Town Corner Lake
Montmorency County, T32N, R1E, Section 31
Black River watershed, last surveyed 2011

Tim A. Cwalinski, Senior Fisheries Management Biologist

Environment

Town Corner Lake is located in the northwest part of Montmorency County and is entirely within the Pigeon River Country State Forest. It is a 14-acre landlocked lake with a maximum depth of about 20 feet and two noticeable small basins. Average depth of the lake is 10 feet. The substrate is mostly marl and sand with pulpy peat or flocculent in the deeper areas. Water clarity is high. The riparian zone is entirely forested and dominated by coniferous trees. A state forest campground exists along one shore and an unimproved boat ramp is provided for small boat users.

History

Town Corner Lake has an extensive history of fish management on its small waters since the lake and adjacent land became owned by the State of Michigan in 1961. Early records at the time indicated that the lake had a poor fish community, most likely a result of its size and sterilty. The lake bottom was mapped by MDOC (Michigan Department of Conservation) managers in 1962. It was decided that the undesirable fish community would be eradicated chemically. This was accomplished in the fall of 1962 when 22.1 gallons of the piscicide Pro-Noxfish were added to Town Corner Lake. The fish kill was believed to be complete since no fish were collected in gill nets following the reclamation. Managers collected dead fish in sample zones following the release of the chemical which included 1,000 yellow perch which averaged 4.5 inches, 150 dace, and one golden shiner. No bass or bluegill were collected. A limnological profile of the lake in the late summer of 1962 found a weak temperature stratification and good dissolved oxygen through the water column. There was no thermocline. Later in the fall of 1962, managers then stocked adult rainbow trout (averaged 9 inches) and fingerling largemouth bass (Table 1). Recommendations were made to stock bluegill as well, but this was not accomplished.

MDOC personnel returned to Town Corner Lake in the fall of 1963 to assess the previous years stocking events. Four gill net lifts (over one night) were used to catch 22 fish total, including 11 rainbow trout that averaged 14 inches. This also showed that some trout could survive the summer temperatures of Town Corner Lake, at least the temperatures from that season. A total of nine largemouth bass were caught and ranged in length from 8-10 inches. One pumpkinseed sunfish and one rock bass were also caught, which indicated that the 1962 fish removal may not have been complete, or that fish were transferred to the lake from other sources.

A similar survey was made in the fall of 1964 with six experimental gill net lifts. Two fish were caught including a largemouth bass and a 19 inch rainbow trout. Thus holdover of trout was questioned from year to year, although those that survived could grow large. Manager notes at that time indicated that Town Corner Lake was "in need of some management program". The following year, 1965, brown trout were stocked in Town Corner Lake (Table 1). It is highly probable that brown trout were stocked in more years following 1965, but records that indicate this are not available.

The next assessment of the fish community occurred in the spring of 1970. Five gill net lifts and 35 minutes of shoreline electrofishing were used. Five brown trout were caught, most of which were long but in poor shape. Also collected was a white sucker and numerous rock bass ranging from 4-10 inches. Largemouth bass were also caught in fair numbers with most fish ranging from 10-12 inches. Bass growth was considered average. Notes indicate that minnows were present as well. No bluegill were collected in the survey and angler reports for this period considered Town Corner to be a low quality fishing lake.

Another chemical reclamation of the fish community was done at Town Corner Lake by MDNR (Michigan Department of Natural Resources) personnel in 1973. The goal was to eliminate the current unacceptable fish community and to manage it in the future as a stocked trout lake, possibly sacrificing the largemouth bass community. This was recommended as a five year plan. Pro-Noxfish was again used, with 55 gallons of 1.25 ppm added to the lake at a cost of $570.00. Various beach sites and surface collections were used to qualify the fish kill. The sample consisted of the following: 509 largemouth bass 1-13 inches, 126 rock bass 1-9 inches, and 5 brown trout 18-20 inches. Following the kill, the MDNR stocked fall fingerling rainbow trout and hybrid sunfish. It was thought that the hybrid sunfish (which were sterile) could provide a pan-fishery while not proliferating through spawning.

The fish community was then assessed again in the summer of 1974. Personnel used six experimental gill net lifts to examine the effectiveness of stocking and previous reclamations. No rainbow trout were collected during this survey, indicating virtually no survival. However, good numbers of hybrid sunfish were collected ranging from 4-6 inches. Another examination of the water column showed no thermal stratification of the lake, with the temperature 73-74 degrees Fahrenheit throughout the column. It simply was too warm for survival of trout during that summer. This proved to be the end of trout stocked in Town Corner Lake from state hatchery sources.

Two hours of AC current electrofishing were used to assess the survival of bass and sunfish in Town Corner Lake in 1978. Fifty one largemouth bass were collected, but most were small, ranging from 2-8 inches. No hybrid sunfish were collected, indicating their short lifespans and possible exploitation. Notes from this survey indicated that all the bass collected were transferred to Lake Ferdelman in Presque Isle County. It is not known if the reason for this was to simply get a better bass population in Lake Ferdelman or to thin the slow growing bass population in Town Corner Lake.

One-hundred adult brown trout were transferred to Town Corner Lake in 1983. At the time, fisheries managers were removing unwanted brown trout from the nearby Black River as a means of preserving the high quality brook trout fishery in the river. These fish were taken to the nearest lake which was Town Corner. A survey of the lake also took place in June of the same year with the goal of assessing the growth, condition, and abundance of the lake's largemouth bass population. Survey effort used by MDNR personnel included 6 trap net lifts, 6 fyke net lifts, and 2 experimental gill net lifts. A total of 127 largemouth bass were collected, yet only one fish was of legal size (14 inches or larger). Most of the bass, like in the past, were in the 8-10 inch size range and growth was very slow (1.6 inches less than the statewide average). This simply indicated that bass were limited by forage and lake production. No bluegill were collected while three green sunfish were caught. Three brown trout in the 13 inch size range were also surveyed.

Records then indicate that bluegill were stocked in Town Corner Lake in 1983 to try and attain a healthy largemouth bass and bluegill population. It is not known how many or what number of fish were stocked. A follow-up survey effort was planned for 1987 by MDNR, but this survey was not accomplished. It would be more than a quarter century for the next fish community assessment to be completed at Town Corner Lake.

Current Status

The most recent fish community survey of Town Corner Lake was made from May 23-25, 2011. Effort consisted of: one experimental gill net lift, four large mesh trap net lifts, two large mesh fyke net lifts, and two mini fyke net lifts. A total of 412 fish were captured during the three day survey (Table 2). The most abundant species in the catch were bluegill, a species not found in historical surveys. Bluegill not only dominated the catch number, but they also dominated the catch by weight (Table 2). The only other panfish collected was one small green sunfish. Largemouth bass, the top and only predator, comprised 12% of the total catch by number and 35% by weight. Other species found in historical surveys such as trout, rock bass, or white sucker, were not captured in this survey.

Bluegills appear to be doing well in Town Corner Lake, with a good distribution of sizes and ages (Table 3 and 4). The catch of quality size fish (6 inches and larger) is satisfactory and large bluegill up to 10 inches are also available. We conducted a two day population estimate for bluegill four inches and larger. Nine year classes of bluegill were collected, indicating consistent year to year reproduction. Two year classes of bluegill (2004 and 2007) dominated the bluegill catch. Growth of bluegill in Town Corner Lake is very good, with fish growing nearly one full inch faster than the statewide average (Table 4). This is especially true for older bluegill in this lake.

We marked 158 bluegill on day one of the survey, while on day two we caught 47 bluegill, 20 of which were recaptured fish. Using a Chapman-Peterson population formula for a closed lake system, we derived a bluegill population estimate of 363 fish four inches and larger. This is an approximate bluegill density of 25 fish per acre four inches and larger. The current bluegill population of Town Corner Lake is considered healthy based on abundance, age classes available, and growth.

Seven year classes of largemouth bass were found in Town Corner Lake (Table 4). The size structure for this species has not changed historically for this lake based on old accounts and this survey. Largemouth bass in the 9-11 inch size range still dominate the catch, and older, larger fish are more of a rarity (Table 3). Despite having bluegill as forage, largemouth bass still grow very slow in Town Corner Lake, almost three inches less than the statewide average. Despite this, a moderately abundant population of slow growing bass is natural for this small northern Michigan waterbody.

Analysis and Discussion

Town Corner Lake had been managed as a coldwater (trout) species lake for many decades historically. Managers at one time stocked a variety of trout species and sizes, although success of this program was very limited. Lack of survival of trout was most likely more a product of limited suitable habitat for a cold water species. Chemical reclamations to reduce the warm water fish community were attempted on many occasions at considerable cost in order to remove the entire fish community, so that subsequently stocked trout would have the best chance at survival and growth. These efforts were met with limited success.

The warm water fish community continually survived the reclamation efforts and has developed into one that mimics a fairly balanced largemouth bass and bluegill community. It is not known how bluegill got into this lake, but their presence now offers a better fishery along with the slow growing largemouth bass. Growth rates of bluegill are excellent, while largemouth bass are growing very slow. The lack of other fish in the lake is natural, and no attempts to transfer any other fish should be made. The current balance of largemouth bass and bluegill is acceptable.

Management Direction

No change in fisheries management is recommended for Town Corner Lake at this time. Trout stocking efforts of past decades consistently failed and were costly when coupled with chemical reclamation of the warm water fish community. The current fish community mimics other natural small lakes in northern Michigan. Growth of the current popular species such as bluegill and largemouth bass is sufficient to provide quality fishing, especially for bluegill. Standard State of Michigan fishing regulations are currently sufficient at Town Corner Lake.

References

Table 1. Past stocking efforts at Town Corner Lake, Montmorency County.

Year	Species	Number stocked	Avg. size
1962	Rainbow trout	500	9.2”
1962	Largemouth bass	700	Fingerlings
1964	Rainbow trout	2,240	NA
1965	Brown trout	100	NA
1973	Rainbow trout	1,006	Fall fingerlings
1973	Hybrid sunfish	5,000	Fingerlings
1983	Brown trout	102	12”
1983	Bluegill	NA	NA

NA = records not available

Table 2. Species and relative abundance of fishes collected with survey gear at Town Corner Lake, May 23-25, 2011.

Common Name	Number	Percent	Length Range *(inches)*	Weight (lbs)*	Percent	Growth** (inches)
Bluegill	363	88%	1 - 10	60.6	65%	+0.9
Largemouth bass	48	12%	2 - 16	32.5	35%	-2.7
Green sunfish	1	-	5	0.12	-	
Total	412			93.2		

* calculated based on length-weight relationships

**based on a comparison to statewide growth for that species (inches)

Table 3. Length-frequency distribution of game fishes collected during the late-May 2011 survey at Town Corner Lake.

Length (in)	Bluegill	Largemouth bass
1	204	
2		1
3	1	
4	3	
5	7	
6	14	
7	41	
8	78	1
9	13	13
10	2	17
11		8
12		2
13		5
14		
15		
16		1

Table 4. Age and growth of bluegill and largemouth bass in Town Corner Lake, May 2011. Fish scales were used to age all fish.

Species/Age	No. Aged	Length Range (in)	Weighted mean length (in)	State Average Length (in)	Mean growth index* (in)
Bluegill					+0.9
Age II	1	3.9	3.9	3.8	
Age III	5	4.2 – 5.9	4.9	5.0	
Age IV	27	5.0 – 8.1	7.2	5.9	
Age V	9	6.4 – 8.8	8.2	6.7	
Age VI	4	8.2 – 9.0	8.3	7.3	
Age VII	10	8.5 – 9.6	8.8	7.8	
Age VIII	4	9.7 – 9.9	9.8	8.2	
Age IV	-	-	-	-	
Age X	1	10.9	10.9	8.9	
Largemouth bass					
Age III	1	8.3	8.3	9.4	-2.7
Age IV	9	9.4 – 11.0	10.1	11.6	
Age V	17	9.4 – 12.1	10.4	13.2	
Age VI	9	9.8 – 13.0	11.1	14.7	
Age VII	2	12.9 – 13.2	13.1	16.3	
Age VIII	2	13.4 – 13.7	13.6	17.4	
Age IX	-	-	-	-	
Age X	1	16.6	16.6	19.3	