

THE LAKER

NORTH LAKE PROTECTION ASSOCIATION www.northlaker.org JULY 2016

NLPA MISSION: *To protect the ecological, recreational and aesthetic well-being of North Lake.*

NLPA ANNUAL MEETING

August 3, 2016, 7:00 pm
Inverness Country Club
13900 North Territorial
EVERYONE WELCOME!

AGENDA:

1. Review 2015 Minutes
2. Treasurer's Report
3. Old Business
 - a. Update on SAD
 - b. Status of Weed Control
 - c. Lily Pad Treatment
 - d. Water Quality Testing
4. New Business
 - a. 2016 SAD Tax Level
 - e. Other Business
5. Election of Officers

NLPA ANNUAL DUES

Please support your NLPA by sending your \$10 dues. We have continuing expenses for studies, mailings, state and federal fees, and other items. Please make checks out to NLPA and send to Dick Frendt in the enclosed envelope. **If you're new to the lake or your email addressed has changed, please include your email address with your dues. We will keep it confidential and only use it for important lake notices.**

MUTE SWAN POPULATION

The non-native Mute Swan reduction program initiated by the MI DNR in 2013 is having a dramatic impact. In 2013 the DNR estimated a statewide population of 17,520 swans. In 2014, the estimate was 9,131, and in 2015 it was 8,748. The DNR goal is to have a steady population of about 2000 by 2030. They attribute the decline to severe winters in 2013-14 and 2014-15, and to the DNR reduction program. They hope to expand the native Trumpeter Swan population as a by-product of this program.

ASSESSMENTS CUT AGAIN!

Two Years in a Row: 50% Reduction!

Washtenaw County again reduced the North Lake Special Assessment District (SAD) rates by fifty percent in our Winter Tax bill that was due at the beginning of 2016. This was due to savings realized in the weed control program and associated costs. The county is limited by law on how much excess funds it can carryover from one term to the next. The SAD collects about \$50,000 per year in assessments, and in 2014 the costs were about \$36,000 and in 2015 they were about \$22,000. It is likely a reduction will occur again this year, depending on how extensive the weed problems are this year. The current Special Assessment District tax collection period ends with the upcoming tax year (2016 Winter Tax bill) but treatment will continue at least through 2017 and possibly through 2018 if sufficient funds remain after the 2017 treatment.

The savings were \$110 for lakefront properties, \$70 for normal lake access parcels and \$35 for North Lake Farms properties. Thank you to the North Lake volunteers who help hold down costs by their contribution of time and expertise.

At the upcoming Annual Meeting, we will vote on tax reductions versus extending the term of lake treatments. Please attend and take part in this discussion.

THE TURTLE LOG

As you approach the Sauer Drive shore on your cruise around the lake, everyone looks to the "turtle log", floating in the Lily Pads, to see how many of the reptiles (not amphibians) are perched there, soaking up a few rays. You may see three or more dozen individuals and up to five species sharing the log. Michigan is home to nine species but some are rarely seen at North Lake. The Snapping Turtle, Musk Turtle, Blanding's Turtle and Map Turtle are hard shell species found in lakes in this area. The Spiney Soft Shell Turtle is also found here.

Like all ectothermic (coldblooded) animals, turtles depend on the sun as an external source of heat to maintain life and normal activity. They spend much time basking on logs, stream banks or other open, sunny places. A basking turtle is able to obtain a body temperature several degrees warmer than the air. In addition, direct sun exposure helps to discourage parasites such as leeches and algae and facilitates production of vitamin D in the skin. Vitamin D is needed to process calcium, important in the growth of the shell and other bones.

The best times to view turtles are in the spring and fall, when turtles sun the most.

As winter approaches and they are no longer able to maintain a warm enough body temperature, turtles decrease their feeding activities. Most Michigan turtles burrow in to the bottom soil of lakes, ponds, and streams to survive the long Michigan winter. The box turtle, a land hibernator, is the exception. Box turtles dig shallow burrows into woodland soil and leaf litter and are able to survive

(con't. pg.2, right col.)



Snapping Turtle
Adult Carapace Length: 8" –19"



Musk Turtle
Adult Carapace Length: 3"–5"



Blanding's Turtle
Adult Carapace Length: 6"–11"



Map Turtle
Adult Carapace Length: 4"–11"



Spiny Softshell Turtle
Adult Carapace Length: 7"–19"

sub-freezing temperatures for many weeks. Even during winter dormancy, turtles occasionally change position, and some, like the painted and Blanding's turtles, can be seen moving slowly about under the ice.

All turtles breathe with lungs, but many aquatic species such as the softshell turtle can absorb oxygen while submerged, either through their skin or by passing water over membranes in the throat or cloaca (an internal chamber that opens at the base of the tail).

The earliest fossil remains of turtles date back about 225 million years to the late Triassic period. For millions of years they shared the planet with the dinosaurs. Unlike the dinosaurs, turtles survived the ecological and climatic changes that caused the extinction of many forms of life. All this was accomplished with little change to their anatomy: early fossils still closely resemble today's turtles. Soft bodies were covered by a bony shell, with an oval shaped skull and beaked mouth; however these early turtles had teeth and had not yet evolved a way of pulling their heads into their shells. Today some 260 species of turtles (including the terrestrial tortoises) are found worldwide in nearly all temperate and tropical habitats.



Photo by Joel Blum – May, 2016

The protective shell is one key to the turtle's survival. Unlike the turtles in children's cartoons, real turtles cannot climb out of their shell: A turtle literally wears part of its skeleton on the outside of its body. A turtle's shell is composed of two parts. The upper portion, or carapace, is formed from the flat dermal bones covered by broad scales (scutes) and is connected to the backbone and ribs. The lower shell is the plastron and includes the abdominal ribs and portions of the shoulder girdle.

The shape and weight of a turtle's shell can provide clues to its lifestyle. Shells can be helmet shaped, like the Blanding's and Eastern Box turtle shells, for better protection against predators. A further adaptation of hinges in the middle of the plastron allows these turtles to partly or fully close their shell, offering even more protection for the head and legs. Shells can also be soft and rubbery like the pancake shaped shell of the fast swimming spiny soft shell turtle, which is covered by skin instead of hard scales. Snapping and Musk turtles have very small, cross shaped plastrons, probably adapted to facilitate walking on pond and lake bottoms. Land living turtles have heavier shells - while these shells offer extra protection from land predators, their weight makes it more difficult to move quickly. The shell of a turtle that spends most of its life in a water environment is lighter in weight and more streamlined in shape.

The turtles' environment includes a unique blend of niches from wetlands, to uplands, to sand sites. Each niche is important to satisfy the separate living, breeding, and feeding requirements of Michigan turtles. When these special habitats are changed or impacted, either through development, chemical contamination, or wetland drainage, the futures of many turtles are placed in jeopardy.

A turtle's beak will reflect its diet. Turtles that eat flesh have hook shaped beaks similar to most raptors. These hooked beaks easily slice and tear food apart. Those that eat vegetation or shellfish have flat, wide beaks useful for mashing a

(con't. pg. 3, right col.)

WEBSITE UPDATE

Do you want to learn more about our lake, read the latest news, or browse old editions of *The Laker*? It's all on the website at Northlaker.org. You can check the lake treatment schedule by clicking the *Aquatic Services, Inc.* link. Our application contractor updates the schedule often, as dates change due to weather and other conditions. If you have news or photos you would like to share, contact our webmaster Mary Lou Frendt or email them to nlpamails@gmail.com.

LILY PADS RESTRICTING YOUR BOAT ACCESS TO THE LAKE?

For the past three years, we treated Lily Pad problems at requested docks. Under our DEQ permit we can treat a 20 foot wide access from your dock to the open water in the lake. This is done on a case by case basis. *If you want an access cleared to your dock, you must send a written request, along with a photo of your dock with home/access in the background for identification purposes.* We want to treat your dock area, not your neighbor's. Send your Lily Pad request, by **August 3**, to:

Richard Frendt, President NLPA
7837 Stonehenge Valley Dr.
Gregory, MI 48137

If you had your dock area treated in 2015, do not send a request this year. We will continue to treat your dock area assuming problems persist and the treatment is determined to be effective.

FISHY STORY

A man was leaving the boat launch one evening with two buckets of fish when a game warden arrived.

"Do you have a license to catch those fish?" he asked.

"Why no, these are my pet fish." the man said. "Every night I bring them here and let them swim. Then I whistle and they come and jump into my buckets. Here, I'll show you".

(con't., to the right)

meal. A few turtle species are largely carnivorous (e.g., Musk, Map, Blanding's, and Softshell turtles). Most, however, eat both plants and animals.

Young Sliders, Painted, Eastern Box, Spotted and Wood turtles consume mostly insects and other small animals but eat more plants and fruits as adults. Contrary to popular belief, most turtles do not consume large numbers of game fish and have little or no impact on fisheries management. Since they are opportunistic feeders, Snapping turtles occasionally capture fish and young waterfowl.

Turtles reproduce by internal fertilization and produce shelled eggs deposited on land. Most mating takes place in spring after a brief courtship, which begins shortly after turtles emerge from their hibernation sites. Courtship displays vary greatly. Male Eastern Box turtles chase their intended mates and nip at their shell edges, or chin. Female painted turtles receive soft toenail strokes from potential mates. Male snapping turtles may fight fierce battles to drive rivals away from a choice breeding territory.

Between late May and early July, a female turtle will leave the water and seek a sunny spot with little or no vegetation and moist, but not saturated, sand or soil. She digs a shallow nest cavity with her hind feet and deposits her clutch of eggs. Depending on species, the eggs may be round or oval and have either hard or flexible shells. The nest is then refilled by the female with excavated materials, without ever having seen the eggs and is abandoned to its fate. Many (probably most) turtle eggs are eaten by raccoons or other predators within a few days of being laid. Those that survive will hatch in two to three months. In most cases, the young head immediately for cover in shallow water (aquatic species) or leaf litter (box turtles). Young painted turtles have the ability to withstand partial freezing and often remain in the nest over winter, emerging in spring.

In most turtle species, gender is determined by the temperature of the egg during a critical part of incubation. In general, male turtles tend to hatch from cooler eggs, and females hatch from warmer eggs. Once hatched, baby turtles can grow quickly for the first few years, with growth slowing as they near adulthood.

Turtles are among the longest living animals on earth. Several species of turtles can live for several decades. With this longevity also comes a negative side. It takes several years for turtles to sexually mature (4 to 10 years for a Painted turtle, 14 to 20 years for a Blanding's or Wood turtle, and 15 years for a Snapping turtle). Non-breeding turtles are often the targets of predators, automobiles, and pet seekers. In addition, the longer life span allows turtles to build up environmental toxins in their tissues. These toxins can have serious effects on a turtle's health and breeding ability.

Draining of wetlands, and increased residential, and commercial development have reduced the habitats of both aquatic and land turtles. Increased development also encourages runoff of contaminants into watersheds, increased traffic volumes, and predators. Raccoons are efficient predators of turtle nests. In some areas, they have been shown to reduce hatching success to zero.

(Most of above article excerpted from MI DNR Website)

Fishy Story (con't.)

He dumped the fish into the lake. The Game Warden, looking skeptical, said: "This I've got to see."

The two men stood there awhile, finally the Game Warden asked:

"Well, are you going to call them?"

"Call who?" the man asked.

"The fish!"

"What fish?"

LAKE LEVEL LOG

From the chart to the right, you will find the lake level in 2015 was the highest of the past four years, and 2012 was the lowest. Each spring the water level was at or higher than the top of the culvert weir at the west end of the lake. The water level quickly recedes as it spills over the weir until it is level with the top, and then gradually recedes due to evaporation, lawn watering and other losses. In mid-summer, we often experience $\frac{1}{4}$ inch loss a day. In 2015 we ended the season (Sep 30) about 4 inches below the top of the weir.

Through July 1 of this year, we are tracking close to the driest year of 2012. The month of June was very dry dropping the lake level by $3\frac{1}{2}$ inches. This puts us $1\frac{1}{2}$ inches below where we ended last season and portends low levels the rest of the season.

UNLUCKY FOUR LEAF CLOVER!

The following article appeared in the October, 2015 issue of *Michigan Lakes and Streams*, by Alisha Davidson, Ph.D.

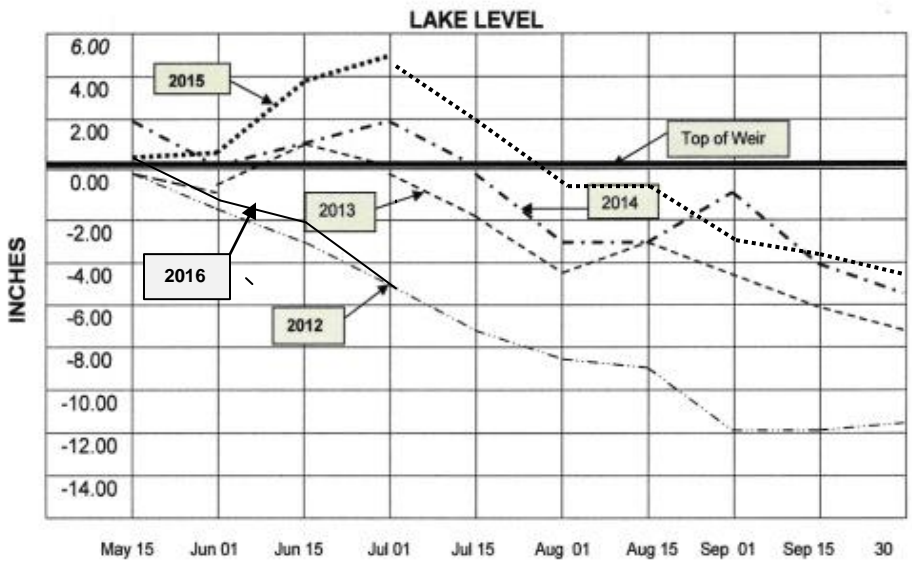
ML&SA Research and Development Coordinator



Figure 1. European water-clover floating on water surface. Photo by Krzysztof Ziarnek, Kenraiz via Wikimedia Commons

The Michigan Department of Environmental Quality (DEQ) Water Resources Division and Department of Natural Resources (DNR) Wildlife Division are working together to better understand the distribution of European water-clover, its impacts, and possible management options. In particular, they are trying to pinpoint the locations of European water-clover around Michigan.

(con't., pg. 5, left col.)



LAKE QUALITY MONITORING

In 2014, NLPA joined the Cooperative Lakes Monitoring Program (CLMP) in Michigan. Volunteers take test samples and readings of several parameters over the spring and summer to track the quality of North Lake.

Lakes are classified either as eutrophic (nutrient rich and usually cloudy or with green algae), oligotrophic (nutrient poor, clear with few plants) or mesotrophic (between the other two). Mesotrophic lakes support macro-invertebrates such as dragonflies, beetles and mayflies as well as broad plant life.

In 2014 North lake was rated "...between oligotrophic and mesotrophic, leaning slightly more toward meso than oligo." In 2015 it was rated as mesotrophic and placed it at the numerical average of the TSI quality scores of lakes monitored in Michigan. The CLMP report also states the lake is quite a bit clearer than it was in the 1970's through the 1990's, but that it takes eight years of data to accurately assess lake quality trends. Go to our website at northlaker.org for the complete report.

Charlie Taylor leads the CLMP effort for North Lake. Thanks to him and his team for their important contribution to this monitoring program.

AQUEST 2015/16 LAKE REPORT

Doug Pullman, PHD, of Aquest, prepares an Annual Report for North Lake. The following was prepared especially for the Laker. The Annual Report is on the ewashtenaw.org website under Lake Management Projects.

North Lake is in good condition and seems to be improving, despite the significant challenges that are a result of invasion by some of Michigan's most notorious aquatic invasive species. It is also clear that Michigan's notoriously variable winters are having an impact on all inland lakes. But, every lake is different and that has been abundantly clear in early 2016. Fortunately, North Lake seems to be reasonably stable and the variations observed in other lakes were not as obvious in North Lake. The goal of the lake management plan is to increase ecosystem stability and diversity. Critical measures have been developed to determine if the objectives of the management program are consistent with the long-term management goal. These comments are based on thorough data analyses that are necessarily based on "hard numbers". Without these appropriate measures, the management program can "drift" and may not result in positive outcomes.

Lakes are like organisms or people and they are comprised of various independent but interacting systems. It's easy to think of these systems as being similar to the human circulatory system, nervous system, digestive system, etc. For example, standard water quality testing is used to measure the potential for suspended algae blooms that cause the water to become more

(con't, pg 5, right col.)

European water-clover (*Marsilea quadrifolia*) is an invasive aquatic plant that still has limited distribution in Michigan. Currently, European water-clover is only found in the Huron River and Clinton River watersheds. The DEQ and DNR recognize that local groups and individuals who have 'eyes and ears on the ground' may have valuable information to contribute regarding distribution of this species. Knowing its distribution will assist state agencies in management efforts to hopefully stop further spread. As those of us familiar with inland lakes know – once a species is established and widespread, eradication is nearly impossible. Preventing the introduction and spread of species is the best option. European water-clover has the ability to form dense, mono-specific stands by out-competing native aquatic species. Its ability to adjust the angle of floating leaflets to optimize sunlight gives it even more of a competitive edge over native species.

European water-clover is a rooted aquatic plant with floating leaves and is easily identified (see picture)). It typically grows in slow moving waters, like embayments and side channels with silty or sandy substrate in inland lakes and along shorelines or shallow water less than 2 feet deep. Based on recent monitoring efforts, it has been found in the Huron River in Washtenaw County from North Maple Road above the Barton Dam, downstream to the Argo Dam in Ann Arbor. It has been found in the Clinton River in Oakland County, Waterford Township from US-24 (Dixie Hwy) downstream to Cass Lake. As of mid-October, this plant was still green; although, it's likely getting close to dying off soon.

If you have information on previous or current observations of European water-clover, please share detailed location information with Bill Keiper, keiperw@michigan.gov or 517-284-5553, or report to the Midwest Invasive Species Information Network www.misin.msu.edu.

If you see it in North Lake, please contact the NLPA, through Dave Pruess, Paul Lammers, or Dick Frendt

opaque or turbid. But, algae blooms are not currently a significant concern in North Lake where the ecosystem is dominated by the plant community "system".

The past winter was unusually mild and it was predicted that weed conditions in the early spring would reach epic horrible levels. However, North Lake has not responded as predicted. The level of weediness appears to be very similar to the level observed in previous years. The objectives of the early lake management program have been adjusted to reflect these observations and will be targeted to enhance the stability of the ecosystem and improve critical habitat and biological diversity of the North Lake ecosystem.

LakeScan™ plant community metrics are used to evaluate the nature and character of the submersed aquatic plant community. These metrics demonstrate that the North Lake plant is in relatively good shape.

There were 17 species present in the lake in 2015 and this number is equal to the average number observed in the lake for the past several years. Of these, only 3 species are problematic. The others are relatively inconspicuous native plants that support essential ecosystem functions and create valuable fish habitat. The LakeScan™ biodiversity index is a key metric because it is based on the total number of species present AND how they are distributed throughout the lake. The value was good in 2015 and has trended upward (which is good) over the past several years. Some of the aquatic invasive species that are present in the lake can suppress the production of "the good species" and the plant community biodiversity can decline if these are not managed effectively. The 2015 LakeScan™ analysis seems to support the assertion that North Lake is in good condition and that it is even improving. The "numbers tell the story" – North Lake is in good condition!

Paul Lammers and Dave Pruess Lake Report

Dave and Paul are long time NLPA volunteers who provide valuable input to the County and to Doug Pullman in locating and plotting weed problems. They have been doing this for the past decade and are a valuable asset to North Lake. This report provides an independent assessment of the lake. A big thanks for their efforts!

During the past year, the weather has been more normal with a not too cold winter so we have some more "normal" weed growth here at North Lake. In late May, a weed inspection of North Lake was conducted with the County officials where we found more Eurasian Milfoil than expected. In some patches, this milfoil had almost grown to the water's surface. In other areas along the outer edges of the lake, there were strands of milfoil. As expected, we also noted patches of Curly Leaf Pondweed. As a result, our first weed treatment was necessary and on Tuesday May 31, 2016 about 50 acres of mostly milfoil was treated by Aquatic Services. We will be monitoring the other normal weedy areas in the lake for more growth and it will be treated as needed. Doug Pullman from Aquest Corporation and Jeff Knox from Aquatic Services noted that while North Lake has more weeds than last year, it was one of the best looking lakes in this area concerning weed growth. Most other lakes in this area have significantly MORE weeds growing and needing treatment at this time. For the Official information on the Special Assessment District for Weed Treatment of North Lake, please refer to the Washtenaw County website for lake treatment: www.eWashtenaw.org/government/drain_commission/dc_webPublicWorks/lake_management/north/index.html

During the rest of the summer, we expect to see Chara and Starry Stonewort growth that will probably require treatment. The Starry Stonewort looks like a green brillo pad (and similarly looking Chara) covers much of the lake bottom in shallow areas and will grow significantly almost up to the surface of the water and foul your boat propellers. Another weed we anticipate seeing again this summer is Wild Celery. This long leafed weed has become more prevalent in

NORTH LAKE FACTS

Lake Area.....	246 acres
Watershed Area*.....	952 acres
Area 5' or less deep.....	37%
Area from 5' to 10'	15%
Area from 10' to 20'.....	29%
Area from 20' to 30'.....	12%
Area over 30'.....	7%
Maximum Depth.....	58'
Mean Depth.....	10.8'
Volume in Acre Feet.....	2,661
Volume in Gal's.....	867million
*including lake area	

NLPA BOARD

President	Dick Frendt
Vice Pres.	Charlie Taylor
Sec/Treas.	Sheryl Ulin
Website Mgr.	Mary Lou Frendt

Landing Representatives:

Gilbert Drives
No Active Representative
Glen Oakes
Dan Kruse
Hadley/Eisenbieser
Kent Thiel
Noah's Landing
Jim McInnis
North Lake Farms
Rod Payne
North Lake Road
Steve & Anne Koch
Park Lawn
Eric Batzdorfer/Paul Seelbach
Sauer Drive
Joel Blum
Stonehenge Valley
Carol Heydaulff
Watt Road
Paul Lammers
Webb's Landing
Dave Pruess

We are still looking for a volunteer to represent both Gilbert Drives. It's a small time commitment that ensures your area is represented. Call or email the Contact Information below.

Thanks again to my great partner, Mary Lou, for her talents and expertise in this Laker edition. And thanks to all the volunteers who make the NLPA possible.

Contact Information:

Richard Frendt, President NLPA
Ph: 734.475.3480
Email: rifrendt@aol.com

North Lake and is difficult and costly to treat. This is the weed that will uproot itself, floats on the water surface and has the ability to replant itself in other parts of the lake. There will be scheduled inspections looking for weed growth but if you see significant changes in weed growth, please contact either Paul or Dave. The **Northlaker.org** website has a section showing different weeds and contact information.

From the above, it should be evident that the actual weed treatment of North Lake is an ever changing complicated issue that must be continually addressed by a wide spectrum professional management approach. With the increasing number and quantity of weeds in our lake along with these weeds' mutation abilities, knowledgeable and professional advisement is essential, especially considering the restrictions placed upon us by the DEQ. By having a professional advisor (as we now have with Aquest Corporation – G. Douglass Pullman- as part of our SAD) present for all official lake inspections and consultations on the lake conditions, we should have success with our charge of keeping North Lake useable and comfortable for all residents.

OTHER NORTH LAKE NEWS

On the first page there was an update on the Mute Swan population in the state. Our swans seem to be doing just fine. In mid May a few of us were out on the lake inspecting weed conditions and we noted three pair of swans with signets; one pair had five and two pair each had two. On June 12, Mary Lou and I observed a pair with five and one pair with one, plus one pair with none. Pretty good survival rate. On that same boat ride we saw a loon diving for fish! Awfully late for loons to be here. But back to the swans. Paul Lammers said he witnessed an unusual encounter between a swan chasing several Canadian Geese onto land where two of them turned and stood their ground, chasing the swan back into the water. The swan charged again with the same result! It happened to be on our dock one day when two large males challenged each other, as their families swam toward each other. There was a lot of hissing and gesturing but all they did was bump into each other and tried to push the other away. The females resolved the issue by leading their crews away from each other.

Lake resident Joel Blum and his University of Michigan class collected a sediment core from the deepest part of North Lake and analyzed it for metals. The fine layers of accumulated sediment provide a record of metal deposition through time from the air. North Lake is particularly good for recording atmospheric inputs because it is a headwater lake without much input of surface water. At 4 inches depth in the sediment the students identified the inception of metal inputs from the widespread burning of coal which began in about 1870 and increases to the present time.

Someone else is doing research in the lake evidenced by the pair of buoys offshore from the camp that are now removed. We need one more research project to research whom the buoys belong to and what they're studying!

Life on the lake just keeps getting better. Scott and Kim Broekhuisen organized the boat parade this year adding to the July 2 fun. George Washington (Chad Weinberg) crossed the Delaware just to participate! A battleship escorted him safely to the sand bar. Later that day, the Ortbrings hosted a fantastic luau party.

Dave Steinbach launched the spectacular fireworks display again lighting up the skies and senses. It seems all new and better each year!

It's great to live in a community where people pitch in with their time and money to enrich our lives with experiences and memories we all can share. Please support these folks to help keep this lake community great.