Platte Lake Improvement Association

Keeping Platte Lake Clean for 38 Years

Annual Report 2016

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.

Everyone who loves Platte Lake should join us to help protect our lake.

For 38 years, the Platte Lake Improvement Association (PLIA) has been protecting the water quality of our lake and the value of your property. Homeowners like you banded together to form The Platte Lake Improvement Association, a non-profit organization, to reverse the destruction of Platte Lake.

This crisis was caused by excess phosphorus loading in the lake, primarily from the state fish hatchery upstream on the Platte River. Platte Lake had gone from one of the most beautiful lakes in Michigan to a lake with green water and huge algae blooms. Homeowners and the lake needed a voice and PLIA became their champion and remains so today.

Because of the efforts of the PLIA, Platte Lake is again renowned for its clarity and water quality. And, it is one of the most studied lakes in America. But the job is not done yet. The Platte Lake Improvement Association knows that without close observation and monitoring Platte Lake could regress to what it was just 20 years ago, a grey-green lake ridden with ugly algae blooms.

No one else is monitoring the lake. Since 2015, when the hatchery had been in compliance with the discharge limits set by the court-ordered consent agreement for five years, the PLIA has been responsible for 100% of the cost of lake and river sampling, and for monitoring the results. PLIA volunteers and contractors are continually monitoring the tributaries and the lake at eight different depths for temperature, phosphorus, dissolved oxygen, pH, conductivity and oxidation reduction potential as well as water clarity (secchi depth).

The PLIA's current water quality-monitoring program collects more information, more cost effectively, than the DNR-founded one in place for the last 25 years. Even so, this workstill is expensive; annual costs $12,000 – $15,000.

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.

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 PLIA to discover it. As the population increases and development occurs, history shows that the lake can change quickly. Vigilance at all levels is critical.

Some people who live on the lake are unaware of the past struggles faced by homeowners and the continuing threats that face our lake. If you are not a member of the PLIA, you should join us and support the PLIA.

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

What we've done this year:

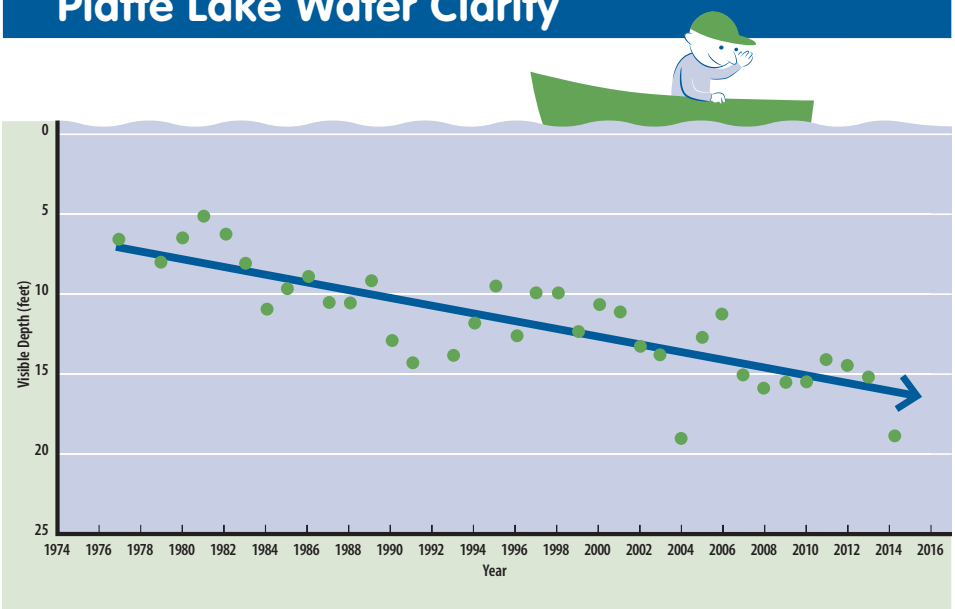
- Successfully implemented and operated a PLIA funded/controlled lake and river sampling program:
  - Purchased $13,000 of instrumentation and sample collection equipment.
  - Contracted with the Benzie Conservation District to conduct pre- and post-sampling instrument calibration as well as lake and tributary water quality measurement and sample collection.
  - Executed a memorandum of understanding with the MDNR to analyze the samples in the same lab where hatchery samples are analyzed so lake and hatchery sample results are directly comparable.
  - Regularly monitored and analyzed the results of the sampling from the lake and river tributaries as well as the hatchery to identify and investigate any potential problems
  - Executed a memorandum of understanding with the Benzie County Sherriff to utilize their airboat when ice conditions are unsafe for our regular sampling program.
  - Implemented a fully-documented database in Excel for storing and analyzing sampling results.
- Participated with an Oakland University study of swimmers itch, including collecting samples from locations on the lake. We successfully petitioned both Lake and Benzonia Townships to share in the cost of this sampling and analysis
- Continued to meet regularly with the MDNR to review Hatchery operations, effluent discharge, etc. 2105 Hatchery discharge was 57.6 lbs., well within the 150 lb./year limit.

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

So how clear is Platte Lake?

Platte Lake Water Clarity



This chart shows how the clarity of the water (how far below the surface a Secchi disk can be seen) has improved over the last 40 years. You can see almost three times as deeply into the lake as you could 40 years ago!

Understanding Swimmer's Itch

Schistosome.

After a day of swimming at the beach you now find yourself and your family covered in dozens of red, raised bumps on your legs and feet. What happened? Swimmers itch. What caused it? You and your family were the unintended target of a small parasite called a schistosome. It wasn't looking for you. It was trying to find a key host in its life cycle, a bird – most likely a merganser. Your rash? It's called a cercarial dermatitis.

Most parasites have a life cycle that includes more than one unrelated host. The schistosome that causes swimmers itch has two hosts, birds and snails. It cycles between these two hosts. Parasite eggs are released from the birds in their feces. The eggs hatch within an hour in the water and liberate a miracedium. That miracedium has about 24 hours to find and attach to the proper snail host before it runs out of energy and dies.

Once inside the snail, it develops further into a cercariae. Cercariae are released, often by multiple snails at the same time, by certain triggers such as warm water temperatures and other factors yet unidentified. Don't bother looking for them. You can't see them. They are only 1/80th of an inch long.

The cercariae are designed like a microscopic torpedo. It has one objective. Find a host bird and penetrate its skin so it can continue its life cycle. In fact, cercariae are attracted to certain chemicals that are given off only by skin cells. The problem for people is when they find us first. They try to burrow into the skin, but are stopped by our skin defenses. Depending on the person the skin's reaction to the burrowing parasite ranges from nothing to an intense inflammatory reaction. This reaction can occur in 15-30 minutes and seems to be more intense the next time you get the "itch".

Swimmer's itch usually occurs in early summer, when the water is its warmest. The usual season is relatively short - usually four to six weeks, depending on the weather. Some of the most beautiful lakes in Michigan

The monitoring of Platte Lake by the PLIA goes on all year. In March, when the ice conditions became too dangerous to walk on, we partnered with Benzie County Sheriff's Department to use their airboat. This arrangement worked so well that PLIA and the Sheriff's Department created a "Memorandum of Understanding" to use their airboat and work together in the future to insure that safe testing of Platte Lake can continue throughout the year

experience swimmer's itch annually, whereas other lakes may have an occasional outbreak or none at all. An outbreak may be severe, but last for only a few days, or minor and last much of the season.

If a lake has swimmer's itch, it does not mean that lake is polluted. In fact, the opposite is true. A healthy lake promotes a high diversity of species, including the birds and snails that are the hosts for the causative agents of swimmer's itch.

It is probably best to regard swimmer's itch the same way we do mosquitos, mayflies, deer flies and other irritating neighbors. There really is nothing practical that can be done to eliminate it. The best strategy at the moment is to not make ourselves a target for these microscopic torpedoes.

First, don't feed the ducks, geese or swans. Attracting these birds increases their fecal droppings and you know what that means. Mergansers are almost 100% infected and have the highest parasite load in their feces of any other bird. These birds are extremely mobile and can cover several miles of shoreline in a single day.

The cercariae swim on the surface of the water; after all, that's where the birds are. They can float a long way on the surface so you probably want to avoid swimming in areas where swimmer's itch is a problem and when there is an onshore wind.

Children are particularly sensitive to swimmers itch. They usually spend more time in the water, have more sensitive skin, and have a greater tendency to play in shallower water where cercariae most often concentrate.

Towel off with vigor when you come out of the water. It takes time for cercariae to penetrate the skin and you can crush their tiny bodies before they do. Showering shortly after leaving the water also might help.

People also have noted that waterproof sunscreens and lotions reduce the infections by discouraging the cercariae from penetrating the skin.

If you decide to go in the water when and where swimmer's itch larvae are present, stay clear of plants growing in the lake. Swimming rather than playing or wading in shallow water will reduce exposure. Swim offshore if possible.

Platte Lake and Its Mayflies

Perhaps you've wondered about the masses of dead insects blown against your shoreline in June. Your board members even have received calls worrying that someone had dumped toxic substances into the lake. Yes, it is messy but it really is a good thing. This floating mass is comprised of the shucks of just-emerged mayflies and the dead adults that have just mated and dropped eggs before falling to the water and dying. There are two species of major importance on Platte Lake. There are other mayfly species, but much smaller in number. The two types you notice are the Brown Drake (Ephemera simulans), hatching in early June, and the Giant "Hex" (Hexagenia limbata) immediately following and overlapping this time. What you see is the final very brief stage of the life cycle. The insects live in the lake bottom silt as nymphs for two or three years and are a very important part of the food chain. At maturity when the temperature is right they swim to the surface, split the exoskeleton, and fly off the water into the bushes (and the side of your house). There they remain for 24-48 hours before once again molting into the third (spinner) stage, leaving behind another shuck on your screens. When conditions are right, they all take off and gather in the air in a giant mating flight just before dusk, drop fertilized egg sacs to the water, then fall to the water and die. The egg sacs sink to the bottom, hatch, and the cycle starts again. One interesting observation is that over the last two years the number of Brown Drakes in most of the lake has diminished greatly, replaced by a great increase in Hexagenia, similar to what one sees on Crystal Lake. The important thing to know is these mayfly nymphs only live in very clean waters and are a direct indicator of the health of a lake. Twenty-five years ago, before the work of the PLIA to restore Platte Lake, there were very few Hexagenia. So when you're sweeping them off your porch, smile and be grateful for these beautiful fliers. Hey, at least they don't bite.

The Deadstream Swamp: A Hidden Treasure for Platte Lake

As you travel down Deadstream Road you are passing through an important region of the Platte Lake Watershed. Lying just east of Platte Lake, the Deadstream Swamp, plays an important role in the wellbeing of Platte Lake. In addition to providing a unique habitat for black bears, bald eagles, blue herons, mergansers and many other plant and animal species, it has a significant impact on the water quality of Platte Lake.

It is difficult to walk through the swamp. There are few trails. Marshes and swamps help control floods by acting as reservoirs for excess water. The ground is wet and spongy. In fact, it is the swamp's ability to act like a sponge that buffers the water flow into the lake and helps keep lake levels constant. Much of the swamp water goes to replenish ground-water supplies.

Many beaver dams choke the small streams that flow through the Deadstream Swamp. This slows water movement and increases the soil saturation. This, in turn, helps the swamp filter out unwanted pollutants.

The Deadstream Swamp is a combination of protected land, private property and state forest. Keeping the swamp protected into the future will be a key factor to having a healthy Platte Lake.

Excess phosphorus isn't the only pollutant that flows into our lake. Sediment from roads and storm runoff carry many contaminants, chemicals and oils that would simply drain into the Platte River and Platte Lake if it were not for the Deadstream Swamp. Marshes and swamps help purify water by filtering a number of pollutants, which can become trapped in sediment. These pollutants remain in the swamp and are kept from entering into our lake.

The PLIA has monitored the outflow of the swamp for the past twenty five years. This ongoing vigilance has uncovered that the swamp may not be working as effectively as it could be as compared to similar wetlands. This could be a consequence of many factors such as silt build up behind the Deadstream dam, existing and prior land use practices, old trash disposal sites and yet to be identified sources, etc. Without the PLIA and its water quality surveillance program over the years, this reduction in filtering effectiveness would have gone undetected.

Protecting the swamp and insuring its effectiveness is as important as protecting Platte Lake. The PLIA plans to continue its surveillance of the swamp and identify ways to improve its ability to filter unwanted pollutants from the water entering our lake. These efforts have been identified in our recently MDEQ/US EPA approved Platte River Watershed Protection Plan.

So, the next time you drive down Deadstream Road stop and spend a few minutes enjoying the natural beauty of the swamp and appreciate what it does for you and everyone who loves Platte Lake.

Maintaining the Power of the Settlement Agreement

The 2000 Settlement agreement between the Platte Lake Improvement Association (PLIA) and the Michigan Department of Natural Resources (MDNR) established tight controls on the Platte River Fish Hatchery's operation. It allowed the MDNR to proceed with an upgrade of the hatchery that would dramatically reduce its environmental impact on Platte Lake and improve the quality of our water.

This original agreement and subsequent amendments, including amendments developed this year, are significant in that they define a legally-binding management path forward that will insure the long-term health and preservation of Platte Lake and the Platte River.

As long as the Platte Lake Improvement Association exists this agreement will remain in force and Platte Lake will not have downstream contamination from the Hatchery.

If the PLIA disappears, who will speak for the lake. That is why we need your support.

The Lake can't speak for itself. The PLIA speaks on behalf of Platte Lake, a living body of water.

History Corner: Thompson's Resort

Thompson's 1921

Billy Thompson 1909

Of all the resort hotels on Platte Lake in the early 20th century none was more well-known than Thompson's Platte Lake Hotel. Proprietor William "Uncle Billy" Thompson was born in Ireland in 1849 and died at his Platte Lake home aged 90 years. He apparently was a very gifted raconteur and his regular guests came from around the country year after year. There exists a newspaper account of him as the honored guest at a New Year's club dinner hosted by the leading men (and his clients) in Findlay, Ohio in 1895 where the main course was a whole Platte Lake Muskellunge. It's not known how he came to Platte and claimed (homesteaded?) about 80 acres at the present-day junction of Ingleston and Old Platte roads, right below the gravel pit, but it must have been before 1890. He and wife Fannie started the Platte Lake Hotel in their farmhouse around then. Uncle Billy served as chief fishing guide and congenial host while his wife and daughters did the cooking and cleaning. On our website, www.plattelake.org,is a fascinating magazine article from 1901 describing a Mr. Brown's journey from New York and his stay at the resort, also a picture of the original farmhouse hotel. There was a fire in 1911 after which Thompson built the long resort building pictured here and the remainder of the farmhouse became the dining hall. In the late 1920's, the Revnell family, who had homesteaded the west end of the lake, took over the operation and it became known as the Revnell Resort. Whether there was a sale or the Revnell's just managed it for Thompson isn't known. There may have been an inter-family marriage, but no proof exists. The long main building burned to the ground in the early 1930's when a curtain blew into a lighted candle, after which Bill Revnell senior and junior built some small guest cottages. One of them is still standing and being used at the very west end of Old Platte Rd.

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