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A SUMMARY OF AN INTENSIVE CREEL CENSUS ON LAKE GOGEBIC, ONTONAGON AND GOGEBIC COUNTIES, 1940-1941.

by

Paul Eschmeyer

Lake Gogebic, the largest inland lake of the Upper Peninsula of Michigan, has its surface area of 14,781 acres divided about equally between Ontonagon and Gogebic Counties. In the former county, the lake occupies a portion of Bergland Township, and in the latter it covers a part of Marenisco Township. The villages of Merriweather, Bergland, Gogebic Station, and Marenisco are located near its shoreline. Highway M-28 bounds the north shore of the lake, and M-64 skirts the entire west shore.

The lake has a long (14 miles) relatively narrow (1½ mile average), shallow, (average depth, 20 to 25 feet; maximum, 37 feet) basin. Its water supply is derived from several inlet streams, which drain about 160 square miles. The chief inlet is the Slate River, a darkly bog-stained stream, from 75 to 100 feet wide near its mouth, which enters the southern extremity of the lake. The only outlet is the West Branch of the Ontonagon River, which is about 150 feet wide at the point where it flows from the northeast end of the lake. Crossing the outlet at a point about ½ mile east of the lake is a 30-inch dam, maintained by the Copper District Power Company.

Water in Lake Gogebic is chemically quite soft, (methyl orange alkalinity of 18 to 34 parts per million) and is, for the most part, slightly alkaline (pH range from 6.6 to 7.6, an acid reaction occurs only at the mouth of the Merriweather Creek inlet). Thermal stratification occurs during most summers.

The lake is a designated pike lake, with walleyes, northern pike and perch dominating the game fish population. Various centrarchids are also present, but in relatively small numbers. The lake is biologically more productive than most soft water lakes of the Upper Peninsula, and has for a number of years maintained the reputation of having one of the outstanding walleye fisheries in the state. Smallmouth bass and bluegills are reported

to have been the dominant species prior to 1900, but these species became much reduced in numbers following the introduction and establishment of northernpike (about 1895) and walleyes (about 1913).

Walleye fishing in Lake Gogebic appears to have been somewhat cyclic in nature during the past decade, having been considered good for several years prior to 1936, from fair to poor from 1936 to 1939, and good in 1940 and 1941. Such cycles in the quality of the fishing in pike lakes are almost universal in occurrence, for reasons which have never been satisfactorily explained. Apparently, in many cases, cycles are a reflection of changes in predator-prey relationships over a period of years. When a highly predaceous species, such as the walleyed pike, reproduces abundantly, as walleyes do in Lake Gogebic,[1] a period is ultimately reached during which the food supply becomes, limited because the fish through increased competition, have reduced its source of sustenance to a point, at which starvation or stunting may occur. It is possible that the heavy plantings of fry in Lake Gogebic[2] may have further aggravated the overpopulation. Since the dominant year classes grow more slowly than the average, abnormal proportions of the available food are used by fish which cannot be taken by anglers due to legal size restrictions. Thus, entire populations may become stunted. (No data are available for Lake Gogebic between 1930 and 1939. However, this stunting very probably prevailed in Lake Gogebic in 1929. Scale samples taken during that year reveal that walleyed pike required about 5 growing seasons to reach legal size. In 1940, only $3\frac{1}{2}$ growing seasons were required). Under poor food conditions, the fish become more readily susceptible to disease, which in turn augments the susceptibility to predation by birds, animals and larger fish. (In 1937, walleyed pike, estimated by some to have ranged up to 20,000 in number, fell victim to what is believed to have been a bacteriological disease). Eventually these dominant year classes become sufficiently reduced to permit the food supply to increase, and the cycle repeats itself. There results a period of years in which good-sized walleyes are decreasingly abundant, followed by years when there are many small and few large fish.

Insufficient data are available to show conclusively that the described phenomenon has occurred or is occurring in Lake Gogebic. However, certain observations, as cited above, point in that direction.

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[1] Paul Eschmeyer, "Notes on the Natural Reproduction of Walleyed Pike in Lake Gogebic", Institute for Fisheries Research Report No. 695, 1941 (manuscript).

[2] Numbers of walleyed-pike fry stocked in Lake Gogebic in recent years: 1933 - 1,550,000; 1934 - 1,000,000; 1935 - 1,000,000; 1936 - 4,000,000; 1937 - 3,000,000; 1938 - 2,500,000; 1939 - 10,000,000; 1940 - 8,700,000. Total 1933---40 - 31,750,000.

Prompted by the poor fishing years at the apparent bottom of the cycle (1936-1939) sportsmen, resort owners, and others, led by the Lake Gogebic Development Association, requested the Conservation Department to take proper action to remedy the situation. On July 14, 1939, the Conservation Commission directed that a thorough survey be made, under the direction of the Fish Division, "to obtain all available data upon which to base recommendations for the improvement of fishing conditions for Lake Gogebic".

A biological survey had been made by an Institute for Fisheries Research Survey Party in 1938. As a result of the persistent requests of interested individuals and groups that a screen be placed at the outlet of Lake Gogebic to prevent a supposed annual migration of fish out of the lake, a two-way counting weir was placed across the outlet and operated from April 10, 1940 to September 14, 1941. The results of the biological survey and the weir operation were reported in regular Institute for Fisheries Research reports*.

In addition to the biological survey, the operation of the weir, and subsequent biological observations, a study of the fish yield of the lake was made by means of an intensive creel census conducted at the lake during the summers of 1940 and 1941. The results of this census are summarized in the following pages of this report.

Since the Department of Conservation has been conducting a general creel census since 1927 and various intensive censuses since 1933, the methods used and the reasons for such censuses are well known, and need not be repeated here. Essentially, the Gogebic Lake census provides yield data for a typical Michigan pike lake. Such censuses give weight and value to the general creel census which is at present our best index of fishing trends in the state as a whole. Changes in the quality of the fishing in Lake Gogebic will be shown when the completed 1940 and 1941 censuses are compared with censuses to be made in future years. Such data, coupled with continuing growth rate studies and other biological observations will indicate the requirements for increasing the game fish yield of the lake.

The intensive census at Lake Gogebic was in charge of Mr. Richard Bohland during the summer of 1940, and Mr. Dexter Reynolds during 1941. Mr. Louis Krumholz, of the Institute Staff, completed much of the statistical work upon which tables I and II are based.

Winter fishing is not included in this discussion. During from 2 to 4 weeks of almost every winter (usually in late December or early January), some excellent walleye catches are made through the ice. Some northern pike are also taken with hook and line, or by spearing. Compared to the summer fishing, however, winter fishing is relatively unimportant, and would make no highly significant additions to the summer season statistics discussed above.

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*Numbers 657 and 764.

Creel census records were obtained from various sources. The men in charge of the census left creel census slips at the various cottages on the lake shore and with fishermen who frequented the lake. Census record books were left at boat liveries, resorts and business establishments near the lake shore. The census clerks devoted most of their time in checking concentrations of fishermen not otherwise covered. By and large, boat liverymen, resort owners, businessmen, cottage owners and fishermen showed a commendable willingness to cooperate in the work. Particularly helpful during both summers was the assistance given by the Division of Field Administration, through their District Headquarters at Ewen, supervised by Mr. John Steinmetz. Conservation Officers Herman Strough and Wm. Austin together turned in over 1,300 creel records for Lake Gogebic for 1941 alone. Both creel census clerks estimated that between 80 and 85 per cent of the fishing in the lake during the two summers was covered by the census. The census began at the opening of the pike season (May 15) each year and extended to October 12 in 1940 and to September 14 in 1941. The results of the census are summarized in Tables I and II and Figs. 1-8*. A few records obtained during a period of several weeks after the close of the regular census period, each year, are included in the tables. They are included in broken lines in Figs. 1-8. Fishing is analyzed by weekly periods for both years. The weeks are considered as being directly comparable, even though there is an overlap of one day in each case (the first full week of the season extended from May 19-25 in 1940, while in 1941 it extended from May 18-24).

A comparison of Tables I and II shows that during 1940, 2,276 fishermen took 2,917 fish from Lake Gogebic, while during 1941, 5,323 fishermen creeled 5,414 legal fish. The reason for the very great increase in anglers during the latter year has not been determined. It has been suggested that improved economic conditions made it financially possible for a larger number of people to fish more often during 1941. It is also possible that the census clerks may have erred in their estimate of the percentage of fishing covered. On a body of water as large as Lake Gogebic, it is particularly difficult to estimate the number of fishermen not contacted. In this report most comparisons of the two fishing seasons are made in terms of percentages, in an effort to eliminate errors in such estimates.

The sex-ratio of anglers remained about the same during the two-year period. During 1940, 89 per cent of the anglers were men, and during 1941, 88.1 per cent were male anglers. During both years there was a concentration of fishermen during the opening days of the season, as might be expected. From May 15-18, 1940, an average of 55 fishermen per day fished the lake, while from May 15-17, 1941, there was an average of 134 anglers per day. The daily average for the 165-day season covered by the census in 1940 was about 14, while for the 149-day season in 1941, the average was about 36 fishermen per day. During 1940, 9.7 per cent of the season's total number of fishermen fished during the opening 4 days of the season, and 13.4 per cent fished the following week. In 1941, 7.6 per cent of the

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*/These Figures have not been reproduced for copies of this report but are attached to the original copy of the typed report and will be held in the Institute file at Ann Arbor.

fishermen fished the opening 3 days, 10.1 per cent the following week, and 12.4 per cent during the second full week of the season. During the first 7 weeks of the 1940 season, 45 per cent of the season's total fishermen caught 53 per cent of the season's total catch, whereas during the first 7 weeks of 1941, 51 per cent of the season's total anglers caught only 44 per cent of the season's total catch. Compared with the rest of the fishing covered by the two-year census, rather spectacular success was enjoyed by early season fishermen in 1940, when, during the week of May 19-25, 13.4 per cent of the season's anglers, using up 12.9 per cent of the season's total fishing hours, took 18.9 per cent of the season's total fish. Most early season fishing at Lake Gogebic is done along the east shore, from the mouth of Trout Brook to the eastward-curve of the lake shore, near Bergland.. The "clay banks" immediately north of Six-mile Bay is an especially popular locality. During some years, although spawning is virtually completed, large numbers of walleyes have not yet dispersed from the spawning grounds, (which extend along the entire east shore) by the time the fishing season opens.

Well over half the anglers (57 per cent) fishing in Lake Gogebic in 1941 caught no fish, while in 1940, only 43 per cent of the fishermen were blanked. During 1940, 60 per cent of the fishermen took no fish during the week of August 18-24, while only 15 per cent were "blanked" during the week of October 13-19. During the week of August 24-30, 1941, 71.8 per cent of the fishermen went home with empty creels, while a low of 38.9 per cent took no fish during the week of September 14-20.

The average fisherman day during 1940 lasted 3.5 hours, during which time fish were caught at an average rate of 0.36 per hour. During 1941, fishermen remained for 3.2 hours and caught 1 fish each trip (i. e., at the rate of 0.31 per hour). The highest average catch per hour during 1940 was 1.08 (based on 25 records taken during the week of October 13-19), while the lowest was 0.22 fish per hour, during the week of June 16-22. During 1941, the highest was 0.88 (based on 16 records during the period from Sept. 21-27; 0.85 for 137 records for September 14-20), and the lowest was 0.20, during the weeks of May 18-24 and June 1-7. No correlation is apparent between the quality of the fishing and the average length of time the fishermen remained at the lake, during either year.

The residence of anglers fishing at Lake Gogebic was not significantly different during the two years of the study. In 1940, 72 per cent of the anglers came from Ontonagon and Gogebic Counties, 6 per cent came from other counties of Michigan, and 22 per cent were non-resident. During 1941, 77 per cent came from the 2 counties bordering the lake, 4 per cent were from other counties in Michigan, and 19 per cent had out-of-state residences. During both years, at least 75 per cent of the fishermen at Lake Gogebic during the period extending from opening day until late June were from Ontonagon and Gogebic Counties. After September 15, 1940, and August 30, 1941, this was again true (except for the week of September 21-27, 1941, when this percentage dropped to 65). During both seasons, non-residents comprised over 30 per cent of the anglers for the period from the first of July to the end of August. The highest percentage of tourist-fishermen for 1940 was during the week of August 18-24, when 55.8 per cent were from out-of-state. The greatest total number of non-residents (48) fishing the lake

was during the week of August 11-17. In 1941, 46 per cent of the anglers at Lake Gogebic during the week of August 24-30 were non-residents, the high total number (116) for the season. Of the states represented by non-resident anglers, Illinois was first, followed by Wisconsin and Indiana for both years of the census.

In 1940, the average size of fish caught during a given week in Lake Gogebic ranged from 15.6 inches (September 1-7) to 18.6 inches (October 6-12). The average size of all fish caught during the year was 17.1 inches. In 1941, the average size of the weekly catch ranged from 15.0 (August 17-23) to 18.0 (June 8-14). The appearance of considerable numbers of perch in the catch was to a considerable extent responsible for the low average size of fish taken during the first period mentioned for each year.

Walleyed pike dominated the game fish catch during both 1940 and 1941 by an overwhelming margin. During 1940, this species made up 80.9 per cent of the total catch. Average lengths for weekly periods ranged from 15.8 (October 20-26) to 18.6 (October 6-12). The average size of all walleyed pike taken during the season was 17.3 inches. During 1941, 89.3 per cent of the total catch was walleyed pike, which averaged 17.0 inches in length. Average lengths for weekly periods ranged from 15 inches (August 17-23) to 18 inches (June 8-14).

Northern pike, second in importance in the lake from the standpoint of numbers of fish caught, were taken in about equal numbers in 1940 and 1941. However, during the former year they made up 12.6 per cent of the catch, while during the latter year they constituted only 6.9 per cent. The 8.4 per cent increase in the total catch shown by the walleyed pike in 1941, over 1940, and the 5.7 per cent decrease exhibited by the northern pike suggests that the latter species may still be giving ground to the former, as it has since about 1913, when walleyes were first introduced. Few fishermen will regret this trend. In the contacts made by creel census clerks and by the writer among Lake Gogebic anglers, it was very unusual to find a fisherman more interested in taking a northern pike than a walleye.

Smallmouth bass made up 2.5 per cent of the total catch in 1940, but only 1.1 per cent in 1941. Catches made were well scattered throughout the open seasons of both years.

Black crappies composed 1.1 per cent of the catch in 1940 and 0.6 per cent in 1941. Yellow perch made up 2.4 per cent of the catch during the former year and 2.0 per cent during 1941. One sucker, 2 lawyers, 7 largemouth bass, and 7 rock bass were reported by anglers during 1940. During 1941, no suckers were reported, but 4 lawyers, 2 largemouth bass, and 1 rock bass were tallied by creel census clerks.

A rough approximation of the yield of Lake Gogebic in pounds of fish per acre during the two-year study (Table III) can be obtained by applying certain data from length-weight studies, carried on in Michigan, to the total numbers of fish of each species taken in Lake Gogebic. In a given series of fish of the same species, an individual of average length does not necessarily have a weight which is average for the group. The figure, however, is fairly reliable under conditions where only legal-sized fish are being considered.

Table III

Approximate Yield of Lake Gogebic in pounds of Fish, 1940 and 1941.

Species	1940 Number caught	1940 Ave. length, inches	1940 Ave. weight, ounces	1940 Total weight, pounds	1941 Number caught	1941 Ave. length, inches	1941 Ave. weight, ounces	1941 Total weight, pounds
Walleyes	2,359	17.3	25.0[1]	3,686	4,835	17.1	25.0[1]	7,555
Northern Pike	367	17.5	17.5[2]	401	376	18.2	19.8[2]	465
Smallmouth Bass	72	14.1	22.4[2]	101	58	14.3	23.2[2]	84
Black Crappies	31	13.3	11.0[3]	21	31	13.1	11.0[3]	21
Yellow Perch	71	11.3	9.8[2]	43	107	9.9	6.6[2]	44
Sucker	1	15.0	....	1[3]	....	....	....	....
Lawyer	2	17.0	....	2[3]	4	12.5	....	2[3]
Largemouth Bass	7	14.9	24.7[2]	11	2	14.0	24.7[2]	3[3]
Rock Bass	7	7.3	4.7[2]	2	1	8.0	6.1[2]	.....
Totals	2,917		17.1	4,268	5,414	17.0		8,174

[1] From Paul Eschmeyer, "Fisheries Survey of Lake Gogebic, Ontonagon and Gogebic Counties", Institute for Fisheries Research Report No. 657, 1941 (manuscript).

[2] From William C. Beckman, "Growth Rate of Some Michigan Game Fishes", Institute for Fisheries Research Report No. 741, 1942 (manuscript).

[3] Writer's estimate.

If it is assumed that 80 per cent of the fish were included in the census each year, the total fish yield was 5,335 pounds during 1940 and 10,217 pounds in 1941. This amounts to .36 pounds per acre in the former year, and .69 pounds per acre during the latter year.

CONCLUSIONS.

The two years of creel census at Lake Gogebic show that Lake Gogebic is almost exclusively a walleye lake. The northern pike plays a very secondary role and other species are only occasionally represented in anglers' catches. Since the walleyed pike has such an overwhelmingly dominant position among the fish of the lake, and since it is a highly desired food and game fish, it seems that the lake should be managed to provide the best possible conditions for this species. This is being undertaken by the Department of Conservation at the present time. An intensive study of the spawning habits of this species, and other aspects of its little known life history, has been carried on at the lake for the past two years, and it is expected that the study will be continued in future years. Scale samples and stomach samples have been collected during 1940, '41 and '42, in an attempt to obtain further clues for the successful management of walleyes in the lake. About 6,000 minnows of several species were stocked in the lake during 1942, in an attempt to establish new minnow species and alleviate the presumed forage food shortage in the lake. This planting may be repeated in the future if the first effort proves to be a failure. In an attempt to re-establish a highly desirable food fish in the lake, with the expectation that once it becomes established it will also help to provide forage for walleyed pike, 45,000 4-month old bluegills were planted during 1941. Stocking of walleyed pike has been discontinued

for the present (although an estimated 2,000,000 fry escaped from the hatchery into the lake during 1942), to reduce the probability of the re-occurrence of the low point in the cycle of abundance of legal-sized fish, which was very apparent in 1929. It is expected that by proper management, extremely low points in the normal cycle of abundance can be modified or eliminated, and uniformly good fishing maintained in Lake Gogebic.

INSTITUTE FOR FISHERIES RESEARCH

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Table I. LAKE GOGEBIC CREEL CENSUS 1940

Dates 1940	Per cent of Season Completed	Number of Fishermen			Residence of Fishermen					
		Male	Female	Total	Ontonagon and Gogebic Counties		Other Michigan Counties		Non-Residents	
					Number	Per cent	Number	Per cent	Number	Per cent
May 15-18	2.4	216	4	220	205	93.2			15	6.8
May 19-25	6.7	283	21	304	264	86.8			40	13.2
May 26-June 1	10.9	140	10	150	128	85.4	8	5.3	14	9.3
June 2-8	15.2	90	11	101	94	93.1			7	6.9
June 9-15	19.4	54	1	55	42	76.4	7	12.7	6	10.9
June 16-22	23.6	90	14	104	91	87.5	5	4.8	8	7.7
June 23-29	27.9	73	11	84	58	69.0	5	6.0	21	25.0
June 30-July 6	32.0	53	6	59	32	54.2	1	1.7	26	44.1
July 7-13	36.4	109	16	125	69	55.2	16	12.8	40	32.0
July 14-20	40.6	66	9	75	30	40.0	11	14.7	34	45.3
July 21-27	44.9	53	14	67	17	25.4	27	40.3	23	34.3
July 28-Aug. 3	49.1	63	15	78	44	56.4	8	10.3	26	33.3
Aug. 4-10	53.3	46	13	59	22	37.3	8	13.5	29	49.2
Aug. 11-17	57.6	84	11	95	44	46.3	3	3.2	48	50.5
Aug. 18-24	61.8	47	5	52	20	38.5	3	5.7	29	55.8
Aug. 25-31	66.1	63	8	71	29	40.8	7	9.9	35	49.3
Sept. 1-7	70.3	116	14	130	75	57.7	17	13.1	38	29.2
Sept. 8-14	74.6	106	15	121	81	67.0	9	7.4	31	25.6
Sept. 15-21	78.8	64	21	85	74	87.1			11	12.9
Sept. 22-28	83.0	53	7	60	55	91.7	2	3.3	3	5.0
Sept. 29-Oct. 5	87.3	64	15	79	77	97.5			2	2.5
Oct. 6-12	91.5	49	8	57	47	82.5			10	17.5
Oct. 13-19	95.8	25	1	26	23	88.5			3	11.5
Oct. 20-26	100.0	19	0	19	18	94.7			1	5.3
Total or Weighted Average		2,026	250	2,276	1,639	72.0	137	6.0	500	22.0

Non-Residents		Per cent of Season's Fishermen		Fishermen taking no fish		Fisherman Hours			Legal Fish		
umber	Per cent	Per cent of Total Fishermen each week	Cumulative Per cent of Fishermen	Number	Per cent	Total Hrs. Fished	Per cent of Season's Total Hrs.	Cumulative Per cent of Season's Total Hrs.	Legal Fish Taken	Per cent of Season's Total Fish	Cumulative Per cent of Total Fish
15	6.8	9.7	9.7	93	42	840.50	10.4	10.4	373	12.8	12.8
40	13.2	13.4	23.0	94	31	1,038.50	12.9	23.3	550	18.9	31,6
14	9.3	6.6	30.0	66	44	656.25	8.2	31.5	212	7.3	38.9
7	6.9	4.5	34.1	34	34	457.00	5.7	37.2	148	5.1	44.0
6	10.9	2.4	36.5	22	40	199.00	2.5	39.6	92	3.2	47.1
8	7.7	4.6	41.1	56	54	412.25	5.1	44.8	89	3.1	50.2
21	25.0	3.7	44.7	47	56	312.00	3.9	48.6	73	2.5	52.7
26	44.1	2.6	47.3	27	46	220.00	2.7	51.4	66	2.3	55.0
40	32.0	5.5	52.8	57	46	435.50	5.4	56.8	110	3.8	58.7
34	45.3	3.3	56.1	33	44	229.00	2.8	59.6	81	2.8	61.5
23	34.3	2.9	59.1	26	39	237.00	2.9	62.6	93	3.2	64.7
26	33.3	3.4	62.5	34	44	263.50	3.3	65.8	79	2.7	67.4
29	49.2	2.6	65.1	23	39	213.50	2.7	68.5	75	2.6	70.0
48	50.5	4.2	69.3	50	53	326.50	4.1	72.5	100	3.4	73.4
29	55.8	2.3	71.5	31	60	149.50	1.9	74.4	58	2.0	75.4
35	49.3	3.1	74.6	31	44	276.75	3.4	77.8	87	3.0	78.4
38	29.2	5.7	80.4	77	59	462.00	5.7	83.6	105	3.6	82.0
31	25.6	5.3	85.7	35	29	396.00	4.9	88.5	182	6.2	88.2
11	12.9	3.7	89.4	39	46	309.50	3.8	92.3	88	3.0	91.2
3	5.0	2.6	92.1	34	57	161.00	2.0	94.3	45	1.5	92.8
2	2.5	3.5	95.5	46	58	222.50	2.8	97.1	59	2.0	94.8
10	17.5	2.5	98.0	22	39	134.50	1.7	98.8	73	2.5	97.3
3	11.5	1.1	99.2	4	15	58.50	.7	99.5	63	2.2	99.5
1	5.3	0.8	100.0	8	42	40.00	.5	100.0	16	0.5	100.0
500	22.0	100.0		989	43	8,050.75	100.0		2,917	100.0	

Cumulative Per cent of Total Fish	Average Number of Hrs. per Fisherman Day	Average Catch per hour	Average catch per Fisherman	Average Size of all fish caught	Walleyes			Northern Pike			Smallmout	
					Number	Average length	Per cent of catch	Number	Average length	Per cent of catch	Number	Averag length
12.8	3.8	0.44	1.70	17.1	348	17.1	93.3	23	18.2	6.2		
31,6	3.4	0.53	1.81	17.4	528	17.4	96.0	20	16.3	3.6		
38.9	4.4	0.32	1.41	16.9	200	17.0	94.3	10	16.8	4.7		
44.0	4.5	0.32	1.47	17.4	126	17.2	85.1	22	18.8	14.9		
47.1	3.6	0.46	1.67	17.1	83	17.5	90.2	4	16.5	4.3	4	13.0
50.2	4.0	0.22	0.86	16.9	62	17.2	69.7	23	16.7	25.8		
52.7	3.7	0.23	0.87	16.9	50	17.8	68.5	7	16.7	9.6	7	18.0
55.0	3.7	0.30	1.12	16.1	42	17.4	63.6	11	16.9	16.7	4	12.9
58.7	3.5	0.25	0.88	17.3	80	18.4	72.7	14	15.8	12.7	2	17.0
61.5	3.1	0.35	1.08	17.0	57	17.6	70.4	16	18.0	19.8	6	12.0
64.7	3.5	0.39	1.39	17.1	84	17.4	90.3	3	15.3	3.2	2	19.5
67.4	3.4	0.30	1.01	16.2	60	17.1	75.9	7	16.3	8.9	7	12.9
70.0	3.6	0.35	1.27	16.4	55	16.9	73.3	9	18.0	12.0	11	12.3
73.4	3.4	0.31	1.05	16.9	75	17.0	75.0	10	18.5	10.0	8	14.6
75.4	2.9	0.39	1.12	16.1	29	17.3	50.0	13	16.9	22.4	7	15.7
78.4	3.9	0.31	1.23	16.6	54	17.5	62.1	20	17.3	23.0	2	13.0
82.0	3.6	0.23	0.81	15.6	56	17.0	53.3	19	16.9	18.1	4	14.0
88.2	3.3	0.46	1.50	17.0	139	17.2	76.4	33	17.2	18.1	5	12.0
91.2	3.6	0.28	1.04	17.3	60	17.1	68.2	24	18.3	27.3	2	18.0
92.8	2.7	0.28	0.75	16.9	29	16.7	64.4	13	18.4	28.9		
94.8	2.8	0.27	0.75	17.2	46	17.3	78.0	12	17.3	20.3	1	11.0
97.3	2.4	0.54	1.28	18.6	52	18.6	71.2	21	18.4	28.8		
99.5	2.3	1.08	2.42	18.4	40	18.3	63.5	21	18.8	33.3		
100.0	2.1	0.40	0.84	17.9	4	15.8	25.0	12	18.7	75.0		
	3.5	0.36	1.28	17.1	2,359	17.3	80.9	367	17.5	12.6	72	14.7

Northern Pike		Smallmouth Bass			Black Crappie			Yellow Perch			Suc	
Average length	Per cent of catch	Number	Average length	Per cent of catch	Number	Average length	Per cent of catch	Number	Average length	Per cent of catch	Number	Averag lengt
18.2	6.2							2	12.0	0.5		
16.3	3.6				2	11.0	0.4					
16.8	4.7							2	10.0	1.0		
18.8	14.9											
16.5	4.3	4	13.0	4.3				1	10.0	1.1		
16.7	25.8				3	13.3	3.4	1	13.0	1.1		
16.7	9.6	7	18.0	9.6	2	11.5	2.7	6	10.8	8.2	1	15.0
16.9	16.7	4	12.9	6.1	1	12.0	1.5	3	9.0	4.5		
15.8	12.7	2	17.0	1.8	4	13.8	3.7	10	12.0	9.1		
18.0	19.8	6	12.0	7.4	1	10.0	1.2	1	9.0	1.2		
15.3	3.2	2	19.5	2.2				3	10.0	3.2		
16.3	8.9	7	12.9	8.9				2	13.0	2.5		
18.0	12.0	11	12.3	14.7								
18.5	10.0	8	14.6	8.0	4	16.0	4.0					
16.9	22.4	7	15.1	12.1	2	13.0	3.4	5	10.0	8.6		
17.3	23.0	2	13.0	2.3	3	12.0	3.4	8	11.9	9.2		
16.9	18.1	4	14.0	3.8	3	13.3	2.9	23	11.6	21.9		
17.2	18.1	5	12.0	2.7	5	14.0	2.7					
18.3	27.3	2	18.0	2.3	1	14.0	1.1	1	10.0	1.1		
18.4	28.9							3	13.0	6.7		
17.3	20.3	1	11.0	1.7								
18.4	28.8											
18.8	33.3											
18.7	75.0											
17.5	12.6	72	14.1	2.5	31	13.3	1.1	71	11.3	2.4	1	15.0

w Perch		Sucker			Lawyer		Largemouth Bass			Rock Bass		
rage ngth	Per cent of catch	Number	Average length	Per cent of catch	Number	Average length	Per cent of catch	Number	Average length	Per cent of catch	Number	Average length	Per cent of catch
2.0	0.5												
0.0	1.0												
0.0	1.1												
3.0	1.1												
0.8	8.2	1	15.0	1.4									
9.0	4.5							1	12.0	1.5	4	7.0	6.1
2.0	9.1												
9.0	1.2							1	12.0	1.1			
0.0	3.2										3	7.5	3.8
3.0	2.5												
								3	16.0	3.0			
0.0	8.6							2	16.0	3.4			
1.9	9.2												
1.6	21.9												
0.0	1.1												
3.0	6.7												
					2	17.0	3.2						
.3	2.4	1	15.0	.03	2	17.0	0.7	7	14.9	0.2	7	7.3	0.2

Table II. LAKE GOGEBIC CREEL CENSUS 1941

Dates 1941	Per cent of Season Completed	Number of Fishermen			Residence of Fishermen						Per cent of Season's Fishermen		Fishermen taking no fish		Total
		Male	Female	Total	Ontonagon and Gogebic Counties		Other Michigan Counties		Non-Residents		Per cent of Total Fishermen each week	Cumulative Per cent of Fishermen	Number	Per cent	Total Hrs. Fished
					Number	Per cent	Number	Per cent	Number	Per cent					
May 15-17	2.0	373	29	402	360	89.6	25	6.2	17	4.2	7.6	7.6	204	50.7	1,616.00
May 18-24	6.7	475	65	540	516	95.6	8	1.5	16	3.0	10.1	17.7	336	62.2	1,904.00
May 25-31	11.4	579	79	658	585	88.9	13	2.0	60	9.1	12.4	30.1	396	60.2	2,017.75
June 1-7	16.1	407	41	448	402	89.7	3	0.7	43	9.6	8.4	38.5	302	67.4	1,487.50
June 8-14	20.8	235	12	247	231	93.5	4	1.6	12	4.9	4.6	43.1	147	59.5	817.25
June 15-21	25.5	203	18	221	196	88.7	10	4.5	15	6.8	4.2	47.3	136	61.5	681.50
June 22-28	30.2	153	24	177	127	71.8	9	5.1	41	23.2	3.3	50.6	73	41.2	588.50
June 29-July 5	34.9	241	37	278	166	59.7	22	7.9	90	32.4	5.2	55.8	138	49.6	934.75
July 6-12	39.6	188	37	225	130	57.8	19	8.4	76	33.8	4.2	60.0	101	44.9	755.75
July 13-19	44.3	191	39	230	144	62.6	8	3.5	78	33.9	4.3	64.4	100	43.5	826.00
July 20-26	49.0	146	28	174	108	62.1	11	6.3	55	31.6	3.3	67.6	81	46.6	598.00
July 27-Aug. 2	53.7	158	18	176	107	60.8	14	8.0	55	31.3	3.3	70.9	96	54.5	500.50
Aug. 3-9	58.4	114	20	134	75	56.0	9	6.7	50	37.3	2.5	73.5	92	68.7	381.25
Aug. 10-16	63.1	139	22	161	104	64.6	0	0.0	57	35.4	3.0	76.5	95	59.0	453.00
Aug. 17-23	67.8	197	37	234	119	50.9	32	13.7	83	35.5	4.4	80.9	153	65.4	691.50
Aug. 24-30	72.5	219	33	252	124	49.2	12	4.8	116	46.0	4.7	85.6	181	71.8	698.25
Aug. 31-Sept. 6	77.2	276	35	311	235	75.6	7	2.3	69	22.2	5.8	91.5	170	54.7	829.50
Sept. 7-31	81.9	199	26	225	187	83.1	2	0.9	36	16.0	4.2	95.7	146	64.9	600.50
Sept. 14-20	86.6	137	20	157	122	77.7	0	0.0	35	22.3	3.0	98.6	61	38.9	391.25
Sept. 21-27	91.3	16	4	20	13	65.0	0	0.0	7	35.0	0.4	99.0	8	40.0	43.50
Sept. 28-Oct. 4	96.0	19	12	31	28	90.3	3	9.7	...	....	0.6	99.6	16	51.6	68.50
Oct. 5-10	100.0	22	0	22	22	100.0	0	0.0	...	....	0.4	100.0	11	50.0	38.25
		4,687	636	5,323	4,101	77.0	211	4.0	1,011	19.0	100.0		3,043	57.2	16,923.00

nt of Fishermen Cumulative Per cent of Fishermen	Fishermen taking no fish Number	Per cent	Fisherman Hours Total Hrs. Fished	Per cent of Season's Total Hrs.	Cumulative Per cent of Season's Total Hrs.	Legal Fish Taken	Per cent of Season's Total Fish	Cumulative Per cent of Season's Fish	Average Number of Hrs. pe Fisherma Day	Average Catch per hour	Average Catch per Fisherman	Average Size of all fish caught	Walle Number	Averag lengt
7.6	204	50.7	1,616.00	9.5	9.6	44	8.2	8.2	4.0	0.27	1.10	16.9	416	16.9
17.7	336	62.2	1,904.00	11.3	20.8	373	6.9	15.1	3.5	0.20	0.69	17.1	351	17.1
30.1	396	60.2	2,017.75	11.9	32.7	638	11.8	26.9	3.1	0.32	0.97	16.7	540	16.7
38.5	302	67.4	1,487.50	8.8	41.5	294	5.4	32.3	3.3	0.20	0.66	17.5	277	17.5
43.1	147	59.5	817.25	4.8	46.3	224	4.1	36.4	3.3	0.27	0.91	18.0	210	17.7
47.3	136	61.5	681.50	4.0	50.4	200	3.7	40.1	3.1	0.29	0.91	17.1	191	17.2
50.6	73	41.2	588.50	3.5	53.8	262	4.8	45.0	3.3	0.45	1.48	16.5	216	17.1
55.8	138	49.6	934.75	5.5	59.4	348	6.4	51.4	3.4	0.37	1.25	17.2	297	17.1
60.0	101	44.9	755.75	4.5	63.8	268	5.0	56.4	3.4	0.35	1.19	16.7	240	17.0
64.4	100	43.5	826.00	4.9	68.7	277	5.1	61.5	3.6	0.34	1.20	17.2	253	17.3
67.6	81	46.6	598.00	3.5	72.3	259	4.8	66.3	3.4	0.43	1.49	16.9	229	17.3
70.9	96	54.5	500.50	3.0	75.2	203	3.8	70.0	2.8	0.41	1.15	16.7	183	16.8
73.5	92	68.7	381.25	2.3	77.5	110	2.0	72.0	2.8	0.29	0.82	16.8	91	17.0
76.5	95	59.0	453.00	2.7	80.1	161	3.0	75.0	2.8	0.36	1.00	17.0	132	17.3
80.9	153	65.4	691.50	4.1	84.2	211	3.9	78.9	3.0	0.31	0.90	15.0	163	16.6
85.6	181	71.8	698.25	4.1	88.4	145	2.7	81.6	2.8	0.21	0.58	16.2	114	16.9
91.5	170	54.7	829.50	4.9	93.3	371	6.9	88.4	2.7	0.45	1.19	17.1	348	17.0
95.7	146	64.9	600.50	3.5	96.8	213	3.9	92.4	2.7	0.36	0.95	17.5	198	17.5
98.6	61	38.9	391.25	2.3	99.1	332	6.1	98.5	2.5	0.85	2.11	17.5	321	17.5
99.0	8	40.0	43.50	0.3	99.4	38	0.7	99.2	2.2	0.87	1.90	16.9	36	16.7
99.6	16	51.6	68.50	0.4	99.8	22	0.4	99.6	2.2	0.32	0.71	17.8	12	17.0
100.0	11	50.0	38.25	0.2	100.0	21	0.4	100.0	1.7	0.55	0.96	17.8	17	16.8
	3,043	57.2	16,923.00	100.0		5,414	100.0		3.2	0.32	1.02	17.0	4,835	17.1

ve f Fish	Average Number o Hrs. pe Fisherma Day	Average Catch per hour	Average Catch per Fisherman	Average Size of all fish caught	Walleyes			Northern Pike			Smallmouth Bass			Black Crappie		
					Number	Average length	Per cent of catch	Number	Average length	Per cent of catch	Number	Average length	Per cent of catch	Number	Average length	Per cent of catch
	4.0	0.27	1.10	16.9	416	16.9	93.7	28	17.6	6.3						
	3.5	0.20	0.69	17.1	351	17.1	94.1	21	17.7	5.6				1	11.0	0.3
	3.1	0.32	0.97	16.7	540	16.7	84.6	73	17.9	11.4				22	13.2	3.5
	3.3	0.20	0.66	17.5	277	17.5	94.2	16	19.2	5.4						
	3.3	0.27	0.91	18.0	210	17.7	93.8	13	19.6	5.8				1	13.5	0.4
	3.1	0.29	0.91	17.1	191	17.2	95.5	5	16.6	2.5						
	3.3	0.45	1.48	16.5	216	17.1	82.4	35	17.7	13.4	5	13.4	1.9			
	3.4	0.37	1.25	17.2	297	17.1	85.3	26	18.7	7.5	12	14.1	3.4			
	3.4	0.35	1.19	16.7	240	17.0	89.6	14	18.3	5.2	5	14.2	1.9	1	12.0	0.4
	3.6	0.34	1.20	17.2	253	17.3	91.3	15	19.3	5.4	2	12.5	0.7	3	14.0	1.1
	3.4	0.43	1.49	16.9	229	17.3	88.4	8	21.0	3.1	9	13.7	3.5	1	12.0	0.4
	2.8	0.41	1.15	16.7	183	16.8	90.1	14	17.9	6.9	3	13.7	1.5			
	2.8	0.29	0.82	16.8	91	17.0	82.7	13	18.2	11.8	2	18.5	1.8			
	2.8	0.36	1.00	17.0	132	17.3	82.0	16	17.9	9.9	8	15.0	5.0			
	3.0	0.31	0.90	15.0	163	16.6	77.3	17	18.0	8.1	9	14.2	4.3	1	10.0	0.5
	2.8	0.21	0.58	16.2	114	16.9	78.6	10	18.8	6.9	2	15.0	1.4			
	2.7	0.45	1.19	17.1	348	17.0	93.8	19	19.3	5.1				1	16.0	0.3
	2.7	0.36	0.95	17.5	198	17.5	93.0	11	19.3	5.2						
	2.5	0.85	2.11	17.5	321	17.5	96.7	7	20.6	2.1	1	18.0	0.3			
	2.2	0.87	1.90	16.9	36	16.7	94.7	2	20.5	5.3						
	2.2	0.32	0.71	17.8	12	17.0	54.5	9	19.8	40.9						
	1.7	0.55	0.96	17.8	17	16.8	81.0	4	21.8	19.0						
	3.2	0.32	1.02	17.0	4,835	17.1	89.3	376	18.2	6.9	58	14.3	1.1	31	13.1	0.6

ıth Bass		Black Crappie			Yellow Perch			Lawyer			Largemouth Bass			Rock Bass		
ıge gth	Per cent of catch	Number	Average length	Per cent of catch	Number	Average length	Per cent of catch	Number	Average length	Per cent of catch	Number	Average length	Per cent of catch	Number	Average length	Per cent of catch
		1	11.0	0.3												
		22	13.2	3.5	3	11.7	0.5									
					1	11.0	0.3									
		1	13.5	0.4												
					4	12.8	2.0									
.4	1.9				6	11.5	2.3									
.1	3.4				12	10.1	3.4				1	14.0	0.3			
.2	1.9	1	12.0	0.4	8	8.6	3.0									
.5	0.7	3	14.0	1.1	2	12.0	0.7	2	10.0	0.7						
.7	3.5	1	12.0	0.4	11	8.8	4.2				1	14.0	0.4			
.7	1.5				3	10.0	1.5									
.5	1.8				3	7.0	2.7							1	8.0	1.0
.0	5.0				5	10.8	3.1									
.2	4.3	1	10.0	0.5	21	9.0	10.0									
.0	1.4				19	10.4	13.1									
		1	16.0	0.3	2	9.5	0.5	1	13.0	0.3						
					3	10.0	1.4	1	17.0	0.5						
.0	0.3				3	10.0	0.9									
					1	7.0	4.5									
.3	1.1	31	13.1	0.6	107	9.9	2.0	4	12.5	0.1	2	14.0	tr	1	8.0	tr