

Original: Fish Division ✓  
cc: Education-Game  
Inst. for Fish. Res.  
K. E. Christensen  
J. E. Williams  
C. T. Yoder  
D. S. Shetter

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

ALBERT S. HAZZARD, PH.D.  
DIRECTOR

FEB 9 1956  
FISH DIVISION

ADDRESS  
UNIVERSITY MUSEUMS ANNEX  
ANN ARBOR, MICHIGAN

January 17, 1956

Report No. 1463

1955 WINTER CREEL CENSUS ON FLETCHER FLOODWATER, ALPENA AND  
MONTMORENCY COUNTIES, AND THE STATUS OF THE PIKE POPULATION  
Kenneth E. Christensen, Floyd E. Simonis, and John E. Williams ✓

Fletcher Floodwater (Fletcher Pond), in Alpena and Montmorency counties, is located on the upper reaches of the Upper South Branch of the Thunder Bay River. The impoundment is formed by a concrete dam, of 12.5-foot head, owned by the Alpena Light and Power Company. The reservoir covers approximately 9,000 acres. The dam was completed in the fall of 1930 and the reservoir was filled by June, 1931.

Excellent catches of pike were made from 1931 to about 1945. By 1945, the property owners around the lake began to show concern over reportedly poor fishing, and in 1947 they circulated a petition asking that the Conservation Commission close Fletcher Floodwater to winter spearing. The property owners were of the opinion that spearing was causing the apparent decline in the pike population. The petition was turned down because the Commission had no facts upon which to base such a closing order. The Conservation Commission instructed the Institute for Fisheries Research, through Mr. F. A. Westerman, Chief of the Fish Division, to conduct creel census operations during the winter and

---

✓ The creel census at Fletcher Floodwater was conducted by Simonis, under the supervision of Christensen, and the study of growth and food habits of pike was done by Williams.

summer seasons of 1948 so that comparative data on angling pressure and catch during the spearing season and open-water angling season might be available.

The 1948 creel census was supervised by Dr. D. S. Shetter of the Hunt Creek Fisheries Station. The data from these studies were summarized in two Institute reports, numbers 1205 and 1230. Briefly stated, the conclusion drawn from the 1948 creel census data was that the removal of 14,000 northern pike (25,000 pounds) by 9,700 angler days during the winter was not endangering the northern pike population of this impoundment, particularly when compared to a harvest of 34,000 northern pike (71,000 pounds) by 38,000 angler days during the summer.

The Conservation Department acquired a tract of land on the Fletcher Floodwater in 1953 and developed this property as a public fishing site. In 1954 the resort and landing operators expressed the opinion that winter fishing pressure had increased to the extent that the pike fishery was being over exploited, and they requested that the lake be closed to winter fishing (spearing). The increase in pressure was reportedly due to the large number of spearing shanties being put on the ice by way of the public fishing site.

#### 1955 Creel Census

Conservation Department personnel decided to conduct another creel census operation during 1955 to check on the harvest of pike and other game species. The census was to be conducted in the same manner as during 1948, for direct comparison. During 1955, the number of days on which the census was taken during the two-month spearing season was increased (44 days in 1955 as compared to 27 days in 1948) to cover the

greater number of landings and also to give better data for the two public landings (public fishing site and the county road terminus near Klein's Landing); at the public fishing site and county road, no actual counts could be obtained of total shanty use because these sites have no boat liveries operating during the winter. In 1948 there were five different access points for winter angling, while in 1955 there were 9.

Klein's Landing functions as a boat livery during the summer, but not during the winter at which time access is gained via the county road which adjoins Klein's property. In the present report the records for the county road site are identified as Klein's Landing.

In 1955, Mr. Floyd E. Simonis was assigned to the creel census operation at Fletcher Pond on a full-time basis. A prearranged schedule was designed to give equal time at each landing for week days, and also for week-end days, with the exception of the public fishing site and the county road site, where additional time was allotted. Each resort and landing operator was requested to keep a daily record of the number of anglers going out ice fishing from his access point. The landing operators willingly kept these records and in most cases did a creditable job of keeping track of the anglers using their access points. The landing operators' records were used to provide an estimate of total angling, as was done in 1948.

The numbers of days spent at various landings by the census clerk in 1955 were as follows (1948 figures in parentheses): Jacks 4 (6), Emils 4 (5), Charleys 4 (5), Hunts 4 (6), Kleins 8 (5), Millers 4 (0), Moores 4 (0), Bennys 4 (0), and the fishing site 8 (0). (Those with no 1948 assignments were not in operation at that time.)

The duties of the creel census clerk were as follows: Contact as many ice fishermen as possible at completion of their fishing trips and

record data on length of fishing trip, number of fish kept, residence of anglers, and bait used; weigh and measure as many pike as possible; collect scale samples from a large number of pike; and check on records kept by resort and landing operators.

The techniques involved in estimating total angling were the same for 1955 as for 1948; they were discussed fully in Institute Report number 1205.

#### Methods of Estimating Total Fishing

The census data collected by Mr. Simonis represent a small part of the total fishing on Fletcher Pond.

The estimate of total angling is calculated on the basis of periods of from 10 to 13 days duration. The periods were designated in 1948 in such a manner as to include one census day from each of the five access sites, and were used again in 1955 for consistency, although the periods were not as well adapted for the later study due to the increase in number of access sites. Total fishing trips for the public fishing site and Klein's Landing were based on the eight counts made at each site by Mr. Simonis on his scheduled work days at these points. Two of the work days at Klein's fell on week~~end~~ days, and these were used to calculate totals for all week~~end~~ days. The six remaining work days at Klein's were used to calculate average week day pressure at Klein's for all week days not censused. The same applies to the public fishing site except that three week~~end~~ days and five week days were scheduled. The estimates of total fishing for each period are found by multiplying the total trips by the hours-per-trip and pike-per-hour figures from the creel census data for each period.

Estimated totals for the season could also be based on totals from each landing, in this way eliminating the error of not having each landing represented within each "period." The difference in estimated harvest due to use of "landing" totals rather than "period" totals is only 4 percent and the value of periodic catch figures through the season makes the "period" breakdown of more value.

The total number of angling trips on Fletcher Pond during January and February, 1955, was 15,177 as compared to 9,690 recorded for 1948 (Table 1). The increase of 5,487 angling trips from 1948 to 1955 is about equal to the increased access (5,783 fishing trips) afforded in 1955 by four new points, namely: Miller's, Moore's and Benny's liveries, and the public fishing site. The fishing site alone accounted for 2,654 angling trips or 46 percent of the trips from the new access sites. The 100 percent increase at Klein's Landing was probably due to efforts by the Conservation Department to eliminate the commercial shanty business across the "public fishing site." Hunt's and Emil's landings experienced a decline in the number of fishing trips while Jack's and Charley's landings had relatively small changes in their numbers of fishing trips. The fishing site alone accounted for an increase in angling pressure of about 27 percent whereas the increase in angling pressure excluding the public fishing site was 32 percent. The over-all increase in fishing effort on Fletcher Pond (1955 compared to 1948) was 57 percent.

The intensive data collected by the census clerks are presented in Table 2; the average weights and lengths of the pike taken and the pounds per hour of fish speared are given in Table 3. The estimates for the total hours of fishing and the total catch for the various periods and for the entire season, which are based on data in the tables immediately preceding, are presented in Table 4.

The average length of fishing trip (Table 2) was 4.87 hours in 1955 as compared to 5.50 hours in 1948. The catch per hour of pike in 1955 was 0.314 fish, a 21 percent increase over the 1948 catch per hour of 0.260 fish.

Mr. Simonis weighed and measured only about 25 percent (693) of the pike which he counted in his creel census contacts but the sample is believed adequate for comparison with the 1948 sample of 1,609 pike. The average length of the pike measured in 1948 was 20.1 inches and in 1955 the average length was 17.5 inches. The average weight of the pike in 1948 was 1.84 pounds; that for pike in 1955, 1.14 pounds (Table 3).

The increased number of angler trips on Fletcher Pond in the 1955 spearing season (57% over 1948) accounted for a substantially increased harvest of pike. The 1955 estimated harvest was 23,447 pike as compared to 14,223 pike estimated in 1948 or 65 percent greater, but the increase in poundage of northern pike taken was only 1,126 pounds or 4.4 percent greater (from 25,756 pounds in 1948 to 26,882 pounds in 1955).

#### 1948 Summer Census Totals

The winter pressure and catch for 1955, though greatly increased over the 1948 winter totals, still is substantially less than the 1948 summer estimated totals of 37,909 angler trips, 204,938 angling hours and 34,471 pike caught.

#### Fishing Quality Through the Winter Season

Fishing quality (Pike per hour of angling) remained much more constant in 1955 than it did in 1948. The pike-per-hour figures for 1948 for the six periods were: 0.402, 0.303, 0.186, 0.279, 0.168 and

0.144. The 1955 catches per hour were: 0.397, 0.236, 0.255, 0.316, 0.346 and 0.383 (Table 2). In 1955, the spearing of pike was almost as successful in the last period (three days) as it was in the first period.

The ratio of limit catches (five pike) per 1,000 anglers was higher in 1948 than in 1955, but the ratio of unsuccessful fishing trips per 1,000 anglers was higher in 1948 also. There were 78 anglers with limit catches and 376 unsuccessful anglers, per 1,000 anglers, in 1948. For 1955, the ratios were 64 "limit-catch" anglers and 307 unsuccessful anglers, per 1,000 angler trips.

The recommendations for best management of the Fletcher Floodwater will not be made until the 1955 census study is completed and the data have been examined.

#### Residence of the Winter Fishermen

Montmorency County was given as the county of residence by more anglers contacted than any other county in 1955 as was the case in 1948. The top six counties represented in contacts by the census clerk were: 1. Montmorency, 2. Alpena, 3. Wayne, 4. Oakland, 5. Otsego, 6. Oscoda. The six counties most frequently given as residence in 1948 were: 1. Montmorency, 2. Oscoda, 3. Alpena, 4. Wayne, 5. Midland, 6. Genesee. The only noteworthy changes were that Oscoda County fishermen dropped from second to sixth; Oakland County, which in 1948 was eighth, rose to fourth; Otsego County rose from ninth to fifth; while Genesee and Midland counties dropped from the first six but were seventh and ninth, respectively, in 1955. The five-county area around Fletcher Pond accounted for 50 percent of the fishermen contacted while the six-county Midland to Detroit metropolitan area accounted for 27 percent of the anglers contacted. These same areas represented the home county of 47 percent and 31 percent, respectively, of the 1948 winter fishermen.

### Age and Growth Rate

A preliminary study of the growth rate and year-class abundance of 86 pike from Fletcher Floodwater made in the summer of 1954 (Institute Report No. 1402 by John E. Williams) indicated that 93 percent of the sample was composed of fish of age-groups I, II and III. Average size of fish in the sample was 17.0 inches and for individual age groups was as follows: 14.7 for I's, 16.7 for II's, 17.8 for III's and 26.4 inches for IV's. The small average size of the sample was not deemed serious as small average size has often been a characteristic of Fletcher Pond pike in the past. Extremely slow growth during 1954 of most two-year-old fish up to midsummer (at sampling time) of 1954 was considered to be a possible indication of overabundance of this age or size group.

Examination of scale samples taken from 729 pike during the creel census in January and February, 1955 was initiated to determine whether or not results of the earlier (summer, 1954) sample were valid and whether or not the 1952 year class had compensated for their slow growth early in 1954. Table 7 gives a comparison of the average size and age-group composition of 1955 winter (speared) pike with 1948 winter (speared) pike. All younger age groups were growing more slowly in 1954 than comparative age groups were in 1955. The most significant difference between the two samples was the large percentage of pike over three years of age in the 1948 collection. At that time 33.5 percent of the pike were over the age of three, whereas in 1955 only 6.2 percent were in that classification. The discrepancy was particularly noticeable in age-groups VII and VIII which made up 5.5 percent of the sample in 1948 but were absent in 1955. Fish of age group III (which were II's in 1954) had averaged growth of an additional 1.6 inches since the summer 1954 collection.



As concluded in the 1954 report by Williams, there has apparently been a strong shift in the Fletcher Floodwater pike population since 1948. All age groups from I to IV inclusive are now slower growing and comprise a larger percentage in the catch than were the same groups in 1948. Evidently poor spawning or exploitation (or both) has reduced the percentage of older and larger fish drastically. The extent of this absence of larger fish is revealed by the fact that only 7.1 percent of the 729 pike in the 1955 sample were over 20.0 inches, whereas the average size of the 1948 sample was 20.1 inches.

#### Analysis of Stomach Contents

A brief review of the results of pike stomach sample analysis will be given here for collections made during the winter and summer of 1948, and the winter of 1955, because of the important bearing these may have on the growth rate of the pike. The winter (January and February), 1948 sample included stomachs from 126 pike, and the summer, 1948 sample included those from 124. An additional 96 stomachs were examined from the 1955 winter season. Collections have not yet been examined for summer, 1955 but have been collected. A more complete report on stomach analysis of pike from Fletcher Floodwater will be made at a later date.

The most important food items eaten by the pike during the winter of 1948 were pumpkinseed sunfish, mudminnows, minnows and perch. Centrarchids (mainly sunfish) made up 65.8 percent of all items found and were in 46.5 percent of stomachs containing food. Mudminnows made up 10.7 percent of total food items but were in only 2 stomachs. Minnows made up 15.5 percent of total food items and were in 25.8 percent of stomachs containing food. Perch made up 5.9 percent of total food items but were in 17.2 percent of food-containing stomachs.

Disregarding minnows, which made up 55 percent of the food eaten by the pike collected in the summer of 1948 (and may have been largely fish used as bait), the sunfish dropped sharply as an important food whereas the perch became increasingly utilized. The centrarchids comprised only 13 percent of the total number of individuals eaten (65.8% in winter), whereas the perch made up 28 percent (5.9% in winter).

The winter stomachs collected during 1955 contained much divergent material from those collected in 1948. Darters, which were almost non-existent in 1948, were found in 32.8 percent of the stomachs and made up 54.9 percent of the individuals eaten. Perch made up a much greater percentage (28.9) of the total individuals eaten in 1955 than they did in 1948 (5.9%). However, centrarchids, which had made up 65.8 percent of the total items eaten in 1948 now formed only 15.5 percent.

In most collections there were minor amounts of largemouth bass, bullheads and pike in addition to the species already mentioned.

The change in feeding habits of Fletcher Pond pike from primarily sunfish during the winter of 1948 to mainly darters and small perch in 1955 may be responsible for the slower growth rate encountered at the present time in the pike. However, the average length of winter food items has not changed since 1948, remaining at 1.8 inches. That 16- to 24-inch pike would feed primarily on fish (such as sunfish, perch and darters) ranging from 1.5 to 2.0 inches in length is indeed surprising. It may well be that the available (or usable) food supply for pike consists mainly of items too small for sufficient nourishment of the pike. Most pan fishes caught by anglers are of large size and, with perch at least, of fast growth. The extensive feeding of pike on small,

young pan fish may be a desirable feature as far as controlling the supply and growth of pan fish is concerned, but may be reflected in an undesirable rate of growth in the pike. The food items in the summer, 1948 stomachs increased in length from the 1.8-inch figure obtained in the winter collections to 3.4 inches. All species of pan fish eaten in the summer averaged larger than the same species did in winter. Since the winter, 1955 average length of food item was also 1.8 inches, it will be interesting to see if the length of the items will again increase this summer.

Daily Number of Fishermen, Fletcher Floodwater, 1955 Spear Season

As Recorded by the Landing Owners

Stars Indicate Days Census Clerk Checked Angling

Date	Daily Number of Fishermen at Landings								Fishing site	Total all landings
	Jack's	Emil's	Charley's	Hunt's	Klein's	Miller's	Moore's	Benny's		
Jan - 1 Sat	100	55	50	92*	87	66	83	20	77	630
Sun 2	100*	45	48	59	87	64	71	16	77	567
Mon 3	30	15	22	25	41	7	32*	0	31	203
Tues 4	27	14	23	17	41	17	28	1	33*	201
Weds 5	22	16	23	12	41	33	20	2	31	200
Thurs 6	38	15	16	18	41	25	23	0	31	207
Fri 7	42	7	22	13	41	12*	21	4	31	193
Sat 8	120	40*	50	56	87	70	32	11	77	543
Sun 9	135	45	50	46	107*	69	41	20	77	590
Mon 10	52	16	18	18	41	25	13	4*	31	218
Period Totals	666	268	322	356	614	388	364	78	496	3,552
Jan - 11 Tues	41	11	17*	17	41	33	26	0	31	217
Weds 12	28	6	16	25	41	33	13	1	38*	201
Thurs 13	37	3	30	13	41	12	14	0	31	181
Fri 14	46	5	32	18	41	13	22	1	31	209
Sat 15	109	45	50*	40	87	64	36	20	54*	505
Sun 16	104	35	44	78	87	71	41	12*	77	549
Mon 17	36	1	7	16	41	6	10	0	31	148
Tues 18	30	19*	6	23	41	17	18	0	31	185
Weds 19	19*	17	8	21	41	21	14	9	31	181
Thurs 20	28	18	9	45*	41	19	9	0	31	200
Fri 21	36	20	22	33	41	47	15	20	31	265
Period Totals	514	180	241	329	543	336	218	63	417	2,841
Jan - 22 Sat	104	42	48	73	87	61*	24	16	77	532
Sun 23	109	25	50	62	87	55	38	2	96*	524
Mon 24	30	0	6	25	41	15	8	5	31	161
Tues 25	21	1	4	18	41	12	5	6	31	129
Weds 26	7	7	6	16	51*	12	15	0	31	145
Thurs 27	22	5	2	23	41	19	17	0	29*	158
Fri 28	36	8	8	13	41	26*	18	12	31	193
Sat 29	109	15	25	61	87	39	47*	13	77	473
Sun 30	104	5	24	39*	87	36	20	3	77	395
Mon 31	10	2	6	10	45*	13	9	0	31	126
Feb - 1 Tues	13	1	7	13	41	16	7	4	31	133
Period Totals	565	111	186	353	649	304	208	61	542	2,979
Feb - 2 Weds	21	3	7	11	41	39	4	3	31	160
Thurs 3	29	6	8	17	41	27	3	0	28*	159
Fri 4	33	1	4	10	36*	11	4	3	31	133
Sat 5	96*	4	30	61	87	47	17	13	77	432
Sun 6	92	6*	29	45	87	58	17	10	77	421
Mon 7	10	0	4	20	29*	21	1	2	31	118
Tues 8	15*	0	5	16	41	15	1	3	31	127
Weds 9	18	0	4	12	41	27	5	0	31	136
Thurs 10	20	2	2	10	41	30	3	0	31	139
Fri 11	22	0	11	13*	41	14	2	0	31	134
Sat 12	78	10	30	36	67*	53	8	7	77	366
Sun 13	82	13	40*	30	87	56	8	7	77	400
Mon 14	21	2	6	13	41	10	14*	3	31	141
Period Totals	537	47	180	294	680	408	287	51	584	2,868
Feb - 15 Tues	19	4	8	18	41	13	0	3	25*	131
Weds 16	18	0	7	21	46*	4	0	0	31	127
Thurs 17	13	0	4	13	41	39	2	0	31	143
Fri 18	10	0	11	18	41	4	0	0	31	115
Sat 19	73	18	50	37	87	49	14	15*	77	420
Sun 20	71	10	50	22	87	38*	20	20	77	395
Mon 21	6	2	6	0	41	14	0	2	31	102
Tues 22	15	2	14	6	41	40	0	2	31	151
Weds 23	28	7	17	14	41	10	0	9*	31	157
Thurs 24	25	2	20*	13	41	48	4	3	31	187
Fri 25	20	2	24	6	37*	23	0	3	31	146
Period Totals	298	47	211	168	544	282	40	57	427	2,074
Feb - 26 Sat	73	12	40	22	87	60	14	11	80*	399
Sun 27	39	8	30	15	87	42	18*	8	77	324
Mon 28	6	0*	19	12	41	17	0	14	31	140
Period Totals	118	20	89	49	215	119	32	33	188	863
Totals 1955										
Spearing Season	2,698	673	1,229	1,549	3,245	1,837	949	343	2,654	15,777
Totals 1948										
Spearing Season	2,344	1,128	1,314	3,287	1,617					9,690

(1) From February 7, counts include only Moore's shantys except days starred.

Table 2

Complete Angling Data from Various Landings on Various Days  
Fletcher Floodwater, 1955 Spear Season

Landing	Date 1955	Total anglers checked	Total hours of fishing	Average length of fishing day (Hrs.)	Pike taken		Number with	
					Total	Per hour	Limit catches	0 fish
Hunt's	Jan. 1	92	507.5	5.52	114	0.224	5	27
Jack's	2	74	423.0	5.72	51	0.120	0	35
Moore's	3	32	143.5	4.49	69	0.480	4	6
Fishing site	4	33	136.5	4.14	61	0.446	2	9
Miller's	7	14	78.5	5.61	28	0.356	1	4
Emil's	8	37	205.5	5.56	50	0.243	0	8
Klein's	9	107	385.0	3.60	371	0.963	38	3
Benny's	10	10	46.0	4.60	21	0.456	2	2
<b>Totals, averages</b>		<b>399</b>	<b>1,925.5</b>	<b>4.83</b>	<b>765</b>	<b>0.397</b>	<b>52</b>	<b>94</b>
Charley's	Jan. 11	24	124.0	5.17	44	0.354	0	1
Fishing site	12	38	144.5	3.80	51	0.352	1	10
Charley's	15	64	416.0	6.50	25	0.060	0	41
Fishing site	15	54	239.5	4.44	36	0.150	0	28
Benny's	16	24	87.0	3.62	10	0.114	0	17
Emil's	18	15	66.0	4.40	17	0.257	0	6
Jack's	19	28	152.0	5.43	33	0.217	0	5
Hunt's	20	45	231.0	5.13	130	0.562	12	5
<b>Totals, averages</b>		<b>292</b>	<b>1,460.0</b>	<b>5.00</b>	<b>346</b>	<b>0.236</b>	<b>13</b>	<b>113</b>
Miller's	22	77	433.0	5.63	50	0.115	0	43
Fishing site	23	96	434.5	4.52	115	0.264	4	36
Klein's	26	51	174.0	3.42	56	0.321	0	21
Fishing site	27	29	85.0	2.93	48	0.564	2	12
Miller's	28	33	213.5	6.47	70	0.327	0	6
Moore's	29	47	231.0	4.92	74	0.320	4	17
Hunt's	30	39	161.0	4.12	26	0.161	0	21
Klein's	31	45	239.5	5.32	65	0.271	0	11
<b>Totals, averages</b>		<b>417</b>	<b>1,971.5</b>	<b>4.72</b>	<b>504</b>	<b>0.255</b>	<b>10</b>	<b>167</b>
Fishing Site	Feb. 3	28	102.5	3.67	33	0.321	1	10
Klein's	4	36	147.0	4.08	100	0.680	8	3
Jack's	5	78	408.0	5.24	80	0.196	1	30
Emil's	6	5	21.0	4.20	2	0.095	0	3
Klein's	7	29	119.5	4.13	62	0.518	4	4
Jack's	8	22	91.0	4.14	15	0.164	0	10
Hunt's	11	13	70.0	5.38	23	0.328	1	5
Klein's	12	67	339.5	5.07	80	0.235	3	23
Charley's	13	47	245.5	5.22	92	0.374	1	3
Moore's	14	14	56.0	4.00	19	0.339	0	4
<b>Totals, averages</b>		<b>339</b>	<b>1,600.0</b>	<b>4.72</b>	<b>506</b>	<b>0.316</b>	<b>19</b>	<b>95</b>
Fishing Site	Feb. 15	25	128.5	5.14	41	0.319	0	1
Klein's	16	46	211.5	4.60	84	0.397	4	9
Benny's	19	20	138.0	6.90	31	0.224	1	3
Miller's	20	48	278.0	5.80	81	0.291	1	14
Benny's	23	13	43.0	3.31	23	0.534	0	1
Charley's	24	28	168.5	6.02	77	0.456	3	2
Klein's	25	37	203.0	5.49	68	0.334	3	12
<b>Totals, Averages</b>		<b>217</b>	<b>1,170.5</b>	<b>5.39</b>	<b>405</b>	<b>0.346</b>	<b>12</b>	<b>42</b>
Fishing Site	26	80	409.0	5.11	176	0.430	7	13
Moore's	27	18	52.5	2.92	1	0.019	0	17
Emil's	28	No fishing from this landing						
<b>Totals, Averages</b>		<b>98</b>	<b>461.5</b>	<b>4.71</b>	<b>177</b>	<b>0.383</b>	<b>7</b>	<b>30</b>
<b>Season Totals (1955)</b>		<b>1,762</b>	<b>8,589.0</b>	<b>4.87</b>	<b>2,703</b>	<b>0.314</b>	<b>113</b>	<b>541</b>
<b>Totals, Averages 1948 Spear Season</b>		<b>1,250</b>	<b>6,874.0</b>	<b>5.50</b>	<b>1,790</b>	<b>0.260</b>	<b>98</b>	<b>470</b>

Table 3

The Average Size and the Total Weight of ~~Northern~~ Pike  
Speared on Various Days at Five Different Landings  
Fletcher Floodwater, 1955 Spear Season

Landing	Date 1955	Northern Pike Size Measurements				Weight of Pike Taken		
		Number Measured	Average Length (Inches)	Number Weighed	Average Weight (Pounds)	Total Pike Speared	Total Pounds Speared	Pounds Per Hour
Hunt's	Jan. 1	42	18.0	42	1.18	114	134.52	
Jack's	2	26	18.4	26	1.44	51	73.44	
Moore's	3	20	16.6	20	.93	69	64.17	
Fishing Site	4	27	17.3	27	1.15	61	70.15	
Miller's	7	23	17.4	23	1.03	28	28.84	
Emil's	8	24	17.2	24	1.03	50	51.50	
Klein's	9	80	17.6	80	1.17	371	437.78	
Benny's	10	21	17.4	21	1.04	21	21.84	
Totals, Averages		263	17.6	263	1.14	765	882.24	0.458
Charley's	Jan. 11	16	17.7	16	1.28	44	56.32	
Fishing Site	12	16	18.9	16	1.65	51	84.15	
Charley's	15	25	17.6	25	1.11	25	27.75	
Fishing Site	15	22	17.8	15	1.12	36	40.32	
Benny's	16	2	18.1	2	1.20	10	12.00	
Emil's	18	6	17.5	6	1.10	17	18.70	
Jack's	19	11	17.5	11	1.19	33	39.27	
Hunt's	20	31	17.8	31	1.17	130	152.10	
Totals, Averages		129	17.8	122	1.23	346	430.61	0.294
Miller's	Jan. 22	10	16.5	10	0.89	50	44.50	
Fishing Site	23	12	16.9	12	0.99	115	113.85	
Klein's	26	16	17.9	16	1.04	56	58.24	
Fishing Site	27	11	17.8	11	1.17	48	56.16	
Miller's	28	9	17.1	9	1.01	70	70.70	
Moore's	29	20	16.7	20	1.11	74	82.14	
Hunt's	30	6	17.5	6	1.21	26	31.46	
Klein's	31	6	17.2	6	1.01	65	65.65	
Totals, Averages		90	17.2	90	1.05	504	522.70	0.265
Fishing Site	Feb. 3	10	16.8	10	0.98	33	32.34	
Klein's	4	15	17.2	15	1.04	100	104.00	
Jack's	5	18	16.8	18	1.01	80	80.80	
Emil's	6	2	16.8	2	0.96	2	1.92	
Klein's	7	12	17.1	12	1.06	62	65.72	
Jack's	8	6	19.0	6	1.46	15	21.90	
Hunt's	11	6	16.9	6	0.99	23	22.77	
Klein's	12	1	17.1	0	1.04	80	83.20	
Charley's	13	29	16.8	29	0.98	92	90.16	
Moore's	14	8	15.8	8	0.79	19	15.01	
Totals, Averages		107	16.9	106	1.02	506	517.82	0.323
Fishing Site	Feb. 15	12	17.7	12	1.46	41	59.86	
Klein's	16	14	16.8	14	1.04	84	86.36	
Benny's	19	25	17.5	25	1.17	31	36.27	
Miller's	20	13	17.2	13	1.11	81	89.91	
Benny's	23	19	17.6	19	1.26	23	28.98	
Charley's	24	14	18.6	14	1.53	77	117.81	
Klein's	25	5	19.1	5	1.48	68	100.64	
Totals, Averages		102	17.6	102	1.26	405	519.83	0.444
Fishing Site	Feb. 26	9	17.9	9	1.15	176	202.40	
Moore's	27	1	15.5	1	0.87	1	0.87	
Emil's	28	0	0.0	0	0.00	0	0.00	
Totals, Averages		10	17.7	10	1.13	177	203.27	0.440
Season Totals		701	17.5	693	1.14	2,703	3,076.47	0.358
Totals, Averages 1948 Spear Season		1,735	20.1	1,609	1.84	1,790	3,280.92	0.477

Table 4

Estimates of Total Angling Pressure and Total Catch of Pike by Periods  
Fletcher Floodwater, 1955 Spear Season

Period	Total anglers counted	Average length of fishing day (Hrs.)	Average catch per hour of pike	Average pounds per hour of pike speared	Estimated total		
					Hours fished	Pike speared	Pounds of pike speared
Jan. 1 - 10	3,552	4.83	0.397	0.458	17,156	6,810	7,857
Jan. 11 - 21	2,841	5.00	0.236	0.294	14,205	3,352	4,176
Jan. 22 - Feb. 1	2,979	4.72	0.255	0.265	14,060	3,585	3,726
Feb. 2 - 14	2,868	4.72	0.316	0.323	13,537	4,277	4,372
Feb. 15 - 25	2,074	5.39	0.346	0.444	11,179	3,867	4,963
Feb. 26 - 28	863	4.71	0.383	0.440	4,065	1,556	1,788
Totals	15,177	...	...	...	74,202	23,447	26,882
Totals 1948	9,690	...	...	...	53,435	14,223	25,756

Table 5

Length-Frequency Distribution  
Average Weight of Pike in Various Size Groups  
and Percentage of Total Specimens Observed in Various Size Groups  
Fletcher Floodwater, 1955 Spear Season

Size range in inches	Number of pike weighed and measured	Average weight of various size groups	Percent of total specimens in size group	
			1955	1948
11.0 - 11.9 <sup>✓</sup>	1	0.31	0.1	...
12.0 - 12.9 <sup>✓</sup>	...	...	...	...
13.0 - 13.9 <sup>✓</sup>	1	0.50	0.1	...
14.0 - 14.9	15	0.65	2.1	0.4
15.0 - 15.9	106	0.76	15.1	0.9
16.0 - 16.9	213 <sup>✓</sup>	0.87	30.4	2.8
17.0 - 17.9	173 <sup>✓</sup>	1.05	24.7	8.8
18.0 - 18.9	95 <sup>✓</sup>	1.22	13.7	19.6
19.0 - 19.9	43	1.34	6.1	20.7
20.0 - 20.9	21	1.64	3.0	15.8
21.0 - 21.9	7	1.79	1.0	7.0
22.0 - 22.9	3 <sup>✓</sup>	1.54	0.4	6.1
23.0 - 23.9	5 <sup>✓</sup>	2.16	0.7	6.2
24.0 - 24.9	4	3.17	0.6	4.7
25.0 - 25.9	2	3.38	0.3	2.4
26.0 - 26.9	...	...	...	1.7
27.0 - 27.9	...	...	...	1.6
28.0 - 28.9	2	4.69	0.3	0.6
29.0 - 29.9	2	5.69	0.3	0.2
30.0 - 30.9	3	6.67	0.4	0.2
31.0 - 31.9	3	7.50	0.4	0.2
32.0 - 32.9	2	7.82	0.3	...
33.0 - 33.9	...	...	...	...
34.0 - 34.9	...	...	...	...
35.0 - 35.9	...	...	...	...
36.0 - 36.9	...	...	...	0.1
Totals	701		100.0	100.0

<sup>✓</sup>Undersized fish collected for scale samples.

<sup>✓</sup>4 not weighed

<sup>✓</sup>1 not weighed



Table 6

Residence of 1,762 Anglers Spearing on Fletcher Floodwater  
1955 Spear Season

Numbers in Parentheses Indicate Order of Use by the  
Residents of the Six Counties Most Often Represented

---

County or State of Residence	Number of Angling Days Recorded
------------------------------	---------------------------------

---

Alcona	4
Alpena	236 (2)
Arenac	14
Barry	2
Bay	21
Calhoun	4
Cheboygan	1
Clare	11
Clinton	4
Eaton	10
Genesee	82
Gratiot	21
Huron	1
Ionia	3
Ingham	17
Jackson	10
Lapeer	37
Lenawee	13
Livingston	9
Macomb	48
Mason	2
Midland	56
Monroe	7
Montcalm	3
Montmorency	401 (1)
Oakland	121 (4)
Ogemaw	20
Oscoda	87 (6)
Otsego	93 (5)
Presque Isle	66
Roscommon	4
Saginaw	54
Sanilac	2
St. Clair	13
Shiawassee	57
Tuscola	4
Washtenaw	30
Wayne	142 (3)
Illinois	1
Ohio	47
Unknown	4

---

Totals

1,762

---

Table 7. Average Length and Age-group Composition of Winter (Speared) Pike  
from Fletcher Floodwater in 1948 and 1955.

Period		I*	II*	III*	IV*	V*	VI*	VII*	VIII*	Average Total
Jan. - Feb. 1948	Average Length	15.3	19.1	20.9	24.7	25.6	27.7	32.8	29.0	21.8
	Number of Individuals	2	86	9	12	18	11	7	1	146
	Percent	1.4	58.9	6.2	8.2	12.3	7.5	4.8	0.7	100.0
Jan. - Feb. 1955	Average Length	11.9	16.5	18.3	22.3	28.0	31.0			17.5
	Number of Individuals	2	474	208	26	16	3			729
	Percent	0.3	65.0	28.5	3.6	2.2	0.4			100.0

\* Asterisk denotes that last annulus has not yet been formed but fish were collected past their January 1, birthday.

Appendix to Institute for Fisheries Research Report No. 1463

Progress report on

1955 SPRING AND SUMMER CREEL CENSUS DATA, FLETCHER

FLOODWATER, ALPENA AND MONTCALMOUNT COUNTIES

Kenneth E. Christensen and John E. Williams

The data compiled, to date, from the summer creel census on the Fletcher Floodwater are summarized below. The summer census is conducted in much the same manner as the 1955 winter census. The fisheries technician contacts a portion of the anglers as they complete their fishing trips, and estimates of total fishing are based on landing operators' daily records of the number of boats in use. Comparative data from the 1948 and 1955 censuses are included to show the changes that have occurred.

Year	Period	Estimated number of			C/hr. (pike)
		Anglers	Pike	Bass	
~ 1948	4/15 to 6/13	10,280	10,000	...	0.17
1955	4/30 to 6/17	4,960	4,730	...	0.18
~ 1948	6/14 to 7/23	10,100	6,420	55	0.12
1955	6/18 to 7/31	14,730	3,870	3,940	0.05

The catch per hour for the first period was equally as good in 1955 as in 1948. Fishing pressure in 1955 was about half the number of angler trips recorded for 1948. The obvious change in the second period, from 1948 to 1955, is the increase in harvest of bass. An estimated 55 bass were caught during the six-week period in 1948, as compared to nearly 4,000 in 1955. Another change in the second period, between 1948 and 1955, is the lower catch per hour of pike (from 0.12 in 1948 to 0.05 in 1955). The abnormally warm weather during much of the second period, June 18 to July 31, 1955, could have accounted for the decreased catch of pike.

The most noteworthy change that has occurred in the catch of pike in Fletcher Floodwater is the change in size composition of the catch. Forty-seven percent of the 1948 winter season catch were pike over twenty inches long. Pike over twenty inches in length comprised 44 percent of the summer catch in 1948. In 1955 only 7 percent of the winter catch were over twenty inches long, and during the first three months of the 1955 summer season only 3 percent of the pike caught were over twenty inches long. The pike fishing on Fletcher Floodwater is being supported mainly by fish which are one, two and three years old (93% to 96%). The fact that less than 10 percent of the pike are over three years old, or over twenty inches, clearly indicates that the pike population is being exploited at a near maximum rate.

Analysis of scale samples taken this summer (1955) indicates a continued slow growth for two- and three-year-old fish. The slow growth and high exploitation are somewhat conflicting in that slow growth is often attributed to overpopulation. However, it is possible that the marked change in food organisms available or utilized by the pike has caused the slow growth. The young fish may be overabundant until they exceed legal size, at which time they are harvested very closely. The large size of pan fish and the good bass fishing is undoubtedly traceable to extensive predation on these species by the pike. Any further over-exploitation of the pike might reduce predation on these other species sufficiently to allow the pan fish to become quickly overpopulated.

At present it appears that a closing of the Fletcher Floodwater to winter fishing would prevent the harvest of approximately 20 to 25 thousand pike. A certain percentage of these would contribute to the summer catch after spawning. Some would survive for two or three years,

increasing to some degree the average size of pike caught. The change in the status of the pike population would be a temporary thing if the floodwater were closed for a short period (one or two winters). An increase in size limit on pike might also be a solution. A size limit of twenty-four inches, for instance, would allow a harvest of possibly only 200 to 250 pike in the first winter, and would probably result in an increase in size of pike caught, but this would present a major enforcement problem.

The situation warrants further study of the pike and its relations to other species in the Floodwater. It is planned that this further study will be in the form of another year of creel census and a population study in the spring of 1956. Analysis of age and growth and feeding habits will be accomplished by scale and stomach collections, at certain times during the year. The 1955 creel census data will be thoroughly analyzed upon the completion of the 1955 fishing season. Because further study of the situation has been authorized, it is recommended that no changes be made in the regulations governing Fletcher Floodwater until after the 1956 study is completed.

INSTITUTE FOR FISHERIES RESEARCH

By Kenneth E. Christensen, Floyd E. Simonis,  
and John E. Williams

Approved by: G. P. Cooper

Typed by: A. D. Waterbury