

Platte Lake

Benzie County, T26 & 27N/R15W/S 1-3 & 27, 33-36
Platte River Watershed, Last Surveyed 2024

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Environment

Platte Lake (Figure 1) is 2,516 acres in size and located several miles northwest of the city of Honor, in northwestern Benzie County, Michigan, in the northwestern Lower Peninsula. The maximum depth of Platte Lake is about 90 feet, with the average depth being about 25 feet. Approximately one third of the lake is shallower than 15 feet. Platte Lake is in the Platte River watershed (Figure 2), with the Platte River flowing into the southeastern shore of the lake and flowing out of the northwestern shore; there is no lake-level control structure. Platte Lake is accessible to migrations of fish from Lake Michigan, although a seasonal salmon weir is operated by the Michigan Department of Natural Resources (MDNR) on the lower Platte River. The weir is used to temporarily block migrating Coho and Chinook Salmon so that they can be counted, and in some cases, harvested. The weir is operated annually during September and October.

The shoreline of Platte Lake is heavily developed with homes and cottages, except for the southeastern shore where the Platte River flows into Platte Lake. Shallow, near-shore areas of Platte Lake are predominately sand, with large stretches of gravel shoals in 2 to 10 feet of water. The remaining deep-water areas are marl, or a muck/marl combination (Seites 2010). In addition to the Platte River, there are several other small, unnamed, spring-fed creeks that flow into Platte Lake. The surrounding landscape is mostly hilly and forested, with predominately sandy soils, although directly to the east of Platte Lake is a large lowland area locally known as the "Deadstream Swamp". Public access to Platte Lake is available through an MDNR boating access site on the northwestern shore of the lake (Figure 1).

In the Platte River watershed, Platte Lake is a significant feature. Only Long Lake, at the very headwaters of the watershed, is larger. The Platte River watershed begins in Long Lake, in western Grand Traverse County (Figure 2). The outlet from Long Lake flows downstream into Lake Dubonnet, and then into Lake Ann and several smaller lakes, including Bronson Lake. From there, the Platte River flows for approximately 15 miles before flowing into Platte Lake. About one mile downstream of Platte Lake, the Platte River flows into Loon Lake. From Loon Lake, the Platte River flows for about two miles before entering Lake Michigan at Platte Bay. The Platte River watershed accounts for a significant portion of the Platte Lake lakeshed (Figure 3).

The North Branch of the Platte River (also locally known as "The Deadstream") enters the Platte River approximately 0.25 miles upstream from Platte Lake. Little Platte Lake (805 acres) flows into the North Branch of the Platte River (Figure 1).

The Platte River watershed drains approximately 93,000 surface acres (Wicklund and Dean 1958). Approximately 82% of the landcover of the Platte River watershed is forest, open land, and wetlands (Figure 4). Agricultural and urban describe the other two land uses of the Platte Lake watershed (Anonymous 2005). Approximately 76% of the watershed is publicly owned either by the National Park Service as part of the Sleeping Bear Dunes National Lakeshore, or the State of Michigan as state forest land.

The Platte River is a relatively small river, with annual flows averaging approximately 124 cubic feet per second (Canale et al. 2009). The Platte River is a very stable, groundwater-fed river with flows that show only minor fluctuations with precipitation. This is due to the sandy soils found in the watershed that allow rainwater to percolate into the soil to become groundwater. The section from the Bronson Lake outlet to Platte Lake is a Designated Trout Stream, and it supports naturally reproducing populations of Brown Trout, Steelhead, Chinook Salmon, and Coho Salmon. Downstream of Platte Lake, the Platte River is a warm-water stream, although it supports seasonal migrations of salmon and trout.

There is one lake association on Platte Lake, the Platte Lake Improvement Association (PLIA). The PLIA is a non-profit, voluntary organization composed of lakeshore residents and property owners as well as other interested individuals. The PLIA was formed in 1978 and was founded "for the express purpose of restoring, protecting and preserving Platte Lake, one of Michigan's finest natural resources" (www.platte-lake.org).

Fishery Resource

History

The earliest anecdotal reports available for Platte Lake (Brown 1901) indicate that at that time, Platte Lake had good populations of Smallmouth Bass, Walleye (referred to as "pickerel"), Great Lakes Muskellunge, Rock Bass, and Yellow Perch. Bluegill were also briefly mentioned. Since no records exist of fish stocking on Platte Lake prior to 1909, it is assumed that these species were all native to Platte Lake. The report mentions the presence of tourist resorts on the lake that catered to anglers. Sportfishing-based tourism was, and still is, very important to the local economy.

Fish Stocking

The first recorded fish stocking in Platte Lake was in 1909 and 1910 when Lake Trout, Smallmouth Bass, and Walleye fry were stocked (Table 1). Since then, Platte Lake has had a long and varied stocking history. In the 1930s and 1940s, Bluegill, Largemouth Bass, Smallmouth Bass, Walleye, and Yellow Perch were stocked. Lake Trout were again stocked from 1946-1948. A one-time stocking of Brook Trout occurred in 1965, and Brown Trout were first stocked in 1969. In 1985, a Walleye fry stocking program began, with Walleye fry stocked in 1985-1987, and 1990-1992. In 1994, the stocking strategy switched from Walleye fry to Brown Trout yearlings, and Brown Trout were stocked from 1994 until 2002. In 2002, Walleye stocking (spring fingerlings versus fry) was reinstated, and stocking occurred in 2003, 2004, and 2009. The stocking program was halted after 2009 after concerned Walleye anglers who fish Platte Lake shared that most of the Walleye they were harvesting contained multiple Coho Salmon and Steelhead smolts inside their stomach contents. While other species are undoubtable consuming these salmonids, the only predatory species managed by MDNR were the stocked Walleye, so the decision to halt the stocking program was made until the impact or salmonid stocking changes could be evaluated.

Management Actions

In early 2004, a steep-pass fish ladder was installed on the North Branch of the Platte River, at the lake level control structure for Little Platte Lake. The project was a cooperative effort between the PLIA and MDNR. Northern Pike had been observed congregating below the lake level control structure, which blocked fish passage for Northern Pike migrating for spawning purposes. It was hoped that the fish ladder would allow Northern Pike to access the Deadstream Swamp and Little Platte Lake, which both provide excellent spawning and rearing habitat. The overall goal of the project was to improve the Northern Pike population of Platte Lake.

In 2005, a manual fish removal was conducted on Platte Lake. A total of 275 Longnose Gar weighing 774 pounds and four Common Carp weighing 32 pounds were removed from Platte Lake. The removal was a cooperative effort between MDNR and PLIA and was conducted due to the high biomass of Longnose Gar collected in the 1997 survey. More carp were observed during the effort, but many of them avoided the fyke nets used in the effort.

Master Angler

From 1994-2025 a total of 140 exceptional fish caught from Platte Lake have been entered into the MDNR Fisheries Division Master Angler program (Table 2). Of those 140 fish, 19 different species were represented. Rock Bass, Longnose Gar, Channel Catfish, and Smallmouth Bass were the most represented species, with at least a dozen entries per species. Notable entries include a 23.8-inch Largemouth Bass, a 34.2-inch Channel Catfish, a 19.6-pound Northern Pike (speared in 2008), and a 36-inch Walleye that was caught and released in 2010. The large number of Master Angler entries for Platte Lake exemplifies the quality of Platte Lake fish populations and the popularity of the Platte Lake fishery. Many of the Master Angler entries on Platte Lake were submitted by bow and arrow fishers. Platte Lake is a popular destination for bowfishing, in addition to hook and line angling.

Fisheries Surveys

The first documented fisheries survey of Platte Lake was conducted in 1940 (Brown and Funk 1940) by the Michigan Department of Conservation (MDOC; the precursor to today's Department of Natural Resources). The researchers used experimental gill nets, a fyke net, and seine nets in the survey. The catch consisted of 25 different species, although it was numerically dominated by Yellow Perch, Rock Bass, Smallmouth Bass, and Northern Pike. Despite Walleye fry and fertilized egg stocking efforts in the decade prior to the survey, no Walleye were caught. The researchers recommended managing Platte Lake for native species like "black bass" and Bluegill, and recommended against further stocking of those species, based on the presence of adequate spawning and rearing habitat. The researchers also recommended stocking Walleye fingerlings instead of fry and eggs to see if that would establish a Walleye fishery. They also discussed the potential stocking of trout and Black Crappie, but recommended against those strategies.

Other fisheries surveys of Platte Lake were conducted by the MDOC and MDNR in 1952, 1975, 1981, 1992, and 1997 (Table 3). All the surveys documented large numbers of Yellow Perch and Rock Bass, and in each survey growth was poor for Yellow Perch. The 1975 and 1981 surveys documented good numbers of Northern Pike up to nearly 40 inches, although the biologists noted a lack of smaller Northern Pike in those surveys (Hay 1981). Even though Walleye were not stocked between 1942 and 1985, they were present in Platte Lake. Although no Walleye were caught in the 1952 netting survey, at least one was caught via hook and line by the researchers. Another file entry in 1953 describes observations of Walleye in Platte Lake by anglers. Three adult Walleye were caught in the 1975 survey and five were caught in the 1981 survey. The 1992 survey was conducted to assess the Walleye stocking program that had been initiated in 1985. Only eight Walleye were caught, and according to the biologists, the Walleye fry plants were not faring well due to Alewife predation (Hay 1992). Shortly thereafter, the Walleye stocking program was discontinued in favor of Brown Trout.

In 1997, a general fisheries survey of the Platte Lake fish community was completed using fyke and inland gill nets. Large numbers of Brown Bullhead, White Sucker, Longnose Gar, Rock Bass, and Yellow Perch were caught. Longnose Gar comprised 21% of the catch by number, and over 50% of the catch by weight. Smaller numbers of Alewife, Bluegill, Brown Trout, Bowfin, Common Carp, Largemouth Bass, Northern Pike, Pumpkinseed Sunfish, Rainbow Trout, Silver Redhorse, Smallmouth Bass, and Walleye were also caught. It was difficult to make management recommendations from the 1997 survey based on the small numbers of panfish and gamefish caught in the survey. One of the

primary reasons for conducting the 1997 survey was to evaluate the Brown Trout stocking program, which had been underway since 1994 (Table 1). However, only three Brown Trout were caught in the 1997 survey. As a result, the Brown Trout stocking program was eventually discontinued in 2002. Walleye stocking resumed in that year, this time with spring fingerlings instead of fry.

A fish community survey of Platte Lake was conducted in the summer of 2010 (Tonello 2010). Status and trends netting protocols (Wehrly et al. 2009) were used for the survey. The netting portion of the survey took place from May 24 through May 27. Survey gear used included one large-mesh fyke net (3 net-nights), three trap nets (9 net-nights), and three experimental graded-mesh inland gill nets (8 net-nights). Seining and electrofishing were conducted on July 13, 2010. A total of six seine hauls were completed, along with 3 ten-minute electrofishing transects conducted with an electroshocking boat. The primary purpose of this survey was to assess the status of all fish populations in Platte Lake, with additional focus on the Walleye population. During the 2010 May netting survey, a total of 1,499 fish were caught, representing 20 different species. Rock Bass were the most frequently collected species, with a total of 956 caught. They represented 64% of the total catch by number and ranged from 1 to nearly 12 inches in length. Other panfish species collected included Bluegill (67 from 4-8 inches), Pumpkinseed Sunfish (38 from 4-8 inches), and Yellow Perch (70 from 5-10 inches).

Game fish species caught in the 2010 May netting survey primarily included Smallmouth Bass and Walleye. A total of 63 Smallmouth Bass were caught, ranging from 6-19 inches. The Smallmouth Bass averaged 14.9 inches, with 76% over 14 inches in length. The Walleye catch consisted primarily of larger fish, with 27 individuals from 7-25 inches. All but two were larger than 18 inches. Other gamefish species caught in smaller numbers included one Brown Trout (18 inches), three Channel Catfish (24-27 inches), one Coho Salmon (7 inches), four Largemouth Bass (10-17 inches), five Northern Pike (21-32 inches), and one Rainbow Trout (16 inches). During the July seining and electrofishing portion of the 2010 survey, a total of 772 fish were caught, representing 20 different species. Spottail Shiners were the most frequently collected species, with a total of 298 caught, representing 39% of the total catch by number. Other nongame species present included Bluntnose Minnow, Bowfin, Brown Bullhead, Creek Chub, Common Shiner, Johnny Darter, Logperch, Longnose Gar, Round Goby, Sand Shiner, Shorthead Redhorse, and White Sucker. Panfish and gamefish species captured included Bluegill, Largemouth Bass, Pumpkinseed Sunfish, Rock Bass, Smallmouth Bass, Walleye, and Yellow Perch. The six Walleye caught were all smaller fish, ranging from 7-9 inches in length.

In the netting portion of the survey, most species caught showed above-average growth. More detailed information about growth rates from the 2010 survey can be found in Tonello 2010.

Several fall electrofishing surveys (2004, 2008, 2009, 2016, 2019, and 2022) have been conducted on Platte Lake to evaluate both the survival of stocked Walleye and the production of naturally reproduced Walleye (Table 4). A survey was also attempted in 2003, but extremely poor weather conditions forced the crew to abort the survey. The 2019 survey was also cut short by poor weather conditions; so while data was collected it is somewhat abbreviated. The purpose of these surveys was to evaluate Walleye year class strength, using the protocols outlined by Serns (1982, 1983) and subsequently updated by Ziegler and Schneider (2000). Age-0 Walleye were caught in both 2004 and 2009 (Seites 2010), but not in 2008, 2016, 2019, or 2022. Age-1 Walleye were caught in only the 2019 survey. In 2004, a total of 12 age-0 Walleye were caught, resulting in a catch rate of 2.0/mile. In 2009, a total of 48 age-0 Walleye were caught, resulting in a catch rate of 8.0/mile. According to Ziegler and Schneider (2000), catch rates of less than 45 age-0/mile indicates a "poor" year class. Because these were targeted walleye surveys, other fish species were not captured or evaluated.

Current Status

The most recent comprehensive fisheries survey of Platte Lake was conducted in the summer of 2024. Status and trends netting protocols (Wehrly et al. 2009) were used for the survey. The netting portion of the survey took place from May 28 through May 31. Survey gear used included one straight run-gill net (3 net-nights), one large-mesh fyke net (3 net-nights), three trap nets (9 net-nights), and two experimental graded-mesh inland gill nets (6 net-nights). Seining and electrofishing were conducted on June 19. A total of five seine hauls were completed, along with 3 ten-minute electrofishing transects conducted with an electroshocking boat. The primary purpose of this survey was to assess the status of all fish populations in Platte Lake, with additional focus on the Walleye population.

During the 2024 survey, a total of 1,323 fish were caught, representing 28 different species (Table 5). Rock Bass were the most frequently collected species, with a total of 632 caught. They represented nearly 48% of the total catch by number and ranged from 3 to 12 inches in length. Other panfish species collected included Bluegill (29 from 2-8 inches), Pumpkinseed Sunfish (32 from 3-7 inches), White Perch (23 from 7-13 inches), and Yellow Perch (208 from 2-11 inches).

Game fish species caught in the 2024 survey primarily included Smallmouth Bass and Walleye. A total of 24 Smallmouth Bass were caught, ranging from 1-20 inches. The Walleye catch consisted of a broad range of fish, with 35 individuals from 8-26 inches. Of the Walleye sampled, 94% were of legal size. Other gamefish species caught in smaller numbers included one Channel Catfish (28 inches), six Coho Salmon (6-8 inches), 15 Largemouth Bass (13-19 inches), 14 Northern Pike (21-30 inches), and six Rainbow Trout (6-34 inches).

Spine and scale samples were collected from Bluegill, Coho Salmon, Largemouth Bass, Northern Pike, Pumpkinseed Sunfish, Rainbow Trout, Smallmouth Bass, Walleye, and Yellow Perch. These structures were used to age individual fish and determine the mean growth index. Mean growth index is the average deviation from the state average length at age. Not enough Coho Salmon or Rainbow Trout were collected to make this calculation (Table 6). Most of the fish species that samples were collected from exhibited average to above average growth rates; only Bluegill (-1.0) and Yellow Perch (-1.5) were growing below the state average. Pumpkinseed and Walleye were growing at state average, while Largemouth Bass (+0.8), Northern Pike (+4.0), and Smallmouth Bass (+2.8) were all growing substantially above the state average.

The MDNR surveyed Platte Lake for invasive and native freshwater mussels during the summer of 2024 as part of an ongoing effort to better understand Michigan's mussel communities. The survey occurred between July 25 - 26 and included the use of snorkeling and bottom viewing buckets at depths of approximately three feet. Invasive zebra mussels were present throughout much of the lake; however, densities were low near the mouth of the Platte River. Numerous well-worn shells representing two native mussel species were found, fatmucket (*L. siliquoidea*) and Giant/Lake floater (*Pyganodon* sp.). It appears that native mussels were extirpated from the lake after the introduction of invasive zebra mussels. Invasive mussels often attach to native mussels, resulting in a reduction in feeding and movement, causing an increase in mortality (Michael Hillary, MDNR personal communication).

Shoreline data was collected on Platte Lake by MDNR Fisheries personnel on June 17, 2024, according to protocols outlined in Wehrly et al. (2009). Data collected included the number of docks, submerged trees, and dwellings observed per kilometer of shoreline, as well as how much of the shoreline is armored or hardened with seawalls or riprap to prevent erosion. Platte Lake averaged 25.4

docks, 30.1 dwellings and 4.4 submerged trees per kilometer of shoreline (Table 7). Armoring structures and materials were present along 28.6% of the lake shoreline.

Analysis and Discussion

Overall, the fish community represented in the 2024 survey was similar to the fish community represented in the 2010 survey. Species observed in 2024 but not 2010 included Common Carp and Freshwater Drum, while species observed in 2010 but not in 2024 included Black Bullhead, Creek Chub, and Spottail Shiner. The total number of fish was down in 2024 in comparison to 2010 (1,323 v. 2,273), and notable declines were observed in panfish species such as Bluegill, Rock Bass, and Pumpkinseed Sunfish. Game fish species such as Yellow Perch, Smallmouth Bass and Largemouth Bass, and non-game species such as bullhead and White Sucker also showed declines. Only Northern Pike, young salmonids (Coho Salmon and Rainbow Trout), and Walleye were caught in numbers similar to or higher than what was caught in 2010.

While growth rates from fish sampled in 2024 show that these fish were growing near or above state average in most cases, there were some variations in growth from what was observed in 2010. Bluegill growth declined (-1.0 versus +0.3), Largemouth Bass growth declined (+0.8 versus +1.8), and Walleye growth declined (0 versus +1.3). Yellow Perch growth (-1.5) and Pumpkinseed Sunfish (0) growth rates stayed the same. Smallmouth Bass growth increased (+2.8 versus +0.7). Not enough Northern Pike were collected in the 2010 survey to make a comparison to the 2024 growth rates, however the growth rates for pike in 2024 were very high at +4.0 inches above state average.

The changes in species and numbers may be tied to environmental conditions. During the 2010 survey water temperatures ranged from 69.6°F to 71.7°F, while the 2024 survey water temperatures ranged from 63.8°F to 64.5°F, despite both surveys being conducted at the end of May. The cooler temperatures in the nearshore areas of the lake may have kept fish from moving as much as in 2010 when the nearshore water temperatures were warmer, which could have affected catch rates in the survey nets.

Compared to other large, deep lakes in Michigan, Platte Lake has substantially higher densities of docks and dwellings (Table 6; Wehrly et al. 2015). Platte Lake also had a higher shoreline armoring percentage and less submerged woody habitat than other large, deep lakes in Michigan. The Platte Lake shoreline is clearly heavily developed and natural, undeveloped shoreline is severely lacking.

Management Direction

The Central Lake Michigan Management Unit should continue to work with the Tribal Coordination Unit to perform fall electrofishing surveys targeting Walleye on Platte Lake to investigate the natural reproduction of Walleye. However, it is suggested that new electroshocking locations be selected around the lake to sample. The current sampling locations may not provide an adequate representation of habitat that juvenile Walleye are using in the fall. Fish community surveys continue to produce multiple year classes of Walleye, while the fall electrofishing surveys frequently produce few or no Age-0 and Age-1 Walleye. Walleye caught by anglers and in MDNR netting surveys indicate more consistent Walleye reproduction and survival, and this is not supported by the findings of the fall electrofishing surveys. Efforts should be made to identify the locations in the lake that juvenile Walleye are using to help us better understand the dynamics of natural reproduction in the lake, as well as to better protect juvenile Walleye habitat.

Resuming the Walleye stocking program on Platte Lake comes up in discussion from time to time. This stocking program was suspended in response to both angler and Fisheries Division concerns of predation on stocked salmonid species such as Steelhead and Coho Salmon. The Platte River has long

been valued as a popular Steelhead fishing stream, and Coho Salmon are stocked in the river in very large numbers to create and maintain fisheries in Lake Michigan, Platte Bay, and Platte River. Coho stocked in the Platte River migrate to the southern end of Lake Michigan in the winter, then begin to migrate up the shoreline back towards the Platte River throughout the year. This gives all the ports along the coastline an opportunity to fish for Coho Salmon as they migrate back to spawn in their natal stream in the fall. Platte Bay creates a unique small boat salmon fishing opportunity that is steeped in history.

If possible, it would be popular with anglers to maintain the Walleye fishery in Platte Lake, and the Steelhead and Coho fisheries in Platte River and Lake Michigan, but more evaluation is required to do so. A mass marking study beginning in 2025 is partially aimed at evaluating Coho Salmon stocking locations in the Platte River. If it is determined that Coho Salmon may be stocked below Platte Lake and still return to the Platte River State Hatchery in the numbers needed for broodstock collections, discussions regarding Walleye stocking may resume. What makes these discussions interesting is the fact that in the 2024 survey nearly the same number of Walleye were collected as in past surveys that took place while Walleye were being stocked, however we saw more year classes represented in the most recent survey than any of the prior surveys (Table 7).

Fisheries Division should continue to work collaboratively with the PLIA and EGLE (Department of Environment, Great Lakes, and Energy) to protect Platte Lake as its ecological functionality is critical to the continued health of the watershed. Future unwise riparian development, shoreline armoring, and wetland loss may result in deterioration of the water quality and aquatic habitat. Most of the nearshore areas on Platte Lake have gravel and cobble substrates present, as well as good quantities of hard sand and woody debris. This nearshore habitat is critical for many important Platte Lake fish species, as gravel and cobble substrates provide spawning habitat and also host many important aquatic invertebrates that help to sustain healthy fish populations.

The shoreline of Platte Lake is more heavily developed and degraded than other large, deep inland lakes in Michigan. Human development in the form of seawalls, artificial beaches, riprap, and mowed lawn to the water's edge do not provide a healthy environment for aquatic life. Woody habitat was also lacking in Platte Lake. Therefore, PLIA should seek opportunities to restore degraded shorelines and add woody habitat to Platte Lake. The Michigan Natural Shoreline Partnership, an organization dedicated to promoting natural shoreline landscaping to protect Michigan's inland lakes (<http://www.mishorelinepartnership.org/>), can provide guidance and training on how best to manage the land/water interface for the benefit of Platte Lake.

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Tables and Figures

Table 1. Fish stocked into Platte Lake, 1909-1942.

| Year | Species | Number | Size/Age |
|-------------|-----------------|---------------|-----------------|
| 1909 | Lake Trout | 22,500 | fry |
| 1909 | Smallmouth Bass | 8,000 | fry |
| 1910 | Lake Trout | 20,000 | fry |
| 1910 | Walleye | 125,000 | fry |
| 1932 | Largemouth Bass | 500 | unknown |
| 1934 | Bluegill | 10,000 | 3 months |
| 1935 | Bluegill | 10,000 | 4 months |
| 1935 | Walleye | 170,000 | fry |
| 1936 | Walleye | 375,000 | fry |
| 1937 | Bluegill | 15,000 | 5 months |
| 1937 | Largemouth Bass | 1,800 | fry |
| 1937 | Smallmouth Bass | 500 | fry |
| 1937 | Walleye | 375,000 | fry |
| 1938 | Bluegill | 10,000 | 3 months |
| 1938 | Largemouth Bass | 1,500 | 3 months |
| 1938 | Smallmouth Bass | 1,000 | 5 months |
| 1938 | Walleye | 400,000 | fry |
| 1938 | Yellow Perch | 20,000 | 7 months |
| 1939 | Bluegill | 10,000 | 4 months |
| 1939 | Smallmouth Bass | 2,000 | 4-5 months |
| 1939 | Walleye | 300,000 | fry |
| 1939 | Yellow Perch | 30,000 | 7 months |
| 1940 | Bluegill | 34,260 | 4 months |
| 1940 | Smallmouth Bass | 12,000 | 4 months |
| 1940 | Walleye | 12,000 | fry |
| 1941 | Bluegill | 25,000 | 4 months |
| 1941 | Largemouth Bass | 2,000 | 4 months |
| 1941 | Smallmouth Bass | 675 | 4 months |
| 1942 | Bluegill | 15,000 | 4 months |
| 1942 | Largemouth Bass | 400 | 4 months |
| 1942 | Smallmouth Bass | 2,225 | 5 months |
| 1942 | Walleye | 200,000 | fry |

Table 1 (Continued). Fish stocked into Platte Lake, 1943-2024.

| Year | Species | Number | Size/Age |
|-------------|-----------------|---------------|-------------------|
| 1943 | Bluegill | 1,000 | yearling |
| 1943 | Smallmouth Bass | 800 | 3 months |
| 1944 | Bluegill | 1,000 | 15 months |
| 1944 | Smallmouth Bass | 1,680 | 4 months |
| 1946 | Lake Trout | 2,000 | 2 years |
| 1947 | Lake Trout | 5,000 | adult |
| 1948 | Lake Trout | 3,000 | 9 inches |
| 1965 | Brook Trout | 15,000 | legal |
| 1969 | Brown Trout | 3,000 | yearling |
| 1985 | Walleye | 6,840 | spring fingerling |
| 1986 | Walleye | 5,800 | spring fingerling |
| 1987 | Walleye | 5,075,000 | fry |
| 1990 | Walleye | 2,000,000 | fry |
| 1991 | Walleye | 3,600,000 | fry |
| 1992 | Walleye | 2,000,000 | fry |
| 1994 | Brown Trout | 20,000 | yearlings |
| 1995 | Brown Trout | 19,998 | yearlings |
| 1997 | Brown Trout | 21,229 | yearlings |
| 1998 | Brown Trout | 17,270 | yearlings |
| 1999 | Brown Trout | 19,998 | yearlings |
| 2000 | Brown Trout | 21,900 | yearlings |
| 2001 | Brown Trout | 19,114 | yearlings |
| 2002 | Walleye | 67,950 | spring fingerling |
| 2002 | Brown Trout | 20,140 | yearlings |
| 2003 | Walleye | 63,112 | spring fingerling |
| 2004 | Walleye | 63,728 | spring fingerling |
| 2009 | Walleye | 138,277 | spring fingerling |
| 2013 | Walleye | 67,078 | spring fingerling |

Table 2. Michigan DNR Master Angler awards issued for fish caught from Platte Lake, Benzie County, 1994- 2025.

| Species | Master Angler Awards Issued |
|---------------------|-----------------------------|
| Largemouth Bass | 2 |
| Smallmouth Bass | 11 |
| Bowfin | 2 |
| Common Carp | 3 |
| Channel Catfish | 16 |
| Flathead Catfish | 1 |
| Freshwater Drum | 1 |
| Longnose Gar | 12 |
| Northern Pike | 2 |
| Muskellunge | 1 |
| Chinook Salmon | 1 |
| Coho Salmon | 2 |
| Black Crappie | 1 |
| Bluegill | 5 |
| Rock Bass | 68 |
| Pumpkinseed Sunfish | 5 |
| White Perch | 2 |
| Brown Trout | 1 |
| Walleye | 4 |
| Total | 140 |

Table 3. Presence/absence of fish species in historical fisheries surveys of Platte Lake, Benzie County.

| Species | 1940 | 1952 | 1975 | 1981 | 1992 | 1997 | 2010 | 2024 |
|---------------------|------|------|------|------|------|------|------|------|
| Alewife | | | X | X | X | X | X | X |
| Banded Killifish | | | | | | | | X |
| Black Bullhead | | | | | | | X | |
| Black Crappie | | | | X | X | | | |
| Black-Nosed Minnow* | X | | | | | | | |
| Bluegill | X | X | X | X | | X | X | X |
| Bluntnose Minnow | X | | | | | | X | X |
| Bowfin | X | | X | X | X | X | X | X |
| Brown Bullhead | X | | X | X | X | X | X | X |
| Brown Trout | | | X | X | | X | X | X |
| Buffalo spp. | | | | X | | | | |
| Coho Salmon | | | | | | | X | X |
| Channel Catfish | | | | X | X | X | X | X |
| Cisco | X | X | | | | | | |
| Chinook Salmon | | | | X | X | | | X |
| Common Carp | | | X | X | | X | | X |
| Common Shiner | X | | X | X | | | X | X |
| Creek Chub | | | | | | | X | |
| Freshwater Drum | | | | | | | | X |
| Iowa Darter | X | | | | | | | |
| Johnny Darter | X | | | | | | X | X |
| Largemouth Bass | X | | X | X | | X | X | X |
| Logperch | X | | | | | | X | X |
| Longnose Gar | X | X | X | X | X | X | X | X |
| Mimic Shiner | X | | | | | | | |
| Northern Pike | X | X | X | X | | X | X | X |
| Pumpkinseed | X | | X | X | X | X | X | X |
| Rainbow Smelt | X | X | | X | | | | |
| Rainbow Trout | X | | X | X | X | X | X | X |
| Redhorse spp. | | X | X | X | X | | | |
| Rock Bass | X | X | X | X | X | X | X | X |
| Rosyface Shiner | X | | | | | | | |
| Round Goby | | | | | | | X | X |

*No species exist today with these names. What species they were referring to is unknown.

Table 3 (Continued). Presence/absence of fish species in historical fisheries surveys of Platte Lake, Benzie County.

| Species | 1940 | 1952 | 1975 | 1981 | 1992 | 1997 | 2010 | 2024 |
|-----------------------|------|------|------|------|------|------|------|------|
| Sand Shiner | | | | | | | X | X |
| Shorthead Redhorse | | | | | | | X | X |
| Silver Redhorse | | | | | | X | | |
| Smallmouth Bass | X | X | X | X | X | X | X | X |
| Stickleback spp. | | | | | X | | | |
| Straw Colored Shiner* | X | | | | | | | |
| Spottail Shiner | X | | | | | | X | |
| Trout-Perch | X | | | | | | | |
| Walleye | | | X | X | X | X | X | X |
| White Perch | | | | | | | X | X |
| White Sucker | X | X | X | X | X | X | X | X |
| Yellow Bullhead | | | X | | | | | |
| Yellow Perch | X | X | | X | X | X | X | X |

*No species exist today with these names. What species they were referring to is unknown.

Table 4. Results of fall electrofishing surveys conducted on Platte Lake targeting juvenile Walleye. The surveys were conducted according to protocols described by Serns (1982 and 1983) and updated by Ziegler and Schneider (2000).

| Year | Age | # Walleye captured | Catch rate (# Walleye/mile of shoreline sampled) | Year class strength estimate | Serns Index (# Walleye/surface acre) |
|------|-------|--------------------|--|------------------------------|--------------------------------------|
| 2004 | Age 0 | 12 | 2 | 1,178 | 0.468 |
| 2004 | Age1 | 0 | 0 | 0 | 0 |
| 2008 | Age 0 | 0 | 0 | 0 | 0 |
| 2008 | Age1 | 0 | 0 | 0 | 0 |
| 2009 | Age 0 | 48 | 8 | 4,710 | 1.872 |
| 2009 | Age1 | 0 | 0 | 0 | 0 |
| 2016 | Age 0 | 0 | 0 | 0 | 0 |
| 2016 | Age1 | 0 | 0 | 0 | 0 |
| 2019 | Age 0 | 0 | 0 | 0 | 0 |
| 2019 | Age1 | 2 | 0 | - | - |
| 2022 | Age 0 | 0 | 0 | 0 | 0 |
| 2022 | Age1 | 0 | 0 | 0 | 0 |

Table 5. Total number, weight, and length of fish collected from Platte Lake with large mesh fyke nets, trap nets, inland gill nets, seines, and electrofishing equipment during the 2024 surveys.

| Species | Number | Percent by Number | Weight (lbs) | Percent by Weight | Length Range | Percent Legal Size |
|--------------------|-------------|-------------------|--------------|-------------------|--------------|--------------------|
| Alewife | 3 | 0.2 | 0.6 | 0.1 | 8-9 | 100 |
| Banded Killifish | 1 | 0.1 | 0 | 0 | 2 | 100 |
| Bluegill | 29 | 2.2 | 3.6 | 0.4 | 2-8 | 17 (6") |
| Bluntnose Minnow | 5 | 0.4 | 0.1 | 0 | 2-3 | 100 |
| Brown Trout | 1 | 0.1 | 1.6 | 0.2 | 15 | 100 (8") |
| Bowfin | 2 | 0.2 | 9.2 | 1.1 | 22-24 | 100 |
| Brown Bullhead | 38 | 2.9 | 28.5 | 3.5 | 6-14 | 100 |
| Common Carp | 1 | 0.1 | 17.9 | 2.2 | 34 | 100 |
| Channel Catfish | 1 | 0.1 | 8 | 1 | 28 | 100 |
| Coho Salmon | 6 | 0.5 | 0.8 | 0.1 | 7-8 | 0 (10") |
| Common Shiner | 4 | 0.3 | 0.1 | 0 | 2-4 | 100 |
| White Sucker | 136 | 10.3 | 91.9 | 11.3 | 1-20 | 100 |
| Freshwater Drum | 2 | 0.2 | 25.5 | 3.1 | 27-31 | 100 |
| Johnny Darter | 10 | 0.8 | 0.1 | 0 | 1-2 | 100 |
| Largemouth Bass | 15 | 1.1 | 41.2 | 5.1 | 13-19 | 93 (14") |
| Longnose Gar | 32 | 2.4 | 84.2 | 10.4 | 25-37 | 100 |
| Logperch | 7 | 0.5 | 0.1 | 0 | 2-3 | 100 |
| Northern Pike | 14 | 1.1 | 51.8 | 6.4 | 21-30 | 64 (24") |
| Pumpkinseed | 32 | 2.4 | 4.6 | 0.6 | 3-7 | 38 (7") |
| Rainbow Trout | 6 | 0.5 | 16.3 | 2 | 6-34 | 50 (8") |
| Round Goby | 3 | 0.2 | 0 | 0 | 1 | 100 |
| Rock Bass | 632 | 47.8 | 181.3 | 22.3 | 3-12 | 50 (7") |
| Sand Shiner | 48 | 3.6 | 0.1 | 0 | 1-2 | 100 |
| Shorthead Redhorse | 5 | 0.4 | 14.7 | 1.8 | 18-21 | 100 |
| Smallmouth Bass | 24 | 1.8 | 55.1 | 6.8 | 1-20 | 79 (14") |
| Walleye | 35 | 2.6 | 124.7 | 15.3 | 8-26 | 94 (15") |
| White Perch | 23 | 1.7 | 21.5 | 2.6 | 7-13 | 100 |
| Yellow Perch | 208 | 15.7 | 29.2 | 3.6 | 2-11 | 29 (7") |
| Total | 1323 | 100 | 812.7 | 100 | | |

① Note some fish were measured to 0.1 inch, others to inch group: e.g., "5"=5.0 to 5.9 inch, 12=12.0 to 12.9 inches; etc. ② Percent legal size or acceptable size for angling. Legal size or acceptable size for angling is given in parentheses.

Table 6. Age and growth data for Platte Lake, Spring 2024 survey.

| Species | Age | N Samples | State Avg. Length (in.) | Platte Lake Avg. Length (in.) | Mean Growth Index |
|-----------------|-----|-----------|-------------------------|-------------------------------|-------------------|
| Bluegill | 3 | 4 | 5.0 | 4.15 | - |
| Bluegill | 4 | 13 | 5.9 | 4.91 | -0.99 |
| Bluegill | 5 | 2 | 6.7 | 7.75 | - |
| Bluegill | 6 | 2 | 7.3 | 8.20 | - |
| Bluegill | 8 | 1 | 8.2 | 8.60 | - |
| Coho Salmon | 1 | 5 | - | 7.61 | - |
| Largemouth Bass | 3 | 1 | 9.4 | 13.90 | - |
| Largemouth Bass | 4 | 3 | 11.6 | 15.27 | - |
| Largemouth Bass | 5 | 2 | 13.2 | 16.25 | - |
| Largemouth Bass | 6 | 2 | 14.7 | 17.50 | - |
| Largemouth Bass | 7 | 1 | 16.3 | 17.70 | - |
| Largemouth Bass | 8 | 5 | 17.4 | 18.22 | 0.82 |
| Largemouth Bass | 9 | 1 | 18.3 | 19.10 | - |
| Largemouth Bass | 11 | 1 | - | - | - |
| Largemouth Bass | 12 | 1 | - | - | - |
| Northern Pike | 2 | 1 | 17.7 | 23.40 | - |
| Northern Pike | 3 | 5 | 20.8 | 24.81 | 4.01 |
| Northern Pike | 4 | 4 | 23.4 | 25.93 | - |
| Northern Pike | 5 | 5 | 25.5 | 25.54 | 0.04 |
| Pumpkinseed | 3 | 6 | 4.9 | 4.48 | -0.42 |
| Pumpkinseed | 4 | 7 | 5.6 | 5.54 | -0.06 |
| Pumpkinseed | 5 | 7 | 6.2 | 6.59 | 0.39 |
| Pumpkinseed | 6 | 3 | 6.6 | 6.10 | - |
| Pumpkinseed | 7 | 1 | 7.1 | 6.70 | - |
| Rainbow Trout | 1 | 3 | 8.2 | 7.20 | - |
| Rainbow Trout | 2 | 1 | 11.2 | 11.30 | - |
| Rainbow Trout | 3 | 1 | 14.3 | - | - |
| Rainbow Trout | 7 | 1 | - | 34.00 | - |
| Smallmouth Bass | 1 | 1 | 3.8 | 4.10 | - |
| Smallmouth Bass | 3 | 3 | 10.8 | 12.23 | - |
| Smallmouth Bass | 4 | 9 | 12.6 | 15.36 | 2.76 |
| Smallmouth Bass | 5 | 4 | 14.4 | 16.85 | - |
| Smallmouth Bass | 9 | 1 | 18.1 | 19.20 | - |
| Smallmouth Bass | 10 | 2 | 18.9 | 19.05 | - |
| Smallmouth Bass | 11 | 1 | - | 20.00 | - |

Table 6 (Continued). Age and growth data for Platte Lake, Spring 2024 survey.

| Species | Age | N Samples | State Avg. Length (in.) | Platte Lake Avg. Length (in.) | Mean Growth Index |
|--------------|-----|-----------|-------------------------|-------------------------------|-------------------|
| Walleye | 1 | 1 | 7.1 | 8.80 | - |
| Walleye | 2 | 1 | 10.4 | 15.80 | - |
| Walleye | 3 | 2 | 13.9 | 16.05 | - |
| Walleye | 4 | 3 | 15.8 | 20.33 | - |
| Walleye | 5 | 1 | 17.6 | 26.50 | - |
| Walleye | 7 | 3 | 20.6 | 25.60 | - |
| Walleye | 8 | 11 | 21.6 | 22.14 | 0.54 |
| Walleye | 9 | 7 | 22.4 | 22.59 | 0.19 |
| Walleye | 10 | 5 | 23.1 | 22.30 | -0.80 |
| Yellow Perch | 2 | 3 | 5.2 | 4.43 | - |
| Yellow Perch | 3 | 8 | 6.5 | 4.90 | -1.60 |
| Yellow Perch | 4 | 9 | 7.5 | 6.72 | -0.78 |
| Yellow Perch | 5 | 14 | 8.5 | 7.94 | -0.56 |
| Yellow Perch | 6 | 10 | 9.4 | 7.13 | -2.27 |
| Yellow Perch | 7 | 5 | 10.3 | 8.29 | -2.01 |
| Yellow Perch | 8 | 1 | 11.1 | 8.90 | - |

Table 7. Shoreline data for Platte Lake, Benzie County, compared with that for other large-sized, deep depth lakes in Michigan (from Wehrly et al. 2015). Sampling was conducted by MDNR Fisheries personnel on June 17, 2024.

| Physical Habitat Parameter | State of Michigan Average | Platte Lake 2024 |
|----------------------------|---------------------------|------------------|
| Docks per km | 4.3 | 25.4 |
| Dwellings per km | 9.2 | 30.1 |
| Percent Shoreline Armoring | 24.2 | 28.6 |
| Submerged Trees per km | 8.4 | 4.4 |

Figure 1. Location of Platte Lake, Benzie County, Michigan.

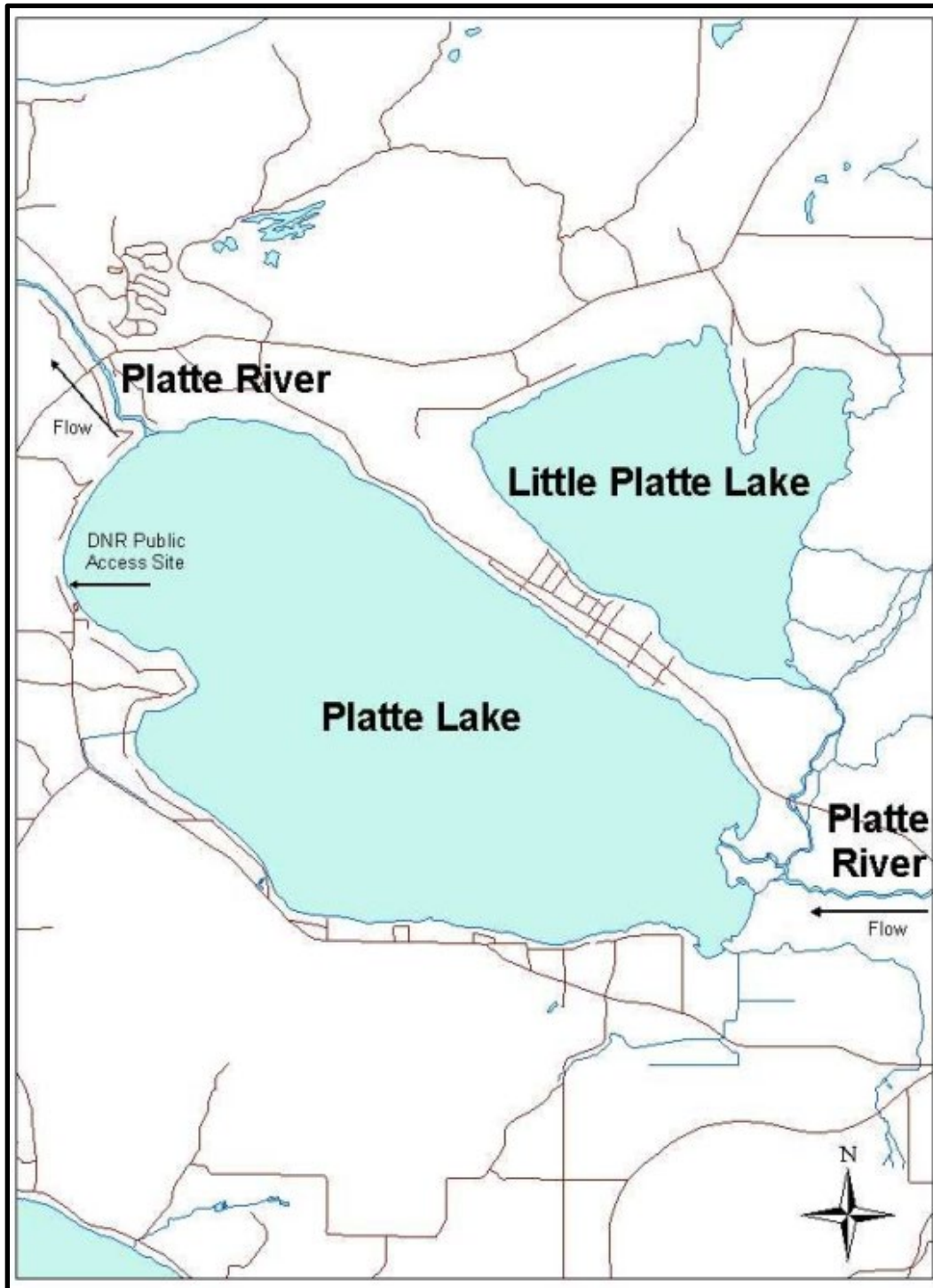


Figure 2. Platte River watershed; Benzie County, Leelanau County, and Grand Traverse County, Michigan.

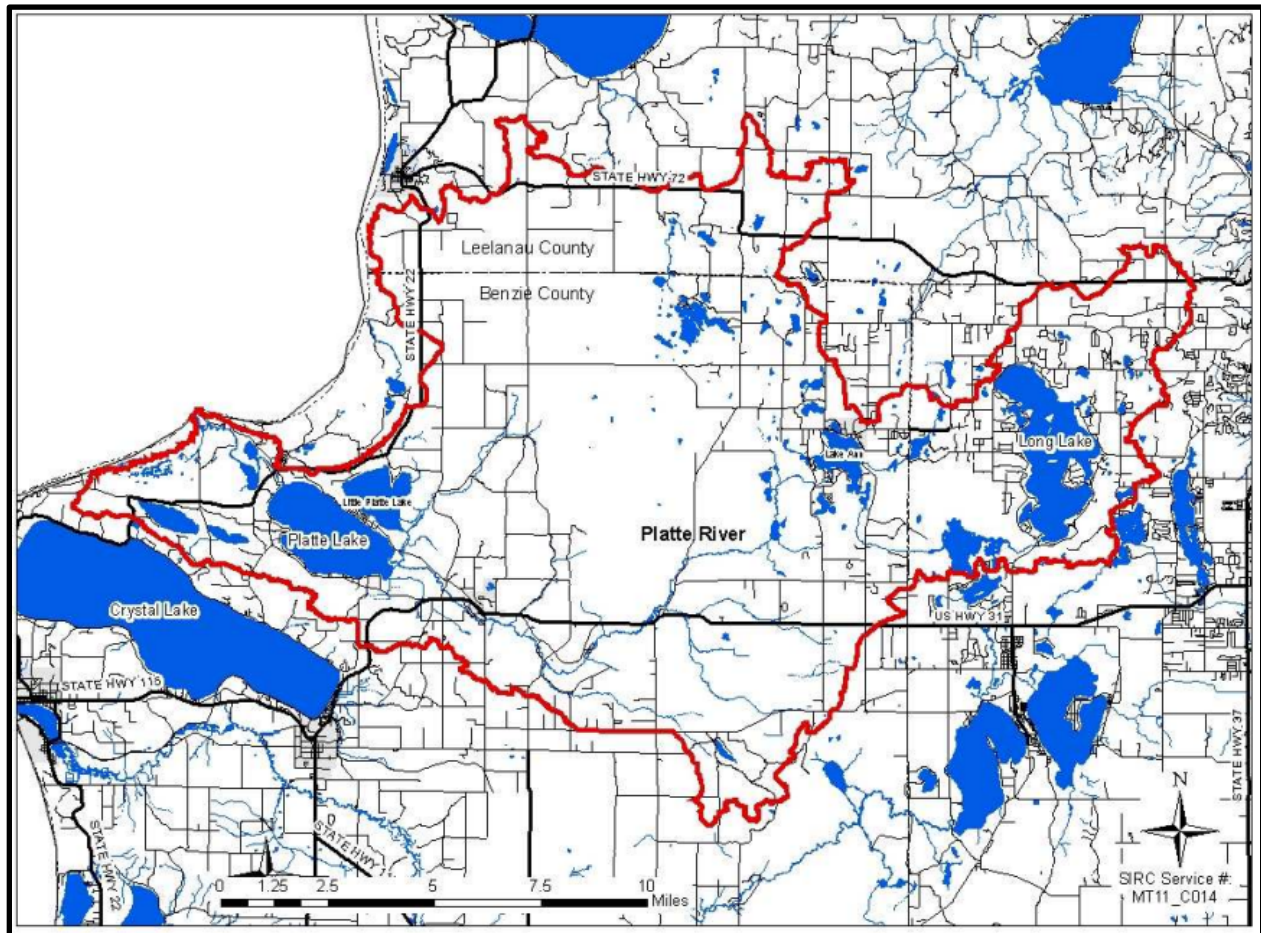


Figure 3. Map of the Platte Lake lakeshed.

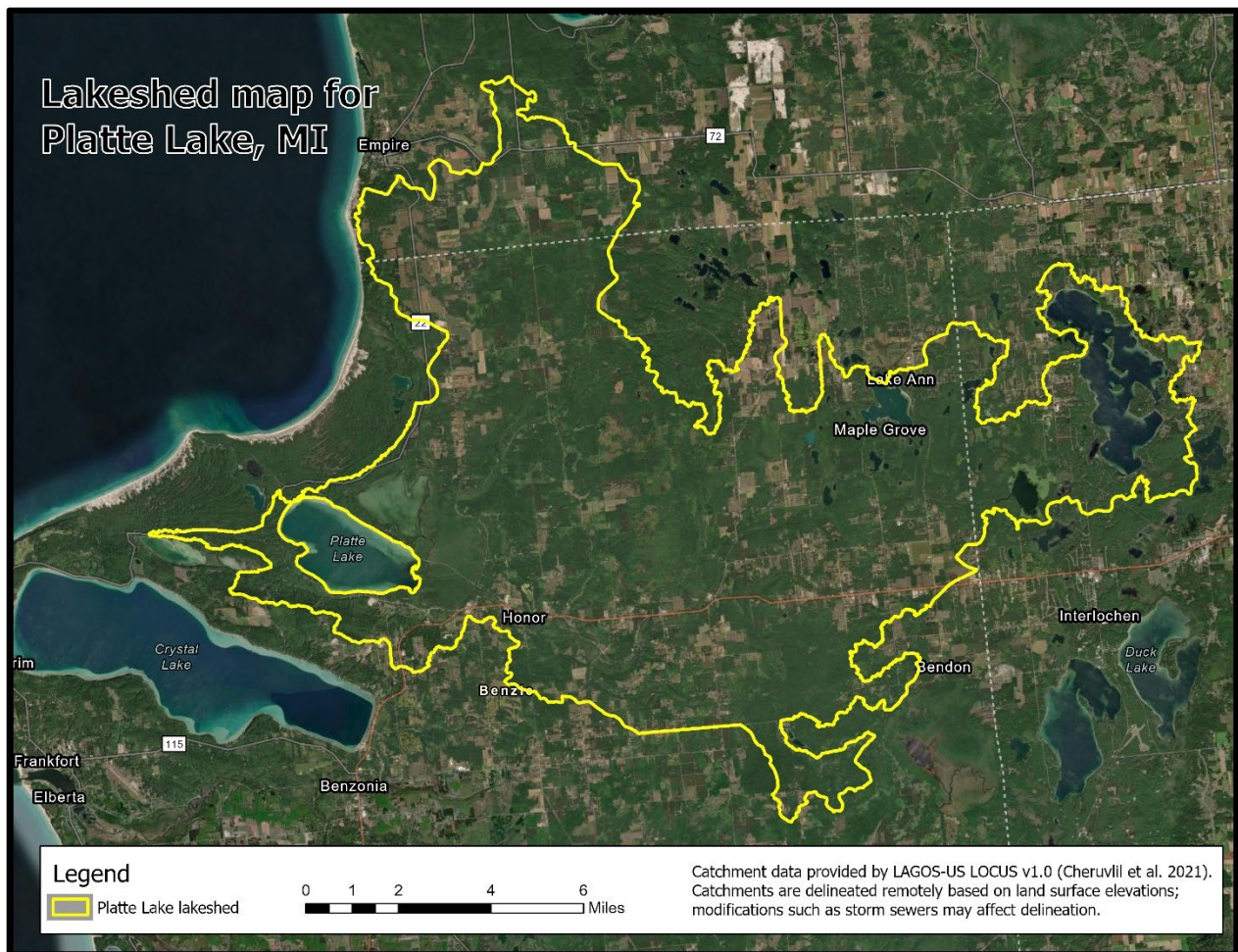
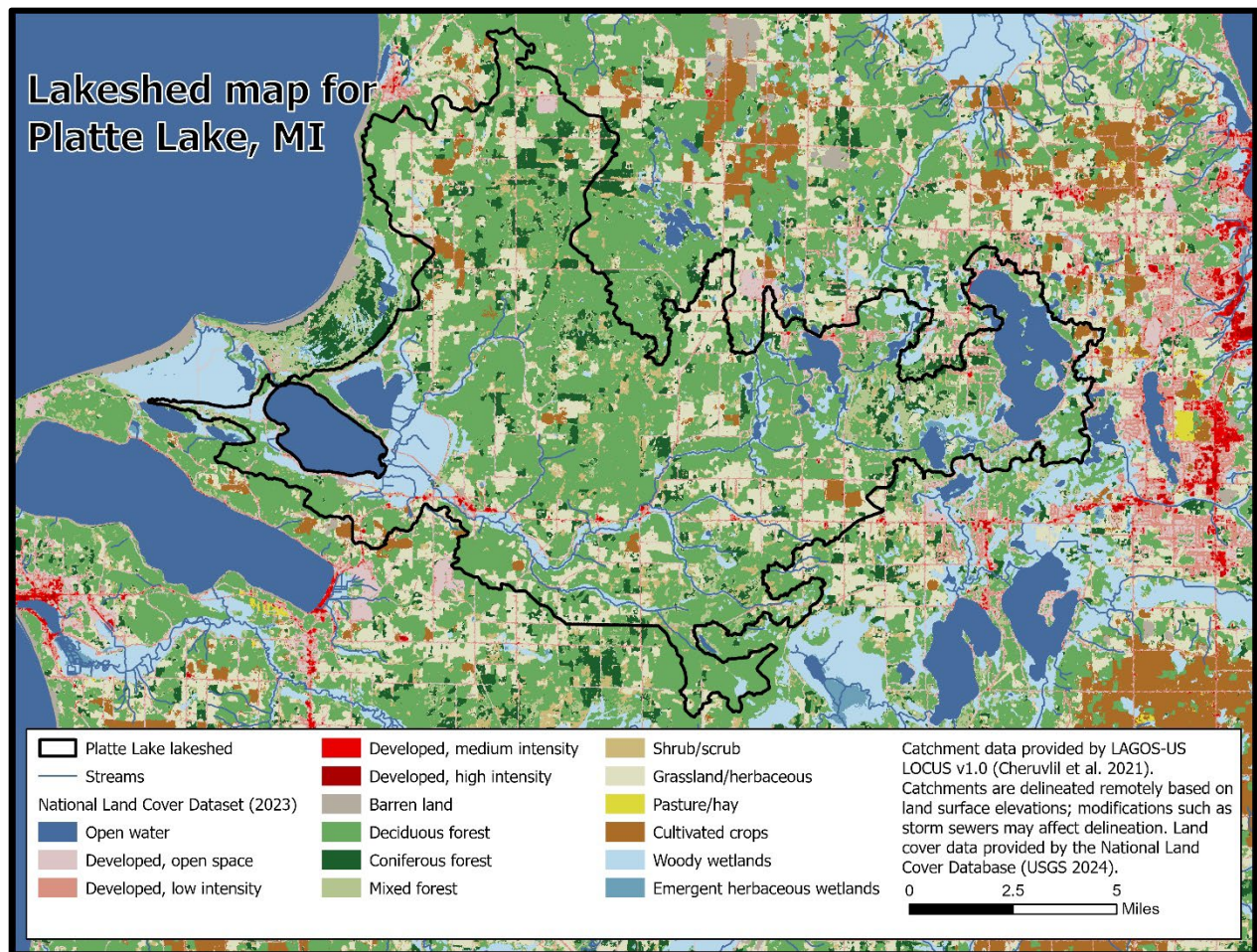


Figure 4. Map of the Platte Lake lakeshed land use types.



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