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Volume XXI Issue #1 Visit our Website at: www.blprd.com Spring 2015

In This Issue

2015 Clean Boats Clean Waters Summer Employment

By Ray Sloss

As our neighboring lakes and streams struggle with invasive species spread from other lakes and streams the BLPRD 'Clean Boats and Clean Waters (CBCW)' public boat ramp inspection program continues to protect our lake. It is a tribute to the hard work of our summer volunteers under the organization of Commissioner Carl Holmgren. The program will continue in 2015, now in its ninth year.

This year, the program will experience enhancements as BLPRD broadens employment recruiting opportunities. BLPRD is actively recruiting volunteers from lake residents. In past years recruiting focused on Unity High School students who needed volunteer hours for graduation. This year BLPRD would like to see students and adults from all over the lake. If your family is vacationing during the summer as so many do, we invite you or your high school or college age young adults to apply for our CBCW program with Carl Holmgren.

This is a good summer job for learning. The students will learn the requirements and risks associated with transporting water, (see photo 1), requirements for removing all vegetation and data collection. Hours are surprisingly flexible and the pay checks put smiles on faces.

Our goal again this year is to cover all four of the public landings on the lake (Balsam Village Beach Landing, 46 Store Landing, Little Balsam, and East Balsam) at various times throughout the summer from opening (May 3rd) of fishing through Labor Day. We schedule two volunteers at any landing at the same time working week-ends and various weekdays.

As a reminder again; this is a three focus program. We inspect boats for invasive species, educate boaters on invasive species along with the local and State rules, and gather data. State law states that it is illegal to launch or transport aquatic vegetation attached to boat or trailer. The students will also collect aquatic plant samples of suspicious plants and have them tested and verified by Polk County LAWRD.

Boater awareness of the importance for keeping invasive aquatic species out of the lake is our goal. If you see a volunteer at the landing, say 'Thank You', as their efforts with Wisconsin Clean Boats and Clean Waters program that includes inspection, education, and data collection benefits all of us. ■

Photo #1 & #2: Drain all water before leaving the ramp.

Photo #3: Remove and discard all vegetation before leaving the boat ramp.

2 Citizen's Board Reviews & Updates the Aquatic Plant Management Plan

by Ray Sloss

Every five years the citizen's board meets with the Balsam Lake Protection and Rehabilitation District Commissioners to review the results and performance of aquatic plant management (APM) efforts on Balsam Lake. They also meet to review the 5 year APM plan, update and prioritize the goals and methodology of that plan. Upon completion the plan is bound and delivered to the Wisconsin DNR where it becomes a guiding document for the lake district for the next five years.

LITTORAL ZONE

I need to define "Littoral Zone" as it is used within Balsam Lake's reports: The Littoral Zone is the area in which aquatic plants grow, generally to a depth of 12 to 15 feet. It is largely dependent on the penetration of sunlight thru the water. This depth changes with water clarity.

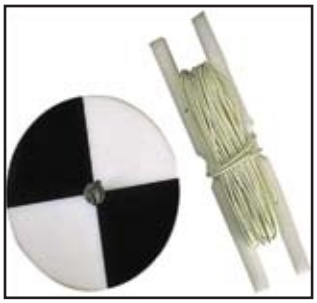

Figure 0: Secchi Disk is a 7" round disc used to measure water clarity.

SECCHI DISC

Water clarity is measured using a secchi disc. A secchi disc is a 7" round disk with alternating black and white quarters (Figure 1). This disc is lowered into the water until the differences between the black and white fields can no longer be visually distinguished. That distance is the secchi disc water clarity depth.

POINT INTERCEPT STUDY

Our lake biologist, Matt Berg, completed a "point intercept study" of the lake in the fall of 2014. Matt goes to a GPS position on the lake that is a single point as part of a grid or a "point", and tosses a rake to the lake bottom to retrieve a sample of the aquatic vegetation, the "intercept". Matt records density and plant diversity at each point. To determine the littoral zone he then goes one point beyond the point of which no vegetation was retrieved. Figure 3 shows the findings from the 2009 point intercept study. Figure 4 shows the findings from 2014. These images tell a story of a loss of native plants in one area, East Balsam. How this occurred is discussed in next section.

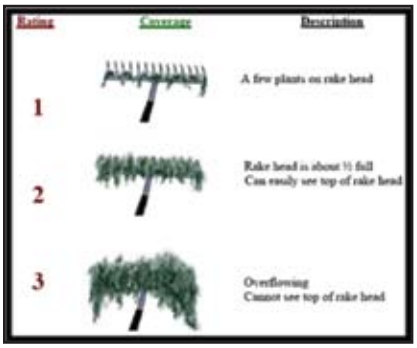

Figure 0: Rake fullness measure.

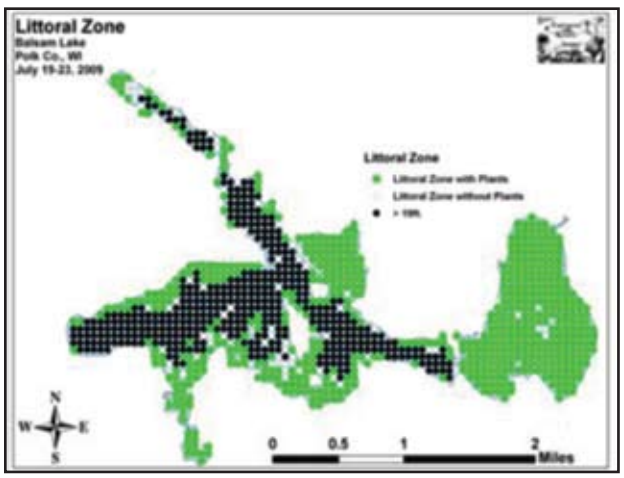

Figure 3: July, 2009 Point intercept study. Green is the littoral zone with plant growth. Black marks the end of the littoral zone.

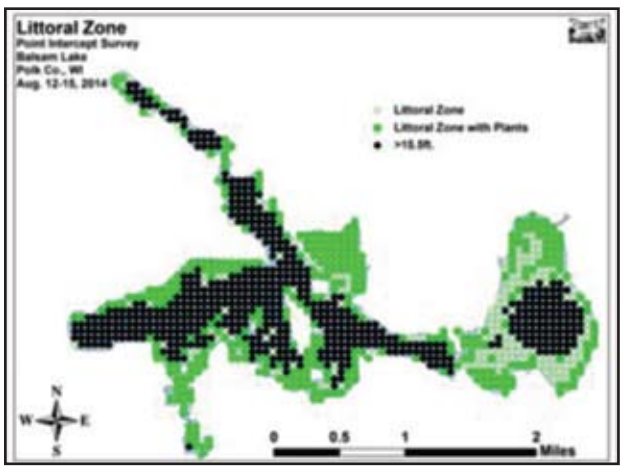

Figure 4: July, 2014 Point intercept study depicting a change in East Balsam.

CURLY LEAF PONDWEED AND ENDOTHALL

Curly Leaf Pondweed (CLP) is Balsam Lake's one invasive aquatic plant. It is an aggressive species and it is prevalent in East Balsam. In 2014 63 acres of CLP was treated in East Balsam. There has been an effort to selectively control CLP on East Balsam with herbicide treatments. The selectivity is accomplished by taking advantage of one of CLP's natural competitive advantage; it is the first aquatic plant growing. We see it right after ice out. In fact it can begin germinating under the ice.

The applicator is directed to an early herbicide application in an attempt to impact CLP before the native plants have germinated and well before CLP produces turions, the plant's method of reseeding itself. The herbicide used, Endothall, needs to remain in contact with the plant for 2 to 3 days at a specific concentration so that the plant can uptake the herbicide. The affects can be seen within a week as the leaves of the plant brown and the plant takes on generally an unhealthy look. Endothall quickly breaks down as a result of microbes located in the soil and water.

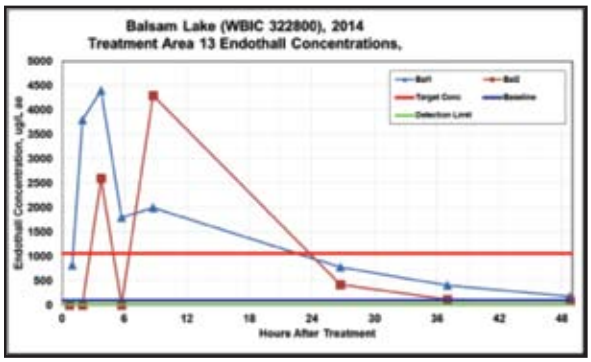

Figure 5: Endothall concentration versus time

To ensure that the herbicide reaches and maintains the required concentration level water samples are collected at various times after the application. Figure 5 is a graph of endothall concentrations over time for the 2014 application. This graph contains two data lines that show a spike in concentration levels. The concentration levels do not return to the target 1000 micro grams per liter until 24 hours after the application. There is speculation that these high levels at 4½ times target had an adverse impact on the native aquatic plants. Existing research supports this hypothesis. When the same graph was reviewed for 2013, a year the herbicide application failed to affect any plants, concentration results were below target never reaching a level at which the herbicide would become effective.

The good news is the native plants are making a recovery. However it is going to take some time to restore a healthy native aquatic plant population. A healthy native plant population is necessary to crowd out any invasive species and support a diverse ecosystem.

Figure 6: Sprouting turion

MEASURING SUCCESS

CLP spreads when bits of the plant become buried, when the plant is allowed to reseed (turions). Cutting CLP does not remove the roots, does not kill the plant. Herbicide is the preferred method on control. It must continue 5 to 7 years.

Last year the commissioners asked Matt Berg a key question, "How will we know if we are being successful?" The answer was count the turions. Success will be a decrease in the number of turions per square meter. Table 1 contains a summary of the results collected November 8th and 9th on East Balsam.

	Total
Number of points sampled	120
Total live turions	343
Total number of points with live turions	120
Frequency of occurrence	76.67
Points at or above nuisance level (>200/m^2)	6

Table 1: Turion Survey, November 8-9, 2014

Commissioners will be sharing this information with the applicator. We are looking for better control of herbicide concentration and earlier application to target CLP. ■

SAVE THE DATE!

The next Balsam Lake Protection and Rehabilitation District annual meeting will be July 18th, 2015. The Lake District is responsible for Balsam Lake Water Quality, navigation lanes and education. To accomplish these goals the board interfaces with state government, county government, village government, industry experts and Wisconsin's colleges in environmental sciences. All you need to participate in lake district governance is to be a land owner in the Lake District or a renter in the Lake District. This is as grassroots as it gets.

4 Science At Work On Your Lake

You may see science at work on your lake this summer, all supporting two major lake improvement efforts. A team from the University of Wisconsin will be collecting core samples from the lake bed in East Balsam along with water samples and water temperatures. Another team from Braun Intertec Engineering will also be performing core soil studies on Raskin Bay and Pine Island Bay. The soil studies being done are for different purposes and are very different. Finally, bathymetric data will be collected in each of these areas by BLPRD in support of both projects.

EAST BALSAM

William James is a Limnologist with the University of Wisconsin – Stout. Limnology, also called fresh water science, is the study of inland waters. The purpose of this project is to determine if the lake bed is a significant source of phosphorus and determine the requirements for locking up the phosphorus that is there. BLPRD and lake water quality volunteers Milt Stanze and Dick Miller have been watching East Balsam for a number of years, collecting and analyzing water samples. As a result of their work and Milt Stanze's knowledge and relationship with key figures within the Wisconsin DNR, East Balsam has been declared impaired body of water do to high phosphorus levels. These high levels of phosphorus migrate from East Balsam following a path across the lake to Mill Pond and into the Balsam Branch, the only outlet for Balsam Lake.

High phosphorus levels cause excess algae bloom, particularly when the weather is warm.

Excess algae and warm water lowers the levels of dissolved oxygen in the water, oxygen needed by fish to survive and flourish.

This spring William James will bring his team to East Balsam to collect core and water samples. These samples will be analyzed in his laboratory to:

1. Measure rates of P release from sediment under aerobic and anaerobic conditions in the east basin of Balsam Lake under laboratory conditions for comparison with the P budget findings of a study performed by the engineering firm of Barr (2011),
2. Examine spatial and vertical variations in sediment mobile P fractions that are active in internal P loading for estimation of alum dosage,
3. Quantify the thickness of the excess mobile P layer in the sediment (i.e., active sediment layer contributing to internal P loading) that needs to be controlled alum,
4. Estimate the dosage of alum (as aluminum or Al) required to bind mobile P fractions in this active sediment layer,
5. Provide cost estimates for Al application based on treatment areas in the lake, and
6. Evaluate management of internal P loading via destratification and Al application in Balsam Lake.

The commissioner leading this project is Ed McGlynn, being supported by Commissioner Ray Sloss and Commissioner Bill Mork.

RASKIN BAY AND PINE ISLAND BAY

Raskin Bay and Pine Island Bay are two areas that have filled with organic sediment over time. Commissioner Rod Preble and Commissioner Howard Seim have been working with The Wisconsin DNR to gain permits to remove the organic sludge in an effort to restore these areas for navigation and fishery habitat.

The key to this project was a solid understanding of the requirements and concerns of the Wisconsin DNR scientists and specialists. Rod Preble and Howard Seim met with Dan Harrington, Water Regulation and Zoning Specialist; Aaron Cole, Senior Fishery Biologist; Alex Smith, Water Resource and John Morris, Hydro Geologist and Waste Materials Manager.

Rod Preble's report on sampling operation:

The bore sampling of Raskin and Pine Island Bays was done this morning (March 9th).

- Three sediment samples and three base material samples were taken in Raskin Bay and Two Sediment and two Base samples in Pine Island Bay.
- Raskin base is a heavy clay material. Pine Island Bay is made up of a much sandier material.
- Sediment in both locations is a very light, suspended material tends to flow out of the core extracting tool with the water but enough material was left behind for testing.
- There was one location in Raskin Bay that was difficult to get base samples and they had to auger holes in the ice in three different places in order to get a base sample. They kept hitting wood from a log or stump.
- Pine Island bay has a thinner layer of sediment and the remaining is a heavy Peat material.
- Attached are a few pictures of Sean and Justin from Braun Intertech performing the sampling operation.

Picture 1: Braun Intertech performing the sampling operation.

Next Steps:

1. Braun will be conducting the tests on material taken today, testing for Total Copper and Total Arsenic and will send two separate reports in 2-3 weeks.
2. The Wisc. DNR will come out in the spring, once the plants in the bays begin to grow, to tour the two areas with BLPRD representatives to determine the areas we can and cannot dredge.
3. After we know scope of dredging allowed by the WDNR we will work with Cheryl Clemmons to draft the Dredging Permit applications.
4. If application(s) are accepted by the WDNR each permit is valid for 10 years, of course we will want to dredge as soon as possible, dependent of funding.

Picture 2: Braun Intertech performing the sampling operation.

Picture 3: Core material examined and preserved for laboratory analysis.

Rod and Howard are evaluating the costs and logistics of Phase II, purchasing and owning versus contracting. Purchasing and owning the equipment for removing the sludge may be cost justified. That will depend on the cooperation of Shoreland owners at key points as there will be a need to locate dewatering bags close to the area being worked and a local business owner who is interested in helping with the purchase of the equipment. ■

It is Spring! Time to Evaluate Runoff at Your Property

In each section, circle the phrase that best describes your property.

Are all areas of your lot well covered with vegetation?

1. My lot is completely vegetated with tall growth between my house and the lake.
2. There are no areas of bare soil on my lot. My lot has some tall vegetation near the water.
3. There are few areas of bare soil AND/ OR my property is covered with a thick lawn.
4. My lot has extensive areas of bare soil AND/OR is covered with a thin lawn.
5. Gullies formed from water running across my lot.

Are there any deposits of sand or other materials, or can you see where water flows on your lot?

1. No deposits or other indication of water flow are present.
2. I can see where water flowed across my lot.
3. There is a clear channel were water runs through tall grasses, leaves, or pine needles.
4. Water clearly brings leaves, pine needles, and sand to my lot.
5. There are large deposits of sand and debris in flatter areas of my lot. I could easily fill a 5 gallon bucket.

Cheryl Clemens,
Harmony Environmental
in Amery, Wisconsin 715-268-9992

How steep is the slope to the lake?

1. There is a ridge that prevents all water from flowing to the lake.
2. The lot is completely flat. Water pools and soaks into the ground.
3. The lot has a gradual slope. Water may make it to the lake in a big storm.
4. My lot has a moderate slope to the lake.
5. I have a steep slope to the lake. A ball placed at the top of the hill will roll to the lake.

How close is the main structure to the lake?

1. My house and all structures are greater than 500 feet from the lake.
2. My house is at least 75 feet from the lake.
3. My house is between 40 and less than 75 feet from the lake.
4. My house is between 20 and less than 40 feet of the lake.
5. My house is less than 20 feet from the lake.

Total the numerical value from each section. You're going to have a score between 4 and 20. Scores between 9 and 12 are good. But there may be an opportunity for improvement. Consider a runoff mitigation system. If your score is greater than 12, you have the greatest opportunity. Installing mitigating features will change the impact your property is having on your lake.

Adopt-A-Boat Landing

Balsam Lake's Adopt-A-Boat Landing program enhances and protects our lake by reducing litter at the boat landings. It sends a message to visitors of our lake that we take pride in our lake and reasonably expects the same. This program was initiated by the Balsam Lake Protection and Rehabilitation District.

Any individual or organized group can sponsor a boat landing by agreeing to provide litter pickup at least once a month during the summer season between Memorial Day and Labor Day. We will provide you or your team specially designed shirts for you to wear and trash bags. We will provide for trash pick-up at the boat landing.

It's easy to get started. Select a boat landing and contact either Commissioner Bill Mork (763-699-7792) or Commissioner Ray Sloss (612-965-5455). You or your group will be asked to provide a non-binding letter declaring your intentions and you're ready to go. ■

WHAT IS IT?

Good question!

"I think I may have evasive aquatic plants at my dock. What do I do?"

There is a procedure to follow and a team of biologists to help you answer your question.

#1 SAFETY FIRST! You are going to be reaching, bending and pulling. Will you need a personal floatation device? Will you need a second person, an observer, should someone need to go for help?

#2 BAG IT! As best you can slip a plastic bag over the plant. Close the bag around the plants stem. The purpose of this step is to protect the lake from the plant, the plant's seeds or broken bits of the plant.

#3 REMOVE IT! Try to remove all of the plant including its roots. Not always possible. Do the best you can.

#4 TIE THE BAG! Remove the water from the bag and bind the bag closed.

#5 (D3) DATE, DESCRIBE AND DELIVER! Write down and include the date your sample was removed. Describe where it was found. Add your contact information and deliver it to Polk County Land and Water offices located on the first floor of the Polk County offices. ■

Aquatic Plant Management Notice

The Balsam Lake Management District is applying for a permit from the Wisconsin Department of Natural Resources to treat 65 acres on East Balsam with an aquatic herbicide to control the invasive plant curly leaf pondweed. This proposed treatment would occur between April 15, 2015 and June 15, 2015.

The Balsam Lake District has been using the herbicide Endothall to treat curly leaf pondweed in various beds and navigation channels. Herbicides are used early in the season at a low dose to avoid harm to native plant species. The APM plan recommended continuing this treatment in order to minimize navigation problems, prevent the spread of curly leaf pondweed, and protect native plant populations. Recent studies suggest that CLP treatment may reduce mid-summer algae blooms.

Clean Lakes Inc. will conduct a public informational meeting on the proposed treatment if five or more individuals, organizations, special units of government or local units of government request one. The meeting will give the citizens a chance to learn more about the proposed treatment from the permit application. Clean Lakes Inc. is not required to, but may change the proposed treatment based on the information provided by the citizens attending the meeting.

Any request for public meeting must be made within five days after this notice is published in the Polk Ledger. The request must specify the topics to be discussed at the meeting, including problems and alternatives, and must be sent to Clean Lakes Inc. Oakwood Hills, IL and the Department of Natural Resources, Water Permit Central Intake P.O .Box 7185 Madison Wisconsin 54707 ■

This notice is required by Chapter NR 107 Wisconsin Administration Code. Questions: Rod Preble at (715) 497-8913.

A LETTER FROM THE CHAIRMAN

2014 was a busy year for the Balsam Lake District commissioners. We received approval during the annual meeting to proceed with the first phase of two significant projects; improve navigation in Raskin Bay and improve water quality in East Balsam. We also experience good success in the treatment of Curly Leaf Pondweed in Balsam Lake. However, there is still room for improvement as learned from the report by our lake biologist, Matt Berg.

RASKIN BAY NAVIGATION

Commissioners Rod Preble and Howard Seim formulated a plan with an end goal of improving navigation and lake bed habitat in Raskin Bay. Rod Preble presented the board with a cost analysis that will be used to determine if owning the dredging equipment would be beneficial versus contracting. Rod and Howard let the contract to an engineering firm to take core samples and analyze them for copper and arsenic. The core samples have been collected and the results will be inputs into the permit and the dredging operation.

EAST BALSAM WATER QUALITY

Commissioners Ed McGlynn and Ray Sloss have contracted through the University of Wisconsin, Stout, with a team lead by Bill James. Bill James is a limnologist at the university and has performed the studies to characterize the phosphorus in the lake. The results of this study will become inputs into the discussion and planning to correct the high phosphorus content we find in East Balsam. Bill James's team begins their work in June.

CBCW

Clean Boats and Clean Water (CBCW) project did not attract sufficient number of high school students interested in summer employment. As a result several of the boat ramps experienced gaps in data collection that is performed by the students during specific times during the day. To correct this Carl Holmgren is expanding his recruiting efforts.

CLP TREATMENT

We treated 63 acres of curly leaf pondweed in May of 2014 and the results were good. I am giving this thumbs down because the herbicide treatment also measurably impacted native plants. A successful CLP herbicide treatment is one that occurs in a tight window of time when CLP is the only aquatic plant growing. Several coordinated steps have to occur, permits have to be in hand, public notifications must be made, treatment areas must be identified as soon as ice is out and the herbicide applicator must be on site before lake temperature rises to a point that the native plants begin to grow. The May of 2014 application was possibly one week later than ideal.

HARVESTER

Howard Seim and Rod Preble did a factory tour of a harvester manufacture near Spooner, Wisconsin. They continue to assemble all the costs associated with owning and operating a weed harvester. This is an ongoing project.

CONSERVANCY PROPERTY

Commissioner Ray Sloss is assembling costs to present to the board on some heavily wooded property that may be available as conservancy property. The property is located on the North end of East Balsam. It supports deer, turkey and is reported to have a Bald Eagle nest. With the board's approval to proceed, we contract a study of the property which is presented to the Wisconsin DNR. With their interest comes cost sharing. And I have had a Lake District citizen approach me to indicate his willingness to participate in the process.

PINE ISLAND BAY

The board was approached by a property owner on Pine Island Bay who stated that Pine Island Bay has also filled in over the years. He presented the board with a historical document showing that the bay had been dredged decades ago and he discussed possibilities of cost sharing to accomplish restoring the bay. To determine if Pine Island Bay is a candidate for dredging, Rod Preble directed core samples to be collected at the same time as Raskin Bay core sampling.

EAST BALSAM BOAT LANDING

Commissioner Bill Mork and Ray Sloss met with Georgetown Village council to discuss the condition of the East Balsam Boat Ramp. The boat ramp maintenance is Georgetown's responsibility. However, as the village Supervisor's explained, they are under a budget constraint. They can't afford any significant maintenance. We made them an offer, transfer ownership of the boat ramp to the Lake District. This raised some questions with the Village Supervisors. Bill and Ray will look into their questions and meet with them again this summer.

BUDGET DISCUSSION AND ANNUAL MEETING

The Commissioners begin an important evolution as we assemble a budget for 2016 and prepare for the annual meeting. Our meetings are open and we do accept public comment. The budget meetings are held in the Polk Business Center lower conference room. Budget discussion will occur May 16th and June 20st at 8:30 a.m. The annual meeting will be held at Unity School auditorium on July 18th, convening at 8:30 a.m. ■

Ray Sloss, Chairman, BLPRD

Dock Side

Balsam Lake Protection & Rehabilitation District
P.O. Box 202
Balsam Lake, WI 54810

RETURN SERVICE REQUESTED

Meeting Schedule

March 21, 2015

April 18, 2015

May 16, 2015

June 20, 2015

July 18
Annual Meeting

Polk County Business Center
Lower Level Conference Room
Third Saturday of the Month
Meetings begin at 8:30 a.m.

Commissioners

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