

## **Susquehanna River (middle)**

### **2022 adult black bass survey**



*Area Fisheries Manager Bryan Chikotas holds a large Smallmouth Bass from the Susquehanna River near New Cumberland, PA.*

Division of Fisheries Management biologists conducted adult Smallmouth Bass surveys on the middle reach of the Susquehanna River (Sunbury to York Haven) between September 13 and 29, 2022. These surveys are part of routine monitoring under the Commission's adaptive management approach to document current population levels, fish size structure, age-and-growth statistics, and other population parameters. While attempts are made annually to perform scheduled surveys repeated high river flows during 2021 precluded staff from assessing the population. During 2022, staff used nighttime boat electrofishing to collect Smallmouth Bass (age-1 and older) at historically sampled sites located at Clemson Island, Rockville, and downstream of the Dock Street Dam in Harrisburg, PA as well as a periodically evaluated location downstream of the Pennsylvania Turnpike Bridge near Highspire, PA.

Results from the 2022 survey found that the length-frequency distributions (Table 1) and catch rates of age-1 and older Smallmouth Bass varied among sites with an overall, reach-wide catch rate of 123.3 fish/ hour at the historic sites; above the long-term median catch rate of 66.8 fish/ hour (Figure 1). Similarly, the electrofishing catch rate of larger adult bass ( $\geq 15$  inches) was 17.9 fish/ hour at the historic sites; above the long-term catch rate of 7.7 fish/ hour (Figure 2).



*A robust, young-of-year Smallmouth Bass from the Susquehanna River downstream of Dock St. Dam. Ideal growing conditions during 2022 led to many fish being in great condition going into winter.*

The 2022 survey confirmed recruitment of a strong 2021 year-class (fish 7-10 inches long; Table 1). Consistent, repeated high flow events during summer and fall 2021 left some question regarding survival of the 2021-year class but conditions proved to be favorable as their abundance was high. Low and relatively stable river levels during 2022 appear to have yielded similar results as an abundance of young-of-year (YOY) Smallmouth Bass (fish less than 7 inches long; Table 1) were produced under optimal conditions during and after the spring-time spawning period. While boat electrofishing is the preferred method to quantify adult Smallmouth Bass abundance it can be less effective for evaluating YOY black bass abundance in large rivers; however, when YOY are encountered frequently throughout surveyed reaches, as they were this year, it can be a reliable indicator of a strong year class being present. These conditions, coupled with warm water temperatures, provided optimal growing conditions and many of the fish encountered were in great condition heading into winter; further increasing their chances for survival and recruitment into the population. Although disease outbreaks were commonly associated with low river flow and warm water temperatures from 2005-2010 these conditions are also optimal for successful Smallmouth Bass reproduction and recruitment. Disease outbreaks have waned in recent years and YOY numbers have improved to bolster Smallmouth Bass abundance.

The presence of strong, back-to-back year classes suggests anglers can anticipate high abundance of younger fish moving into the catchable portion of the population in coming years. Anglers targeting Smallmouth Bass may also encounter Smallmouth Bass 15 inches and longer relatively frequently in their angling activities as the strong 2015-year class continues to influence this segment of the Susquehanna's Smallmouth Bass fishery. The high quality of the current fishery was evident in the electrofishing catch rates for these large fish, which was more than twice the long-term median and among the higher catch rates of 15 inch and longer bass collected during historic and recent surveys.

As we approach the popular fall period for Smallmouth Bass fishing, anglers are reminded that during the [cold-weather period](#) (November 1 – April 30) a Personal Flotation Device (PFD or life jacket) must be worn while underway or at anchor on boats less than 16 feet in length or any canoe or kayak.

For anglers interested in fishing for black bass in the middle Susquehanna River, [Catch-and-Immediate-Release Bass Regulations](#), as described in our summary book continue to apply to this portion of the Susquehanna River.

Geoffrey Smith  
Susquehanna River Biologist

Table 1. Lengths (inches) of Smallmouth Bass captured at the middle Susquehanna River during nighttime electrofishing surveys by nearest site landmark, September 13 – 29, 2022.

	<i>Site</i>			
	<b>Clemson Island</b>	<b>Rockville Bridge</b>	<b>Dock Street Dam</b>	<b>Turnpike Bridge</b>
3	4	3	0	0
4	43	47	19	9
5	76	68	48	35
6	9	10	10	12
7	2	10	18	4
8	27	28	43	12
9	24	11	26	31
10	2	4	13	7
11	1	4	21	3
12	9	7	8	4
13	7	5	7	10
14	3	8	0	1
15	2	6	2	7
16	4	4	2	3
17	3	4	2	4
18	8	5	1	4
19	0	1	4	0
20	0	0	1	3
<b>Total</b>	224	225	225	149

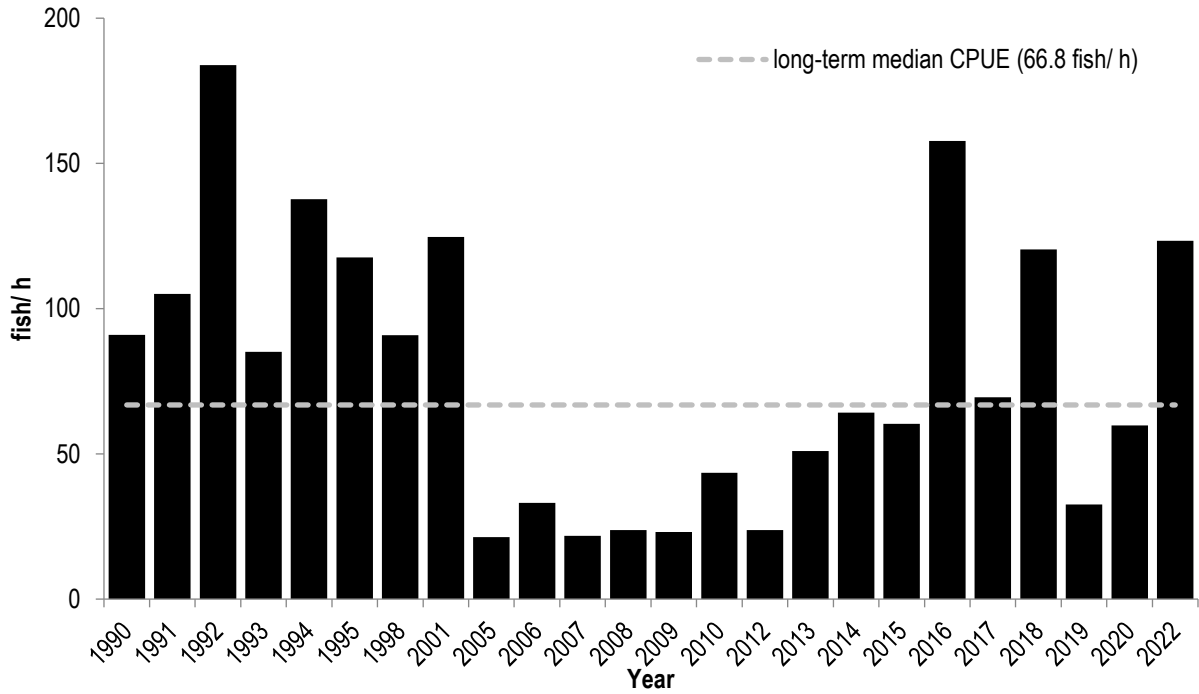


Figure 1. Boat electrofishing catch per unit effort (CPUE; fish/ h) of Smallmouth Bass age-1 and older at historic sites at the middle Susquehanna River from 1990 to present. Note annual gaps in time-series reflect years when surveys were not performed.

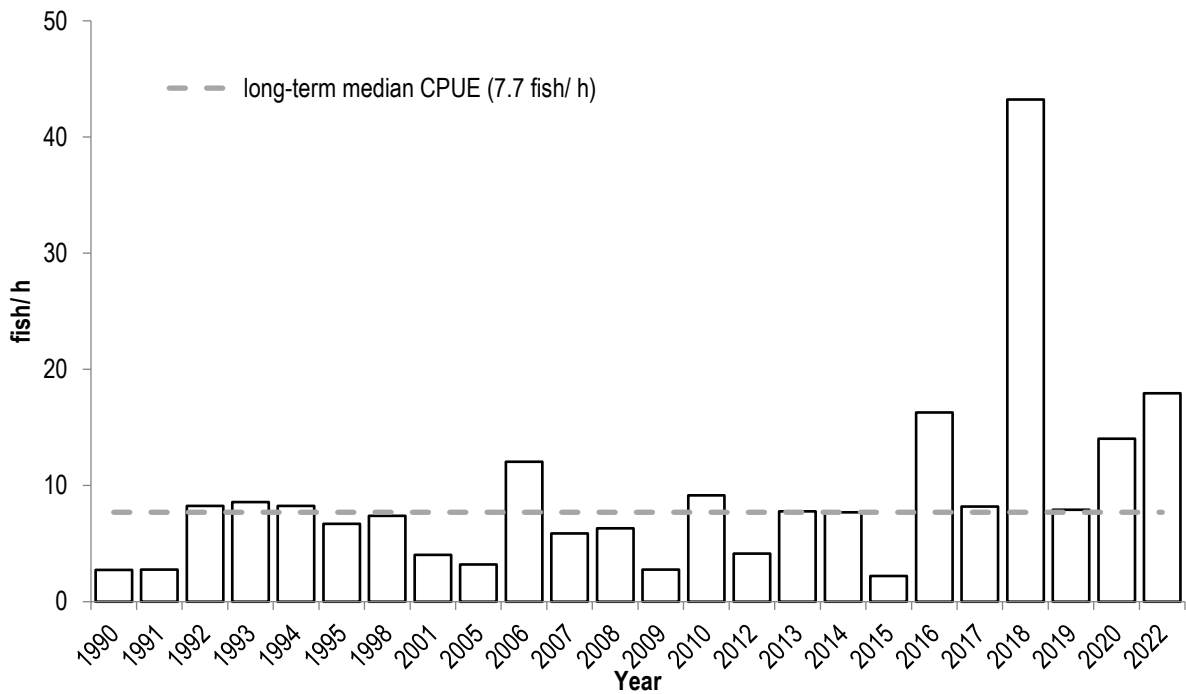


Figure 2. Boat electrofishing catch per unit effort (CPUE; fish/ h) of Smallmouth Bass 15 inches and longer at historic sites at the middle Susquehanna River from 1990 to present. Note annual gaps in time-series reflect years when surveys were not performed.