



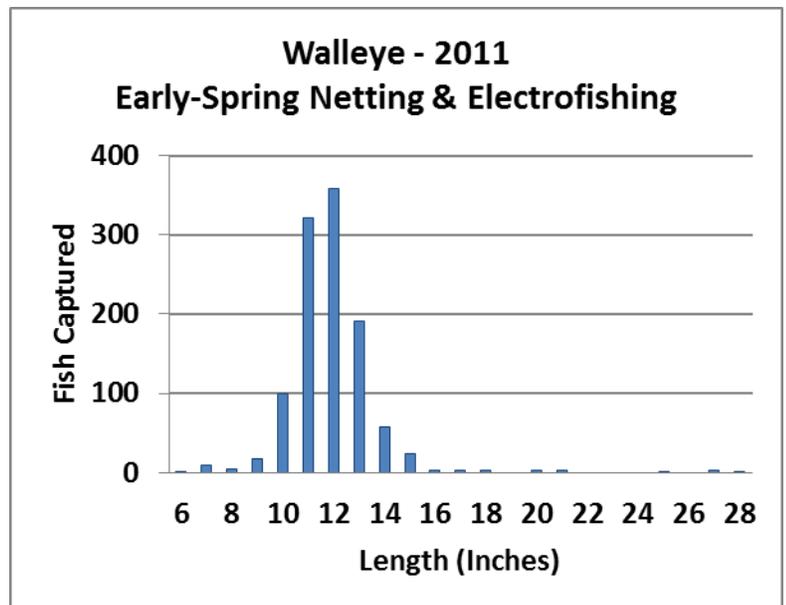
## Summary of Fishery Surveys Pine Lake, Iron County, 2011 - 2012

The Mercer DNR Fisheries Management Team, in cooperation with the Spooner Treaty Fisheries Assessment Team, conducted the following fishery surveys on Pine Lake in 2011: an early-spring fyke netting survey (April 26 – May 1; May 9 – May 12) to assess the walleye and muskellunge populations, an early-spring electrofishing survey (May 1) to estimate adult walleye abundance, a late-spring electrofishing survey (June 6) to assess the bass community, and an early-summer fyke net survey (June 28 and 29) to assess the panfish community. In 2012, an additional early-spring fyke netting survey was conducted (April 11 – April 19; April 22 – April 26) to complete an estimate of adult muskellunge abundance (two consecutive years of netting efforts are required to estimate muskellunge abundance). Quality, preferred, and memorable sizes referenced in this summary are based on standard proportions of world record lengths developed for each species by the American Fisheries Society.

### Walleye



Adult Walleye Abundance = 8.0/acre	
Quality Size $\geq 15''$	4%
Preferred Size $\geq 20''$	1%

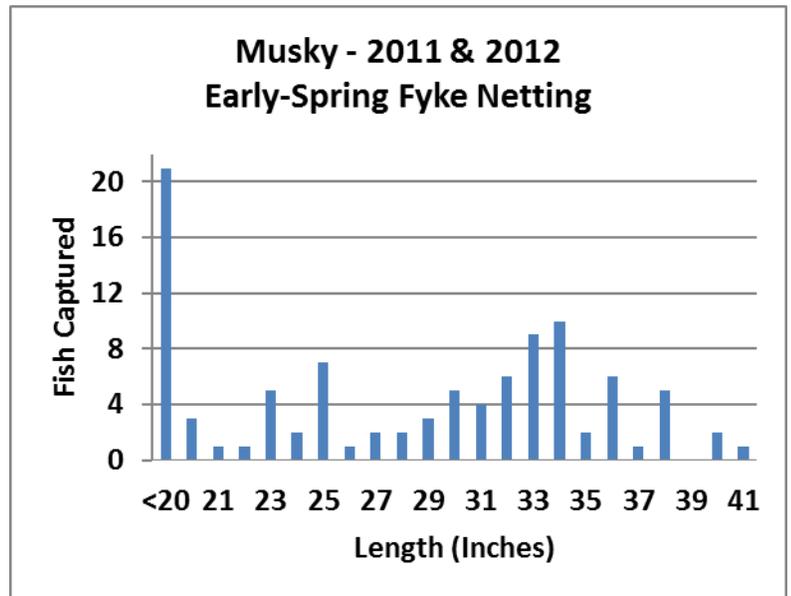


We captured 1,098 individual walleyes during the first early-spring netting period and early-spring electrofishing survey at rates of 24/net-night and 65/mile, respectively. Using mark-recapture techniques, the population estimate for adult walleye in 312-acre Pine Lake was 2,490 fish, or 8.0 fish per surface acre of water. The Pine Lake walleye population is sustained through natural reproduction; and the adult walleye density (8.0 fish per acre) is above northern Wisconsin averages for naturally-reproducing populations, which typically range between 2 and 5 fish per acre. Size structure of the walleye population is considered poor, with very few fish exceeding 15 inches in length. The largest walleye sampled during the surveys was 28.4 inches long.

### Muskellunge



Adult Musky Abundance = 0.2/acre	
Quality Size $\geq 30''$	65%
Preferred Size $\geq 38''$	10%
Memorable Size $\geq 42''$	0%

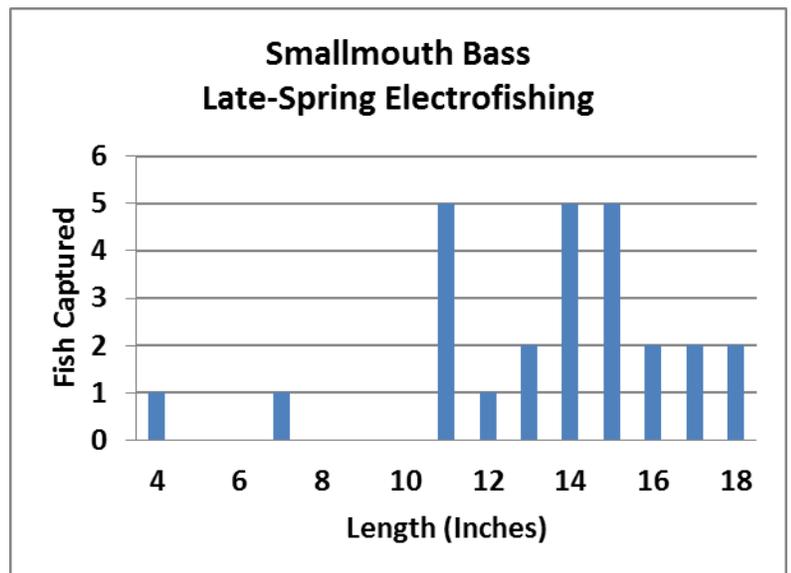


We captured 99 individual muskies during the 2011 and 2012 early-spring netting surveys at targeted rates of 2.7/net-night and 0.6/net-night, respectively. Using mark-recapture techniques, the population estimate for adult musky  $\geq 30$  inches was 70 fish (0.2 fish per surface acre of water; slightly below average for class A2 musky fisheries), while the estimate for adult musky  $\geq 20$  inches was 103 (0.3 fish per acre). The size structure of the musky population is considered fair, with relatively high rates of natural reproduction and slower than average growth rates resulting in more small to moderate-sized fish. A 44-inch musky was the largest fish sampled during any of the surveys.

### Smallmouth Bass



Captured 6.3 per mile $\geq 7''$	
Quality Size $\geq 11''$	96%
Preferred Size $\geq 14''$	64%
Memorable Size $\geq 17''$	16%

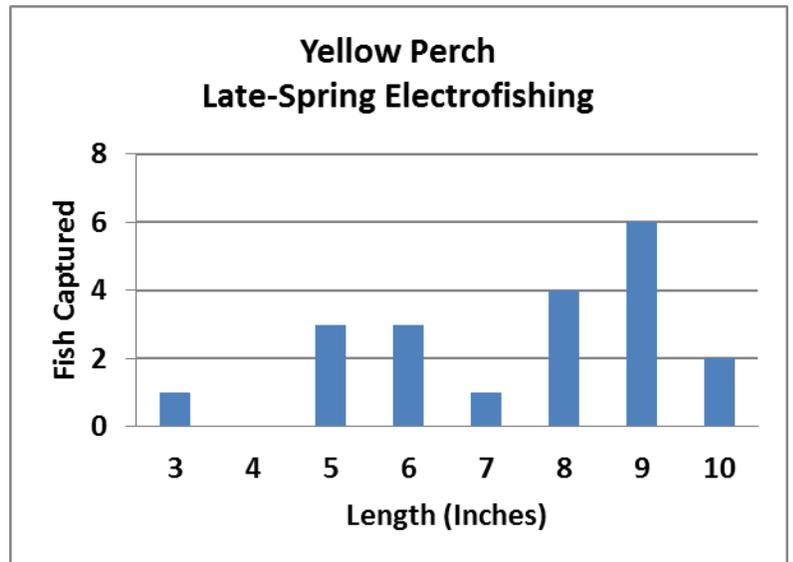


Smallmouth bass  $\geq 7$  inches were captured at a moderate rate of 6.3 per mile during the late-spring electrofishing survey. The size structure of the population is considered very good; nearly two-thirds of the fish sampled exceeded the minimum length limit of 14 inches. An impressive 20.9-inch smallmouth was captured during the 2012 early-spring netting survey. No largemouth bass were captured or seen during this or any other survey.

## Yellow Perch



Captured 19.0 per mile $\geq 5''$	
Quality Size $\geq 8''$	63%
Preferred Size $\geq 10''$	11%



Yellow perch  $\geq 5$  inches were captured at a moderate rate of 19.0 per mile during the late-spring electrofishing survey. Electrofishing is not the best way to document the relative abundance of perch, but our sample does reveal there are some perch in Pine Lake of acceptable size to anglers.

### Other Panfish Species

Ten rock bass (4.0 – 8.7 inches), 5 bluegills (4.3 – 8.4 inches), 3 black crappies (9.7 – 10.0 inches), and 1 pumpkinseed (5.7 inches) were captured at relatively low rates during the early-summer fyke netting survey.

### Conclusions

Results from these and previous surveys suggest that the Pine Lake fish community is dominated by walleyes; so much so in fact that they are likely inhibiting their own growth (through high competition for food) and ultimate size attainment. Pine Lake walleyes are managed under no minimum length limit, but only 1 fish over 14 inches is allowed daily. Anglers are encouraged to harvest the abundant, smaller-sized walleyes while releasing the much rarer, larger fish ( $> 14$  inches) to promote improvements in the quality of the fishery.

The Pine Lake muskellunge population displays characteristics of a healthy fishery—a naturally-reproducing population that sustains respectable numbers of adult fish. Muskellunge growth rate is estimated to be slightly slower than the statewide average, which is likely attributable to a shorter growing season in the north as well as the suppressed forage base present in Pine Lake. The one confusing thing about Pine Lake’s musky population is that relatively high rates of natural reproduction (observed in fall electrofishing and spring netting surveys) are not resulting in higher adult densities. A possible explanation for this is cannibalism, which muskies are known to do, although it is purely speculation in this case.

Smallmouth bass provide a quality fishery in Pine Lake. Moderate numbers and a presumably abundant crayfish population are resulting in heavy-shouldered smallies. Anglers should not expect to catch high numbers of smallmouth in Pine Lake, but the fish should be of quality size.

Panfish populations in Pine Lake exhibit characteristics of a predator-dominant fish community. High predation on young panfish (primarily by abundant walleye) is limiting panfish numbers in Pine Lake. However, young panfish that do avoid predation have the ability to grow quickly to preferred sizes. Yellow perch appear to be the most abundant panfish species, but numbers of fish, when compared to other waters, are still relatively low.

Other species captured during these surveys, but not reported here due to low abundance and/or sampling bias, included white sucker, creek chub, hornyhead chub, green sunfish, northern pike, and bullhead.

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