

WORSTER LAKE
St. Joseph County
2011 Hybrid Striped Bass Evaluation

Date of Survey: October 4, 2011

Biologist: Tom Bacula

Survey Objectives: Evaluate the stocking success of hybrid striped bass at Worster Lake under work plan 300FW1F10D42609.

Introduction: Worster Lake, a 327-acre impoundment, was created in 1976 by damming Potato Creek. Worster Lake is located within Potato Creek State Park, has a maximum depth of 25 ft and a mean depth of 10 ft. The last fisheries survey was completed in 2009 (Bacula and Long 2009). A total of 1,997 fish representing 17 species and one hybrid were collected that weighed an estimated 673.7 lbs. The five most abundant species collected by number were bluegill (35%), gizzard shad (22%), golden shiner (15%), largemouth bass (8%), and black crappie (5%). The most abundant species collected by weight were gizzard shad (35%), largemouth bass (16%), bluegill (10%), golden shiner (4%), and white sucker (7%). Only 16% of the 697 bluegills collected were considered harvestable ($TL \geq 6.0$ in) and 17 of the 154 largemouth bass collected were at least legal length ($TL \geq 14.0$ in). The second most abundant species by number (429 fish) and first by weight (237.9 lbs) was gizzard shad. Shad ranged in length from 5.3 to 16.8 in, but the majority (73%) of fish were between 11.0 and 14.0 in. Golden shiners were the third most abundant species by number (298 fish). Due to the abundance of prey species and the poor size structure of bluegill the survey recommendation was to stock an additional predator to utilize the abundant prey species. In 2011, hybrid striped bass produced by Division of Fish and Wildlife hatcheries were stocked into Worster Lake at a rate of 19.9/acre. Typically hybrid striped bass are stocked at a rate of 10/acre. However surplus hatchery production provided an opportunity to more rapidly establish this new population and begin to utilize the overabundant forage in the lake.

Methods: Hybrid striped bass were collected with pulsed DC, shoreline electrofishing with two dippers at night at eight, quarter mile transects for a total of 2.0 h. Standard transects were established this year for future evaluations (Figure 1). Hybrid striped bass were measured to the nearest 0.1 in total length (TL). A weight-length regression was used to estimate fish weight. Fish were separated into half-inch groups (X.0-X.4 for inch group and X.5-X.9 for half-inch group) and five scale samples per half-inch group were taken for age and growth analysis.

Summary: Methods in work plan 300FW1F10D42609 describe using electrofishing and gill nets to collect hybrid striped bass. Gill netting was omitted from this year's work since the hybrid striped bass were first stocked this year and fish would not be of sufficient size to be captured with gill nets. In 2.0 h of electrofishing, seven hybrid striped bass were captured that weighed an estimated 0.73 lbs. These fish ranged in length from 4.7 to 7.3 in. While catch was low at 3.5 fish per hour, there are no formal criteria to evaluate the success or failure of hybrid striped bass stockings. Furthermore, multiple year classes will need to be evaluated to determine if this fishery will be successful.

Future fish collection at Worster Lake should include a general fish survey in 2012. This will add information on the early stocking and more data prior to an adult hybrid striped bass population. The objective of stocking Worster Lake with hybrid striped bass is to utilize the abundant prey species specifically gizzard shad and golden shiners and diversify the fishery. The reduction in shad and shiners should reduce zooplankton competition with bluegills thus improving bluegill growth. Increased bluegill growth and size structure will create better quality angling opportunities. Biennial hybrid striped bass evaluations including gill nets and as well as general fish surveys every three to four years should be conducted to evaluate the effect of this stocking on the Worster Lake fish population. Worster Lake should be stocked with hybrid striped bass at 10/acre (3,270 total).

Literature Cited:

Bacula, T. and C. Long. 2010. Worster Lake, St. Joseph County, 2009 Fish Management Report. Indiana Department of Natural Resources. Division of Fish and Wildlife. Indianapolis, Indiana.

Submitted by: Tom Bacula, Assistant Fisheries Biologist

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Approved by: Jeremy Price, Regional Supervisor

Figure 1. Fall electrofishing transects for hybrid striped bass at Worster Lake, St. Joseph County, Indiana.



NUMBER, PERCENTAGE, WEIGHT, AND AGE OF HYBRID STRIPED 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				
1.5					19.5				
2.0					20.0				
2.5					20.5				
3.0					21.0				
3.5					21.5				
4.0					22.0				
4.5	1	14.3	0.04	0	22.5				
5.0					23.0				
5.5	3	42.9	0.08	0	23.5				
6.0					24.0				
6.5	1	14.3	0.13	0	24.5				
7.0	2	28.6	0.16	0	25.0				
7.5					25.5				
8.0					26.0				
8.5					TOTAL	7			
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	3.5 /h	
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