

**AN ANGLER CREEL SURVEY AT PIKE LAKE  
KOSCIUSKO COUNTY  
2000  
PROJECT COMPLETION REPORT**

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### **Abstract**

Pike Lake is a 228 acre natural lake located at the north side of Warsaw in Kosciusko County, Indiana. A city park on the south shore provides a handicap accessible boat ramp, temporary mooring pier, parking lot, swimming beach, and campground. Hybrid walleye (female walleye X male sauger) fingerlings were stocked five of six years 1990-1995 in June. In 1996 both hybrids and pure walleye were stocked. Beginning in 1997, only walleye were stocked. Fingerlings were 1.0-2.0 inches in length when stocked. Stocking density varied from 141.4 per acre to 38.7 per acre. First year survival determined by fall electrofishing was very good all years. A 14 inch size limit on walleye and largemouth bass went into effect in August 1996. An angler creel survey was conducted 10 April-29 September, 2000 to measure angling effort, catch, and harvest of walleye and other species.

Fishing pressure during the six month creel survey was 40.4 hours per acre. May accounted for 25% of the fishing pressure and June 23%. Average trip length was 2.84 hours. Boat anglers accounted for over 58% of the fishing pressure. About 31% of anglers were fishing for walleye while 56.5% percent said they were fishing for anything that was biting.

Total harvest was an estimated 1,007 fish of nine species. Bluegills accounted for 35.6% of the harvest at 1.57 per acre. Walleye ranked second with 273 harvested (1.2 per acre). Most walleye harvest occurred in April and May. Another 1,314 were caught and released. Catch rate for walleye was 0.32 per hour. Average length of walleye harvested was 15 inches. White bass harvest was estimated at 0.98 per acre, channel catfish at 0.35 per acre, crappie at 0.16 per acre, largemouth bass at 0.08 per acre, and yellow perch at 0.07 per acre.

Walleye survival and growth at older ages appears to have been better than hybrids. Anglers had no preference for one or the other. Catch rates were not significantly different. Support for the stocking program and 14 inch size limit remain very high.

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## ABBREVIATIONS USED FOR FISH NAMES

BLG	bluegill
CCF	channel catfish
CRP	crappie
HYB WAE	hybrid walleye
LMB	largemouth bass
NOP	northern pike
OTH	other fish
SMB	smallmouth bass
WAE	walleye
WHB	white bass



# Figure 1. PIKE LAKE AND LITTLE PIKE LAKE, KOSCIUSKO COUNTY, INDIANA

## AN ANGLER CREEL SURVEY AT PIKE LAKE KOSCIUSKO COUNTY

2000

### Introduction

Pike Lake is a 228 acre natural lake located at the north side of the city of Warsaw in Kosciusko County, Indiana. A city park on the south shore provides a handicap accessible boat ramp, mooring pier, parking lot, swimming beach, and campground (Fig. 1).

The fish population of Pike Lake was dominated by gizzard shad and small yellow perch with few top level predators (Braun, 1985). The Pike Lake Conservation Association received permits to stock walleye fingerlings in the mid-1980's in an attempt to utilize some of the available forage and provide a fishery. Limited funds prevented stocking at the recommended rate of 50 to 100 fingerlings per acre. Success was limited. The Department of Natural Resources (DNR) stocked over 700,000 walleye fry in 1989 with little survival. DNR began stocking hybrid walleye (female walleye X male sauger) fingerlings in 1990 (Table 1). Hatchery production was not sufficient in 1991 to stock Pike Lake. An angler creel survey in 1995 indicated a successful fishery had been established (Braun 1996). In 1996, both hybrid walleye and walleye were stocked. Beginning in 1997 only walleye were stocked to test differences in survival and growth. There was also genetic concerns for native sauger populations in the Tippecanoe River. Fall electrofishing samples for young of year (YOY) have been consistently high at Pike Lake (Shipman 1996) in years when they were stocked. To evaluate the success of the introductions an angler creel survey was conducted April 10-September 29, 2000.

### Methods

The standard small lake creel survey methods

were used (Hudson and Shipman 1980). The fishing day was defined as lasting 15 hours from 6:30 a.m. until 9:30 p.m. The creel survey analyst worked either "A period" (6:30 a.m.-2:00 p.m.) or "B period" (2:00 p.m.-9:30 p.m.) on three weekend days and seven weekdays each two-week interval. Days and periods worked were randomly selected for each two-week interval. The number of people fishing each hour was recorded. The creel analyst attempted to interview anglers as they left the lake to obtain complete fishing trip information.

Each fishing party was interviewed to determine the length of fishing trip, species fishing for, species,

Table 1. Number, size and stocking rate of walleye and hybrid walleye stocked into Pike Lake by DNR.

Year	Number	Size (in.)	No./Ac.
1989	719,100	fry	3,154
1990	32,242	1.4	141.4
1992	8,825	1.2	38.7
1993	11,550	1.7	50.6
1994	13,283	1.8	58.3
1995	11,536	1.4	50.6
1996*	2,601	2.4	11
1996**	12,000	1.7	53
1997	11,648	1.7	51
1998	26,270	1.5	115
1999	17,900	1.6	79
2000	11,890	1.4	52

\*Hybrid walleye \*\*Walleye

size, and number of fish harvested, species and number of fish released, number of people in the party, county of residence, if they were aware of the walleye stocking, and whether they were satisfied with the fishing trip that day. Data were kept separate for weekend, weekday, boat and shore anglers by month. Weight of fish harvested was calculated using length-weight data collected during a general fisheries survey conducted June 12-14, 2000. Aquatic vegetation was measured on 25 July.

## Results

### Creel Survey

During the six months of this creel survey the creel clerk interviewed 1,232 anglers on Pike Lake (Table 2). Shore anglers accounted for 50.5% of the interviews and boat anglers 49.5%. Boat anglers however accounted for 58.3% of the interview hours. Anglers fishing on weekends and holidays accounted for 47.5% of the interviews but 51% of the interview hours. Interviewed anglers fished a total of 3,524 hours for an average of 2.84 hours per trip. Weekday anglers averaged 2.65 hours per trip while weekend anglers averaged 3.12 hours per trip. Boat anglers averaged 3.44 hours while shore anglers averaged 2.36 hours. July weekday boat anglers fished the longest at 4.23 hours per trip. May weekday shore anglers averaged the shortest trips at 2.03 hours.

Table 2. Number of people interviewed and hours fished on Pike Lake, 2000.

Month	Day of week	Boat/ Shore	No. of anglers interviewed	Int. Hours
April	Week End	BOAT	53	195.58
April	Week Day	BOAT	41	140.83
April	Week End	SHORE	59	137.33
April	Week Day	SHORE	68	146.58
May	Week End	BOAT	93	340.67
May	Week Day	BOAT	83	301.42
May	Week End	SHORE	82	238.17
May	Week Day	SHORE	102	207.25
June	Week End	BOAT	47	151.00
June	Week Day	BOAT	55	141.50
June	Week End	SHORE	22	80.00
June	Week Day	SHORE	77	169.33
July	Week End	BOAT	69	232.83
July	Week Day	BOAT	40	169.25
July	Week End	SHORE	55	120.67
July	Week Day	SHORE	56	136.25
August	Week End	BOAT	41	126.67
August	Week Day	BOAT	36	100.33



August	Week End	SHORE	10	22.58
August	Week Day	SHORE	36	76.75
Sept.	Week End	BOAT	31	104.00
September	Week Day	BOAT	21	51.00
September	Week End	SHORE	23	47.25
Sept.	Week Day	SHORE	32	86.50
Total			1,232	3523.74

Table 3. Estimated fishing pressure on Pike Lake by month, 2000.

Month	Day	Boat hr.	Shore hr.	Total hr.	%	Month total hr.	% by month
April	Week End	600.00	590.63	1190.63	12.91	1962.51	21.28
April	Week Day	340.63	431.25	771.88	8.37		
May	Week End	619.55	499.02	1118.57	12.13	2284.57	24.78
May	Week Day	649.00	517.00	1166.00	12.65		
June	Week End	312.00	204.00	516.00	5.60	1204.36	13.06
June	Week Day	306.80	381.56	688.36	7.47		
July	Week End	612.86	521.52	1134.38	12.30	2087.96	22.64
July	Week Day	476.79	476.79	953.58	10.34		
August	Week End	468.75	82.50	551.25	5.98	1012.94	10.99
August	Week Day	284.12	177.57	461.69	5.01		
September	Week End	277.50	108.75	386.25	4.19	668.60	7.25
September	Week Day	138.97	143.38	282.35	3.06		
Total		5086.97	4133.97	9220.94			

Table 4. County of residence of Pike Lake anglers, 2000.

County	No. of Parties	%
Allen	11	0.89
Blackford	2	0.16
Elkhart	36	2.92
Fulton	2	0.16
Grant	9	0.73
Hamilton	1	0.08
Jasper	5	0.41
Jay	2	0.16
Kosciusko	890	72.24
LaGrange	2	0.16
Lake	24	1.95
Madison	10	0.81
Marshall	16	1.30

Miami	7	0.57
Noble	1	0.08
Porter	11	0.89
St. Joseph	12	0.97
Tippecanoe	1	0.08
Tipton	2	0.16
Wabash	7	0.57
Wells	2	0.16
Whitley	24	1.95
Non-resident	154	12.50
No response	1	0.08
Total	1,232	

Table 5. Angler responses to the quality of fishing question, Pike Lake, 2000.

Response	# of Anglers	%
No response	31	2.52

Improving	103	8.36
Staying the same	1068	86.69
Declining	30	2.44

Total expanded fishing pressure for the six month creel survey was 9,221 hours or 40.44 hours per acre (Table 3). Almost 25% of the fishing pressure occurred in May and 23% in July. September was the slowest month with 7.25% of the fishing pressure. Boat anglers accounted for 55.2% of total fishing pressure.

Table 6. Angler response to the quality of fishing question by preference group, Pike Lake, 2000.

Fishing for	Quality	# of Anglers	% of Pref. Group
Anything	NR	20	2.87
	I	57	8.19
	S	599	86.06
	D	20	2.87
WAE	NR	3	0.87
	I	23	6.71
	S	311	90.67
	D	6	1.75
BLG	NR	1	2.38
	S	34	80.95
	I	3	7.14
	S	4	9.52
CRP	I	7	14.00
	S	39	78.00
	D	4	8.00
WHB	NR	2	9.52
	I	3	14.29
	S	16	76.19
CCF	NR	3	10.71
	I	3	10.71
	S	22	78.57
BLG + WAE	I	1	16.67
	S	5	83.33
NOP	S	4	100
CRP + WAE	I	4	57.14

	S	3	42.86
BLG + LMB + WAE	NR	2	8.33
	S	22	91.67
WAE + WHB	I	2	100
SMB	S	2	100

Anglers came from 22 counties in Indiana (Table 4). Kosciusko County residents accounted for 72% of the anglers interviewed. Non-residents accounted for 12.5% of the interviews. Most of the non-residents were staying at the campground next to the ramp. Only one angler gave no response.

Anglers were asked how many times they fished Pike Lake per year. Responses ranged from one to 250. The average was 12 times per year.

Eighty-seven percent of the anglers interviewed said the quality of fishing at Pike Lake was staying the same (Table 5). Eight percent said the quality of fishing was improving. About 2.4% of the anglers interviewed said the quality of fishing was declining and 2.5% gave no response to the question. Of the 30 anglers who said the quality of fishing was declining, 20 were fishing for anything, six were fishing for walleye and four were fishing for largemouth bass (Table 6). People fishing for walleye in combination with another species were most likely to say the quality of fishing was improving. For single species preference groups, crappie anglers and white bass anglers were most likely to say the quality was improving. Over 90% of walleye anglers said quality was staying the same.

Table 7. Angler response to the question "Are you satisfied with your fishing trip today?", Pike Lake, 2000.

Satisfied?	# of Anglers	%
Yes	682	90.09
No	69	9.11
NR	6	0.79

When asked if they were satisfied with their fishing trip that day, 90% answered yes (Table 7). Nine percent answered no.

Table 8. Angler support for the 14 inch walleye size limit, Pike Lake, 2000.

Support for WAE size limit	Number of Anglers	%

Strongly support	1215	98.62
Support	6	0.49
Neutral	0	0
Oppose	0	0
Strongly oppose	4	0.32
No response	7	0.57

The creel clerk asked anglers for their opinion on the 14 inch walleye length limit. On a scale of 1 to 5 with 1 being strongly supportive, 3 neutral and 5 strongly opposed, how would you rate your support for this rule? Ninety-nine percent of the anglers interviewed supported the 14 inch size limit (Table 8). The only people who were opposed were fishing for anything. They wanted to keep all fish caught and did not support the 14 inch size limit on largemouth bass either.

An estimated 1,007 fish were harvested from Pike Lake during the creel survey (Table 9). Nine species were represented, including one smallmouth bass not listed in Table 9. Catch and release numbers were calculated for four species. Another six species were reported released but their numbers were not expanded (Table 10). The number of fish released was about 2.5 times the number harvested.

Anglers harvested fish at a rate of 0.12 fish per hour (Table 11). An average of 0.29 fish per hour were released for an average catch rate of 0.41 fish per hour for all anglers and all fish (harvest plus release).

Bluegills accounted for 35.6% of all fish harvested (Table 9). Length range of harvested bluegills was 5-9 inches (Table 12). About 23% were  $\geq 8$  inches. More bluegills were harvested in September than any other month followed by May and June. People who said they were fishing for bluegills or bluegills in combination with another species harvested bluegills at the rate of 0.11 per hour. Only 2.8% of anglers said they were fishing for bluegills and another 3% for bluegills in combination with another species.

An estimated 273 walleye were harvested (1.2 per acre) during this survey. Length range was 14-23.5 inches (Table 13). The average walleye harvested was 15 inches. Four percent were  $>20$  inches. Eighty-eight percent were harvested in April and May. The largest walleyes were taken in July. Almost five times more walleyes were released than

harvested with the majority being released during April and May. Almost 28% of the anglers interviewed said they were fishing for walleye and another 3% said they were fishing for walleyes in combination with another species. People fishing for walleyes accounted for 32.6% of fishing pressure. If anglers fishing for walleyes in combination with another species are included, another 3.4% is added. These anglers were the most successful at catching walleyes with a harvest rate of 0.07 per hour and a catch rate of 0.32 per hour.

White bass ranked third in the harvest with 223 taken (0.98 per acre). Length range was 6-16 inches (Table 15). Fifty-two percent were  $\geq 12$  inches while 27% were  $<10$  inches. An estimated 562 white bass were released. Highest harvest occurred during September followed by May. Highest release occurred in April and May. Less than 2% of anglers were fishing for white bass or white bass in

Table 9. Fish harvested from Pike Lake by month, 2000.

MONTH	B/S	Expanded harvest (number)								Released (number)			
		BLG	WAE	WHB	CCF	CRP	LMB	YEP	NOP	WAE	WHB	BLG	LMB
April	B	5	44	4	2	0	3	0	0	211	58	9	24
April	S	3	71	18	4	0	0	3	0	133	16	13	20
May	B	30	108	29	4	2	8	2	2	325	121	39	16
May	S	41	21	34	17	2	2	5	0	297	49	7	12
June	B	23	6	11	9	0	2	0	0	91	60	47	27
June	S	31	7	15	5	0	0	0	0	25	36	65	11
July	B	3	11	24	22	13	0	0	0	41	80	29	21
July	S	32	0	4	4	0	3	0	0	42	8	174	10
Aug.	B	23	0	0	8	0	0	0	0	85	63	33	38
Aug.	S	23	0	2	0	14	0	0	0	25	9	7	0
Sept.	B	118	5	29	5	0	0	5	0	14	51	14	8
Sept.	S	26	0	53	0	6	0	0	0	25	11	18	2
Total		358	273	223	80	37	18	15	2	1314	562	455	189
No./Ac.		1.57	1.20	0.98	0.35	0.16	0.08	0.07	<.01	5.76	2.46	2.00	0.83
Lbs./Ac.		0.45	1.36	0.77	0.97	0.04	0.20	0.01	0.04				

Table 10. Recorded Number of Other Fish Released at Pike Lake, 2000.

Species	Channel catfish	Crappie	Northern pike	Smallmouth bass	Bowfin	Quillback
No. Released	17	10	3	1	1	1

Table 11. Harvest rate and catch rate (harvest + release) by preference group (includes combinations) for Pike Lake, 2000.

Fishing For	% of anglers	Harvest rate (no./hr.) by preference group								Catch rate (no./hr.) (harvest + released)			
		Species harvested								All fish	WAE	LMB	All fish
		BLG	WAE	WHB	CCF	CRP	LMB	YEP	NOP	All fish	WAE	LMB	All fish
BLG	5.85	.11	<.01	<.01	<.01	<.01	0	0	0	.14	.07	.02	.32
WAE	31.01	.03	.07	.03	<.01	<.01	<.01	<.01	<.01	.16	.32	.02	.63
CRP	1.14	.42	0	0	.03	0	0	.06	0	.50	.17	0	.84
LMB	6.58	0	.01	<.01	0	<.01	.01	0	0	.04	.14	.10	.37
CCF	2.27	0	0	0	.08	0	0	0	0	.08	.05	0	.17
NOP	0.32	0	0	0	0	0	0	0	0	0	0	0	0
SMB	0.16	0	0	0	0	0	0	0	0	0	.33	.33	2.33
WHB	1.86	.09	0	.37	0	.02	0	0	0	.48	0	.09	1.09
ANY	56.49	.05	.01	.02	.01	.01	<.01	0	0	.10	.07	.01	.26
ALL	100	.04	.03	.03	.01	<.01	<.01	<.01	<.01	.12	.15	.02	.41

combination with walleye. These anglers harvested white bass at the rate of 0.37 per hour and released 0.45 per hour.

Only 2.3% of interviewed anglers were fishing for catfish. They accounted for 3.25% of the fishing pressure and harvested channel catfish at the rate of

0.08 per hour. They harvested no other species. People fishing for anything harvested more channel catfish but at a much lower rate. Length range of the estimated 80 channel catfish harvested was 11-28 inches (Table 15). Only 7.4% were <16 inches while 14.8% were \$23 inches.

Table 12. Length-frequency of bluegills harvested from Pike Lake by month, 2000.

Length (in.)	Observed harvest (number)						Total	%	Expanded harvest (number)
	April	May	June	July	Aug.	Sept.			
5.0				1			1	0.71	3
5.5		2			3		5	3.55	13
6.0		6	4		3	11	24	17.02	60
6.5	1	6	3	2	3	11	26	18.44	66
7.0		7	4	1	3	11	26	18.44	66
7.5		6	3	3	3	11	26	18.44	66
8.0	1	4	6	2	2	5	20	14.18	51
8.5	1		5			5	11	7.80	28
9.0						2	2	1.42	5
TOTAL	3	31	25	9	17	56	141		358
%	2.13	21.98	17.73	6.38	12.06	39.72			102.12 lb.

Table 13. Length-frequency of walleye harvested from Pike Lake by month, 2000.

Length (in.)	Observed harvest (number)						Total	%	Expanded harvest (number)
	April	May	June	July	Aug.	Sept.			
14.0	7	11	2	2		1	23	18.70	51
14.5	10	6					16	13.01	37
15.0	8	14	1	1			24	19.51	53
15.5	2	14	1	1		1	19	15.45	42
16.0	8	6	2				16	13.01	36
16.5	2	5					7	5.69	16
17.0		5					5	4.07	11
17.5		5					5	4.07	11
18.0		1					1	0.81	2
18.5									
19.0									
19.5		2					2	1.63	4
20.0									
20.5									
21.0	1						1	0.81	2

21.5									
22.0									
22.5	1			1			2	1.63	4
\$23.0				2			2	1.63	4
TOTAL	39	69	6	7		2	123		273
%	31.71	56.10	4.88	5.69	0	1.63			309.22 lb.

Table 14. Length-frequency of white bass harvested from Pike Lake, 2000.

Length (in.)	Observed Harvest (number)							Total	%	Expanded harvest (number)
	April	May	June	July	Aug.	Sept.				
6.0			3				3	3.33	7	
6.5			2			3	5	5.56	12	
7.0			1	1		4	6	6.67	15	
7.5				2		2	4	4.44	10	
8.0				1		1	2	2.22	5	
8.5						2	2	2.22	5	
9.0		1		1			2	2.22	5	
9.5		1					1	1.11	2	
10.0		1				3	4	4.44	10	
10.5		1				1	2	2.22	5	
11.0		1		1		4	6	6.67	15	
11.5		3				3	6	6.67	15	
12.0	2	5	2			5	14	15.56	36	
12.5		2				3	5	5.56	12	
13.0		2	2		1	1	6	6.67	15	
13.5	1						1	1.11	2	
14.0	2	7		3			12	13.33	30	
14.5				1			1	1.11	2	
15.0	1	2		1		2	6	6.67	15	
15.5										
16.0	1		1				2	2.22	5	
TOTAL	7	26	11	11	1	34	90		223	
%	7.78	28.89	12.22	12.22	1.11	37.78			175.38 lb.	

An estimated 37 crappies were harvested during this six month creel survey. Length range was 7-10 inches (Table 16).

An estimated 18 largemouth bass were harvested and 189 released. Length range of harvested largemouth was 14.5-23.5 inches (Table 17). The majority of bass

were harvested in May but the largest bass was taken in April. Only four percent of interviewed anglers said they were fishing for largemouth bass and another 2.5% were fishing for bass in combination with bluegill and walleye. Bass anglers caught more walleyes than bass.

Three other species were reported in the harvest, yellow perch, northern pike and smallmouth bass. One 33 inch northern pike and one 16.5 inch smallmouth bass were harvested in May. Length range of the perch harvested was 6-10.5 inches.

#### Fish Survey

The general fish population survey was conducted 12-14 June 2000. Sampling effort was one hour of night dc electrofishing, five gill-net lifts and six trap-net lifts. Physical and chemical characteristics were measured on 12 June (Appendix A).

Water color in both basins was brown due to rain the previous week. The 23,405 acre watershed is primarily agricultural. A Lake and River Enhancement Project has been initiated in the watershed to address soil erosion problems (IS&T, 1990). Water clarity (Secchi disc) in Pike Lake was 26 inches and 25 inches in Little Pike Lake.

Dissolved oxygen concentrations were sufficient to support fish to a depth of 12 feet in Pike Lake and eight feet in Little Pike Lake.

Table 15. Length-frequency of channel catfish harvested from Pike Lake by month, 2000.

Length (in.)	Observed harvest (number)						Total	%	Expanded harvest (number)
	April	May	June	July	Aug.	Sept.			
11.0			1				1	3.70	3
							0		
14.0						1	1	3.70	3
							0		
17.0	1						1	3.70	3
17.5					2		2	7.41	6
18.0				1	1	1	3	11.11	8
18.5		1					1	3.70	3
19.0		1	1				2	7.41	6
19.5		1		1			2	7.41	6
20.0		4					4	14.81	12
20.5			1				1	3.70	3
21.0			1				1	3.70	3
21.5				1			1	3.70	3
22.0		1	1				2	7.41	6
22.5			1				1	3.70	3
\$23.0		2		2			4	14.81	12

TOTAL	1	10	6	5	3	2	27		80
%	3.70	37.04	22.22	18.52	11.11	7.41			221.02

Table 16. Length-frequency of crappies harvested from Pike Lake by month, 2000.

Length (in.)	Observed harvest (number)							Total	%	Expanded harvest (number)
	April	May	June	July	Aug.	Sept.				
7.0		1			2		3	18.75	7	
7.5					1		1	6.25	2	
8.0				5	1	1	7	43.75	16	
8.5						1	1	6.25	2	
9.0					1		1	6.25	2	
9.5		1				1	2	12.5	5	
10.0					1		1	6.25	2	
TOTAL	0	2	0	5	6	3	16		37	
%	0	12.5	0	31.25	37.5	18.75			8.95 lb.	

A total of 975 fish weighing 697 pounds was collected during the fish population survey. Twenty-eight species and one hybrid were represented (Table 18). Species commonly sought by anglers accounted for 53.3% of the sample by number and 39.4% by weight.

Bluegill was the most abundant species with 205 collected representing 21% of the sample. Length range was 2.2-8.8 inches with 74.6% \$6 inches. Seventy percent were \$7 inches and 3.9% were \$8 inches. Average weight per length was very close to the 1995 survey. Ages 1+-7+ were represented. Growth has not changed since the 1995 survey.

Table 17. Length-frequency of largemouth bass harvested from Pike Lake by month, 2000.

Length (in.)	Observed harvest (number)							Total	%	Expanded harvest (number)
	April	May	June	July	Aug.	Sept.				
14.5			1				1	14.29	3	
15.0		3		1			4	57.1	10	
							0			
19.0		1					1	14.29	3	
							0			
23.0	1						1	14.29	2	
TOTAL	1	4	1	1	0	0	7		18	
%	14.29	57.1	14.29	14.29					46.20 lb.	

Gizzard shad ranked second in abundance with 171 collected. Length range was 5.8-12.0 inches.

Over 80% were \$8 inches and probably age 2+.



White bass accounted for 13.2% of the sample by number and 6.6% by weight. Length range of the 129 white bass collected was 5.6-15.2 inches. Seventy-nine percent were age 1+ and 5.5-9.0 inches. Seventeen percent were \$12 inches. Average weight per length has not changed. Ages 1+-5+ were represented. Growth was faster for age 1+-3+ than in 1995 and the same for older white bass.

Pike Lake has a large population of longear sunfish due to its proximity to the Tippecanoe River and high flushing rate. The 95 longear sunfish collected represented 9.7% of the total sample. Length range was 2.9-6.7 inches. Seventy-two percent were 5-6 inches.

Fifty-seven channel catfish were collected weighing 116 pounds representing 5.8% of the sample by number and 16.6% by weight. Length range was 11.4-24.0 inches. Eighty-four percent were \$16 inches and 1.8% were \$24 inches. Average weight per length was slightly better for larger size groups in 2000.

The 55 walleyes collected represented 5.6% of the total sample. Walleye accounted for 4% of the total weight. Length range was 6.6-22.0 inches. Twenty percent were \$14 inches and 3.6% were \$20 inches. Weight of walleye up to 14 inches was equal to hybrid walleye of the same length in 1995. Fifteen and 16.0 inch hybrids in 1995 weighed slightly more than walleyes of the same length in this survey. Ages 1+-4+ were represented. Growth was average. Back-calculated lengths at age 1+ and 2+ were less than hybrid walleye in 1995 but were equal to hybrids of older ages.

Four species from the sucker family were collected: spotted sucker, white sucker, quillback and golden redhorse. These species are more commonly found in rivers but are present in Pike Lake for the same reasons longear sunfish are. These four species accounted for 14% of the sample by number and 33.4% by weight.

Thirty yellow perch were collected. Length range was 4.1-8.5 inches. Ages 1+, 2+ and 4+ were represented. Growth was better than in 1995. Average weights were similar to 1995.

Largemouth bass accounted for 2.4% of the sample by both number and weight. Length range was 5.1-19.5 inches. Three were \$14 inches. Average

weight per length has not changed. Ages 1+-5+ and 8+ were represented. Growth was faster for all ages than in the 1995 survey.

Sixteen common carp were collected. Although representing only 1.6% of the sample by number, they represented 13.9% by weight due to their large size. Length range was 20.6-28.0 inches.

Both white and black crappie are present in Pike Lake. Seven white crappie and five black crappie were collected. Length range of white crappie was 7.6-11.5 inches and for black crappie, 6.8-10.6 inches. Ages 1+-3+ were represented for both species.

Four northern pike were collected. Length range was 24.4-26.7 inches. Two were age 2+ and two were age 3+.

Spotted gar is a common lake species and eight were collected. Length range was 18.5-31.0 inches. Longnose gar is a larger species and more commonly found in rivers. Three were taken during this survey.

Table 18. Species and relative abundance by number and weight, Pike Lake, 2000.

Common Name of Fish*	Number	Percent	Length range (inches)	Weight (pounds)	Percent
Bluegill	205	21.0	2.2-8.8	42.60	6.1
Gizzard shad	171	17.5	5.8-12.0	57.10	8.2
White bass	129	13.2	5.6-15.2	46.35	6.6
Longear sunfish	95	9.7	2.9-6.7	12.76	1.8
Channel catfish	57	5.8	11.4-24.0	115.56	16.6
Walleye	55	5.6	6.6-22.0	28.04	4.0
Spotted sucker	47	4.8	7.0-16.6	43.08	6.2
White sucker	47	4.8	9.8-19.9	77.06	11.1
Quillback	34	3.5	6.7-21.0	95.68	13.7
Yellow perch	30	3.1	4.1-8.5	3.14	0.5
Largemouth bass	23	2.4	5.1-19.5	16.47	2.4
Common carp	16	1.6	20.6-28.0	96.58	13.9
Pumpkinseed	9	0.9	4.8-6.7	1.36	0.2
Golden redhorse	9	0.9	12.4-18.8	16.56	2.4
Spotted gar	8	0.8	18.5-31.0	12.70	1.8
White crappie	7	0.7	7.6-11.5	2.29	0.3
Redear sunfish	6	0.6	3.5-10.0	3.24	0.5
Black crappie	5	0.5	6.8-10.6	1.22	0.2
Northern pike	4	0.4	24.4-26.7	15.23	2.2
Longnose gar	3	0.3	24.0-30.0	3.65	0.5
Warmouth	3	0.3	6.0-8.5	0.98	0.1
Brown bullhead	3	0.3	12.3-13.1	3.00	0.4
Spotfin shiner	2	0.2	3.7-4.2	0.04	0.0
Green sunfish	2	0.2	5.3-5.7	0.26	0.0
Bowfin	1	0.1	16.1	1.38	0.2
Bluntnose minnow	1	0.1	2.2	0.00	0.0
Hybrid sunfish	1	0.1	6.3	0.20	0.0
Logperch	1	0.1	4.3	0.02	0.0
Yellow bullhead	1	0.1	10.5	0.60	0.1
<b>TOTAL</b>	975	100.0		697.15	100.0

\*Common names of fishes recognized by the American Fisheries Society

Length range was 24-30 inches.

July 2000 following standard guidelines (Shipman,

The aquatic vegetation survey was conducted 25

et.al. 2001). Four transects were located in Pike Lake

and two in Little Pike Lake. The dominant submergent vegetation was Eurasian watermilfoil and Sago pondweed (Appendix C). The most common emergent plant was water lily. One stand of hardstem bullrush persists on the east shore of Pike Lake south of the beach. High turbidity and fluctuating water levels limit aquatic plant growth.

### Discussion

Some changes are apparent since 1995. The most notable is the increase in bluegill catch from 122 to 205 in the general survey. Bluegill ranked fourth in numerical abundance in 1995 but first in 2000. The increase was due to the increased catch in trap-nets. Cold weather early in the year may have delayed bluegill spawning making them more vulnerable to trap-nets in mid-June. Growth and length-frequency distribution were similar both years. Bluegill remained the most abundant fish in the creel but the harvest in 2000 was 17% of the 1995 harvest. In 1995 the majority of bluegills were harvested in May and June while in 2000 it was May and September. More larger bluegills were harvested in 2000 with 23%  $\geq 8$  inches while in 1995  $<10\%$  were that size.

Gizzard shad were less abundant than in 1995 when they ranked first. Shad accounted for 35% of the sample in 1995 but only 17.5% in 2000. Length-frequency distribution was similar both years.

2000 was a good year for white bass. In 1995 only 38 were collected representing three percent of the sample compared to 129 representing 13% of the sample in this survey. This was the result of a very strong 1999 year class which made up about 78% of the white bass collected in 2000. This year class made up about 25% of the harvest in 2000. White bass ranked third in the harvest, the same as the 1995 creel survey. White bass fishing is expected to improve in 2001 and 2002 as this year class grows to larger, more desirable sizes.

Longear sunfish abundance in 2000 was the same as in the 1984 survey, much less than the 174 collected in 1995. Even at this level, longear are more abundant in Pike Lake than most natural lakes in Indiana. Deed's Creek is a major tributary entering the north side of Pike Lake and the Tippecanoe River is only a short distance from the outlet. Both are sources for this mainly river species. Anglers seldom harvest this species due to its small size.

Channel catfish abundance in 2000 was less than

one-half of what it was in 1995. Length-frequency distribution was very similar but the average size was a little larger in 2000. Channel catfish harvest was only 16.5% of the 1995 harvest but they were larger. Almost 15% of the channel catfish harvested in 2000 were  $\geq 23$  inches while  $<1\%$  were that large in 1995. Only 2% of anglers were fishing for catfish in 2000 compared to 21% in 1995. Harvest rate was slightly higher in 1995 at 0.11 per hour compared to 0.08 per hour in 2000. The hot, dry weather during the summer of 2000 may have discouraged catfish anglers.

The 55 walleye collected during this fisheries survey was slightly more than the 52 hybrid walleye collected in 1995. Walleye up to age 4+ were collected while the oldest hybrid walleye collected in 1995 were age 3+. The age 2+ walleye collected had a greater length range than the age 2+ hybrid walleye. Walleye growth the first year was slower than hybrids but by age 2+ the walleye had caught up to the hybrids and older age walleye were slightly larger than the same age hybrids. Although 1,464 hybrid walleye were harvested during the seven months of the 1995 creel survey, only 26% were  $\geq 14$  inches. Only 6% of that harvest occurred in October. The largest hybrid walleye harvested in 1995 were 18 inches in length while walleye harvested in 2000 were as large as 23.5 inches. Of the estimated 386 hybrid walleye  $\geq 14$  inches harvested in 1995, 69% were 14 inches. In 2000, only 18% were in the 14 inch size group and about 6% were  $\geq 18$  inches. Harvest rate of walleye by all anglers declined from 0.12 per hour to 0.03 per hour and for walleye anglers the harvest rate declined from 0.27 per hour to 0.07 per hour. Catch rate of walleye by all anglers declined from 0.18 per hour to 0.15 per hour and for walleye anglers catch rate went from 0.39 per hour to 0.32 per hour. In the 1995 creel survey, 29% of the interviewed anglers said they were fishing for hybrid walleye. In 2000, 31% of the interviewed anglers were fishing for walleye. Although hybrid walleye seem to have a slight advantage in growth the first year, walleye make up that difference in subsequent years. There does not appear to be any difference in survival at younger ages but walleye may have an advantage to older ages in Pike Lake. Catch rates during fall sampling and summer general surveys remain high. Anglers treated them equally. The 14 inch size limit was an obvious factor in the reduced harvest but catch rate was not significantly different between the hybrids and pure walleye. Angler support of the size limit and satisfaction remain high.

While yellow perch ranked second in abundance in the 1984 survey they represented only 3.5% of the sample in 1995 and were down to 3.1% of the sample in 2000. Length-frequency distribution in 2000 was very close to that found in 1995, both years with much larger perch than found in 1984. Growth has improved substantially. Back-calculated length at age 2+ in 1995 was 4.8 inches but increased to 6.0 inches in 2000, as large as the 3+ in 1995. Only one older perch was collected in 2000 so no comparison can be made for older age groups at this time. Harvest of perch in 2000 was only 10% of the 1995 harvest and no anglers targeted perch.

The catch of largemouth bass in the 2000 general survey was less than ½ the number collected in 1995. Other than the one 19.5 inch bass collected in 2000, the length-frequency distributions were similar. Growth has improved to above average. The largemouth bass size limit in 1995 was 12 inches and the harvest of bass that year was 158 of which about 24% were sublegal. The bass size limit increased to 14 inches in 1996. The 2000 harvest of 18 bass were all legal size fish >14 inches. Catch rate of bass by bass anglers was only slightly lower in 2000.

Only five crappies were collected in the 1995 survey, three black and two white. The catch increased to seven white and five black crappies in 2000. Both much lower than the 1984 survey catch of 47 black and seven white crappies. The harvest of crappies in 2000 was 13% of the 1995 harvest. While 40% of the crappie harvest in 1995 occurred in April, none were harvested during April, 2000. Only one percent of the anglers in 2000 said they were fishing for crappies while five percent of the 1995 anglers were fishing for crappies. Interest in crappie fishing seems to be declining at Pike Lake even though the general survey indicated that good size crappies were present.

The northern pike survey catch declined from six in 1995 to four in 2000. Only one year class was present. Pike continue to maintain a small population in Pike Lake that provides an occasional trophy fish. The 1995 estimated harvest was ten.

Despite the decrease in the number of fish harvested and decline in catch rate, the majority of anglers considered the quality of fishing staying the same or improving. Less than 3% of the interviewed anglers considered the quality of fishing declining. An increasing majority of anglers were fishing for walleye and these anglers were experiencing high

catch rates. The walleye they were catching were larger than the hybrid walleye caught in 1995. The walleye appear to be surviving longer, therefore reaching larger size than the hybrids which only serves to increase angler satisfaction. With continued stocking of June fingerlings, long term survival should produce walleye of larger sizes over the next five to ten years. Pike Lake has become one of the premier walleye lakes in northern Indiana.

#### **Recommendations**

1. The Division of Fish and Wildlife should continue stocking walleye June fingerlings at the rate of 50 per acre with occasional fall sampling to monitor survival.
2. The Division of Fish and Wildlife should support and assist the Pike Lake Conservation Club, Kosciusko County Soil and Water Conservation District, Division of Soil Conservation, and USDA Natural Resources Conservation Service in implementing the Lake and River Enhancement project where appropriate.
3. The Pike Lake fishery should be promoted through the news media.

Submitted by: Edward R. Braun  
 Fisheries Biologist  
 Date: 13 May 2002

Approved by: \_\_\_\_\_  
 Gary Hudson  
 Fisheries Supervisor  
 Date: 25 June 2002

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**APPENDIX A**  
**PHYSICAL AND CHEMICAL CHARACTERISTICS OF PIKE**  
**AND LITTLE PIKE LAKES**  
**12 JUNE 2000**

<b>SAMPLING EFFORT</b>			
<b>BODY OF WATER: Pike Lake</b>		<b>SAMPLING DATE: 6/12-14/2000</b>	
ELECTROFISHING	Day Hours	Night Hours 1	Total Hours 1
TRAPS	Number 3	Lifts 2	Total Lifts 6
GILL NETS	Number 3/2	Lifts 2	Total Lifts 5

<b>PHYSICAL AND CHEMICAL CHARACTERISTICS</b>			
Color: Brown		Turbidity: 2 Ft. 2 Inches (SECCHI DISK)	
Alkalinity (ppm): Surface: 160 Bottom: 214		pH: Surface: 8.75 Bottom: 7.5	
Conductivity (FS): 501		Air temperature (°F): 80	
Water chemistry GPS coordinates: N 41.24799		W 85.84352	

<b>TEMPERATURE AND DISSOLVED OXYGEN (D.O.)</b>								
DEPTH (feet)	TEMP. (°F)	D.O. (ppm)	DEPTH (feet)	TEMP. (°F)	D.O. (ppm)	DEPTH (feet)	TEMP. (°F)	D.O. (ppm)
SURFACE	74	14.0	32	50	0.47	64		
2	73	14.0	34			66		
4	73	12.5	36			68		
6	73	11.1	38			70		
8	72	10.1	40			72		
10	70	7.3	42			74		
12	66	4.9	44			78		
14	63	1.7	46			80		
16	61	0.89	48			82		
18	59	0.76	50			84		
20	57	0.69	52			86		
22	55	0.65	54			88		
24	54	0.59	56			90		
26	54	0.55	58			92		
28	52	0.54	60			94		
30	52	0.50	62			96		

COMMENTS
TDS=325 ppm

ppm=parts per million



<b>SAMPLING EFFORT</b>			
<b>BODY OF WATER:</b> Little Pike Lake		<b>SAMPLING DATE:</b> 6/12-14/2000	
ELECTROFISHING	Day Hours	Night Hours	Total Hours
TRAPS	Number	Lifts	Total Lifts
GILL NETS	Number	Lifts	Total Lifts

<b>PHYSICAL AND CHEMICAL CHARACTERISTICS</b>			
Color:	Brown	Turbidity:	2 Ft. 1 Inches (SECCHI DISK)
Alkalinity (ppm): Surface:	160	Bottom:	pH: Surface: 8.75 Bottom: 8.0
Conductivity (FS):	489	Air temperature (°F):	80
Water chemistry GPS coordinates:	N 41.25809	W 85.84921	

<b>TEMPERATURE AND DISSOLVED OXYGEN (D.O.)</b>								
DEPTH (feet)	TEMP. (°F)	D.O. (ppm)	DEPTH (feet)	TEMP. (°F)	D.O. (ppm)	DEPTH (feet)	TEMP. (°F)	D.O. (ppm)
SURFACE	75	12.5	32			64		
2	75	12.6	34			66		
4	75	11.7	36			68		
6	73	7.4	38			70		
8	70	3.4	40			72		
10	68	2.0	42			74		
12			44			78		
14			46			80		
16			48			82		
18			50			84		
20			52			86		
22			54			88		
24			56			90		
26			58			92		
28			60			94		
30			62			96		

<b>COMMENTS</b>
TDS=325 ppm


ppm=parts per million

**APPENDIX B**  
**FISHES COLLECTED DURING THE GENERAL FISHERIES SURVEY**  
**OF PIKE LAKE**  
**12-14 JUNE 2000**

<b>Body of water:</b>	Pike Lake	
<b>Date:</b>	06/12/00	to 6/14/00
<b>Species:</b>	Bluegill	

<b>Total number:</b>	205	<b>Avg. Ln.:</b>	6.3
<b>Length range:</b>	2.2	to	8.8
<b>Total weight:</b>	42.60	<b>PSD:</b>	70.8

<b>Effort:</b>	<b>GN lifts:</b>	5	<b>EF hrs:</b>	1	<b>TN lifts:</b>	6
<b>CPE:</b>	0.2		90.0		19.0	

	<b>GN</b>	<b>%</b>	<b>EF</b>	<b>%</b>	<b>TN</b>	<b>%</b>	<b>Total</b>	<b>%</b>
<b>SS</b>	1	100.0%	89	98.9%	113	99.1%	203	99.0%
<b>QS</b>	1	100.0%	63	70.0%	80	70.2%	144	70.2%
<b>PS</b>	0	0.0%	0	0.0%	5	4.4%	5	2.4%
<b>MS</b>	0	0.0%	0	0.0%	0	0.0%	0	0.0%
<b>TS</b>	0	0.0%	0	0.0%	0	0.0%	0	0.0%
<b>HS</b>	1	100.0%	66	73.3%	86	75.4%	153	74.6%
<b>Total</b>	1		90		114		205	

<b>Length</b>	<b>GN</b>	<b>%</b>	<b>EF</b>	<b>%</b>	<b>TN</b>	<b>%</b>	<b>Total</b>	<b>%</b>	<b>Ave. Wt.</b>	<b>Age</b>
<b>2.0</b>	0	0.0%	0	0.0%	1	0.9%	1	0.5%	0.00	1+
<b>3.0</b>	0	0.0%	1	1.1%	0	0.0%	1	0.5%	0.02	1+
<b>3.5</b>	0	0.0%	0	0.0%	1	0.9%	1	0.5%	0.03	1+
<b>4.0</b>	0	0.0%	1	1.1%	1	0.9%	2	1.0%	0.05	2+
<b>4.5</b>	0	0.0%	0	0.0%	3	2.6%	3	1.5%	0.07	2+
<b>5.0</b>	0	0.0%	7	7.8%	5	4.4%	12	5.9%	0.10	2+,3+
<b>5.5</b>	0	0.0%	15	16.7%	17	14.9%	32	15.6%	0.13	2+,3+
<b>6.0</b>	0	0.0%	15	16.7%	25	21.9%	40	19.5%	0.19	2+,3+
<b>6.5</b>	0	0.0%	26	28.9%	35	30.7%	61	29.8%	0.22	3+,4+,5+
<b>7.0</b>	0	0.0%	17	18.9%	13	11.4%	30	14.6%	0.28	3+,4+,5+
<b>7.5</b>	1	100.0%	7	7.8%	6	5.3%	14	6.8%	0.33	3+,4+,5+
<b>8.0</b>	0	0.0%	1	1.1%	5	4.4%	6	2.9%	0.37	4+,5+,6+
<b>8.5</b>	0	0.0%	0	0.0%	1	0.9%	1	0.5%	0.45	6+
<b>9.0</b>	0	0.0%	0	0.0%	1	0.9%	1	0.5%	0.58	7+

<b>Body of water:</b>	Pike Lake	
<b>Date:</b>	06/12/00	to 6/14/00
<b>Species:</b>	Gizzard shad	

<b>Total number:</b>	171	<b>Avg. Ln.:</b>	9.9
<b>Length range:</b>	5.8	to	12.0
<b>Total weight:</b>	57.10	<b>PSD:</b>	ERR

<b>Effort:</b>	<b>GN lifts:</b> 5	<b>EF hrs:</b> 1	<b>TN lifts:</b> 6
<b>CPE:</b>	23.0	44.0	2.0

	<u>GN</u>	<u>%</u>	<u>EF</u>	<u>%</u>	<u>TN</u>	<u>%</u>	<u>Total</u>	<u>%</u>
<b>SS</b>		0.0%		0.0%		0.0%	0	0.0%
<b>QS</b>		0.0%		0.0%		0.0%	0	0.0%
<b>PS</b>		0.0%		0.0%		0.0%	0	0.0%
<b>MS</b>		0.0%		0.0%		0.0%	0	0.0%
<b>TS</b>		0.0%		0.0%		0.0%	0	0.0%
<b>HS</b>		0.0%		0.0%		0.0%	0	0.0%
<b>Total</b>	115		44		12		171	

<u>Length</u>	<u>GN</u>	<u>%</u>	<u>EF</u>	<u>%</u>	<u>TN</u>	<u>%</u>	<u>Total</u>	<u>%</u>	<u>Ave. Wt.</u>	<u>Age</u>
<b>6.0</b>	10	8.7%	0	0.0%	0	0.0%	10	5.8%	0.07	
<b>6.5</b>	8	7.0%	1	2.3%	0	0.0%	9	5.3%	0.09	
<b>7.5</b>	2	1.7%	0	0.0%	0	0.0%	2	1.2%	0.13	
<b>8.0</b>	2	1.7%	0	0.0%	0	0.0%	2	1.2%	0.18	
<b>8.5</b>	7	6.1%	0	0.0%	0	0.0%	7	4.1%	0.21	
<b>9.0</b>	8	7.0%	1	2.3%	0	0.0%	9	5.3%	0.24	
<b>9.5</b>	5	4.3%	4	9.1%	0	0.0%	9	5.3%	0.28	
<b>10.0</b>	21	18.3%	7	15.9%	4	33.3%	32	18.7%	0.34	
<b>10.5</b>	21	18.3%	13	29.5%	6	50.0%	40	23.4%	0.38	
<b>11.0</b>	19	16.5%	14	31.8%	2	16.7%	35	20.5%	0.43	
<b>11.5</b>	10	8.7%	4	9.1%	0	0.0%	14	8.2%	0.46	
<b>12.0</b>	2	1.7%	0	0.0%	0	0.0%	2	1.2%	0.57	

<b>Body of water:</b>	Pike Lake	
<b>Date:</b>	06/12/00	to 6/14/00
<b>Species:</b>	White bass	

<b>Total number:</b>	129	<b>Avg. Ln.:</b>	8.9
<b>Length range:</b>	5.6	to	15.2
<b>Total weight:</b>	46.35	<b>PSD:</b>	16.7

<b>Effort:</b>	<b>GN lifts:</b> 5	<b>EF hrs:</b> 1	<b>TN lifts:</b> 6
<b>CPE:</b>	20.6	6.0	3.3

	<b>GN</b>	<b>%</b>	<b>EF</b>	<b>%</b>	<b>TN</b>	<b>%</b>	<b>Total</b>	<b>%</b>
<b>SS</b>	99	96.1%	6	100.0%	19	95.0%	124	96.1%
<b>QS</b>	24	23.3%	1	16.7%	3	15.0%	28	21.7%
<b>PS</b>	18	17.5%	1	16.7%	3	15.0%	22	17.1%
<b>MS</b>	2	1.9%	0	0.0%	0	0.0%	2	1.6%
<b>TS</b>	0	0.0%	0	0.0%	0	0.0%	0	0.0%
<b>HS</b>	23	22.3%	1	16.7%	3	15.0%	27	20.9%
<b>Total</b>	103		6		20		129	

<b>Length</b>	<b>GN</b>	<b>%</b>	<b>EF</b>	<b>%</b>	<b>TN</b>	<b>%</b>	<b>Total</b>	<b>%</b>	<b>Ave. Wt.</b>	<b>Age</b>
<b>5.5</b>	1	1.0%	0	0.0%	0	0.0%	1	0.8%	0.07	1+
<b>6.0</b>	5	4.9%	0	0.0%	1	5.0%	6	4.7%	0.09	1+
<b>6.5</b>	2	1.9%	1	16.7%	1	5.0%	4	3.1%	0.11	1+
<b>7.0</b>	8	7.8%	0	0.0%	3	15.0%	11	8.5%	0.14	1+
<b>7.5</b>	18	17.5%	1	16.7%	7	35.0%	26	20.2%	0.17	1+
<b>8.0</b>	25	24.3%	1	16.7%	4	20.0%	30	23.3%	0.21	1+
<b>8.5</b>	15	14.6%	2	33.3%	1	5.0%	18	14.0%	0.25	1+
<b>9.0</b>	6	5.8%	0	0.0%	0	0.0%	6	4.7%	0.29	1+
<b>11.0</b>	2	1.9%	0	0.0%	0	0.0%	2	1.6%	0.60	2+
<b>11.5</b>	3	2.9%	0	0.0%	0	0.0%	3	2.3%	0.67	2+
<b>12.5</b>	1	1.0%	0	0.0%	0	0.0%	1	0.8%	0.87	2+
<b>13.0</b>	1	1.0%	0	0.0%	0	0.0%	1	0.8%	0.91	3+
<b>13.5</b>	1	1.0%	1	16.7%	1	5.0%	3	2.3%	0.96	3+
<b>14.0</b>	9	8.7%	0	0.0%	1	5.0%	10	7.8%	1.07	3+,4+
<b>14.5</b>	4	3.9%	0	0.0%	1	5.0%	5	3.9%	1.14	4+
<b>15.0</b>	2	1.9%	0	0.0%	0	0.0%	2	1.6%	1.27	5+

<b>Body of water:</b>	Pike Lake	
<b>Date:</b>	06/12/00	to 6/14/00
<b>Species:</b>	Longear sunfish	

<b>Total number:</b>	95	<b>Avg. Ln.:</b>	5.1
<b>Length range:</b>	2.9	to	6.7
<b>Total weight:</b>	12.76	<b>PSD:</b>	ERR

<b>Effort:</b>	<b>GN lifts:</b>	5	<b>EF hrs:</b>	1	<b>TN lifts:</b>	6
<b>CPE:</b>	1.0		85.0		0.8	

	<b>GN</b>	<b>%</b>	<b>EF</b>	<b>%</b>	<b>TN</b>	<b>%</b>	<b>Total</b>	<b>%</b>
<b>SS</b>		0.0%		0.0%		0.0%	0	0.0%
<b>QS</b>		0.0%		0.0%		0.0%	0	0.0%
<b>PS</b>		0.0%		0.0%		0.0%	0	0.0%
<b>MS</b>		0.0%		0.0%		0.0%	0	0.0%
<b>TS</b>		0.0%		0.0%		0.0%	0	0.0%
<b>HS</b>		0.0%		0.0%		0.0%	0	0.0%
<b>Total</b>	5		85		5		95	

<b>Length</b>	<b>GN</b>	<b>%</b>	<b>EF</b>	<b>%</b>	<b>TN</b>	<b>%</b>	<b>Total</b>	<b>%</b>	<b>Ave. Wt.</b>	<b>Age</b>
<b>3.0</b>	0	0.0%	2	2.4%	0	0.0%	2	2.1%	0.02	
<b>3.5</b>	0	0.0%	2	2.4%	1	20.0%	3	3.2%	0.04	
<b>4.0</b>	0	0.0%	9	10.6%	0	0.0%	9	9.5%	0.06	
<b>4.5</b>	1	20.0%	7	8.2%	0	0.0%	8	8.4%	0.07	
<b>5.0</b>	0	0.0%	21	24.7%	1	20.0%	22	23.2%	0.12	
<b>5.5</b>	2	40.0%	32	37.6%	3	60.0%	37	38.9%	0.16	
<b>6.0</b>	1	20.0%	9	10.6%	0	0.0%	10	10.5%	0.20	
<b>6.5</b>	1	20.0%	3	3.5%	0	0.0%	4	4.2%	0.26	

<b>Body of water:</b>	Pike Lake	
<b>Date:</b>	06/12/00	to 6/14/00
<b>Species:</b>	Channel catfish	

<b>Total number:</b>	57	<b>Avg. Ln.:</b>	17.9
<b>Length range:</b>	11.4	to	24.0
<b>Total weight:</b>	115.56	<b>PSD:</b>	ERR

<b>Effort:</b>	<b>GN lifts:</b> 5	<b>EF hrs:</b> 1	<b>TN lifts:</b> 6
<b>CPE:</b>	11.4	0.0	0.0

	<b>GN</b>	<b>%</b>	<b>EF</b>	<b>%</b>	<b>TN</b>	<b>%</b>	<b>Total</b>	<b>%</b>
<b>SS</b>	57	100.0%	0	ERR	0	ERR	57	100.0%
<b>QS</b>	48	84.2%	0	ERR	0	ERR	48	84.2%
<b>PS</b>	1	1.8%	0	ERR	0	ERR	1	1.8%
<b>MS</b>	0	0.0%	0	ERR	0	ERR	0	0.0%
<b>TS</b>	0	0.0%	0	ERR	0	ERR	0	0.0%
<b>HS</b>	56	98.2%	0	ERR	0	ERR	56	98.2%
<b>Total</b>	57		0		0		57	

<b>Length</b>	<b>GN</b>	<b>%</b>	<b>EF</b>	<b>%</b>	<b>TN</b>	<b>%</b>	<b>Total</b>	<b>%</b>	<b>Ave. Wt.</b>	<b>Age</b>
11.5	1	1.8%	0	ERR	0	ERR	1	1.8%	0.48	
13.5	1	1.8%	0	ERR	0	ERR	1	1.8%	0.65	
14.5	1	1.8%	0	ERR	0	ERR	1	1.8%	0.86	
15.0	1	1.8%	0	ERR	0	ERR	1	1.8%	1.09	
15.5	3	5.3%	0	ERR	0	ERR	3	5.3%	1.18	
16.0	6	10.5%	0	ERR	0	ERR	6	10.5%	1.33	
16.5	6	10.5%	0	ERR	0	ERR	6	10.5%	1.44	
17.0	3	5.3%	0	ERR	0	ERR	3	5.3%	1.69	
17.5	5	8.8%	0	ERR	0	ERR	5	8.8%	1.54	
18.0	4	7.0%	0	ERR	0	ERR	4	7.0%	1.78	
18.5	5	8.8%	0	ERR	0	ERR	5	8.8%	2.18	
19.0	6	10.5%	0	ERR	0	ERR	6	10.5%	2.33	
19.5	5	8.8%	0	ERR	0	ERR	5	8.8%	2.63	
20.0	3	5.3%	0	ERR	0	ERR	3	5.3%	2.71	
21.0	3	5.3%	0	ERR	0	ERR	3	5.3%	3.08	

<b>22.0</b>	3	5.3%	0	ERR	0	ERR	3	5.3%	3.71	
<b>24.0</b>	1	1.8%	0	ERR	0	ERR	1	1.8%	5.92	

<b>Body of water:</b>	Pike Lake		
<b>Date:</b>	06/12/00	to	6/14/00
<b>Species:</b>	Walleye		

<b>Total number:</b>	55	<b>Avg. Ln.:</b>	10.9
<b>Length range:</b>	6.6	to	22.0
<b>Total weight:</b>	28.04	<b>PSD:</b>	0.0

<b>Effort:</b>	<b>GN lifts:</b> 5	<b>EF hrs:</b> 1	<b>TN lifts:</b> 6
<b>CPE:</b>	6.8	20.0	0.2

	<b>GN</b>	<b>%</b>	<b>EF</b>	<b>%</b>	<b>TN</b>	<b>%</b>	<b>Total</b>	<b>%</b>
<b>SS</b>	19	55.9%	4	20.0%	1	100.0%	24	43.6%
<b>QS</b>	6	17.6%	0	0.0%	1	100.0%	7	12.7%
<b>PS</b>	1	2.9%	0	0.0%	1	100.0%	2	3.6%
<b>MS</b>	0	0.0%	0	0.0%	0	0.0%	0	0.0%
<b>TS</b>	0	0.0%	0	0.0%	0	0.0%	0	0.0%
<b>HS</b>	11	32.4%	1	5.0%	1	100.0%	13	23.6%
<b>Total</b>	34		20		1		55	

<b>Length</b>	<b>GN</b>	<b>%</b>	<b>EF</b>	<b>%</b>	<b>TN</b>	<b>%</b>	<b>Total</b>	<b>%</b>	<b>Ave. Wt.</b>	<b>Age</b>
<b>6.5</b>	0	0.0%	1	5.0%	0	0.0%	1	1.8%	0.08	1+
<b>7.0</b>	0	0.0%	1	5.0%	0	0.0%	1	1.8%	0.09	1+
<b>7.5</b>	2	5.9%	7	35.0%	0	0.0%	9	16.4%	0.12	1+
<b>8.0</b>	6	17.6%	1	5.0%	0	0.0%	7	12.7%	0.15	1+
<b>8.5</b>	2	5.9%	1	5.0%	0	0.0%	3	5.5%	0.15	1+
<b>9.0</b>	3	8.8%	4	20.0%	0	0.0%	7	12.7%	0.19	1+
<b>9.5</b>	1	2.9%	1	5.0%	0	0.0%	2	3.6%	0.22	1+
<b>10.0</b>	1	2.9%	0	0.0%	0	0.0%	1	1.8%	0.28	2+
<b>10.5</b>	1	2.9%	0	0.0%	0	0.0%	1	1.8%	0.35	2+
<b>11.0</b>	2	5.9%	0	0.0%	0	0.0%	2	3.6%	0.37	2+
<b>12.0</b>	0	0.0%	1	5.0%	0	0.0%	1	1.8%	0.48	2+
<b>12.5</b>	4	11.8%	1	5.0%	0	0.0%	5	9.1%	0.53	2+
<b>13.0</b>	1	2.9%	0	0.0%	0	0.0%	1	1.8%	0.61	2+
<b>13.5</b>	0	0.0%	1	5.0%	0	0.0%	1	1.8%	0.67	2+
<b>14.0</b>	1	2.9%	0	0.0%	0	0.0%	1	1.8%	0.74	2+



14.5	2	5.9%	1	5.0%	0	0.0%	3	5.5%	0.85	2+
15.0	3	8.8%	0	0.0%	0	0.0%	3	5.5%	0.87	2+
15.5	2	5.9%	0	0.0%	0	0.0%	2	3.6%	1.09	2+,3+
16.5	1	2.9%	0	0.0%	0	0.0%	1	1.8%	1.20	2+
19.0	1	2.9%	0	0.0%	0	0.0%	1	1.8%	2.16	3+
21.0	0	0.0%	0	0.0%	1	100.0%	1	1.8%	2.75	4+
22.0	1	2.9%	0	0.0%	0	0.0%	1	1.8%	3.62	4+

<b>Body of water:</b>	Pike Lake		
<b>Date:</b>	06/12/00	to	6/14/00
<b>Species:</b>	Yellow perch		

<b>Total number:</b>	30	<b>Avg. Ln.:</b>	6.0
<b>Length range:</b>	4.1	to	8.5
<b>Total weight:</b>	3.14	<b>PSD:</b>	0.0

<b>Effort:</b>	<b>GN lifts:</b> 5	<b>EF hrs:</b> 1	<b>TN lifts:</b> 6
<b>CPE:</b> 2.4		17.0	0.2

	<b>GN</b>	<b>%</b>	<b>EF</b>	<b>%</b>	<b>TN</b>	<b>%</b>	<b>Total</b>	<b>%</b>
<b>SS</b>	12	100.0%	5	29.4%	0	0.0%	17	56.7%
<b>QS</b>	2	16.7%	0	0.0%	0	0.0%	2	6.7%
<b>PS</b>	0	0.0%	0	0.0%	0	0.0%	0	0.0%
<b>MS</b>	0	0.0%	0	0.0%	0	0.0%	0	0.0%
<b>TS</b>	0	0.0%	0	0.0%	0	0.0%	0	0.0%
<b>HS</b>	2	16.7%	1	5.9%	0	0.0%	3	10.0%
<b>Total</b>	12		17		1		30	

<b>Length</b>	<b>GN</b>	<b>%</b>	<b>EF</b>	<b>%</b>	<b>TN</b>	<b>%</b>	<b>Total</b>	<b>%</b>	<b>Ave. Wt.</b>	<b>Age</b>
4.0	0	0.0%	4	23.5%	0	0.0%	4	13.3%	0.03	1+
4.5	0	0.0%	5	29.4%	1	100.0%	6	20.0%	0.04	1+
5.0	0	0.0%	3	17.6%	0	0.0%	3	10.0%	0.04	1+
5.5	0	0.0%	1	5.9%	0	0.0%	1	3.3%	0.07	1+
6.0	0	0.0%	1	5.9%	0	0.0%	1	3.3%	0.09	2+
6.5	3	25.0%	1	5.9%	0	0.0%	4	13.3%	0.12	2+
7.0	1	8.3%	0	0.0%	0	0.0%	1	3.3%	0.14	2+
7.5	6	50.0%	1	5.9%	0	0.0%	7	23.3%	0.18	2+
8.0	0	0.0%	1	5.9%	0	0.0%	1	3.3%	0.19	2+
8.5	2	16.7%	0	0.0%	0	0.0%	2	6.7%	0.23	2+,4+

<b>Body of water:</b>	Pike Lake	
<b>Date:</b>	06/12/00	to 6/14/00
<b>Species:</b>	Largemouth bass	

<b>Total number:</b>	23	<b>Avg. Ln.:</b>	10.0
<b>Length range:</b>	5.1	to	19.5
<b>Total weight:</b>	16.47	<b>PSD:</b>	66.7

<b>Effort:</b>	<b>GN lifts:</b> 5	<b>EF hrs:</b> 1	<b>TN lifts:</b> 6
<b>CPE:</b>	0.2	22.0	0.0

	<b>GN</b>	<b>%</b>	<b>EF</b>	<b>%</b>	<b>TN</b>	<b>%</b>	<b>Total</b>	<b>%</b>
<b>SS</b>	1	100.0%	12	54.5%	0	ERR	13	56.5%
<b>QS</b>	0	0.0%	8	36.4%	0	ERR	8	34.8%
<b>PS</b>	0	0.0%	1	4.5%	0	ERR	1	4.3%
<b>MS</b>	0	0.0%	0	0.0%	0	ERR	0	0.0%
<b>TS</b>	0	0.0%	0	0.0%	0	ERR	0	0.0%
<b>HS</b>	0	0.0%	3	13.6%	0	ERR	3	13.0%
<b>Total</b>	1		22		0		23	

<b>Length</b>	<b>GN</b>	<b>%</b>	<b>EF</b>	<b>%</b>	<b>TN</b>	<b>%</b>	<b>Total</b>	<b>%</b>	<b>Ave. Wt.</b>	<b>Age</b>
<b>5.0</b>	0	0.0%	1	4.5%	0	ERR	1	4.3%	0.06	1+
<b>6.0</b>	0	0.0%	2	9.1%	0	ERR	2	8.7%	0.10	1+
<b>6.5</b>	0	0.0%	2	9.1%	0	ERR	2	8.7%	0.13	1+
<b>7.0</b>	0	0.0%	3	13.6%	0	ERR	3	13.0%	0.16	1+
<b>7.5</b>	0	0.0%	2	9.1%	0	ERR	2	8.7%	0.19	1+
<b>9.0</b>	1	100.0%	1	4.5%	0	ERR	2	8.7%	0.35	2+
<b>10.5</b>	0	0.0%	1	4.5%	0	ERR	1	4.3%	0.53	2+
<b>11.5</b>	0	0.0%	1	4.5%	0	ERR	1	4.3%	0.68	3+

12.0	0	0.0%	2	9.1%	0	ERR	2	8.7%	0.81	3+
12.5	0	0.0%	2	9.1%	0	ERR	2	8.7%	0.88	3+
13.0	0	0.0%	1	4.5%	0	ERR	1	4.3%	1.11	4+
13.5	0	0.0%	1	4.5%	0	ERR	1	4.3%	1.31	reg.
14.0	0	0.0%	1	4.5%	0	ERR	1	4.3%	1.31	4+
15.0	0	0.0%	1	4.5%	0	ERR	1	4.3%	1.93	5+
19.5	0	0.0%	1	4.5%	0	ERR	1	4.3%	4.16	8+

Species Bluegill	Year Class	Number Aged	Back Calculated Length(inches)at Each Age							
			I	II	III	IV	V	VI	VII	VIII
Intercept = 0.8	1999	3	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1998	13	2.1	4.2	0.0	0.0	0.0	0.0	0.0	0.0
	1997	29	1.7	3.5	5.4	0.0	0.0	0.0	0.0	0.0
	1996	11	1.7	3.4	5.3	6.7	0.0	0.0	0.0	0.0
	1995	7	1.7	3.1	5.0	6.2	7.2	0.0	0.0	0.0
	1994	6	1.6	3.3	5.2	6.1	7.0	7.6	0.0	0.0
	1993	1	2.1	3.3	5.2	6.3	7.1	7.6	8.7	0.0
	Average Length		1.8	3.5	5.2	6.3	7.1	7.6	0.0	0.0
	Standard Deviation		0.19	0.42	0.17	0.32	0.10	0.00	0.00	0.00
	Yr. Classes Averaged		6	5	4	3	2	1	0	0

NOTE: Age groups with less than three samples are not included in year class averages or standard deviation.

$$Y = \frac{\text{Body-scale length regression}}{\text{ERR}} + \frac{\text{ERR}}{\text{ERR}} X$$

Where Y=Body Length and X=Scale Length

$$\frac{\text{Coefficient of correlation}}{\text{ERR}}$$

$$\frac{\text{Sample size} = 70}{\text{size} =}$$

Age	No. Aged	Min. Ln.	Max. Ln.	Mean Ln.
1	3	2.2	3.3	2.8
2	13	4.1	5.9	5.0
3	29	4.8	7.2	6.0
4	11	6.4	7.6	7.1
5	7	6.7	8.0	7.4
6	6	7.3	8.3	7.9
7	1	8.8	8.8	8.8

Species White bass	Year Class	Number Aged	Back Calculated Length(inches)at Each Age							
			I	II	III	IV	V	VI	VII	VIII



1998	3	4.1	8.9	0.0	0.0	0.0	0.0	0.0	0.0
1997	5	3.8	8.8	11.7	0.0	0.0	0.0	0.0	0.0
1996	2	5.2	8.2	11.0	13.1	0.0	0.0	0.0	0.0
1995	1	4.7	9.7	12.2	13.1	14.1	0.0	0.0	0.0
0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1992	1	4.2	11.0	12.7	14.2	15.3	16.7	17.8	18.4
Average Length		4.5	8.8	11.7	0.0	0.0	0.0	0.0	0.0
Standard Deviation		1.05	0.09	0.00	0.00	0.00	0.00	0.00	0.00
Yr. Classes Averaged		3	2	1	0	0	0	0	0

NOTE: Age groups with less than three samples are not included in year class averages or standard deviation.

<u>Body-scale length regression</u>		
Y=	ERR	+ ERR
		X

Where Y=Body Length and X=Scale Length

<u>Coefficient of correlation</u>
ERR

Sample size=	22
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Age	No. Aged	Min. Ln.	Max. Ln.	Mean Ln.
1	10	5.1	7.5	6.7
2	3	8.8	10.5	9.4
3	5	11.5	12.6	12.1
4	2	13.0	14.1	13.6
5	1	14.9	14.9	14.9
6	0	0.0	0.0	0.0

Species Yellow perch	Year Class	Number Aged	Back Calculated Length(inches)at Each Age							
			I	II	III	IV	V	VI	VII	VIII
Intercept = 1.2	1999	12	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1998	14	3.7	6.0	0.0	0.0	0.0	0.0	0.0	0.0
	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	1996	1	3.8	5.9	7.0	7.8	0.0	0.0	0.0	0.0
Average Length			3.5	6.0	0.0	0.0	0.0	0.0	0.0	0.0
Standard Deviation			0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yr. Classes Averaged			2	1	0	0	0	0	0	0

NOTE: Age groups with less than three samples are not included in year class averages or standard deviation.

<u>Body-scale length regression</u>		
Y=	ERR	+ ERR
		X

Where Y=Body Length and X=Scale Length

<u>Coefficient of correlation</u>
ERR

Sample size=	27
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Age	No. Aged	Min. Ln.	Max. Ln.	Mean Ln.
1	12	4.1	5.5	4.5
2	14	6.2	8.3	7.1
3	0	0.0	0.0	0.0
4	1	8.5	8.5	8.5
5	0	0.0	0.0	0.0
6	0	0.0	0.0	0.0