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INSTITUTE FOR FISHERIES RESEARCH

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THE DISTRIBUTION OF GAME FISHES IN MICHIGAN AS SHOWN

BY THE GENERAL CREEL CENSUS, 1933 TO 1939

by

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Introduction

At the suggestion of Commissioner of Conservation Harold Titus, a general creel census of sport fishing in Michigan was started in 1927. The records for this census have been collected by the Conservation Officers as an adjunct to their regular duties. This census has been continued from year to year and since its inception it has grown from a few scattered returns in 1927 to an annual total of over 32,000 records in 1939.

Inasmuch as the individual records for 1927 to 1932 inclusive are not available, only those records for the seven years 1933-1939 inclusive are included in this report. The number of records, when compared with the number of fishing licenses sold in the state, is very small, making up only about three per cent of the total. The basis of comparison between the number of creel census records and the number of sport fishing licenses sold is not very good because the fishermen are required to buy but one license a year and are allowed to fish as often as they desire. Some of the records obtained by the officers were of the catch of the same fisherman taken on different days of the season. The numbers of licenses sold by the Department of Conservation for sport fishing,

the numbers of creel census records obtained, and the percentages of creel census records obtained in relation to the number of licenses sold are indicated in Table 1. From this table we see that the number of records of the creel census is small as compared with the number of licenses sold. However, these records are of considerable value because they are probably a random sample of the catch of the sport fishermen throughout the state.

Table 1

Year	No. of licenses	No. of Records	Per Cent
1933	351,644	7,318	2.1
1934	584,091	12,244	2.2
1935	594,190	17,895	3.0
1936	669,158	20,543	3.1
1937	768,059	19,510	2.5
1938	855,037	24,509	2.9
1939	858,362	32,432	3.9
Total or Average	4,644,541	134,451	2.9

There were more than thirty-five different kinds of fishes reported in the general creel census records. It is quite plausible that some of these different kinds of fish are more desirable to the angler than are others. Again, some of the different kinds are not represented in our data in sufficient number to warrant their use in this report. The fishes included in this report are those most generally believed to be acceptable both to the angler as well as the gourmet. They are the trout (rainbow, brown, and brook) bluegill, yellow perch, largemouth black bass, smallmouth black bass, walleye pike and northern pike.

The distribution of these seven kinds of fish throughout the state as given in this report is based solely on their abundance in the total catch as shown by the general creel census. The percentage of the total catch for each of these above-mentioned species has been calculated for each county in the state. The state has also been divided arbitrarily into three regions: the Upper Peninsula, the Lower Peninsula north of Townline 20, and the Lower Peninsula south of

Townline 20. The reason for the selection of Townline 20 as the dividing line between the northern and southern parts of the Lower Peninsula is that nearly all of the designated trout and pike lakes of the Michigan Fish Law Digest for 1941 are north of Townline 20.

The distribution of fishes as stated in this report does not show the intensity of angling in any or all of the counties of the state nor does it pretend to show the true ecological distribution of the fishes in the state. It does give, however, an accurate picture of the percentages of these various fishes present in the fishermen's catches. The fact that only seven kinds of fish are discussed in this report does not preclude the occurrence of other fish in any or all counties of the state.

The Trout

In The Michigan Fish Law Digest for 1941, it states that there are designated trout lakes in twelve of the fifteen counties of the Upper Peninsula, and also in ten of the twenty-one counties north of Townline 20 in the Lower Peninsula. In addition to this abundance of trout lakes there are suitable trout streams in each of the thirty-six counties north of Townline 20. From these statements one might properly infer that, in general, the best trout fishing in Michigan is to be found north of Townline 20.

Table 2 indicates that 42.0 per cent of the total catch of fish by hook and line in the Upper Peninsula was trout, and that these fish made up 13.1 per cent of the total catch in the Lower Peninsula north of Townline 20. South of Townline 20 the trout made up only 6.7 per cent of the total catch for the seven years of the census. Figure 1 shows the distribution of trout as percentage of the total catch for each of the counties in the state. In the Upper Peninsula there were three counties in which the trout made up more than 60 per cent of the total catch, four counties in which from 30 to 60 per cent was trout, four counties in

which the trout made up from 20 to 30 per cent, and only one county in which the catch of trout was between 10 and 20 per cent of the total catch. From these data we know that in all of the counties of the Upper Peninsula the trout made up at least 10 per cent of the total catch as shown by the general census. We do not mean that the trout are the most abundant fish in the Upper Peninsula, but rather that they are the most highly sought after fish in this region by the sport fisherman.

In the Lower Peninsula north of Townline 20, the trout made up more than 60 per cent of the total catch in three counties, between 30 and 60 per cent in three counties, between 20 and 30 percent in three counties, from 10 to 20 per cent in four counties, and less than 10 per cent in eight counties. Trout have been reported in the catch in the general creel census from all of the counties of this region within the seven-year period. Table 2 indicates that there are less than two-thirds as many trout and more than twice the number of total fish reported from this region as there are reported from the Upper Peninsula.

In the Lower Peninsula south of Townline 20, we found that the trout did not make up more than 60 percent of the total catch in any of the counties. However, they did make up from 30 to 60 percent of the total catch in two counties, from 10 to 20 per cent in five counties, less than 10 per cent in twenty-eight counties, and were not reported in the general creel census in the seven-year period from twelve counties. Although the actual number of trout reported in the catch of the region south of Townline 20 is greater than the number reported in the catch north of Townline 20, the relative abundance in the total catch is much smaller in the southern region due primarily to the large catches of bluegills in the southern part of the state.

For the entire state the trout were the third most abundant fish as reported in the general census for the seven-year period and made up 13.2 per cent of the total catch. (Figure 8).

Table 2

GENERAL CREEL CENSUS DATA OF THE SPORT FISHING IN MICHIGAN INDICATING THE PERCENTAGE
OF THE TOTAL CATCH OF SEVEN SPECIES OF GAME FISH 1933-1939

Region	Total No. of Fish	Trout (Brook, Brown and Rainbow)		Largemouth Black Bass		Smallmouth Black Bass		Bluegill	
		No.	%	No.	%	No.	%	No.	%
Upper Peninsula	84,446	35,452	42.0	2,376	2.8	4,432	5.3	3,077	3.6
Lower Peninsula North of T. 20	181,776	23,804	13.1	2,177	1.2	4,433	2.4	27,384	15.1
Lower Peninsula South of T. 20	372,331	25,030	6.7	11,640	3.1	3,743	1.0	208,736	56.0
TOTAL OR AVERAGE	638,553	84,286	13.2	16,193	2.5	12,608	2.0	239,197	37.5
		Yellow Perch		Walleye Pike		Northern Pike		Total or Average	
		No.	%	No.	%	No.	%	No.	%
Upper Peninsula		20,598	24.4	4,809	5.7	4,569	5.4	75,313	89.2
Lower Peninsula North of T. 20		41,510	22.8	5,525	3.0	11,412	6.3	116,245	64.0
Lower Peninsula South of T. 20		52,007	14.0	4,104	1.1	4,306	1.2	309,566	83.1
TOTAL OR AVERAGE		114,115	17.9	14,438	2.3	20,287	3.2	501,124	78.5

The Bluegill

The bluegill is caught in greater numbers by hook and line than any other fish in the inland waters of Michigan. The records of the general census from 1933-1939 show that the bluegill made up more than one-third of the total catch (37.5 per cent) for the entire state (Figure 8). The bluegill is one of the "warm water" fishes and occurs in greatest abundance in the Lower Peninsula south of Townline 20 (Figure 2). In this region it made up more than 60 per cent of the total catch in twenty counties, from 30 to 60 percent in fourteen counties, from 20 to 30 per cent in one county, from 10 to 20 per cent in three counties, and less than 10 per cent in five counties. In the general census since 1933, the bluegill has not been reported from four counties in this region. The reason for this "absence" of bluegills in the reports from these counties is due to the fact that only a few records were received from these counties, and the results do not give a true picture of the fishing. A paucity of good fishing water in some of these counties, notably Bay County, is another reason for the small number of creel census records.

North of Townline 20 in the Lower Peninsula the bluegill was not so abundant in the catch as in the lower tiers of counties. In this region the bluegill did not make up 60 per cent of the total catch in any county. However, it did make up from 30 to 60 per cent of the total catch in one county, from 20 to 30 per cent in three counties, from 10 to 20 per cent in seven counties, and less than 10 per cent in nine counties. There was only one county in this region from which the bluegill was not reported in the census.

In the Upper Peninsula, the bluegill did not make up more than 20 per cent of the total catch in any county. It made up from 10 to 20 per cent of the total catch in two counties, less than 10 per cent in twelve counties, and was not reported in the catch of the anglers in Keweenaw County.

For the three regions of the state, as shown in Table 2, bluegills made up 56.0 per cent of the total catch in the region south of Townline 20 in the Lower Peninsula, 15.1 per cent of the total catch in the region north of Townline 20 in the Lower Peninsula, and only 3.6 per cent of the total catch in the Upper Peninsula. From these data we might infer that the best bluegill fishing is in the southern part of the state where the good "bluegill lakes" are so abundant.

Yellow Perch

The distribution of the yellow perch according to the creel census is not so well defined as in the case of the trout and the bluegill. Yellow perch have been reported from every county in the state in the general creel census*. In general, there is a heavier catch of perch in those counties of the state bordering the Great Lakes. However, Table 2 indicates that there are larger percentages of perch in the catches of the Upper Peninsula and in the region north of Townline 20 in the Lower Peninsula than in the southern region of the state. On the distribution map (Figure 3) perch made up more than 60 per cent of the total catch in one county, from 30 to 60 per cent of the total catch in four counties, from 20 to 30 per cent in two counties, from 10 to 20 per cent in three counties, and less than 10 per cent in five counties in the Upper Peninsula.

In the Lower Peninsula north of Townline 20, the yellow perch made up more than 60 per cent of the total catch in one county, from 30 to 60 per cent of the total catch in four counties, from 20 to 30 per cent in three counties, from 10 to 20 per cent in five counties, and less than 10 per cent in eight counties. South of Townline 20, the yellow perch made up more than 60 per cent of the total catch in three counties, from 30 to 60 per cent in four counties, from 20 to 30 per cent in three counties, from 10 to 20 per cent in nine counties, and less than 10 per cent in twenty-seven counties.

* No general creel census reports have been received from Bay County since 1933.

The distribution map of the yellow perch for the state does not give a true picture of the distribution of the yellow perch for several reasons. The relatively large catches of perch in Charlevoix, Chippewa, Huron, Macomb, and Sanilac Counties were probably due largely to the perch fishing in the tributary streams of the Great Lakes in these counties. Table 2 indicates that there are more perch taken in the southern part of the state than in the northern part, but the percentage of perch in the total catch decreases from north to south due to the increasing abundance of bluegills taken by the anglers. The general creel census records show that the yellow perch is the second most abundant fish in the total catch in the entire state and made up 17.9 per cent of the total catch for the seven-year period 1933-1939 (Figure 8).

The three kinds of fish considered thus far in this report made up more than two-thirds of the total catch (68.6 per cent) for the entire state from 1933 to 1939. The other four kinds to be considered, namely, the northern pike, walleye pike, largemouth black bass, and smallmouth black bass, taken in aggregate, made up one-tenth of the total catch (10.0 per cent) for the entire state for the same period of time. For this reason these fishes have been figured on the bases of more than 20 per cent of the total catch, from 10 to 20 per cent, from 5 to 10 per cent, from 2.5 to 5 per cent, and less than 2.5 per cent of the total catch.

Northern Pike

The Michigan Fish Law Digest for 1941 states that there are designated pike lakes in all of the counties of the Upper Peninsula, in all counties north of Townline 20 in the Lower Peninsula, with the exception of Leelanau County, and that there are designated pike lakes in only four of the forty-seven counties south of Townline 20.

The northern pike made up 3.2 per cent of the total catch for the entire state as shown by the general creel census reports for the seven-year period 1933

to 1939 (Fig. 8). In the Upper Peninsula this fish made up from 10 to 20 per cent of the total catch in one county, from 5 to 10 per cent in seven counties, from 2.5 to 5 per cent in six counties, and less than 2.5 per cent in one county. Fig. 4 indicates the distribution of the northern pike in the state as shown by the general creel census. Table 2 shows that the northern pike made up 5.4 per cent of the total catch in the Upper Peninsula, 6.3 per cent in the Lower Peninsula north of Townline 20, and only 1.2 per cent of the total catch in the Lower Peninsula south of Townline 20.

In the Lower Peninsula north of Townline 20 the northern pike made up from 10 to 20 per cent of the total catch in four counties, from 5 to 10 per cent in five counties, from 2.5 to 5 per cent in four counties and less than 2.5 per cent in eight counties. South of Townline 20 the northern pike did not make up more than 10 per cent of the total catch in any county. It did make up from 5 to 10 per cent of the total catch in one county, from 2.5 to 5 per cent in ten counties, less than 2.5 per cent in thirty-four counties, and has not been reported in the general creel census since 1933 from Bay and Saginaw counties.

Walleye Pike

In the Upper Peninsula the walleye pike made up more than 20 per cent of the total catch in Ontonagon County, from 10 to 20 per cent in Gogebic County, from 5 to 10 per cent in three counties, from 2.5 to 5 per cent in four counties, and less than 2.5 per cent in six counties.

In the Lower Peninsula north of Townline 20, the "walleye" did not make up more than 10 per cent of the total catch in any county, but made up from 5 to 10 per cent of the total catch in four counties, from 2.5 to 5 per cent in one county, and less than 2.5 per cent in fourteen counties. The walleye pike was not reported in the general census records from Otsego and Crawford Counties since 1933.

South of Townline 20 the walleye pike made up more than 20 per cent of the total catch in St. Clair County, from 5 to 10 per cent in Muskegon County, from 2.5 to 5 per cent in Newaygo and Mecosta Counties, less than 2.5 per cent in twenty-eight counties, and was not reported in the general creel census since 1933 from fifteen counties.

The distribution of the walleye pike is shown in Figure 5. This distribution of the "walleye" is fairly accurate. The great abundance of this fish in the catch of the St. Clair County is due to the excellence of the walleye pike fishing in the St. Clair River. These waters are considered by many to be the best walleye pike waters in this part of the country. The high percentage of walleye pike in the catch of Ontonagon and Gogebic Counties is due to the large catches of this fish in Gogebic Lake and some of the smaller pike lakes in this region. The walleye pike make up 2.3 per cent of the total catch for the entire state (Figure 3) for the seven-year period.

Largemouth Black Bass

The largemouth black bass was more abundant in the catch in the southern part of the state than in the northern part. Figure 6 indicates that south of Townline 20 the largemouth black bass made up from 10 to 20 per cent of the total catch in one county, from 5 to 10 per cent in nine counties, from 2.5 to 5 per cent in seventeen counties, and less than 2.5 per cent in sixteen counties. The "largemouth" was not reported in the general creel census from four counties in this region. North of Townline 20 in the Lower Peninsula, the "largemouth" made up from 5 to 10 per cent of the total catch in two counties, from 2.5 to 5 per cent in two counties, and less than 2.5 per cent in seventeen counties. In the Upper Peninsula the largemouth black bass made up from 5 to 10 per cent of the total catch in three counties, from 2.5 to 5 per cent in three counties, and less than 2.5 per cent in nine counties.

Table 2 indicates that in the Lower Peninsula south of Townline 20 the largemouth black bass made up 3.1 per cent of the total catch. North of Townline 20 in the Lower Peninsula it made up only 1.2 per cent, and in the Upper Peninsula the "largemouth" made up 2.8 per cent of the total catch. This greater abundance of the largemouth black bass in the Upper Peninsula over the northern part of the Lower Peninsula is due to the relatively heavy catches of this species in Gogebic, Iron, and Dickinson counties, where there is an abundance of good bass water.

The largemouth black bass made up 2.5 per cent of the total catch for the entire state (Figure 8) in the general creel census for the seven-year period.

Smallmouth Black Bass

The smallmouth black bass, in contrast to the largemouth black bass, is more abundant in the northern part of the state. (Figure 7). In the Upper Peninsula the "smallmouth" made up from 10 to 20 per cent of the total catch in Iron County, from 5 to 10 per cent in five counties, from 2.5 to 5 per cent in four counties, and less than 2.5 per cent in five counties. In the entire Upper Peninsula, as shown in Table 2, the smallmouth black bass made up 5.3 per cent of the total catch.

In the Lower Peninsula north of Townline 20 the "smallmouth" made up from 5 to 10 per cent of the total catch in two counties, from 2.5 to 5 per cent in seven counties, and less than 2.5 per cent in twelve counties. In this region the smallmouth black bass made up 2.4 per cent of the total catch. In the Lower Peninsula south of Townline 20 the "smallmouth" made up from 10 to 20 per cent of the total catch in Huron county, from 5 to 10 per cent in Gratiot County, from 2.5 to 5 per cent in six counties, less than 2.5 per cent in thirty-eight counties, and was not reported from Bay County. South of Townline 20 the smallmouth black bass made up only 1.0 per cent of the total catch for the seven-year period.

The smallmouth black bass made up 2.0 per cent of the total catch for the entire state from 1933 to 1940 as shown by the general census (Figure 8).

Discussion

This distribution of some of the game fishes of Michigan as shown by the data collected in the general creel census is based on the records of at least 1,000 fish for each county in the state, with the exception of the following: Macomb - 839 fish; St. Clair - 810 fish; Sanilac - 507 fish; and Saginaw - 100 fish. As previously mentioned in this report, there have been no general creel census records received from Bay County since 1933.

Of the different kinds of fish mentioned in this report, there were 52 yellow perch and 3 smallmouth black bass reported in the creel census records from Saginaw County. The other 45 were miscellaneous fish, as the rock bass, bullheads, suckers, etc. This is evidently not a true picture of the abundance of different species in the waters of Saginaw County, and such data are too meagre for statistical analysis.

Similarly, in Sanilac County, of the 507 fish reported, 494 were perch, 7 were smallmouth black bass, and 6 were northern pike. Certainly there are other fish than these caught from the waters of Sanilac County, but the creel census records do not show them.

In St. Clair County from which we have records of 810 fish, we have each of the seven fish used in this report with the exception of the trout. The walleye pike are in much greater abundance proportionally than the inland waters of the county warrant. This excessive percentage of the total catch is due to the large catches of this kind of fish from the St. Clair River. The condition in Macomb County is similar to that of St. Clair County, where the large numbers of yellow perch taken from Lake St. Clair give a distorted picture of the distribution of fishes for the inland waters.

The high percentage yield of trout from Cheboygan, Otsego, and Crawford Counties is probably due to the relative abundance of good trout streams in this area. The Sturgeon, Pigeon, and Indian Rivers in Cheboygan County are good trout streams and are readily accessible, whereas Burt, Mullet and Douglas Lakes are not highly productive. In Otsego County there are the headwaters of the Sturgeon, Pigeon, and North Branch of the Au Sable Rivers, and in Crawford County the North, Middle and South Branches of the Au Sable together with the upper reaches of the Manistee furnish an abundance of good trout water. In comparison with this abundance of good trout water, the lakes in this region are not as highly productive

as in other parts of the state. There are many trout caught in Manistee, Wexford, Kalkaska, Mason and Lake Counties, but the large catches of bluegills and perch, due to the greater relative abundance of lake fishing in these counties, offset this high trout catch and lower the percentages of trout in the total catch.

In the Upper Peninsula the abundance of good trout water in those counties showing more than 60 per cent of the total catch as trout do not have such strenuous competition with the yellow perch, smallmouth black bass and pike as do the other counties of this region.

The distribution map of the bluegill (Figure 2) is one of the most accurate of the maps. Bay, Saginaw, Huron and Sanilac Counties do have bluegills taken on hook and line but the good inland fishing water in these counties is not abundant.

As has been previously stated, the high percentages of perch in the total catch of those counties bordering the Great Lakes is due to the large catches of perch by waterfront fishermen. This is especially true in Chippewa, Huron, Sanilac, Macomb, and Charlevoix Counties. The yellow perch fishing in the Great Lakes and their connecting waters is generally accepted as being the best in the state. Also the perch runs in the spring of the year up the streams entering Lake Huron provide good fishing in these counties.

The bluegill and yellow perch together made up more than half of the total catch (55.4 per cent) for the entire state during the seven-year period. The remaining five kinds of fish considered in this paper made up about one-fourth (23.2 per cent) and all the other fish reported in the general creel census made up the other one-fourth (21.4 per cent) of the total catch. The seven kinds of fish considered in this report made up more than three-fourths of the total catch (78.6 per cent) as shown by the reports of the general creel census from 1933 to 1940.

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FIGURE 7

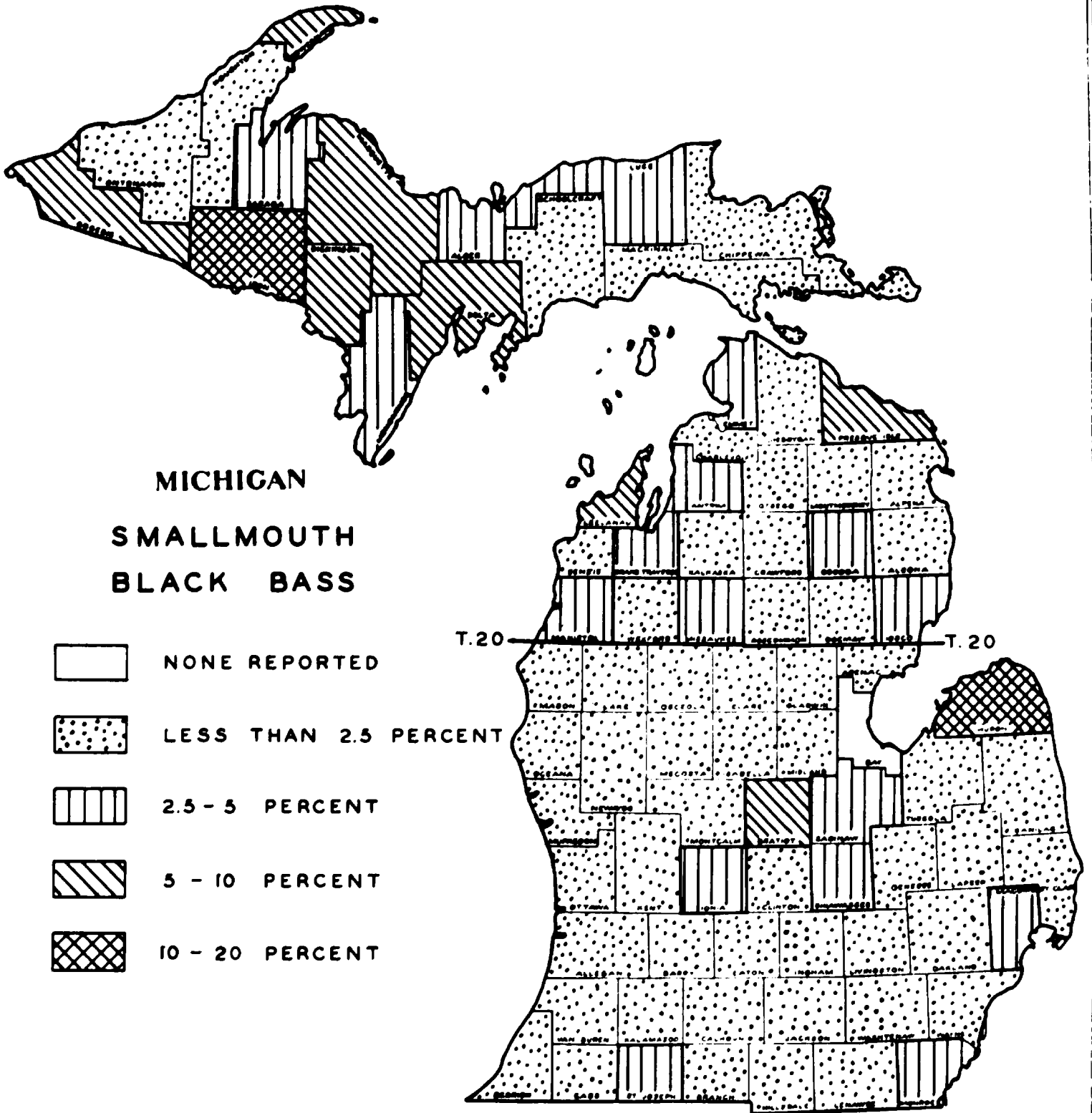


FIGURE 8. PERCENTAGE OF THE TOTAL CATCH FOR SEVEN SPECIES OF GAME FISH

GENERAL CREEL CENSUS DATA 1933 - 1940

