

Lake Arthur

Butler County

Spring 2011 Trapnetting and Night Electrofishing Surveys

Lake Arthur is a 3,200-acre lake located within [Moraine State Park](#) in Butler County. The PFBC manages the lake under [Big Bass regulations](#); for all other species [inland regulations](#) apply. Personnel from Fisheries Management Area 1 sampled the lake's fish populations using Pennsylvania style trapnets and boat electrofishing during spring 2011.

Trapnet sampling during the weeks of April 25th and May 9th included a total of 31 overnight trapnet sets encompassing 707.15 hours of effort. A total of 4,104 fish representing 17 species were captured (Table 1). In general, fish populations appear to be stable with the catch rates for most species similar to previous surveys of Lake Arthur. Highlights of our sampling were the successes of our stocking programs; muskellunge, hybrid striped bass, walleye and channel catfish, all of which are anticipated to continue.

The catch of muskellunge was good; although lower than the last time we sampled the lake in 2007. A catch rate of 1.3 for muskellunge per trapnet maintains Lake Arthur in the top echelon of muskellunge waters in Pennsylvania. Size distribution was good with several trophy fish over 45" collected (Figure 1).

The population of hybrid striped bass in Lake Arthur is impressive, indicating another successful stocking program. Legal fish (> 20 inches) comprised 84% of our catch, and nearly two dozen trophy fish over 26" were collected. Trapnets are good at catching adult hybrid striped bass; however, they rarely capture juveniles. During night electrofishing for bass we also collected substantial numbers of juvenile hybrid striped bass to facilitate age determination and calculation of growth rates. The presence of so many juvenile hybrid stripers, coupled with the excellent population of adults, should translate into good hybrid striped bass fishing for years to come.

Catch rates for walleye were fair with 91% of fish caught larger than legal size. The CPUE value for walleyes in Lake Arthur is slightly lower than we would like to see. Time permitting, we plan on returning in the fall to re-assess the walleye population with night electrofishing and trapnets.

The catch of channel catfish was excellent, highlighting the success of our fingerling stocking program and perhaps signaling that channel catfish may be reproducing naturally in the lake. Nearly 67% of the channel catfish were larger than 20 inches.

Table 1. Abundance, CPUE and size range for fishes collected during trapnet sampling of Lake Arthur during spring 2011.

Species	Number	CPUE (fish / hour)	Size Range (inches)
Bluegill	729	1.03	2 - 8
Black Crappie	50	0.07	5 - 15
White Crappie	41	0.06	5 - 16
Channel Catfish	566	0.80	8 - 29
Hybrid Striped Bass	122	0.17	8 - 28
Walleye	33	0.05	13 - 28
Muskellunge	41	0.06	34 - 51
Largemouth Bass	6	0.01	14 - 20
Northern Pike	7	0.01	20 - 29
Pumpkinseed Sunfish	20	0.03	5 - 7
Yellow Perch	8	0.01	6 - 11
Carp	56	0.08	Not Measured
Alewife	2,269	3.21	Not Measured
Gizzard Shad	94	0.13	Not Measured
Yellow Bullhead	2	0.00	12 - 13
Brown Bullhead	54	0.08	11 - 15
Golden Shiner	6	0.01	Not Measured
Total	4,104		

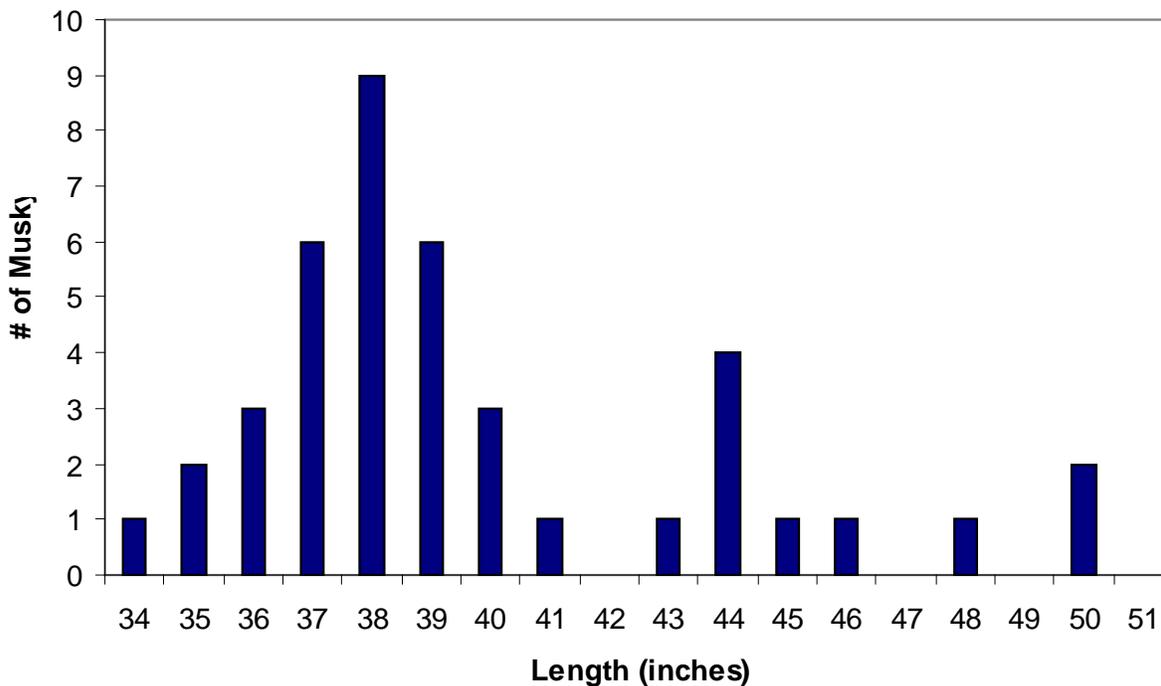


Figure 1. Length frequency distribution of muskellunge captured during 2011 Lake Arthur spring trapnet survey.



One of many quality-sized Lake Arthur channel catfish



A pair of hybrid striped bass



A fifty-one inch Lake Arthur musky, the largest of our trapnet survey

Panfish populations appear similar to previous surveys and are typical of other lakes that maintain forage communities dominated by alewife and gizzard shad. Bluegills were abundant, but most fish (72%) were 6 inches or smaller. Black and white crappie were much less abundant but were dominated by large individuals greater than 10 inches. Yellow perch were of low abundance with few large individuals.



Two quality sized Lake Arthur crappies

During the week of May 16th Area 1 Fisheries Management personnel returned to Lake Arthur to sample black bass populations via nighttime boat electrofishing. We also opportunistically collected juvenile hybrid striped bass that were abundant near shore. A total of 21 runs lasting 20 minutes each were performed, for a total of 7 hours of effort. A total of 447 largemouth, smallmouth, and hybrid striped bass were caught (Table 2). Largemouth bass dominated the catch and approximately 16% of fish collected were over 15 inches. Plenty of largemouth bass over 12" are present in the lake (Figure 2). Lake Arthur maintains a smallmouth bass population, but at a much lower density than the largemouth.

During our electrofishing surveys, we observed at least 12 muskellunge, including a fingerling. Muskellunge are difficult to collect with boat electrofishing gear. Our observing so many muskies is another indication that the population in Lake Arthur is robust.

Table 2. Abundance, CPUE and size range for bass collected during night electrofishing in Lake Arthur during spring 2011.

Species	Number	CPUE (fish / hour)	Size Range
Largemouth Bass	406	58.00	3 - 22
Smallmouth Bass	7	1.00	7 - 13
Hybrid Striped Bass	34	4.85	7 - 15

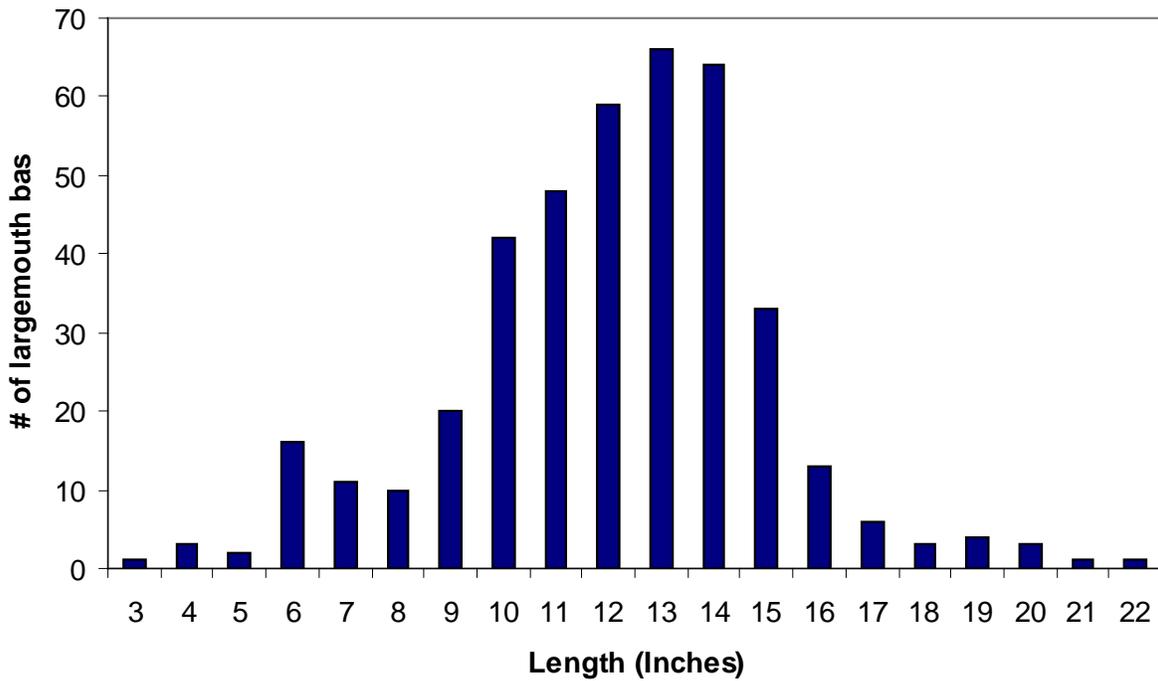


Figure 2. Length frequency distribution of largemouth bass captured during 2011 Lake Arthur nighttime boat electrofishing survey.



A twenty-one inch Lake Arthur largemouth bass

Lake Arthur offers excellent angling opportunities for muskellunge, channel catfish, hybrid striped bass, and largemouth bass. Channel catfish make good table fare and the Lake Arthur population is outstanding. Hybrid striped bass are large predators and put up a fierce fight when hooked. Every night of our electrofishing survey, anglers were out fishing for these game fish. Trolling or casting slender minnow stickbaits near shore or using a live alewife under a float appeared to be the preferred strategies. Angling opportunities for crappies and walleye are fair with trophy-sized fish present. Also, plenty of bluegills are available for shore anglers looking for some catch and release recreation. Boasting a diversity of fish species in such great numbers makes Lake Arthur one of Pennsylvania's premier warm-water fisheries.

Fisheries Management Area 1