



Wisconsin Department of Natural Resources Lake Survey Information Sheet



Little Falls Flowage, St. Croix Co. 2012

Lake Description:

Little Falls Flowage is an important multi-recreational impoundment on the Willow River. The 172 acre flowage is located primarily within Willow River State Park near Hudson, Wisconsin. It has a maximum depth of 18 feet and approximately 4.86 miles of mostly undeveloped shoreline. The upper part of the water body is very shallow and contains a flooded river channel and delta. Little Falls Flowage is a hard water, eutrophic lake that suffers periodically from algal blooms. A non-motorized boat ramp is located in the state park, as are several handicap accessible fishing platforms. Little Falls has abundant fish habitat in the form of coarse wood along the shoreline and 14 species of aquatic vegetation. Aquatic invasive species found in Little Falls Lake include eurasian water milfoil and curly-leaf pondweed.

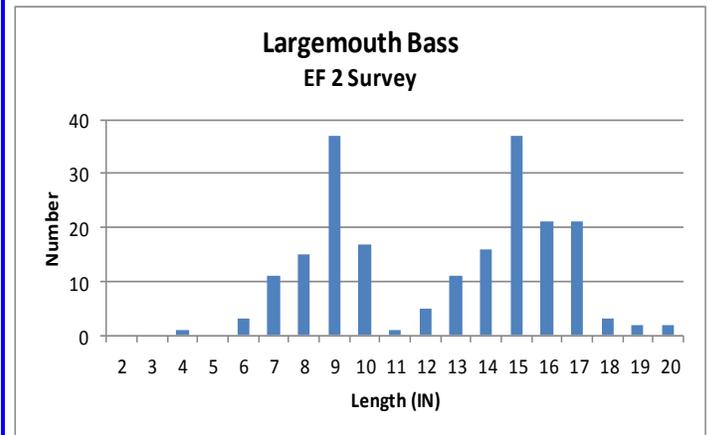
Survey Description:

Little Falls Flowage was surveyed in the spring of 2012 using fyke nets and electrofishing gear to assess the health and status of the fishery. Eight fyke nets (3x6 ft and 4x6 ft, 0.5 inch, mesh nylon) were set in locations chosen to target spawning northern pike and were lifted daily. In addition, the "shockable" shoreline was divided into two stations (0.85 mile and a 2 mile) and electrofished for game fish (EF 1) shortly after netting. When water temperatures reached 55-70F, these stations were again electrofished for bass and pan fish (EF 2). Within each station a 0.5 mile subsection were sampled for all game and pan fish. All carp that were considered "catchable" were counted in each subsection. Only game fish were captured in the remaining portion of each station. Electrofishing was conducted with a pulsed DC miniboom shocker with two booms and one dip netter. The most common game and pan fish sampled were counted and/or measured. A subsample of five fish per half inch group were weighed and had scales taken for growth and aging purposes. Additional aging material were collected if game fish were sexable. Dorsal spines were taken from bass ≥ 18 inches. Northern Pike were given an LV clip for recapture identification. This report at times combines data from netting and electro-fishing for general summary purposes.

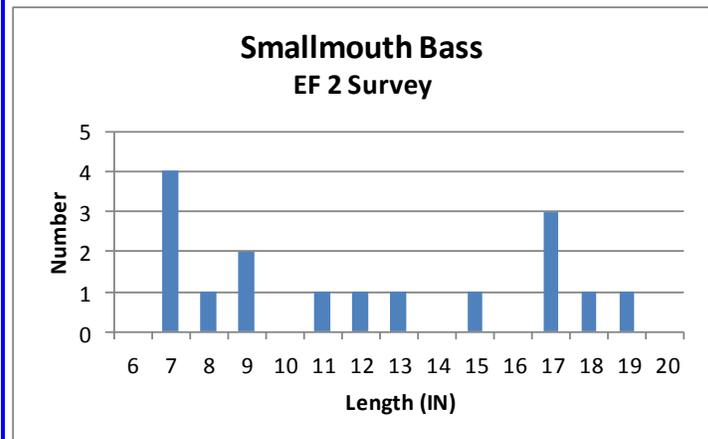
Gamefish:

Largemouth bass (320) were the most common game fish in Little Falls Lake. The overall length distribution is ex-

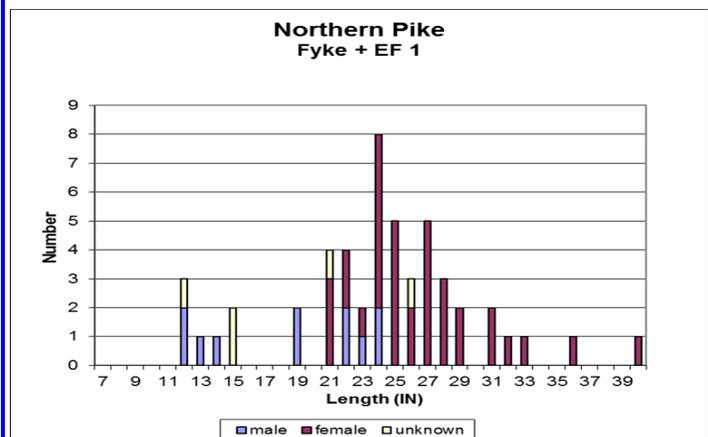
Largemouth bass length frequency, 2012.



Smallmouth bass length frequency, 2012.



Northern pike length frequency, 2012.



ceptional. Largemouth range in size up to 20.0 inches with an average length of 13.0 inches. Fifty-three percent were 14 inches or greater. Total catch per unit effort (CPE) was 71.2 bass/ mile (EF 2). Largemouth 18 inches and larger made up 7 percent of the sample. Growth rates in Little Falls Flowage are average when compared statewide, however relative weights exceeded state averages.

Northern pike (58) and smallmouth bass (24) are also present in lower densities. Northern pike CPE was 2/ net night (Fyke); 1.75/ mile (EF 1); 2.5/ mile (EF2). Northern pike were found up to 40.3 inches in length and averaged 24.3 inches. Thirty-four percent were 26 inches or greater and seven percent were 32 inches or greater. Growth rates were average but relative weights were low most likely due to sampling partially spawned fish. Smallmouth bass averaged 13.1 inches in length but were found up to 19.5 inches. CPE was 5.6 bass/ mile (EF 2). Forty-six percent were 14 inches or greater and twenty-one percent were 18 inches or greater. Growth and relative weight were average for smallmouth bass.

Panfish:

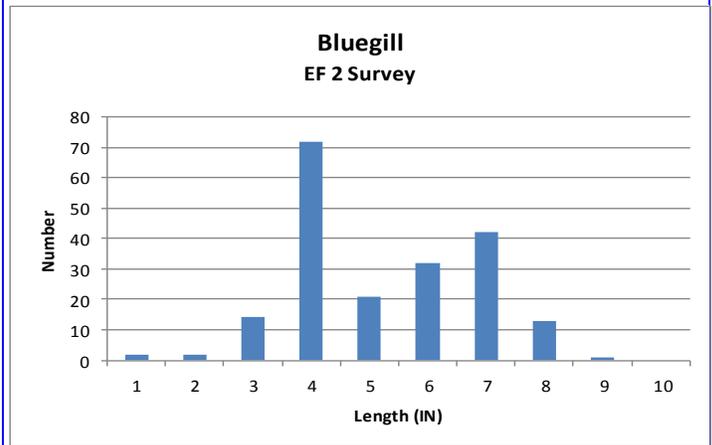
Five pan fish species were sampled in Little Falls Flowage. Yellow perch were the most common pan fish sampled. The total for all surveys was 1,781 perch. Lengths range up to 7.0 inches only. Larger perch are likely present in low numbers but were not sampled in this survey. Perch CPE's were 72.5/ net night (Fyke) and 40.0/ mile (EF 2). Relative weight is slightly below normal. Growth rates are average.

Bluegill (421) and black crappie (218) were other common pan fish sampled in the flowage. Bluegill averaged 5.3 inches in length and were found up to 9.0 inches. Thirty-six percent sampled were 6 inches or greater and seven percent were 8 inches or greater. Bluegill growth exceed statewide averages, while relative weights are average. Black crappies averaged 7.2 inches and were found up to 11.2 inches in length. Twenty-two percent were 8 inches or greater and one percent were 10 inches or greater. Relative weights are average. Growth is slower than state averages for the first two years, then improves to average or slightly faster than average. CPE's were 199/ mile (EF 2) for bluegill and 63/ mile (EF 2) for black crappie. Other fish species sampled were pumpkinseed sunfish (36), rock bass (14), black bullhead, yellow bullhead, white sucker, common carp, common shiner, golden shiner, hornyhead chub and central stoneroller.

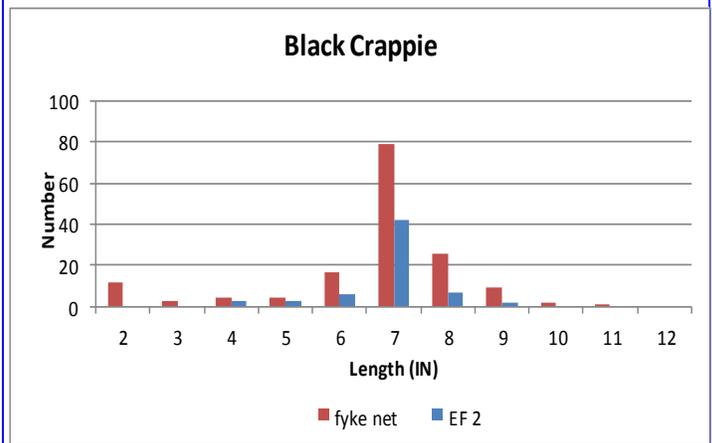
Summary:

Past surveys were conducted primarily for baseline inventories and evaluation of dam repairs or removals. The last comprehensive survey was conducted in 2000 (Engel, Spangler and Michalek, 2002). Since that survey, electrofishing CPE of largemouth bass have increased from 52/ mile to 71/ mile. The size range remains similar, however the 2012 survey shows a weak age 4 year class. Smallmouth bass electrofishing CPE has declined from 40.6/ mile to 5.6/ mile. Northern pike numbers have declined as well, from 4/ net night to 2/ net night. Pan fish numbers have increased for all species since 2000. Bluegills showed the greatest increase, going from 22/ mile (EF2) to 199/ mile in 2012. Such changes in the fish population may be related to: natural variation; artificial inflation of 2000 pike and smallmouth numbers following the removal of Mounds Flowage in 1997; and/or sediment deposition and associated changes in macrophyte abundance following upstream dam

Bluegill length frequency in Little Falls Lake, 2012.



Black crappie length frequency in Little Falls Lake, 2012.



Past and Future Management:

The original Little Falls dam was constructed in 1892 for the Burkhardt Milling and Electric Company. The dam was retired from power production in 1963. In 1968 the State of Wisconsin purchased the dam and developed Willow River State Park. Major renovation of the Little Falls dam occurred in the early 1980's. Two upstream dams (Willow Falls, 1992 & Mounds Dam, 1997) in the state park were removed causing sedimentation of the river channel and upper end of the Little Falls Flowage.

High nutrient loading from the watershed over the years have made Little Falls a eutrophic to highly eutrophic lake. Water clarity is average to poor and the lake experiences algal blooms in the summer. Poor water clarity limits the growth of submerged macrophytes (in the downstream end of the flowage) to very shallow areas of the lake which currently are over grown with invasive aquatic macrophytes. Large woody debris is fairly common along the lake shore, however most of the deep water basin is void of fish habitat.

Little Falls is managed primarily for self-sustaining bass, pike and pan fish populations. Stocking was limited to periods of restoration following dam renovation. Walleye are found in the flowage periodically from isolated stocking events or fish movement either from upstream or downstream locations.

Game fish and pan fish growth is not a concern in Little Falls. Growth rates are similar or greater than state averages and fishing pressure is light to moderate because gasoline engines and electric motors are prohibited on the flowage. Abundant small perch remain a concern during the past two surveys. Stocking predators such as walleye to utilize the abundant perch has been encouraged by user groups. Northern pike stocking has been discouraged because classified trout water is found both upstream and downstream of the flowage.

Management Recommendations:

- 1) Continue to manage Little Falls Flowage primarily as a bass/pan fish lake.
- 2) Address overly abundant yellow perch populations and create a recreational fishery through extended growth walleye stocking. Stock 10 per acre on an alternate year basis. Obtain Mississippi River strain walleye at the expense of the Willow River State Park's external support group called the OWL's .
- 3) Improve shore and winter fishing opportunities in the lower 1/2 of the flowage through the installation of fish crib colonies. Work with the St. Croix County Alliance and OWL's to secure funding, provide labor and install the fish cribs.
- 4) Continue long term monitoring following Fisheries Assessments– Lakes sampling protocol to document population trends and success or failure of the walleye stocking effort.
- 5) Work with state and county offices to promote Best Management Practices in the watershed to decrease nutrient/sediment loading to Little Falls Flowage.

Table 1: Summary of Fish Species Collected in Little Falls Lake, 2012 (All visits).

Gamefish	No. Caught	Max. Size	No. ≥ 26 in	No. ≥ 32 in
Northern Pike	58	40.3	20	4
	No. Caught	Max. Size	No. ≥ 14 in	No. ≥ 18 in
Largemouth Bass	320	20.0	169	22
Smallmouth Bass	24	19.5	11	5
Panfish	No. Caught	Max. Size	No. ≥ 8 in	No. ≥ 10 in
Black Crappie	218	11.2	47	3
Yellow Perch	1781	7.0	0	0
Rock Bass	14	9.4	5	0
	No. Caught	Max. Size	No. ≥ 6 in	No. ≥ 8 in
Bluegill	421	9.0	151	31
Pumpkinseed	36	7.2	25	0
Other Species	No. Caught			
Black Bullhead	21			
Yellow Bullhead	29			
Golden Shiner	19			
Common Shiner	26			
Hornyhead Chub	4			
Central Stoneroller	3			
Common Carp	4			
White Sucker	182			

References

Engel, Martin P., Brian W. Spangler, Sr. and William J. Michalek, Jr. 2002. Little Falls Flowage Comprehensive Lake Survey Report St. Croix County, Wisconsin. WDNR, West Central Region, Lower Chippewa Basin.

For more information on Little Falls Lake, you can contact the following persons:

Marty Engel, Senior Fisheries Biologist
Wisconsin DNR

890 Spruce Street
Baldwin, WI 54002

(715) 684-2914 ext. 110
Marty.Engel@wisconsin.gov

Matt Andre, Fisheries Technician
Wisconsin DNR

890 Spruce Street
Baldwin, WI 54002

(715) 684-2914 ext. 136
Matt.Andre@wisconsin.gov