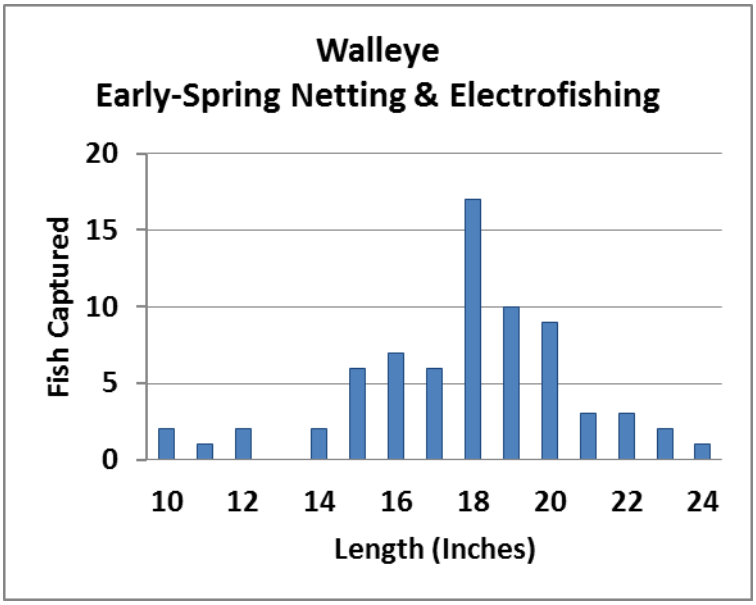
Summary of Fishery Surveys
McDermott Lake, Iron County, 2012

The Mercer DNR Fisheries Management Team conducted the following fishery surveys on McDermott Lake in 2012: an early-spring fyke netting survey (April 2 – 9) to assess the walleye, northern pike, and musky populations, an early-spring electrofishing survey (April 10) to complete a walleye population estimate, and a late-spring electrofishing survey (May 21) to assess the bass and panfish populations. 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 Population Estimate = 1.3/acre	
Quality Size ≥ 15”	90%
Preferred Size ≥ 20”	25%
Memorable Size ≥ 25”	0%

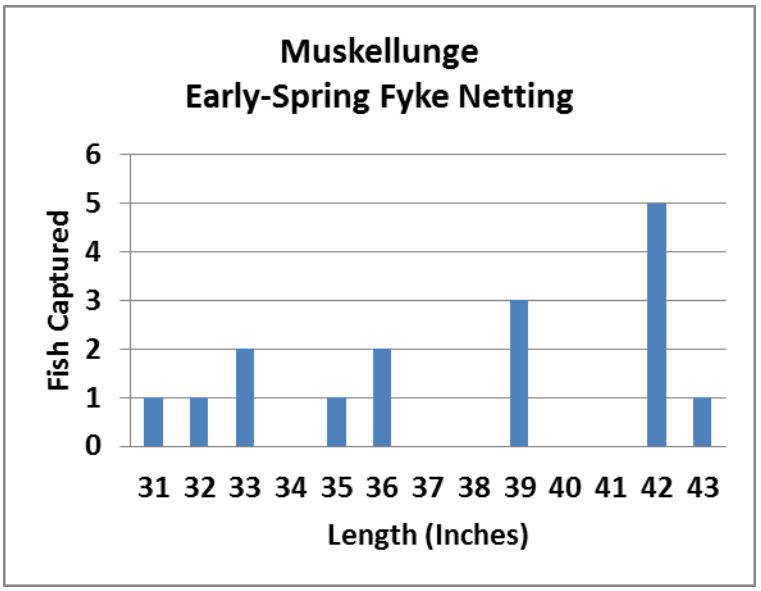


We captured 71 individual walleyes during the early-spring netting and electrofishing surveys at a rate of 3.1/net-night and 9.0/mile, respectively. Using mark-recapture techniques, the population of adult walleye in 84-acre McDermott Lake was estimated to be 109 fish, or 1.3 fish per surface acre of water. This density (1.3 fish per acre) is below northern Wisconsin averages for naturally-reproducing populations (typically ranging between 2 and 5 fish per acre), but still offers what is considered to be a fishable population.

As is typical of low-density populations experiencing low-recruitment, the size distribution of walleye in McDermott Lake is skewed toward larger fish. Anglers seeking walleye in McDermott Lake may have to work to find them, but they are also likely to be rewarded with nice-sized fish for their efforts. It is advised that anglers fortunate enough to catch legal-sized walleye (15 inches and longer) on McDermott Lake consider releasing them in an effort to rehabilitate the population to once higher levels.

Muskellunge

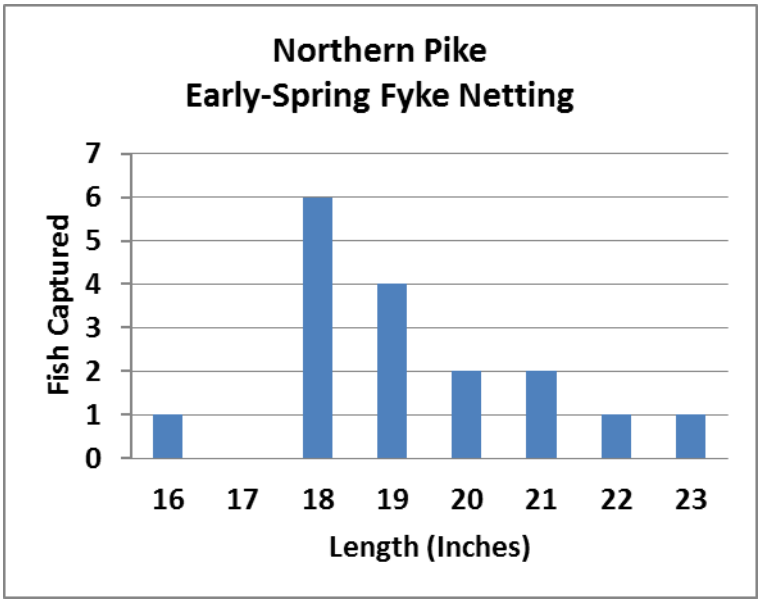
Captured 0.5 per net-night ≥ 20”	
Quality Size ≥ 30”	100%
Preferred Size ≥ 38”	56%
Memorable Size ≥ 42”	38%



Although our nets were not set specifically to target muskellunge, we caught them at a moderate rate during the early-spring netting survey. Size structure of the population sample is considered to be very good, with a high proportion of fish being of a desirable size to anglers. However, it should be noted that the fish were not individually marked, and duplicated fish (caught more than once on successive days) may be reflected in the size structure indices.

Northern Pike

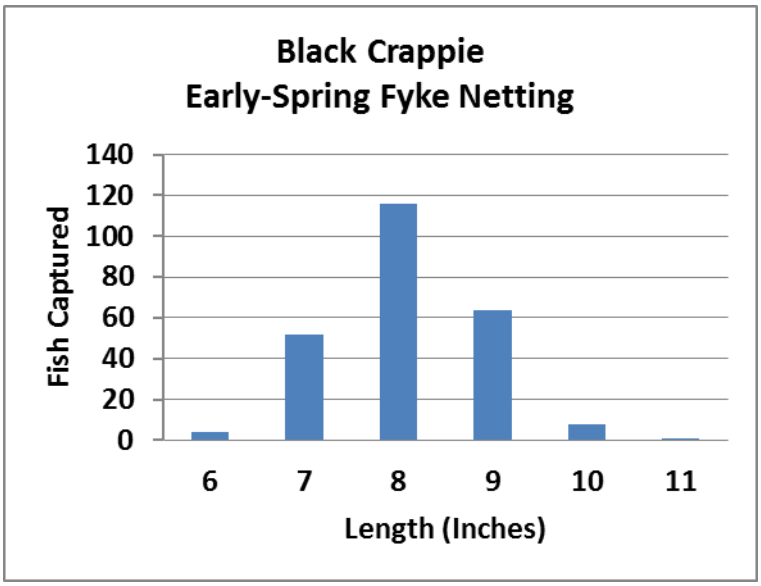
Captured 0.5 per net-night ≥ 14”	
Quality Size ≥ 21”	24%
Preferred Size ≥ 28”	0%



Although our nets were not set specifically to target northern pike, we caught them at a low rate during the early-spring netting survey. Size structure of the population sample is considered fair, however, larger-sized fish were not observed. It should be noted that our catch rates may have been higher for northern pike if we had set our nets earlier (closer to the peak of pike spawning activity).

Black Crappie

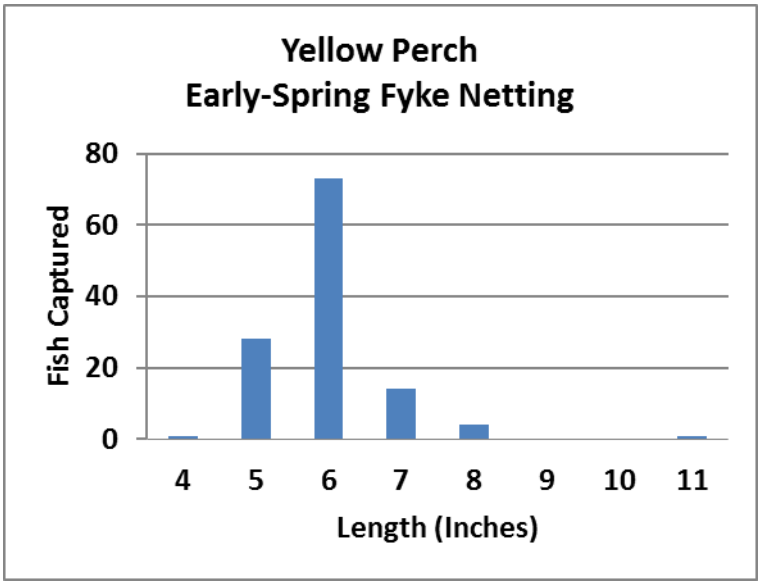
Captured 9 per net-night ≥ 5”	
Quality Size ≥ 8”	77%
Preferred Size ≥ 10”	4%



Black crappie ≥ 5 inches were captured at a moderate rate of 9 per net-night during the early-spring fyke netting survey. Size structure of the population sample is considered fair; however, a low proportion of fish were of a preferred size.

Yellow Perch

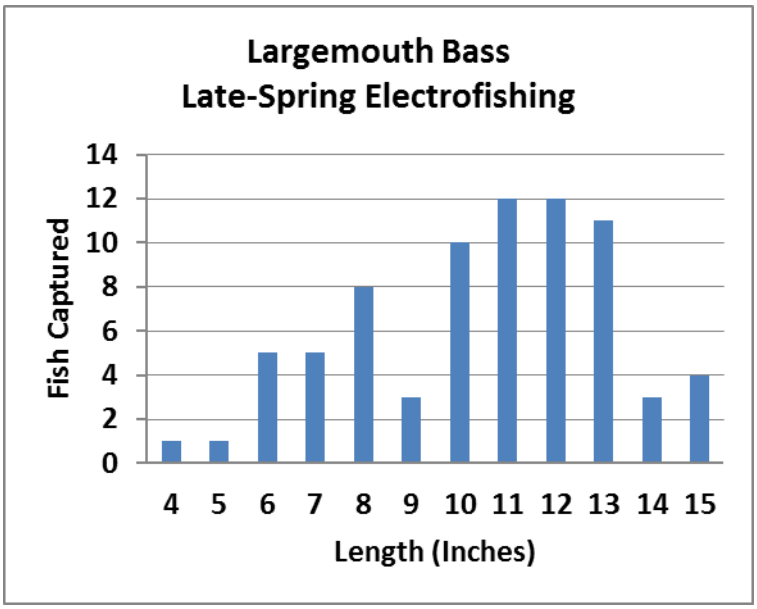
Captured 4 per net-night ≥ 5”	
Quality Size ≥ 8”	4%
Preferred Size ≥ 10”	1%



Yellow perch ≥ 5 inches were captured at a low rate of 4 per net-night during the early-spring fyke netting survey. Size structure of the population sample is considered poor, with a very low proportion of fish being of quality size.

Largemouth Bass

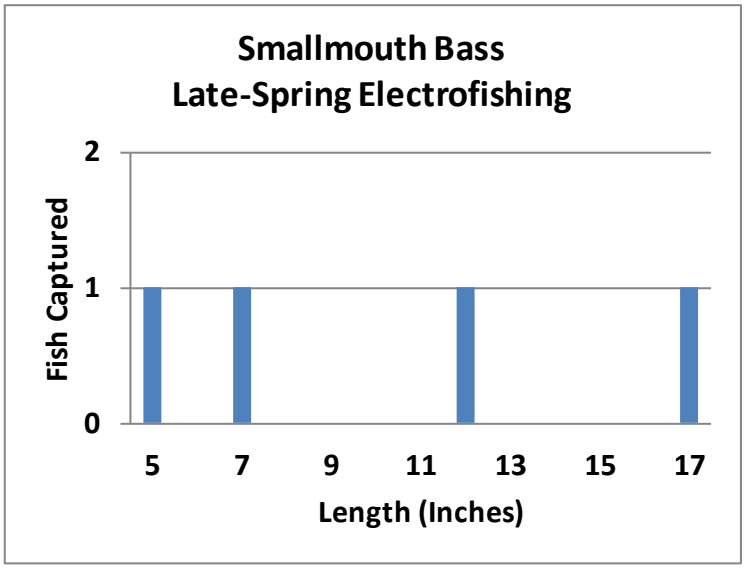
Captured 26 per mile ≥ 8”	
Quality Size ≥ 12”	48%
Preferred Size ≥ 15”	6%



Largemouth bass ≥ 8 inches were captured at a moderately-high rate of 26 per mile during the late-spring electrofishing survey. Size structure of the population is considered poor, with a low proportion of fish exceeding legal size (14 inches and longer).

Smallmouth Bass

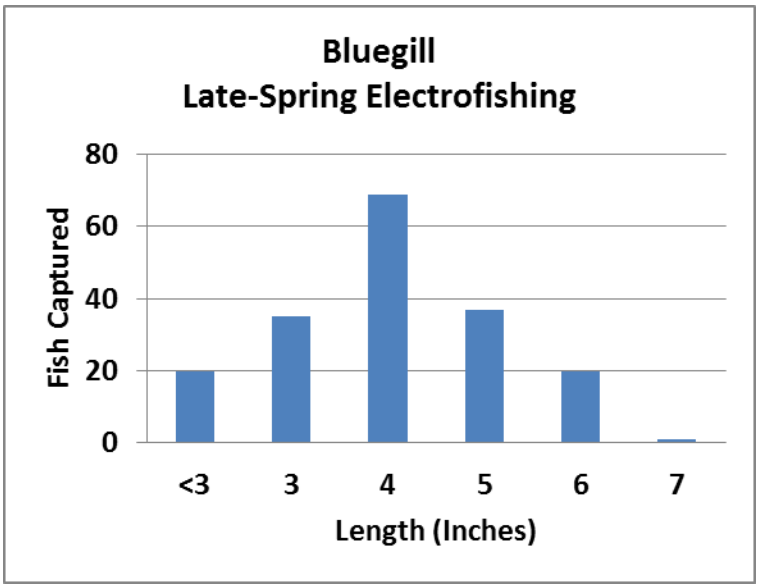
Captured 1 per mile ≥ 7”	
Quality Size ≥ 11”	67%
Preferred Size ≥ 14”	33%



Only four smallmouth bass were captured during the late-spring electrofishing survey, indicative of a population at low abundance levels.

Bluegill

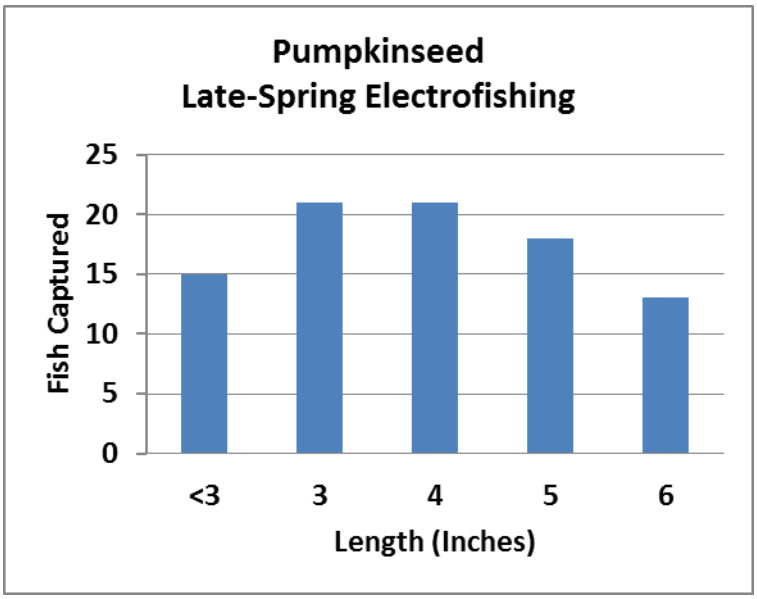
Captured 290 per mile ≥ 3”	
Quality Size ≥ 6”	13%
Preferred Size ≥ 8”	0%



Bluegill ≥ 3 inches were captured at a high rate of 290 per mile during the late-spring electrofishing survey. The size structure of the population is considered poor, with very few fish near an acceptable size to anglers. The capture rate and size structure of bluegill we observed in this survey is indicative of an overabundant population.

Pumpkinseed

Captured 73 per mile ≥ 3”	
Quality Size ≥ 6”	18%
Preferred Size ≥ 8”	0%



Pumpkinseed sunfish ≥ 3 inches were captured at a moderate rate of 73 per mile during the late-spring electrofishing survey. The size structure of the population is considered poor with very few fish near an acceptable size to anglers.

Interpretation of Results

McDermott Lake contains a diverse fish community for a relatively small lake. However, the lake currently exhibits characteristics of a fishery in which walleye have lost their predatory dominance to an increasingly abundant largemouth bass population. The decline in walleye population density in McDermott Lake is most likely associated with habitat limitations or changes not favorable to walleye and/or fish community changes that are limiting the survival of young walleye. Adequate spawning habitat is available for walleye in McDermott Lake, and natural reproduction has been documented in past surveys; however, the lake is also relatively clear and shallow. Research suggests that walleye may be limited in situations where optimal light, temperature, and oxygen conditions exist in only a relatively small volume of the lake. (Walleyes are sensitive to light, requiring dimly lit areas with sufficient oxygen at preferred temperatures during daylight hours.) If we learn that McDermott Lake lacks sufficient thermal-optical habitat for walleye, they may always have a tough time competing with other species (e.g., largemouth bass and bluegill) that thrive in shallow, clear-water environments.

In the next couple years, WDNR will evaluate water clarity, temperature, and dissolved oxygen levels throughout the water column to determine whether or not the physical characteristics of McDermott Lake most favor walleye or largemouth bass as the key predator. Walleye have been stocked into McDermott Lake in recent years, and plans are in place for a 2013 stocking (dependent upon hatchery production). However, future walleye management activities are on hold until information on habitat suitability is evaluated.

The bass community in McDermott Lake is dominated by largemouth bass. Growth analyses suggest that largemouth may be near a density that is inhibiting their growth and size potential in the lake. Future largemouth bass management actions are contingent upon and will be linked to our walleye management strategies. As noted above, information gained from upcoming habitat surveys will influence future management decisions for both species.

Insufficient predation on juvenile panfish and size-selective harvest of the fastest-growing panfish by anglers may be limiting panfish size structures in McDermott Lake. Regardless of the cause of poor panfish size structure in McDermott Lake, we will encourage development of a predator fish community capable of controlling panfish recruitment (bluegill in particular). In addition, we encourage anglers to practice size-selective harvest by releasing some of the largest panfish and harvesting some of the more abundant, medium-sized fish.

Rock bass were the only other species captured during our surveys.

Survey Data Collected and Analyzed By: Lawrence Eslinger, Jim Zarzycki, and Logan Perkins
Written By: Lawrence Eslinger, Fisheries Biologist, 5/6/13
Edited By: Dave Neuswanger, Fisheries Supervisor, Hayward Field Unit, 5/6/13
Approved for Posting By: Steve Avelallemant, Fisheries Supervisor, Northern District, 10/18/13