

DATE: October 15, 2013

FILE REF: [Click [here](#) and type file ref.]TO: Mike Donofrio
Lilly Lake FileFROM: Steve Hogler
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SUBJECT: 2013 Lilly Lake Electroshocking Survey

Lilly Lake is a 42 acre lake located 11 miles east of Green Bay just south of US Hwy 29. Its located inside a Brown County Park and it is Brown County's only publicly accessible natural inland lake. The lake has a maximum depth of 19 feet and the average depth is 10 feet. Following several decades of commonly occurring winter kill, the lake in 1976 underwent chemical rehabilitation with rotenone to remove overabundant bullheads and common carp. In addition to the rotenone treatment and restocking with largemouth bass, bluegill and black crappie, the Brown County Parks Department installed and continues to operate an aerator on the lake.

The most recent survey of Lilly Lake was conducted in 2008. This survey found six species of fish during two nights of electrofishing that included; largemouth bass, bluegill, yellow perch, golden shiner, green sunfish and white sucker in decreasing order of abundance. Small largemouth bass dominated the sample representing over 81% of the total catch. Bluegill and other panfish species were notably sparse. Based on survey results, new fishing regulations were proposed for the lake. To reduce fishing mortality on panfish, a panfish daily bag limit reduction from 25 fish to 10 fish/ day was recommended. It was also recommended to change the largemouth bass regulation from 14" size minimum, 5 daily bag limit to a no minimum size with protected slot limit from 14-18 and a daily bag limit of three with not more than one fish over eighteen inches. This recommendation was formulated to increase the harvest of small bass which would reduce the overall population number and improve the size structure. These regulations were approved at the 2011 Conservation Congress Spring Hearing and were enacted in 2012.

On the night of May 20, 2013, the entire 1.23 mile shoreline of the lake was electroshocked using a standard DNR boomshocker and two netters. The water temperature was 64F and it was noted that the water was mostly clear with some blue-green algae near the boat launch. During the 42 minutes of shocking, we captured 100 individual fish representing six species (Table 1). Bluegill and largemouth bass dominated our catch with lower numbers of the other species captured.

Table 1. The total number and CPE by species for fish captured on Lilly Lake during electroshocking on May 20, 2013 survey.

Species	Number	CPE (Fish/Mile)	CPE (Fish/Hour)
Golden Shiner	11	8.9	15.7
Blacknose Shiner	3	2.4	4.3
Pumpkinseed Sunfish	11	8.9	15.7
Bluegill	38	30.9	54.3
Largemouth Bass	34	27.6	48.6
Yellow Perch	3	2.4	4.3
Total	100	81.3	142.9

The 34 largemouth bass that were captured ranged in length from 155 mm (6.1") to 383 mm (15.1") and had an average length of 283 mm (11.1") (Table 2). Ages obtained from scales and spines collected

during sampling indicated that ages 2 through 8 were present in our sample (Table 2). The distribution of age was fairly consistent across each age class with ages 2, 4 and 5 the most common.

Table 2. The size and age distribution of largemouth bass from Lilly Lake captured during May 20, 2013 electroshocking survey.

Length (mm)	Number	Age 1	Age 2	Age 3	Age 4	Age 5	Age 6	Age 7	Age 8
150	1		1						
160									
170	2		2						
180	1		1						
190	2		2						
200	1		1						
210	1		1						
220									
230	1			1					
240									
250	1			1					
260	1			1					
270	2				2				
280									
290	2			1	1				
300	1					1			
310	5				1	2	1	1	
320	8				3	3	2		
330	2					1		1	
340									
350	1								1
360									
370									
380	2								2
390									
400									
Total	34	0	8	4	7	7	3	2	3
Average Length	283	--	187	261	302	320	321	324	374
S. D.	62.7	--	20	26.6	23.6	7.7	9.1	19.1	14.5

Bluegill were the most abundant fish that we captured during the survey (Table 1). The 38 bluegill ranged in length from 39 mm (1.5”) to 230 mm (9.1”) and had an average length of 108 mm (4.3”) (Table 3). Bluegill age, as determined from scales samples, ranged from Age 1 through 4 (Table 3). Age 2 and Age 3 bluegill were the most common age classes of captured bluegill. The small bluegill size that we measured correlated well with their young age.

Other fish species that were measured included pumpkinseed sunfish and yellow perch. Pumpkinseed sunfish ranged in length from 75 mm (3”) to 188 mm (7.4”) and had an average length of 118 mm (4.6”) while yellow perch ranged in length 122 mm (4.7”) to 147 mm (5.8”) with an average length of 133 mm (5.2”).

Table 3. The size and age distribution of bluegill from Lilly Lake captured during May 20, 2013 electroshocking survey.

Length (mm)	Total	Age 1	Age 2	Age 3	Age 4	Age 5
10						
20						
30	1	1				
40						
50	2	2				
60	2	1	1			
70	5		5			
80	3		3			
90	4		4			
100	5		5			
110	2		2			
120	3		1	2		
130	5			5		
140	1			1		
150	1			1		
160	1			1		
170	1			1		
180						
190						
200						
210	1				1	
220						
230	1				1	
240						
250						
Total	38	4	21	11	2	
Average Length	108	52	92	140	222	
S.D.	18.5	9.6	15.7	15.5	12.0	

The results from this survey were generally comparable to the results from the 2008 survey. However, the bass catch in 2013 declined sharply from what was captured during the 2008 survey. The average length and size distribution of bass were similar for both survey years. The size and bag regulation change has been in effect only slightly more than one year making it unlikely that it was responsible for the CPE difference. It is likely the difference in the number captured was due to normal survey to survey variation in catch we see with our lakes. Bluegill CPE and size structure indicated little change between the survey years, with captured bluegill small in size and young in age.

I am not recommending any changes in management strategy at this time as additional time will be necessary for the bass and panfish to respond to the changes in regulation imposed in 2012. I recommend another Lilly Lake survey in 3 to 5 years to identify if the fish populations in the lake have reached a balance and determine the impact of the new regulations.