



Loon Family, Aaron Crawford

## Happy spring to all!

After talking with a neighbor recently, he mentioned having a picture of the lake last year at this time where there was open water. I'm holding to the fact that spring is fighting hard to come to us very soon. I'm thankful the snow is mostly melted except for a few snow piles here and there. But I am ready for hints of warmer weather.

The Board and the Water Quality Committee have been very busy since our last newsletter. You will notice from the articles that we are lucky to have an amazing group of dedicated members working diligently on keeping the lake free from invasive species, maintaining a healthy lake shore, learning everything they can to keep our lake and surrounding area healthy, and maintaining the lake's quiet feel.

This is my last "Message from the President" article as my term is coming to a close. I have been on the board for multiple terms

and feel I am able to leave knowing that our Board has a strong mission to protect the lake. If you see any of the members of the Board or Water Quality Committee around, please thank them for doing a great job. I also want to thank Beth Johnson for working so hard on our website and newsletter. She has done a wonderful job.

It has been such a pleasure serving on the Board. I have learned much from my fellow and former Board members and am humbled by how hard they work for all of us. And I have formed many friendships and have appreciated learning many of your stories.

Please note that the AIS Workshop is May 27, the annual boat parade is July 2nd and the annual Board meeting is July 23rd. Stay tuned.

Michelle Veilette, Board President

## NEWSLETTER INDEX

Many thanks to all of the contributors.

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## ANNUAL DUES

Annual dues for 2022 of \$50 may now be paid any time. As in the past, one option is to send a check to Diamond Lakers, Box 543 Cable, WI 54821. We have investigated a number of options to try and simplify the process and made some progress. Online bill pay services like Venmo and PayPal all charge a fee for us to receive payments, and web servers like ours add an additional layer of service fees. So, for now at least, we are not adopting any of those options.

However, if your bank offers a "Bill Pay" service or an ACH external transfer option, you can have a check deposited directly to the Diamond Lakers account. The routing number for our account at the Chippewa Valley Bank is **091509468** and the account number is **227256**. In addition, if you happen to have an account with any branch of Chippewa Valley Bank, you/we can arrange an internal transfer, even if you do not have the Bill Pay option.

As the DL Association is a 501(c)(3) private non-profit corporation, your dues (and any additional contributions you choose to make!) are tax-deductible. There are also several practical benefits to membership, in addition to knowing that your contributions are 100% supporting efforts to preserve the natural qualities of the lake and surrounding environment. The winter propane buy-ahead discount can more than pay for the cost of membership, and members receive an updated copy of the DL Directory and an image map showing names with cabin locations, available only to Diamond Lakers. Thanks to Bob Jacobel, we have a new map (below) this year made from high-resolution aerial imagery acquired in 2016 during the leaf-off season that can be expanded and shows the lake and surroundings in remarkable detail.

Diamond Lake Leaf-off





## DNR GRANT AWARDED

**2-25-22** We received a second grant of \$6600 from the WI DNR to help us monitor water quality on the lake this summer. The grant was written by Board member, Pat Arndt, and will be managed by our Water Quality Subcommittee led by Ed Wallen. Like our AIS grant in 2021, the award requires an in-kind contribution from our membership of at least 80 hours of help with water sampling and monitoring. So Ed wants us all to be aware of the many opportunities to participate. (See information on the next page.)

### Why did we apply for a grant?

Our DL Strategic Plan calls for Diamond Lake property owners and lake users to "protect, maintain and improve the water quality and ecosystem of Diamond Lake," recognized as one of Wisconsin's premier lakes. Over the last decade, Diamond Lake has fluctuated between what is characterized as a mesotrophic lake (containing moderate amounts of nutrients, and containing healthy, diverse populations of aquatic plants, algae,

and fish) and an oligotrophic lake (generally very clear, deep, and cold lake. The lake substrate is typically firm and sandy. Nutrient levels are low, so the lake generally does not support large populations of aquatic plants, animals, or algae). This fluctuation in the interpretation in our lake characteristics or lake type has caused the DL Association to seek funding to find out why this is occurring and to determine if and what future actions are needed to protect, maintain and improve water quality.

### What will the grant be used for?

To hire a consultant (Ecological Integrity Service, LLC, an aquatic biology firm that works on other lakes in the area) to assess and help us understand what factors affect DL's water quality by:

- \* *analyzing the rich history of data that has been collected*
- \* *evaluating the watershed characteristics*
- \* *developing a water budget analysis of Diamond Lake from inputs (tributaries, rainfall monitoring, and landcover runoff estimates) and outputs (outflow of Eighteen Mile Creek and evaporation)*
- \* *producing a hydrological and nutrient budget model from the above, by January of next year (2023)*
- \* *developing a predictive model for potential lake management actions*

*DNR Grant Continued...*

## Here's how YOU can get involved!

In addition to the "Citizen Lake Monitoring" (CLM) program which has accumulated data for several decades, the new grant will incorporate the following for which we will be requesting volunteer assistance:

1- Readings for "Diamond Lake Stage" (site #1 below) which will occur near the outlet to 18 mile creek. This volunteer effort will involve taking weekly readings from the calibrated stake that will be placed in the lake in order to record lake levels. Hence, we will need 1 volunteer/week for 24 weeks from May-Oct. **SIGN UP HERE**

2. Take water samples (10) at sites #2 and 3 (below) from May-Sept. to be used for measuring Phosphorus at these sites. A "Sampler" device will be supplied. We will need one volunteer for each of the five months from May to Sept.

### **SIGN UP HERE**

In addition, we will need two households to volunteer to take **daily rainfall measurements**, performed via a standard rainfall gauge (spring-fall) at your home. Gauges will be provided. Speak with Ed Wallen, if interested.

[The deep hole south location (site #4) will continue to be sampled for depth and temperature as a part of our ongoing CLM program. Ed Wallen will take care of this.]

Diamond Lake 2022 Nutrient Study



### **1 VOLUNTEER/WEEK for 24 WEEKS**

NEEDED TO MEASURE LAKE LEVEL  
EACH WEEK (MAY to OCT) at:

**#1—Diamond Lake Stage**

### **1 VOLUNTEER/MONTH for 5 MONTHS**

NEEDED TO TAKE WATER SAMPLES  
EACH MONTH (FOR PHOSPHORUS)  
AT 2 SITES (MAY to SEPT) at:

**#2—Wetland Inlet and**

**#3—Eighteen Mile Inlet**

Volunteers may begin signing up NOW with the links provided on this page.

Our grant consultant, Steve Schieffer will conduct a workshop with our volunteers. Stay tuned for date and time.



Membership Photo Submittals. Thank you!



**Stan and Jesse Meschievitz pulled the Loon Island to their shore for needed repairs on October 11, 2021.**



Although Spring is here, We have this beautiful memory from Brad Johnson, taken March 8, 2022.



## Final Report Received from our Baseline Plant Survey

By Bob Jacobel

The final report from our August 2021 plant baseline survey was delivered in mid February from Matthew Berg, research biologist with Endangered Research Services LLC of St. Croix Falls. As described in more detail in the DL Fall 2021 Newsletter, the Point Intercept Macrophyte Survey derives its name from utilizing a pre-established grid of hundreds of GPS points that are sampled according to the lake bathymetry. Data are recorded at locations with a shallow bed (and more plants) at a higher density than deeper areas where there are few or no plants. The grid can thus be resurveyed precisely in future years.

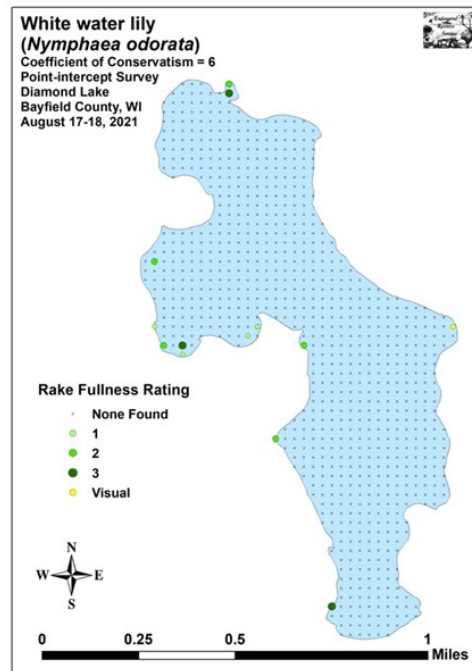
The final report confirms the very positive news from the preliminary results last fall that found no evidence of Eurasian water-milfoil, Curly-leaf pondweed, or any other fully aquatic exotic plant in Diamond Lake. Corroborating the earlier results, the report states that, "Diamond Lake has a truly exceptional native plant community that is dominated by high-value species that are both sensitive to human impacts and regionally uncommon." Specific findings show that species diversity (defined in the report) is exceptional, and species richness is "high," with over 60 species found.

The full report runs over 100 pages and contains many beautiful plant photos, tables and maps of plant distribution, so interested readers are encouraged to follow the link to a version that can be downloaded or viewed online. [See Link.](#)



*White water lily (Nymphaea odorata)*

As one example from the report, a floating-leaf species commonly found in nutrient-rich organic substrates throughout Diamond Lake, is White water lily (*Nymphaea odorata*). The protective canopy cover provided by plants in this group is often utilized by panfish and bass. The map shows the 887 survey points and the locations where White water lily was found in the rake samples.



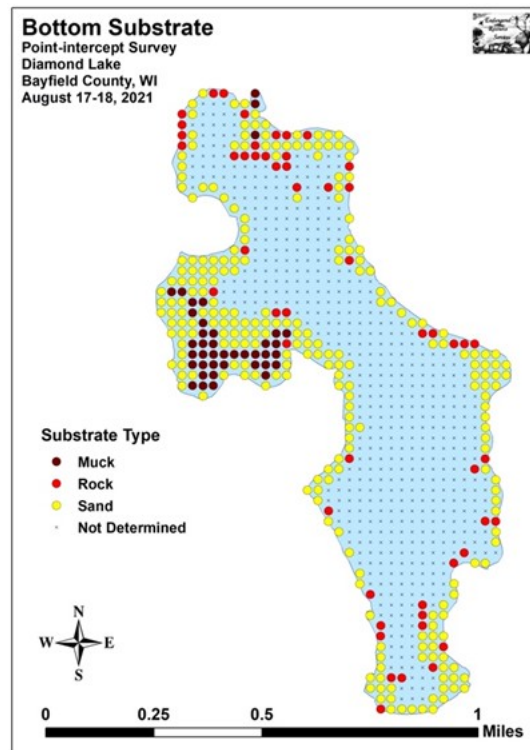




*Wild calla (Calla palustris)*

Another flowering plant found in more limited numbers adjacent to several of the seep inlets, is Wild calla (*Calla palustris*).

The figure at the right is a different example from the lake maps in the report that shows the GPS survey points and the results of bottom substrate conditions (sand, muck, rock) where the rakes reached the bed.



*Waterwort (Elatine minima)*

Shallow sandy habitats localized along less-developed shoreline areas on the lake support an often limited number of species that are regionally uncommon to rare. These plants, which are extremely sensitive to human disturbance, include Waterwort (*Elatine minima*). All of these “turf” species help stabilize the bottom and prevent wave action erosion and are known to be sensitive to habitat modification, making them potentially vulnerable to lake wide extinction.



*Common forget-me-not*

While the survey fortunately did not find evidence of exotic invasives, two non-native species that are present are Common forget-me-not (photo) and Reed canary grass. Each was growing in a small patch immediately adjacent to the culvert at the boat landing. According to the DNR, eradication of these species is not feasible without widespread use of herbicide (undesirable!) but control can be maintained by residents simply pulling up the plants.

#### **Conclusions and an Important Message for Diamond Lakers**

The report concludes with a number of management considerations and suggestions to us for preserving the lake's high quality and sensitive native plant communities. "Despite the overall positive news, the lake's small size and relatively low littoral percentage means there is no room for complacency as even a small increase in nutrient inputs could negatively impact clarity.

"Because of this, residents should continually evaluate how their **shoreline practices** may be impacting the lake. These include: working to maintain water clarity and limit nutrient inputs along the lakeshore by **establishing buffer strips** of native vegetation, **eliminating fertilizer** applications, **bagging grass clippings**, **removing pet waste**, **disposing of fire pit ash** away from the lake, **maintaining septic systems**, and **avoiding motor startups** in shallow water."

The plant baseline study and report was funded in part by Diamond Lakers dues with major support from a grant from the WI DNR.

Monitoring for invasive species is not a one-time event and we will need to continue our vigilance at the boat launch and with our own watercraft, as well as with future surveys. Stay tuned for more information about water quality and these best management practices for maintaining a high-quality aquatic environment for Diamond Lake.



***Invasive Species Education Workshop***  
***May 27, 2:00 p.m.***  
***(For Everyone!)***

Everyone breathed a huge sigh of relief with the very encouraging news from our two AIS surveys last summer. No evidence of Eurasian water-milfoil, Curly-leaf pondweed, or any other fully aquatic exotic plant was found in Diamond Lake. But as noted in the report from the baseline survey on page 8 in this issue, monitoring for invasive species is not a one-time event, and we will need to continue our vigilance at the boat launch and with our own watercraft, as well as with future surveys. Another important way for us to continue vigilance is to become knowledgeable about identifying invasive species in real time in the lake.

To that end, we have arranged a workshop on identifying invasive species to be conducted by two experts: Tyler Mesalk of the NDR and Andy Teal, Invasive Species Coordinator for Bayfield County. Tyler and Andy did our first AIS targeted survey last June, and both are great at helping people in the general public recognize invasive species.



Zebra mussel



Purple Loosestrife

The workshop is scheduled on the **Friday of Memorial Day weekend, May 27<sup>th</sup> at 2:00 PM** at the home of Monica and Ed Wallen at 20165 North Diamond Lake Drive. Our plan is to have live samples from the lake in addition to printed handouts\*. Please set aside the date and plan to attend, all are welcome. If you have questions about the event contact [Ed Wallen](#).

*[\*We have obtained a number of useful shoreland management educational materials/ pamphlets from the Bayfield County Conservation Department. These materials are available through the DL Association Board, and will be available at the AIS workshop on May 27.]*



Eurasian water-milfoil

## Nighttime Boating

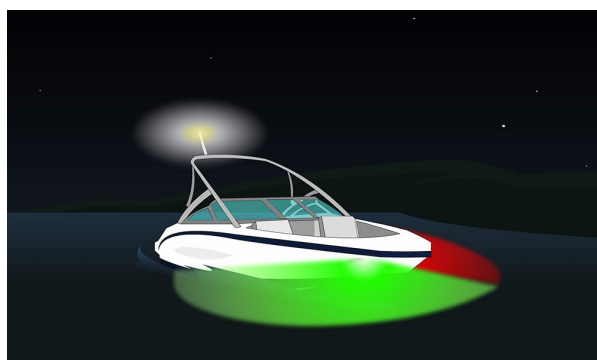
Scott Johnson

Many of us like an evening or nighttime cruise around the lake... but do we know about the proper and safe use of our boat lights especially when it comes to docking lights? Wisconsin navigation light requirements are found here:

*Navigation lights must be on from sunset to sunrise  
and during periods of restricted visibility.*

**Motorboats** less than 40 feet long must display a combination red/green light in the bow and a 360-degree white light in the stern while underway. The Red light must be displayed on the port side of the boat and the green light on the starboard side. The lights are the “stop & go” lights on water. If you see red then you do not have the right of way and are the “give way vessel”. If you see green then you do have the right of way and are the “privileged vessel”. **No other lights (including docking lights) may be used which could be mistaken for or interfere with those required.**

**Non-motorized boats:** Must carry a lantern or light that can be displayed in sufficient time to avoid a collision with another watercraft. Light needs to be bright enough to be able to be seen for 2 or more miles. Every moored, anchored and drifting boat outside of anchorages or beyond 200 feet from shore shall be lighted from sunset to sunrise by a white light visible around the horizon.



## Boat Wakes – A Plea from the Board

Last summer Board members received several complaints about damage to docks, shoreline areas, and swamped boats caused by large wakes from a boat or boats. In one case the dock of a cabin on the west side near the mid lake was damaged by a large wake. Several other incidents involved boats at the north end that were swamped or nearly tipped by large wakes on more than one occasion. The Board has received similar complaints in prior years as well.

### Some Background

Boats designed for wake boarding or wake surfing utilize enhanced wake-generating capability by adding ballast to keep the stern low in the water or by deploying enhanced mechanical hydrofoil(s) to generate larger and deeper waves. Wakes can also be enhanced with more powerful traditional boats operating at transitional speed (just below hydroplaning). These waves are much larger than those from traditional ski boats or jet skis and do not dissipate over distance (more below). Damage can also occur from any craft operated at speed too close to the shore or another boat.



Many communities have raised concerns about larger wakes causing unsafe conditions for swimmers, paddle craft and smaller boats. Other adverse effects such as increases in shoreline and near-shore erosion, damage to shoreland aquatic vegetation, and collateral damage to docks or vessels and other structures have also been raised.

An often-cited study prepared for the Water Sports Industry Association in 2015 claims (falsely) that these larger wakes intended for riding die out quickly and are no higher than those from traditional watercraft after 100 feet or so. The study says that wave energy is dissipated against the bottom as waves approach the shore (true) but downplays the fact that wave height increases substantially in shallow water (what surfing is all about!), and that aquatic plants grow on the bottom in shallower water where the energy is being 'dissipated.'

More recently a number of studies of wave impacts from wake boats have been undertaken by a variety of municipalities, lake organizations, and consultants. Notably, in February of this year the University of Minnesota's St. Anthony Falls Fluid Mechanics Lab (SAFL) released a long anticipated and very thorough research study comparing waves from traditional towing craft and wake boats. The MN state Legislature had been considering a (very limited) state-wide ordinance (actually favored by the boat manufacturers), but it was delayed by proponents of an even more stringent regulation in order to be able to include the new peer-reviewed research. See the press release from Minnesota Public Radio News about the study [here](#).



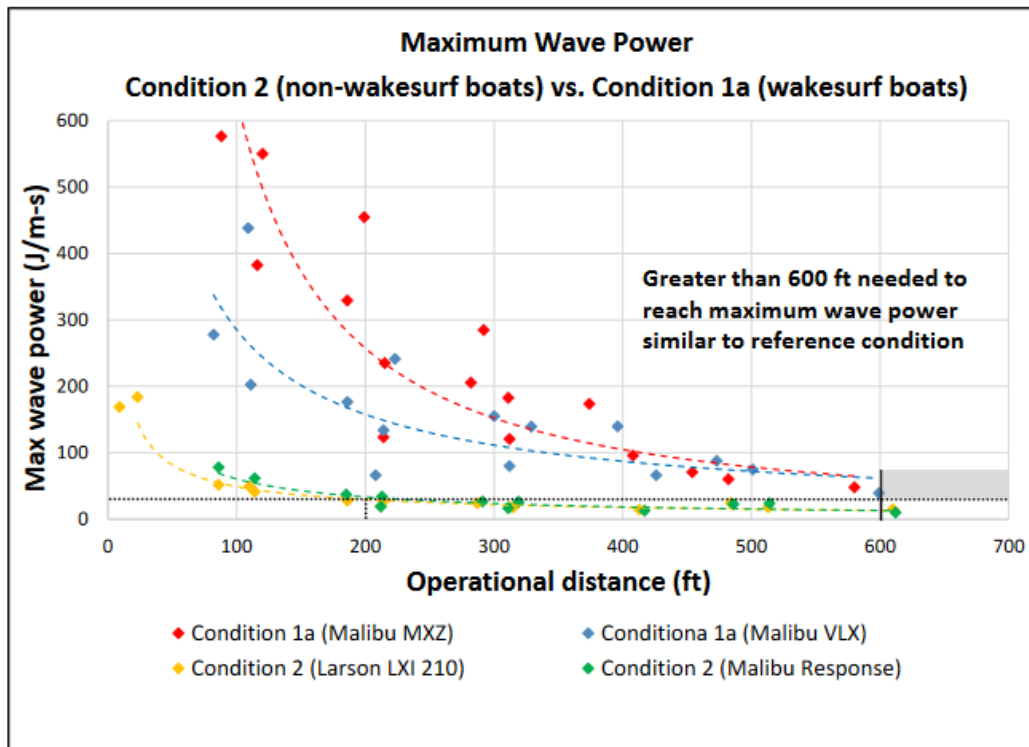


Figure 47 from the SAFL study cited in the text showing a comparison of the power of waves generated by two traditional tow boats operating in hydroplane mode (yellow and green points) versus two wake boats (red and blue symbols). Waves from the wake boats at 600 feet distance were still more powerful than those from traditional tow boats at 200 feet.

The results of the SAFL research, [document](#) (among other things) that waves produced for wake surfing are up to six times more powerful than traditional ski boat waves at 100 feet, and have the potential to produce much greater damage. For example, a distance greater than 600 feet is needed for wake boat wave characteristics to decrease to levels similar to traditional ski boats operating in hydroplaning mode. See the figure above.

Existing Wisconsin state statutes require a no-wake zone for boats within 100 feet of a shoreline or another craft. For personal watercraft, the restriction is 200 feet. Small lakes of less than 50 acres may now be classified as no-wake entirely, since little area can exist inside the restricted zone. Lakes like ours (320 acres) are larger than that limit but small enough that even wakes generated in the middle easily reach the shore with considerable amplitude and energy.

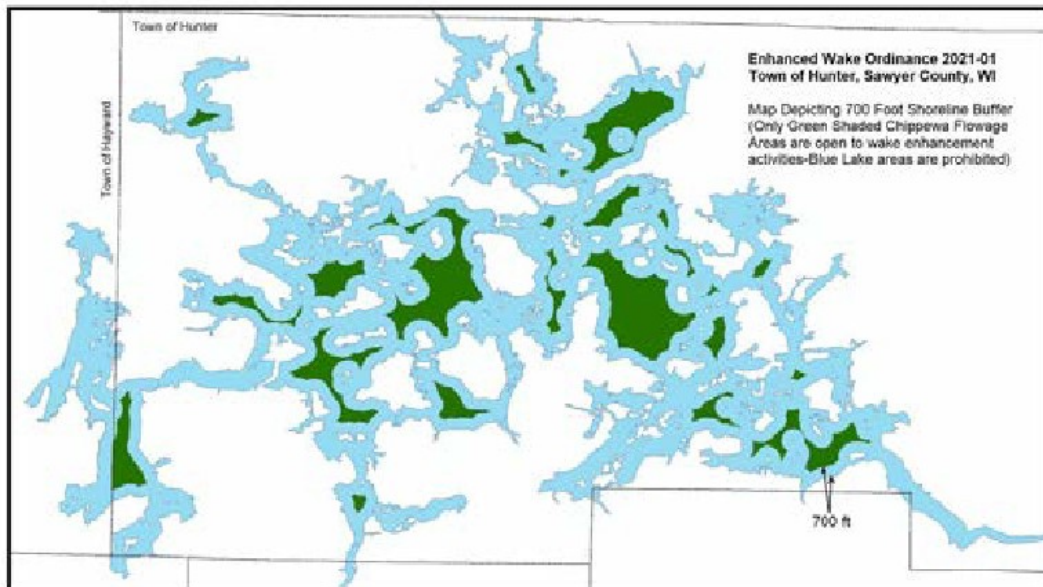
With traditional watercraft, a 100 or 200 foot limit offers some protection to the shoreline and other craft because of the dissipation of wakes over distance. But not so with the more enhanced wake capability of boats designed for wake surfing, as the graph above shows.

### Community Responses

A growing trend in some communities has been to formally restrict large wakes beyond the 100/200 rules. The DNR will allow these regulations if applicants can show that safety or damage is an issue. One example is the township of Presque Isle in nearby Vilas County (northcentral WI) which undertook a very thorough [Condition Report](#) for the WI DNR to approve a proposed wake ordinance. The study documents physical conditions and wake impacts of large wakes on local lakes and reports the results of extensive surveys of public attitudes about wake boats. Confirming the results of similar studies done [elsewhere](#), their report documents that wake boat waves are much larger than wind-generated waves on any of the lakes in the area.

Closer to home, the town of Hunter in the Chippewa Flowage (Sawyer County) has instituted a regulation prohibiting any boat operated in such a way as to produce a wake in excess of two feet, anywhere within 700 feet of shoreline or where the water depth is less than 16 feet. The map just below shows that this excludes most of the area in the flowage.

The city of Hayward last summer enacted a similar 700-foot [ordinance](#). For reference, a 700-foot restriction for Diamond Lake would eliminate large wakes on all but a very small doughnut hole area near the widest part of the lake, much smaller than the green areas shown in the map below.



*Map of the Chippewa Flowage (Sawyer County) showing areas (in blue) within a distance of 700 foot from the shoreline where wakes are restricted by the new ordinance. Figure is from the Chippewa Flowage Association Newsletter Summer 2021 cited in the text.*

## Board Request

Like the nearby towns of Hunter, Presque Isle and Hayward, some community members are advocating that we work with Grand View township to pass a more restrictive 700 foot shoreline ordinance.

Anecdotal reports indicate that most of the wake problems we have seen to date arise from just a few boats on DL and so, rather than move in the direction of pursuing an ordinance right away, the Board is appealing to our community to minimize the impact of high wakes on safety and property/environmental damage while recreating on Diamond Lake.

Specifically, we are asking anyone who operates a boat for the purpose of wake riding to do so only in the deepest part of the lake, as far from shore as possible. Both the north and south ends of the lake have little room for turning, and the northwest bay is mostly shallower than 12 feet. One of the damaged docks last year is in the middle section of the lake. Such are the limitations of a small lake.

Guests who use your property, and particularly underage operators, should also be instructed about avoiding the problems described above. If you rent property, we also ask that you keep renters apprised and discourage them from creating problems with large wakes, whether from a wake-boat or a traditional boat operated closer than the statute allows.

Under existing state statutes, boat operators of any type are liable for any damages or injury caused by wakes, [Sec 30.68\(4\)\(b\), Wis. Stats.](#), and those seeking redress are encouraged do so under this statute.

What's Next? We want to hear from you!

Please feel welcome to share your thoughts with the Board about this topic or any other concern you have that impacts Diamond Lake or our community.





## *This and That*

### **Enjoying Friends**

Saturday, December 18th, nine north end Diamond Lakers got together for Christmas cheer at the home of Paul Brown. The party goers were from left: Mark and Trish Wilhelm, Ray and Rose Lahti, Pat Arndt, Ed and Monica Wallen, and Paul Brown and Susan Walker.



And three other couples got together at the Kraker home on Saturday, February 12. Those pictured are (bottom to top, left-right) Jeanne Kraker, Frosty Palmer, Mary (Cindy) Palmer, Scott Johnson, Beth Johnson, Tom Kraker.

**Do you know the HISTORY of your cabin property?** Beth Johnson has started digging into piles of documents, but needs your help. Some information has been gleaned from old Diamond Lakers newsletters and old stories (some are found on our website.) Check out the 'work in progress'. [CLICK HERE](#). This list begins with one of the oldest known properties, and works its way clockwise around the lake. You might find mistakes. Dates and names are missing. Hopefully you know more. Please submit updates to our newsletter editor, Beth Johnson, at [sboyumj@gmail.com](mailto:sboyumj@gmail.com) Stories and updates will be shared at our Annual Meeting, July 23... with links on our website and in future newsletters.

**Forest Lodge Library Expansion** — will enable the Cable library to offer enhanced services to patrons and visitors and will fulfill a community need for public meeting space for small and medium groups, including workspace and aligned technology for businesses working remotely. The proposed design allows us to continue to utilize the beloved log cabin as an essential part of the library while the expansion will offer additional resources and services. [See additional information](#).

***"The Telemark, A Northwoods Legend Poised to Rise Again"***

A new article by, Ben Theyerl Feb. 23, 2022. [Click here](#).

**MARK YOUR CALENDAR**

Saturday, May 27—AIS Workshop

Saturday, July 2—Boat Parade

Saturday, July 23—Annual Meeting



*We love our loons!*

Here are “loon cookies”  
created by Jeanne Kraker  
for Ed and Monica Wallen.,  
following Valentine’s Day.



Our **Current Officers** are:

President: Michelle Veillette  
Vice President: Ed Wallen  
Secretary: Dave James  
Treasurer: Bob Jacobel

Directors at large:

Pat Arndt  
Scott Johnson  
Tom Kraker  
Raye Lahti  
Jessie Meschievitz

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Send future newsletter  
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