

The Lakesider.....Spring 2013

The Annual Newsletter of the Lake Mitchell Improvement Board.

Lake Mitchell Improvement Board
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Cadillac, MI 49601
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Mike Solomon
Chairperson
Wexford County Drain
Commissioner

Shari Spoelman
Vice Chairperson
City of Cadillac
Representative

Alan Anderson
Treasurer
Cherry Grove Township
Representative

Dave Foley
Secretary/Newsletter
editor
Selma Township
Representative

Mark Howie
Wexford County
Commission
Representative

Sperry Claypool
Representative At-Large
representing Lake
Mitchell Association

Lake Mitchell Association Officers

JoAnn Engels
President

Lois Poag
Vice President

Lake Mitchell Improvement Board tentative meeting dates for 2013:

- * Wednesday, May 1 @ 3:00 PM
- * Wednesday, June 5 @ 3:00 PM
- * Saturday, July 20 @ 10:00 AM
- * Saturday, August 10 @ 10:00 AM
- * Monday, October 14 @ 10:00 AM
- * Monday, January 5 (2014) @ 10 AM

All meetings are held at the Cherry Grove township fire Hall on M-55. The public is invited to attend.

Contact Lake Mitchell Improvement Board at info@lakemitchell.org.

Lake Mitchell Property Owners' Association Meetings:

- * Saturday, May 25 @ 10:00 AM
- * Saturday, August 31 @ 10:00 AM

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 265 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 native and invasive vegetation
- Photos of Lake Mitchell activities and weather events in 2012
- Lake Mitchell 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.



An Annual Progress Report of Aquatic Vegetation and Water Quality in Lake Mitchell January, 2013

Summarized by Dave Foley

1.0 EXECUTIVE SUMMARY

This report describes the current distribution of native and exotic submersed, floating-leaved, and emergent aquatic plants, including the exotic species, Eurasian Watermilfoil (EWM) and Hybrid Watermilfoil (HWM) within Lake Mitchell. In June of 2012, plants suspected of being hybrid were sent to the GVSU Annis Water Resource Institute (Muskegon, Michigan) for genotypic diagnosis that confirmed the observed phenotype was hybrid watermilfoil. A mid-August post-treatment survey and early October lake survey in 2011 found that most of the EWM had been successfully killed but that HWM was beginning to fill in the niche previously occupied by the EWM.

On May 22-23 of 2012, approximately 250 acres of HWM were located in the main lake and coves during the whole-lake GPS Grid Matrix Survey. Treatment of approximately 239 acres of HWM occurred on June 13, 2012 by Professional Lake and Land Management of Caledonia, Michigan. Approximately 146 acres of HWM was treated with the systemic granular Renovate Max G® at a dose of 160 lbs per acre. An additional 93 acres of HWM was treated with Renovate Max G® at a dose of 120 lbs per acre. A post-treatment survey on July 23, 2012 that included three members of the Lake Mitchell Improvement Board, a representative from the herbicide manufacturer, SePRO, and an applicator from PLM all accompanied the consultant for the Lake Mitchell Improvement Board to assess the efficacy of the treatment throughout the lake. It was mutually determined by those stakeholders that a re-treatment of approximately 53 acres of HWM throughout the lake was needed with 45 acres being treated with Renovate Max G® at a dose of 160 lbs per acre and 8 acres being treated with Renovate Max G® at 120 lbs per acre. Additionally, a new 15.3 acres of HWM was noted with 2.5 acres being treated with Renovate OTF® at 120 lbs per acre and 12.5 acres being treated with Sculpin G® at a dose of 160. lbs per acre. A total of 44,966 lbs of granular aquatic herbicide product were applied to the main lake during 2012.

In addition to the main lake, the coves and canal were all treated on June 11, 2012 by A&T Service, LLC based in Spring Lake, Michigan. In Little Cove, approximately 13 acres of nuisance HWM and native vegetation was treated with the contact herbicide fluxioxazin (Clipper®) at 200 ppb. Franke North and Franke South were treated with 2.5 acres of Clipper® at 400 ppb and 3 acre of Clipper® at 400 ppb, respectively. In Big Cove, approximately, 7 acres of HWM was treated with the contact herbicides diquat (Reward®), Hydrothol (Aquathol-K®), and chelated copper algaecide (Cutrine®). In the Torenta Canal, approximately 3 acres were treated with the contact herbicides diquat (Reward®), Hydrothol (Aquathol- K®), and chelated copper algaecide (Cutrine®). An additional 3 acres of the aforementioned contacts was applied to the Franke Coves on August 29, 2012 by A& T Service, LLC.

On July 15, 2012, approximately 40 pots of cultured *Galerucella* sp. beetles were transplanted into areas that contained actively growing Purple Loosestrife. In many cases, individual beetles were hand-delivered to individual florescences of Purple Loosestrife plants. Transplant areas included Little Cove, the Franke Coves, Big Cove, and the Torenta Canal. Beetles were cultured at the Kalamazoo Nature Center in Kalamazoo, Michigan. On August 17th, 2012, approximately 3-5 florescence's on different plants were evaluated at each of the stocking sites. The mean damage index was 3.1 ± 1.0 and the mean number of beetles observed on a given florescence was 2.5 ± 1.3 .

A final GPS Grid matrix Survey conducted on August 17th and 19th, 2012 determined that many of the HWM areas that were treated showed significant damage. A few areas at the north side of the lake showed some resistance but a spring 2013 survey is needed to fully determine the extent of systemic herbicide damage. The weevil activity in Big Cove continues to decline over the past three years, even despite an initially high stocking density of 10,000 weevil units in a 1-acre are during July of 2009. Due to this weak response, further stocking of milfoil weevils in Big Cove is not advised. Water quality sampling of the deep basins and tributaries of Lake Mitchell was conducted on July 14, 2012. Secchi transparencies were higher than average (by nearly 2 feet on average) and the water temperatures were very warm with surface temperatures near 79 degrees. Nutrient levels continue to be in the eutrophic range for the entire lake, with elevated levels entering the lake from Brandy Brook and Mitchell Creek. Staff at Restorative Lake Sciences, LLC (RLS) will continue to monitor the lake for both EWM and HWM and will re-survey the lake in the spring

of 2013 to determine exact GPS coordinates for treatment. Additionally, RLS recommends that either in situ test of various herbicide combinations and/or laboratory tests of the same be conducted prior to large-scale treatments in 2013. The challenge of HWM is a serious one for many inland lakes and the treatment strategies differ from site to site due to differences in water and sediment chemistry.

There are currently a total of 27 native aquatic plant species in and around Lake Mitchell. In 2012, a total of 18 submersed, 4 floating-leaved, and 5 emergent aquatic plant species were found for a grand total of 27 species. The removal of EWM has resulted in an increase of 3 native submersed aquatic plants to the lake ecosystem and continued removal of HWM is needed to maintain this high biodiversity. Staff from RLS recommend that a local Lake Mitchell riparian workshop be conducted during the 2013 season to educate lake citizens about the issues on the lake. The workshop would provide educational assistance to residents from RLS expert limnologists and watershed managers with a demonstration table that includes lake protection information on Lake Mitchell.

What is the Lake Mitchell Property Owners' Association? 2013

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 meets twice a year at 10 AM on the Saturday before Memorial Day (May 25) and the Saturday before Labor Day (August 31). The current officers are JoAnn Engels, president; Lois Poag, vice-president.

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.

What is the Lake Mitchell Improvement Board?

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. To determine how the collected assessments will be spent The board established a budget based on the following principles:

Prioritized Goal Statements for the LMIB

The Lake Mitchell Improvement Board developed and established prioritized goals for the three year assessment period that begins July 10, 2010. These were discussed at length by the Board over several meetings and given opportunity for public input. They consist of maintaining the existing program of work and trying to establish a financial reserve to cover any unforeseen increase in our milfoil program.

*Treatment of Eurasian water-milfoil to maintain navigation in the main lake, maintain a healthy balance of native aquatic vegetation, and prevent the spreading of nuisance aquatic vegetation.

*One herbicide or mechanical weed harvest each year according to the Lake Mitchell Weed Management Guidelines approved by the LMIB (January 2012) to maintain navigational channels.

*Curbside weed pick-up from approximately Memorial Day to Labor Day.

*Chemically or biologically treat other areas as needed to maintain navigation, control purple loosestrife, and eliminate Phragmites.

*Establish a financial reserve to cover years with higher than normal weed growth, control new invasive plants, or to reduce future assessments if aquatic weed management continues to be successful. Goal is to build a \$60,000 reserve by July 1, 2015.

*Conduct additional herbicide or mechanical weed harvest to maintain navigation if needed and approved by the LMIB.

*Consider up to a 10% financial incentive to support large capital expenditures that benefit specific areas such as dredging, aeration systems, or other innovative concepts.

Lake Mitchell Property Owners' Association (LMPOA) survey results

On November 7, 2012 the LMPOA sent out a survey to all (602) members. 50 were returned unopened, and 142 responses were received. The full results of the survey can be found on our website www.lakemitchell.org.

Some of the key findings from the survey included the following:

*On a 1-10 scale with 10 meaning the greatest, when asked "How much of a concern are the weeds?" the mean score was 8.6. The question of "How satisfied are you with the effectiveness of the treatment?" with 1 being satisfied and 10 being very concerned the mean score was 6.33. When asked "Are you concerned about what the condition of the lake has on your property values?", the mean score was 7.8.

*When asked about paying additional assessment money, 65% would be willing to raise the assessment. The average mean dollar amount of increase was \$58.

Answers to survey questions

The survey provided a comment section which was used by many. The following information should address some commonly asked questions.

Harvesting - The Lake Mitchell Improvement Board has not used harvesting for weed control for several years. Weeds drifting in the lake result from natural die-off, plants killed by chemical treatment, and plants cut by outboard motors.

Zebra mussels - While zebra mussels are a problem in Lake Cadillac they are rarely found in Lake Mitchell. The lake water is softer than Lake Cadillac which may offer habitat less suited to zebra mussels.

Outside funding for Lake Mitchell's weed problem - With the exception of a three-year grant of \$10,000 provided by the United States Forest Service for vegetation control in Big Cove, all funds used by the LMIB come from assessments to LMPOA. Several years ago the LMIB spent several weeks investigating sources of additional funding. Meetings were held with Senator Booher, township officers, State Park officials, and members of the county commission. A proposal was written by Dave Foley that would have increased boater registration fees with proceeds to be used to treat invasive species, however this potential bill never made it to a legislative committee. In addition, grants were written (and rejected). Other than the USFS, all funding options explored proved unsuccessful.

Township boat landings - Townships own the boat landings and are responsible for improving and maintaining them.

Hazardous rocks in Lake Mitchell - If the LMIB were to mark hazardous rocks, it could become liable for mishaps involving the rocks. The current budget expenditures are determined by the Prioritized Goals. Meeting those goals currently consumes LMIB assessment monies.

Weed control Plan for 2013 - Information about the weed control plan used in 2012 and plans for 2013 will be found in the Lake Mitchell Annual Report (summarized in this newsletter and found in its entirety on our website). The drain commissioner's report (see "Lake Mitchell water level 2012 report" in this newsletter) will address concerns raised about lake level.

Summary of Lake Mitchell Public Hearings conducted on February 23, 2013

(Complete minutes can be found on website.)

Meeting called to order: 10:00 AM

Roll Call: Present – Mike Solomon, Alan Anderson, Dave Foley, Sperry Claypool, Shari Spoelman, Mark Howie with Jennifer Jermalwicz-Jones, our consultant from RLS, also in attendance. Absent: None.

Treasurer's report: (Alan Anderson) Current balance is \$226,000 of which approximately \$145,000 will be spent on chemical application that will occur in June.

The Board hopes to accumulate a contingency fund not to exceed \$100,000. The fund is currently about \$60,000. Typically under the current assessment the Board collects about \$196,000 annually and spends about \$180,000, with about \$145,000 going for chemical treatment. Last year was the first that chemical applicators were held to a 90% kill rate of vegetation. This eliminated expenses for re-treatment and chemical expenses dropped to \$121,000. The recent presence of hybrid milfoil, which does not respond to doses of chemicals used in the past is expected to increase herbicide costs with use of higher dosages and the purchase of more expensive chemicals.

Solomon explained the procedures and purpose of the public hearings: To determine the assessment that will be used from 2014-2016. Assessment period actually begins at start of fiscal year July 1, 2013. Those in assessment district will be assessed once a year on their summer taxes.

Public Hearing of Practicability: Jermalowicz- Jones presented a Power Point detailing the aquatic vegetation program used in Lake Mitchell in 2012 and the planned program for 2013.

Solomon reviewed the Board's Priority Goals for Aquatic Plant Control noting that the highest priority was to control the milfoil in the main lake and the second being the opening of navigation lanes in the coves. A lower priority was the clearing the weeds from the main areas of the coves but if property owners in those areas wanted to undertake large capital expenses such as laminar flow or dredging, the board would pay 10% of the cost.

Solomon then opened the hearing up for public input. The following highlights some public information discussed at the hearings that may be of interest. A summary of all information can be found in the full text of the public hearings available on our website.

What is laminar flow aeration? - A Laminar Flow Aeration System in which pipes and diffusers aerate the water causing organic matter to breakdown is being tested in several lakes in central and northern Michigan. If it is effective it may be tried at some time in Lake Mitchell.

Could herbicide treatments harm Lake Mitchell? - Although the dosage of herbicides will be increased and new chemicals will be used in Lake Mitchell to combat hybrid milfoil which is not killed by dosages used in previous years, all treatment must first be approved by the Michigan DEQ and the EPA. Our first priority is protecting our lake's ecology. We are taking every precaution to insure the fishery will remain strong and lake will be safe for swimmers.

A township or county millage to fund aquatic vegetation control? - This would be a logical project for the Lake Mitchell Property Owner's Association. However, the funding of a campaign could be problematic. Although Lake Cadillac passed a millage to deal with its weed problem, most of the city residents live within a mile of the lake and much of the lakeshore, which contains a public boat dock, parks, and beaches, is accessible to the public.

Would a higher assessment mean more attention to coves? -The rising cost of chemicals and the need for higher dosages and different chemicals will likely absorb most of the funds generated by an increase. The coves are guaranteed one treatment to create navigational lanes for boaters. Work beyond that depends on funds remaining after main lake has been treated for hybrid milfoil. If property owners wish to undertake special projects such as dredging or laminar flow, the Improvement Board will pay 10%.

What would one unit (lakefront property assessment) need to be to handle proposed program? \$275 per unit (current rate) or 300 or 326? - Single unit rate of \$300 (2 unit commercial becomes \$600, deeded access back lot becomes \$150.) This should handle the aquatic weed control program and allow the Board to continue to build toward a \$100,000 contingency fund. Currently fund has \$60,000. If a surplus beyond that accumulates, the Board will not collect all of our allotted assessment or lower the assessment.

Has a vacuum system been considered? - The Aqua Vac system has not been approved by DEQ.

Motion made to proceed with Improvements to Lake Mitchell made by Shari Spoelman and seconded by Dave Foley. Motion was passed unanimously. (This motion can be found on our website.)

Review of Appropriations Hearing

Presentation of Special Assessments Rolls – No written requests had been made and none in the audience came forward with concerns about their assessment so the rolls were accepted as presented. Solomon then opened the hearing for comments. (See “Information from public hearings that every property owner should know.” at www.lakemitchell.org)

Discussion of the amount to be assessed by LMIB members:

*Spoelman – In talking with people there was support for increasing assessment to insure necessary treatment can be done. The results of LMPOA survey bear this out. Willing to support assessment of \$300.

*Anderson – The survey had 114 responses about assessments out of 142 surveys returned. However, there were 602 mailings sent out and it is difficult to know what property owners want if they do not respond when requested.

*Anderson – We need to know what to expect for our money and how effective chemicals will be on hybrid.

*Solomon put a table on the board showing years and amount of acreage treated for milfoil: 2009 – 380 acres, 2010 – 357 acres, 2011 – 295 acres, 2012 – 265 acres.

*Howie – We should ask for an increase with the understanding that if weed control is achieved we will not collect the assessment.

*Claypool – Often those who don't respond are satisfied. Assessment should be lowered if a surplus beyond \$100,000 occurs.

Motion made by Foley and seconded by Claypool to set one unit assessment at \$300 for 2014-2016 which will yield approximately \$208,000 annually. Motion was passed unanimously. (Deeded access property will be assessed \$150 and commercial units will be assessed \$600).

Meeting adjourned at 12:20 PM

Minutes submitted by Dave Foley

Lake Mitchell Water Level Summary 2012

By Mike Solomon, Wexford County Drain Commissioner

2012 was officially the hottest year for the United States since records have been kept. Locally we started with early ice out as a result of 8 days in March that exceeded 80 degrees F. This gave the aquatic vegetation a head start and very vigorous early season growth. Eurasian watermilfoil was topped out by late May.

Lake water quality stayed about the same as it has for the last few years. Dissolved oxygen was adequate for warm water fish, conductivity is lower than many other lakes but showed some increase over the last few years, pH was circum neutral, and alkalinity (the measure of the pH buffering capacity of the lake or ability of a lake to resist change) is low indicating soft water. Total phosphorus has dropped some in the last few years but remain relatively high and are in the eutrophic range for the entire lake. Elevated levels of total phosphorus continue to enter from Brandy Brood and Mitchell Creek which are the two main tributaries. Secchi transparency is a measure of water clarity and was up for the year. The average values have increased from 4.5 feet in 2009 to 6.2 feet in 2012.

Lake levels on the whole were good for the year. A portion of August and all of September the lake was below the Court Ordered levels. As most of you can remember we had a very dry August and September with only 1.90 inches of rain in August and 2.55 inches of rain in September. Even with these conditions the end of August saw the lake about 0.25 feet low or 3 inches and the end of September was 0.4 feet low or 4.8 inches. This is far better than the other lakes in Wexford County. This is a result of the dam and a large contributing area of wetlands in the watershed that slowly contribute water to the lake and buffer large

differences in elevation.

Judge William Peterson issued Court Order 585 (1967) that controls lake levels on Lakes Cadillac and Mitchell. It basically states the following: 1. That the annual maximum level is set at 1290.0 feet; 2. That a minimum winter level is established at 1288.9 feet; 3. That a summer minimum level is established at 1289.7 feet.

Along with the basic court order Judge Peterson gave much additional information about lake levels. Most of this information came from two studies done by the Michigan Department of Conservation in 1955 and 1967. These were the basis for the determination of the legal lake levels and I feel are important to understanding the Order and knowing the background information of "why?" the levels were set as they were. The following are direct quotes from Judge Peterson's write up entitled "Opinion of the Court". The Judge cites "...the engineering studies disclose that there are improvements adjoining the lakes which have annually suffered from flooding or the effects of the annual spring high. Some properties have been developed which are lower than the average of any year. The owners of such property have made their improvements at their peril with reference to an existing condition of the lakes and cannot now justifiably claim that the protection of their property warrants a reduction in levels which are disadvantageous to other owners and the public..."

Judge Peterson discusses the spring runoff that raises lake levels and evaporation exceeding summer rainfall that causes lake level reductions. He states "The average summer loss has been approximately 1 foot; in the wettest summer it has been as low as 0.4 of a foot. In the driest summer it has been as much as 1.6 feet...Over the years of recorded lake level experience, the fluctuations from an annual high to an annual low has been as much as 3 feet. In any given year, the fluctuation has never been less than 0.9 feet and as much as 2.0 feet. It is the purpose of the proceedings under the statute to attempt to stabilize the lakes so far as possible, taking into consideration the natural phenomena noted, and to reduce the extremes of high and low water each year."

The Judge cites: "The following facts are pertinent and worthy of note:

1. The annual high level of the lake has generally been over 1290.0 feet above mean sea level and in at least one year has come close to 1291. Continued maintenance of a level of 1290, or higher will have adverse effect on septic tanks surrounding the lake, basements and other improvements, and increases erosion of shoreline by ice or wave action.
2. "The annual low has generally been below 1289. feet below sea level. Only four times since 1942 has the lake failed to fall to that level and once it has fallen as low as 1288.0 (1955). A low is desirable as the winter approaches from the standpoint of minimizing of ice erosion and as a means of preparing for spring runoff which will follow. A low level in the spring or early summer, however, leaves the lake vulnerable to further reduction by the summer evaporation and a continued low has an adverse effect on the lake as such, not only from the standpoint of boating and recreational use and appearance, but also because of the increased marine growth."
3. "Careful management over the past five years indicates that prudent management can generally reduce the level in the fall adequately to prepare for the accumulation of the spring runoff and maintain the lake at a level which will minimize the summer fluctuation. The dry season of the 1966 demonstrates that even careful controls cannot prevent loss up to a foot in summer evaporation, but the lake has generally been kept above 1289 minimum in every summer of the last five years. The effect of the controls of the past five years have, therefore, been not only to reduce the average annual fluctuation with particular reference to the high, but also to reduce the average summer fluctuation as well." I note here the "past 5 years" appears to indicate the 5 years just preceding the Court Order of 1967.

Drain Commissioners have recorded lake levels on Lake Cadillac and Mitchell on a monthly basis since 1975. These data show the lake levels are usually within the levels cited in the Opinion of the Court, though an all time new high was reached on June 18, 2008 with a level 1291.5 feet. This was the result of 11.83 inches of rainfall for the month.

Lake levels are a reflection of the combination of precipitation, evaporation and dam operation. We have had 5 of the last 6 years with above normal precipitation. Warmer summer temperatures and high winds result in more evaporation. Looking at the recent data it appears it is more difficult to reduce lake levels both in the summer and to try to obtain the winter water level. This could be a result of several factors. With the

conversion of small summer homes to large homes with patios and large driveways and garages has resulted in much more impervious surface. This increases rapid runoff that often times drains directly into the lake. We have over 4,000 acres of surface water and a large watershed (28,593 for Lake Mitchell alone) that all outlet down a 25 foot channel of the Clam River. Additionally there are over 2 million gallons per day in groundwater cleanup being discharged to the Clam River that were not present at the time of the Court Order.

Dam repair: This summer there will be some work done on the dam that controls the lake levels to bring it into compliance with comments provided during our 2012 dam inspection report. Concrete that has been damaged will be cut off and repaired. Additionally, security fencing on the east and west sides will be removed from the concrete wall and replaced just outside this area to prevent future damage to the concrete. An arm on the right bay will also be straightened or replaced. Finally channels will be placed in the minimum flow area so that there is some water level control in this area. It is anticipated that all work can be accomplished during normal summer lake levels.

A brief history of Lake Mitchell fish stocking and the walleye fishery

Written by Mark Tonello MDNR fisheries biologist. Summarized by Dave Foley, 2013

The first documented fish stocking of Lake Mitchell took place in 1874, when lake whitefish were stocked. Other stockings in the 1800s included Chinook salmon, lake trout, smallmouth bass and walleye. The shallow warm nature of Lake Mitchell makes it unsuitable for cold-water species like trout, salmon, and whitefish. Walleye and smallmouth bass were again stocked in 1909 and 1910. From 1929-1940 intensive stockings of bluegill, yellow perch, and emerald shiners were made.

The Lake Mitchell fish community has undergone major changes in the last thirty years. Largemouth bass have become abundant while the once self-sustaining walleye fishery now requires stocking to maintain. No walleye stocking was done between 1940 and 2004. Walleye reproduction declined noticeably in the late 1990s. A 2012 survey noted only one fish dating from an unstocked class, all other fish were stocked. Clearly stocking plays a major role in the Lake Mitchell walleye fishery, although, even with stocking, the walleye population is much smaller than it was in the 1980s and early 1990s.

The exact reason for the lack of walleye reproduction is unknown, it may have something to do with the recent abundance of largemouth bass. Almost seven times more largemouth bass were taken in the 2003 net survey than were found in the 1993 nets. Studies show that largemouth bass prey on juvenile walleye, which may have an effect on the walleye population.

Fish growth may also have an effect. In 1980 and 1988, most fish species in Lake Mitchell were growing faster than the state average. However, starting in 1993, growth rates began to diminish and by 2012 only two species, walleye and smallmouth bass were growing faster than the state average. The decline in growth rates among other species may be due to reduced numbers of walleye, a major predator of panfish. The increased number of panfish may create more intraspecific competition among panfish species, leading to slower growth.

Another plausible explanation is the loss of mayflies that has occurred in both lakes. Mayflies are an important food item for many fish species. Although a few flies hatch every year, the last significant hatch occurred in 2001. Although the exact reason for the disappearance of mayflies is unknown, it may be linked to copper sulfate, which is known to negatively effect invertebrate populations and mayflies, in particular. Lakes Cadillac and Mitchell were treated with large amounts of copper sulfate to prevent swimmer's itch until the practice was discontinued in the mid-1990s.

In the early 1990s Eurasian water milfoil (EWM), an invasive aquatic weed became prevalent first in Lake Mitchell and later in Lake Cadillac as well. The plant has been held at bay in the lakes due to annual chemical treatments of 2, 4-D, but the presence still poses a problem. Typically the plant survey done in Lake Mitchell in May finds about 300 acres of milfoil which is chemically treated in June. If untreated, over time, EWM would undoubtedly dominate much of Lake Mitchell creating negative effects on fish populations. In 2010 hybrid milfoil appeared and is now the predominant form of milfoil in the lake. The hybrid plant is more resistant to treatment and requires higher dosages to kill the plant. The vast increase of aquatic plants in Lake Mitchell that has occurred over the last twenty years has resulted in much more silt covering lake

bottom that was once gravel and sand. Yellow perch, walleye, and smallmouth bass favor hard bottom habitat and the loss of that may have contributed to the decrease in the numbers of these fish in Lake Mitchell.

Mark Tonello, the MDNR fisheries biologist, who prepared this report recommends that since surveys have shown no signs of natural reproduction in walleye since 2003, stocking in Lake Mitchell should continue at a rate of 50/acre (130,000 fish) every other year. Since a full complement of walleye was stocked in 2012, the next should occur in the spring of 2014.

What lakeshore property owners can do to preserve the fishery - According to Tonello's report, there are some things that lakeshore residents you can do to preserve the fishery. Nearly 75% of the shoreline contains seawalls or riprap and many lawns are mowed right down to the water's edge. This results in loss of native vegetation that holds back erosion and catches runoff of lawn fertilizers into the lake. Applying fertilizers containing phosphorus to lawns puts nutrients into the soil that, if allowed to leech into the water, will stimulate growth of aquatic plants. Allowing native plants to grow along the shoreline in a green belt will provide habitat for amphibians and invertebrates. If shoreline erosion seems imminent, then riprap rather than seawalls should be used and native vegetation should be permitted to grow in front of the barrier. *Tonello's report, in its entirety, is found on our website www.lakemitchell.org*

2012 Calendar Year Financial Report

Prepared by Alan Anderson, Treasurer

2012 Income	Jan.1-June 30	July 1-Dec. 31	Total
Interest	181.88	149.87	331.75
Selma Twp Contribution	1,650.00		1,650.00
Assessment Income	16,364.11	182,069.82	198,433.68
Total	18,195.99	182,219.69	200,415.68

2012 Expenditures	
Roadside Weed Pickup	7,250.00
Lakeshore Environmental Administration	16,000.00
Chemical Treatment	121,266.00
Purple Loostripe Beetles	2,150.00
GVSU Weed Analysis	150.00
Bass Tournament Monitor and fish return	
Insurance/Bond	635.00
Service (audit, assessment, permit fees)	2,110.00
Print (mailings, newsletter, website, supplies)	1,898.82
Misc. (Conference registration fee)	
Total	151,459.82

Fund Balance Jan. 1, 2012	180,248.96*
2012 Revenue	200,415.68
Total	380,664.64
2012 Expenditures	151,459.82
Fund Balance Dec.31, 2012	229,204.82

*Corrected 2011 fund balance reported as \$179,297.96

Roadside Pickup extended for 2013

The Lake Mitchell Improvement Board will again provide roadside pickup of weeds. Weed hauling begins May 20 and continues through September 15. Aquatic weeds need to be removed from the lakeshore by the property owners and put on the edge of the road. 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 and black peat from Franke Cove dredging can be purchased from Ron Klimp (231-775-6577) for \$5 per load

Map of Lake Mitchell Treatment Area



The dots on this Lake Mitchell map show GPS marked locations of hybrid watermilfoil and Eurasian watermilfoil. Herbicide application was done at all watermilfoil found in the area of the marked dot. For details on this treatment check the Lake Mitchell Annual Progress Report.

LAKE MITCHELL 2013 TREATMENT NOTICE

PLEASE TAKE THE TIME TO READ THIS NOTICE: IT IS FOR YOUR INFORMATION!!

RESIDENTS IN THIS AREA ARE PLANNING TO HAVE THE WATERS IN THIS AREA TREATED FOR CONTROL OF LAKE WEEDS AND/OR ALGAE. This notice is being circulated at least 7 days and not more than 45 days in advance of the treatment in accordance with MDEQ procedures. A permit for the treatment has either been secured or will be secured from the MDEQ before the treatments are to begin. You are receiving this notice if you are within 100 ft of the treatment area.

Aquatic Herbicide Applicator Procedures for Weed Control.

If we are treating for weed then there are restrictions on the use of the water and we will post the shoreline with 8.5 x 11 inch signs before these chemicals are applied to the lake. Treatment with the weed chemicals does not occur without posting first. Each lake is treated according to a schedule or season plan worked out with the persons in charge of your lake treatment program. However, due to the differences in season plans and the uncertainty of weather please watch your shoreline for the posting of the 8.5 x 11 inch signs, particularly in **late April to late August. YOUR LAKE MAY BE TREATED MORE THAN ONCE EACH SEASON. CHECK THIS WITH YOUR ASSOCIATION or LAKE BOARD.** The signs will indicate the date of the treatment, the chemicals used, and the restrictions as to the use of the water for swimming, irrigation and the consumption of fish taken from these waters. We use NEW SIGNS for each application. Only chemicals, which have been registered by the State of Michigan and the Federal Government are to be used. These chemicals are applied in amounts approved by the MDEQ.

Method of Application: Chemicals are applied as either liquid or granular formulation, liquids are either surface sprayed or sub-surface injected, granular formulations are applied with broadcast spreaders.

Another requirement of our permit is that we locate all wells (**when using granular 2,4-D or granular Endothall products Aquathol-K and Hydrothol 191 only**) and maintain a distance of 75 ft from all wells and 250 ft from any well that is less than 30 ft in depth. **IF YOU ARE AWARE OF SUCH A WELL, PLEASE NOTIFY THE LAKE MITCHELL IMPROVEMENT BOARD.**

We anticipate using one or more of the chemicals listed below. Please be aware of the restrictions on each. We will post signs as necessary. If we have not posted it means we are using products that require no posting. If the MDEQ changes any restrictions they will be noted on the signs we post. **PLEASE READ THE SIGNS WE POST!**

CHEMICAL/RESTRICTIONS

Reward (Diquat Dibromide): Do not use the treated water for swimming for 24 hours. Do not use the treated water for watering lawns or gardens, animal watering (farm stock--not incidental drinking by a domestic pet), or drinking for 5 days after treatment. There is **NO** restriction on fish consumption.

2,4-D(Dichlorophenoxyacetic Acid,Butoxyethyl Ester): Do not use the treated water for swimming for 1 day. Do not use the treated water for irrigation, agricultural sprays, watering dairy animals, or domestic water supplies. "Irrigation" includes water gardens--however, it does **NOT** include watering lawns. 2,4-D is often used by lawn spray companies to kill weeds in lawns--watering lawns when only 2,4-D has been applied will not hurt your lawn (but see restrictions on the other products). "**Domestic use**" means using lake water inside your house. Fish and wildlife are not affected. There is no restriction on fish consumption.

Renovate (Triclopyr)

Do not use the treated water for swimming for 24 hours. Do not use the treated water for irrigation for **120 days** following application. As an alternative to waiting 120 days, treated water may be used for irrigation once the Triclopyr level has reached a non-detectable level. This can be done by laboratory analysis (immunoassay). **There are no restrictions on the use of water from the treated area to irrigate established grasses.**

Aquathol-K,Aquathol(Dipotassium Endothall), & Hydrothol 191 (Mono(N,N-Dimethylalkylamine) salt of Endothall):

Do not use the treated water for swimming for 24 hours. Do not use the treated waters for household uses, irrigation (lawn or gardens), animal watering (farm stock), or similar uses for 14 days.

Citrine-Plus(Citrine Alkanolamine Chelated Copper Complex) NO RESTRICTIONS.

Cygnat Plus (adjuvant) NO RESTRICTIONS

Clipper (flumioxazin) No swimming, drinking, fishing restrictions; Minimum 5 day irrigation restriction.

If you have any questions, please contact the Lake Mitchell Improvement Board who is in charge of the treatment. Visit their website for the most updated information at: <http://www.lakemitchell.org>

Year on on Lake Mitchell - 2012

January/February – Mild winter, few frigid days, no major snows.

March 2-3 – Season's biggest storm 14 inches snow, 1000s lose power.

March 7 – Spring arrives. Fifty degree days.

March 14 – Temperature reaches record 78 degrees.

March 17 – Lake Mitchell ice goes out. 2nd earliest opening since 1934.

March/ April – Many record high temperatures.

June 8 – Kenneth Coty of Merrill drowns in Lake Mitchell

June 11 – Coves and Torenta canal receives chemical treatment

June 13 – 239 acres of hybrid milfoil chemically treated.

July 15 – *Galerucella* beetles planted in coves to eat loosestrife plants.

Summer – Cadillac records 2nd hottest summer. Many days in the 90s.

August/September – Water levels drop but rebound in October.

1st week of October – Peak color. Many call it best leaf show ever.

December 11 – Lake Mitchell freezes, then opens.

December – Lake Mitchell refreezes.

December 20-21 – Near blizzard brings 8 inches of snow.

December 25 - Only 2 inches of snow on the ground.

January 2013 - 1st week warm and rainy, 3rd week bitter cold, 4th week warm. Snow cover peaks at six inches.

Lake Mitchell Improvement Board
203 Peninsula Drive
Cadillac, MI 49601