

DOCK SIDE

Volume XXIX • Issue #2

Newsletter of the Balsam Lake Protection & Rehabilitation District

Fall 2023

Target root causes, reduce nutrients, muck and algae, improve navigation and habitat...

Nanobubble May Restore Balsam Lake Naturally

by Dale Ulbrich

Balsam Lake is a wildlife habitat as well as a recreational retreat for us humans. Unfortunately, the lake can suffer from a variety of issues that affect habitat, are unpleasant and even unsafe, affecting our enjoyment of the lake. Without a proactive lake management plan and the right tools, it may be difficult and costly to combat these problems.

Balsam Lake has several issues that arise due to human activities, as well as natural occurrences. Human activities such as agricultural runoff, untreated sewage, yard and road runoff, and improper land use can all lead to contamination of the water. Natural occurrences such as changes in water levels and erosion can also cause problems. All can lead to changes in water quality and impact life in the lake. The most common issues Balsam Lake homeowners and lake users experience are high nutrient concentrations, muck buildup, excessive algae growth, and foul odors.

High Nutrient Concentrations

The lake accumulates high levels of nutrients, mainly from runoff from nearby agricultural land, urban areas and lakeshore properties. This runoff contains nutrients such as nitrogen and phosphorus that feed algal blooms and excessive growth of aquatic plants. As plants decay in the water at the end of a season, oxygen levels drop making it difficult for fish and other aquatic organisms to survive. This problem is known as eutrophication.

Muck

Muck is a type of sediment that accumulates in lakes, consisting of decomposing plant material, algae, and other organic matter. Common sources include leaves, fish waste, dead fish, dead algae, aquatic plants, yard clippings and waste from waterfowl. Nutrients in muck can contribute to algae blooms.

Algae and HABs

Algae are a type of plant that grow when there is an abundance of nutrient available. Some types of algae—blue-green algae or cyanobacteria—are harmful algae blooms (HABs) that produce toxins harmful to humans and animals. Algae blooms have become a problem for many bays in Balsam Lake.

Algae consumes oxygen and sunlight needed for other aquatic life, often leading to fish kills. Algal blooms have an unpleasant smell and appearance. Also, over time, the resuspension of organic material in the water from boat traffic and wave action can negatively impact the health of the lake. Reducing the use of lawn fertilizer and controlling runoff carrying nutrients to the lake can help reduce the amount of nitrogen and phosphorus available to algae, however, this prevention tactic alone isn't effective enough.

—continued on page 6



Boston Bay inlet summer 2023; below, summer 2022



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CHAIRMAN'S LETTER

Fall 2023

Hope all enjoyed this past summer season at Balsam Lake. The following is a snapshot of the District's recent activities:

East Balsam Water Quality / Alum – The District is ramping up for the 2024 alum application. DNR grant funding of \$200,000 has been approved by the DNR with the remaining funds of \$132,000 being borrowed and repaid over a 2-year period. The phosphorus, chlorophyll, algae, and water clarity all further improved with our 2022 application and continue to exceed our water quality improvement goals given 2023 surveys. The 2024 Application will be the third of four planned applications and will result in 80 percent of the aluminum sulfate dose planned for to complete the project. The 2023 survey results did identify an increase in algae levels relative to 2022 however they continue to be favorable to the end goal. More information on 2023 survey results is included in this publication.

APM Plan / Harvesting / Herbicide – Commissioner Weix and our harvesting team had their hands full with equipment maintenance challenges during this past summer season. We have approximately 1,000 operating hours on our harvester which appears to be the tolerance of the paddle wheel motors which was compounded by a manufacturer supply issue. Both motors were replaced in 2023 and we believe we are positioned for a full harvesting season in 2024.

Water Safety Patrol – The 2023 boating season was active as usual which included a large number of day boaters as measured by our Clean Boat Clean Waters launch monitors. The water patrol's heightened focus on courteous boating and ordinance enforcement saw a material increase in both categories.

Large Wave Boats – The District along with the Balsam Lake Surf Club, launch monitors and water patrol staff implemented a 2023 initiative to positively influence courteous boating. Subjective observations suggest that this effort was effective in mitigating the challenges that are inherent with large wave boats. We continue to seek feedback on courteous boating and have developed an application that can be accessed via the BLPRD website where reports of suspect boating behaviors can be reported — “See something say something.”

Clean Boats Clean Waters (CBCW) – The CBCW team took on the additional challenges of educating boaters on cleaning station use and courteous boating. Hats off to Terry Morton and his team for their flexibility and efforts as both these programs became reality this past boating season.

Finance – The 2024 budget was approved at the 2023 annual meeting with an amendment to include the funding of a Lake District Manager position. \$80,000 of the district's protection funds will be used to offset total expenses in 2024 thereby reducing tax appropriations.

Zebra Mussels – Zebra mussels have become an established population for our lake. The nutrient make-up of Balsam Lake, along with day boaters moving from lake to lake, many of which have zebra mussels and other AIS, fostered this unwelcome reality. We are not currently aware of short- or long-term fixes. We will continue to stay apprised of developments in dealing with this invasive species.

Lake Manager – The District is actively seeking an individual that can grasp its operation including the science behind it. As mentioned previously, the complexity of operating the Lake District continues to increase. AIS (aquatic invasive species) monitoring, reporting, harvesting, water safety, finances and operating a government body has grown to a point where lake manager would be prudent. The board envisions a candidate that has interest/experience in water quality monitoring and improvement as well as operational and project management. This is a part-time position affording approximately 700 work hours annually.

Thank you for your continued participation and support.
— Tom Kelly

Contact us

Please contact the commissioners with any questions, comments or concerns you have. Commissioners meet on the third Saturday of the month, starting at 8:30 a.m. at Polk County Business Center, lower level conference room. You are welcome to attend the meetings.

2024 Meeting Dates	
January — no meeting	May 18
February 17	June 15
March 16	Annual Meeting: July 20
April 20	September 21

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East Balsam Alum Application

While it has been frustrating to live with recurring algal blooms during non-treatment summers when alum is not applied, the good news is that East Balsam Lake water quality is responding well to the gradual reduction in internal phosphorus loading from sediments.

Internal phosphorus loading is a scientific term that refers to phosphorus movement from lake bottom sediment to the water during the summer growing period. This recycled phosphorus is taken up by blue-green algae for growth and bloom formation. Internal phosphorus loading has been the primary driver of nuisance blue-green algal blooms in East Balsam Lake. Alum applications are used to control this internal phosphorus source by irreversibly binding sediment phosphorus and removing it from recycling back to the water. As successive alum layers continue to be applied to the lake bottom through 2026, sediment internal phosphorus loading will be mitigated, resulting in much reduced blue-green algal growth and improved water clarity.

Evidence for this link between reduced blue-green algal growth and alum control of internal phosphorus loading comes from much improved water quality during the first two treatment years, 2020 and 2022 (please see Figure 1). During those years, freshly applied alum settled to the sediment and completely controlled internal phosphorus loading, coinciding with great summer water clarity and low blue-green algae and phosphorus.

Why did alum control of internal P loading diminish during the following non-treatment year, resulting in nuisance blooms?

The alum application strategy for East Balsam Lake (and other lakes in the region) has been to split the full dose into smaller partial doses and spread applications out over a period of years. Splitting the alum application into lower doses is very beneficial in improving the binding effectiveness of sediment phosphorus. When a lower concentration of alum is exposed to a high concentration of sediment phosphorus, its binding sites are more efficiently filled with phosphorus.

The downside of this application strategy is that the lower alum dose becomes completely saturated with phosphorus and cannot bind it all during the early stages of treatment. Thus, during subsequent non-treatment years some of the sediment phosphorus leaks through the alum layer and into the water, becoming available for blue-green algal uptake, resulting in a bloom. This pattern typically occurs early in the alum treatment process and diminishes later as the full alum dose is applied to the sediment.

Thus, patience, understanding of how the alum treatment and application process works, and expectations that blue-green algal blooms may occur during non-treatment years early on is needed.

In 2024, the third partial alum treatment will be applied to East Balsam Lake, and it is anticipated that water quality will improve. As the final dose is applied to the lake in 2026, internal phosphorus loading should be largely controlled resulting in sustained improved water quality in the future.

The overall water quality goals for East Balsam Lake are average summer phosphorus less than 0.04 mg/L and average summer chlorophyll lower than 27 ug/L after the alum treatments are completed. These are Wisconsin DNR standards for shallow lakes. ●

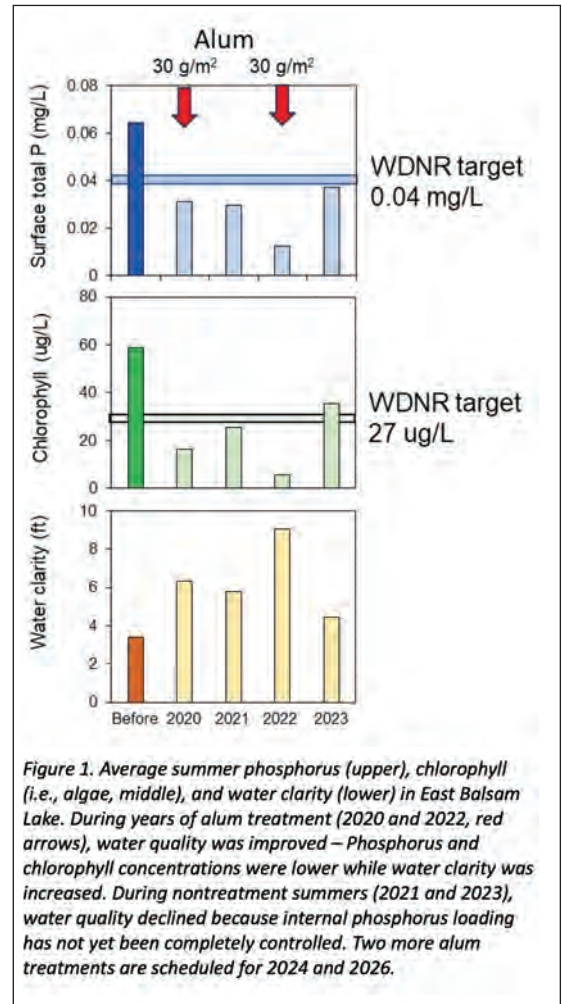


Figure 1. Average summer phosphorus (upper), chlorophyll (i.e., algae, middle), and water clarity (lower) in East Balsam Lake. During years of alum treatment (2020 and 2022, red arrows), water quality was improved – Phosphorus and chlorophyll concentrations were lower while water clarity was increased. During nontreatment summers (2021 and 2023), water quality declined because internal phosphorus loading has not yet been completely controlled. Two more alum treatments are scheduled for 2024 and 2026.

Boat Launch Cleaning Stations Usage

We had a successful first year with the new CD3 cleaning stations!

Thank you to the CBCW Monitors for their efforts instructing users about use of the cleaning stations.

For those of you that had an opportunity to use the cleaning stations, thank you for doing your part in helping keep Balsam Lake free from any new invasive species or from transport of AIS to other water bodies from Balsam Lake. See you in the spring of 2024!

CD3 Boat Cleaning Station at Town Beach Launch.

Tools Used

Location	Month Name	Air Uses	Brush Uses	Light Uses	Plug Wrench Uses	Reach Grabber Uses	Vacuum Uses	Total	Percentage	
East Balsam	May		32	2	30	23	0	87	51 %	
	Jun		12	2	9	1	0	24	14 %	
	Jul		2	0	18	22	0	42	25 %	
	Aug		0	1	3	3	0	7	4 %	
	Sep		0	1	4	4	0	9	5 %	
	Oct			1	0	0	1	0	2	1 %
	Total			47	6	64	54	0	171	
Percentage			27 %	4 %	37 %	32 %	0 %			
Highway 46 Boat Launch - Balsam	May	255	4	31	41	37	62	430	26 %	
	Jun	218	5	11	28	38	108	408	24 %	
	Jul	208	0	8	32	25	132	405	24 %	
	Aug	105	4	9	19	16	120	273	16 %	
	Sep	87	3	9	7	13	4	123	7 %	
	Oct	21	0	4	0	4	0	29	2 %	
	Total	894	16	72	127	133	426	1668		
Percentage	54 %	1 %	4 %	8 %	8 %	26 %				
Little Balsam	May		7	2	18	19	0	46	14 %	
	Jun		1	0	16	4	0	21	6 %	
	Jul		6	4	13	180	0	203	62 %	
	Aug		2	0	7	13	0	22	7 %	
	Sep		1	3	3	4	0	11	3 %	
	Oct		1	0	5	18	0	24	7 %	
	Total		18	9	62	238	0	327		
Percentage		6 %	3 %	19 %	73 %	0 %				
Sunnyside Marina - Balsam	May		0	0	7	3	0	10	20 %	
	Jun		0	2	5	3	0	10	20 %	
	Jul		0	1	4	15	0	20	40 %	
	Aug		1	1	0	2	0	4	8 %	
	Sep		1	0	1	1	0	3	6 %	
	Oct		1	0	0	2	0	3	6 %	
	Total		3	4	17	26	0	50		
Percentage		6 %	8 %	34 %	52 %	0 %				
Town Beach - Balsam	May	255	6	16	31	21	46	375	23 %	
	Jun	295	7	15	37	17	71	442	27 %	
	Jul	242	0	13	31	28	42	356	22 %	
	Aug	130	2	7	19	9	34	201	12 %	
	Sep	136	3	8	18	17	32	214	13 %	
	Oct	14	3	1	4	3	12	37	2 %	
	Total	1072	21	60	140	95	237	1625		
Percentage	66 %	1 %	4 %	9 %	6 %	15 %				
Total		1966	105	151	410	546	663	3841		

Total Sessions at Each Cleaning Station

Location	2023						Total	Percentage
	May	Jun	Jul	Aug	Sep	Oct		
East Balsam	46	12	25	5	7	0	95	4 %
Highway 46 Boat Launch - Balsam	249	243	252	138	92	23	997	42 %
Little Balsam	25	16	57	12	7	20	137	6 %
Sunnyside Marina - Balsam	8	7	10	2	0	2	29	1 %
Town Beach - Balsam	254	309	272	146	136	23	1140	48 %
Total	582	587	616	303	242	68	2398	
Percentage	24 %	24 %	26 %	13 %	10 %	3 %		



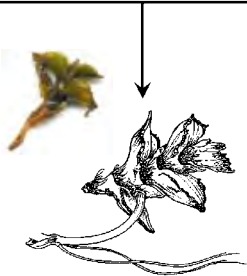
Curly-leaf Pondweed Control

Curly-leaf pondweed, *Potamogeton crispus*, is a submersed aquatic plant native to Eurasia, Africa, and Australia. It was first verified in North America in the 1840s and quickly spread throughout the Northeast and Great Lakes regions into the early 1900s.

Curly-leaf pondweed typically reproduces via turions (i.e., vegetative propagules), generally formed in late spring and early summer. The plant naturally dies back soon after turion formation, and the turions lie dormant in the sediment for the remainder of the summer and early fall.

When water temperatures cool, the turions germinate (i.e., start growing). While a small number of turions may germinate in the fall (and survive under the ice during the winter), the majority of the turions will germinate the following spring. Curly-leaf proliferates once water temperatures reach 50°F (10°C).

Winter buds ("turions") resemble small brown pine cones
Actual size 4-5 cm



As you recall we had a late ice-out this spring with a rapid warm-up which helped to reduce the growth of the CLP beds throughout the lake. Our lake biologist Matt Berg reported the lowest levels of CLP in the last 7 years. We were very fortunate for this because we had an unusually large number of mechanical breakdowns with our harvester this year.

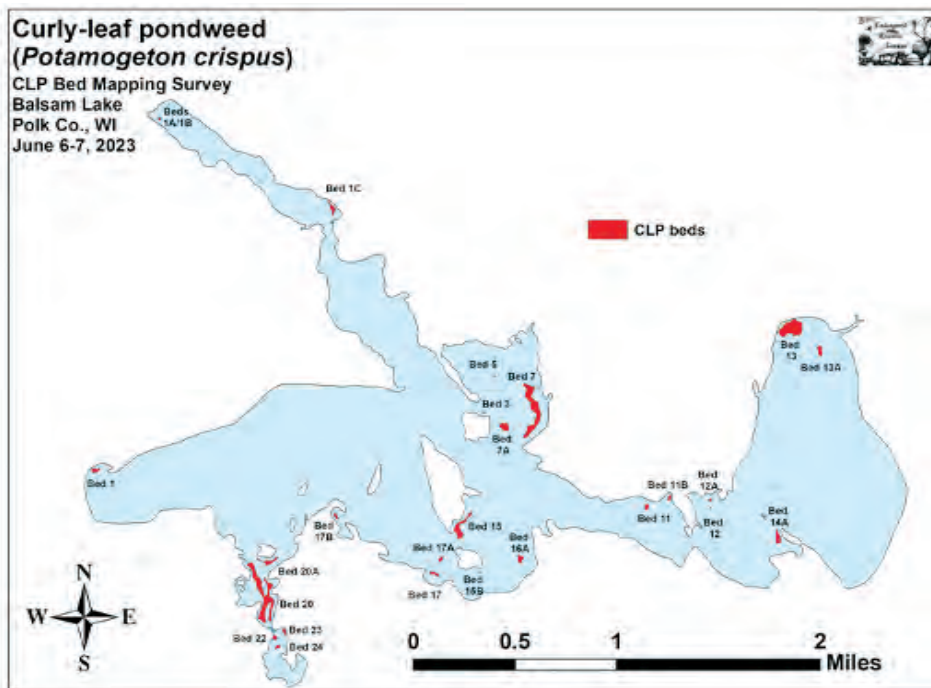
We were unable to start harvesting until the beginning of July, and then only for a third of the typical harvesting season due to motor failures. Fortunately, our harvesting team lead by Don Coddington was able to make repairs and salvage some of the season.

The good news is we now have new paddle wheel motors and backup parts available on hand for future breakdowns if needed. We have also made arrangements to have a backup harvester available for any major issues we could have in the future.

We are always looking for interested volunteers with a mechanical background to assist the team. For more information visit the Balsam Lake website at www.BLPRD.com.



Curly-leaf pondweed photo:
Paul Skawinski,
UW Extension Lakes.



Nanobubble Technology *continued from page 1*

Foul Odors

Foul odors in Balsam Lake are a sign of water pollution and poor water quality. When pollutants such as sewage, fertilizers, and agricultural runoff enter the water, dissolved oxygen levels decline and hydrogen sulfide (H₂S) is produced, leading to an unpleasant ‘rotten egg’ smell. In some cases, the smell can be strong enough to be detected from a distance and can cause health issues. This sign of water contamination should be taken seriously.

Creating a Proactive Lake Management Plan

A good lake management plan includes a variety of control methods, though a proactive plan focuses on tools that are restorative, preemptive, and sustainable. Using a combination of tools, including aiding the beneficial bacteria, reduction of available phosphorus with alum treatments, sedimentation ponds to reduce nutrient runoff to the lake, and other sustainable tools, lake districts can manage and restore water bodies with less impact on the environment, ecology, or their bottom line.

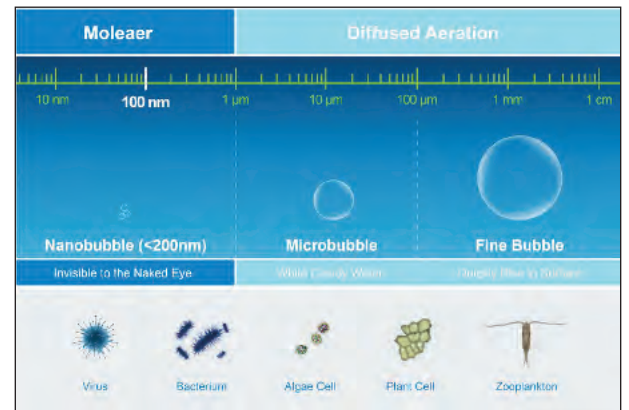
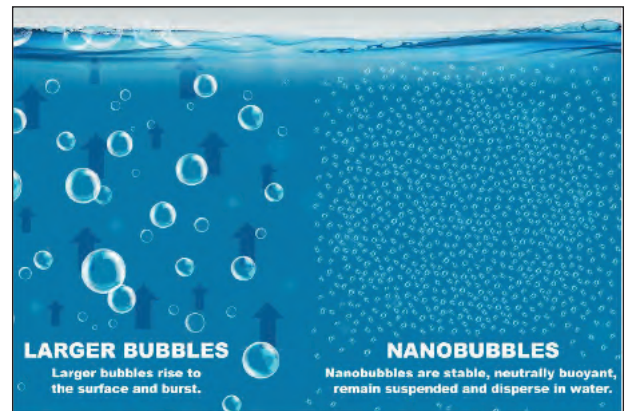
Proactive lake management is all about taking a holistic approach to solving problems, rather than simply treating symptoms. It’s about understanding the importance of sustainability and using restorative tools to prevent or mitigate problems before they occur. One very effective restorative tool available today is nanobubble technology.

Using Nanobubble Technology to Target the Root Cause of Common Lake Problems

Nanobubbles are tiny bubbles of air that are very small, under 200 nanometers in diameter. Created by pressurized air injected into water, nanobubbles have a number of unique properties that make them ideal for proactive lake management. When used in lakes, nanobubbles can have a profound impact on water quality.

First, nanobubble technology delivers the highest oxygen transfer efficiency and increases dissolved oxygen levels throughout the water column. More oxygen throughout the water and in the sediment-layer helps increase natural muck digestion by the good bacteria in the lake and reduces foul odors.

Second, nanobubbles produce oxidative effects that break down excessive nutrient levels (e.g. phosphorus, nitrogen, and heavy metals). Their air bubble size makes them stable, remaining suspended in water for long periods of time without floating to the surface and popping. When they encounter contaminants, they collapse and produce a mild oxidant that degrades harmful bacteria and dangerous pathogens.



How Can Nanobubble Aeration Be Used To Improve Water Quality At Balsam Lake

The District is proposing using nanobubble technology beginning in summer 2024 in Boston Bay Inlet, Forest Circle Bay, and Raskin Bay, three bays that were previously identified for dredging.

The three bays have extremely high phosphorus and nitrogen levels and excessive weed growth that is harvested every year to maintain a boating channel. Neighbors that have been there for over 50 years remember when the bays had sand bottoms, healthy aquatic plant populations and no algal blooms. Some said they used to enjoy watching the fish spawn and nest on the bottom in the springtime, but now the sand is covered by 12-24 inches of muck and the fish have lost this habitat.

Should the treatment prove successful in Balsam Lake (as it has been in over 3,000 applications in fifty countries) the nanobubble aerator would be moved to other Balsam Lake bays identified as impaired.

Sensors will be used to monitor important lake quality indicators like dissolved oxygen, pH value, water clarity, Chlorophyll A, and temperature for the month prior to nanobubble aeration to provide a baseline, and then monitored throughout the aeration period. Also, lake sediment mapping will be conducted before and after treatment to document the reduction of muck in the bays.

Nanobubble technology by Moleaer, Inc.

Nanobubble aeration technology is now available for lakes like Balsam Lake at a price that is affordable. The mobile system and sensor monitoring by Moleaer™ will cost about \$113,000 to purchase. This same equipment can then be used at each bay planned for aeration. Yearly operation cost is about \$1,500 to power the system and conduct annual testing.

BLPRD is planning to transfer \$99,000 previously designated for the purchase of a dredger to fund the nanobubble aerator. Nanobubble technology is being considered since dredging cannot be approved in all three bays. A DNR grant application submitted in November 2023 can also offset the cost of the system. We will learn the grant funding decision in February 2024.

Nanobubble technology has additional benefits over dredging. One is that the good bacteria in the lake digests the muck, so we don't have to manage it like we would when dredging. Dredging requires depositing the dredged material near the lake for a minimum of a year so the water can seep back into the lake. Also, during dredging, property owners on the bays would not have access to their docks or will have to remove their docks for the dredger. This is not an issue with nanobubble technology.

A vote on the nanobubble proposal will be held at the BLPRD Annual Meeting, 8:30 a.m. on July 20, 2024 at Unity High School

It's exciting to have a novel technology approach to restore the bays in Balsam Lake. The District is interested in your comments, questions or concerns—pro or con—about nanobubble technology, the plan for restoring bays in Balsam Lake, and in the proposed plan to fund the project.

Please contact BLPRD Commissioner Dale Ulbrich, at dalerulbrich@yahoo.com with your comments and questions. ●

Read more about nanobubble technology on page 8



The Moleaer, Inc. System

A 4'x8' trailer containing a pump and nanobubble aerator is parked on shore next to the area for lake aeration. Water is pumped by a quiet electric motor into the nanobubbler for aeration and then returned to the lake.

The oxygen dissolved in the water is then available to the good bacteria in the lake to digest muck, algae, and nutrients that encourage excessive plant growth, improving the water and exposing the sand bottom for an improved fish habitat.

Nanobubble technology is a cost-effective, proactive option to help increase muck digestion through natural oxidation and efficient oxygenation. Depending on the amount of sediment at the bottom of the lake, it can typically take nanobubbles 4-6 months to encourage digestion to reduce the layer of muck that has taken many years to build up.

Unlike dredging that is very disruptive to the ecosystem and gets in the way of enjoying the lake, nanobubble technology does not interfere with the natural bottom of the lake or interfere with docks and boating during aeration. This results in clearer, healthier water bodies and reduces the occurrence of algae blooms.



Muck, algae blooms, and filamentous algae, from 2023, appear each year in Boston Bay Inlet, Forest Circle Bay, and Raskin Bay.

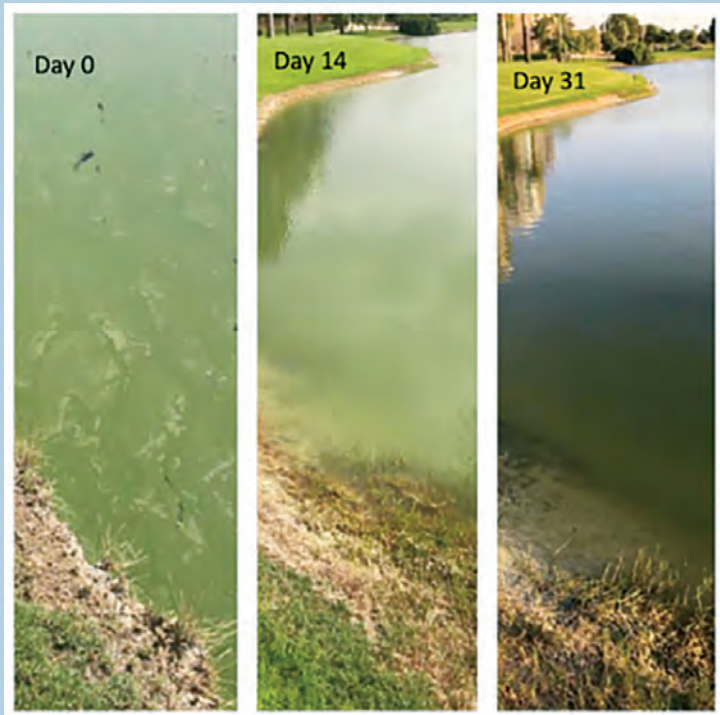
Nanobubble Technology *continued from page 7*

Nanobubble technology helps to restore water quality for healthier, more resilient water bodies.

Researchers all over the world are studying nanobubbles for a variety of applications. These studies have validated the use of nanobubble technology as a restorative tool to improve lake and pond health.

The Chemical Engineering Research and Design journal (issue 186, 2023, pg. 64-86) published the article, "Fundamentals and applications of nanobubbles: A review". The researchers studied sediment decontamination and lake management applications of nanobubbles and found that nanobubbles reduce pollution (phosphorus, nitrogen, copper), mitigate hypoxia (absence of enough oxygen to sustain fish) and anoxia (an absence of oxygen leading to fish kills), improve dissolved oxygen levels that aid in the natural digestion of muck, and help with algae control and overall water clarity.

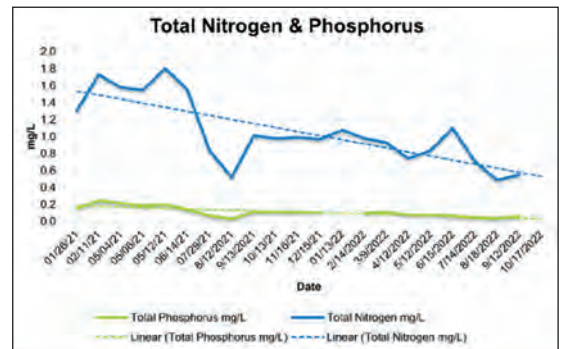
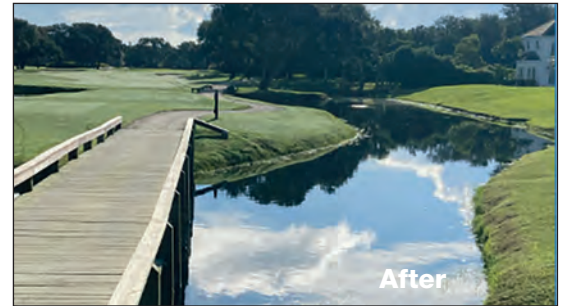
Independent researchers have validated nanobubble technology by Moleaer™, a company that develops industrial scale nanobubble technology. Paul Westerhoff, Professor at Arizona State University (ASU) School of Sustainable Engineering and member of Nanotechnology-Enabled Water Treatment (NEWTE), confirmed the oxidative properties of Moleaer's nanobubble technology and the formation of hydroxyl radicals in their study.



Michael Stenstrom, UCLA professor and aeration expert, proved Moleaer nanobubble technology achieves >85 percent oxygen transfer efficiency at standard conditions (SOTE) per foot of water compared to less than 3 percent SOTE per foot of water with conventional aeration methods.

Additionally, Reza Ovissipour, Virginia Tech, demonstrated that Moleaer nanobubble technology eliminates pathogens like e. Coli and Listeria on surfaces within five minutes of exposure.

At a private club in Florida, nanobubble technology provides a chemical-free and sustainable way to digest muck and reduce algae, keeping muck at bay by treating the root cause.



Lake Theresa in Orlando, Florida saw a marked reduction in nutrients that feed algae and weed growth.

There are many other benefits of nanobubble technology, but these are just a few of the most important when it comes to proactive lake management. When used as part of a comprehensive plan, nanobubbles can be an extremely effective tool for preventing or mitigating many of the common problems associated with eutrophic lakes.

Purple Loosestrife — A Wetland Invader

by Colton Sorensen

Purple loosestrife is an invasive species that was introduced to the United States in the early 1800s for beekeeping and as a garden ornamental. It has been present in Polk County for many years, colonizing lake shores, wetlands, and ditches. Thick stands of purple loosestrife crowd out native vegetation and reduce food, shelter, and nesting sites for a variety of wildlife including birds, turtles, and frogs.

Purple loosestrife is verified on Balsam Lake near the Highway 46 boat landing, East Balsam (multiple locations), and Town Bay (multiple locations).

Purple loosestrife is a perennial plant that grows 3-7 feet tall and develops a spike of small purple flowers in late summer. The leaves are arranged oppositely along a square shaped stem. Purple loosestrife spreads primarily by seed and a single mature plant can produce over 1 million seeds.

There are a few different management strategies for purple loosestrife including: manual removal, chemical treatment, and biological control. Manual removal is ideal for single plants that have recently been established. All plant material removed should be burned or bagged and sent to a landfill, not composted.

Chemicals such as imazapyr or glyphosate work well against purple loosestrife, although a permit is required if applying near water and an aquatic use formula should be used.

Galerucella beetles are used as a biological control for large stands of purple loosestrife. *Galerucella* beetles feed extensively on the foliage of purple loosestrife, stressing the plant enough so that it is unable to produce seeds.

The Polk County Land and Water Resources Department (LWRD) has a mass rearing cage where *Galerucella* beetles are raised. In 2022, LWRD released a few hundred *Galerucella* beetles at the purple loosestrife stands in Town Bay and East Balsam. In 2023, LWRD raised significantly more beetles and was able to release a few thousand *Galerucella* beetles between the 2 sites. This project is part of a statewide effort to reduce purple loosestrife.

In the future, LWRD will be releasing beetles at other large stands across the county. LWRD will continue monitoring the populations on Balsam Lake and add supplemental *Galerucella* beetles as needed. ●

If you notice purple loosestrife growing around the lake in areas not mentioned here, contact Bill Mork at 612-599-8678.

Colton Sorensen is a Water Quality Specialist at Polk County Land and Water Resources Department (LWRD). For more information about LWRD go to www.polkcountyiwi.gov.



A stand of purple loosestrife. The plant has a stiff-four-sided upright stem, opposite leaf alignment, and lance-shaped leaves with smooth edges. Purple/pink flowers have 5-6 petals, and are closely attached to numerous long spikes.



Water Patrol Initiative

After listening to public comments and input from members, an action plan was developed to improve safety on Balsam Lake. In 2023, the BLPRD implemented several initiatives to address concerns related to boater safety and shoreline erosion.

Enhanced Wake/Large Wave Initiative

The Enhanced Wake Large/Wave Initiative focused on education, communication, and enforcement. The education and communication portion of the plan included:

- Updated signage at the boat ramps,
- Updated lake maps to show distance from shore regulations and suggested distances, (Know Your Wake).
- Partnering with the Balsam Lake Surf Club to educate boaters on courteous boating. A Courteous Boating brochure was developed, published, and distributed by the Surf Club. Boat inspectors, Sunnyside Marina staff, and our Water Patrol Officers also distributed the brochures.

The number of complaints regarding enhanced wakes has decreased, and public comments have been positive. The complaints received were addressed by members of the Surf Club and/or Water Patrol Officers. Thanks to the Surf Club for partnering with the BLPRD on this project, your efforts are appreciated.



Water Patrol Hours and Enforcement			
	2021	2022	2023
Patrol Hours	125	155	274
Administrative Hours	22.5	24	57
Total Hours	147.5	179	331
Warnings Issued	11	16	28
Citation Issued	5	12	11
Citations/Warnings Issued	16	28	39

See Something – Say Something

Another initiative that was implemented was the *See Something - Say Something* program. The program allows the public to report violations that they witness. If you see a violation and would like to report it, there are several methods to report it.

- An application has been added to blprd.com to allow users to report violations. A QR code has been developed and is published in brochures, and on the new signage at boat landings. The QR code can be scanned and routes to a form at blprd.com, and to our Water Patrol for follow-up.
- Text the Water Patrol at 715-554-7848.

When reporting violations, please leave as much information as possible: your name, phone number, the date and time, a description of the violation, the location where the violation occurred, a description of the driver, along with the identification number of the boat, and any other pertinent information, including a video if possible. The Water Patrol will follow up on the violation.

Additional Enforcement

Patrol hours increased from 155 in 2022 to 274 in 2023, an increase of 119 hours, a significant increase year to year. Citations/Warnings issued also increased, from 28 in 2022, to 39 in 2023.

Per Chief Thompson, the most common warning is for Slow No Wake violations. Boaters on Balsam Lake do not follow SNW rules well. Boats must be 100 feet from shore/docks etc. PWCs must be 200 feet from shore/docks, etc., AND stay 100 feet from any other vessel. Then, in SNW zones, all vessels must operate at SNW.

SNW is the *speed at which a boat moves as slowly as possible while still maintaining steerage control*. It does not mean “gee, I slowed down,” or “I was only going 5 miles per hour,” it means the *slowest possible speed*. As soon as the boat starts moving when you engage the drive, that’s as fast as you go. If it is windy or adverse, it may be slightly more than that to *maintain steerage control*. Otherwise, it means the slowest speed that gets the boat to start moving.

The most common citation written is to people operating watercraft without having completed a boaters safety course, realized when they are pulled over for other violations. Anyone born on or after January 1, 1989 must pass a boater safety course to operate a motor boat in Wisconsin and carry a boater education card.

Boater Safety Classes

We are hoping to revive the in-person Boater Safety Classes that were traditionally held on Memorial Day weekend. Many of you may remember these classes from the past when they were considered a rite of passage for new boaters on Balsam Lake. The course is also offered at boat-ed.com/wisconsin.

Boating Accidents

Unfortunately, we have had several accidents with injuries on the lake this summer. Please help us by ensuring that anyone who operates a watercraft on the lake knows, and abides by boating rules and regulations, and is trained and qualified to operate the watercraft.

Deputy Position

We have an opening for a Water Patrol deputy. If you know of an active or retired law enforcement officer, or someone interested in a law enforcement career, see the job posting on page 11 in this newsletter. Thanks again, to the Balsam Lake Homeowners Association for partnering with us on funding the Water Patrol. ●

Clean Boats Clean Waters 2023



The Clean Boats and Clean Waters program completed the 2023 monitoring through the middle of October. The results of the people contacted are listed below.

Landing	Entering	Leaving	People Contacted
Village Beach	1,526	1,069	5,635
Highway 46	1,434	834	4,976
East Balsam landing	296	128	933
Little Balsam Landing	107	31	254
Total	3,363	2,062	11,798

Help Wanted

2024 Summer Opening Balsam Lake Water Safety Patrol Officer

BLPRD strives to promote a welcoming, safe, and inviting destination for the numerous and diverse activities on Balsam Lake. There is an opening for a Water Safety Patrol Officer under the supervision of the Chief of the Water Safety patrol. It is a position of high responsibility and includes enforcing federal, state, and local Balsam Lake regulations and ordinances, protecting persons and property, educating, and helping to ensure a safe recreational environment for everyone. They provide on-the-lake patrol that includes presence and enforcement, investigation of complaints and accidents, and emergency first aid.

This seasonal position requires a minimum of 60 hours per year on Balsam Lake, in addition to boater safety course instructor duties. The person has strong interpersonal and communication skills, and can operate a boat as much of the work takes place on the lake. They have been trained in and have the ability to understand and enforce Federal, State, and Local regulations and ordinances.

Additional qualifications include maintaining Police Certification, Minimum Training hours, EVOC, and Weapon Qualifications.

For a full list of responsibilities, qualifications, and more details, please see the BLPRD.COM web site for the job posting.

The contact for this position is: Chief Tommy Thompson Email: Thomas.thompson@balsamlakepolice.org Phone: 715-419-4675

Balsam Lake District Manager

The Balsam Lake Protection and Rehabilitation District (BLPRD) has an important job opening for a Balsam Lake District Manager that will supervise and contribute to many of the programs that are contemplated and established for Balsam Lake. We are reaching out to our Balsam Lake Homeowners Association members and friends of Balsam Lake to help us identify interested parties. Perhaps you may be interested yourself?

The Balsam Lake Protection and Rehabilitation District (BLPRD.COM) is a local, special-purpose unit of government dedicated to improving and protecting the water quality, ecological health, water safety and recreational values of Balsam Lake.

The Balsam Lake District Manager is responsible for carrying out all District programs and projects such as long-term lake management planning, grants, weed harvesting, Clean Boats Clean Waters, Water Patrol, water quality, aquatic vegetation, fisheries, invasive species, lake/land use, shoreline health, conservation, water safety, and communication with community, local, state, and federal partners.

This position for Balsam Lake District Manager is based in Balsam Lake, Wisconsin, with remote options as appropriate, and will operate under the direction and supervision of the BLPRD Board of Commissioners, reporting directly to the board chair.

For a full list of responsibilities and qualifications and additional job description details, please go to www.blprd.com/employment-opportunities/

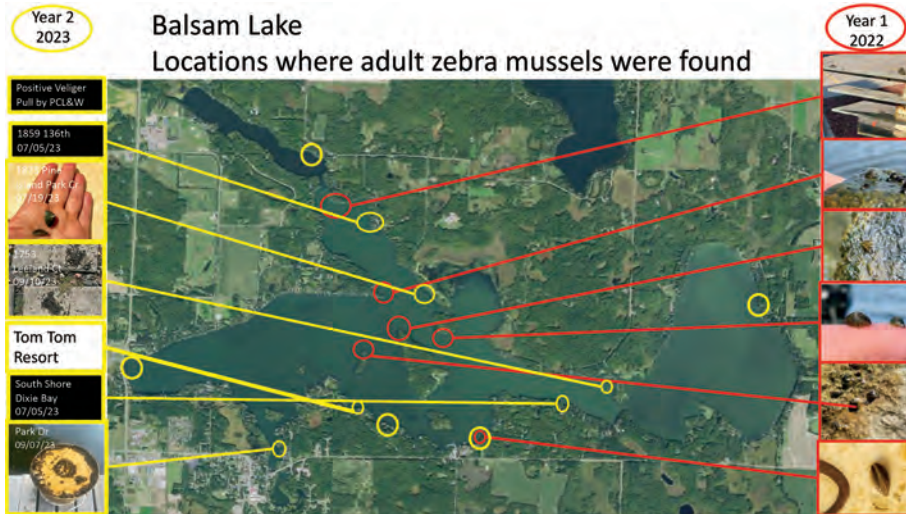
If you are interested, or you know someone who could fulfill this important position, please email background information and interest to BLPRD Board Chair Tom Kelly at tkell01@comcast.net or 612-508-0879.

Dock Side

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

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2022-2023 Progression of spread of zebra mussels on Balsam Lake



Clean, Drain, Dry...
 every water body,
 every time. Before
 launching and before
 leaving the water
 access:

CLEAN off visible aquatic
 plants, animals and mud
 from boat, trailer and all
 equipment.

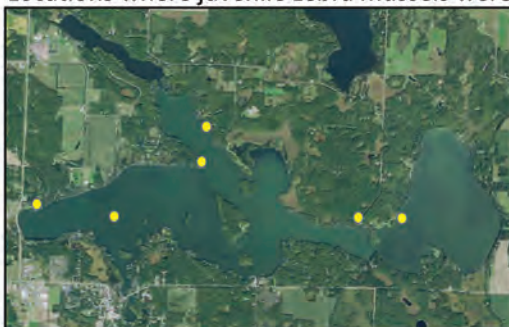
DRAIN motor, bilge, live
 well and any other water-
 containing devices.

DRY everything for at
 least five days before
 reuse or disinfect.

NEVER MOVE fish or bait
 from one body of water to
 another.

stopaquaticinvasives.org

Locations where juvenile zebra mussels were found 2022/2023



**2 juveniles
 Zebra Mussels
 found in
 every liter (33
 oz.) of water
 sampled**

Location of veliger (juvenile zebra mussels) sample sites 2022. -- The concentration was **0.0006/L**.
 Location of veliger (juvenile zebra mussels) sample sites 2023 -- The concentration was **2.07/L**