



**ANNUAL
REPORT
2017**

Platte Lake Improvement Association

Keeping Platte Lake Clean for 39 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.

Thirty-nine years ago the homeowners of Platte Lake needed a voice and the PLIA became their champion. A crisis, caused by excess phosphorus loading in the lake primarily from the state fish hatchery upstream on the Platte River, virtually destroyed our beautiful lake. In a few short years, Platte Lake had gone from one of the most beautiful lakes in Michigan to a lake with green water and huge algae blooms. Native plant and fish species disappeared. As the water quality deteriorated, so did property values.

The Platte Lake Improvement Association (PLIA), a non-profit 501(c)(3) organization, was formed to respond to this crisis. Homeowners, like you, banded together to reverse the destruction of Big Platte Lake. Their hard work and sacrifice of time and money successfully restored the water quality of Platte Lake. Platte Lake is now the most studied lake in Michigan, thanks to the PLIA.

Today, most homeowners are unaware of the serious threats Platte Lake faced in the past. It has taken almost four decades to reverse the near destruction of Platte Lake.

We know that without close observation and monitoring, Platte Lake could regress to what it was just 15 years ago, a grey-green lake ridden with ugly algae blooms. Any source of contamination upstream in the Platte River will end up in Platte Lake. If the Fish Hatchery falls out of compliance it will be up to the PLIA to discover it. As the population increases



and development occurs, history shows that the lake can change quickly. Ongoing vigilance and testing is necessary.

The PLIA is a grassroots, non-profit, association of homeowners committed to insuring that Platte Lake is a healthy and beautiful body of water to be enjoyed now and in the future. It is your neighbors who are continually analyzing the water quality and working with local and state government to insure the quality of Platte Lake, and the value of your property, does not decline again.

Analyzing the water is not free. No one else is paying for monitoring the lake. The PLIA is now responsible for 100% of the cost of lake and river sampling. We need the help of others who love this lake and understand the link between the water quality of the lake and the value of their property. Engaging the people who have the most at stake, the homeowners and businesses who benefit from a clean and beautiful lake is critical.

Because of the efforts of the PLIA our lake is renowned for its clarity and water quality. If you are not a member of the PLIA, you must join and support the volunteers to have made this lake as beautiful as it is today.

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

What we've done this year.

- We implemented a cost effective process of lake sampling, analysis and monitoring independent of the MDNR's assistance.
- We solidified our contract with the Benzie Conservation District to obtain water samples in Platte Lake as well as many of the tributaries to the Lake such as Carter Creek and the North Branch of the Platte River.
- We collected, analyzed and monitored 519 samples from the lake and the tributaries of the river.
- We monitored the Phosphorus output of the Platte River Fish Hatchery to ensure its compliance with the Settlement Agreement output limits. In March, using the PLIA testing model, the DNR detected a higher rate of phosphorus discharge at the hatchery and were able to immediately correct a problem.
- We filed an amendment of the MDNR/PLIA Settlement Agreement with the circuit court to make a permanent court record of the specific future duties of the settlement coordinator position, procedures for water sampling and analysis routines, database acceptance as well as MDNR responsibilities to the agreement going forward.
- We secured the Benzie County Road Commission's agreement to use No-Phosphorus fertilizers on future projects around the lake.
- We participated in the 2016 Swimmers Itch Study by Dr. Thomas Raffel of Oakland University.



Early History of the PLIA

The Platte Lakes Area Association was created in 1961 as cottage owners on Platte and Little Platte Lake 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. John and Margaret Thoms were the Platte Lake leaders in this effort.

The Association existed mostly as a vigorous and organized letter-writing campaign against the park. Strong local opposition doomed this bill in the senate. Two more bills were subsequently introduced in the following three years, each with re-configured boundaries, leaving out the Platte Lakes and Glen Lake. When the legislation finally passed in congress in 1970, and Platte Lake was safely excluded, the Platte Lakes Area Association was merged into the larger Sleeping Bear Citizens' Council of Glen Arbor.

By the mid-1970s, a new threat to Platte Lake was apparent. The Platte River State Fish Hatchery east of Honor had been chosen as the rearing facility for the state's new salmon stocking program for the Great Lakes. This activity resulted in 4,300 pounds of phosphorus being released into the river yearly and settling out in Platte Lake. The lake rapidly became a pea-green color in the summer with zero visibility and drastically reduced oxygen.

The new Platte Lake Improvement Association was quickly formed and held its first annual meeting in August 1979. Stuart Walker was president, Ken Santer V.P. Dorothy McLean Sec., and Dorothy McAnulty Treas. A board of trustees was also chosen. 501c3 non-profit status was granted in 1981.

When the Michigan DNR denied that the hatchery was responsible for the lake's degradation, the board was left no choice but to file a lawsuit against it. This resulted in uncountable hours of effort by the board, and serious costs shouldered by the membership. In 1988 a verdict was handed down by Judge Thomas Brown in Ingham County Circuit Court in favor of the PLIA.

In spite of this victory, nothing much was accomplished due to stalling and blocking tactics by the DNR until a court-ordered Consent Agreement was filed in 2000. This document spelled out

what exactly the DNR must do to be in compliance and appointed Dr. Ray Canale as Court Master to oversee compliance achievement.

New leadership in the DNR Fisheries Division, especially Gary Whelan, made for a smooth cooperative effort to achieve the condition of the lake you see today. We are greatly indebted to these pioneers of the PLIA for their massive amount of effort and expenditure. Today's PLIA is obligated to carry their efforts forward.



All Year Long the PLIA is keeping an eye on our lake.

Maintaining the quality of our lake requires constant vigilance. Our monitoring program includes three main elements:

1. Obtaining samples from the lake and rivers.
2. Analyzing that sample for phosphorus.
3. Monitoring the results and looking for changes, both good and bad.

Sampling

All year long, every two weeks, the PLIA samples the lake and the tributaries flowing into it. In the Winter we do it through the lake ice and the ice-cold flowing tributaries of the Platte River. When the ice becomes unsafe, we use the sheriff's airboat to safely get on the lake to sample. Sound like a lot of work? It is. Fortunately, the PLIA has contracted the Benzie Conservation District and their specialists, like John Ransom, to do our sampling.

Working at the Platte River State Fish Hatchery in Honor, John starts by making sure that our YSI instrument (which measures temperature, depth, dissolved oxygen, conductivity, oxygen reduction potential and pH) is calibrated correctly to ensure we get accurate readings and good data.

He then travels to each of the eight sampling points on the tributaries (see map) and carefully submerges the YSI into the water. Readings he obtains from them will be downloaded directly from the instrument to our database. He also collects three "grab samples" which are flowing water specimens. Even in the dead of winter he is out there plunging his sample bottle into the frigid flowing water.

On the lake, samples are taken in the deep area at the west end of the lake. Secchi disc readings are obtained to track the clarity of the water. The YSI instrument takes readings at the surface and various depths down to the bottom, 90 feet below. When sampling is complete, the samples and the sampling log are returned to the hatchery lab for analysis. One final check, a post-sampling calibration, is performed on the YSI to assure that it is delivering accurate results.

Analysis

At the Platte River State Fish Hatchery, technician Nicole Sherretz analyzes all of the samples collected from the tributaries and the lake. Nicole follows a very specific documented procedure to analyze samples. First, she carefully checks and sorts samples from the lake and tributary rivers to insure there are no misplaced specimens.

Because this lab also analyzes all of the samples from the hatchery itself, as well as the other five DNR hatcheries across the state, the first step in the process is to avoid any cross contamination of samples with one another or the lab environment. Nicole also insures that every sample container is acid washed and rinsed with purified water between uses.



Top, the sensors on the YSI instrument in the lab where John calibrates it. Middle, at each location the YSI is used to take a reading. Bottom, John takes a grab sample.

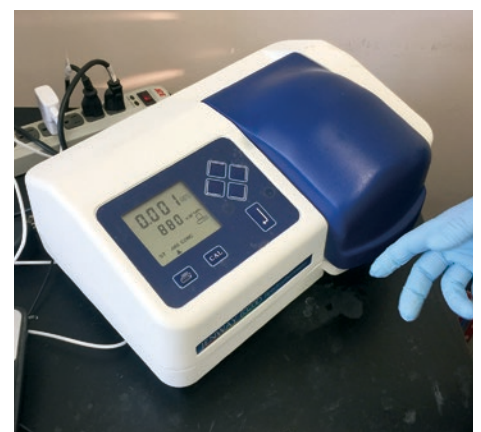
Phosphorus (the main element we're concerned with) cannot be measured directly. Elemental phosphorus never occurs by itself in water, but always as some type of compound. Those compounds need to be broken down and phosphorus doesn't breakdown easy.

So the recipe calls for acid reagents and heat (250 degrees F for two and a half hours in a device called the "Digester"). This creates a colored organic material, whose color and light transmission can now be measured to calculate the amount of phosphorus in the sample. Nicole makes sure the the measuring device (a Jenway Spectrophotometer) is properly calibrated, so our results will be reliable. After the Digester does its job, the Jenway Spectrophotometer reads color density to calculate the phosphorus concentration. This data is uploaded directly to our database, eliminating potential data entry errors. John and Nicole do a second review. If any data point looks "off" that sample can be re-analyzed if necessary.

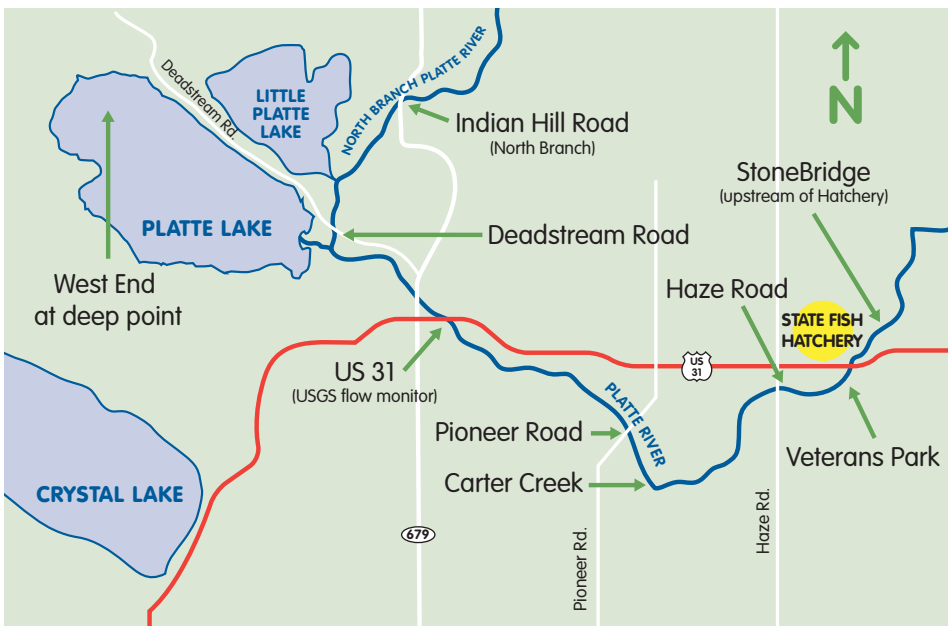
Monitoring

Once all of the samples have been collected and analyzed, the results are studied by the Platte Lake Improvement Association. Wil Swiecki (PLIA Board President) and Mike Pattison (Vice-President) rely on their years of experience to identify any trends that may need attention. In the past, they've identified unusual loadings coming from tributaries feeding into the Lake. This is what led to us adding river tributaries to our sampling program.

With this program of sampling, analysis and monitoring we are able to carefully monitor the lake monitor for future problems.



Photos: Top, on the lake, the tube sampler enables a grab sample at specific depths. Second, reagents are added to each sample. Third, Samples are placed in the digester. Bottom, The spectrophotometer reads the color density to calculate phosphorus concentration.



Robust Sampling and Monitoring Process helps the Hatchery manage the challenges of working with over six million fish.*

One of the legacies of the Consent Agreement is the water monitoring system at the Hatchery. Dr. Ray Canale, the court appointed Master for the Agreement developed a sophisticated model that allows Hatchery Biologist, Mr. Paul Stowe, to stay on top of what's happening in terms of phosphorus discharge. That model worked perfectly this spring when the Hatchery exceeded the court appointed limits.

For five years the Hatchery has been raising Atlantic Salmon from the eyed egg stage to yearlings (approx. 6.5 inches) for release in Lake Huron. Atlantic Salmon are considerably more difficult to raise than other salmon. In the fall of 2016, a number of the fish were getting sick and needed treatment with both antibiotics and a topical treatment. The treatment, together with the cooler winter temperatures, enabled the Atlantic Salmon to recover.

But the problem did not end there. Water the diseased Atlantic Salmon had swum in had to be reused with the Coho Salmon. By December the Coho were coming down with Bacterial Coldwater Disease, which required another course of treatment. Problem? The antibiotic was not available in the low-phosphorus feed normally used. A high phosphorus feed had to be used daily for ten days as opposed to the two or three times a week normally at that time of year. Platte Lake now had two problems floating downstream from the Hatchery—high phosphorus feed and heavier feeding rates. In March, the fish required another course of treatment. Fortunately, the fish recovered, but what about the lake?

Sampling results confirmed there was a problem and Paul began tweaking his processes where he could. He discontinued feeding yearling fish and reduced feed rates for Coho and Chinook. Three weeks later, when the phosphorus had worked its way into the Lake, the net result was a “violation”—a discharge in excess of allowed limits of one pound in April and two pounds in May.

The good news? Because the sampling from the Hatchery is constantly updated in their database and shared with the PLIA (it is reviewed by the board and posted on our web site for everyone who wants to see it) no one was surprised. The PLIA had been in touch with Paul and knew he was on top of solving the problem.

In the future, Paul has identified a new supplier who can provide low phosphorus medicated feed, and has received FDA approval to mix his own medicated food. This would allow much more rapid treatment if similar problem arises in the future. The DNR is also making some changes in their Atlantic salmon program to reduce the risk of sickness.

Most importantly, this example demonstrates the importance of a strong and healthy partnership between the PLIA and the DNR. In the past, without the internal monitoring of the Hatchery and vigilant people like Paul, this problem would have gone unnoticed and Platte Lake would have been the recipient of more phosphorus pollution.



Above: Paul Stowe explains how an automatic water sampler grabs a 60 ml sample every half hour at six different points in the hatchery process.

* The Platte River State Fish Hatchery produces about 2.1 million salmon (Atlantic, Coho and Chinook) and 4 million Walleye hatchlings every year.

The Hatchery Monitoring Process

The Hatchery has nearly real-time information on the system's performance, and can take corrective action before troublesome trends become real trouble. With its sophisticated processes; the Hatchery is essentially a fish production facility with an attached water treatment plant. During some times of the year the water discharged from the hatchery actually has less phosphorus in it than the water coming in!

Samples are collected at six different points in the Hatchery process: The two water intakes are Brundage Spring (1) and Brundage Creek (2). At these input points the water is sampled using an automated water sampler every 30 minutes. Hatchery Discharge (3), samples are collected at three points in the water treatment process. The clarifier and the ponds are used to allow suspended phosphorus to settle out of the solution to the bottom for later removal. Additional sampling points are After Filter before Pond (4), After Clarifier before Pond (5) and the Backwash (6) where the sand filters are backwashed to clear out any accumulated sediment.

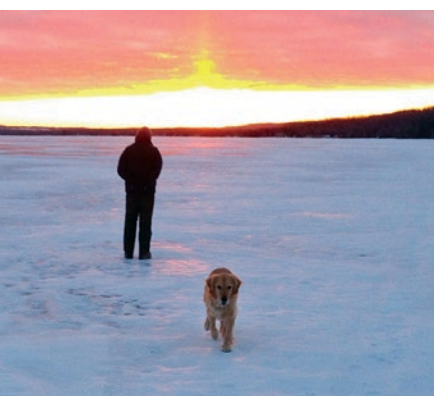
Many factors influence the total phosphorus output from the hatchery, including input water, number of fish in production, amount and type of feed used, temperature and precipitation.

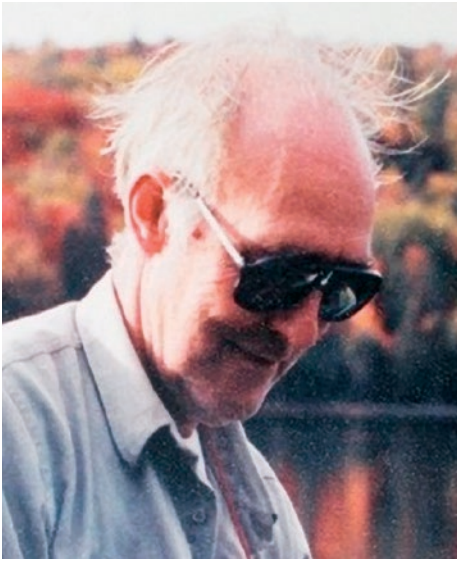
With samples being collected twice a week and analyzed in the lab immediately at the hatchery, results are usually available in 36-48 hours. This is considerably faster than when samples were sent to an outside lab for analysis.

What you can do to help the lake.

- Become a member of the PLIA and support its efforts.
- Encourage your neighbors to join.
- Keep grass clippings and leaves out of the lake. This is especially important in the fall.
- Don't use fertilizers containing phosphorus.
- Maintain your septic system or holding tanks and pump your tank every 2 years

AROUND THE LAKE





In Memoriam: John Spencer

Dr. Spencer was a long-time member of the PLIA board, and played an important role in the development of the organization. He was a key player in our efforts to draft the settlement agreement that ended the disastrous impact the Hatchery had on the lake. He died May 11, 2017.

In addition to the many things that John Spencer was involved with during his life as brought to light in his obituary, John was very involved with the restoration of Platte Lake to its pre-salmon program condition.

I first met John in the early 1980's. His concern for Platte Lake rivaled mine and shortly thereafter he became a PLIA Board member and worked tirelessly in the formulation of a case against the MDNR and the Platte River State Fish Hatchery.

His efforts that led up to the 1986 preliminary injunction, 1987 bench trial and July 1988 Judge's order convicting the MDNR of pollution, impairment and destruction of the water quality and aquatic life of Platte Lake through the introduction of phosphorus were non-stop. He continued that effort as we then became involved in the implementation of the Judge's orders. John was in attendance at nearly every one of the court hearings that followed up through the year 2000. John's insight, logic and strategy were critical key enablers to the success of the PLIA.

Additionally, his time and efforts in negotiating what is now known as the March 2000 Consent Judgment with Gary Whelan, MDNR and myself were nothing short of exemplary. Again, John was the critical key enabler. He was one of the two most logical people I have ever known in my career.

To say he will be missed is an understatement.

John was a great man!

Wilfred Swiecki
President, PLIA



**Platte Lake
Improvement Association**

Keeping Platte Lake Clean for 39 Years

plattelake.org

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