

OTTER PIT
Warrick County
2009 Fish Management Report

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2010

EXECUTIVE SUMMARY

- Otter Pit is a 73-acre reclaimed strip pit located at Blue Grass Fish and Wildlife Area in Warrick County.
- A general fish management survey was conducted on May 5, June 9, and June 10, 2009. The aquatic vegetation survey sampling took place on July 21.
- This is the first general survey at Otter Pit as the past electrofishing attempt was unsuccessful due to the pit's high water conductivity. The goals of this survey were to do an overall inventory of the fishery and to assess the largemouth bass population.
- Water chemistry results indicated that the lake was turbid due to an algal bloom, had high conductivity (1,332 uS), normal pH (7.5 to 8.2), above normal alkalinity (222 to 735 ppm), and the thermocline was between 12 and 14 ft.
- Overall submersed plant abundance was low.
- A total of 952 fish, representing 22 species and 1 hybrid, was sampled. The estimated sample weight was 283 lbs. Gizzard shad were most abundant by number (48%), followed by bluegill (21%), and largemouth bass (7%).
- Otter Pit provides good fishing for largemouth bass, white crappie, and channel catfish. Largemouth bass were found up to nearly 23 in with a good proportion of the population above the 14-in minimum length limit. White crappie have been studied extensively at Otter and the population continues to provide good numbers of fish over 9.0 in. The channel catfish population is maintaining itself through natural reproduction. Their catch rates are good for both gill nets and electrofishing.
- Blue Grass Fish and Wildlife Area, especially Otter, Blue Grass, and Loon Pits, is providing quality bass fishing opportunities to the large metropolitan areas of Evansville and Newburgh. Both of these cities are within a 10 to 20 minute drive.

INTRODUCTION

Otter Pit is a 73-acre reclaimed strip pit located at Blue Grass Fish and Wildlife Area in Warrick County. The property was acquired by the Department of Natural Resources (DNR), Division of Fish and Wildlife (DFW) in August 2000. Otter Pit is connected to Loon Pit on its north shore by a 36-in culvert and also connects to Pigeon Creek via flood waters usually once a year. Pigeon Creek is a tributary of the Ohio River so many fish species present in the Ohio River are also in Otter Pit. Angler access is good as most of the shoreline is available for bank fishermen and there is a concrete boat ramp. Outboards are allowed at idle speed only.

This is the first general survey at Otter Pit as the past electrofishing attempt was unsuccessful due to the pit's high water conductivity. The goals of this survey were to do an overall inventory of the fishery and to assess the largemouth bass population. There have been four past supplemental surveys. The first two were supplemental netting surveys in 2000 and 2001 and were done to determine what fish were present in the lake. Supplemental crappie surveys were completed in 2006 and 2008. The crappie surveys have shown that the lake does have a good population of descent size crappie (Carnahan 2006, Cain 2008).

METHODS

Fish were sampled on May 5, 2009 by DC night electrofishing for 0.75 h. Two dippers collected the stunned fish. A Smith-Root 5.0 GPP electrofisher was used to attain the necessary amperage to effectively stun fish. Netting effort consisted of two standard trap net lifts and four standard experimental gill net lifts on June 9 and 10, 2009. Fish were measured to the nearest tenth inch in TL and weights were estimated by using standard length weight equations. Scale samples were taken from a subsample of sport fish for age analysis. Proportional (PSD) and relative (RSD) stock density indices were used to help characterize the largemouth bass and bluegill populations (Anderson and Neumann 1996). Some general water chemistry parameters were also collected on June 9. All fish sampling and water chemistry parameters were completed according to standard survey guidelines (Shipman *et al* 2001). An aquatic vegetation survey took place on July 21 using methods outlined by the DFW (DNR 2006).

RESULTS

Water chemistry results indicated that the lake was turbid due to an algal bloom, had high

conductivity (1,332 uS), normal pH (7.5 to 8.2), above normal alkalinity (222 to 735 ppm), and the thermocline was between 12 and 14 ft (Appendix). The high conductivity is normal for this lake and has been over 3,000 uS in past years. The pit possessed low dissolved oxygen, as the surface DO was only 4.8 ppm. The low DO was due to the reading being taken in the morning in combination with the dense algal bloom.

The aquatic vegetation survey results showed that Eurasian watermilfoil was the predominant plant, but still had low rake scores and a low frequency of occurrence (Appendix). Other plants either measured at low levels or observed were chara, curlyleaf pondweed, naiad spp., phragmites, cattail spp., and purple loosestrife. Overall submersed plant abundance was low.

A total of 952 fish, representing 22 species and 1 hybrid, was sampled. The estimated sample weight was 283 lbs. Gizzard shad were most abundant by number (48%), followed by bluegill (21%), and largemouth bass (7%). Gizzard shad were most abundant by weight (26%), followed by largemouth bass (24%), and channel catfish (13%). Other sport fish sampled were white crappie, redear sunfish, and black crappie. A complete species list and their relative abundance's are included in the appendix.

A total of 464 gizzard shad was sampled that weighed 74 lbs. They ranged in length from 4.9 to 11.6 in. Catch rates were 569.3/electrofishing h and 9.2/gill net lift. No shad were collected in trap nets.

A total of 207 bluegill was sampled that weighed 9 lbs. They ranged in length from 2.0 to 6.9 in. Catch rates were 228.0/electrofishing h, 0.3/gill net lift, and 17.5/trap net lift. Bluegill grew slow as nearly all ages were more than an inch below the district average. Bluegill averaged 5.8 in at age 5 and 6.8 in at age 6. The bluegill PSD was 2 indicating that most of the population is less than 6.0 in.

Sixty-nine largemouth bass were sampled that weighed 70 lbs. They ranged in length from 3.4 to 22.6 in. Catch rates were 81.3/electrofishing h, 2.0/gill net lift, and no bass were collected in trap nets. Bass grew normal for southern Indiana. Length at age data was nearly identical to the district averages for all ages. Most age-5 bass were longer than the 14-in minimum length limit. The bass PSD value was 55 and falls in the middle of the range for a balanced population. The RSD-16 was 11 indicating that there is a good proportion of bass over 16 in.

Forty-five white crappie were sampled that weighed 14 lbs. They ranged in length from 4.6 to 12.5 in and 31% measured at least 9.0 in. In 2008, 26% of the crappie were at least 9.0 in. Catch rates were 22.7/electrofishing h, 2.5/gill net lift, and 9.0/trap net lift. Trap net catch rates in 2006 and 2008 were 6.7 and 9.0/lift. Crappie grew slow as an age-3 fish averaged 7.7 in. Similar results were found in 2008.

A total of 26 channel catfish was sampled that weighed 36 lbs. They ranged in length from 9.0 to 21.8 in. Catch rates were 4.0/electrofishing h, 5.8/gill net lift, and no channel catfish were caught in trap nets. Previous gill net catch rates were 13.3 and 7.3/lift in 2000 and 2001. The DFW has never stocked channel catfish in Otter Pit.

Other species sampled were longear sunfish (44), yellow bass (27), orangespotted sunfish (11), and smallmouth buffalo (10). There were 13 additional species sampled that had a combined relative abundance of less than 5% by number.

DISCUSSION

Otter Pit provides good fishing for largemouth bass, white crappie, and channel catfish. Largemouth bass were found up to nearly 23 in with a good proportion of the population above the 14-in minimum length limit. White crappie have been studied extensively at Otter and the population continues to provide good numbers of fish over 9.0 in. The channel catfish population is maintaining itself through natural reproduction. Their catch rates are good for both gill nets and electrofishing.

The goals of this survey were to inventory the fishery and assess the largemouth bass population. The inventory goal was achieved with more species and total fish sampled than ever before at this lake. The 5.0 Smith-Root GPP electrofisher proved to be more effective than the Smith-Root VI-A electrofisher. The previous electrofishing attempt with the VI-A unit produced few fish, so few that there were not enough fish to even report at the time. In contrast, the 5.0 GPP unit produced catch rates that were on par for normal conductivity gizzard shad lakes. The amperage required to effectively electrofish was 13 amps which the VI-A unit is not capable of producing.

The largemouth bass assessment turned up a good fishery. The electrofishing catch rate was normal for a gizzard shad lake and the stock indices were good. The pit is producing some big fish with a 22.6 in bass being the largest sampled and 13% of the bass measuring at least 16.0

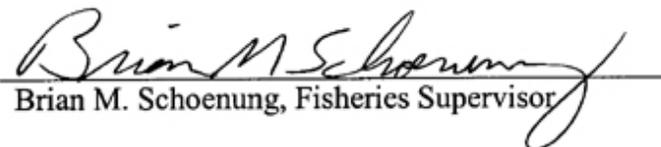
in. Otter Pit's bass fishery is actually better than its connecting pit, Loon Pit which has more restrictive bass regulations (18.0-in length limit, 2 bag limit). Loon Pit normally has a bass electrofishing catch rate of 40 to 60/h and its PSD and RSD16 in 2009 were 32 and 2 (Cain 2009a). Blue Grass Pit possesses the same regulations as Loon Pit and its bass fishery has excelled under the more restrictive bass regulations (Cain 2009b).

Blue Grass Fish and Wildlife Area, especially Otter, Blue Grass, and Loon Pits, is providing quality bass fishing opportunities to the large metropolitan areas of Evansville and Newburgh. Both of these cities are within a 10 to 20 minute drive.

LITERATURE CITED

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Submitted by: Daniel P. Carnahan, District 6 Fisheries Biologist
Date: March 14, 2010

Approved by: 
Brian M. Schoenung, Fisheries Supervisor

Date: May 20, 2010

APPENDIX

Otter Pit general fish management survey data.

LAKE SURVEY REPORT

Type of Survey	<input type="checkbox"/> Initial Survey	<input checked="" type="checkbox"/> Re-Survey
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Lake Name Otter Pit	County Warrick	Date of survey (Month, day, year) May 5, June 9-10, 2009
Biologist's name Daniel P. Carnahan		Date of approval (Month, day, year) May 20, 2010

LOCATION		
Quadrangle Name Daylight	Range 9W	Section 19
Township Name 5S	Nearest Town Daylight	

ACCESSIBILITY					
State owned public access site Concrete boat ramp		Privately owned public access site		Other access site	
Surface acres 73.7	Maximum depth 63 ft	Average depth 20 ft	Acre feet 1,474	Water level unknown	Extreme fluctuations 6 ft
Location of benchmark					

INLETS		
Name Culvert	Location North end of pit	Origin Loon Pit

OUTLETS																
Name Ditch leading to Pigeon Creek	Location Southwest side															
Water level control																
POOL	ELEVATION (Feet MSL)	ACRES														
TOP OF DAM																
TOP OF FLOOD CONTROL POOL																
TOP OF CONSERVATION POOL		73.7														
TOP OF MINIMUM POOL																
STREAMBED																
<table border="0"> <tr> <td> </td> <td>Bottom type</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Boulder</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Gravel</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Sand</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Muck</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Clay</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Marl</td> </tr> </table>				Bottom type	<input type="checkbox"/>	Boulder	<input type="checkbox"/>	Gravel	<input type="checkbox"/>	Sand	<input checked="" type="checkbox"/>	Muck	<input type="checkbox"/>	Clay	<input type="checkbox"/>	Marl
	Bottom type															
<input type="checkbox"/>	Boulder															
<input type="checkbox"/>	Gravel															
<input type="checkbox"/>	Sand															
<input checked="" type="checkbox"/>	Muck															
<input type="checkbox"/>	Clay															
<input type="checkbox"/>	Marl															
Watershed use Reclaimed coal strip mine ground, agriculture																
Development of shoreline Boat ramp area																
Previous surveys and investigations Supplemental general survey: 2000.																
Netting survey: 2001.																
Supplemental crappie survey: 2006, 2008.																

SAMPLING EFFORT					
ELECTROFISHING	Day hours		Night hours		Total hours
			0.75		0.75
TRAP NETS	Number of traps		Number of Lifts		Total effort
	2		1		2
GILL NETS	Number of nets		Number of Lifts		Total effort
	4		1		4
ROTENONE	Gallons	ppm	Acre Feet Treated	SHORELINE SEINING	Number of 100 Foot Seine Hauls

PHYSICAL AND CHEMICAL CHARACTERISTICS- June 9, 2009					
Color			Turbidity		
Olive green (algae bloom)			1 Feet 10 Inches (SECCHI DISK)		
Alkalinity (ppm)*			pH		
Surface: 222.3 Bottom: 735.3			Surface: 8.2 Bottom: 7.5		
Conductivity:			Air temperature:		
1,332(5/5/09), 1,094 (6/9/09) micromhos			66.56 °F		
Water chemistry GPS coordinates:					
N 38.06368033			W -87.45702219		

TEMPERATURE AND DISSOLVED OXYGEN (D.O.) - June 9, 2009								
DEPTH (FEET)	Degrees (°F)	D.O. (ppm)	DEPTH (FEET)	DEGREES (°F)	D.O. (ppm)	DEPTH (FEET)	DEGREES (°F)	D.O. (ppm)
SURFACE	75.0	4.8	36	46.6	2.0	72		
2	74.8	4.8	38	45.9	1.9	74		
4	74.8	4.8	40	45.3	1.9	76		
6	74.6	4.8	42	45.3	1.9	78		
8	74.1	4.2	44	44.9	1.9	80		
10	72.3	3.1	46	44.6	1.9	82		
12	70.7	2.4	48	44.6	1.8	84		
14	68.5	2.1	50	N/A**	N/A**	86		
16	64.9	2.0	52	N/A**	N/A**	88		
18	62.1	2.0	54	N/A**	N/A**	90		
20	58.6	2.0	56	N/A**	N/A**	92		
22	55.4	2.0	Bottom	N/A**	N/A**	94		
24	53.8	2.0	60			96		
26	52.2	2.0	62			98		
28	50.9	2.0	64			100		
30	49.8	2.0	66					
32	48.7	2.0	68					
34	47.7	2.0	70					

COMMENTS
** Ran out of cord on DO meter.

*ppm-parts per million

Occurrence and Abundance of Submersed Aquatic Plants - Overall

Lake: Otter Pit	Secchi (ft): 3	SE Mean Species / Site: 0.12
Date: 7/21/2009	Littoral Sites w/Plants: 11	Mean Natives / Site: 0.05
Littoral Depth (ft): 5.0	Number of Species: 4	SE Mean Natives / Site: 0.05
Littoral Sites: 21	Max. Species / Site: 4	Species Diversity: 0.37
Total Sites: 40	Mean Species / Site: 0.35	Native Diversity: 0.50

Species	Frequency of	Score Frequency				Dominance
	Occurrence	0	1	3	5	
Chara	2.5	97.5	2.5	0	0	0.5
Naiad spp.	2.5	97.5	2.5	0	0	0.5
Eurasian watermilfoil	27.5	72.5	25	0	2.5	7.5
Curlyleaf pondweed	2.5	97.5	2.5	0	0	0.5
Filamentous algae	2.5					

Other species observed:

Phragmites

Cattail spp.

Purple loosestrife

SPECIES AND RELATIVE ABUNDANCE OF FISHES COLLECTED BY NUMBER AND WEIGHT					
*COMMON NAME OF FISH	NUMBER	PERCENT	LENGTH RANGE (inches)	WEIGHT (pounds)	PERCENT
Gizzard shad	464	48.7	4.9 - 11.6	74.24	26.2
Bluegill	207	21.7	2.0 - 6.9	9.42	3.3
Largemouth bass	69	7.2	3.4 - 22.6	70.53	24.9
White crappie	45	4.7	4.6 - 12.5	13.99	4.9
Longear sunfish	44	4.6	2.3 - 5.4	2.43	0.9
Yellow bass	27	2.8	3.5 - 8.3	3.35	1.2
Channel catfish	26	2.7	9.0 - 21.3	36.87	13.0
Orangespotted sunfish	11	1.2	2.0 - 2.7	0.22	0.1
Smallmouth buffalo	10	1.1	11.3 - 18.6	13.18	4.6
Shortnose gar	8	0.8	18.4 - 33.0	13.58	4.8
Redear sunfish	7	0.7	4.6 - 7.4	1.08	0.4
Warmouth	7	0.7	2.4 - 9.0	0.91	0.3
Freshwater drum	5	0.5	10.8 - 15.4	4.21	1.5
Quillback	5	0.5	9.2 - 16.6	5.02	1.8
Common carp	4	0.4	20.3 - 22.7	18.60	6.6
Spotted gar	3	0.3	18.1 - 31.3	4.93	1.7
Spotted sucker	3	0.3	7.8 - 16.3	2.18	0.8
Black crappie	2	0.2	6.3 - 6.8	0.25	0.1
Green sunfish	1	0.1	3.8	0.03	0.0
Longnose gar	1	0.1	8.9	0.05	0.0
Bowfin	1	0.1	25.3	4.69	1.7
Bigmouth buffalo	1	0.1	18.7	3.79	1.3
Hybrid sunfish	1	0.1	4.8	0.06	0.0
Totals	952			283.61	

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

NUMBER, PERCENTAGE, WEIGHT, AND AGE OF BLUEGILL

TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH
1.0					19.0				
1.5					19.5				
2.0	4	1.9	0.01	1	20.0				
2.5	28	13.5	0.01	1, 2	20.5				
3.0	43	20.8	0.02	2	21.0				
3.5	32	15.5	0.03	2, 3	21.5				
4.0	61	29.5	0.05	2, 3	22.0				
4.5	12	5.8	0.07	4	22.5				
5.0	14	6.8	0.09	4, 5	23.0				
5.5	7	3.4	0.13	4, 5	23.5				
6.0	2	1.0	0.17	5	24.0				
6.5	4	1.9	0.22	5, 6	24.5				
7.0					25.0				
7.5					25.5				
8.0					26.0				
8.5					TOTAL	207			
9.0									
9.5									
10.0									
10.5									
11.0									
11.5									
12.0									
12.5									
13.0									
13.5									
14.0									
14.5									
15.0									
15.5									
16.0									
16.5									
17.0									
17.5									
18.0									
18.5									

ELECTROFISHING CATCH	228.0/h	GILL NET CATCH	0.3/lift	TRAP NET CATCH	17.5/lift
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NUMBER, PERCENTAGE, WEIGHT, AND AGE OF LARGEMOUTH BASS

TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH
1.0					19.0	1	1.4	3.95	8
1.5					19.5				
2.0					20.0				
2.5					20.5				
3.0	2	2.9	0.02	1	21.0				
3.5					21.5				
4.0	1	1.4	0.03	1	22.0				
4.5	2	2.9	0.04	1	22.5	1	1.4	6.68	9
5.0	2	2.9	0.06	1	23.0				
5.5	1	1.4	0.08	1	23.5				
6.0					24.0				
6.5					24.5				
7.0					25.0				
7.5	2	2.9	0.20	2	25.5				
8.0	3	4.3	0.24	2	26.0				
8.5	4	5.8	0.28	2	TOTAL	69			
9.0	6	8.7	0.33	2, 3					
9.5	3	4.3	0.39	2, 3					
10.0	2	2.9	0.46	2, 3					
10.5	4	5.8	0.53	2, 3, 4					
11.0	1	1.4	0.62	4					
11.5	3	4.3	0.71	3					
12.0	6	8.7	0.80	4					
12.5	2	2.9	0.91	4					
13.0	7	10.1	1.02	4					
13.5									
14.0	3	4.3	1.31	5					
14.5	1	1.4	1.47	5					
15.0	4	5.8	1.68	5					
15.5	1	1.4	1.88	6					
16.0									
16.5									
17.0	4	5.8	2.56	6					
17.5									
18.0	1	1.4	3.19	7					
18.5	2	2.9	3.59	7					

ELECTROFISHING CATCH	81.3/h	GILL NET CATCH	2.0/lift	TRAP NET CATCH	0/lift
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NUMBER, PERCENTAGE, WEIGHT, AND AGE OF WHITE CRAPPIE

TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH
1.0					19.0				
1.5					19.5				
2.0					20.0				
2.5					20.5				
3.0					21.0				
3.5					21.5				
4.0					22.0				
4.5	3	6.7	0.04	not aged	22.5				
5.0					23.0				
5.5	1	2.2	0.08	2	23.5				
6.0	2	4.4	0.11		24.0				
6.5	6	13.3	0.13	2	24.5				
7.0	5	11.1	0.17	3	25.0				
7.5	7	15.6	0.19	3	25.5				
8.0	5	11.1	0.24	3, 4	26.0				
8.5	2	4.4	0.29	not aged	TOTAL	45			
9.0	4	8.9	0.35	6					
9.5	2	4.4	0.46	not aged					
10.0									
10.5	1	2.2	0.55	6					
11.0	2	4.4	0.68	4, 5					
11.5	3	6.7	0.83	not aged					
12.0	1	2.2	1.12	not aged					
12.5	1	2.2	1.15	not aged					
13.0									
13.5									
14.0									
14.5									
15.0									
15.5									
16.0									
16.5									
17.0									
17.5									
18.0									
18.5									

ELECTROFISHING CATCH	22.7/h	GILL NET CATCH	2.5/lift	TRAP NET CATCH	9.0/lift
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NUMBER, PERCENTAGE, WEIGHT, AND AGE OF CHANNEL CATFISH

TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH
1.0		0.0			19.0				
1.5					19.5	1	3.8	2.63	
2.0					20.0	1	3.8	2.86	
2.5					20.5	2	7.7	3.10	
3.0					21.0	1	3.8	3.36	
3.5					21.5	1	3.8	3.63	
4.0					22.0				
4.5					22.5				
5.0					23.0				
5.5					23.5				
6.0					24.0				
6.5					24.5				
7.0					25.0				
7.5					25.5				
8.0					26.0				
8.5					TOTAL	26			
9.0	1	3.8	0.21	not aged					
9.5									
10.0	1	3.8	0.29						
10.5	1	3.8	0.34						
11.0	2	7.7	0.40						
11.5	1	3.8	0.46						
12.0	2	7.7	0.53						
12.5									
13.0									
13.5									
14.0	1	3.8	0.88						
14.5	4	15.4	0.99						
15.0									
15.5	2	7.7	1.24						
16.0									
16.5	2	7.7	1.52						
17.0	1	3.8	1.68						
17.5									
18.0	1	3.8	2.02						
18.5	1	3.8	2.21						

ELECTROFISHING CATCH	4.0/h	GILL NET CATCH	5.8/lift	TRAP NET CATCH	0/lift
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BLUEGILL AGE-LENGTH KEY

Length group (in)	Total number	Sub-sample	AGE						
			1	2	3	4	5	6	
1.0									
1.5									
2.0	4	3	4						
2.5	28	6	5	23					
3.0	43	5		43					
3.5	32	5		13	19				
4.0	61	5		12	49				
4.5	12	4			12				
5.0	14	8				9	5		
5.5	7	6				1	6		
6.0	2	2					2		
6.5	4	4					2	2	
Totals	207	48	9	91	80	10	15	2	2

AGE-LENGTH KEY SUMMARY						
Age	Number	Mean			Lower 95%CI	Upper 95%CI
		TL	Var	SE		
1	9	2.5	0.07	0.09	2.3	2.7
2	91	3.3	0.23	0.05	3.2	3.4
3	80	4.2	0.10	0.03	4.1	4.3
4	10	5.3	0.03	0.05	5.2	5.4
5	15	5.8	0.27	0.13	5.5	6.0
6	2	6.8	0.00	0.00	6.8	6.8

LARGEMOUTH BASS AGE-LENGTH KEY

Length group (in)	Total number	Sub-sample	AGE									
			1	2	3	4	5	6	7	8	9	
3.0	2	2	2									
3.5												
4.0	1	1	1									
4.5	2	2	2									
5.0	2	2	2									
5.5	1	1	1									
6.0												
6.5												
7.0												
7.5	2	1		2								
8.0	3	3		3								
8.5	4	4		4								
9.0	6	6		5	1							
9.5	3	3		1	2							
10.0	2	2		1	1							
10.5	4	4		1	2	1						
11.0	1	1				1						
11.5	3	3			3							
12.0	6	6				6						
12.5	2	1				2						
13.0	7	6				7						
13.5												
14.0	3	3					3					
14.5	1	1					1					
15.0	4	3					4					
15.5	1	1						1				
16.0												
16.5												
17.0	4	3						4				
17.5												
18.0	1	1							1			
18.5	2	2							2			
19.0	1	1								1		
19.5												
20.0												
20.5												
21.0												
21.5												
22.0												
22.5	1	1										1
Totals	69	64	8	17	9	17	8	5	3	1		1

AGE-LENGTH KEY SUMMARY						
Age	Number	Mean			Lower	Upper
		TL	Var	SE	95%CI	95%CI
1	8	4.6	0.85	0.33	3.9	5.2
2	17	9.0	0.66	0.20	8.6	9.3
3	9	10.6	0.92	0.32	10.0	11.3
4	17	12.6	0.56	0.18	12.2	12.9
5	8	14.8	0.25	0.18	14.5	15.2
6	5	17.0	0.45	0.30	16.4	17.6
7	3	18.6	0.08	0.17	18.3	18.9
8	1	19.3				
9	1	22.8				

WHITE CRAPPIE AGE-LENGTH KEY

Length group (in)	Total number	Sub-sample	AGE					
			1	2	3	4	5	6
4.5	3	0						
5.0								
5.5	1	1		1				
6.0	2	0						
6.5	6	1		6				
7.0	5	2			5			
7.5	7	7			7			
8.0	5	2			3	3		
8.5	2	0						
9.0	4	1						4
9.5	2	0						
10.0								
10.5	1	1						1
11.0	2	2				1	1	
11.5	3	0						
12.0	1	0						
12.5	1	0						
Totals	45	17	0	7	15	4	1	5

AGE-LENGTH KEY SUMMARY						
Age	Number	Mean			Lower 95%CI	Upper 95%CI
		TL	Var	SE		
1	0					
2	7	6.6	0.14	0.14	6.3	6.9
3	15	7.7	0.13	0.10	7.5	7.9
4	4	9.1	2.57	0.86	7.4	10.8
5	1	11.3				
6	5	9.6	0.45	0.30	9.0	10.2

GPS LOCATION OF SAMPLING EQUIPMENT

GILL NETS			TRAP NETS			ELECTROFISHING		
1	N 38.061375	W -87.455764	1	N 38.063282	W -87.455764	1	N 38.068771	W -87.454789
	N	W	2	N 38.059925	W -87.449171		N 38.065743	W -87.455848
2	N 38.061880	W -87.449171	3	N	W	2	N 38.064619	W -87.455699
	N	W	4	N	W		N 38.062286	W -87.454721
3	N 38.070121	W -87.456418	5	N	W	3	N 38.061344	W -87.455385
	N	W	6	N	W		N 38.063739	W -87.457615
4	N 38.069594	W -87.452686	7	N	W	4	N	W
	N	W	8	N	W		N	W
5	N	W	9	N	W	5	N	W
	N	W	10	N	W		N	W
6	N	W	11	N	W	6	N	W
	N	W	12	N	W		N	W
7	N	W	13	N	W	7	N	W
	N	W	14	N	W		N	W
8	N	W	15	N	W	8	N	W
	N	W	16	N	W		N	W
9	N	W	17	N	W	9	N	W
	N	W	18	N	W		N	W
10	N	W	19	N	W	10	N	W
	N	W	20	N	W		N	W
11	N	W				11	N	W
	N	W					N	W
12	N	W				12	N	W
	N	W					N	W
13	N	W				13	N	W
	N	W					N	W
14	N	W				14	N	W
	N	W					N	W
15	N	W				15	N	W
	N	W					N	W
16	N	W				16	N	W
	N	W					N	W
17	N	W				17	N	W
	N	W					N	W
18	N	W				18	N	W
	N	W					N	W
19	N	W				19	N	W
	N	W					N	W
20	N	W				20	N	W
	N	W					N	W