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INSTITUTE FOR FISHERIES RESEARCH
DIVISION OF FISHERIES
MICHIGAN DEPARTMENT OF CONSERVATION
COOPERATING WITH THE
UNIVERSITY OF MICHIGAN



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REPORT NO. 476

CREEL CENSUS ON CLEAR LAKE,
MONTMORENCY COUNTY, 1936, 1937.

Clear Lake is one water which has been properly named. When it was examined last summer, the survey party was able to see the 8-inch, black and white (Secchi) disc at a depth of about 50 feet--a greater distance than for any other lake investigated by the Institute to date. Such clear, cool lakes are usually excellent for resort development, but ordinarily are not very productive of fish.

According to the Michigan Lakes and Streams Directory, Clear Lake is "unfit for big game fish." When this lake was first examined by the Institute in 1933, it apparently contained an abundance of undersized perch (as lakes of this kind frequently do) and relatively few bass. A considerable number of brush shelters were installed in the summer of 1933, and it is believed that these shelters decidedly influenced the fish population. That changes in the catch have been taking place each year is evident from the census data below.

A portion of the information contained in Report No. 327 is included. This report (No. 327) covers fishing for one year, but includes portions of two seasons. Some of the data for summer fishing (parts of 1934 and 1935) are:

1. Number of fisherman-days:	243
2. Number of legal-sized fish caught:	605
3. Number of undersized fish caught:	767
4. Catch per hour:	0.9
5. Average size of legal-sized fish:	9.3
6. Number of small-mouthed bass:	228
Average size:	10.9
Number of undersized bass:	336
7. Number of rock bass:	96
Average size:	7.5
Number of undersized bass:	84
8. Number of perch:	235
Average size:	8.0
Number of undersized perch:	337

In 1936 the creel census started a few days late and no information is available for June 25th to 30th. During the remainder of the summer 1,199 legal-sized fish are recorded for 346 fisherman-days. The fish had an average length of 8 inches and were taken at the rate of 1.5 fish per hour. The small-mouthed bass had increased in the catch over the previous year in both number and size. Rock bass and perch were smaller than in the previous season, but many more were taken in 1936. Fishing had definitely improved, for the catch per hour had increased from 0.9 to 1.5.

In the summer of 1937, 292 fisherman-days accounted for 2,233 fish. These fish, taken at the rate of 2.5 per hour, had an average length of 8.7 inches. The catch included 161 bass having a slightly larger size than the size for bass the previous year, 1,788 perch of an average length of $8\frac{1}{2}$ inches and 237 rock bass. In 1937 fishing in this formerly unproductive lake was considerably better, in terms of fish per hour, than in lakes in general.

It is believed that the shelters gave more protection to young bass and that perch fishing decidedly improved because the bass received this added protection. The perch were apparently too abundant for the food supply and needed to be reduced in numbers if their growth was to be reasonably rapid and if they were to reach a catchable size. This reduction was apparently accomplished by an increase in the number of bass. The bass very probably consumed a considerable number of small perch. Improvement in the fishing (from 0.9 to 2.5 fish per hour) apparently was the result of an increase in predators, brought about by supplying young bass with more adequate shelter. An examination of shelters in this lake indicated that the shelters were used more extensively by bass and rock bass than by perch, adding greatly to the protection of these two species but relatively little to the perch which apparently preferred the more open water.

Information on the fishing in 1936 and 1937 is given in the tables.

INSTITUTE FOR FISHERIES RESEARCH
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Table 1

General Data on Fishing in Clear Lake,
Montmorency County,
Summer of 1936

Date	Number of Fishermen	No. Taking No Fish		Number of Legal Fish	No. of Hours Fished	Catch Per Hour	Average Size	Number of Fish Per Fisherman	Hours Per Fisherman-day
		No.	%						
July	161	65	40	445	375.5	1.2	8.8	2.8	2.3
August	126	38	30	514	341.7	1.5	7.7	4.1	2.7
September	59	21	36	240	106.0	2.3	7.7	4.1	1.8
Totals or Averages	346	124	36	1,199	823.2	1.5	8.1	3.5	2.4

Table 2

Number, Kind and Average Size of Fish,
Clear Lake, Montmorency County,
Summer of 1936

Date	Smallmouthed Bass		Yellow Perch		Bluegills		Sunfish		Rock Bass		Bullheads		Sucker		Shiner		Brook Trout	
	No.	Ave. Size	No.	Ave. Size	No.	Ave. Size	No.	Ave. Size	No.	Ave. Size	No.	Ave. Size	No.	Ave. Size	No.	Ave. Size	No.	Ave. Size
July	210	10.6	169	7.5	5	7.0	1	6.0	58	6.6	...	...	...	...	2	7.0	...	...
August	82	11.4	307	7.1	16	6.1	1	8.0	108	6.5	...	...	...	...	...	...	...	...
September	13	12.2	174	7.6	...	...	...	...	50	6.6	1	7.0	1	13.0	...	...	1	9.0
Totals or Averages	305	11.4	650	7.4	21	6.6	2	7.0	216	6.6	1	7.0	1	13.0	2	7.0	1	9.0

Table 3

Residence of Fishermen,
Clear Lake, Montmorency County,
Summer of 1936

County	July	August	September	Total
Montmorency	73	59	37	169
Wayne	19	19	6	44
Genesee	8	19	6	33
Presque Isle	10	7	...	17
Ogemaw	4	...	...	4
Kent	4	...	...	4
Jackson	15	...	...	15
St. Clair	3	...	...	3
Lapeer	2	...	...	2
Calhoun	1	1	...	2
Alcona	...	...	2	2
Monroe	1	...	...	1
Oakland	...	4	...	4
Bay	...	...	4	4
Total	140	109	55	304
Non-residents				
Ohio	10	1	...	11
Illinois	10	16	4	30
Indiana	1	...	...	1
Totals	21	17	4	42

Table 4

General Data on Fishing in
Clear Lake, Montmorency County,
Summer of 1937

Date	Number of Fishermen	No. of Fishermen Taking No Fish		No. of Legal Size Fish Caught	No. of Hours Fished	No. of Fish Per Fisherman	No. Fish Per Hour	Ave. Size of All Fish Caught	No. of Under-sized Fish Caught	Ave. No. Hrs. Per Fisherman-day
		No.	%							
June 24-30	13	...	...	54	38.5	4.2	1.4	10.4	32	3.0
July	127	1	1	1099	314.5	8.7	3.5	8.5	150	2.5
August	130	21	16	907	449.5	7.0	2.0	8.7	468	3.5
Sept. 1-6	22	4	18	173	81.5	7.9	2.1	9.0	97	3.7
Total or Average	292	26	9	2233	884.0	7.6	2.5	8.7	747	3.0

Bait Used	June	July	August	September	Total
<u>Natural</u>					
Worms	5	104	104	19	232
Insects	...	1	...	...	1
Minnows	...	9	12	1	22
<u>Artificial</u>					
Fly	8	9	...	...	17
Spinner	...	1	...	...	1
Plug	...	1	3	...	4
Combination or Unknown	...	2	11	2	15
Total	13	127	130	22	292

Table 5

Number, Kind and Average Size of Fish Caught,
Clear Lake, Montmorency County,

Summer of 1937

Date	Brown Trout		Smallmouthed Bass		Bluegills		Sunfish		Yellow Perch		Rock Bass		Bullheads		Total & Ave. Size	
	No.	Ave. Size	No.	Ave. Size	No.	Ave. Size	No.	Ave. Size	No.	Ave. Size	No.	Ave. Size	No.	Ave. Size	No.	Ave. Size
June 25-30	1	20.0	32	12.0	...	...	...	...	16	7.8	5	7.0	...	...	54	10.4
July	...	...	65	12.2	8	8.4	25	8.0	862	8.4	137	7.4	2	13.0	1099	8.5
August	1	10.0	46	11.4	4	8.0	...	...	773	8.7	80	6.7	3	11.3	907	8.7
Sept. 1-6	...	...	21	11.1	...	...	...	...	137	8.9	15	7.0	...	...	173	9.0
Total & Ave. Size	2	15.0	164	11.8	12	8.3	25	8.0	1788	8.6	237	7.1	5	12.0	2233	8.7

Table 6

Residence of Anglers,
Clear Lake, Montmorency County,
Summer of 1937

	June	July	August	September	Total
Charlevoix	...	2	...	...	2
Genesee	...	2	12	2	16
Ingham	...	1	2	...	3
Jackson	...	10	1	...	11
Montmorency	11	75	61	11	158
Oakland	...	...	5	...	5
Otsego	1	4	...	...	5
Presque Isle	...	12	8	...	20
Saginaw	...	3	...	...	3
St. Clair	...	3	...	...	3
Washtenaw	...	...	1	...	1
Wayne	...	12	20	9	41
Total	12	124	110	22	268
Non-residents					
Illinois	...	...	1	...	1
Indiana	...	...	1	...	1
Ohio	...	3	2	...	5
Total	...	3	4	...	7
Unknown	1	...	16	...	17