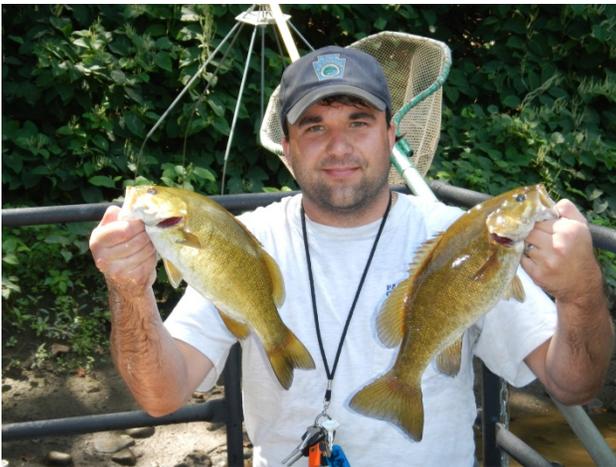


Executive Summary for Youghiogheny River Fisheries Management Plan 2015

The purpose of the 2012 and 2014 surveys of the Youghiogheny River was to evaluate water quality and fish species occurrence in Sections 02 through 06, assess the river's naturally reproducing gamefish populations (particularly Smallmouth Bass and Walleye), assess the results of fingerling stocking of Brown Trout and Rainbow Trout in Sections 02 to 05 (from the mouth of the Casselman River downstream to the dam at South Connellsville), assess the efficacy of annual Muskellunge stocking in Section 06 (from the dam at South Connellsville downstream to the mouth at McKeesport), and to update the fisheries management recommendations for the Youghiogheny River.



All of the section and site data for the Youghiogheny River sampled in 2012 and 2014 were improved over the historic sampling numbers for water quality, fish diversity, and fish abundance. Smallmouth Bass made up the bulk of the available fishery at all sites sampled in 2012 and 2014. The



water quality improvement was in large part due to the reduction of acid mine drainage from the Casselman River. This improvement in alkalinity was observed in the Youghiogheny River at Section 02 just below the mouth of the Casselman River, with an increase to 20 mg/l in 2012 from 11 mg/l in 1989. Section 03 (from the confluence of Ramcat Run downstream to the Route 381 Bridge at Ohiopyle) alkalinity improved from 13 mg/l in 1989 to 22 mg/l in 2012.

Recreational angling in the Youghiogheny River for a variety of species has increased over the last fifteen years based on local reports. A primary reason for this comes from the improved status of the Smallmouth Bass population in the river. The 2012 samples of Smallmouth Bass from Section 02, 03, and 04 all contained a viable quality component in 2012, whereas the 1994 and 1989 samples did not. Sections 05 and 06 also held very good Smallmouth Bass populations. The Section 06 abundance and quality indices in 2014 were also considerably higher than those of 1992. Although Big Bass abundance and quality guidelines were developed

from lakes, we consider a quality bass population to have total CPUE over 35/hr, CPUE > 300 mm (12 in) above 7/hr, and CPUE > 375 mm (15 in) above 2/hr. Sections 02, 04, 05, and 06 at Cedar Creek/Boston sites were all in exceedance of these guidelines. In comparison, the free flowing upper Allegheny River (RM 72 to 198) contains a quality Smallmouth Bass population with the average catch of bass > 300 mm (12 in) at 6/hr. The 2012 and 2014 Youghiogheny River, combined Sections 02 - 06 average CPUE > 300 mm (12 in) was about twice that at 12.06/hr. These data show that the Youghiogheny River is currently one of the best, if not the best, Smallmouth Bass free flowing river in western PA. Bass abundance and quality was good, however bass growth was slow and therefore this river would not be a candidate for more restrictive regulations.



Evidence of trout stemming from fingerling plants was documented in Sections 02, 03, and 05 during 2012 and 2014. Numbers captured during the survey were low, which was primarily a result of difficult sampling in fast, deep, and low conductivity water. Two to four times more Rainbow Trout were captured in 2012 compared to 1994. These trout also averaged much larger in 2012 than 1994 at 381 mm (15 in) and 240 mm (9.4 in), respectively. A similar quality component factor surfaced for Brown Trout in our 2012 sampling at the Section 03 Lick Run site. Similar numbers were captured between 2012 and 1994, but the average size Brown Trout was 408 mm (16.1 in) in 2012 versus 312 mm (12.3 in) in 1994. Compared to 1994, catch rates of quality-size Smallmouth Bass, Rainbow Trout, and Brown Trout in Sections 02, 03, and 04 were much higher in 2012.

The number of Rainbow Trout captured in our Youghiogheny River surveys has consistently been higher than Brown Trout regardless of sample year. Our sampling included the variety of habitats available in the river. Rainbow Trout consisted of 72 to 100 percent of the trout captured over the years. This suggests that Rainbow Trout survival in the Youghiogheny River is higher than Brown Trout. Fingerling stocking has been comprised of equal numbers of each species in each section. Starting in 2016, the fingerling stocking will be with 70 percent Rainbow Trout and 30 percent

Brown Trout. This should also serve to increase catch rates due to Rainbow Trout being easier to catch, but still provide a Brown Trout component to the fishery.

The number of Brown Trout and Rainbow Trout fingerlings stocked into the Youghiogheny River from 2003-2014 ranged from 60-130 fish/ac for each species, with Sections 02-04 having the highest stocking rates. These fingerlings averaged 50-125 mm (2-5 in) in length and are stocked in the spring. The PFBC stocks a higher density annually of these smaller size fingerlings recognizing that survival is likely lower than larger fingerlings. These stocked fingerling trout are primarily responsible for the very popular trout fishery in Section 03 managed with All-Tackle Trophy Trout. We have not been able to adequately determine the efficacy of this regulation due to difficult sampling conditions and small sample sizes. The 2012 versus 1994 sampling events point toward improvement of the trout population; however, the considerable water quality improvement that has occurred has to be considered as an important factor to the improvement in the trout population, rather than regulations alone.

Our 2012 and 2014 surveys included low numbers of trout captured from all sites where trout fingerlings are stocked, especially in Sections 02, 04, and 05. We would normally discontinue fingerling stocking with the low numbers sampled. However, the unique nature of the Youghiogheny River habitat and the difficulties encountered sampling this river likely resulted in considerably more fish being present than were sampled. We will at least hold that decision until we have some volunteer angler log book data from 2015 and 2016 as a secondary tool that may help to determine in which parts of the river trout are being caught and provide further guidance with future trout stocking.

In 2012, some anglers reported increased catches of Rainbow Trout 350-400 mm (14-16 in). The anglers' perceptions were that a relatively small plant of larger Rainbow Trout (mean length 200 mm; 8 in) in 2010 led to a much better fishery in 2012 and 2013 for these large Rainbows. Aging with scales from our 2012 sample yielded Rainbow Trout ranging from 350-425 mm (14-17 in) that were from four age classes including those from stockings in 2008, 2009, 2010, and 2011. Additional evidence that Rainbow Trout from the 2008, 2009, and 2010 year classes likely came from smaller fingerlings stocked comes from back calculated length at age 1 of 161 mm (6.3 in). The 200 mm (8 in) average Rainbow Trout stocked in 2010 were five percent of the total number stocked over those four years.

The PFBC stocked larger trout fingerlings up until about 1995. As described earlier, the more recent approach to stocking this tailwater fishery has been with higher numbers of smaller trout earlier in the year for a variety of reasons including that they have survived and created an attractive fishery especially in Sections 02 and 03, and a limited fishery in Section 04 and 05. An administrative decision was

made that beginning in 2015, 7,000 of the Rainbow Trout fingerlings will be stocked in Section 03 during the summer months as advanced fingerlings. There will be limited opportunity to evaluate any change in the size of fingerlings stocked outside of angler feedback, which has been limited to date. Clipping of fingerlings along with angler interviews may be considered in the future to evaluate survival and contribution to the fishery but is not feasible under current staffing levels.

Walleye stocking in Section 06 was discontinued in 2007. The 2014 sample from Section 06 included nine Walleye from the Cedar Creek/Boston site, ranging from length group 225 mm (9 in) to 650 mm (26 in). The 2014 sample included five year classes present in the sample. No walleye were collected in 1992 sampling at the Cedar Creek/Boston sites, with over seven years of Walleye stocking prior to that sampling. The 2014 survey demonstrates that natural reproduction of Walleye occurs in Section 06 with the potential to sustain a suitable standing stock to sustain the Walleye fishery.



Muskellunge are currently managed with supplemental stocking in Section 06. Sampling in 2014 yielded six fish with a range of sizes from the 225 mm (9 in) group up to one of legal size (over 1,016 mm; 40 in). This is considered a good catch in Area 8 as we rarely handle Muskellunge while doing river night electroboat sampling. Also, this was not a targeted Muskellunge survey, which likely would have yielded higher catches. We plan to continue to manage with supplemental stocking of Muskellunge in Section 06.

MANAGEMENT RECOMMENDATIONS:

1. Continue to manage Youghiogheny River, Sections 02 through 06 for their high quality naturally reproducing Smallmouth Bass populations with statewide regulations.
2. Continue to manage Sections 02 through 05 with the stocking of a combination of Rainbow Trout and Brown Trout fingerlings at rates listed in Table 2. The mix will be requested as 70 percent Rainbow Trout and 30 percent Brown Trout starting in 2016; instead of the current 50 percent for each species.
3. Starting in 2015, Section 03 will receive 7,000 advanced fingerling Rainbow Trout as part of the total Rainbow Trout fingerling allocation that will be stocked. The advanced fingerlings will be fin clipped to differentiate them from the smaller, early spring fingerlings. Continue to manage Section 03 under All-Tackle Trophy Trout Regulations.
4. Section 06 will continue to be managed for its warmwater and coolwater fishery with statewide regulations. Primary species include Smallmouth Bass, Rock Bass, Sauger, and Channel Catfish.
5. Muskellunge should continue to be stocked in Section 06 as they provide a targeted fishery.
6. Continue to highlight the Youghiogheny River fishery with an additional PFBC web report covering Sections 05 and 06, similar to the one prepared in 2012 for Sections 02, 03, and 04.
7. Work with the PFBC Access Coordinator to determine if public access can be improved in Sections 04 and 05.
8. A resurvey of Sections 02 through 05 should be considered for 2022. Section 06 should be resurveyed in 2024.
9. Conduct an angler use, harvest, and opinion survey on Youghiogheny River, Sections 02 and 03 between 2016 and 2020 if funding is available to hire creel clerks. This project cannot be completed with existing staff resources.
10. Continue to encourage Youghiogheny River trout anglers to participate in a log book program. Participation thus far has been poor. However, this is an important source of data especially if funds are not available for an agency led angler use and harvest survey.

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**Pennsylvania Fish & Boat Commission
Bureau of Fisheries
Division of Fisheries Management**

Youghiogheny River (19D and 19E)
Sections 02 through 06
Management Report

Prepared by: R.D. Lorson and M.A. Depew

Date Sampled: 2012 and 2014

Date Prepared: February 2015

Introduction

The Youghiogheny River (19D and 19E) flows in a northerly direction from its source on the Maryland-West Virginia border to its confluence with the Monongahela River in McKeesport, Allegheny County, PA. The river is impounded a few miles north of the Pennsylvania/Maryland border to form Youghiogheny River Lake, a U.S. Army Corps of Engineers (USACOE) impoundment that became fully operational in 1948, and is located near Confluence, PA approximately 120 km upriver of its mouth. The river is separated into six sections for fisheries management purposes (Table 1). The warmwater and coolwater fisheries of the entire Youghiogheny River are managed with Commonwealth Inland Waters regulations whereas the coldwater fisheries are managed by section with a variety of regulations as detailed below. The Pennsylvania Department of Environmental Protection (DEP) Chapter 93 designation for Youghiogheny River is High Quality - Cold Water Fishes (HQ-CWF) from Youghiogheny River Lake to Connell Run (at South Connellsville) and Warm Water Fishes (WWF) from Connell Run downstream to the mouth (PADEP 2005).

Coldwater releases from Youghiogheny River Lake provide for a coldwater/coolwater fishery in the river for 46 km from the dam outflow to South Connellsville, PA in Sections 01 - 05. A retrofitted, federally regulated hydroelectric plant is located on the downstream side of the dam and became operational in December 1989 (USACOE, Pittsburgh District 1991). The tunnel downstream of the USACOE gates had to be changed to allow water to pass through the power plant. A wheel gate was also added to the end of the tunnel. The tunnel is now pressurized along its entire length.

In January 1990, approximately one month after the Youghiogheny

Hydroelectric Project began operation, large fish kills occurred in the Youghiogheny tailwater (Section 01). The Federal Energy Regulatory Commission mandated the hydropower plant to study the cause of the fish mortality. In the resulting entrainment study, a total of 1,275,933 fish comprising 19 species were captured. Alewife *Alosa pseudoharengus* made up 99.4% of the total catch. The Pennsylvania Fish and Boat Commission (PFBC) introduced Alewife into Youghiogheny River Lake in 1987 as an additional forage species to benefit the piscivores. Mortality of entrained fishes was almost exclusively due to decompression trauma. RMC Environmental Services, Inc. (1992 -) stated that the installation of the turbines did not increase the pressure differential from the original discharge location (Corps' gates). They concluded that "entrainment of fish from the Youghiogheny Lake is a function of behavioral and genetic characteristics of species present, lake characteristics, and reservoir operations. As such, entrainment from the lake is independent of the project and therefore the project has no impact on the lake. Mortality to fish passing to the Youghiogheny River primarily results from decompression trauma, which would occur in the absence of the project. As such, the project has no impact to the river for fish experiencing decompression trauma.

The PFBC stated that a major shortcoming was that their study quantified mortality through only one of the three passage routes, i.e., the turbines (Young 1992). The data for mortality through the service gates and/or wheel gate were at best qualitative and provided virtually no information on the relative importance of each of these passage routes to mortality. Young (1992) also stated that the report oversimplified the water pressure changes that occur around and in the tunnel and turbines. Unfortunately, no further study was completed related to these issues.

Gas supersaturation conditions have also been documented in the Youghiogheny River tailwaters during the late summer (August and September) when the hydropower plant engages their aeration blowers to meet discharge minimum dissolved oxygen requirements of the Chapter 93 High Quality - Cold Water Fishes (HQ-CWF) designation. Since the summer of 1998, gas supersaturation has caused gas bubble disease in trout in the Chestnut Ridge Trout Unlimited cooperative cage culture nursery. Trout being raised in the rearing pens that are located in the outflow exhibited symptoms of gas bubble disease such as popeye and experienced excessive mortality.

As stated above, the Youghiogheny River is divided into six management sections. Section 01 begins at the Youghiogheny River Lake outflow (River Mile (RM) 75.19) and extends 1.79 km downstream to the mouth of the Casselman River (RM 74.08). This section is currently stocked by the PFBC with adult Brown Trout *Salmo trutta* and Rainbow Trout *Oncorhynchus mykiss* in preseason and inseason and includes a late summer stocking (September). Section 01 is heavily fished and very accessible to anglers with 100% of the section within 100 m of a road and 262 parking spaces

per km. Sixty-nine percent of Section 01 is publicly owned and 31 percent is privately owned and open to fishing. Section 01 is managed as an Approved Trout Water Open to Year Round Fishing.

Section 02 of the Youghiogheny River stretches from the mouth of the Casselman River in Confluence, PA to the mouth of Ramcat Run (Figure 1), a distance of 2.08 km (1.29 miles). Vehicle access to Section 02 is very good.

Section 03 flows through the upper reaches of Ohiopyle State Park from Confluence, PA to Ohiopyle, PA (Figure 2). Vehicular access is limited to either end only in this unique and picturesque gorge. Access for fishing is by walking, biking, raft, kayak, or canoe. The section is 14.78 km (9.18 miles) long from the mouth of Ramcat Run downstream to the Route 381 Bridge at Ohiopyle. Access for fishing to Sections 04 and 05 is also limited to walking, biking, raft, kayak, or canoe, except for the extreme uppermost and lowermost reaches at Ohiopyle, PA and South Connellsville, PA (Figures 3 and 4).

Section 04 is 18.06 km (11.22 miles) from the Route 381 Bridge at Ohiopyle downstream to the mouth of Indian Creek.

Section 05 flows from the mouth of Indian Creek to the low head dam at South Connellsville, a distance of 9.42 km (5.85 miles).

The initial fishery survey in Sections 02, 03, and 04 was conducted in September 1989 (Shervinskies and Lorson 1992). These sections have been managed with fingerling trout from 1973 to the present. Salmonid management is made possible by hypolimnetic releases from Youghiogheny River Lake. These sections have only been stocked with Brown Trout and Rainbow Trout since 2003 (Appendix A).

There are 44 km (27 miles) of coldwater fingerling trout management and stocking in Sections 02 to 05 under two different sets of regulations (Table 2). The trout fishery in Section 03, from the mouth of Ramcat Run downstream to the Route 381 Bridge at Ohiopyle, is managed with All Tackle Trophy Trout regulations. Sections 02, 04, 05, and 06 are managed for trout with a miscellaneous regulation allowing fishing for trout year round. The creel limits on these sections are five trout per day from Opening Day through Labor Day and three trout per day from the day after Labor Day to the following Opening Day of regular trout season. This was fashioned to allow trout angling when most other waters are closed and to allow harvest in waters stocked by private clubs in Section 06.

Section 06 of the Youghiogheny River is 73.9 km in length and begins at the low head dam at South Connellsville and extends downstream to the mouth (Figures 5 and 6). Section 06 is classified as Warm Water Fishes (WWF) by the DEP and provides high quality angling opportunities for warmwater/coolwater fish as well as boating and other recreational

activities. Current PFBC management of Section 06 includes providing a fishery for naturally reproducing gamefish and panfish species occurring in the river (Table 2) and stocking fingerling Muskellunge *Esox masquinongy* annually (Appendix A). Walleye *Sander vitreus* stocking was discontinued in Section 06 in 2007 as part of a statewide initiative to determine if natural reproduction can sustain the Walleye fishery in rivers (PFBC 2011) and will be discussed in this report.

The purpose of the 2012 and 2014 surveys was to evaluate water quality and fish occurrence in Sections 02 through 06, assess the river's gamefish populations, particularly Smallmouth Bass, assess the results of fingerling stocking of Brown Trout and Rainbow Trout in Sections 02 to 05, assess the efficacy of annual Muskellunge stocking in Section 06, assess the results of discontinued stocking of Walleye in Section 06, and to update the fisheries management approaches for the Youghiogheny River.

Methods

All assessments except for boat electrofishing were conducted according to Pennsylvania Fish and Boat Commission wadeable streams sampling protocols (Detar et al. 2011). For this survey, Sections 02, 03, 04 and 05 were surveyed using daytime boat electrofishing. These sections of river are unique and more difficult to sample fish than most others for a variety of reasons, so methods were based on professional experience and atypical compared to most PFBC river sampling. One site was surveyed in each of the four sections (Sections 02, 03, and 04 in 2012 with an electroraft and Section 05 in 2014 with an electroboat). Section 06 was sampled at four sites in 2014. Two of the Section 06 sites were sampled for the first time (Dawson and Layton) and two were a resurvey of previously established sites (Cedar Creek and Boston). The electrofishers were equipped with a 6000 watt generator and Smith Root electrofisher as the power source for pulsed DC output at approximately 10 amps. The electrofishing boats had fixed boom shockers and dropper style anodes. The sampling crew consisted of an operator and two netters. Section 01 was not surveyed as part of this report due to a temporary shutdown of the dam outlet required to perform the survey, and because that portion of the river is managed intensively for adult stocked trout.

Size structure indices of proportional stock density (PSD) and relative stock density (RSD) use the stock and quality sizes of Anderson (1980). Total annual mortality estimates were determined through catch curve regressions according to methods described by Ricker (1975). Lateral scales were pressed with an Ann Arbor Roller Press Model 110 onto acetate slides and the slide impressions were read with a Bausch and Lomb microprojector. Distances from foci, between anterior scale annuli, and to scale outer margins were determined using a Science Accessories Corporation Graf/Bar GP-7 Sonic Digitizer and S-7 Stylus and the PFBC Fish Management Utilities program (DOS platform). Scale age estimates and data will be used in this report since we were not able to collect

otoliths for more reliable age estimates. Descriptive statistics for fish population data were generated, in part, through the PFBC Resource First Portal. Maps of sampling locations were created using ArcMap/ArcGIS Desktop version 10.1.

Results

Water Quality

Sections 01 to 06 Water Quality Data. Water quality measures for Sections 02 through 06 collected in 2012 and 2014 are summarized in Table 3). Historical measures from 1989, 1992, 1994, and 2000 were included for comparison. Longitudinal comparisons for 2012 and 2014 depict an increasing trend in pH (6.7 to 7.2 S.U.) and alkalinity (20 mg/l to 50 mg/l) going from Section 02 just downstream of the Casselman River (RM 74.08) downstream to near the mouth at Section 06 (RM 3.09). The lowest pH came from Section 01 in 2000 at 6.4; and the lowest alkalinity was recorded in 1989 at Section 04 of 12 mg/l. The most striking differences between historic and recent water quality measures were with alkalinity where there were recent increases to over 20 mg/l for all sites indicating increased productivity throughout the river.

Fish

Section 02 Fish Data. Fish occurrence data was collected in 2012 and 1994 in Section 02 at the same site at RM 73.17 (Figure 1 and Table 4). Ten species were captured in 2012 and 12 species were captured in 1994. Eight species were captured in both years. Emerald Shiner *Notropis atherinoides*, hatchery Rainbow Trout, and Stonecat *Noturus flavus* were captured in 2012 and not in 1994; whereas Bluntnose Minnow *Pimephales notatus*, Common Carp *Cyprinus carpio*, Pumpkinseed *Lepomis gibbosus*, and Rosyface Shiner *Notropis rubellus* were captured in 1994 and not 2012.

Smallmouth Bass captured in 2012 ranged from the 50 mm to the 450 mm length groups (Table 5). The 1994 Smallmouth Bass catch included fish from the 50 mm to the 350 mm length groups. Smallmouth Bass Total Catch per Unit Effort (CPUE) was considerably higher in 2012 at 34.21/hr compared to 1994 at 6.92/hr. The quality indices of CPUE \geq 300 mm, CPUE \geq 375 mm, and RSD₃₇₅ were also much higher in 2012 versus 1994.

Using scales to estimate age, Smallmouth Bass ranged from 0+ to 9+ in Section 02 in 2012 (Table 6). The 2010 year class (Age 2+) was abundant, comprising 29% of the total Section 02 bass catch. Grand mean back calculated lengths for Section 02 Smallmouth Bass were below the state average for all age classes. Scale age data used for catch curve estimated annual mortality (A) in 2012 from Section 02 was 0.51 ($r^2 = 0.89$).

Two fingerling stocked and two adult hatchery Rainbow Trout were

captured from Section 02 in 2012, ranging from the 300 mm length group to the 425 mm length group (Table 7). A single 300 mm Rainbow Trout was captured at the same site in 1994.

Section 03 Fish Data. The same site in Section 03 was sampled using day boat electrofishing in 2012, 1994, and 1989 in the All Tackle Trophy Trout stretch downstream of the mouth of Lick Run. The 2012 Youghiogheny River Section 03 fish sample resulted in the capture of eight species, with the same species captured in 1994 (Table 8). These eight species were captured in all three sample years. The PFBC 1989 fish collection resulted in identification of 13 species for Section 03. Bluegill *Lepomis macrochirus*, Logperch *Percina caprodes*, Longnose Dace *Rhinichthys cataractae*, Rock Bass, and Walleye were captured in 1989, but not 2012 and 1994.

Smallmouth Bass were captured with day boat electrofishing in the highest abundance in 2012 from Section 03 with 39 individuals ranging between length groups 100 mm to 375 mm (Table 9). The mean total CPUE for Smallmouth Bass in 2012 was 26.00/hr, which was over five times higher than in 1994 and 1989. The quality indices of CPUE \geq 300mm, CPUE \geq 375 mm, and RSD₃₇₅ were all highest in 2012 of the three sample years.

Using scales to estimate age, Smallmouth Bass ranged from Age 1+ to 10+ in Section 03 in 2012 with Ages 2+, 3+, 4+, and 6+ having the highest abundance (Table 10). Mean backcalculated lengths for all age classes were below the state average. An estimate of annual mortality (A) from scale data and the catch curve for Smallmouth Bass from Section 03 was 0.32 ($r^2 = 0.78$).

Rainbow Trout captured from Section 03 in 2012 ranged from length groups 350 mm to 525 mm (Table 11). Rainbow Trout captured at this site were all larger than any of those collected in sampling in 1994 and 1989. The highest number captured was in 1989, but all were less than 300 mm. The quality indices of CPUE \geq 350 mm and CPUE \geq 500 mm were 7.99/hr and 0.67/hr, respectively.

The highest abundance of Brown Trout at Section 03 was encountered in 1989 at 18 fish (Table 12). However, the largest Brown Trout were sampled in 2012 from the 425 mm and 550 mm length groups. The quality indices for Brown Trout of CPUE \geq 350 mm and CPUE \geq 500 mm were 1.34/hr and 0.67/hr, respectively.

Rainbow Trout aged from scales ranged from 1+ to 6+ years old, with age 3+ having the highest abundance. Mean back calculated lengths were all higher than the statewide mean for all age groups estimated in 2012 (Table 13). The 2012 Brown Trout sample had age classes 2+ and 4+ represented in the catch (Table 14). Again, mean back calculated lengths were all higher than the statewide mean for all age groups of Brown Trout estimated in 2012.

Section 04 Fish Data. The same Section 04 site was sampled with day boat electrofishing at Indian Creek in 2012 and 1989. There were 15 fish species captured from Section 04 in 2012 and nine species in 1989 (Table 15). Six species were captured in both years. Nine species were captured in 2012 and not in 1989, while three species were captured in 1989 and not in 2012. Most notably, Rainbow and Brown Trout were sampled in 1989, but not in 2012.

The length distribution for Smallmouth Bass captured from Section 04 in 2012 ranged from 75 mm to 425 mm (Table 16). Total catch and total CPUE for 2012 was much higher than that of 1989. As with Sections 02 and 03, the quality indices (CPUE \geq 300 mm; CPUE \geq 375 mm; and RSD₃₇₅) for Section 04 were much higher in 2012 compared to 1989. There were no Smallmouth Bass over 375 mm captured in 1989, while 12 were collected over that length in 2012.

Smallmouth Bass aged from scales in 2012 included 73 fish ranging from Age 1+ to 11+ years (Table 17). Age class 2+ was the most abundant representing 41% of the sample. Mean backcalculated lengths in 2012 were below the state average for all age classes.

Our 2012 sample from Section 04 did not include any Rainbow Trout or Brown Trout; however one of each species was sampled in 1989 (Table 18).

Section 05 Fish Data. Vehicular and boat access was extremely difficult at the sample site located just above the South Connellsville Dam. We do not recommend sampling there in the future. There were 10 fish species sampled in Section 05, with Brown Trout, hatchery Rainbow Trout, and Smallmouth Bass represented in the catch (Table 19). This site also included our most upriver collection of redhorses, as River Redhorse *Moxostoma carinatum* was documented.

Day boat electrofishing resulted in capturing 83 Smallmouth Bass ranging from the 100 mm to the 400 mm length group (Table 20). The quality indices (CPUE \geq 300 mm, CPUE \geq 375 mm) for Smallmouth Bass from Section 05 in 2014 were the highest of any of Sections 02 through 06 and sites sampled during this survey.

Seventy-five Smallmouth Bass were aged with scales from Section 05 with ages ranging from Age 1+ to Age 10+ (Table 21). Ages 2+ and 4+ were the dominant age classes with 24% and 37% of the total aged catch, respectively. Mean backcalculated lengths at age were similar to upstream Sections and were below the statewide mean.

Six hatchery Rainbow Trout were sampled from Section 05 in 2014 (Table 22). The hatchery Rainbow Trout ranged from the 275 mm length group to the 350 mm length group.

Section 06 Physical and Chemical Data. Section 06 is managed for coolwater and warmwater fishes in contrast to Sections 01 through 05

that are managed for coldwater and coolwater fishes. Section 06 is also the longest Section at 74.93 km with a mean width of 103.75 m (Table 23). This Section flows through parts of Fayette, Westmoreland, and Allegheny Counties spanning from South Connellsville Dam to the mouth at the Monongahela River. Four sites in Section 06 were sampled during 2014. We refer to them from upstream to downstream as Dawson (RM 40.91); Layton (RM 31.85); Cedar Creek (RM 22.12); and Boston (RM 3.09) (Table 24). The Dawson and Layton sites were sampled for the first time in 2014. The Cedar Creek and Boston sites were historic sites previously sampled in 1992 and again in 2014.

In 2014, the four sites had pH's ranging from 7.2 to 7.5, and alkalinities ranging from 32 mg/l to 50 mg/l (Table 24). The highest alkalinity registered in Section 06 in 2014 came from the Boston site at 50 mg/l. The sites at Boston were sampled in 1992 and 2014, with total alkalinity increasing from 32 mg/l to 50 mg/l.

Section 06 Fish Data. There have been 52 fish species captured from all sampling events of Section 06 in the Youghiogheny River from 1986 to 2014 (Table 25). Twenty-five fish species were captured in 2014 and fifteen species were collected in 1992 (Table 26).

Resulting from similarities in habitat and water quality, we combined fish data for several species for the Dawson/Layton and Boston/Cedar Creek sites. The Smallmouth Bass catch of 184 individuals in 2014 at Boston/Cedar Creek ranged from length group 50 mm to 450 mm (Table 27), while those at the Dawson/Layton site ranged from 50 mm to 375 mm. The total CPUE at the Boston/Cedar Creek site was 67.95/hr and was slightly higher than that at Dawson/Layton at 60/hr. The quality indices for Smallmouth Bass of CPUE \geq 300 mm, CPUE \geq 375 mm, and RSD₃₇₅ were all higher at Boston/Cedar Creek than at Dawson/Layton. Those quality indices of CPUE \geq 300 mm and CPUE \geq 375 mm at Boston/Cedar Creek were also above the statewide Big Bass guidelines of 7/hr and 2/hr (lake indices), respectively.

The 2014 catch of Smallmouth Bass at the Boston/Cedar Creek site ranged from length group 75 mm to 350 mm (Table 28). All abundance and quality indices at these sites were considerably higher in 2014 compared to 1992. Smallmouth Bass at the Boston/Cedar Creek sites in 2014 ranged in age from 0+ (YOY) to age 11+ from scales, with the dominant age classes being 0+, 2+, and 4+ (Table 29). Statewide mean back calculated lengths were all below the statewide average. The Dawson/Layton site's Smallmouth bass estimated ages with scales ranged from Age 0+ to 9+, with ages 2+ and 4+ as the dominant ages (Table 30). Similarly, statewide mean back calculated lengths were all below the statewide average for the Dawson/Layton Smallmouth Bass.

Rock Bass at the Boston/Cedar Creek sites ranged from length group 25 mm to 225 mm; while those sampled from the Dawson/Layton site ranged from 100 mm to 225 mm (Table 33). The quality indices of CPUE $>$ 225 mm and

RSD₂₂₅ were higher at the Dawson/Layton site for Rock Bass. Rock Bass abundance was compared between surveys at Boston/Cedar Creek for 2014 and 1992 (Table 34). Overall abundance and quality indices for Rock Bass were much higher in 2014 than in 1992. Rock Bass from the Dawson/Layton site ranged from Age 2+ to 8+ from scales, with a dominant Age 2+ year class (Table 35). Ages 1+, 2+, and 8+ were below the state mean at age for this site, while other ages were at or above the state average. Rock Bass from the Boston/Cedar Creek site ranged from Age 0 to 8+ from scales, also with a dominant Age 2+ year class (Table 36). Ages 1+, 2+, 3+, and 8+ were below the state mean at age for this site, while other ages were at or above the state average.

Nine Walleye from 225 mm to 650 mm length groups were captured in 2014 from the Cedar Creek/Boston sites, with five of the nine over 525 mm. There were five year classes (0+, 2+, 5+, 7+, and 8+) represented in this Walleye catch. Similar numbers of Sauger *Sander canadensis* were captured in 2014 from the Dawson/Layton and Cedar Creek/Boston sites at nine and seven fish, respectively (Table 37). Likewise, the abundance and quality indices were comparable between sites in 2014 for Sauger. There were more legal length (≥ 300 mm) Sauger captured at the Boston/Cedar Creek site in 2014 compared to 1992 (Table 38).

Similar numbers of Channel Catfish *Ictalurus punctatus* were captured in 2014 from the Cedar Creek/Boston and Dawson/Layton sites at five and three fish, respectively (Table 39). Likewise, the abundance and quality indices were comparable between these sites in 2014 for Channel Catfish. There were five quality size Channel Catfish (≥ 400 mm) captured at the Boston/Cedar Creek site in 2014, compared to none in 1992 (Table 40).

Six Muskellunge were captured from Section 06 in 2014, with two captured in the Dawson/Layton site and four from the Cedar Creek/Boston site. These Muskellunge ranged from length group 225 mm to 1025 mm. The mean Muskellunge CPUE was 1.16/hr. One Muskellunge collected was above the minimum length limit of 1016 mm.

Sections 02 to 06 Smallmouth Bass Growth and Abundance Summary

Smallmouth Bass mean lengths at age were lower than the state average at all Sections and sites during our sampling in 2012 and 2014 (Table 31). The Cedar Creek/Boston site had the highest mean lengths at age for ages 1+ through 6+, whereas Section 02 had the highest mean lengths at age for ages 7+ and 8+. Estimates of total annual mortality (A) from catch curves ranged from a low of 0.14 at Section 04 and a high at Dawson/Layton and Section 02 of 0.52 and 0.51, respectively.

The overall river Smallmouth Bass abundance and quality indices were highest at the Section 05 site and lowest at the Section 03 Lick Run site (Table 32). The bass sample quality indices of CPUE > 300 mm and CPUE > 375 were also highest in Section 05, followed closely by Section 04.

Discussion

All of the section and site data for the Youghiogheny River sampled in 2012 and 2014 were improved over the historic sampling numbers for water quality, fish diversity, and fish abundance. Smallmouth Bass made up the bulk of the available fishery at all sites sampled in 2012 and 2014. U.S. Army Corps data from the lake outflow registered only a slight reduction in acidity and small increase in alkalinity from about 1990 to 2014. The water quality improvement was in large part due to the reduction of acid mine drainage in the Casselman River. PFBC data from the Casselman River at Harnedsville, PA showed alkalinities under 20 mg/l in the 1990's. Since the year 2000 alkalinity at that site has been over 30 mg/l. This improvement in alkalinity was observed in the Youghiogheny River at Section 02 just below the mouth of the Casselman, with an increase to 20 mg/l in 2012 from 11 mg/l in 1989. Section 03 alkalinity improved from 13 mg/l in 1989 to 22 mg/l in 2012. Aquatic life production improves considerably as alkalinity increases (Kwak and Waters 1997 and Scarnecchia and Bergersen 1987).

Recreational angling in the Youghiogheny River for a variety of species has increased over the last fifteen years based on local reports. A primary reason for this comes from the improved status of the Smallmouth Bass population in the river. The 2012 samples of Smallmouth Bass from Section 02, 03, and 04 all contained a viable quality component in 2012, whereas the 1994 and 1989 samples did not. Sections 05 and 06 also held very good Smallmouth Bass populations. The Section 06 abundance and quality indices in 2014 were also considerably higher than those of 1992. Although Big Bass abundance and quality guidelines were developed from lakes, we consider a quality bass population to have total CPUE over 35/hr, CPUE > 300 mm above 7/hr, and CPUE > 375 mm above 2/hr. Sections 02, 04, 05, and 06 at Cedar Creek/Boston sites were all in exceedance of these guidelines. In comparison, the free flowing upper Allegheny River (RM 72 to 198) contains a quality Smallmouth Bass population with the average catch of bass > 300 mm at 6/hr. The 2012 and 2014 Youghiogheny River, combined Sections 02 - 06 average CPUE > 300 mm was about twice that at 12.06/hr. These data show that the Youghiogheny River is currently one of the best, if not the best, Smallmouth Bass free flowing river in western PA.

Section 05 Smallmouth Bass quality indices were impressive. This may largely be the result of the high quality habitat in this section. The section is heavily fished due to its proximity to South Connellsville Rod and Gun Club. It is stocked with adult trout by the club. In addition, we noted lower quality habitat at the Section 06 Dawson/Layton sites where there were lower bass quality indices.

Although the Section 06 upper sites' (Dawson/Layton) bass abundance numbers were less than the downriver sites (Cedar Creek/Boston), the Smallmouth Bass numbers were good and a quality component was present

throughout Section 06. This is important as we have had concerns registered over the years from Waterways Conservation Officers and anglers about potential overharvest of bass in the Dawson/Layton area. There is a prevailing perception of bass overharvest here due to a busy campground and considerable number of commercial float trips occurring. The Dawson/Layton site did have the lowest Smallmouth Bass abundance and quality indices of all sites surveyed. Estimated total annual mortality was not excessive at 0.52 for this site and not that much higher than the Boston/Cedar Creek site at 0.44 or the six sites mean annual mortality of 0.37 in this survey. However, this was also the area of the worst physical habitat of the six sites reported. Additionally, there was evidence of some mine drainage on the substrate in this area. Still, poor habitat is believed to have played the primary role in this reduced abundance as the sites' water quality parameters were good (mean pH of 7.4 and alkalinity of 32 mg/l).

Interestingly, although the Smallmouth Bass numbers were lower at the Dawson/Layton site, it was the best site for Rock Bass population abundance and quality indices. Interspecific competition between Rock Bass and Smallmouth Bass would be less at this site, and the poor and relatively shallow habitat must not have impacted the Rock Bass as much. Both species were found to be similar in preference of prey types and the size selection of prey (Probst et. al. 1984). Those researchers also found a positive relationship between water depth and fish size for both species. There was a relatively high amount of overlap in the diet of Rock Bass and Smallmouth Bass in a pool of the New River, Virginia (Roell and Orth 1993). Therefore, reduced interspecific competition was a potential benefit to the Rock Bass at the Dawson/Layton site.

Although the Smallmouth Bass abundances were very good from our sampling, growth was generally poor. Mean lengths at age were lower than the state average across all six sites surveyed. This likely is affected by the coldwater release coming from Youghiogheny Dam and a lower overall forage supply. Growth of Smallmouth Bass in general was highest closest to the mouth from the Boston/Cedar Creek sites. This is likely due to the warmer water downstream and higher alkalinity at these sites. Interestingly, ages 7+ and 8+ mean length at age was higher at the Section 02 site at Confluence. This is likely due to the warmer water coming from the Casselman River at that site. We noted all bass captured at this site were on the Casselman River side of the river and all trout were on the Youghiogheny River side. This was an area where the warm water and the cold water had not yet mixed. Abundance of Smallmouth Bass was lower at the site in Section 03 at Lick Run which would have had the most influence from cold water. This Section 03 site also held the highest numbers of trout, providing evidence of the benefit of cold water.

Evidence of trout stemming from fingerling plants was documented from Sections 02, 03, and 05 during 2012 and 2014. Numbers captured during the survey were low, which was primarily a result of difficult sampling

in fast, deep, and low conductivity water. Two to four times more Rainbow Trout were captured in 2012 compared to 1994. These trout also averaged much larger in 2012 than 1994 at 381 mm and 240 mm, respectively. A similar quality component factor was documented for Brown Trout in our 2012 sampling at the Section 03 Lick Run site. Similar numbers were captured between 2012 and 1994, but the average size Brown Trout was 408 mm in 2012 and 312 mm in 1994. Compared to 1994, catch rates of quality-size Smallmouth Bass, Rainbow Trout, and Brown Trout in Sections 02, 03, and 04 were much higher in 2012.

The number of Brown Trout and Rainbow Trout fingerlings stocked into the Youghiogheny River from 2003-2014 ranged from 60-130 fish/ac for each species, with Sections 02-04 having the highest stocking rates. The number of Rainbow Trout captured in our Youghiogheny River surveys has consistently been higher than Brown Trout regardless of sample year. Our sampling traversed the variety of habitats available in the river. Rainbow Trout consisted of 72 percent to 100 percent of the trout captured over the years. This suggests that Rainbow Trout survival in the Youghiogheny River is higher than Brown Trout. Current fingerling stocking is with equal numbers of each species in each section. Starting in 2016, the fingerling stocking will be composed of 70 percent Rainbow Trout and 30 percent Brown Trout. This should also serve to increase catch rates due to Rainbow Trout being easier to catch, but still provide a Brown Trout component to the fishery.

Stocked fingerling trout are primarily responsible for the very popular trout fishery in Section 03 managed with All-Tackle Trophy Trout regulations. We have not been able to adequately determine the efficacy of this regulation due to difficult sampling conditions and small sample sizes. The 2012 versus 1994 sampling events point toward improvement of the trout population; however, the considerable water quality improvements that have occurred has to be considered as an important factor in the improvement in the trout population, rather than regulations alone.

Our 2012 and 2014 surveys included low numbers of trout captured from all sites where trout fingerlings are stocked, especially in Sections 02, 04, and 05. We would normally discontinue fingerling stocking with such low numbers collected. However, the unique nature of the Youghiogheny River habitat and the difficulties encountered sampling this river suggests that sampling considerably underestimates the density of fish present. We will therefore delay the decision on continued stocking of these sections until we have collected some volunteer angler log book data from 2015 and 2016.

In 2012, some anglers reported increased catches of Rainbow Trout 350 to 400 mm. The anglers' perceptions were that a relatively small plant of larger Rainbow Trout (mean length 200 mm) in 2010 led to a much better fishery in 2012 and 2013 for these large Rainbows compared to previous years. Ageing with scales from our 2012 sample yielded Rainbow Trout

ranging from 350 mm to 425 mm that were from four age classes, including those from stocking in 2008, 2009, 2010, and 2011. Additional evidence that Rainbow Trout from the 2008, 2009, and 2010 year classes likely came from smaller fingerlings stocked comes from back calculated length at age 1 of 161 mm. The 200 mm average Rainbow Trout stocked in 2010 were five percent of the total number of Rainbow Trout stocked over those four years. The PFBC stocked larger trout fingerlings up until about 1995. Our current approach to stocking this tailwater fishery has been with higher numbers of smaller trout earlier in the year. Rationale for this include: 1) they have survived and created an attractive fishery especially in Sections 02 and 03, and a limited fishery in Section 04 and 05 and 2) they have an opportunity to revert quickly to feeding more closely to that of a wild trout. An administrative decision was made that beginning in 2015, 7,000 of the Rainbow Trout fingerlings will be stocked in Section 03 during the summer months as advanced fingerlings at a size of about 150-200 mm. There will be limited opportunity to evaluate any change in the size of fingerlings stocked outside of angler feedback, which has been limited to date. Angler interviews along with the planned clipping of fingerlings may be considered in the future to try and evaluate survival and contribution to the fishery but is not feasible under current staffing levels. Stocking of larger fish has worked in some locations and examples include Wyoming and Wisconsin where researchers found that higher returns in streams occurred when larger sub-harvestable trout (< 225 mm) are stocked as compared to fingerlings (Wiley et. al. 1993; Brynildson et. al. 1966).

Although the density and quality size of Rainbow Trout increased from 1994 to 2012 in Section 03, the relative weight (W_r) decreased slightly from 108 to 99. While the relative weight was still very good in 2014 and based on a relatively small sample size of 10 fish, this is something we have to be aware of in future sampling as reduced W_r can suggest a density dependent factor on growth and condition (Anderson and Neumann 1996). Another factor in the overall density of trout in Sections 02 and 03 is that of the stocking of adult trout (> 225 mm) by the PFBC and Chestnut Ridge TU. Chestnut Ridge TU Cooperative Nursery, which raises trout at the dam outflow, stocked an average of 5,500 adult trout annually into the river and primarily into Section 03 from 2008 to 2012. The PFBC annually stocks 13,700 total adult trout into Section 01 of the Youghiogheny River, Section 07 of Laurel Hill Creek, and Section 02 of Whites Creek. These adult trout can easily move into the fingerling managed sections and bolster the overall trout density.

Walleye stocking in Section 06 was discontinued in 2007. The 2014 sample from Section 06 included nine Walleye from the Cedar Creek/Boston site, ranging from length group 225 mm to 650 mm. The 2014 sample included five year classes present in the sample. This was also at a mean water temperature from two sites of 15 °C, which is within the preferred fall sampling for Walleye temperature of 15 °C or below. No walleye were

collected in 1992 sampling at the Cedar Creek/Boston sites, with over seven years of Walleye stocking prior to that sampling. This does not provide the best comparison however, since the 1992 sample was in July and at higher water temperatures. Regardless, the 2014 survey demonstrates that natural reproduction of Walleye occurs in Section 06 with the potential to sustain a suitable standing stock for the Walleye fishery.

Muskellunge are currently managed with supplemental stocking in Section 06. Sampling in 2014 yielded six fish with a range of sizes from the 225 mm group up to one of legal size (over 1,016 mm). This is considered a good catch in Area 8 as we rarely handle Muskellunge while doing river night electroboat sampling. The PA Musky Plan (Woomer et. al. 2012) did not present a guideline for CPUE from night electrofishing as an evaluation tool due to lack of sufficient data. Also, this was not a targeted Muskellunge survey, which likely would have yielded higher catches. We plan to continue to manage with supplemental stocking of Muskellunge in Section 06.

The Smallmouth Bass fishery is very good in Sections 04 and 05, however access for fishing and boating to Sections 04 and 05 is severely limited. The hike/bike trail is about the only option for public access. There are two private access points that should be investigated for potential agreements for public access. We refer this aspect to the PFBC Access Coordinator for review.

Management Recommendations

1. Continue to manage Youghiogheny River, Sections 02 through 06 for their high quality naturally reproducing Smallmouth Bass populations with statewide regulations.
2. Continue to manage Sections 02 through 05 with the stocking of a combination of Rainbow Trout and Brown Trout fingerlings at rates listed in Table 2. The mix will be requested as 70 percent Rainbow Trout and 30 percent Brown Trout starting in 2016; instead of the current 50 percent for each species.
3. Starting in 2015, Section 03 will receive 7,000 advanced fingerling Rainbow Trout as part of the 44,600 total Rainbow Trout fingerlings that will be stocked. The advanced fingerlings will be fin clipped to differentiate them from the smaller, early spring fingerlings.
4. Section 06 will continue to be managed for its warmwater and coolwater fishery with statewide regulations. Primary species include Smallmouth Bass, Rock Bass, Sauger, and Channel Catfish.
5. Muskellunge should continue to be stocked in Section 06 as they provide a targeted fishery.
6. Continue to highlight the Youghiogheny River fishery with an additional PFBC web report covering Sections 05 and 06, similar to the one prepared in 2012 for Sections 02, 03, and 04.
7. Work with the PFBC Access Coordinator to determine if public access can be improved in Sections 04 and 05.
8. A resurvey of Sections 02 through 05 should be considered for 2022. Section 06 should be resurveyed in 2024.
9. Conduct an angler use, harvest, and opinion survey on Youghiogheny River, Sections 02 and 03 between 2016 and 2020 if funding is available to hire creel clerks. This project cannot be completed with existing staff resources.
10. Continue to encourage Youghiogheny River trout anglers to participate in a log book program. Participation thus far has been poor. However, this is an important source of data especially if funds are not available for an agency led angler use and harvest survey.

Literature Cited

- Anderson, R.O. 1980. Proportional stock density (PSD) and relative weight (W_r): Interpretive indices for fish populations and communities. Pages 27-33 in Gloss and Shupp, editors. Practical Fisheries Management: More With Less in the 1980's. New York Chapter American Fisheries Society. Cazenovia, New York.
- Anderson, R.O. and R.M. Neumann. 1996. Length, weight, and associated structural indices. Pages 447-482 in B.R. Murphy and D.W. Willis, editors. Fisheries techniques, 2nd edition. American Fisheries Society, Bethesda, MD.
- Brynildson, O., P. Degurse, and J. Mason. 1966. Survival, growth, and yield of stocked domesticated brown and rainbow trout fingerlings in Black Earth Creek. Wisconsin Conservation Department, Research report No. 18. Oshkosh, WI.
- Detar, J., R. Wnuk, R.T. Greene, and M. Kaufmann. 2011. Standard electrofishing protocols for sampling Pennsylvania wadeable streams. Pages 5-24 in D. Miko, editor. Sampling protocols for Pennsylvania's wadeable streams. Pennsylvania Fish and Boat Commission. Harrisburg, PA.
- Kwak, T. and T. Waters. 1997. Trout production dynamics and water quality in Minnesota streams. Transactions of the American Fisheries Society. 126:35-48.
- PA Fish and Boat Commission. 2011. A plan for the management of Pennsylvania's inland Walleye fisheries. PA Fish and Boat Commission files, 450 Robinson Lane, Bellefonte, PA.
- PA Department of Environmental Protection (PADEP). 2005. Pennsylvania Department of Environmental Protection, Chapter 93. Water quality standards. Bureau of Watershed Conservation. Division of Water Quality Assessment and Standards. Harrisburg, Pennsylvania.
- Probst, W., C. Rabeni, W. Covington, and R. Marteney. 1984. Resource use by stream-dwelling Rock Bass and Smallmouth Bass. Transactions of the American Fisheries Society. 113: 283-294.
- Ricker, W.E. 1975. Computation and Interpretation of Biological Statistics of Fish Populations. Fisheries Research Board of Canada. Bulletin 191.
- RMC Environmental Services. 1992. Final report-Study plan to assess the impact of power plant operations on fish resources, Youghiogheny hydroelectric project. D/R Hydro Company, Monroeville, PA.
- Roell, M. and D. Orth. 1993. Trophic basis of production of stream-

dwelling Smallmouth Bass, Rock Bass, and Flathead Catfish in relation to invertebrate bait harvest. Transactions of the American Fisheries Society. 122: 46-62.

Scarnecchia, D. and E. Bergersen. 1987. Trout production and standing crop in Colorado's small streams, as related to environmental features. North American Journal of Fisheries Management. 7: 315-330.

Shervinskie, T. and R. Lorson. 1992. Youghiogheny River (819E) management report, Sections 02-04. PA Fish and Boat Commission, Fisheries Management Area 8, Somerset, PA.

Wiley, R., R. Whaley, J. Satake, and M. Fowden. 1993. Assessment of stocking hatchery trout: a Wyoming perspective. North American Journal of Fisheries Management. 13: 160-170

U.S. Army Corps of Engineers (USACOE), Pittsburgh District. 1991. Youghiogheny River Lake tailwater fishery investigations, Fayette and Somerset counties, PA and Garrett County, MD. Pittsburgh, Pennsylvania.

Woomer, A., R. Lorantas, and B. Ensign. 2012. Plan for management of Muskellunge in Pennsylvania. PA Fish and Boat Commission, Fisheries Management Division, 450 Robinson Lane, Bellefonte, PA.

Young, L. 1992. Youghiogheny hydroelectric project draft entrainment study response letter to D.J. Barton, D/R Hydro. PA Fish and Boat Commission files, 450 Robinson Lane, Bellefonte, PA.

Table 1. Youghiogheny River (SubSubbasins 19E and 19D; Somerset and Fayette counties) current Sectioning strategy.

Section	Upper River Mile	Upper Section Limit Descriptor	Section Lat/Lon	Lower River Mile	Lower Section Limit Descriptor	Section Length in Km (Mi)
1	75.19	YOUGHIOGHENY RS OUTFLOW	394855/792154	74.08	MOUTH CASSELMAN R	1.79 (1.11)
Section Area in Ha (Ac): 11.78 (29.10)						
2	74.08	MOUTH CASSELMAN R	394939/792239	72.79	MOUTH RAMCAT RN	2.08 (1.29)
Section Area in Ha (Ac): 18.93 (46.77) 2012 Sample Site Descriptor: Just downstream Casselman River						
3	72.79	MOUTH RAMCAT RN	395214/792935	63.61	SR 0381 BRG AT OHIOPYLE	14.78 (9.18)
Section Area in Ha (Ac): 110.85 (273.92) 2012 Sample Site Descriptor: Lick Run						
4	63.61	SR 0381 BRG AT OHIOPYLE	395805/793045	52.39	MOUTH INDIAN CK	18.06 (11.22)
Section Area in Ha (Ac): 122.81 (303.47) 2012 Sample Site Descriptor: Indian Creek						
5	52.39	MOUTH INDIAN CK	395944/793539	46.54	CONNELLSVILLE DAM	9.42 (5.85)
Section Area in Ha (Ac): 88.55 (218.81) 2014 Sample Site Descriptor: South Connellsville						
6	46.54	CONNELLSVILLE DAM	402115/795214	0.00	MOUTH	74.93 (46.54)
Section Area in Ha (Ac): 777.40 (1,920.99) 2014 Sample Site Descriptors: Dawson, Layton, Cedar Creek, Boston						

Table 2. Current trout fingerling stocking densities requested for the Youghiogheny River, Sections 02 - 05. Sections 01 and 06 are not stocked with fingerlings.

Section Number	Section Length	Total Annual Stocking Rate (Brown Trout and Rainbow Trout Combined)
2	2.08 km (1.29 mi)	46.8 ac (205/ac)
3	14.78 km (9.18 mi)	273.8 ac (222/ac)
4	18.06 km (11.22 mi)	303.3 ac (247/ac)
5	9.42 km (5.85 mi)	218.7 ac (114/ac)

Table 3. Chemical and thermal analyses of the Youghiogheny River, Sections 01 - 06 for years from 1992 to 2014.

Site River Mile	Section	Site Date	Water Temp (°C)	pH (su)	Specific Conductance (umhos)	Total Alkalinity (mg/l)	Total Hardness (mg/l)
74.24	1	09/19/2000	19	6.4	131	17	42
73.17	2	08/22/2012	16	6.7	110	20	34
67.88	3	08/23/2012	17	7.0	153	22	52
67.88	3	09/16/1994	19	6.9	153	13	32
52.39	4	08/21/2012	20	7.3	174	22	54
52.39	4	09/21/1989	21.5	7.1	--	12	39
40.91	6	10/08/2014	18	7.5	190	32	61
31.85	6	10/14/2014	18	7.3	224	32	70
3.09	6	07/14/1992	29	7.2	366	32	116
3.06	6	10/15/2014	18	7.2	343	50	94

Table 4. Fish species captured from the Youghiogheny River, Section 02 (Downstream of Casselman River site), in 2012 and 1994.

Common Name	Scientific Name	2012	1994
Bluntnose Minnow	<i>Pimephales notatus</i>	--	X
Common Carp	<i>Cyprinus carpio</i>	--	X
Emerald Shiner	<i>Notropis atherinoides</i>	X	--
Greenside Darter	<i>Etheostoma blennioides</i>	X	X
Mottled Sculpin	<i>Cottus bairdii</i>	X	X
Northern Hog Sucker	<i>Hypentelium nigricans</i>	X	X
Pumpkinseed	<i>Lepomis gibbosus</i>	--	X
Rainbow Trout	<i>Oncorhynchus mykiss</i>	X	X
Rainbow Trout - Hatchery	<i>Oncorhynchus mykiss</i>	X	--
River Chub	<i>Nocomis micropogon</i>	X	X
Rock Bass	<i>Ambloplites rupestris</i>	X	X
Rosyface Shiner	<i>Notropis rubellus</i>	--	X
Smallmouth Bass	<i>Micropterus dolomieu</i>	X	X
Stonecat	<i>Noturus flavus</i>	X	--
White Sucker	<i>Catostomus commersonii</i>	X	X
	Total Species	10	12

Table 5. Length/frequency distribution and abundance statistics for Smallmouth Bass from Day Electroboat in the Youghiogheny River, Section 02, from sampling in 2012 and 1994.

Length Group (mm)	Sample Year			
	2012		1994	
	Catch	Mean CPUE	Catch	Mean CPUE
50	4	2.63	4	1.85
75	2	1.32	--	--
100	1	0.66	--	--
125	2	1.32	4	1.85
150	9	5.92	--	--
175	8	5.26	3	1.38
200	--	--	1	0.46
225	4	2.63	--	--
250	--	--	--	--
275	3	1.97	--	--
300	2	1.32	1	0.46
325	6	3.95	1	0.46
350	3	1.97	1	0.46
375	4	2.63	--	--
400	1	0.66	--	--
425	2	1.32	--	--
450	1	0.66	--	--
Totals	52	34.21	15	6.92
CPUE > 300 mm		12.51		1.38
CPUE > 375 mm		5.27		0.00
PSD		56		43
RSD (375 mm)		24		0
Total Effort (hours)	1.52		2.17	

Table 6. Age and Growth statistics for Smallmouth Bass from Day Electroboat in the Youghiogheny River, Section 02, from 2012.

Weighted Mean Length And Weight At Capture			Weighted By Additional Catch If Available		Intercept = 35								
Age	Number Aged	Year Class	Length (mm)	Weight (g)	Mean Length (mm) At Annulus								
					1	2	3	4	5	6	7	8	
0+	6	2012	68	3									
1+	6	2011	143	46	88								
2+	15	2010	185	94	82	130							
3+	4	2009	239	202	74	143	193						
4+	3	2008	300	345	86	124	175	242					
5+	5	2007	334	524	82	131	184	240	300				
6+	7	2006	361	629	79	136	184	244	290	331			
7+	4	2005	404	938	78	139	193	259	301	349	387		
8+	1	2004	426	1150	74	118	156	206	269	324	371	407	
9+	1	2003	462	1350	81	130	176	235	294	373	413	432	
Mean Back Calculated Lengths:					88	130	193	242	300	331	387	407	
Grand Mean Back Calculated Lengths:					81	133	184	243	294	339	389	420	
Minimum Back Calculation Length To Last Annulus:					59	98	156	206	240	273	371	407	
Maximum Back Calculation Length To Last Annulus:					103	167	225	278	323	380	413	432	
Annual Length Increments:					81	52	51	59	51	45	50	31	
GM Regression: $\log(\text{weight}) = u + v \cdot \log(\text{length})$,					u = -	v = 3.37	r = 0.99	n = 52					
					5.75								
Mean Condition Factor: $K = (\text{weight}/\text{length}^3) * X$, X=100,000					K = 1.33								
Statewide Mean Back Calculated Lengths:					103	173	229	277	326	369	402	0	

Table 7. Length/frequency distribution and abundance statistics for Rainbow Trout from Day Electroboat in the Youghiogheny River, Section 02, from sampling in 2012 and 1994. Hatchery catchable trout are designated with an "H". No Brown Trout to report.

Length Group (mm)	Sample Year			
	2012		1994	
	Catch	Mean CPUE	Catch	Mean CPUE
300	1 (H)	0.66	1	0.46
350	1 (H)	0.66	--	--
400	1	0.66	--	--
425	1	0.66	--	--
Totals	4	2.64	1	0.46
CPUE > 350 mm		1.98		0.00
CPUE > 500 mm		0.00		0.00
Total Effort (hours)	1.52		2.17	

Table 8. Fish species captured from the Youghiogheny River, Section 03 (Lick Run site), in 2012, 1994, and 1989.

Common Name	Scientific Name	2012	1994	1989
Bluegill	<i>Lepomis macrochirus</i>	--	--	X
Brown Trout	<i>Salmo trutta</i>	X	X	X
Greenside Darter	<i>Etheostoma blennioides</i>	X	X	X
Logperch	<i>Percina caprodes</i>	--	--	X
Longnose Dace	<i>Rhinichthys cataractae</i>	--	--	X
Mottled Sculpin	<i>Cottus bairdii</i>	X	X	X
Northern Hog Sucker	<i>Hypentelium nigricans</i>	X	X	X
Rainbow Trout	<i>Oncorhynchus mykiss</i>	X	X	X
River Chub	<i>Nocomis micropogon</i>	X	X	X
Rock Bass	<i>Ambloplites rupestris</i>	--	--	X
Smallmouth Bass	<i>Micropterus dolomieu</i>	X	X	X
Walleye	<i>Sander vitreus</i>	--	--	X
White Sucker	<i>Catostomus commersonii</i>	X	X	X
Total Species		8	8	13

Table 9. Length/frequency distribution and abundance statistics for Smallmouth Bass from Day Electroboat in the Youghiogheny River, Section 03 for sampling in 2012, 1994, and 1989.

Length Group (mm)	Sample Year					
	2012		1994		1989	
	Catch	Mean CPUE	Catch	Mean CPUE	Catch	Mean CPUE
100	1	0.67	--	--	1	0.23
125	2	1.33	1	0.52	--	--
150	2	1.33	2	1.03	1	0.23
175	1	0.67	1	0.52	4	0.87
200	1	0.67	1	0.52	6	1.22
225	10	6.67	--	--	--	--
250	6	4.00	2	1.03	--	--
275	2	1.33	2	1.03	3	0.64
300	3	2.00	--	--	--	--
325	5	3.33	--	--	--	--
350	3	2.00	--	--	--	--
375	3	2.00	--	--	--	--
400	--	--	--	--	1	0.23
Totals	39	26.00	9	4.66	16	3.42
CPUE > 300 mm		9.33		0.00		0.23
CPUE > 375 mm		2.00		0.00		0.23
PSD		47		33		29
RSD (375 mm)		9		0		7
Total Effort (hours)	1.50		1.93		4.82	

Table 10. Age and Growth statistics for Smallmouth Bass from Day Electroboat in the Youghiogheny River, Section 03, from 2012.

Weighted Mean Length And Weight At Capture			Weighted By Additional Catch If Available		Intercept = 35								
Age	Number Aged	Year Class	Length (mm)	Weight (g)	Mean Length (mm) At Annulus								
					1	2	3	4	5	6	7	8	
1+	1	2011	114	22	84								
2+	8	2010	198	133	96	149							
3+	6	2009	226	199	74	128	176						
4+	8	2008	252	252	80	120	164	210					
5+	3	2007	322	583	100	149	187	234	289				
6+	6	2006	329	540	81	127	184	229	269	306			
7+	2	2005	376	800	85	126	172	227	270	311	349		
9+	2	2003	349	596	86	116	156	188	218	242	277	304	
10+	1	2002	378	733	93	153	197	238	268	296	315	334	
Mean Back Calculated Lengths:					84	149	176	210	289	306	349		
Grand Mean Back Calculated Lengths:					85	132	175	219	266	294	313	314	
Minimum Back Calculation Length To Last Annulus:					66	101	135	172	211	241	271	289	
Maximum Back Calculation Length To Last Annulus:					117	180	222	294	352	332	359	334	
Annual Length Increments:					85	47	43	44	47	28	19	1	
GM Regression: $\log(\text{weight}) = u + v \cdot \log(\text{length})$,					u = -5.2	v = 3.16	r = 0.99	n = 37					
Mean Condition Factor: $K = (\text{weight}/\text{length}^3) * X$, X=100,000													K = 1.51
Statewide Mean Back Calculated Lengths:					103	173	229	277	326	369	402	0	

Table 11. Length/frequency distribution and abundance statistics for Rainbow Trout from Day Electroboat in the Youghiogheny River, Section 03, from sampling in 2012, 1994, and 1989.

Length Group (mm)	Sample Year					
	2012		1994		1989	
	Catch	Mean CPUE	Catch	Mean CPUE	Catch	Mean CPUE
125	--	--	1	0.52	--	--
150	--	--	--	--	4	0.90
175	--	--	3	1.55	6	1.25
200	--	--	1	0.52	14	3.12
225	--	--	1	0.52	9	1.90
250	--	--	--	--	4	0.77
275	--	--	--	--	4	0.77
350	2	1.33	--	--	--	--
375	5	3.33	--	--	--	--
400	2	1.33	--	--	--	--
450	2	1.33	--	--	--	--
525	1	0.67	--	--	--	--
Totals	12	7.99	6	3.11	41	8.72
CPUE > 350 mm		7.99		0.00		0.00
CPUE > 500 mm		0.67		0.00		0.00
Total Effort (hours)	1.50		1.93		4.82	

Table 12. Length/frequency distribution and abundance statistics for Brown Trout from Day Electroboat in the Youghiogheny River, Section 03, from sampling in 2012, 1994, and 1989.

Length Group (mm)	Sample Year					
	2012		1994		1989	
	Catch	Mean CPUE	Catch	Mean CPUE	Catch	Mean CPUE
200	--	--	--	--	2	0.45
225	--	--	--	--	4	0.87
250	1	0.67	--	--	3	0.61
275	--	--	--	--	3	0.61
300	--	--	1	0.52	3	0.61
325	--	--	1	0.52	3	0.61
425	1	0.67	--	--	--	--
550	1	0.67	--	--	--	--
Totals	3	2.01	2	1.04	18	3.76
CPUE > 350 mm		1.34		0.00		0.00
CPUE > 500 mm		0.67		0.00		0.00
Total Effort (hours)	1.50		1.93		4.82	

Table 13. Age and Growth statistics for Rainbow Trout from Day Electroboat in the Youghiogheny River, Section 03, for 2012.

Weighted Mean Length And Weight At Capture			Weighted By Additional Catch If Available		Intercept = 35								
Age	Number Aged	Year Class	Length (mm)	Weight (g)	Mean Length (mm) At Annulus								
					1	2	3	4	5	6	7	8	
1+	1	2011	382	550	251								
2+	2	2010	379	600	181	274							
3+	5	2009	402	730	138	235	318						
4+	2	2008	447	1100	138	221	302	368					
6+	1	2006	529	1200	188	309	390	440	483	511			
Mean Back Calculated Lengths:					251	274	318	368		511			
Grand Mean Back Calculated Lengths:					161	247	323	392	483	511			
Minimum Back Calculation Length To Last Annulus:					123	202	282	366	483	511			
Maximum Back Calculation Length To Last Annulus:					251	309	390	440	483	511			
Annual Length Increments:					161	86	76	69	91	28			
GM Regression: $\log(\text{weight}) = u + v \cdot \log(\text{length})$,					u = -4.34	v = 2.76	r = 0.92	n = 11					
Mean Condition Factor: $K = (\text{weight}/\text{length}^3) * X, X=100,000$									K = 1.09				
Statewide Mean Back Calculated Lengths:					109	169	209	238	333	0	0	0	

Table 14. Age and Growth statistics for Brown Trout from Day Electroboat in the Youghiogheny River, Section 03, for 2012.

Weighted Mean Length And Weight At Capture			Weighted By Additional Catch If Available		Intercept = 35								
Age	Number Aged	Year Class	Length (mm)	Weight (g)	Mean Length (mm) At Annulus								
					1	2	3	4	5	6	7	8	
2+	2	2010	350	661	176	261							
4+	1	2008	572	2350	171	380	472	532					
Mean Back Calculated Lengths:						261		532					
Grand Mean Back Calculated Lengths:					174	301	472	532					
Minimum Back Calculation Length To Last Annulus:					140	196	472	532					
Maximum Back Calculation Length To Last Annulus:					211	380	472	532					
Annual Length Increments:					174	127	171	60					
GM Regression: $\log(\text{weight}) = u + v \cdot \log(\text{length})$,					u = -5.47	v = 3.21	r = 1	n = 3					
Mean Condition Factor: $K = (\text{weight}/\text{length}^3) * X, X=100,000$								K = 1.2					
Statewide Mean Back Calculated Lengths:					116	186	246	302	361	434	521	569	

Table 15. Fish species captured from the Youghiogheny River, Section 04 (Indian Creek site), in 2012 and 1989.

Common Name	Scientific Name	2012	1989
Brown Trout	<i>Salmo trutta</i>	--	X
Creek Chub	<i>Semotilus atromaculatus</i>	X	--
Emerald Shiner	<i>Notropis atherinoides</i>	X	--
Greenside Darter	<i>Etheostoma blennioides</i>	X	X
Largemouth Bass	<i>Micropterus salmoides</i>	X	--
Logperch	<i>Percina caprodes</i>	X	--
Longnose Dace	<i>Rhinichthys cataractae</i>	--	X
Mimic Shiner	<i>Notropis volucellus</i>	X	--
Mottled Sculpin	<i>Cottus bairdii</i>	X	X
Northern Hog Sucker	<i>Hypentelium nigricans</i>	X	X
Pumpkinseed	<i>Lepomis gibbosus</i>	X	--
Rainbow Trout	<i>Oncorhynchus mykiss</i>	--	X
River Chub	<i>Nocomis micropogon</i>	X	X
Rock Bass	<i>Ambloplites rupestris</i>	X	X
Smallmouth Bass	<i>Micropterus dolomieu</i>	X	X
Stonecat	<i>Noturus flavus</i>	X	--
Striped Shiner	<i>Luxilus chrysocephalus</i>	X	--
White Sucker	<i>Catostomus commersonii</i>	X	--
	Total Species	15	9

Table 16. Length/frequency distribution and abundance statistics for Smallmouth Bass from Day Electroboat in the Youghiogheny River, Section 04, for sampling in 2012 and 1989.

Length Group (mm)	Sample Year			
	2012		1989	
	Catch	Mean CPUE	Catch	Mean CPUE
75	2	1.33	--	--
100	8	5.33	--	--
125	4	2.67	--	--
150	9	6.00	--	--
175	8	5.33	4	2.35
200	8	5.33	2	1.18
225	3	2.00	2	1.18
250	4	2.67	3	1.76
275	5	3.33	1	0.59
300	5	3.33	2	1.18
325	5	3.33	--	--
350	1	0.67	1	0.59
375	6	4.00	--	--
400	5	3.33	--	--
425	1	0.67	--	--
Totals	74	49.33	15	8.82
CPUE > 300 mm		15.33		1.77
CPUE > 375 mm		8.00		0.00
PSD		45		20
RSD (375 mm)		24		0
Total Effort (hours)	1.50		1.70	

Table 17. Age and Growth statistics for Smallmouth Bass from Day Electroboat in the Youghiogheny River, Section 04, for 2012.

Weighted Mean Length And Weight At Capture			Weighted By Additional Catch If Available		Intercept = 35								
Age	Number Aged	Year Class	Length (mm)	Weight (g)	Mean Length (mm) At Annulus								
					1	2	3	4	5	6	7	8	
1+	10	2011	113	22	77								
2+	30	2010	178	91	84	128							
3+	6	2009	262	288	71	141	209						
4+	9	2008	290	384	78	121	186	246					
5+	3	2007	305	394	72	121	163	220	270				
7+	5	2005	360	690	87	132	178	220	262	302	340		
8+	3	2004	394	917	84	127	177	230	275	323	355	379	
9+	3	2003	401	950	116	160	196	239	276	315	340	368	
10+	3	2002	427	1183	92	125	165	219	271	316	339	366	
11+	1	2001	402	1000	79	100	133	193	225	263	300	325	
Mean Back Calculated Lengths:					77	128	209	246	270		340	379	
Grand Mean Back Calculated Lengths:					83	130	185	232	270	312	343	371	
Minimum Back Calculation Length To Last Annulus:					58	79	133	181	225	263	300	325	
Maximum Back Calculation Length To Last Annulus:					187	210	269	306	316	351	378	395	
Annual Length Increments:					83	47	55	47	38	42	31	28	
GM Regression: $\log(\text{weight}) = u + v \cdot \log(\text{length})$,					u = -4.92	v = 3.03	r = 1	n = 73					
Mean Condition Factor: $K = (\text{weight}/\text{length}^3) * X, X=100,000$										K = 1.46			
Statewide Mean Back Calculated Lengths:					103	173	229	277	326	369	402	0	

Table 18. Length/frequency distribution and abundance statistics for Rainbow Trout (RT) and Brown Trout (BT) from Day Electroboat in the Youghiogheny River, Section 04, from sampling in 2012 and 1989.

Length Group (mm)	Sample Year			
	2012		1989	
	Catch	Mean CPUE	Catch	Mean CPUE
225	--	--	1 (BT)	0.59
275	--	--	1 (RT)	0.59
Totals	0	0.00	2	1.18
CPUE > 350 mm		0.00		0.00
CPUE > 500 mm		0.00		0.00
Total Effort (hours)	1.50		1.70	

Table 19. Fish species collected from the Youghiogheny River, Section 05 (South Connellsville site), in 2014.

Common Name	Scientific Name
Bluntnose Minnow	<i>Pimephales notatus</i>
Brown Trout	<i>Salmo trutta</i>
Mimic Shiner	<i>Notropis volucellus</i>
Northern Hog Sucker	<i>Hypentelium nigricans</i>
Rainbow Trout - Hatchery	<i>Oncorhynchus mykiss</i>
River Chub	<i>Nocomis micropogon</i>
River Redhorse	<i>Moxostoma carinatum</i>
Rock Bass	<i>Ambloplites rupestris</i>
Smallmouth Bass	<i>Micropterus dolomieu</i>
White Sucker	<i>Catostomus commersonii</i>
Total Species	10

Table 20. Length/frequency distribution and abundance statistics for Smallmouth Bass from Day Electroboat in the Youghiogheny River, Section 05, from sampling in 2014.

2014		
Length Group (mm)	Catch	Mean CPUE
100	1	1.31
125	5	6.53
150	13	10.29
175	5	4.30
200	7	6.17
225	7	6.17
250	14	13.08
275	8	7.47
300	5	4.30
325	5	5.04
350	5	5.04
375	6	7.09
400	2	1.87
Totals	83	78.64
CPUE > 300 mm		23.34
CPUE > 375 mm		8.96
PSD		36
RSD (375 mm)		13
Total Effort (hours)	1.27	

Table 21. Age and Growth statistics for Smallmouth Bass from Day Electroboat in the Youghiogheny River, Section 05, for 2014.

Weighted Mean Length And Weight At Capture			Weighted By Additional Catch If Available		Intercept = 35								
Age	Number Aged	Year Class	Length (mm)	Weight (g)	Mean Length (mm) At Annulus								
					1	2	3	4	5	6	7	8	
1+	2	2013	129	54	79								
2+	18	2012	163	70	79	122							
3+	6	2011	233	198	82	141	188						
4+	28	2010	257	250	80	123	178	225					
5+	6	2009	318	429	72	131	186	251	296				
6+	2	2008	356	687	77	129	176	236	293	332			
7+	4	2007	357	660	78	121	165	209	263	314	341		
8+	5	2006	385	809	74	132	176	228	269	303	341	369	
9+	3	2005	371	629	70	116	156	194	242	276	312	337	
10+	1	2004	396	910	93	140	188	233	287	310	326	348	
Mean Back Calculated Lengths:					79	122	188	225	296	332	341	369	
Grand Mean Back Calculated Lengths:					78	126	178	226	275	305	333	356	
Minimum Back Calculation Length To Last Annulus:					57	102	130	176	226	245	299	332	
Maximum Back Calculation Length To Last Annulus:					106	176	263	324	334	373	390	404	
Annual Length Increments:					78	48	52	48	49	30	28	23	
GM Regression: $\log(\text{weight}) = u + v \cdot \log(\text{length})$,					u = -4.28	v = 2.77	r = 0.99	n = 75					
Mean Condition Factor: $K = (\text{weight}/\text{length}^3) * X, X=100,000$					K = 1.48								
Statewide Mean Back Calculated Lengths:					103	173	229	277	326	369	402	0	

Table 22. Length/frequency distribution and abundance statistics for hatchery Rainbow Trout from Day Electroboat in the Youghiogheny River, Section 05, from sampling in 2014.

Hatchery Rainbow Trout		2014
Length Group (mm)	Catch	Mean CPUE
275	1	0.79
300	2	1.57
325	2	1.57
350	1	0.79
Totals	6	4.72
CPUE > 350 mm	1	0.79
CPUE > 500 mm	--	--
Total Effort (hours)	1.27	

Table 23. Physical information from the Youghiogheny River, Section 06.

Section Parameter	Parameter Value
Physical and General Data	
Gradient Information (m/km)	Topographic Map - 0.7
Chapter 93 Classification	WWF
Section Length (km)	74.93
Section Length (mi)	46.46
Current Section Mean Width (m)	103.75
Current Section Mean Width (ft)	340.3
Section Area (ha)	777.40
Section Area (acres)	1920.17
Location Data	
County Location	Allegheny-28%, Westmoreland-30%, Fayette-42%
Pennsylvania U.S.G.S. 7.5 min Quadrangle(s)	Connellsville; Mckeesport; South Connellsville; Donora; Dawson
PFBC WCO Information	2033(SW): Johnson, Michael; 2039(SW): Opfer, Scott D.
Section Information	
Upper Limit Latitude	39° 59' 44"
Upper Limit Longitude	79° 35' 39"
Upper Limit River mile	46.54
Upper Limit Description	CONNELLSVILLE DAM
Lower Limit Latitude	40° 21' 15"
Lower Limit Longitude	79° 52' 14"
Lower Limit Rivermile	0
Lower Limit Description	MOUTH

Table 24. Chemical-thermal analyses of the Youghiogheny River, Section 06, for 1992 and 2014.

River Mile	Section	Site Date	Water Temp (C)	pH (su)	Specific Conductance (umhos)	Total Alkalinity (mg/l)	Total Hardness (mg/l)
40.91	6	10/8/2014	18	7.5	190	32	61
Site Descriptor: Dawson (New Site for 2014)							
31.85	6	10/14/2014	18	7.3	224	32	70
Site Descriptor: Layton (New Site for 2014)							
3.09	6	7/14/1992	29	7.2	366	32	116
3.09	6	10/15/2014	18	7.2	343	50	94
Site Descriptor: Boston (Historic Site)							

Table 25. Fish species occurrence from the Youghiogheny River, Section 06. This list is reflective of all sites surveyed through time.

Common Name	Scientific Name
Banded Darter	<i>Etheostoma zonale</i>
Black Crappie	<i>Pomoxis nigromaculatus</i>
Black Redhorse	<i>Moxostoma duquesnei</i>
Bluegill	<i>Lepomis macrochirus</i>
Bluntnose Minnow	<i>Pimephales notatus</i>
Brown Bullhead	<i>Ameiurus nebulosus</i>
Central Stoneroller	<i>Campostoma anomalum</i>
Channel Catfish	<i>Ictalurus punctatus</i>
Channel Darter	<i>Percina copelandi</i>
Common Carp	<i>Cyprinus carpio</i>
Common Shiner	<i>Luxilus cornutus</i>
Emerald Shiner	<i>Notropis atherinoides</i>
Fantail Darter	<i>Etheostoma flabellare</i>
Flathead Catfish	<i>Pylodictis olivaris</i>
Freshwater Drum	<i>Aplodinotus grunniens</i>
Gizzard Shad	<i>Dorosoma cepedianum</i>
Golden Redhorse	<i>Moxostoma erythrurum</i>
Green Sunfish	<i>Lepomis cyanellus</i>
Greenside Darter	<i>Etheostoma blennioides</i>
Johnny Darter	<i>Etheostoma nigrum</i>
Lampetra species	<i>Lampetra</i>
Largemouth Bass	<i>Micropterus salmoides</i>
Lepomis Hybrids	<i>Lepomis</i>
Logperch	<i>Percina caprodes</i>
Longnose Gar	<i>Lepisosteus osseus</i>
Mimic Shiner	<i>Notropis volucellus</i>
Mooneye	<i>Hiodon tergisus</i>
Muskellunge	<i>Esox masquinongy</i>

Table 25. Continued.

Northern Hog Sucker	<i>Hypentelium nigricans</i>
Northern Pike	<i>Esox lucius</i>
Ohio Lamprey	<i>Ichthyomyzon bdellium</i>
Pumpkinseed	<i>Lepomis gibbosus</i>
Quillback	<i>Carpiodes cyprinus</i>
River Redhorse	<i>Moxostoma carinatum</i>
Rock Bass	<i>Ambloplites rupestris</i>
Rosyface Shiner	<i>Notropis rubellus</i>
Sand Shiner	<i>Notropis stramineus</i>
Sauger	<i>Sander canadensis</i>
Silver Redhorse	<i>Moxostoma anisurum</i>
Silver Shiner	<i>Notropis photogenis</i>
Smallmouth Bass	<i>Micropterus dolomieu</i>
Smallmouth Redhorse	<i>Moxostoma breviceps</i>
Spotfin Shiner	<i>Cyprinella spiloptera</i>
Spotted Bass	<i>Micropterus punctulatus</i>
Stonecat	<i>Noturus flavus</i>
Tiger Muskellunge	<i>Esox lucius</i> x <i>E. masquinongy</i>
Walleye	<i>Sander vitreus</i>
White Bass	<i>Morone chrysops</i>
White Crappie	<i>Pomoxis annularis</i>
White Sucker	<i>Catostomus commersonii</i>
Yellow Bullhead	<i>Ameiurus natalis</i>
Yellow Perch	<i>Perca flavescens</i>
Total Species	52

Table 26. Fish collected from Youghiogheny River, Section 06, Boston Site (RM 3.09) collection dates of 1992 and 2014.

Common Name	Scientific Name	Sample Year	
		2014	1992
Bluegill	<i>Lepomis macrochirus</i>	X	X
Bluntnose Minnow	<i>Pimephales notatus</i>	X	--
Channel Catfish	<i>Ictalurus punctatus</i>	X	X
Common Carp	<i>Cyprinus carpio</i>	X	X
Emerald Shiner	<i>Notropis atherinoides</i>	X	--
Freshwater Drum	<i>Aplodinotus grunniens</i>	X	--
Gizzard Shad	<i>Dorosoma cepedianum</i>	X	X
Golden Redhorse	<i>Moxostoma erythrurum</i>	X	X
Green Sunfish	<i>Lepomis cyanellus</i>	X	--
Greenside Darter	<i>Etheostoma blennioides</i>	X	--
Largemouth Bass	<i>Micropterus salmoides</i>	X	--
Log Perch	<i>Percina caprodes</i>	--	X
Longnose Gar	<i>Lepisosteus osseus</i>	X	--
Muskellunge	<i>Esox masquinongy</i>	X	--
Northern Hog Sucker	<i>Hypentelium nigricans</i>	X	X
Ohio Lamprey	<i>Ichthyomyzon bdellium</i>	X	--
Pumpkinseed	<i>Lepomis gibbosus</i>	X	X
Quillback	<i>Carpionodes cyprinus</i>	X	--
Rock Bass	<i>Ambloplites rupestris</i>	X	X
Sauger	<i>Sander canadensis</i>	X	X
Silver Redhorse	<i>Moxostoma anisurum</i>	X	--
Smallmouth Bass	<i>Micropterus dolomieu</i>	X	X
Spotfin Shiner	<i>Cyprinella spiloptera</i>	X	--
Spotted Bass	<i>Micropterus punctulatus</i>	X	X
Tiger muskellunge	<i>Esox Lucius x E. masquinongy</i>	--	X
Walleye	<i>Sander vitreus</i>	X	X
White Bass	<i>Morone chrysops</i>	X	X
Total Species		25	15

Table 27. Length/frequency distribution and abundance statistics for Smallmouth Bass from Night Electroboat at Boston/Cedar Creek and Dawson/Layton sites in the Youghiogheny River, Section 06, from sampling in 2014.

Length Group (mm)	Sample Sites			
	Boston/Cedar Creek		Dawson/Layton	
	Catch	Mean CPUE	Catch	Mean CPUE
50	11	4.23	13	5.20
75	66	26.27	8	3.25
100	3	1.06	2	0.80
125	7	2.55	2	0.74
150	5	1.82	15	6.11
175	9	3.34	18	7.27
200	15	5.06	12	4.74
225	16	5.53	26	10.54
250	9	3.10	28	11.52
275	12	4.18	12	4.87
300	14	4.95	5	2.35
325	4	1.31	2	0.84
350	7	2.47	3	1.34
375	2	0.66	1	0.43
425	3	1.09	--	--
450	1	0.33	--	--
Totals	184	67.95	147	60.00
CPUE > 300 mm		10.81		4.96
CPUE > 375 mm		2.08		0.43
PSD		34		10
RSD (375 mm)		7		1
Total Effort (hours)		2.58		2.43

Table 28. Length/frequency distribution and abundance statistics for Smallmouth Bass from Night Electroboat at Boston/Cedar Creek sites in the Youghiogheny River, Section 06, from sampling in 2014 and 1992.

Length Group (mm)	Sample Year			
	2014		1992	
	Catch	Mean CPUE	Catch	Mean CPUE
50	11	4.23	--	--
75	66	26.27	2	1.04
100	3	1.06	25	12.95
125	7	2.55	15	7.77
150	5	1.82	11	5.70
175	9	3.34	7	3.63
200	15	5.06	2	1.04
225	16	5.53	1	0.52
250	9	3.1	1	0.52
275	12	4.18	2	1.04
300	14	4.95	2	1.04
325	4	1.31	--	--
350	7	2.47	1	0.52
375	2	0.66	--	--
425	3	1.09	--	--
450	1	0.33	--	--
Totals	184	67.95	69	35.75
CPUE > 300 mm		10.81		1.56
CPUE > 375 mm		2.08		0.00
PSD		47		31
RSD (375 mm)		7		0
Total Effort (hours)		2.58		1.93

Table 29. Age and Growth statistics for Smallmouth Bass from Night Electroboat in the Youghiogheny River, Section 06, at the Boston/Cedar Creek sites for 2014.

Weighted Mean Length And Weight At Capture		Weighted By Additional Catch If Available		Intercept = 35									
Age	Number Aged	Year Class	Length (mm)	Weight (g)	Mean Length (mm) At Annulus								
					1	2	3	4	5	6	7	8	
0+	25	2014	85	10									
1+	15	2013	162	61	76								
2+	26	2012	227	159	92	149							
3+	8	2011	260	271	94	161	203						
4+	22	2010	302	384	93	159	221	263					
5+	7	2009	331	527	86	164	230	270	303				
6+	2	2008	406	1051	99	174	241	293	346	379			
7+	2	2007	372	745	79	133	180	241	290	324	340		
8+	2	2006	400	958	102	174	219	261	310	336	372	388	
9+	1	2005	428	1027	121	161	216	284	333	354	382	397	
11+	1	2003	454	1306	71	120	192	264	292	315	351	372	
Mean Back Calculated Lengths:					76	149	203	263	303	379	340	388	
Grand Mean Back Calculated Lengths:					90	156	218	265	310	347	361	391	
Minimum Back Calculation Length To Last Annulus:					62	107	150	223	256	308	340	360	
Maximum Back Calculation Length To Last Annulus:					132	209	271	308	362	402	399	415	
Annual Length Increments:					90	66	62	47	45	37	14	30	
GM Regression: $\log(\text{weight}) = u + v \cdot \log(\text{length})$,					u = -4.88	v = 3.01	r = 1	n = 111					
Mean Condition Factor: $K = (\text{weight}/\text{length}^3) * X, X=100,000$													K = 1.38
Statewide Mean Back Calculated Lengths:					103	173	229	277	326	369	402	0	

Table 30. Age and Growth statistics for Smallmouth Bass from Night Electroboat in the Youghiogheny River, Section 06, at the Dawson/Layton sites for 10/8/2014.

Weighted Mean Length And Weight At Capture			Weighted By Additional Catch If Available		Intercept = 35								
Age	Number Aged	Year Class	Length (mm)	Weight (g)	Mean Length (mm) At Annulus								
					1	2	3	4	5	6	7	8	
0+	13	2014	72	6									
1+	1	2013	120	25	65								
2+	20	2012	175	71	85	123							
3+	8	2011	217	131	69	134	171						
4+	20	2010	261	233	86	137	194	232					
5+	11	2009	284	300	72	144	191	238	265				
6+	2	2008	313	414	77	136	208	250	279	304			
7+	3	2007	347	511	74	123	178	238	277	316	332		
9+	1	2005	395	722	123	177	214	258	278	317	338	351	
Mean Back Calculated Lengths:					65	123	171	232	265	304	332		
Grand Mean Back Calculated Lengths:					81	133	189	236	270	312	334	351	
Minimum Back Calculation Length To Last Annulus:					56	90	151	191	232	287	316	351	
Maximum Back Calculation Length To Last Annulus:					125	206	260	298	297	329	342	351	
Annual Length Increments:					81	52	56	47	34	42	22	17	
GM Regression: $\log(\text{weight}) = u + v \cdot \log(\text{length})$,					u = -4.6	v = 2.88	r = 1	n = 79					
Mean Condition Factor: $K = (\text{weight}/\text{length}^3) * X$, X=100,000										K = 1.34			
Statewide Mean Back Calculated Lengths:					103	173	229	277	326	369	402	0	

Table 31. Mean length at age, maximum age, and total mortality estimates by Section and site for Smallmouth Bass from the Youghiogheny River in 2012 and 2014.

Fish Age	Section and Site Location						
	State Mean	Section 02 Confluence	Section 03 Lick Run	Section 04 Indian Creek	Section 05 South Connellsville	Section 06 at Dawson/Layton	Section 06 at Boston/Cedar Creek
	Mean Length at Age (mm)						
1	103	81	85	83	78	81	90
2	173	133	132	130	126	133	156
3	229	184	175	185	178	189	218
4	277	243	219	232	226	236	265
5	326	294	266	270	275	270	310
6	369	339	294	312	305	312	347
7	402	389	313	343	333	334	361
8	--	420	314	371	356	351	391
Maximum Age		9	10	11	10	9	11
Catch Curve Estimated Annual Mortality (A)		0.51	0.23	0.14	0.28	0.52	0.44
R ² for Catch Curve		0.89	0.63	0.43	0.42	0.81	0.82

Table 32. Mean abundance indices by Section and Site for Smallmouth Bass from the Youghiogheny River in 2012 and 2014.

Abundance or Condition Index	Section and Site Location						
	Big Bass Guideline	Section 02 Confluence	Section 03 Lick Run	Section04 Indian Creek	Section 05 South Connellsville	Section 06 at Dawson/ Layton	Section 06 at Boston/ Cedar Creek
Total CPUE	35	34.21	16.46	49.33	78.64	60.00	67.95
CPUE > 300 mm	7	12.51	5.36	15.33	23.34	4.96	10.81
CPUE > 375 mm	2	5.27	1.00	8.00	8.96	0.43	2.08
PSD		56	46	45	36	10	34
RSD ₃₇₅		24	7	24	13	1	7

Table 33. Length/frequency distribution and abundance statistics for Rock Bass from Night Electroboat at Boston/Cedar Creek and Dawson/Layton sites in the Youghiogheny River, Section 06, from sampling in 2014.

Length Group (mm)	Sample Location			
	Boston/Cedar Creek		Dawson/Layton	
	Catch	Mean CPUE	Catch	Mean CPUE
25	2	0.84	--	--
50	2	0.84	--	--
75	2	0.76	--	--
100	14	5.08	22	8.75
125	37	14.41	32	12.89
150	19	7.48	19	7.92
175	16	6.12	29	11.97
200	6	2.19	22	8.86
225	2	0.73	5	2.01
Totals	100	38.44	129	52.41
CPUE > 175 mm		9.04		22.84
PSD		26		43
RSD (225 mm)		2		4
Total Effort (hours)		2.58		2.43

Table 34. Length/frequency distribution and abundance statistics for Rock Bass from Night Electroboat at Boston/Cedar Creek sites in the Youghiogheny River, Section 06, from sampling in 2014 and 1992.

Length Group (mm)	Sample Year			
	2014		1992	
	Catch	Mean CPUE	Catch	Mean CPUE
25	2	0.84	--	--
50	2	0.84	--	--
75	2	0.76	3	1.26
100	14	5.08	2	0.92
125	37	14.41	4	1.85
150	19	7.48	6	2.92
175	16	6.12	4	1.72
200	6	2.19	--	--
225	2	0.73	--	--
Totals	100	38.44	19	8.68
CPUE > 175 mm		9.04		1.72
PSD		25		25
RSD (225 mm)		2		0
Total Effort (hours)		2.58		1.27

Table 35. Age and Growth statistics for Rock Bass from Night Electroboat in the Youghiogheny River, Section 06, at Dawson/Layton sites in 2014.

Weighted Mean Length And Weight At Capture			Weighted By Additional Catch If Available		Intercept = 25								
Age	Number Aged	Year Class	Length (mm)	Weight (g)	Mean Length (mm) At Annulus								
					1	2	3	4	5	6	7	8	
2+	20	2012	124	41	51	82							
3+	7	2011	163	89	44	83	125						
4+	11	2010	186	138	49	82	132	166					
5+	11	2009	208	190	47	94	148	183	197				
7+	2	2007	225	224	44	84	128	172	200	213	219		
8+	2	2006	239	287	61	103	149	189	204	217	227	234	
Mean Back Calculated Lengths:						82	125	166	197			219	234
Grand Mean Back Calculated Lengths:						49	85	137	175	198	215	223	234
Minimum Back Calculation Length To Last Annulus:						37	68	114	145	180	199	204	228
Maximum Back Calculation Length To Last Annulus:						63	107	172	204	217	227	234	239
Annual Length Increments:						49	36	52	38	23	17	8	11
GM Regression: $\log(\text{weight}) = u + v \cdot \log(\text{length})$,						u = -4.75	v = 3.03	r = 1	n = 53				
Mean Condition Factor: $K = (\text{weight}/\text{length}^3) * X$, X=100,000										K = 2.08			
Statewide Mean Back Calculated Lengths:						63	100	138	166	187	206	229	252

Table 36. Age and Growth statistics for Rock Bass from Night Electroboat in the Youghiogheny River, Section 06, at Boston/Cedar Creek sites in 2014.

Weighted Mean Length And Weight At Capture			Weighted By Additional Catch If Available		Intercept = 25								
Age	Number Aged	Year Class	Length (mm)	Weight (g)	Mean Length (mm) At Annulus								
					1	2	3	4	5	6	7	8	
0+	3	2014	51	3									
1+	4	2013	96	17	54								
2+	25	2012	137	53	52	91							
3+	3	2011	153	72	53	94	125						
4+	12	2010	189	141	55	96	144	172					
5+	2	2009	208	192	48	101	147	186	197				
6+	3	2008	217	222	51	93	146	172	190	206			
8+	1	2006	244	311	45	69	112	166	192	213	226	237	
Mean Back Calculated Lengths:					54	91	125	172	197	206			237
Grand Mean Back Calculated Lengths:					53	93	140	173	193	208	226	237	
Minimum Back Calculation Length To Last Annulus:					40	67	112	152	176	199	226	237	
Maximum Back Calculation Length To Last Annulus:					71	116	162	195	210	221	226	237	
Annual Length Increments:					53	40	47	33	20	15	18	11	
GM Regression: $\log(\text{weight}) = u + v \cdot \log(\text{length})$,					u = -4.88	v = 3.08	r = 1	n = 53					
Mean Condition Factor: $K = (\text{weight}/\text{length}^3) * X$, X=100,000										K = 2			
Statewide Mean Back Calculated Lengths:					63	100	138	166	187	206	229	252	

Table 37. Length/frequency distribution and abundance statistics for Sauger from Night Electroboat at Boston/Cedar Creek and Dawson/Layton sites in the Youghiogheny River, Section 06, from sampling in 2014.

Length Group (mm)	Sample Location			
	Boston/Cedar Creek		Dawson/Layton	
	Catch	Mean CPUE	Catch	Mean CPUE
350	1	0.33	--	--
375	4	1.42	3	1.42
400	2	0.81	1	0.41
425	2	0.73	1	0.50
450	--	--	2	0.80
Totals	9	3.28	7	3.13
CPUE > 300 mm		3.28		3.13
PSD		100		100
RSD (375 mm)		89		100
Total Effort (hours)		2.58		2.43

Table 38. Length/frequency distribution and abundance statistics for Sauger from Night Electroboat at Boston/Cedar Creek sites in the Youghiogheny River, Section 06, from sampling in 2014 and 1992.

	Sample Year			
	2014		1992	
Length Group (mm)	Catch	Mean CPUE	Catch	Mean CPUE
250	--	--	3	1.46
325	--	--	1	0.46
350	1	0.33	--	--
375	4	1.42	--	--
400	2	0.81	--	--
425	2	0.73	--	--
Totals	9	3.28	4	1.92
CPUE > 300 mm		3.28		0.46
PSD		100		25
RSD (375 mm)		89		0
Total Effort (hours)		2.58		1.27

Table 39. Length/frequency distribution and abundance statistics for Channel Catfish from Night Electroboat at Boston/Cedar Creek and Dawson/Layton sites in the Youghiogheny River, Section 06, from sampling in 2014.

Length Group (mm)	Sample Location			
	Boston/Cedar Creek		Dawson/Layton	
	Catch	Mean CPUE	Catch	Mean CPUE
450	1	0.43	--	--
475	2	0.84	1	0.35
500	1	0.41	1	0.5
550	--	--	1	0.5
600	1	0.41	--	--
Totals	5	2.08	3	1.35
CPUE > 400 mm		2.08		1.35
PSD		100		100
RSD (600 mm)		20		0
Total Effort (hours)		2.58		2.43

Table 40. Length/frequency distribution and abundance statistics for Channel Catfish from Night Electroboat at Boston/Cedar Creek sites in the Youghiogheny River, Section 06, from sampling in 2014 and 1992.

Length Group (mm)	Sample Year			
	2014		1992	
	Catch	Mean CPUE	Catch	Mean CPUE
325	--	--	2	0.86
350	--	--	1	0.40
375	--	--	2	0.80
450	1	0.43	--	--
475	2	0.84	--	--
500	1	0.41	--	--
550	--	--	--	--
600	1	0.41	--	--
Totals	5	2.08	5	3.95
CPUE > 400 mm		2.08		0.00
PSD		100		0
RSD (600 mm)		20		0
Total Effort (hours)		2.58		1.27

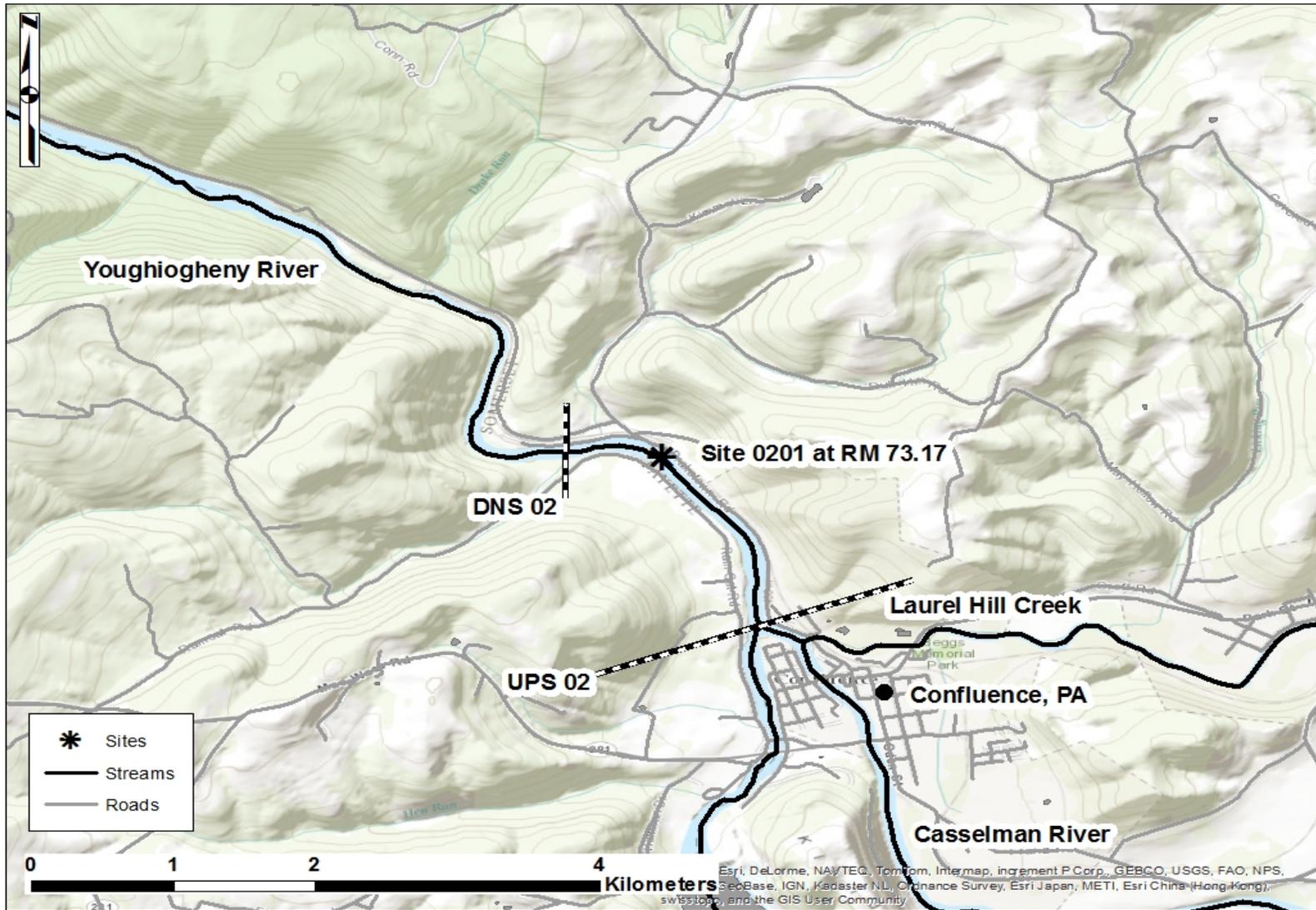


Figure 1. Topographical map depicting the upstream (UPS) and downstream (DNS) limits for Section 02 of Youghiogheny River, along with the sampling site location of 2012.

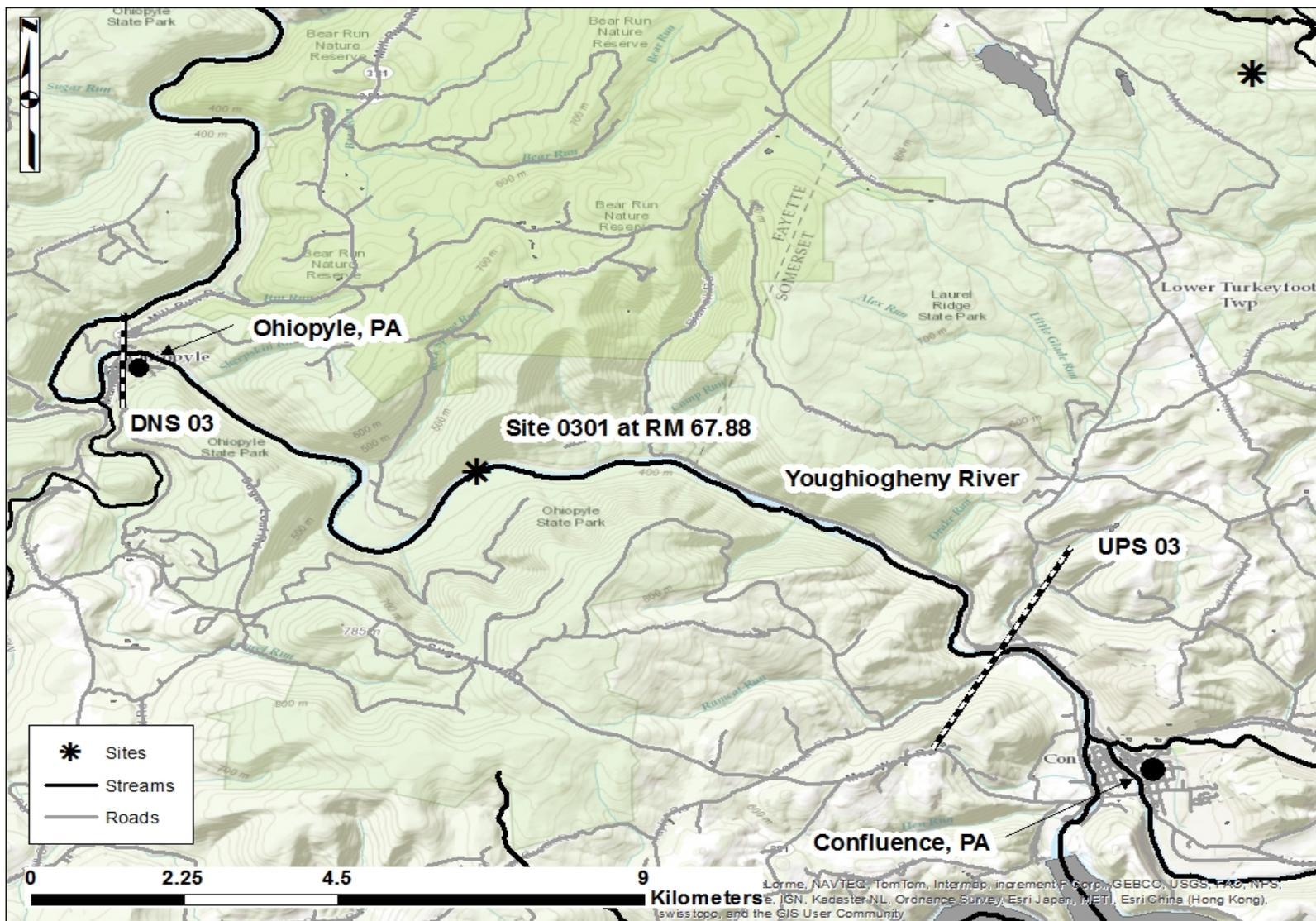


Figure 2. Topographical map depicting the upstream (UPS) and downstream (DNS) limits for Section 03 of Youghiogheny River, along with the sampling site location of 2012.

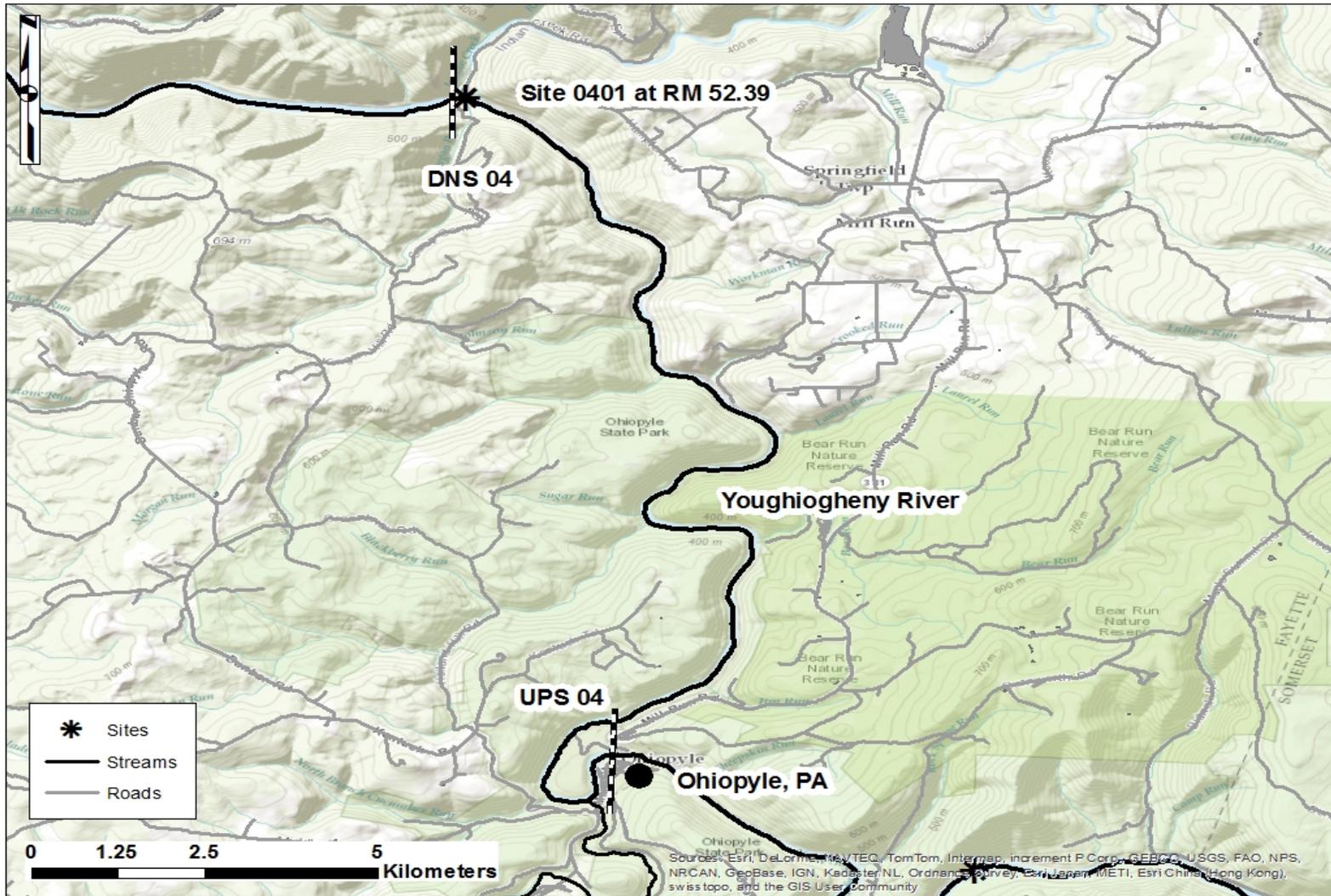


Figure 3. Topographical map depicting the upstream (UPS) and downstream (DNS) limits for Section 04 of Youghiogheny River, along with the sampling site location of 2012.

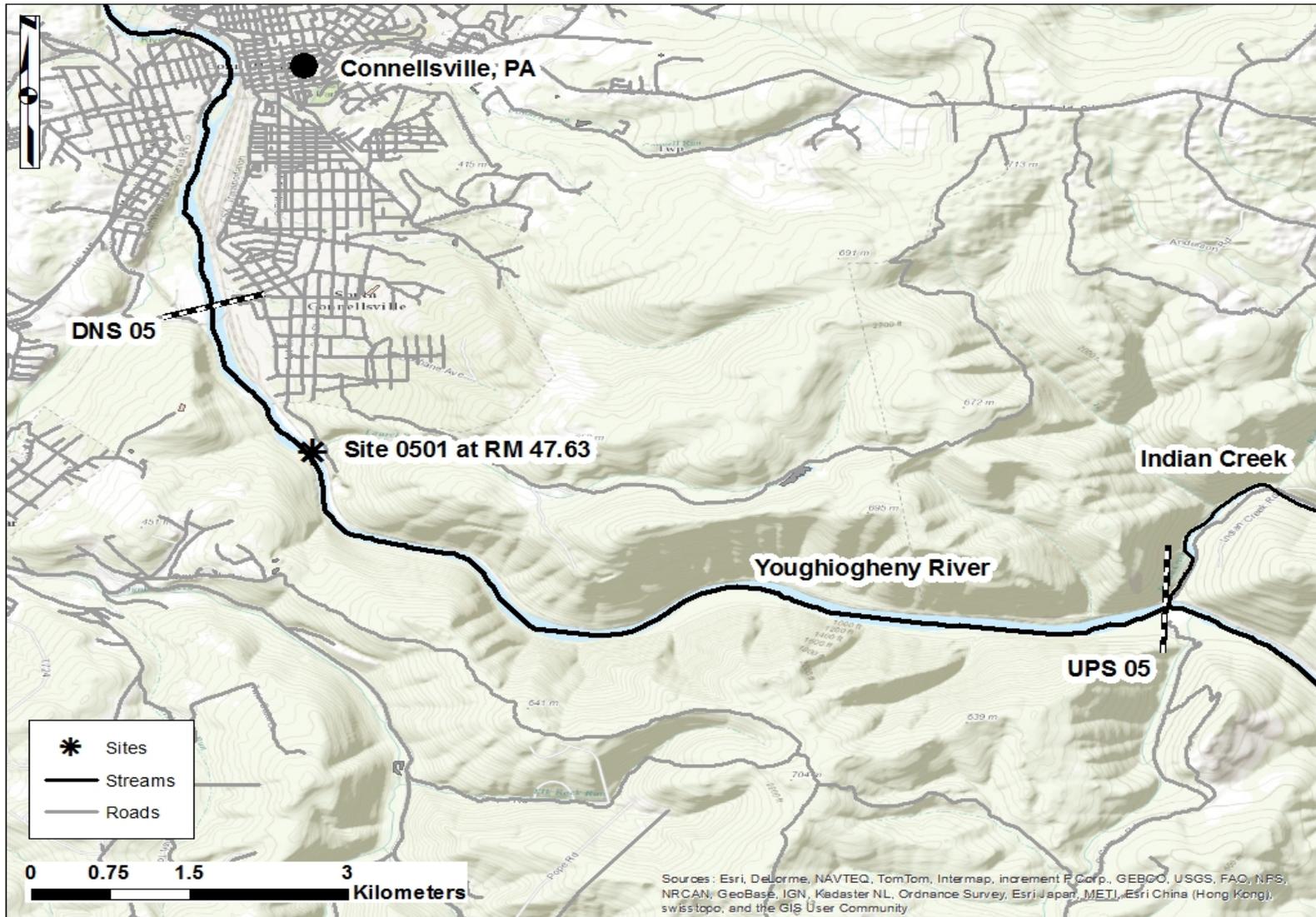


Figure 4. Topographical map depicting the upstream (UPS) and downstream (DNS) limits for Section 05 of Youghiogheny River, along with the sampling site location of 2014.

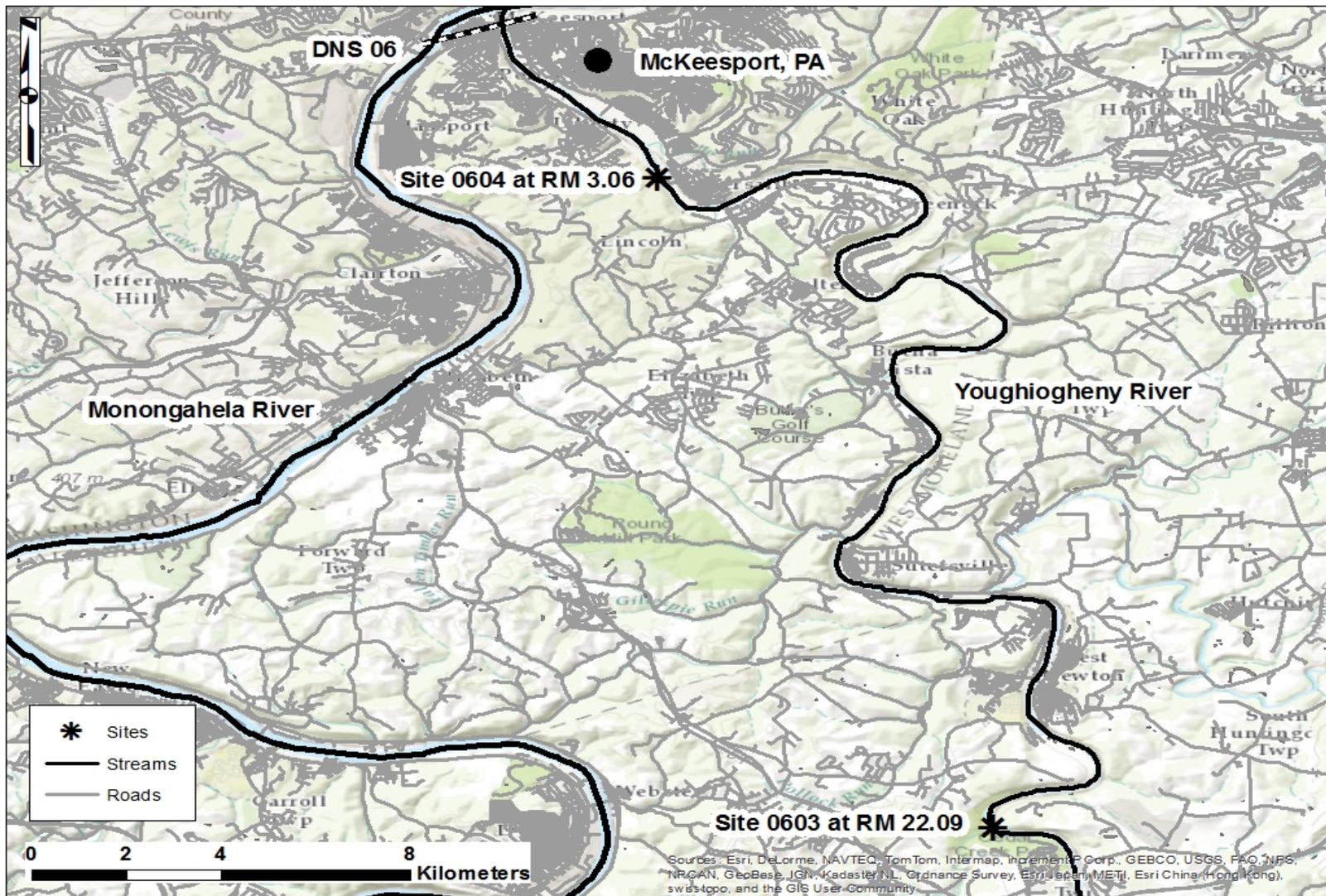


Figure 5. Topographical map depicting the upstream (UPS) and downstream (DNS) limits for lower Section 06 of Youghiogheny River, along with the sampling site locations of 2014.

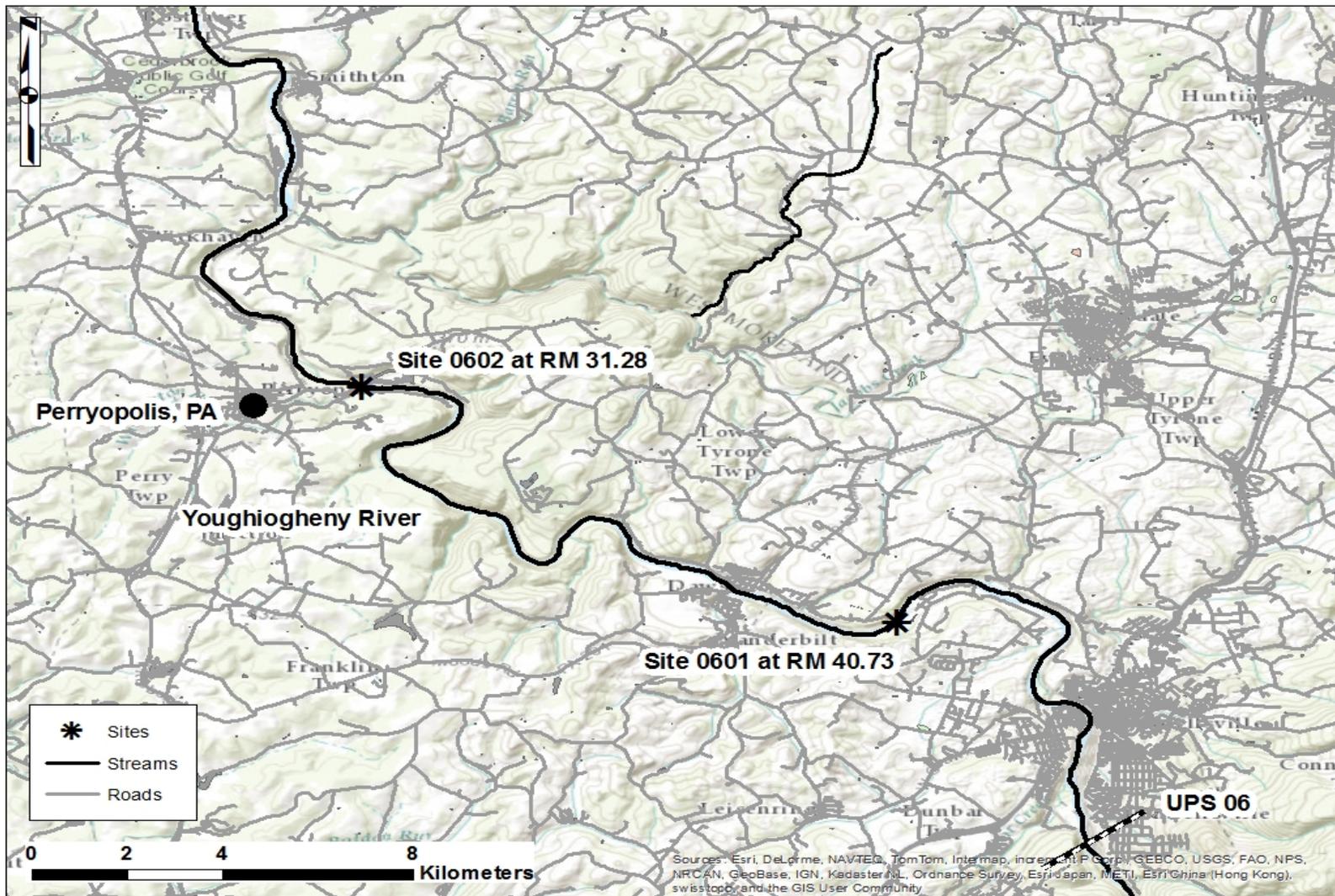


Figure 6. Topographical map depicting the upstream (UPS) and downstream (DNS) limits for upper Section 06 of Youghiogheny River, along with the sampling site locations of 2014.

Appendix A. Stocking records for Youghiogheny River, Sections 02-06, from 2003 to 2014.

Water Name	Sec	StkDate	Species	Total Stkd.	Size Range(ins.)
Youghiogheny River	2	05/28/2003	Brown Trout	4,800	2 to 3 inches
Youghiogheny River	2	06/03/2004	Brown Trout	4,800	2 to 3 inches
Youghiogheny River	2	05/03/2005	Brown Trout	4,800	2 to 3 inches
Youghiogheny River	2	05/22/2006	Brown Trout	4,800	2 to 4 inches
Youghiogheny River	2	2007	No Brown Trout Stocked		
Youghiogheny River	2	05/15/2008	Brown Trout	4,800	3 to 4 inches
Youghiogheny River	2	07/15/2008	Brown Trout	4,800	3 to 4 inches
Youghiogheny River	2	05/19/2009	Brown Trout	4,800	2 to 3 inches
Youghiogheny River	2	05/18/2010	Brown Trout	4,800	2 to 4 inches
Youghiogheny River	2	07/29/2010	Brown Trout	4,980	8 to 9 inches
Youghiogheny River	2	05/18/2011	Brown Trout	4,800	2 to 4 inches
Youghiogheny River	2	05/31/2012	Brown Trout	4,800	2 to 4 inches
Youghiogheny River	2	05/31/2013	Brown Trout	4,800	2 to 4 inches
Youghiogheny River	2	05/30/2014	Brown Trout	4,800	2 to 4 inches
Youghiogheny River	2	2003	No Rainbow Trout Stocked		
Youghiogheny River	2	05/26/2004	Rainbow Trout	4,800	3 to 5 inches
Youghiogheny River	2	05/23/2005	Rainbow Trout	4,800	3 to 5 inches
Youghiogheny River	2	05/22/2006	Rainbow Trout	4,800	3 to 5 inches
Youghiogheny River	2	06/22/2006	Rainbow Trout	5,000	2 to 3 inches
Youghiogheny River	2	07/24/2006	Rainbow Trout	5,000	4 to 5 inches
Youghiogheny River	2	05/16/2007	Rainbow Trout	9,600	3 to 5 inches

Youghiogheny River	2	05/15/2008	Rainbow Trout	4,800	3 to 4 inches
Youghiogheny River	2	05/19/2009	Rainbow Trout	4,800	3 to 4 inches
Youghiogheny River	2	05/18/2010	Rainbow Trout	4,800	3 to 5 inches
Youghiogheny River	2	05/18/2011	Rainbow Trout	4,800	4 to 6 inches
Youghiogheny River	2	05/31/2012	Rainbow Trout	4,800	2 to 4 inches
Youghiogheny River	2	05/31/2013	Rainbow Trout	4,800	2 to 4 inches
Youghiogheny River	2	05/30/2014	Rainbow Trout	4,800	2 to 4 inches

Water Name	Sec	StkDate	Species	Total Stkd.	Size Range(ins.)
Youghiogheny River	3	05/28/2003	Brown Trout	32,700	2 to 3 inches
Youghiogheny River	3	06/03/2004	Brown Trout	32,700	3 to 4 inches
Youghiogheny River	3	11/03/2004	Brown Trout	10,844	5 to 6 inches
Youghiogheny River	3	11/03/2004	Brown Trout	12,656	5 to 6 inches
Youghiogheny River	3	05/03/2005	Brown Trout	32,700	2 to 3 inches
Youghiogheny River	3	05/22/2006	Brown Trout	13,625	2 to 4 inches
Youghiogheny River	3	05/22/2006	Brown Trout	19,075	2 to 4 inches
Youghiogheny River	3	11/01/2006	Brown Trout	20,000	4 to 5 inches
Youghiogheny River	3	05/16/2007	Brown Trout	7,500	2 to 4 inches
Youghiogheny River	3	05/16/2007	Brown Trout	7,500	2 to 4 inches
Youghiogheny River	3	05/15/2008	Brown Trout	13,950	3 to 4 inches
Youghiogheny River	3	05/15/2008	Brown Trout	18,750	3 to 4 inches
Youghiogheny River	3	07/15/2008	Brown Trout	31,200	3 to 4 inches
Youghiogheny River	3	05/19/2009	Brown Trout	32,700	2 to 3 inches

Youghiogheny River	3	05/18/2010	Brown Trout	32,700	2 to 4 inches
Youghiogheny River	3	07/29/2010	Brown Trout	5,000	8 to 9 inches
Youghiogheny River	3	05/18/2011	Brown Trout	9,617	2 to 4 inches
Youghiogheny River	3	05/18/2011	Brown Trout	11,538	2 to 4 inches
Youghiogheny River	3	05/18/2011	Brown Trout	11,545	2 to 4 inches
Youghiogheny River	3	05/31/2012	Brown Trout	16,350	2 to 4 inches
Youghiogheny River	3	05/31/2013	Brown Trout	16,350	2 to 4 inches
Youghiogheny River	3	05/30/2014	Brown Trout	13,091	2 to 4 inches
Youghiogheny River	3	05/26/2004	Rainbow Trout	8,700	3 to 5 inches
Youghiogheny River	3	05/26/2004	Rainbow Trout	24,000	3 to 5 inches
Youghiogheny River	3	05/23/2005	Rainbow Trout	8,200	3 to 5 inches
Youghiogheny River	3	05/23/2005	Rainbow Trout	24,500	3 to 5 inches
Youghiogheny River	3	05/22/2006	Rainbow Trout	13,625	3 to 5 inches
Youghiogheny River	3	05/22/2006	Rainbow Trout	19,075	3 to 5 inches
Youghiogheny River	3	06/22/2006	Rainbow Trout	13,000	2 to 3 inches
Youghiogheny River	3	06/22/2006	Rainbow Trout	20,000	2 to 3 inches
Youghiogheny River	3	07/24/2006	Rainbow Trout	10,281	4 to 5 inches
Youghiogheny River	3	05/16/2007	Rainbow Trout	25,000	3 to 5 inches
Youghiogheny River	3	05/16/2007	Rainbow Trout	25,400	3 to 5 inches
Youghiogheny River	3	05/15/2008	Rainbow Trout	13,950	3 to 4 inches
Youghiogheny River	3	05/15/2008	Rainbow Trout	18,750	3 to 4 inches
Youghiogheny River	3	05/19/2009	Rainbow Trout	4,700	3 to 4 inches
Youghiogheny River	3	05/19/2009	Rainbow Trout	28,000	3 to 4 inches

Youghiogheny River	3	05/18/2010	Rainbow Trout	16,500	3 to 5 inches
Youghiogheny River	3	07/29/2010	Rainbow Trout	5,985	6 to 8 inches
Youghiogheny River	3	05/18/2011	Rainbow Trout	9,617	4 to 6 inches
Youghiogheny River	3	05/18/2011	Rainbow Trout	11,538	4 to 6 inches
Youghiogheny River	3	05/18/2011	Rainbow Trout	11,545	4 to 6 inches
Youghiogheny River	3	05/31/2012	Rainbow Trout	16,350	2 to 4 inches
Youghiogheny River	3	05/31/2013	Rainbow Trout	16,350	2 to 4 inches
Youghiogheny River	3	05/30/2014	Rainbow Trout	13,167	2 to 4 inches
Youghiogheny River	3	05/30/2014	Rainbow Trout	19,533	2 to 4 inches
Youghiogheny River	3	05/30/2014	Rainbow Trout	19,609	2 to 4 inches

Water Name	Sec	StkDate	Species	Total Stkd.	Size Range(ins.)
Youghiogheny River	4	05/28/2003	Brown Trout	37,500	2 to 3 inches
Youghiogheny River	4	06/03/2004	Brown Trout	10,100	2 to 3 inches
Youghiogheny River	4	06/03/2004	Brown Trout	27,400	2 to 3 inches
Youghiogheny River	4	05/03/2005	Brown Trout	37,500	2 to 3 inches
Youghiogheny River	4	05/23/2006	Brown Trout	18,750	2 to 4 inches
Youghiogheny River	4	05/23/2006	Brown Trout	18,750	2 to 4 inches
Youghiogheny River	4	11/01/2006	Brown Trout	20,000	4 to 5 inches
Youghiogheny River	4	05/17/2007	Brown Trout	7,500	2 to 4 inches
Youghiogheny River	4	05/20/2008	Brown Trout	12,500	3 to 4 inches
Youghiogheny River	4	05/20/2008	Brown Trout	25,000	3 to 4 inches
Youghiogheny River	4	05/20/2009	Brown Trout	37,500	2 to 3 inches

Youghiogheny River	4	05/19/2010	Brown Trout	37,500	2 to 4 inches
Youghiogheny River	4	05/19/2011	Brown Trout	12,500	2 to 4 inches
Youghiogheny River	4	05/19/2011	Brown Trout	12,500	2 to 4 inches
Youghiogheny River	4	05/29/2012	Brown Trout	16,350	2 to 4 inches
Youghiogheny River	4	05/29/2013	Brown Trout	18,750	2 to 4 inches
Youghiogheny River	4	05/29/2014	Brown Trout	6,818	2 to 4 inches
Youghiogheny River	4	05/29/2014	Brown Trout	14,182	2 to 4 inches
Youghiogheny River	4	05/29/2014	Brown Trout	16,500	2 to 4 inches
Youghiogheny River	4	2003	No Rainbow Trout Stocked		
Youghiogheny River	4	05/26/2004	Rainbow Trout	16,500	3 to 5 inches
Youghiogheny River	4	05/26/2004	Rainbow Trout	21,000	3 to 5 inches
Youghiogheny River	4	05/23/2005	Rainbow Trout	16,200	3 to 5 inches
Youghiogheny River	4	05/23/2005	Rainbow Trout	21,300	3 to 5 inches
Youghiogheny River	4	05/23/2006	Rainbow Trout	18,750	3 to 5 inches
Youghiogheny River	4	05/23/2006	Rainbow Trout	18,750	3 to 5 inches
Youghiogheny River	4	06/22/2006	Rainbow Trout	12,000	2 to 4 inches
Youghiogheny River	4	06/22/2006	Rainbow Trout	25,000	2 to 4 inches
Youghiogheny River	4	05/17/2007	Rainbow Trout	30,000	3 to 5 inches
Youghiogheny River	4	09/07/2007	Rainbow Trout	18,750	3 to 5 inches
Youghiogheny River	4	05/20/2008	Rainbow Trout	12,500	2 to 3 inches
Youghiogheny River	4	05/20/2008	Rainbow Trout	25,000	2 to 3 inches
Youghiogheny River	4	05/20/2009	Rainbow Trout	38,000	3 to 4 inches
Youghiogheny River	4	05/19/2010	Rainbow Trout	37,500	3 to 5 inches

Youghiogheny River	4	05/19/2011	Rainbow Trout	12,500	4 to 6 inches
Youghiogheny River	4	05/19/2011	Rainbow Trout	12,500	4 to 6 inches
Youghiogheny River	4	05/29/2012	Rainbow Trout	16,350	2 to 4 inches
Youghiogheny River	4	05/29/2013	Rainbow Trout	18,750	2 to 4 inches
Youghiogheny River	4	05/29/2013	Rainbow Trout	18,750	2 to 4 inches
Youghiogheny River	4	05/29/2014	Rainbow Trout	17,308	2 to 4 inches
Youghiogheny River	4	05/29/2014	Rainbow Trout	20,192	2 to 4 inches

Water Name	Sec	StkDate	Species	Total Stkd.	Size Range(ins.)
Youghiogheny River	5	05/28/2003	Brown Trout	12,500	2 to 3 inches
Youghiogheny River	5	06/03/2004	Brown Trout	12,500	2 to 3 inches
Youghiogheny River	5	05/03/2005	Brown Trout	12,500	2 to 3 inches
Youghiogheny River	5	05/23/2006	Brown Trout	12,500	2 to 4 inches
Youghiogheny River	5	2007	No Brown Trout Stocked		
Youghiogheny River	5	05/20/2008	Brown Trout	12,500	3 to 4 inches
Youghiogheny River	5	05/20/2009	Brown Trout	12,500	2 to 3 inches
Youghiogheny River	5	05/19/2010	Brown Trout	12,500	2 to 4 inches
Youghiogheny River	5	05/19/2011	Brown Trout	12,500	2 to 4 inches
Youghiogheny River	5	05/29/2012	Brown Trout	12,500	2 to 4 inches
Youghiogheny River	5	05/29/2013	Brown Trout	12,500	2 to 4 inches
Youghiogheny River	5	05/29/2014	Brown Trout	12,500	2 to 4 inches
Youghiogheny River	5	2003	No Rainbow Trout Stocked		
Youghiogheny River	5	05/26/2004	Rainbow Trout	12,500	3 to 5 inches

Youghiogheny River	5	05/23/2005	Rainbow Trout	12,500	3 to 5 inches
Youghiogheny River	5	05/23/2006	Rainbow Trout	12,500	3 to 5 inches
Youghiogheny River	5	05/17/2007	Rainbow Trout	25,000	3 to 5 inches
Youghiogheny River	5	05/20/2008	Rainbow Trout	12,500	2 to 3 inches
Youghiogheny River	5	05/20/2009	Rainbow Trout	12,500	3 to 4 inches
Youghiogheny River	5	05/19/2010	Rainbow Trout	12,500	3 to 5 inches
Youghiogheny River	5	05/19/2011	Rainbow Trout	12,500	4 to 6 inches
Youghiogheny River	5	05/29/2012	Rainbow Trout	12,500	2 to 4 inches
Youghiogheny River	5	05/29/2013	Rainbow Trout	12,500	2 to 4 inches
Youghiogheny River	5	05/29/2014	Rainbow Trout	12,500	2 to 4 inches

Water Name	Sec	StkDate	Species	Total Stkd.	Size Range(ins.)
Youghiogheny River	6	09/06/2006	Muskellunge	1,900	FING
Youghiogheny River	6	09/17/2007	Muskellunge	1,900	FING
Youghiogheny River	6	09/25/2008	Muskellunge	1,900	FING
Youghiogheny River	6	08/14/2009	Muskellunge	1,900	SFNG
Youghiogheny River	6	10/16/2009	Muskellunge	1,900	FING
Youghiogheny River	6	09/28/2010	Muskellunge	1,900	FING
Youghiogheny River	6	10/14/2011	Muskellunge	1,900	FING
Youghiogheny River	6	10/02/2012	Muskellunge	1,900	FING
Youghiogheny River	6	10/17/2013	Muskellunge	1,900	FING
Youghiogheny River	6	09/26/2014	Muskellunge	1,900	FING
Youghiogheny River	6	04/10/2006	Walleye	1,329,750	FRY
Youghiogheny River	6	04/10/2006	Walleye	443,250	FRY

Youghiogheny River	6	06/14/2007	Walleye	19,050	PH1
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