THE LAKER

NORTH LAKE PROTECTION ASSOCIATION **JULY 2012**

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

NLPA ANNUAL MEETING
INVERNESS COUNTRY CLUB
JULY 25, 2012 7:00 pm

AGENDA:

1. Review 2011 Minutes
2. Treasurer's Report
3. Old Business
   a. Update on Lake Level Weir
   b. Status of Weed Control Program
4. New Business
   a. SAD Renewal Status
   b. Other
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 enclosed envelope.

YOUR *GREEN* SHORELINE

An excellent 30 minute film on how to protect the lake is at www.ewashtenaw.org/green-room. The Bachmans' shoreline buffer, located on the north shore just east of Stonehenge Valley docks, is a great example of lake runoff protection.

NLPA BOARD SUPPORTS RENEWAL OF SPECIAL ASSESSMENT DISTRICT

No Increase in Rates, North Lake Farms Reduced

The Special Assessment District for North Lake was established in 2007 for "the control of invasive and nuisance aquatic weeds". Originally a five year program, the NLPA recently requested Dexter and Lyndon Townships to pursue a continuation for an additional five years. Both townships have approved the Resolution. The process continues with Washtenaw County.

During the current program, we incurred less cost than originally estimated allowing the new plan to make a key change in our assessments. Washtenaw County officials, working with the NLPA, have determined a three tier system of assessments to more fairly assess the Lake Access Properties in North Lake Farms. We currently have a two tier system with "Lake Front" properties assessed at $220 per year and "Lake Access" properties assessed at $140 per year. Due to the poor access to the lake for North Lake Farms' properties, a third tier is proposed at a rate of $70 per year.

There are 171 properties in the "Lake Front" assessment tier, 105 properties in the "Lake Access" tier, and 22 properties in the "North Lake Farms" tier.

We are pleased that NLPA representatives Paul Lammers and Dave Pruess, working with Dr. Pullman and county officials, have been able to keep costs to a minimum despite ever increasing weed challenges in the lake. Eurasian Milfoil has been the primary focus of our efforts since the NLPA began treatment in 1989. We now have hybrids of the milfoil, curly leaf pondweed and other infestations including Wild Celery and Starry Stonewort. A potential future problem is Blue Green Algae which is becoming increasingly common in Michigan Lakes. It creates a slick that appears as though a green latex paint was spilled in the water. It can be toxic and carcinogenic. We need to continue our vigilance on both costs and lake quality issues. Please visit the ewashtenaw.org website to find a comprehensive report on North Lake by Aquest Corp. You will find it under Public Works, Lake Management Programs. You can also view the budget details at this site. Also read the Lammers and Pruess report page 5.

Each year, the county applies to the Michigan Department of Environmental Quality for a permit to treat the aquatic plants and algae posing problems in the lake. This requires a map of the lake showing the locations to be treated, the agents to be applied and their respective application rates. Only agents preapproved by the DEQ may be applied. The DEQ starts with a list of U.S. EPA approved agents and then further restricts the list to those with no bio accumulation and no sediment accumulation, except for the copper based agents used

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CULVERT WEIR INSTALLED

Washtenaw County installed the lake level control weir this past December. The full cost of the weir was paid for by voluntary contributions from NLPA members. The level was set by a survey of historic lake levels by an independent engineering firm. A huge thank you is owed to the contributors and to those who spent many hours over the past two years in moving the project forward, especially Dan Kruse, past president of NLPA.

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' deep ……. 7%
Maximum Depth …….. 58 ft.
Mean Depth ……....10.8 ft.
Volume in Acre Feet ….. 2,661
Volume in Gal's….. 867million

*Including Lake Area

Did you know that water leaving North Lake drains to South Lake, then to Joslin Lake and from there joins Portage Creek north of Unadilla. It flows through Woodburn, Patterson, Half-moon and Highland Lakes. It then travels through the Portage River into Little and Big Portage Lakes and into the Huron River on its way to Lake Erie.

BOAT COUNT

On June 7 a count of boats on the lake was conducted. Boats visible from about 100' offshore were counted, in the water or on-shore.

Pontoon Boats	108
Sailboats	16
Motorboats	64
Jet Skis	17
Other Boats*	117

*Other boats include canoes, paddleboats, kayaks and rowboats.

to treat algae. The copper agents become sequestered in stable compounds. These agents have been tested and used by the Michigan DEQ for many years. Please read the Q&A with Dr. Pullman (bottom this page).

The renewal of the North Lake Special Assessment District will also provide a maintenance fund for the Level Control Weir which was installed by the county last December. The county requires NLPA to maintain a $1000 revolving fund to cover the cost of any maintenance performed on the weir. We funded the initial $1000 from our Culvert Fund. In the future, any maintenance costs will be funded by the Special Assessment District.

NLPA encourages all members to participate in the Annual Meeting and in the county's Hearings process.

LAKE LEVEL LOG

A log is being kept to record the amount of precipitation, mean air temperature and lake elevation. This effort was started on May 13, 2012, when the water level was even with the top of the level control weir, elevation 937' 4".

Period	Ending Lake Elevation	Total Rain To Date	Period Mean Air Temperature	Total Change To Date
5/13/12	937' 4"	n/a	n/a	
5/13 to 5/31	937' 2-½"	5/16"	63.6	(-) 1 ½"
6/1 to 6/15	937' 1"	1-5/8"	65.6	(-) 3"
6/16 to 6/30	936' 11-3/8"	2-7/8"	74.4	(-) 4 5/8"
7/1 to 7/15	936' 9-3/8"	2–7/8"	78.6	(-) 6 5/8"

From May 13 to June 30 we had 2 7/8" of rain and the lake level had fallen by 4 5/8". This means at least 7 ½" was lost to evaporation, about 1/8" per day, but was partially replenished by rainfall. The exact evaporation rate is difficult to determine since the watershed runoff contributes to the lake level but is impossible to measure. Slow steady rains are almost entirely absorbed into the ground (until the ground becomes saturated) while torrential downpours have large runoffs into the lake.

Q & A with C. Douglas Pullman, PHD

Dr. Pullman is the owner of Aquest Corp. and V.P. of Michigan Aquatic Managers Association. He is retained by Washtenaw County to provide technical expertise for lake management issues for North Lake and other Lakes. His extensive Annual Reports for North Lake are posted at www.ewashtenaw.org/drain_commissioner/dc_webPublicWorks/lake_management

Q. *Can you describe how North Lake's condition would likely differ if we defer weed control for, say, five years?*

A. North Lake has been infested for decades with plants that were brought to this continent from the old world. These plants are weedy, aggressive, and opportunistic. Another invasive species known as starry stonewort has recently been introduced to the lake and it can be even more invasive that the milfoil and curly leaf pondweed that arrived in North America decades ago. These weed species typically crowd out or extirpate many or most of our native and desirable

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NLPA BOARD NEEDS YOU!

The NLPA Board acts as the Board of Directors for the organization. It consists of representatives of the various neighborhoods or "landings" around the lake. The Board meets about three times a year as needed to conduct business. Some landings have no current representation. Please consider volunteering for this small commitment of time. Also, please communicate any concerns or issues to the officers or your representative. The current Officers and Board members are:

President Dick Frendt
Vice Pres. Charlie Taylor
Sec/Treas. Sheryl Ulin
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
David Pruess
Webb's Landing
Paul Lammers

TRUMPTER OR MUTE SWANS?

The Michigan DNR along with Minnesota, Wisconsin and Ohio have embarked on programs of reintroducing trumpeter swans (black bills). Once plentiful In Michigan, they were eradicated across the U.S. to a degree that at one point there were only 66 swans left.

Mute swans (orange bills) were brought to this country from Europe in the early 1800's as "decorative

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plant species. Recently, certain hybrids of native Michigan plants known as pondweed seem to have "learned" how to compete with milfoil and the other foreign invaders. These hybrids demonstrate very unusual habits and can be equally as weedy as any milfoil population. If the growth of any of these species is not controlled they can overwhelm most of the desirable plant species that are normal inhabitants of Michigan Lakes. The total number and diversity of plant species in the lake will fall to very low levels and the ecosystem can become "unstable" or subject to sudden plant declines, algae blooms, and loss of the complex structure that helps to support a vibrant fishery. Recreation and property values would also be severely impacted by unmanaged weed growth. If a properly managed control program were to be suspended for 5 years, recreation would be severely constrained and the fishery would suffer from the absence of a diverse habitat and structural complexity. It could take years to recover positive ecosystem attributes.

Q. *What happens to the chemicals used to treat the weeds? Is the lake bottom contaminated? Do fish ingest the chemicals either directly or through vegetation? Are they safe to eat?*

A. One of the good things and bad things about aquatic herbicides is that they are quickly broken down or immobilized by chemical reactions. This is good because residual concentrations of significant chemicals are not found in the water very soon after treatment. Most of the control agents are degraded to water and carbon dioxide by a wide range of physical, chemical, and biological reactions. The rapid "break down" of aquatic herbicides can be bad because it can be difficult to reach the herbicide concentrations for sufficient periods of time that are required to suppress or control weed growth. The aquatic herbicides and algaecides pass through fish either unmodified or in a form or condition that poses little or virtually no risk to anyone that might eat the fish. The only herbicide/algaecide that accumulates in the sediments is the copper that is used in some algaecides. These compounds are irreversibly deactivated by chemical reactions and are not considered to be biologically significant after these compounds are formed as a result of these interactions. Copper concentrations can be detected in sediments where copper containing algaecides are used; however, the copper can only be liberated for analysis after extremely strong acids are applied to the samples. The amount of copper that is found in the water, and only briefly, is less than the amount of copper that is purposely included in some vitamins. Copper is an essential mineral/nutrient for humans and other mammals.

Q. *Is effective Harvesting being done on any Michigan Lakes?*

A. Yes. Harvesting operations can be very effective for the control of some native and non invasive aquatic plants. However, some plants are not as adversely impacted by harvesting as other species and may even benefit from harvesting. Harvesting can aid in the spread of some species from one area to other areas as harvesting releases large quantities of plant fragments to the surrounding waters. Some plants are simply more tolerant of cutting like grasses on the terrestrial landscape. Others don't do very well when they are harvested in much the same manner that a juniper bush would not be expected to fare well after an encounter with a lawn mower. Unfortunately, the most aggressive weed plant species, like milfoil and starry stonewort are the kinds of plants that are not very sensitive to harvesting. Lakes that contain these species can rapidly become dominated by either of these weeds because harvesting provides a competitive advantage over more desirable plant species. In this case, harvesting remains a good weed control strategy – it has just not been applied appropriately. At this time, the plant community in North Lake includes a species composition that strongly contraindicates harvesting as a viable management strategy. It would only make conditions worse.

Q. *Is there any research being done on the effectiveness of weevils?*

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birds" and have multiplied to about 15,000 in Michigan. They double in population every 7 to 8 years. The DNR wants to decrease this level to about 2,000 by shooting and other means. This has caused some folks to start petitions to oppose this program.

Apparently, trumpeter swans and mute swans don't co-exist. The aggressive behavior of mute swans drives off trumpeters according to the DNR. Also, trumpeter swans typically need more territory per nesting pair than mute swans (3-15 acres for mute swans versus 4-240 acres for trumpeters). Mute swans nest about three weeks earlier than trumpeter swans and therefore establish their "territory", aggressively defending their nests and cygnets.

It's a difficult choice, no matter which way it is decided.

LILY PADS RESTRICTING YOUR BOAT ACCESS TO THE LAKE?

The North Lake Improvement Project was implemented *to control invasive <u>and</u> nuisance weeds.* This includes Lily Pads that impede lake access.

The State DEQ permit for weed treatment includes provisions for clearing a 20' wide access through the Lily Pads from docks to the open water of the lake. This will be done only 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 background for identification purposes. We want to treat your dock area, not your neighbor's.

Send your Lily Pad request to:

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

Copy to:

David Pruess
7369 Webb Shore Dr
Gregory, MI 48137

A. Most of the work done by independent researchers on the effectiveness and use of milfoil weevils was done in the 1980's and 1990's. The US Army Engineers Aquatic Plant Research and Control Program funded or conducted most of the best work that was done in the development of these organisms. They were unable to elicit a consistent or satisfactory outcome when they attempted to use the weevils for milfoil control. The reasons were many and the list is far too long to include in this missive; however, the overwhelming conclusion by independent researchers seems to be that the weevils certainly seem to have potential, but it was simply impossible to make them work reliably or in any way that might be considered to be superior to the outcomes that can be achieved when herbicides are used for selective milfoil control. Weevils are being marketed and there are claims that they can be effective. But these are not offered in the context of experimentally controlled studies and should only be considered with some skepticism. The threat of invasive species dominance of North Lake is so great that the application of unproven or "experimental" strategies would be unwise at this time.

Q. *As we kill weeds by treatment, does the biomass decomposing on the lake bottom affect the composition of the lake sedimentation?*

A. Weeds derive their "substance" from the lake sediments. If they are controlled early in the growing season they simply breakdown and settle back to the sediments. There are various estimates of the water content of most aquatic plants and these range from 90% to 95%. Whatever the water content, it should suffice to say that there is not much structural material in an aquatic plant that could add to or accrue in the sediments. Furthermore, aquatic plants do not need to make the structural materials that trees and terrestrial plants create because they essentially float in the water column by entrainment of gasses. This is another reason why weeds don't add much to the sediments. If plant growth is not controlled early in the growing season and the plants are allowed to persist throughout much of the summer, inorganic, calcium rich residues will accumulate on the outer surfaces of the plants and these can accumulate in the sediments. The quantity of these substances is very low relative to the contributions from terrestrial sources of input, but they do accumulate in the sediments. This is another good reason why weed species should be controlled - and controlled as soon as practical at the beginning of the summer.

Q*. Are the ecoli bacteria found in Wild Celery a danger to swimmers in North Lake?*

A. No. There are over 100 variants of Ecoli bacteria. They range from the extremely toxic forms that have been known to contaminate food to a wide variety of innocuous forms that live in lakes. The Ecoli on wild celery is a unique genotype that does not seem to present any problems for humans. It's too bad that they have not been given a different name. Dr. Jerry Sanders (UM-Flint) was the first to discover this Ecoli nearly 10 years ago.

NORTH LAKE WEED TREATMENT REPORT

Paul Lammers and Dave Pruess

<u>Note to readers from Dick Frendt:</u> Paul Lammers and Dave Pruess have worked on behalf of the NLPA over the past decade. Their dedication, knowledge and skill have had a substantial impact on the cost effectiveness and quality of the weed control program on North Lake. They have provided precise mapping techniques to allow efficient treatment of our lake. They utilize a GPS mapping approach that has been copied by county officials for use on other lakes. A greater percentage of our dollars go directly to treatment than other lakes in the county achieve. This June, North Lake's control of Milfoil was "…the best I've seen on any lake this year." (Dr Pullman). We owe a huge thank you to these dedicated North Lakers.

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SOME OF THE PROBLEMS

EURASION MILFOIL

Various genetic strains have been a problem for decades

STARRY STONEWORT

The most aggressive plant in North Lake, it is actually an Algae.

BLUE-GREEN ALGAE

A form of bacteria, spreading in Michigan Lakes but not in North Lake yet. Toxic to animals & people.

We are now on the final year of lake treatment under the original Special Assessment District (SAD) for North Lake. Initially, the main invasive weed was Eurasian Water Milfoil which has hybridized to a slightly different milfoil which requires continual attention and different treatment applications. Within the past few years, other invasive weeds have been observed and /or treated in the lake. These include: Curly Leaf Pondweed, Starry Stonewort, Chara, Wild Celery, as well as a green slimy algae. With all these different weeds being present, we are fortunate to have the finances through our SAD and the services of Dr. Doug Pullman of Aquest Corporation to identify and prescribe the appropriate treatment. This is in addition to our applicator, Steve Hanson, of Professional Lake Management.

We are also using the Washtenaw County Drain Commissioner's office under the direction of Jeff Krcmarik to collect the taxes and manage our project. This project is publicly documented on the eWashtenaw website which you can access at: http://www.ewashtenaw.org/government/drain_commissioner/dc_webPublicWorks/lake_management/north/index_html .

As weeds are a priority to our SAD and North Lake, following is discussion referencing the weed problems, treatment, and implications. There are two references that can be observed for specific weed control issues and identification. The first is the Management Opinions found at the eWashtenaw website (indicated above) and the other is www.mapms.org/publications/plantid.pdf. This latter reference has a very good identification chart that is applicable to our lake.

The following weeds are growing in North Lake and must be continually evaluated and controlled when necessary so residents can use the lake effectively and to prevent our lake from becoming a large weed bed:

Milfoil: This was the main weed we treated starting when we had a voluntary contribution weed program run by the NLPA. The version we treated was Eurasian Water Milfoil but our professional management team believes it has mutated making it more difficult to control. Due to the mild winter, this weed really proliferated and was as bad if not worse than in past years. Many patches of milfoil had been identified throughout the lake and changes have been noted on the eastern side. The western side has always been a predominant growth area. In June of this year, 70 acres were treated in an effort to keep this weed under control. We are pleased with the results; however this weed seemingly cannot be eradicated. As in past years, we can expect it to reappear in the fall but not nearly to the extent it was in the spring

Pondweed: We have the weedy large curly leaf pondweed variants in North Lake that have been and still are a problem. This is the long stemmed leafy weed that is so prevalent in our lake, especially in the mid-depth areas. Last year, we treated certain shallow areas where this weed was growing up to the surface. This season, we seem to have more pondweed growth but it is not coming to the surface; thus, not a real treatable weed issue. There is a DEQ restriction to treat this weed only in water depths less than five feet and within 300 feet from shore which curtails treatment where it is prevalent in our lake. An exception to this rule is a recreational feature such as the ski course. This weed will be evaluated during all lake inspections. You may have noted that the pondweed that is still prevalent in many sections of the lake has turned brown in color due to milfoil treatment in those same areas. Dr. Pullman believes this weed is stunted to the extent that it will not continue to grow to the surface this year and may naturally knock itself down somewhat and/or by boats propelling over these areas. However, we cannot expect it to disappear.

Chara/Starry Stonewort: At this time, the "brillo pad" looking algae is growing in thick clumps that seem to hover on the bottom and, without treatment, has been a grave problem in certain areas of the lake, especially the west and south

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A TURTLE TALE

Once upon a time in late May, a certain person went to check a lake level weir to see how it was functioning. He was surprised to see a Spiny Soft Shell Turtle had fallen into the weir and appeared trapped. The brave and considerate person decided it would be a good deed to liberate the poor turtle who was surely going to starve if left in the weir.

The brave person approached the task at hand with a swelled heart, contemplating the good deed he was undertaking. He surveyed the turtle in the murky water and determined the best way to pick him up was to lift him by his shell near his back legs. Lo and behold, the murky water had disguised his back legs and the considerate person picked it up near his front legs. Mr. Turtle was very un-appreciative of the good Samaritan effort and inflicted a bite that surely sated his appetite! A hasty abandonment of the rescue ensued.

Turtle in weir

Two days later a new plan was forged and the less brave person brought a fish landing net to the weir. Mr. Turtle was still there, awaiting his next meal.

He was quickly netted and plunged into the lake, never looking back with so much as a nod of thanks. As hungry as he was, he was probably looking for a baby swan!

Moral of this story: Turtle soup is an underappreciated delicacy.

WHAT A BLAST!

The best ever fireworks show by Dave Stienbach. Thank you Dave and the donors for their support!

ends. The starry stonewort is a very thick variant which has grown increasingly closer to the surface in shallow areas which will clog boat propellers. As long as it stays low, it is a "good" weed in that it will crowd out milfoil and other more invasive weeds. The Chara variant seems to grow from the bottom to the surface and will be joined by the starry stonewort when conditions are right. This weed will be treated when it becomes a greater problem and can be treated rather inexpensively.

Lily pads/watershield: Watershield are the small lily pad looking weeds that are now emerging quite rapidly in many of the shallow areas of North Lake. These weed beds have more than doubled within the last five years; thus, becoming more of a concern even though they are necessary for fish habitat. The larger lily pad areas cannot be treated by herbicides because of DEQ restrictions (special permit is an option) but lakefront residents can clear a 20 foot wide path from their docks to the deeper areas of the lake for boating and swimming access. The NLPA will be working with the residents to identify areas to be treated for this purpose and will coordinate treatment through the county as needed. These watershield and lily pad weeds will be more expensive to deal with.

Algae: This is the green slimy cloud of the fibrateuos variety that was treated before the 4th of July last year. At the time of this writing, we have found little algae but will continue to monitor for outbreaks and treat as needed.

Wild Celery: This weed has become more prevalent and it is very difficult and costly to treat. This is the long slender weed with approximately four to five strands that grows in the shallow portions of the lake and is now increasingly floating (i.e. the uprooted waste which can root itself in other locations) on the surface in many areas of our lake. According to Doug Pullman, we need to carefully observe its growth for it could potentially have a devastating effect in our lake since it is so difficult to control because, presently, there are few treatment options. As mentioned earlier, starry stonewort/Chara growth could assist with preventing this weed to be a major problem here.

From the above, it should be evident that the actual weed treatment of North Lake is an ever changing process that must be addressed by a wide spectrum professional management approach. With the increasing number and quantity of weeds in our lake along with these weed's mutation abilities, knowledgeable and professional advisement is imperative, especially considering the restrictions placed upon us by the DEQ.

2012 Weed Treatment Summary: During the initial weed inspection in early May, 2012, we noted the worst spring outbreak of milfoil in North Lake. This was treated during the first 2012 weed treatment by PLM, along with some patches of curly leaf pond weed. A subsequent lake inspection conducted in late June revealed some sections of the lake need treatment for Chara and Starry Stonewort, the brillo pad like algae growth which can grow to the water surface fouling boat propellers. We anticipate conducting two additional weed treatments as needed with the first being early July for Chara and starry stonewort. The lily pad problem is addressed on page 4 of this issue.

Thank You!

A special thank you to Mary Lou Frendt, my extraordinary partner in life, for her help with this edition of the Laker. Her creative ideas, editing skills and help with mailing all contributed to this edition of the Laker.

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