Dock Side

Volume XXVIII • Issue #2 | Newsletter of the Balsam Lake Protection & Rehabilitation District | Fall 2022

Zebra Mussels Confirmed in Balsam Lake

by Dale Ulbrich

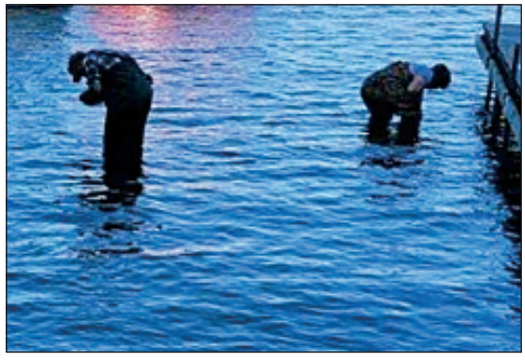
Manage Native & Invasive Plants/Species

In late June of 2022, a resident along the north shore of Boston Bay, by the narrows, found what they thought was a zebra mussel attached to a native species of mussel. The mussel specimen was turned into one of the Clean Boats Clean Waters attendants at the Little Balsam landing. The mussel was sent to the Wisconsin Department of Natural Resources and Polk County Land and Water Resources Department and was positively identified as an adult zebra mussel.

Adult zebra mussels discovered in Boston Bay, June 2022

Balsam Lake has a Rapid Response Strategy in our Aquatic Invasive Species Plan that was approved by WDNR in 2021. The BLPRD plan provides instruction to WDNR and PCLWRD if an invasive species is identified in the lake. Within one week of identification of the zebra mussel, coordinated teams were on the lake searching for evidence of additional zebra mussels.

The teams used rakes in the shallow areas near where the zebra mussel was found. Divers also searched the area but no additional mussels were identified. Additionally, the team dragged nets around several areas of Balsam Lake looking for *veligers*, the juvenile form of zebra mussel. In the drag net, no veliger was identified. A zebra mussel monitoring plate was installed in the discovery location at this time. A check by the lake biologist of the other 10 zebra mussel monitoring stations installed at all five lake access points since 2020 revealed no additional zebra mussels; encouraging, but not the end of the story.



Rocks, sticks, clams, and other hard surfaces being searched for signs of zebra mussels.

In August and September, the Aquatic Invasive Species team did two additional veliger drags and netted two young zebra mussels – further evidence that zebra mussels may be reproducing in Balsam Lake. During this same time period the team from WDNR and PCLWRD explored additional areas of the lake uncovering several zebra mussel clusters of varying sizes. These clusters were discovered at the monitoring plate located where the first mussel was discovered. Several other locations also revealed the presence of adult zebra mussels—around the sand bar, Bear Island, and Carlson Island, indicating that zebra mussels have been in parts of the lake for over a year.

The variety of stages of zebra mussels found, from veligers to adults, provides a good indication of the duration of their presence in the lake. Additionally, the shell of a zebra mussel has rings, much like a tree, indicating years of growth thus allowing for the age identification. The largest mussels seen so far are about one year old.

—continued on page 3

What's Inside

CHAIRMAN'S LETTER

Fall 2022

Hopefully the summer lake season was enjoyable for all. It was an active season for the board as we focused on the following initiatives:

East Balsam Water Quality / Alum – We had a successful application of Alum this summer. The phosphorus, chlorophyll, algae, and water clarity continue to improve relative to the gains achieved with our first application in 2020. More information is available in this newsletter courtesy of Commissioner Wilhoit.

APM Plan / Harvesting / Herbicide – Commissioner Weix has taken the lead on the District's aquatic plant management activities. Referencing the District APM plan, it was determined that herbicide treatment for the north and south CLP beds was needed this season. Harvesting continues in East Balsam, although somewhat reserved given the delay in aquatic plants this season.

Water Safety Patrol – Commissioner Schneider successfully led the installation of a "no wake zone" adjacent to Sunnyside Marina. The boat patrol experienced increased enforcement activity this season despite occasional mechanical problems.

Large Wave Boats – The board obtained and reviewed scientific studies and member feedback related to large/enhanced wave boats and the impact on shoreline erosion and safety. A subcommittee of the board led by Commissioner Schneider is identifying potential initiatives to mitigate this growing concern.

The board has directed our water safety patrol to increase its vigilance of no wake zone DNR ordinances (see map on page 10) in 2023 while it develops and communicates to our members and the public potential new local ordinances further mitigating shoreline erosion and safety issues caused by large/enhanced waves.

Please communicate with your family members and visitors to comply with no wake ordinances; steer clear of narrow areas of the lake when wake surfing or creating an enhanced/large wake.

Clean Boats Clean Waters (CBCW) – Boat inspections continue to increase as our lake is a popular destination for day watercraft enthusiasts. Data for 2022 are included in this newsletter.

Finance – Year to date we are favorable to budget. The 2023 budget was approved at the October meeting, watercraft cleaning stations were incorporated into the budget as well as increased water patrol personnel.

Planning for the 2024 East Balsam alum application is underway in anticipation of the continued success of this initiative and support of our district members.

Zebra Mussels – An adult zebra mussel was discovered in Boston Bay in late June. Subsequent findings by the DNR and Polk County Land and Water Resources Dept. of immature and adult zebra mussels in the main basin occurred. Thank you to Polk County Land and Water Resources Dept., as well as Wisc. DNR for their efforts in qualifying this event. Other Polk County lakes with confirmed zebra mussels findings include Deer Lake and Lake Wapogasset.

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

The Red bellied woodpecker keeps us company all winter long.

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.

2022-23 Meeting Dates	
December 17	June 17
January 21	**Annual Meeting: July 15, 2023**
February 18	
March 18	September 16
April 15	October 21
May 20	November 18

Balsam Lake Protection & Rehabilitation District Commissioners

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Term Expires 2025

Bill Mork, Vice Chairman
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Home: 651-492-3313
Email: dmmaria@msn.com
(Appointed by Polk County)

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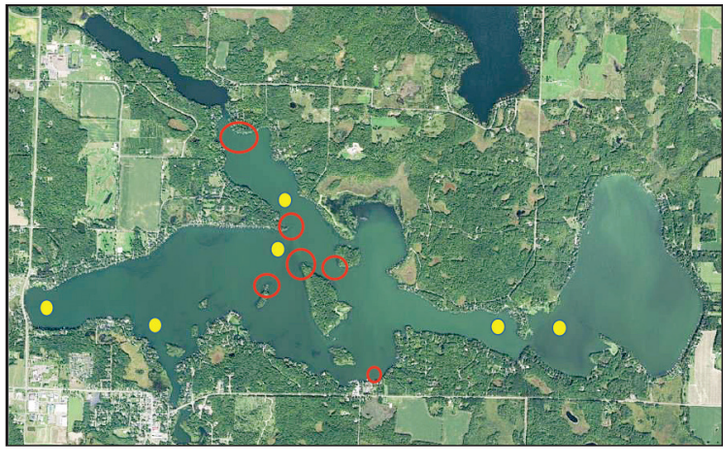
www.blprd.com

Zebra Mussels Confirmed in Balsam Lake —continued from page 1

Unfortunately, controlling the infestation is not an easy option today because zebra mussels have no known natural predators. Additionally, the few available pesticides and chemical treatments have not been shown to be very beneficial because they are not species selective, meaning that they kill the native fish, native mussels and clams too. According to WDNR, these chemicals tend to work best in more contained, smaller water bodies. Given the size of Balsam Lake and the number of locations where zebra mussels have been found so far, these treatments are not viable options as well as being cost prohibitive.

With a zebra mussel infestation, you can expect several changes to the lake's ecosystem. Neighbors on nearby Deer Lake, which has had zebra mussels since 2015, report dock poles, boats, lifts, rocks and other hard surfaces covered with zebra mussels. The mussels are very sharp, so swim shoes are required to avoid cuts and scrapes. Zebra mussels feed on plankton, the base food source for the food chain. The zebra mussels create competition for food with the native fish and animals trying to live in Balsam Lake, leading to a reduction in fish present.

Zebra mussels are very effective filters, as can be seen in the transformation of Lake Michigan. When zebra mussels were discover in that lake in the 1960s the water was characteristically green-brown, like that of Balsam Lake. In the last 20 years, Lake Michigan water has become so unnaturally crystal-clear, that although quite desirable to look at, it's an inhospitable environment for walleye, bass, and panfish that don't do well in very clear water. The clear water also allows more sunlight to reach deeper into the water leading to more weed growth, hindering navigation; also, the clear water worsens algae blooms.



Adult zebra mussels were found in Balsam Lake in the areas circled red. Veliger testing (testing for immature/microscopic zebra mussels) was conducted at the yellow dots.

BLPRD will continue to partner with WDNR and PCLWRD to monitor the lake for the presence of zebra mussels as well as the rate of the spread throughout the lake. Depending upon the number of specimens found, basic aging of individual mussels can be evaluated to assess the age structure within the lake. BLPRD will keep residents informed of the impact. Manual methods of removal as well as monitoring new solutions for eradication will also continue to be evaluated. Results from zebra mussels studies being performed today by WDNR, and with other agencies across the country, will be assessed to understand the success of new methods of control and their potential application on Balsam Lake.

New training for the Clean Boats Clean Waters attendants will be performed with instructions to make lake users aware of the infestation and to encourage caution when leaving Balsam Lake so as not to spread zebra mussels to other lakes. Boat cleaning stations are being pursued for installation at all boat landings in the spring of 2023. Cleaning stations may seem like too much too late but can help prevent additional zebra mussels from being introduced into more sections of the lake along with preventing the introduction of other invasives like Eurasian water milfoil, rainbow smelt, rusty crayfish, and spiny water fleas — species that are found in 26 lakes and rivers in Polk and surrounding counties.

New signage will be added at the boat launches to warn boaters using the lake about the risk of zebra mussels, with instructions to clean, drain and dry boats, live wells, and bait buckets before leaving the launch. A Polk County ordinance (see sidebar) makes it an offense to transport invasive species away from a boat landing with fines of $400 to $2,000. The ordinance also requires mandatory cleaning of your boat before entering and before leaving the water body if a decontamination station is available for use. ●

***Polk County, Wisconsin Code of Ordinances, Chapter 24, Article III** prohibits launching or operating on a public roadway any boat, boat trailer, or hunting, trapping, fishing, or boating equipment, including canoes, lines, anchors, nets, decoys, and waders if aquatic plants or invasive animals are attached. If a decontamination station is available for use at a pubic or private access, the boater shall decontaminate equipment per posted directions using the station provided and/or pursuant to the direction of decontamination personnel present.

Manage Native & Invasive Plants/Species

Living with Zebra Mussels

IDENTIFICATION

- D-shaped shell
- Alternating light and dark bands
- Adults up to 1¼ inches in length
- Attach to hard surfaces by byssal threads (unique to invasive mussels)

INFORMATION

- Life span is 3-9 years
- Microscopic when immature (called a *veliger*).
- Females can produce up to a million veligers a season that are free floating in water for 3-5 weeks.
- Physical movement of water allows for veliger dispersal.
- 2-3 percent of veligers reach adulthood.
- Can reproduce at one year of age.
- Reproduction occurs when the water temp is above 54 degrees Fahrenheit.
- Mostly found in 6 to 40 feet of water.
- Can filter up to one liter of water per day.
- Do not prefer direct sunlight, most often found on the underside of structures.

DECONTAMINATION

Follow these steps to prevent the establishment of other invasive species and prevent the spread of zebra mussels to other lakes.

- Drain all water from boats, ballasts, live wells, and any other equipment.
- Remove all aquatic vegetation.
- Remove (scrape) all adults off equipment (docks, lifts, boats).
- Briefly run motor out of water. (Veligers can be in intake lines and can damage motors and could spread zebra mussels to another lake.)
- Spray all equipment that contacted lake water with a bleach solution to kill veligers (2 T. of bleach/gallon of water).
- Dry equipment for 5 days.
- Dispose bait in trash after use if it was exposed to lake water.

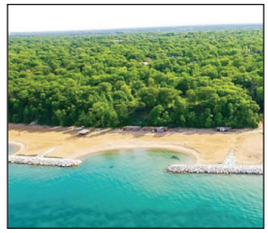
ECOSYSTEM ALTERATIONS

Zebra mussels are filter feeders that remove plankton from the water.

- Increase in water clarity as plankton are filtered out of the water.
- Increase in light penetration and plant growth as clarity increases.
- Increase in blue green algae as zebra mussels avoid their consumption.
- Decrease in native mussel population.
- Decrease in food (plankton) for fish.
- Changes in aquatic life abundance and species composition.
- Decrease in dissolved oxygen during population die off events.
- Exponential increase in zebra mussels in early stages of the population.

RECREATIONAL ALTERATIONS

- Submerged equipment becomes covered with zebra mussels.
- Intake pipes/pumps become clogged with zebra mussels.
- Consider storing boats on lifts fully out of water.
- Shells may wash up on shore as zebra mussels die.
- Need for footwear when walking in the lake.
- Need for gloves when handling equipment stored in water (docks, lifts, rafts).



Zebra mussels are very effective filters, as can be seen in the transformation of Lake Michigan. When zebra mussels were discover there in the 1960s the water was characteristically green-brown, like that of Balsam Lake. In the last 20 years, Lake Michigan water has become unnaturally crystal-clear (above).

Source: Polk County Land and Water Resources Dept.
Colton Sorensen (715-485-8639)
or colton.sorensen@polkcountywi.gov
Katelin Anderson (715-485-8637)
or katelin.anderson@polkcountywi.gov

Wisconsin Department of Natural Resources
Tyler Mesalk (715-416-5066) tyler.mesalk@wisconsin.gov

Manage
Native & Invasive
Plants/Species

Boat Cleaning Stations Approved

by Dale Ulbrich

At the BLPRD Annual Meeting in July, the board received overwhelming constituent approval to pursue the acquisition of boat cleaning stations for the boat launches on Balsam Lake.

The goal of the cleaning stations is to empower boaters to take action to help protect Balsam Lake from further infestations or the introduction of new invasive species. A 2022 study by WDNR recognized Balsam Lake as susceptible to the invasives Eurasian water milfoil, spiny water flea, rusty crayfish, and rainbow smelt. Zebra mussels were just confirmed in Balsam Lake by WDNR, joining the list of three other invasive species already in the lake: curly-leaf pondweed, Chinese mystery snail, and narrow leaf cattails.

In 2021 there were 3,649 boats recorded entering Balsam Lake at Clean Boats Clean Waters (CBCW) monitored boat landings. The estimated number of boats entering and leaving the lake likely doubles to 7,200 in summer, when considering the traffic during unmonitored days and times, representing a high potential risk to the lake's ecosystem and the potential for loss in property value. One study by WDNR showed a 13 percent reduction in property value and related tax revenue by the county when Eurasian water milfoil was present. The loss in tax revenue could make it even more difficult to fund the required weed harvesting and spraying that becomes necessary.

There are more than twelve fishing tournaments each summer on Balsam Lake. Tournament data, along with CBCW landing data reveals that many of the boats are coming from lakes infested with Eurasian water milfoil and other invasives. In Polk and surrounding counties, WDNR has identified 26 lakes and river systems infested with invasive species currently not found in Balsam Lake.

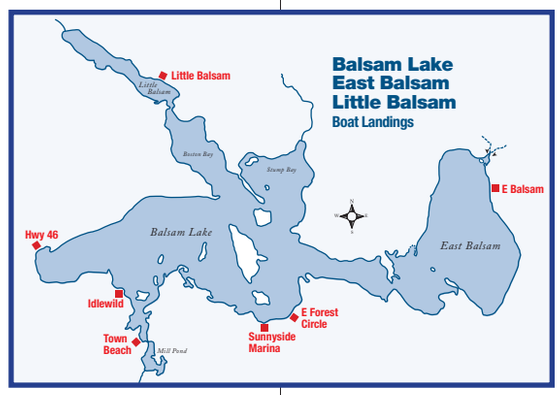
Each year approximately $30,000 in tax dollars are spent harvesting the invasive curly-leaf pondweed from Balsam Lake to keep it from spreading and crowding out native plants, as well as making navigation less difficult. It only takes a fragment of an invasive plant like Eurasian water milfoil, carried on a boat or trailer, to begin to spread in Balsam Lake.

Currently, boaters are asked to inspect their boat and trailer when entering or leaving Balsam Lake. The boat cleaning stations will provide tools to clean weeds from boats and trailers, drain boat hulls and livewells of microscopic and immature animals, and to dry boats and livewells, reducing the risk of transporting live invasive species into or out of Balsam Lake.

The cleaning station works on the premise that "everyone likes a clean boat". With convenient, available tools, the ability to clean your boat is made quick and easy.

A Polk County ordinance (see page 3 sidebar) requires mandatory cleaning of your boat before entering and before leaving the water body if a decontamination station is available for use.

In early September, BLPRD learned that WDNR was recommending our grant applications for boat cleaning stations be moved forward for final consideration. The final application deadline was in November and grant awards will be announced in mid-February 2023. The remaining budget will be covered by available BLPRD funds. Installation will happen in the spring of 2023 in time for the new boating season. ●



CD3 boat cleaning stations will be installed at Balsam Lake landings marked in the map. Below, a CD3 station installed at Bone Lake's north landing. The unit includes a blower to dry wet surfaces, a vacuum for removing water and debris, long-handled tools to reach under boat and trailer, and a light for nighttime use.

Manage
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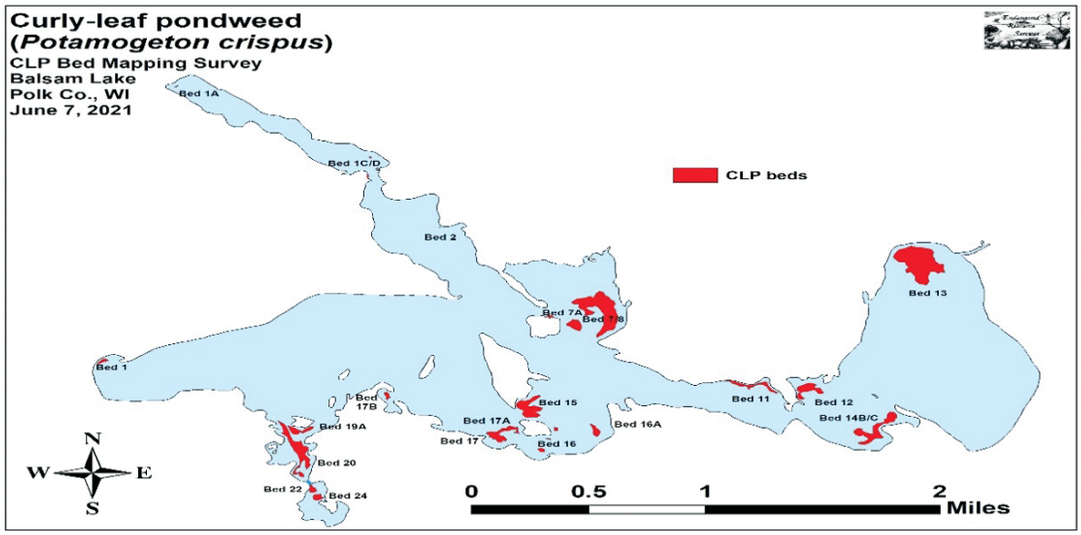
Plants/Species

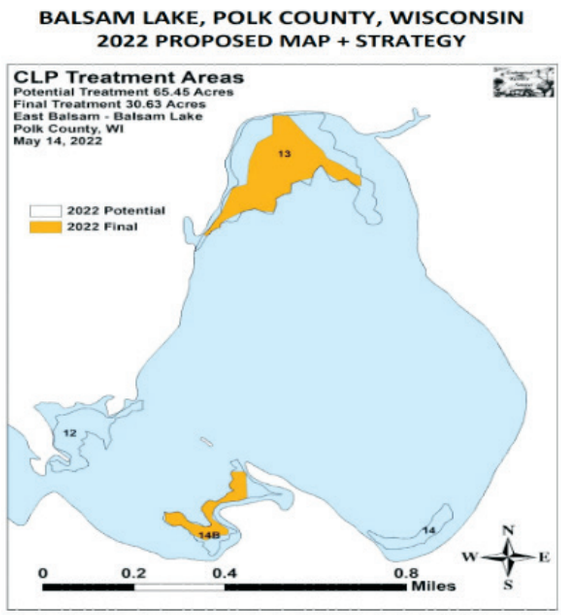
Curly-leaf Pondweed Harvesting and Navigation Update

The 2022 harvesting of CLP and maintaining navigation channels on Balsam Lake was a busy one this year. The District's harvesting team covered the entire lake harvesting over 40 loads from 24 identified CLP beds from June to August. Every year in mid-May an updated site map is developed by the Wisconsin DNR and provided to the District for review and analysis.

A survey completed by lake biologist Matt Berg from Wisconsin DNR determined that the CLP beds identified in East Balsam remain present. Based on survey results and optimal weather conditions in mid-June it was determined through our aquatic plant management plan (APM) to chemically treat approximately 30 acres of CLP beds in East Balsam. While herbicide treatments are effective it has been our position to mechanically harvest CLP when possible for the benefit of the native plants and water quality. ●



CLP beds and treatment area.



A curly-leaf pondweed turion (seed) and stem.

Improve / Maintain
Nutrient Level & Water Clarity

2022 East Balsam Alum Treatment

by Andy Wilhoit

As the 2022 season comes to a close a brief update on the progress and process moving forward with the East Balsam alum treatment.

The second of four applications was applied to the East Balsam basin in June 2022. The application was scheduled to last five days but was slightly delayed due to trucking issues—the lack of drivers—not due to weather. The process at the East Balsam landing lasted a few more days than originally scheduled, but the complete application was completed as prescribed by Solitude Lakes Management. A thank you to all of the residents near the East Balsam landing for their patience and cooperation during the application.

At the BLRPD annual meeting an update was made regarding the results of the first application.

Data from Bill James and his staff indicated the first treatment was a success. In early fall this year BLRPD received another update on the condition of the second application. Again, all indicators reflect that there are significant improvements to the level of phosphorus, chlorophyll and the clarity of the water measured by secchi depth.

The District will continue to work with Bill James and his staff at the University of Wisconsin Stout to monitor the water conditions into 2023 and we will give an update at the annual meeting on July 15th, 2023. A vote to approve the third alum application will take place after the update on the water conditions of East Balsam. The third alum application, if approved, would take place in summer 2024.

If you have any questions regarding the Alum application, please contact me: Andy@Wilhoit.org. ●

Enhance
Water Safety

Water Patrol

by Gary Schneider

As the 2022 boating season comes to an end, our scorecard shows positive results. Due to mechanical issues, the Water Patrol Boat was unavailable for 5 or 6 weekends. Even with the boat issues, we showed significant increases in hours worked, patrol hours, citations, and warnings.

	2022	2021
Patrol Hours	155	125
Administrative Hours	24	22.5
Total Hours	**179**	**147.5**

Citations	12	5
Warnings	16	11
Total Citations/Warnings	**28**	**16**

The goals for the 2023 season are to increase patrol hours, review staffing options, evaluate the reliability of the present Water Patrol Boat, and create a plan for replacing the boat in the future.

Thanks to the Balsam Lake Homeowners Association for partnering with us on funding the Water Patrol, and to Chief Tommy Thompson for his work in enforcing our boating ordinances and promoting safe boating on Balsam Lake. ●

Boater safety course

Anyone born on or after January 1, 1989 must pass a boater safety class to operate a motor boat in Wisconsin and carry a boater education card. The Boating Safety course is offered online. Go to **boat-ed.com/wisconsin** to access the course materials and take the test.

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Land-based Invasive Species

This past summer in late July the Polk County Land and Water Resources Dept. (PCLWR) along with the Wild Rivers Conservancy (WRC) teamed up to raise and release the *Galerucella* beetle in both Town Bay and East Balsam for the purpose of eradicating purple loosestrife.

Purple loosestrife is an invasive wetland plant which has a negative impact on native plants. It spreads rapidly as the tiny seeds are moved by wind, water, wildlife and humans. It quickly creates dense growth along shoreline areas making it difficult to access open water and it overtakes the native aquatic plants.

The *Galerucella* beetles feed extensively on the foliage of purple loosestrife plants, stressing the plant enough that it is unable to produce seeds. In 2023 both the PLCWR and WRC again plan to expand the release of the beetles in both Town Bay and East Balsam. ●

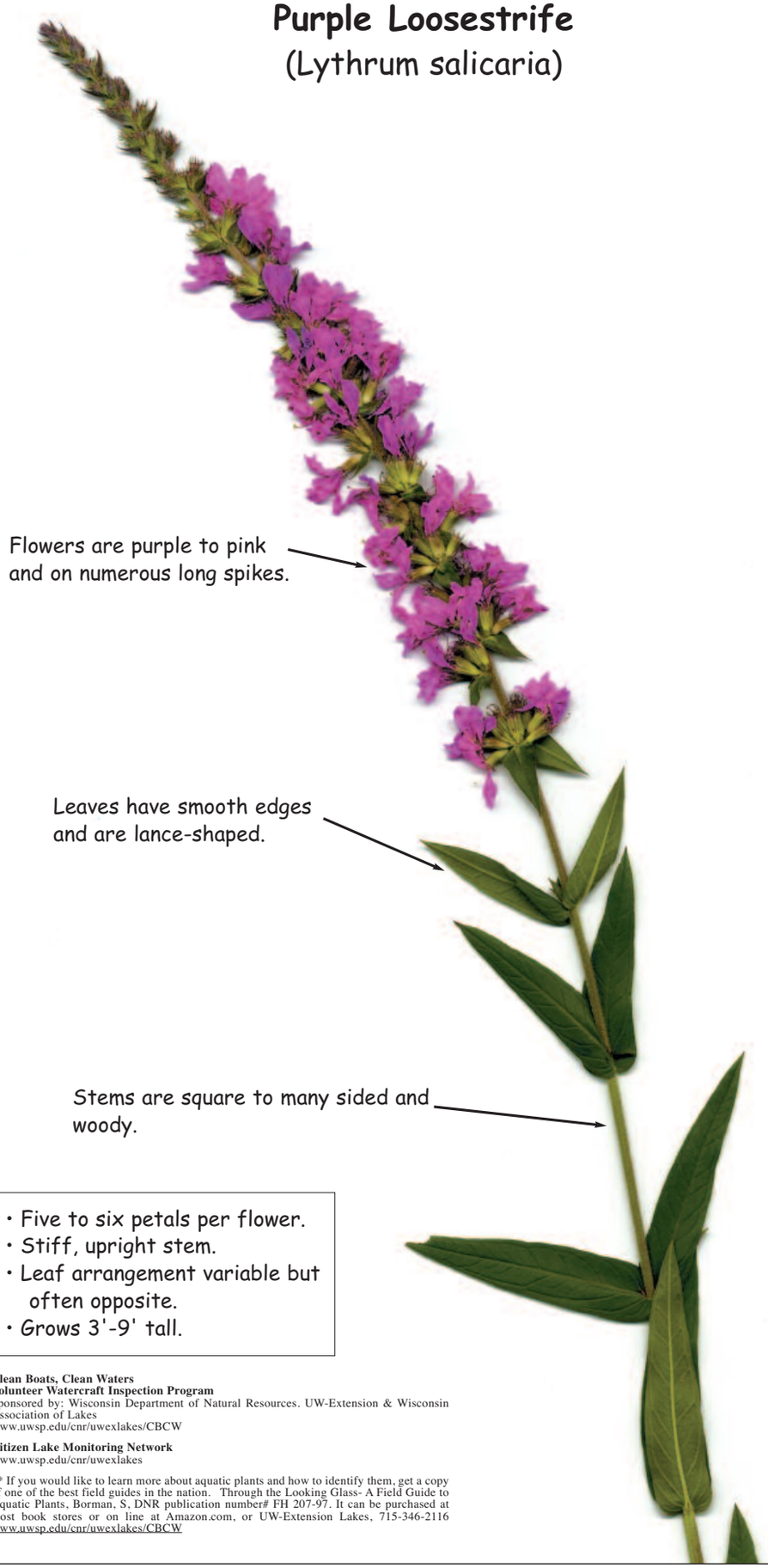
Above: Loosestrife beetles are propogated on potted purple loosestrife plants held in cages until released at an infested site.

Right: Loosestrife beetle larvae attacking a purple loosetrife plant.

PHOTO: CHRIS HAMERLA

Galerucella calmariensis is a species of leaf beetle in the family Chrysomelidae. It is commonly known as the black-margined loosestrife beetle and is native to Europe and Asia where both adults and larvae feed on purple loosestrife. The beetles are about 0.15 to 0.3 inches (4 -6 mm) in length. Larvae are about the same size.

Purple Loosestrife
(Lythrum salicaria)



- Five to six petals per flower.
- Stiff, upright stem.
- Leaf arrangement variable but often opposite.
- Grows 3'-9' tall.

Clean Boats, Clean Waters
Volunteer Watercraft Inspection Program
Sponsored by: Wisconsin Department of Natural Resources. UW-Extension & Wisconsin Association of Lakes
www.uwsp.edu/cnr/uwexlakes/CBCW

Citizen Lake Monitoring Network
www.uwsp.edu/cnr/uwexlakes

** If you would like to learn more about aquatic plants and how to identify them, get a copy of one of the best field guides in the nation. Through the Looking Glass- A Field Guide to Aquatic Plants, Borman, S, DNR publication number# FH 207-97. It can be purchased at most book stores or on line at Amazon.com, or UW-Extension Lakes, 715-346-2116 www.uwsp.edu/cnr/uwexlakes/CBCW

Purple loosestrife grows in wet soils and along the lakeshore. It looks like many other purple flowering plants. Use this photo and description to accurately identify it.

If you find purple loosestrife growing, contact BLPRD Commissioner Bill Mork at 612-599-8678 or email bmork@ckco-cpa.com.

Enhance Recreation & Navigation

Large/Enhanced Wave Watercraft

Recent public comments and feedback from our member survey indicate that large/enhanced wakes created by watercraft are a concern of our members.

The BLPRD Board of Commissioners has created a sub-committee to determine if modified, no wake ordinances are required to reduce the potential danger to other boaters and the erosion caused by the large waves that they create.

The subcommittee is reviewing studies already conducted in other states and municipalities for options to acknowledge the popularity of this water sport while balancing safety and environmental concerns.

The plan going forward is:

Education/Communication Water Patrol, Annual Meeting, Dockside articles, signage, handouts, brochures and lake maps showing no wake zones.

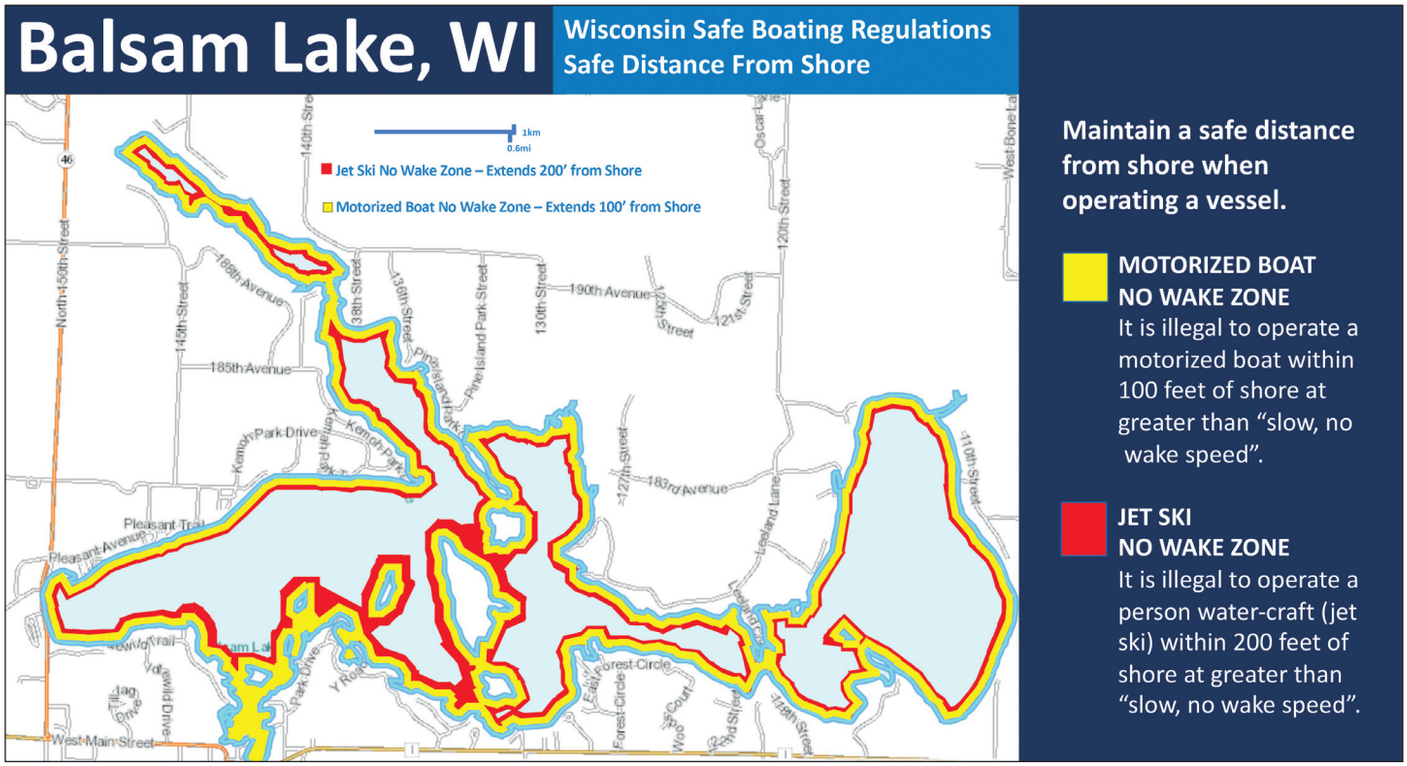
Public Comments A Public Comment meeting is anticipated to be held early this summer to accommodate input from our members and the public.

Increased Enforcement The Water Patrol will be stepping up its enforcement regarding wake zone compliance for the 2023 boating season.

Potential New Wake Zone Ordinance The BLPRD Board will review public comments and survey results to determine if new regulations are required. If so, the Board will develop local ordinances and present them to Legal, DNR, and Law Enforcement for review and approval. If approved by the board, the target would be having the regulations in place and enforced for the 2024 boating season.

BLPRD is committed to providing a safe and environmentally friendly space for all boaters to enjoy the waters of Balsam Lake. We look forward to your input. ●

SCAN THE CODE TO DOWNLOAD Field Study of Maximum Wave Height, Total Wave Energy, and Maximum Wave Power Produced by Four Recreational Boats on a Freshwater Lake. conservancy.umn.edu



Manage
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Plants/Species

Clean Boats Clean Waters

The Clean Boats and Clean Waters program completed year 2022 monitoring through the middle of October. The results of the people contacted are listed below.

stopaquatichitchhikers.org

LANDING	ENTERING	LEAVING	PEOPLE CONTACTED
Village Beach	1,462	764	5,020
Highway 46	1,576	929	5,672
East Balsam Landing	374	140	1,086
Little Balsam Landing	237	131	843
Total	3,649	1,964	12,621

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.**

Balsam Lake — beautiful in all seasons.
Photos: Dale Ulbrich.

Dock Side

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

Parting Shot. Remembering summer sunsets on Balsam Lake. Photo: Tom Kelly.