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A QUESTIONNAIRE CENSUS OF STURGEON SPEARING, JANUARY-FEBRUARY, 1956,
ON BLACK, BURT AND MULLETT LAKES, CHEBOYGAN COUNTY

By

Henry J. Vondett

At one time the lake sturgeon, Acipenser fulvescens, was plentiful in many Michigan waters, but over-exploitation by commercial netting before 1900 reduced its numbers to a critical low. An act of the Michigan legislature in 1928 prohibited the taking of this fish in any manner. In 1948, after a 20-year rest period, it was believed that the population had increased to the extent where with strict regulations the spearing of sturgeon by sport fishermen could be permitted. Thereupon, the legislature passed a law allowing an annual two-month (January and February) spearing season and permitting each fisherman two sturgeon of at least 36 inches in length per season. The minimum legal length was increased in 1952 to 42 inches.

Although sturgeon are present in Lake St. Clair and the Great Lakes, the species is sought by Michigan fishermen mainly in Black Lake, Cheboygan and Presque Isle counties, and Burt and Mullett lakes, Cheboygan County. These are among Michigan's largest inland lakes. They are connected to Lake Huron by the Cheboygan River, but because of locks in the river at Cheboygan movement of fish to and from Lake Huron is restricted. The three lakes appear to provide suitable habitat for sturgeon, but the size of the populations and the success of reproduction are virtually unknown.

Compared to most other fresh-water species, very little is known about the sturgeon. For this reason a survey was initiated during the 1956 spearing season to determine the number and predominant size of sturgeon harvested each season and something about the fishing pressure to which the species is subjected. Although the 1956 census did not include information concerning age and growth of the sturgeon, a census conducted during 1957 is especially designed to obtain data on these two important items. Unfortunately, the limited investigation does not show what percentage of the sturgeon population is being harvested each year.

The use of a questionnaire (Fig. 1) in conducting a census, in lieu of permanent or part-time creel-census clerks, appears to have considerable merit. Certainly, where the lack of funds precludes other methods, the questionnaire-type census is highly desirable, for the costs involved are limited principally to travel expense and postage.

Although the survey is not intensive, it lays a foundation for future work and will serve as an index for comparative evaluations of the sturgeon fishery in forthcoming years. It is expected that some bias is present in information collected in a questionnaire-type census. However, if in later years a census is conducted in a similar manner, a repetition of this same bias would occur but still allow comparison of results. If at some future time changes in the regulations seem to be needed, the present data will be helpful in drafting policies to govern this fishery.

Methods

An aerial count in January, 1956, revealed 473 shanties on Black, Burt, and Mullett lakes (Table 1). The sturgeon grounds are well defined in each of the three lakes (Fig. 2). The total number of shanties concentrated in these areas during February, 1956, was found (by direct count on the ice) to

Figure 1.--Questionnaire used for census
of sturgeon spearing on Black,
Burt, and Mullett lakes, 1956.

Michigan Department of Conservation
Institute for Fisheries Research

Dear Shanty owner:

Your Conservation Department desires information about winter sturgeon spearing on Black, Burt and Mullett lakes, Cheboygan County. I would appreciate it if you would fill out and return this questionnaire (in the envelope provided) whether or not you speared a sturgeon this winter.

As nearly as possible, how many days did you spend spearing for sturgeon this winter on Black Lake? _____ Burt Lake? _____ Mullett Lake? _____

How many hours did you spend spearing each trip, on the average? _____

How many sturgeon did you spear in Black Lake? _____ (Lengths _____; Weights _____); in Burt Lake? _____ (Lengths _____; Weights _____); in Mullett Lake? _____ (Lengths _____; Weights _____). Please indicate which of these fish were males and which were females.

How many legal-size sturgeon did you see but did not spear? _____

Did you see any sturgeon under legal size? _____ How large? _____

How many times did you rent or lend your shanty (or shanties) for sturgeon spearing? _____ (Example: 2 shanties rented 15 times each equals 30 rentals).

How many sturgeon were speared by other people using your shanty (or shanties)? _____ How large were these fish? _____

How many years have you speared for sturgeon? _____

Is sturgeon spearing better or worse now than when you began? _____

Additional comments: _____

Thank you very much.

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Table 1.--Total number of ice fishing shanties, number of shanties on sturgeon-spearing grounds, and number of questionnaires sent to fishermen and number returned, Black, Burt, and Mullett lakes, 1956.

Lake	Total number of shanties (aerial count)	<u>Shanties on sturgeon-spearing grounds</u>				<u>Questionnaires</u>	
		Self-owned	Rental	Ownership undetermined	Total	Sent	Returned
Black	153	51	13	6	70	51	35
Burt	129	17	11	1	29	17	17
Mullett	191	38	17	2	57	38	22
Total	473	106	41	9	156	106	74

Figure 2.--Sturgeon-spearing grounds on
Black, Burt, and Mullett lakes,
January-February, 1956.

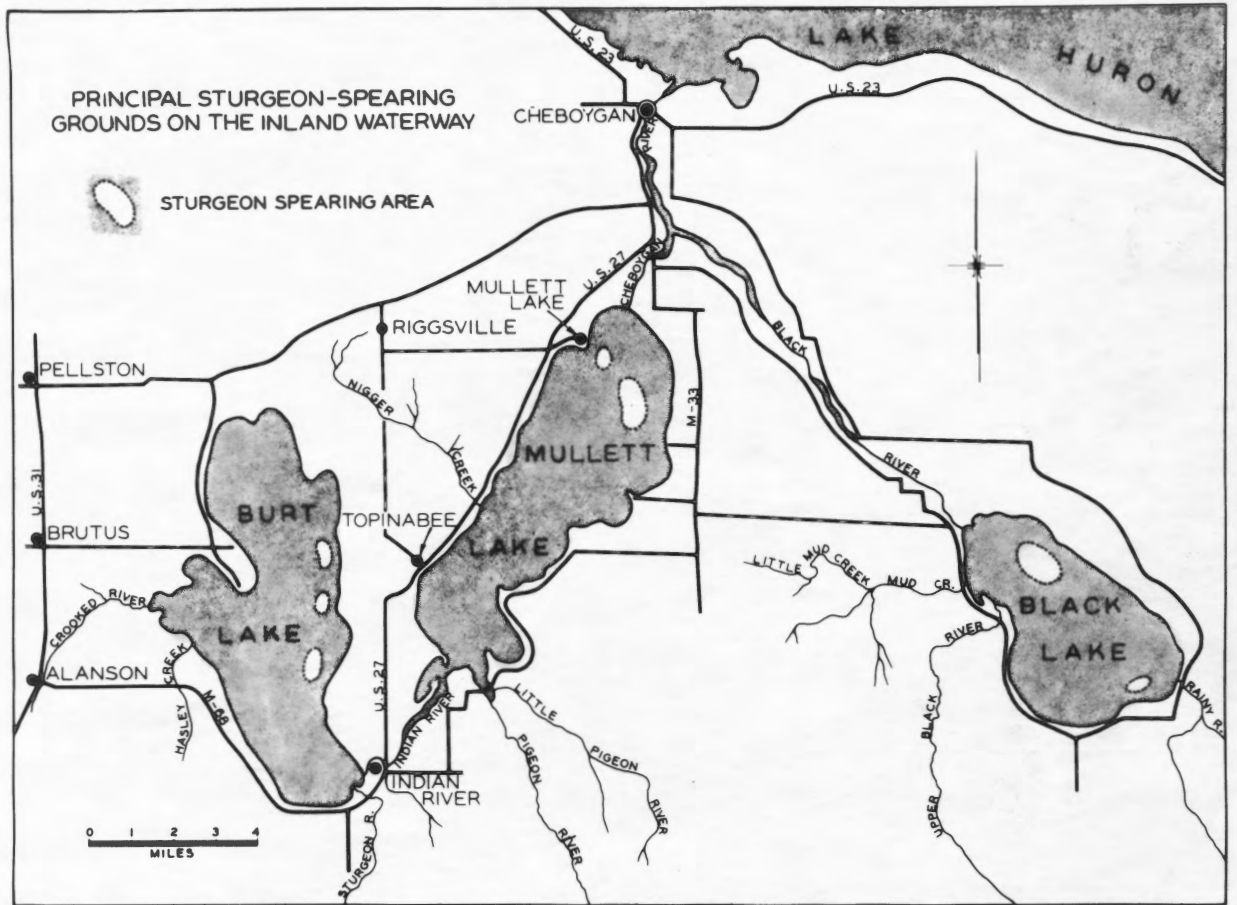


Figure 2

be 156. The remaining 317 shanties were not checked but were assumed to be for fishing other than sturgeon spearing. It is of course possible that some sturgeon were speared from these shanties.

Information on sturgeon spearing was collected by a questionnaire-type census. The name and address of each shanty owner was obtained at the time of the author's visit to each lake and a questionnaire was sent to each owner immediately after the close of the season. The number of questionnaires sent out (106) did not correspond to the number of shanties (156) because many individuals had several shanties which were rented for sturgeon spearing.

Primary data collected were the number of days spent spearing, the number of hours per day or trip, the number, size, and sex of sturgeon speared, and the number of times each shanty owner rented his shanty. Further information obtained through the questionnaire included the number of legal sturgeon seen but not speared, the number of smaller sturgeon observed, the number of years each individual had speared for sturgeon, and the fisherman's opinion regarding the quality of sturgeon spearing as compared to other years.

Results

Of the 106 questionnaires mailed, 2 were returned for insufficient address and 60 were filled in and returned by the fishermen. A second questionnaire, sent to 44 fishermen who failed to respond to the first inquiry, resulted in 14 more returns, for a total of 74 (70 percent). Of the 74 individuals who returned questionnaires, 8 (11 percent) stated they had not fished for sturgeon, leaving a total of 66 known spearers. An additional 9 shanties were unnamed, and if 11 percent of these also were not used for sturgeon spearing this category would add 8 more shanties, or a total of 74 personal shanties. Adding the 32 shanty owners who failed to answer the questionnaires and deducting 3 (11 percent) who possibly did not spear leaves an estimated total of 103 personal shanty owners who speared for sturgeon. Sampling covered 66

individuals or 64 percent of the estimated spearkers (Table 2). Similar computations for each individual lake indicated that the samples of fishing in personal shanties equaled 61 percent in Black Lake, 94 percent in Burt, and 56 percent in Mullett Lake.

A total of 1,013 fisherman days or 5,006 hours were spent by the 66 individuals who reported spearing (Table 2). The average number of hours fished per day was 4.9 (5.0 for Black Lake, 4.5 for Burt Lake, and 5.1 for Mullett Lake). These same fishermen took a total of 27 sturgeon (1 sturgeon per 185 hours). Black Lake fishermen reported 469 days of fishing, 235 were reported for Burt Lake and 314 for Mullett Lake. In addition, 298 rentals of shanties to others were reported by the 66 fishermen who answered the questionnaire. If each rental is considered a fisherman day, and by using the simple average of the hours per day reported per trip for each lake (Black Lake 5.5, Burt Lake 4.5, and Mullett Lake 5.1), they account for 1,576 additional hours. The reported fishing pressure was then 6,582 hours. By projecting the summations of the actual total reported hours spent spearing by the 66 individuals, and estimating the hours speared in rental shanties by using the simple average of the reported hours per day for each lake, the total fishing pressure for sturgeon on the three lakes is estimated to be approximately 9,630 hours. ¹✓ This hourly total may be as much as 3,000 hours too low, because the number of rentals reported is believed to be considerably lower than the actual number of rentals made. This point is discussed further below.

Of the 27 sturgeon reported taken by the 66 fishermen, 18 were taken in Black Lake, 4 in Burt Lake, and 5 in Mullett Lake. The average weight of the fish speared was 46.2 pounds, 119.7 pounds, and 96.3 pounds for the three lakes respectively. The range in weight was 24 to 80 pounds for Black Lake, 90 to 163 pounds for Burt Lake, and 84 to 114 pounds for Mullett Lake.

¹Estimates for rental shanties were based on the assumption that persons who failed to return questionnaires rented shanties at the same rate as those who did return questionnaires.

Table 2.--Summary of sturgeon fishing reported in questionnaires and estimated total number of sturgeon speared in Black, Burt, and Mullett lakes, 1956

Lake	Shanty type	Number of spearers	Census coverage (percentage)	Fishing data from questionnaires					Estimated total fishing	
				Fisherman days	Total hours	Average hours per day	Number of fish	Hours per fish	Number of hours	Number of fish ¹ ↓
Black	Personal	51	60.7	469	2,358	5.0	18	131	3,865	30
	Rental			211	1,161	5.5	24	48	1,211	25
	Total			680	3,519	...	42	84	5,076	55
Burt	Personal	16	93.7	235	1,045	4.5	4	261	1,117	4
	Rental			48	216	4.5	0	0	230	0
	Total			283	1,261	...	4	315	1,347	4
Mullett	Personal	36	55.5	314	1,603	5.1	5	321	2,885	9
	Rental			39	199	5.1	1	199	322	2
	Total			353	1,802	...	6	300	3,207	11
Totals	Personal	103	64.1	1,018	5,006	4.9	27	185	7,867	43
	Rental			298	1,576	5.3	25	63	1,763	27
	Grand total			1,316	6,582	5.0	52	127	9,630	70

¹↓ Estimated total catch of sturgeon is the sum of the estimates for personal and rental shanties at each lake.

There are not enough length data for meaningful length-frequency information on the sturgeon except possibly for Black Lake, where the following lengths were recorded:

<u>Total length (inches)</u>	<u>Number</u>	<u>Percentage of total</u>
42 - 47	1	6
48 - 53	6	38
54 - 59	4	25
<u>60 - 65</u>	<u>5</u>	<u>31</u>
Total	16	100

The average length was 54.5 inches. Sturgeon from Burt Lake ranged in length from 67 to 83 inches (average, 73.4) and Mullett Lake sturgeon ranged from 64 to 79 inches (average, 71.5).

In addition to the 27 sturgeon reportedly taken by the shanty owners in the three lakes, 25 sturgeon (one per 63 hours of spearing) were reported taken from shanties while they were being rented. Unfortunately, no lengths and only approximate weights were available for these fish. The reason for the large discrepancy in hours per sturgeon between rental shanties (63) and shanty owners (185) is not known. It is most feasibly explained by assuming that the reported number of shanty rentals was considerably less than the number actually rented. From personal interviews with people having shanties for rent the author believes this is the explanation.

There was reported, therefore, a combined catch in personal and rental shanties of 52 sturgeon, whose total weight was estimated to be 3,000 pounds. The total estimated catch for the three lakes was 70 sturgeon weighing about 4,034 pounds.

In all three lakes a considerable number of legal-sized sturgeon were observed but not speared. Thirty-four legal sturgeon were reported seen in

Black Lake (one per 69 hours of fishing), 8 in Burt Lake (one per 131 hours), and 7 in Mullett Lake (one per 501 hours). In addition to the legal fish, 21 smaller fish were reported seen in Black Lake (one per 112 hours), 7 in Mullett Lake (one per 229 hours), and none in Burt Lake.

The number of seasons during which the various individuals had speared for sturgeon ranged from 1 to 8 (average, 3.9). Of 51 fishermen who answered the question as to whether sturgeon spearing was better or worse in 1956 than in previous years, 14 (27 percent) felt that it was better, 10 (20 percent) considered it worse, and 27 (53 percent) thought it was about the same. If we consider the opinion of only the 29 individuals who had speared sturgeon 4 or more years, then 9 (31 percent) thought that spearing was better, 4 (14 percent) said it was worse, and 16 (55 percent) considered it to be the same.

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