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REPORT OF THE GENERAL CREEL CENSUS FOR 1938

by

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This report is for the twelfth year that the general census has been conducted in Michigan. The records obtained from this census represent catches from all sections of the state exclusive of the Great Lakes and their connecting waters. Over this period the Conservation Officers during every month of each year have contacted fishermen and reported their catches on blanks provided for that purpose by the Fish Division of the Michigan Conservation Department. The general census is a random sampling covering most of the important waters of the state, representing all types of inland lake and stream fishing, and the approximate 150,000 records submitted over the past twelve-year period furnish an index to the quality of fishing available in the state.

This report will follow closely the corresponding reports for other years in order that comparisons may be made the more readily. Methods used in analyses and compilation are the same as in previous reports. No records from the intensive censuses conducted by the Institute for Fisheries Research and by the CCC are included in this report except where comparisons are drawn. All data submitted were taken by the Conservation Officers in connection with their regular patrol duties. The records

taken by the Officers include only the day's fishing to the time of the interview, not the full day's fishing as recorded in the intensive censuses. Only legal-sized fish are considered in the subsequent figures.

Classifying of lakes into trout and non-trout waters is not especially difficult as a rule, but the matter becomes decidedly complicated in streams which are trout waters in some localities and non-trout waters in others. Such streams are classified as one or the other in any one county, but may be regarded the opposite in another county. Some discrepancy undoubtedly arises from this method, but in general the error probably is not great. Over most of the state trout records were obtained from stream anglers and non-trout records from the lake fishermen. For this reason this report for convenience has designated the stream records as trout records and lake records as non-trout records.

In 1938 a total of 24,509 records were secured and forwarded to the Institute for Fisheries Research of the Michigan Conservation Department, where they were analyzed and tabulated.

The 24,509 fishermen fished 81,565.25 hours and caught 105,247 legal-sized fish at the rate of 1.3 fish per hour. This rate of catch per hour is 0.2 of a point lower than in 1937, when the figure was 1.5 fish per hour. The average catch per hour for all waters was 1.3 fish per hour. The rate of catch per hour for trout waters was 0.9 for 1938, which is a tenth of a fish per hour greater than for the preceding year. The catch per hour for non-trout waters was 1.4 in 1938, indicating 0.3 of a fish per hour reduction over the 1937 figure of 1.7, and a 0.5 reduction over the high in 1935 of 1.9.

The average size for all fish taken was 8.5 inches in 1938. This was 0.3 of an inch less than in 1937.

The non-resident fishermen accounted for 14.2% of all fishing as based on the 1938 records.

Women anglers represented 6% of all fishermen in 1938, as compared with 7 $\frac{1}{2}$ % in 1937. They caught their fish at the rate of 1.3 fish per hour, a figure identical with the catch per hour of the male fishermen. Women preferred lake fishing to stream fishing by the ratio of 7 to 3.

#### DETAILED ANALYSIS

##### Number of Records

Reports were submitted for 24,509 fisherman-days, which represents an increase of 4,999 over the previous year.

In all, 81,565.25 hours of fishing were recorded, an increase of 19,923.25 over the previous year.

These figures show a commendable increased activity on the part of the Conservation Officers in contacting the anglers. In the eleven hatchery districts of the state, increases in the number of records were reported for all except hatchery districts 7, 8, and 11. However, some counties still show none or very few records taken. Considerable variation is to be expected since certain counties have a large number of productive lakes and streams which are heavily fished, while others afford very little inland fishing. It would be desirable if each officer would strive for a minimum of 400 records distributed over the various waters and over the year in proportion to the intensity of fishing at the different seasons.

The number of fishermen, hours fished, and number of legal-sized fish caught for each hatchery district are shown in Table I.

TABLE I

Number of fishermen, hours fished and  
number of legal-sized fish caught,  
for each hatchery district

District	Number of Fishermen	Hours Fished	Number of legal-sized Fish Caught
1	3,585	12,366.25	7,797
2	3,179	11,906.25	13,629
3	622	2,271.75	2,343
4	4,264	12,810.50	19,476
5	4,517	13,303.75	14,114
6	533	2,154.75	2,330
7	1,738	5,459.25	8,242
8	1,454	4,489.50	6,354
9	2,028	7,760.25	15,556
10	1,652	5,477.00	9,627
11	937	3,566.00	5,779
Total	24,509	81,565.25	105,247

16.6% of all anglers were non-residents. Based on the total license sale for the state, where non-residents contributed 30% of the total, this figure represents approximately one half. Six per cent of the trout fishermen were non-residents. Twenty per cent of non-trout fishermen were non-residents. The greatest percentage of non-resident trout fishermen preferred Lake, Cheboygan, Baraga, Iron, Benzie, and Gogebic counties in the order named, with Lake and Cheboygan each having 49% of their fishermen non-resident. The number of records submitted for each county are given in the Appendix, Table V. There were no records from three counties in 1938. For 1937 there were no records for fourteen counties. Of the 83 counties in the state, there were fewer than 100 records from each of 29 counties. The number of reports for the various counties are given in Table II.

TABLE II

Number of Records	Counties
0	3
1 - 100	29
100 - 200	17
200 - 300	8
300 - 400	6
400 - 500	4
500 - 600	4
600 - 700	3
700 - 800	3
800 - 900	1
900 - 1000	1
1000 - 1100	3
1100 - 1200	1
3319	1

Per Cent of Returns for Trout and  
Non-trout Waters by Hatchery Districts

TABLE III

Per cent of returns for trout  
and non-trout waters

District	Number of records for trout waters	Percentage of returns	Number of records for non-trout waters	Percentage of returns
1	1,572	43.8	2,013	56.2
2	1,199	37.7	1,980	62.3
3	354	56.9	268	43.1
4	707	16.6	3,557	83.4
*5	362	8.0	4,155	92.0
6	154	28.9	379	71.1
7	680	39.1	1,058	60.9
8	135	9.3	1,319	90.7
9	86	4.2	1,942	95.8
10	4	0.2	1,648	99.8
11	...	...	937	100.0
Total	5,253	21.4	19,256	78.6

\* The percentage of returns from trout waters in this district is probably not representative due to the great number of records from lakes, principally from Houghton Lake.

The greatest percentage of trout records as compared with non-trout records came from hatchery district number 3, which was 56.9% based on 632 records.

District No. 1 ranked second with 43.8% of the 3,585 records obtained in the district.

District No. 7 ranked third with 39.1% of the 1,738 records obtained.

The five hatchery districts which lead in the percentage of trout records all lie north of the Bay City-Muskegon line.

#### Quality of Fishing

As in 1937, the quality of fishing as indicated by the catch per hour is highest in those hatchery districts located in the southern portion of the state. The lowest catch per hour is found in hatchery districts 1 and 2 and 3, located in the northern part of the state. This is identical with the findings of the 1937 census.

In 1938 the counties yielding the greatest number of records were in order: Roscommon, Benzie, Gogebic, and Manistee. In 1937 Roscommon and Benzie lead, followed by Wexford and Kent.

#### Catch per Hour - All Waters

Table IV shows the catch per hour for all waters by hatchery districts. As compared with 1937, this indicates a reduction in 7 of the 11 districts, equal in one, and an increase in 3. Hatchery district No. 9 again leads in catch per hour, followed by districts 10 and 11. This is due to the high returns from bluegill fishing.

The average catch per hour for all waters in 1938 was 1.3 as compared with the average of 1.42 over the period 1935 through 1937. This indicates a slight reduction in the quality of fishing which probably is not significant.

TABLE IV

Catch per hour - All waters, by hatchery districts

District	Catch per hour		
	1938	1937	1936
1	0.6	0.8	1.0
2	1.1	1.1	1.1
3	1.0	0.8	1.0
4	1.5	1.4	1.2
5	1.1	1.4	1.0
6	1.1	0.9	1.3
7	1.5	1.4	1.4
8	1.4	1.9	1.7
9	2.0	2.7	2.4
10	1.8	1.9	1.3
11	1.6	2.1	2.4
Average for state	1.3	1.5	1.4

The catch per hour computed from the records of the general census invariably has been higher than the catch per hour derived from records of intensive censuses, indicating a possible tendency on the part of the officers to record more of the better catches than of the poorer ones.

Catch per Hour Comparisons

With Intensive Censuses

Comparing the catch per hour figure 1.4 of the 1938 general census for non-trout waters with the intensive census figure of 0.9 for thirty Michigan lakes,\* it is evident that the discrepancy indicated in other years still remains, but is somewhat reduced.

\* The thirty lakes: Muskallonge and W. Twin in Montmorency County; Hess Lake, Newaygo County; Round, Wamplers, Clear, Mud, Portage, Waterloo Mill Pond in Jackson County; Crescent Lake, Oakland County; Houghton and Higgins lakes, Roscommon County; Lower Hamlin Lake, Mason County; Hubbard in Alcona County; Grand, Long, and Ocqueoc lakes in Presque Isle County; Cassidy, Cedar, Crooked, Doyle, Green, Mill, Mirror, Sugarloaf and Walsh lakes in Washtenaw County; Manistee and Pickerel lakes in Kalkaska County; Margrethe Lake in Crawford County; N. Manistique Lake in Luce County; Independence Lake in Marquette County.

For trout waters the catch per hour as indicated by the general census is 0.9. An average catch per hour for six major trout streams\* on which intensive censuses were conducted in 1938 reveals an average catch of 0.48 fish per hour. These streams represent some of the best trout water in the state. For this reason it may be assumed that the general census figure is too high.

A suggested cause for the higher figure in the general census may be the natural tendency of the Conservation Officers to record fewer no-catches than does the recorder in the intensive census, where he attempts to secure a record from every fisherman. Also, officers naturally concentrate their patrol efforts on the better trout streams and fishing lakes.

Catch per Hour -

Trout Waters

TABLE V

Catch per hour - Trout waters, by hatchery districts

District	1936	1937	1938
1	1.2	1.1	0.9
2	1.2	0.9	1.1
3	0.8	0.7	0.8
4	0.7	0.7	0.8
5	0.6	0.4	0.6
6	1.3	0.7	1.2
7	0.6	0.8	0.9
8	0.2	0.4	0.4
9	0.3	0.5	0.8
10	1.9	0.8	1.8
11	1.5	...	...
Average	0.8	0.8	0.9

\* Trout streams: The Little Manistee; White River; Canada Creek; the Pine; the North Branch of the Au Sable; the Pigeon.



For the entire state on trout waters, 5,253 fishermen fished 18,775 hours and caught 17,016 fish at the rate of 0.9 fish per hour. (The number of fish - 17,016, includes 1,263 fish of non-trout species taken in trout waters.)<sup>\*</sup> Of these fishermen, 34% took no fish at all.

The average length of all fish taken in trout waters was 9.1 inches.

The average fisherman fishing trout waters caught 3.2 fish, while fishing 3.5 hours per day.

The counties showing the greatest catch per hour on trout waters were Alcona, with an average of 2.8 based on 26 records, followed by Schoolcraft with an average of 2.3 fish per hour based on 54 records.

It would be reasonable to suppose that where legal trout were stocked in appreciable numbers, this would be reflected in the catch per hour. From the records of the general census for 1938, this does not seem to be particularly the case, although in hatchery districts 7 and 9 many legal fish were planted and an increase in the catch per hour was noted. However, in hatchery district 1 the catch per hour dropped from 0.9 in 1936, when no fish were stocked, to 0.6 in 1937, when 40,000 fish were stocked, to 0.4 in 1938.

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<sup>\*</sup> See Table IX for non-trout species.

The Stockings of Legal Trout

by Hatchery Districts

TABLE VI

District	1936	1937
1	...	40,325
2	600	200
3	604	36,813
4	447	33,250
5	1,500	2,621
6	...	...
7	84,116	101,262
8	...	...
9	13,392	9,100
10	...	...
11	...	...
Totals	100,659	223,571

Catch per Hour - Non-trout

Waters by Hatchery Districts

TABLE VII

Hatchery District	Non-trout Waters		
	1936	1937	1938
1	0.9	0.6	0.4
2	1.1	1.2	1.2
3	1.1	1.3	1.4
4	1.5	1.6	1.7
5	1.2	1.6	1.1
6	1.3	1.0	1.0
7	2.2	1.7	2.0
8	1.8	1.9	1.5
9	2.5	2.7	2.1
10	1.3	1.9	1.8
11	2.4	2.1	1.6
Average	1.7	1.7	1.4

Table VII records the catch per hour on non-trout waters for 1936, 1937, and 1938 by hatchery districts.

For the past eight years the average catch per hour for non-trout waters for the entire state was 1.34. The catch per hour for non-trout waters for the entire state in 1938 closely approximates this, being 1.4. Compared with the preceding two years, the catch per hour on non-trout waters in 1938 was 0.3 of a fish less. It can be seen from Table VII that considerable variation has occurred over the three year period in the individual hatchery districts. The variation may be caused partly by cyclic fluctuations in fish populations in certain lakes from which numerous records were obtained. The greatest fluctuation occurs in district 1, where the percentage dropped over a three-year period from 0.9 to 0.4 fish per hour, and in hatchery district 2, from 2.4 in 1936 to 1.6 in 1938. The opposite change is noted in hatchery district 3, where the catch per hour rose from 1.1 in 1936 to 1.4 in 1938, and in hatchery district 10, from 1.3 in 1936 to 1.8 in 1938. A reasonable explanation for the reduced catch per hour for 1938 on non-trout waters is found in the number of records submitted, a greater percentage coming from the more northern districts, where the catch per hour consistently averages lower. In 1936 and 1937 the number of records obtained from the northern and the southern areas was almost evenly balanced. In 1938 the number of records from districts 1, 2, 3, 4, 5, and 6 was twice as great as the number obtained from districts 7, 8, 9, 10 and 11.

Number and Size of Trout --

Trout Waters

The distribution of species of trout in the catch and the average length of the trout, by hatchery districts, for trout waters are shown in Table VIII.

TABLE VIII

Distribution of species of trout in the catch and average length of the trout, by hatchery districts, for trout waters

Hatchery District	Brook Trout		Rainbow Trout		Brown Trout	
	No.	Ave. Size	No.	Ave. Size	No.	Ave. Size
1	3,721	8.8	484	10.1	391	10.1
2	4,454	8.8	78	12.3	14	14.9
3	693	8.9	162	11.6	147	9.5
4	1,256	8.1	437	10.5	111	11.1
5	333	8.2	83	10.6	343	11.3
6	480	8.8	68	9.8	7	12.7
7	721	8.4	451	9.0	851	10.1
8	127	8.4	17	9.1	34	10.2
9	119	8.5	71	10.0	70	10.6
10	30	8.0	0	0	0	0
11	0	0	0	0	0	0
Total or Average	11,934	8.7	1,851	10.2	1,968	10.4

Distribution of Species of Trout in the Catch

From the records, it is apparent that the catch of trout in Michigan in 1938 was predominantly brook trout, followed by brown and rainbow in the order named, the latter two having reversed their order from the 1937 report. However, the average percentage of the catch (Table IX) for all districts was the same for both species. Of the 17,016 legal fish reported from trout waters, 11,934 were brook trout; 1,968 were brown trout, 1,851 were rainbows, and 1,263 were of species other than trout. Of the 15,753 trout taken in trout waters, 76% were brook trout, 12% rainbows, and 12% browns.

The greatest percentage of brook trout in the trout catch were taken in hatchery districts 2 -- 98%, 6 -- 87%, and 1 -- 81%.

Brook trout averaged 8.7 inches in length; brown trout 10.4 inches; and rainbow 10.2 inches. The largest brook trout came from hatchery districts 1, 2, 3, and 6; district 3 leading with an average length of 8.9 inches. The largest rainbows came from districts 1, 2, 3, 4, 5, and 9; district 2 leading with an average size of 12.3 inches. The largest brown trout were taken from district 2, averaging 14.9 inches, but due to the small number recorded (14) this figure is probably not significant.

Hatchery district No. 10 shows the entire catch as brook trout, but as only 30 trout were taken in the district, a percentage figure would have but little value. The greatest percentage of rainbow trout in the trout catch was from hatchery districts 9 -- 27%, district 4 -- 24%, and district 7 -- 22%. The greatest percentage of brown trout was taken in hatchery district 5 -- 45%, district 7 -- 42%, and district 9 -- 27%. As in 1937, no trout were recorded from hatchery district 11.

The data give some information regarding the fish associated with the trout, or found in the non-trout portions of the streams. For the entire state, the fish taken along with trout, or waters regarded as trout waters, are:

TABLE IX

Small-mouthed bass .....	283
White bass .....	6
Warmouth bass .....	1
Large-mouthed bass .....	25
Rock bass .....	114
Suckers .....	240
Walleyes .....	60
Yellow perch .....	91
Northern pike .....	113
Sunfish .....	4
Bullheads .....	9
Horned dace .....	12
Mullet .....	2
Calico bass .....	12
Herring .....	269
Whitefish .....	17
Bluegills .....	5

The figures are for the number of fish actually caught. The relative abundance of non-trout species present in trout waters is probably quite different from the relative abundance shown. Suckers for instance would not be caught nearly as readily as would the game fish, although studies of fish populations in trout streams have shown them to be the commonest associates of trout.

The Catch by Species For Trout Waters

By Hatchery Districts

TABLE X

Percentage of Species of the Trout Catch by Hatchery Districts

District	Total No. of Trout	% Brook Trout	% Rainbow Trout	% Brown Trout
1	4,596	81	11	8
2	4,546	98	2	...
3	1,002	69	16	15
4	1,804	70	24	6
5	759	44	11	45
6	555	87	12	1
7	2,023	36	22	42
8	178	71	10	19
9	260	46	27	27
10	30	100	...	...
11	...	...	...	...
Total or Average	15,753	76	12	12

Number and Size of Fish --

Non-trout Waters

Non-trout waters are considered those waters in which trout, if present at all, are relatively not abundant compared with the other fish present. A few trout naturally are recorded. The more important species of warm-water fish are discussed below.

Black Bass

A total of 4,346 bass of both species was recorded for the state as a whole in 1938. Black bass constituted 4.4% of the whole catch on non-trout waters. The average size of the large-mouthed bass was 13.1 inches, of the small-mouthed bass 12.9 inches, as compared with 13 inches and 12.7 inches respectively recorded in 1937. In all, 2,306 large-mouthed and 2,040 small-mouthed bass were recorded. The percentage of each species of bass in the bass catch is given by hatchery districts in Table XI. In hatchery districts 1, 2, 3, 4, 5, and 6, which constitute the northern portion of the state, including the Upper Peninsula, 64.8% of the bass catch was small-mouthed bass. In hatchery districts 7, 8, 9, 10, and 11, which constitute the southern portion of the Lower Peninsula, large-mouthed bass predominated, being 81.8% of the bass taken in these districts. For the state as a whole, large-mouthed bass constituted 53% of the bass taken, small-mouthed bass 47%. These figures parallel very closely the 1937 figures.

TABLE XI

Percentage of each species in the bass catch by hatchery districts

District	Total No. of Bass	Percentage of Large-mouthed Bass	Percentage of Small-mouthed Bass
1	511	65	35
2	1,036	16	84
3	32	6	94
4	777	30	70
5	179	57	43
6	98	37	63
7	368	85	15
8	152	84	16
9	607	95	5
10	298	70	30
11	288	75	25
Total or Average	4,346	53	47

Bluegills and Yellow Perch

For the state as a whole, 54,761 bluegills and yellow perch were recorded in 1938, of which number bluegills were 72% and yellow perch 28%. South of the Bay City-Muskegon line, bluegills constituted 94.2% and yellow perch 5.8%. In the Upper Peninsula yellow perch constituted 85.6% and bluegills 14.4% of the combined perch and bluegill catch. These figures are in close agreement with those of the preceding year.

Table XII gives by hatchery districts the percentage of bluegills and yellow perch in the catch.

TABLE XII

Percentage of bluegill and perch catch by hatchery districts

District	Total No. of Bluegills and Perch	Percentage of Bluegills	Percentage of Perch
1	978	23	77
2	5,717	9	91
3	876	11	89
4	5,141	42	58
5	4,802	73	27
6	524	22	78
7	5,377	58	42
8	4,841	92	8
9	13,605	95	5
10	7,957	96	4
11	4,943	94	6
Total or Average	54,761	72	28

Bluegills and yellow perch together constituted 52% of the total catch in the state.

In 1938 the average size of bluegills was 7.5 inches, a length identical with that recorded in 1937. The average size of yellow perch was 8 inches in 1938 and 8.2 inches in 1937.



Walleye Pike and Northern Pike

For the entire state, 5,334 walleye pike and northern pike were recorded in the catch, 55% northern pike, and 45% walleyes. Walleye pike and northern pike constitute 5% of the total catch in the state. In the western half of the Upper Peninsula (hatchery district 1), walleye pike predominated over northern pike almost 2 to 1. The reverse was true in the eastern half of the Upper Peninsula. The 1937 figures closely approximate those for 1938. In hatchery districts 3 and 4 <sup>the</sup> walleye pike catch was almost twice that of the northern pike. This represents a substantial shift from the 1937 figures, which showed the walleye pike to be 29% and the northern pike 71% of the walleye and northern pike catch in district 3, and the walleye pike 57% and the northern pike 43% in district 4. In the combined total for the other hatchery districts of the state, the northern pike predominated with 81.4% of the walleye-northern pike catch in 1937, and in 1938 74.4%.

The average length of the walleyes for the entire state as indicated by the 1938 census records was 17.5 inches; for northern pike 20.3 inches--almost identical with the recordings for 1937.

TABLE XIII

Percentage of walleye and northern pike catch by hatchery districts

District	Total No. of Walleye and Northern Pike	Percentage of Walleyes	Percentage of Northern Pike
1	1,002	65	35
2	1,034	38	62
3	97	68	32
4	754	64	36
5	1,521	38	62
6	343	23	77
7	122	25	75
8	60	5	95
9	75	...	100
10	54	20	80
11	99	8	92
Total or Average	5,161	45	55

Other Species

The relative abundance of other species is shown in Table I of the Appendix, which gives the catch by species and averagelength of each for non-trout waters, by hatchery districts. The average size of all fish taken in the state was 8.8 inches. The average size increased northward as other fish tended more and more to replace the bluegills in the catch. The catch by species for non-trout waters by counties is given in Table II of the Appendix; for trout waters, see Table III of the Appendix.

Comparison of Resident and

Non-resident Anglers

Data on the relative take by resident and non-resident anglers were compiled by hatchery districts and are recorded in Table XIV.

TABLE XIV

Comparison of resident and non-resident anglers for all waters

District	No. of Fishermen		No. of Hours Fished		No. of Fish Caught		Catch Per Hour	
	Resident	Non-resident	Resident	Non-resident	Resident	Non-resident	Resident	Non-resident
1	2,989	596	10,144.25	1,922.00	6,942	855	0.7	0.4
2	2,865	314	10,801.75	1,104.50	12,163	1,466	1.1	1.3
3	543	79	2,074.00	197.75	2,244	99	1.1	0.5
4	3,427	837	10,624.50	2,186.00	17,447	2,029	1.6	0.9
5	3,693	824	11,249.00	2,054.75	11,787	2,327	1.0	1.1
6	517	16	2,073.25	81.50	2,245	85	1.1	1.0
7	1,548	190	4,962.50	496.75	7,503	739	1.5	1.5
8	1,427	27	4,415.50	74.00	6,259	95	1.4	1.3
9	1,529	499	5,630.25	2,130.00	12,661	2,895	2.2	1.4
10	1,598	54	5,320.50	156.50	9,194	433	1.7	2.8
11	886	51	3,419.00	147.00	5,646	133	1.7	0.9
Total or								
Average	21,022	3,487	71,014.50	10,550.75	94,091	11,156	1.3 weighted ave.	1.1
							1.4 simple ave.	1.2

The percentage of fishing by non-residents is shown by hatchery districts in Table XV.

TABLE XV

The percentage of fishing by non-residents

District	Percentage of All Fishermen
1	11
2	11
3	4
4	10
5	16
6	4
7	9
8	1
9	19
10	4
11	2
Average	14.2

For the state as a whole, 14.2% represented records of non-resident anglers. This is 2.8% lower than the record for 1937.

The greatest percentage of non-residents fishing on all waters was in hatchery district No. 9, where the percentage was 19 in 1938. In 1937 the greatest percentage was in hatchery district 4. The least number of non-resident fishermen was recorded in 1938 from hatchery district number 8, where only 1% of the fishermen was listed as non-residents.

The number of non-resident trout fishermen as shown by the general census has declined progressively since 1935, being 9% in 1935, 8 $\frac{1}{2}$ % in 1936, 7% in 1937, and 6% in 1938. A possible explanation for this may be the increasing number of out-state trout fishermen passing on through to Canadian streams, where fishing pressure is less heavy than on the trout streams of Michigan. However, a progressive increase in the number of resident trout fishermen during these years would have produced the same result.

Forty-eight per cent of the non-resident trout fishermen caught no fish in 1938. This compares with 33% for the resident fishermen. On trout waters the catch per hour for non-resident and resident fishermen was 0.7 and 0.9 respectively for 1938. The catch per hour for both non-resident and resident fishermen on trout waters indicated a slight increase over 1937.

On non-trout waters 17% were non-residents in 1938, as compared with 20% in 1936 and 1937, and 14% in 1935. Thirty-two per cent of these non-resident fishermen in 1938 caught no fish as compared with 30% of the residents who caught no fish. The catch per hour of non-resident and resident fishermen on non-trout waters for 1938 was 1.1 and 1.5 respectively. The catch per hour for non-resident and resident fishermen on non-trout waters for 1938 indicates a slight decrease over 1937.

By far the greatest number of non-resident anglers came from Ohio. Records were obtained from 1,662 Ohio fishermen. Illinois, Indiana, and Wisconsin followed in the order named. In all, 26 states, Alaska, and Canada were represented by the 1938 records. Table IV of the Appendix shows the residence by counties of resident anglers; by states, territories, and countries of non-resident anglers.

#### Male and

#### Female Anglers

Table XVI shows the comparisons of the male and female anglers for all waters by hatchery districts.

TABLE XVI

Comparison of female and male anglers  
for all waters by hatchery districts

District	No. of Anglers		No. of Hours Fished		No. of Legal Fish		Catch Per Hour	
	Male	Female	Male	Female	Male	Female	Male	Female
1	3,394	191	11,821.75	544.50	7,596	201	0.6	0.4
2	3,031	148	11,464.25	442.00	12,924	705	1.1	1.6
3	585	37	2,176.25	95.50	2,276	67	1.0	0.7
4	3,735	529	11,391.75	1,418.75	17,585	1,891	1.5	1.3
5	4,381	136	12,874.50	429.25	13,738	376	1.1	0.9
6	496	37	1,968.00	186.75	2,243	87	1.1	0.5
7	1,629	109	5,188.00	271.25	7,884	358	1.5	1.3
8	1,377	77	4,262.25	227.25	5,934	420	1.4	1.8
9	1,914	114	7,320.25	440.00	14,735	821	2.0	1.9
10	1,567	85	5,254.75	222.25	9,192	435	1.7	2.0
11	884	53	3,386.50	179.50	5,351	428	1.6	2.4
Total	22,993	1,516	77,193.25	4,457.00	99,148	5,789	1.3	1.3
							weighted	
							1.3	
							simple ave.	

The percentage of female anglers for all classifications of waters showed a reduction in 1938 as compared with the two previous years, being 7% in 1936, 7.5% in 1937, and 6.8% in 1938. In 1934 Eschmeyer found for the summer on Fife Lake that about 23% of the anglers were women, whereas in 1935 the percentage was 21. In the Waterloo area in southern Michigan during the summer of 1936, 16% of the anglers were women. By comparison with the data on the number of women anglers in the intensive censuses, the figures for the general census seem too low. Can it be possible that conservation officers are avoid<sup>d</sup> the ladies? The catch per hour for male and female anglers for non-trout waters was identical, being 1.4 per hour. The catch per hour for male and female anglers for trout waters was 0.9 and 0.5 respectively. For all waters, the catch per hour for both sexes was identical, being 1.3 fish per hour.

Number of Fishermen

Catching No Fish

From the general records for 1938, the chances of the angler taking fish were 3 to 1, a figure identical with the findings of Eschmeyer on Fife Lake in 1934. According to the 1938 records, 34% of the fishermen caught no legal fish on trout waters; 31% on all waters; and 30% on non-trout waters. On the lakes in the Waterloo Area in the summer of 1936, the chances of taking fish were 2 to 1. These figures obviously must vary greatly with the season and the individual lakes.

Comparison of the Fishing for the Four Year Period

1935 Through 1938.

(See page 23)

TABLE XVII

Comparison of the fishing, 1935-1936-1937-1938

	1935	1936	1937	1938
1. Catch per hour--all waters	1.5	1.4	1.5	1.3
2. Catch per hour--resident, all waters	1.6	1.4	1.5	1.3
3. Catch per hour--non-resident, all waters	1.4	1.2	1.1	1.1
4. Catch per hour--male anglers, all waters	1.5	1.4	1.5	1.3
5. Catch per hour--female anglers, all waters	1.4	1.4	1.3	1.3
6. Catch per hour--trout waters	0.8	0.8	0.8	0.9
7. Catch per hour--resident, trout waters	0.8	0.8	0.8	0.9
8. Catch per hour--non-resident, trout waters	1.1	0.5	0.6	0.7
9. Catch per hour--male anglers, trout waters	0.9	0.8	0.8	0.9
10. Catch per hour--female anglers, trout waters	0.5	0.5	0.5	0.5
11. Catch per hour--non-trout waters	1.9	1.7	1.7	1.4
12. Catch per hour--resident, non- trout waters	2.0	1.7	1.8	1.5
13. Catch per hour--non-resident, non-trout waters	1.4	1.4	1.2	1.1
14. Catch per hour--male anglers, non-trout waters	1.9	1.7	1.7	1.4
15. Catch per hour--female anglers, non-trout waters	1.7	1.6	1.4	1.4
16. Per cent of trout fishermen represented by non-residents	9	8.5	7	6
17. Per cent of non-trout fishermen, non-residents	14	20	20	17
18. Percentage of all fishermen represented by female anglers	6	7	7.5	6
19. Percentage of trout fishermen represented by female anglers	4.5	4	4	3
20. Percentage of non-trout fishermen represented by female anglers	7	8	9	7
21. Per cent of fishermen taking no fish, trout waters	...	...	...	34
22. Per cent of fishermen taking no fish, non-trout waters	...	...	...	30
23. Per cent of fishermen taking no fish, all waters	...	...	...	31
24. Average size of fish caught (inches):				
All fish	8.7	8.4	8.8	8.5
Brook trout	8.6*	8.6**	8.3**	8.7**
Rainbow trout	12.1	9.7	10.5	10.3
Brown trout	10.0	10.4	10.5	10.4
Northern Pike	21.4	19.7	20.6	20.3
Large-mouth bass	14.0	13.2	13.0	13.1
Small-mouthed bass	13.0	13.0	12.7	12.8
Bluegills	7.4	7.4	7.5	7.5
Perch	8.1	8.0	8.2	8.0

\* = Simple average; \*\* = weighted average.

Catch per Hour Comparisons

For Eleven Years

Table XVIII gives the catch per hour by years, 1928 through 1938, together with the eleven year average. This is broken down for the entire state into catch per hour for all waters; for trout waters; and for non-trout waters. From these figures it may be deduced that the 1938 season was average in all three categories.

TABLE XVIII

Comparisons of the fishing - eleven year period - 1928 through 1938

Year	Catch per Hour		
	All Waters	Trout Waters	Non-trout Waters
1928	1.09	1.17	1.05
1929	.96	1.17	0.88
1930	0.88	.93	.85
1931	.91	.97	.88
1932	1.26	1.10	1.32
1933	.97	.68	1.28
1934	1.6	.79	1.80
1935	1.5	.8	1.9
1936	1.4	.8	1.7
1937	1.5	.8	1.7
1938	1.3	.9	1.4
Eleven Year Average	1.21	.91	1.34

This brings out a point that may bear emphasis at this time. Periodically certain interested groups protest that changes in fishing regulations are necessary in order to maintain the fish yield. Some of these changes have been incorporated, such as prohibition of spearing of fish in winter on certain lakes; the change in the number of lines permitted, etc.

From the analysis as shown in Table XVIII, it may be inferred that these regulations to date at least have shown little effect, as evidenced by the per hour yield as tabulated above.

In recent years considerable controversy has grown regarding the effect of winter fishing on summer fishing. It is conceivable in some



TABLE XVIIIb

Comparison of Catch Per Hour for the Different Waters 1928-1938

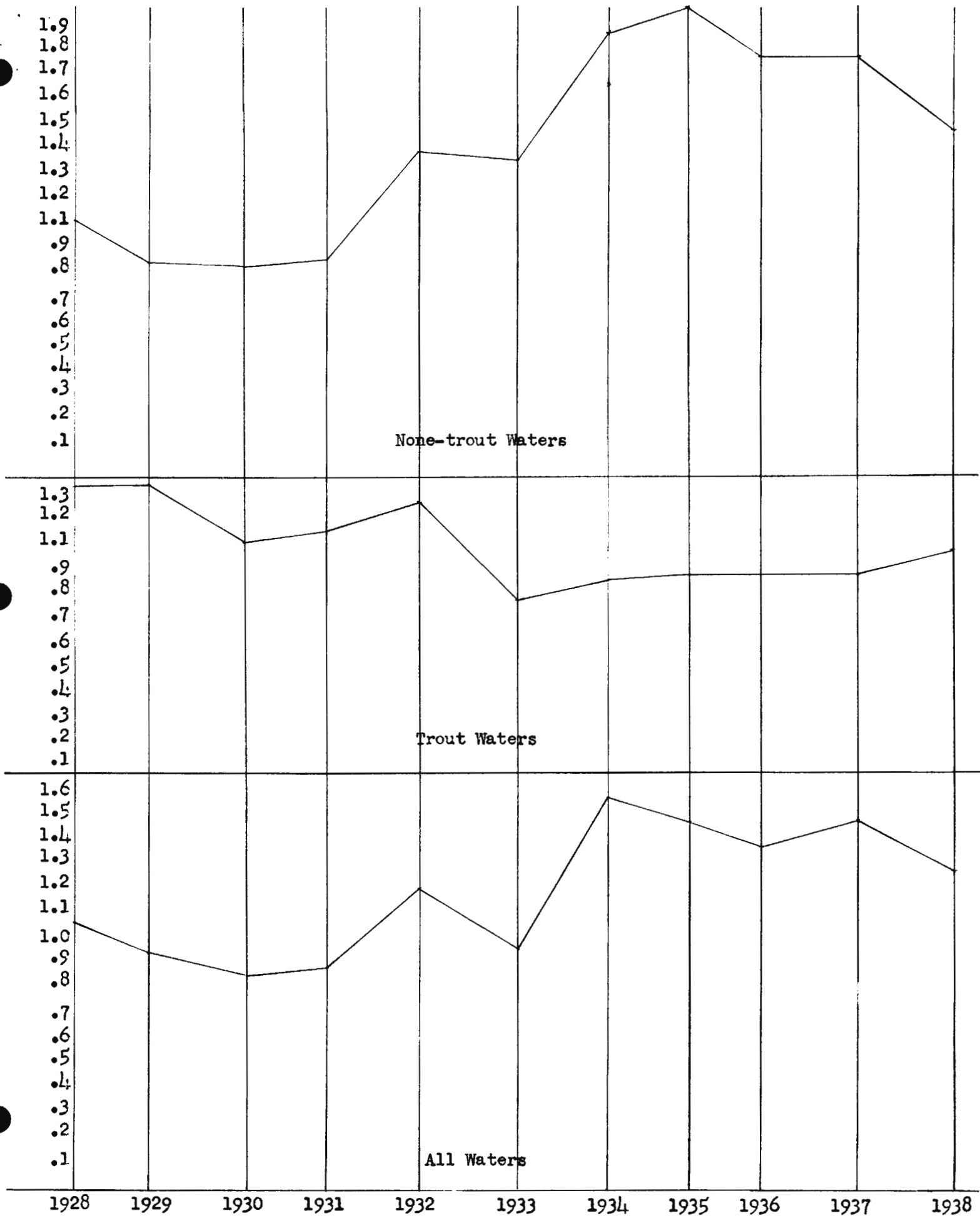
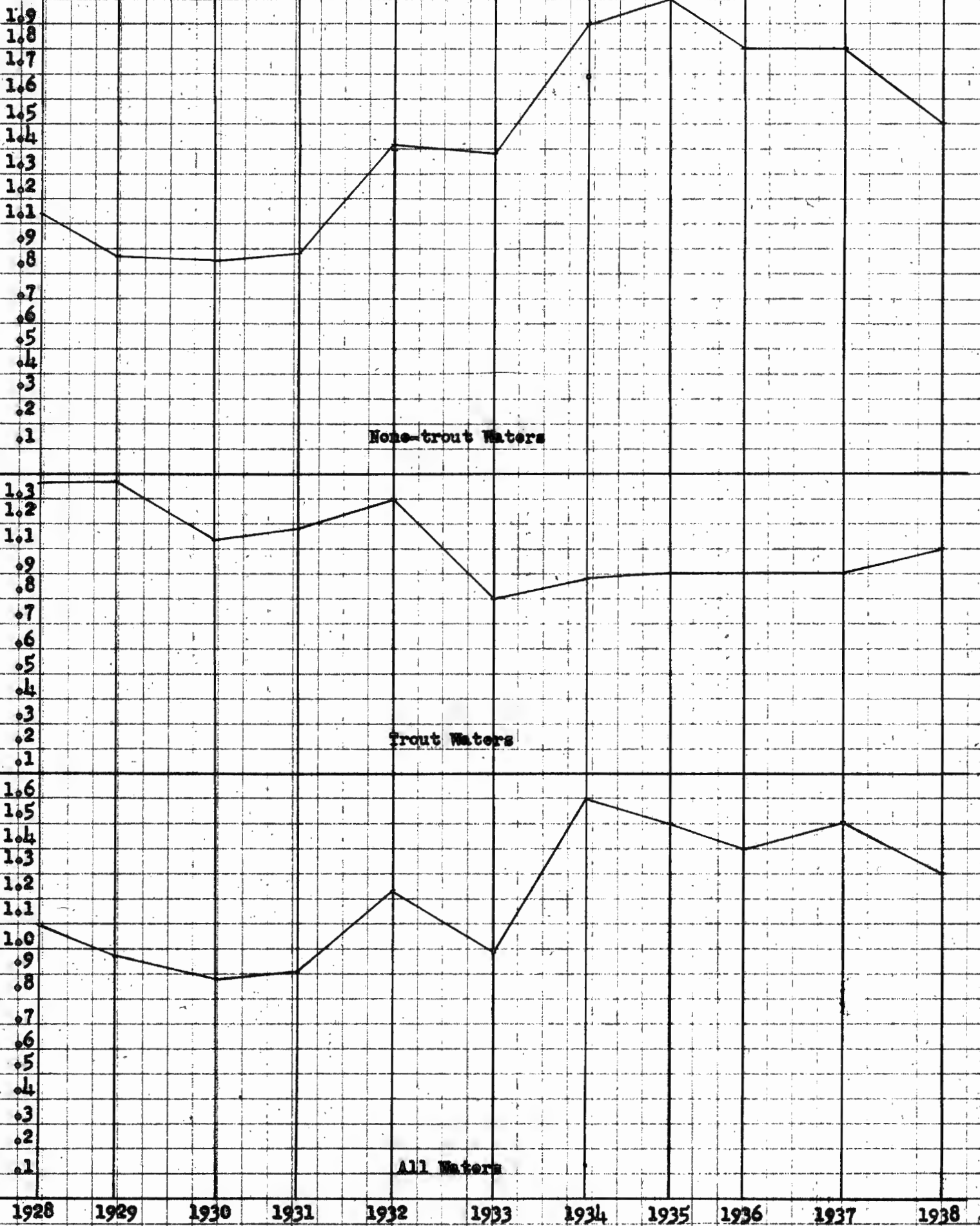


TABLE XVIIb

Comparison of Catch Per Hour for the Different Waters 1928-1938



local instances that this may be an appreciable factor in the fish yield, but for the state as a whole the general census figures would seem to indicate that ice fishing has had little if any effect on the average catch per hour, inasmuch as the general census records for 1938 closely approximated the average for the last eleven years.

INSTITUTE FOR FISHERIES RESEARCH

TABLE XIX

Counties with less than 100 reports sent in for general census

1936	1937	1938
Alcona	Alcona	Alcona
Antrim	Alger	Alpena
Barry	Allegan	Antrim
Berrien	Alpena	Arenac
Cass	Antrim	Bay
Charlevoix	Arenac	Berrien
Clare	Bay	Clinton
Clinton	Berrien	Emmet
Genesee	Calhoun	Genesee
Huron	Cass	Gladwin
Ingham	Charlevoix	Gratiot
Kalkaska	Clinton	Huron
Keweenaw	Crawford	Ingham
Lenawee	Dickinson	Isabella
Luce	Emmet	Kalamazoo
Mackinac	Genesee	Kalkaska
Kalamazoo	Gratiot	Lapeer
Bay	Huron	Mackinac
Macomb	Ingham	Macomb
Monroe	Kalamazoo	Mecosta
Oakland	Kalkaska	Midland
Ottawa	Keweenaw	Monroe
Roscommon	Lenawee	Muskegon
Saginaw	Macomb	Oakland
St. Clair	Mecosta	Ottawa
St. Joseph	Menominee	Presque Isle
Sanilac	Missaukee	Saginaw
Schoolcraft	Monroe	St. Clair
Shiawassee	Oakland	Sanilac
Tuscola	Otsego	Shiawassee
Washtenaw	Ottawa	Tuscola
	Presque Isle	Wayne
	Saginaw	
	St. Clair	
	St. Joseph	
	Sanilac	
	Shiawassee	
	Tuscola	

TABLE XX

Counties with less than 100 or no census reports sent in for the three-year period (1936-1937-1938) by Division of Field Administration Districts. (x = less than 100; ...<sup>or none</sup> = more than 100).

District No.	County	1936	1937	1938
2	Keweenaw	x	x	...
3	Alger	...	x	...
4	Dickinson	...	x	...
5	Menominee	...	x	...
6	Schoolcraft	x	...	...
6	Luce	x	...	...
7	Mackinac	x	...	x
8	Antrim	x	x	x
8	Charlevoix	x	x	...
8	Emmet	...	x	x
9	Alpena	...	x	x
9	Otsego	...	x	...
9	Presque Isle	...	x	x
10	Alcona	x	x	x
11	Kalamaska	x	x	x
11	Crawford	...	x	...
11	Missaukee	...	x	...
11	Roscommon	x	...	...
13	Muskegon	...	...	x
13	Mecosta	...	x	x
14	Clare	x	...	...
14	Gladwin	...	...	x
14	Arenac	...	x	x
14	Bay	x	x	x
14	Isabella	...	...	x
14	Midland	...	...	x
15	Ottawa	x	x	x
15	Allegan	...	x	...
15	Barry	x	...	...
15	Kalamazoo	x	x	x
15	Berrien	x	x	x
15	Cass	x	x	...
15	St. Joseph	x	x	...
16	Gratiot	...	x	x
16	Saginaw	x	x	x
16	Clinton	x	x	x
16	Shiawassee	x	x	x
16	Ingham	x	x	x
16	Calhoun	...	x	...
16	Washtenaw	x	...	...
16	Lenawee	x	x	...
17	Huron	x	x	x
17	Tuscola	x	x	x
17	Sanilac	x	x	x
17	Genesee	x	x	x
17	Lapeer	...	...	x
17	St. Clair	x	x	x
17	Macomb	x	x	x
17	Wayne	...	...	x
17	Monroe	x	x	x
17	Oakland	x	x	x

Following is an index to the Appendix which will be submitted later as opportunity for typing the tables occurs. The original tables will be kept with the Institute's copy of this report pending that time.

Index to Appendix

Map	-	Showing hatchery districts in the state.
Table I	-	Catch by species and average length of each, non-trout waters, by hatchery districts.
Table II	-	Number of each species for each county for non-trout waters.
Table III	-	Number of each species caught in each county for trout waters.
Table IV	-	Residence of all anglers.
Table V	-	Number of fishermen contacted, number taking no fish, hours fished, number of legal-sized fish caught, and catch per hour by counties -- for all waters.
Table Va	-	" " " " -- for trout waters.
Table Vb	-	" " " " -- for non-trout waters.
Table VI	-	Number of fishermen contacted, number taking no fish, hours fished, number of legal sized fish caught, and catch per hour -- for trout waters - resident.
Table VIa	-	" " " -- for " " - non-resident.
Table VIb	-	" " " -- for non-trout " - resident.
Table VIc	-	" " " -- for " " " - non-resident.

INSTITUTE FOR FISHERIES RESEARCH

REPORT NO. 575 - APPENDIX

FISH DIVISION DISTRICTS





TABLE I - APPENDIX

Catch by species and average length  
of each--non-trout waters  
by hatchery districts

Species	1		2		3		4		5		6		7		8		9		10		11		Total		
	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	No.	Ave. Size	No.	Ave. Size	No.	Ave. Size	
Largemouth Bass	333	13.4	162	14.9	2	14.0	234	13.5	102	13.0	36	13.3	311	12.3	127	13.7	574	12.4	208	12.4	217	14.4	2,306	13.1	
Smallmouth Bass	178	13.2	874	12.9	30	13.8	543	13.1	77	13.2	62	13.5	57	12.5	25	13.3	33	12.5	90	12.2	71	11.1	2,040	12.9	
Bluegills	225	7.5	506	7.1	99	6.8	2,143	7.6	3,508	7.8	114	7.3	3,098	7.6	4,465	7.4	12,933	7.5	7,647	7.4	4,663	7.7	39,401	7.5	
Sunfish	21	7.1	149	6.8	19	6.8	379	7.3	3,011	7.0	87	7.3	135	7.2	176	6.8	314	6.8	420	6.6	225	7.0	4,936	7.0	
Yellow Perch	753	9.6	5,211	8.1	777	8.6	2,998	7.9	1,294	7.4	410	8.1	2,279	7.7	376	8.2	672	7.9	310	7.2	280	8.3	15,360	8.0	
Calico Bass	37	8.4	2	8.0	61	8.6	126	7.5	898	9.4	30	10.3	60	8.8	818	7.9	229	8.1	331	8.9	48	8.9	2,640	8.6	
Rook Bass	41	7.8	313	7.5	41	8.1	2,113	7.9	2,365	7.6	19	7.6	98	7.4	27	7.8	68	7.1	55	7.1	54	7.2	5,194	7.7	
Walleyes	617	16.7	396	18.5	66	17.0	486	17.9	575	17.2	80	19.4	30	16.9	3	25.3	...	...	11	18.6	8	17.0	2,302	17.5	
Northern Pike	355	19.6	638	20.6	31	18.8	268	20.8	946	20.0	263	21.2	92	21.0	57	20.6	75	21.2	43	17.0	91	19.8	2,859	20.3	
Bullheads	10	8.4	226	9.7	3	10.0	139	10.4	393	9.1	641	9.8	2	11.0	63	10.0	73	10.5	353	8.5	35	8.9	1,938	9.5	
Suckers	36	15.5	8	15.6	2	15.0	318	13.8	3	16.0	1	16.0	13	16.0	8	16.3	...	...	86	19.4	3	13.0	478	15.1	
Carp	...	...	1	24.0	...	...	...	...	...	...	...	...	...	...	...	...	256	9.9	16	15.9	55	12.2	328	10.6	
Whitefish	...	...	...	...	41	15.1	1	24.5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	43	15.5
Brook Trout	49	11.0	23	10.9	...	...	17	7.9	40	9.8	...	...	...	...	...	...	...	...	...	...	...	...	...	129	10.2
Rainbow Trout	3	14.7	4	17.6	...	...	27	16.1	...	...	2	19.5	2	10.0	...	...	...	...	...	...	...	...	...	38	16.0
Brown Trout	...	...	...	...	...	...	3	10.3	...	...	...	...	6	13.3	...	...	...	...	...	...	...	...	...	9	12.3
Lake Trout	167	22.6	26	...	57	17.0	3	30.0	...	...	...	...	4*	36.0	...	...	...	...	...	...	...	...	...	257**	22.8
Maokinaw Trout	...	...	...	...	4	23.0	18	22.6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	22	22.6
Gar Pike	...	...	...	...	...	...	3	20.0	...	...	...	...	...	...	...	...	2	14.0	...	...	1	20.0	...	6	18.0
Dogfish	1	20.0	2	20.5	...	...	1	...	1	18.0	1	18.0	2	24.0	19	15.8	24	15.3	14	13.6	11	11.5	76	15.0	
Sheepshead	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	18.0	...	...	...	...	...	2	18.0
Redhorse	...	...	...	...	...	...	3	16.7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	16.7
Warmouth Bass	...	...	...	...	...	...	2	7.0	...	...	...	...	...	...	4	6.0	17	7.2	11	6.5	1	6.5	35	6.8	
Smelt	...	...	...	...	...	...	7,661***	8.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7,661***	8.0
Cisco	...	...	...	...	69	11.0	57	13.4	...	...	...	...	...	...	...	...	...	...	...	...	9	15.6	135	13.4	
Herring	...	...	20	8.0	...	...	1	12.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21	8.2
Pickrel	1	26.0	...	...	...	...	...	...	1	26.0	...	...	...	...	...	...	...	...	...	...	...	...	...	2	26.0
Horned Dace	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	7.5	...	...	...	...	...	1	7.5
Golden Shiner	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	8.0	...	...	...	...	...	...	...	1	8.0
White Bass	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	8	15.9	8	15.9	
Total and Ave. Size	2,857	13.8	8,561	10.1	1,302	9.6	17,544	9.0	13,214	9.1	1,746	11.5	6,189	8.2	6,169	7.9	15,272	7.8	9,597	7.7	5,780	8.3	88,231	8.8	

\* This is average size for two only.

\*\* No size given for 83 fish.

\*\*\* " " " " 3,804 fish.

TABLE II - APPENDIX  
Number of each species for each county for non-trout waters

County	LM Bass	SM Bass	Bluegills	Sunfish	Yellow Perch	Chinle Bass	Rock Bass	Halleys	Northern Pike	Bullheads	Suckers	Carp	Whitefish	Brook Trout
Alcona	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alger	2	17	29	...	11	...	6	6	56	15	...	...	...	...
Allegan	37	1	628	18	23	119	4	...	8	37	...	255	...	...
Alpena	...	11	...	16	16	...	...	...	56	610	...	...	...	...
Antrim	2	5	22	12	2	61	...	4	6	3	...	...	...	...
Arenac	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Baraga	66	53	...	...	121	7	6	16	69	9	...	...	...	1
Barry	53	28	2,479	33	65	133	6	9	4	20	...	...	...	...
Bay	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Benzie	75	30	191	109	1,095	...	473	25	27	51	20	...	1	1
Berrien	20	...	1,005	8	30	10	...	...	...	...	...	...	...	...
Branch	211	19	7,638	219	108	61	23	...	29	9	...	...	...	...
Calhoun	10	6	1,126	118	17	127	2	...	3	16	31	...	...	...
Cass	53	1	181	1	1	4	2	...	1	2	...	...	...	...
Charlevoix	...	...	...	...	73	...	...	...	4	...	...	...	10	...
Chesbogan	...	7	71	7	11	...	11	62	17	...	...	...	...	...
Chippewa	32	103	119	18	2,528	...	160	104	199	81	...	...	...	4
Clare	8	7	173	7	29	...	...	...	3	...	...	...	...	...
Clinton	15	2	11	111	31	77	...	1	8	53	...	...	...	...
Crawford	21	21	77	17	29	...	122	...	12	...	...	...	...	...
Delta	13	326	20	9	1,190	...	116	162	128	8	8	1	...	17
Dickinson	32	71	38	37	162	1	...	25	16	...	...	...	...	...
Eaton	62	19	1,161	80	22	22	31	2	19	196	10	1	...	...
Emet	...	...	...	...	38	...	...	...	...	...	2	...	1	...
Genesee	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gladwin	...	...	5	...	...	...	...	...	2	...	...	...	...	...
Gogebie	70	10	110	2	17	1	...	306	125	1	...	...	...	...
Grd. Traverse	82	11	313	18	225	...	166	19	30	12	1	...	...	...
Gratiot	...	8	300	...	...	...	...	...	2	...	...	...	...	...
Hillsdale	107	4	1,171	39	103	28	25	...	10	19	...	1	...	...
Houghton	52	...	25	...	21	...	...	13	11	...	...	...	...	...
Huron	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ingham	10	...	201	15	39	5	...	...	...	3	...	...	...	...
Ionia	1	62	...	...	30	106	2	...	11	...	4	...	...	...
Iosco	33	31	52	16	356	30	5	72	181	8	1	...	...	...
Iron	138	111	39	19	161	25	2	190	105	...	36	...	...	18
Isabella	...	1	27	...	...	...	...	...	...	...	...	...	...	...
Jackson	13	37	2,087	111	137	11	13	...	17	88	15	15	1	...
Kalamazoo	13	2	186	5	16	...	6	...	1	...	...	...	...	...
Kalamazoo	...	3	11	...	2	...	16	...	5	...	...	...	...	...
Kent	16	11	1,978	50	111	338	22	2	19	2	4	...	...	...
Keweenaw	1	...	...	...	...	...	...	2	21	...	...	...	...	...
Lake	88	7	581	9	90	...	...	...	...	...	...	...	...	...
Lapeer	138	...	113	...	11	5	5	...	10	...	...	...	...	...
Leelanau	51	229	350	9	638	...	1,022	...	60	2	...	...	...	...
Lenawee	20	8	993	63	59	8	15	...	1	18	...	...	...	...
Livingston	11	26	1,512	17	57	32	4	3	...	9	...	...	...	...
Lucas	3	38	12	...	713	...	13	62	82	56	1	...	...	...
Mackinac	...	...	...	5	12	...	...	1	1	...	...	...	...	...
Macomb	1	...	5	...	35	...	...	3	9	...	...	9	...	...
Manistee	11	217	773	35	797	7	289	327	68	59	292	...	...	16
Marquette	68	287	33	21	115	...	26	16	30	...	...	...	...	2
Mason	47	9	1,011	61	111	21	70	2	28	...	...	...	...	...
Meosota	10	1	12	...	...	...	...	1	20	...	...	...	...	...
Merominee	2	15	32	16	232	1	...	16	18	63	...	...	...	...
Midland	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Missaukee	5	6	85	115	19	119	...	1	29	11	5	...	...	...
Monroe	4	23	...	...	...	...	...	...	1	...	...	...	...	...
Montcalm	22	...	1,955	8	53	295	3	...	11	8	...	...	...	...
Montmorency	1	9	82	16	17	4	...	...	199	137	3	...	...	32
Muskegon	...	...	...	...	58	...	...	...	...	...	...	...	...	...
Newaygo	19	6	217	...	101	3	2	23	5	...	...	...	...	...
Oakland	5	...	875	19	10	...	8	2	...	1	...	...	...	...
Oceana	25	3	335	8	1,828	11	12	4	30	2	13	...	...	...
Ogemaw	11	7	676	126	220	878	33	5	102	61	...	...	...	...
Ontonagon	6	1	51	...	100	4	...	160	21	...	...	...	...	...
Oscoda	111	23	682	17	81	22	11	...	6	...	...	...	...	...
Oscoda	25	21	195	67	11	6	26	...	10	2	...	...	...	...
Otsego	...	18	3	...	...	...	...	...	4	...	...	...	...	...
Ottawa	13	1	159	4	60	2	...	...	3	...	...	...	...	...
Presque Isle	3	11	62	55	38	...	11	8	26	23	...	...	...	...
Reocoxon	21	16	2,173	2,725	987	10	2,181	570	631	190	...	...	...	8
Caginaw	...	3	...	...	...	3	...	...	1	2	39	...	...	...
St. Clair	...	...	...	...	1	...	8	...	...	...	...	...	...	...
St. Joseph	57	6	311	10	27	...	8	...	26	6	...	...	...	...
Sanilac	...	...	...	...	69	...	...	...	...	...	...	...	...	...
Schoolcraft	10	11	193	13	180	...	5	4	18	...	...	...	...	...
Shiawassee	20	...	17	10	...	...	9	...	10	...	...	...	...	...
Tuscola	...	1	3	...	2	...	...	...	25	...	...	...	...	...
Van Puren	16	...	1,210	11	61	7	...	...	...	...	...	...	...	...
Washtenaw	18	10	705	56	33	3	2	...	5	6	...	...	...	...
Wayne	...	...	...	...	...	...	...	...	...	...	7	...	...	...
Genford	10	11	120	63	232	...	117	111	19	4	...	...	...	...
Total	2,306	2,102	39,339	1,936	15,360	2,610	5,191	2,302	2,859	1,938	1,78	328	13	129



TABLE III - APPENDIX  
Number of each species caught in each county for trout waters

County	Brook Trout	Rainbow Trout	Brown Trout	LM Bass	SM Bass	Bluegills	Sunfish	Yellow Perch	Calico Bass	Rock Bass	Walleyes	Northern Pike	Bullheads	Warmouth Bass
Alcona	150	50	2	...	...	...	...	...	...	...	...	...	...	...
Alger	391	5	...	...	15	4	...	...	...	...	...	...	...	...
Allegan	27	32	13	...	...	1	...	...	...	...	...	6	...	...
Alpena	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Antrim	45	12	71	...	...	...	...	...	...	...	...	...	...	...
Arenac	104	4	5	...	5	...	...	...	...	11	...	9	...	...
Baraga	956	104	379	...	1	...	...	...	...	1	...	...	...	...
Barry	30	...	...	...	...	...	...	...	...	...	...	...	...	...
Bay	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Benzie	110	143	27	1	...	...	...	5	...	...	...	...	...	...
Berrien	14	1	10	...	...	...	...	...	...	...	...	...	...	...
Branch	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Calhoun	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cass	1	4	1	...	...	...	...	...	...	...	...	...	...	...
Charlevoix	63	...	...	...	...	...	...	...	...	...	...	...	...	...
Cheboygan	116	88	11	...	1	...	...	4	...	18	7	9	...	...
Chippewa	398	9	...	...	...	...	...	...	...	11	23	11	...	...
Clare	24	50	58	...	...	...	...	...	...	...	...	...	...	...
Clinton	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Crawford	109	46	201	...	...	...	...	...	...	...	...	...	...	...
Delta	746	3	4	3	7	...	...	...	...	9	...	...	...	...
Dickinson	605	25	5	5	37	...	...	...	...	...	...	...	...	...
Eaton	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Emmet	83	3	40	...	...	...	...	...	...	...	...	...	...	...
Genesee	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gladwin	32	4	6	...	...	...	...	...	...	...	...	...	...	...
Gogebic	441	18	3	...	...	...	...	...	...	...	...	...	...	...
Grd. Traverse	99	29	73	2	1	...	...	14	...	...	...	...	...	...
Gratiot	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hillsdale	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Houghton	740	226	4	...	...	...	...	7	...	...	...	...	...	...
Huron	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ingham	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ionia	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Iosco	146	10	...	...	...	...	...	...	...	...	...	...	...	...
Iron	898	109	4	7	206	...	...	40	12	17	15	15	...	...
Isabella	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jackson	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kalamazoo	66	27	40	...	...	...	...	...	...	...	...	...	...	...
Kalkaska	...	6	...	...	...	...	...	...	...	...	...	...	...	...
Kent	127	17	33	...	...	...	...	...	...	...	...	...	...	...
Keweenaw	223	3	...	...	...	...	...	...	...	...	...	1	...	...
Lake	372	316	409	...	...	...	...	...	...	...	...	...	...	...
Lapeer	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Leelanau	41	31	...	...	...	...	...	...	...	...	...	...	...	...
Lenawee	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Livingston	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Luce	610	3	...	...	...	...	...	10	...	...	2	4	9	...
Mackinac	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Macomb	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Manistee	842	169	8	...	...	...	...	...	...	...	1	...	...	...
Marquette	1,002	33	5	6	3	...	1	8	...	...	4	2	...	...
Mason	18	44	28	...	4	...	...	...	...	...	...	...	...	...
Mecosta	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Menominee	333	...	...	...	...	...	...	...	...	...	...	...	...	...
Midland	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Missaukee	32	...	...	...	...	...	...	...	...	...	...	...	...	...
Monroe	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Montcalm	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Montmorency	66	1	...	...	...	...	2	1	...	9	...	15	...	...
Muskegon	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Newaygo	27	3	140	...	...	...	...	...	...	...	...	1	...	...
Oakland	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Oceana	87	11	132	...	...	...	...	...	...	...	...	...	...	...
Ogemaw	58	15	10	...	...	...	...	...	...	...	...	...	...	...
Ontonagon	463	24	1	...	...	...	...	...	...	...	...	...	...	...
Osceola	193	27	84	...	...	...	...	...	...	...	...	5	...	...
Oscoda	68	17	125	...	...	...	...	2	...	36	3	35	...	...
Otsego	386	59	25	...	...	...	...	...	...	...	...	...	...	...
Ottawa	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Presque Isle	80	4	...	...	...	...	...	...	...	...	...	...	...	...
Roscommon	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Saginaw	...	...	...	...	...	...	...	...	...	...	...	...	...	...
St. Clair	...	...	...	...	...	...	...	...	...	...	...	...	...	...
St. Joseph	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sanilac	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Schoolcraft	369	...	...	1	...	...	1	...	...	...	1	...	...	...
Shiawassee	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tuscola	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Van Buren	11	7	6	...	...	...	...	...	...	...	...	...	...	1
Washtenaw	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wayne	...	...	...	...	...	...	...	...	...	2	3	...	...	...
Wexford	132	59	3	...	3	...	...	...	...	...	...	...	...	...
Total	11,934	1,851	1,968	25	283	5	4	91	12	114	60	113	9	1



TABLE IV - APPENDIX

## Residence of all anglers

Resident anglers		Non-resident anglers			
County	No.	County	No.	States	No.
Alcona	18	Manistee	702	Arkansas	4
Alger	101	Marquette	439	California	51
Allegan	149	Mason	142	Florida	7
Alpena	55	Mecosta	17	Kansas	2
Antrim	106	Menominee	147	Kentucky	37
Arenac	74	Midland	154	Illinois	685
Baraga	283	Missaukee	175	Indiana	657
Barry	367	Monroe	30	Iowa	1
Bay	138	Montcalm	309	Maine	1
Benzie	494	Montmorency	62	Maryland	3
Berrien	132	Muskegon	207	Minnesota	9
Branch	440	Newaygo	52	Missouri	27
Calhoun	465	Oakland	156	Nebraska	4
Cass	66	Oceana	220	New Jersey	4
Charlevoix	85	Ogemaw	171	New York	14
Cheboygan	66	Ontonagon	400	North Carolina	4
Chippewa	484	Osceola	176	Ohio	1,662
Clare	139	Oscoda	15	Pennsylvania	19
Clinton	69	Otsego	68	Tennessee	2
Crawford	49	Ottawa	85	Texas	7
Delta	840	Presque Isle	88	South Dakota	1
Dickinson	383	Roscommon	399	Utah	3
Eaton	329	Saginaw	368	Virginia	4
Emmet	55	St. Clair	12	Washington, D.C.	6
Genesee	765	St. Joseph	57	West Virginia	21
Gladwin	20	Sanilac	...	Wisconsin	246
Gogebic	905	Schoolcraft	145		
Grd. Traverse	427	Shiawassee	81	Alaska	5
Gratiot	129	Tuscola	22	Canada	1
Hillsdale	273	Van Buren	118		
Houghton	497	Washtenaw	170		
Huron	7	Wayne	1,540		
Ingham	1,174	Wexford	470		
Ionia	171	Total	21,022		
Iosco	106				
Iron	605				
Isabella	132				
Jackson	602				
Kalamazoo	314				
Kalkaska	5				
Kent	1,356				
Keweenaw	61				
Lake	167				
Lapeer	24				
Leelanau	227				
Lenawee	168				
Livingston	120				
Luce	130				
Mackinac	32				
Macomb	21				
				Total	3,487

TABLE V - APPENDIX

Number of fishermen contacted, number of fishermen taking no fish, hours fished, number of legal-sized fish caught, and catch per hour, by counties

County	No. of fishermen	No. taking no fish	No. of hours fished	No. of legal fish caught	Catch per hour
Alcona	26	...	71.50	202	2.8
Alger	188	10	762.75	596	0.8
Allegan	403	116	1,348.00	1,217	0.9
Alpena	72	12	309.00	712	2.3
Antrim	93	21	315.75	251	0.8
Arenac	77	31	211.25	142	0.7
Baraga	576	178	1,815.75	1,819	1.0
Barry	372	37	1,390.50	2,861	2.1
Bay	...	...	...	...	...
Benzie	1,189	414	4,046.75	8,394	2.1
Berrien	70	1	286.50	1,109	3.9
Branch	644	21	2,447.25	8,656	3.5
Calhoun	291	51	1,220.00	1,881	1.5
Cass	113	13	402.25	557	1.4
Charlevoix	118	24	387.75	899	2.3
Cheboygan	259	133	852.00	476	0.6
Chippewa	782	206	2,427.00	4,141	1.7
Clare	121	54	379.25	367	1.0
Clinton	65	12	305.50	332	1.1
Crawford	162	39	602.50	685	1.1
Delta	911	319	2,934.25	2,770	0.9
Dickinson	290	71	1,035.00	1,092	1.1
Eaton	448	194	1,578.00	1,930	1.2
Emmet	43	3	270.00	222	0.8
Genesee	2	2	4.00	...	...
Gladwin	11	...	41.00	51	1.2
Gogebic	1,168	726	4,323.25	1,232	0.3
Grd. Traverse	388	139	1,083.25	1,131	1.0
Gratiot	36	4	148.00	310	2.1
Hillsdale	418	124	1,662.50	1,820	1.1
Houghton	323	92	822.00	1,099	1.3
Huron	...	...	...	...	...
Ingham	41	8	153.00	303	2.0
Ionia	196	130	384.50	217	0.6
Iosco	267	68	1,304.50	947	0.7
Iron	821	303	2,977.75	2,487	0.8
Isabella	5	2	22.00	28	1.3
Jackson	500	115	1,135.50	2,652	2.3
Kalamazoo	86	12	356.50	367	1.0
Kalkaska	24	13	55.00	43	0.8
Kent	712	306	2,111.25	2,800	1.3
Keweenaw	100	32	341.00	258	0.8
Lake	588	218	1,720.25	1,886	1.1
Lapeer	86	...	518.25	585	1.1
Leelanau	726	213	1,846.00	2,458	1.3
Lenawee	183	31	622.50	1,205	1.9
Livingston	307	45	1,122.25	1,741	1.6
Luce	237	15	1,047.50	1,698	1.6
Mackinac	2	...	10.50	19	1.8
Macomb	8	1	62.25	62	1.0

County	No. of fishermen	No. taking no fish	No. of hours fished	No. of legal fish caught	Catch per hour
Manistee	1,110	294	3,360.25	6,010	1.8
Marquette	434	42	2,488.25	1,678	0.7
Mason	258	95	837.25	1,523	1.8
Mecosta	11	...	47.50	44	0.9
Menominee	189	67	699.00	788	1.1
Midland	...	...	...	...	...
Missaukee	195	102	724.50	457	0.6
Monroe	10	...	41.00	28	0.7
Montcalm	389	122	1,316.25	2,358	1.8
Montmorency	155	48	475.75	614	1.3
Muskegon	3	...	18.50	58	3.1
Newaygo	118	21	511.00	580	1.1
Oakland	63	...	296.00	920	3.1
Oceana	361	78	1,175.00	2,505	2.1
Ogemaw	610	166	2,059.75	2,229	1.1
Ontonagon	597	343	2,086.50	902	0.4
Osceola	276	76	767.00	1,309	1.7
Oscoda	260	78	1,085.50	718	0.7
Otsego	109	21	446.25	495	1.1
Ottawa	53	14	205.50	279	1.4
Presque Isle	91	21	258.50	327	1.3
Roscommon	3,319	932	9,039.25	9,817	1.1
Saginaw	29	15	181.25	48	0.3
St. Clair	3	...	39.00	9	0.2
St. Joseph	156	40	757.25	454	0.6
Sanilac	3	...	10.50	69	6.6
Schoolcraft	146	26	502.00	847	1.7
Shiawasee	30	...	140.00	156	1.1
Tuscola	1	...	9.00	31	3.4
Van Buren	138	12	500.00	1,376	2.8
Washtenaw	192	52	455.00	918	2.0
Wayne	20	13	65.00	7	0.1
Wexford	632	337	1,694.75	983	0.6
<b>Total</b>	<b>24,509</b>	<b>7,574</b>	<b>81,565.25</b>	<b>105,247</b>	<b>1.3</b>



TABLE Va \* APPENDIX

Number of fishermen contacted, number of fishermen taking no fish, hours fished, number of legal-sized fish caught, and catch per hour for all fishermen, trout waters by counties.

County	No. of fishermen	No. taking no fish	No. of hours fished	No. of legal fish caught	Catch per hour
Alcona	26	...	71.50	202	2.8
Alger	110	8	455.50	415	0.9
Allegan	28	1	121.50	81	0.7
Alpena	...	...	...	...	...
Antrim	33	5	92.00	128	1.4
Arenac	77	31	211.25	142	0.7
Baraga	450	149	1,369.00	1,441	1.1
Barry	4	...	17.00	30	1.8
Bay	...	...	...	...	...
Benzie	229	124	754.75	286	0.4
Berrien	2	...	13.00	25	1.9
Branch	...	...	...	...	...
Calhoun	...	...	...	...	...
Cass	3	...	5.25	6	1.1
Charlevoix	25	14	69.75	63	0.9
Cheboygan	181	106	672.75	254	0.4
Chippewa	168	52	529.50	761	1.4
Clare	52	23	189.25	132	0.7
Clinton	...	...	...	...	...
Crawford	92	19	387.25	356	0.9
Delta	307	121	1,024.50	772	0.8
Dickinson	137	20	590.00	677	1.1
Eaton	...	...	...	...	...
Emmet	15	2	91.50	126	1.4
Genesee	...	...	...	...	...
Gladwin	9	...	29.00	44	1.5
Gogebic	246	131	934.75	494	0.5
Grd. Traverse	101	31	309.00	218	0.7
Gratiot	...	...	...	...	...
Hillsdale	...	...	...	...	...
Houghton	287	85	748.50	977	1.3
Huron	...	...	...	...	...
Ingham	...	...	...	...	...
Ionia	...	...	...	...	...
Iosco	35	13	122.75	156	1.3
Iron	365	122	1,485.75	1,346	0.9
Isabella	...	...	...	...	...
Jackson	...	...	...	...	...
Kalamazoo	42	5	158.25	137	0.9
Kalkaska	4	3	13.50	6	0.4
Kent	130	78	412.25	178	0.4
Keweenaw	72	27	256.50	227	0.9
Lake	377	140	1,230.75	1,111	0.9
Lapeer	...	...	...	...	...
Leelanau	22	7	77.50	72	0.9
Lenawee	...	...	...	...	...
Livingston	...	...	...	...	...
Luce	97	4	505.50	638	1.3
Mackinac	...	...	...	...	...
Macomb	...	...	...	...	...

County	No. of fishermen	No. taking no fish	No. of hours fished	No. of legal fish caught	Catch per hour
Manistee	188	18	667.50	1,089	1.6
Marquette	229	27	967.75	1,066	1.1
Mason	35	13	98.25	94	1.0
Mecosta	...	...	...	...	...
Menominee	97	35	340.75	333	1.0
Midland	...	...	...	...	...
Missaukee	10	2	59.00	32	0.5
Monroe	...	...	...	...	...
Montcalm	...	...	...	...	...
Montmorency	26	7	99.50	94	0.9
Muskegon	...	...	...	...	...
Newaygo	42	8	200.50	171	0.9
Oakland	...	...	...	...	...
Oceana	59	12	330.50	230	0.7
Ogemaw	103	60	279.75	83	0.3
Ontonagon	152	56	515.00	488	0.9
Osceola	115	48	357.50	315	0.9
Oscoda	131	51	656.50	322	0.5
Otsego	100	21	415.25	470	1.1
Ottawa	5	2	14.50	7	0.5
Presque Isle	16	1	63.50	84	1.3
Roscommon	1	...	1.00	1	1.0
Saginaw	...	...	...	...	...
St. Clair	...	...	...	...	...
St. Joseph	...	...	...	...	...
Sanilac	...	...	...	...	...
Schoolcraft	54	3	163.00	372	2.3
Shiawassee	...	...	...	...	...
Tuscola	...	...	...	...	...
Van Buren	11	2	57.50	35	0.6
Washtenaw	...	...	...	...	...
Wayne	...	...	...	...	...
Wexford	153	78	538.50	229	0.4
<b>Total</b>	<b>5,253</b>	<b>1,765</b>	<b>18,775.00</b>	<b>17,016</b>	<b>0.9</b>

TABLE Vb - APPENDIX

Number of fishermen contacted, number of fishermen taking no fish, hours fished, number of legal-sized fish caught, and catch per hour for all fishermen, non-trout waters, by counties.

County	No. of fishermen	No. taking no fish	No. of hours fished	No. of legal fish caught	Catch per hour
Alcona	...	...	...	...	...
Alger	78	2	307.25	181	0.6
Allegan	375	115	1,226.50	1,136	0.9
Alpena	72	12	309.00	712	2.3
Antrim	60	16	223.75	123	0.5
Arenac	...	...	...	...	...
Baraga	126	29	446.75	378	0.8
Barry	368	37	1,373.50	2,831	2.1
Bay	...	...	...	...	...
Benzie	960	290	3,292.00	8,108	2.5
Berrien	68	1	273.50	1,084	4.0
Branch	644	21	2,447.25	8,656	3.5
Calhoun	291	51	1,220.00	1,881	1.5
Cass	110	13	397.00	551	1.4
Charlevoix	93	10	318.00	836	2.6
Cheboygan	78	27	179.25	222	1.2
Chippewa	614	154	1,897.50	3,380	1.8
Clare	69	31	190.00	235	1.2
Clinton	65	12	305.50	332	1.1
Crawford	70	20	215.25	329	1.5
Delta	604	198	1,909.75	1,998	1.0
Dickinson	153	51	445.00	415	0.9
Eaton	448	194	1,578.00	1,930	1.2
Emmet	28	1	178.50	96	0.5
Genesee	2	2	4.00	...	...
Gladwin	2	...	12.00	7	0.6
Gogebic	922	595	3,388.50	738	0.2
Grd. Traverse	287	108	774.25	913	1.2
Gratiot	36	4	148.00	310	2.1
Hillsdale	418	124	1,662.50	1,820	1.1
Houghton	36	7	73.50	122	1.7
Huron	...	...	...	...	...
Ingham	41	8	153.00	303	2.0
Ionia	196	130	384.50	217	0.6
Iosco	232	55	1,181.75	791	0.7
Iron	456	181	1,492.00	1,141	0.8
Isabella	5	2	22.00	28	1.3
Jackson	500	115	1,135.50	2,652	2.3
Kalamazoo	44	7	198.25	230	1.2
Kalkaska	20	10	41.50	37	0.9
Kent	582	228	1,699.00	2,622	1.5
Keweenaw	28	5	84.50	31	0.4
Lake	211	78	489.50	775	1.6
Lapeer	86	...	518.25	585	1.1
Leelanau	704	206	1,768.50	2,386	1.3
Lenawee	183	31	622.50	1,205	1.9
Livingston	307	45	1,122.25	1,741	1.6
Luce	140	11	542.00	1,060	2.0
Mackinac	2	...	10.50	19	1.8
Macomb	8	1	62.25	62	1.0

County	No. of fishermen	No. taking no fish	No. of hours fished	No. of legal fish caught	Catch per hour
Manistee	922	276	2,692.75	4,921	1.8
Marquette	205	15	1,520.50	612	0.4
Mason	223	82	739.00	1,429	1.9
Mecosta	11	...	47.50	44	0.9
Menominee	92	32	358.25	455	1.3
Midland	...	...	...	...	...
Missaukee	185	100	665.50	425	0.6
Monroe	10	...	41.00	28	0.7
Montcalm	389	122	1,316.25	2,358	1.8
Montmorency	129	41	376.25	520	1.4
Muskegon	3	...	18.50	58	3.1
Newaygo	76	13	310.50	409	1.3
Oakland	63	...	296.00	920	3.1
Oceana	302	66	844.50	2,275	2.7
Ogemaw	507	106	1,780.00	2,146	1.2
Ontonagon	445	287	1,571.50	414	0.3
Osceola	161	28	409.50	994	2.4
Oscoda	129	27	429.00	396	0.9
Otsego	9	...	31.00	25	0.8
Ottawa	48	12	191.00	272	1.4
Presque Isle	75	20	195.00	243	1.2
Roscommon	3,318	932	9,038.25	9,816	1.1
Saginaw	29	15	181.25	48	0.3
St. Clair	3	...	39.00	9	0.2
St. Joseph	156	40	757.25	454	0.6
Sanilac	3	...	10.50	69	6.6
Schoolcraft	92	23	339.00	475	1.4
Shiawassee	30	...	140.00	156	1.1
Tuscola	1	...	9.00	31	3.4
Van Buren	127	10	442.50	1,341	3.0
Washtenaw	192	52	455.00	918	2.0
Wayne	20	13	65.00	7	0.1
Wexford	479	259	1,156.25	754	0.7
<b>Total</b>	<b>19,256</b>	<b>5,809</b>	<b>62,790.25</b>	<b>88,231</b>	<b>1.4</b>

30% caught no fish

TABLE VI - APPENDIX

Number of fishermen contacted, number taking no fish, hours fished, number of legal-sized fish caught, and catch per hour, trout waters -- resident.

County	No. of fishermen	No. taking no fish	No. of hours fished	No. of legal fish caught	Catch per hour
Alcona	26	...	71.50	202	2.8
Alger	105	8	435.50	392	0.9
Allegan	27	1	116.50	80	0.7
Alpena	...	...	...	...	...
Antrim	33	5	92.00	128	1.4
Arenac	77	31	211.25	112	0.7
Baraga	415	132	1,256.50	1,369	1.1
Barry	4	...	17.00	30	1.8
Bay	...	...	...	...	...
Benzie	196	106	616.25	254	0.4
Berrien	2	...	13.00	25	1.9
Branch	...	...	...	...	...
Calhoun	...	...	...	...	...
Cass	...	...	...	...	...
Charlevoix	25	14	69.75	63	0.9
Cheboygan	144	80	576.50	225	0.4
Chippewa	156	51	492.50	714	1.4
Clare	52	23	189.25	132	0.7
Clinton	...	...	...	...	...
Crawford	88	16	382.25	355	0.9
Delta	305	120	1,021.50	770	0.8
Dickinson	132	17	584.50	675	1.2
Eaton	...	...	...	...	...
Emmet	15	2	91.50	126	1.4
Genesee	...	...	...	...	...
Gladwin	9	0	29.00	44	1.5
Gogebic	220	116	835.75	436	0.5
Grd. Traverse	100	31	307.00	216	0.7
Gratiot	...	...	...	...	...
Hillsdale	...	...	...	...	...
Houghton	282	85	728.00	927	1.3
Huron	...	...	...	...	...
Ingham	...	...	...	...	...
Ionia	...	...	...	...	...
Iosco	35	13	122.75	156	1.3
Iron	324	100	1,364.75	1,277	0.9
Isabella	...	...	...	...	...
Jackson	...	...	...	...	...
Kalamazoo	42	5	158.25	137	0.9
Kalkaska	4	3	13.50	6	0.4
Kent	130	78	412.25	178	0.4
Keweenaw	72	27	256.50	227	0.9
Lake	341	123	1,120.25	930	0.8
Lapeer	...	...	...	...	...
Leelanau	22	7	77.50	72	0.9
Lenawee	...	...	...	...	...
Livingston	...	...	...	...	...
Luce	92	4	479.50	613	1.3
Mackinac	...	...	...	...	...
Macomb	...	...	...	...	...

County	No. of fishermen	No. taking no fish	No. of hours fished	No. of legal fish caught	Catch per hour
Manistee	175	18	624.50	1,031	1.7
Marquette	220	23	940.75	1,035	1.1
Mason	33	12	92.50	93	1.0
Mecosta	...	...	...	...	...
Menominee	96	35	337.00	331	1.0
Midland	...	...	...	...	...
Missaukee	10	2	59.00	32	0.5
Monroe	...	...	...	...	...
Montcalm	...	...	...	...	...
Montmorency	26	7	99.50	94	0.9
Muskegon	...	...	...	...	...
Newaygo	42	8	200.50	171	0.9
Oakland	...	...	...	...	...
Oceana	59	12	330.50	230	0.7
Ogemaw	103	60	279.75	83	0.3
Ontonagon	133	41	468.00	480	1.0
Osceola	115	48	357.50	315	0.9
Oscoda	126	50	634.00	303	0.5
Otsego	97	18	391.25	470	1.2
Ottawa	5	2	14.50	7	0.5
Presque Isle	15	1	61.50	83	1.3
Roscommon	1	...	1.00	1	1.0
Saginaw	...	...	...	...	...
St. Clair	...	...	...	...	...
St. Joseph	...	...	...	...	...
Sanilac	...	...	...	...	...
Schoolcraft	53	3	160.00	369	2.3
Shiawassee	...	...	...	...	...
Tuscola	...	...	...	...	...
Van Buren	11	2	57.50	35	0.6
Washtenaw	...	...	...	...	...
Wayne	...	...	...	...	...
Wexford	151	78	532.50	226	0.4
<b>Total</b>	<b>4,946</b>	<b>1,618</b>	<b>17,784.00</b>	<b>16,290</b>	<b>0.9</b>

33% caught no fish

TABLE VIa - APPENDIX

Number of fishermen contacted, number taking no fish, hours fished, number of legal-sized fish caught, and catch per hour, trout waters -- non-resident.

County	No. of fishermen	No. taking no fish	No. of hours fished	No. of legal fish caught	Catch per hour
Alcona	...	...	...	...	...
Alger	5	0	20.00	23	1.2
Allegan	1	0	5.00	1	0.2
Alpena	...	...	...	...	...
Antrim	...	...	...	...	...
Arenac	...	...	...	...	...
Baraga	35	17	112.50	72	0.6
Barry	...	...	...	...	...
Bay	...	...	...	...	...
Benzie	33	18	138.50	32	0.2
Berrien	...	...	...	...	...
Branch	...	...	...	...	...
Calhoun	...	...	...	...	...
Cass	3	...	5.25	6	1.1
Charlevoix	...	...	...	...	...
Cheboygan	37	26	96.25	29	0.3
Chippewa	12	1	37.00	47	1.3
Clare	...	...	...	...	...
Clinton	...	...	...	...	...
Crawford	4	3	5.00	1	0.2
Delta	2	1	3.00	2	0.7
Dickinson	5	3	5.50	2	0.4
Eaton	...	...	...	...	...
Emmet	...	...	...	...	...
Genesee	...	...	...	...	...
Gladwin	...	...	...	...	...
Cogebic	26	15	99.00	58	0.6
Grd. Traverse	1	0	2.00	2	1.0
Gratiot	...	...	...	...	...
Hillsdale	...	...	...	...	...
Houghton	5	0	20.50	50	2.4
Huron	...	...	...	...	...
Ingham	...	...	...	...	...
Ionia	...	...	...	...	...
Iosco	...	...	...	...	...
Iron	41	22	121.00	69	0.6
Isabella	...	...	...	...	...
Jackson	...	...	...	...	...
Kalamazoo	...	...	...	...	...
Kalkaska	...	...	...	...	...
Kent	...	...	...	...	...
Keweenaw	...	...	...	...	...
Lake	36	17	110.50	181	1.6
Lapeer	...	...	...	...	...
Leelanau	...	...	...	...	...
Lenawee	...	...	...	...	...
Livingston	...	...	...	...	...
Luce	5	0	26.00	25	1.0
Mackinac	...	...	...	...	...
Macomb	...	...	...	...	...

County	No. of fishermen	No. taking no fish	No. of hours fished	No. of legal fish caught	Catch per hour
Manistee	13	0	43.00	58	1.3
Marquette	9	4	27.00	31	1.1
Mason	2	1	5.75	1	0.2
Mecosta	...	...	...	...	...
Menominee	1	...	3.75	2	0.5
Midland	...	...	...	...	...
Missaukee	...	...	...	...	...
Monroe	...	...	...	...	...
Montcalm	...	...	...	...	...
Montmorency	...	...	...	...	...
Muskegon	...	...	...	...	...
Newaygo	...	...	...	...	...
Oakland	...	...	...	...	...
Oceana	...	...	...	...	...
Ogemaw	...	...	...	...	...
Ontonagon	19	15	47.00	8	0.2
Osceola	...	...	...	...	...
Oscoda	5	1	22.50	19	0.8
Otsego	3	3	24.00	...	...
Ottawa	...	...	...	...	...
Presque Isle	1	...	2.00	1	0.5
Roscommon	...	...	...	...	...
Saginaw	...	...	...	...	...
St. Clair	...	...	...	...	...
St. Joseph	...	...	...	...	...
Sanilac	...	...	...	...	...
Schoolcraft	1	...	3.00	3	1.0
Shiawassee	...	...	...	...	...
Tuscola	...	...	...	...	...
Van Buren	...	...	...	...	...
Washtenaw	...	...	...	...	...
Wayne	...	...	...	...	...
Wexford	2	...	6.00	3	0.5
Total	307	147	991.00	726	0.7

48% caught no fish



TABEL VIb - APPENDIX

Number of fishermen contacted, number taking no fish, hours fished, number of legal-sized fish caught, and catch per hour, non-trout waters -- resident.

County	No. of fishermen	No. taking no fish	No. of hours fished	No. of legal fish caught	Catch per hour
Alcona	...	...	...	...	...
Alger	67	2	260.25	154	0.6
Allegan	342	106	1,093.50	967	0.9
Alpena	72	12	309.00	712	2.3
Antrim	60	16	223.75	123	0.5
Arenac	...	...	...	...	...
Baraga	85	28	293.50	235	0.8
Barry	361	37	1,350.00	2,781	2.1
Bay	...	...	...	...	...
Benzie	791	213	2,854.25	7,613	2.7
Berrien	67	1	271.50	1,079	4.0
Branch	501	13	1,896.25	7,245	3.8
Calhoun	286	51	1,179.00	1,840	1.5
Cass	69	13	214.00	288	1.3
Charlevoix	93	10	318.00	836	2.6
Cheboygan	39	11	101.75	152	1.5
Chippewa	516	137	1,613.00	2,813	1.7
Clare	64	28	178.00	208	1.2
Clinton	63	12	297.50	329	1.1
Crawford	66	20	200.75	305	1.5
Delta	553	193	1,680.25	1,729	1.0
Dickinson	120	38	346.75	375	1.1
Eaton	442	188	1,559.00	1,930	1.2
Emmet	28	1	178.50	96	0.5
Genesee	2	2	4.00	...	...
Gladwin	2	0	12.00	7	0.6
Gogebic	596	390	2,318.00	513	0.2
Grd. Traverse	224	85	592.25	820	1.4
Gratiot	36	4	148.00	310	2.1
Hillsdale	297	86	1,154.00	1,461	1.3
Houghton	34	7	67.50	116	1.7
Huron	...	...	...	...	...
Ingham	41	8	153.00	303	2.0
Ionia	190	125	374.00	215	0.6
Iosco	220	55	1,113.75	728	0.7
Iron	368	144	1,232.25	928	0.8
Isabella	5	2	22.00	28	1.3
Jackson	464	112	1,042.50	2,310	2.2
Kalamazoo	41	6	184.25	224	1.2
Kalkaska	13	4	25.25	36	1.4
Kent	567	225	1,655.00	2,556	1.5
Keweenaw	28	5	84.50	31	0.4
Lake	171	59	391.75	700	1.8
Lapeer	86	0	518.25	585	1.1
Leelanau	489	140	1,228.00	1,747	1.4
Lenawee	146	23	513.50	1,113	2.2
Livingston	306	45	1,118.25	1,740	1.6
Luce	107	9	373.00	768	2.1
Mackinac	1	0	7.00	14	2.0
Macomb	8	1	62.25	62	1.0

County	No. of fishermen	No. taking no fish	No. of hours fished	No. of legal fish caught	Catch per hour
Manistee	650	119	2,037.00	4,367	2.1
Marquette	173	10	1,408.00	519	0.4
Mason	136	51	506.75	1,082	2.1
Mecosta	11	...	47.50	44	0.9
Menominee	92	32	358.25	455	1.3
Midland	...	...	...	...	...
Missaukee	165	95	599.00	367	0.6
Monroe	10	...	41.00	28	0.7
Montcalm	388	121	1,313.75	2,358	1.8
Montmorency	109	32	316.00	462	1.5
Muskegon	3	...	18.50	58	3.1
Newaygo	74	13	306.50	403	1.3
Oakland	63	...	296.00	920	3.1
Oceana	290	62	822.00	2,213	2.7
Ogemaw	435	91	1,474.50	1,831	1.3
Ontonagon	432	278	1,539.00	403	0.3
Osceola	155	26	397.50	949	2.4
Oscoda	85	11	303.25	267	0.9
Otsego	9	...	31.00	25	0.3
Ottawa	45	12	182.00	248	1.4
Presque Isle	72	20	183.50	222	1.2
Roscommon	3,643	753	7,517.00	7,985	1.1
Saginaw	29	15	181.25	48	0.3
St. Clair	3	...	39.00	9	0.2
St. Joseph	41	13	152.00	224	1.5
Sanilac	3	...	10.50	69	6.6
Schoolcraft	77	18	304.00	437	1.4
Shiawassee	30	...	140.00	156	1.1
Tuscola	1	...	9.00	31	3.4
Van Buren	89	9	319.50	896	2.8
Washtenaw	179	47	421.00	878	2.1
Wayne	20	13	65.00	7	0.1
Wexford	437	238	1,058.50	660	0.6
<b>Total</b>	<b>16,076</b>	<b>4,776</b>	<b>53,230.50</b>	<b>77,801</b>	<b>1.5</b>

APPENDIX - TABLE VIc

Number of fishermen contacted, number taking no fish, hours fished, number of legal-sized fish caught, and catch per hour, non-trout waters -- non-resident

County	No. of fishermen	No. taking no fish	No. of hours fished	No. of legal fish caught	Catch per hour
Alcona	...	...	...	...	...
Alger	11	...	47.00	27	0.6
Allegan	33	9	133.00	169	1.3
Alpena	...	...	...	...	...
Antrim	...	...	...	...	...
Arenac	...	...	...	...	...
Baraga	41	1	153.25	143	0.9
Barry	7	...	23.50	50	2.1
Bay	...	...	...	...	...
Benzie	169	77	437.75	495	1.1
Berrien	1	...	2.00	5	2.5
Branch	143	8	551.00	1,411	2.6
Calhoun	5	...	21.00	41	2.0
Cass	41	...	183.00	263	1.4
Charlevoix	...	...	...	...	...
Cheboygan	39	16	77.50	70	0.9
Chippewa	98	17	284.50	567	2.0
Clare	5	3	12.00	27	2.3
Clinton	2	...	8.00	3	0.4
Crawford	4	...	14.50	24	1.7
Delta	51	5	229.50	269	1.2
Dickinson	33	13	98.25	40	0.4
Eaton	6	6	19.00	...	...
Emmet	...	...	...	...	...
Genesee	...	...	...	...	...
Gladwin	...	...	...	...	...
Gogebic	326	205	1,070.50	225	0.2
Grd. Traverse	63	23	182.00	93	0.5
Gratiot	...	...	...	...	...
Hillsdale	121	38	508.50	359	0.7
Houghton	2	0	6.00	6	1.0
Huron	...	...	...	...	...
Ingham	...	...	...	...	...
Ionia	6	5	10.50	2	0.2
Iosco	12	0	68.00	63	0.9
Iron	88	37	259.75	213	0.8
Isabella	...	...	...	...	...
Jackson	36	3	93.00	342	3.7
Kalamazoo	3	1	14.00	6	0.4
Kalkaska	7	6	16.25	1	0.1
Kent	15	3	44.00	66	1.5
Keweenaw	...	...	...	...	...
Lake	40	19	97.75	75	0.8
Lapeer	...	...	...	...	...
Leelanau	215	66	540.50	639	1.2
Lenawee	37	8	109.00	92	0.8
Livingston	1	...	4.00	1	0.25
Luce	33	2	169.00	292	1.7
Mackinac	1	...	3.50	5	1.4
Macomb	...	...	...	...	...

County	No. of fishermen	No. taking no fish	No. of hours fished	No. of legal fish caught	Catch per hour
Manistee	272	127	655.75	554	0.8
Marquette	32	5	112.50	93	0.8
Mason	87	31	232.25	347	1.5
Mecosta	...	...	...	...	...
Menominee	...	...	...	...	...
Midland	...	...	...	...	...
Missaukee	20	5	66.50	58	0.9
Monroe	...	...	...	...	...
Montcalm	1	1	2.50	...	...
Montmorency	20	9	60.25	58	1.0
Muskegon	...	...	...	...	...
Newaygo	2	...	4.00	6	1.5
Oakland	...	...	...	...	...
Oceana	12	4	22.50	57	2.5
Ogemaw	72	15	305.50	265	0.9
Ontonagon	13	9	32.50	11	0.3
Osceola	6	2	12.00	45	3.8
Oscoda	44	16	125.75	129	1.0
Otsego	...	...	...	...	...
Ottawa	3	...	9.00	24	2.7
Presque Isle	3	...	11.50	21	1.8
Roscommon	675	179	1,521.25	1,831	1.2
Saginaw	...	...	...	...	...
St. Clair	...	...	...	...	...
St. Joseph	115	27	605.25	230	0.4
Sanilac	...	...	...	...	...
Schoolcraft	15	5	35.00	38	1.1
Shiawassee	...	...	...	...	...
Tuscola	...	...	...	...	...
Van Buren	38	1	123.00	445	3.6
Washtenaw	13	5	34.00	40	1.2
Wayne	...	...	...	...	...
Wexford	42	21	97.75	94	1.0
<b>Total</b>	<b>3,180</b>	<b>1,033</b>	<b>9,559.75</b>	<b>10,430</b>	<b>1.1</b>

32% caught no fish