The Lakesider…….Spring 2015

The Annual Newsletter of the Lake Mitchell Improvement Board.

Lake Mitchell Improvement Board
4830 East M-55
Cadillac, MI 49601
info@lakemitchell.org

Lake Mitchell Improvement Board meeting dates for 2015:
* Saturday, April 11 @ 10:00 AM
* Saturday, June 27 @ 10:00 AM
* Monday, August 10 @ 10:00 AM
* Monday, October 19 @ 10:00 AM
* Monday, January 11, 2016 @ 10 AM

All meetings are held at the Cherry Grove township fire Hall on M-55. The public is invited to attend. All meetings begin at 10:00 AM.
Contact Lake Mitchell Improvement Board at info@lakemitchell.org.

Lake Mitchell Property Owners' Association Meeting:
* Saturday, May 16 @ 10:00 AM

Meeting is held at the Cherry Grove Township Fire Hall on M-55.

If you received this newsletter, please consider saving the board the $2 it costs to print and mail this newsletter by reading it online at www.lakemitchell.org. (We would rather use our money to fight milfoil than print and mail newsletters). All the contents of the newsletter are available online plus photos, minutes of our meetings, and features about Lake Mitchell not found in our annual newsletter. Email us at info@lakemitchell.org and we will add your email to our list which has over 350 addresses. Those on our email list are notified about important Lake Mitchell information including days when the lake will be treated as well being alerted to upcoming meetings. If weather events such as floods, ice storms, or heavy snows occur, which could possibly damage property, emails may be sent. These are especially appreciated by Association members who are not lakeside residents. The email list will not be sold or offered to anyone and will only be used for Lake Mitchell Improvement Board and Association business.

Information ONLY on lakemitchell.org

- Photos of Lake Mitchell activities and weather events in 2014-2015
- Photos of native and invasive vegetation
- Lake Mitchell Annual Progress Report (entire report)
- Lake Mitchell By-Laws
- Minutes of Improvement Board meetings
- Maps showing location of invasive vegetation

Website of the Lake Mitchell Improvement Board: www.lakemitchell.org
Scan this QR code with the QR Reader on your smart phone to get the Lake Mitchell mobile website: **www.lakemitchell.org/mobile**.

Summary of aquatic vegetation and water quality report in Lake Mitchell for 2014

This is a summary of the Annual Progress Report of Aquatic Vegetation and Water Quality in Lake Mitchell for 2014. The full 39 page report is available www.lakemitchell.org. *This report was prepared by Jennifer Jermalowicz-Jones, the director of Restorative Lake Sciences, which has been contracted by the Lake Mitchell Improvement Board as their consulting firm.*

This year's survey of aquatic vegetation conducted by the staff of Restorative Lake Sciences found 18 submerged, 4 floating-leaved, and 5 emergent aquatic plant species for a total of 27 species. The dense stands of milfoil have threatened the native aquatic plant biodiversity and impaired navigation and recreational activities, and affect waterfront property values.

An initial whole lake GPS survey of 1,888 sampling points and whole lake scan was conducted on June 16 which was later than usual due to the harsh winter during 2013 and the late ice-off in 2014. The survey found 134 acres of hybrid milfoil in the main lake and coves which represented 5.2% of the lake surface area. On June 26, systemic aquatic herbicide Sculpin G® was used on the hybrid milfoil. Due to concerns about shallow wells at the northeast end of the lake another systemic aquatic herbicide, Renovate OTF®, was used. The coves were treated on June 16 with Aquathol K® for pondweed growth and Clipper® for control of Watershield. The Torenta Canal required an algae treatment using chelated copper for dense *Cladophora* blooms. The treatment was repeated on July 8.

A second lake treatment of 20 additional new acres of milfoil was completed on August 13. An additional 2.5 acres of algae received treatment in Little Cove and 3 acres in the Torenta Canal.

A post treatment on September 29 determined that all milfoil in the lake appeared to be dying due to the treatment and the nuisance native aquatic vegetation in the coves was reduced. The algae in the Torenta was also reduced but stagnation is creating water quality problems in the canal. Treatment recommendations of 2015 include using the same products but alternating with areas treated in 2014 if the milfoil returns to reduce the herbicide tolerance.

On July 28 approximately 27 pots of *Galeruclla* beetles were transported into Big Cove and North Franke Cove. The beetles have been eating purple loosestrife which is abundant in the coves. More stocking is recommended for 2015.

Water quality sampling of the deep basins and tributaries of Lake Mitchell was conducted on June 16. Nutrient levels continue to be in the eutrophic (nutrient-rich) range for the entire lake with elevated levels found where the tributaries enter the lake. The water clarity has improved over the past few years, likely the result of lower chlorophyll-a values and lower dissolved solids. The majority of the water quality parameters such as ph, total alkalinity, and dissolved oxygen have been consistent over the past few years.

Acreage of Milfoil treated in Lake Mitchell 2009-2014

Treatment year	Acres of milfoil treated
2009	310
2010	379
2011	186
2012	339
2013	235
2014	155

What is the difference between the LMPOA and LMIB?

This is the Lake Mitchell Property Owners' Association (LMPOA).

Everyone who owns property on Lake Mitchell or land with deeded access to the lake is a member of the Lake Mitchell Property Owners' Association. The LMPOA will meet on 10 AM on the Saturday, May 16 at the Cherry Grove Township Hall. The current officers are Tom Jacobson, president; Lois Poag, vice-president; JoAnn Engels, secretary/treasurer.

The following information was supplied by the LMPOA:

Mission Statement

The Lake Mitchell Property Owners' Association is dedicated to representing the best interests of lake property owners and the deeded access community. The Association's primary responsibilities include improving, protecting, and preserving the environmental health and use-ability of Lake Mitchell.

Our Vision

Our vision is to communicate policies and practices, to educate and inform members on all issues and actions that affect the quality and use of Lake Mitchell. We represent and protect the overall interest of LMPOA and hope to enhance their ability to maximize enjoyment for our shared resource.

The LMPOA will focus in issues important to our members which include the following:

-Boat navigation and swimming
-Safety for our members and lake visitors
-Lake quality and health
-Lake levels
-Propagation and health of fish and wildlife
-Update members on success of lake management programs like weed control and removal.
-New lake threats like zebra mussels, hybrid super weeds and algae.
-Promote residential best practices (how you can help)
-Respond to issues concerning the good of Association members.

Here's the Lake Mitchell Improvement Board (LMIB).

The Lake Mitchell Improvement Board was formed in accordance with Michigan's Inland Lake Improvement in 1993. Under provisions of Public Act 451 of 1994, Part 309 as amended), the lake board includes a Lake Mitchell Association at-large member who is elected for a three-year term, appointed representatives from Selma Township, Cherry Grove Township, the city of Cadillac, a Wexford County Commissioner, and the Wexford County Drain Commissioner. All board representatives are appointed for indefinite terms, except for the Drain Commissioner who is elected in a county election. If a change in representatives is desired, that should be communicated to the group the individual represents.

The Lake Board is empowered to collect special assessments from benefiting properties for approved lake improvements.

Drain Commissioner's Report -- Looking back at lake levels in 2014

by Mike Solomon

Long term rainfall averages for the Cadillac Area have been around 32 inches annually throughout the 1950's to the 1980's. More recent annual precipitation has been much more erratic. The 10-year period from January 2005 through December 2014 had an average of 36.22 inches and the last four (4) years average ending in December 2014 was 38.38 inches. This is a substantial amount of additional water on the watershed and has had a tremendous impact on the lake levels of Lakes Cadillac and Mitchell.

Last year (2014) we had very high lake levels for much of the year. The lake peaked at 1291.16 feet (MSL) on April 21, 2014. It did not drop to 1290.00 feet which is the spring level until July 21st and summer level of 1289.70 feet was not reached until August 12th. Much of the high lake levels were driven by melt of a relatively large snowpact with an exceptionally high rainfall of 6.60 inches in April. The combination of high or intense rainfall on an existing snowpact will almost always result in a large amount of runoff into the lakes and higher lake levels.

The high lake levels in April and May caused localized flooding. There was a lot of ponded water in yards and water accumulating in crawl spaces and some basements. Individual homeowners had some amount of damage and sump pumps ran almost continuously for some homeowners. Lake levels were excellent for boating throughout the summer but far exceeded the Court Ordered lake levels.

August, September and October were maintained at about normal summer lake levels. The dam was opened on October 10 to begin the drawdown to winter levels (1288.90 feet). Significant rainfall in November prevented obtaining that level and the dam has been left open from that time until now (the end of March).

Every year is significantly different as to temperatures, precipitation, snowmelt and the timing of precipitation. So who knows what 2015 will bring for lake levels. I know that the high lake levels desired by some are disliked and may cause damage to others. Likewise low lake levels cause concerns for many who are in coves or canals that were man-made and have undergone sedimentation in the more than 50 years since they were constructed. The current Circuit Court Order seems to be a good compromise for all concerned.

Roadside pickup 2015

The Lake Mitchell Improvement Board will again provide roadside pickup of weeds. Weed hauling begins May 18 and continues through September 14. Aquatic weeds need to be removed from the lakeshore by the property owners and put on the edge of the road. **Do not leave sticks, brush,yard waste or sand by the roadside. Only aquatic vegetation will be picked up.**

There is no hotline to call; the weed hauler will pick up weeds according to this schedule:

*Monday – From the canal north to the roller rink.

*Tuesday – From the roller rink along West Lake Mitchell Drive checking all lakefront roads ending with the Camp Torenta loop.

*Wednesday – From the canal south and west including all roads with lake front property to the end of Sunrise Point Road.

*Thursday and Friday– Days for collecting weeds not picked up during the week.

Weed compost, black peat and mulch available

The weeds picked up along the shore of Lake Mitchell are deposited and spread out to dry at Ron Klimp's farm on the south side of Lake Mitchell. (7288 S. 33 ½ Mile Road). Contact Ron at 616-295-8686. You can pick up the weeds at no cost or for a small fee Ron will load them for you. The weeds that were once a nuisance in the lake can now be helping enrich your garden. The black peat from the Franke Cove dredging project is also available.

Lake Mitchell Improvement Board Assessment Reduction Proposal

by Alan Anderson

In calendar year 2013, $180,469 was spent on chemical treatment. This constituted 85% of the total amount spent for the year ($211,374). Anticipated expenditures for chemical treatment were trending upward, and this was consistent with the assessment increase unanimously approved by the Lake Mitchell Improvement Board (LMIB) on February 23, 2013 for the 2013/2014 fiscal year, beginning July 1, 2013.

In calendar year 2014, however, thanks in part to aggressive weed treatment the previous summer and a very cold winter and spring, the amount necessary for chemical treatment amounted to $84,579. This constitutes a reduction in spending for chemical treatment of $95,890 from the previous year. This reduction in expenditures for chemical treatment significantly contributed to the LMIB fund balance, which as of February 28, 2015 was $316,364.69. While chemical treatment spending this June will reduce this carry-over, it still exceeds anticipated needs.

As a result, a committee comprised of Chair Michael Solomon, Secretary Dave Foley, and Treasurer Alan Anderson met on January 22, 2014 and reviewed the LMIB budget. Consistent with agreements made in February, 2013 at the Public Hearing in which assessments were raised, and consistent with future anticipated needs, the unanimous recommendation of the budget committee is that the fiscal year assessment commencing in July of 2015 be reduced from $300 to $225 for “first tier” lot owners, $150 to $113 for “second tier” lot owners, and from $600 to $450 for commercial property owners. This will generate approximately $139,000 in assessment revenue next fiscal year, as opposed to approximately $208,000 generated this fiscal year. This recommendation will be presented to the board at the next LMIB meeting scheduled for April 11, 2015. Subsequent evaluation and adjustment recommendations will be made as needs warrant.

2014 Calendar Year Financial Record

2014 Income	**Jan.1-June 30**	**July 1-Dec. 31**	**Total**
Interest	288.05	223.88	511.93
US Forest Service Grant	2,100.00		2,100.00
Assessment Income	13,848.41	197,137.14	210,985.55
Selma Twp Grant	1,800.00		1,800.00
Total	18,036.46	197,361.02	215,397.48

2014 Expenditures	
Roadside Weed Pickup	7,500.00
Lakeshore Environmental Administration	20,000.00
Chemical Treatment	84,579.25
Purple Loosestrife Beetles	2,155.00
Legal Fees	2,260.35
Insurance/Bond	650.00
Service (audit, inspection, permit fees)	3,604.00
Print (mailings, newsletter, website, supplies)	1,921.24
Total	**122,669.84**
Fund Balance Jan.1, 2014	**223,058.53**
2014 Revenue	**215,397.48**
Total	**438,456.01**
2014 Expenditures	**122,669.84**
Fund Balance Dec.31, 2014	**315,786.17**

How to better enjoy living on Lake Mitchell

by Dave Foley

Keep Canada geese and ducks off your lawn. Don't feed the geese or ducks. That's only logical. Not only is their defecation the wrong kind of fertilizer for your lawn, but ducks carry the parasite that, when it interacts with snails, creates swimmer's itch.

The best way to keep waterfowl off your lawn is to create a shoreline greenbelt which is a band of natural vegetation, such as wildflowers, grasses, perennials and trees. These buffer strips stabilize shoreline to help prevent erosion and filter pollutants and sediments. Uncontrolled sedimentation will alter the habitat of crayfish, mayfly larvae, and fish as well as increase phosphorous loads in the lake. Leaving a strip of natural vegetation between your lawn and the water's edge is one of the best things you can do to discourage Canada geese from invading your property.

Don't allow raked leaves or empty grass clippings into the lake. Leaves or grass, once they decompose, will provide fertile areas to grow aquatic plants. Burning yard waste near the lakeshore is not a good solution either. Ashes contain phosphorous and nutrients that can easily make their way into the lake resulting in excess weed and algae growth.

Eliminate loosestrife or phragmites. While these plants may be attractive, they are invasive and harm native wetland vegetation. These plants should be uprooted and removed. The seeds will travel on the wind and water to new locations. Photos of these plants are on our website, lakemitchell.org.

Use Phosphorus-free fertilizers and fertilizers sparingly. Rain, lawn sprinkling, and snow melt all will wash fertilizers and sediments from yards into the lake unless there is a substantial greenbelt along the shoreline. The soil in the Lake Mitchell watershed generally has more than adequate amounts of phosphorus to grow lawns. With nitrogen, apply the correct amount at the right time to maximize plant uptake and minimize off target movement. You may purchase a soil sample kit at the Michigan State Extension in the Wexford County Lake Street Building in Cadillac. They will test your soil to determine what, if any, fertilizers are needed. If you must use fertilizers, select bags that are phosphorus-free and with slow release nitrogen. If the label on the package has a zero in the middle such as 12-0-20 then you know it contains no phosphorus. Excess nitrogen can add to weed growth while phosphorous can enhance algal blooms.

Secure lightweight float toys and yard furniture. Strong winds and waves will carry these items out in the lake unless they are secured.

Protect you bird feeders from bears. Yes, there are bears living in the woods and swamps around Lake Mitchell. In the spring and fall, when there is a shortage of natural foods, bears will destroy bird feeders.

Protect your water pipes from freezing. Each winter several cottages suffer damage from burst pipes. If you're not going to be using your cottage in the winter, drain your pipes. If leaving your home overnight during the winter, turn off your water pump. Consider leaving a faucet trickling water on sub-zero nights.

Watch out for underwater hazards. Each year boat motors are damaged by underwater hazards. Submerged rocks are found near reed beds and in the area in front of and to the north of the canal.

Prevent likelihood of yard flooding. Melting snow and heavy rains may leave some lawns covered with standing water. Unable to seep into the saturated ground, water collects on low sections of land. Property owners who wonder why their yard suddenly is prone to flooding after handling runoff well for many years will likely discover that the flooding began after they expanded paved surfaces. In neighborhoods where several property owners enlarge their impervious surfaces, water retention on land surfaces can be exacerbated. Paving a driveway, building a garage or enlarging a building's footprint, covers the ground with a surface that water cannot flow through, so it must flow elsewhere. Once the ground is saturated the water pools up on the surface.

The history of weed control in Lake Mitchell 1990-2014

by Dave Foley

Lake Mitchell has always been weedy. The water used to be darker and while this made it hard to see more than a couple feet into the depths, that cloudiness cut light penetration, which meant you wouldn't find weeds growing in more than ten feet of water. In 1977 a sewer line was completed around Mitchell, ending the use of septic tanks, some of which used to leak nutrients into the lake which clouded the water. Water clarity improved allowing one to see bottom in 6 to 9 feet of water. The clearer water allowed vegetation to grow as deep as 15 feet.

The improved water clarity allowed a plant called naiad to thrive and in the mid-1980s, great mats of it plant grew to the surface of the lake and it drifted to shore creating piles on the beach that looked like mini haystacks. The Lake Mitchell Improvement Board, which had been created in 1989, set up a roadside pick up program to collect the weeds. While this was happening, Eurasian milfoil made its first appearance.

This lime green plant, which resembles a delicate bottle brush, was carried in the ballast of ships from Europe that came up the St. Lawrence Seaway. Fragments of the plant escaped into the Great Lakes and were picked up on boat propellers and were spread into inland lakes when these boats were launched. It is estimated that over 500 lakes in Michigan have Eurasian watermilfoil.

Within a few years the masses of naiad were replaced by thick beds of milfoil, which clogged the coves impeding motorized boat traffic in these waters. The Improvement Board hired, Progressive AE, a lake management consulting firm, in the early 1990s and under their direction, a chemical treatment and harvesting program was begun to control milfoil. Initially milfoil seemed to grow predominantly in the shallow waters but within a few years it had spread into the main lake and was growing down as deep as twelve feet.

Milfoil is spread by fragmentation making chemical treatment the only viable means of eliminating this plant. The cutting of plants that occurs with harvesting will only create more plants. The thick growth of plants in the Lake Mitchell coves requires a combination of treatment plans. First chemical application is done to kill the milfoil, then harvesting is done to cut and collect native nuisance vegetation and the dead milfoil plants. In recent years The chemicals seemed to work more effectively and harvesting was discontinued although harvesting is under consideration for this year.

In the last fifteen years the acreage of milfoil in Lake Mitchell ranged between 100 and 300 acres but was generally on the increase, The Improvement Board changed consultants, hiring Restorative Lake Sciences in 2011. Using advanced GPS equipment,1888 survey points provided a complete picture of the lake bottom. Initially progress was made and the number of milfoil acres dropped but then the plant developed a hybrid species that was resistant to the chemical used. As a result in 420 acres of hybrid milfoil were treated in June of 2013.

During the winter of 2013-4 the staff of Restorative Lake Sciences tested milfoil samples with various chemicals and dosages to come up with a more effective chemical treatment for 2014. Their efforts paid off as only 264 acres were treated in Lake Mitchell last June.

Working with our consultant, Jennifer Jermalowicz-Jones of Restorative Lake Sciences, the Improvement Board has access to the latest developments in dealing with invasive plants such as Eurasian Water Milfoil. Another winter of plant research has helped modify our chemical treatment plan for this summer so that the acreage of milfoil in the lakes should continue to decrease.

In late May both lakes will conduct their annual GPS survey for milfoil. The treatment will take place in in mid-June as a small fleet of white motorboats and air boats will move systematically cover the lakes' surface applying chemical. The milfoil will die and fall to the bottom within two to six weeks after treatment.

In 1997 I became aware that the lakes were being chemically treated and I was concerned about the impact on the ecology of the lake. Would it still be safe for swimming? Would it negatively impact the fishing? Could drinking water be effected? As a resident and property owner who swam in the lake and fished it year round, I didn't want any mistakes made. When an opening occurred on the Lake Mitchell Improvement Board, I was appointed to the Board. Initially I was optimistic that milfoil could be eradicated and the lake could return to the way it was in the 1980s. I've learned that's never going to happen; milfoil will always be here. Our best hope is to minimize its effect.

How the coves and the Torenta Canal have changed

by Dave Foley

Recently I came across a map of Lake Mitchell as it appeared in 1933. As you might expect,there weren't many cottages along the shoreline. The most settled area, running from Franke Cove to the Canal, had marks indicating about 35 dwellings. Another ten were near the Sunset Point area and a dozen were spread along East Lake Mitchell Drive. Beyond the area where the Roller Rink now sits, going north and west toward the coves, there were only seven with six being in a cluster. Today there are over 600 residences on the shore or with access to the lake.

What was surprising were the changes I observed in the shape of the lake. Dredging and fill operations in the 1960s created the canal located near Camp Torenta and greatly altered the shape of the Franke Coves and Little Cove.

On the map, Franke Cove appears as a slightly indented cove, not the two significant indentations separated by a peninsula, that we see today. I have been told that originally this was marshland before it was dredged and became part of the lake. A developer added fill to make the peninsula that separates the coves. As you go out on the peninsula, you'll notice that the third cottage on the north side of the peninsula instead of facing toward the lake, is angled to so that it faces the cottage to the east as well as the cove. Bob Miller, a resident of Franke Cove, told me that that cottage was originally located at the tip of the land before the filling extended the peninsula on beyond the building. Miller remembers when a large chunk of of marshland broke loose from the shore and became beached at the mouth of North Franke Cove creating Lake Mitchell's only island.

Little Cove, on the 1933 Map of Lake Mitchell, was surrounded by marshland and had two creeks flowing into it. Friends of mine, who used to fish the cove in the early 1960s, had to park at the base of the peninsula and walk the rest of the way because the land was so swampy. The peninsula then, was shaped like a thumb; the extension to the west that we see today was created by filling in the late 1960s. Extensive dredging was done along the east side of Little Cove and the sand was deposited on the peninsula. Dredging and filling was also done along the north and east side of this land, which created high ground along both sides of what is now Brandy Brook Drive and the land north of Little Cove. In the 1970s when this section of West Lake Mitchell Drive was paved, the culvert which carried the southern feeder creek to Lake Mitchell, was removed effectively cutting off this outlet.

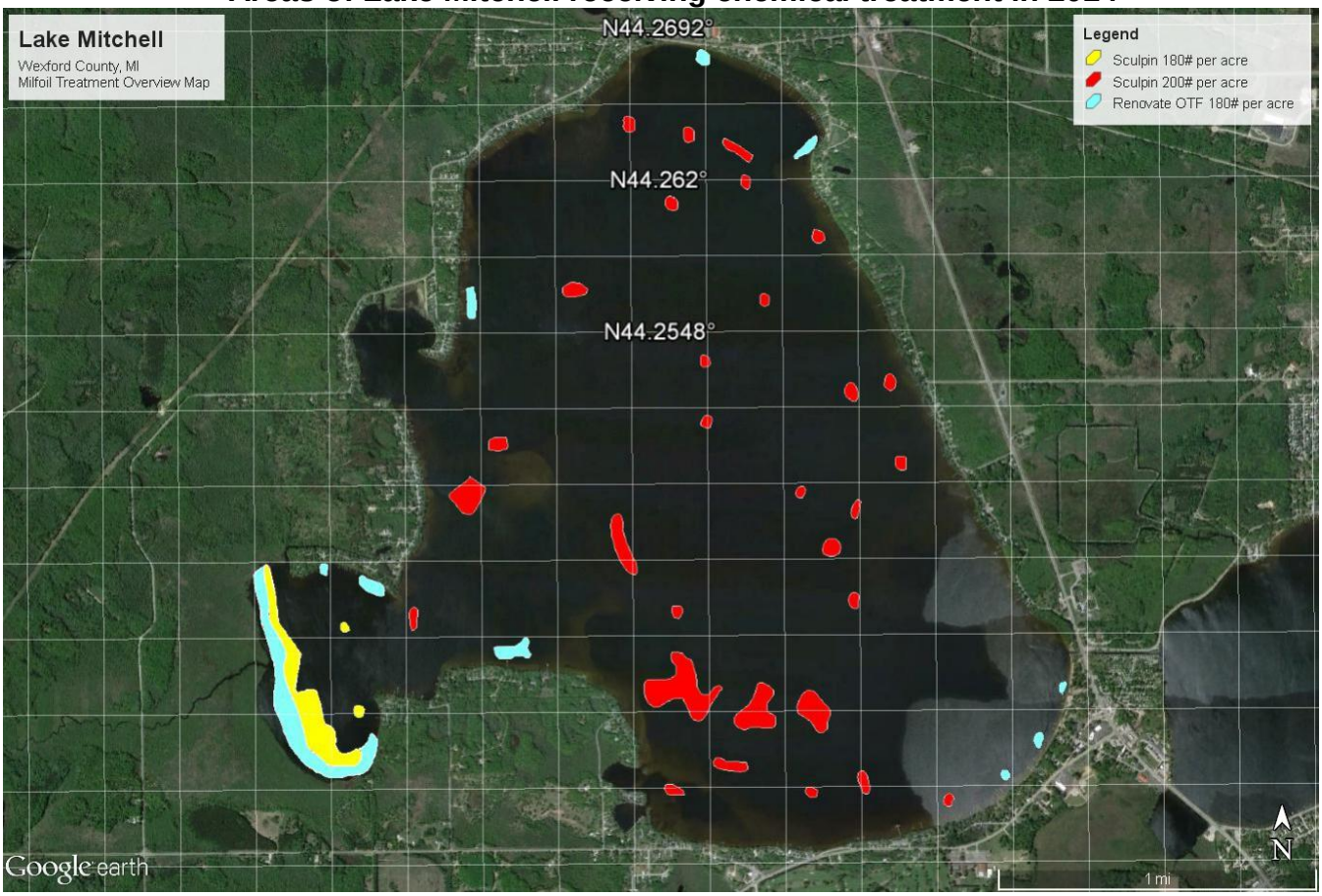
The Torenta Canal, which does not appear at all on the 1933 map, was another project of the 1960s. Although originally planned to be dug from Big Cove to the main lake at Lake Mitchell, the project was not completed and the waterway dead ends near Elm Blvd. At completion I have been told the canal was eight to ten feet deep.

These waters, where dredging occurred, tend to grow more vegetation and collect more algae than the main lake. This happens for two reasons. In the first, lake bottom that has been dredged creates unnatural creases that, in time, will collect more sediment. This soft organic matter combines with the more fertile sediment on the bottom enabling more vegetation to grow in these unnaturally deeper areas. Over the years, the annual death of plants in these dredged areas will create more soft matter which in turn is conducive to plant growth. This is part of the reason why there is more plant growth in dredged areas.

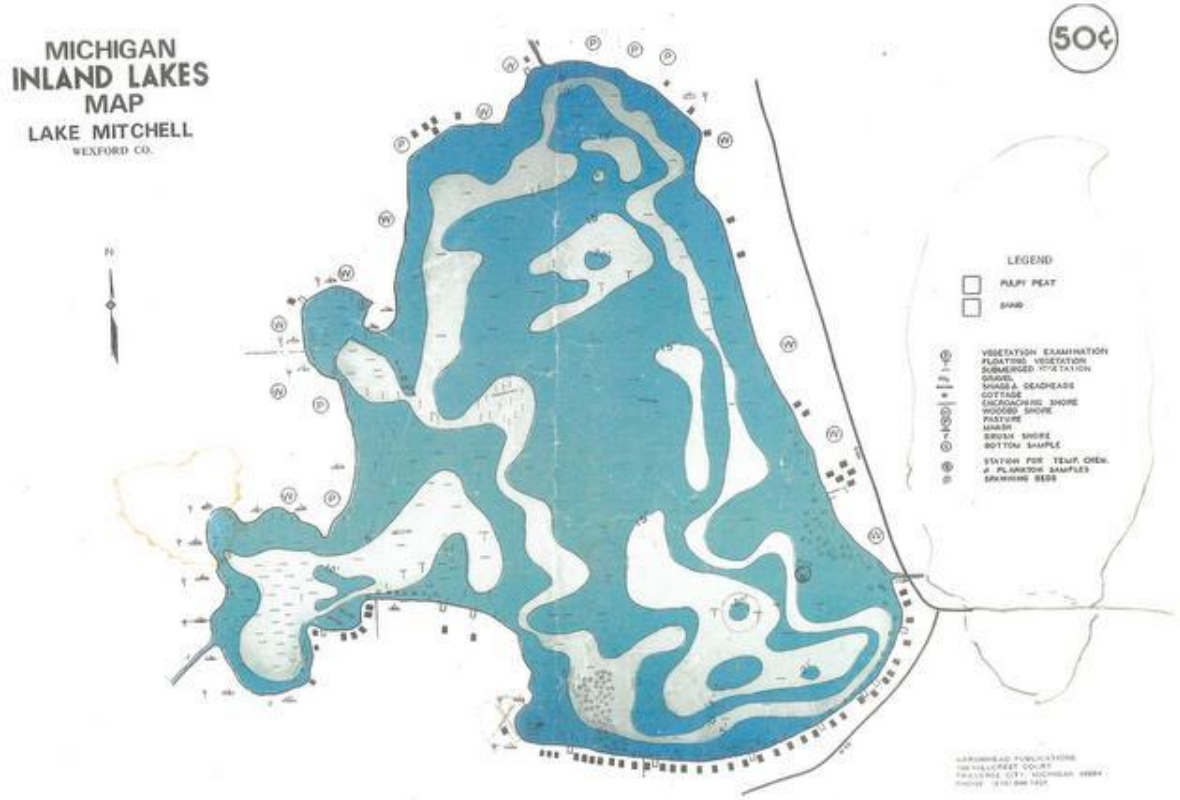
The other cause of heavy plant and algae growth is stagnation. The openings of the coves because of peninsulas(Little and Franke Coves), marsh extensions (South Franke) and an island (North Franke Cove) receive less wave action and water circulation which enhances plant and algae growth. The Torenta Canal, with no outlet and very little water movement, provides an excellent environment for algae and plant growth.

While these waterways being shallow, could expect some plant growth, the activities done by man fifty years ago to alter them has added to the problem. As a result the Lake Mitchell Improvement Board has had to spend more per acre in the coves and canal than it does in the main lake to try and make it so residents and visitors to these areas can navigate boats through these waters.

Areas of Lake Mitchell receiving chemical treatment in 2014



Map of Lake Mitchell circa 1933 showing location of cottages along the shore.
The Franke and Little Coves have not been developed and the Camp Torenta Canal has not yet be dug.



NOTICE 2015

PLM Lake and Land Management Corp
PO Box 424, Evart, MI 49631
(800) 382-4434(o) (231) 372-5900(f)
www.plmcorp.net

IN 2015, SELECT AREAS OF LAKE MITCHELL MAY BE TREATED PERIODICALLY THROUGHOUT THE SUMMER BEGINNING IN APPROXIMATELY LATE MAY FOR THE CONTROL OF WEEDS AND/OR ALGAE. Below is a list of herbicides that may be applied to the lake and associated use restrictions. On day of treatment, signs will be posted along the shoreline within 100 feet of treatment areas that indicate what products were used and specific water use restrictions that apply:

Check all that apply	Chemical product/active ingredient	Chemical trade name	Do Not Use this water for swimming or bathing until	Do Not Use this water for ornamentals or turf irrigation until	Do Not Use this water for domestic purposes or agriculture irrigation until	Do Not Use this water for livestock watering or similar purposes until
X	Endothall	Aquathol K, Hydrothol 191	1 Day(s)	N/A	14 Day(s)	14 Day(s)
X	Flumioxazin	Clipper	1 Day(s)	3 Day(s)	5 Day(s)	N/A
X	Chelated Copper Herbicide	Komeen, Nautique, Harpoon	1 Day(s)	N/A	N/A	N/A
X	2,4-D ester	Navigate 2,4-D	1 Day(s)	INDEF or until approved assay indicates a concentration of 100ppb or less for ornamentals; No restriction for established turf	INDEF or until approved assay indicates a concentration of 100ppb or less	INDEF or until approved assay indicates a concentration of 70ppb or less
X	Triclopyr liquid	Navitrol , Renovate 3	1 Day(s)	120 Day(s) or until approved assay indicates 1ppb or less; No restriction for established turf/grasses	120 Day(s) or until assay indicates 1ppb or less. N/A on domestic	See product label
X	Triclopyr granular	Renovate LZR , Renovate OTF, Navitrol	1 Day(s)	Site-specific recommendation* No restriction for established turf/grasses	120 Day(s) or until assay indicates 1ppb or less. N/A on domestic	See product label
X	Triclopyr/2,4-D amine	Renovate Max G, LZR	1 Day(s)	Site-specific recommendation* No restriction for established turf/grasses	120 Day(s) or until assay indicates 1ppb or less triclopyr and 100 ppb or less 2,4-D. N/A on domestic	See product label
X	2,4-D amine	Sculpin G	1 Day(s)	Site-specific recommendation* No restriction for established turf/grasses	N/A on domestic; assay indicates levels under 100ppb at the water intake	See product label
X	Carfentrazone-Ethyl	Sting Ray	1 Day(s)	14 Day(s)	14 Day(s)	1 Day(s)
X	Diquat Dibromide	Tribune	1 Day(s)	3 Day(s)	5 Day(s)	1 Day(s)
X	Imazapyr	Habitat	1 Day(s)	120 days or until approved assay indicates 1ppb or less for ornamentals or turf	120 days or until approved assay indicates 1ppb or less for ornamentals or turf	N/A

X	**PLM Blue, Cygnet Select:** water dye (tracer), **Alonglife**, **Cutrine Plus-Ultra, Captain-XTR, , SeClear and SeClear G,:** chelated copper, **Cygnet Plus, PolyAn:** Adjuvant**, AquaSticker, Green Clean L and Green Clean 5.0:** oxidizer, **AquaPrep:** enzymes & non-ionic surfactants, **, M.D. pellets**: gram negative, naturally occurring bacteria.**PLM Enzyme**: enzymes, **Phoslock**: phosphorus locking technology.	**No Restrictions** on swimming, bathing, irrigation, domestic purposes or livestock watering.

For a complete listing of all product labels, please see our website. **N/A= Not Applicable INDEF= Indefinite**

***Site-Specific recommendations to limit ornamental irrigation with Renovate & Sculpin granular treated water will typically last 2-14 days. Contact PLM for further information.**

The chemicals used for Aquatic Nuisance Control are registered by the U.S. Environmental Protection Agency and the Michigan Department of Agriculture. The potential for damage to fish and other non-target organisms is minimal provided that the product is used as directed on the product label and the permit. To minimize the possible effects on health and the environment, the treated water is restricted for the above purposes.

PLM Lake & Land Management Corp. Certified Applicators: Salvatore Adams, Tyler Beatty, Jason Broekstra, David Comeau, Jaimee Conroy, Bill D'Amico, Jeff Fischer, BreAnne Grabill, Dustin Grabill, Steve Hanson, Mitch Hiler, Jake Hunt, Nate Karsten, Justin Krueger, Blake Mallory, Michael Pichla, Ernest Schenk, James Scherer, Ben Schermerhorn, Lucas Slagel, Jeff Tolan, Andy Tomaszewski, Mathew Warddell

Permit Information Department of Environmental Quality Water Bureau PO Box 30273, Lansing, MI 48909-7773 DEQ-LWM-ANC@michigan.gov

2014 - April 2015: Lake Mitchell year in review

2014

January 6-9 - Coldest since 1994. Polar Vortex brings high winds, single digit temps. Pipes freeze and sometimes break.
January 25 – 10 ½ inches of snow falls.
January 27-28 – Polar Vortex returns more pipes burst.
January average temperature is 13.
February 20-21 – Barometer drops to 28.9. Wind gusts approach 50 mph.
February 28 – Cadillac snow totals 152 inches. Normal winter is 125 inches.
March 9 – Lake Michigan is 93% frozen breaking 35 year old record.
April 12-13 – Heavy rains flood Lake Mitchell roads & destroy 13th St. culvert.
April 21 – Ice out on Lake Mitchell; 3rd latest in last 40 years.
April 28 – Strong east winds send waves flooding yards on west shore.
June 26 – 135 acres of milfoil treated compared to 430 acres in 2013.
Summer was 6th coolest in last 31 years.
September 2 – 6000 gallons of sewage leaks into East Lake Mitchell Drive wetlands when sewage pump fails.
Sept. 26 – Oct. 16 – Fall color peak weeks. Many say “Best color ever.”
November 18 – Foot of snow falls, biggest storm of 2014-15 winter.
November 19 – Lake Mitchell freezes. Ties record for earliest since 1983.
November 27 - Lake reopens (and refreezes on November 30).
December 25 – Almost a green Christmas, just a dusting of snow

2015

January – Average temperature is 6 degrees below average; Jan. 2014 was 8 degrees below average.
February 20 – low temp was minus 30; high temp of day was 1 degree.
Feb. 23 - low temp was minus 29.
Feb. 27 - low temp was minus 27.
February - Coldest February ever; average temperature was 6.2 degrees; that's 14.5 degrees below normal. 2nd coldest month ever.
March 21 - Winter snowfall was about average, but overall from Dec.1 – March 21 this was 4th coldest winter in last 30 years.

Real Estate values on Lake Mitchell

In July of 2014, Bruce Brown, the assessor for Selma Township reported properties were assessed at an average of $1900 per front foot.

Christy Brow, the assessor for Cherry Grove Township, reported that the main lake was $1720 with some properties going as high as $2300 per front foot. South Franke Cove averages$1180 for a front foot while North Franke Cove is at $1720 and the Torenta Canal has been assessed at $620 per front foot.

Lake Mitchell Improvement Board
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