

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

A. S. HAZZARD  
DIRECTOR

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ADDRESS  
UNIVERSITY MUSEUMS  
ANN ARBOR, MICHIGAN

REPORT NO. 388

THE NEED FOR AND PROBABLE CONSEQUENCES OF RESTRICTION OF THE  
TAKE OF GREAT NORTHERN PIKE IN THE DESIGNATED "PIKE LAKES"  
OF MICHIGAN, WITH SPECIAL REFERENCE TO HOUGHTON LAKE

As a result of creel census records secured in Michigan during the past nine years, the Institute for Fisheries Research has been able to assemble a considerable amount of dependable data concerning fishing in Houghton Lake. Conservation Officer Thomas White has taken an extensive and consistent random sample of the fishing on this lake since 1928. During the winter of 1935-36 an intensive census on Houghton was carried on for the Institute by the M.E.C.W. The data secured from these sources make it possible to estimate the effect which the restrictions proposed by the Houghton Lake Chamber of Commerce would have upon fishing in this lake.

The catch per hour of great northern pike from 1928 to 1935 shows the fluctuation in abundance of this species. The average per hour catch in the various months indicates when fishing is best (and presumably when the most pike can be taken) and together with the total catch of pike during the winter months last year help to answer the question as to how much the closed season proposed will benefit pike fishing. Data on the catch by spear and by line fishing throw light on the value of outlawing the spear. The trend of fishing for other species as pike fishing has declined indicate quite clearly what will happen if the number of pike is increased by restricting pike fishing in designated "pike lakes".

Trend of Great Northern Pike fishing. Records of 67,759 hours fishing on Houghton Lake were secured by Mr. White from 1928 to 1934 inclusive. These records based on spring and early summer fishing show that pike fishing declined steadily from 1928 to 1932 when it improved reaching a peak in 1933 and dropping somewhat in 1934. However,

the fishing in these months in 1934 was still slightly above the average for the seven year period. These conclusions are based on the average catch per hour for each line used for the months of May, June and July (the only months in which census was taken every year). The average catch of great northern pike per hour in this period was as follows: 1928 - .20; 1929 - .19; 1930 - .18; 1931 - .13; 1932 - .19; 1933 - .24; 1934 - .20. The average catch per hour for the months of January, February and March from 1931 to 1934 is: 1931 - .16; 1932 - .25; 1933 - .18; 1934 - .14. These figures suggest that winter fishing for pike reached a peak in 1932 and has declined since then.

Intensive creel census was conducted by M.E.C.W. from December 18, 1935 to March 31, 1936 covering approximately 85% of all the fishing on Houghton Lake. The average catch for each fisherman-hour was lower than the 1931-34 average for each line or spear-<sup>hour</sup>~~lower~~ as determined from the general census; the average for the months of January, February and March being only .07. If the sampling by Conservation Officer White is considered as representative of pike fishing from 1928 to 1934 it is evident that winter fishing for this species reached a low for the 8 year period during the past winter. This is all the more significant when it is considered that the catch per hour for 28-34 was based on each line or spear used, while the catch per hour for the winter of 1935-36 was based on the results of each fisherman-hour whether one or two lines, spear only or both line (or lines) and spear were used.

The claim that the pike fishing in Houghton Lake is becoming depleted seems to be substantiated by the above evidence from creel census.

Cause of depletion. It seems doubtful if winter fishing can be blamed entirely for the decline in numbers of great northern pike taken in Houghton Lake.

Judging by the creel census records from 1928-1934, there is a fluctuation in abundance of pike in Houghton Lake which is more likely caused by favorable or unfavorable spawning seasons rather than by the intensity of the fishing. However, the census last winter indicates that fishing for great northern pike has reached a new low in Houghton Lake and that some reduction in the catch might be advisable if this species is to be favored.

The highest catch per hour of pike from 1928 to 1934 occurred in December in 1930 and 1933. In other years practically no December fishing was recorded. The census last winter showed that the December catch per hour was second highest for the winter. Evidently when the ice is safe for fishing, pike are taken quite readily in December. During the seven year period referred to, May was the next most productive month, yielding consistently good fishing each year. June ranked next in catch per hour followed by January, February and March. The poorest months appeared to be from July to November inclusive except that no fishing during April was recorded by Mr. White. It seems probable that little if any fishing is done on Houghton Lake in normal years during this month as the ice is usually treacherous or breaking up at this time.

The census which covered approximately 85% of all fishing on Houghton Lake last winter shows that the catch per hour of great northern pike was highest during the latter half of January and the first half of February. The actual number of pike recorded as taken during the winter was as follows:

Dec. 18-31 . . . . .	260
January . . . . .	961
February . . . . .	480
March . . . . .	516
Total . . . . .	<u>2,217</u>

Based on the acreage reported for Houghton Lake by the Lake and Stream Directory (18,950) this means a catch of approximately one pike for each 8.5 acres of water. This catch was made by 5,520 fishermen who spent on the average of 5.7 hours per day in the sport.

An intensive census for Houghton Lake for the balance of 1936 was requested but could not be carried out because of other projects having priority in this region. If it had been possible to secure this, a direct comparison of the effects of "summer" and "winter" fishing would be available.

The remedy for depletion: The petition by the Houghton Lake Chamber of Commerce requests the following restrictions:

1. Closing the lake to spearing
2. Closing the lake to all fishing during March and April.

Creel census on Houghton Lake during the past eight years throws some light on what results may be expected from such restrictions.

Outlawing the spear would automatically increase line fishing. In the past winter line fishing alone took 920 great northern pike at the rate of 0.05 per hour; spearing along took 641 pike at the rate of 0.11 fish per hour. The average size of those caught by line was 21.3; the average size of pike taken by spear was 21.7. One reason why more pike were taken per hour by spearing than by line fishing was that much line fishing was primarily for perch and small minnows were used which were not as attractive to pike. Some reduction in the number of pike caught would doubtless occur as a result of outlawing spearing. On the basis of the above figures, perhaps 400 pike would escape each winter.

If fishing is closed in March and if last winter was typical, we might expect about 600 pike to escape the winter fisherman although if the season closed March first fishing might be increased in the other open months, resulting in little if any saving.

The Institute has no creel census returns for Houghton Lake in April. Some fishing is done during this month when the ice is safe, but from all reports, few pike are taken during April in normal years as the ice is treacherous or breaking up during much of this month. It is therefore doubtful <sup>if</sup> many pike would be protected by closing April to fishing.

The saving of approximately 1,000 pike as a result of the restrictions requested would mean about one more pike to 19 acres of water for the summer season. It seems questionable that the restrictions proposed will result in much immediate improvement in pike fishing in Houghton Lake.

Possible effects on other fishing. With the decline in pike fishing in Houghton Lake the pan fishing has improved. This is shown by the general census from 1928-34. The average catch per hour of fish other than great northern pike (including walleyes) for the months of June, July and August for these years is as follows: 1928 - .09; 1929 - .12; 1930 - .08; 1931 - .20; 1932 - .45; 1933 - .50; 1934 - .76. Walleye fishing

has also steadily improved during these months as the catch per hour of great northern pike diminished.

Such a correlation is to be expected in as much as the great northern pike feeds to a large extent on panfish and competes directly with the walleye. In any campaign to increase the great northern pike or any other predacious fish, the relative value of the large game fish and the pan fish should be considered.

If the designation of "pike lake" is to permit a control of pike to better other fishing, it seems to be functioning that way in Michigan. It is reported that a falling off in the pike fishing has resulted in an improvement in fishing for other species in Otsego Lake similar to that in Houghton Lake.

If it is desired to improve fishing for great northern pike in the designated "pike lakes" of the state, a closed season from March 15 to May 15 is suggested by the Institute for all lakes so designated, including Houghton Lake.

Winter fishing should continue until March 15 in order that the best perch and walleye fishing of the winter may be enjoyed by ice fishermen. Relatively few of these fish are taken until the first of March. Since the catch of great northern pike is relatively low during the first part of March while the other species are caught much more readily, this date will work to the advantage of the pike. The opening date, May 16, is suggested in order to build up the pike population. Census records for Houghton Lake from 1928 to 1934 and for District 4 of the general census for 1935 (including Roscommon County, records largely for Houghton Lake) show that pike are taken most readily and consistently this month. Obviously, if the restrictions enacted are to increase the number of pike in the lake, the fish should be given some protection during the time when they are most readily taken. This date should also allow for the completion of perch and walleye spawning and result in saving a considerable number of all three species for the open season. The effect upon the quantity of natural reproduction by the pike at least should be appreciable and should result in a gradually increasing number of this species in the lake unless the fishing pressure during the open season increases.

Records of winter fishing on Otsego Lake were secured through Conservation Officer Marlatt and from the general census conducted by the Division of Field Administration from 1928 to 1933 inclusive. These records show that winter fishing, especially by spear removes a large number of great northern pike from Otsego Lake. Growth studies show these to be young fish, indicating serious over-fishing for pike. However, as stated previously, an improvement in fishing for other species in recent years has been reported which may be attributed to lessening the number of predatory pike.

Outlawing spearing would no doubt save a certain number of pike and would remove the temptation to practice on other fish which may not be taken legally by this method. It would seem that the capture of a pike on a light casting rod or even by an ice-line would be infinitely more thrilling and more sportsmanlike than spearing the same fish through the ice, but this point is probably debatable. If, however, the object of the proposed restriction is to protect pike and increase their number, spearing might be prohibited as a controllable factor, just as the practice of baiting and the use of live decoys were outlawed to save the ducks. It would doubtless be good fun to spear trout or bass, but this is prohibited on the grounds that these are game fish to be taken only by angling. The same argument might be used in the case of the pike.

It should be kept in mind, however, that the pike will mainly benefit by the proposed restriction and that a decline in the number of panfish, bass and walleyes may be expected as a result.

Institute Reports referred to in preparing this discussion are as follows:

- No. 245. The Problem of Winter Versus Summer Fishing In Otsego Lake, Otsego County.
- No. 311. Creel Census on Otsego Lake, Winter of 1934-35.
- No. 363. A Study of the Trend in the Fish Catch from Houghton Lake 1928-1934.
- No. 368. Houghton Lake Creel Census Winter of 1935-36

No. 371-D, Part 4, Report on General Census, 1935. Monthly Variations in the  
Catch, Non-Trout Waters.

No. 379A. A Comparison of Summer and Winter Fishing in Michigan Lakes.

Institute for Fisheries Research

By: A. S. Hazzard

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SUMMARY OF SUGGESTION BY A. S. HAZZARD

BASED ON REPORT NO. 388

1. Evidence from creel census confirms the petitioners' statement that pike fishing is declining in Houghton Lake. The figures indicate that this fishing was the poorest last winter in a period of nine years.
2. Creel census records show a steady and marked improvement in fishing for walleyes, perch and panfish in Houghton Lake from 1928 to 1934. Similar reports are received from Otsego Lake as fishing for great northern pike has become poorer.
3. Stomach analyses demonstrate that great northern pike eat large quantities of pan-fish and that walleyes are direct competitors of great northern pike in feeding habits.
4. From the above evidence, it appears that good great northern pike fishing and good fishing for walleyes, bass and panfish do not go together. If pike are encouraged, fishing for these other species is almost certain to decline, at least in lakes similar to Houghton and Otsego.
5. Creel census shows that spearing takes a large number of pike, particularly in Otsego Lake. Outlawing spearing will not decrease the pike catch appreciably as more line fishing for pike will result and the total number taken will probably be about the same.
6. Census records for Houghton Lake and for most of the state show that great northern pike are taken most readily and consistently during the month of May. No records were sent in for April and it is reported that the ice on Houghton Lake is usually unsafe or breaking up during this month.
7. Ice fishing for walleyes and perch is best in Houghton Lake in March and great northern pike fishing is only moderately good.
8. Since a significant decrease in the catch of great northern pike is necessary to increase their number, a closed season from March 16 to May 15 inclusive is suggested for all "pike lakes" if pike fishing is to be improved in these lakes at the probable expense of walleyes, bass and panfish.