



Teal Lake, Marquette County

Teal Lake Fisheries Survey June 1-4, 2015

Introduction: A summer Status and Trend protocol fisheries survey was conducted during the period of June 1-4, 2015. Data from this survey will be used to help evaluate the following hatchery stocking events that have occurred since the last Teal Lake fisheries netting effort and sucker removal of April/27/2005 – May/18/2005.

Recent stocking history:

- 2011 = 50,000 fry OTC marked
- 2012 = 10,035 fingerlings OTC marked
- 2014 = 1-million fry, non-marked
- 2015 = 699 fall fingerling, Great Lakes spotted muskellunge.

History: Teal Lake is a walleye, yellow perch, and smallmouth bass fishery located near the population centers of Marquette/Negaunee/Ishpeming, and receives tremendous fishing pressure when the angling catch results are good. The lake has a history of producing an abundant population of white suckers, along with periods of good abundances of walleye and yellow perch. When fishing is good, anglers quickly crop down the walleye and perch population, and white suckers fill the vacant niche in the fishery. Once the suckers become numerous the walleye/perch fishery collapses, the DNR conducts another sucker removal project and the walleye and perch once again become abundant. The boom and bust cycle is repetitive.

The following excerpt from 2006 Baraga DNR Fisheries Biologist, Brian Gunderman, states;

Teal Lake is located immediately north of Highway 28/41 in the city of Negaunee. Shallow littoral areas are relatively scarce in this system, and most of the lake is > 15 ft. deep. Aquatic vegetation is abundant in the littoral zone, but few logs are available for fish cover. For many years, the city of Negaunee drew its water supply from Teal Lake. Gasoline engines are prohibited on Teal Lake, and this ban probably has substantially reduced fishing pressure on this water body.

Early fisheries data is limited, but it appears that this lake supported a popular WAE fishery from the 1940s through the 1970s. Fishing reports and surveys suggested a decline in the WAE fishery during the 1980s, and WAE have been stocked periodically since 1992. Anglers continue to complain that it is difficult to catch a legal WAE in this lake (although 13-14" fish are common), and survey data corroborate these claims. This lake has consistently produced strong populations of YEP. The lack of obvious fish cover makes fishing for this species difficult, so YEP catch rates are lower than the survey data suggest. Although SMB receive little attention from Teal Lake anglers, recent surveys indicate that these fish are present in sufficient sizes and numbers to support a targeted fishery. Pumpkinseeds also are present, but these fish are too small to be of much interest to anglers.

Since 1982, seven manual removals (totaling over 100,000 lbs.) were conducted to reduce the abundance of suckers in this system. These removals have had (at best) only temporary effects on the fish community, so alternative management methods need to be considered.

The management of Teal Lake's fishery has traditionally focused on balancing the predator/prey relationship using tools such as sucker removals and walleye stockings. The DNR simply cannot net this lake often enough to stay on top of the sucker fishery, and instituting more restrictive regulations to limit angler harvest have not been tried (trying not to have another "exception regulation" in the fishing guide).



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The 2014 - 2019 management of Teal Lake calls for the annual stocking of 700 fall fingerling great lakes spotted muskellunge to provide an additional predator fish within this lake's fish assemblage. Muskies are intended as a management tool to utilize the white sucker forage base, which will help the lake's fishery stay in balance. In time, this lake could serve as a candidate lake for future spotted muskie egg take operations.

- **Physical features:** Teal Lake is 505 acres in size, with two intermittent inlets on the middle north side of the lake, which receive water during surficial runoff from a hill escarpment to the north, and one discharge outlet through a wetland marsh located on the northeast shore of the lake. The lake does not have a lot of physical undulating structure features (bays, reefs, point bars) and is topographically referred to as having a "bathtub" morphometry with a maximum depth of 32 feet. Bottom substrates consist primarily of sand, gravel, and cobble. Water is clear, colorless, with secchi clarity of 12 feet. Two boat accesses are located on the lake, located on the east and west shores of the lake.
- **Biological features:** Aquatic vegetation is sparse, located in the narrow shoal areas along the shoreline of the lake with the most abundant vegetation beds found in the bay of the lake's two inlets, native crayfish are abundant. No aquatic invasive species have been detected.

Methods and Materials: Status and Trend protocol was used; deploying two experimental mesh gill nets for 3 nights, four standard mesh (3/4") fyke nets for three nights, three small mesh (1/8") maxi-mini fyke nets for two nights, and a minnow seine pull at five shoreline sites. Additional survey work was conducted via three 10-minute boomshocker electrofishing stations.

Results: The netting and electrofishing catch produced the following fish (also see chart below); walleye: 28 (23 fish of 5 inches and 5 fish between 13-21" inches), northern pike: 43 (9-34.6"), Great Lakes spotted muskellunge: 1 (9"), smallmouth bass: 100 (2-18"), yellow perch: 38 (3-10"), black crappie: 2 (7-8"), common white sucker: 24 (8-22"), bluegill: 15 (1-6"), pumpkinseed sunfish: 23 (2-6"), brown bullhead: 24 (5-10"), blunt nose minnow: 22 (1-2"), Johnny Darter: 3 (1-2"), and fantail darter: 11 (1-2").

Discussion: The most notable gamefish population was smallmouth bass with good numbers of legal size fish. Bass were spawning at the time the survey took place which could have lead to higher catch rate. Despite years of white sucker removals coupled with walleye stocking, the fish assemblage of this lake seems to be ever more moving in the direction of becoming a smallmouth bass dominated fishery. Comments of anglers who fish this lake substantiate that most of the smallmouth are caught-and-released with very few people actually keeping a bass.

Northern pike size ranges between 16-24 inches were steady, with seven fishes of 24 inches and larger (16%) being of legal size. Northern pike have not been present if past surveys and they began to first show a presence in Teal Lake in about 2010. Recent angler comments report that pike are not uncommon for being caught.

The electrofishing effort documented a good abundance of 5 inch walleye yearlings along the north and west shorelines. These small walleye could be products from the 50,000 fry stocking from the previous spring. One walleye of 13 inches was caught, which may or may not be the product of the 50,000 fry that were stocked in 2011. The 2011 walleye fry were oxytetracycline (OTC) marked, so during the winter 2016 OTC reading will determine if this was a wild or stocked fish. Overall, there is lack of walleye after Age I, and this may be a result of heavy predation by smallmouth bass. This absence of



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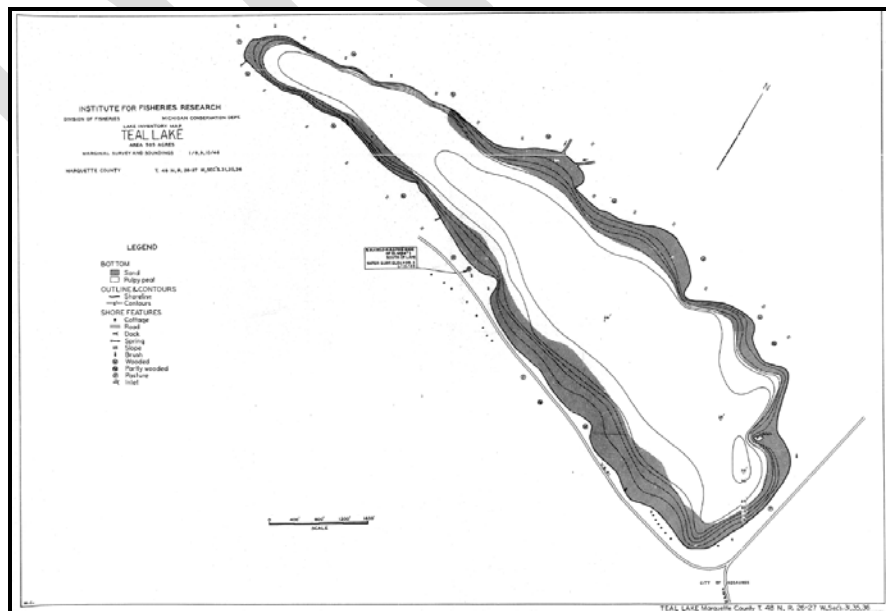
small walleye does not answer if natural recruitment of walleye has been very strong since the last survey, however past surveys have suggested that natural recruitment has not been strong enough to maintain the walleye fishery.

Mixed and emotional comment, for or against muskellunge stocking, has been voiced over the 2014 allocation of fish to this lake. Only one 9" Great Lakes spotted muskellunge was captured in this survey effort. Public meetings within Marquette County and the central Upper Peninsula have documented a stakeholder request for an additional muskellunge fishery in the central Upper Peninsula. Currently Craig Lake and Lake Michigamme provide the only muskellunge fisheries within Marquette/Baraga Counties.

Recommendations: Walleye are an extremely popular and desired sportfish for the residents of Marquette County. With Teal Lake's past history of supporting a walleye fishery, continued biennial stocking (every other year) of 1-million walleye fry will be maintained through 2020. Stocked walleye should be OTC marked to allow for evaluation of the contribution of stocked walleye to this fishery. As a stocking product, walleye allocations to Teal Lake can be conducted with fry stage fish or fingerling stage fish. Walleye fry are much more assured for supply than fingerlings because the fingerling lifestage is dependent on if the rearing ponds are successful or not. Walleye fry are readily available from the Michigan DNR Thompson Hatchery (near Manistique). A stocking evaluation survey should be conducted in 2021 to evaluate if the 2016, 2018, and 2020 walleye stocking efforts have been successful. If walleye stocking fails to develop a reasonable sport fishery by 2021, then the appropriate management for this lake may be to allow it to become a smallmouth bass fishery.

Great Lakes spotted muskellunge stockings were instituted in Teal Lake in 2014 and are scheduled to be conducted annually through 2019. Continued stocking through this 2014 – 2019 timeline should be maintained to be able to assess if a muskellunge fishery can be developed in Teal Lake.

Regular communication with area anglers and the local fishing club should be maintained as a further assessment means for this lake. Lastly, a summer (May 15 – Sept 30) creel census program should be conducted on this lake, possibly in 2017 or 2018, for comparativeness to other inland lake fisheries.



Bathymetric map



Teal Lake, Marquette County

Water	Teal Lake T48N R27W S31									
Survey	06/01/2015-08/24/2015									
Gear	Electrofish, gill net, fyke net, seine									
Effort meas.	Various									
Species	GL Spotted Muskie	Northern pike	Walleye	Smallmouth bass	Black crappie	Bluegill	Pumpkinseed	Yellow Perch	Brown bullhead	White sucker
Legal size (in)	>=42.00	>=24.00	>=15.00	>=14.00	>=7.00	>=6.00	>=6.00	>=7.00	>=7.00	>=
Avg. length (in)	9.5	21.9	7.7	12.8	8.0	2.4	4.9	6.8	9.2	18.0
Total	1	43	28	100	2	15	23	38	24	24
No. legal	0	14	3	42	2	1	5	13	22	0
Inch group										
0										
1						10				
2				2		2	1			
3						1	3	1		
4							9	1		
5			23			1	5	6	1	
6						1	5	17	1	
7				1	1			7	1	
8				9	1			5	4	1
9	1	1		6					12	1
10		1		14				1	5	
11				18						
12				5						
13			2	3						1
14				12						
15				10						
16		1		8						
17		2		9						3
18		3		3						10
19		9								4
20		6	2							2
21		3	1							1
22		2								1
23		1								
24		2								
25		3								
26		3								
27		1								
28		3								
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30		1								
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33										
34		1								
35										
36										
37										
38										
Sample total:	1	43	28	100	2	15	23	38	24	24

Catch summary