

Ice Fishing Harvest at Lake Maxinkuckee

Marshall County

2004

Introduction

At 1,864 acres, Lake Maxinkuckee is the second largest natural lake in Indiana. It is located at the town of Culver in southwestern Marshall County. Lake Maxinkuckee has a maximum depth of 88 feet and an average depth of 24 feet. The Indiana Division of Fish and Wildlife (DFW) has conducted numerous fishery and creel surveys investigating the status of the fishery and angler pressure/harvest at this lake. Over the past two decades, walleye management has been the focus of DFW activities at Maxinkuckee, which include annual stocking of walleye fry and fingerlings, fishery surveys, and creel surveys. Since 1985 seven summer creel surveys have been conducted at Lake Maxinkuckee (Table 1). Despite a large body of work, very little information exists on the relative contribution of ice fishing harvest to annual mortality of walleye and other species.

Species	1985	1988	1989	1990	1991	1996	1999	2004 (ice)
Bluegill	12509	8429	2023	10447	6296	5250	1574	2315
Yellow Perch	1542	5568	962	572	149	1200	429	217
Crappie	421	573	442	442	228	1499	72	44
Rock bass	1168	835	530	643	524	313	306	37
Walleye	2055	1441	1457	849	631	3198	1352	36
Largemouth bass	1844	593	1658	1948	747	3721	756	26
Smallmouth bass	861	757	1156	1015	331	1571	311	9
Redear sunfish	86	0	368	95	36	256	75	0
White bass	415	333	240	261	165	231	54	0
Other sunfish	179	390	44	169	16	0	0	0
Other fish	92	161	48	60	49	2	3	3
TOTAL HARVEST	21172	19080	8928	16501	9172	17241	4932	2687
Hours Fished	37459	37838	33086	44145	31528	29891	29681	3813
Hours per acre	20.1	20.3	17.8	23.7	16.9	16.0	15.9	2.0

Table 1. Expanded harvest from current and previous creel surveys.

Methods

From January 4 through March 2, 2004 a direct-contact, angler creel survey was conducted on Lake Maxinkuckee. A roving creel clerk worked one 5-hour shift on ten randomly selected days per two-week period. Two shifts were created, 9 a.m. to 2 p.m. (A) and 2 p.m. to 7 p.m. (B), to cover the majority of the daylight period. Shift times

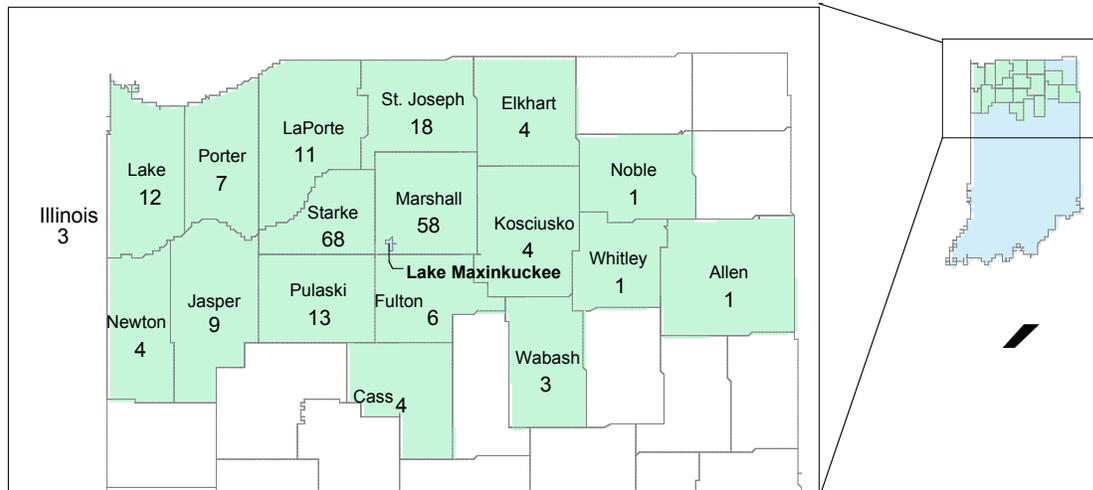


Figure 1. Number of anglers interviewed by county of origin during Maxinkuckee winter creel (n = 227).

were based on Eastern Standard Time. During each shift, the clerk recorded four visual counts of all ice fishermen on the lake. Between counts the clerk interviewed fisherman and recorded information about the day's trip. Each angler was asked the following about his trip: start time, end time, species preference, species and number harvested, species and number caught and released, their county of residence, the quality of fishing at Lake Maxinkuckee (good, fair, or poor), and if they had been interviewed there previously. The clerk also inspected angler creels to confirm species identification and to measure the length of a subsample of each species harvested. Lengths of fish measured were rounded to the nearest half-inch group (i.e. 6.0, 6.5, etc.).

Count and interview data were separated by type of day (i.e. weekday or weekend day). Per trip averages were calculated for angling effort, number of fish harvested by species, average number of fish caught and released by species. Average angler counts for each day type were used to expand results to arrive at an overall estimate of effort, harvest, and catch and release for each month of the creel.

Results

During the survey, 227 anglers from seventeen counties and one other state were interviewed (Figure 1). Over half of the anglers interviewed (55.5%) resided in either Marshall or Starke County. Some anglers traveled from as far away as Illinois to the west and Allen County to the east. As anecdotal evidence often suggests, species preference targeted those species most likely to be harvested for food (Table 2). The majority of anglers (55.5%) interviewed stated that they were

Preferred species	Number	Percent
Any	9	4.0
Bass	1	0.4
Bluegill	76	33.5
Bluegill and bass	4	1.8
Bluegill and crappie	4	1.8
Crappie and walleye	1	0.4
Crappie and yellow perch	2	0.9
No response	2	0.9
Panfish*	42	18.5
Walleye	64	28.2
Walleye and yellow perch	7	3.1
Yellow perch	15	6.6
Total	227	

*Panfish are assumed to include bluegill, crappie and yellow perch.

Table 2. Species preference as recorded from angler interviews.

targeting bluegill, while 31.7% of anglers specifically expressed interest in walleye. When asked to rate the fishing at Maxinkuckee, anglers replied with the following: good (35.7%), fair (37.9%), poor (14.5%), and undecided/no response (11.9%).

Anglers harvested an estimated 2,687 fish during the period covered by the creel survey (Table 1). Of the eight species harvested, 86.2% of the total estimated harvest was bluegill. Yellow perch accounted for another 8.1%. The remaining species all made up less than 2% of the estimated harvest individually.

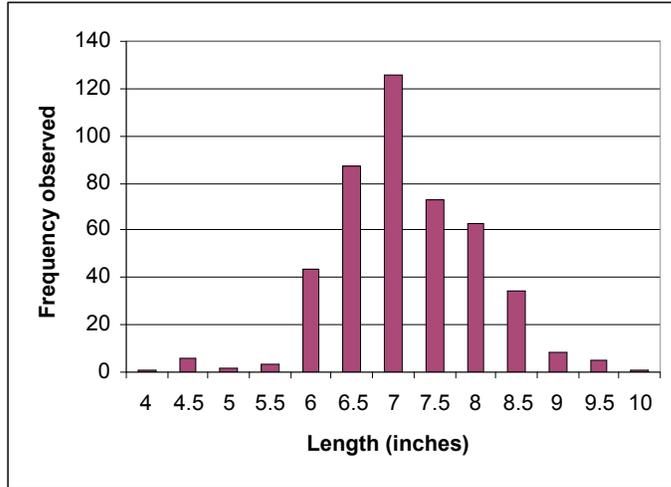


Figure 2. Length frequency histogram for bluegill in observed harvest.

Bluegill was the most targeted and harvested species during the survey. Anglers harvested an estimated 2,315 bluegill (1.24 fish /acre) during the creel survey. The estimated weight of the bluegill harvested was 658 pounds (0.35 pounds/acre). The lengths of bluegill harvested ranged from 4 to 10 inches (Figure 2). The targeted bluegill catch rate was 1.05 fish per hour (FPH).

Yellow perch ranked second in estimated harvest by number. Anglers harvested an estimated 217 (0.12 fish/acre)

yellow perch from Lake Maxinkuckee during January and February of 2004. The length range of perch from the observed harvest was 4.5 to 13.5 inches (Table 3). The targeted yellow perch catch rate was 0.34 FPH.

Harvest of walleye during the survey was quite low. Anglers only harvested an estimated 36 walleye during the creel survey. The length range from the observed harvest was 14.5 inches to 19.5 inches (Table 3). The targeted walleye catch rate was very low at 0.03 FPH.

Discussion

Results from the winter ice fishing creel at Lake Maxinkuckee show relatively low overall harvest relative to that of the summer creels. However, summer creels are conducted over a much longer period than is available for ice fishing. When comparing monthly harvest averages, it appears that ice fishing can have a significant impact while good ice is available (Figure 3). This is especially true

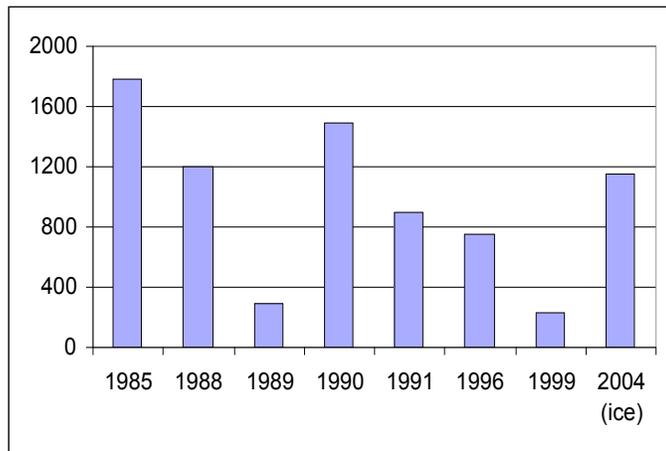


Figure 3. Estimated average monthly harvest of bluegill from current and previous Maxinkuckee creel surveys.

for species such as bluegill, which are generally targeted by more anglers during the ice season. Total estimated bluegill harvest from this creel surveys exceeded estimates from two of the previous creel surveys (Table 1). Average estimated monthly harvest rates for this creel surpassed more than half of the previous summer creel surveys on Lake Maxinkuckee (Figure 3). This evidence suggests that ice fishing can contribute significantly to annual mortality and should be considered in management decisions.

Harvest of predators (i.e. bass and walleye) was low despite substantial efforts by walleye anglers. However, the variability seen in results from previous summer creel surveys is likely to be seen in winter creel results as well. Until more information on the amount and variability of wintertime predator harvest is available, managers should not discount the impact of ice fishing on predator populations.

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2/15/2005

Approved by: _____
Stu Shipman, Fisheries Supervisor

Length Group (inches)	Bluegill	Crappie	Largemouth bass	Rock bass	Smallmouth bass	Walleye	Yellow Perch
4	1						
4.5	6						1
5	2						1
5.5	3						2
6	44						5
6.5	87			2			12
7	126	3		1			16
7.5	73	1					12
8	63	4		1			6
8.5	34			1			4
9	8	2		2			
9.5	5			1			1
10	1	1		1			1
10.5		2					1
11		1					3
11.5							
12							
12.5							
13							1
13.5							1
14					1		
14.5					1	2	
15						4	
15.5							
16			2		1		
16.5						1	
17							
17.5			1				
18							
18.5							
19							
19.5						2	
Total	453	14	3	9	3	9	67

Table 3. Length frequencies by species from observed harvest.