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CREEL CENSUS ON 12 NORTHERN MICHIGAN LAKES,
WINTER OF 1935-'36

Winter census was taken by the M.E.C.W. on 13 northern Michigan lakes; all except one of these (Houghton) are considered in this report. The census was taken each day by crews from the various E.C.W. camps listed below. Methods for taking the census have been discussed in previous reports and are not considered here.

Through the combined efforts of the several camps it has been possible to obtain sufficient data on winter fishing in northern Michigan to determine the general nature of that fishing and to suggest whether or not winter fishing may, in general, affect deleteriously the subsequent summer fishing. Because of the common feeling on the part of resorters that winter fishing adversely effects summer fishing, the information obtained by the camps is of especial significance.

It should be indicated that the census in every instance was taken in an excellent and entirely satisfactory manner. The data obtained by the crews may be considered reliable. The adverse weather conditions under which the men had to work in order to obtain the data briefly listed below did not, apparently, prevent them from doing their work conscientiously. There is little doubt but that creel census projects may be considered among those types of work which the enrollees, when especially selected, can do well.

It is hoped that census will be continued during the summer on most of the lakes which were subjected to the winter census.

The summary data on each lake are briefly listed below. It is anticipated that these data will be analyzed in greater detail and that some of them at least will be published at some future date.

Hubbard Lake (Alcona County)

Winter fishing on Hubbard Lake was checked by a crew from Camp Alpena. The work was under the general supervision of Chief Foreman G. A. Shadko and Assistant Technician Earl Hess and under the immediate supervision of Enrollee Julius C. Gardiner. The crew averaged 4 men. The census was in progress from January 7 to March 27; the census was taken each day from 8:30 a.m. to 5:00 p.m. It was estimated that between 98% and 100% of the fishermen were contacted while the census was in progress. Eleven men were seen but not contacted. Their fishing is not included in the data recorded in the accompanying table. The census covered 50% of the lake.

Records were obtained for a total of 215 fishing days, indicating a total catch of 262 fish, taken in 893 3/4 hours. The fishing yielded 1.2 fish per fishing day at the average rate of one fish per 3 1/3 hours of fishing. Of those who fished, 52% caught no fish. The fish taken had an average length of 11.7 inches, and consisted primarily of Perch. Northern Pike, Walleyes, Whitefish and suckers were also taken.

Hubbard Lake, according to the Michigan Lakes and Streams Directory, has an area of 6,840 acres. The area covered by the census was therefore approximately 3,420 acres. If the fishermen seen but not contacted had average catches, the number of fish taken was 275, a catch of one fish per 12.4 acres.

Table 1

Creel Census Data for Hubbard Lake, Alcona County,
Winter of 1935-36

	Jan. 7-15	Jan. 16-31	Feb. 2-15	Feb. 16-29	Mar. 1-15	Mar. 16-31	Total or Average*
1. No. of fisherman-days	32	56	32	41	40	14	215
2. No. of fish caught	12	29	17	69	88	47	262
3. No. of hours fished	138 $\frac{1}{2}$	248	156 $\frac{3}{4}$	175 $\frac{1}{2}$	132 $\frac{1}{2}$	42 $\frac{1}{2}$	893 $\frac{3}{4}$
4. Catch per fisherman-day	0.4	0.5	0.5	1.7	2.2	3.4	1.2
5. Catch per hour	0.1	0.1	0.1	0.4	0.7	1.1	0.3
6. Ave. no. of hrs. per fisherman-day	4.3	4.4	4.9	4.3	3.3	3.0	4.2
7. No. taking no fish	20	39	19	16	21	4	119
8. Ave. size of all fish caught (inches)	14.6	16.1	18.5	12.0	9.9	8.9	11.7
9. <u>Perch</u>							
a. number	9	16	4	54	82	45	210
b. average size	9.8	9.1	9.0	8.7	9.0	8.3	8.9
10. <u>Northern Pike</u>							
a. number	2	9	8	8	4	1	32
b. average size	36.0	26.2	22.9	26.3	20.8	36.0	25.6
11. <u>Walleye</u>							
a. number	...	3	...	2	2	...	7
b. average size	...	23.0	...	27.0	24.0	...	24.4
12. <u>Whitefish</u>							
a. number	...	1	5	5	...	1	12
b. average size	...	17.0	19.0	17.8	...	9.0	17.5
13. <u>C. Sucker</u>							
a. number	1	...	...	...	...	...	1
b. average size	6.0	...	...	...	...	...	6

* Eleven fishermen were seen but not contacted. Their fishing is not included in the above figures.

Grand Lake (Presque Isle County)

Winter fishing on Grand Lake was also checked by Camp Alpena, under the same supervision as for Hubbard Lake. The census crew consisted, on the average, of 5 men. The census covered fishing on the entire lake. Nine of the fishermen seen were not contacted. The census was taken from January 7 to March 20.

As shown in Table 2, records were obtained for 98 fisherman-days. In a total of 479 $\frac{3}{4}$ hours, the fishermen took a total of 211 fish of an average size of 10.9 inches. Most of the fish caught were Perch.

Grand Lake, according to the Michigan Lakes and Streams Directory, has an area of 5000 acres. If the nine fishermen not contacted took average catches, the lake yielded, during the census period, a total of 118 fish, an average of one fish for 42 acres.

Table 2

Creel Census Data for Grand Lake, Presque Isle County,
Winter of 1935-36

	Jan. 7-15	Jan. 16-31	Feb. 1-15	Feb. 16-29	Mar. 1-15	March 16-20	Totals or Averages
1. No. of fisherman-days	32	42	2	4	14	4	98
2. No. of fish caught	101	73	...	3	21	13	211
3. No. of hours fished	222 $\frac{1}{4}$	166 $\frac{1}{2}$	10	17 $\frac{1}{2}$	47	16 $\frac{1}{2}$	479 $\frac{3}{4}$
4. Catch per fisherman-day	3.2	1.7	...	0.8	1.5	3.3	2.2
5. Catch per hour	0.5	0.4	...	0.2	0.4	0.8	0.5
6. Ave. no. of hrs. per fisherman-day	6.9	4.0	5	4.4	3.4	4.1	4.9
7. No. taking no fish	12	17	2	3	7	1	42
8. Ave. size of all fish caught (inches)	10.7	11.7	...	9.8	13.0	11.2	10.9
9. <u>Perch</u>							
a. number	82	56	...	2	20	12	172
b. average size	7.6	8.4	...	10.0	8.2	11.0	8.2
10. <u>Northern Pike</u>							
a. number	19	16	...	1	1	1	38
b. average size	24.3	23.0	...	19.0	19.0	14.0	23.1
11. <u>Walleye</u>							
a. number	...	1	...	...	...	...	1
b. average size	...	16.0	...	...	...	...	16.0

Long Lake (Presque Isle and Alpena Counties)

The Long Lake census was under same supervision as the census on Grand Lake and was taken for the same period. The census was taken by a crew of 2 men who covered fishing on 90% of the lake. Six of the fishermen seen were not contacted.

The 109 records indicated a catch of 186 fish in $433\frac{1}{2}$ hours, an average catch of 0.4 fish per hour. Almost all of the fish taken were perch. If the six fishermen who were not contacted took average catches, a total of 119 fish were taken from 90% of the lake.

Long Lake, according to the Michigan Lakes and Streams Directory, has an area of 5,120 acres. The census covered approximately 4600 acres of the lake. The catch during the census period was approximately 1 fish per 40 acres.

Table 3

Creel Census Data for Long Lake, Alpena County,
Winter of 1935-36

	Jan. 8-15	Jan. 16-29	Feb. 1-15	Feb. 16-29	Mar. 1-10	Total or Average
1. No. of fisherman-days	25	58	11	12	3	109
2. No. of fish caught	34	118	26	8	100	186
3. No. of hours fished	106 $\frac{1}{4}$	229 $\frac{1}{2}$	38 $\frac{1}{4}$	51	8 $\frac{1}{2}$	433 $\frac{1}{2}$
4. Catch per fisherman-day	1.4	2.0	2.4	0.7	...	1.7
5. Catch per hour	0.3	0.5	0.7	0.2	...	0.4
6. Ave. no. of hrs. per fisherman-day	4.3	4.0	3.5	4.3	2.8	4.0
7. No. taking no fish	19	27	6	11	3	66
8. Ave. size of all fish caught (inches)	10.5	11.4	11.2	13.3	...	11.3
9. <u>Perch</u>						
a. number	32	100	21	6	...	159
b. average size	9.9	8.8	8.3	7.0	...	8.9
10. <u>Walleye</u>						
a. number	...	8	...	...	...	8
b. average size	...	24.6	...	...	...	24.6
11. <u>Northern Pike</u>						
a. number	2	10	5	2	...	19
b. average size	20.0	26.8	23.4	32.0	...	25.7

Ocqueoc Lake, (Presque Isle County)

Ocqueoc Lake was covered by Camp Black Lake for the period from January 1 to the end of ice fishing. The census was taken by James Willis, enrollee, under the supervision of Chief Foreman Theo. W. Wilcoxon. This lake has an area of 320 acres (according to the Michigan Lakes and Streams Directory). The census indicates that there was no fishing on Ocqueoc Lake during the entire period.

Manistee Lake (Kalkaska County)

The census on Manistee Lake was taken by a crew from Camp Kalkaska. It was under the general supervision of Chief Foreman Glen Marvin. Creel census on this lake extended from December 23 to March 27. On the average, the crew consisted of 4 men. The census was taken each day from 8:00 a.m. to 5:30 p.m. It covered fishing on the entire lake. All fishermen seen were contacted. There were only 3 records for the December period; these were included in the figures for January in the table.

A summary of the data indicates that 125 fisherman-days were spent on this lake. They represented 627 fishing hours. A total of 50 fish were taken at the average rate of one-tenth fish per hour, each fisherman averaging less than one-half fish per day. The fish taken were all Northern Pike and Walleyes. The catch included one unusually large Northern Pike.

Manistee Lake is reported to have an area of 845 acres. The catch represented one fish per 17 acres.

Table 4

Creel Census Data for Manistee Lake, Kalkaska County
Winter of 1935-36

	Jan. 1-15*	Jan. 16-30	Feb. 1-15	Feb. 16-29	Mar. 1-15	Mar. 16-27	Total or Average
1. No. of fisherman-days	50	38	17	12	1	7	125
2. No. of fish caught	19	18	7	3	2	3	52
3. No. of hours fished	233 $\frac{1}{2}$	203 $\frac{3}{4}$	87	69 $\frac{1}{2}$	4	39 $\frac{1}{2}$	637
4. Catch per fisherman-day	0.4	0.5	0.4	0.3	...	0.4	0.4
5. Catch per hour	0.1	0.1	0.1	tr.	...	0.1	0.1
6. Ave. no. of hrs. per fisherman-day	4.7	5.4	5.1	5.8	...	5.6	5.0
7. No. taking no fish	36	24	10	9	...	5	84
8. Ave. size of all fish caught (inches)	18.2	22.4	21.1	18.7	...	18.3	20.0
9. <u>Northern Pike</u>							
a. number	7	15	7	2	2	...	33
b. average size	18.0	22.4	21.1	19.5	22.0	...	21.0
10. <u>Walleye</u>							
a. number	12	3	...	1	...	3	19
b. average size	18.3	22.3	...	17.0	...	18.3	18.9

* Included 3 records for Dec. 31, 1935.

Pickereel Lake (Kalkaska County)

The Pickereel Lake census was also taken by Camp Kalkaska for the same period and in the same way as for Manistee Lake. The crew consisted of 2 men.

A total of 58 fisherman-days were indicated by the records. They produced 86 fish of an average length of 11.8 inches. The fish were taken at the rate of 0.4 fish per hour or approximately 1 fish every 2.5 hours. The catch consisted of 69 Perch and 17 Northern Pike.

Pickereel Lake has an area of approximately 133 acres. The lake produced 1 fish per $1\frac{1}{2}$ acres.

Table 5

Creel Census Data for Pickerel Lake, Kalkaska County,
Winter of 1935-36

	Jan. 1-15*	Jan. 16-31	Feb. 1-15	Feb. 16-29	Mar. 1-15	Mar. 16-31	Total or Average
1. No. of fisherman-days	13	18	4	7	10	6	58
2. No. of fish caught	1	49	3	23	9	1	86
3. No. of hours fished	103	96	21	33	42	34 $\frac{1}{2}$	329 $\frac{1}{2}$
4. Catch per fisherman-day	...	2.7	0.7	3.3	0.9	...	1.5
5. Catch per hour	...	0.5	0.1	0.7	0.2	...	0.4
6. Ave. no. of hrs. per fisherman-day	...	5.3	5.3	4.7	4.2	...	5.7
7. No. taking no fish	12	5	2	4	5	5	33
8. Ave. size of all fish caught (inches)	...	11.2	28.0	10.0	14.3	...	11.8
9. <u>Perch</u>							
a. number	...	41	...	22	6	...	69
b. average size	...	8.8	...	9.0	8.0	...	8.8
10. <u>Northern Pike</u>							
a. number	1	8	3	1	3	1	17
b. ave. size	22	23.5	28.0	32.0	27.0	31.0	24.5

* There was no fishing from Dec. 23 to Jan. 1.

Higgins Lake (Roscommon County)

Winter fishing on Higgins Lake was checked by a crew from Camp Higgins. The work was under the immediate supervision of Truman E. LaVack, Assistant Leader. The crew, numbering 8 men (working in shifts of 4), covered the entire fishing. All of the fishermen seen were also contacted except during the period of Feb. 4 to Feb. 11 when the camp was quarantined and during which period the census was not taken. The census was taken from 8:30 a.m. to 8:30 p.m. from January 13 to April 4.

It will be noted from Table 6 that 365 fisherman-days produced 785 fish in a total of 1,396 $\frac{3}{4}$ hours. Most of the fish caught were Perch and Common Suckers. Fishing was decidedly better in March than during the rest of the winter. The total catch was probably about 842 fish (785 recorded, 52 estimated as having been caught during quarantine and 5 for those seen but not contacted). Higgins Lake, according to the Michigan Lakes and Streams Directory, has an area of 9600 acres. The catch was therefore approximately one fish per $11\frac{1}{2}$ acres.

Table 6

Creel Census Data for Higgins Lake, Roscommon County
Winter of 1935-36

	Jan. 13-15	Jan. 16-31	Feb. 1-15*	Feb. 16-29	Mar. 1-15	Mar. 16-31	Total or Average
1. No. of fisherman-days	9	118	46	112	42	38	365
2. No. of fish caught	15	101	45	282	187	155	785
3. No. of hours fished	40 $\frac{1}{4}$	390	170 $\frac{1}{2}$	536 $\frac{1}{4}$	130 $\frac{1}{2}$	129 $\frac{1}{4}$	1396 $\frac{3}{4}$
4. Catch per fisherman-day	1.7	0.9	1.0	2.5	4.5	4.1	2.2
5. Catch per hour	0.4	0.3	0.3	0.5	1.4	1.2	0.6
6. Ave. no. of hrs. per fisherman-day	4.5	3.3	3.7	4.5	3.1	3.9	3.8
7. No. taking no fish	6	70	27	37	16	10	166
8. Ave. size of all fish caught (inches)	9.4	13.9	13.1	11.1	8.2	7.9	10.2
*9. <u>Perch</u>							
a. number	3	48	22	190	187	153	603
b. average size	7.0	8.4	7.4	7.6	8.2	8.0	7.9
10. <u>Grass Pike</u>							
a. number	...	6	2	7	...	...	15
b. average size	...	28.3	30.5	28.1	...	...	28.5
11. <u>Bullhead</u>							
a. number	...	2	...	...	...	...	2
b. average size	...	10	...	...	...	...	10
12. <u>Whitefish</u>							
a. number	1	12	6	15	...	...	34
b. average size	21	16.3	18.2	17	...	...	17.1
13. <u>Common Sucker</u>							
a. number	...	31	15	66	...	...	112
b. average size	...	19.2	17.2	17.8	...	...	18.1
14. <u>Cisco</u>							
a. number	11	2	...	4	...	2	19
b. average size	9	8.5	...	13.5	...	7.0	9.7

✓ Camp quarantined from 4th to 11th inclusive. If fishing was average for the first half of February, during this period of quarantine 53 fisherman-days and 52 fish should be added to the figures for that period and for the totals.

Lake Margrethe (Crawford County)

Census on Margrethe was also taken by Camp Higgins. Size of crew, Supervision of work, hours of day, etc. were identical for Higgins Lake and Lake Margrethe except that the census on Lake Margrethe started on January 6.

It will be noted in Table 7 that 792 fisherman-days produced only 345 fish in 4,170 $\frac{3}{4}$ hours. The catch consisted primarily of Northern Pike. The total catch was probably approximately 365 fish (345 recorded, 20 during period of quarantine). Lake Margrethe, according to the Michigan Lakes and Streams Directory, has an area of 1640 acres. It therefore produced about one fish per $4\frac{1}{2}$ acres.

West Twin Lake (Montmorency County)

The West Twin Lake census was taken by Camp Au Sable from January 21 to March 31 inclusive. The census covered all fishing on this lake for the period indicated. The crew, consisting on the average of 4 men, worked from 7 a.m. to 6 p.m. The census was in charge of Mr. O. R. Wanty, Assistant to Technician.

Compared with census data for other lakes, the data for South Twin Lake appear to be unusual: with the exception of two Bullheads, all fish taken were Perch. The fish were of relatively small average size, and, fishing in terms of catch per hour was very good. A total of 300 fishermen caught 3287 fish or an average of about 11 fish each in an average fisherman-day of about 3 hours. Very few of the fishermen caught no fish at all. All fishermen seen were contacted.

West Twin Lake has an area of 1000 acres (according to the Michigan Lakes and Streams Directory). The lake therefore produced about 3.3 fish per acre.

Table 7

Creel Census Data for Margrethe Lake, Crawford County
Winter of 1935-36

	Jan. 6-15	Jan. 16-31	Feb. 1-15*	Feb. 16-29	Mar. 1-15	Mar. 16-30	Total or Average
1. No. of fisherman-days	126	211	102	145	116	92	792
2. No. of fish caught	42	80	17	43	74	89	345
3. No. of hrs. fished	549 $\frac{3}{4}$	1165 $\frac{3}{4}$	452	758 $\frac{3}{4}$	673	571 $\frac{1}{2}$	4170 $\frac{3}{4}$
4. Catch per fisherman-day	0.3	0.4	0.2	0.3	0.6	1.0	0.4
5. Catch per hour	0.1	0.1	0.03	0.1	0.1	0.2	0.1
6. Ave. no. of hrs. per fisherman-day	4.4	5.5	4.4	5.2	5.8	6.2	5.3
7. No. taking no fish	97	175	84	116	80	44	596
8. Ave. size of all fish caught (inches)	25.9	22.8	25.3	24.4	16.6	26.2	22.5
9. <u>Perch</u>							
a. number	...	13	...	...	37	2	52
b. average size	...	8.1	...	...	8.2	10.0	8.3
10. <u>Walleyes</u>							
a. number	...	1	...	...	...	...	1
b. average size	...	23	...	...	...	...	23.0
11. <u>Northern Pike</u>							
a. number	41	66	17	43	37	87	291
b. average size	26.1	25.7	25.3	24.4	24.9	24.5	25.1
12. <u>Common Sucker</u>							
a. number	1	...	...	...	...	...	1
b. average size	17 $\frac{1}{2}$	...	...	...	...	...	17 $\frac{1}{2}$

* Camp quarantined from 4th to 11th inclusive. If fishing was average for that period, approximately 120 fisherman-days and 20 fish should be added to the figures.

Table 8

Creel Census Data for West Twin Lake (Montmorency County)
Winter of 1935-36

	Jan. 21-31	Feb. 1-15	Feb. 16-29	March 1-15	March 16-31	Total or Average
1. No. of fisherman-days	72	18	41	71	98	300
2. No. of fish caught	535	150	376	639	1587	3287
3. No. of hours fished	212 $\frac{1}{2}$	54 $\frac{3}{4}$	94	214 $\frac{3}{4}$	287 $\frac{3}{4}$	863 $\frac{3}{4}$
4. Catch per fisherman-day	7.4	8.3	9.2	9.0	16.2	11.0
5. Catch per hour	1.5	2.7	4.0	3.0	5.5	3.8
6. Average no. of hours per fisherman-day	3.0	3.1	2.3	3.0	2.9	2.9
7. No. taking no fish	12	2	7	2	3	26
8. Average size of all fish caught (inches)	7.7	8.1	8.5	7.7	7.8	7.8
9. <u>Perch</u>						
a. number	533	150	376	639	1587	3285
b. average size	7.6	8.1	8.5	7.7	7.8	7.8
10. <u>Bullhead</u>						
a. number	2	...	...	...	...	2
b. average size	11.8	...	...	...	...	11.8

Fife Lake (Grand Traverse and Kalkaska Counties)

The Fife Lake census began December 1st and terminated on April 30th. The census was taken, under the direction of Assistant to Technician Erwin Moody, each day from 7 a.m. to 7 p.m. All fishing was covered by a one-man crew. All except 4 fishermen were contacted.

Records were obtained for 191 fisherman-days covering 1002 $\frac{3}{4}$ hours of fishing and a total catch of 136 fish. The catch consisted primarily of Perch and Northern Pike.

Fife Lake has an area of 800 acres. The catch therefore represented about one fish per 6 acres.

North Manistique Lake (Luce County)

The North Manistique Lake census was taken by a crew from Camp Newberry under the direction of T. E. Anderson and extended from January 15 to March 31. Data on size of crew and hours of day^{that} census was taken were not obtained. It is assumed that all fishermen were seen during the period of the census; two of those seen were not contacted.

It will be noted that most of the fishing was during the last half of March and that most of the fish were taken at that time. The catch consisted almost entirely of Perch. Compared with fishing on other lakes, the catch on ^{North} South Manistique Lake was good.

The lake is reported to have an area of 2000 acres. The catch (1552 fish) therefore was about 1 fish per 1.3 acres.

Lake Independence (Marquette County)

The Lake Independence census was taken by Camp Big Bay for the period of January 6th to April 22nd. It was under the immediate direction of Leader Charles Hocking. A two man crew was able to cover all fishing on this lake. Hours of day the census was taken were from 7:15 a.m. to 5:30 p.m. All except two of the fishermen who were seen were also contacted.

The records show that a total of 487 fisherman-days produced 437 fish in $2124\frac{1}{2}$ hours. Almost all fish caught were Northern Pike. Fishing, in terms of catch per hour, was more or less uniformly poor.

Chief Foreman Danford Emblad indicates that, on the basis of a recent survey of the lake, the area was determined as 1848 acres. Independence Lake therefore produced about one fish per $4\frac{1}{4}$ acres.

Table 10

Creel Census Data for North Manistique Lake, Luce County
Winter of 1935-36

	Jan. 15-31	Feb. 1-15	Feb. 16-29	Mar. 1-15	Mar. 16-31	Total or Average
1. No. of fisherman-days	5	1	9	21	81	117
2. No. of fish caught	24	3	44	262	1219	1552
3. No. of hours fished	28 $\frac{1}{2}$	1 $\frac{1}{2}$	21	88	304	443
4. Catch per fisherman-day	4.8	3	4.7	12.5	15	13.3
5. Catch per hour	0.8	2.0	2.1	3.0	4.0	3.5
6. Average number of hours per fisherman-day	5.7	1.5	2.3	4.2	3.8	3.8
7. No. taking no fish	3	0	5	6	12	26
8. Average size of all fish caught (inches)	7 $\frac{1}{2}$	8.5	8.0	7.9	8.4	8.3
9. <u>Perch</u>						
a. number	24	3	44	253	1203	1527
b. average size	7.5	8.5	8.0	7.9	8.3	8.1
10. <u>Walleye</u>						
a. number	...	...	...	...	3	3
b. average size	...	...	...	...	25	25
11. <u>Common Sunfish</u>						
a. number	...	...	...	9	13	22
b. average size	...	...	...	8	8	8

Table 11

Creel Census Data for Independence Lake, Marquette County
Winter of 1935-36

	Jan. 5-15	Jan. 16-31	Feb. 1-15	Feb. 16-29	Mar. 1-15	Mar. 16-31	Apr. 1-15	Apr. 16-22	Total or Average
1. No. of fisherman-days	63	135	115	82	26	36	26	4	487
2. No. of fish caught	75	113	82	36	25	59	41	6	437
3. No. of hours fished	336	527 $\frac{1}{2}$	414	321 $\frac{1}{2}$	125	210 $\frac{1}{2}$	163	27	2124 $\frac{1}{2}$
4. Catch per fisherman-day	1.2	0.8	0.7	0.4	1.0	1.6	1.6	1.5	0.9
5. Catch per hour	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.2	0.2
6. Average no. of hrs. per fisherman-day	5.3	3.9	3.6	3.9	5.0	5.8	6.3	6.8	4.4
7. No. taking no fish	29	62	64	52	8	6	9	none	230
8. Average size of all fish caught (inches)	20.2	21.1	20.4	21	21.7	22.4	21.2	21.5	21.0
9. <u>Walleye</u>									
a. number	...	...	...	1	4	2	...	...	7
b. average size	...	...	...	16	21.5	20	...	...	20.3
10. <u>Northern Pike</u>									
a. number	73	112	81	35	21	57	39	6	424
b. average size	20.2	21.1	20.4	21.1	21.8	22.5	21.7	21.5	21.1
11. <u>Common Sucker</u>									
a. number	2	1	1	...	...	...	1	...	5
b. average size	17	18	21	...	...	...	14	...	17.4
12. <u>Perch</u>									
a. number	...	...	...	...	...	...	1	...	1
b. average size	...	...	...	...	...	...	10	...	10

Houghton Lake (Roscommon County)

An intensive census on Houghton Lake was taken by Camp Houghton. Data on this census are being submitted under a separate report.

Summary

This census on 12 lakes in various parts of northern Michigan should be sufficiently extensive to give a reasonable indication of winter fishing in the north. The approximate area (covered) of each lake on which winter census was taken and the approximate number of fish caught during the census period are listed below:

<u>Lake</u>	<u>Approximate area covered</u>	<u>Approximate no. of fish caught</u>
Hubbard	3420	275
Grand	5000	118
Long	4600	119
Ocqueoc	320	0
Manistee	845	50
Pickereel	133	86
Higgins	9600	842
Margrethe	1640	365
West Twin	1000	3287
Fife	800	136
N. Manistique	2000	1552
Independence	1848	437
Total	31206	7267

The catch averaged one fish per 4.3 acres. Since the census did not cover quite the entire ice fishing period on some of the lakes, the actual catch was probably somewhat greater than the number here indicated. It is improbable, however, that the catch exceeded one fish per 3 acres of water. Most of the fish caught were Perch and Northern Pike. On those lakes where the per acre catch was high the fish taken were primarily Perch.

If fishing on the lakes included in this report was representative of fishing in general in northern Michigan, it must be concluded (as was concluded on most previous reports on winter fishing) that the catch was too meager to deleteriously effect summer fishing; that winter fishing in northern Michigan, in general, produces relatively few

fish, and that resorters who feel that winter fishing is injurious to their summer fishing are generally misinformed. Of course, there are probably exceptional lakes in northern Michigan on which winter fishing does affect summer fishing adversely.

INSTITUTE FOR FISHERIES RESEARCH

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