



Walleye Management and Fishing in Pennsylvania

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2005 (updated 2013; R. Lorantas)

Goal: Maintain or create robust targeted sport fisheries through preservation and enhancement of essential habitats, judicious stocking, and through harvest management of both wild walleye populations and populations maintained by stocking. Manage border-water walleye populations through cooperative inter-jurisdictional harvest management and stocking.

Walleye currently occur throughout Pennsylvania. Walleye were originally indigenous to the Ohio and Lake Erie Drainages in Pennsylvania. The Ohio drainage includes the Ohio River, Allegheny River, and Monongahela River drainages. Naturally sustained lake (lentic) and riverine (lotic) populations occur within these locations. It is believed that walleye did not originally occur in Atlantic slope drainages (Susquehanna, Potomac, and Delaware River drainages in Pennsylvania), however walleye have been widely stocked into the Susquehanna and Delaware River drainages for many years. Modest, naturalized (self-sustaining) walleye populations now occur in the Susquehanna River and Delaware River drainages.

Regardless of river drainage, where walleye populations occur at low or modest abundance levels and where habitats are expected to support greater densities, annual maintenance stocking takes place. Since 1975, Pennsylvania has cultured walleye fry and fingerling for maintenance stocking into a variety of waters. In the years from 2007 to 2012 an average of 22,389,00 fry and 947,300 fingerling have been stocked annually.

All walleye originate from brood fish collected from Pymatuning Lake or Lake Wallenpaupack. New Walleye Management plan guidelines require that all waters maintained or supplemented by stocking meet resource specific relative abundance levels to remain in the stocking program. Those waterways not meeting requisite abundance levels following maintenance stocking or where stocked walleye contribute less than 67% to the overall walleye population are removed from the stocking program. This approach insures cost effective use of walleye cultured by the Pennsylvania Fish and Boat Commission. Of equal or

greater importance is that this approach insures that anglers targeting walleye have good expectation of a successful fishing trip when angling on waters stocked with walleye.

In terms of angler demand walleye rank fourth behind trout, black bass and panfish among species targeted by anglers purchasing a fishing license in Pennsylvania. Thus stocking programs have sought to maintain and expand angling opportunities for this species as noted above.

Fisheries for saugeye, a fast growing, inter-specific hybrid between walleye and sauger have been sustained in the past through stocking and harvest management. Stocking of this hybrid no longer takes place in Pennsylvania, since survival of either parent stock has equaled or exceeded that of the hybrid in waters where both were released. Future stocking of this species is not anticipated.

Sport harvest limits and stocking represent the most widely applied techniques used by fishery managers in Pennsylvania to sustain and enhance walleye sport fisheries. Walleye spawning is initiated in early spring when water temperatures reach 45°F. Incubation duration is dependent upon the influence of the rate of spring warming on water temperature. Walleye spawn in 2 to 3 weeks at temperatures of 45°F to 50°F, inland waters variably reach these temperatures in late March or April.

For both walleye and saugeye, inland fishing is regulated with a closed season from mid-March through the first Saturday in May to accommodate walleye spawning. The minimum harvest size for walleye and saugeye is 15 inches with a maximum of 6 in daily possession (combined walleye and saugeye) as detailed in the Summary of Regulations and Laws. It requires in excess of 3 years for walleye (Table 1) and saugeye to attain the minimum size limit (Figure 1).

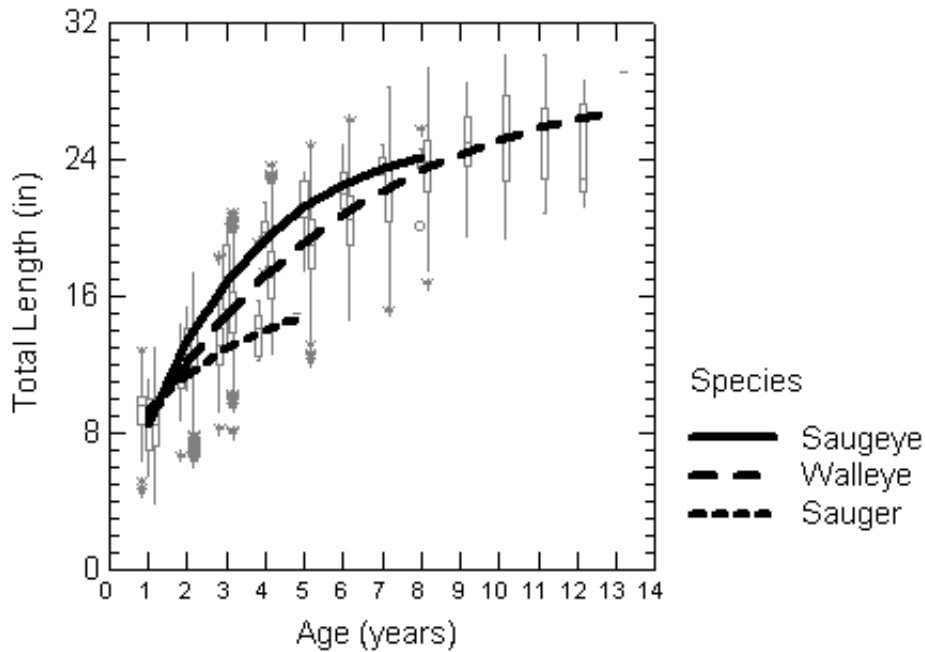


Figure 1. Average length of walleye, saugeye, and sauger collected by Fisheries Biologists in assessment gear in Pennsylvania (March - June).

In terms of popular border waters, Lake Erie's sport regulations have sometimes been more restrictive than statewide inland regulations, this occurs since management is carried out cooperatively with other jurisdictions bordering Lake Erie. Pennsylvania is one of 5 jurisdictions involved in managing Lake Erie walleye sport and commercial fisheries. The regulatory approach employs an adaptive management strategy, based upon Lake Erie stock abundance assessments. Annual abundance level changes, depending upon magnitude, can lead to annual change in commercial catch quotas and sport harvest creel limits. Sport anglers are apprised of prevailing harvest rules through an annual news release posted in mid-April of each year. Thus, healthy walleye populations on Lake Erie are sustained by cooperative annual sampling and stock assessments that allocate a total allowable catch (harvest) to each of 5 jurisdictions (Michigan, New York, Ohio, Ontario, and Pennsylvania). Each jurisdiction is responsible for regulating harvest such that they do not exceed their harvest allocation. In 2013 Pennsylvania will maintain harvest compliance with a 15 inch minimum size limit and 6 fish creel limit for sport anglers with a strict quota established for commercial harvest. A closed season is maintained on Lake Erie as on Inland waters, from mid-March through the first Saturday in April, similar to inland walleye harvest rules.

In other popular border waters such as Pymatuning Lake where walleye stocking largely sustains the walleye fishery, the season is opened year round with a 15 inch minimum size limit and 6 fish creel limit (walleye and saugeye combined) governing harvest. Again harvest rules are cooperatively and uniformly established by the states of Pennsylvania and Ohio.

Anglers must consult the current Summary of Regulations and Rules for walleye harvest rules applicable to other inland and border waters, since rules governing border waters often differ from statewide inland harvest regulations.

Table 1. Average weight and average age of walleye and saugeye at a given length (March - June).				
<i>Inches</i>	Walleye		Saugeye	
	<i>Pounds</i>	<i>Years</i>	<i>Pounds</i>	<i>Years</i>
4	0.1	< 0.1	0.1	0.3
4.5	0.1	< 0.1	0.1	0.4
5	0.1	< 0.1	0.1	0.4
5.5	0.1	0.1	0.1	0.5
6	0.1	0.3	0.1	0.6
6.5	0.1	0.4	0.1	0.7
7	0.1	0.5	0.1	0.8
7.5	0.1	0.6	0.1	0.8
8	0.1	0.8	0.1	0.9
8.5	0.2	0.9	0.2	1
9	0.2	1	0.2	1.1
9.5	0.2	1.2	0.2	1.2
10	0.3	1.3	0.3	1.3
10.5	0.3	1.5	0.3	1.4
11	0.4	1.6	0.4	1.5
11.5	0.5	1.8	0.4	1.6
12	0.5	2	0.5	1.7
12.5	0.6	2.1	0.6	1.8
13	0.7	2.3	0.7	1.9
13.5	0.8	2.5	0.8	2
14	0.9	2.7	0.9	2.2
14.5	1	2.9	1	2.3
15	1.1	3.1	1.1	2.4
15.5	1.2	3.3	1.2	2.6
16	1.4	3.5	1.3	2.7
16.5	1.5	3.7	1.5	2.9
17	1.7	3.9	1.6	3
17.5	1.8	4.2	1.8	3.2
18	2	4.4	2	3.4
18.5	2.2	4.7	2.2	3.6
19	2.4	4.9	2.4	3.8
19.5	2.6	5.2	2.6	4
20	2.8	5.5	2.8	4.3

20.5	3.1	5.8	3	4.6
21	3.3	6.2	3.3	4.9
21.5	3.6	6.5	3.6	5.2
22	3.9	6.9	3.8	5.6
22.5	4.2	7.3	4.1	6
23	4.5	7.7	4.5	6.5
23.5	4.8	8.2	4.8	7
24	5.2	8.7	5.1	7.7
24.5	5.6	9.2	...	...
25	5.9	9.8	...	...
25.5	6.3	10.5	...	...
26	6.7	11.3	...	...
26.5	7.2	12.2	...	...
27	7.6	13.2	...	...
27.5	8.1	14.5	...	...
28	8.6	16.2	...	...
28.5	9.1	18.5	...	...
29	9.7	> 18.5	...	...
29.5	10.2	> 18.5	...	...
30	10.8	> 18.5	...	...
30.5	11.4	> 18.5	...	...
31	12	> 18.5	...	...
31.5	12.7	> 18.5	...	...
32	13.4	> 18.5	...	...
32.5	14	> 18.5	...	...
33	14.8	> 18.5	...	...
33.5	15.5	> 18.5	...	...
34	16.3	> 18.5	...	...
34.5	17.1	> 18.5	...	...

With respect to Pennsylvania's inland and boundary waters, many are stocked with walleye to sustain good fishing. Why are some waters stocked and others not stocked; some stocked with fingerlings and others stocked with fry? All stocking plans originate from sampling and assessment of individual waters by fishery biologists. Biologists examine habitat suitability, forage fish density and presence of other gamefish predators. These characteristics guide biologists in making stocking decisions. Not only do they guide stocking decisions, they also guide the lifestage (fry vs. fingerling) to be stocked. Penn State Cooperative Fish and Wildlife researchers have found that densities of zooplankton in reservoirs and lakes in spring in Pennsylvania explain in excess of 80% of the variation in survival of fry (Peterson 1997). Although zooplankton production varies annually in Pennsylvania reservoirs and lakes, waters

that characteristically yield good fry survival have been identified and biologists allocate fry to those lakes. Water specific biologist assessments guide stocking decision making.

Why don't walleye sustain themselves at adequate densities in all Pennsylvania waterways in which they naturally occur or where they now naturally sustain themselves (have become naturalized)? Pennsylvania habitats have been variously modified and in some cases degraded within the native range of walleye, a notable modification includes installation of navigation dams throughout rivers of western Pennsylvania and the creation of large flood control reservoirs. Elsewhere impounding waters for flood control or hydro-power generation impedes spawning associated movements on flowing waters and changes spawning habitats by replacing riffles and runs with large pools. Walleye habitat changes, both favorable and less favorable have occurred both within and outside of walleye native range. Such change influences the quantity and quality of spawning and nursery habitats. Historically, water quality across Pennsylvania has also experienced some degradation due to mining, industrialization, and urbanization; laws such as the Federal Clean Water Act have served to improve water quality. Specifically, efforts to mitigate drainage of abandoned mine effluents into rivers and reductions in industrial and municipal pollutants along with seasonal operation of navigation locks to facilitate fish passage have led to a resurgence of some fish species, including walleye and sauger. Regular (annual) lock chamber fish sample monitoring in western Pennsylvania rivers have demonstrated a dramatic level of resurgence of these fish species, other PFBC assessment monitoring has demonstrated abundance changes elsewhere. Not all species have demonstrated increased abundance through time, water quality concerns, in some waterways, and in some seasonally important habitats, remain problematic, the PFBC and its partners continue to seek remediation where problems are apparent. With respect to walleye, water quality improvements have accommodated substantial increases in river walleye populations in western Pennsylvania in the past 30 years. Lorson and Smith (2004) have called attention to the presence of just one fish species in sampling activities at Maxwell Dam (Washington County) on the Monongahela River, in 1968; surveys in 2003 have revealed the presence of 26 species, including walleye, and numerous individuals of those species. The Pennsylvania Fish and Boat Commission is committed to sustaining continued improvements in water quality that enhance sportfishing. Water quality improvements have clearly occurred in large rivers and reservoirs across the Commonwealth, however improvement needs remain, and cumulative impacts of the past and present limit some species of fish, including sportfish. A comprehensive and historical synopsis of findings pertaining to Pennsylvania's western river fish populations and current PFBC management plans and goals are contained in the Three Rivers Management Plan. Historical fish abundance synopses for the Delaware River and Susquehanna River are

contained in the Delaware River and Susquehanna River Management Plans respectively.

Why review aquatic habitat characteristics that influence walleye abundance? For this species, statewide resurgence has been sufficient in Pennsylvania in recent decades such that in 2008 Fishery Biologists, by directive, cease stocking walleye in rivers and flowing waters across the Commonwealth. Cessation was also coupled with concerns about stocked walleye survival in river systems and their subsequent contribution to angler catch. In many cases stocking consisted of walleye fry. Following stocking cessation, walleye abundance tracking and monitoring continued and will continue. Specifications in the new Walleye Management Plan accommodate stocking resumption should walleye abundance decrease; and where Biologists demonstrate that stocking yields substantive changes or contributions to abundance. For example, resumption of stocking requires that stocked walleye receive a mark such that contribution of stocked walleye can be explicitly measured. Since all walleye are stocked as juveniles, both wild and stocked fish experience the same survival constraints imposed by weather (flow, temperature, etc...), predation, and other human induced influences that lead to fluctuation in survival of young from year to year. Thus, following stocking cessation or stocking resumption, follow-up monitoring is necessary and will continue. Overall walleye plan goals focus upon maintenance of acceptable walleye abundance by natural reproduction or stocking. Where maintenance by stocking occurs, contributions of stock walleye must meet Plan thresholds for continued stocking. This approach insures cost effective use of walleye cultured by the Pennsylvania Fish and Boat Commission. Of equal importance, this approach insures that juvenile walleye are stocked in waters where their survival is demonstrated to be sufficient such that anglers targeting walleye have high expectation of a successfully catching legal size fish when fishing waters stocked with walleye.

Catching walleye and saugeye can be accomplished from the shoreline or from the deck of a boat. Both casting and trolling are popular methods. A live minnow or night crawler alone, or in combination with a spinner, or jig is effective. Productive artificial baits include crankbaits spoons or spinners. Some boat anglers employ sophisticated depth controlled trolling with downriggers, planar boards, and diving planes. Whatever your bait choice, waters identified as containing walleye fisheries on our GIS maps will enhance your success. In addition surveys carried out by the Pennsylvania Fish and Boat Commission illustrate the number of fish caught per angler hour in medium reservoirs (Figure 2), large reservoirs (Figure 3) and rivers (Figure 4). These graphics indicate that catch rates are highest in spring and fall on large reservoirs and rivers, resource categories where walleye are most abundant. Winter fishing can be quite good although PFBC survey data is limited/lacking during that season on

most resource categories in Pennsylvania. As with most sportfish, walleye fishing success changes quite dramatically seasonally. Picking a season with high catch rates, a water identified as a “walleye water”, and talking to local tackle shop proprietors, consulting magazines like the Pennsylvania Angler and Boater, and talking to walleye anglers will maximize opportunities for success.

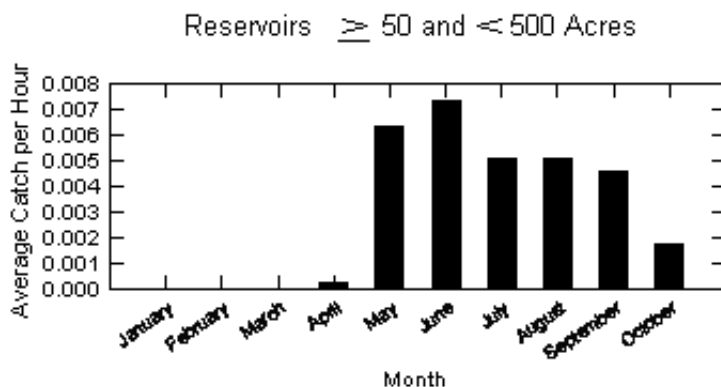


Figure 2. Average catch per angler hour of walleye from medium size Pennsylvania reservoirs. Angler surveys of waters containing saugeye do not exist.

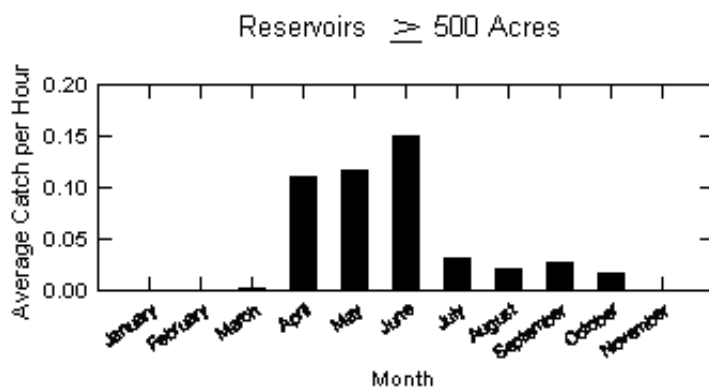


Figure 3. Average catch per angler hour of walleye from large size Pennsylvania reservoirs. Angler surveys of waters containing saugeye do not exist.

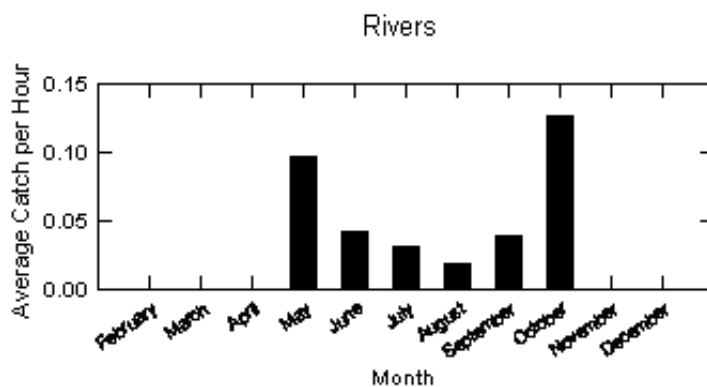


Figure 4. Average catch per angler hour of walleye from Pennsylvania rivers.

References

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