



**ANNUAL  
REPORT  
2018**

# Platte Lake Improvement Association

**Keeping Platte Lake Clean for 40 Years**

*We are a grassroots, non-profit association of individuals committed to insuring that Platte Lake is a healthy and beautiful body of water to be enjoyed now and in the future.*

If you love Platte Lake and want to keep it beautiful and safe you should become a member of the Platte Lake Improvement Association.

Four decades ago the Platte Lake Improvement Association (PLIA) was formed to protect one of the most beautiful bodies of water in the State of Michigan. This Association of concerned homeowners, like you, saw serious changes occurring to a lake that they and their families had loved for many years. They had witnessed Platte Lake water change from a beautiful sky-blue color to a foul gray-green appearance with heartbreaking huge seasonal algae blooms.

The crisis had been caused by excessive phosphorus loading into the lake from the upstream fish hatchery. Hatchery fish rearing had been increased to produce coho salmon instead of trout. To improve production, fish were fed food with high phosphorus content.

Phosphorus is an incredible fertilizer for the algae in Platte Lake. One pound of phosphorus can create 500 pounds of algae. During that time, the hatchery was discharging thousands of pounds of high phosphorus food directly into the Platte River and had no plans of changing that behavior.

Platte Lake needed a strong voice and the PLIA became its champion. Homeowners banded together to reverse the destruction of Platte Lake. Eight years of protracted negotiation with the Michigan Department of Natural Resources (MDNR) ensued. This eventually resulted in successful



litigation in Circuit Court on behalf of the PLIA against the State of Michigan and the MDNR that began in 1986. 14 years later a Settlement Agreement permanently established how much phosphorus the hatchery can discharge annually and established a phosphorus standard for the lake.

Over the past 40 years the PLIA has assumed an active role in the functioning of the hatchery. What used to be over 4000 pounds of phosphorus discharged annually into the Lake has now dropped to less than 150 pounds with no adverse effect on hatchery operations. Fish are fed a low phosphorus diet on a feeding schedule optimized to maximize fish health and growth while minimizing food usage. All hatchery wastewater is now treated to decrease phosphorus content. All solid waste from the hatchery is transported outside the Platte River watershed.

Hard work and sacrifice of time and money has successfully restored the water quality of our lake. Platte Lake is now the most studied lake in the State of Michigan thanks to the PLIA.

Today, many homeowners are not aware of the serious threat Platte Lake faced in the past. Without close observation and monitoring our lake could easily regress to what it was just 40+ years ago. Any source of

contamination upstream in the Platte River will end up in Platte Lake.

History shows that as the population in the area increases and development occurs the lake can change quickly. Tons of phosphorus from years of neglect still remain, like a sleeping giant, in the bottom settlement of the lake. Ongoing vigilance and testing is essential.

No one else is monitoring the lake. PLIA has been entirely responsible for the past three years for 100% of the costs involved in lake and river sampling, phosphate analysis and data monitoring.

PLIA is a grassroots, non-profit association committed to insuring that our lake is healthy and can be enjoyed now and by future generations. We are your neighbors. We need your support. If you are not a member of the PLIA you must join and support the volunteers who have restored this lake to the beautiful body of water it is today.

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**The lake cannot speak for itself.  
Join PLIA and help us speak for it.**

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## What are those black streaks on my aluminum dock and boats?

Those are the egg masses of the Alder fly, an aquatic insect that spends most of its life as a nymph in the lake bottom. When it emerges as an adult, the black Caddis-like fly of about 3/4 inch size looks like the sample pictured. They then attach their egg masses to your dock structures for the next generation, as shown here. (picture to be provided by Steve). They are indicators of good water quality and are perfectly harmless.



## What we've been doing this year.

- Continued the lake and river sampling plan. We sample eight upstream river locations and Platte Lake at eight depths every two weeks. The data the plan generates helps determine compliance with the Platte Lake phosphorus standard as well as identifies issues in the upstream watershed. The database is on the PLIA website. This effort has been ongoing since 1990 and has been fully funded by the PLIA since 2015. 2017 costs were \$16,164 for sample collection, related preparation and analysis.
- Continued to monitor the Hatchery's discharge of phosphorus. As of June the discharge YTD is 61.1 lbs P and it is on target to comply with its 150 lb/yr phosphorus discharge limit.
- Continuing our efforts to understand/control/reduce the incidents of swimmer's itch, we signed a \$3000.00 contract with "Swimmer's Itch Solutions", Dr. Curtis Blankespoor – University of Michigan, to perform a 2018 swimmer's Itch assessment to obtain the necessary information to determine if we can qualify to obtain a merganser removal permit from the MDNR. Previously we worked with Dr Raffel of Oakland University to verify that the parasite involved is present in the lake. The three sites we monitored last year tested positive.
- Contracted for an aerial drone survey to quantify the size and location of weed beds in the lake so we can then sample and determine plant species and compare with previous surveys. If we discover invasive species, then we can determine whether or not we may be able to control the spread. The main culprit is Eurasian milfoil that has wreaked havoc with other area lakes.
- To track down the source of the mysterious phosphorus increases in the Platte River we began detecting in 2013, we have been in contact with the Governor's Office and have had meetings with the MDEQ (Michigan Department of Environmental Quality) and MDARD (Michigan Department of Agriculture and Rural Development). We have identified a potential source of phosphorus in Section 13 of Homestead Township that may explain the increase. See "What's up with Section 13?" on page 7.
- As part of our ongoing efforts to identify unknown source(s) of phosphorus upstream of Indian Hill Road on the north branch of the Platte River. We have determined many different agencies are issuing permits for surface disposal of materials containing phosphorus in the watershed without any reporting or communication to any one central agency. This spring, we had some breakthroughs in determining that permit information that comes from all state agencies ends up with the townships. We are working with our local townships to get them to transmitting records to the Benzie Conservation District so that we can monitor their impact on the lake and watershed.

# Timeline of Major Events in the History of the Platte Lake Improvement Association.

The Platte River Fish hatchery was constructed as a fish rearing station for trout.

1928

1961

The Platte Lakes Area Association was created as cottage owners on Platte Lake and Little Platte Lakes joined together in response to the threat of property takeover in creation of the Sleeping Bear National Lakeshore. Senate Bill 2153 introduced by Sen. Phil Hart called for formation of a national Lakeshore whose boundaries included the Platte Lakes.

Following a vigorous and organized letter writing campaign against the park the Senate bill was revised with reconfigured boundaries leaving out the Platte Lakes and Glen Lake.

1964

1966

The Platte River State Fish Hatchery converted to rearing salmon to address the increasing Great Lakes alewife population. Up to 450,000 pounds of high phosphorus food began to be used in the mid 1970's. Hatchery discharge was as high 4321 pounds of phosphorus per year. Any uneaten food and all other waste from the hatchery was discharged largely untreated into the Platte River.

The Platte Lake improvement Association (PLIA) was formed.

1979

1981

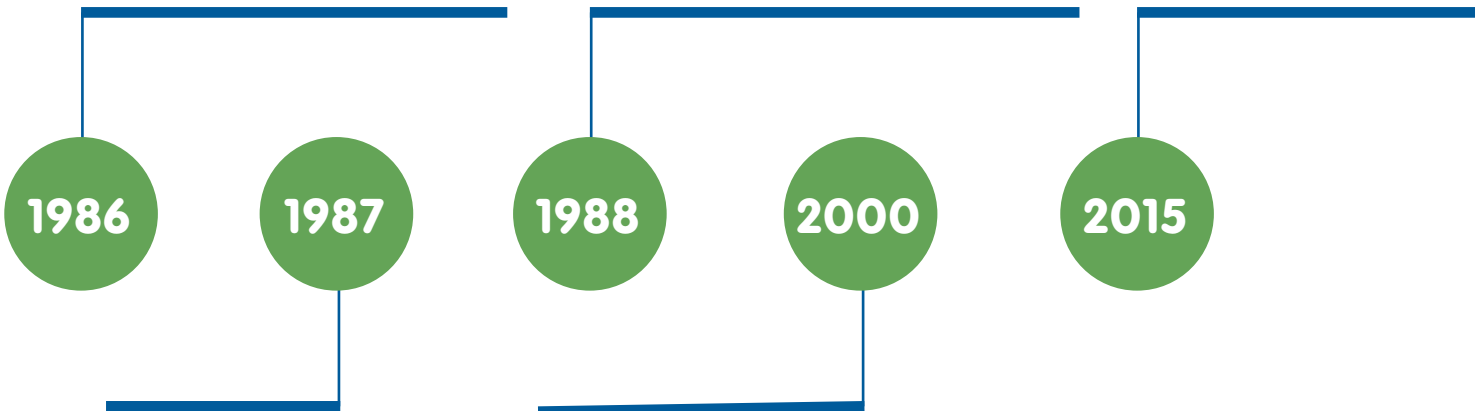
The Platte Lake Improvement Association (PLIA) becomes a 510(c)3 nonprofit.



The Platte lake improvement Association files suit against the state of Michigan and the DNR for the impact hatchery operations have had on the quality of Platte Lake. Phosphorus deposits in the sediment of the Lake that correlate precisely to the increasing phosphorus deposition in the lake to the conversion of the fish hatchery is introduced as evidence.

A verdict was handed down by Judge Thomas Brown in Ingham County circuit court in favor of the PLIA. The DNR does not agree and continues to deny responsibility and employs a number of stalling and blocking tactics. The DNR was convicted of two counts of contempt and fined for lying to Judge Brown and the Court Master in Court appearances after the initial Opinion and Order.

The fish hatchery demonstrates that it has been in compliance with the discharge limits set by the court ordered consent agreement. PLIA becomes 100% responsible for the cost of lake in river sampling and for monitoring the results.



1986

1987

1988

2000

2015

Bench trial takes place in Lansing Michigan.

A settlement agreement in the form of a Consent Judgment was entered into in Ingham County Circuit Court that ends the PLIA a lawsuit with the DNR. It carries the same legal power as the outcome of a jury trial.

This judgment requires the DNR to pay for 98% of the lake and river sampling until the DNR demonstrates compliance with the 175 pounds per year hatchery discharge limit for five consecutive years. Monetary penalties for exceeding phosphorus discharge limits or exceeding the maximum number of salmon that may be passed upstream were also implemented. (The 175 pound estimate was derived from rearing records for 1962 that were obtained from the state archives in Lansing. This was data from a time when the hatchery was operating and not impacting the health of Platte Lake.)

Dr. Ray Canale is appointed as Court Master to oversee compliance achievement. Since the March 200 Consent Judgment, it has been amended four times.



## Swimmers Itch Update

The ongoing surveillance of Platte Lake by the PLIA is not limited to simply monitoring phosphorus levels. The organization is concerned about anything that can alter the quality of the lake and that includes keeping an eye on swimmers itch. Platte Lake has experienced swimmers itch, but it has been at very low level. In 2016 and 2017 we participated in a study on swimmers itch with researchers from Oakland University who studied our lake for algae, chemicals, phosphorus, pesticides, snail colonies, zebra mussels and crayfish. All of these seemed potentially important in determining if a lake can be infected with swimmer itch.

We are now partnering with Dr. Blankespoor from Swimmer Itch Solutions to do an analysis of swimmers itch activity at five key locations around the lake. (see [www.swimmersitchsolutions.com](http://www.swimmersitchsolutions.com).)

Why is this research important? If after a day of swimming at the lake, you may unhappily find yourself or your family covered in dozens of red, raised bumps on your legs and feet. Your family and you were the unintended target of a small parasite. It wasn't looking for you. It was trying to find a key host in its life cycle, a bird and most likely a merganser.

The parasite that causes swimmers itch cycles between two hosts, birds and snails. First, parasite's eggs are released from the birds in their feces and hatch within an hour in the water and release a

free-swimming larva. In this stage a parasitic passes from the egg to its first host, typically a snail. Once inside the snail, it develops further into another free-swimming larval stage in which the parasitic passes from the intermediate host (the snail) to the final vertebrate host (the merganser).

It doesn't take a lot of infected snails to have a problem. Only a 2% infection rate of the snail population is considered an epidemic.

The most effective solution is to interrupt the life cycle of the parasite by removing one of its favorite hosts, the Merganser. Humanely trapping broods of Common Mergansers and relocating them to other bodies of water, like Lake Huron, that do not harbor the parasite is good for the health of the bird and the lake. This trapping is being done on Crystal Lake now. Higgins Lake did this three years ago and reduced the snail infection rate by 98%.



## PLIA is investigating the use of a new tool to help monitor our Lake, the drone.

Flying 131 feet above the water surface, using special light filters, the drone is able to record light reflecting from objects, such as plants, that lie beneath. This will allow PLIA to identify the impact that invasive plants species, such as Eurasian Water Milfoil, oriental bittersweet, and purple loosestrife are having on Platte Lake. These plants crowd out native species and alter the ecology of the lake. It is difficult to find these plants and determine how far they have spread but the process can be enhanced by taking a bird's eye view from above. These aerial images can be assembled with computer software to create an "orthomosaic" or a 3-D reconstruction of the vegetation patterns on the bottom of the lake.

In some lakes, these invasive species – particularly Eurasian Water Milfoil - have gotten out of hand and have required eradication by chemicals. That makes it extremely important to precisely locate where they are so we can effectively target their treatment. The chemicals used for this purpose are very specific to milfoil and do not impact native plants or other aquatic life.

It is important for the quality of Platte Lake to identify which of these invasive species are present and in what quantities. The first step is to simply find out what is there. If there is a problem, the PLIA can work with local authorities to create a solution.



## What's up with Section 13 in Homestead Township?

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All year long, every two weeks we sample the water at seven locations in the Platte River and in the Lake. These samples are analyzed for phosphorus and the results are maintained in a database (actually a large Excel spreadsheet, available on our website). But the process doesn't stop there. The data is reviewed regularly by the Board, primarily Wil Swiecki and Mike Pattison, looking for trends or anomalies.

Beginning in 2013 they noticed an increase in phosphorus levels between two points in the river—Stone Bridge (upstream of the hatchery) and at the bridge where the river crosses US31. Our careful monitoring of the hatchery output told us that the hatchery isn't the source. But what is? We continued to monitor thru 2017 and the upward trend seemed to continue. In early 2018 John Ransom, the Conservation Specialist at the Benzie Conservation District (BCD) who does our sampling, ran an analysis of our data and determined that in fact there was a statistically significant increase in the phosphorus level (ANOVA<.005). The area in question—Section 13 of Homestead Township—is principally farm fields. Is something unusual being applied to those fields? At one of our regular meetings with our partners at the hatchery they alerted us that something had been applied to the fields we were focusing on.

That led to an effort to determine if any permits for application of materials (sewage sludge, industrial waste, etc.) had been issued for that area. We hoped that somewhere in our state government there was a central database of these permits. To our dismay, but not surprise, we discovered that no such database exists. Our 2010 amended Consent Decree with the MDNR, obligates it to “redouble its efforts per Paragraph 3 F.ii. of the Consent Judgement, to include but not be limited to, direct, timely and proactive input into the Federal, state and local permitting process for all proposed point and non-point source surface and or ground water discharges within the Platte River watershed in order to minimize the potential adverse impacts of such discharges on the achievement and maintenance of the Platte Lake Phosphorus concentration standards mandated by the Consent Judgement.”

At this point, we thought we could use some help to remind the state of their commitments. In cooperation

with the BCD in March we wrote to Governor Rick Snyder to request his help and that of his department heads in getting this permit information, and to facilitate a meeting with those departments. That letter led to a May 22 meeting with members of the Michigan Department of Environmental Quality (MDEQ), the Michigan Department of Agriculture and Rural Development (MDARD).

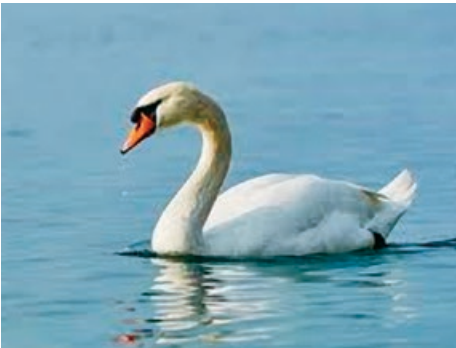
In preparation for that meeting, the PLIA obtained copies of sludge disposal permits issued to the Packaging Corporation of America for the field in Section 13. The PLIA calculated that 22,000 lbs of phosphorus was contained on the sludge and the PLIA estimates that approximately half of that is “unaccounted for” and may be available to leach into the waterway over time. The sludge was applied to the field yearly from 2013 through 2017. Unless we can find some another source of phosphorus discharge, it is the PLIA's opinion that the phosphorus not harvested in the crops grown has slowly leached into the river and is responsible for the related Platte River phosphorus increase.

The May 22 meeting revealed that no one in state government was on top of the permitting process, nor were they aware of their obligations under the Consent Judgement, nor did they have the authority to stop this disposal. Fortunately one of the MDEQ attendees contacted the PCA to inform it of the concerns raised at the meeting. While the PCA offered the expected corporate response-- “we cannot find any indication that the residuals are contributing to the phosphorus loading in the Platte River”—but “due to the concerns that were raised and PCA's dedication to a close relationship with the community and our neighbors, it has been decided that PCA will suspend residuals application to this field.”

In summary, we found a problem and took action to stop it. This one had a positive outcome. But our work isn't over. We need to continue to monitor the water and the permit process. To ensure this doesn't happen again. PCA specifically reserved the option to resume application at this site in the future. Ongoing vigilance is definitely needed.

## Can You Tell The Difference?

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Platte Lake has a significant population of swans. Most of the year the predominant species are European mute swans. In the fall, we often see transit flocks of trumpeter swans. Mute Swans were introduced to this country in the late 1800's from eastern Europe as a decorative bird for ponds and parks in the eastern United States. It was only a matter of time before these captive swans escaped and created a feral population. They arrived in Michigan in 1919.

Trumpeter Swans (and the closely related Tundra Swans) are the only native North American swans. Although all species of swans can become aggressive, particularly during mating and nesting season, the Mute Swan has a reputation for being one of the world's most aggressive waterfowl species. They drive out native waterfowl and other wetland wildlife with their hostile behavior. They are large birds that have little fear of people. Every year the DNR receives reports of swans attacking kayakers and swimmers. People have also been attacked while standing on shore.

Here's how to tell the difference: The mute swans swim with a graceful S-curve to their neck, keep their wings fluffed up, and only make a hissing or croaking sound. They have orange beaks. Trumpeter swans have fairly straight necks, wings flat against the back, and have all black beaks. They have a loud trumpet-like honking call.

It's best to keep your distance from the swans in Platte Lake. If you find yourself compelled to get close to them keep in mind that they are not afraid to start or end a fight.



**Platte Lake  
Improvement Association**

**Keeping Platte Lake Clean for 40 Years**

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