

## WHAT'S NEXT?

### FINAL REPORT ON THE ALUM TREATMENT

#### **East Pond Alum Project from the report to the Maine DEP by the 7 Lakes Alliance**

A. **The project was the successful application of 45 g/m<sup>2</sup> of alum to 676 acres of East Pond in 2018.** The original estimate of the dose of alum required to inactivate phosphorus in the sediment was 30 g/m<sup>2</sup>, as developed in the East Pond Watershed Best Management Practice (WBMP). The dose estimate was revised in March 2018 based on jar testing of sediment samples by Colby and the analysis of Water Resource Services (WRS). As a result, the recommended treatment dose to inactivate sediment phosphorus was increased from 30 g/m<sup>2</sup> to 45 g/m<sup>2</sup>.

The preliminary estimate of the phosphorus load inactivated in 2018 by the alum treatment is based upon the East Pond WBMP that calculated a reduction of 320-360 kg (750 lbs) of internal loading to East Pond. This is based on the amount of alum added to the lake and the measured total phosphorus concentrations of 10-11ppb in September and October by Colby and the Maine DEP.

An important caution in evaluating first-year alum treatment results is that the first year of an alum

treatment removes phosphorus directly from the water column. Also, East Pond did not appear to stratify in 2018, probably as a result of improved water clarity. If East Pond did not stratify in 2018, sediment release of phosphorus as a result of anoxic conditions was unlikely to have been significant in 2018. 2019 water quality data will help provide the information needed to evaluate the effect of sediment phosphorus inactivation as distinct from the 2018 water quality data which was influenced by water column phosphorus removal.

B. **Preliminary analysis by Colby of water quality samples from September and October 2018 indicate that water column total phosphorus was reduced to 10 ppb.** Maine DEP reports similar lab results (Appendix: East Pond Maine DEP HETL 2018). A reduction in phosphorus as a result of sediment inactivation, from 19 to 11-12 ppb, was estimated by WRS in the East Pond WBMP.

**No algal blooms in East Pond were documented in 2018.** Secchi disk transparency (SDT) measurements were at 5m throughout summer and fall of 2018 following the June 2018 alum treatment.

Algae samples collected in the summer and fall of 2018 by Maine DEP, were analyzed by WRS, and were compared with 2014 and 2015 samples. They documented that reduced algal levels were **not** the result of increased zooplankton grazing but **were the result** of phosphorus inactivation (Appendix: East Pond Plankton Report WRS 20190111). Also noted was the reduction of Cyanophyta (blue-green algae).

7 Lakes collected water quality samples in February and March of 2019 which indicated high oxygenation throughout the water column. These samples have not yet been tested for phosphorus levels.

C. Key factors to determine early in the process are the acreage of the anoxic area to be treated and the dose of alum required to inactivate the sediment phosphorus.

Dose and treatment area determine costs. This data is required to assess whether an alum treatment is an appropriate water quality management tool. It is also required for permitting, contracting, and funding. The earlier in the process that the internal loading area and dose can be determined the better.

The sampling area behind the barge was not defined in the 2018 East Pond Alum Treatment Monitoring Plan before the treatment began. In practice, we found that a distance of 80-100 feet behind the barge allowed monitors to stay within the alum plume and continuously track pH and conductivity. Continuous monitoring provided the application contractor information needed to adjust their pumps to ensure that a pH of 7.0 was maintained. New equipment and cold temperatures

affected the viscosity of the alum and sodium aluminate requiring adjustment of the pumps to maintain the appropriate pH.

Having Colby as a partner was instrumental in water quality monitoring, sediment sampling and analysis, science communications, and in-kind contributions of resources including staff, students, equipment, boats, and labs.

The long-term algal bloom problem on East Pond meant that lake residents were highly motivated to support better lake water quality. This helped make the fundraising successful. Other factors that helped the project succeed included a well-organized and continuous communications program, a highly motivated lake association, the East Pond Association, and commercial camps that invested significant resources (\$250,000).



**The “Large Barge” that finished the alum treatment last October**

<b>Summary of Total Expenditures</b>			
	<b>NPS Grant</b>	<b>Non-Federal Match</b>	<b>Total</b>
Grant Agreement Amount	232,000	737,000	969,000
Funds Expensed	232,000	828,294	1,060,294
Funds Balance	-	(91,294)	(91,294)

The non-federal match reported here is for cash expenses incurred through May 14, 2019.

The non-federal match does not include in-kind match from Colby for water quality monitoring, or in-kind match from East Pond Association volunteers.

## **Let's all be LakeSmart**

I often pinch myself to make sure I'm not dreaming; East Pond has been treated with alum at a cost of over \$1 million dollars intended to prevent perennial algae blooms! Those of you who contributed to this milestone should be proud. However, we can't afford to let our guard down; **there's still work to be done to help East Pond remain pristine for as long as possible.**

I'd like to share some exciting unexpected results from the alum application that may prolong the life of the treatment! Indications to date suggest that the alum added to the bottom of the lake will control algae blooms caused by stratification of the water column, just as planned. Equally as exciting, when the alum was introduced into the lake, as it slowly sank to the bottom it removed large amounts of phosphorous from the water column, negating stratification in the summer of 2018. Stratification triggers algae blooms. **By minimizing the amount of runoff into the lake,** we may be able to keep the concentration of phosphorous in the water column at low enough levels to thwart stratification again this year, and perhaps future years also. This gives us a two-pronged approach to fighting algae blooms! In June we plan to kick off our **new Lake Stewardship program** and "**Now What?**" campaign. Part of that campaign is to keep phosphorous out of the lake through the LakeSmart program. We've set an

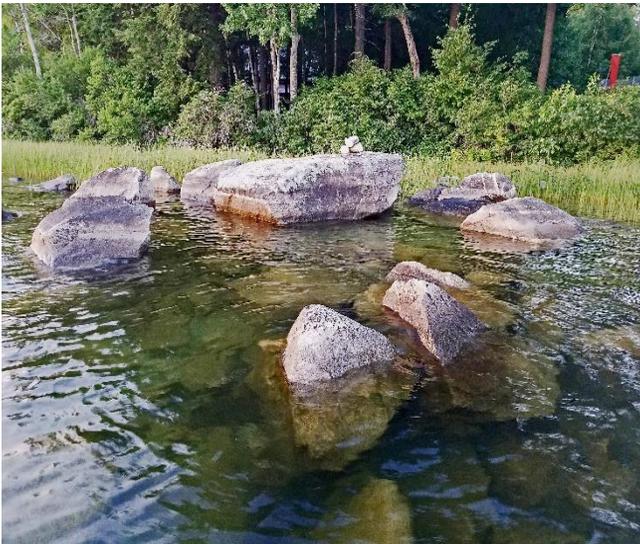
aggressive goal of **20 or more LakeSmart evaluations this summer** (as required by our 5 year plan of 125 new LakeSmart properties). To help meet this ambitious goal we've planned a LakeSmart Social for June 29 where we hope to enlist volunteers to be Lake Stewards. We need Lake Stewards to encourage neighbors and friends to volunteer for LakeSmart evaluations. Colby College has graciously offered three students to help me do the evaluations.

**Thirty-five properties on East Pond have earned the highly coveted LakeSmart award.** LakeSmart looks at 4 aspects of lakefront properties and rates them for how well they keep phosphorus from getting into the lake. This evaluation is done by trained volunteers who look at 1) Driveway and Parking Areas, 2) Structures (buildings) and Septic Systems, 3) Yard, Recreation, and Footpaths, and 4) Shorefront and Beach Areas. Properties that score well in all four categories receive the LakeSmart Award. The evaluation is free.

We've made great strides to protect our lake and I am very excited about the future of East Pond.

**If you would like to have your property evaluated, contact me at 207-362-5340.**

Mel Croft  
East Pond LakeSmart Evaluator



**Clear water following the alum treatment.**

## 2019 SPIRIT OF AMERICA AWARD

RECOGNITION OF ACHIEVEMENT BY

**East Pond Association Board of  
Directors**

BE IT PROCLAIMED BY THE  
SELECTMEN OF SMITHFIELD, MAINE  
THAT

**A RESOLUTION** Providing recognition of the East Pond Association Board of Directors: Rob Jones; *President*, Edie Cornwall; *Vice President*, David Jackson; *Treasurer*, Christine Keller; *Secretary*, Gary Allison, Ed Cornwall, Melvin Croft, Randie Martin, John Norton, Peter & Jane Redmond, Cindy Reese, Chris Stevens, Jerry Tipper, Gordon Woods as recipient of the Spirit of America Award.

**BE IT RESOLVED** by the Selectmen of the Town of Smithfield as follows:

**WHEREAS**, East Pond Association Board of Directors members have logged decades of hard work, collectively volunteering hundreds of hours annually, conducted watershed surveys, facilitated research and testing, coordinates professional consultation, and engages in multi-agency collaboration not limited to but including: Seven Lakes Alliance (formerly BRCA), Colby College, University of Maine, Federal & Maine Department of Environmental Protection, Maine Department of Inland Fish & Wildlife;

**WHEREAS**, East Pond Association Board of Directors has persevered and garnered the extensive federal qualifications for 319 Grant funding, Harold Alfond Foundation funding, and participation and contributions from East Pond Association members, non-members, and area businesses alike to support a \$1.2 million alum treatment to mitigate major algae blooms caused by excess phosphorus, thereby improving long-term water quality;

**WHEREAS**, dozens of East Pond watershed property owners have been inspired to become LakeSmart; a high-level designation indicating a property has implemented qualified buffers and erosion control measures, and engaged in additional collaboration with property owners, resource users and municipalities alike to prevent additional phosphorus and contaminants from entering the watershed;

**WHEREAS**, East Pond Association Board of Directors unceasingly provides ongoing information and education to inspire others to be part of the solution, and continues resource preservation and long term prevention as strategized and implemented by the dedicated East Pond Association Board of Directors.

**WHEREAS**, the Town of Smithfield and its citizens appreciate the ongoing efforts, positive influence, inspiration and achievements of the East Pond Association Board of Directors, now therefore;

**BE IT RESOLVED**, that we, the Selectmen of the Town of Smithfield, do hereby recognize the East Pond Association Board of Directors for these outstanding accomplishments and congratulate them on this day of dedication to acknowledge and reward their dedication to this community with the 2019 Spirit of America Foundation Tribute; and

**NOW, THEREFORE, BE IT RESOLVED**, that a copy of this resolution be appropriately framed and presented to the award recipient for display.

**Sealed with the Seal of the Town of Smithfield, Maine, on this Fifteenth Day of January in the Year Two Thousand and Nineteen.**

Richard A. Moore, 1<sup>st</sup> Selectman

Molly Chapman, 2<sup>nd</sup> Selectman

Justin Furbush – 3<sup>rd</sup> Selectman

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## **From the East Pond Restoration Funding Committee**

First, a report on the fundraising that made it all possible. **Neighbors and friends, government and foundations gave the \$1.1 million needed to fund the alum treatment.** The results so far are very encouraging. The lake water clarity in 2018 was the best we have seen in over 30 years. The primary reason appears to be that we received a double benefit from the alum treatment. 1) The alum did coat the sediment as intended to reduce phosphorous on the lake bottom. 2) As the alum sank it grabbed the phosphorous in the water column and took it to the bottom. This action was the primary cause of the extraordinary clarity as the phosphorous levels stayed low all summer. It is still

too early to measure how well the alum binds with the phosphorous to keep it from releasing from the sediment but all indications thus far are that the treatment worked as planned.

We made the dream a reality. **Now let's keep that dream alive for at least 20 years by working together to make East Pond a model lake for reduction of external loading of phosphorous.** We invite you to support the current effort to establish a **reserve fund** that will help ensure that we can maintain the water quality we have worked so hard to achieve. The purpose of the reserve fund is: **1) Have enough money in our account so we can quickly remediate any major external erosion event that is beyond the scope of any individual property owner. It also could be used to assist property owners in their efforts to become LakeSmart. 2) Build a reserve account that can help pay for the next round of alum treatment that may be needed in 15-20 years. Several donors to our initial fundraising have already contributed to this reserve fund and we invite you to join them.**

If you would like to join this growing group of East Pond investors, **please send a check to 7 Lakes Alliance (BRCA) P O Box 250 Belgrade Lakes, ME 04918 Note: East Pond Restoration.** You may also contact Jerry Tipper about making a pledge. [gtipper@gmail.com](mailto:gtipper@gmail.com) 207-592-4605 We hope to see you at the East Pond Association meeting on July 20! Meanwhile, we look forward to your support in keeping East Pond clear. Please contact us if you have any questions.

**Jerry Tipper, John Norton, Randie Martin**

# Serpentine Fact Sheet -

## Did you know?

*With a mindfulness of preservation –  
YOU are invited to be part of the  
solution!*

- The Serpentine is classified as a “No Wake” (No Waves), “Headway Speed Only” zone
- Nearly ½ Serpentine residents have residential water-intakes drawing from stream
- Wave-action accelerates shoreline erosion, algae blooms, tree drop, ‘swimmers itch’
- Water quality is reduced for several hours; after just one boat exceeding ‘no-wake’
- The Serpentine habitat hosts numerous nesting birds & wildlife (incl. protected species)
- Sediment disturbance (muddy wake) accelerates phosphorus reuptake into water column
- This excessive phosphorus-loading = localized algae blooms/contaminates in Serpentine
- Backflushing during rain & dry cycles; draws contaminates back & forth; and into lake
- Propellers trimmed high & slow propulsion (no-wake/no-waves) minimizes impairments
- Complying with State Law > preserves our local resource for us & future generations
  - **“Headway Speed”** means the **Slowest Speed** possible to maintain steering and control of a boat/vessel
  - **“No Wake”** means **NO WAVES** created by the propulsion of a boat/vessel

**Maine State Boating Laws \$100-500 Fine  
Unlawful Operation** (excerpts)

Maine law states that these dangerous operating  
practices are illegal:

• **Operation of a vessel at greater than “Headway Speed” (No Wake/No Waves) while:**

• **WITHIN 200 FT of ANY SHORELINE**, including islands, lakes, rivers, streams, ocean

- ♦ **“Headway Speed”** means the slowest speed at which it is still possible to maintain steering and control of the vessel.
  - ♦ **“No Wake”** means **NO WAVES** created by the propulsion of the vessel.
- **Operators must consider the effect** of their vessel’s **wake (waves)** on waterfront **docks, piers, boats, vessels, floats, other property, water intakes, wildlife habitat, and shorelines**
- **Operating to Molest Wildlife** is chasing, molesting, harassing, driving, herding, or disregarding habitat of nesting fowl or wildlife with your vessel; this is prohibited. Hunting laws also apply during applicable open season with specific regulation of various species.
- **Reckless Operation, Operating to Endanger, Improper Speed or Distance** is not keeping a proper speed and distance while operating a vessel that is prudent for existing conditions, operating in a manner that recklessly creates a substantial risk of serious bodily injury or endangerment to another person, or property. Operators must regulate their speed to avoid: endangering, injuring, or unnecessarily inconveniencing another vessel and its occupants, whether anchored or underway, wildlife, habitat, shoreline, property, docks, piers.

*Let’s all join together; be  
considerate of others & preserve  
this resource!*

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## From 7 Lakes Alliance

### Investing in the Youth Conservation Corps = Investing in the Lakes

7 Lakes Alliance is proudly home to Maine's largest Youth Conservation Corps (YCC). YCC is a preventative program that aims to reduce the amount of phosphorus entering the water by increasing infiltration and stabilization. Unfiltered runoff entering the water is a key reason for algal blooms. YCC installs Best Management Practices (BMPs) like rain gardens, infiltration trenches, erosion control mulch, and more. BMP's are long term solutions to a very serious problem in the Belgrade Lakes. Luckily landowners are becoming increasingly concerned about algal problems and are signing up for YCC projects to protect the watershed. In 2018, the crew installed over 80 projects to decrease erosion in the Belgrade Lakes watershed. Another important benefit of YCC is that we provide summer employment to 10-15 young individuals-typically high school or college students. This is the first employment for many of our crew members and we aim to teach them responsibility and other important job skills they can use in the future. 7 Lakes Alliance is adding another crew to the YCC team for the 2019 season to keep up with growing demand.

The Conservation Corps can assist with property improvement projects to help protect East Pond. Contact them at 207-495-6039. Their service is much in demand so if you have a project, contact them asap.



### The Youth Conservation Corps works on an East Pond project

### Fireworks 2019 Schedule

#### Camp Manitou – East Pond

Thurs July 4<sup>th</sup>

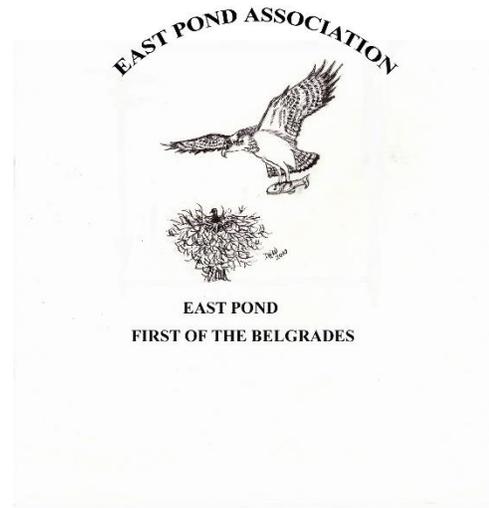
#### Camp Matoaka – East Pond

Thurs July 4<sup>th</sup>

Thu Aug 8<sup>th</sup>

Sat Aug 24<sup>th</sup>

**PLEASE JOIN US FOR THE ANNUAL  
MEETING ON JULY 20<sup>TH</sup> AT  
BIRCHCREST ON BRICKETT POINT.  
THE MEETING STARTS AT 10AM AND  
WILL BE FOLLOWED BY LUNCH.**



**DAVID JACKSON, TREASURER**

EAST POND ASSOCIATION  
83 LOON LANE, SMITHFIELD, ME 04978