Twin Lake #1
Cheboygan County, T36N, R01E, Section 2
Lower Black River Watershed, last surveyed fall 2015

Tim Cwalinski, Senior Fisheries Biologist, MDNR

Environment

Twin Lake #1 is located in northeastern Cheboygan County, southeast of the town of Cheboygan (Figure 1). It has approximately 14 surface acres, is 30 feet deep and landlocked. It is isolated from a nearby chain of lakes called the Twin Lakes 2-5 (Figure 2). About half of the shoreline is in public ownership and most access is gained through the state forest recreational trails that are adjacent to the lake. Bottom substrate is primarily detritus, large woody debris is abundant near the shoreline, and aquatic vegetation such as lily pads are present. The lake is limited to small watercraft such as float tubes, canoes, kayaks, and small boats and offers a unique aesthetic setting. It was a designated trout lake managed with Type D trout regulations from the late 1970s through 2008. Type D trout regulations are very conservative (no winter fishing, no live bait, reduced bag limit, high trout size limits). Trout regulations remain on Twin Lake #1 today but are much less restrictive. Today it is managed as a Type B trout lake which is open all year to fishing with all tackle types, minimum size limits for Brown and Rainbow trout are 12 inches, and the daily bag limit is 5 trout, of which no more than three can be 15 inches or larger.

History

Trout stocking efforts have been fairly extensive at Twin Lake #1 (Table 1). Rainbow Trout were stocked from 1963 through 1973 by the Michigan Department of Conservation (MDOC), the precursor agency to the Michigan Department of Natural Resources (MDNR). Brown Trout were first stocked in 1975 and then in 1976. Brook Trout were first stocked in 1974 and consistently from 1980 through 1987. Brown Trout were primarily stocked after 1990 with the exception of a few occasions when Rainbow Trout were stocked. Since 1980, the lake had been managed extensively for trophy trout under Type D trout regulations up until 2009 when Type B trout regulations were installed.

The earliest fisheries surveys on record for Twin Lake #1 date back to the 1960s. The chemical rotenone was used in September of 1963 by MDOC to eliminate the warm water fish population. The lake was treated at a rate of 0.5ppm for a total of 50 pounds/acre. The eventual fish kill resulted in the removal of many small fish including Yellow Perch, Bluegill, Rock Bass, and Banded Killifish. The lake was then stocked with yearling Rainbow Trout annually from 1963 through 1973.

A biological survey was completed in May of 1970 to evaluate current trout management. Six experimental gill-nets were used for a total of six lifts and resulted in a catch dominated by small White Sucker and small Bluegill. Included among the catch were four Rainbow Trout as well as one Brown Trout. Water quality of Twin Lake #1 was still thought to be conducive to trout survival at the time. Early spring gill-netting the following year found low numbers of bass, Bluegill, and Rainbow Trout.

The second chemical reclamation project of Twin Lake #1 occurred in late spring of 1974. Rotenone was again used to remove various warm water species including Bluegill and Common Shiners. Following the reclamation, gill-nets were used to again sample the fish community during the summer. Six experimental gill-net lifts were used and captured many White Suckers. Temperature and dissolved oxygen profiles were collected on the lake in the summer and found water highly suitable to trout survival.

Two additional fish evaluations were made in the late 1970s. A survey was conducted in late-May of 1976 with the purpose of evaluating trout growth and survival. Sixty Brown Trout were collected ranging in length from 8-12 inches along with 3 additional Brook Trout. It was this year (1976) that special trophy trout regulations were established for Twin Lake #1. Three experimental gill-net lifts were used in May of 1979 and collected 450 Yellow Perch and 8 Brown Trout. Recommendations were made from lake managers to carry out another chemical reclamation of the lake and to continue trout stocking efforts. A rotenone treatment was made on the lake in June of 1979. Forty gallons of rotenone were applied and included treatment in the thermocline layer. Yellow Perch and Bluntnose Minnows comprised the majority of the fish killed. A July limnological profile demonstrated the presence of quality trout water conditions.

The first half of the 1980s saw three fall fish surveys conducted at Twin Lake #1. Four experimental gill-net lifts were used in 1981 and 1985, while 3 gill-net lifts were used in 1983. The reason for the surveys was to continue monitoring trout management under the trophy trout regulations. More than 70 brook trout ranging in length from 8-11 inches were caught in the 1981 survey, as well as a Northern Pike. No trout were collected in the 1983 or 1985 survey, but Rock Bass and Yellow Perch were now found to be common.

Brook Trout stocking efforts ceased by 1990 and were replaced with Brown Trout (Table 1). Rotenone was again applied to Twin Lake #1 in November of 1990. This fourth reclamation project was done with 65 gallons of chemical with the purpose of eliminating species that directly compete with trout. Brown Trout stocking efforts continued after the project.

A meeting with the Twin Lakes Association in 1992 noted that fishing pressure was believed to be light on Twin Lake #1. Association members also had noted that bait anglers tended to fish the lake at night. This of course was illegal since fishing with bait was not permitted at the lake during this period. The trophy trout regulations were still in place on Twin Lake #1, as they were through 2008. These conservative regulations included a reduced bag limit (1), a high minimum size limit on trout (15 inches), and the use of artificial lures or flies only.

A fish evaluation was made by MDNR Fisheries Division in early fall of 1992 with the use of gill-nets. A total of 46 Brown Trout were collected. Growth of trout was found to be slow. Recommendations were made to continue the Brown Trout stocking efforts and to maintain the special regulations, despite the thought that fishing pressure was still deemed low.

A water temperature and dissolved oxygen profile was made at Twin Lake #1 in July 1993. This survey documented good (6 ppm or greater) dissolved oxygen throughout the water column with water temperature near 64F (Fahrenheit) at the bottom. The survey noted an established thermocline, but

much of the water column had water temperatures greater than 70F which are not highly suitable to trout survival.

A trout evaluation was made in October 1997 with the use of 4 experimental gill-net lifts. A total of 74 Brown Trout were collected ranging in length from 9-14 inches. All the fish were either age-1 or age-2 and growth was considered slow. No brown trout greater than the minimum size limit (15 inches) were collected. No information was available on angler pressure during this period, although it was believed that the larger fish were getting harvested immediately after they reached the minimum size. Fisheries survey data and angler reports for Twin Lake #1 remained nearly absent over the next decade.

A limnological survey of the lake was completed in August of 2007 (Table 2). The results indicated a thermocline was firmly established and that the lake held very little water suitable to trout survival. Brown Trout survive best in temperatures generally lower than 68F where coinciding dissolved oxygen is at least 5ppm. These conditions in Twin Lake #1 did not meet temperature or dissolved oxygen thresholds during this period.

Five Brown Trout were collected with the use of 6 experimental gill-net lifts in September 2007 despite the poor habitat conditions already mentioned. The trout collected ranged in length from 12-20 inches and were represented by fish ages 1 through 3 (Table 3). A good number of Yellow Perch of various sizes were also collected with the nets (Table 3). Large Yellow Perch comprised a substantial proportion of the catch and it appears they are a dominant part of the current fish community. Yellow Perch growth was very good with fish growing a half-inch faster than the statewide average for this species. Seven age classes of Yellow Perch were collected with nearly 50% greater than 8 inches in length. Perch larger than 10 inches were also well represented in the catch (Table 3).

It appeared on the surface that trout stocking efforts at Twin Lake #1 should have been discontinued based on the results of the 2007 fall netting effort. Reasons for this would have included: low fishing pressure, questionable water parameters for trout, and continued competition from warm water species. The four historical chemical reclamation projects to reduce warm water fish populations achieved very little success, eventually leading to reclamation being removed from the list of recommended future management options. Despite a survey from 2007 indicating suboptimal water quality, trout still survive in Twin Lake #1 but few survive to the 15 inch size limit.

Instead of eliminating the stocking of trout, managers decided to take a different approach to Twin Lake #1. By 2009, the Type D trout regulation was removed and replaced with Type B trout regulations which allow all tackle types to be used, year around fishing, and reduced size limits on trout. It was believed that the archaic Type D regulations in essence limited angler participation on the lake and prohibited anglers from reducing the competing perch populations through legal fishing (with bait). Today, that is not the case. In addition, DNR management changed to an alternating Brown Trout/Rainbow Trout yearling stocking plan for 5 years beginning in 2008 (Table 1).

Since the two changes occurred (regulation type and alternate species stocking), angler reports have still been somewhat limited, but more numerous than in the past. Two similar reports from 2010 and 2011 indicated that fishing pressure, particularly in the winter, increased significantly at Twin Lake #1. Anglers were catching very large Yellow Perch for a couple years, but it is anticipated that those catches will eventually decline to a smaller size structure as higher numbers of large fish are harvested.

Anglers began catching brown trout as well, as both an incidental and targeted catch. Brown Trout in the 10-12 inch range, and some around 20 inches were caught during this period. In more recent years though, catches have declined. The owner of the adjacent restaurant and lodge recently mentioned the following: 1) anglers still fish the lake on occasion, but pressure is low, 2) trout catches have been low, 3) Yellow Perch numbers seem to be high, but mostly for small fish, and 4) cormorants and loons can sometimes be found on this small lake.

Current Status

Another fall trout evaluation was made by MDNR in mid-October 2015. We used 4 experimental gill net lifts and 2 straight run gill net lifts to assess the fish community. The length and age frequencies of these fish can be found in Table 4. A low number of brown trout were again collected, but did include two larger fish in the 16 inch size range. No rainbow trout were collected, which was not surprising based on angler reports. Yellow Perch were still collected in formidable numbers, but fewer older fish were collected compared to the 2007 survey. This is likely due to anglers harvesting the larger Yellow Perch, which is a benefit of the Type B trout regulations. Fifty percent of the perch catch (99/199) in 2007 were fish 8 inches or larger; in 2015, this percentage was reduced to 10% (8/81). Also collected were small numbers of Pumpkinseed, and a Rock Bass.

Analysis and Discussion

Angler reports for trout remain low at Twin Lake #1, however, they are an acceptable number of reports from a managers perspective. Recent experimental rainbow trout stocking efforts failed. Brown trout stocking efforts have met with variable success over the decades, and may be best during cool summers when lake temperatures are cooler. Competition for resources with Yellow Perch remains a threat to trout survival, although perch numbers appear to be reduced (but still present) since fishing regulations were liberalized in 2009. Fishing pressure will likely remain relatively low at this lake, whether or not it is stocked with trout. Brown Trout can attain large sizes in this lake, and they appear to be the most suitable trout for stocking at this location.

Management Direction

We will continue to stock Wild Rose Brown Trout yearlings at a rate of 60/acre at Twin Lake #1. The Type B trout regulations are currently appropriate and allow anglers to fish for both perch and trout all year around. We should continue to garner angler reports for the lake, and may even investigate the use of a trail camera to gather information on use. We can continue this management route for at least the length of the management prescription (6 years). In addition, the local MDNR Fisheries Division management unit should conduct additional dissolved oxygen monitoring and temperature profiles at Twin Lake #1 during the summer for at least 2 of the next 6 years. Gathering such information will enable us to make a more informed and final decision at the beginning (or end) of the next prescription cycle. Past fish reclamation projects by MDNR with the chemical rotenone did not produce sustained trout communities and fishery, so this is not a management tool that we will use. The proposed management for Twin Lake #1 is to stock Brown Trout in relatively low numbers and allow for a Yellow Perch fishery.

References

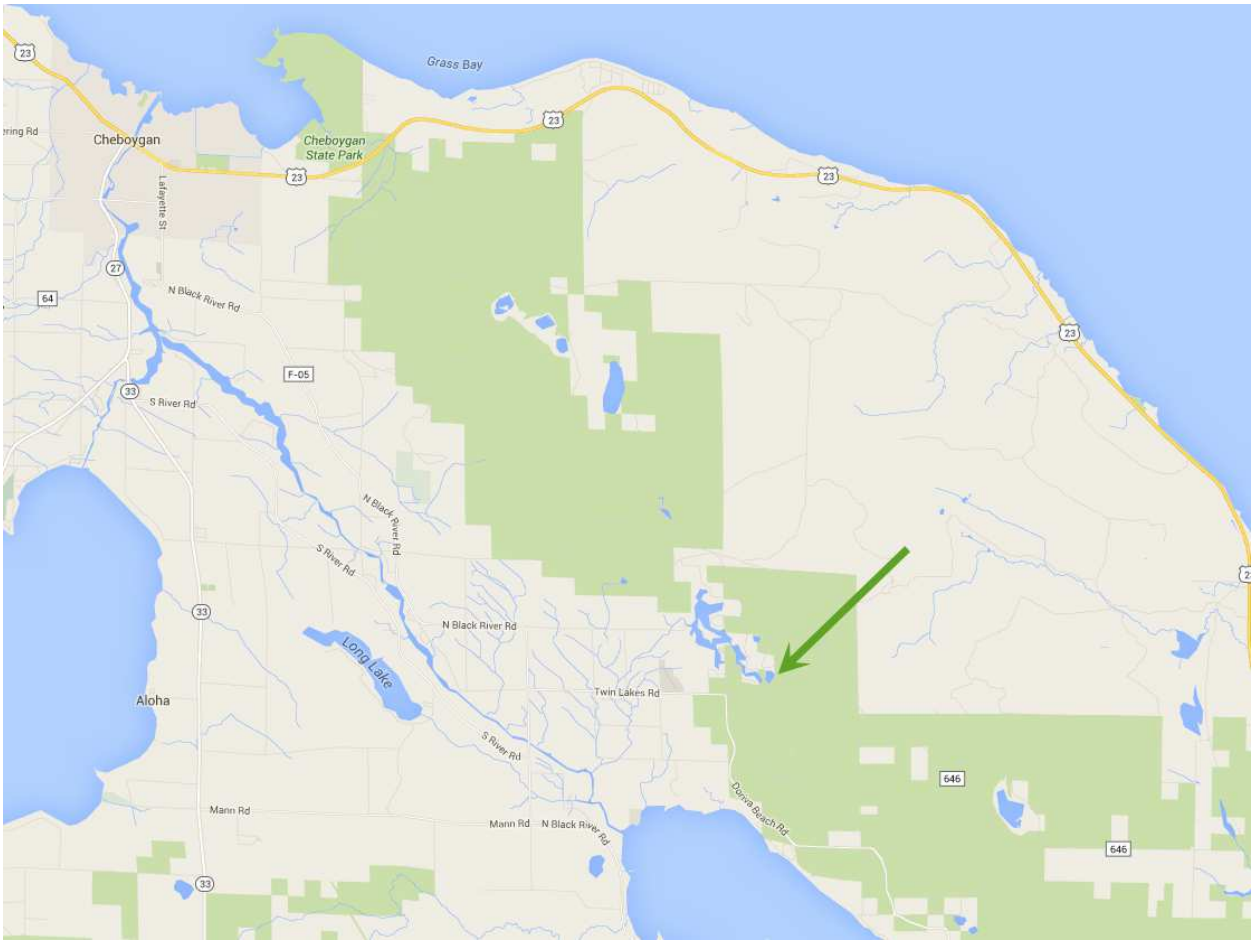

Figure 1. – Twin Lakes, Cheboygan County. The arrow points to Twin Lake #1.

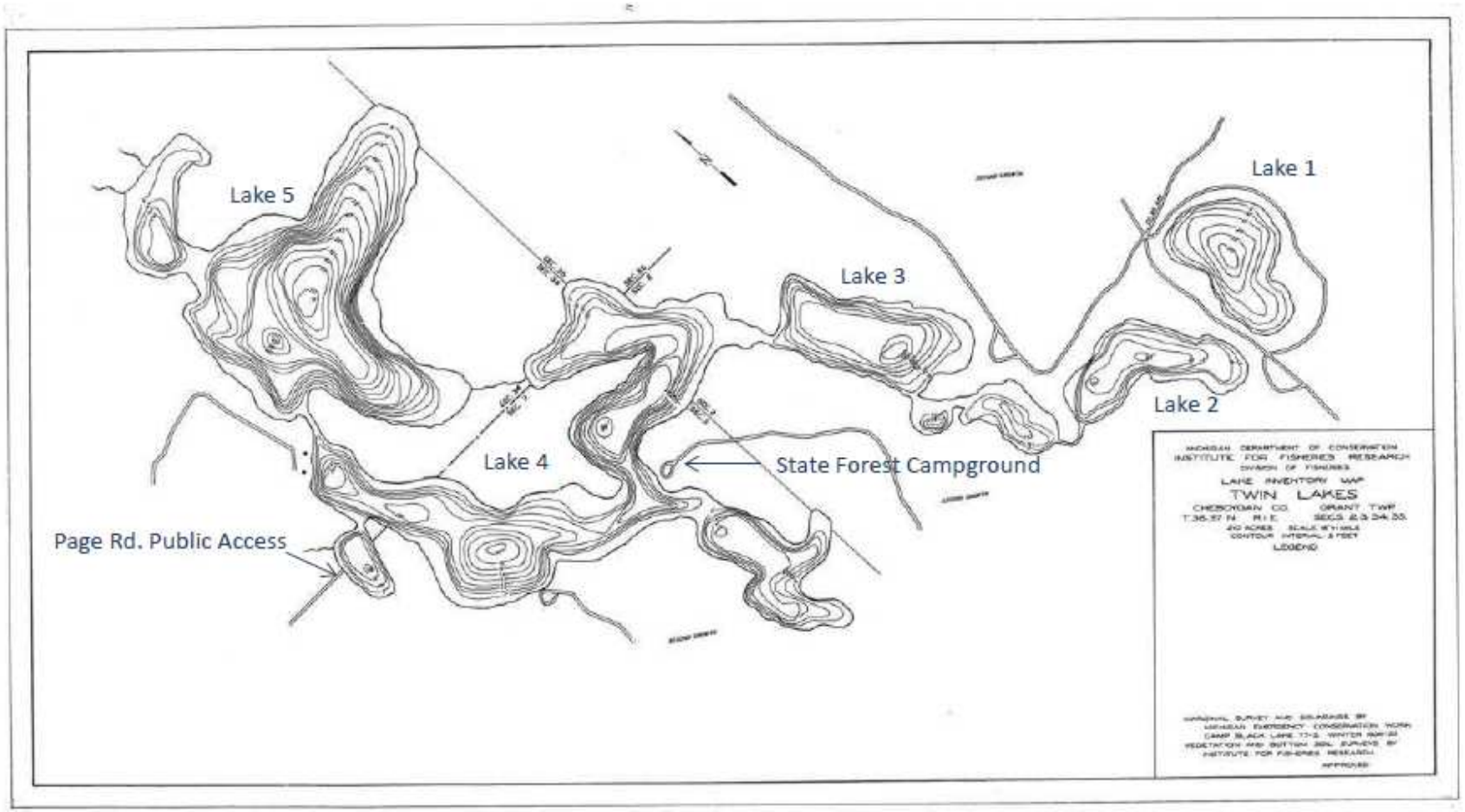

Figure 2. – Twin Lake #1 and its relation to the Twin Lake chain, Cheboygan County -

Table 1. Recent trout stocking data for Twin Lake #1, Cheboygan County

Year	*Species Stocked*	*Strain*	*Average Length (in)*	*Number*	*Number/acre*
1980	Brook trout	Assinica	2.2	1,000	71
1981	Brook trout	Assinica	3.8	1,000	71
1982	Brook trout	Assinica	6.3	850	60
1983	Brook trout	Assinica	4.3	1,500	107
1984	Brook trout	Assinica	5.7	1,000	71
1985	Brook trout	Assinica/Rome	5.9	1,000	71
1986	Brook trout	Assinica/Rome	5.9	805	58
1987	Brook trout	Assinica/Maine	5.4	2,000	143
1990	Brown trout	Plymouth Rock	6.4	950	68
1991	Brown trout	Plymouth Rock	6.8	1,000	71
1992	Brown trout	Plymouth Rock	6.5	1,000	71
1993	Brown trout	Wild Rose	8.1	1,000	71
1994	Brown trout	Wild Rose	6.7	1,000	71
1995	Brown trout	Soda Lake	6.0	940	67
1996	Brown trout	Wild Rose	7.2	873	62
1997	Brown trout	Wild Rose	7.6	1,000	71
1998	Brown trout	Seeforellen	8.0	875	63
1999	Brown trout	Seeforellen	6.1	1,000	71
2000	Brown trout	Wild Rose	6.3	1,000	71
2001	Brown trout	Wild Rose	6.6	1,000	71
2002	Brown trout	Gilchrist Creek	4.9	1,130	81
2003	Brown trout	Wild Rose	7.2	1,000	71
2004	Brown trout	Gilchrist Creek	8.1	1,060	76
2005	Brown trout	Gilchrist Creek	5.9	1,000	71
2006	Brown trout	Seeforellen	4.8	1,100	79
2007	Brown trout	Wild Rose	6.6	920	66
2008	Rainbow trout	Eagle Lake	7.0	820	68
2009	Brown trout	Wild Rose	7.4	820	68
2010	Rainbow trout	Eagle Lake	5.9	810	68
2011	Brown trout	Wild Rose	7.1	720	60
2012	Rainbow trout	Eagle Lake	7.1	790	66
2013	Brown trout	Wild Rose	7.0	830	69
2014	--	--	--	--	--
2015	Brown trout	Wild Rose	7.4	792	66

Table 2. Water temperature, dissolved oxygen, and pH profile for Twin Lake #1, August 22, 2007.

Depth (ft)	Temperature (°F)	Dissolved Oxygen (ppm)	pH
1	73	9.0	7.3
3	73	8.9	7.4
6	73	8.9	7.4
9	72	8.9	7.5
12	72	8.8	7.5
15	72	8.6	7.4
18	72	7.1	6.5
21	71	6.2	6.6
24	63	2.2	5.8
25	62	0.5	5.9

Table 3. Length-frequencies and ages of fish collected in 6 gill-net lifts at Twin Lake #1, September 2007.

Length Group (in)	Brown trout	Pumpkinseed	Yellow perch
4-5		2	
5-6			
6-7			34 (II, III)
7-8			66 (III, IV)
8-9			27 (IV, V)
9-10			24 (III, IV, V)
10-11			13 (IV, V, VI)
11-12			22 (V, VI, VII)
12-13	1 (I)		8 (VII, VIII)
13-14	1 (I)		5 (VIII)
14-15	1 (II)		
15-16	1 (II)		
16-17			
17-18			
18-19			
19-20			
20-21	1 (III)		

Table 4. Length-frequencies and ages of fish collected in 6 gill-net lifts at Twin Lake #1, October 2015.

Length Group (in)	Brown trout	Yellow perch
3-4		
4-5		
5-6		1 (II)
6-7		46 (II, III)
7-8	1 (I)	26 (II, III, IV)
8-9		6 (III, IV)
9-10	1 (I)	1 (V)
10-11		1 (VI)
11-12		
12-13		
13-14		
14-15		
15-16		
16-17	2 (III)	
17-18		
18-19		
19-20		
20-21		