LAKE SHAFER

Carroll & White Counties

2010 Supplemental Hybrid Striped Bass Evaluation

Date of Survey: September 18 - 27, 2010

Biologists: Jeremy Price and Tom Bacula

Survey Objectives: Evaluate the stocking success of hybrid striped bass in Lake Shafer under work plan 300FW1Fl 0D40609.

Methods: A total of four h of pulsed, DC night electrofishing (16, 15-min stations) and 12 gillnet lifts were conducted between September 16 and September 29, 2010. All hybrid striped bass and walleye were measured to the nearest 0.1 in total length (TL) and weight was estimated from standard weight-length regressions. Five scale samples were taken per half-inch group (X.0-X.4 for inch group and X.5-X.9 for half-inch group) for age and growth analysis. Catch per unit effo1i (CPUE) was calculated as catch divided by effort for each sampling gear.

Sulll111ary: There were 192 hybrid striped bass collected that weighed an estimated 131.1 lbs. Electrofishing CPUE was 29.8/h and gill net CPUE was 6.1/lift. All fish collected with electrofishing were age-0. Hybrid striped bass length ranged from 4.8 to 28.0 in and ages identified were 0, 1, 3, 4, 5, and 8. Average length ofage-0 fish was 6.3 in and age-! was 12.4 in.

Only 23 walleye were collected that weighed an estimated 49.8 lbs. Electrofishing CPUE was 2.5/h, while gill net CPUE was 1.1/lift. Fish ranged in length from 12.7 to 25.5 in and assigned ages were 1, 3, 6, 7, and 8. Legal-sized walleye (TL 2'.: 14.0 in) accounted for 65% of fish collected. Mean length at capture for ages 1 nd 3 was 13.7 in and 17.9 in, respectively.

Overall, the hybrid striped bass population is providing good fishing opportunities to the anglers. The 2009 and 2010 stocking resulted in the majority (95%) of hybrid striped bass collected. Hybrid striped bass were collected from stockings in 2002 indicating conditions in the lake are adequate for growth and survival. Growth of hybrids was slightly better than the 2006 evaluation for most ages (Price and Robe1ison 2007). Despite what appears to be a good

population of hybrid striped bass, there are no formal criteria to determine the success of these stockings. Therefore, determining the success or failure of the hybrid striped bass fishery remains subjective. It appears that the hybrid striped bass stocked in Lake Shafer have survived resulting in an additional sport fishery for anglers to target.

It should be noted that we experienced some difficulty in distinguishing age-0 hybrid striped bass from young white bass that are also present in Lake Shafer. Smaller individuals of both populations have exhibited substantial variability in characters typically used to differentiate the two. As a result, electrofishing catch rates for age-0 hybrid striped bass repmied in the results of this survey are subject to more etrnr than other locations where white bass populations are not present. With this in mind, effotis to establish success criteria for stockings of Lakes Shafer and Freeman should focus on catch rates of age-1 and older hybrid striped bass.

The walleye population in Lake Shafer is also sustained through surplus stockings. Growth of walleye is good, but slightly below the 2006 evaluation. However, more walleye were collected in 2010 than in 2006 likely resulting in more angling oppotiunities. No walleye were stocked in 2010, but they were stocked at a rate of 43 fish/ac in 2009. While the 2009 stocking was less than half of the desired number and thus failed to meet age-1 catch rate success criteria, it is clear that these fish did survive and will contribute to the fishery.

Both hybrid striped bass and walleye populations should be maintained through continued stocking. In order to maintain the hybrid striped bass fishery, the Division of Fish and Wildlife should continue annual hybrid striped bass stockings at the rate of 10/acre (15,470 total). Walleye should be stocked when there is surplus walleye production. Fall evaluations should continue to occur bietmially for hybrid striped bass, and any walleye observed should also be collected.

References:

Price, J., and R. Robetison. 2007. Lake Shafer: Supplemental hybrid striped bass and walleye evaluation 2006. Indiana Department of Natural Resources. Division of Fish and Wildlife. Indianapolis, Indiana.

Submitted by: Tom Bacula, Naturalist Aide
Date: December 20, 2010

Approved by: Jeremy Price, Fisheries Biologist

Approved by: Stuart Shipman, Regional Supervisor
Date: Febrnary 7, 2011

Table I. Stocking history of hybrid striped bass and walleye in Lake Shafer.

	Hybrid striped bass		Walleye	
Year	Number	Mean Length	Number	Mean Length
1983	40,925	1.50		
1984	12,954	2.10		
1985	12,910	1.95		
1986	13,000	1.53		
1988	12,950	2.03		
1989	8,357	1.60		
1990	12,910	1.22		
1991	24,192	1.46		
1992	26,019	1.34	129,084	1.47
1993	12,910	1.22	139,250	1.60
1994			129,950	1.94
1995	90	8.56	130,465	1.75
1996*	12,910	1.30	129,396	1.64
1997	25,820	1.05	129,115	1.57
1998	12,910	1.38	36,237	1.49
1999	12,910	1.43	132,380	1.40
2000			77,150	1.51
2001	12,910	1.15	149,735	1.88
2002	12,910	1.66	27,020	1.29
2003			130,780	1.33
2004			129,939	1.71
2005	12,910	1.43		
2006	19,365	1.34		
2007	12,910	1.20	85,065	1.71
2008**			2,425	7.00
2009	13,615	1.25	55,835	1.51
2010	28,472	1.10		

*Purebreed striped bass

**Private walleye stocking split between Lakes Shafer and Freeman

APPENDIX

NVMBE;R., I;'E;RCJErfrAGE,IIVEiGHT,:AND:AGE OJ'HYB,RID,STR.IPEP.B:ASS'·

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	1.0	3.68	3
2.0					20.0	1	0.5	3.99	3
2.5					20.5				
3.0					21.0				
3.5					21.5				
4.0					22.0	1	0.5	5.43	3
4.5	2	1.0	0.04	0	22.5				
5.0	6	3.1	0.06	0	23.0				
5.5	20	10.4	0.08	0	23.5				
6.0	48	25.0	0.10	0	24.0				
6.5	36	18.8	0.13	0	24.5	2	1.0	7.66	4,5
7.0	8	4.2	0.16	0	25.0	1	0.5	8.18	8
7.5	2	1.0	0.20	0	25.5				
8.0					26.0				
8.5					26.5	1	0.5	9.85	8
9.0					27.0				
9.5					27.5				
10.0					28.0	1	0.5	11.75	8
10.5	1	0.5	0.57	1	28.5				
11.0	2	1.0	0.66	1	29.0				
11.5	8	4.2	0.76	1	TOTAL	192			
12.0	24	12.5	0.87	1					
12.5	15	7.8	0.99	1					
13.0	9	4.7	1.12	1					
13.5	2	1.0	1.26	1					
14.0									
14.5									
15.0									
15.5									
16.0									
16.5									
17.0									
17.5									
18.0									
18.5									

ELECTROFISHING CATCH	29.8 /h	GILL NET CATCH	6.1 /lift		

NUMBER, PERCENTAGE, WEIGHT, AND AGE OF WALLEYE

TOTAL LENGTH 'Inches'	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT foounds)	AGE OF FISH	TOTAL LENGTH <inches|	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AVERAGE WEIGHT (oounds'	AGE OF FISH
1.0					19.0				
1.5					19.5				
2.0					20.0				
2.5					20.5	2	8.7	2.84	6, 7
3.0					21.0	2	8.7	3.10	7,8
3.5					21.5	2	8.7	3.36	6, 7
4.0					22.0	1	4.3	3.65	7
4.5					22.5				
5.0					23.0	1	4.3	4.26	6
5.5					23.5				
6.0					24.0				
6.5					24.5				
7.0					25.0	1	4.3	5.71	8
7.5					25.5	1	4.3	6.13	not aaed
8.0					26.0				
8.5					TOTAL	23			
9.0									
9.5									
10.0									
10.5									
11.0									
11.5									
12.0									
12.5	2	8.7	0.57	1					
13.0	3	13.0	0.65	1					
13.5	3	13.0	0.74	1					
14.0	2	8.7	0.84	1					
14.5									
15.0	1	4.3	1.06	1					
15.5									
16.0									
16.5									
17.0	1	4.3	1.63	3					
17.5	1	4.3	1.80	3					
18.0									
18.5									

ELECTROFISHING CATCH	2.5 /h	GILL NET CATCH	1.1 /lift		

•c<; ....·:·····;;;; *ii* 'AGE;LENGTH:KEYf:ORHYBR10>$TRIPEDBASS ·..

LENGTH GROUP (inches	NUMBER COLLECTED	NUMBER AGED	AGE												
			0	1	2	3	4	5	6	7	8	9	10	11	12
4.0															
4.5	2	1	2												
5.0	6	1	6												
5.5	20	1	20												
6.0	48	1	48												
6.5	36	1	36												
7.0	8	1	8												
7.5	2	2	2												
8.0															
8.5															
9.0															
9.5															
10.0															
10.5	1	1		1											
11.0	2	1		2											
11.5	8	5		8											
12.0	24	5		24											
12.5	15	4		15											
13.0	9	5		9											
13.5	2	1		2											
14.0															
'															
19.0															
19.5	2	2				2									
20.0	1	1				1									
20.5															
21.0															
21.5															
22.0	1	1				1									
22.5															
23.0															
23.5															
24.0															
24.5	2	2					1	1							
25.0	1	1									1				
25.5															
26.0															
26.5	1	1									1				
27.0															
27.5															
28.0	1	1									1				
28.5															
Total	192	39	122	61		4	1	1			3				
Mean TL			6.3	12.4		20.5	24.8	24.8			26.8				
SE			0.05	0.08		0.60					0.87				

cc:			r.TI-I!K						sc:			tt			
LENGTH GROUP (Inche	NUMBER COLLECTED	NUMBER AGED	AGE 0	1	2	3	4	5	6	7	8	9	10	11	12
11.5															
12.0															
12.5	2	2		2											
13.0	3	3		3											
13.5	3	3		3											
14.0	2	1		2											
14.5															
15.0	1	1		1											
15.5															
16.0															
16.5															
17.0															
17.5	1	1				3									
18.0	1	1				1									
18.5															
19.0															
19.5															
20.0															
20.5	2	2							1	1					
21.0	2	2								1	1				
21.5	2	2							1	1					
22.0	1	1								1					
22.5															
23.0	1	1							1						
23.5															
24.0															
24.5															
25.0	1	1									1				
25.5	1	0													
26.0															
26.5															
27.0															
27.5															
Total	23	21		11		4			3	4	2				
Mean TL				13.7		17.9			21.9	21.5	23.3				
SE				0.22		0.13			0.73	0.32	2.00				