2023 Muskellunge Volunteer Angler Survey Summary:

The Maryland Department of Natural Resources Freshwater Fisheries Program would like to thank all of the 2023 Volunteer Angler Survey participants for providing information. These data assist the department with the management of the upper Potomac Muskellunge fishery. Recent trends in participation indicate that fewer anglers are participating in this survey. Given the lack of participation, a greater number of muskellunge are likely being caught and not reported. To encourage participation the development of an electronic reporting application was created in 2019. Anglers can save this app to any smartphone or personal computer and enter catch information electronically. For those who choose to continue with the paper copy, it can be printed here.

Additionally, the following incentives exist for each participant:

1) Entry into a prize lottery

2) A custom Maryland Muskie hat and sticker (upon request; email josh.henesy@maryland.gov)

3) An annual summary report that includes the most recent updates on muskie management

4) The opportunity to be actively involved in the management/data collection of Potomac River muskies

To fully participate, all trips must be entered including days where zero fish were caught
Recent data from the creel diary program indicates that anglers are only reporting successful outings. Not reporting unsuccessful trips where zero fish are caught artificially inflates the catch rate, which minimizes the ability to detect changes in the population.

Angling has proven to be a more efficient means of collecting data on muskellunge (Electrofishing = 34 muskellunge/year; Angling = 129 muskellunge/year). Since 2010, the Freshwater Fisheries Program has relied on volunteer angling as the primary means of obtaining data for Potomac River Muskellunge (Table 1). The program uses volunteer angler survey data to calculate catch rates (catch per hour or hours per fish) and size distribution estimates on an annual basis. Angler catch data have also provided much larger samples of tagged recaptures to determine movement, growth, and an overall recapture rate (46 percent). These data help indicate the health and density of the population. Consecutive years of lower catch rates and/or decreasing average size would suggest that overfishing or excess mortality/harvest may be occurring. Fisheries managers could then adjust regulations accordingly to assure a high-quality fishery is available for the angling public.

To continue monitoring these trends, we encourage all muskellunge anglers to consider participating in this survey!

Table 1. Summary of volunteer angler survey data (2010-2023)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
# Caught	94	205	226	168	212	180	119	110	141	128	94	41	37	45
Angler Hours	545	1413	2988	2633	2839	1771	1480	1546.5	1104.5	1425	839	296	541	539
Total Catch/Hr	0.17	0.15	0.08	0.06	0.07	0.10	0.08	0.07	0.13	0.09	0.11	0.14	0.07	0.08
# of Trips	67	172	295	321	378	332	286	183	132	192	142	54	81	75
Hours/Fish	5.9	6.7	12.5	15.7	13.5	9.8	12.4	14.1	7.8	11.5	8.9	7.2	14.6	11.9
Participant #	**5**	**10**	**15**	**16**	**15**	**13**	**12**	**12**	**11**	**25**	**33**	**21**	**11**	**9**
Recaptures	14	19	15	12	20	14	6	14	18	15	8	9	3	2
Percent Recaptures	14.9	9.3	6.6	7.1	9.4	7.8	5	12.7	12.8	11.7	8.5	22	8	4
Mean Length	36.4	35.4	36	36.8	36	36.1	37.1	36.5	35.2	37.2	36.5	38.2	36.8	37.6

The percentage of trophy muskellunge (42-50") reported from the 2023 catch data is well above the long-term average (Figure 1), indicating an increase in larger individuals available to the fishery. The proportion of 30-38" and 38-42" fish declined, which is likely a result of the consecutive years of poor reproduction from 2016-2019. Data indicates that the 2020–2022 year classes were successful. Those fish will be growing into the 30-38" size range by 2024. Anglers should expect a lower density but higher quality muskellunge fishery for the 2024 season.
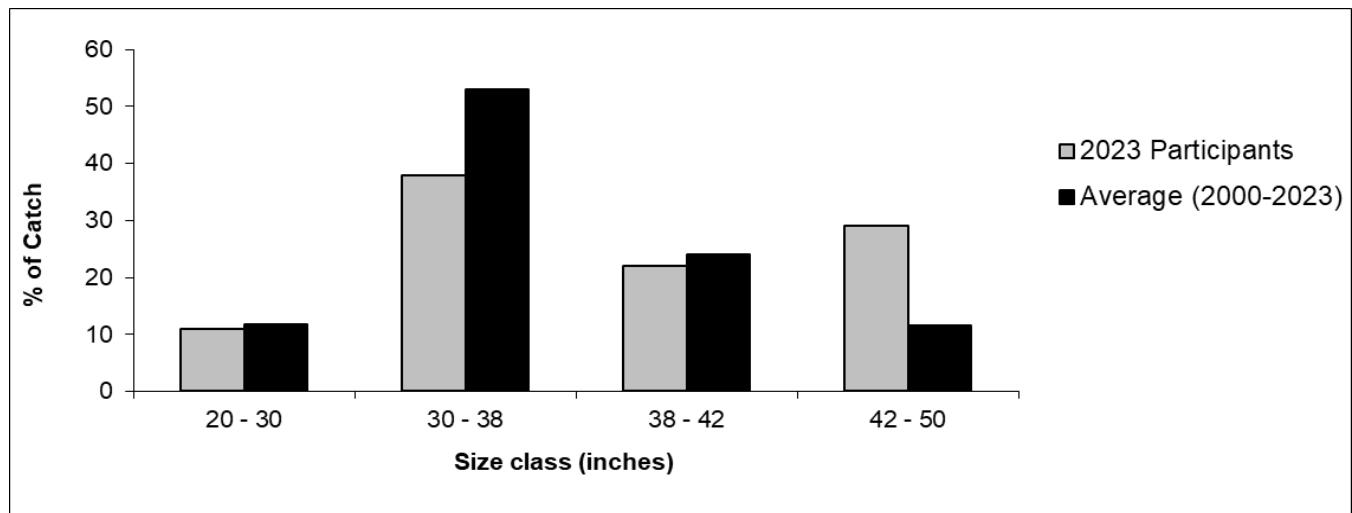

Figure 1. Incremental length-frequency distribution of angled Muskellunge from the volunteer angler diary program 2023 compared to the long-term average (2000-2023)

For information or questions regarding Potomac River Muskellunge contact Josh Henesy:

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