

Diamond Lake is "Good for the Soul"

Message from President

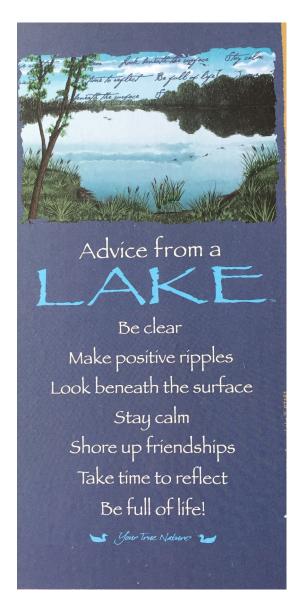
Greetings from the north end of Diamond Lake. I hope you have had a great summer here in God's Country.

Your Board of Directors has been busy since our annual meeting, working on initiatives defined in our Strategic Plan to protect, maintain, and improve the water quality. Please read the minutes from the annual meeting (pgs. 5-9) for an update.

New projects getting started include a boat wash station (and grant) located near the boat launch, a shoreline assessment program, and a high wake ordinance. There will be more information as progress is made on each initiative.

New board members are John Rosebush and Mark Wilhelm. Many thanks to Jessie Meschievitz and Michelle Viellette, outgoing board members who have served us well during their terms! The new board has elected Dave James as Secretary and Scott Johnson as President.

Scott Johnson



WELCOME to our New Members!



Trish and Kris Leaf - Twin Pines After many years of searching for the perfect place we decided Diamond Lake was the place we wanted to be and feel very fortunate to have found the perfect property for us! We were looking for a legacy cabin in the north woods to share all that nature has to offer with family, friends and the next generation! We have 3 grown children- Sophie, Eva and Max- and 2 dogs who are excited to start making memories here. We look forward to experiencing all of the seasons hiking, biking, enjoying the lake, cross country skiing, snow shoeing and meeting the other Diamond Lakers!



July 4th Boat Parade

The annual Fourth of July Boat Parade was held on Saturday evening, July 2, 2022. This year we had 17 participants (including one canoe). Members did a fabulous job decorating their boats and being part of the festivities. See website.

After a unanimous vote at our July 23rd annual meeting, we want to offer a loud CONGRATULATIONS to Mike Goeltz for winning the traveling "paddle" trophy, provided by Tom and Jeanne Kraker. "This year the paddle goes to the paddler."



Mike Goeltz 2023 Boat Winner

DIAMOND LAKERS, INC. - 2022 ANNUAL MEETING July 23, 2022



DIAMOND LAKERS, INC. - 2022 ANNUAL MEETING MINUTES July 23, 2022 -2 pm; Namekagon Town Hall

Members Present	<u>Address</u>			
Arndt, Pat	N. Diamond Lake Drive			
Brown, Paul & Susan Walker	N Diamond Lake Drive			
Carlson, Jules & Sally	N. Diamond Lake Drive			
Chapin, Maureen & Biesecker, Jim	Chapinwood Road			
Doonan, Kate; Doonan, Judy & Twohy, Joe; Nanci Doonan & Jimmy Dixon	Twin Pines Lane			
Jacobel, Bob & Pam	Twin Pines Lane			
James, David &Trina	Diamond Point Road			
Johnson, Scott & Beth	Chapinwood Road			
Klump, Diane	N. Diamond Lake Drive			
Kraker, Tom & Jeanne	Chapinwood Road			
Kruse, Dennis	Canterbury Trail			
Lahti, Raye & Rosemary	Diamond Point Road			
Lauritzen, Ruth & Herb	Diamond Point Road			
Lorenz, Ray & Kathleen	Twin Pines Lane			
Meschievitz, Jessie & Stan	N. Diamond Lake Drive			
Moser, Sally L.	Pioneer Road			
Palmer, Carey & Mary	Twin Pines Lane			
Rabe, Nancy & Virgil, Laurie	Canterbury Trail			
Rosebush, John & Cathy	Pioneer Road			
Slade, Michael & Hart, Julie	Canterbury Trail			
Stivland, Sarah & Todd	N. Diamond Lake Drive			
Trankel, Susan & Budzisz, Brad	Canterbury Trail			
Veillette, Tracy & Michelle	Michelle Canterbury Trail			
Vilmann, Carl & Pat	N. Diamond Lake Drive			
Wallen, Ed & Monica	N. Diamond Lake Drive			
Wilhelm, Mark and Trish	Diamond Point Road			
Wuest, Sarah, Peter & Pat, Dina Berray	Canterbury Trail			

48 individuals, representing 27 out 57 member households were present.

Welcome. President Michelle Viellette opened the meeting by welcoming new members.

Approval of 2021 Meeting Minutes. On a motion by Ed Wallen and second by Jules Carlson, the minutes of the 2021 Diamond Lakers Annual Meeting were unanimously approved.

Boat Parade 2022. President Viellette shared photos from the 2022 annual 4th of July weekend boat parade. On a motion from the James Family and second by Ed Wallen, there was unanimous consent to awarding Mike Goeltz (and his dog Toola) the boat parade paddle. "He who paddles won the paddle!"

Treasurer's Report. The membership received a report on the finances of the organization from Treasurer Jacobel. The graphic was shared:



Nominating Committee Report & Voting. The nominating committee for 2022 consisted of Bob Jacobel, Frosty Palmer and Ed Wallen. Bob Jacobel recounted the committee's process, including contacting 9 potential candidates (in addition to incumbents willing to continue serving on the board). He also explained the move from a structure of 2 year board terms with about half the board up for election each year to the previously approved structure of 3 year terms with 3 seats up each year (in the future). The following graphics was presented to explain the board transition:

Year		2021	2022	2023	2024	2025	2026	2027	2028
Board #1	Dave James		x 3->			x 3->			х
Board #2	Scott Johnson		x 3->			x 3->			х
Board #3	John Rosebush		x 3->			x 3->			х
Board #4	Mark Wilhelm		x 2->		x 3->			х	
Board #5	Raye Lahti		x 2->		x 3->			х	
Board #6	Bob Jacobel	x 3->			x 3->			х	
Board #7	Pat Arndt	х		x 3->			х		
Board #8	Ed Wallen	х		x 3->			х		
Board #9	Tom Kraker	х		x 3->			Х		
# seats char	nging	4	5	3	3	3	3	3	3

Bob Jacobel offered the Nominating Committee's slate of board members that was being forwarded by the board:

PROPOSED BOARD MEMBERS		
Dave James* 2025	3 Year Term	
Scott Johnson* 2025	3 Year Term	
Raye Lahti* 2024	2 Year Term	
John Rosebush 2025	3 Year Term	
Mark Wilhelm 2024	2 Year Term	
*incumbent		

On a motion by Ed Wallen and second by Jules Carlson the slate of proposed board members were unanimously approved.

Water Quality Committee Report. Ed Wallen, as Chair of the Water Quality Committee, introduced the other members of the committee: Michelle Viellette, Pat Arndt, Dr. Todd Stiveland, Ray Lahti, & Dave James.

- 2021 Point Intercept Survey Report. Bob Jacobel recapped the extensive point intercept survey conducted by Matt Berg in 2021. The full report is available on the website. Bob highlighted recommendations laid out in the report for each property owner to consider, including 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.
- AlS Workshop. Ed Wallen recapped the Aquatic Invasive Species identification training held at his house. 15 members participated in the training. It was noted that printed materials that help identify AlS are available to all members.
- 2022 Grant Ed Wallen explained the ongoing field work made possible by the Surface Water Quality program" grant that is funding work of Steve Schieffer (Ecological Integrity Services, LLC"). Steve is working with volunteers to collect water samples, rain gauge data and lake level readings to aid in the completion of a water budget analysis.
- Upcoming Work. Dave James highlighted upcoming work of the Water Quality Committee, to include drafting the report as required by the strategic plan, developing an AIS monitoring schedule, assessing possible 2023 DNR grant applications, including financial assistance for an AIS Cleaning Station, creation of a new loon platform, healthy lakes program providing shoreland restoration

Large Wake Discussion. Dave James and Bob Jacobel led a discussion as a follow-up to the Board's spring communication about the creation of large wakes. The discussion began with an acknowledgment that Diamond Lake is a public trust water available for use and for the benefit of all. There was a brief recap of the prior letter and an update on the actions taken by surrounding communities, including Town of Hayward and both Towns in which Lake Tahkodah is located. The two ordinances covering Lake Tahkodah restrict wakes without reference to distance from shore or docks. The purpose of this agenda item was to get a general sense from the membership about what action, if any, the board should consider taking. It was noted that doing nothing, amending lake association guidelines, or working with the Town of Grand View were all options. There were numerous questions and comments from members present. At the conclusion of the discussion all members present, with the exception of one abstaining member, directed that the board should explore with the Town of Grand View a possible ordinance regarding the creation of large wakes. There was further discussion about providing all members an opportunity to weigh in on the issue by seeking formal input through a member survey.

Wildlife Report. Jessie Meschievitz provided a report on the lake loon pair and wildlife in general. Loon chicks hatched July 11,12, 2022. Last time 2 chicks were reported was 2012—and apparently one didn't survive. The chicks have doubled in size and are diving. This makes them somewhat less vulnerable to predators, boat traffic, fishing entanglements, but the whole family still needs us to observe them from a 200-ft distance if possible. The loon platform originated back in the 1990's when the Sanderson's built their house on the north end. It has needed repairs, renovation through the years and again we need to consider what to do with it to make it appealing and safe for the loons to nest on it. Other wildlife—no nesting eagles this year. A family of 3 otters have been seen, as well as deer, fawns, and bears.

Adjourn – President Viellette closed the meeting by thanking departing board members, volunteers for 2022 Grant, and Beth Johnson for her work on our amazing website: https://www.diamond-lakers.org/

Secretary, David James

Following the adjournment of the meeting, a very informative presentation on Shoreline Assessment was given by Michael Sinclair and Nile Merton of Bay Area Environmental Consulting LLC, Bayfield County.



Large Wakes on Diamond Lake

Bob Jacobel and Board

Diamond Lake is a 322 acre drainage lake in Grand View Township, Bayfield County WI. It has a maximum depth of 83 feet with half of the lake area shallower than 20 feet.

Water quality at present is good to excellent (most recent Secchi values ~ 15/16 feet), and the most recent macrophyte survey (2021) shows that species diversity is excellent with over 60 species identified, some of them rare. Diamond Lake is indeed "a gem".

Beginning the summer of 2020, the DL Board has received an increasing number of complaints from residents about wave damage from wake surfing boats. Complaints range from observations of shoreline erosion to docks and boats swamped, significant property damage to a dock in one case, and danger to the health and safety of swimmers and non-motorized craft impacted by the large wakes.

An additional concern is the potential for acquatic invasive species (AIS) to be spread into Diamond Lake from the ballast used to create enhanced wakes by these crafts. Water is held in tha bladder, that is impossible to drain completely, leading to transport of potentially contaminated water from one lake to another.

Our concerns have led us to scientific studies documenting the impacts of large wakes, and to see what redress has been taken by nearby lake associations and townships.

We have been guided in particular by a recent study done by the University of Minnesota Hydrodynamics Laboratory (2022) that compared boats with wake-enhancing adaptations (mechanical or ballast) with traditional ski boats.

One of the principal findings of this study is that all wakes dissipate over distance, the energy delivered to the shoreline from the wake-enhancing boats took over 600 feet to decrease to the same level as traditional ski boats at 200 feet. At distances of 100 feet, the wave height from wake-enhancing craft was two to three times higher than for traditional ski boats (which was less than 10 inches).

Other studies have begun to document the impact that large wakes have beneath the surface where energy is dissipated as waves reach the shoreline. Sediment is readily mobilized as seen in the marked decrease of in water clarity. Minerals like phosphor can also be released from the sediment, leading to increased eutrophication.

As sediment is disturbed, aquatic plants are also impacted. With over 50% of our lake area at less than 20 feet, we are concerned that the outstanding species diversity currently present in Diamond Lake will be permanently reduced.

Continued from Page 10

Because of the lack of legislation yet at the State level in Wisconsin, a number of lake associations, districts, and townships have adopted statutes limiting large wakes. Nearby, the Lake Tahkodah district this year enacted ordinances limiting the wake height with both Cable and Drummond Townships. In 2021, Hayward township, with several larger lakes, passed a restriction on wake height within 700 feet of shoreline.

Considering the small size of DL, we believe a distance limitation from shore is not practical. We propose a wake height limitation that allows traditional towing activities (water skiing, wake and knee boarding, etc.), but excludes wake-enhancing technology. Due to the great concern over introducing exotic species into DL, we explicitly seek to eliminate the possibility of transfer in ballast tanks by prohibiting their use. (distinguished from 'live wells' for fishing).

August 4, 2022, the DL Board sent a survey to members, asking if they would like the board to pursue an ordinance similar to other area lake associations/districts. Taking into account any duplications, 44 households responded to the survey. 38 voted YES, 4 voted NO, and 2 voted NEUTRAL.

September 14, 2022, Bob Jacobel, Scott Johnson, and Raye Lahti met with the Grand View Town Board (GVTB) to present our case for a need of an ordinance. The board was receptive and understood the situation. They had a few questions that they are currently pursuing with the DNR and other town boards before proceeding.

Stay tuned. We will be sending our Diamond Lakers a copy of a DRAFT ordinance, polling our members, and asking for comments. The entire process towards GVTB approval to proceed, DNR review, public hearing and vote by the Town Board will take several months.

GRANTS AND OTHER BOARD UPDATES following its July 27 &Sept. 7, 2022 board meetings: **Shoreline Assessment Education**—The Board approved tentative plans for shoreline assessment education in July, 2023 in which the entire shoreline of Diamond Lake will be evaluated according to defined footage (not by parcels). This will be the preface to future, long-term efforts toward improvements to the water quality and ecosystems of Diamond Lake which is the core of our strategic plan.

Wash Station – An area has been examined near the boat launch that should serve as an adequate place for a self-service cleaning area. A pre-application grant letter will be sent to the DNR in mid-September.

Loon Platform— Raye Lahti and Mark Wilhelm have reviewed designs and are pricing out materials. See page 16.

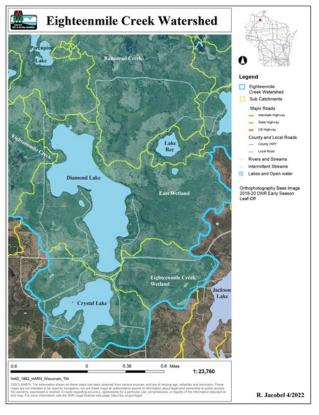
What is a Watershed?

By, Bob Jacobel

According to textbook geologic definitions, a watershed is <u>an area of land</u> that drains all the streams and rainfall to a common outlet such as the outflow of a reservoir, mouth of a bay, or any point along a river or stream channel. It's boundaries are often defined by a ridge of land or "divide" that separates waters flowing to different rivers, basins, or seas.

Diamond Lake is part of the headwaters of the Eighteenmile Creek Watershed, forming a major tributary of the White River that drains into Lake Superior. The outflow stream from Diamond Lake in the northwest corner is called Eighteenmile Creek because headwaters of the creek converge in Section 18 of the Grand View Township, just to the west of Porcupine Lake.

Confusing? Let's back up for a moment and ask why all of this matters. When the Diamond Lake Association received a grant from the DNR this year to study water quality in our lake, one of the key questions we needed to answer is: Where does the water in DL come from, and where does it go? The first part is particularly relevant if we want to understand the potential source(s) of any pollutants or chemicals in the water.

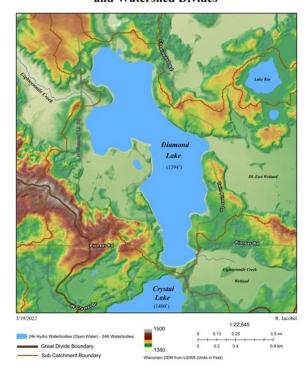


Air photo map of a portion of the headwaters of the Eighteenmile Creek Watershed made with early-season, leaf-off imagery. Blue line is the divide between waters that flow north into Lake Superior and water that flows south into the Mississippi River. Yellow lines are sub-catchment divides for smaller watershed units such as Crystal Lake, Lake Ree, and the Eighteenmile Creek Wetland.

We know generally that the waters of Diamond and Crystal Lakes are relatively pristine because both are located high up near the watershed divide between Lake Superior and the Mississippi River. The US Forest Service District we are located in is known as the Great Divide District because literally it encompasses a segment of the North American continental watershed divide, not the east-west divide of the Rocky Mountains, but an equally important divide between the North Atlantic Ocean and the Gulf of Mexico. More precisely, Pioneer Road runs nearly along a portion of this divide. Lake Namakagon, Jackson Lake, etc. drain to the Mississippi. Diamond Lake, Lake Owen and Crystal Lake drain to the north into Lake Superior. So which is higher, Diamond or Crystal?

It turns out that the level of water in Crystal Lake most of the time is about 6 feet above Diamond Lake: on average 1400' vs 1394' above sea level. The outlet of Crystal flows beneath a (new) culvert under Crystal Lake Road, just south of the junction with Pioneer Rd. That stream flows into a wetland to the southeast of Diamond Lake, and in turn water from that wetland flows through the (new) culvert near the boat launch to Diamond Lake.

Diamond Lake Topography and Watershed Divides



Digital Elevation Model for the Diamond Lake Watershed made from LIDAR with color representing elevation and catchment boundaries in red. Note the outflow from Crystal Lake flows into the Eighteenmile Creek Wetland southeast of DL. Also note the wetland on the east side of Diamond Lake

One of the questions we are addressing in the study is, how much water entering Diamond Lake is from the wetland itself, and how much is from Crystal Lake? The reason this matters is because wetlands in general are great at filtering out all sorts of pollutants including silt, nutrients, lawn runoff, etc.

Another related question is, what are the precise boundaries of the DL watershed and are there any other streams that flow into it? The answer to this comes from a knowledge of the topography surround-ing the lake to locate the divides. Within the last few years NOAA and the US Geological Survey have produced a series of superb topographical maps called digital elevation models, or DEM's. These are made using LIDAR (like RADAR but with a laser beam) flown in an aircraft at low altitude recording the travel-time of thousands of pulses of light per second reflected from the surface as the plane moves in a grid. These LIDARS can measure topography with a precision of about 10 cm (a few inches!), most accurate when the trees are leaf-free, but almost as good at seeing 'through' the trees between the leaves. The DEM's are available for use in Geographic Information Software (GIS) that can turn the precise elevations into maps.

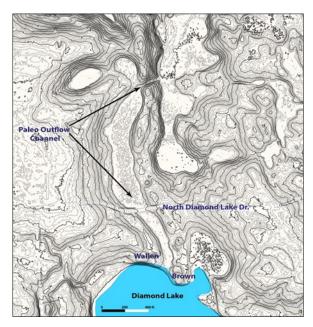
The map to the left is an example of a DEM where I have used colors to depict the elevations around DL. From the topography and the inflow and outflow channels, we can see the watershed boundaries for Diamond Lake also include Crystal Lake and its surrounds, plus the Eighteenmile Creek wetland. The higher elevations on the west side of DL are depicted as 'mountains' because the colors are stretched over a range of just a few hundred feet.

Tracing the watershed boundaries elsewhere around DL, we can also notice another wetland to the east between homes along Twin Pines Lane and Chapinwood Drive. Again one of the questions is how much, if any, water enters DL from the east wetland? This is answered, at least in part, from the DEM which shows (in the raw data) that the wetland elevation is less than 1 foot above the water level in DL, and its slope is less than one foot rise in 1000 feet of distance. It's almost a part of Diamond Lake. What likely happens is that the wetland both gives and receives water from DL depending on the time of the year, snowmelt, rainfall, etc. So it will require some monitoring from our study to sort this out more precisely.

Converting the DEM into a more traditional contour map to display more quantitative information in lieu of the color, I found that the outflow from Crystal lake into the wetland flows close to Pioneer Rd and is not meandering through the wetland as much as we might wish.

The contour maps also provide an interesting look at some of the paleo features of water flow near Diamond Lake left over from the last ice age about 18k years ago. With higher water levels at that time, Diamond and Crystal appear to have been connected across what today is Pioneer Rd. We can see a hint of this in the color map to the right.

Also there is a paleo flow channel at the north end of DL between the Wallen and Brown properties where DL, with higher water levels, drained directly into Porcupine Lake through a very steep and narrow gorge (map at the right). During the last glacial era, ice from the north covered all of the Great Divide region and extended south into central Wisconsin. Later, the ice retreated from south to north back into the Lake Superior basin and beyond, leaving us the surficial deposits, soil and lakes we enjoy today.



Contour map of topography around the north end of Diamond Lake made from LIDAR. Each contour line represents an elevation change of 1 foot, darker lines every 5 feet. Note the former outflow channel to the north.

Visit Our Website

Don't forget to visit our website on a regular basis. We try very hard to have current, updated information posted on the site. When was the last time you checked it out? Why not go there now?

Diamond Lakers Website

AND Check out our work-in-progress with the <u>Cabin Property History.</u>



FYOB (fill your own bottle)! Go to Ashland where you can fill your own bottle with clear, clean, fresh artesian water 24 hours a day! Three Artesian wells can be found at Maslowski Beach, Prentice Park and the Sand Bar Restaurant, 2521 West Lake Shore Drive, just off Turner Road on West U.S. Hwy 2 in Ashland.

Maslowski Beach is a perfect place for a picnic, some rest and relaxation, or maybe just a cool drink in the summer heat. It is part of the Ashland experience. It is cold, refreshing, great tasting and free.

The shelter covering the Maslowski Beach artesian well was completed in January 2017, about one year after the project officially began. According to Ashland Parks and Recreation Director Sara Hudson, "The beautiful timber frame structure, made with tamarack, was designed and built by Dave Suutala from the Hurley area. It has good light and sits on a heated slab, so there won't be inches of ice in the winter. It's ADA compliant so it's big enough for someone who has some mobility issues to be able to enter and get at the water."

Artesian Water in Ashland

Beth Johnson



The water in these Artesian wells flow from an underground aquifer (below Lake Superior), which is a geologic layer of permeable and porous rock such as sandstone or limestone that provides the water source for the artesian well. The aguifer absorbs and stores the water. In an artesian well the porous stone is sandwiched between a top and bottom layer of impermeable rock such as shale or clay. This causes positive pressure, forcing the water to the surface without any sort of assistance. Because it had seeped through many layers of porous rock many of the contaminants are filtered out, providing a much safer and cleaner form of drinking water when compared with surface or river water. The first Artesian well on record was drilled in 1126 by a group of Carthusian Monks in the French province of Artois, hence the name Artesian well.

P.S. Another Artesian well can be found at the end of Matts Lane, north of Grand View.

Loving Our Loons!

Jessie Meschievitz

Thank you to the Allen Kind Family who has given the Association a generous donation for reconstruction of the loon nest platform and a Loving Memorial plaque expressing "To the Loon Family from the Allen Kind Family." Rebuilding the current loon platform will be done this Fall, making use of environment and loon safe materials, and carefully conserving the vegetation from the current platform that has protected the nesting loons from weather and predators, especially eagles, for several years. Thank you to Raye Lahti and Mark Wilhelm who have volunteered to do the work. Appreciation to Paul Brown for storing the platform over the winter on his property to reduce damage from ice coming in and going out.

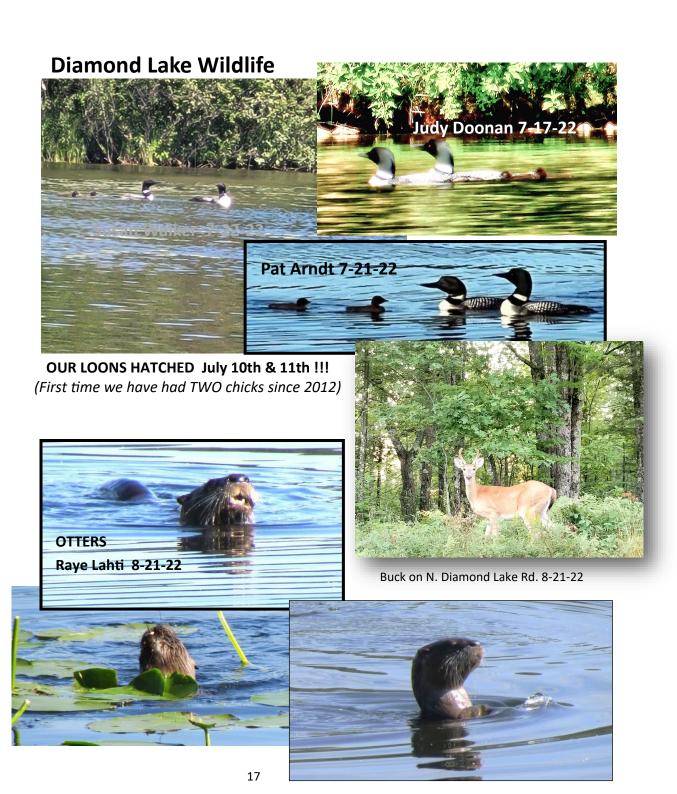
The loon chicks, hatched at an usually late date, July 11 and 12. That date could be due to late ice off, failed attempts to nest earlier, eggs lost. They have survived the many perils of predators, inclement weather, boat traffic, and continue to thrive. They have been observed doing their own foraging for food, spending time without the adults, stretching their wings as flight feathers come in and even doing some practice runs low over the water surface. Per LoonWatch,



Picture by, Susan Walker 7-22-22

Northland College, loon juveniles "fledge" (are able to take care of themselves) at 10-12 weeks and take off for their first migration sometime later in the Fall. The adults will have left before them. The chicks hatched on this lake, will not be allowed back to this lake next Spring by the adults who raised them, or any other pair that may have established themselves here-it's natural territorial behavior. This year's adults certainly have been attentive to raising these chicks, tucked them under their wings when they were so tiny, fed them hardily as seen by their rapid growth, and were so very protective with their warning calls when an eagle flew over, lone loons landed, or water vessels came by. Thank you to all who heeded those calls, and gave the loon family the distance they needed!

Fingers crossed for the return of loons to Diamond Lake next Spring. It sure was entertaining to watch them this summer and let's hope the same pair comes back next year to nest on the new platform, and successfully raise another family!



Jessie Meschievitz's 70th Birthday, 8-8-22

Nine boats / 35 friends celebrating in the middle of the lake $\,$



















FAREWELL SUMMER

L-R: Pat Arndt, Stan Meschievitz, Jessie Meschievitz, Diane Klump, Beth Johnson, Scott Johnson, Mary Daly

BOARD OF DIRECTORS

Our Current Officers are: President: Scott Johnson Vice President: Ed Wallen Secretary: David James Treasurer: Bob Jacobel

Directors at large: Pat Arndt Tom Kraker Raye Lahti John Rosebush Mark Wilhelm

WELCOME AUTUMN



Cable, Wisconsin 54821