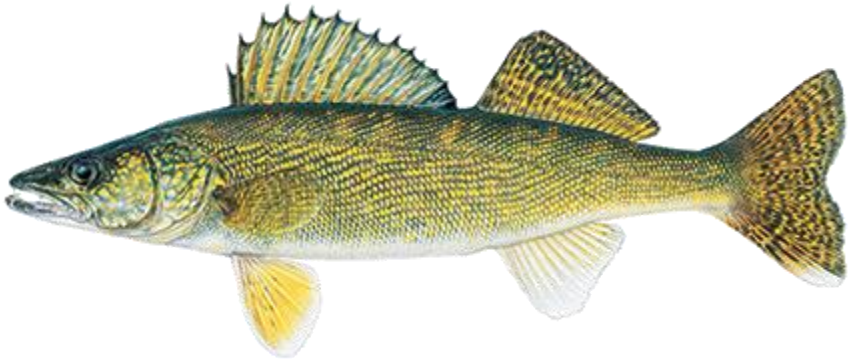
Michigan DNR Fisheries – Southern Lake Huron Management Unit

Lake Fenton – 2021 Fall Walleye Survey

2021 Discretionary Survey Report



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On the cover: *Walleye. Credit: Joe Tomelleri ©*

Introduction

Lake Fenton has been managed for a variety of gamefish including Northern Pike, Largemouth Bass, and Walleye. The Northern Pike and Largemouth Bass populations are self-sustaining, but the Walleye fishery is maintained through stocking. Spring fingerling Walley have consistently been stocked in Lake Fenton since 1981 (Table 1). Over time the stocking density has adaptively varied to establish a reliable Walleye fishery with a population density of 2 adults/acre.

In 2020, no Walleye stocking took place in Lake Fenton, but a fall electrofishing survey was completed. This survey occurred in a non-stocked year to determine if Walleye natural reproduction was occurring, and to determine relative abundance of age-1 Walleye from the 2019 stocking event. No Walleye were observed during the fall 2020 survey suggesting natural reproduction is not occurring at measurable levels, if at all. In addition, age-1 Walleye were not captured suggesting limited survival of stocked fish is occurring.

In 2021, the Southern Lake Huron Management Unit adjusted the Walleye stocking strategy for inland lakes within the Unit based on concerns of poor survival. Typically, the first Walleye harvested from the rearing ponds are allocated to systems within the Unit. This strategy maximized the probability of fulfilling all Unit stocking needs. The tradeoff was these Walleye cohorts were smaller (expressed as number per pound) than Walleye harvested later and given to other units. Local biologists believed that poor survival could be improved if larger spring fingerling Walleye were stocked. The strategy was revised for 2021 and Walleye stocked into SLHMU waters occurred after some Walleye were allocated to other Units. Therefore, the stocked product in Lake Fenton was larger than recent years (Table 1).

The objectives for this survey were to 1) estimate age-0 Walleye relative abundance during a stocked year and 2) estimate age and growth rates for all Walleye.

Table 1. Spring fingerling Walleye stocking history for Lake Fenton, Genesee County, 1981-2021.

Year	Number	Density (fish/ac)	Number per lb.
1981	3310	4	264
1985	2364	3	151
1986	41758	49	342
1990	32571	39	525
1991	20600	24	361
1992	17200	20	490
1997	84500	100	1471
1999	84366	100	366
2001	46652	55	328
2003	50377	60	670
2005	9464	11	478
2006	42764	51	732
2009	50193	59	860
2011	49965	59	657
2013	43866	52	1165
2015	58145	69	726
2017	62370	74	1540
2019	74170	88	1446
2021	63560	75	414

Study Area

Lake Fenton is in southeast Genesee County near the town of Fenton, Michigan (Figure 1). It is the largest inland lake in Genesee County with an estimated size of 845 acres. Lake Fenton is classified as a warmwater, medium size, deep, mesotrophic lake in the Shiawassee River watershed. It has an average depth of 24 feet and reaches a maximum depth of 92 feet. Medium lakes are those between 100 – 1000 acres and deep lakes are systems known to stratify in summer. The lake basin is diverse with several deep-water areas separated by shallow shoals. There are no major inlets, but the lake has two small outlets which drain to the Shiawassee River.

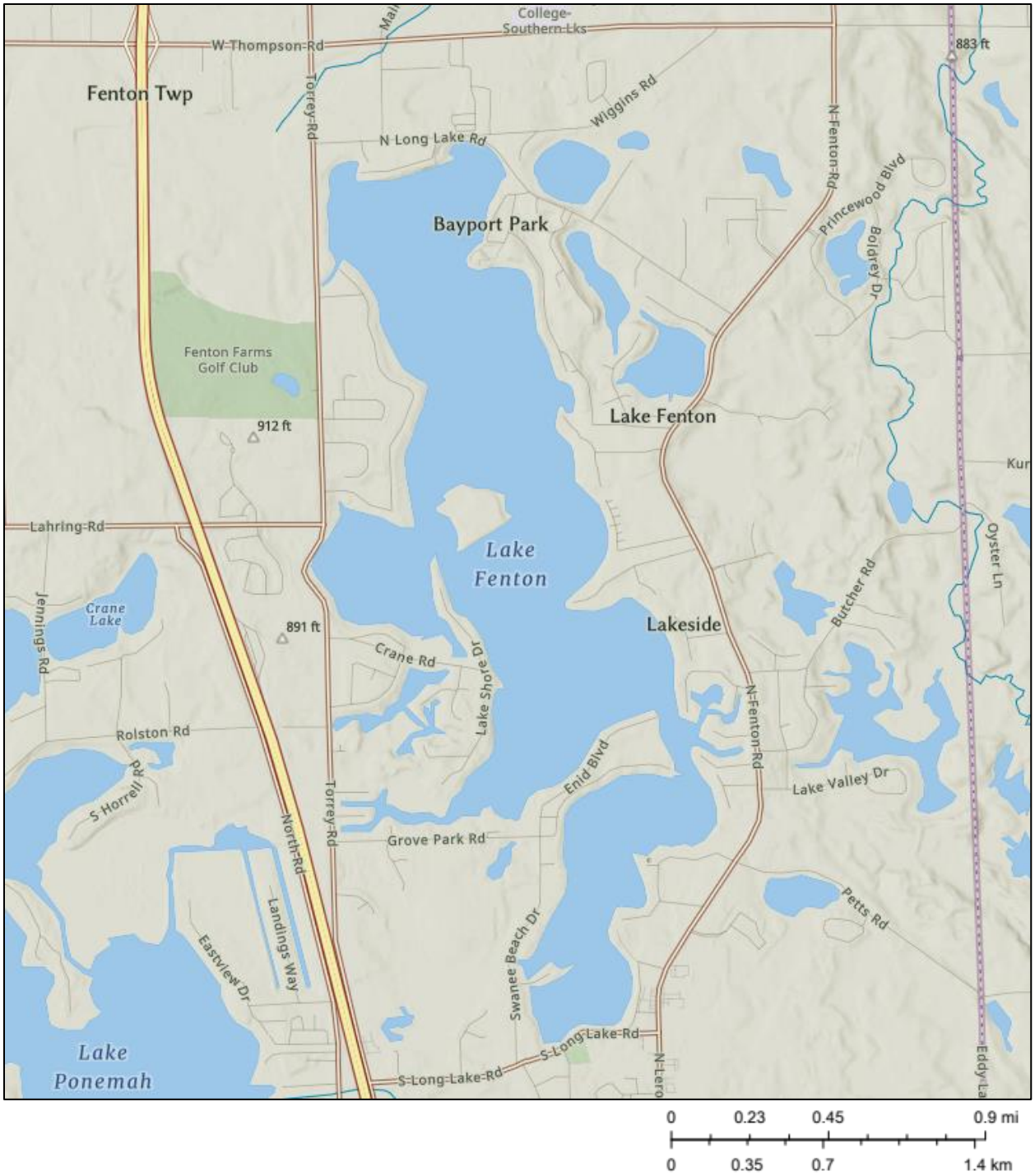

Figure 1. Lake Fenton in Genesee County, Michigan.

Methods

Boat electrofishing was used after dark to collect Walleye along two 2-mi transects on 26 October 2021. The same randomly selected transects from the 2020 survey were again used in 2021. Electrofishing power settings were set at a pulse rate of 60/second, 40% duty cycle, and 6

amps with pulsed direct current to target young (age-0 and age-1) Walleye. Total shocking distance was 4.0 miles and total shock time was 1.8 hours. All Walleye collected were measured to the nearest 0.1-inch total length (TL). Aging structures (i.e., scales) were collected for age and growth analysis (10/inch group). To estimate age from scales, four-to-six scales were pressed onto acetate film. Scale impressions were viewed under a microscope. Mean growth index was calculated using only those age groups represented by five or more fish. Relative abundance of Walleye (CPE) was estimated as number of fish-per-hour. Water temperature was measured with a handheld temperature probe.

Results

A total of 29 Walleye (CPE = 17 fish/hr; SE = 16.3) were collected during this survey. Standard error was high since most of the Walleye (28 of 29) were collected from one transect. Mean TL was 9.1 in. All the Walleye captured were estimated to be age-0 and the mean growth index was 1.8. Water temperature during the survey was 57.5°F.

Conclusions

Fisheries management for Lake Fenton will continue to focus on providing an inland Walleye opportunity near Fenton, Michigan. Lake Fenton is scheduled to be stocked with Walleye in odd years with a target density of 75 fish/acre. Although conclusions about future adult Walleye abundance from these survey results are limited, it appears the 2021 cohort is growing well (> 1.0 in above the statewide average) and has the potential to successfully recruit to the population. Therefore, future stocking efforts will be made to consistently stock larger fish during spring (lower number per pound).

Future Walleye surveys in Lake Fenton should focus on estimating adult abundance. A spring netting survey should not occur until at least 2026 based on the biennial stocking prescription for Lake Fenton and the initial survival of a larger product at the time of stocking. This timeframe would allow the 2021 and 2023 cohort to become sexually mature (assumed to occur at age-3 on average). Results from this future survey would determine if this stocking strategy can produce an adult Walleye population density which supports a recreational fishery.

The goal for Walleye stocking in Lake Fenton is to provide an inland Walleye angling opportunity in Genesee County. Walleye have been stocked in this system for many years, but the effort has shown limited return on investment. Spring surveys in the 1980s and 1990s targeting adult Walleye and a fish community survey in 2011 captured adult Walleye, but total catch was small and likely the population did not meet the recommended density of 2 fish/acre to provide an adequate recreational fishing opportunity. The stocking objective for Lake Fenton will be to not only meet the target density (75 fish/acre), but to also consistently stock a large product to improve survival and increase adult Walleye abundance.

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