

Lake Iola
Scott County
Supplemental Survey

Date of Survey: May 27, 2009

Biologist: Michelle L. Cain, Assistant Fisheries Biologist

Survey Objectives: 1. Evaluate the bluegill and largemouth bass populations.
2. Evaluate largemouth bass stocking success by using Oxytetracycline Hydrochloride (OTC) marking data.

Methods: Fish collection effort equaled 0.50 h pulsed DC daytime electrofishing with two dippers along the shoreline for largemouth bass. The bluegill collection effort is not known due to lack of accurate data recording by the sampling crew. Total length was measured to the nearest 0.1 in. Scales were collected from largemouth bass and bluegill for age and growth determination. Otoliths were taken from largemouth bass up to 8.6 in to determine if OTC markings were present. Fin clip data was recorded for largemouth bass but was discarded due to lack of accuracy. Proportional stock densities (PSD) and relative stock densities (RSD) were calculated (Anderson and Neumann 1996).

Summary: A total of 562 bluegill was collected that weighed 32 lbs. They ranged in length from 1.4 to 7.3 in. The PSD increased from 7 (2007) to 21. The suggested PSD range indicating a balanced bluegill fishery is 20 to 60 (Anderson and Neumann 1996). Bluegill growth was good when compared to district averages. Bluegill averaged 6.3 in at age 3 and 6.8 in at age 4 versus 4.6 in at age 3 and 5.1 in at age 4 in 2007.

A total of 133 largemouth bass was sampled that weighed 79 lbs. They ranged in length from 3.2 to 19.0 in. The electrofishing catch rate was 266.0/h. The PSD increased from 6 (2007) to 25. The RSD₁₄ was 5 and the RSD₁₅ was 3. The suggested range for a balanced largemouth bass fishery is 40 to 70 (Anderson and Neumann 1996). Bass growth was slow. Bass averaged 11.9 in at age 4 and 13.8 in at age 5. No age-4 or age-5 bass were collected in 2007.

A total of 36 largemouth bass ranging from 3.2 to 8.6 in were collected to check for OTC marks. Four of these fish were OTC marked. This equates to 11% of the bass collected attributed to the 2008 stocking. Based on this data, the bass population is naturally reproducing. Many errors can occur in the OTC marking and reading process. Therefore, it is recommended that the protocols written by the Michigan Department of Natural Resources be followed for all parts of the marking procedure (Fielder 2002).

Bluegill growth has greatly improved and largemouth bass numbers are high. Additionally, 169 largemouth bass ranging from 15.0 to 16.7 in were stocked after this sample was conducted. Lake Iola now has an established and reproducing bass fishery. It is recommended that all future largemouth bass stockings (fingerlings and adults) be cancelled due to the evidence of natural recruitment and increase in bluegill growth.

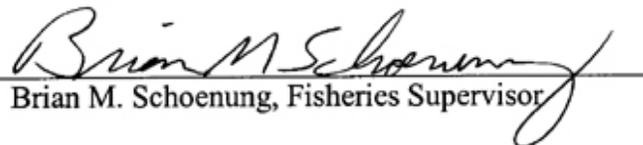
Literature Cited:

Anderson, R. O. and R. M. Neumann. 1996. Length, weight, and associated structural indices. Pages 447-481 in B. R. Murphy and D. W. Willis, editors. Fisheries techniques, 2nd edition. American Fisheries Society, Bethesda, Maryland.

Fielder, D. G. 2002. Methodology for immersion marking walleye fry and fingerlings in Oxytetracycline Hydrochloride and its detection with fluorescence microscopy. Michigan Department of Natural Resources, Fisheries Division, Lansing, Michigan. 21 pp.

Submitted by: Michelle L. Cain, Assistant Fisheries Biologist
Date: December 14, 2009

Approved by: Daniel P. Carnahan, Fisheries Biologist

Approved by: 
Brian M. Schoenung, Fisheries Supervisor

Date: February 12, 2010

LAKE SURVEY REPORT

Type of Survey	<input type="checkbox"/> Initial Survey	<input checked="" type="checkbox"/> Re-Survey
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Lake Name Lake Iola	County Scott	Date of survey (Month, day, year) May 27, 2009
Biologist's name Michelle Cain, Clint Kowalik		Date of approval (Month, day, year) February 12, 2010

LOCATION		
Quadrangle Name Scottsburg	Range 7E	Section 17, 18
Township Name 3N	Nearest Town Scottsburg	

ACCESSIBILITY						
State owned public access site			Privately owned public access site		Other access site Two city owned boat ramps	
Surface acres 9	Maximum depth 10	Average depth 5	Acre feet 45	Water level 549 MSL	Extreme fluctuations Minor	
Location of benchmark						

INLETS		
Name Unnamed	Location Southwest corner	Origin Surface runoff

OUTLETS			
Name Iola Run	Location Northeast corner		
Water level control			
POOL	ELEVATION (Feet MSL)	ACRES	Bottom type <input type="checkbox"/> Boulder <input type="checkbox"/> Gravel <input type="checkbox"/> Sand <input type="checkbox"/> Muck <input checked="" type="checkbox"/> Clay <input type="checkbox"/> Marl
TOP OF DAM			
TOP OF FLOOD CONTROL POOL			
TOP OF CONSERVATION POOL	549	9	
TOP OF MINIMUM POOL			
STREAMBED			

Watershed use Private residences and business establishments.
Development of shoreline Paved walking path, picnic facilities, park facilities, majority of shoreline riprap.
Previous surveys and investigations Renovation 1975.
Fisheries surveys 1978, 1980, and 2002.
Supplemental surveys 2004, 2006, and 2007.

NUMBER, PERCENTAGE, WEIGHT, AND AGE OF BLUEGILL

TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	EST. AVE. WEIGHT (pounds)	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (pounds)	AGE OF FISH
1.0	2	0.4	0.01	1	19.0				
1.5	9	1.6	0.01	1	19.5				
2.0	76	13.5	0.01	1	20.0				
2.5	131	23.3	0.02	1	20.5				
3.0	122	21.7	0.02	1	21.0				
3.5	48	8.5	0.03	1, 2	21.5				
4.0	3	0.5	0.05	2	22.0				
4.5	10	1.8	0.08	2, 3	22.5				
5.0	37	6.6	0.10	2	23.0				
5.5	53	9.4	0.13	2, 3	23.5				
6.0	46	8.2	0.17	3	24.0				
6.5	23	4.1	0.21	3, 4	24.5				
7.0	2	0.4	0.27	4, 5	25.0				
7.5					25.5				
8.0					26.0				
8.5					TOTAL	562			
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	N/A	GILL NET CATCH	N/A	TRAP NET CATCH	N/A
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NUMBER, PERCENTAGE, WEIGHT, AND AGE OF LARGEMOUTH BASS

TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	EST. AVE. 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	0.8	3.74	
1.5					19.5				
2.0					20.0				
2.5					20.5				
3.0	2	1.5	0.02	1	21.0				
3.5	3	2.3	0.02	1	21.5				
4.0	3	2.3	0.03	1	22.0				
4.5					22.5				
5.0	1	0.8	0.07	1	23.0				
5.5	4	3.0	0.09	1	23.5				
6.0	7	5.3	0.11	1, 2	24.0				
6.5	3	2.3	0.13	2	24.5				
7.0	5	3.8	0.17	2	25.0				
7.5	6	4.5	0.20	2	25.5				
8.0	2	1.5	0.26	2, 3	26.0				
8.5	4	3.0	0.31	2, 3	TOTAL	133			
9.0	3	2.3	0.36	3					
9.5	3	2.3	0.41	3					
10.0	16	12.0	0.53	3					
10.5	16	12.0	0.59	3, 4					
11.0	16	12.0	0.69	3, 4					
11.5	14	10.5	0.78	3, 4					
12.0	7	5.3	0.93	4, 5					
12.5	6	4.5	0.97	4					
13.0	6	4.5	1.14	4, 5					
13.5	1	0.8	1.24	5					
14.0	1	0.8	1.59	5					
14.5	1	0.8	1.59	4					
15.0	1	0.8	1.72	5					
15.5	1	0.8	2.06	6					
16.0									
16.5									
17.0									
17.5									
18.0									
18.5									

ELECTROFISHING CATCH	266.0/hr	GILL NET CATCH	N/A	TRAP NET CATCH	N/A
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BLUEGILL AGE-LENGTH KEY

Length group (in)	Total number	Sub-sample	AGE					
			1	2	3	4	5	
1.0	2	2	2					
1.5	9	6	9					
2.0	76	7	76					
2.5	131	5	131					
3.0	122	4	122					
3.5	48	4	12	36				
4.0	3	3		3				
4.5	10	7		9	1			
5.0	37	5		37				
5.5	53	6		18	9			
6.0	46	5			46			
6.5	23	5			14	9		
7.0	2	2				1	1	
Totals	562	61	352	102	70	10		1

AGE-LENGTH KEY SUMMARY						
Age	Number	Mean			Lower 95%CI	Upper 95%CI
		TL	Var	SE		
1	352	2.8	0.20	0.02	2.8	2.9
2	102	4.7	0.63	0.08	4.6	4.9
3	70	6.3	0.13	0.04	6.2	6.3
4	10	6.8	0.02	0.05	6.7	6.9
5	1	7.3				

LARGEMOUTH BASS AGE-LENGTH KEY

Length group (in)	Total number	Sub-sample	AGE						
			1	2	3	4	5	6	
3.0	2	2	2						
3.5	3	3	3						
4.0	3	3	3						
4.5									
5.0	1	1	1						
5.5	4	4	4						
6.0	7	7	4	3					
6.5	3	3		3					
7.0	5	5		5					
7.5	6	6		6					
8.0	2	2		1	1				
8.5	4	4		3	1				
9.0	3	3			3				
9.5	3	3			3				
10.0	16	6			16				
10.5	16	6			11	5			
11.0	16	5			10	6			
11.5	14	6			2	12			
12.0	7	4				5	2		
12.5	6	4				6			
13.0	6	5				2	4		
13.5	1	1					1		
14.0	1	1					1		
14.5	1	1				1			
15.0	1	1					1		
15.5	1	1							1
Totals	132*	87	17	21	47	38	8		1

AGE-LENGTH KEY SUMMARY						
Age	Number	Mean			Lower 95%CI	Upper 95%CI
		TL	Var	SE		
1	17	4.9	1.31	0.28	4.4	5.5
2	21	7.4	0.61	0.17	7.1	7.8
3	47	10.5	0.55	0.11	10.3	10.7
4	38	11.9	0.74	0.14	11.6	12.2
5	8	13.5	0.90	0.33	12.8	14.1
6	1	15.8				

*Scales for 19.0 in bass lost. Only 132 bass were aged.

GPS LOCATION OF SAMPLING EQUIPMENT

GILL NETS			TRAP NETS			ELECTROFISHING		
1	N	W	1	N	W	1	N 38.46888	W -85.86499
	N	W	2	N	W		N 38.47101	W -85.85881
2	N	W	3	N	W	2	N 38.47211	W -85.86153
	N	W	4	N	W		N 38.47087	W -85.86221
3	N	W	5	N	W	3	N	W
	N	W	6	N	W		N	W
4	N	W	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