

George Lake

Whiteshell Provincial Park, Manitoba

2024 Fisheries Assessment Report



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Introduction

George Lake is a backcountry waterbody southeast of the Winnipeg River near Pointe du Bois. It is about 11.5 km long with a surface area of 21.5 km², an average depth of 12 m, and a maximum depth of 38 m. George Lake is accessible from the George Lake Trail off Provincial Road 307, or by portage from the Winnipeg River (common routes: 50.269, -95.529 or 50.264, -95.536). The lake was extensively stocked with Lake Trout (*Salvelinus namaycush*) between 1945 and 2001, and the population is now self-sustaining (see Appendices for a complete stocking history). George Lake is popular among anglers for its Lake Trout, Smallmouth Bass (*Micropterus dolomieu*), and Lake Whitefish (*Coregonus clupeaformis*) fisheries, and good catches of Northern Pike (*Esox lucius*) and Yellow Perch (*Perca flavescens*) are also reported.

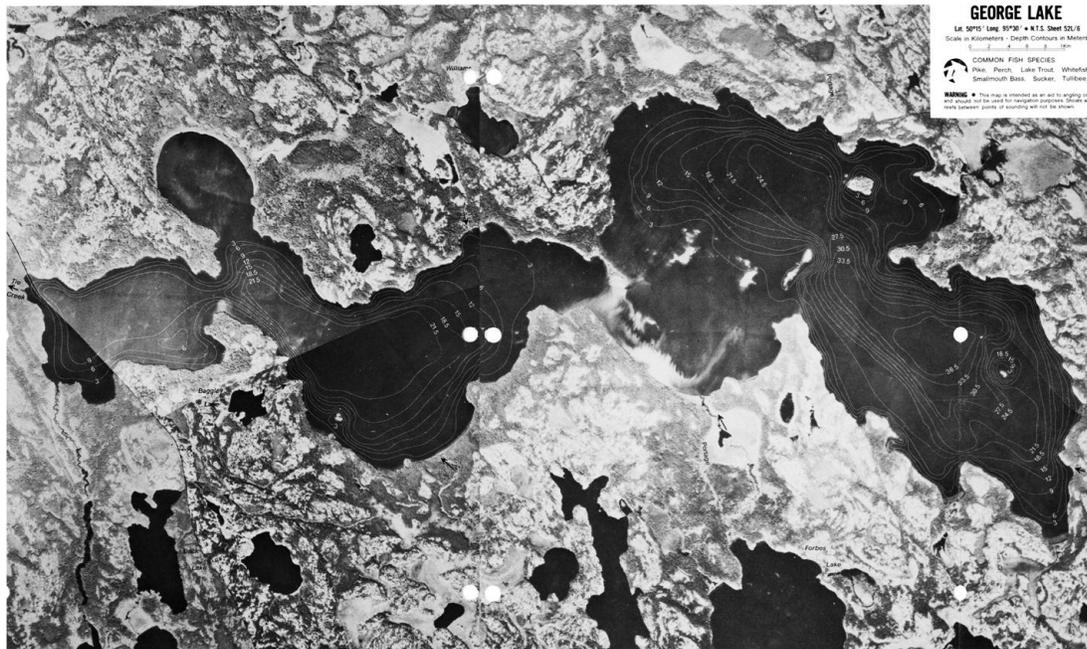


Figure 1. Bathymetry of George Lake, Manitoba.

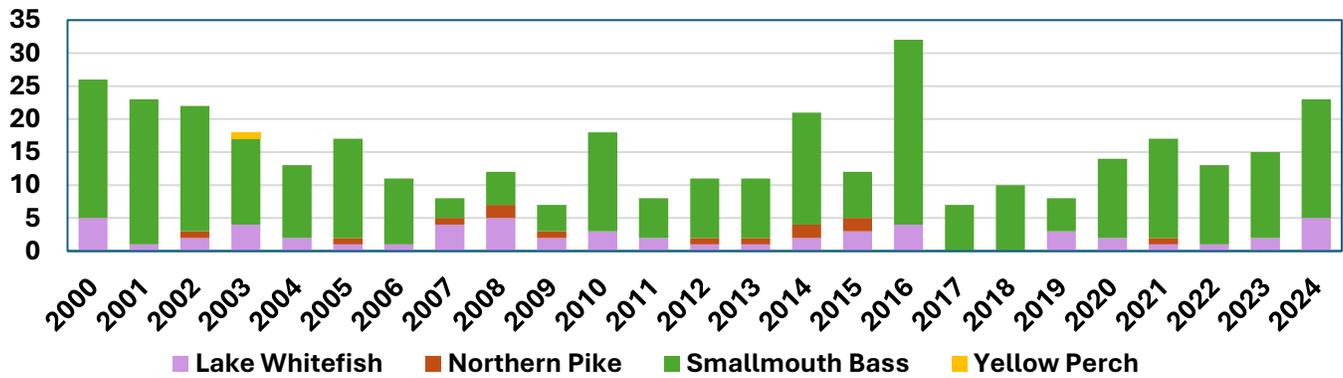


Figure 2. Master Angler submissions for George Lake between 2000 and 2024. Data are publicly available on Travel Manitoba's Master Angler webpage: <https://anglers.travelmanitoba.com/>

Methods

George Lake was surveyed by University of Winnipeg graduate students from July 13 to July 16, 2021, using the Province of Ontario's Summer Profundal index Netting (SPIN) protocol (Sandstrom and Lester 2009). Fish were captured using 64 m long by 1.8 m deep monofilament gillnets consisting of 8 m panels of 57 mm, 64 mm, 70 mm, 76 mm, 89 mm, 102 mm, 114 mm, 127 mm mesh arranged in random order. Net sets were supplemented with rod-and-reel angling.

Nets were set below the thermocline depth, which was determined using a dissolved oxygen (DO) and temperature depth profile collected in-field with a YSI Pro20 meter (YSI Inc., Yellow Springs, OH, USA). SPIN nets were set on the lake bottom at two-hour intervals.

All fish were measured for fork length, total length, and weight. Lake Trout, Lake Whitefish, and Northern Pike were sacrificed to determine sex and maturity, and otoliths were collected from Lake Trout for ageing.

Results

A total of 260 fish were captured during the 2021 survey, with 246 fish being caught across 30 SPIN nets and 14 fish being caught with supplemental rod-and-reel angling. Lake Whitefish and Lake Trout comprised 96.5% of the total catch, with the remaining catch consisting of Northern Pike, Smallmouth Bass, and White Suckers (Figure 3). Of the five Eastern Region waterbodies sampled using SPIN protocols in 2021, George Lake ranked first in Lake Trout density (2.3 fish/net) and third in Lake Whitefish density (5.0 fish/net).

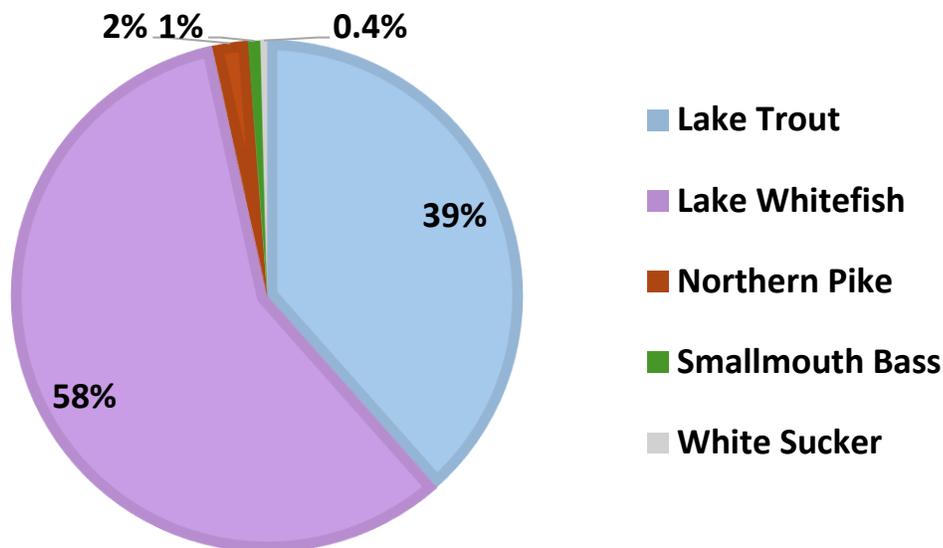


Figure 3. Composition of fish species caught in George Lake during a 2021 gillnet survey.

Lake Trout

One hundred Lake Trout were sampled throughout the program, with 88 fish caught in SPIN nets (mean depth 22.6 m; range 10.1 m to 43 m) and 12 fish being caught with supplemental angling. Fish averaged 50.6 cm (total length; range 27.8 cm to 66 cm; Figure 4) and 1144 g (range 170 g to 2520 g). Body condition was good (Figure 5). Stomach contents consisted mostly of Ciscoes (*Coregonus artedi*), sculpins, and Yellow Perch (*Perca flavescens*).

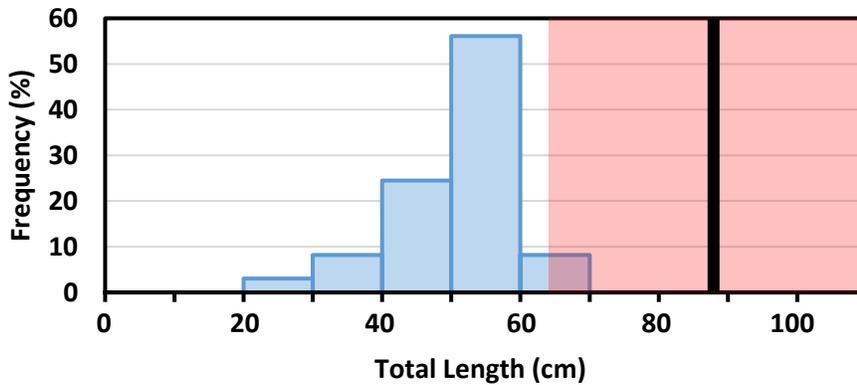


Figure 4. Size class distributions of Lake Trout caught in George Lake. The vertical black bar denotes the benchmark for a trophy fish under Travel Manitoba’s Master Angler program. Pink shading represents fish over 65 cm, which are protected from harvest as of 2024.

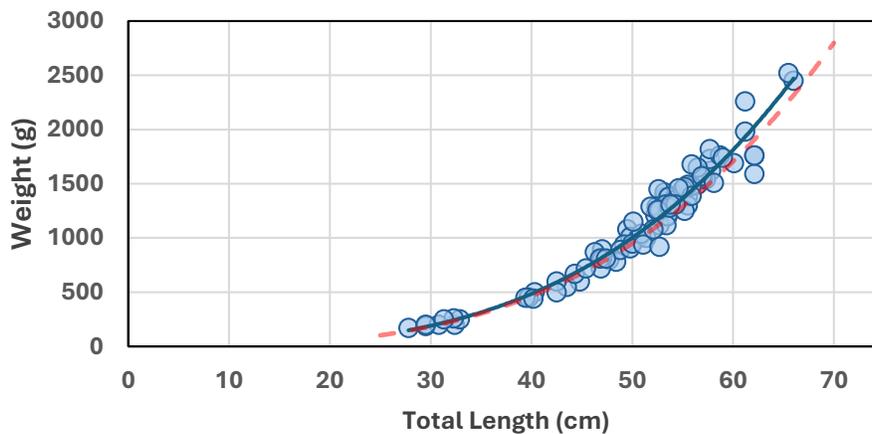


Figure 5. Weight-at-length of Lake Trout caught in George Lake. The red dashed line represents the minimum expected weight of a healthy Lake Trout using a standard weight (W_s) equation (Hansen et al. 2021).

Seventy Lake Trout were sampled for sex, maturity, and age data. Ages ranged from 4 years to 38 years, with a mean age of 12.9 and a median age of 12 (Figure 6). Forty-five fish were female (8 immature, 37 mature) and twenty-five were male (7 immature, 18 mature). At least 50% of fish from each sex achieved sexual maturity upon reaching 43 cm in total length or 6 years of age (Figure 7). Growth rates and maximum length estimates were the lowest of the five Eastern Region Lake Trout populations sampled in 2021 (Navarroli *et al.* 2025).

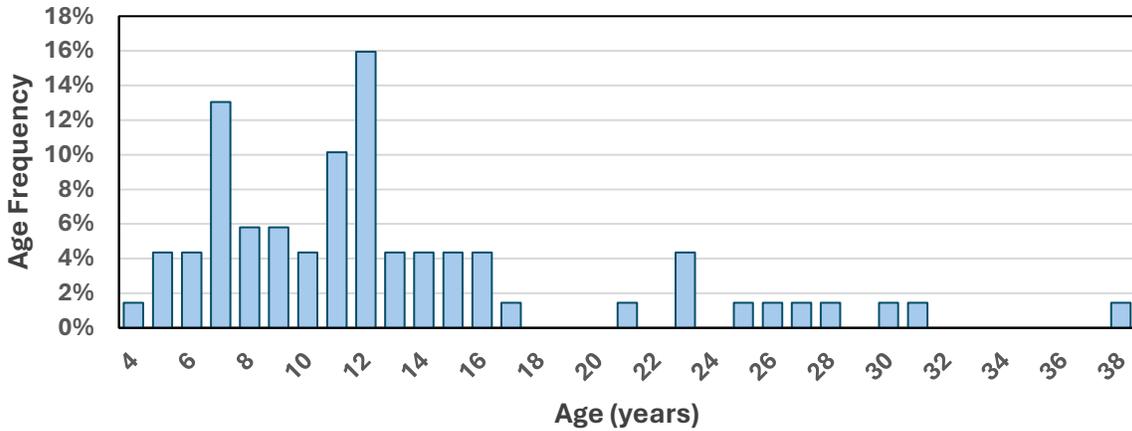
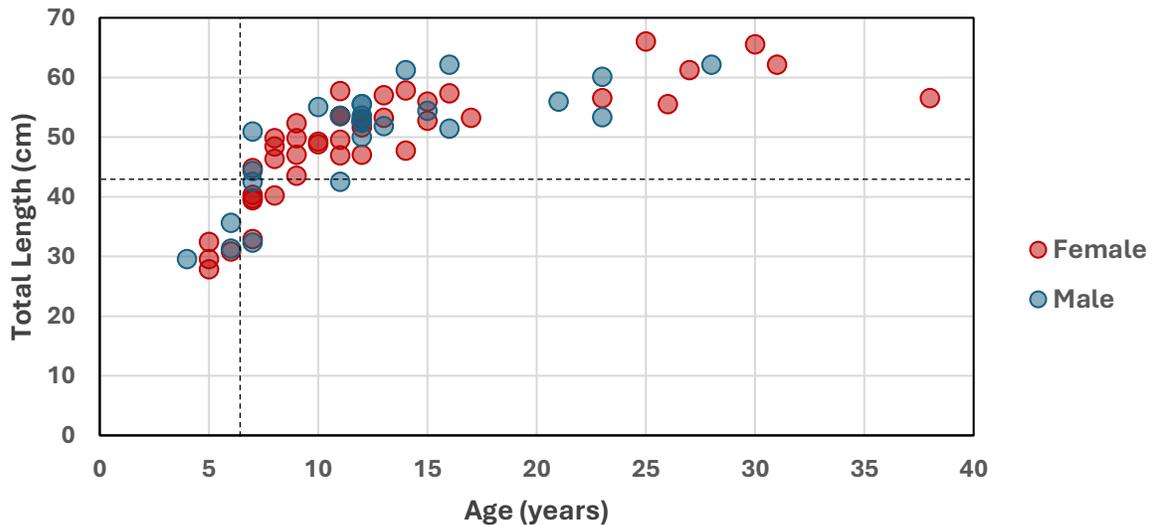


Figure 6. Lake Trout age class frequency from the 2021 George Lake fisheries survey.



Lake Whitefish

A total of 151 Lake Whitefish were caught during the 2021 gillnet survey at depths between 10.2 m and 43.0 m (average depth 21.4 m); one fish was caught by angling. Fish averaged 42.8 cm long (total length; range 23.7 cm to 55.5 cm; Figure 8) and 777 g (range 110 g to 1750 g). Body condition was average to below average relative to other whitefish populations in North America (Rennie and Verdon 2008; Figure 9) but was still considered to be in a healthy range.

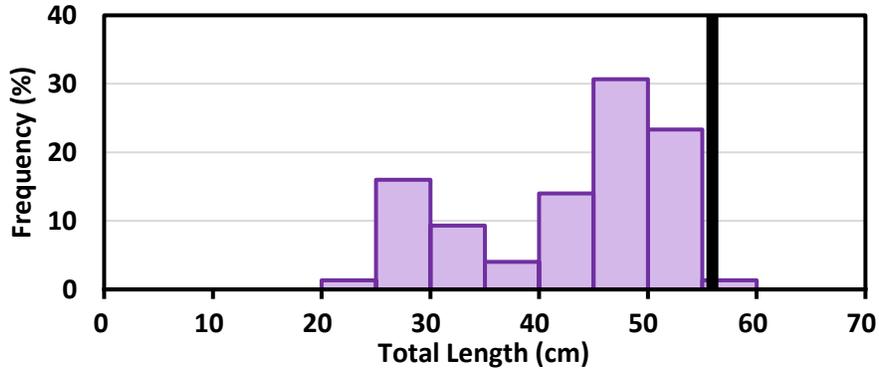


Figure 8. Size class distributions of Lake Whitefish caught in George Lake in 2021. The vertical black bar denotes the benchmark for a trophy fish under Travel Manitoba’s Master Angler program.

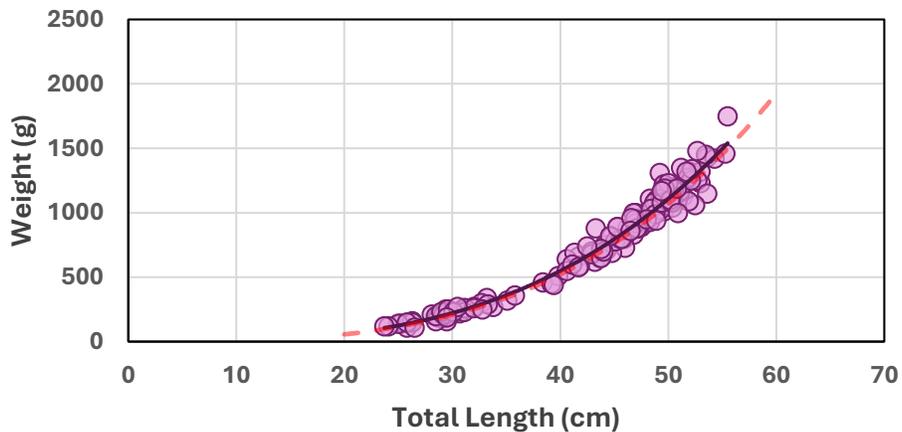


Figure 9. Weight-at-length of Lake Whitefish caught in George Lake in 2021. The red dashed line represents the minimum expected weight of a healthy Lake Whitefish using a standard weight (W_s) equation (Rennie and Verdon 2008).

Northern Pike

Five Northern Pike were captured in SPIN nets (mean depth 10.9 m; range 7.7 m to 17.4 m), and an additional fish was caught by angling. Fish averaged 73.5 cm (range 63.9 cm to 78.4 cm) and 2238 g (range 1540 g to 2610 g). Body condition was characteristic of the species (Figure 10).

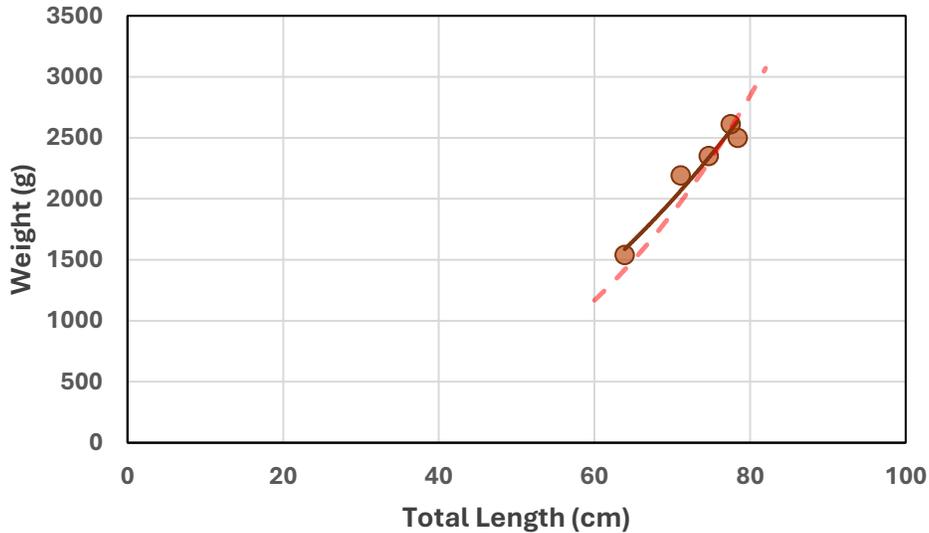


Figure 10. Weight-at-length of Northern Pike caught in Davidson Lake in 2021. The red dashed line represents the minimum expected weight of a healthy Walleye using a standard weight (W_s) equation (Anderson and Neumann 1996).

Smallmouth Bass

Two Smallmouth Bass were caught in SPIN nets, one 40.4 cm long and weighing 1020 g (net depth 10.1 m) and the other 41.5 cm long and 1000 g (net depth 7.7 m). Anglers report good numbers of Smallmouth Bass in George Lake, and shallower sets would likely yield larger catches than was reported.

Conclusion

George Lake has prolific Lake Trout and Lake Whitefish populations. Lake Trout grow slowly in George Lake and are unlikely to attain trophy sizes, but body condition is good and densities are the highest recorded in the Eastern Region. Lake Whitefish are also numerous and can occasionally achieve trophy status. Smallmouth Bass—while infrequent in open water nets—are still abundant, and trophy fish have been caught in both open water and hard water.

References

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Appendix

Appendix A. Complete Provincial stocking history for George Lake, Manitoba as of 2024.

<i>Year</i>	<i>Species</i>	<i>Number</i>	<i>Size</i>	<i>Year</i>	<i>Species</i>	<i>Number</i>	<i>Size</i>
2001	Lake Trout	25,000	Fingerling	1954	Brook Trout	10,000	Fingerling
2000	Lake Trout	25,000	12-15 cm	1954	Lake Trout	64,000	Fingerling
1999	Lake Trout	27,300	12-15 cm	1953	Brook Trout	60,000	Fingerling
1998	Lake Trout	25,000	Fingerling	1953	Lake Trout	115,000	Fry
1997	Lake Trout	38,000	Fingerling	1952	Brook Trout	171,000	Fry
1995	Lake Trout	27,000	Fingerling	1952	Lake Trout	186,660	Fry
1992	Lake Trout	26,000	>1 year	1951	Brook Trout	204,516	Fry
1986	Lake Trout	81,658	>1 year	1950	Brook Trout	11,100	Fingerling
1984	Lake Trout	27,000	>1 year	1950	Lake Trout	88,000	Fingerling
1984	Rainbow Trout	100	>1 year	1949	Brook Trout	97,000	Fingerling
1983	Lake Trout	32,000	>1 year	1949	Lake Trout	24,000	Fingerling
1981	Lake Trout	10,000	>1 year	1948	Brook Trout	86,159	Fingerling
1980	Lake Trout	6,000	>1 year	1948	Rainbow Trout	31,587	Fingerling
1979	Lake Trout	6,000	>1 year	1947	Brook Trout	1,400	Fingerling
1978	Lake Trout	6,800	>1 year	1947	Lake Trout	55,000	Fingerling
1975	Lake Trout	2,000	>2 years	1946	Brook Trout	32,098	Fingerling
1975	Lake Trout	4,000	>1 year	1946	Lake Trout	52,000	Fry
1974	Lake Trout	10,000	>1 year	1946	Splake	20,000	Fingerling
1973	Splake	2,000	>2 years	1945	Brook Trout	6,170	Fingerling
1972	Splake	5,000	>1 year	1945	Lake Trout	20,000	Fingerling
1971	Splake	4,000	>1 year	1945	Splake	11,000	Fingerling
1970	Splake	4,000	>1 year	1945	Rainbow Trout	14,000	Fingerling
1969	Splake	5,000	>1 year	1944	Brook Trout	12,000	Fingerling
1968	Lake Trout	5,000	>1 year	1943	Brook Trout	6,000	Fingerling
1968	Splake	3,000	>1 year	1943	Rainbow Trout	7,200	Fingerling
1967	Lake Trout	5,000	>1 year	1942	Walleye	300,000	Egg
1967	Splake	2,000	>1 year	1939	Walleye	400,000	Egg
1962	Lake Trout	50,000	Fingerling	1938	Walleye	300,000	Egg
1961	Lake Trout	28,000	Fingerling	1936	Largemouth B.	1,200	Fingerling
1960	Lake Trout	50,000	Fingerling	1936	Walleye	150,000	Egg
1959	Lake Trout	50,000	Fingerling	1935	Walleye	150,000	Egg
1958	Lake Trout	80,000	Fingerling	1934	Walleye	150,000	Egg
1957	Lake Trout	80,000	Fingerling	1933	Walleye	150,000	Egg
1956	Lake Trout	80,000	Fingerling	1930	Largemouth B.	3,200	Fingerling
1955	Lake Trout	45,000	Fingerling				