber and Don Scott Realty. Papa Piccone's Pizza has not been contacted directly. \$2180 has been received for the 2023 fireworks. The Fireworks Bank balance is \$8,217.88. The General Fund stands at \$3,278.09. Carl Elliott moved to accept the Treasurer's Report, Pat Wolters seconded. Passed.

8. Events Committee Report

a. Carl Elliott reported that he contacted two fireworks vendors but has not heard back. He said one source sounded promising.

b. Betsy Ludwick looked at newsletters on other lakes for ideas for events. Events build a sense of community. Ideas included garden tours, golf outings, group plantings, park movies, popcorn machine, corn hole tournaments, obstacle race in the park, family olympics, sundae night, pancake breakfast on 7/3, monthly food truck, golf cart parade, bbq chicken. Bill Berenbrock said that the Lions rent their food wagon. At one time CLA did Fall chicken dinners, sack races, penny in sawdust, and a sign-a-beach-ball for community building.

c. John DeGeneres will get more information from Moss Ridge for a golf outing.

9. Lake Health Committee
No Report

10. Newsletter

Betsy Ludwick has been looking at lake newsletters. Mollie Gaggin likes the Facebook approach. Betsy said the "We Love Crockery Lake" is a public site. Pat Wolters said that residents on Kayce Lane want paper newsletters. Pat will check again with the two people who told her they would be willing to print newsletters.

11. Policies

Paula Humphrey will rewrite the policies.

12. Update Residents List and CLA members

No report.

13. Round the Table

Carl Elliott provided a handout from NT-MAX in NJ. He said it appears individuals apply the product. The application rate of the product is 50# per acre. One bag costs \$600. The product has been approved in MI. Mollie Gaggin asked why PLM hasn't recommended NT-MAX; Greg Slater said NT-MAX is a do-it-yourself application.

Pat Wolters, Susan McClure, and Paula Humphrey had nothing. Greg Slater praised Paula Humphrey for keeping us in line. Mollie Gaggin appreciates the effort to restore the lake. John DeGeneres thanks people for keeping us heading in the right direction.

Greg Slater moved to adjourn the meeting.

9:45 pm

Next meeting

September 21, 2022

7:00 pm

Location TBA

Old Business via email

7/23/2022

Betsy Ludwick: Motion to form a committee to move forward with improving the quality of CL through research, facilitating a two month trial of augmentation.

Bob Blauwkamp seconded 7/23/2022.

Yea: Bob Blauwkamp, Greg Slater, Pat Wolters (Betsy), Paula Humphrey, John DeGeneres, Mollie Sternberg. Nay: Carl Elliott.

Carl voted Nay because there had been no discussion. Betsy called for discussion. There was none. Carl voted Yea.