

DATE: November 13, 2012

FILE REF: [Click [here](#) and type file ref.]TO: Mike Donofrio
Harpt Lake File

FROM: Steve Hogler

SUBJECT: 2012 Harpt Lake Electrofishing Survey Report

Harpt Lake (WBIC-84600) is located in Manitowoc County approximately 14 miles northwest of Two Rivers. The lake has a surface acreage of 31 acres, a maximum depth of 54 feet and lies in a 773 acre watershed that is 68.5% agricultural (Manitowoc County Soil and Water Conservation Department 2003)(Figure 1). The water quality of Harpt Lake historically, has been described as turbid, with recent surveys indicating that water quality continues to worsen with increasing levels of phosphorous resulting in increased growth of Eurasian Water Milfoil and filamentous algae (Hoyman and Cibulka 2012). Traditionally, the fishery of Harpt Lake had been dominated by walleye and abundant, small, slow growing panfish. The most recent survey in 2003, a fall electroshocking run found fewer walleye, more bass that were somewhat slow growing, and reduced numbers of panfish that were small but growing normally as compared to earlier surveys (Hogler 2004).

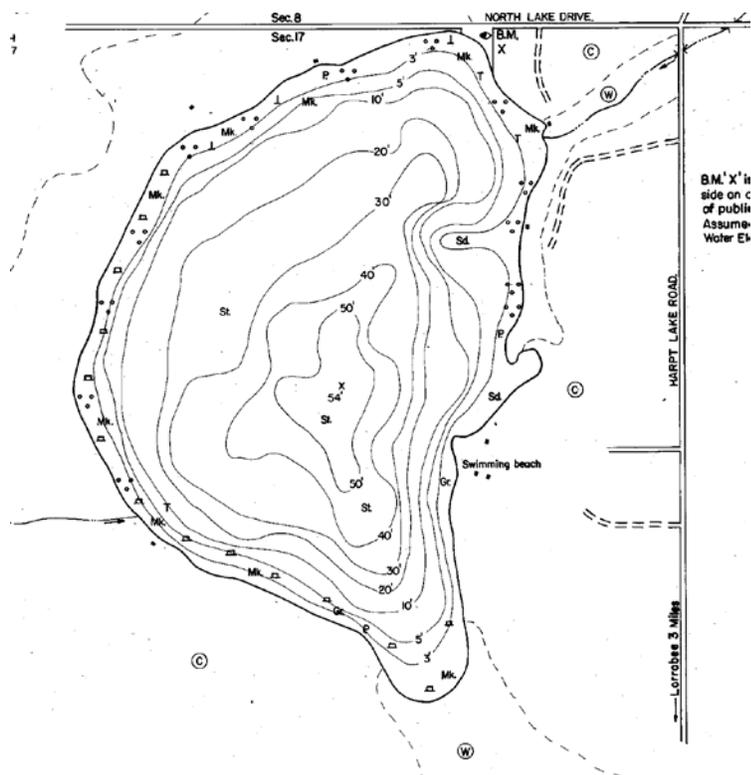


Figure 1. A morphometric map of Harpt Lake showing depth contours of the lake and the location of the public boat access on North Lake Drive.

A survey of lake stakeholders found that residents and recreational users are concerned with worsening water quality and the declining fishery (Hoyman and Cibulka 2012). Results of this survey found that 78.3% of the respondents felt water quality had either severely or somewhat degraded over time. Relating to the fishery, 77.4% believed that the fishery was either much or somewhat worse than historically and 66.7% indicated that the current fishery was poor or very poor.

Currently, DNR manages Harpt Lake as a bass-panfish lake and stocks walleye into the lake in odd numbered years with the Larrabee Sportsmen’s Club stocking walleye in even years. Harpt Lake is scheduled to be surveyed every 8 years as part of Tier 1 lake monitoring.

2012 RESULTS and DISCUSSION

On the night of May 8, the entire shoreline of Harpt Lake was electrofished using pulsed DC current to assess the bass and panfish community of the lake. This assessment followed standard state lake sampling protocols. During the transit of the shoreline, an effort was made to net all the fish that were observed. All captured gamefish and panfish were identified, measured to the nearest millimeter and a subsample had a scale or spine removed for analysis of age. Other captured species were identified and counted by species.

During the 40 minutes of nighttime shocking, we captured 234 individual fish representing seven species (Table 1). Largemouth bass dominated our catch followed by lesser numbers of bluegill and other species. Total CPE was 351.0 fish per hour shocked or 259.9 fish per mile shocked (Table 1). Many additional smaller size bluegill were observed, but we were unable to net them.

Table 1. Catch and CPE by species of fish captured by electroshocking on May 8, 2012 from Harpt Lake.

Species	Number	Fish / hour Shocked	Fish/ Mile Shocked
Largemouth Bass	148	222.0	164.3
Bluegill	53	79.5	58.8
Black Crappie	6	9.0	6.7
Pumpkinseed	5	7.5	5.6
Yellow Bullhead	1	1.5	1.1
Golden Shiner	13	19.5	14.4
Common Carp	8	12.0	8.9
Total	234	351.0	259.9

Gamefish

The 148 largemouth bass that we netted ranged in length from 142 mm (5.6”) to 545 mm (21.5”) and had an average length of 294 mm (11.6”) (Table 2). 54 of the 148 captured bass (63.5%) were greater in length than 305 mm (12”) and 8.8% were longer than the 356 mm (14”) size minimum for Harpt Lake.

We collected scale samples from a portion of the captured bass for age analysis. Ages ranged from age 2 to age 6 and age 8 (Table 3). Age 4 was the most common age of bass and they averaged 328 mm (12.9”) in length. Based on these age estimates, it takes a bass five years in Harpt Lake to reach the legal minimum length to harvest. When compared to state average length at age values, bass in Harpt Lake are longer at age 2 through 5 than other bass from around the State (Table 4). We also noted that bass in 2012 were longer at each age than bass we collected in 2003. Much of the difference in lengths are likely due to the calendar date in which the scales were collected, and shows the growth of bass between October (2003 samples) and the May (2012 samples) of the following year.

Table 2. The length frequency by species of fish captured during electroshocking on Harpt Lake.

Length (mm)	Largemouth Bass	Bluegill	Black Crappie	Pumpkin-seed	Yellow Bullhead
50		2			
60		3			
70		7			
80		2			
90					
100		6			
110		8		1	
120		6			
130		6			
140	2	4			1
150	4	6			
160	6			4	
170	3	1			
180	2		1		
190	7		3		
200	3	2	1		
210	7				
220					
230	1				
240			1		
250					
260	1				
270	5				
280	4				
290	5				
300	14				
310	18				
320	18				
330	12				
340	12				
350	11				
360	5				
370	4				
380	1				
390					
400	1				
410					
420					
430	1				
440					
450					
460					
470					
480					
490					
500					
510					
520					
530					
540	1				
Total	148	53	6	5	1
Ave. Length	294	116	190	155	145
S.D.	69.2	35.3	21.2	22.2	--

Table 3. The age distribution by length of largemouth bass captured by electroshocking from Harpt Lake. The age of non-sampled bass were assigned by using the percent of each age by length from sampled fish and then applying it to all fish of a given length.

Length (mm)	Number	Age						
		2	3	4	5	6	7	8
100								
110								
120								
130								
140	2	2						
150	4	4						
160	6	6						
170	3	3						
180	2	2						
190	7	7						
200	3	3						
210	7	7						
220								
230	1		1					
240								
250								
260	1		1					
270	5		4	1				
280	4		2	2				
290	5		3	2				
300	14		7	7				
310	18		6	12				
320	18		5	9	4			
330	12		2	8	2			
340	12			5	6	1		
350	11			9	2			
360	5			3	2			
370	4			2	2			
380	1			1				
390								
400	1				1			
410								
420								
430	1				1			
440								
450								
460								
470								
480								
490								
500								
510								
520								
530								
540	1							1
550								
Total	148	34	31	61	20	1	0	1
Ave. Length	294	183	301	328	352	348		545
S.D.	69.2	23.3	22.7	23.1	27.5	--		--

Table 4. Average length at age as determined by scales for fish captured on Harpt Lake in 2003 and 2012 as compared to state average length at age values. Scales in 2003 were collected in October and were aged as plus age fish. But for comparative purposes, fish aged at age 2+ were called age 3 fish since we assumed little growth occurs from October to the following spring.

Species		AGE 1	AGE 2	AGE 3	AGE 4	AGE 5	AGE 6	AGE 7
Bluegill	2003	67	124	156	185	188		
	2012		96	131	195			
(State Average)		(64)	(97)	(122)	(147)	(167)	(183)	(196)
Largemouth Bass	2003	80	132	179	223	305	339	363
	2012		183	301	328	352	348	
(State Average)		(97)	(165)	(229)	(290)	(338)	(384)	(414)

Panfish

Bluegill was the dominant panfish that were captured during this survey. The 53 bluegill captured ranged in length from 55mm (2.2”) to 205 mm (8.1”) and had an average length of 116 mm (4.6”) (Table 2). Only 3 bluegill (2.5%) were longer than 150 mm (6”) and most were around 100 mm (4”) in length.

When collected bluegill scales were aged, ages 2 through 4 were identified in our sample (Table 5). Age 3 bluegill were the most common age fish with fewer age 2 and age 4 fish. When compared with state average length fish, bluegill from Harpt Lake were longer at each age. Length at age was similar between 2003 and 2012 surveys although in 2012, younger fish were somewhat longer at age 2 and age 3 than in 2003, but at age 4, bluegill in 2012 were slightly shorter.

We also captured six black crappie that averaged 190 mm (7.5”) in length and five pumpkinseed that averaged 155 mm (6.1”) in length (Table 2).

Other Species

Other species captured during this survey included one yellow bullhead, thirteen golden shiner and eight carp (Table 1).

Table 5. The age distribution by length of bluegill captured by electroshocking from Harpt Lake. The age of non-sampled bluegill were assigned by using the percent of each age by length from sampled fish and then applying it to all fish of a given length.

Length (mm)	Number	Age			
		2	3	4	5
50	2	2			
60	3	3			
70	7	7			
80	2	2			
90					
100	6	4	2		
110	8	1	7		
120	6	3	3		
130	6	2	4		
140	4		4		
150	6		6		
160					
170	1			1	
180					
190					
200	2			2	
210					
220					
230					
240					
250					
Total	53	24	26	3	0
Ave. Length	116	89	131	195	
S.D.	35.3	24.7	18.0	15.9	

Discussion and Recommendations

Based on historical data and the results from the two most recent surveys (2003- 3 walleye captured, 2012- 0 walleye), Harpt Lake appears to be converting from a walleye dominated lake to a bass dominated lake despite nearly annual stockings of walleye. The decline in the walleye population in Harpt Lake is likely due to poor survival of walleye following stocking because predation, water quality and habitat conditions favor bass. Largemouth bass abundance is increasing as measured in the past two surveys. Despite increasing numbers, growth appears to be good.

Panfish in the lake continue to be small, but unlike past surveys the small size is due to young age, not slow growth. Bluegill CPE in 2012 was similar to 2003 indicating numbers may have stabilized. Other panfish species were captured in similar numbers and sizes as were captured in previous surveys.

Carp were captured in 2012 for the first time. They were likely induced through a bait harvest transfer since the nearest river is many miles away and much of the channel has been dry the past several years. Declining water quality in the lake also favors the expansion of the carp population.

I recommend that based on survey data that DNR stocking of walleye be halted. If water quality conditions improve, resumption of the walleye stocking program could be reconsidered. Stocking activities by private clubs could continue if they desire walleye to be stocked, but their efforts related to lake management should be focused on habitat projects instead.

The bass population should be monitored to ensure that growth continues to be near or above state average growth. If growth slows substantially or if panfish populations crash, regulation changes to harvest more bass should be considered.

Finally, Fisheries Staff should support and encourage landowners to follow the recommendations of the Lake Management Plan which seeks to improve water quality in the lake by establishing buffers and reducing nutrient and sediment inputs into the lake.

References

Hogler, S. 2004. October 28, 2003 electrofishing survey report of Harpt Lake. WDNR. Unpublished. Green Bay, WI. 5 pages.

Hoyman, T and D. Cibulka. 2012. Harpt Lake, Manitowoc County, Wisconsin Comprehensive Management Plan, April 2012. Submitted to the Larrabee Sportsmen Club by Onterra, LLC. DE Pere WI. 70 pages.

Manitowoc County Soil and Conservation Department. 2003. Surface Water Resources of Manitowoc County. Manitowoc County SCD. Manitowoc, WI. 261 pages.