

Three Rivers Locks and Dams Tailwaters

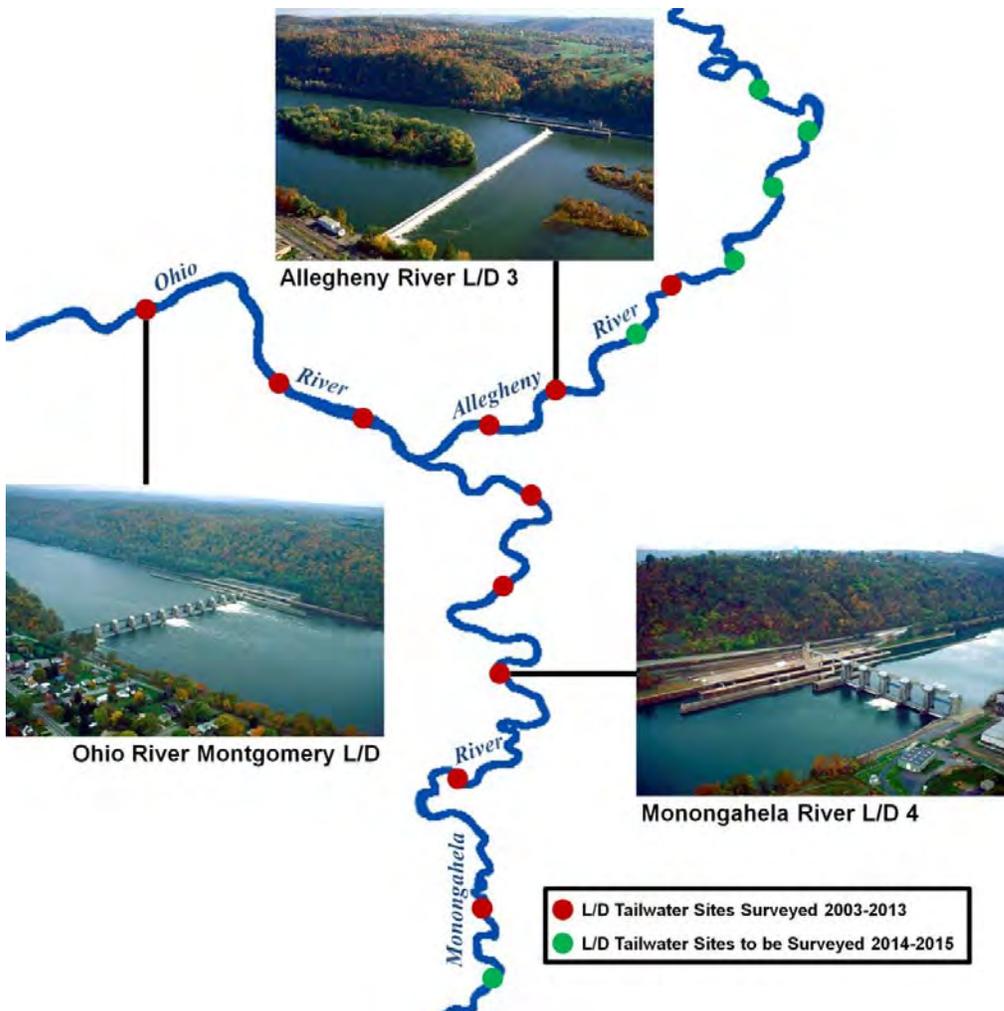
Southwestern Pennsylvania

Spring 2013 Night Boat Electrofishing Surveys

It's that time of the year again! Every May, a five-person crew of Fisheries Management Division Area 8 biologists survey, with boat electrofishing gear, the tailwaters of three different navigation locks and dams (L/D) of the Three Rivers. These productive river reaches serve as fixed-sites to collect both game and nongame fish species in support of a comprehensive large river assessment, including trend analyses of gamefish abundances and an evaluation of fish assemblage diversity. Since 2003, 11 of 17 L/D tailwaters have been surveyed, some on several occasions (Table 1; Figure 1).

Table 1. Three Rivers L/D tailwaters surveyed from 2003-2013.

River	L/D (rivermile)	Year(s) Surveyed
Allegheny	L/D 2 (6.7)	2012
	L/D 3 (14.5)	2013*
	L/D 5 (30.4)	2008, 2011
Ohio	Emsworth L/D (6.2)	2012
	Dashields L/D (13.3)	2008, 2011
	Montgomery L/D (31.7)	2013*
Monongahela	Braddock L/D (11.3)	2003, 2009, 2011
	L/D 3 (23.8)	2012
	L/D 4 (41.5)	2013*
	Maxwell L/D (61.2)	2003, 2008, 2009, 2011
	Grays Landing L/D (82.0)	2003, 2009, 2011



Our [2012 Biologist Report](#) and [2011 Biologist Report](#) provide additional information if you are interested in past Area 8 efforts at Three Rivers L/D tailwaters.

Figure 1. Locations of Three Rivers L/D tailwaters surveyed from 2003-2013 and L/D tailwaters scheduled to be surveyed in the coming years (L/D photos provided by the U.S. Army Corps of Engineers, Pittsburgh District).

During our night boat electrofishing operations at L/D tailwater sites, we collected all fish, both game and nongame species, as well as stock assessment information (e.g., length, weight, and age) on game fish species, including smallmouth bass, walleye, sauger, freshwater drum, white bass, and rock bass. At each L/D tailwater, 50-minute electrofishing runs were made on both the left bank and right bank, typically extending from the lock wall downstream for approximately 1.5 miles.

We summarized our catch data for six game fish species collected during this year's L/D tailwater surveys (Table 2).

Table 2. Numbers of individuals (and range of total lengths in inches) of six game fish species collected from Three Rivers L/D tailwater surveys in 2013.

	Allegheny River L/D 3	Monongahela River L/D 4	Ohio River Montgomery L/D
Smallmouth bass	121 (3-18"); 21 legal length	53 (5-17"); 27 legal length	70 (3-18"); 35 legal length
Walleye	26 (10-16"); 6 legal length	12 (9-20"); 3 legal length	8 (9-24"); 5 legal length
Sauger	46 (8-16"); 35 legal length	36 (7-18"); 20 legal length	122 (6-17"); 18 legal length
Freshwater drum	18 (13-19")	60 (7-19")	6 (11-21")
White bass	3 (12-15")	8 (6-15")	26 (6-15")
Rock bass	29 (2-10")	53 (3-8")	5 (5-9")

As part of stock assessments of managed fisheries, Area 8 biologists use catch rates, or catch-per-unit-effort (CPUE; typically expressed as number of fish collected per hour of electrofishing) values to estimate population relative abundances and to serve as the primary evaluation tool, primarily for legal-length fish. For this evaluation, "11-year" mean CPUE values were computed from 20 L/D tailwater sites surveyed from 2003-2013. We then used these means to make general comparisons and serve as evaluation benchmarks for the three L/D tailwaters surveyed this year.

Catch rates of legal-length (≥ 12 -inch) smallmouth bass approached (L/D 3), met (L/D 4), or exceeded (Montgomery L/D) the 11-year mean (Figure 2). Several nice bass were collected at these locations (Figures 3 and 4).

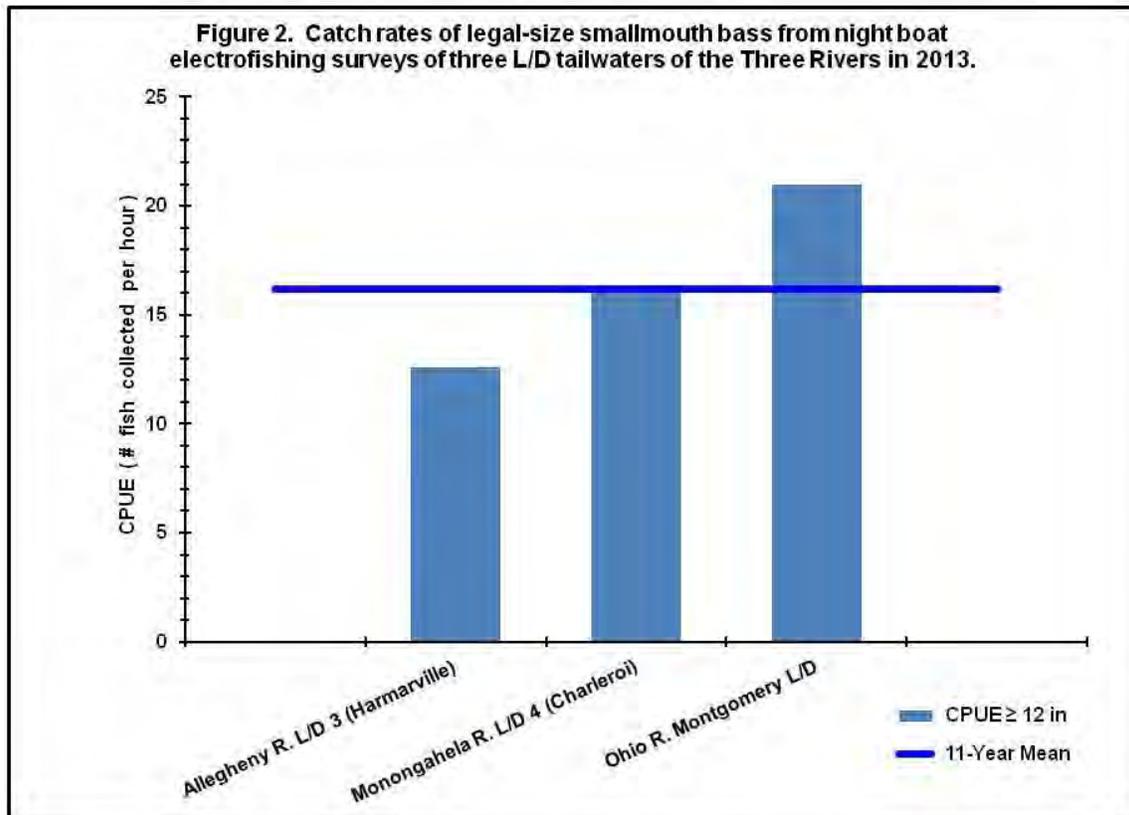


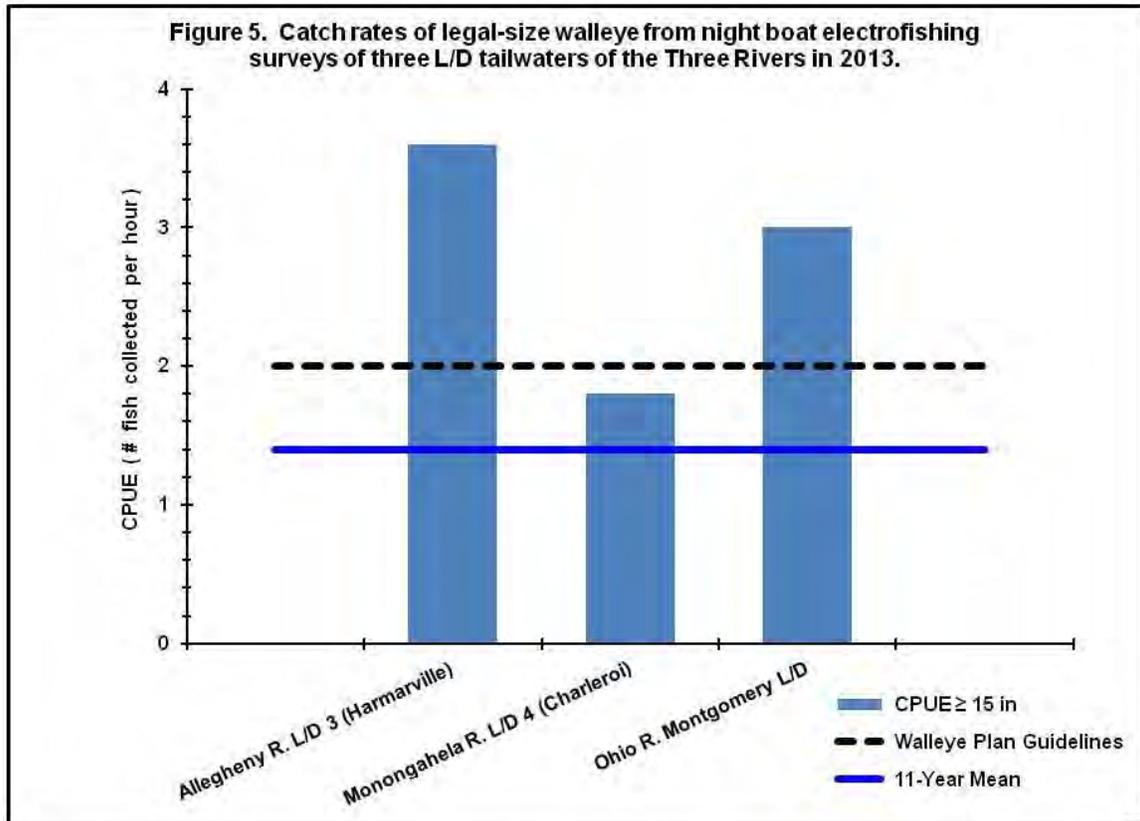


Figure 3. Area 8 intern Haley Renze (student at California University of Pennsylvania, Fisheries and Wildlife Biology program) with two smallmouth bass (16 and 17 inches) collected from the Monongahela River at L/D 4 tailwaters near Charleroi.

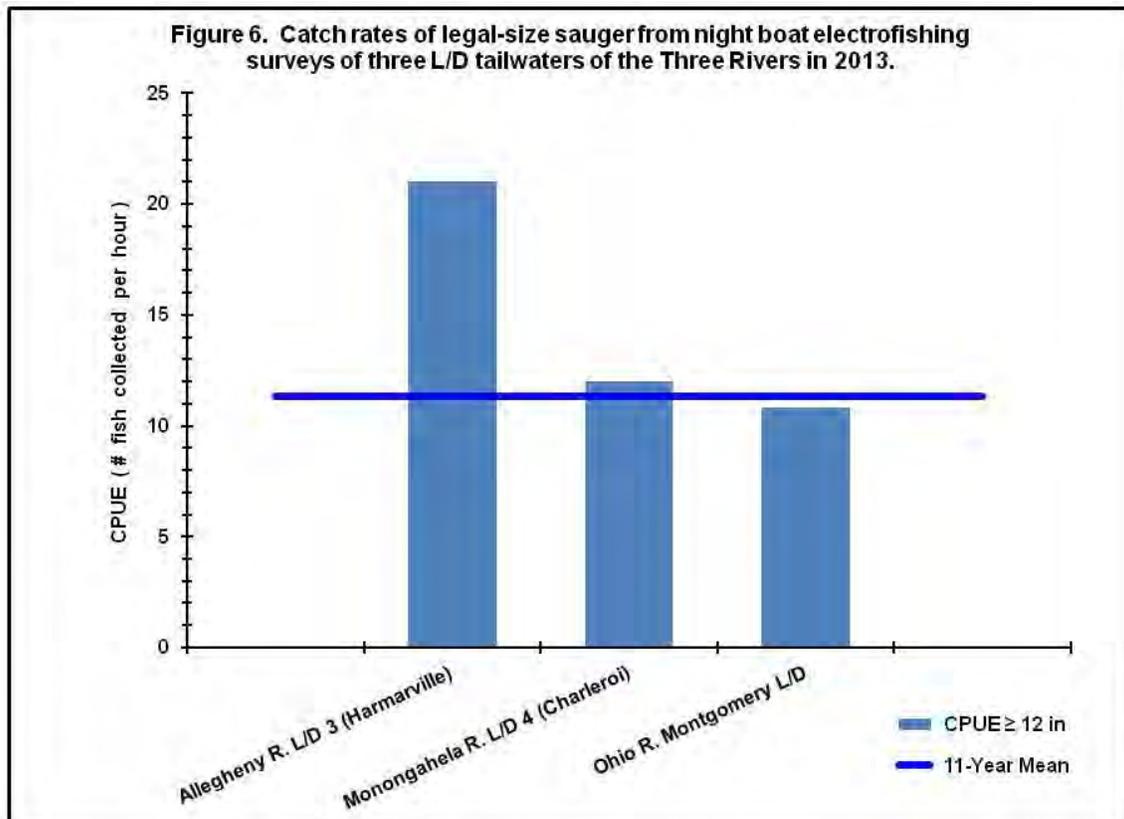


Figure 4. Area 8 intern Steve Bulebosh (student at California University of Pennsylvania, Fisheries and Wildlife Biology program) with an 18-inch smallmouth bass collected from the Allegheny River at L/D 3 tailwaters near Harmarville.

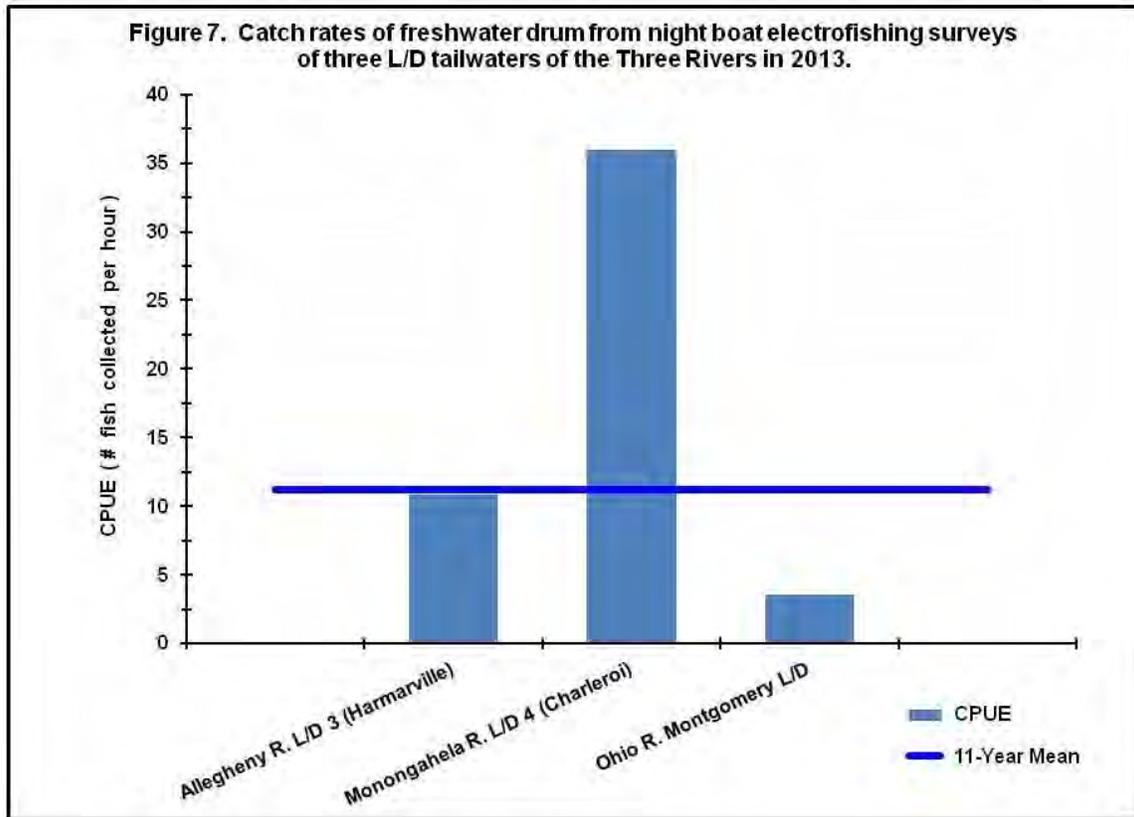
Remarkably, a greater than average number of legal-length (≥ 15 -inch) walleye were collected at all three L/D tailwater sites (Figure 5). Catch rates at L/D 3 and Montgomery L/D even exceeded the minimum 2.0 legal walleye per hour guidelines presented in our [Walleye Fisheries Management Plan](#).



Legal-length (≥ 12 -inch) sauger catch rates at all three L/D tailwater sites were well above (L/D 3) or near (L/D 4, Montgomery L/D) average (Figure 6).



Freshwater drum provide a hard-fighting alternative for Three Rivers anglers if smallmouth bass, walleye, and/or sauger are not cooperating. If an angler desired to target drum, we would most likely direct them to fish the Monongahela River, where this year we recorded the highest catch rate for this species at the tailwaters of L/D 4 (Figure 7).



White bass catch rates at L/D 3 and L/D 4 were not remarkable (Figure 8). However, at Montgomery L/D, we collected enough white bass to exceed the 11-year mean, and some of these were really nice fish (Figure 9).

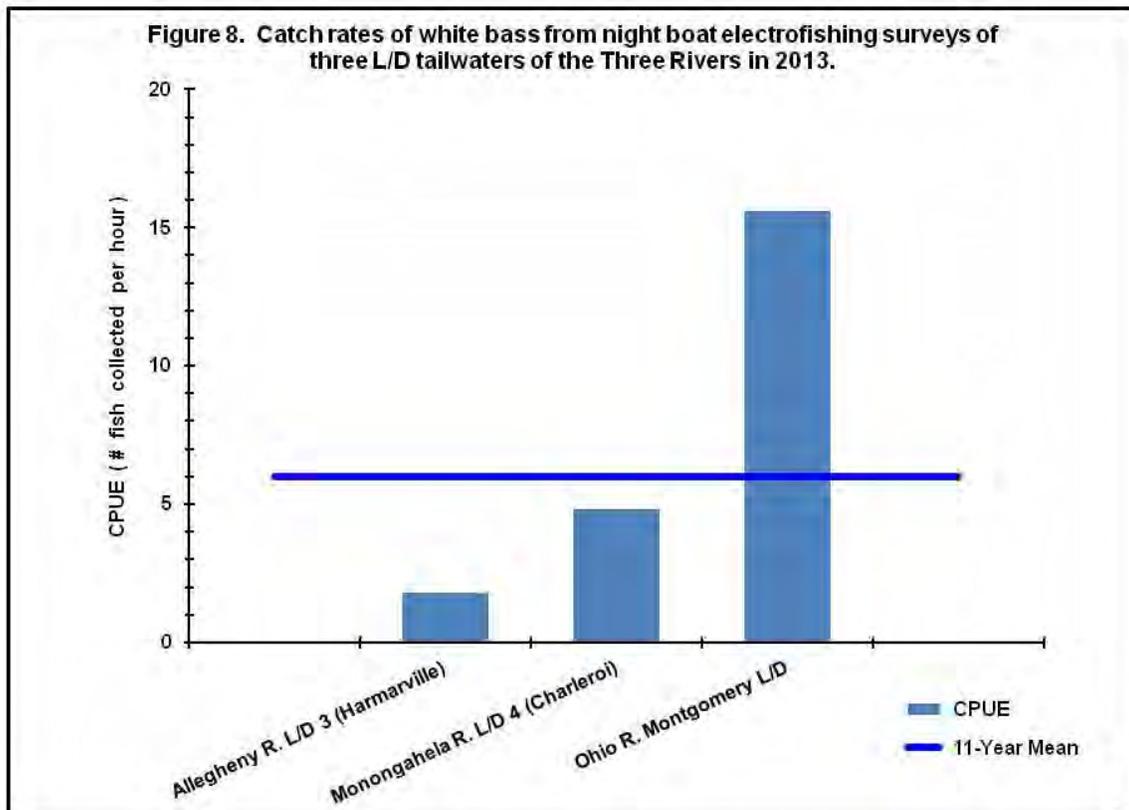
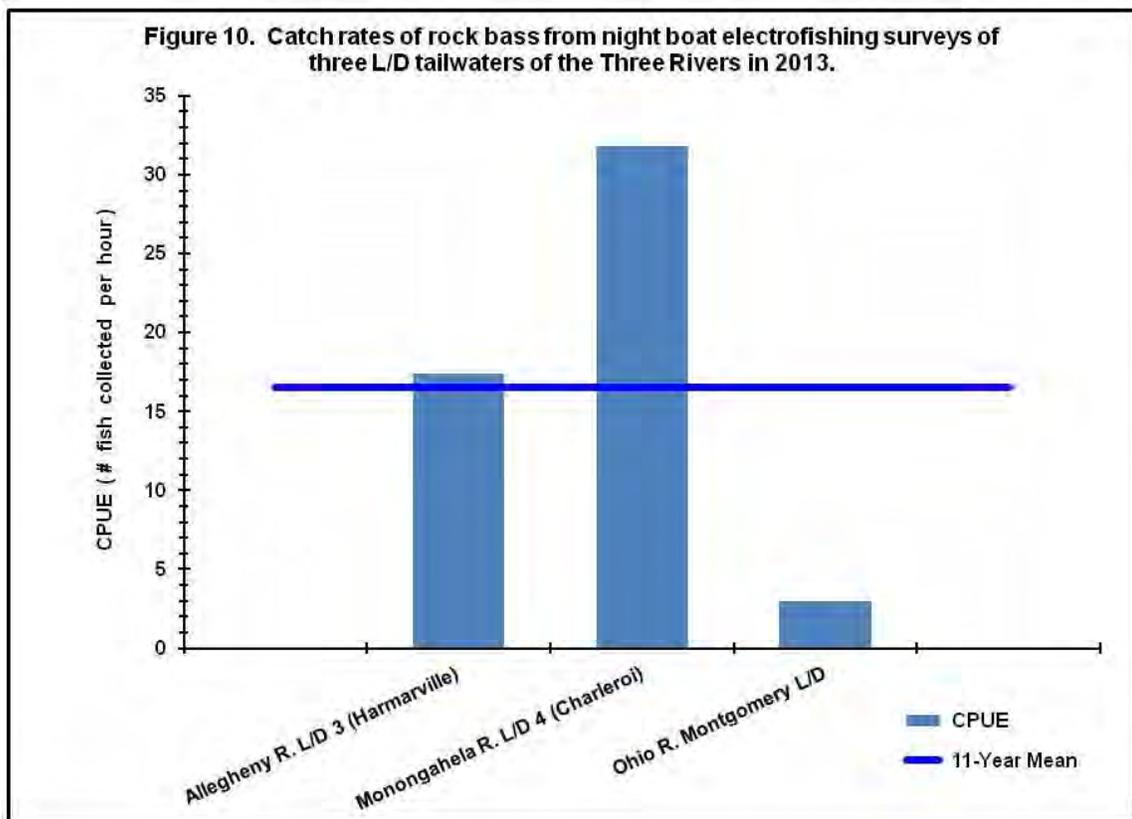




Figure 9. Area 8 intern Steven Griffith (student at Penn State University, Wildlife and Fisheries Science, Fisheries Option program) with 15-inch and 13-inch white bass collected from the Ohio River at Montgomery L/D tailwaters.

Rock bass catch rates were unremarkable at all three L/D sites, even at L/D 4 that exceeded the 11-year mean (Figure 10). Area 8 biologists have seen better catch rates for rock bass at other L/D sites surveyed prior to this year.



For our comprehensive large river assessment, aside from the trend analyses of gamefish abundances presented above, we also evaluate nongame fish assemblage diversity and use this information to depict the relative health of the Three Rivers. Some of this work has already been accomplished (see [2010 Biologist Report](#)).

A cursory examination of the total catch composition of each L/D tailwater site can be meaningful. For example, in terms of relative abundance, Allegheny River L/D 3 and Monongahela River L/D 4 appear to maintain a dominant forage base of minnows, and black bass (smallmouth, largemouth, and spotted) are the dominant predators (Figures 11 and 12).

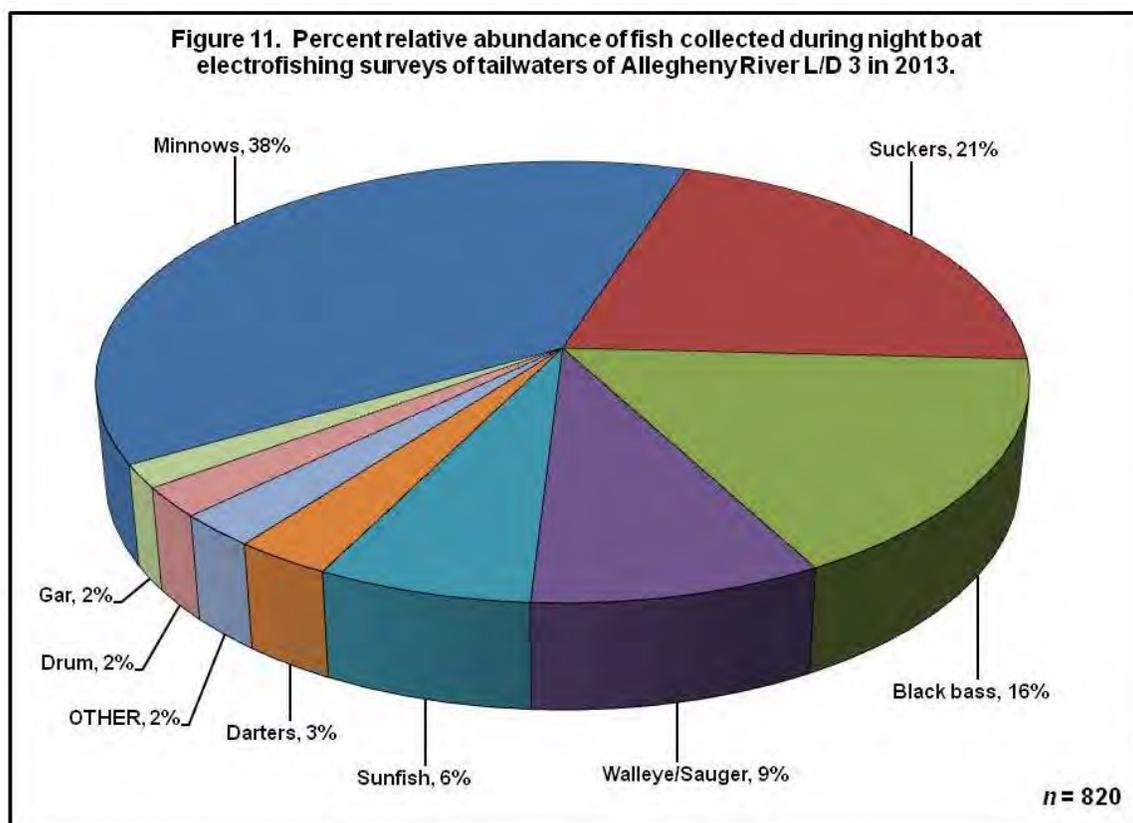
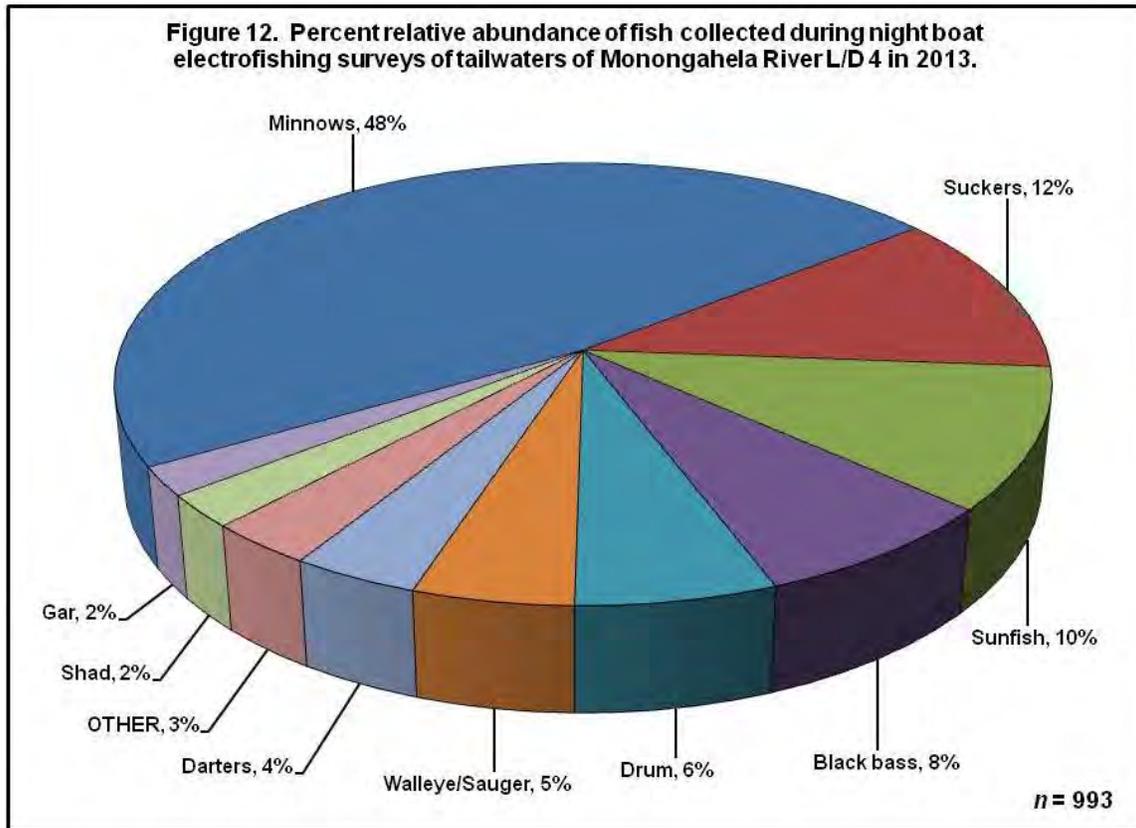
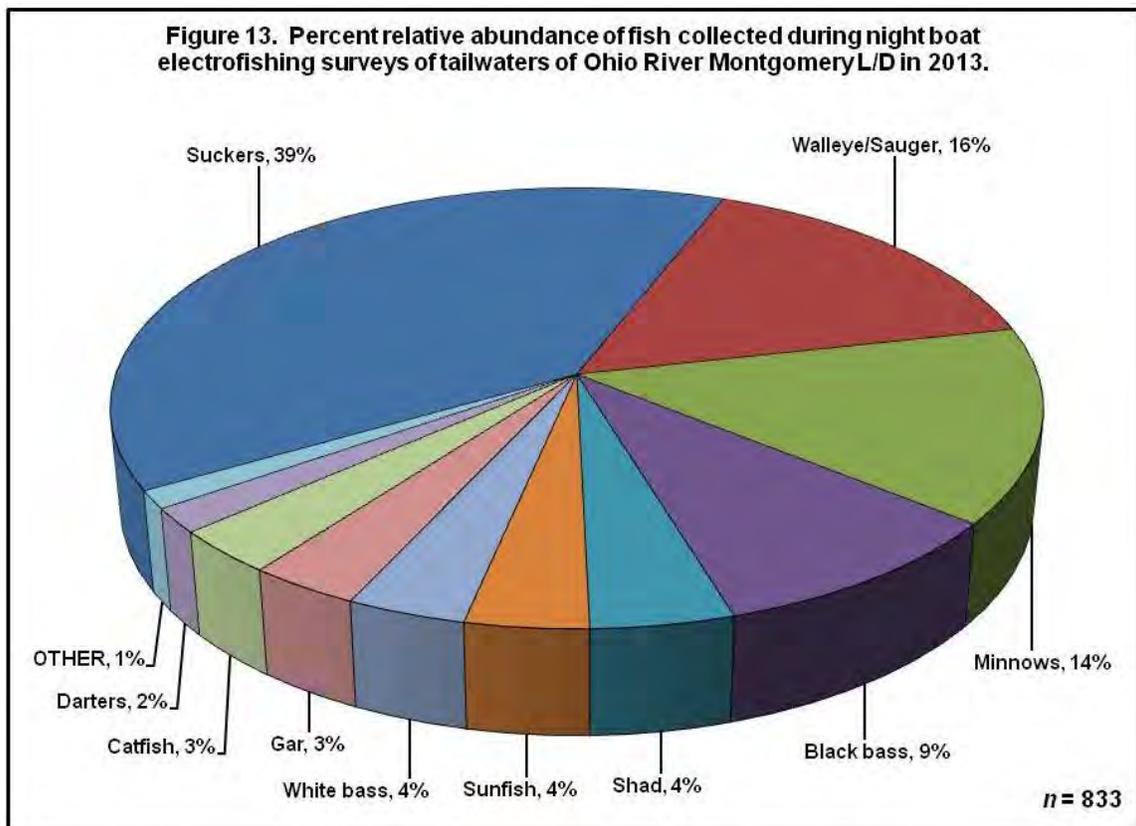


Figure 12. Percent relative abundance of fish collected during night boat electrofishing surveys of tailwaters of Monongahela River L/D 4 in 2013.



On the other hand, at Ohio River Montgomery L/D, suckers predominate, and the prevailing predator there appears to be walleye and sauger (Figure 13).

Figure 13. Percent relative abundance of fish collected during night boat electrofishing surveys of tailwaters of Ohio River Montgomery L/D in 2013.



In years past, Area 8 used ORSANCO's "Modified Ohio River Fish Index" (or [MORFIN](#) – a multimetric index method that uses fish assemblage data to depict biological integrity) to analyze fisheries data collected during L/D tailwater surveys. Combining our 11 years of L/D data and along with the MORFIN, Area 8 is now in the midst of developing a more specific multimetric index – the TWIN-FIN ("Tailwater Index of Fish Integrity"). Figures 14 and 15 (below) portray distributions (with [boxplots](#) depicting minimum, maximum, 25th percentile, 75th percentile, median, and mean values) of different TWIN-FIN metrics for L/D tailwater data collected over the past 11 years:

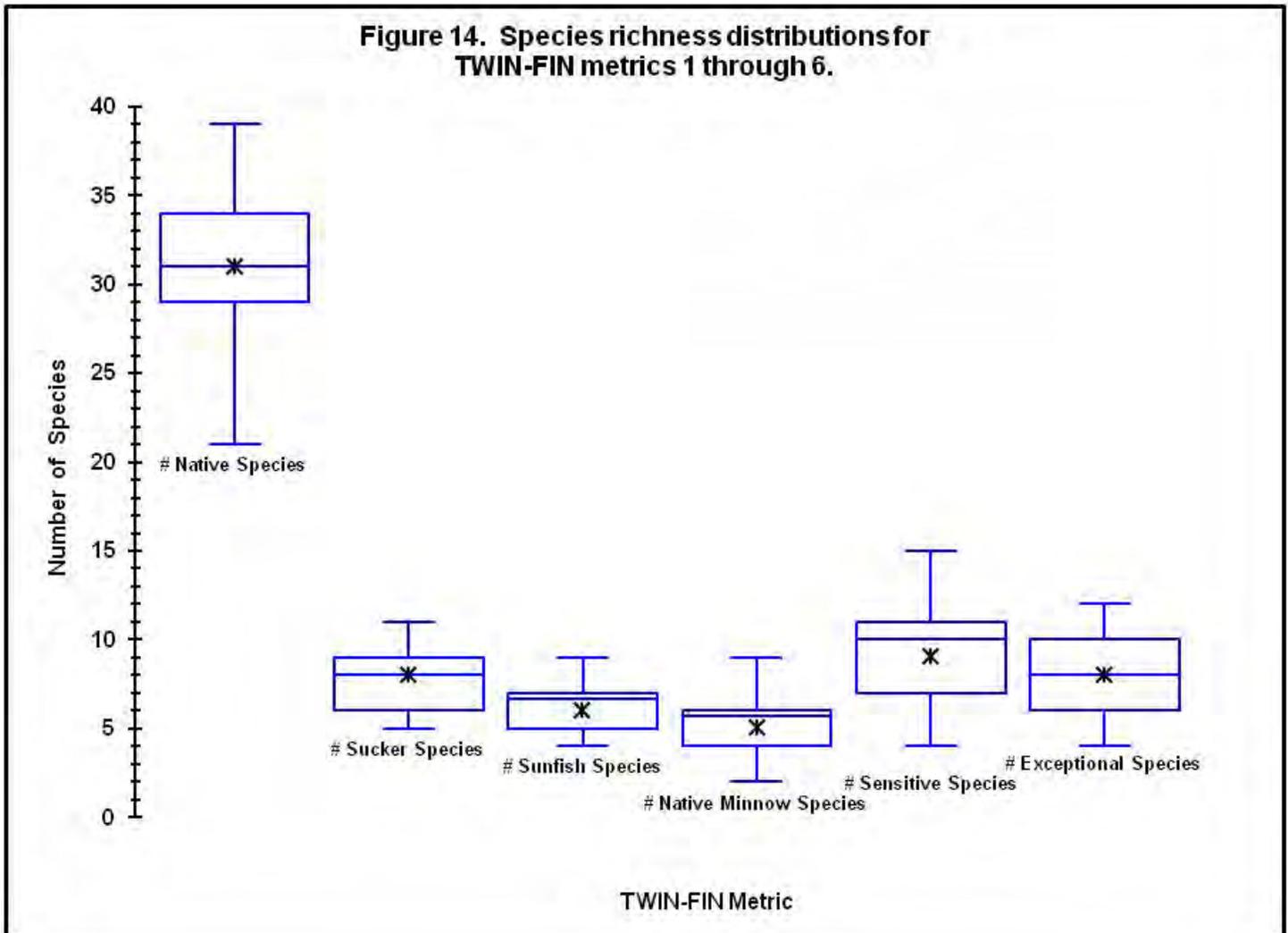
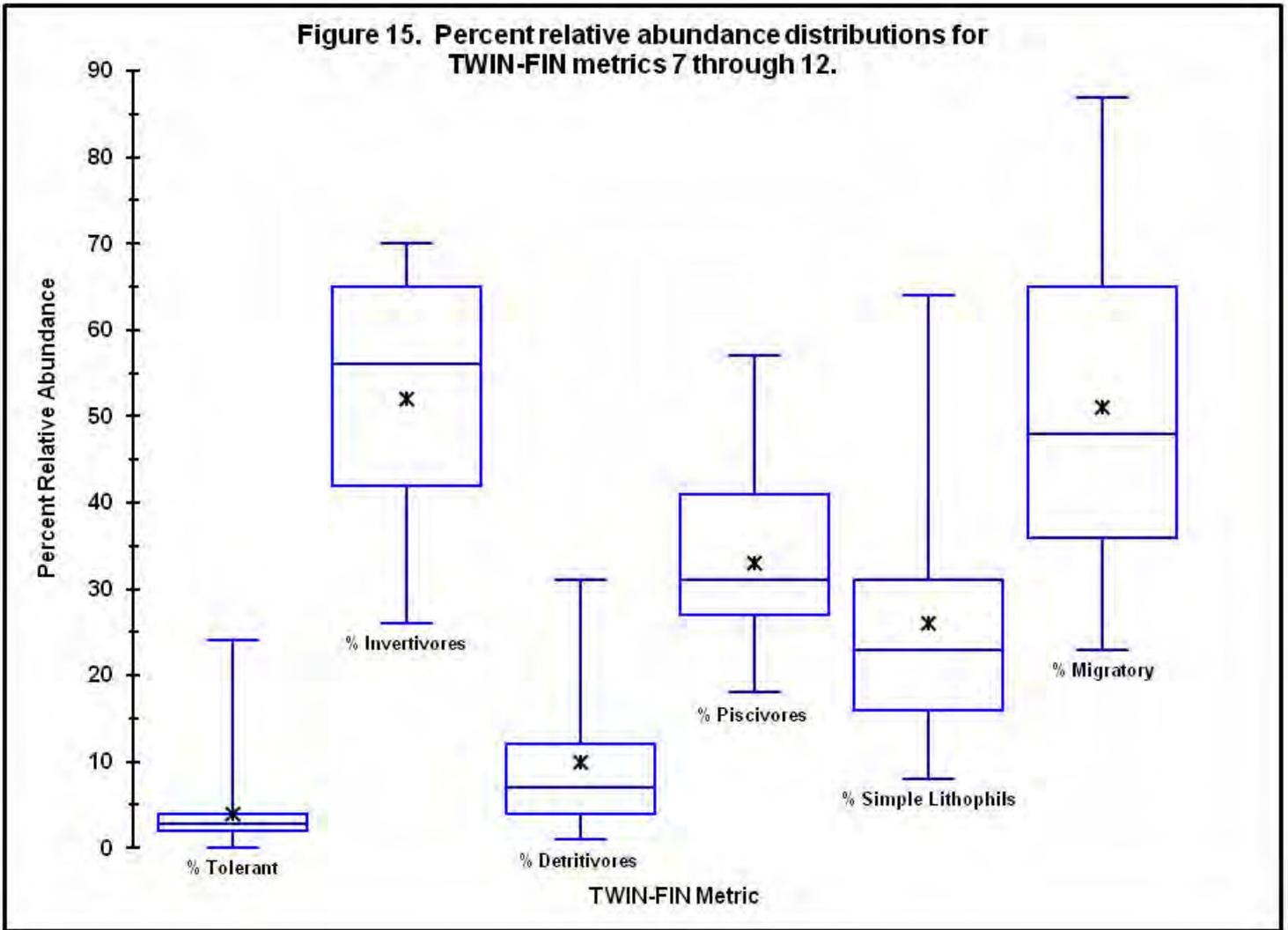


Figure 15. Percent relative abundance distributions for TWIN-FIN metrics 7 through 12.



Area 8's L/D tailwater surveys will continue to provide status and direction for management of our large river fisheries, as well as monitoring points for fish assemblage diversity. For 2014, Area 8 will survey a new set of L/D on the Three Rivers – most likely Point Marion L/D on the Monongahela River, and L/D 4 (at Natrona) and L/D 6 (near Clinton) on the Allegheny River. Our target is to have all L/D surveys completed by 2015. Our next objective will be to resurvey L/D tailwaters, consistent with management actions presented in our [Three Rivers Management Plan](#).

See you on the river!

Bob Ventorini
Three Rivers Fisheries Biologist