

## Project II: Evaluation of new recreational and commercial regulations on catfish in the Ohio River

### Project Objectives:

1. Determine abundance (CPUE), size structure, and condition of blue, channel, and flathead catfish in the Ohio River, and evaluate the effects of new regulations on blue, channel, and flathead catfish in the Ohio River, particularly trophy-size catfish.
2. Quantify age, growth, and mortality of the three species in each reach, and compare to previous data to determine if any changes have occurred over time.

### *Trotline Surveys*

After examining current methods used by KDFWR in 2017, it was evident that low-pulse electrofishing provided better estimates on relative abundance and size structure of blue catfish; however, trophy blue catfish were still believed to be underrepresented. In order to combat these issues, trotline methods were altered in 2018 with a larger focus on sampling more fish and more trophy blue catfish. Fresh cut bait of various rough fish species (predominantly smallmouth buffalo and silver carp) were gathered each week. The original plan was to change to 10/0 circle hooks, but price and availability proved to make that extremely difficult. Angler and commercial fishermen were consulted and KDFWR deemed that the current 5/0 circle hooks should still be sufficient. Additionally, dropper line was switched from 80 lbs test twine to 100 lbs braided line providing stronger droppers that are thinner and may be less detectible to catfish.

During summer 2018, trotlines (50 hooks/line) baited with fresh cut rough fish (primarily smallmouth buffalo and silver carp) were used to sample blue catfish and channel catfish. KDFWR crews completed sampling in the Meldahl, Cannelton, and Smithland pools of the Ohio River, and Indiana Department of Natural Resources sampled the JT Myers Pool. One-hundred twenty-one total trotlines were fished throughout those pools: 30 in Meldahl Pool, 33 in Cannelton Pool, 32 in JT Meyers Pool, and 26 in Smithland Pool (Table 1). CPUE of blue catfish and channel catfish increased from 2017 sampling in both the upper and trophy permit sections of the Ohio River (Table 2). Blue catfish CPUE (5.7 fish/line) in 2018 was higher than the historical average (2.2 fish/line) in the upper section of the Ohio River, as well as in the trophy permit section (2018 CPUE=4.8 fish/line; historical average CPUE=2.7 fish/line). The 2018 channel catfish CPUE in both the upper (2.4 fish/line) and trophy permit (2.4 fish/line) were above the historical averages (1.9 fish/line and 1.2 fish/line, respectively).

Blue catfish collected with trotlines ranged from 10.1 – 50.9 in in the upper section of the Ohio River with a mean length of 29.6 in, and ranged from 13.8 – 49.6 in in the trophy permit section with a mean length of 25.9 in (Table 3). Lengths of channel catfish ranged from 14.3 – 28.4 in with a mean length of 20.9 in in the upper section of the Ohio River, and ranged from 14.4 – 26.5 in with a mean length of 20.3 in in the trophy permit section. Trophy blue catfish were captured in all pools sampled during trotline sampling while trophy channel catfish were only observed in the Meldahl Pool.

Trotline catch rates for different size groups of each species of catfish were also examined. Due to the change in trotline methods in 2018, comparisons with previously collected data should be made with caution. Overall, blue catfish CPUE in 2018 was the third highest on record and the highest since trotlining sample sites became standardized in 2011. Additionally, this was the highest catch rate for blue catfish in the upper section of the Ohio River. The 20.0 – 29.9 in and larger size groups also had the highest CPUE since sampling began in the upper section of the Ohio River (Table 4) while the <12.0 in and 12.0 – 19.9 in size groups were at or below historical averages. All size groups examined showed increases in catch rates from 2017 to 2018 with the exception of the <12.0 in size group. Additionally, CPUE of trophy blue catfish was a record high (Figure 1). Channel catfish CPUE also increased from 2017 to 2018. This was due in large part to increases in 20.0 – 27.9 in fish in the upper and trophy permit sections (Table 5). Trophy channel catfish CPUE remained low in the upper section, and no trophy channel catfish were collected in the trophy permit section (Figure 2).

Trotline CPUE and size structure of blue catfish in the trophy permit section was lower than expected based on findings in the upper section of the river. The majority of commercial effort occurs on the trophy permit section, so catch rates and size structure should be monitored closely in the near future. Though only one year of results, the combination of fresh bait and braided dropper line seemed to produce better catch rates of blue catfish, especially larger fish; therefore increased mean length of fish sampled. Trotlining with these new methods should be continued to monitor abundance of larger blue catfish. Trotlining, even with new methods, is likely not the best means to sample channel catfish. Beginning in 2019, trotlines will only be used to evaluate blue catfish.

### *Hoop Net Surveys*

*Commercial hoop net ride-alongs*— Ride-alongs with commercial fishers using hoop nets were conducted in the McAlpine, Cannelton, Newburgh, and JT Myers pools to gather commercial catch data of blue catfish and flathead catfish. Methods such as net size, soak time, baiting, and habitat can vary widely between and even among commercial fishers. Trend data should be viewed with caution, and more emphasis placed on the presence of larger fish in the sample. Data collected from these ride-alongs are meant to supplement Department hoop net data. Only blue catfish and flathead catfish are measured in an effort to minimize time lost by commercial fishers. Observations from commercial ride-alongs and Department hoop netting in previous years have indicated that channel catfish are abundant and size structure is acceptable. Unbaited, single nets were set overnight for three to four consecutive net nights in the main stem of the river. Nets were fished for a total of 201 net-nights; 87 in the upper sections and 114 in the trophy permit section (Table 6). Blue catfish overall CPUE in 2018 was a record high 0.9 fish/net-night after a record low in 2017 (Table 7). Flathead catfish overall CPUE was 1.4 fish/net-night, and was near or above historical averages in both the upper and trophy permit sections of the Ohio River.

Blue catfish collected in commercial hoop nets ranged from 13.1 – 39.0 in in the upper section of the Ohio River with a mean length of 25.5 in, and ranged from 16.7 – 46.9 in with a mean length of 25.8 in in the trophy permit section of the Ohio River (Table 8). Flathead catfish lengths ranged from 16.0 – 43.3 in with a mean length of 27.2 in in the upper section, and ranged from 13.1 – 47.9 in with a mean length of 24.3 in in the trophy permit section of the Ohio River. Trophy blue catfish were observed in all pools sampled except McAlpine, and trophy flathead catfish were observed in all pools sampled.

Catch rates for different size groups of each species of catfish were also examined. Total CPUE of blue catfish had declined for two consecutive sample years; however, increased catch rates were observed in both the upper and trophy permit sections of the river in 2018 (Table 9). Minimal differences in catch occurred in the upper section of the Ohio River, but increases in overall CPUE in the trophy permit section was a result of increased catch of 20.0 – 29.9 in fish. Blue catfish are not effectively or consistently sampled in hoop nets, and blue catfish data from hoop nets should be viewed cautiously since other sampling methods such as electrofishing have been proven to be more effective and accurate sampling methods. In 2018, flathead catfish CPUE for all size groups remained identical to 2017 in the upper section, but increases in the 12.0 – 19.9 in and 20.0 – 29.9 in size groups were observed in the trophy permit section (Table 10).

Data collected from commercial ride-alongs present numerous problems. Commercial fishermen have different levels of experience and knowledge of the river. They often fish different net sizes (both between and among fishermen) and have different soak times. The sample sites are also inconsistent from year to year. These inconsistencies make it impossible to standardize the sampling and provide the most accurate data. Beginning in 2019, it is recommended that commercial ride-alongs cease. Rather, KDFWR will run additional, larger (4.0 ft) unbaited hoop nets targeting flathead catfish and standard baited hoop nets targeting channel catfish in 2019. This should help to reduce field and travel time without sacrificing effort.

*Department hoop net surveys*—Based on the results of a 2017 project, KDFWR decided that hoop netting on the Ohio River will be done using ZOTE® soap as bait. This change in methods provides a more representative sample of the channel catfish population in the Ohio River. Department hoop netting was

conducted in the Meldahl, Cannelton, and Smithland pools to gather data from hoop net catch of channel catfish and flathead catfish. Single nets baited with ZOTE<sup>®</sup> soap were set overnight for two consecutive net nights in the main stem of the river. Hoop nets were fished for a total of 270 net-nights; 112 in Meldahl Pool, 118 in Cannelton Pool, and 40 in Smithland Pool (Table 11). Catch rate of channel catfish was 4.2 fish/net-night in the upper section of the Ohio River and 1.7 fish/net-night in the trophy permit section of the Ohio River (3.8 fish/net-night overall). CPUE of channel catfish was down nearly 50% from 2017 in the upper section and down just slightly in the trophy permit section (Table 12). Catch rate of flathead catfish was 0.3 fish/net-night in the upper section of the Ohio River and 0.2 fish/net-night in the trophy permit section of the Ohio River (0.3 fish/net-night overall; Table 11). These numbers are nearly identical to those of 2017.

Lengths of channel catfish ranged from 5.9 – 28.1 in with a mean length of 15.6 in in the upper section of the Ohio River, and ranged from 8.8 – 22.8 in with a mean length of 15.7 in in the trophy permit section (Table 13). Catch rates of trophy channel catfish have remained low throughout sampling years (Table 14). Flathead catfish ranged from 8.9 – 45.0 in with a mean length of 21.0 in in the upper section, and ranged from 10.2 – 23.1 in with a mean length of 18.0 in in the trophy permit section of the Ohio River. Trophy flathead catfish were caught in low numbers in the Meldahl and Cannelton Pools but none were sampled in the Smithland Pool.

Hoop net catch rates were also examined for different size groups of each species of catfish. Channel catfish catch rates were higher in the upper section for each size group, and the 12.0 – 19.9 in size group had the highest catch rates in both the upper and trophy permit sections (Table 14). Additionally, nearly all size groups in the both sections had decreased catch rates from 2017. CPUE of flathead catfish was slightly higher in the upper section of the Ohio River but catch rates for both the upper and trophy permit sections were similar across all size groups in 2017 (Table 15). The low catch rates of flathead catfish in baited hoopnets demonstrates the ineffectiveness of the sampling method for the species. This provides another incentive for KDFWR to sample with additional larger and unbaited nets beginning in 2019.

### *Electrofishing Surveys*

Low-pulse DC electrofishing was conducted in seven pools in June 2018: Meldahl, Markland, McAlpine, and Cannelton in the upper section and Newburgh, JT Myers, and Smithland in the trophy permit section. A total of 35.0 hr of electrofishing effort was conducted (20.0 hr in the upper section and 15.0 hr in the trophy permit section) resulting in a total catch of 1,393 blue catfish and 1,890 flathead catfish (Table 16). Overall CPUE of blue catfish was a record high of 39.8 fish/hr and well above the historical average of 16.2 fish/hr (Table 17). The same trend can be seen in both the upper section of the Ohio River (CPUE=35.6 fish/hr), and the trophy permit section of the Ohio River (CPUE=45.4 fish/hr). Overall flathead catfish CPUE was also a record high 54.0 fish/hr and well above the historical average (31.8 fish/hr). The 2018 CPUE of flathead catfish in the upper section of the Ohio River was 52.2 fish/hr, while CPUE of flathead catfish in the trophy permit section was 56.4 fish/hr, both record highs.

Blue catfish collected with electrofishing ranged from 6.2 – 42.5 in in the upper section of the Ohio River with a mean length of 17.9 in, and ranged from 4.4 – 46.2 in with a mean length of 19.3 in in the trophy permit section (Table 18). Flathead catfish lengths ranged from 3.2 – 45.0 in with a mean length of 16.4 in in the upper section, and ranged from 3.0 – 44.8 in with a mean length of 14.4 in in the trophy permit section of the Ohio River. Trophy blue catfish were observed in every pool sampled except Markland, and trophy flathead catfish were observed in all pools sampled.

Electrofishing catch rates were also examined for different size groups of each species of catfish. CPUE of <12.0 in, and 12.0 – 19.9 in blue catfish were similar in both sections of the river, while 20.0 – 29.9 in, and 30.0 – 34.9 in, and ≥35.0 in blue catfish were higher in the trophy permit section of the Ohio River (Table 19). Total CPUE in both sections were at record highs, due in large part to record high catch rates of 20.0 – 29.9 in blue catfish. CPUE of blue catfish ≥35.0 in was also a record high in the trophy permit section and overall in 2018. CPUE of all Flathead catfish size groups examined were similar in the upper and trophy permit sections with the exception of the <12.0 in size group (Table 20). Increases in CPUE

from 2017 to 2018 were evident in nearly all size groups examined for both river sections. CPUE of trophy flathead catfish was a record high in the upper and trophy permit sections.

### *Catfish Tournament Surveys*

Recreational catfish tournaments were attended in five Ohio River pools to gather additional catfish data. A total of 8 tournaments were attended with 781 boats competing. Collectively, catfish tournament anglers weighed in 1,282 blue catfish, 345 channel catfish, and 207 flathead catfish, with a total catfish CPUE of 2.3 fish/boat (maximum possible CPUE=5.0 fish/boat) and was a slight increase from 2017. Of all catfish weighed in, 11.8% were considered trophy catfish as defined by recreational regulations discussed above (up from 9.8% in 2017; Table 21). Catch rates for blue catfish and flathead catfish have displayed small increases since 2013, while channel catfish catch rates have been steadily decreasing since 2013 (Table 22).

Blue catfish sampled at catfish tournaments in the upper section of the Ohio River during 2018 ranged from 12.2 – 51.1 in with a mean length of 28.4 in and mean CPUE of 1.7 fish/boat, and ranged from 12.1 – 53.0 in with a mean length of 29.8 and mean CPUE of 1.6 fish/boat in the trophy permit section (Table 23). Channel catfish lengths ranged from 14.4 – 31.8 in with a mean length of 23.2 in and mean CPUE of 0.6 fish/boat in the upper section, and ranged from 13.6 – 29.5 in with a mean length of 22.4 in and mean CPUE of 0.3 fish/boat in the trophy permit section of the Ohio River. Flathead catfish are not typically targeted by tournament anglers, and as a result were not as commonly caught (CPUE=0.3 fish/boat in the upper and CPUE=0.2 fish/boat in the trophy permit section). Flathead catfish ranged from 16.5 – 47.3 in with a mean length of 25.7 in in the upper section of the Ohio River, and ranged from 17.9 – 49.5 in with a mean length of 27.1. Tournament catch rates of trophy catfish for blue catfish, channel catfish, and flathead catfish have remained stable since 2013 (Tables 24, 25, and 26; Figures 1, 2, and 3).

Tournament catch rates were also examined for different size groups of each species of catfish. Overall, blue catfish CPUE has shown small increases since 2013 (Table 24). CPUE of 12.0 – 19.9 in blue catfish in the upper section of the Ohio River have decreased each year since 2013, likely because CPUE of 20.0 – 29.9 in and 30.0 – 34.9 in blue catfish has increased (bigger fish brought to weigh in). Catch rates of all size groups of blue catfish in the trophy permit section of the river have fluctuated very little over the past six years. Overall tournament CPUE of trophy blue catfish in the Ohio River has remained at 0.2 fish/boat since 2013 (Table 24; Figure 1). Catch rates of channel catfish have decreased since 2013 (Table 25). This decrease can be attributed to a decrease in CPUE of 20.0 – 27.9 in channel catfish in the upper section of the Ohio River. Trophy channel catfish CPUE has remained at 0.1 fish/boat or less since 2013 (Figure 2). CPUE of channel catfish may continue to decrease in the future if more and larger blue catfish and flathead catfish are brought to weigh in by tournament anglers. Flathead catfish tournament CPUE for all size groups examined have remained consistent since 2013 (Table 26), and trophy flathead catfish CPUE has remained below 0.1 fish/boat since 2013 (Figure 3).

Catch rates from catfish tournaments have remained nearly identical since tournament attendance by KDFWR staff began in 2013. Data collected from these tournaments (much like commercial ride-alongs) presents many issues. Most tournaments impose a 5 fish limit meaning that maximum CPUE is 5 fish/boat. There is no way of knowing how many boats caught only 5 fish or caught 50 fish, for example, throughout the tournament. Many anglers choose not to weigh their fish if they believe they will not finish in a position high enough to payout. Some tournaments provide an incentive to anglers in this position to not weigh in. This means that data from those fish are not collected by KDFWR and can deflate CPUE. Current regulations also make it difficult to calculate CPUE of trophy fish since there is a limit on the number of fish that can be kept (again deflating catch rates). Tournaments typically happen over a one or two day period and results can be highly dependent upon river conditions and time of year. Additionally, experience level of anglers can have an impact on data collected. KDFWR sampling (electrofishing, hoop nets, and trotlines) are highly standardized, meaning sampling sites, size of gear, settings on electrical gear, bait, time of year, water temperature, etc. are all kept consistent across years to minimize variability within the data. Additionally, the methods KDFWR uses to sample catfish are considered to be effective and widely accepted by professional fisheries organizations and other state and federal agencies. It is

recommended that tournament attendance and data collection by KDFWR cease in 2019 and that assessments of the fishery be based on KDFWR standardized sampling results.

### *Relative Weight*

Relative weight ( $W_r$ ) was also calculated for each species of catfish. Fish collected from all sampling methods used were combined to provide a more representative estimate for the entire populations of each catfish species. Overall  $W_r$  of blue catfish ( $N=2,429$ ) in 2018 was 104 ( $SE=0.6$ ), the lowest since 2013 but still in excellent condition (Table 27). Overall relative weight of channel catfish ( $N=1,219$ ) was 90 (0.8), which was the second lowest since 2013 in each area. Flathead catfish ( $N=1,705$ ) overall relative weight was 101 ( $SE=0.8$ ). Overall, blue catfish and flathead catfish appear to be in good condition throughout the river, while channel catfish relative weights are consistently below 100.

### *Age, Growth, and Mortality*

In spring 2017, otoliths (up to 5 per inch class for fish  $<30.0$  in and up to 3 per inch class for fish  $\geq 30.0$  in) were taken from blue catfish, channel catfish, and flathead catfish to assess growth rates for each species. Separate samples were taken from the upper and trophy permit sections. Von Bertalanffy growth equations were calculated by river section and sex for each species (Table 28). Male blue catfish seemed to grow faster in the upper section, but the opposite was observed in the trophy permit section. On average, it took blue catfish 17.7 years to reach trophy size ( $\geq 35.0$  in; Table 29). Channel catfish exhibited slightly faster growth in the upper section of the Ohio River, but no large differences were seen in growth between sexes. Overall, channel catfish reached trophy size (28.0 in) at 20.0 years (Table 30). There was no noticeable difference in growth rates of flathead catfish between sexes; however, flathead catfish exhibited faster growth in the trophy permit section of the Ohio River. On average a flathead catfish in the upper section reached trophy size (35.0 in) at 20.6 years, while flathead catfish in the trophy permit section reached trophy size nearly three years quicker at 17.7 years. Overall, flathead catfish reached trophy size at 20.1 years (Table 31). Growth of all three species of catfish sampled was extremely variable, particularly as fish grew older and larger, with some fish growing much slower than the Von-Bertalanffy model described and some growing much faster.

Total annual mortality estimates were made on all three species of catfish based off length-at-age of capture data from otoliths and paired with unaged catfish collected with multiple sampling techniques in 2017. Length frequency data from 2018 was paired with the 2017 age-length key to provide mortality estimates for 2018. Using Fishery Analysis and Modeling Simulator (FAMS), a separate weighted catch-curve regression was run on each species of catfish for each sampling method to calculate a range of total annual mortality estimates. As a precautionary step, the highest mortality estimate calculated for each species is reported to avoid underestimates and potentially masking problems in the populations. In 2018, river-wide total annual mortality for blue catfish was 19.8% and was lower in the upper section (18.8 %) than the trophy permit section (22.0%; Table 32). Channel catfish total annual mortality was 28.0% overall (31.1% in the upper section and 22.9% in the trophy permit section). Overall flathead catfish total annual mortality was 18.0% (17.4% in the upper section and 21.2% in the trophy permit section). Mortality rates for blue catfish increased in both the upper and trophy permit sections from 2017 estimates. Channel catfish mortality rates were higher in the upper section of the Ohio River but decreased in the trophy permit section, while flathead catfish saw the opposite trend when compared to 2017. Though increases were seen in mortality rates in some areas, estimates were still considered acceptable.

### *Commercial Fishing Industry*

Commercial fishing for catfish has long been present in the Ohio River, but recent concerns of potential overharvest have warranted further investigations. Harvest of blue catfish began increasing from 2004 to 2005 and has remained near 200,000 lbs through 2018 with the exception of large peaks in 2012 as well

as in 2016 and 2017 (Figure 4). Channel catfish harvest has fluctuated but generally increased from 2007 – 2012. Channel catfish harvest was around 150,000 lbs for each of the years from 2014 – 2017, and saw a decline to just over 100,000 lbs in 2018. Flathead catfish trends are similar to channel catfish; however, harvest has been below average the past four years. Unfortunately, commercial fish harvest reports do not include detailed information about gear (number of net nights, baited vs. unbaited, length of gillnet, etc.); however, the number of hooks fished for trotlines as well as number of hoop nets fished is required to be reported. Although trotline and hoop net harvest should not be considered indicative of the entire commercial catfish harvest, it is the best available method to analyze trends in commercial catfish harvest rates. Effort (number of hooks for trotlines and number of nets for hoop nets) and pounds harvested by method were examined to determine if harvest rates varied over the years. Trotlines are more effective at capturing blue catfish, while hoop nets are more effective when targeting channel and flathead catfish according to commercial harvest data. Channel catfish can be effectively captured by both gears. Each species was examined according to the most effective gear. The harvest rate of blue catfish increased sharply from 2004 to 2005, then increased gradually from 2005 – 2018, and is currently at an all-time high for the third consecutive year (Figure 5). Recent decreases in total pounds of catfish harvested in 2013 and 2014 described above are likely not a result of decreased harvest rates, but rather a decrease in effort. Channel catfish trotline harvest rates has been extremely consistent since 2004 (Figure 5). Channel catfish and flathead catfish harvest in commercial nets have both remained between 5 – 15 pounds/net; however, a drastic spike in harvest occurred in 2012 and 2013 (Figure 6). Reasons for this extreme peak in harvest are not known, but could be a result of prolonged favorable fishing conditions or demand for fish.

Table 1. CPUE (fish/line) of blue catfish and channel catfish collected during trotline surveys on the Ohio River in 2018. Standard errors are in parentheses.

Pool	Pool	No. of trotlines	No. of Blue Catfish	CPUE	No. of Channel Catfish	CPUE
Upper	Meldahl	30	136	4.5 (0.5)	107	3.6 (0.4)
	Cannelton	33	220	6.7 (0.8)	41	1.2 (0.3)
	Total	63	356	5.7 (0.5)	148	2.4 (0.3)
Trophy permit	JT Meyers	32	194	6.1 (0.9)	107	3.3 (0.4)
	Smithland	26	82	3.2 (0.4)	31	1.2 (0.2)
	Total	58	276	4.8 (0.6)	138	2.4 (0.3)
Overall	Total	121	632	5.4 (0.4)	286	2.4 (0.2)

Table 2. CPUE (fish/line) of blue catfish and channel catfish collected during trotline surveys on the Ohio River from 2004 - 2018. Standard errors are in parentheses.

Section	Year	Species	
		Blue catfish	Channel catfish
Upper	2005	0.0	1.9 (0.4)
	2010	4.0 (0.4)	2.6 (0.3)
	2012	2.3 (0.6)	2.3 (0.8)
	2013	1.0 (0.5)	1.3 (0.3)
	2014	1.9 (0.4)	1.4 (0.2)
	2015	1.9 (0.3)	1.6 (0.3)
	2016	3.6 (0.3)	2.2 (0.2)
	2017	2.7 (0.2)	1.9 (0.2)
	2018*	5.7 (0.5)	2.4 (0.3)
Mean**	2.2 (0.5)	1.9 (0.2)	
Trophy permit	2004	1.5 (0.3)	1.1 (0.4)
	2005	1.8 (0.4)	0.5 (0.1)
	2006	6.6 (1.2)	1.2 (0.3)
	2007	2.4 (0.5)	1.2 (0.4)
	2008	5.9 (0.7)	1.6 (0.3)
	2011	3.9 (0.6)	2.0 (0.4)
	2012	3.9 (1.8)	0.4 (0.1)
	2013	1.3 (0.4)	1.0 (0.3)
	2014	0.9 (0.2)	0.6 (0.2)
	2015	1.3 (0.2)	0.7 (0.2)
	2016	1.9 (0.3)	1.9 (0.2)
	2017	1.1 (0.2)	1.6 (0.2)
	2018*	4.8 (0.6)	2.4 (0.3)
	Mean**	2.7 (0.6)	1.2 (0.2)
Overall	2004	1.5 (0.3)	1.1 (0.4)
	2005	1.5 (0.4)	0.8 (0.1)
	2006	6.6 (1.2)	1.2 (0.3)
	2007	2.4 (0.5)	1.2 (0.4)
	2008	5.9 (0.7)	1.6 (0.3)
	2010	4.0 (0.4)	2.6 (0.3)
	2011	3.9 (0.6)	2.0 (0.4)
	2012	3.0 (0.8)	1.6 (0.6)
	2013	1.2 (0.2)	1.1 (0.1)
	2014	1.3 (0.1)	1.0 (0.1)
	2015	1.6 (0.2)	1.2 (0.1)
	2016	2.8 (0.2)	2.1 (0.2)
	2017	2.0 (0.2)	1.8 (0.1)
	2018*	5.2 (0.4)	2.4 (0.2)
	Mean**	2.9 (0.5)	1.5 (0.1)

\*New methods were adopted for trotlining including changes in bait and style of dropper lines.

\*\*Mean calculated from 2004 - 2017 data prior to changing methods.





Table 4. CPUE (fish/line) by size group of blue catfish collected during trotline surveys on the Ohio River from 2004 - 2018. Standard errors are in parentheses.

Section	Year	Size group (in)					Total
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	≥35.0	
Upper	2005	0.0	0.0	0.0	0.0	0.0	0.0
	2010	0.0	0.2 (<0.1)	1.9 (0.3)	1.1 (0.3)	0.7 (0.2)	4.0 (0.4)
	2012	0.1 (<0.1)	0.1 (0.1)	1.4 (0.6)	0.4 (0.2)	0.2 (0.1)	2.3 (0.6)
	2013	<0.1 (<0.1)	0.2 (0.1)	0.6 (0.3)	0.1 (0.1)	<0.1 (<0.1)	1.0 (0.5)
	2014	<0.1 (<0.1)	0.6 (0.3)	0.7 (0.4)	0.4 (0.1)	0.2 (0.1)	1.9 (0.4)
	2015	<0.1 (<0.1)	0.6 (0.2)	0.7 (0.4)	0.4 (0.2)	0.2 (0.1)	1.9 (0.3)
	2016	<0.1 (<0.1)	0.9 (0.4)	1.9 (0.3)	0.6 (0.2)	0.1 (<0.1)	3.6 (0.3)
	2017	0.0	0.5 (0.1)	1.8 (0.2)	0.2 (0.1)	0.2 (0.1)	2.7 (0.2)
	2018*	<0.1 (<0.1)	0.2 (0.1)	3.0 (0.3)	1.2 (0.2)	1.3 (0.2)	5.7 (0.5)
Mean**	<0.1 (<0.1)	0.4 (0.1)	1.1 (0.3)	0.4 (0.1)	0.2 (0.1)	2.2 (0.5)	
Trophy permit	2004	0.0	0.3 (0.2)	0.9 (0.2)	0.3 (0.2)	0.1 (0.1)	1.5 (0.3)
	2005	0.0	<0.1 (<0.1)	1.3 (0.5)	0.3 (0.2)	0.2 (0.1)	1.8 (0.4)
	2006	<0.1 (<0.1)	0.8 (0.2)	5.0 (1.0)	0.6 (0.2)	0.2 (0.1)	6.6 (1.2)
	2007	0.0	0.3 (0.1)	1.5 (0.4)	0.5 (0.2)	0.1 (<0.1)	2.4 (0.5)
	2008	0.0	0.6 (0.2)	4.1 (0.8)	1.0 (0.1)	0.1 (0.1)	5.9 (0.7)
	2011	0.0	0.2 (0.1)	2.7 (0.5)	0.9 (0.3)	0.3 (0.1)	3.9 (0.6)
	2012	<0.1 (<0.1)	1.6 (0.8)	2.0 (0.9)	0.2 (0.2)	0.1 (0.1)	3.9 (1.8)
	2013	0.2 (0.1)	0.4 (0.1)	0.6 (0.2)	0.1 (0.1)	<0.1 (<0.1)	1.3 (0.4)
	2014	0.0	0.4 (0.2)	0.3 (0.2)	0.1 (0.1)	<0.1 (<0.1)	0.9 (0.2)
	2015	0.0	0.3 (0.2)	0.7 (0.5)	0.2 (0.2)	0.1 (<0.1)	1.3 (0.2)
	2016	0.0	0.5 (0.2)	1.0 (0.6)	0.3 (0.1)	0.1 (<0.1)	1.9 (0.3)
	2017	0.0	0.2 (0.2)	0.8 (0.2)	0.1 (0.1)	0.0	1.1 (0.2)
	2018*	0.0	0.3 (0.1)	3.6 (0.5)	0.6 (0.1)	0.3 (0.1)	4.8 (0.6)
	Mean**	<0.1 (<0.1)	0.5 (0.1)	1.7 (0.4)	0.4 (0.1)	0.1 (<0.1)	2.7 (0.6)
Overall	2004	0.0	0.3 (0.2)	0.9 (0.2)	0.3 (0.2)	0.1 (0.1)	1.5 (0.3)
	2005	0.0	<0.1 (<0.1)	1.0 (0.6)	0.2 (0.1)	0.2 (0.1)	1.5 (0.4)
	2006	<0.1 (<0.1)	0.8 (0.2)	5.0 (1.0)	0.6 (0.2)	0.2 (0.1)	6.6 (1.2)
	2007	0.0	0.3 (0.1)	1.5 (0.4)	0.5 (0.2)	0.1 (<0.1)	2.4 (0.5)
	2008	0.0	0.6 (0.2)	4.1 (0.8)	1.0 (0.1)	0.1 (0.1)	5.9 (0.7)
	2010	0.0	0.2 (<0.1)	1.9 (0.3)	1.1 (0.3)	0.7 (0.2)	4.0 (0.4)
	2011	0.0	0.2 (0.1)	2.7 (0.5)	0.9 (0.3)	0.3 (0.1)	3.9 (0.6)
	2012	0.1 (<0.1)	0.7 (0.3)	1.7 (0.3)	0.3 (0.2)	0.2 (0.1)	3.0 (0.8)
	2013	0.1 (<0.1)	0.3 (0.1)	0.6 (0.1)	0.1 (<0.1)	<0.1 (<0.1)	1.2 (0.2)
	2014	<0.1 (<0.1)	0.5 (0.1)	0.5 (0.1)	0.2 (<0.1)	0.1 (0.1)	1.3 (0.1)
	2015	<0.1 (<0.1)	0.5 (0.2)	0.7 (0.2)	0.3 (0.1)	0.1 (<0.1)	1.6 (0.2)
	2016	<0.1 (<0.1)	0.7 (0.2)	1.5 (0.4)	0.5 (0.2)	0.1 (<0.1)	2.8 (0.2)
	2017	0.0	0.3 (0.1)	1.4 (0.1)	0.2 (<0.1)	0.1 (<0.1)	2.0 (0.2)
	2018*	<0.1 (<0.1)	0.3 (0.1)	3.2 (0.3)	0.9 (0.1)	0.8 (0.1)	5.2 (0.4)
	Mean*	<0.1 (<0.1)	0.4 (0.1)	1.8 (0.4)	0.5 (0.1)	0.2 (<0.1)	2.9 (0.5)

\*New methods were adopted for trotlining including changes in bait and style of dropper lines.

\*\*Mean calculated from 2004 - 2017 data prior to changing methods.

Table 5. CPUE (fish/line) by size group of channel catfish collected during trotline surveys on the Ohio River from 2004 - 2018. Standard errors are in parentheses.

Section	Year	Size group (in)				Total
		<12.0	12.0 - 19.9	20.0 - 27.9	≥28.0	
Upper	2005	0.0	0.6 (0.2)	1.3 (0.4)	0.0	1.9 (0.4)
	2010	0.0	0.7 (0.2)	1.9 (0.4)	<0.1 (<0.1)	2.6 (0.3)
	2012	0.0	1.2 (0.3)	1.1 (0.4)	0.0	2.3 (0.8)
	2013	0.0	0.8 (0.4)	0.4 (0.2)	0.0	1.3 (0.3)
	2014	0.0	0.9 (0.4)	0.5 (0.2)	0.0	1.4 (0.2)
	2015	<0.1 (<0.1)	0.9 (0.4)	0.7 (0.3)	0.0	1.6 (0.3)
	2016	0.0	1.3 (0.3)	0.8 (0.2)	<0.1 (<0.1)	2.2 (0.2)
	2017	0.0	1.3 (0.2)	0.6 (0.1)	0.0	1.9 (0.2)
	2018*	0.0	0.9 (0.2)	1.5 (0.2)	<0.1 (<0.1)	2.4 (0.3)
Mean**	<0.1 (<0.1)	1.0 (0.1)	0.9 (0.2)	<0.1 (<0.1)	1.9 (0.2)	
Trophy permit	2004	0.0	0.7 (0.4)	0.4 (0.2)	0.0	1.1 (0.4)
	2005	0.0	0.3 (0.1)	0.1 (0.1)	0.0	0.5 (0.1)
	2006	0.0	0.7 (0.2)	0.6 (0.2)	0.0	1.2 (0.3)
	2007	0.0	0.6 (0.2)	0.6 (0.2)	0.0	1.2 (0.4)
	2008	0.0	0.9 (0.2)	0.6 (0.2)	0.1 (<0.1)	1.6 (0.3)
	2011	0.0	1.2 (0.3)	0.8 (0.3)	0.0	2.0 (0.4)
	2012	0.0	0.2 (0.1)	0.1 (0.1)	<0.1 (<0.1)	0.4 (0.1)
	2013	<0.1 (<0.1)	0.5 (0.3)	0.4 (0.2)	0.0	1.0 (0.3)
	2014	<0.1 (<0.1)	0.2 (0.1)	0.3 (0.1)	0.0	0.6 (0.2)
	2015	0.0	0.3 (0.2)	0.3 (0.2)	0.0	0.7 (0.2)
	2016	0.0	1.0 (0.4)	0.9 (0.2)	<0.1 (<0.1)	1.9 (0.2)
	2017	<0.1 (0.1)	0.8 (0.1)	0.8 (0.2)	<0.1 (<0.1)	1.6 (0.2)
	2018*	0.0	1.1 (0.2)	1.3 (0.2)	0.0	2.4 (0.3)
	Mean**	<0.1 (<0.1)	0.6 (0.1)	0.5 (0.1)	<0.1 (<0.1)	1.2 (0.2)
Overall	2004	0.0	0.7 (0.4)	0.4 (0.2)	0.0	1.1 (0.4)
	2005	0.0	0.4 (0.3)	0.4 (0.2)	0.0	0.8 (0.1)
	2006	0.0	0.7 (0.2)	0.6 (0.2)	0.0	1.2 (0.3)
	2007	0.0	0.6 (0.2)	0.6 (0.2)	0.0	1.2 (0.4)
	2008	0.0	0.9 (0.2)	0.6 (0.2)	0.1 (<0.1)	1.6 (0.3)
	2010	0.0	0.7 (0.2)	1.9 (0.4)	<0.1 (<0.1)	2.6 (0.3)
	2011	0.0	1.2 (0.3)	0.8 (0.3)	0.0	2.0 (0.4)
	2012	0.0	0.8 (0.2)	0.7 (0.2)	<0.1 (<0.1)	1.6 (0.6)
	2013	<0.1 (<0.1)	0.7 (0.1)	0.4 (0.1)	0.0	1.1 (0.1)
	2014	<0.1 (<0.1)	0.6 (0.2)	0.4 (0.1)	0.0	1.0 (0.1)
	2015	<0.1 (<0.1)	0.7 (0.2)	0.5 (0.1)	0.0	1.2 (0.1)
	2016	0.0	1.2 (0.4)	0.9 (0.2)	<0.1 (<0.1)	2.1 (0.2)
	2017	<0.1 (<0.1)	1.1 (0.1)	0.7 (0.1)	<0.1 (<0.1)	1.8 (0.1)
	2018*	0.0	1.0 (0.1)	1.4 (0.1)	<0.1 (<0.1)	2.4 (0.2)
	Mean**	<0.1 (<0.1)	0.8 (0.1)	0.7 (0.1)	<0.1 (<0.1)	1.5 (0.1)

\*New methods were adopted for trotlining including changes in bait and style of dropper lines.

\*\*Mean calculated from 2004 - 2017 data prior to changing methods.

Table 6. CPUE (fish/net-night) of blue catfish and flathead catfish during commercial hoopnet ride-alongs on the Ohio River in 2018. Standard errors are in parentheses.

Section	Pool	Effort (net nights)	No. of		No. of	
			Blue Catfish	CPUE	Flathead Catfish	CPUE
Upper	McAlpine	54	6	0.1 (0.1)	70	1.3 (0.8)
	Cannelton	33	20	0.6 (0.4)	18	0.5 (0.2)
	Total	87	26	0.3 (0.1)	88	1.0 (0.5)
Trophy permit	Newburgh	36	28	0.8 (0.3)	39	1.1 (0.2)
	JT Meyers	78	118	1.5 (0.8)	155	2.0 (0.4)
	Total	114	146	1.3 (0.5)	194	1.7 (0.3)
Overall	Total	201	172	0.9 (0.3)	282	1.4 (0.3)

Table 7. CPUE (fish/net-night) of blue catfish and flathead catfish collected during commercial hoopnet ride-alongs on the Ohio River from 2013 - 2018. Standard errors are in parentheses.

Section	Year	Species	
		Blue catfish	Flathead catfish
Upper	2013	0.6 (0.2)	2.9 (0.5)
	2014	0.4 (0.2)	0.8 (0.3)
	2017	<0.1 (<0.1)	1.0 (0.4)
	2018	0.3 (0.1)	1.0 (0.5)
	Mean	0.3 (0.1)	1.4 (0.5)
Trophy permit	2013	1.0 (0.2)	2.0 (1.1)
	2014	1.2 (0.2)	0.8 (0.1)
	2015	0.6 (0.3)	0.7 (0.3)
	2017	0.3 (0.2)	1.3 (0.5)
	2018	1.3 (0.5)	1.7 (0.3)
Mean	0.9 (0.2)	1.3 (0.3)	
Overall	2013	0.7 (0.2)	2.6 (0.3)
	2014	0.8 (0.6)	0.8 (0.1)
	2015	0.6 (0.3)	0.7 (0.3)
	2017	0.1 (<0.1)	1.1 (0.4)
	2018	0.9 (0.3)	1.4 (0.3)
Mean	0.6 (0.1)	1.3 (0.3)	

Table 8. Length frequency and CPUE (fish/net-night) of blue catfish and flathead catfish sampled during commercial hoopnet ride-alongs on the Ohio River in 2018. Standard errors are in parentheses.

Section	Pool	Species	Inch class																																													Total	CPUE
			13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47												
Upper	McAlpine	Blue catfish														2	1																											6	0.1 (0.1)				
		Flathead catfish				1		3	1	1	1	4	3	9	8	3	8	3	4	3	4	1		3	4				1	2	1	1	1		1											70	1.3 (0.8)		
	Cannelton	Blue catfish	1						1				2	1	2	5		2	1	1	1		1	1																		1				20	1.1 (0.2)		
		Flathead catfish						1	1	1	2		1		1	2								2	1	2	1																1			18	0.5 (0.2)		
	Total	Blue catfish	1						1				2	3	3	5		3	1	1	1	1	1	1	1																		1				26	0.3 (0.1)	
		Flathead catfish				1	1	4	2	3	5	3	10	10	3	8	5	4	3	4	3	1	5	5					1	2	1	2	1		1												88	1.0 (0.5)	
Trophy permit	Newburgh	Blue catfish					1		4		3	3	5	3	1		5					1																								28	0.8 (0.3)		
		Flathead catfish					2	2	2	3	1	5	4	4	2	2	3	3	1	1			1				1																1	1			39	1.1 (0.2)	
	JT Meyers	Blue catfish				1	2	1	1	7	7	15	11	8	8	10	4	9	11	9	4	2		3	1																2		1				118	1.5 (0.8)	
		Flathead catfish	2	3	4	8	13	7	11	9	13	13	8	7	2	8	5	5	7	4	3	6	2	4	1	1	1	1	1	3	2	1												1		1	155	2.0 (0.4)	
	Total	Blue catfish				1	3	1	5	7	10	18	16	11	9	10	9	9	11	10	4	2		4	1															1	2		1				146	1.3 (0.5)	
		Flathead catfish	2	3	4	8	15	9	13	12	14	18	12	11	4	10	8	8	8	5	3	7	2	4	1	2	1	1	1	4	3	1										1			194	1.7 (0.3)			
Overall	Total	Blue catfish	1			1	3	2	5	7	12	21	19	16	9	13	10	10	12	11	5	3		5	1																					172	0.9 (0.3)		
		Flathead catfish	2	3	4	9	16	13	15	15	19	21	22	21	7	18	13	12	11	9	6	8	7	9	1	2	2	3	5	5	2		1									1		1	282	1.4 (0.3)			

Table 9. CPUE (fish/net-night) by size group of blue catfish collected during commercial hoopnet ride-alongs on the Ohio River from 2013 - 2018. Standard errors are in parentheses.

Section	Year	Size group (in)					Total
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	≥35.0	
Upper	2013	0.0	0.0	0.4 (0.3)	0.1 (<0.1)	0.1 (<0.1)	0.6 (0.2)
	2014	<0.1 (<0.1)	0.3 (0.2)	0.0	<0.1 (<0.1)	0.0	0.4 (0.2)
	2017	0.0	<0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)
	2018	0.0	<0.1 (<0.1)	0.2 (0.1)	0.1 (<0.1)	<0.1 (<0.1)	0.3 (0.1)
	Mean	<0.1 (<0.1)	0.1 (0.1)	0.2 (0.1)	0.1 (<0.1)	<0.1 (<0.1)	0.3 (0.2)
Trophy permit	2013	0.1 (<0.1)	0.1 (<0.1)	0.6 (0.4)	0.2 (<0.1)	0.1 (<0.1)	1.0 (0.2)
	2014	<0.1 (<0.1)	0.2 (0.1)	0.7 (0.3)	0.2 (<0.1)	0.1 (<0.1)	1.2 (0.2)
	2015	0.0	<0.1 (<0.1)	0.4 (0.1)	0.1 (0.1)	<0.1 (<0.1)	0.6 (0.3)
	2017	0.0	<0.1 (<0.1)	0.3 (0.2)	0.0	<0.1 (<0.1)	0.3 (0.2)
	2018	0.0	0.1 (<0.1)	1.0 (0.4)	0.2 (0.1)	0.1 (<0.1)	1.3 (0.5)
	Mean	<0.1 (<0.1)	0.1 (<0.1)	0.6 (0.1)	0.1 (<0.1)	0.1 (<0.1)	0.9 (0.2)
Overall	2013	<0.1 (<0.1)	<0.1 (<0.1)	0.4 (0.3)	0.2 (<0.1)	0.1 (<0.1)	0.7 (0.2)
	2014	<0.1 (<0.1)	0.3 (0.2)	0.4 (0.2)	0.1 (0.1)	<0.1 (0.1)	0.8 (0.6)
	2015	0.0	<0.1 (<0.1)	0.4 (0.1)	0.1 (0.1)	<0.1 (<0.1)	0.6 (0.3)
	2017	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.1 (<0.1)
	2018	0.0	0.1 (<0.1)	0.6 (0.2)	0.1 (0.1)	<0.1 (<0.1)	0.9 (0.3)
	Mean	<0.1 (<0.1)	0.1 (0.1)	0.4 (0.1)	0.1 (<0.1)	0.1 (<0.1)	0.6 (0.2)

Table 10. CPUE (fish/net-night) by size group of flathead catfish collected during commercial hoopnet ride-alongs on the Ohio River from 2013 - 2018. Standard errors are in parentheses.

Section	Year	Size group (in)					Total
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	≥35.0	
Upper	2013	0.0	0.3 (0.1)	1.7 (0.6)	0.5 (0.3)	0.4 (0.1)	2.9 (0.5)
	2014	0.0	0.3 (0.1)	0.4 (0.1)	0.1 (0.1)	<0.1 (<0.1)	0.8 (0.3)
	2017	0.0	0.1 (<0.1)	0.6 (0.2)	0.2 (0.1)	0.1 (0.1)	1.0 (0.4)
	2018	0.0	0.1 (0.1)	0.6 (0.4)	0.2 (0.1)	0.1 (0.1)	1.0 (0.5)
	Mean	0.0	0.2 (0.1)	0.8 (0.3)	0.3 (0.1)	0.2 (0.1)	1.4 (0.5)
Trophy permit	2013	0.0	1.0 (0.3)	0.8 (0.5)	0.1 (0.1)	<0.1 (<0.1)	2.0 (1.1)
	2014	0.0	0.2 (0.1)	0.5 (0.1)	0.1 (0.1)	<0.1 (<0.1)	0.8 (0.1)
	2015	<0.1 (<0.1)	0.2 (<0.1)	0.4 (0.1)	0.1 (0.1)	<0.1 (<0.1)	0.7 (0.3)
	2017	0.0	0.3 (0.1)	0.7 (0.2)	0.2 (0.1)	0.1 (<0.1)	1.3 (0.5)
	2018	0.0	0.5 (0.1)	0.9 (0.2)	0.2 (0.1)	0.1 (0.1)	1.7 (0.3)
	Mean	<0.1 (<0.1)	0.4 (0.2)	0.7 (0.1)	0.1 (<0.1)	0.1 (<0.1)	1.3 (0.3)
Overall	2013	0.0	0.5 (0.3)	1.5 (0.6)	0.4 (0.3)	0.3 (0.1)	2.6 (0.3)
	2014	0.0	0.2 (0.1)	0.4 (0.1)	0.1 (0.1)	<0.1 (<0.1)	0.8 (0.1)
	2015	<0.1 (<0.1)	0.2 (<0.1)	0.4 (0.1)	0.1 (0.1)	<0.1 (<0.1)	0.7 (0.3)
	2017	0.0	0.2 (0.1)	0.6 (0.3)	0.2 (<0.1)	0.1 (<0.1)	1.1 (0.4)
	2018	0.0	0.3 (0.1)	0.8 (0.2)	0.2 (0.1)	0.1 (<0.1)	1.4 (0.3)
	Mean	<0.1 (<0.1)	0.3 (0.1)	0.7 (0.2)	0.2 (0.1)	0.1 (0.1)	1.3 (0.3)

Table 11. CPUE (fish/net-night) of channel catfish and flathead catfish during baited hoopnet surveys in Meldahl, Cannelton, and Smithland pools of the Ohio River in 2018. Standard errors are in parentheses.

Section	Pool	Effort (net nights)	No. of		No. of	
			Channel Catfish	CPUE	Flathead Catfish	CPUE
Upper	Meldahl	112	489	4.4 (0.8)	43	0.4 (0.1)
	Cannelton	118	466	4.0 (0.7)	25	0.2 (0.1)
	Total	230	955	4.2 (0.5)	68	0.3 (0.1)
Trophy permit	Smithland	40	69	1.7 (0.5)	9	0.2 (0.1)
Overall	Total	270	1024	3.8 (0.5)	77	0.3 (0.1)

Table 12. CPUE (fish/net-night) of channel catfish and flathead catfish collected during baited hoopnet surveys on the Ohio River in 2018. Standard errors are in parentheses.

Section	Year	CPUE	
		Channel catfish	Flathead catfish
Upper	2017	8.0 (1.1)	0.3 (<0.1)
	2018	4.2 (0.5)	0.3 (0.1)
	Mean	6.2 (0.6)	0.3 (0.1)
Trophy permit	2017	2.0 (0.5)	0.1 (<0.1)
	2018	1.7 (0.5)	0.2 (0.1)
	Mean	1.9 (0.3)	0.2 (0.1)
Overall	2017	7.0 (1.0)	0.3 (<0.1)
	2018	3.8 (0.5)	0.3 (0.1)
	Mean	5.4 (0.6)	0.3 (0.1)

Table 13. Length frequency and CPUE (fish/net/night) of channel catfish and flathead catfish sampled during baited hoopnet sampling in the Meldahl, Cannelton, and Smithland pools during 2018 on the Ohio River. Standard errors are in parentheses.

Section	Pool	Species	Size group (in)																																											Total	CPUE
			5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	...	45												
Upper	Meldahl	Channel catfish	1		7	17	20	34	27	25	17	31	40	36	34	42	38	32	35	14	16	13	6	2	1	1															489	4.4 (0.8)					
		Flathead catfish			1						1		2		3	5	4	7	7	1	2	4		1	1		2		1											1		43	0.4 (0.1)				
	Cannelton	Channel catfish		1		5	8	27	25	37	81	82	63	46	32	23	13	8	8	3	1	3																					466	4.0 (0.7)			
		Flathead catfish			1	1	2	1			1		2		4	2		2	1	1		2	1		1	1	1													1	25	0.2 (0.1)					
	Total	Channel catfish	1	1	7	22	28	61	52	62	98	113	103	82	66	65	51	40	43	17	17	16	6	2	1	1																955	4.2 (0.5)				
		Flathead catfish			2	1	2	1		1	1	2	2	3	9	6	7	9	2	3	4	2	2	1	1	3	1	1											1	1	68	0.3 (0.1)					
Trophy permit	Smithland	Channel catfish			1		6	3	7	10	6	4	5	9	3	4	6	3	2																								69	1.7 (0.5)			
		Flathead catfish					1							2	2		2	1	1																								9	0.2 (0.1)			
Overall	Total	Channel catfish	1	1	7	23	28	67	55	69	108	119	107	87	75	68	55	46	46	19	17	16	6	2	1	1																	1024	3.8 (0.5)			
		Flathead catfish			2	1	3	1		1	1	2	4	5	9	8	7	10	2	4	4	2	2	1	1	3	1	1												1	1	77	0.3 (0.1)				

Table 14. CPUE (fish/net-night) by size group of channel catfish collected during baited hoopnet surveys on the Ohio River in 2017 and 2018. Standard errors are in parentheses.

Section	Year	Size group (in)				Total
		<12.0	12.0 - 19.9	20.0 - 27.9	≥28.0	
Upper	2017	1.6 (0.3)	5.2 (0.8)	1.2 (0.2)	<0.1 (<0.1)	8.0 (1.1)
	2018	0.8 (0.1)	2.8 (0.4)	0.6 (0.1)	<0.1 (<0.1)	4.2 (0.5)
	Mean	1.2 (0.3)	4.0 (0.5)	0.9 (0.2)	<0.1 (<0.1)	6.2 (0.6)
Trophy permit	2017	0.9 (0.2)	1.0 (0.3)	0.1 (0.1)	0.0	2.0 (0.5)
	2018	0.3 (0.1)	1.2 (0.3)	0.3 (0.1)	0.0	1.7 (0.5)
	Mean	0.6 (0.2)	1.1 (0.2)	0.2 (0.1)	0.0	1.9 (0.3)
Overall	2017	1.5 (0.3)	4.5 (0.7)	1.0 (0.2)	<0.1 (<0.1)	7.0 (1.0)
	2018	0.7 (0.1)	2.5 (0.4)	0.6 (0.1)	<0.1 (<0.1)	3.8 (0.5)
	Mean	1.1 (0.3)	3.5 (0.5)	0.8 (0.2)	<0.1 (<0.1)	5.4 (0.6)



Table 15. CPUE (fish/net-night) by size group of flathead catfish collected during baited hoopnet surveys on the Ohio River in 2017 and 2018. Standard errors are in parentheses.

Section	Year	Size group (in)					Total
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	≥35.0	
Upper	2017	<0.1 (<0.1)	0.1 (<0.1)	0.2 (<0.1)	0.0	<0.1 (<0.1)	0.3 (<0.1)
	2018	<0.1 (<0.1)	0.1 (0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.3 (0.1)
	Mean	<0.1 (<0.1)	0.1 (0.1)	0.2 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.3 (0.1)
Trophy permit	2017	0.0	0.1 (<0.1)	<0.1 (<0.1)	0.0	0.0	0.1 (<0.1)
	2018	<0.1 (<0.1)	0.2 (0.1)	<0.1 (<0.1)	0.0	0.0	0.2 (0.1)
	Mean	<0.1 (<0.1)	0.2 (<0.1)	<0.1 (<0.1)	0.0	0.0	0.2 (0.1)
Overall	2017	<0.1 (<0.1)	0.1 (<0.1)	0.2 (<0.1)	0.0	<0.1 (<0.1)	0.3 (<0.1)
	2018	<0.1 (<0.1)	0.1 (<0.1)	0.1 (0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.3 (0.1)
	Mean	<0.1 (<0.1)	0.1 (<0.1)	0.2 (0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.3 (0.1)

Table 16. Effort and CPUE (fish/hr) of blue catfish and flathead catfish collected during electrofishing surveys on the Ohio River in June 2018. Standard errors are in parentheses.

Section	Pool	No. of transects	Effort (hr)	No. of Blue Catfish	CPUE	No. of Flathead	CPUE
Upper	Meldahl	20	5.0	114	22.8 (4.5)	337	67.4 (8.9)
	Markland	20	5.0	255	51.0 (17.1)	252	50.4 (6.5)
	McAlpine	20	5.0	82	16.4 (5.7)	158	31.6 (4.5)
	Cannelton	20	5.0	261	52.2 (8.6)	297	59.4 (6.8)
	Total	80	20.0	712	35.6 (5.3)	1044	52.2 (3.7)
Trophy permit	Newburgh	20	5.0	209	41.8 (9.0)	229	45.8 (6.3)
	JT Meyers	20	5.0	279	55.8 (11.0)	322	64.4 (6.7)
	Smithland	20	5.0	193	38.6 (8.9)	295	59.0 (9.1)
	Total	60	15.0	681	45.4 (5.3)	846	56.4 (5.5)
Overall	Total	140	35.0	1393	39.8 (5.7)	1890	54.0 (4.7)

Table 17. CPUE (fish/hr) of blue catfish and flathead catfish collected during electrofishing surveys on the Ohio River from 2004 - 2018. Standard errors are in parentheses.

Section	Year	Species	
		Blue catfish	Flathead catfish
Upper	2009	0.9 (0.8)	7.8 (3.8)
	2010	11.9 (4.0)	17.1 (3.3)
	2013	2.0 (0.9)	46.2 (5.8)
	2014	15.5 (4.7)	28.5 (2.8)
	2015	10.6 (3.3)	40.9 (5.7)
	2016	8.9 (2.4)	37.0 (3.2)
	2017	20.3 (3.4)	39.4 (2.9)
	2018	35.6 (5.3)	52.2 (3.7)
	Mean	13.2 (3.9)	33.6 (3.3)
Trophy permit	2004	0.0	14.5 (4.1)
	2009	4.6 (3.2)	48.5 (16.8)
	2013	42.7 (14.1)	14.7 (2.9)
	2014	23.7 (4.0)	37.9 (4.6)
	2015	28.6 (7.1)	33.6 (4.0)
	2016	26.2 (4.5)	33.9 (3.1)
	2017	30.1 (4.2)	41.7 (2.9)
	2018	45.4 (5.3)	56.4 (5.5)
	Mean	25.2 (5.7)	35.2 (5.2)
Overall	2004	0.0	14.5 (4.1)
	2009	1.6 (0.8)	15.5 (4.1)
	2010	11.9 (4.0)	17.1 (3.3)
	2013	11.4 (4.8)	38.9 (5.1)
	2014	19.3 (3.2)	32.8 (2.6)
	2015	19.0 (3.8)	37.6 (3.6)
	2016	17.5 (2.7)	35.5 (2.2)
	2017	25.2 (2.7)	40.6 (2.1)
	2018	39.8 (5.7)	54.0 (4.7)
Mean	16.2 (4.0)	31.8 (4.5)	

Table 18. Length frequency and CPUE (fish/hr) of blue catfish and flathead catfish collected during electrofishing surveys in June 2018 on the Ohio River. Standard errors are in parentheses.

Section	Pool	Species	Inch class																																												Total	CPUE									
			3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46											
Upper	Meldahl	Blue catfish				4	5	7	6	9	7	4	3	2	1	1	7	3	3	8	12	11	7	3	6	1	2																					1	114	22.8 (4.5)							
		Flathead catfish	4	3	7	22	16	12	9	18	10	24	8	16	8	11	19	12	14	14	21	17	10	11	7	9	10	4	2	4	2	3			2	1	2	1					2		1	1	337	67.4 (8.9)									
	Markland	Blue catfish				6	7	15	6	12	7	6	6	6	7	12	20	20	38	36	31	10	8	1	1																											255	51.0 (17.1)				
		Flathead catfish	4	6	7	15	9	8	10	5	12	14	14	11	9	9	13	6	6	6	13	12	10	11	7	7	6	3	2	3	4										2						252	50.4 (6.5)									
	McAlpine	Blue catfish					1			2	1		2	2	3	2	2	8	6	10	12	8	1	4		1	3	3	1			3	3					1	1	1		1						82	16.4 (5.7)								
		Flathead catfish	2	5	8	14	7	6	6	9	8	9	11	5	4	4	4	9	10	9	6	4	1	1	1	3	1				3	1														1	158	31.6 (4.5)									
	Cannelton	Blue catfish					4	12	14	5	4	6	7	12	15	17	26	32	22	26	18	10	6	6	4	3	1	3	4	1			1														1	261	52.2 (8.6)								
		Flathead catfish	1	8	12	26	19	15	18	15	6	8	5	10	3	11	9	15	12	9	13	14	8	12	14	6	2	5	3	1	2	4	3														2	1	297	59.4 (6.8)							
	Total	Blue catfish				10	17	34	26	28	19	16	18	22	26	32	55	63	69	80	73	39	22	14	11	5	6	6	5	1	3	4																1	712	35.6 (5.3)							
		Flathead catfish	11	22	34	77	51	41	43	47	36	55	38	42	24	35	45	42	42	38	53	47	29	35	29	25	20	15	8	10	8	11	6	6	4	3	2	2	2	3	1	1		1	1044	52.2 (3.7)											
	Trophy permit	Newburgh	Blue catfish		1	1	1	1	4	4	1		3	4	4	6	3	6	25	25	39	31	14	14	4	2	3	1		4	2			2												2	1		1	209	41.8 (9.0)						
			Flathead catfish	6	8	5	17	18	10	13	15	5	6	3	10	5	5	8	12	13	12	7	15	6	6	3	8	1	1	1		2	1															1	2		1	229	45.8 (6.3)				
		JT Meyers	Blue catfish		1	1		3	12	9	6	4	5	12	6	14	3	5	12	27	36	52	31	19	6		3		3	1	2	2			1														1	279	55.8 (11.0)						
Flathead catfish			6	22	22	39	29	19	14	9	8	9	4	6	12	13	12	9	7	13	9	12	10	7	3	3	3	4	3	3	2	2	2														1	1		1	322	64.4 (6.7)					
Smithland		Blue catfish			1	1	4	11	6	4	8	15	5	11	14	12	7	2	3	11	17	17	9	7	5	5	5	2	2			1				2											2		1	193	38.6 (8.9)						
		Flathead catfish	12	19	12	26	27	16	14	6	11	18	8	12	7	9	11	10	4	7	5	10	6	5	7	1	2	2	2	5	4	1	2	2	3	2	1									1	1		3	1	295	59.0 (9.1)					
Total		Blue catfish		2	3	2	8	27	19	11	12	23	21	21	34	18	18	39	55	86	100	62	42	17	7	11	6	5	7	4	3	2	3													2	1	1	1	2		1	2	2	1	681	45.4 (5.3)
		Flathead catfish	24	49	39	82	74	45	41	30	24	33	15	28	24	27	31	31	24	32	21	37	22	18	13	12	6	7	6	8	8	4	4	3	5	3	2	1	2	2	2	4					3				846	56.4 (5.5)					
Overall		Blue catfish		2	3	12	25	61	45	39	31	39	39	43	60	50	73	102	124	166	173	101	64	31	18	16	12	11	12	5	6	6	3	1	4	2	2	1	1	3							2	2	2		1	1393	39.8 (5.7)				
		Flathead catfish	35	71	73	159	125	86	84	77	60	88	53	70	48	62	76	73	66	70	74	84	51	53	42	37	26	22	14	18	16	15	10	9	9	6	4	1	4	4	5	5	1	3	1					1	1890	54.0 (4.7)					

Table 19. CPUE (fish/hr) by size group of blue catfish collected during electrofishing surveys on the Ohio River from 2004 - 2018. Standard errors are in parentheses.

Section	Year	Size group (in)					Total
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	≥35.0	
Upper	2009	0.2 (0.2)	0.4 (0.2)	0.2 (0.2)	0.2 (0.2)	0.0	0.9 (0.2)
	2010	8.8 (2.3)	1.0 (0.1)	1.4 (0.1)	0.7 (<0.1)	0.0	11.9 (4.0)
	2013	1.0 (0.4)	1.0 (0.6)	0.0	0.0	0.0	2.0 (0.9)
	2014	7.0 (1.3)	8.1 (4.2)	0.3 (0.1)	0.2 (<0.1)	0.0	15.6 (4.7)
	2015	0.6 (0.6)	8.3 (2.4)	1.8 (0.6)	0.0	0.2 (0.1)	10.9 (3.3)
	2016	0.2 (<0.1)	6.1 (3.4)	1.9 (1.4)	0.1 (0.1)	0.6 (0.1)	8.9 (2.4)
	2017	1.3 (0.4)	11.5 (2.2)	6.7 (1.4)	0.2 (0.1)	0.5 (0.2)	20.3 (3.4)
	2018	6.7 (1.1)	15.1 (3.0)	13.1 (2.2)	0.5 (0.2)	0.4 (0.2)	35.6 (5.3)
	Mean	3.2 (1.3)	6.4 (1.9)	3.2 (1.6)	0.2 (0.1)	0.2 (0.1)	13.3 (3.9)
Trophy permit	2004	0.0	0.0	0.0	0.0	0.0	0.0
	2009	0.0	3.1 (2.7)	1.5 (0.4)	0.0	0.0	4.6 (1.6)
	2013	36.7 (11.3)	4.7 (2.0)	1.3 (1.3)	0.0	0.0	42.7 (14.1)
	2014	6.6 (1.2)	12.5 (2.1)	4.1 (1.6)	0.2 (0.1)	0.3 (0.2)	23.7 (4.0)
	2015	1.0 (0.4)	21.3 (3.8)	5.5 (1.1)	0.5 (0.2)	0.3 (0.2)	28.6 (7.1)
	2016	1.2 (0.8)	16.2 (8.7)	7.9 (2.0)	0.5 (0.1)	0.3 (0.1)	26.2 (4.5)
	2017	5.7 (1.3)	14.1 (2.7)	8.9 (1.5)	0.9 (0.3)	0.5 (0.2)	30.1 (4.2)
	2018	5.6 (1.3)	15.3 (5.2)	22.9 (11.7)	0.8 (0.2)	0.9 (0.2)	45.4 (5.3)
		Mean	7.1 (4.3)	10.9 (2.6)	6.5 (2.6)	0.4 (0.1)	0.3 (0.1)
Overall	2004	0.0	0.0	0.0	0.0	0.0	0.0
	2009	0.1 (<0.1)	1.0 (0.1)	0.4 (<0.1)	0.1 (<0.1)	0.0	1.6 (0.8)
	2010	8.8 (2.3)	1.0 (0.1)	1.4 (0.1)	0.7 (<0.1)	0.0	11.9 (4.0)
	2013	9.2 (2.5)	1.8 (0.9)	0.3 (0.1)	0.0	0.0	11.4 (4.8)
	2014	6.8 (0.6)	10.1 (1.2)	2.1 (0.2)	0.2 (0.1)	0.1 (0.1)	19.3 (3.2)
	2015	0.8 (0.4)	14.3 (3.0)	3.5 (0.5)	0.2 (<0.1)	0.2 (0.1)	19.0 (3.8)
	2016	0.7 (0.4)	11.1 (2.8)	4.9 (0.9)	0.3 (0.1)	0.5 (0.2)	17.5 (2.7)
	2017	3.5 (0.7)	12.8 (1.7)	7.8 (1.0)	0.5 (0.2)	0.5 (0.1)	25.2 (2.7)
	2018	6.2 (1.8)	15.1 (3.4)	17.3 (6.8)	0.6 (0.2)	0.6 (0.2)	39.8 (5.7)
	Mean	4.0 (1.3)	7.5 (2.1)	4.2 (1.8)	0.3 (0.1)	0.2 (0.1)	16.2 (4.0)

Table 20. CPUE (fish/hr) by size group of flathead catfish collected during electrofishing surveys on the Ohio River from 2004 - 2018. Standard errors are in parentheses.

Section	Year	Size group (in)					Total
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	≥35.0	
Upper	2009	3.0 (0.8)	3.3 (0.9)	1.3 (0.4)	0.0	0.2 (0.2)	7.8 (1.2)
	2010	8.8 (1.9)	6.0 (2.1)	2.1 (0.5)	0.2 (<0.1)	0.0	17.1 (3.3)
	2013	17.8 (7.4)	20.4 (4.2)	7.6 (2.1)	0.2 (0.2)	0.2 (0.2)	46.2 (5.8)
	2014	10.8 (2.6)	14.8 (3.1)	2.6 (1.1)	0.3 (0.1)	0.0	28.5 (2.8)
	2015	17.2 (4.1)	16.6 (3.2)	5.5 (1.9)	1.0 (0.3)	0.5 (0.2)	40.9 (5.7)
	2016	12.1 (4.0)	17.1 (3.3)	6.5 (1.9)	0.7 (0.4)	0.5 (0.2)	37.0 (3.2)
	2017	11.4 (1.4)	15.1 (1.5)	10.8 (1.4)	1.2 (0.3)	0.9 (0.3)	39.4 (2.9)
	2018	18.1 (2.2)	16.2 (1.4)	15.0 (1.3)	2.1 (0.3)	1.0 (0.3)	52.2 (3.7)
	Mean	12.4 (1.8)	13.7 (2.1)	6.4 (1.7)	0.7 (0.2)	0.4 (0.1)	33.6 (5.3)
Trophy permit	2004	9.3 (4.2)	5.0 (1.1)	0.3 (0.3)	0.0	0.0	14.5 (4.1)
	2009	30.8 (12.2)	9.2 (2.8)	7.7 (3.1)	0.0	0.8 (0.8)	48.5 (7.2)
	2013	5.3 (3.2)	6.7 (1.9)	2.0 (0.5)	0.7 (0.7)	0.0	14.7 (2.9)
	2014	14.0 (3.2)	17.1 (7.1)	6.3 (2.6)	0.4 (0.4)	0.2 (0.1)	37.9 (4.6)
	2015	14.1 (2.6)	12.2 (2.6)	5.7 (2.1)	0.7 (0.3)	0.9 (0.2)	33.6 (4.0)
	2016	9.7 (2.0)	14.8 (2.5)	7.9 (3.6)	0.9 (0.5)	0.7 (0.3)	33.9 (3.1)
	2017	13.7 (1.6)	15.9 (1.3)	10.6 (1.3)	0.9 (0.3)	0.7 (0.3)	41.7 (2.9)
	2018	27.2 (8.9)	14.2 (2.2)	11.6 (1.3)	1.8 (0.8)	1.6 (0.5)	56.4 (5.5)
		Mean	15.5 (3.1)	11.9 (1.6)	6.5 (1.4)	0.7 (0.2)	0.6 (0.2)
Overall	2004	9.3 (4.2)	5.0 (1.1)	0.3 (0.3)	0.0	0.0	14.5 (4.1)
	2009	8.4 (1.7)	4.3 (0.2)	2.6 (0.2)	0.0	0.3 (<0.1)	15.5 (4.1)
	2010	8.8 (1.9)	6.0 (2.1)	2.1 (0.5)	0.2 (<0.1)	0.0	17.1 (3.3)
	2013	14.9 (4.5)	17.2 (1.1)	6.3 (1.8)	0.3 (0.1)	0.2 (0.2)	38.9 (5.1)
	2014	12.3 (2.6)	15.9 (3.7)	4.3 (0.2)	0.3 (0.1)	0.1 (<0.1)	32.8 (2.6)
	2015	15.8 (2.1)	14.6 (4.2)	5.6 (0.9)	0.9 (0.4)	0.7 (0.3)	37.6 (3.6)
	2016	10.9 (1.6)	16.0 (4.2)	7.2 (1.3)	0.8 (0.3)	0.6 (0.3)	35.5 (2.2)
	2017	12.5 (1.1)	15.5 (1.0)	10.7 (0.9)	1.1 (0.2)	0.8 (0.2)	40.6 (2.1)
	2018	22.0 (2.8)	15.3 (1.0)	13.5 (1.2)	1.9 (0.3)	1.2 (0.2)	54.0 (4.7)
	Mean	12.7 (1.4)	12.2 (1.8)	5.8 (1.4)	0.6 (0.2)	0.4 (0.1)	31.8 (4.5)

Table 21. Tournament effort and CPUE (fish/boat; standard errors are in parentheses) of blue catfish, channel catfish, and flathead catfish collected from the Ohio River in 2018.

Section	Pool	No. of tournaments	No. of boats	Blue			Channel			Flathead			Total		
				Catfish	% Trophy	CPUE	Catfish	% Trophy	CPUE	Catfish	% trophy	CPUE	Catfish	% trophy	CPUE
Upper	Markland	2	269	391	7.2	1.5 (0.1)	215	7.9	0.8 (0.1)	99	7.1	0.4 (0.1)	705	7.4	2.7 (0.1)
	McAlpine	1	132	277	18.8	2.1 (0.2)	21	19.0	0.2 (0.1)	17	17.6	0.1 (<0.1)	315	18.7	2.4 (0.2)
	Total	3	401	668	12.0	1.7 (0.1)	236	8.9	0.6 (0.1)	116	8.6	0.3 (<0.1)	1020	10.9	2.5 (0.1)
Trophy permit	Newburgh	3	270	327	17.1	1.2 (0.1)	85	1.2	0.3 (0.1)	72	8.3	0.3 (0.1)	484	13.0	1.8 (0.1)
	JT Meyers	1	36	78	6.4	2.2 (0.3)	12	0.0	0.3 (0.1)	16	18.8	0.4 (0.2)	106	7.5	2.9 (0.2)
	Lower River	1	74	209	15.8	2.8 (0.2)	12	16.7	0.2 (0.1)	3	0.0	<0.1 (<0.1)	224	15.6	3.0 (0.2)
	Total	5	380	614	15.3	1.6 (0.2)	109	2.8	0.3 (0.1)	91	9.9	0.2 (<0.1)	814	13.0	2.1 (0.1)
Overall	Total	8	781	1282	13.6	1.6 (0.1)	345	7.0	0.4 (0.1)	207	9.2	0.3 (<0.1)	1834	11.8	2.3 (0.1)

Table 22. CPUE (fish/boat) of blue catfish, channel catfish, flathead catfish, and total CPUE collected during catfish tournament surveys on the Ohio River from 2013 - 2018. Maximum CPUE is 5.0 fish/boat. Standard errors are in parentheses.

Section	Year	Species			Total
		Blue catfish	Channel catfish	Flathead catfish	
Upper	2013	1.1 (0.2)	1.4 (0.3)	0.3 (0.1)	2.8 (0.3)
	2014	1.0 (0.1)	1.0 (0.1)	0.4 (0.1)	2.4 (0.2)
	2015	1.4 (0.2)	0.7 (0.2)	0.2 (0.1)	2.3 (0.1)
	2016	1.6 (0.2)	0.7 (0.1)	0.2 (0.1)	2.4 (0.1)
	2017	1.5 (0.1)	0.7 (0.1)	0.2 (<0.1)	2.4 (0.1)
	2018	1.7 (0.1)	0.6 (0.1)	0.3 (<0.1)	2.5 (0.1)
	Mean	1.4 (0.1)	0.9 (0.1)	0.3 (<0.1)	2.5 (0.1)
Trophy permit	2013	1.8 (0.4)	0.6 (0.1)	0.1 (<0.1)	2.5 (0.2)
	2014	2.0 (0.5)	0.4 (0.1)	0.2 (0.1)	2.6 (0.3)
	2015	1.5 (0.1)	0.3 (0.1)	0.2 (0.1)	2.0 (0.1)
	2016	1.5 (0.2)	0.3 (0.1)	0.1 (0.1)	2.0 (0.1)
	2017	1.6 (0.2)	0.3 (0.1)	0.2 (<0.1)	2.1 (0.1)
	2018	1.6 (0.2)	0.3 (0.1)	0.2 (<0.1)	2.1 (0.1)
	Mean	1.7 (0.2)	0.4 (0.1)	0.2 (<0.1)	2.2 (0.1)
Overall	2013	1.4 (0.4)	1.1 (0.3)	0.2 (0.1)	2.7 (0.2)
	2014	1.4 (0.5)	0.7 (0.1)	0.3 (0.1)	2.4 (0.2)
	2015	1.4 (0.1)	0.5 (0.1)	0.2 (0.1)	2.1 (0.1)
	2016	1.5 (0.1)	0.5 (<0.1)	0.1 (<0.1)	2.2 (0.1)
	2017	1.6 (0.1)	0.5 (0.1)	0.2 (<0.1)	2.2 (0.1)
	2018	1.6 (0.1)	0.4 (0.1)	0.3 (<0.1)	2.3 (0.1)
	Mean	1.5 (0.1)	0.6 (0.1)	0.2 (0.1)	2.3 (0.1)

Table 23. Length frequency and CPUE (fish/boat) of blue catfish, channel catfish, and flathead catfish collected during catfish tournaments surveys during 2018 on the Ohio River. Standard error is in parentheses.

Section	Pool	Species																																																						Total	Mean length (in)	CPUE
			12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53														
Upper	Markland	Blue catfish	1	1											1	8	21	39	53	46	35	22	25	21	27	18	11	17	11	6	4	4	8	6	2						1	1						391	26.9	1.5 (0.1)								
		Channel catfish			2	4	4	7	10	15	7	23	24	19	31	26	20	6	13	1	2	1																			1	1	1					215	23.1	0.8 (0.1)								
		Flathead catfish					2		2	4	6	13	13	11	8	6	6	3	5	4	4	2	1			2	1	2															1	1	1				99	25.3	0.4 (0.1)							
	McAlpine	Blue catfish														3	3	4	6	14	23	17	17	23	18	15	20	19	17	16	10	9	8	3	4	3	2	8	1	3	3	2					2	3				1	277	30.4	2.1 (0.2)			
		Channel catfish									1	1	3	2	1	3	2	3				1	2	1																										21	24.1	0.2 (0.1)						
		Flathead catfish														2		2				1					3	3	1																					17	28.2	0.1 (<0.1)						
	Total	Blue catfish	1	1						4	11	25	45	67	69	52	39	48	39	42	38	30	34	27	16	13	12	11	10	5	2	9	2	3	4	3												1	668	28.4	1.7 (0.1)							
		Channel catfish			2	4	4	7	11	16	10	25	22	33	29	20	7	15	2	2	2																												236	23.2	0.6 (0.1)							
		Flathead catfish					2		2	4	8	13	15	11	9	6	9	6	6	5	4	2	2		2	1	2	1	1		1				2	1												116	25.7	0.3 (<0.1)								
Trophy permit	Newburgh	Blue catfish	1	1			2	3	2	4	4	16	29	24	27	29	26	23	18	12	14	14	11	11	10	5	4	11	3	1	3	4	4	3	2	1	3	1									1	327	29.2	1.2 (0.1)								
		Channel catfish		1	2	1	5	2	4	6	9	15	8	9	10	5	6	1	1																														85	21.8	0.3 (0.1)							
		Flathead catfish						1			2	6	6	3	5	10	12	7	6	2	4		1	1		1	2		1																			72	26.8	0.3 (0.1)								
	JT Meyers	Blue catfish														3	3	8	5	10	7	8	7	4	4	9	5			1	1			2		1													78	29.9	2.2 (0.3)							
		Channel catfish									2		1	1	1	1	1	4	1																													12	24.2	0.3 (0.1)								
		Flathead catfish										1			1	3	1	2	1	1	1	1	1		1				1				1		1													16	28.5	0.4 (0.2)								
	Lower River	Blue catfish					1					2	1	1		7	9	13	25	29	11	21	23	19	9	5	6	10	5	5	1			2	2			1										1	209	30.6	2.8 (0.2)							
		Channel catfish								1				2		2	1	1	3																													12	24.6	0.2 (0.1)								
		Flathead catfish															1							1																								3	27.3	<0.1 (<0.1)								
Total	Blue catfish	1	1		3	3	2	6	5	17	32	34	44	47	61	59	37	40	41	37	29	21	16	15	10	17	4	1	7	6	5	3	3	1	3	2									1	614	29.8	1.6 (0.2)										
	Channel catfish		1	2	1	5	2	5	8	9	18	9	12	12	7	13	2	1	2																												109	22.4	0.3 (0.1)									
	Flathead catfish					1			3	6	6	4	9	11	14	9	7	3	6			2	1		2	2	1	1	1				1													91	27.1	0.2 (<0.1)										
Overall	Total	Blue catfish	2	2		3	3	6	17	30	62	99	103	96	86	109	98	79	78	71	71	56	37	29	27	21	27	9	3	16	8	8	7	6	1	5	5									1	1	1282	29.0	1.6 (0.1)								
		Channel catfish		1	4	5	9	9	16	24	19	43	34	34	45	36	33	9	16	4	2	2																										345	22.9	0.4 (0.1)								
		Flathead catfish					2	1	2	4	11	19	21	15	18	17	23	15	13	8	10	2	4	1	2	3	4	2	2	1	1			3	1													207	26.3	0.3 (<0.1)								



Table 24. CPUE (fish/boat) by size group of blue catfish collected during catfish tournament surveys on the Ohio River from 2013 - 2018. Standard errors are in parentheses.

Section	Year	Size group (in)					Total
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	≥35.0	
Upper	2013	<0.1 (<0.1)	0.4 (0.1)	0.4 (0.2)	0.3 (0.1)	0.1 (<0.1)	1.1 (0.2)
	2014	<0.1 (<0.1)	0.3 (0.1)	0.3 (0.1)	0.2 (0.1)	0.1 (0.1)	1.0 (0.1)
	2015	0.0	0.3 (0.1)	0.6 (0.3)	0.4 (0.1)	0.2 (0.1)	1.4 (0.2)
	2016	0.0	0.1 (0.1)	1.0 (0.3)	0.3 (0.1)	0.1 (<0.1)	1.6 (0.2)
	2017	<0.1 (<0.1)	0.1 (<0.1)	1.0 (0.1)	0.2 (0.1)	0.1 (<0.1)	1.5 (0.1)
	2018	0.0	<0.1 (<0.1)	1.2 (0.1)	0.4 (<0.1)	0.2 (<0.1)	1.7 (0.1)
	Mean	<0.1 (<0.1)	0.2 (0.1)	0.8 (0.2)	0.3 (0.1)	0.1 (<0.1)	1.4 (0.1)
Trophy permit	2013	<0.1 (<0.1)	0.1 (0.1)	0.8 (0.5)	0.5 (0.4)	0.3 (0.2)	1.8 (0.4)
	2014	<0.1 (<0.1)	0.2 (0.1)	0.8 (0.5)	0.5 (0.3)	0.3 (0.1)	2.0 (0.5)
	2015	0.0	0.2 (0.1)	0.7 (0.2)	0.4 (0.1)	0.2 (0.1)	1.5 (0.1)
	2016	0.0	0.1 (<0.1)	0.8 (0.3)	0.5 (0.2)	0.2 (0.1)	1.5 (0.2)
	2017	0.0	<0.1 (<0.1)	0.9 (0.1)	0.4 (0.1)	0.2 (<0.1)	1.6 (0.2)
	2018	0.0	<0.1 (<0.1)	0.9 (0.1)	0.4 (0.1)	0.2 (<0.1)	1.6 (0.2)
	Mean	<0.1 (<0.1)	0.1 (<0.1)	0.8 (0.2)	0.5 (0.1)	0.2 (0.1)	1.7 (0.1)
Overall	2013	<0.1 (<0.1)	0.3 (0.1)	0.6 (0.1)	0.4 (0.1)	0.2 (<0.1)	1.4 (0.4)
	2014	<0.1 (<0.1)	0.3 (0.1)	0.6 (0.1)	0.4 (0.1)	0.2 (<0.1)	1.4 (0.5)
	2015	0.0	0.3 (<0.1)	0.6 (0.2)	0.4 (0.1)	0.2 (0.1)	1.4 (0.1)
	2016	0.0	0.1 (<0.1)	0.9 (0.3)	0.4 (0.1)	0.2 (0.1)	1.5 (0.1)
	2017	<0.1 (<0.1)	0.1 (<0.1)	1.0 (0.3)	0.3 (0.1)	0.2 (0.1)	1.6 (0.1)
	2018	0.0	<0.1 (<0.1)	1.0 (0.1)	0.4 (0.1)	0.2 (<0.1)	1.6 (0.1)
	Mean	<0.1 (<0.1)	0.2 (0.1)	0.8 (0.1)	0.4 (0.1)	0.2 (<0.1)	1.5 (0.1)

Table 25. CPUE (fish/boat) by size group of channel catfish collected during catfish tournament surveys on the Ohio River from 2013 - 2018. Standard errors are in parentheses.

Section	Year	Size group (in)				Total
		<12.0	12.0 - 19.9	20.0 - 27.9	≥28.0	
Upper	2013	<0.1 (<0.1)	0.2 (0.1)	1.0 (0.3)	0.1 (<0.1)	1.4 (0.3)
	2014	<0.1 (<0.1)	0.2 (0.1)	0.7 (0.2)	0.1 (<0.1)	1.0 (0.1)
	2015	<0.1 (<0.1)	0.1 (<0.1)	0.5 (0.2)	0.1 (<0.1)	0.7 (0.2)
	2016	0.0	0.1 (<0.1)	0.5 (0.2)	0.1 (<0.1)	0.7 (0.1)
	2017	0.0	0.1 (0.1)	0.5 (0.2)	<0.1 (<0.1)	0.7 (0.1)
	2018	0.0	0.1 (<0.1)	0.5 (0.1)	0.1 (<0.1)	0.6 (0.1)
	Mean	<0.1 (<0.1)	0.1 (<0.1)	0.6 (0.1)	0.1 (<0.1)	0.9 (0.1)
Trophy permit	2013	<0.1 (<0.1)	0.1 (0.1)	0.4 (0.2)	<0.1 (<0.1)	0.6 (0.1)
	2014	<0.1 (<0.1)	0.1 (<0.1)	0.3 (0.1)	<0.1 (<0.1)	0.4 (0.1)
	2015	0.0	0.1 (<0.1)	0.2 (0.1)	<0.1 (<0.1)	0.3 (0.1)
	2016	0.0	<0.1 (<0.1)	0.3 (0.1)	<0.1 (<0.1)	0.3 (0.1)
	2017	0.0	0.1 (0.1)	0.2 (0.1)	<0.1 (<0.1)	0.3 (0.1)
	2018	0.0	0.1 (<0.1)	0.2 (0.1)	<0.1 (<0.1)	0.3 (0.1)
	Mean	<0.1 (<0.1)	0.1 (<0.1)	0.3 (0.1)	<0.1 (<0.1)	0.4 (0.1)
Overall	2013	<0.1 (<0.1)	0.2 (<0.1)	0.8 (0.2)	0.1 (<0.1)	1.1 (0.3)
	2014	<0.1 (<0.1)	0.2 (0.1)	0.5 (0.1)	<0.1 (<0.1)	0.7 (0.1)
	2015	<0.1 (<0.1)	0.1 (<0.1)	0.4 (0.1)	<0.1 (<0.1)	0.5 (0.1)
	2016	0.0	0.1 (<0.1)	0.4 (0.1)	<0.1 (<0.1)	0.5 (<0.1)
	2017	0.0	0.1 (<0.1)	0.4 (0.1)	<0.1 (<0.1)	0.5 (0.1)
	2018	0.0	0.1 (<0.1)	0.3 (0.1)	<0.1 (<0.1)	0.4 (0.1)
	Mean	<0.1 (<0.1)	0.1 (<0.1)	0.5 (0.1)	<0.1 (<0.1)	0.6 (0.1)

Table 26. CPUE (fish/boat) by size group of flathead catfish collected during catfish tournament surveys on the Ohio River from 2013 - 2018. Standard errors are in parentheses.

Section	Year	Size group (in)					Total
		<12.0	12.0 - 19.9	20.0 - 29.9	30.0 - 34.9	≥35.0	
Upper	2013	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.3 (0.1)
	2014	0.0	0.1 (<0.1)	0.3 (0.1)	0.1 (<0.1)	<0.1 (<0.1)	0.4 (0.1)
	2015	<0.1 (<0.1)	0.1 (<0.1)	0.1 (0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)
	2016	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)
	2017	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (<0.1)
	2018	0.0	<0.1 (<0.1)	0.2 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.3 (<0.1)
	Mean	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.3 (0.1)
Trophy permit	2013	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.1 (<0.1)
	2014	0.0	<0.1 (<0.1)	0.1 (0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)
	2015	0.0	<0.1 (<0.1)	0.1 (0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)
	2016	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.1 (0.1)
	2017	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (<0.1)
	2018	0.0	<0.1 (<0.1)	0.2 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (<0.1)
	Mean	0.0	<0.1 (<0.1)	0.1 (0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)
Overall	2013	<0.1 (<0.1)	<0.1 (<0.1)	0.1 (0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)
	2014	0.0	0.1 (<0.1)	0.2 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.3 (0.1)
	2015	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (0.1)
	2016	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.1 (<0.1)
	2017	0.0	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (<0.1)
	2018	0.0	<0.1 (<0.1)	0.2 (0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.3 (<0.1)
	Mean	<0.1 (<0.1)	<0.1 (<0.1)	0.1 (<0.1)	<0.1 (<0.1)	<0.1 (<0.1)	0.2 (<0.1)

Table 27. Relative weight (Wr) of blue catfish, channel catfish, and flathead catfish collected from the Ohio River using trotlines, hoop nets, electrofishing and catfish tournaments from 2013 - 2018.

Year	Section								
	Upper			Trophy permit			Overall		
	Blue catfish	Channel catfish	Flathead catfish	Blue catfish	Channel catfish	Flathead catfish	Blue catfish	Channel catfish	Flathead catfish
2013	118	100	97	108	99	101	112	100	99
2014	102	93	91	106	102	95	105	97	92
2015	106	99	95	110	101	100	109	100	98
2016	107	98	100	107	96	111	107	97	106
2017	103	88	102	107	93	94	106	89	107
2018	104	90	104	104	93	96	104	90	101
Mean	106	94	98	107	97	100	107	95	100

Table 28. von Bertalanffy growth parameters used to estimate length-at age for blue catfish, channel catfish, and flathead catfish collected from the Ohio River in 2017 where  $L_{\infty}$ = theoretical maximum length,  $K$ =body growth coefficient, and  $t_0$ =time coefficient.

Parameter	Blue catfish	Channel catfish	Flathead catfish
$L_{\infty}$ (in)	55.0	35.0	55.0
$K$	0.051	0.074	0.040
$t_0$	-2.086	-1.783	-4.556

Table 29. Mean length (in) at age calculated with the von Bertalanffy growth equation based on otoliths taken from blue catfish from the Ohio River in spring and summer of 2017.

Section	Sex	Age																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Upper	Male	7.2	9.9	12.4	14.8	17.1	19.3	21.3	23.2	25.0	26.7	28.3	29.8	31.2	32.6	33.8	35.0	36.2	37.2	38.2	39.2
	Female	9.7	11.6	13.5	15.2	16.9	18.5	20.0	21.5	22.9	24.3	25.6	26.8	28.0	29.2	30.2	31.3	32.3	33.3	34.2	35.1
	Total	7.6	10.0	12.4	14.6	16.7	18.6	20.5	22.3	24.0	25.6	27.1	28.6	29.9	31.2	32.5	33.6	34.8	35.8	36.8	37.7
Trophy permit	Male	9.0	11.2	13.4	15.4	17.3	19.2	20.9	22.6	24.2	25.7	27.1	28.5	29.8	31.0	32.2	33.3	34.4	35.4	36.4	37.3
	Female	7.3	9.9	12.4	14.7	16.9	19.0	20.9	22.8	24.6	26.2	27.8	29.3	30.7	32.0	33.3	34.5	35.6	36.7	37.7	38.6
	Total	8.3	10.6	12.8	14.9	16.9	18.8	20.6	22.3	24.0	25.5	27.0	28.4	29.7	31.0	32.2	33.3	34.4	35.4	36.4	37.3
Overall	Male	8.7	11.1	13.3	15.4	17.4	19.4	21.2	22.9	24.5	26.1	27.5	28.9	30.3	31.5	32.7	33.9	34.9	36.0	36.9	37.9
	Female	11.9	13.4	15.0	16.4	17.8	19.2	20.5	21.7	23.0	24.1	25.3	26.3	27.4	28.4	29.4	30.3	31.2	32.1	32.9	33.7
	Total	8.0	10.4	12.6	14.7	16.7	18.6	20.4	22.2	23.8	25.4	26.8	28.2	29.6	30.9	32.1	33.2	34.3	35.3	36.3	37.2

Table 30. Mean length (in) at age calculated with the von Bertalanffy growth equation based on otoliths taken from channel catfish from the Ohio River in spring and

Section	Sex	Age																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Upper	Male	6.6	9.1	11.5	13.6	15.6	17.3	18.9	20.4	21.7	22.9	24.0	25.0	25.9	26.7	27.5	28.2	28.8	29.3	29.9	30.3
	Female	5.7	8.7	11.5	13.9	16.1	18.1	19.8	21.4	22.8	24.1	25.2	26.3	27.2	28.0	28.7	29.4	30.0	30.5	30.9	31.4
	Total	6.4	8.9	11.1	13.2	15.0	16.8	18.3	19.8	21.1	22.3	23.4	24.4	25.3	26.1	26.9	27.6	28.2	28.8	29.3	29.8
Trophy permit	Male	7.8	9.5	11.1	12.6	14.0	15.3	16.5	17.6	18.7	19.7	20.7	21.6	22.4	23.2	23.9	24.6	25.2	25.8	26.4	26.9
	Female	8.0	9.7	11.2	12.7	14.1	15.5	16.7	17.8	18.9	19.9	20.9	21.8	22.6	23.4	24.1	24.8	25.4	26.0	26.6	27.1
	Total	7.6	9.4	11.1	12.7	14.1	15.5	16.8	18.0	19.1	20.1	21.1	22.0	22.9	23.7	24.4	25.1	25.8	26.4	26.9	27.5
Overall	Male	7.4	9.5	11.4	13.2	14.9	16.4	17.8	19.1	20.3	21.4	22.5	23.4	24.3	25.1	25.9	26.6	27.2	27.8	28.3	28.8
	Female	7.8	9.6	11.3	12.9	14.4	15.8	17.1	18.3	19.4	20.5	21.5	22.4	23.2	24.0	24.8	25.5	26.1	26.7	27.3	27.8
	Total	6.5	8.5	10.4	12.2	13.8	15.3	16.7	18.0	19.2	20.4	21.4	22.4	23.3	24.1	24.9	25.6	26.3	26.9	27.5	28.0

Table 31. Mean length (in) at age calculated with von Bertalanffy growth equation based on otoliths taken from flathead catfish from the Ohio River in spring and summer of 2017.

Section	Sex	Age																																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Upper	Male	9.4	11.3	13.0	14.7	16.3	17.9	19.4	20.8	22.2	23.5	24.8	26.0	27.2	28.3	29.4	30.4	31.4	32.4	33.3	34.2	35.0	35.8	36.6	37.3	38.0	38.7	39.4	40.0	40.6	41.2	41.8	42.3	42.8
	Female	11.3	13.1	14.8	16.4	18.0	19.5	20.9	22.3	23.6	24.9	26.1	27.2	28.4	29.4	30.5	31.5	32.4	33.3	34.2	35.0	35.8	36.6	37.4	38.1	38.8	39.4	40.0	40.6	41.2	41.8	42.3	42.8	43.3
	Total	11.0	12.7	14.4	16.0	17.5	19.0	20.4	21.8	23.1	24.3	25.5	26.7	27.8	28.9	29.9	30.9	31.8	32.8	33.6	34.5	35.3	36.1	36.8	37.5	38.2	38.9	39.5	40.1	40.7	41.3	41.8	42.3	42.8
Trophy permit	Male	5.7	8.3	10.8	13.1	15.3	17.4	19.4	21.3	23.1	24.7	26.3	27.8	29.3	30.6	31.9	33.1	34.3	35.4	36.4	37.4	38.3	39.2	40.1	40.9	41.6	42.3	43.0	43.6	44.2	44.8	45.3	45.9	46.3
	Female	5.2	7.8	10.4	12.8	15.0	17.2	19.2	21.1	22.9	24.7	26.3	27.8	29.3	30.7	32.0	33.2	34.4	35.5	36.6	37.5	38.5	39.4	40.2	41.0	41.8	42.5	43.2	43.8	44.4	45.0	45.5	46.0	46.5
	Total	5.6	8.2	10.7	13.0	15.2	17.3	19.3	21.2	23.0	24.7	26.3	27.8	29.2	30.6	31.9	33.1	34.2	35.3	36.4	37.4	38.3	39.2	40.0	40.8	41.6	42.3	43.0	43.6	44.2	44.8	45.3	45.8	46.3
Overall	Male	8.8	10.7	12.6	14.3	16.0	17.6	19.2	20.6	22.0	23.4	24.7	26.0	27.2	28.3	29.4	30.5	31.5	32.5	33.4	34.3	35.1	36.0	36.8	37.5	38.2	38.9	39.6	40.2	40.8	41.4	42.0	42.5	43.0
	Female	9.3	11.3	13.2	15.0	16.7	18.3	19.9	21.4	22.9	24.3	25.6	26.9	28.1	29.3	30.4	31.4	32.5	33.4	34.4	35.3	36.1	36.9	37.7	38.5	39.2	39.9	40.5	41.2	41.8	42.3	42.9	43.4	43.9
	Total	7.6	9.6	11.6	13.6	15.4	17.1	18.8	20.4	21.9	23.4	24.8	26.1	27.4	28.6	29.8	30.9	32.0	33.0	34.0	34.9	35.8	36.6	37.4	38.2	39.0	39.7	40.4	41.0	41.6	42.2	42.8	43.3	43.8

Table 32. Total annual mortality rates of blue catfish, channel catfish, and flathead catfish collected from the Ohio River using trotlines, hoopnets, and electrofishing from 2013 - 2018.

Section	Year	Species		
		Blue catfish	Channel catfish	Flathead catfish
Upper	2013	14.7	24.2	18.8
	2014	29.1	28.3	20.1
	2015	22.1	21.7	17.0
	2016	14.2	18.0	18.0
	2017	12.4	26.9	18.2
	2018	18.8	31.1	17.4
	Mean	18.6	25.0	18.3
Trophy permit	2013	22.0	52.8	17.8
	2014	21.5	26.6	17.5
	2015	17.9	15.3	14.7
	2016	18.6	15.9	14.9
	2017	19.1	24.5	17.7
	2018	22.0	22.9	21.2
	Mean	20.2	26.3	17.3
Overall	2013	18.7	32.2	18.8
	2014	24.7	26.8	18.7
	2015	20.0	20.6	15.9
	2016	17.4	16.8	16.0
	2017	18.9	27.9	18.2
	2018	19.8	28.0	18.0
	Mean	19.9	25.4	17.6

# Blue Catfish

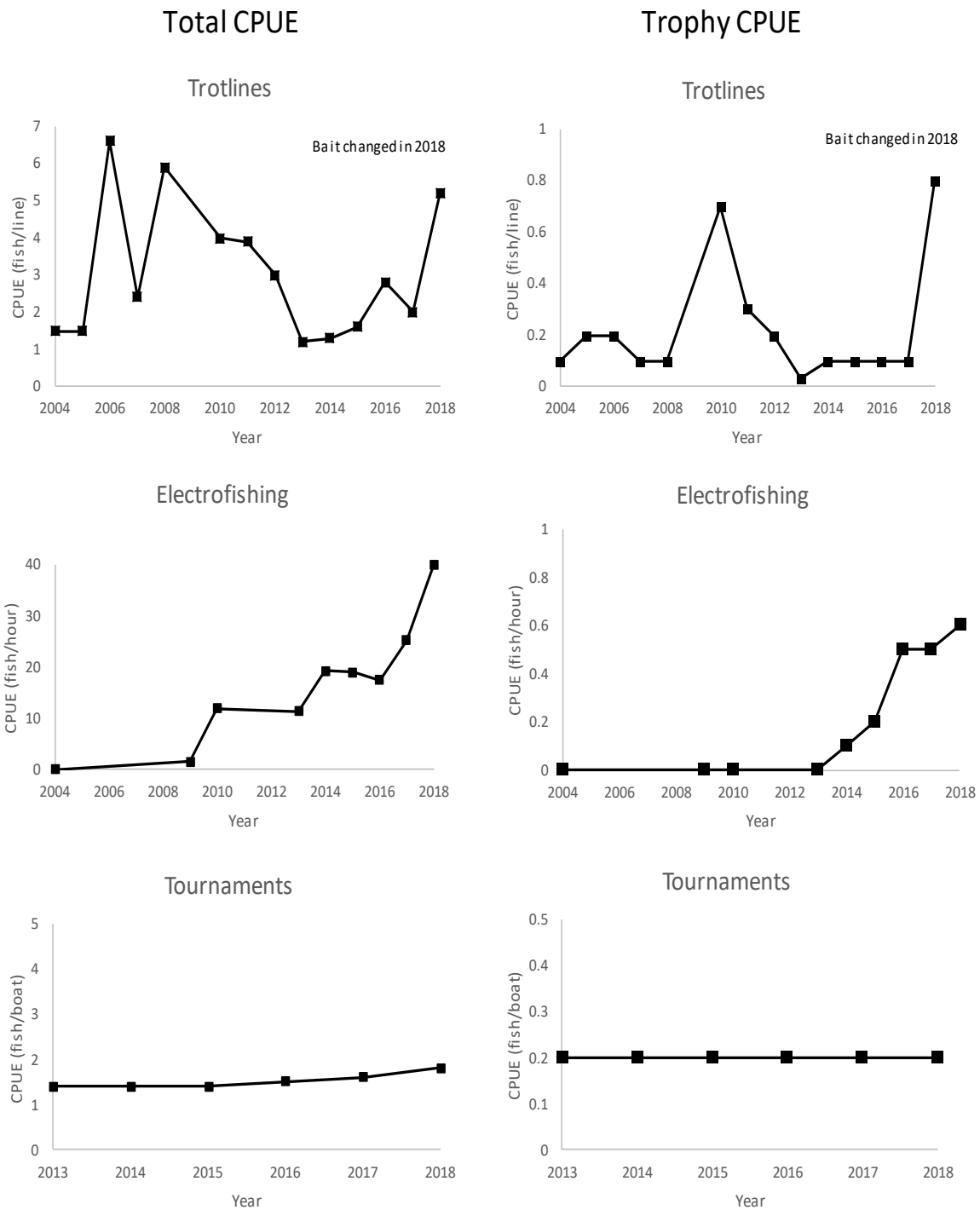


Figure 1. Total CPUE and CPUE of trophy blue catfish ( $\geq 35.0$  in) using trotlines, electrofishing, and catfish tournaments on the Ohio River from 2004-2018.

# Channel Catfish

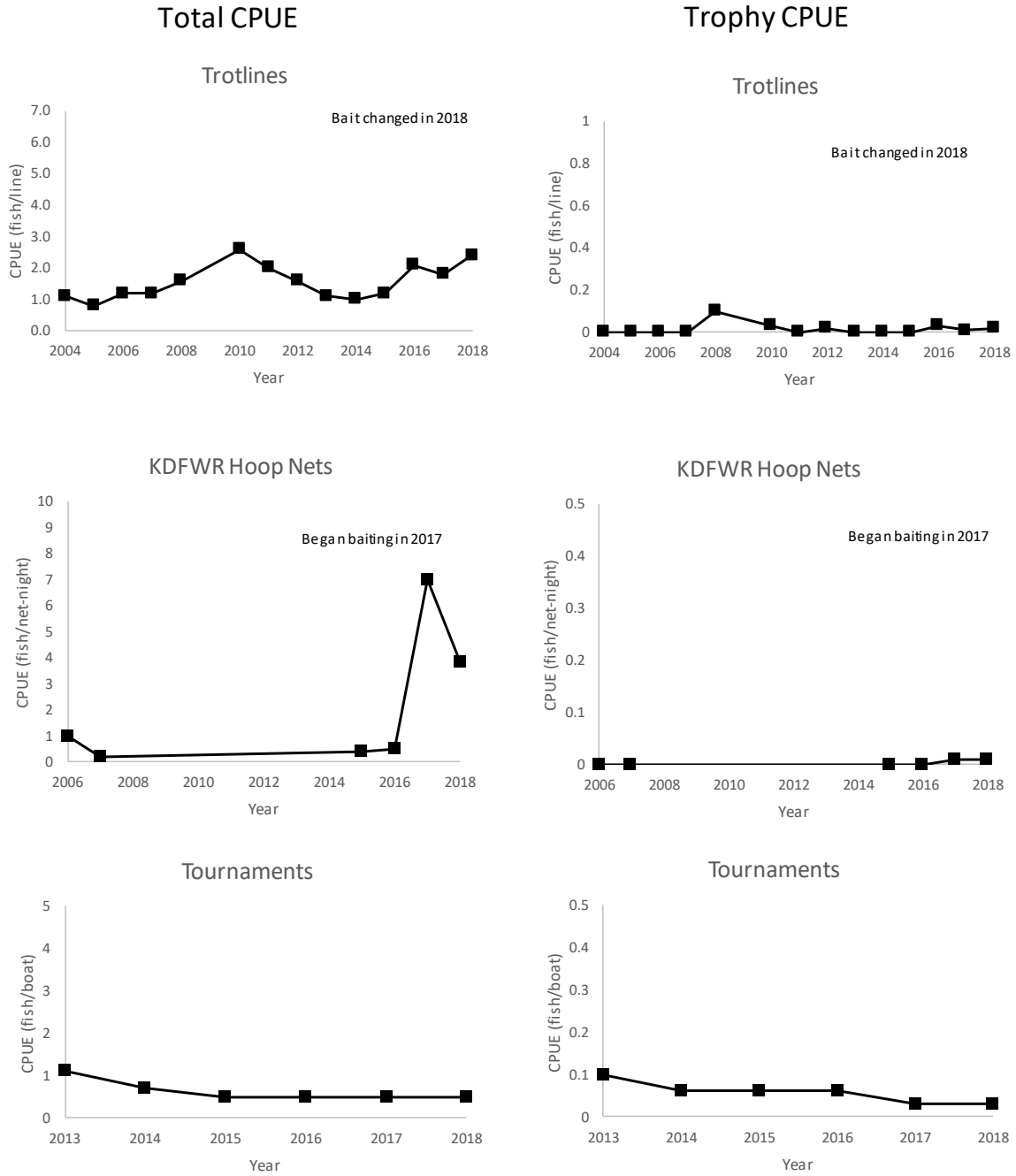


Figure 2. Total CPUE and CPUE of trophy channel catfish ( $\geq 28.0$  in) using trotlines, hoop nets, and catfish tournaments on the Ohio River from 2006-2018.

# Flathead Catfish

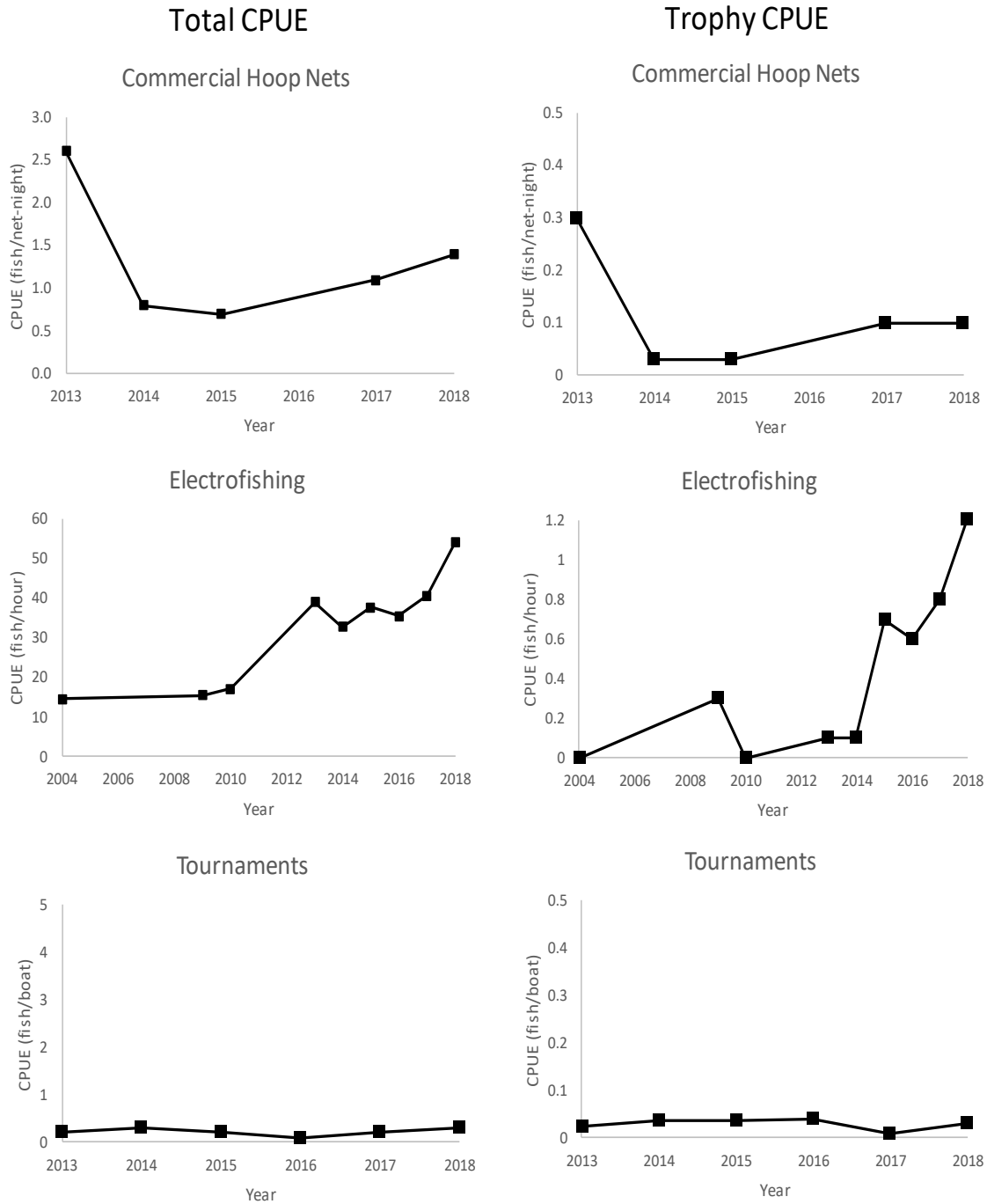


Figure 3. Total CPUE and CPUE of trophy flathead catfish ( $\geq 35.0$  in) using commercial hoop nets, electrofishing, and catfish tournaments on the Ohio River from 2004-2018.



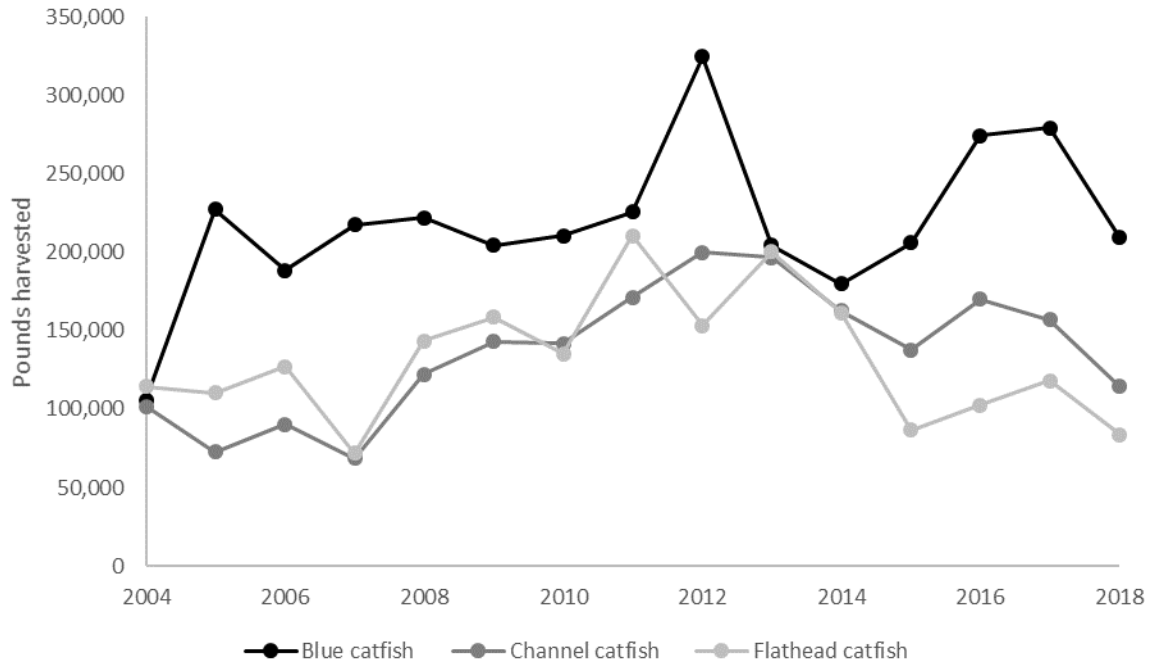


Figure 4. Total pounds of blue catfish, channel catfish, and flathead catfish harvested by commercial fishermen from the Ohio River from 2004 – 2018.

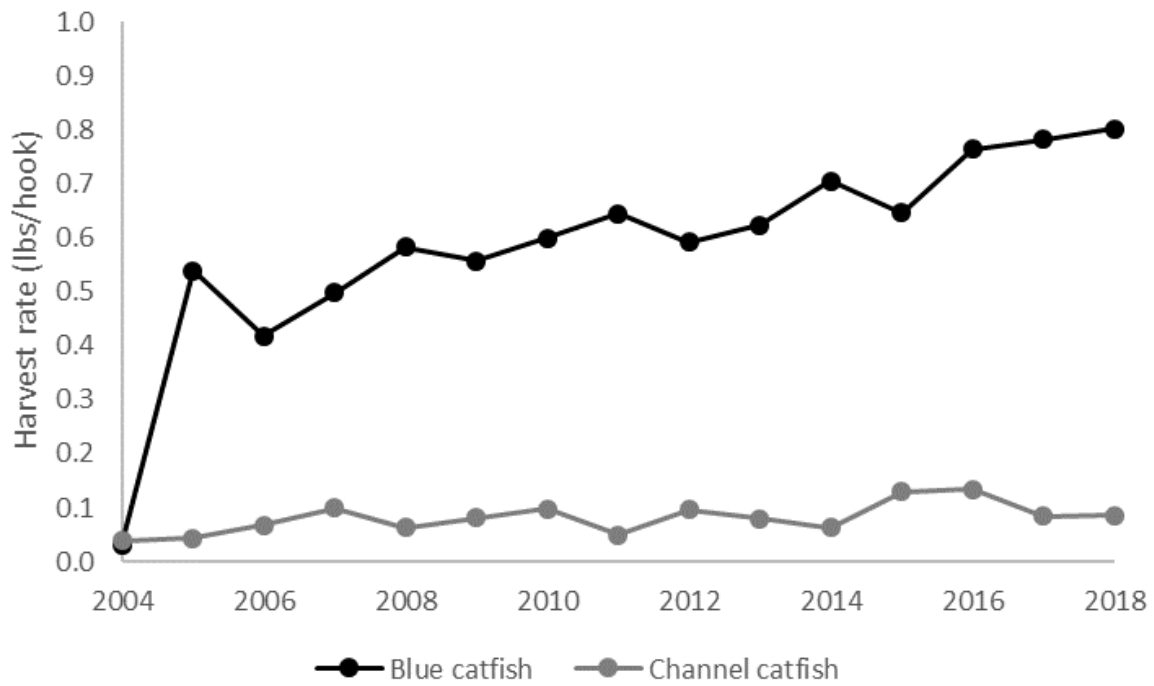


Figure 5. Harvest rate (lbs/hook) of blue catfish and channel catfish harvested with trotlines by commercial fishermen from the Ohio River from 2004 – 2018.

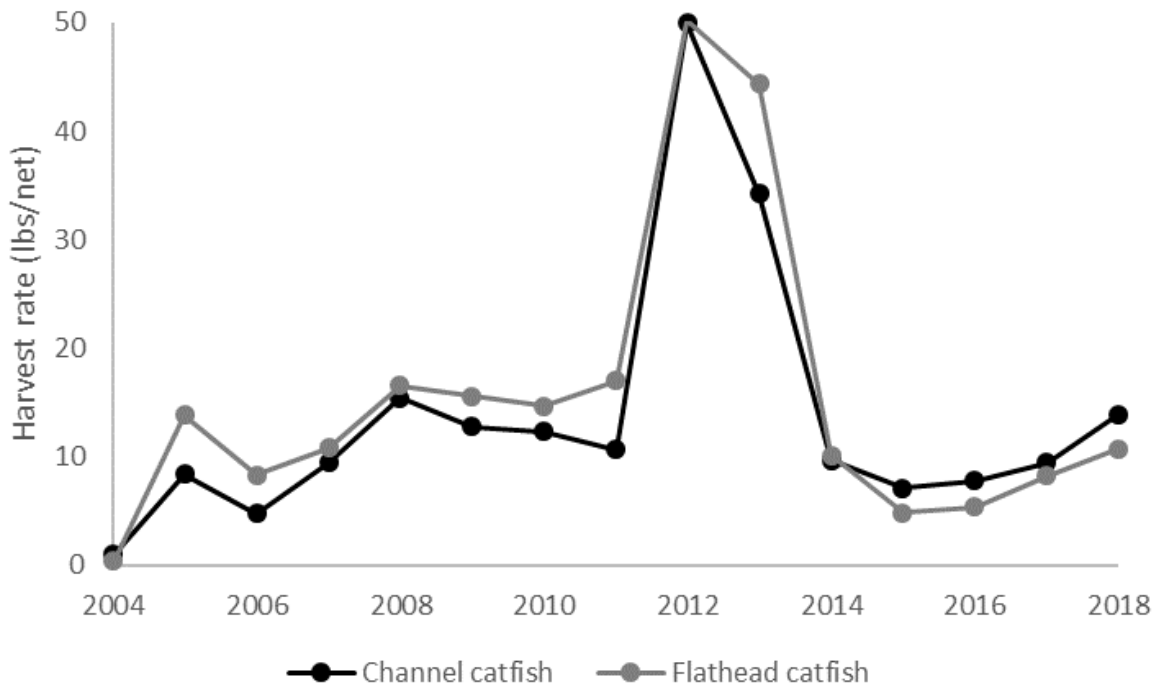


Figure 6. Harvest rate (lbs/net) of channel catfish and flathead catfish harvested with nets by commercial fishermen from the Ohio River from 2004 – 2018.