



Managing Pennsylvania's **MUSKELLUNGE**

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photos by the author

Wherever Muskellunge are found, Muskellunge are the top predator. These fish typically exist in low numbers and grow big enough to get any angler's heart racing. Pennsylvania's state record Muskellunge, caught from Conneaut Lake in 1924, weighed a massive 53-pounds, 3-ounces. With its low numbers, large sizes and unpredictable nature, Muskellunge are challenging for anglers to catch. Anglers often refer to Muskellunge as mysterious, elusive and "the fish of 10,000 casts."

Muskellunge can also be mysterious to biologists. The same traits that make fish challenging for anglers to catch make Muskellunge difficult for biologists to sample. For many years, capturing a single Muskellunge during a routine survey was enough evidence of survival to justify a stocking program. That is because the goals of past Muskellunge stocking programs were to add diversity to fish communities and generate excitement by providing anglers the opportunity to catch the fish of a lifetime.

Over time, stocking Muskellunge to add diversity and provide an occasional trophy became unsustainable. Fisheries managers were requesting more Muskellunge than the hatcheries could produce. At the same time, the costs of raising Muskellunge soared while fishing license sales and, thus, Pennsylvania Fish & Boat Commission (PFBC) revenues declined. In addition, it was apparent from angler complaints and biological surveys that, in many waters, Muskellunge stockings that had produced great fishing in the past were no longer working.

Pennsylvania's Muskellunge stocking program obviously needed a major overhaul. Changes began with the publication of the statewide Muskellunge Management Plan in 2012. First and foremost, the 2012 plan moved the goal of Muskellunge stocking away from providing diversity and an occasional trophy to creating high-quality fisheries. The plan defined high-quality fisheries as waters where anglers who specifically fished for Muskellunge had a reasonable chance of catching one. That change in philosophy required fisheries managers to remove waters from the stocking program that did not produce good numbers of Muskellunge. In that way, the remaining waters could be stocked consistently.

Determining which waters produced good numbers of Muskellunge meant that biologists needed to take some of the mystery out of Muskellunge sampling. The 2012 plan did that by



A wild, young-of-the-year Muskellunge from the North Branch Susquehanna River.

providing standard sampling methods for Muskellunge in lakes. Further, the old way of capturing one or two Muskellunge during a general survey was no longer good enough. Beginning in 2012, every stocked lake had to meet minimum catch rate criteria during a targeted Muskellunge survey to remain in the stocking program. The 2012 plan focused on lakes because of limited time and staffing.

From 2012 through 2018, fisheries managers conducted targeted Muskellunge surveys at most stocked lakes in the state. Many lakes met the new minimum catch rate criteria and required no further action. But, 10 lakes failed to meet the criteria and stocking was terminated. Those lakes were Beltzville Lake, Carbon County; Chambers Lake, Chester County; East Branch Clarion River Lake, Elk County; Hills Creek Lake, Tioga County; Lackawanna Lake, Lackawanna County; Loyalhanna Lake, Westmoreland County; Shenango River Lake, Mercer County; Stillwater Lake, Monroe County; Tuscarora Lake, Schuylkill County; and Union City Reservoir, Erie County. Also, Muskellunge stocking was suspended at three lakes (Belmont Lake, Wayne County; Lake Somerset, Somerset County; and Tamarack Lake, Crawford County) due to completed or impending drawdowns for mandated dam and spillway repairs.

With the completion of most lake Muskellunge surveys, biologists had time to concentrate on rivers. River Muskellunge sampling was a main emphasis of the 2017 Muskellunge Management Plan update. The 2017 update provided standard methods for river Muskellunge sampling and established minimum catch rate criteria for river sections to remain in the stocking program. River Muskellunge sampling is still in its

early stages, but there have been some results. To date, 14 river sections have been permanently removed from the stocking program, and stocking has been suspended on one section (Shenango River Section 05) because of water quality problems.

Of the 14 sections where stocking was discontinued, three sections were removed for failure to meet minimum catch rate criteria (Delaware River, Section 7, and Schuylkill River, sections 11 and 12), and one section was removed due to posting and access problems (Schuylkill River, Section 5). The other 10 sections were all on the North Branch Susquehanna River. Those sections were removed from stocking in favor of management through natural reproduction. Muskellunge surveys on the North Branch Susquehanna River showed that this population could support itself without stocking. In the future, biologists will conduct reproduction surveys on all river sections that are stocked with purebred Muskellunge.

Another main emphasis of the 2017 update was to change the size of Muskellunge stocked. Research in Pennsylvania and other states showed that larger Muskellunge survived better than smaller ones. Predation, particularly by Largemouth Bass, was the main reason for the difference. The increased use of Big Bass Program Special Regulations in combination with a growing catch-and-release ethic among bass anglers produced a lot of large bass. That was great for bass but not so great for Muskellunge stocking. Large bass are effective predators on stocked Muskellunge fingerlings.

To minimize predation and improve survival, the 2017 update changed size at stocking from fall fingerlings (6- to 9-inches long) to spring yearlings (approximately 13-inches long). But stocking spring yearlings required other changes. Hatcheries could only raise so many pounds of fish, and bigger fish weighed more. Further, improved survival could result in too many Muskellunge, thus limiting growth rates and the potential for trophy sized fish. To deal with these issues, the 2017 update recommended that all waters be stocked on alternate years and at a rate of 0.75 fish/acre. Alternate year stocking of spring yearlings at this rate has proven successful in other states.

This article provides a brief summary of Muskellunge management changes since 2012. To learn more, visit the Muskellunge page on PFBC's website at www.fishandboat.com/Fish/PennsylvaniaFishes/Pages/Muskellunge.aspx. This page contains the full text of the 2012 Muskellunge Management Plan and the 2017 update. ☐

