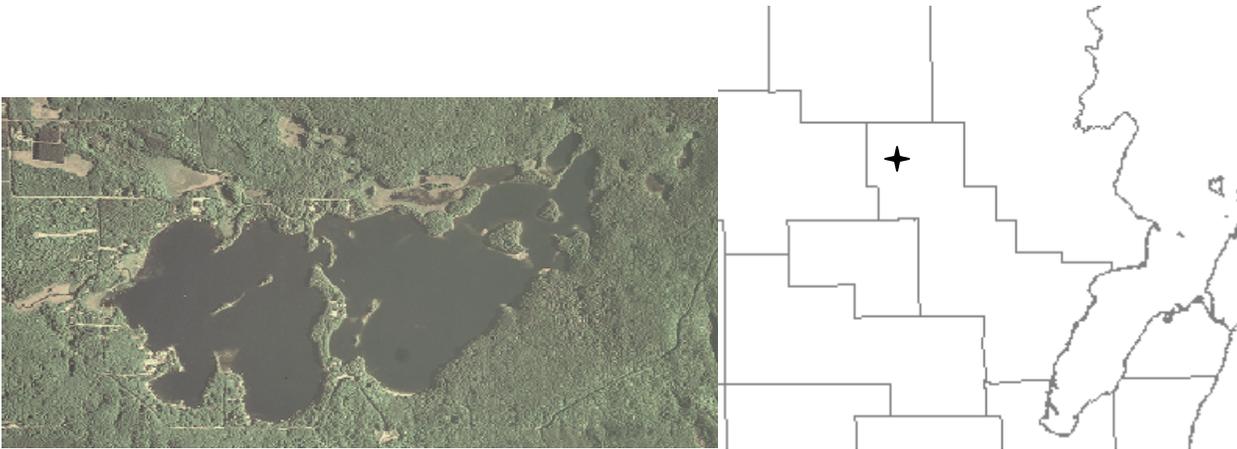
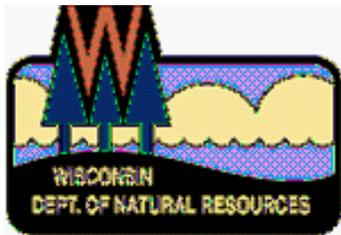


ARCHIBALD LAKE
Oconto County
2011 Fish Management Report

Christopher C. Long
Fisheries Biologist



Wisconsin Department of Natural Resources
101 N. Ogden Rd.
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Peshtigo, Wisconsin 54157



Your purchase of fishing equipment
and motor boat fuel supports boating
access and Sport Fish Restoration.

Archibald Lake - Oconto County, Wisconsin
2011 Fish Management Report



12/14/12

Christopher C. Long, Fisheries Biologist, Date



12/11/12

Michael Donofrio, Fisheries Supervisor, Date



12/21/12

Randy Schumacher, Eastern District Supervisor, Date



1/14/13

Steve Hewett, Bureau of Fisheries Management, Date

SUMMARY

Lake and location:

Archibald Lake, Oconto County, T32N R15E Sec 2

Physical / chemical attributes (Carson et al. 1977):

Surface acres: 392

Maximum depth (ft): 50

Average depth (ft): 19

Shoreline length (mi): 9.0

Lake type: Seepage Lake

Basic water chemistry: hard water, slightly alkaline, clear water of high transparency.

Littoral substrate: 50% sand, 34% muck, 10% gravel, and 6% rubble and boulders.

Aquatic vegetation: Moderate amount of submergent vegetation is found in many areas of the lake.

Aquatic invasive species: Eurasian water milfoil, a non-native invasive plant, is present.

Other features: A majority of the shoreline is upland hardwoods and conifers. Most of the shoreline is privately owned with significant ownership by the United States Forest Service.

Purpose of survey:

Determine the current status of fishery.

Surveys:

WDNR Survey ID: 118915037 – Late spring bass and panfish (5/17/10 – 5/18/10)

WDNR Survey ID: 89769536 – Fall juvenile walleye (10/20/10)

WDNR Survey ID: 162050683 – Spring fyke netting (4/27/11 – 5/8/11)

WDNR Survey ID: 162360839 – Late spring bass and panfish (6/6/10 – 6/7/10)

WDNR Survey ID: 213340265 – Fall juvenile walleye (10/17/11 – 10/18/11)

Fishery:

The Archibald Lake fishery is comprised of panfish species (bluegill, yellow perch, black crappie, pumpkinseed, and rock bass) and gamefish species (walleye, largemouth bass, muskellunge and northern pike). Other species present include yellow bullhead and white sucker.

EXECUTIVE SUMMARY

- At 392 acres, Archibald Lake offers a variety of recreational opportunities in addition to fishing and has become a popular destination because of its natural, scenic beauty and relatively undeveloped shoreline.
- Archibald Lake was chosen as a brood stock lake for Great Lakes Spotted Muskellunge (GLSM) as part of the Green Bay Restoration Project. Spotted muskellunge were stocked in 2009 and 2010. GLSM stockings are scheduled to take place annually beginning in 2013.
- Small walleye fingerlings have been stocked by the Wisconsin Department of Natural Resources (WDNR) every other year (even numbered years) since 1998 at the rate of 35 fish/acre.
- An angler survey was conducted from May 7, 2011 to March 4, 2012. The creel or angler survey is an assessment tool used to examine the fishing activities of anglers and make projections of the species and number of fish caught and harvested (Table 9).
- Overall, 6,086 fish representing 11 species were collected during the 2011 sampling season (Table 4). The five most abundant species collected by number were yellow perch (59%), bluegill (11%), largemouth bass (10%), rock bass (7%) and walleye (7%).
- A total of 3,578 yellow perch was collected (Table 4). Perch ranged in length from 4.8 to 10.5 in and averaged 6.9 in (Figure 1). Thirty-seven percent of the perch were age 3 and averaged 6.2 in and 28% were age 4 and averaged 7.7 in.
- Five-hundred ninety-eight largemouth bass were collected during the 2011 survey. Bass ranged in length from 6.3 to 18.6 in and averaged 11.3 in (Figure 5). Five percent of largemouth bass collected were over the 14-in minimum length limit.
- Overall, 446 walleye were collected and ranged in length from 5.6 to 26.1 in and averaged 15.5 in (Figure 9). Walleye growth was about average at age 6 and younger but below average at age 7 and older (Figure 10). The Schumacher-Eschmeyer fyke net population estimate for walleye 12 inches and larger was 726 or approximately 1.9 walleye/acre.
- A total of 89 pike was collected and ranged in length from 9.5 to 31.8 in, while averaging 17.2 in (Figure 13). Age-3 pike averaged 17.6 in and represented 22% of the sample and age-4 pike averaged 19.4 in and represented 18% of the pike aged. The population estimate was 453 northern pike or approximately 1.1 pike/acre.
- Twenty-three muskellunge were collected in 2011. Muskellunge ranged in length from 32.8 to 43.5 in (Figure 15). Muskellunge were reaching the 40-inch minimum length limit by age 9. No GLSM were collected.
- Stocking small fingerling walleye has produced variable results. Increasing the stocking rate of small fingerling walleye would produce more consistent year class strength. Successful natural reproduction of walleye was observed in 2011. The low water level has somewhat impacted the utilization of the spawning reef. Extending the walleye spawning reef 200 to 300 feet to the east is strongly recommended.
- Changes to the fishing regulations for walleye should be drafted for further review and reflect the current management goals of the fishery.

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INTRODUCTION

Archibald Lake is located in northwestern Oconto County, west of Lakewood. At 392 acres, the lake offers a variety of recreational opportunities in addition to fishing and has become a popular destination because of its natural, scenic beauty and relatively undeveloped shoreline. The Town of Townsend owns and operates the public access site on the west end of the lake. Anglers can access the lake on the northeast side of the lake by walking through Nicolet National Forest.

Archibald Lake is in the Ceded Territory (22,400 square miles of northern Wisconsin that was ceded to the United States by the Lake Superior Chippewa Tribes in 1837 and 1842) and therefore eligible for tribal, off-reservation spearing harvest. Since 1985, a total of 243 walleye have been harvested during the spearing season. No fish were harvested during the 2011 season.

Except 2002, small walleye fingerlings have been stocked by the Wisconsin Department of Natural Resources (WDNR) every other year (even numbered years) since 1998 at the rate of 35 fish/acre (Table 1). The Archibald Lake Association also sponsored large fingerling walleye stockings in 1999 and 2008. A single, private muskellunge stocking occurred in 2005. Archibald Lake was chosen as a brood stock lake for Great Lakes Spotted Muskellunge (GLSM) as part of the Green Bay Restoration Project. Spotted muskellunge were stocked in 2009 and 2010. GLSM stockings are scheduled to take place annually beginning in 2013. Additionally, to ensure that the WDNR has adequate opportunity to harvest eggs from this population of GLSM, a 50-inch minimum size limit was proposed and approved (64% statewide) during the 2011 Annual Spring Fish and Wildlife Rule Hearings (Wisconsin Conservation Congress – question 14).

The last fisheries survey of Archibald Lake was conducted in 2006 and 2007 (Hasz 2008). Those surveys indicated healthy populations of panfish and gamefish. Compared to previous surveys (1992 and 1999), the 2007 survey reported a decline in the walleye and northern pike populations (Hasz 2008). Hasz (2008) also recommended adding an additional 300 feet of glacial stone to an existing walleye spawning area and increasing habitat complexity by introducing woody debris in the form of tree drops. In 2008, enhancement of the walleye reef was completed and in 2009, 100 large trees were placed at 46 locations around the lake to improve fish habitat.

The goal of the 2011 comprehensive fisheries survey was to assess the status of the fishery by characterizing gamefish populations based on relative abundance, proportional stock density (PSD), relative stock density (RSD), catch per unit effort (CPUE), mean length at capture (age), and comparisons (where applicable) to the 2006 / 2007 survey.

METHODS

Data collection:

Standard fyke nets (3-foot hoop, $\frac{3}{4}$ -bar, 1.5-inch stretch), mini-fyke nets ($\frac{1}{4}$ -inch stretch with turtle exclusion) and a standard Wisconsin Department of Natural Resources (WDNR) Direct Current electrofishing boat were used to collect fish on Archibald Lake. Sampling gear, effort, date, and target species for the survey are listed in Table 2. All fish collected were measured to the nearest 0.1 inch total length (TL) and separated into half-inch groups (X.0-X.4 for inch group and X.5-X.9 for half-inch group). A sub-sample of scales or dorsal spines was collected for age and growth analysis from all gamefish. Aging structures (scales or spines) were collected from 5 non young-of-the-year (YOY) per half inch group. If gender could be determined, structures from 5 fish per sex were collected per half inch group. Aging structures for panfish and nongame fish consisted of 10 samples per half inch group when gender could not be established. Ages were assigned to each fish using standard WDNR procedures. Passive integrated transponders (PIT tags) were implanted in all muskellunge collected.

Data analysis:

Relative abundance was calculated as the percentage each species represented from the total sample (i.e. 22 fish of a single species from a sample of 100 total fish = 22% relative abundance). Catch per unit effort (CPUE) was calculated as catch by gear divided by sampling effort for each species collected. Length frequency distributions were tabulated for dominant gamefish and consisted of combined April and May electrofishing samples as well as fyke net data. Proportional stock density (PSD) and relative stock density for preferred length fish (RSD^L) were calculated for dominant gamefish (Anderson and Neumann 1996). Preferred lengths of various gamefish have a minimum length between 45 and 55% of the world record length for that species (Anderson and Neumann 1996). Stock, quality, and preferred lengths were used as proposed by Gabelhouse (1984). Age-length distributions were calculated for dominant gamefish. Mean length at capture data was calculated for dominant gamefish and compared to the average of mean length at age for northeast Wisconsin. Population estimates for walleye, northern pike, largemouth bass, and smallmouth bass were obtained during the spring fyke net survey by giving each captured fish a top caudal fin clip. Marks (fin clips) were noted in subsequent collections until the survey was complete. The Schumacher-Eschmeyer formulas for multiple census were used to generate population estimates (Schneider 1998).

Creel survey:

An angler survey was conducted from May 7, 2011 to March 4, 2012. The survey was divided into 2 survey periods; open water (May 7 to October 31, 2011) and ice fishing (December 1, 2011 to March 4, 2012). The creel or angler survey is an assessment tool used to examine the fishing activities of anglers and make projections of the species and number of fish caught and harvested. The creel clerk used a boat or snowmobile to count and interview anglers throughout the survey. The schedule consisted of randomly-selected days (weekday and weekend days) and shifts (AM or PM).

RESULTS

Overall, 6,094 fish representing 11 species and 1 hybrid were collected during the 2011 sampling season (Table 4). The five most abundant species collected by number were yellow perch (59%), bluegill (11%), largemouth bass (10%), rock bass (7%) and walleye (7%).

A total of 3,578 yellow perch was collected which accounted for 59% of the fish collected (Table 4). Perch ranged in length from 4.8 to 10.5 in and averaged 6.9 in (Figure 1). Electrofishing CPUE was 1.1/h and fyke net CPUE was 32.8/NN (Appendix III). A subsample of 90 yellow perch was aged from 3 to 9 years old. Thirty-seven percent of the perch were age 3 and averaged 6.2 in and 28% were age 4 and averaged 7.7 in. Growth was average compared to the mean length at age of yellow perch in northeast Wisconsin (Figure 2). Successful reproduction and recruitment of yellow perch was also evident.

During the survey, 658 bluegill was collected yielding an electrofishing CPUE of 91.3/h and a fyke net CPUE of 4.8/NN (Appendix III). Bluegill ranged in length from 3.2 to 8.3 in and averaged 5.9 in (Figure 3). Bluegill PSD was 30, and within the desirable range for a balanced population (Table 3), while RSD^P was 0. Fifty-six percent of the bluegill collected were 6 in (inches) or greater and considered harvestable. A subsample of 46 bluegill was aged from 3 to 11 years. Twenty-seven percent of bluegill were age 5 and averaged 5.2 in. Bluegill growth was average compared to the mean length at age for northeast Wisconsin (Figure 4).

Five-hundred ninety-eight largemouth bass were collected during the 2011 survey. Electrofishing yielded a CPUE of 138.8/h and fyke netting a CPUE of 1.5/NN. Bass ranged in length from 6.3 to 18.6 in and averaged 11.3 in (Figure 5). Largemouth bass PSD was 31 and RSD^P was 3. Bass PSD was below the desirable range for a balanced population (Table 3). Five

percent of largemouth bass collected were over the 14-in minimum length limit. A subsample of 58 largemouth bass was aged from 2 to 13 years old (Appendix III). Largemouth bass growth was average between age 2 and age 4 but below average for bass age 5 and older compared to the average mean length at age for bass in northeast Wisconsin (Figure 6). Bass are reaching legal size (14 in) at age 7. Successful reproduction and recruitment of largemouth bass was evident. The Schumacher-Eschmeyer fyke net population estimate for largemouth bass 8 inches and larger was 1,385 or approximately 3.5 bass/acre.

A total of 447 rock bass was collected and ranged in length from 3.6 to 10.9 in and averaged 7.3 in (Figure 7). Electrofishing CPUE was 54.1/h and fyke net CPUE was 3.7/NN (Appendix III). Rock bass PSD was 73 and RSD^P was 13. A subsample of 71 rock bass was aged from 3 to 12 years old. Age-5 rock bass averaged 6.6 inches and accounted for 21% of the rock bass aged (Figure 8). Overall, rock bass growth improved since 2007. The length frequency suggests that the rock bass population is well balanced in terms of age and size structure (Appendix III).

Overall, 446 walleye were collected during both electrofishing and fyke netting (0.4/NN). This does not include recaptured fish. Electrofishing for walleye was conducted in May and October with CPUE's of 8.1/h and 8.7/h, respectively. Walleye ranged in length from 5.6 to 26.1 in and averaged 15.5 in across both samples (Figure 9). Walleye PSD and RSD^P from the spring fyke net sample was 58 and 14, respectively. Walleye PSD was within the desirable range of 30 to 60 (Table 1). A subsample of 179 walleye from fyke nets was aged from 1 to 17 years old. Walleye were reaching legal size (15 in) by age 4 (Figure 10). Young-of-the-year walleye collected in October (age 0) averaged 7.2 inches. Compared to the average length at age for northeast Wisconsin, walleye growth was about average at age 6 and younger but below average at age 7 and older (Figure 10). The Schumacher-Eschmeyer fyke net population estimate for walleye 12 inches and larger was 726 or approximately 1.9 walleye/acre.

A total of 111 black crappie was collected that ranged in length from 4.9 to 12.8 in and averaged 8.6 in (Figure 11). Black crappie were collected electrofishing at a rate of 1.2/h and fyke netting at a rate of 1.0/NN (Appendix III). Black crappie PSD 72 was and RSD^P was 27. A subsample of 52 crappie was aged from 2 to 10 years old. A majority of the black crappie were age 4 (33%) and averaged 8.9 in (Appendix III). Successful reproduction and recruitment of

crappie was evident. The growth of black crappie was average compared to the mean length at age for crappie in northeast Wisconsin (Figure 12).

Northern pike accounted for 2% of the fish collected in 2011. A total of 89 pike was collected and ranged in length from 9.5 to 31.8 in, while averaging 17.2 in (Figure 13). Northern pike electrofishing CPUE in was 3.1/h. Fyke netting CPUE was 0.8/NN. Pike PSD was 20 and RSD^P was 7. A subsample of 79 northern pike was aged from 1 to 10 years old (Figure 14). Age-3 pike averaged 17.6 in and represented 22% of the sample and age-4 pike averaged 19.4 in and represented 18% of the pike aged. The growth of northern pike was average up to age 5 but below average at age 6 and older compared to the mean length at age for northeast Wisconsin (Figure 14). The Schumacher-Eschmeyer fyke net population estimate was 453 northern pike or approximately 1.1 pike/acre.

Twenty-three muskellunge were collected in 2011. Muskellunge ranged in length from 32.8 to 43.5 in (Figure 15). Eleven of the 23 muskellunge collected were aged. Ages ranged from 5 to 12 years old (Figure 16). Age-8 and age-9 muskie averaged 37.1 and 39.4 in, respectively. Muskellunge were reaching the 40-inch minimum length limit by age 9. Overall, muskellunge growth was average compared to other lakes in northeast Wisconsin (Figure 16).

Additionally, hybrid sunfish, pumpkinseed, yellow bullhead, and white sucker were also collected during the 2011 survey but only accounted for 2.4% of all fish collected (Table 4).

DISCUSSION

The fishery in Archibald Lake is healthy and diverse. Good populations of panfish (bluegill, yellow perch, black crappie and rock bass) and gamefish (northern pike, walleye, largemouth bass and muskellunge) are present.

Changes in sampling protocol between 2007 and 2011 have limited the amount of comparable data between surveys. The 2007 fisheries survey utilized fall electrofishing to collect the sample of gamefish and panfish whereas the 2011 gamefish/panfish sample was collected in June. As a result, limited comparisons will be made regarding PSD or RSD^P, size structure, growth, and fyke net catch rates for the dominant gamefish and panfish species.

Bluegill and yellow perch comprised the majority of fish collected in both 2007 and 2011 (Table 7). Between 2007 and 2011 the relative abundance of bluegill decreased from 37 to 11%, but PSD increased from 8 to 30 meaning the size structure of the bluegill population has improved.

According to the creel survey results, anglers targeted and harvested bluegill more than any other species during the 2011-2012 fishing season (Table 9). The RSD^P (8 inches is the established length anglers prefer) for bluegill collected during the fisheries survey was 0 however, the average size of bluegill harvested during the creel survey was 7.2 inches. With bluegill being colony spawners, anglers can easily target and harvest bluegill likely explaining the discrepancy between the creel statistics (average size of harvested fish) and RSD^P. The decline in bluegill relative abundance was the result of the dramatic increase in the relative abundance of yellow perch which increased from 18% in 2007 to 59% in 2011. Yellow perch were the second most sought after and harvested species during the 2011-2012 fishing season (Table 9). Overall, the fyke net catch rate of perch increased by four fold between the 2007 and 2011 surveys (Table 5). It's probable that the expansion of the yellow perch population is a direct result of the addition of woody debris (tree drops) in 2009.

Blackspot was found in most panfish but was most prevalent in bluegill. Blackspot is a common fish disease/parasite in lakes is caused by a parasite (larval trematode) that burrows into the skin of a fish causing the formation of a cyst approximately one millimeter in diameter. This parasite has a complex life cycle that requires fish eating birds or mammals, snails, and fish at different stages in order to survive. While not aesthetically pleasing, this parasite is not harmful to humans and fish with blackspot can still be eaten. Skinning panfish fillets will remove most of the blackspot and proper preparation will kill any remaining parasites.

Black crappie increased in abundance between the 2007 and 2011 surveys (Figure 11). Crappie are cyclic spawners meaning that successful reproduction and recruitment can be highly variable or unpredictable from year to year. Surprisingly, crappie have produced several good year classes since the last survey which is evident from the number of smaller fish (< 6 inches) and the large number of fish collected that measured around 7 inches in length (Figure 11). Black crappie were the third most abundant fish harvested during the 2011-2012 fishing season with over 1,700 fish harvested which averaged 9.9 inches (Table 9). Good crappie fishing should continue for the next several years but due to their cyclic-spawning nature, continued successful spawning and recruitment will be necessary.

Walleye are a popular sportfish in northeast Wisconsin. Between 2000 and 2010, a total of 87,570 small fingerling and 800 large fingerling walleye have been stocked in Archibald Lake (Table 1). In 2010, fingerling walleye were chemically marked with oxytetracycline (OTC) before

stocking. The 2010 fall YOY walleye assessment yielded the collection of 8 fish. Otoliths were removed from YOY walleye however, no OTC marks were detected and no determination could be made whether the fish collected were stocked or the result of natural reproduction. In 2011, no walleye were stocked however, 17 YOY walleye were collected. The addition of the walleye spawning reef in 2008 likely contributed to the successful natural reproduction of walleye observed in 2011. The combination of continued stocking and improved natural reproduction has increased the density (fish per acre) of walleye in Archibald Lake. In 2007, the walleye population estimate was 1.5 fish/acre but improved to 1.9 fish/acre in 2011. However, growth at larger sizes is below average compared to other lakes in northeast Wisconsin. For example, we collected a walleye that was tagged in 1999. In 1999, the walleye measured 16.8 inches long and was age 5. In 2011, at age 17, the same fish measured 21.0 inches indicating it grew only 4.2 inches in 12 years. Walleye harvest was negligible during the creel survey with only 60 being harvested during the fishing season (Table 9).

Only 23 muskellunge were collected during the 2011 survey which was down considerably since the 2007 survey whereby 100 fish were collected. There is no good explanation for the decreased collection of muskellunge. Archibald Lake was also selected as a brood lake for Great Lakes Spotted Muskellunge as part of the Green Bay Restoration Project. The first stocking of GLSM took place in 2009. During the fall juvenile assessment in 2010, a single, 14.8-inch GLSM was collected. No GLSM were collected during any portion of the 2011 survey.

Largemouth bass are the most dominant predator in Archibald Lake in terms of abundance. However, since the 2007 survey the relative abundance of bass decreased by 4% (Table 7) and density (fish/acre) decreased from 5.0 fish/acre in 2007 to 3.5 fish/acre in 2011. Good reproduction and recruitment of largemouth bass is sustaining the population. A large year class of bass between 6 and 7 inches was collected in 2007. This year class is now between 10 and 12 inches and contributed to the decline in PSD (45 to 31 between 2007 and 2011). Even though bass are abundant, there were few above the minimum length limit and growth was below average above age 5 (Figure 6). Better bass fishing opportunities should be available within the next few years as this year class reaches the 14-inch minimum length limit. Largemouth bass were the 3rd most commonly caught fish during the 2011-2012 fishing season but only 39 were harvested (Table 9).

The density of northern pike increased slightly from 0.8 to 1.1 fish per acre between 2007 and 2011, respectively. However the average size of pike collected decreased from 20.2 inches in 2007 to 17.2 inches in 2011. A total of 7,749 pike were caught and 1,338 were harvested during the fishing season (Table 9). The only species of fish targeted more than northern pike were bluegill and yellow perch (Table 9). Harvested fish averaged 19.3 inches which appears to be consistent with what was collected during the fisheries survey. The abundance of shallow, vegetated water will continue to allow pike to flourish in Archibald Lake.

According to the creel survey, fishing pressure on Archibald Lake was moderate and totaled 56.8 hours per acre which was lower than the Oconto County average (70.6 h/ac) but higher than the statewide average of 33.6 h/ac (Table 10). Total fishing effort for the 2011-2012 fishing season was 22,320 (Table 10), however directed effort (targeted fishing effort by fish species) totaled 52,873 hours (Table 9). In summary, it appears that panfish anglers often targeted more than one species which was evident from the comparison of total effort (Table 10) versus directed effort (Table 9).

CONCLUSIONS & RECOMMENDATIONS

The 2011 fisheries survey of Archibald Lake indicated good numbers of gamefish including panfish species such as bluegill, yellow perch, and black crappie and predator species such as largemouth bass and walleye. All species showed good size and age structure and good recruitment. Growth for most species was average at younger ages but below average at older ages.

Walleye have been stocked intermittently in Archibald Lake since the late 1990's (Table 1). Stocking small fingerling walleye has produced varied results during that time. Increasing the stocking rate of small fingerling walleye from 35/acre to between 50 and 100/acre, or stocking large fingerling walleye at the rate of 5/acre/year, would produce more consistent year class strength.

Low water levels have somewhat impacted the utilization of the spawning reef and other available spawning areas. Even though successful natural reproduction of walleye was observed in 2011, this was insufficient to create and sustain a desirable walleye density. Adding more glacial stone to the existing reef, and placing it below the ordinary high water mark, would provide more

spawning habitat. Therefore, extending the existing walleye spawning reef 200 to 300 feet to the east is strongly recommended.

The density of walleye increased (1.5/ac to 1.9/ac between 2007 and 2011) as a result of both stocking and natural reproduction. However, added protection through a fishing regulation change is necessary. A proposal to increase the minimum length limit from 15 inches to 18 inches is necessary and will be drafted for consideration. In order to improve and enhance the walleye fishery, the proposed regulation change should increase the adult density of walleye thereby improving natural reproduction and density (fish/ac).

Stocking and evaluation of spotted muskellunge in Archibald Lake, as part of the Green Bay Restoration Project, will be ongoing. Future stockings of spotted muskellunge will utilize PIT (passive integrated transponder) tags. Tagging fish with PIT tags will provide data for known age fish in the population making it easier to assess age and growth in future surveys and allow for identification of fish suitable for gamete extraction for propagation. Future evaluations of spotted muskellunge will depend on the availability of funds and staff.

For the most part, the current fishing regulations (Table 8) are adequate to provide quality fishing opportunities for anglers. However, changing the minimum length limit of walleye should be considered to reflect the current management goals of the fishery. The next comprehensive fisheries survey (fyke netting, spring and fall electrofishing) of Archibald Lake is scheduled for 2023 and will focus on the age, growth, abundance, and recruitment of the dominant gamefish. Access to Archibald Lake is adequate. Control of Eurasian watermilfoil, a non-native species of aquatic vegetation is recommended. Boaters are reminded to remove all vegetation from their boat and trailer before leaving to limit the spread of this and other invasive species. A map of Archibald Lake can be found at the following internet address; (<http://dnr.wi.gov/lakes/maps/DNR/0417400a.pdf>).

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APPENDIX I – TABLES

Table 1. Stocking history of Archibald Lake from 1992 – present; Oconto County, WI.

Year	Species	Strain (Stock)	Source Type	Age Class	Number Stocked	Avg Length
1994	WALLEYE	UNSPECIFIED	DNR	FINGERLING	11267	3
1998	WALLEYE	UNSPECIFIED	DNR	SMALL FINGERLING	15000	2
1999	MUSKELLUNGE	UNSPECIFIED	PRIVATE	YEARLING	500	16
2000	WALLEYE	UNSPECIFIED	DNR	SMALL FINGERLING	15000	2
2003	WALLEYE	MISSISSIPPI HEADWATERS	DNR	SMALL FINGERLING	15000	2
2004	WALLEYE	LAKE MICHIGAN	DNR	SMALL FINGERLING	14988	1
2005	MUSKELLUNGE	UNSPECIFIED	PRIVATE	LARGE FINGERLING	100	13
2006	WALLEYE	LAKE MICHIGAN	DNR	SMALL FINGERLING	14983	1
2008	WALLEYE	MISSISSIPPI HEADWATERS	DNR	SMALL FINGERLING	13799	1
2008	WALLEYE	UNSPECIFIED	PRIVATE	LARGE FINGERLING	300	7
2009	MUSKELLUNGE	GREAT LAKES SPOTTED	OTHER STATE'S GVT. HATCHERY	YEARLING	566	9
2010	MUSKELLUNGE	GREAT LAKES SPOTTED	DNR	YEARLING	107	11
2010	WALLEYE	LAKE MICHIGAN	DNR	SMALL FINGERLING	13800	1
2012	WALLEYE	LAKE MICHIGAN	DNR	SMALL FINGERLING	14996	2

Table 2. Sampling gear, date, target species, sampling effort, and location (distance) for 2010 and 2011 fisheries survey on Archibald Lake in Oconto County, WI.

Sampling Gear	Date	Target Species	Sampling Effort hours (h) or net night (NN)	Shoreline Distance (mi)
Mini-fyke net	August (2010)	Juvenile gamefish and panfish	14 NN	*
Electrofishing	October (2010)	YOY walleye	3.4 h	6.3
Fyke net	April (2011)	All fish	109 NN	*
Electrofishing	May (2011)	Walleye	2	4.1
Electrofishing	June (2011)	Gamefish Panfish	3.2 0.9	6.0 1.5
Electrofishing	October (2011)	YOY walleye	3.7	7.1

GPS coordinates for sampling locations located in APPENDIX III.

Table 3. Proposed length categories for various fish species. Measurements are total lengths for each category in inches. Updated from Anderson and Neumann (1996), Bister et al. (2000), Hyatt and Hubert (2001).

Species	PSD	RSD-P	Stock	Quality	Preferred	Memorable	Trophy
Black crappie			5	8	10	12	15
Bluegill	20 - 40	5 - 20*	3	6	8	10	12
Brown bullhead			5	8	11	14	17
Largemouth bass	40 - 70	10 - 40*	8	12	15	20	25
Muskellunge	30 - 60		20	30	38	42	50
Northern pike	30 - 60		14	21	28	34	44
Pumpkinseed	20 - 40		3	6	8	10	12
Rock bass	20 - 60		4	7	9	11	13
Smallmouth bass	30 - 60		7	11	14	17	20
Walleye	30 - 60		10	15	20	25	30
Yellow perch	30 - 50		5	8	10	12	15
Yellow bullhead			4	7	9	11	14

*Range based on management strategy for balanced populations.

Table 4. Number, relative abundance (%), and length range (in) of fishes collected in Archibald Lake, Oconto County, WI 2011.

SPECIES AND RELATIVE ABUNDANCE OF FISHES COLLECTED BY NUMBER AND WEIGHT			
*COMMON NAME OF FISH	NUMBER	PERCENT	LENGTH RANGE (inches)
Yellow perch	3578	58.7	4.8 - 10.5
Bluegill	658	10.8	3.2 - 8.3
Largemouth bass	598	9.8	6.3 - 18.6
Rock bass	447	7.3	3.6 - 10.9
Walleye	446	7.3	5.6 - 26.1
Black crappie	111	1.8	4.9 - 12.8
Northern pike	89	1.5	9.5 - 31.8
Hybrid sunfish	58	1.0	3.7 - 8.4
Pumpkinseed	49	0.8	3.5 - 7.5
Yellow bullhead	27	0.4	7.8 - 11.7
Muskellunge	23	0.4	32.8 - 43.5
White sucker	10	0.2	9.8 - 23.7
Total (11 Species)	6094		

*Common names of fishes recognized by the American Fisheries Society.

Table 5. Comparison of spring fyke netting data from Archibald Lake between 2007 and 2011 surveys; Oconto County, WI.

Species	2011 (109*)		2007 (122*)	
	Total Catch	Mean Catch per net night	Total Catch	Mean Catch per net night
Yellow perch	3577	32.8	898	7.4
Bluegill	528	0.8	683	5.6
Rock bass	401	3.7	234	1.9
Walleye	464	4.3	676	5.5
Largemouth bass	163	1.5	153	1.3
Black crappie	110	1.0	39	0.3
Northern pike	85	0.8	62	0.5
Hybrid sunfish	56	0.5	16	0.1
Pumpkinseed	33	0.3	62	0.5
Yellow bullhead	24	0.2	2	0.1
Muskellunge	19	0.2	124	1.0
White sucker	10	0.1	19	0.2

*Sampling effort in net nights for each corresponding year.

Table 6. Seasonal electrofishing summary between 2011 and 2007 surveys on Archibald Lake, Oconto County, WI.

Species	Gamefish / Panfish electrofishing						Spring walleye electrofishing						Fall electrofishing								
	2011			2007			2011			2007			2011			2010			2007		
	Total Catch**	CPUE / hour	CPUE / mile	Total Catch	CPUE / hour	CPUE / mile	Total Catch**	CPUE / hour	CPUE / mile	Total Catch	CPUE / hour	CPUE / mile	Total Catch**	CPUE / hour	CPUE / mile	Total Catch	CPUE / hour	CPUE / mile	Total Catch	CPUE / hour	CPUE / mile
Largemouth bass	444	138.8	74.0	168	62.6	42.0															
Bluegill	137	161.2	91.3	1203	448.3	300.8															
Rock bass	46	54.1	30.7	266	99.1	66.5															
Walleye	26	8.1	4.3	26	9.7	6.5	75	36.9	18.3	79	12.9	8.8	32	8.7	4.5	8	2.3	1.3	15	3.7	2.4
Pumpkinseed	16	18.8	10.7	42	15.7	10.5															
Hybrid sunfish	2	2.4	1.3	21	7.8	5.3															
Black crappie	1	1.2	0.7	13	4.9	3.3															
Muskellunge	1	0.3	0.2	3	1.1	0.8							4	1.1	0.6	3	0.9	0.5	6	1.5	1.0
Yellow perch	1	1.2	0.7	22	8.2	5.5															
Northern pike	10	3.1	1.7	13	4.9	3.3															
Green sunfish	0			9	3.4	2.3															

* See sampling effort table for date of sampling.

**Includes recaptured fish.

Table 7. Comparison of species relative abundance between 2011 and 2007 surveys on Archibald Lake, Oconto County, WI.

*COMMON NAME OF FISH	2011		2007	
	NUMBER	%	NUMBER	%
Yellow perch	3578	58.7	920	17.9
Bluegill	658	10.8	1886	36.7
Largemouth bass	598	9.8	708	13.8
Rock bass	447	7.3	500	9.7
Walleye	446	7.3	702	13.7
Black crappie	111	1.8	52	1.0
Northern pike	89	1.5	75	1.5
Hybrid sunfish	58	1.0	37	0.7
Pumpkinseed	49	0.8	104	2.0
Yellow bullhead	27	0.4	2	0.0
Muskellunge	23	0.4	127	2.5
White sucker	10	0.2	19	0.4
Green sunfish	0		9	0.2
Total	6094		5141	

*Common names of fishes recognized by the American Fisheries Society.

Table 8. Current fishing regulations for Archibald Lake, Oconto County, WI.

Species	Fishing Season	Daily Limit	Minimum Length
Largemouth bass	1 st Saturday in May - June 18	0	Catch and release
Largemouth bass	June 19 - 1 st Sunday in March	5 in total	14 inches
Northern pike	1 st Saturday in May - 1 st Sunday in March	5	None
Muskellunge	Last Saturday in May - November 30	1	50 inches
Walleye	1st Saturday in May - first Sunday in March	3	15 inches
Panfish (bluegill, pumpkinseed, crappie, and yellow perch)	Open all year	25 in total	None
Yellow bullhead	Open all year	None	None
Rock bass	Open all year	None	None

Table 9. Archibald creel survey synopses for the 2011-2012 fishing season.

CREEL YEAR: 2011-12

SPECIES	DIRECTED EFFORT (Hours)	PERCENT OF TOTAL	ESTIMATED TOTAL CATCH	SPECIFIC CATCH RATE (Hrs/Fish) *	ESTIMATED TOTAL HARVEST	SPECIFIC HARVEST RATE (Hrs/Fish) **	MEAN LENGTH OF HARVESTED FISH
Walleye	3981	7.53%	78	55.6	60	72.5	18.6
Northern Pike	7749	14.66%	1338	7.2	245	40.2	19.3
Muskellunge	3289	6.22%	65	67.6	0		
Largemouth Bass	7473	14.13%	6854	1.6	39	204.1	14.9
Yellow Perch	10938	20.69%	11212	1.0	4323	2.5	8.2
Bluegill	12013	22.72%	15217	0.8	4501	2.7	7.2
Pumpkinseed	495	0.94%	405	1.8	204	3.0	7.7
Rock Bass	1408	2.66%	3891	0.8	825	1.7	8.2
Black Crappie	5527	10.45%	3059	1.8	1723	3.2	9.9

* A blank cell in this column indicates that no fish of a given species were caught by anglers who specifically targeted that species.

** A blank cell in this column indicates that no fish of a given species were harvested by anglers who specifically targeted that species.

Table 10. Sportfishing effort summary for Archibald Lake (2011-2012), Oconto County and Statewide.

Month	Total Angler Hours	Total Angler Hours / Acre	Oconto County Average (Hours / Acre)	Statewide Average (Hours / Acre)
May	2840	7.2	6.7	5.8
June	2798	7.1	16.3	6.1
July	2800	7.1	14.6	6.4
August	2228	5.7	12.9	5.4
September	1516	4.0	4.2	3.8
October	1755	4.5	1.3	1.6
December	920	2.3	4.7	1.7
January	4080	10.4	5.3	1.5
February	3144	8.0	4.5	1.3
March	196	0.5	0.1	**
*Summer Total	13981	35.6	56.0	29.1
*Winter Total	8339	21.2	14.6	4.5
Grand Total	22320	56.8	70.6	33.6

*"Summer" is May - October; "Winter" is December - March

**Too few lakes have been surveyed in March to calculate a meaningful statewide average

APPENDIX II – FIGURES

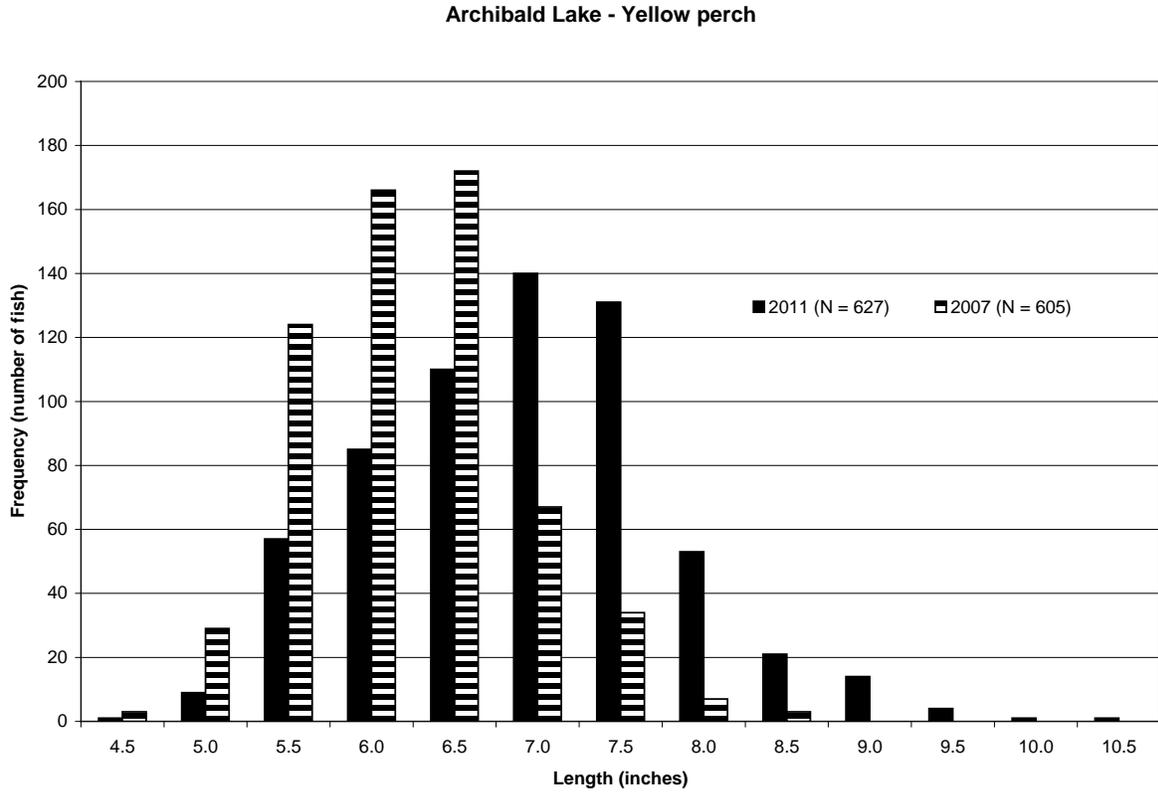


Figure 1. Yellow perch length frequency from 2007 and 2011 fisheries surveys at Archibald Lake; Oconto County, WI.

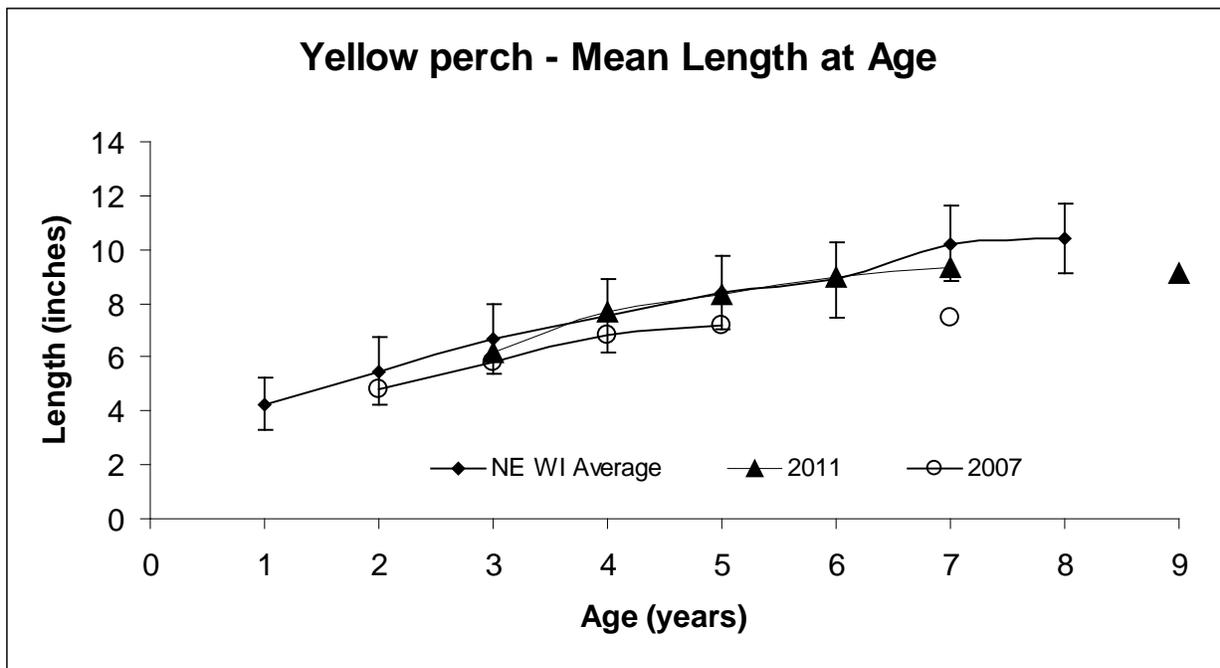


Figure 2. Yellow perch mean length at age comparison from Archibald Lake; Oconto County, WI.

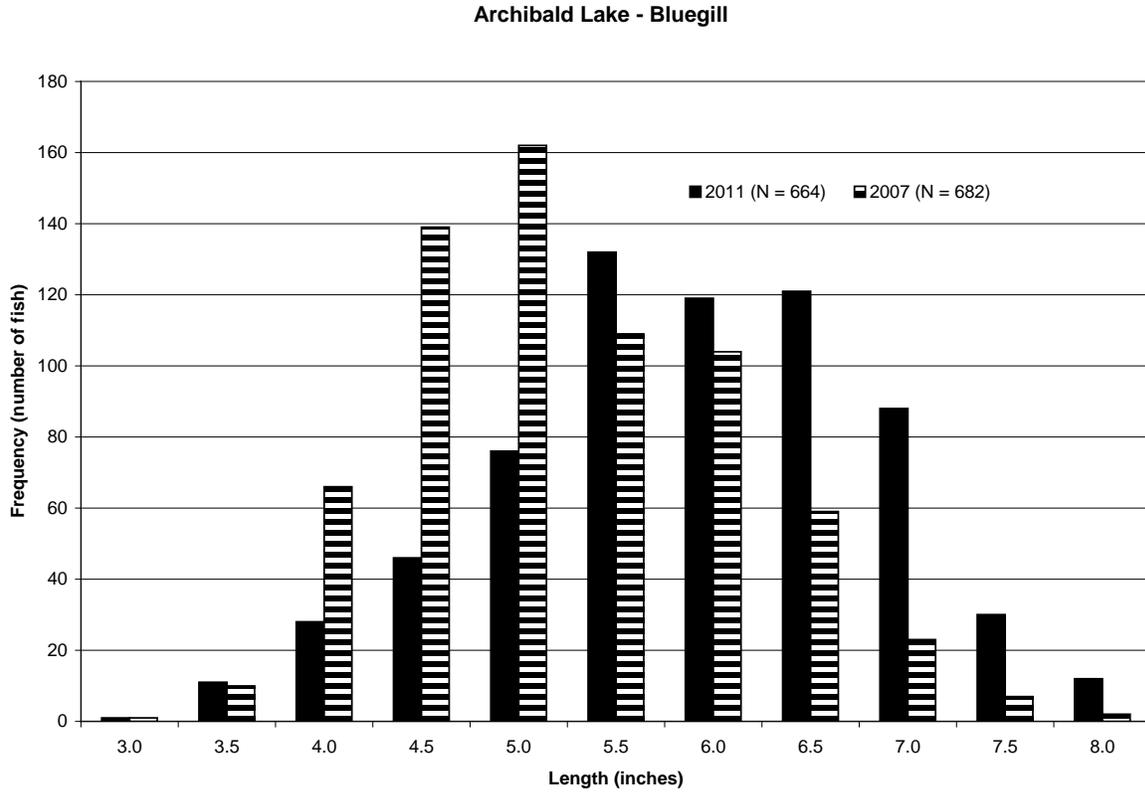


Figure 3. Bluegill length frequency from 2007 and 2011 fisheries surveys at Archibald Lake; Oconto County, WI.

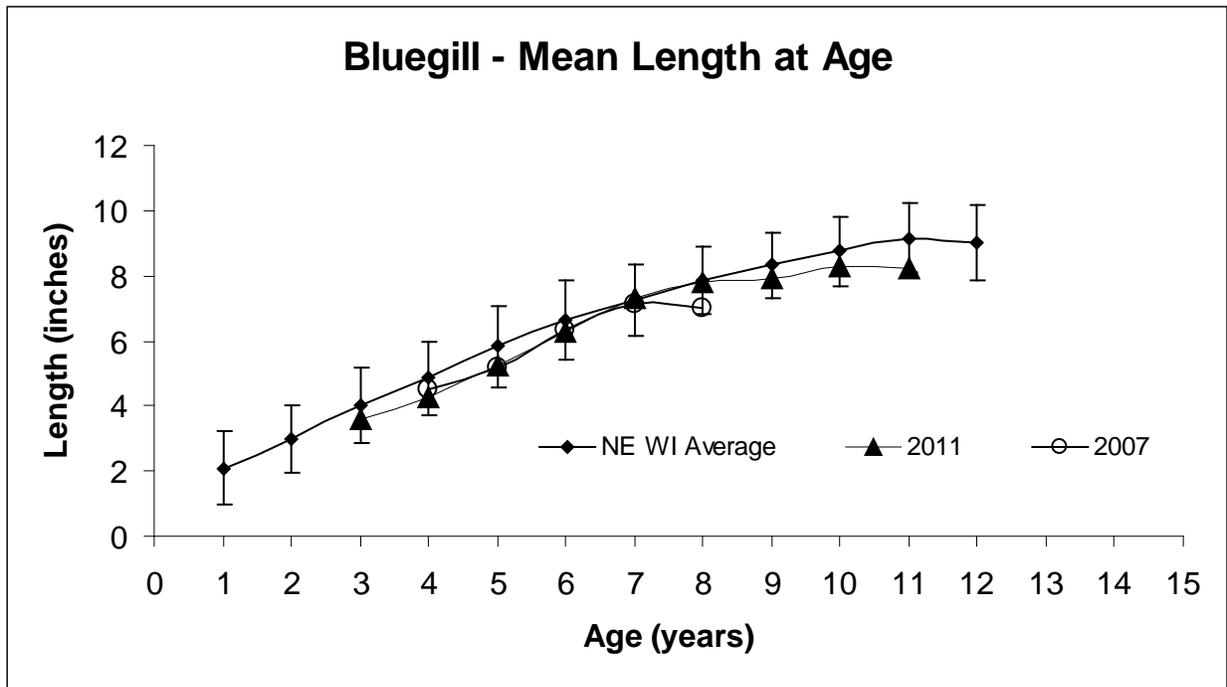


Figure 4. Bluegill mean length at age comparison from Archibald Lake; Oconto County, WI.

Archibald Lake - Largemouth bass

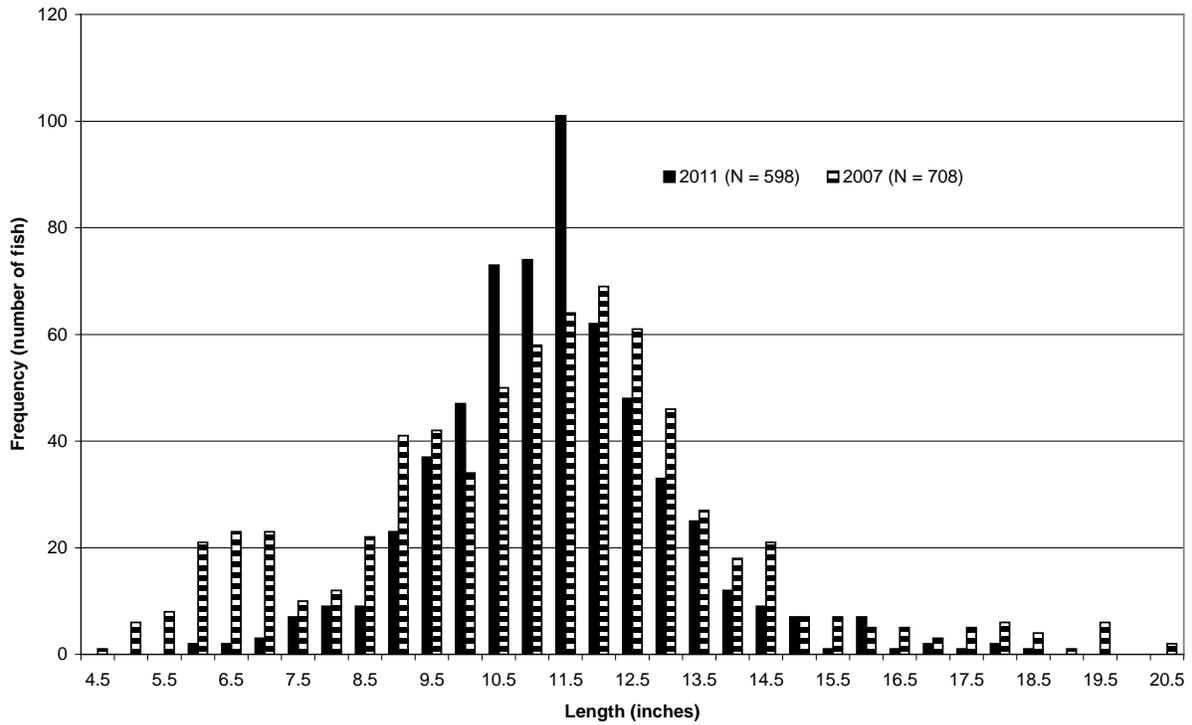


Figure 5. Largemouth bass length frequency from 2007 and 2011 fisheries surveys at Archibald Lake; Oconto County, WI.

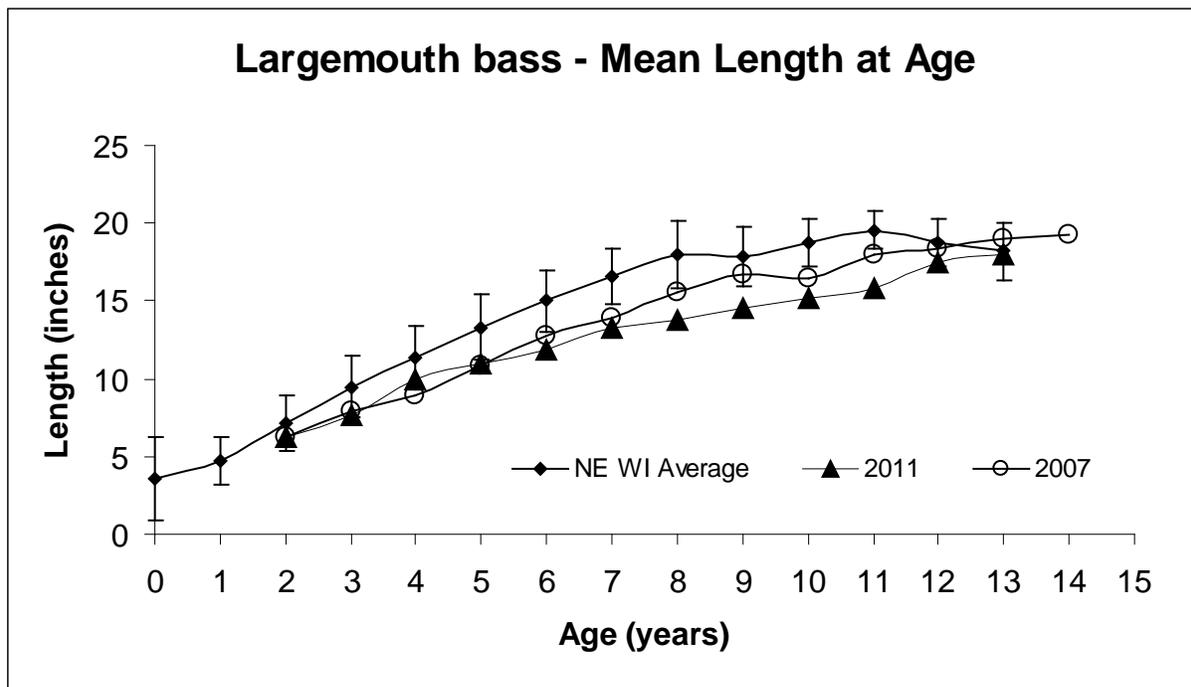


Figure 6. Largemouth bass mean length at age comparison from Archibald Lake; Oconto County, WI.

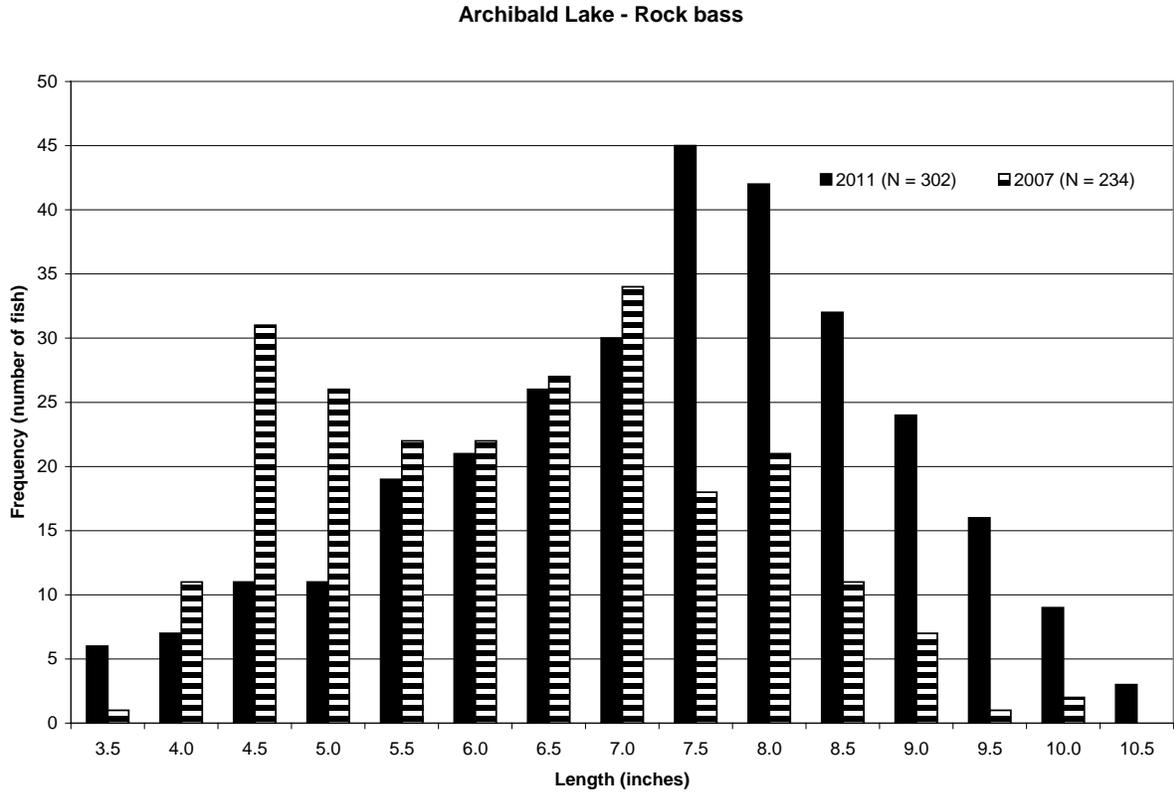


Figure 7. Rock bass length frequency from 2007 and 2011 fisheries surveys at Archibald Lake; Oconto County, WI.

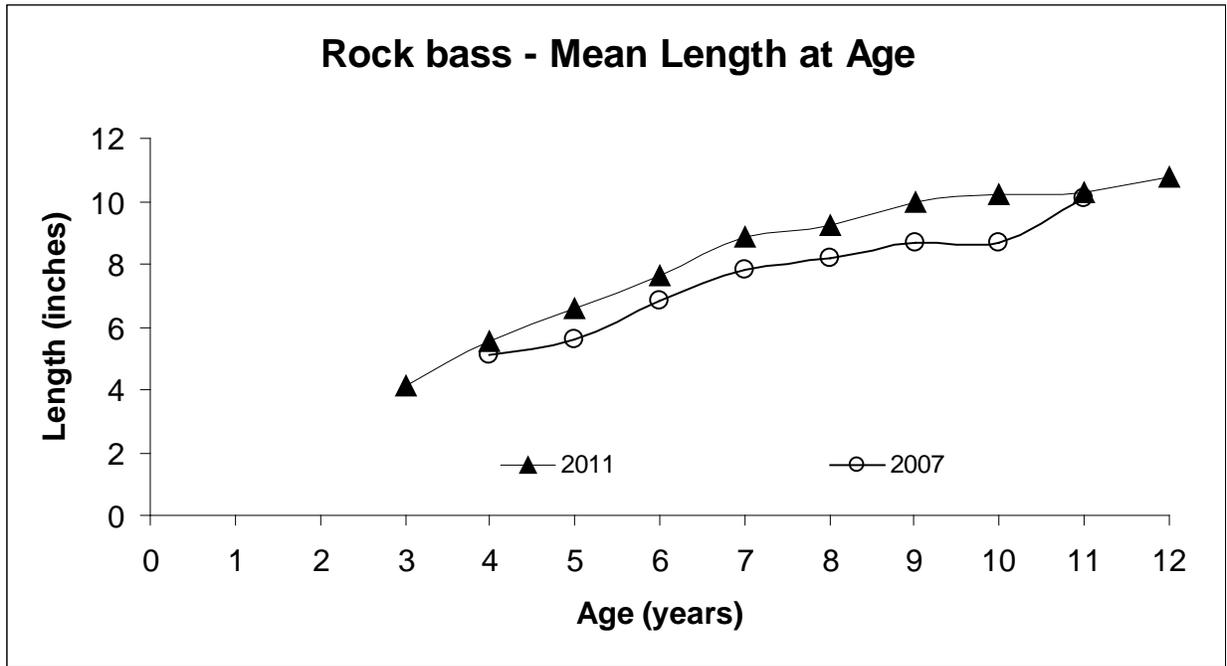


Figure 8. Rock bass mean length at age comparison from Archibald Lake; Oconto County, WI.

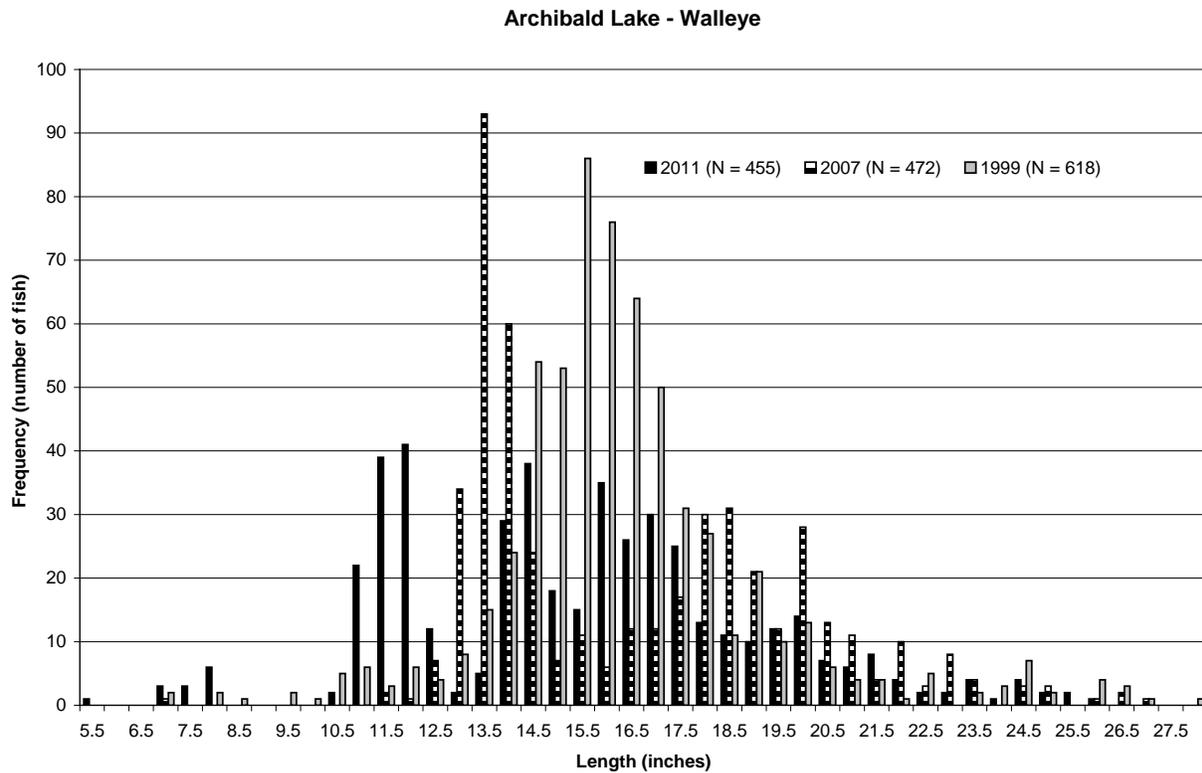


Figure 9. Walleye length frequency from, 1999, 2007 and 2011 fisheries surveys at Archibald Lake; Oconto County, WI.

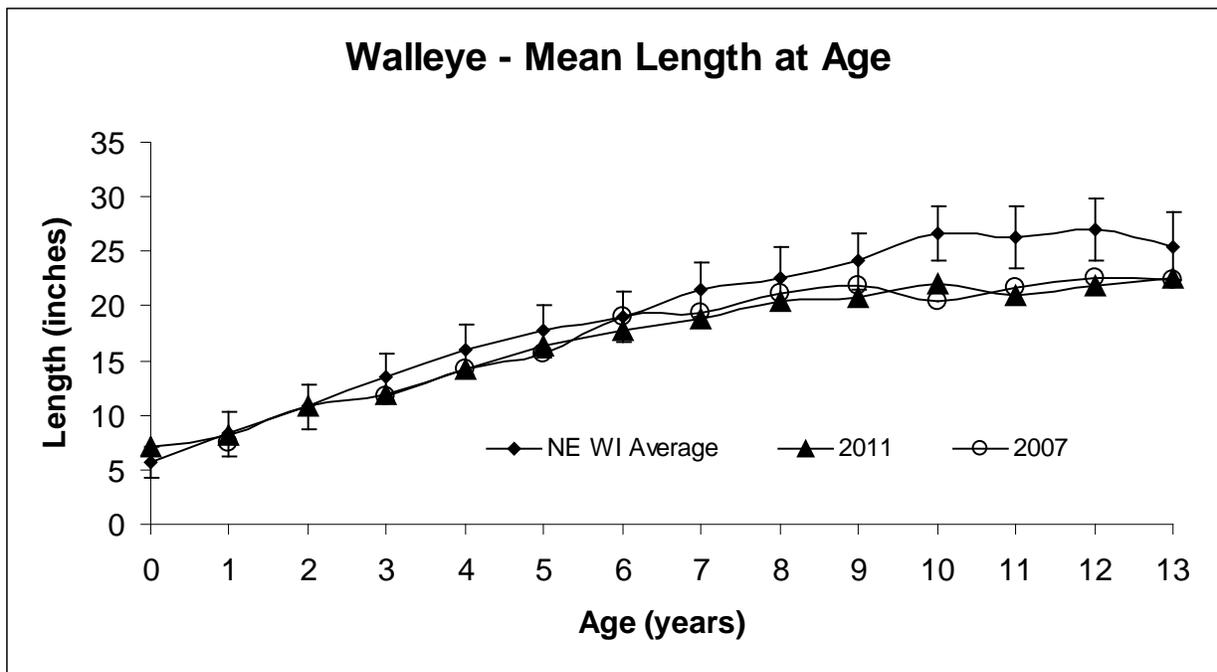


Figure 10. Walleye mean length at age comparison from Archibald Lake; Oconto County, WI.

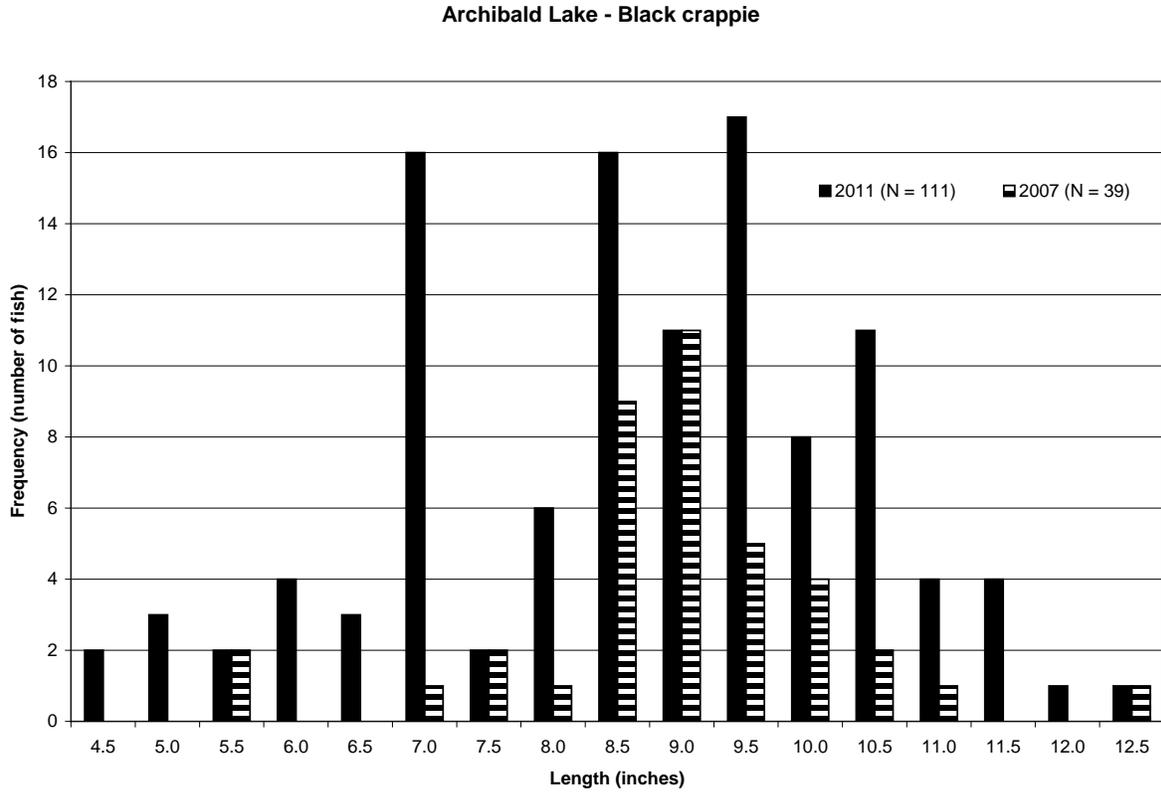


Figure 11. Black crappie length frequency from 2007 and 2011 fisheries surveys at Archibald Lake; Oconto County, WI.

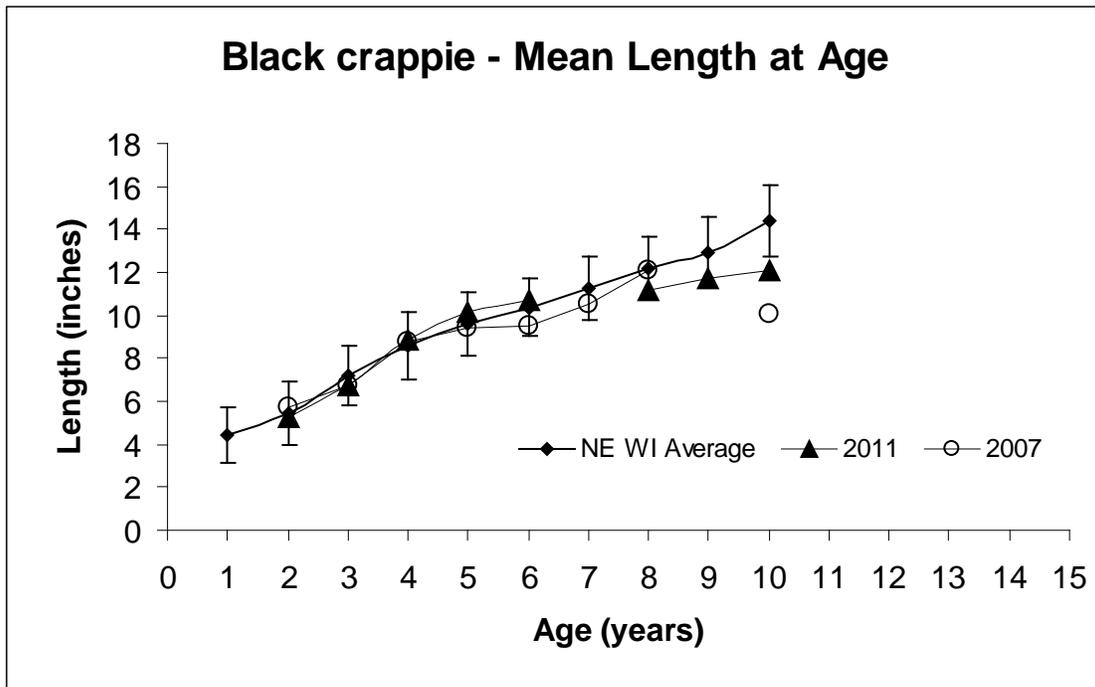


Figure 12. Black crappie mean length at age comparison from Archibald Lake; Oconto County, WI.

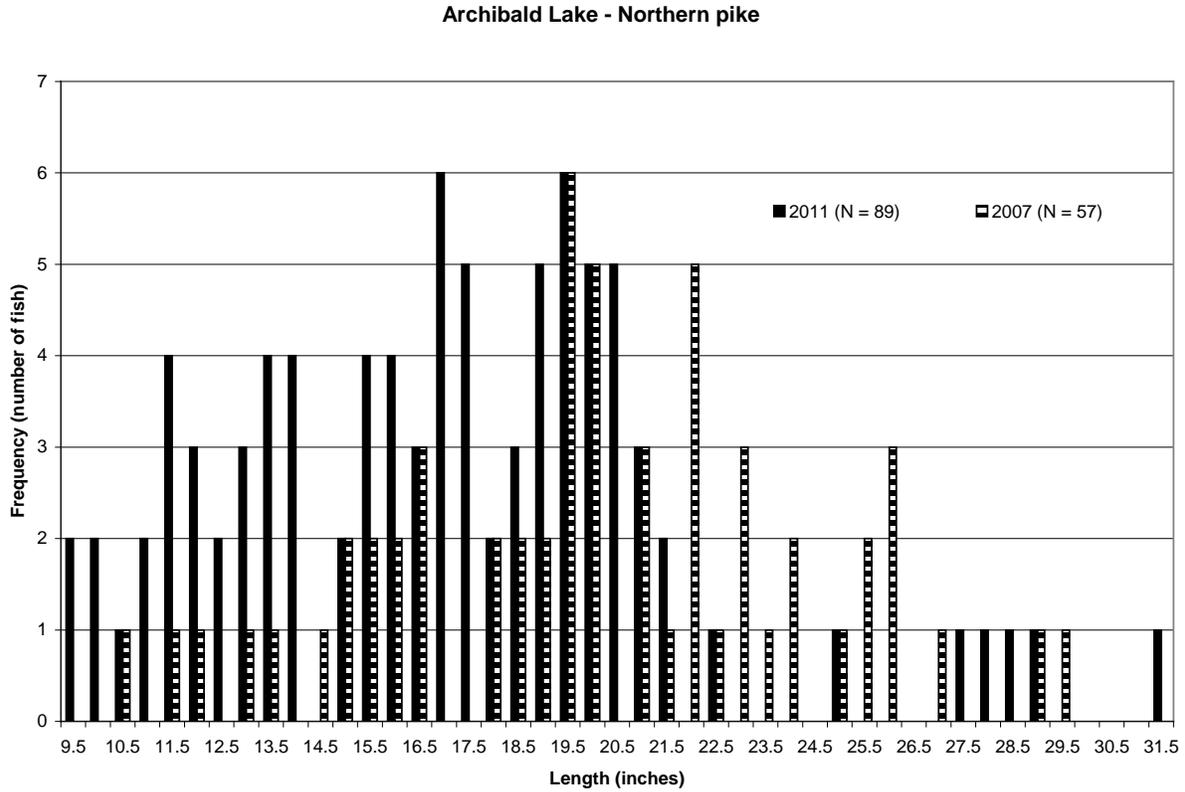


Figure 13. Northern pike length frequency from 2007 and 2011 fisheries surveys at Archibald Lake; Oconto County, WI.

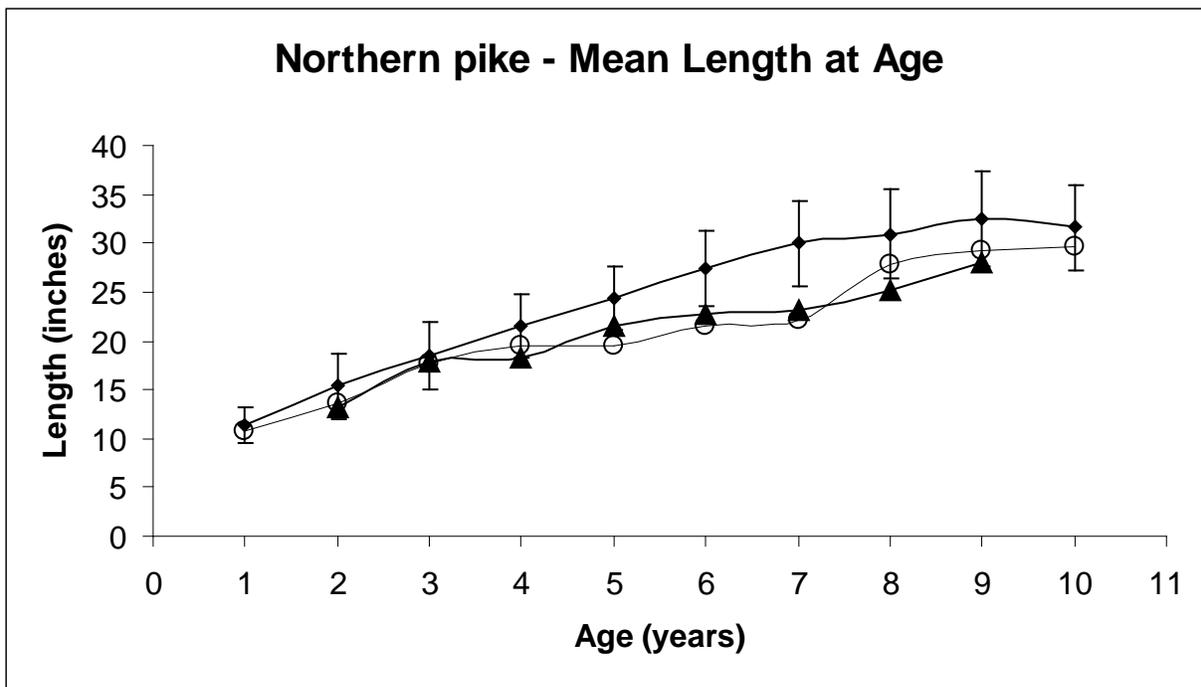


Figure 14. Northern pike mean length at age comparison from Archibald Lake; Oconto County, WI.

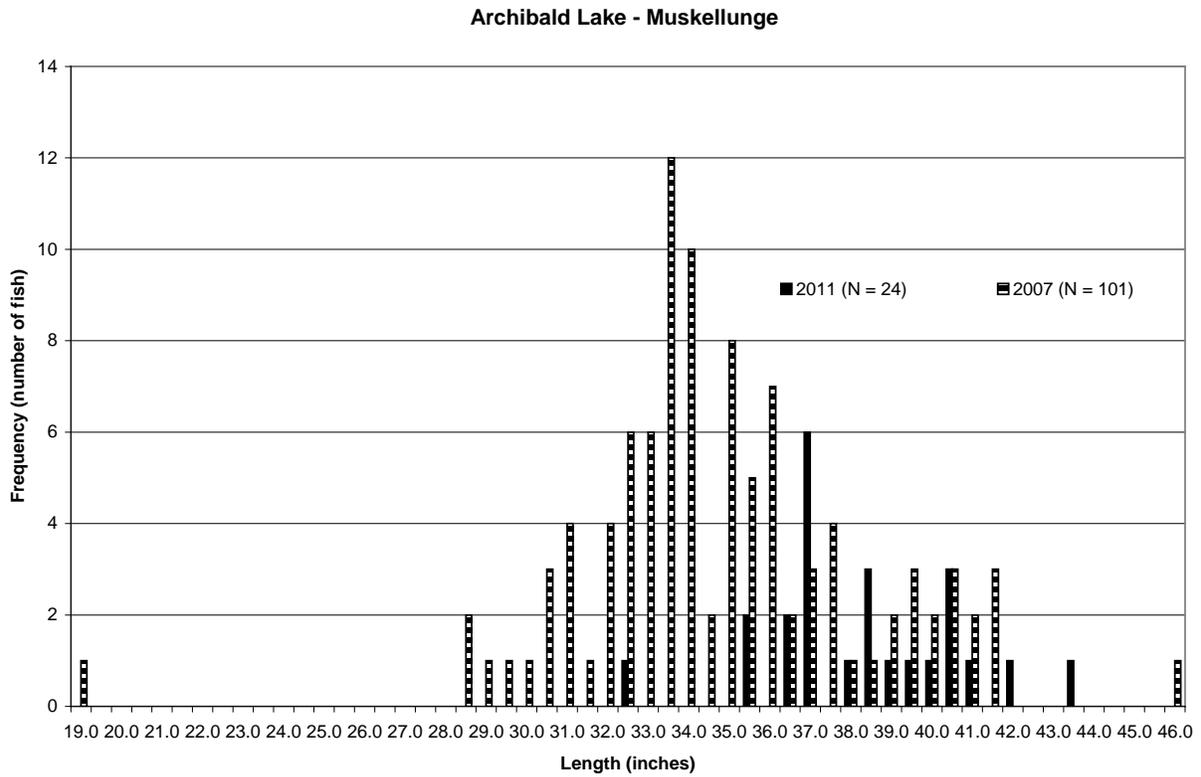


Figure 15. Muskellunge length frequency from 2007 and 2011 fisheries surveys at Archibald Lake; Oconto County, WI.

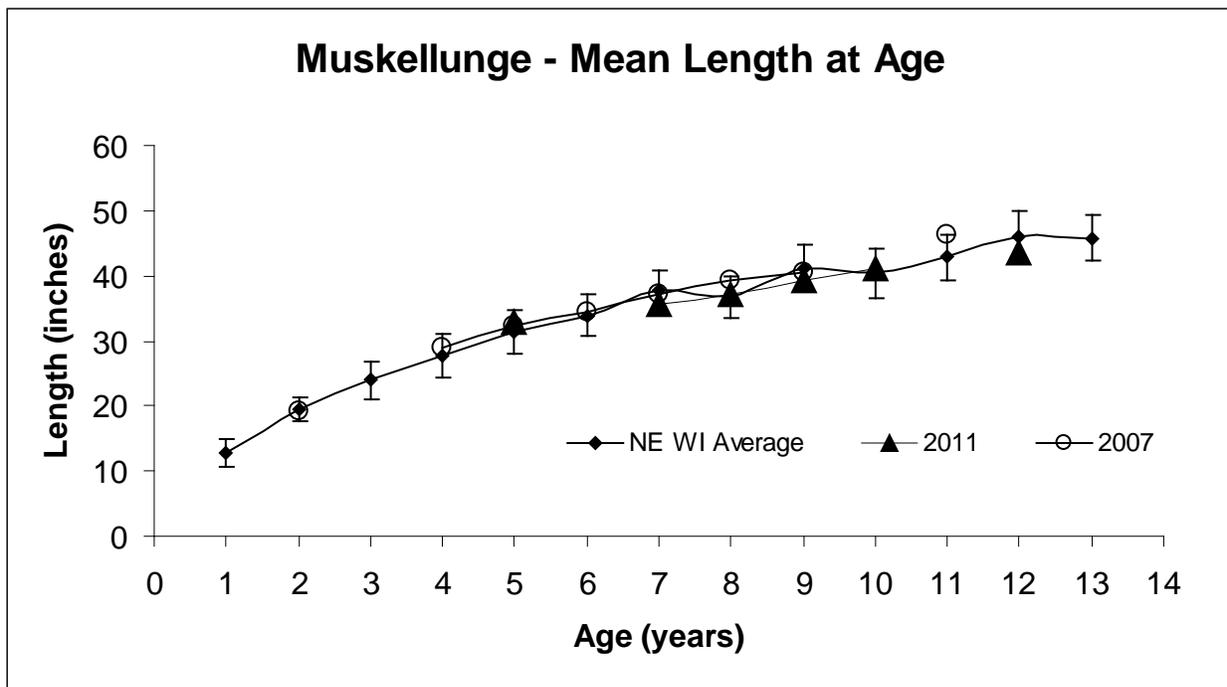


Figure 16. Muskellunge mean length at age comparison from Archibald Lake; Oconto County, WI.

APPENDIX III – LENGTH FREQUENCIES AND SAMPLING LOCATION DATA

NUMBER, PERCENTAGE, WEIGHT, AND AGE OF Yellow perch							
TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	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	0.2	not aged	22.5			
5.0	9	1.4	3	23.0			
5.5	57	9.1	3	23.5			
6.0	85	13.6	3, 4	24.0			
6.5	110	17.5	3, 4, 5	24.5			
7.0	140	22.3	3, 4	25.0			
7.5	131	20.9	3, 4, 5	25.5			
8.0	53	8.5	4, 5, 6	26.0			
8.5	21	3.3	4, 5, 6	TOTAL	627		
9.0	14	2.2	4, 5, 6, 7, 9				
9.5	4	0.6	6				
10.0	1	0.2	6				
10.5	1	0.2	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 CPUE		1.2/hr		FYKE NET CPUE		32.0/lift	

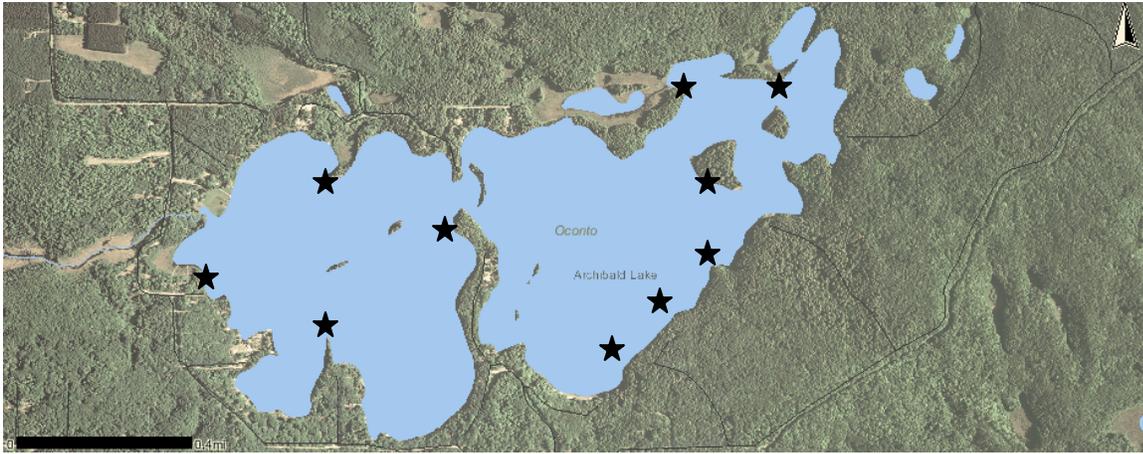
NUMBER, PERCENTAGE, WEIGHT, AND AGE OF Bluegill							
TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AGE OF FISH
1.0				19.0			
1.5				19.5			
2.0				20.0			
2.5				20.5			
3.0	1	0.2	not aged	21.0			
3.5	11	1.7	3, 4, 5	21.5			
4.0	28	4.2	4, 5	22.0			
4.5	46	6.9	4, 5, 6	22.5			
5.0	76	11.4	4, 5	23.0			
5.5	132	19.9	5, 6	23.5			
6.0	119	17.9	5, 6	24.0			
6.5	121	18.2	5, 6	24.5			
7.0	88	13.3	6, 7	25.0			
7.5	30	4.5	8, 9	25.5			
8.0	12	1.8	9, 10, 11	26.0			
8.5				TOTAL	664		
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 CPUE		161.2/hr		FYKE NET CPUE		4.8/lift	

NUMBER, PERCENTAGE, WEIGHT, AND AGE OF Largemouth bass							
TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	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				22.5			
5.0				23.0			
5.5				23.5			
6.0	2	0.3	2	24.0			
6.5	2	0.3	2, 3	24.5			
7.0	3	0.5	3	25.0			
7.5	7	1.2	3	25.5			
8.0	9	1.5	3, 4	26.0			
8.5	9	1.5	3, 4	TOTAL	598		
9.0	23	3.8	4				
9.5	37	6.2	4, 5				
10.0	47	7.9	4, 5, 6				
10.5	73	12.2	4, 5, 6				
11.0	74	12.4	4, 5, 6				
11.5	101	16.9	5, 6				
12.0	62	10.4	5, 6				
12.5	48	8.0	7, 8				
13.0	33	5.5	6, 7, 8				
13.5	25	4.2	7, 8, 10				
14.0	12	2.0	8, 9				
14.5	9	1.5	7, 8, 9				
15.0	7	1.2	9, 10, 11				
15.5	1	0.2	11				
16.0	7	1.2	8, 9, 10, 11, 12				
16.5	1	0.2	10				
17.0	2	0.3	11, 12				
17.5	1	0.2	12				
18.0	2	0.3	13				
18.5	1	0.2	14				
ELECTROFISHING CPUE		138.8/hr		FYKE NET CPUE		1.5/lift	

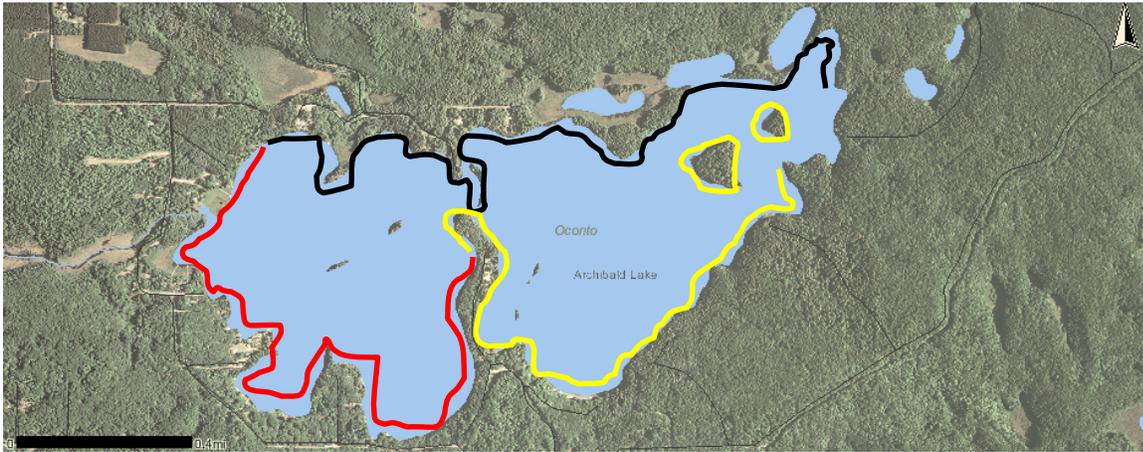
NUMBER, PERCENTAGE, WEIGHT, AND AGE OF Walleye							
TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AGE OF FISH
1.0				19.0	10	2.2	6, 7, 8, 9, 10
1.5				19.5	12	2.6	6, 8, 10, 11, 12, 13
2.0				20.0	14	3.1	7, 8, 10, 11
2.5				20.5	7	1.5	8, 11
3.0				21.0	6	1.3	6, 8, 12
3.5				21.5	8	1.8	7, 8, 17
4.0				22.0	4	0.9	7, 8
4.5				22.5	2	0.4	8, 10
5.0				23.0	2	0.4	8
5.5	1	0.2	0	23.5	4	0.9	8, 10
6.0				24.0	1	0.2	9
6.5				24.5	4	0.9	8, 9, 10, 11
7.0	3	0.7	0, 1	25.0	2	0.4	12, 13
7.5	3	0.7	0, 1	25.5	2	0.4	8, 10
8.0	6	1.3	1	26.0	1	0.2	16
8.5				TOTAL	455		
9.0							
9.5							
10.0							
10.5	2	0.4	2				
11.0	22	4.8	2, 3				
11.5	39	8.6	1, 2, 3				
12.0	41	9.0	2, 3, 4				
12.5	12	2.6	3, 4				
13.0	2	0.4	3, 4				
13.5	5	1.1	4				
14.0	29	6.4	4				
14.5	38	8.4	4, 5				
15.0	18	4.0	4, 5, 7				
15.5	15	3.3	4, 5, 7, 8				
16.0	35	7.7	5, 6, 8				
16.5	26	5.7	5, 6, 7				
17.0	30	6.6	6				
17.5	25	5.5	5, 7, 8				
18.0	13	2.9	5, 6, 7, 8, 9				
18.5	11	2.4	7, 8, 9				
APRIL ELECTROFISHING CPUE			36.9/hr	FYKE NET CPUE		4.3/lift	
JUNE ELECTROFISHING CPUE			8.1/hr				
OCTOBER ELECTROFISHING CPUE			8.7/hr				

NUMBER, PERCENTAGE, WEIGHT, AND AGE OF Rock bass							
TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	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	6	2.0	3	21.5			
4.0	7	2.3	3	22.0			
4.5	11	3.6	3, 4	22.5			
5.0	11	3.6	4, 5	23.0			
5.5	19	6.3	4, 5	23.5			
6.0	21	7.0	4, 5	24.0			
6.5	26	8.6	5, 6	24.5			
7.0	30	9.9	5, 6	25.0			
7.5	45	14.9	5, 6, 7	25.5			
8.0	42	13.9	4, 6, 7	26.0			
8.5	32	10.6	5, 6, 7, 8	TOTAL	302		
9.0	24	7.9	7, 8, 9				
9.5	16	5.3	8, 9, 10				
10.0	9	3.0	7, 9, 10, 11				
10.5	3	1.0	9, 10, 12				
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 CPUE		54.1/hr		FYKE NET CPUE		3.7/lift	

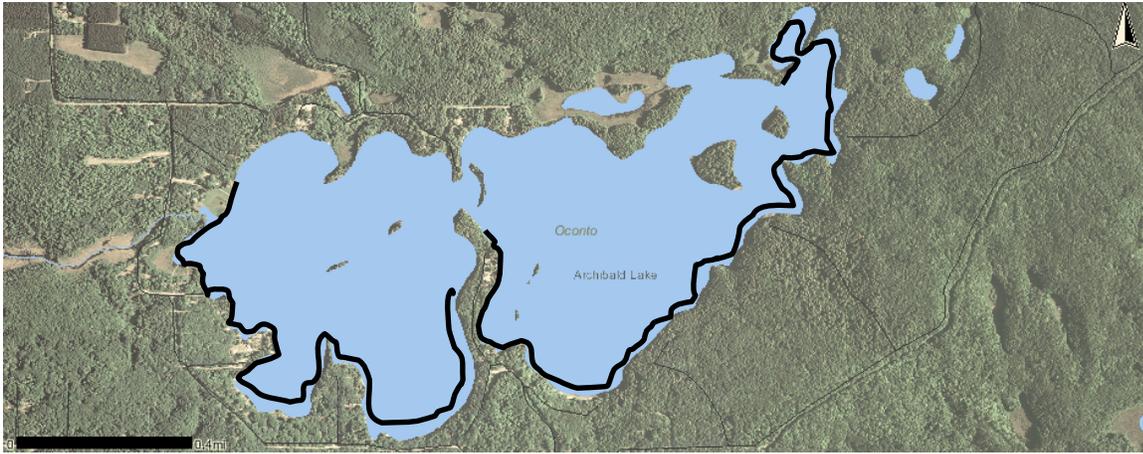
NUMBER, PERCENTAGE, WEIGHT, AND AGE OF Black crappie							
TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AGE OF FISH	TOTAL LENGTH (inches)	NUMBER COLLECTED	PERCENT OF FISH COLLECTED	AGE OF FISH
1.0				19.0			
1.5				19.5			
2.0				20.0			
2.5				20.5			
3.0				21.0			
3.5				21.5			
4.0				22.0			
4.5	2	1.8	2	22.5			
5.0	3	2.7	2	23.0			
5.5	2	1.8	2, 3	23.5			
6.0	4	3.6	3	24.0			
6.5	3	2.7	3	24.5			
7.0	16	14.4	3	25.0			
7.5	2	1.8	3, 4	25.5			
8.0	6	5.4	4	26.0			
8.5	16	14.4	4	TOTAL	111		
9.0	11	9.9	4				
9.5	17	15.3	4, 5				
10.0	8	7.2	5, 6, 8				
10.5	11	9.9	5, 6				
11.0	4	3.6	6, 8, 9, 10				
11.5	4	3.6	6, 8, 9				
12.0	1	0.9	9				
12.5	1	0.9	10				
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 CPUE		1.2/hr		FYKE NET CPUE		1.0/lift	



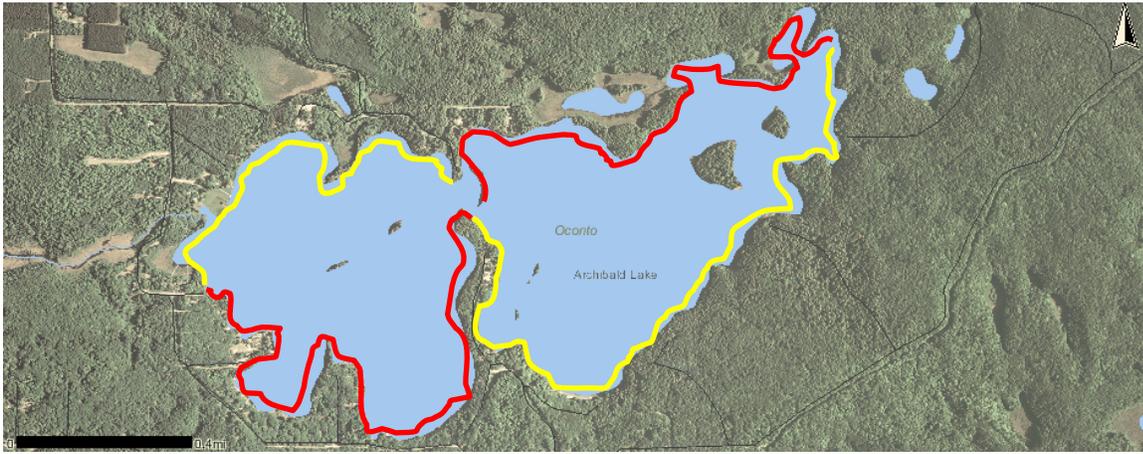
Fyke net locations during 2011 comprehensive survey of Archibald Lake, Oconto County, Wisconsin.



Gamefish and panfish electrofishing (June) during 2011 comprehensive survey of Archibald Lake, Oconto County, Wisconsin (Red & Yellow lines = June 6; Black line = June 7).



Walleye recapture electrofishing (May) during 2011 comprehensive survey of Archibald Lake, Oconto County, Wisconsin.



Walleye recruitment assessment (October) during 2011 comprehensive survey of Archibald Lake, Oconto County, Wisconsin (Yellow line = October 17; Red line = October 18).

Date and GPS location for all sampling locations (fyke nets and electrofishing) during 2011 on Archibald Lake; Oconto County, WI.

FYKE NETS				ELECTROFISHING					
1	N	45.28759	W -88.57425	03-May-2011	Begin	N	45.28730	W -88.57399	
2	N	45.28774	W -88.57780		End	N	45.28300	W -88.58680	
3	N	45.28485	W -88.57770		Begin	N	45.28108	W -88.58898	
4	N	45.28233	W -88.57737		End	N	45.24650	W -88.59810	
5	N	45.28070	W -88.57890	06-Jun-2011	0.5 mile	Begin	N	45.28766	W -88.57223
6	N	45.28323	W -88.58890		(all fish)	End	N	45.28758	W -88.57773
7	N	45.28025	W -88.59459		1.5 mile	Begin	N	45.28758	W -88.57773
8	N	45.28485	W -88.59461		(gamefish only)	End	N	45.28543	W -88.59314
9	N	45.28231	W -88.59975		0.5 mile	Begin	N	45.28543	W -88.59314
10	N	45.28020	W -88.57989		(all fish)	End	N	45.28337	W -88.58926
				07-Jun-2011	1.5 mile	Begin	N	45.28337	W -88.58926
					(gamefish only)	End	N	45.27802	W -88.58882
					0.5 mile	Begin	N	45.28425	W -88.58817
					(all fish)	End	N	45.27990	W -88.58577
				17-Oct-2011	1.5 mile	Begin	N	45.27990	W -88.58577
					(gamefish only)	End	N	45.28431	W -88.57626
				18-Oct-2011	Station 1	Begin	N	45.28186	W -88.59974
					End	N	45.28886	W -88.57165	
				18-Oct-2011	Station 2	Begin	N	45.28161	W -88.59934
					End	N	45.28886	W -88.57165	