

INSTITUTE FOR FISHERIES RESEARCH
DIVISION OF FISHERIES
MICHIGAN DEPARTMENT OF CONSERVATION
COOPERATING WITH THE
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REPORT ON THE INTENSIVE WINTER CENSUS
ON EIGHT LAKES IN SOUTHERN MICHIGAN, 1938-39

Controversy has arisen regarding the effect of winter fishing on summer fishing. The opinion that ice fishing has direct bearing on the number of fish that may be taken in summer has been growing, and in the fall of 1938, the Institute for Fisheries Research of the Michigan Department of Conservation was instructed to investigate the problem in the so-called bluegill lakes in the southern part of the state.

Considerable data on the catch in winter and summer were already available from creel censuses conducted by the CCC on lakes further north.¹ These lakes, because of the different fishing conditions in the more northerly districts, were considered as not representative of conditions of lakes in the southern tiers of counties.

Five lakes were selected, with one exception, all within the extreme southern portion of the state. A definite effort was made, with the help of local citizens, district fishery supervisors, and conservation officers in the various districts, to select lakes which were heavily fished in both winter and summer. The lakes agreed upon were Bear Lake in Hillsdale County, on which the fishing during the previous summer and winter had already been reported;² Craig Lake in Branch County near Coldwater,

¹ Hazzard, A.S., and Eschmeyer, R.W., 1937. A comparison of summer and winter fishing in Michigan lakes. 1937. Analysis of the fish catch for one year in the Waterloo Project area.

² Hazzard, A.S., and Clark, O.E. 1939. A comparison of summer and winter fishing in a bluegill lake (Bear Lake, Hillsdale County).

because of its known heavy winter bluegill fishing; Christiana Lake in Cass County near the Indiana line, because it was known to be heavily fished; Paw Paw Lake in Berrien County, one of the larger resort lakes in the southwest area selected because of numerous complaints of heavy winter fishing; Stearns Bayou in Ottawa County, near the mouth of the Grand River, a few miles south of Grand Haven, which has a reputation for producing heavy bluegill catches.

The following men, regular or temporary employees of the Fish Division, were in charge of the census on the respective lakes:

H. L. Thompson	Paw Paw Lake
Jack Brass, Jr.	Stearns Bayou
Harold Bowditch	Christiana Lake
Ronald Myers	Craig Lake
Hugh Case	Bear Lake

Data were accumulated for the period from December 16 through the 31st of March. In addition to the five lakes listed above, a creel census was conducted by the Waterloo Project of the National Parks Service at the request of and in cooperation with the Institute for Fisheries Research on three lakes over the period January 1 to March 25 inclusive.³ On these three lakes in the Waterloo Area, Clear, Portage, and Sugarloaf lakes, data has been accumulated for two previous full year periods. These records with the findings for 1938-39 have been made the subject of a separate report.⁴ The methods used in accumulating the census data on these eight lakes follows the plan outlined by Eschmeyer and Hazzard in earlier census work in the state.

³Note: Records for the last two weeks of fishing on Sugarloaf Lake are not available.

⁴Clark, O.H., 1939. Analysis of winter fishing on three lakes of the Waterloo Area 1938-39 and Comparison with 1935-36 and 1936-37 records. Institute for Fisheries Research Report No. 535.

The data show that 11,748 fisherman-days were recorded for the eight lakes during the winter of 1938-39. These fishermen caught 65,424 fish of an average size of 7.8 inches at the rate of 1.2 fish per hour.

Considering the lakes individually, much variation is evident. Craig Lake produced the greatest total catch and the greatest catch per hour of any of the lakes censused, yielding 22,215 legal fish at the rate of 2.6 fish per hour in 2,478 fisherman-days.

Table I gives the number of fisherman-days, percentage taking no fish, total number of legal fish caught, catch per hour, average size of fish taken, and average number of hours fished per fisherman-day, for each of the eight lakes censused.

Table I
Data on Eight Lakes

	Paw Paw	Christiana	Stearns Bayou	Bear	Craig	Clear	Sugarloaf	Portage
Percentage taking no fish	44%	44%	31%	36%	15%	42%	38%	53%
Fisherman-days	2,515	1,295	3,642	202	2,478	401	627	588
Total number legal fish caught	14,444	3,537	19,047	547	22,215	1,250	3,193	1,191
Catch per hour	1.6	0.8	1.6	1.0	2.6	0.7	1.0	0.4
Average size	7.6	8.1	7.3	7.4	7.1	7.9	7.7	9.3
Average number of hours per fisherman-day	3.7	3.4	3.3	2.8	3.4	4.4	5.1	4.5

Length of Fishing Day

The average number of hours spent on the different lakes varied considerably.

On Craig Lake and Christianna Lake, the average fisherman spent 3.4 hours fishing; on Paw Paw Lake, 3.7 hours; on Bear Lake 2.8 hours; on Stearns Bayou 3.3 hours; on Sugarloaf Lake 5.1 hours; on Portage Lake 4.5 hours; and on Clear Lake 4.4 hours.

Catch per Hour

The average catch per hour for the eight lakes was 1.2.

The catch per hour varied widely on the eight lakes, ranging from 2.6 legal fish per hour on Craig Lake to 0.4 legal fish per hour on Portage Lake.

The catch per hour on Paw Paw Lake and on Stearns Bayou were identical, being 1.6.

Bear Lake and Sugarloaf lake were the same with an average catch per hour of 1.0.

Christiana Lake showed an average of 0.8, and Clear Lake a catch per hour of 0.7.

In general, it may be noted that the average size of the fish seems to vary inversely to the catch per hour; the lower the catch per hour, the larger the fish. This is indicated in Table I.

Quality of Fishing

In addition to the catch per hour as a measure of the quality of fishing, an indication on the various lakes is obtained by recording the number of fishermen taking no fish. This figure is affected to some degree by the species of fish fished for; for instance, on a lake in which pike fishing was predominant, the percentage of fishermen catching no fish probably would be much higher than on an average bluegill lake. This figure can be designated also as showing the average success ratio on these lakes.

The Portage Lake figures show that 53% of the fishermen caught no legal fish; 44% on Paw Paw Lake and Christiana Lake caught no fish;

42% on Clear Lake; 38% on Sugarloaf Lake; 36% on Bear Lake; 31% on Stearns Bayou, and 15% on Craig Lake.

From the separate report on the Waterloo Lakes, it is indicated that the relative order in the percentage of no fish taken fluctuates from year to year, and that the lake showing the greatest percentage of fishermen taking no fish for this year may be the lake showing the least percentage of fishermen taking no fish another year. For instance, on the three lakes in the Waterloo Area during the three winters on which a census was conducted, each lake in turn was the best fishing lake, and likewise each lake in turn was the lake on which fishing was the poorest.

As might be expected, the catch per hour, and the percentage catching no fish, parallel exactly. The lakes showing the greatest number of fishermen taking no fish show the lowest catch per hour, and the lakes showing the least numbers taking no fish show the highest catch per hour.

The Average Size of Fish Caught

The average size of all legal fish caught on the eight lakes was 7.8 inches.

Portage Lake, which yielded the smallest catch per hour, had the highest average size of all legal fish, 9.3 inches. Christiana Lake followed with an average of 8.1 inches; Clear Lake 7.9 inches; Sugarloaf Lake 7.7 inches; Paw Paw Lake 7.6 inches; Bear Lake 7.4 inches; Stearns Bayou 7.3 inches; and Craig Lake 7.1 inches. Craig Lake showed the greatest total of legal fish caught, as well as the highest catch per hour.

The figures seem to indicate a possible connection between productivity and average size, as has been pointed out by other fishery workers.

Catch per Hour and Average Size Compared with Previous Findings

The average catch per hour for the eight lakes was 1.2.

Eschmeyer found that on 24 lakes scattered throughout the Upper Peninsula and the more northerly sections of the Lower Peninsula on which censuses had been conducted, the catch per hour for winter fishing was 0.6.

Over a period of seven years Conservation Officer Thomas White secured records at random of 67,759 hours of fishing on Houghton Lake. This is our largest and one of our most productive lakes. These records indicated a catch per hour of 0.36.

Conservation Officer C. J. Cole obtained a number of records from six lakes in Branch County in 1935, which showed a catch of over 99% bluegills, caught at the rate of 6.1 fish per hour. This figure compares favorably with the period of best fishing for the winter of 1938-39 on Craig Lake, when the number of fish caught per hour was 5.4.

The average size of all fish caught on the eight lakes censused in 1938-39 was 7.8 inches.

Eschmeyer found on the 24 more northerly lakes the average size to be 13.3 inches.

The average size of all fish caught on Houghton Lake was 14.3.

This substantiates the findings of Hazzard and Eschmeyer that the more northerly lakes in general produce a lower catch per hour, but fish of larger size, due to the dominance of pike, walleyes and perch in the catch from these lakes.

Species

The records show that 58,360 legal bluegills were caught on the eight lakes for the winter season. Numerically black crappies were next in order with a total take of 2,490, followed by yellow perch 1,662,

warmouth bass 1,460, rock bass 634, sunfish 381, and northern pike 228.

Bluegills were dominant in the catches on all the lakes with the exception of Big Portage and Clear Lakes. Rock bass lead in the Portage Lake catch with 572 taken, black crappies second with 154, followed by bluegills 114. In Clear Lake yellow perch lead with a record of 621, followed by bluegills with a take of 390, black crappies third with 185.

In the winter of 1935-36, 90% of the total legal catch on Clear Lake was black crappies. The population changes that occurred on the three lakes of the Waterloo Area are recorded in a separate report (see footnote on page 2).

The data indicate that on the eight lakes approximately 8 bluegills were caught to 1 of all other species combined.

Table II

Total Catch of Legal Fish by Species for Each of the Eight Lakes

	Christiana	Bear	Craig	Paw Paw	Stearns Bayou	Portage	Sugarloaf	Clear	Grand Totals
Bluegills	2,979	455	20,490	14,081	17,080	114	2,771	390	58,360
Perch	80	15	232	79	249	80	306	621	1,662
Pike	3	1	...	6	45	101	53	19	228
Crappies	95	7	125	232	1,661	154	31	185	2,490
Rock bass	2	...	43	1	2	572	11	3	634
Sunfish	13	23	211	40	...	55	11	28	381
Warmouth bass	319	42	1,097	2	...	...	...	...	1,460
Bullheads	13	1	10	...	...	1	7	1	33

Baits and Their Relative Effectiveness

Over 90% of all legal fish taken on these eight southern lakes were caught on natural baits comprised of insect larvae, which include dragonfly nymphs, mayfly nymphs, beetle larvae, hellgramites, corn borers, golden rod gall grubs, caddis larvae; angleworms, and minnows. Great variation in

the preferences is evident on the different lakes. For instance, on Craig Lake approximately 15,000 out of 22,000 legal fish were taken on worms; on Paw Paw Lake approximately 13,000 out of 14,500 were taken on wood grubs. This may be due in part to the local market conditions on bait, those most readily obtainable and reasonably effective being used. Live minnows comprised but a small percentage, and where these were used most extensively an increase was noted in the catch of black crappies, pike and perch.

On Craig Lake 14,657 out of 22,215 legal fish were caught on worms; 126 taken on minnows; the balance on insect larvae.

On Christiana Lake 1,411 out of 3,537 were taken on wigglers (largely dragonfly nymphs); 656 on worms; 87 on minnows; 27 by spear; the balance by various insect larvae.

On Paw Paw Lake 1,298 out of 14,144 legal fish were taken on wood grubs; 228 on worms; 7 by spear; 77 on minnows; the balance on other insect larvae.

On Stearns Bayou 17,185 out of 19,047 legal fish were taken on worms; 1,606 on minnows; 4 by spear; the balance on insect larvae.

On Portage Lake 255 out of 1,191 legal fish were taken on minnows; 122 by spear; 9 on worms; the balance on various insects or the type of bait was not known.

On Sugarloaf Lake 233 out of 3,193 legal fish were taken on minnows; 8 on worms; 16 by spear; the balance by insect larvae.

On Clear Lake 297 out of 1,250 legal fish were taken on minnows; 13 by spear; the balance on insect larvae.

Table in appendix gives the relative effectiveness of each bait, by individual lakes.⁵

⁵ Carbine, W. F., 1939. Baits used in winter fishing.

On Bear Lake 276 out of 547 legal fish were taken on grubs; 22 on worms; 11 on minnows; the balance on miscellaneous insect larvae.

Residence of Fishermen

In general in the winter, the greater percentage of the fishing is done by local residents. On Christiana Lake the table shows a great preponderance of Indiana fishermen. It must be borne in mind that in terms of distance from the lake these fishermen may well be considered local fishermen, inasmuch as the majority come from the adjacent border area near Elkhart and South Bend, but a few miles from Christiana Lake.

On Christiana Lake, out of 1,295 fishermen, 988 were from Indiana; 212 from Cass County, the county in which the lake is located; the remaining 95 from adjacent or nearby counties.

On Craig Lake, out of 2,474 fishermen, 396 were from out state; 1,608 were from Branch County; 440 from sixteen nearby counties.

On Bear Lake, out of 202 fishermen, 13 were from Ohio, and 189 from Hillsdale County.

On Paw Paw Lake, out of 2,515 fishermen, 56 were from out state; 2,305 from Berrien County, and 154 from nearby counties.

On Stearns Bayou, out of 3,642 fishermen, 6 were from out state; 2,456 from Kent County; 1,145 from Ottawa County; 35 from nearby counties.

On the three lakes of the Waterloo area, out of 1,616 fishermen, 1,522 were from Jackson and Washtenaw Counties, and the remaining 94 from nearby counties.

Much local criticism has developed regarding the influx of out state anglers. It is apparent from the records that on certain few lakes the number of out state anglers is large, but it should be borne in mind that this concentration is limited to a relatively small number of lakes adjacent to the border. These anglers pay the additional fee required for non-residents, and the states from which they come furnish a large proportion of the summer tourist business in Michigan.

It seems more logical that some special consideration in the form of stocking or lake improvement might be given these few lakes where the concentration of out state fishing occurs than to discriminate against the non-resident fishermen by cancelling his license in winter.

* Objections are raised that the out state winter fishermen spend little money beyond the necessary license fee within the state. However, from observations made this past season, little opportunity has been afforded them to do so by providing bait, food, etc., adjacent to these lakes.

It may be better to reduce the legal limit from 25 to 15 per day in the effort to reduce the fish catch than to bar out state fishermen.

In contacting these fishermen throughout the winter, it was found that they were about as law abiding as the resident fishermen, and with but very few exceptions, fully cooperated with the Department in its effort to tally the daily catches.

Comments

The ice fisherman tends to localize his fishing to particular sections of the lake. These areas seem to gain a reputation for producing fish. In general the fishermen remains in this localized area and experiment in other portions of the lake only when the fishing is poor. These fishing explorations generally are of short duration. If no fish are caught the fisherman soon returns to the proven location.

In like manner certain entire lakes gain a reputation as good winter fishing lakes. This results in heavier concentration of fishermen on relatively few lakes as compared with the larger number fished in the summer season. No reasonable explanation is at hand to account for the many unfished lakes in the winter time.

In comparing the winter catch of fish with the summer catch, it should always be borne in mind that the ice fisherman's catch is open to plain view throughout the time he is on the lake. Because of his gregariousness these catches are concentrated within rather definite area limits. On the other hand, the casual observer in the summer time sees relatively few fish because of the much more widely scattered fishing locations. This tends to exaggerate the ice fisherman's catch and minimize that of the summer fisherman.

From the data accumulated, it is to be noted that the number of limit catches chalked up against the ice fisherman are not the usual condition, but occur only for a few periods during the winter months. During the larger proportion of the time the ice fisherman is working very hard for the fish he takes. For instance, during the week December 18-24, 1938 on Paw Paw Lake, the average ice fisherman caught 18.7 fish. This figure is indeed high, but it is the only period throughout the entire winter period censused when anything even approaching that number was taken. The average catch for the entire winter season on Paw Paw Lake was 5.7 fish per fisherman. The low point occurred the week February 5-11, 1939, when the average fisherman spent 3.7 hours catching 2.3 fish. On Craig Lake, the lake producing the greatest number of fish and the highest catch per hour of any of the eight lakes censused, the highest average number were taken during the week of March 19-25, when the average fisherman spent 3.6 hours catching 15.4 fish, but the average catch per fisherman for the entire period of the census was 9 fish. (This average catch on Craig Lake is much higher than the average on any lake on which a complete census has been conducted.) The lowest point on Craig Lake was reached the week of January 29-February 4, during which time the average fisherman spent 3.3 hours catching 5.3 fish. On Portage Lake,

the lake showing the lowest catch per hour for the winter season, the highest point was reached in the period of February 12-18, when the average fisherman fished 4.6 hours and caught 3.1 fish. The low point on Portage Lake was from March 12-25, during which time the average fisherman spent 7 hours to take half a fish. (The average size of the fish caught during this period on Portage Lake was 17.5 inches.) Tables in the appendix will give detailed data for each individual lake.

From all available information that could be obtained, it is probable that between 85 and 90% of all fishermen on the eight lakes were contacted, and their catches recorded. This means that an allowance should be made for the ten or fifteen per cent not contacted. In this report, only the recorded figures are taken into consideration.

The quality of fishing as indicated by the figures contained in this report should not be used arbitrarily to rate a given lake, inasmuch as these figures are applicable only to the particular year covered by this report.

Summary and Conclusions

The records indicate a predominance of bluegills over all other species on the lakes censused, in the ratio of 8 bluegills to 1 of all other species combined.

The most popular choice of baits for bluegills was insect larvae and angle worms. Perch and crappies preferred minnows, but relatively few fishermen on these lakes expected to catch fish other than bluegills.

Winter fishing is enjoyed primarily by local residents, local in the sense of being residents within a few miles of the particular lake or from the county in which the lake is located.

Individual variation in productivity as evidenced by the total take and catch per hour, fluctuates widely. Because of this wide fluctuation

in a given lake from year to year, it is of paramount importance that a census be conducted over a period of years on the same lakes in order that adequate comparisons can be made.

Considering the total number of lakes in the state, relatively few are subjected to appreciable winter fishing pressure, but certain lakes are heavily fished in the winter time. This is in opposition to the findings on many of the more northerly lakes. This heavy fishing pressure is, however, confined to a relatively small number of lakes. The Institute for Fisheries Research is continuing these studies by conducting summer censuses on the five lakes, and with the cooperation of the Waterloo Project, on their three lakes, as well as an additional lake, Hamlin Lake in Mason County. At the end of the summer fishing season it will be possible to make direct comparison and determine the percentage of the total annual take represented by the winter catch.

In this report, few comparisons have been drawn with the census figures on other lakes for previous years, because of their varying conditions due to location in different parts of the state, as well as the great variation in individual lakes from year to year.

Comparison between the summer and winter fishing on these eight lakes will be made at the end of the present summer fishing season of 1939.

Detailed tables for the Waterloo lakes are available in the separate report for those lakes.

INSTITUTE FOR FISHERIES RESEARCH

By O. H. Clark
Aquatic Biologist

General Data of Winter Creel Census, Bear Lake, Hillsdale County,

Winter 1938-1939

Date	No. of fishermen			No. of fishermen taking no fish		Total no. of hours fished	Total no. of legal-sized fish caught	Catch per hour	Catch per fisherman	Ave. size of all fish caught	No. of undersized fish caught	Ave. no. of hours per fisherman-day
	Male	Female	Total	No.	%							
Dec. 18-24	29	...	29	17	59	86.50	57	0.7	2.0	7.6	62	3.0
Dec. 25-31	28	...	28	13	46	62.50	40	0.6	1.4	7.1	41	2.2
Jan. 1-7	7	...	7	4	57	22.00	8	0.4	1.1	7.1	...	3.1
Jan. 8-14*	1	...	1	1	100	1.00	...	...	...	...	...	1.0
Jan. 15-21	4	...	4	4	100	6.00	...	...	...	...	1	1.5
Jan. 22-28	30	2	32	5	16	94.00	161	1.7	5.0	7.2	78	2.9
Jan. 29-Feb. 4	30	2	32	7	22	87.00	118	1.4	3.7	7.7	113	2.7
Feb. 5-11	26	...	26	8	31	78.00	43	0.6	1.7	7.2	81	3.0
Feb. 12-18	19	2	21	8	38	56.50	37	0.7	1.8	7.6	66	2.7
Feb. 19-25	9	1	10	1	10	32.00	47	1.5	4.7	7.2	68	3.2
Feb. 26-Mar. 4	8	1	9	2	22	28.00	30	1.1	3.3	7.5	20	3.1
Mar. 5-11	3	0	3	2	67	5.00	6	1.2	2.0	7.3	8	1.7
Total or average	194	8	202	72	36	558.50	547	1.0 or 0.98	2.7	7.4	538	2.8

* For one day only

Number of fishermen using each bait, and number of fish
caught by each bait, Bear Lake, Hillsdale County, winter 1938-1939

Date	Helg.		Grubs		Worms		Wood worm		Minnows		Corn borer		W. grub		Wiggler		Unknown	
	No. using fish	No. fish	No. using fish	No. fish	No. using fish	No. fish	No. using fish	No. fish	No. using fish	No. fish	No. using fish	No. fish	No. using fish	No. fish	No. using fish	No. fish	No. using fish	No. fish
Dec. 18-24	22	35	18	22	...	...	...	...	6	...	...	...	...	...	...	...	...	...
Dec. 25-31	19	26	10	12	2	2	...	...	4	...	...	...	...	...	...	...	...	...
Jan. 1-7	3	...	5	1	...	...	2	4	2	3	...	...	...	...	...	...	...	...
Jan. 8-14	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jan. 15-21	3	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jan. 22-28	3	9	24	134	6	7	...	...	...	...	4	11	...	...	...	...	...
Jan. 29-Feb. 4	6	7	16	71	3	11	...	...	...	...	1	6	8	20	1	3	...	...
Feb. 5-11	1	3	7	5	...	...	...	...	4	2	2	2	18	31	1	0	...	...
Feb. 12-18	...	...	7	8	3	2	...	...	...	...	1	5	10	20	3	2	...	...
Feb. 19-25	...	...	6	23	...	...	...	...	...	...	5	24	...	...	...	...	...	...
Feb. 26-Mar. 4	...	...	...	...	...	...	...	...	1	...	3	12	4	14	3	4	...	...
Mar. 5-11	...	...	...	...	...	...	...	...	1	6	2	...	1	...	...	...	...	...
Total	58	80	97	276	14	22	2	4	18	11	18	60	41	85	8	9	...	...

Residence of fishermen, Bear Lake, Hillsdale County, winter 1938-1939

County	Dec. 17-24	Dec. 25-31	Jan. 1-7	Jan. 8-14	Jan. 15-21	Jan. 22-28	Jan. 29 Feb. 4	Feb. 5-11	Feb. 12-18	Feb. 19-25	Feb. 26 Mar. 4	Mar. 5-11	Total
Hillsdale	27	28	7	1	4	31	32	23	16	8	9	3	189
<u>States</u>													
Ohio	2	...	...	...	...	1	...	3	5	2	...	...	13
Grand Total	29	28	7	1	4	32	32	26	21	10	9	3	202

General Data of Winter Creel Census, Christiana Lake, Cass County,

Winter, 1938-1939

Date	No. of fishermen			No. of fishermen taking no. of fish		Total no. of hours fished	Total no. of legal-sized fish caught	Catch per hour	Catch per fisherman	Ave. size of all fish caught	No. of undersized fish caught	Ave. no. of hours per fisherman-day
	Male	Female	Total	No.	%							
Dec. 17-24	183	4	187	89	48	540.00	642	1.2	3.4	7.8	353	2.9
Dec. 25-31	420	13	433	181	42	1,392.50	1,081	0.8	2.5	9.7	1,645	3.2
Jan. 1-7	127	56	183	69	38	712.50	421	0.6	2.3	7.7	1,041	3.9
Jan. 8-14	4	...	4	3	75	7.75	1	0.1	0.3	7.0	12	1.9
Jan. 15-21	4	...	4	2	50	9.00	2	0.2	0.5	7.9	9	2.3
Jan. 22-28	87	0	87	64	74	260.75	83	0.3	0.95	7.7	200	3.0
Jan. 29-Feb. 4	40	0	40	17	43	130.50	131	1.0	3.3	8.3	83	3.3
Feb. 5-11	59	1	60	20	33	210.25	161	0.8	2.7	9.3	54	3.5
Feb. 12-18	68	2	70	15	21	344.25	289	0.8	4.1	9.1	8	4.9
Feb. 19-25	46	2	48	18	38	191.75	203	1.1	4.2	9.0	18	4.0
Feb. 26-Mar. 4	145	7	152	63	41	537.25	508	0.9	3.3	8.1	125	3.5
Mar. 5-11	20	0	20	18	90	29.75	2	0.07	0.1	8.8	16	1.5
Mar. 12-18	4	0	4	4	100	3.00	...	...	...	...	...	0.75
Mar. 19-25	3	0	3	2	67	5.50	13	2.4	4.3	7.8	22	1.4
Total or Average	1,210	85	1,295	565	44	4,374.75	3,537	0.8	2.7	8.1	3,586	3.4

Number of each species (legal-sized), average size and
number of illegal fish caught, Christiana Lake, Cass County, winter 1938-1939

Date	Largemouth bass			Small-mouth bass			Bluegills			Sunfish			Yellow perch			Calico bass		
	Ave.	No.	Illegal	Ave.	No.	Illegal	Ave.	No.	Illegal	Ave.	No.	Illegal	Ave.	No.	Illegal	Ave.	No.	Illegal
	No.	Size		No.	Size		No.	Size		No.	Size		No.	Size		No.	Size	
Dec. 17-24	607	7.8	348	5	6.7	1	1	6.5	1	7	8.7	1
Dec. 25-31	972	7.7	1,643	...	...	...	...	...	1	3	7.8	1
Jan. 1-7	334	7.6	1,036	7	6.6	...	19	7.6	5	4	7.9	...
Jan. 8-14	1	7.0	11	...	...	...	...	...	1	...	...	...
Jan. 15-21	2	7.9	9	...	...	...	...	...	...	...	...	...
Jan. 22-28	34	7.7	172	...	...	...	38	7.4	28	...	...	...
Jan. 29-Feb. 4	39	7.7	77	...	...	...	2	7.4	6	3	10.2	...
Feb. 5-11	103	8.5	53	...	...	...	1	7.5	1	13	10.8	...
Feb. 12-18	1	15.5	...	...	...	...	228	8.8	6	...	...	...	1	7.25	1	35	10.8	1
Feb. 19-25	174	8.7	17	...	...	...	...	...	1	25	10.8	...
Feb. 26-Mar. 4	485	8.1	118	1	6.5	...	4	8.0	7	5	10.9	...
Mar. 5-11	13	...	...	...	1	6.5	2	...	...	1
Mar. 12-18
Mar. 19-25	1	...	...	...	...	...	...	...	...	...	13	7.8	20	...	...	...
Total or average	1	15.5	1	...	...	...	2,979	7.9	3,503	13	6.6	1	80	7.5	74	95	10.4	5

Date	Rock bass			Warmouth bass			Bullheads			Dogfish			Northern pike			Mud pike		
	Ave.	No.	Illegal	Ave.	No.	Illegal	Ave.	No.	Illegal	Ave.	No.	Illegal	Ave.	No.	Illegal	Ave.	No.	Illegal
	No.	Size		No.	Size		No.	Size		No.	Size		No.	Size		No.	Size	
Dec. 17-24	1	9.0	1	20	7.7	...	1	12.0	...	...	...	...	...	...	...	...	...	...
Dec. 25-31	96	7.6	...	9	9.3	...	1	14.0	...	...	...	...	...	...	...
Jan. 1-7	50	7.5	...	1	14.0	...	4	17.7	...	1	40.0	...	1	14.5	...
Jan. 8-14
Jan. 15-21
Jan. 22-28	10	7.8	...	...	...	...	1	14.0	...	...	...	...	...	...	...
Jan. 29-Feb. 4	76	7.4	...	1	8.0	...	9	15.9	...	1	24.0	...	...	...	...
Feb. 5-11	30	7.3	...	1	9.0	...	11	19.3	...	...	...	...	2	13.0	...
Feb. 12-18	22	7.5	...	...	...	...	2	25.0	...	...	...	...	...	...	...
Feb. 19-25	1	8.0	...	2	8.5	...	...	...	...	...	...	...	1	26.0	...	...	...	...
Feb. 26-Mar. 4	13	7.6	...	...	...	...	...	...	...	...	...	...	...	...	...
Mar. 5-11	1	11.0	...	...	...	...	...	...	...
Mar. 12-18
Mar. 19-25	1	...	...	...	...	...	...	...	...	...	...	...	...
Total or average	2	8.5	1	319	7.5	1	13	9.7	...	29	17.8	...	3	30.0	...	3	13.5	...

Number of fishermen using each bait, and number of fish caught by
each bait, Christiana Lake, Cass County, Winter 1938-1939

Date	R. worms		Wood worms		Caddis		Wiggler		Hair worm		Minnow		Spear		Art. fly		Salmon eggs	
	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish
Dec. 17-24	73	152	66	207	76	232	7	2	28	48	10	1	...	...	...	...	...	...
Dec. 25-31	118	213	102	174	144	294	148	359	35	40	9	1	...	...	...	...	...	...
Jan. 1-7	88	159	15	15	43	67	64	147	7	10	12	22	...	...	...	...	1	1
Jan. 8-14	3	1	...	...	1	0	...	...	...	...	1	0	...	...	...	...	...	...
Jan. 15-21	...	...	...	...	4	2	...	...	...	...	...	...	...	...	...	...	...	...
Jan. 22-28	38	16	15	15	38	6	23	8	10	2	22	35	2	1	...	...	...	...
Jan. 29-Feb. 4	22	72	8	1	20	28	5	18	2	0	9	2	10	10	...	...	...	...
Feb. 5-11	18	25	7	13	29	16	32	93	3	0	12	1	12	13	...	...	...	...
Feb. 12-18	14	16	13	4	26	31	54	228	...	...	12	8	7	2	...	...	...	...
Feb. 19-25	2	...	4	1	6	9	42	180	1	...	11	12	1	1	...	...	...	...
Feb. 26-Mar. 4	16	1	18	12	63	114	116	376	2	...	21	5	...	...	...	...	...	...
Mar. 5-11	1	1	1	...	11	1	14	...	...	...	2	...	...	...	1	...	...	...
Mar. 12-18	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mar. 19-25	1	...	1	13	...	...	...	...	...	...	1	...	...	...	1	...	...	...
Total	398	656	250	455	461	800	505	1,411	88	100	122	87	32	27	2	...	1	1

Residence of fishermen, Christiana Lake, Cass County, Winter 1938-1939

County	Dec. 17-24	Dec. 25-31	Jan. 1-7	Jan. 8-14	Jan. 15-21	Jan. 22-28	Jan. 29 Feb. 4	Feb. 5-11	Feb. 12-18	Feb. 19-25	Feb. 26 Mar. 4	Mar. 5-11	Mar. 12-18	Mar. 19-25	Total
Cass	21	28	26	...	1	13	15	23	29	18	30	4	2	2	212
Berrien	...	...	1	...	...	...	...	...	1	...	9	...	...	...	11
Gratiot	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Hillsdale	5	5	4	1	2	11	5	6	8	7	6	3	2	1	66
Kalamazoo	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1
Kent	...	4	...	...	...	...	...	...	...	...	...	...	...	...	4
Ingham	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1
Oakland	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1
Total	26	38	31	1	3	25	20	29	38	25	47	7	4	3	297
States															
Indiana	161	395	152	3	1	62	20	31	32	23	105	13	...	...	998
Grand Total	187	433	183	4	4	87	40	60	70	48	152	20	4	3	1,295

General Data of Winter Creel Census, Craig Lake, Branch County

Winter, 1938-1939

Date	No. of fishermen			No. of fishermen taking no fish		Total no. of hours fished	Total no. of legal-sized fish caught	Catch per hour	Catch per fisherman	Ave. size of all fish caught	No. of undersized fish caught	Ave. no. of hours per fisherman-day
	Male	Female	Total	No.	%							
Dec. 18-24	97	1	98	22	22	249.75	848	3.4	8.7	7.1	438	2.5
Dec. 25-31	214	6	220	36	16	635.25	1,692	2.7	7.7	7.1	1,188	2.9
Jan. 1-7	233	16	249	18	7	838.75	2,427	2.9	9.7	7.0	1,746	3.4
Jan. 8-14	15	...	15	3	20	61.25	144	2.4	9.6	7.0	90	4.1
Jan. 15-21	113	4	117	7	6	386.50	1,408	3.6	12.0	7.0	818	3.3
Jan. 22-28	402	23	425	54	13	1,349.25	3,810	2.8	9.0	7.0	2,020	3.2
Jan. 29-Feb. 4	234	16	250	51	20	821.25	1,334	1.6	5.3	7.1	668	3.3
Feb. 5-11	215	17	232	46	20	783.00	1,784	2.3	7.7	7.0	575	3.4
Feb. 12-18	276	21	297	53	18	1,122.00	2,193	2.0	7.4	7.0	823	3.8
Feb. 19-25	134	10	144	19	13	533.75	1,486	2.8	10.3	7.0	616	3.7
Feb. 26-Mar. 4	184	18	202	17	8	862.50	2,276	2.6	11.3	7.0	991	4.3
Mar. 5-11	61	7	68	2	3	239.00	780	3.3	11.5	7.0	295	3.5
Mar. 12-18	20	...	20	1	5	55.00	297	5.4	14.9	7.1	67	2.8
Mar. 19-25	79	3	82	11	13	296.50	1,265	4.3	15.4	7.2	231	3.6
Mar. 26-31	51	8	59	22	37	193.25	471	2.4	8.0	7.3	48	3.3
Total or average	2,328	150	2,478	362	15	8,427.00	22,215	2.6	9.0	7.1	10,614	3.4

Number of each species (legal-sized), average size and number of illegal fish caught,
Craig Lake, Branch County, Winter 1938-1939

Date	Largemouth bass			Smallmouth bass			Bluegills			Sunfish			Yellow perch			Calico bass		
	Ave. No.	No. Size Illegal		Ave. No.	No. Size Illegal		Ave. No.	No. Size Illegal		Ave. No.	No. Size Illegal		Ave. No.	No. Size Illegal		Ave. No.	No. Size Illegal	
Dec. 18-24	5	10.5	...	...	...	...	822	7.1	373	9	6.7	1	9	7.7	64	...	...	...
Dec. 25-31	1	10.5	...	...	...	...	1,617	7.0	1,116	13	7.1	4	5	7.3	68	4	8.0	...
Jan. 1-7	3	...	...	...	2,263	7.0	1,660	24	6.6	18	39	7.5	26	2	9.0	...
Jan. 8-14	132	7.0	59	6	6.5	13	4	7.4	18	...	...	...
Jan. 15-21	1,312	6.9	802	21	6.5	10	5	7.3	1	4	7.6	...
Jan. 22-28	6	...	...	...	3,357	7.0	1,915	31	6.6	20	21	7.7	47	24	8.8	5
Jan. 29-Feb. 4	3	...	...	...	1,103	7.0	561	30	6.6	58	49	7.5	40	6	9.0	...
Feb. 5-11	4	...	...	...	1,615	7.0	466	22	6.5	82	15	7.6	16	2	9.3	...
Feb. 12-18	3	...	...	...	1,968	7.0	695	35	6.6	70	29	7.5	53	62	9.1	1
Feb. 19-25	1,451	7.0	606	1	6.5	3	...	...	3	7	8.0	...
Feb. 26-Mar. 4	2,192	7.0	917	8	6.6	47	4	9.3	22	...	...	...
Mar. 5-11	1	...	...	...	737	7.0	220	5	6.5	36	8	8.2	37	2	9.8	...
Mar. 12-18	281	7.0	49	1	7.0	...	1	8.0	18	7	8.1	...
Mar. 19-25	1,177	7.0	159	4	6.9	9	39	7.2	56	5	8.0	...
Mar. 26-31	463	7.2	46	1	7.0	1	4	7.9

Total and average	6	10.5	20	20,490	7.0	9,642	211	6.6	372	232	7.5	469	125	8.8	6
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Date	Rock bass			Warmouth bass			Bullheads			Golden shiner		
	Ave. No.	No. Size Illegal		Ave. No.	No. Size Illegal		Ave. No.	No. Size Illegal		Ave. No.	No. Size Illegal	
Dec. 18-24	1	6.5	...	2	7.5	...	...	...	...	...	...	...
Dec. 25-31	...	...	...	52	7.9	...	...	...	...	...	...	...
Jan. 1-7	2	8.0	...	96	7.7	39	1	12.0	...	...	...	...
Jan. 8-14	...	...	...	2	8.0	...	...	...	...	...	...	...
Jan. 15-21	...	...	...	66	7.6	5	...	...	...	...	...	...
Jan. 22-28	7	7.9	...	366	7.5	27	4	8.1	...	...	...	...
Jan. 29-Feb. 4	4	7.3	...	140	7.6	6	2	11.5	...	...	...	...
Feb. 5-11	1	8.0	...	129	7.3	7	...	...	...	...	...	...
Feb. 12-18	3	7.3	...	96	7.2	1	...	...	...	...	...	...
Feb. 19-25	...	...	...	27	7.2	4	...	...	...	...	...	...
Feb. 26-Mar. 4	1	8.5	...	68	7.4	4	3	9.0	1	...	...	...
Mar. 5-11	4	7.5	...	24	7.6	1	...	...	...	...	...	...
Mar. 12-18	1	8.0	...	6	7.5	...	...	...	...	...	...	...
Mar. 19-25	17	8.0	...	23	7.1	6	1
Mar. 26-31	2	8.0	1	7.0	1

Total and average	43	7.8	...	1,097	7.5	100	10	9.5	1	1	7.0	2
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Number of fishermen using each bait, and number of fish caught by each bait,
Craig Lake, Branch County, Winter 1938-1939

Date	Worms		Insects		Helgrmites		Wood grub		Wigglers		Goldenrod larvae		Corn borer		Wasp larvae		Minnows		Unknown	
	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish
Dec. 18-24	42	296	70	544	...	...	...	...	...	...	...	...	...	...	...	...	5	1	1	7
Dec. 25-31	80	428	170	1,247	...	...	...	...	...	...	...	...	...	...	...	...	12	...	1	17
Jan. 1-7	149	1,287	...	...	104	866	23	228	5	46	...	...	...	...	...	...	2	...	...	...
Jan. 8-14	6	45	2	48	2	20	4	26	3	5	...	...	...	...	...	...	...	...	...	...
Jan. 15-21	83	810	2	...	44	380	18	188	1	25	1	5	...	...	...	...	2	...	...	...
Jan. 22-28	254	2,233	...	...	162	1,230	32	130	26	118	5	45	...	...	...	...	7	10	3	44
Jan. 29-Feb. 4	180	932	...	...	98	319	14	32	13	5	4	4	1	8	2	13	17	19	1	2
Feb. 5-11	162	1,379	...	...	60	220	17	114	12	8	...	...	4	61	...	...	13	2	...	...
Feb. 12-18	255	1,735	...	...	34	97	19	91	6	19	...	...	17	159	...	...	37	71	2	21
Feb. 19-25	107	1,195	...	...	19	210	5	24	12	37	...	...	2	20	...	...	...	...	...	...
Feb. 26-Mar. 4	156	1,661	...	...	16	142	9	78	27	332	...	...	5	63	...	...	4	...	...	...
Mar. 5-11	52	687	...	...	1	3	1	2	14	88	...	...	...	...	...	...	...	...	...	...
Mar. 12-18	19	274	...	...	1	23	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mar. 19-25	79	1,224	...	...	...	...	1	18	...	...	...	...	...	...	...	...	8	23	A: P. 2y	...
Mar. 26-31	59	471	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	1,683	14,657	2,444	1,839	541	3,510	143	931	119	683	10	54	29	311	2	13	107	126	10	91

Total fish: 22,215

Total fishermen: 2,888

Residence of fishermen, Craig Lake, Branch County, Winter 1938-1939

County	Dec. 18-24	Dec. 25-31	Jan. 1-7	Jan. 8-14	Jan. 15-21	Jan. 22-28	Jan.29 Feb. 4	Feb. 5-11	Feb. 12-18	Feb. 19-25	Feb.26 Mar. 4	Mar. 5-11	Mar. 12-18	Mar. 19-25	Mar. 26-31	Total
Branch	66	151	188	5	102	259	142	153	182	83	111	46	19	72	59	1,638
Calhoun	16	32	14	...	...	61	48	20	16	20	33	12	...	1	...	273
Hillsdale	...	1	14	4	7	4	8	18	33	10	10	...	...	...	...	109
Jackson	...	1	...	...	1	1	...	...	...	1	1	3	...	...	...	8
Kalamazoo	...	2	...	...	...	...	1	...	...	...	...	...	...	...	...	3
Berrien	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Kent	...	...	2	...	...	2	2	...	...	...	...	...	...	...	...	6
Ingham	...	...	...	3	...	...	...	...	5	...	1	...	...	...	...	9
Monroe	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	2
St. Joseph	...	1	2	...	1	3	...	3	...	2	...	...	...	...	...	12
Ionia	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	3
Lenawee	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1
Washtenaw	...	1	...	...	...	...	...	4	...	...	...	...	...	1	...	6
Genesee	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1
Wayne	...	...	1	...	2	...	...	...	...	...	...	...	...	1	...	4
Gladwin	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1
Van Buren	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1
Total	82	189	222	12	113	331	204	199	236	117	158	61	20	75	59	2,078
<u>States</u>																
Indiana	16	16	18	3	...	88	45	15	18	19	25	4	...	6	...	273
Illinois	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	2
Ohio	...	15	9	...	4	2	1	16	43	8	19	3	...	1	...	121
Total	16	31	27	3	4	90	46	33	61	27	44	7	...	7	...	396
Grand Total	98	220	249	15	117	421	250	232	297	144	202	68	20	82	59	2,474

General Data of Winter Creel Census, Paw Paw Lake,

Berrien County, Winter 1938-1939

Date	No. of fishermen			No. of fishermen taking no fish		Total no. of hours fished	Total no. of legal-sized fish caught	Catch per hour	Catch per fisherman	Ave. size of all fish caught	No. of undersized fish caught	Ave. no. of hours per fisherman-day
	Male	Female	Total	No.	%							
Dec. 18-24	132	...	132	7	5	493.00	2,474	5.0	18.7	8.0	5	3.7
Dec. 25-31	751	15	766	241	31	2,576.50	6,285	2.4	8.2	7.8	29	3.4
Jan. 1-7	601	6	607	347	57	2,206.00	1,816	0.8	3.0	7.4	59	3.6
Jan. 8-14	6	...	6	2	33	18.00	47	2.6	7.8	7.3	...	3.0
Jan. 15-21	107	4	111	51	46	433.25	428	1.0	3.9	7.5	3	3.9
Jan. 22-28	99	3	102	33	32	520.75	599	1.2	5.9	7.5	7	5.1
Jan. 29-Feb. 4	131	4	135	85	63	567.25	374	0.7	2.8	6.9	12	4.2
Feb. 5-11	161	3	164	103	63	599.50	382	0.6	2.3	7.1	7	3.7
Feb. 12-18	149	7	156	69	44	590.00	758	1.3	4.9	7.1	3	3.8
Feb. 19-25	99	4	103	39	38	408.50	631	1.5	6.1	7.3	3	4.0
Feb. 26-Mar. 4	130	7	137	76	55	531.50	381	0.7	2.8	7.2	4	3.9
Mar. 5-11	92	4	96	50	52	267.00	269	1.0	2.8	7.3	36	2.8
Total or Average	2,458	57	2,515	1,103	44	9,211.25	14,444	1.6	5.7	7.6	168	3.7

Number of each species (legal-sized), average size and number
of illegal fish caught Paw Paw Lake, Berrien County, winter 1938-1939

Date	Largemouth bass			Smallmouth bass			Bluegills			Sunfish			Yellow perch			Calico bass.		
	Ave. No.			Ave. No.			Ave. No.			Ave. No.			Ave. No.			Ave. No.		
	No.	Size	Illegal	No.	Size	Illegal	No.	Size	Illegal	No.	Size	Illegal	No.	Size	Illegal	No.	Size	Illegal
Dec. 18-24	2,143	8.0	5	16	8.0	...	5	8.8	...	10	10.5	...
Dec. 25-31	6,172	7.8	29	2	7.0	...	3	7.2	...	107	10.1	...
Jan. 1-7	1,724	7.3	59	6	7.8	...	17	7.2	...	68	9.4	...
Jan. 8-14	17	7.9	...	...	...	...	30	7.0	...	...	...	...
Jan. 15-21	415	7.5	3	...	...	...	10	6.7	...	1	8.0	...
Jan. 22-28	595	7.4	7	...	...	...	...	...	...	...	...	...
Jan. 29-Feb. 4	366	6.9	12	6	7.0	...	...	...	...	2	8.0	...
Feb. 5-11	357	7.0	7	...	...	...	...	...	...	24	8.2	...
Feb. 12-18	717	7.0	3	9	7.0	...	13	7.9	...	19	8.7	...
Feb. 19-25	630	7.3	3	...	...	...	...	...	...	1	8.0	...
Feb. 26-Mar. 4	381	7.2	4	...	...	...	...	...	...	...	...	...
Mar. 5-11	264	7.3	29	1	7.0	...	1	7.0	1	...	...	...
Total or average	14,081	7.6	161	40	7.5	...	79	7.3	1	232	9.5	...

Date	Pickerel			Northern pike			Sucker			Rock bass			Warmouth Bass		
	Ave. No.			Ave. No.			Ave. No.			Ave. No.			Ave. No.		
	No.	Size	Illegal	No.	Size	Illegal	No.	Size	Illegal	No.	Size	Illegal	No.	Size	Illegal
Jan. 18-24
Dec. 25-31	1	20.0	...	...	...	...	...	...	...	...	...	...	...	...	...
Jan. 1-71	32.0	...	...	...	...	...	...	...	...	...	...
Jan. 8-14
Jan. 15-21	1	30.0	...	1	18.0	...	...	...	...	...	...	...
Jan. 22-28	3	33.3	...	1	18.0	...	...	...	...	...	...	...
Jan. 29-Feb. 4
Feb. 5-11	1	30.0	...	...	...	...	...	...	...	...	...	...
Feb. 12-18
Feb. 19-25
Feb. 26-Mar. 4
Mar. 5-111	...	...	...	1	7.0	...	2	7.0	5
Total or average	1	20.0	...	6	32.0	1	2	18.0	...	1	7.0	...	2	7.0	5

Number of fishermen using each bait, and number of fish caught
by each bait, Paw Paw Lake, Berrien County, Winter 1938-1939

Date	Worms		Wood grub		Minnows		Insects		Spear		A. fly		Spinner		Plug		Comb.		Unknown		
	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	
Dec. 18-21	...	...	132	2,474	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dec. 25-31	...	...	766	6,285	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jan. 1-7	...	...	602	1,802	...	...	...	...	1	1	...	...	...	...	...	...	...	...	4	13
Jan. 8-11	...	...	4	17	2	30	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jan. 15-21	...	...	111	427	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...
Jan. 22-28	...	...	98	595	...	...	...	...	4	4	...	...	...	...	...	...	...	...	...	...
Jan. 29-Feb. 4	...	...	124	362	5	2	4	10	2	0	...	...	...	...	...	...	...	...	...	...
Feb. 5-11	...	...	55	136	15	21	82	215	11	1	...	...	...	...	...	...	...	...	1	9
Feb. 12-18	...	...	...	...	3	24	153	734	...	...	...	...	...	...	...	...	...	...	...	...
Feb. 19-25	...	...	...	...	...	...	103	631	...	...	...	...	...	...	...	...	...	...	...	...
Feb. 26-Mar. 4	23	65	...	...	2	0	112	295	...	...	...	...	...	...	...	...	...	...	7	21
Mar. 5-11	43	163	...	...	1	...	57	106	...	...	...	...	...	...	...	...	...	...	3	...
Total	66	228	1,892	12,098	28	77	511	1,991	19	7	15	43

Residence of fishermen, Paw Paw Lake, Berrien County, winter 1938-1939

Date	County	Dec. 18-24	Dec. 25-31	Jan. 1-7	Jan. 8-14	Jan. 15-21	Jan. 22-25	Jan. 29 Feb. 4	Feb. 5-11	Feb. 12-18	Feb. 19-25	Feb. 26 Mar. 4	Mar. 5-11	Total
Berrien		117	638	591	6	100	94	125	155	156	103	134	86	2,305
Cass		...	2	...	...	...	...	...	...	...	...	...	...	2
Kalamazoo		...	3	...	...	...	...	...	...	...	...	...	3	6
Muskegon		...	1	...	...	...	...	...	...	...	...	...	...	1
Van Buren		13	94	7	...	7	5	5	4	...	...	2	1	138
Jackson		1	1	2
Unknown		1	...	...	...	...	...	4	5
Total		130	738	598	6	107	100	130	159	156	103	137	95	2,459
States														
Illinois		...	3	...	...	...	...	...	...	...	...	...	...	3
Indiana		2	25	9	...	4	2	5	5	...	...	...	1	53
Grand Total		132	765	607	6	111	102	135	164	156	103	137	95	2,515

General Data of Winter Creel Census, Stearns Bayou, Ottawa County,

Winter 1938-1939

Date	No. of fishermen			No. of fishermen taking no fish		Total no. of hours fished	Total no. of legal-sized fish caught	Catch per hour	Catch per fisherman	Ave. size of all fish caught	No. of undersized fish caught	Ave. no. of hours per fisherman-day
	Male	Female	Total	No.	%							
Dec. 26-31	118	3	121	29	24	353.00	780	2.2	6.4	7.3	15	2.9
Jan. 1-7	438	13	451	127	28	1,348.50	2,513	1.9	5.6	7.6	141	3.0
Jan. 8-14	185	1	186	56	30	647.00	987	1.5	5.3	7.7	43	3.5
Jan. 15-21	430	11	441	113	26	1,777.00	2,702	1.5	6.1	7.5	345	4.0
Jan. 22-28	312	5	317	89	28	957.00	1,887	2.0	6.0	7.5	225	3.0
Jan. 29-Feb. 4	509	25	534	147	28	1,821.50	2,853	1.6	5.3	7.3	282	3.4
Feb. 5-11	462	17	479	163	34	1,606.00	2,023	1.3	4.2	7.2	252	3.4
Feb. 12-18	415	13	428	143	33	1,411.50	1,715	1.2	4.0	7.1	363	3.3
Feb. 19-25	182	16	198	85	43	561.50	606	1.1	3.1	7.1	70	2.8
Feb. 26-Mar. 4	217	8	225	81	36	821.50	1,211	1.5	5.4	7.0	378	3.7
Mar. 5-11	99	3	102	18	18	300.00	658	2.2	6.5	7.0	102	2.9
Mar. 12-18	53	5	58	2	3	263.50	623	2.4	10.7	7.0	107	4.5
Mar. 19-25	46	..	46	14	30	171.50	392	2.3	8.5	7.0	61	3.7
Mar. 26-31	53	3	56	46	82	115.50	97	0.8	1.7	7.0	13	2.1
Total or Average	3,519	123	3,642	1,113	31	12,155.00	19,047	1.6	5.2	7.3	2,397	3.3

Number of each species (legal-sized), average size and
number of illegal fish caught, Stearns Bayou, Ottawa County, winter 1938-1939

Date	Largemouth bass			Smallmouth bass			Bluegills			Sunfish			Yellow perch			Calico bass		
	Ave. No.			Ave. No.			Ave. No.			Ave. No.			Ave. No.			Ave. No.		
	No.	Size	Illegal	No.	Size	Illegal	No.	Size	Illegal	No.	Size	Illegal	No.	Size	Illegal	No.	Size	Illegal
Dec. 26-31	3	11.7	...	...	...	7	674	7.2	7	...	...	...	15	7.0	1	88	8.1	...
Jan. 1-7	1,923	7.4	120	...	...	...	5	7.7	14	576	8.2	7
Jan. 8-14	757	7.4	34	...	...	...	1	8.0	5	228	8.6	4
Jan. 15-21	2	...	...	...	2,592	7.4	325	...	...	...	20	7.8	9	88	8.5	9
Jan. 22-28	2	...	...	1	1,724	7.4	220	...	...	...	2	7.5	1	155	8.6	1
Jan. 29-Feb. 4	3	...	...	3	2,592	7.3	238	...	...	...	49	7.0	25	208	8.1	13
Feb. 5-11	3	...	...	...	1,795	7.0	222	...	...	...	60	7.0	17	156	8.7	10
Feb. 12-18	4	...	...	2	1,574	7.0	302	...	...	...	58	7.0	54	74	8.1	1
Feb. 19-25	4	...	...	1	526	7.0	60	...	...	...	30	7.9	3	45	7.1	2
Feb. 26-Mar. 4	3	...	...	5	1,159	6.9	362	...	...	...	8	7.1	7	38	7.8	1
Mar. 5-11	2	...	...	...	655	7.0	94	...	...	...	1	7.0	6	2	8.0	...
Mar. 12-18	2	...	...	...	621	7.0	102	...	...	...	...	...	2	2	6.0	1
Mar. 19-25	2	...	...	...	391	7.0	56	...	...	...	...	...	3	1	8.0	...
Mar. 26-31	97	7.0	11	...	...	...	...	...	2	...	...	...
Total or average	3	11.7	27	...	...	19	17,080	7.2	2,153	...	...	...	249	7.1	149	1,661	8.3	49

Date	Rock bass			Warmouth bass			Northern pike			Carp		
	Ave. No.			Ave. No.			Ave. No.			Ave. No.		
	No.	Size	Illegal	No.	Size	Illegal	No.	Size	Illegal	No.	Size	Illegal
Dec. 26-31
Jan. 1-7	9	25.6	...	...	...	...
Jan. 8-14	1	18.0	...	...	...	...
Jan. 15-21	2	31.0	...	...	...	...
Jan. 22-28	1	7.0	...	...	...	...	5	20.4	...	...	...	...
Jan. 29-Feb. 4	1	7.0	...	...	...	...	3	21.7	...	...	...	...
Feb. 5-11	10	23.7	...	2	...	...
Feb. 12-18	7	20.9	...	2	...	...
Feb. 19-25	2	22.0	...	3	...	...
Feb. 26-Mar. 4	6	24.3	...	...	...	...
Mar. 5-11
Mar. 12-18
Mar. 19-25
Mar. 26-31
Total or average	2	7.0	...	...	...	...	45	23.3	...	7	No size given	...

Number of anglers using each bait, and number of fish caught by each bait,
Stearns Bayou, winter 1938-1939

Date	Worms		Insects		Minnows		A. Fly		Spear and wood decay		Spear		Spear and worm		Worm and tip up		Comb.		Unknown		
	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	No. using	No. fish	
Dec. 26-31	110	707	5	12	10	61	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Jan. 1-7	361	1803	22	141	102	568	...	...	2	1	...	...	...	...	...	...	...	...	...	6	...
Jan. 8-14	154	755	5	3	36	229	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...
Jan. 15-21	402	2549	23	71	32	80	...	...	5	2	...	...	...	...	...	...	...	...	...	4	...
Jan. 22-28	280	1728	7	...	30	158	...	...	9	1	...	...	...	...	...	...	...	...	...	2	...
Jan. 29-Feb. 4	466	2648	5	7	67	196	...	...	5	2	9	0	2	0	3	0	...	...	...	6	...
Feb. 5-11	422	1846	7	8	60	166	2	...	2	3	13	0	...	...	...	...	...	...	...	...	...
Feb. 12-18	385	1644	...	...	44	69	...	...	1	1	11	1	...	...	...	...	...	...	...	...	...
Feb. 19-25	180	566	...	...	20	37	...	...	...	...	6	3	...	...	...	...	...	...	...	...	...
Feb. 26-Mar. 4	181	1169	...	...	21	42	...	...	...	...	6	...	...	...	...	...	...	...	...	22	...
Mar. 5-11	94	658	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	7	...
Mar. 12-18	55	623	1	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	...
Mar. 19-25	44	392	2	0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mar. 26-31	50	97	2	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...
Total or average	3184	17185	79	242	425	1606	2	...	24	10	45	4	2	...	3	...	...	...	...	56	...

Residence of fishermen, Stearns Bayou, winter 1938-1939

County	Dec. 26-31	Jan. 1-7	Jan. 8-14	Jan. 15-21	Jan. 22-28	Jan.29 Feb. 4	Feb. 5-11	Feb. 12-18	Feb. 19-25	Feb.26 Mar. 4	Mar. 5-11	Mar. 12-18	Mar. 19-25	Mar. 26-31	Total
Kent	54	319	154	315	196	360	319	268	136	137	68	50	40	40	2456
Muskegon	3	3	...	7	1	2	5	1	...	...	...	...	...	...	22
Ottawa	61	127	31	119	119	171	154	159	57	88	34	7	5	13	1145
Wayne	3	...	...	...	...	...	1	...	...	...	...	...	...	...	4
Antrim	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Ionia	...	...	1	...	...	...	...	...	1	...	...	...	...	...	2
Barry	...	...	...	...	1	...	...	...	...	...	...	1	1	...	3
Calhoun	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1
Montcalm	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2
Total	121	450	186	441	317	533	479	428	194	225	102	58	46	56	3,636
States															
Illinois	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Indiana	...	...	...	...	...	...	...	...	4	...	...	...	...	...	4
Wisconsin	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1
Total	...	1	...	...	...	1	...	...	4	...	...	...	...	...	6
Grand Total	121	451	186	441	317	534	479	328	198	225	102	58	46	56	3,642