McCoy Creek
Berrien County, T7S, R18W, S25 (mouth)
St. Joseph River watershed, 2013

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Environment

McCoy Creek begins in wetlands near the Michigan-Indiana border and flows northeasterly for 8 miles to its confluence with the St. Joseph River at the city of Buchanan. The McCoy Creek watershed encompasses 22 square miles. According to Michigan's Aquatic Habitat Viewer, agriculture (48%) is the predominant land use in the watershed, followed by urban development (18%), forests (16%), and wetlands (14%). McCoy Creek and all of its tributaries are designated as Type 1 trout streams.

The topography in the upper portion of the watershed is flat to gently rolling, and the average stream gradient for the upper 6.75 stream miles is approximately 8 ft/mile. The topography becomes considerably steeper near the confluence with the St. Joseph River, and the average stream gradient for the lower 1.25 stream miles is 47 ft/mile. McCoy Creek flows through deposits of glacial outwash sand and gravel overlaid by loamy soils of the Riddles-Crosier-Oshtemo series. Darcy groundwater models indicate moderate potential for groundwater inputs upstream of Bakertown Road and strong potential for groundwater inputs downstream of that point (Figure 1).

Human activities have altered the course of McCoy Creek and its tributaries. The two largest tributaries to the creek (Weaver Lake Drain and the Lake and Creek Drain) are designated drains. The portion of McCoy Creek from the headwaters to the confluence with the Weaver Lake Drain also is a designated drain. The aquatic habitat in these stream reaches have been affected by dredging and channelization. Within the city of Buchanan, portions of the creek have been confined to underground culverts.

The upper reaches of McCoy Creek flow through private lands. Anglers generally have been allowed to access the stream and the Plainwell MDNR Office has not received any reports of landowners asking anglers to leave the creek. Public access is assured at multiple sites within the City of Buchanan: McCoy Creek Recreation Area, McCoy Pond Park, and E. B. Clark Woods and the contiguous Spafford Woods along Schirmer Parkway (Figure 1).

History

The Michigan Department of Natural Resources (MDNR) has worked to create trout fishing opportunities in McCoy Creek for more than 80 years. Brown Trout and Rainbow Trout were stocked in this stream during the 1930s through the mid-1940s. Some Rainbow Trout were stocked during 1951-1955, but the primary game species stocked from 1946 through 1964 was Brook Trout. Only Brown Trout were stocked in 1965 and no trout were stocked during 1966-1970. Since 1971, yearling Brown Trout have been stocked at multiple locations on McCoy Creek each year. Several strains of Brown Trout have been introduced into this system, including Plymouth Rock, Saint Croix, Wild Rose, and Seeforellen. Since 2003, only Gilchrist Creek strain Brown Trout have been stocked in McCoy Creek (Table 1).

The first fisheries survey on McCoy Creek was completed in 1969. Electrofishing at three stations from Buffalo Road to the mill race diversion (hereafter referred to as the Forks) yielded three Brown Trout. One Brown Trout had a total length of 17 inches and probably was a survivor from the 1965 stocking event. The other two trout were 5-7 inches in length and presumably were yearlings. The presence of these fish suggests that some natural reproduction of Brown Trout was occurring. Nine additional fish species were collected during the 1969 sampling effort, including White Suckers, Creek Chubs, and sculpins.

The next MDNR electrofishing survey on the creek was conducted in 1975 to assess survival and growth of stocked Brown Trout. Sampling was completed at four stations from Buffalo Road to the Forks. Thirty-nine Brown Trout were captured in 850 ft of effort. The total length range for these fish was 3-11 inches. One of the Brown Trout collected at the Forks appeared to be a wild young-of-year (YOY) fish. The survey crew observed 13 additional Brown Trout that they were not able to capture, including one fish that appeared to be 17-18 inches in length. White Suckers and Mottled Sculpins were the most abundant non-game species in the catch.

Electrofishing was completed at three stations from Buffalo Road to Bakertown Road in 1986. Only nine Brown Trout were captured in 600 ft of effort. The total length range for Brown Trout was 8-10 inches. Overhanging brush limited sampling efficiency at these stations.

In 1992, sampling conducted at four stations (total effort = 1,375 ft) from Buffalo Road to the Forks yielded 33 Brown Trout with a total length range of 7-14 inches. The Brown Trout catch was composed entirely of yearlings and age 2 fish. The mean growth index was +2.5, which is indicative of above average growth. Brown Trout capture rates were highest at the US-12 sampling station. Johnny Darters and White Suckers were the most abundant non-game species in the catch.

The next MDNR electrofishing survey was completed in 1998. Sampling was conducted at three sites from Buffalo Road to the Forks. Twenty-seven Brown Trout were collected in 1,535 ft of effort. The total length range for Brown Trout was 4-17 inches. The Brown Trout catch rate was highest at the Forks. Some natural recruitment also was documented at the Forks where six wild YOY Brown Trout were captured. As observed during the previous survey, mean lengths-at-age for Brown Trout were above statewide averages. Once again, White Suckers and Johnny Darters were the most common non-game species in the sample. Temperature loggers deployed during the summer of 1998 revealed mean July water temperatures of 61.0 F at Buffalo Road and 65.1 F at Schirmer Parkway.

Recent work conducted by the City of Buchanan, MDNR, and other partner organizations also has affected fish habitat in McCoy Creek. During 2005-2006, two sections of the creek that had been buried in culverts were opened and the dam and diversion structure downstream of 3rd Street was removed. This work allowed fish from the lower reaches of McCoy Creek to move upstream as far as the Duck Pond Dam, and small numbers of steelhead were able to jump over the dam. In 2012, the stop-logs were removed from the Duck Pond Dam. The removal of the stop logs has facilitated natural transport of sediment and nutrients and has eliminated thermal effects on the stream reaches below the dam. Only the sill remains, leaving a 1 ft elevation change for fish to ascend. During the same year, logs and lunker structures were installed within McCoy Creek Recreation Area upstream of the Forks to provide cover for Brown Trout and other fish species. The existing diversion dam was removed and

a rock riffle was installed at the Forks to divert enough flow into the mill race to operate the Pears Mill, which is a local historical attraction.

Current Status

Electrofishing (250 V DC stream shocker with two probes, 4-5 A) was conducted at three stations on September 26, 2013 (Figure 1). Each station was 700 ft in length. For the Buffalo Road and Schirmer Parkway sites, the road culverts were the upstream limits of the sampling station. At Bakertown Road, the station began 70 ft downstream of the road crossing and extended upstream through the culvert. At each site, a single electrofishing run was completed while moving in an upstream direction. Total length (i.e., inch group) was recorded for each fish captured. Weights for all fish species were calculated using the length-weight regression coefficients compiled by Schneider et al. (2000b). At each site, scale samples for age determination were collected from up to 10 Brown Trout per inch group for fish 4 inches or larger. At Schirmer Parkway, total length to the nearest tenth of an inch was recorded for 10 fish per inch group for Brown Trout smaller than 4 inches.

Fish habitat and riparian bank conditions within each sampling station were assessed using the methods outlined by Wills et al. (2006). Habitat sampling was completed at the Buffalo Road station on September 27, 2013. Habitat sampling at the Bakertown Road and Schirmer Parkway sites was completed on October 2, 2013.

Six Brown Trout were captured at the Buffalo Road sampling station. The total length range for these fish was 5-8 inches. The catch included one age 2 fish and five yearlings. Eight additional fish species were collected during this sampling effort (Table 2). Coldwater and transitional fish species composed 95% of the catch by number and 93% of the total fish biomass.

Thirty-nine Brown Trout were captured at the Bakertown Road sampling station. Sixteen of these fish (41%) exceeded the minimum size limit of 8 inches (Figure 2). Yearlings and age 2 fish made up 87% of the Brown Trout catch (Figure 3). Four wild YOY Brown Trout and one YOY Rainbow Trout also were collected at this site. Johnny Darter (N = 43) and Mottled Sculpin (n = 40) were the most abundant non-game species within the sampling station (Table 3). Coldwater and transitional fish species composed 93% of the catch by number and 97% of the total fish biomass.

Brown Trout CPE was highest at the Schirmer Parkway sampling station, where 131 Brown Trout were captured. Seventeen of these fish (13%) were of legal size (Figure 2). Young-of-year fish composed 58% of the Brown Trout catch (Figure 3). Seven juvenile Steelhead also were captured at this station. Species diversity was higher at this site than at the other two stations. Seventeen species were collected, including Creek Chub, Rainbow Darter, and Northern Hog Sucker (Table 4). Coldwater and transitional fish species made up 81% of the catch by number and 80% of the total fish biomass.

Mean lengths at age for Brown Trout generally were similar at all stations (Table 5). The only age group represented by at least five fish from each station was age 1. Mean total lengths for these fish varied from 6.8 inches at Buffalo Road to 7.3 inches at Bakertown Road. Pooling samples from all electrofishing stations yielded a mean growth index of +0.7, which is indicative of average growth (Figure 4).

Mean stream widths increased from 17.9 ft at Buffalo Road to 23.5 ft at Schirmer Parkway. Conversely, mean depth decreased from 1.0-1.1 ft at the two upper stations to 0.7 ft at Schirmer Parkway (Table 6). The predominant riparian vegetation class at the Buffalo Road and Bakertown Road stations was tag alder types, whereas deciduous forests surrounded the stream at Schirmer Parkway. Bank stability was highest at Bakertown Road and lowest at Schirmer Parkway (Figure 5). Sand and detritus/silt were common at the upper sites (Figure 6). Gravel was the most abundant substrate type at Schirmer Parkway. Approximately 60% of the gravel at this location was not embedded and was suitable spawning substrate for trout. Coarse woody habitat was most common at Schirmer Parkway (Table 6), whereas overhanging vegetation and rooted plants were more abundant at the upper stations.

Analysis and Discussion

There was substantial variation in Brown Trout catch-per-effort (CPE), length distribution, and age distribution at the three electrofishing stations on McCoy Creek. Few Brown Trout were captured at the Buffalo Road sampling station. Electrofishing efficiency was high, so the poor catch at this site must have been caused by high mortality or movement of fish (likely downstream) out of the sampling area. Past monitoring indicated that water temperatures at this site were suitable for Brown Trout. However, coarse woody habitat was rare relative to the other sampling stations in 2013. Anecdotal reports suggest that fishing pressure is low at Buffalo Road.

During 2008-2013, MDNR completed electrofishing surveys on many stream reaches within the St. Joseph River and Galien River watersheds. Sixteen of these stream reaches supported Brown Trout populations. Only one stream reach (Prairie River at Orland Road in 2011) had a Brown Trout CPE that was higher than the value of 988 fish/mile recorded for McCoy Creek at Schirmer Parkway in 2013. Multiple factors have produced the high relative abundance of Brown Trout at Schirmer Parkway. Unlike some of the other stream reaches surveyed by MDNR, this reach is annually stocked with Brown Trout. The gravel stream bottom at this site also provides habitat for macroinvertebrates (i.e., trout food) and facilitates successful incubation of Brown Trout eggs. All of the YOY Brown Trout captured in 2013 were wild fish. Thus, wild fish made up at least 58% of the Brown Trout catch at this site. (It was not possible to determine the proportions of stocked and wild fish in the age 1 and older year classes at Schirmer Parkway because stocked fish were not marked.) The CPE for YOYs at Schirmer Parkway was comparable to YOY CPEs in Pokagon Creek (Cass County), which has a Brown Trout fishery that is sustained solely by natural reproduction. The deciduous forests surrounding this stream reach have allowed the formation of natural log jams which function as cover for trout and food for macroinvertebrates. Given the presence of public land, the tall forest canopy which facilitates casting, and high trout population densities, it is not surprising that anecdotal reports indicate that this reach receives a fair amount of fishing pressure.

The Brown Trout CPE at Bakertown Road was intermediate between the other sites on McCoy Creek and near the 75th percentile for all stream reaches sampled in the St. Joseph River and Galien River watersheds during 2008-2013. Natural recruitment at this site is limited by the paucity of gravel substrates. Survival of stocked fish appears to be adequate. The CPEs for legal-sized Brown Trout were nearly identical at Bakertown Road and Schirmer Parkway despite wide differences in natural recruitment. This observation can be explained by three factors. (1) More yearling Brown Trout were stocked at Bakertown Road than at Schirmer Parkway in 2011 and 2012. (2) Some of the Brown Trout from the Buffalo Road stocking site may have moved downstream to Bakertown Road. (3) Fishing

mortality probably is lower at Bakertown Road than at Schirmer Parkway as the abundance of overhanging vegetation interferes with casting.

The capture of one YOY Steelhead at Bakertown Road indicates that some adult Steelhead are able to move upstream past the Duck Pond Dam, culverts, and other human-made obstacles in McCoy Creek. The scarcity of juvenile Steelhead at Schirmer Parkway is puzzling given the abundance of gravel substrate at that location and its proximity to the St. Joseph River. One possible explanation is that most wild Steelhead produced in McCoy Creek emigrate downstream to the St. Joseph River when water temperatures decline in the fall. Shapovalov and Taft (1954) and Bjornn (1971) documented downstream movement of young-of-year Steelhead in California and Idaho. These movements presumably allow the fish to access suitable overwintering habitat such as deep pools with logs or boulders for cover (Raleigh et al. 1984). Another possible explanation is that the double culverts at Schirmer Parkway form a velocity barrier which hinders upstream movement of adult Steelhead during high spring flows.

Irrigation often is used to enhance agricultural production in southwest Michigan. Since July 9, 2009, Part 327 of Public Act 451 requires all large-quantity withdrawals (defined as 70 gallons per minute [100,000 gallons per day] or greater) to be registered with the Michigan Department of Environmental Quality (MDEQ). A water withdrawal assessment tool was created to facilitate estimation of the ecological effects of proposed withdrawals (Hamilton and Seelbach 2011). If a proposed withdrawal is predicted to have adverse effects on the fish community, the applicant is directed to pursue alternative options (e.g., digging a deeper well, finding a different location for a well, or acquiring water from other farmers within the sub-watershed that are not using all of their permitted withdrawal capacity). One factor that influences withdrawal allotments is the thermal classification of the stream. McCoy Creek is classified as a cold transitional stream. Cold transitional streams have mean July water temperatures between 63.5 F and 67.1 F. Mean July water temperatures in McCoy Creek were 61.0 F at Buffalo Road and 65.1 F at Schirmer Parkway in 1998. In 2013, the catch was dominated by coldwater and transitional fish species (Tables 2-4). However, a few warmwater species (e.g., grass pickerel and green sunfish) were present at each station. The observed species composition matches the expected fish assemblage for a cold transitional stream (Lyons et al. 2009) so it appears that the existing thermal classification for McCoy Creek is correct.

Houses, yards, farms, and other types of human modification of the riparian zone were scarce along all three sampling stations on McCoy Creek in 2013. Bank erosion was more prevalent at Schirmer Parkway than at the two upper sites. The steep topography at this site makes it highly susceptible to erosion. The roots of the deciduous trees along the stream provide some erosion control but the shade caused by these trees inhibits growth of grasses and other vegetation on the forest floor (Lyons et al. 2000). Bank stability also is affected by human-induced fluctuations in stream discharge. Storm water runoff from roofs, parking lots, roads, and other impervious surfaces in Buchanan presumably has increased such fluctuations at Schirmer Parkway relative to natural conditions.

Management Direction

Five fisheries management goals have been developed for McCoy Creek. Goal 1: Protect existing fish habitat. Goal 2: Monitor flows in the primary channel and mill race and work with the City of Buchanan, MDEQ, and other partners to adjust the configuration of the diversion as necessary. Goal 3: Rehabilitate degraded sections of McCoy Creek and tributary streams. Goal 4: Maintain or enhance the

existing Brown Trout fishery. Goal 5: Reduce competition between stocked and wild Brown Trout in the lower reaches of McCoy Creek.

At least two different methods will be used to protect existing fish habitat. Fisheries Division personnel will continue to review MDEQ permit applications for potential effects on aquatic resources. If a proposed project is likely to degrade the aquatic habitat, Fisheries Division staff will object to the proposal and suggest feasible alternatives. Fisheries Division also will report any observed water withdrawals to MDEQ to ensure that these withdrawals are registered as required under Part 327 of Public Act 451.

The riffle structure at the Forks was designed to partition flow between the mill race and the primary channel so that upstream movement of fish in the primary channel would not be hindered and the mill race would receive enough flow to operate Pears Mill. Streams are dynamic systems, and instream structures often have to be modified to perform as intended. Fisheries Division will work with the City of Buchanan, MDEQ, and other organizations to evaluate the performance of the diversion riffle and address any problems that are identified.

Recent projects have improved fish habitat in McCoy Creek, but many sections of the creek and its tributaries continue to be affected by channelization, confinement in underground culverts, and road crossings. As opportunities arise, Fisheries Division will work with the City of Buchanan, the Berrien County Road Commission, MDEQ, and riparian landowners to open stream reaches that currently are buried in culverts beneath streets or buildings and ensure that any new or replacement road crossings are properly sized to allow fish passage. Fisheries Division also will work with the Berrien County Drain Commissioner, MDEQ, and private landowners to restore the connectivity between designated drains and their floodplains, thus reducing flow fluctuations downstream. This could be accomplished by cutting berms or creating a floodplain within the banks (i.e., a two-stage ditch).

McCoy Creek currently provides a popular Brown Trout fishery. Annual stocking is an important tool for maintaining this fishery, but the existing stocking program needs to be modified to more efficiently utilize stocked fish while minimizing negative effects on wild trout. Stocking at Buffalo Road will be discontinued due to poor survival or mass emigration of stocked trout. The stocking at Buffalo Road likely contributed to the fishery at Bakertown Road. To offset the decrease in immigration of fish from Buffalo Road, the annual stocking target for Bakertown Road will be increased from 1,050 yearlings to 1,250 yearlings. This equates to a stocking density of 200 fish/acre for the stream reach between US-12 and the Forks. Natural recruitment appears to be sufficient to maintain the Brown Trout fishery in the lower portion of McCoy Creek, and annual stocking at Schirmer Parkway will be discontinued. Stocking fish on top of natural reproducing trout populations can reduce recruitment (Vincent 1987) and growth (Jenkins et al. 1999; Bohlin et al. 2002) of wild trout. Thus, abundance and growth of wild Brown Trout at Schirmer Parkway is expected to improve after the cessation of stocking. No detectable changes in catch rates of legal-sized trout are expected as the availability of deep pools and holding cover limits the production of adult trout in this part of the stream. Electrofishing surveys should be conducted in 2020 to evaluate the effects of stocking changes on the Brown Trout population in McCoy Creek.

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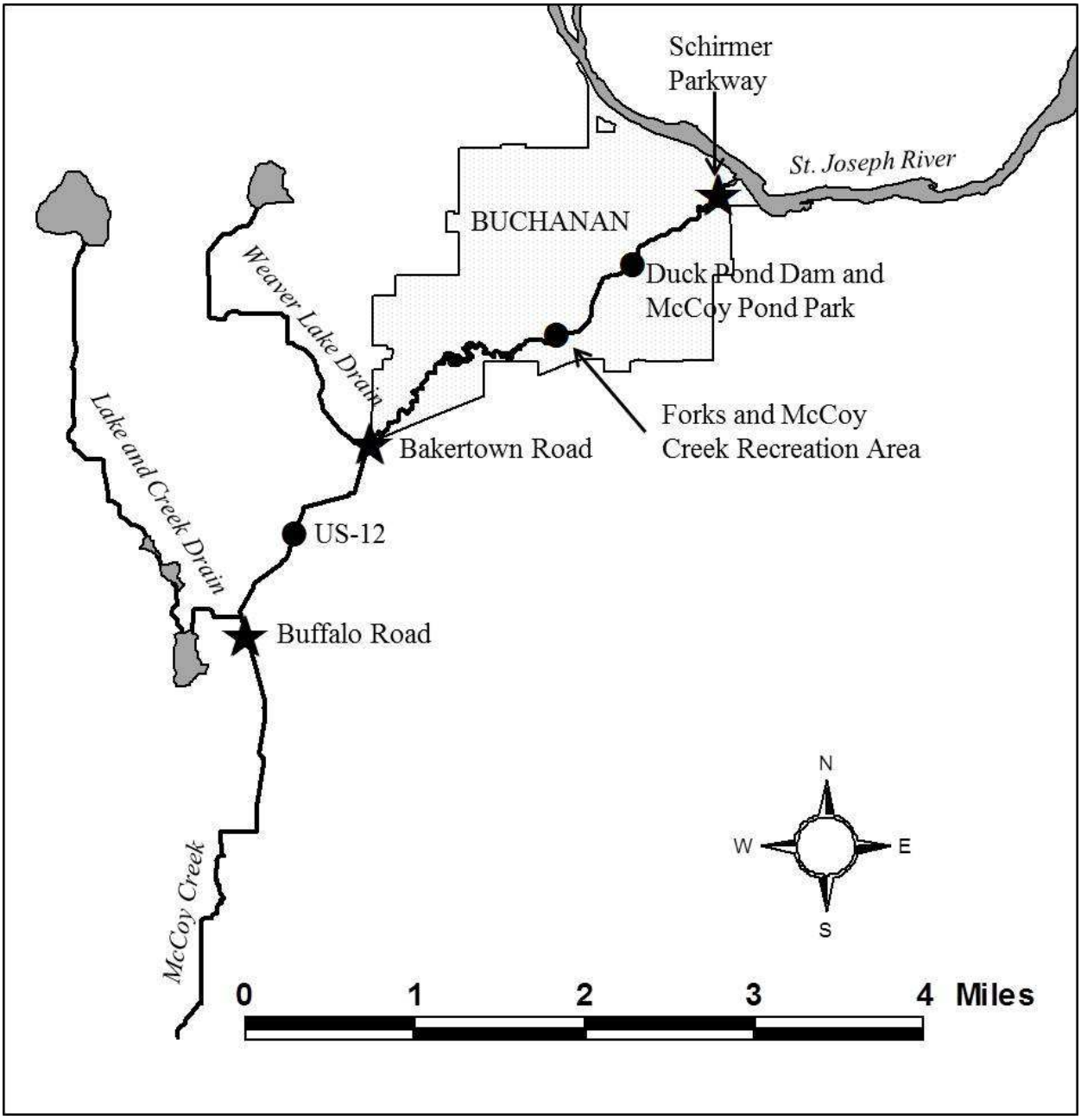

Figure 1.–Select landmarks (circles) and 2013 electrofishing stations (stars) on McCoy Creek, Berrien County.

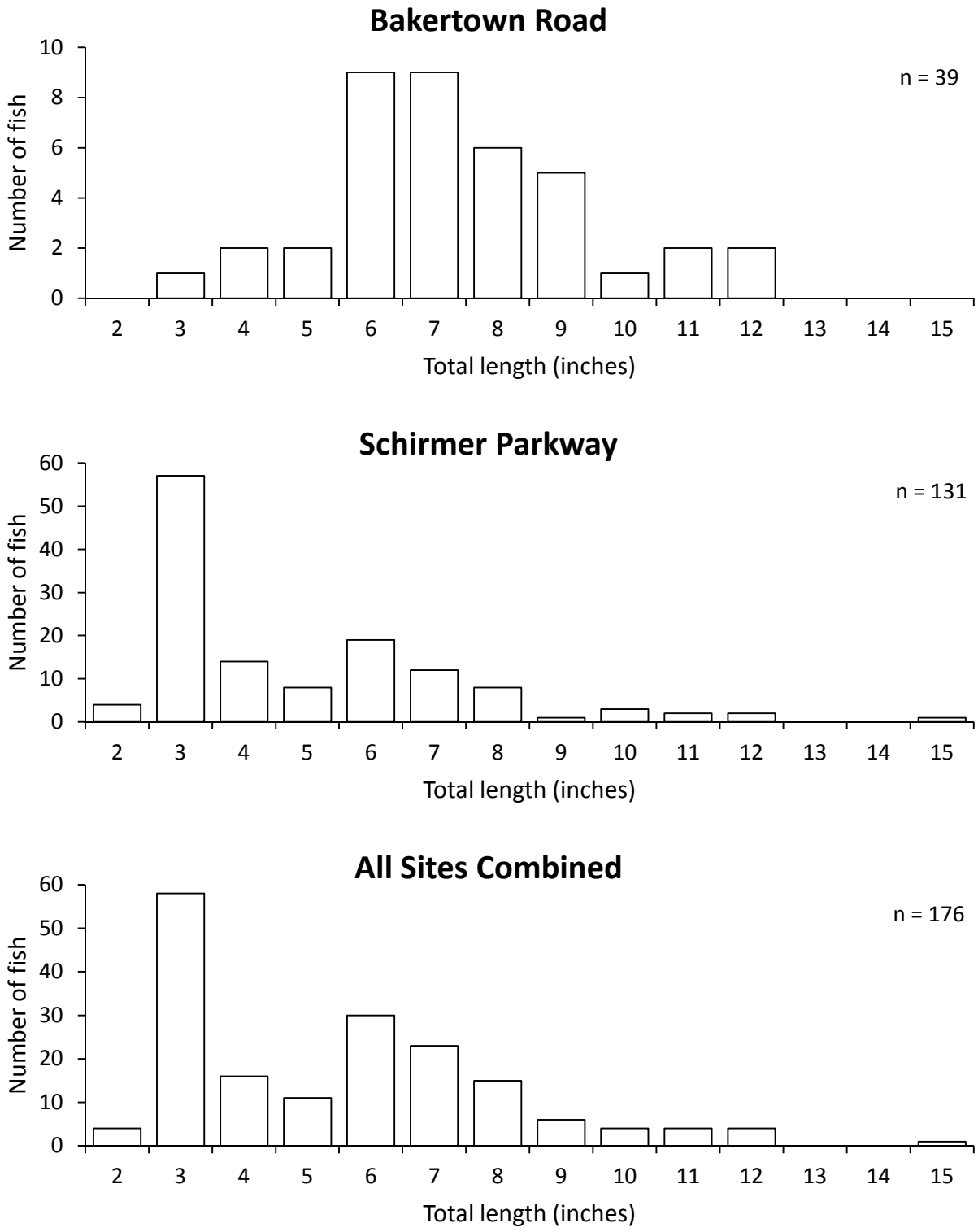

Figure 2.–Length frequency distributions for Brown Trout captured at the Bakertown Road sampling station, the Schirmer Parkway sampling station, and all sampling stations on McCoy Creek on September 26, 2013.

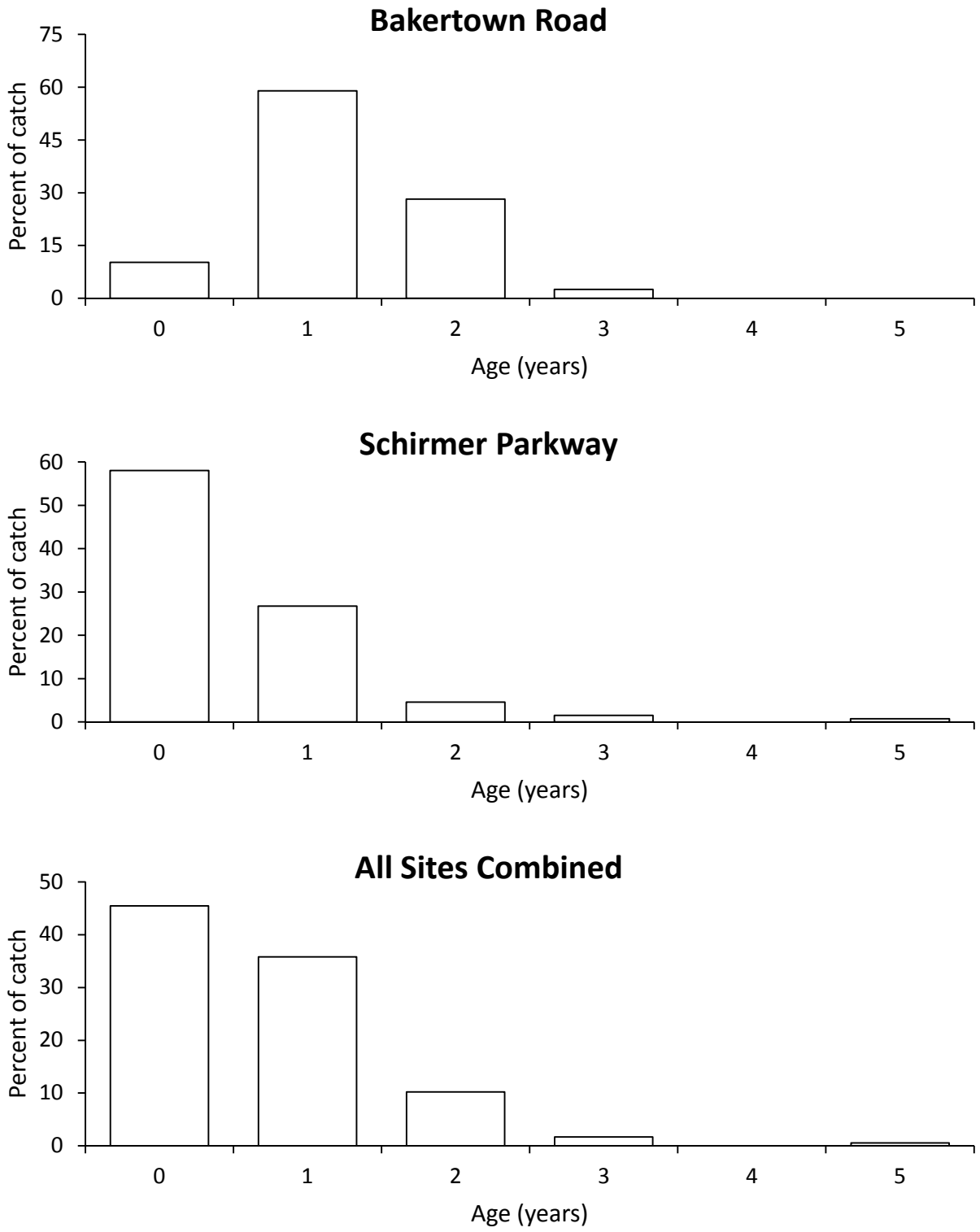

Figure 3.–Age frequency distributions for Brown Trout captured at the Bakertown Road sampling station, the Schirmer Parkway sampling station, and all sampling stations on McCoy Creek on September 26, 2013.

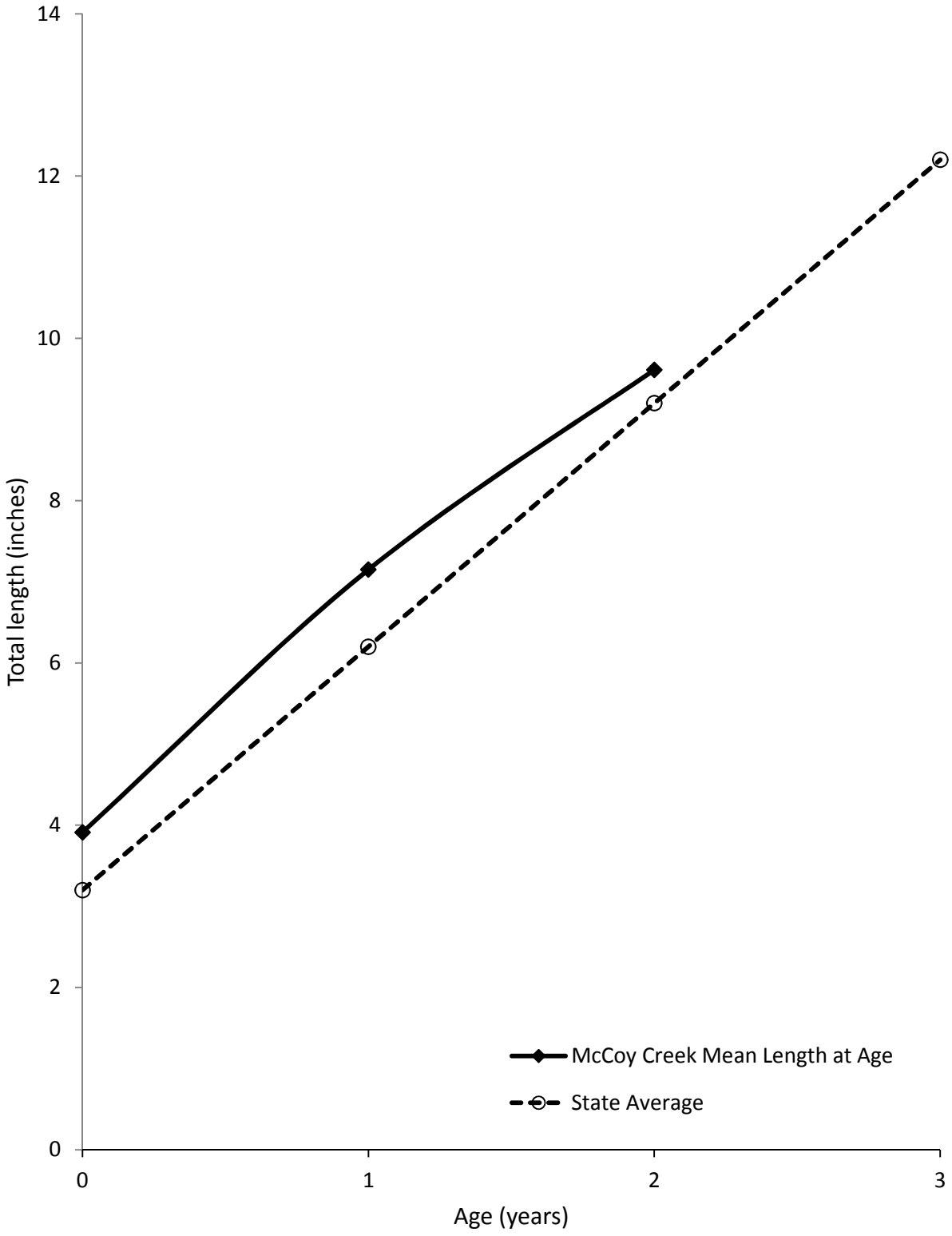

Figure 4.–Growth of Brown Trout in McCoy Creek, as determined from scale samples collected at the Buffalo Road, Bakertown Road, and Schirmer Parkway sampling stations on September 26, 2013. State average lengths for August-September are from Schneider et al. (2000a).

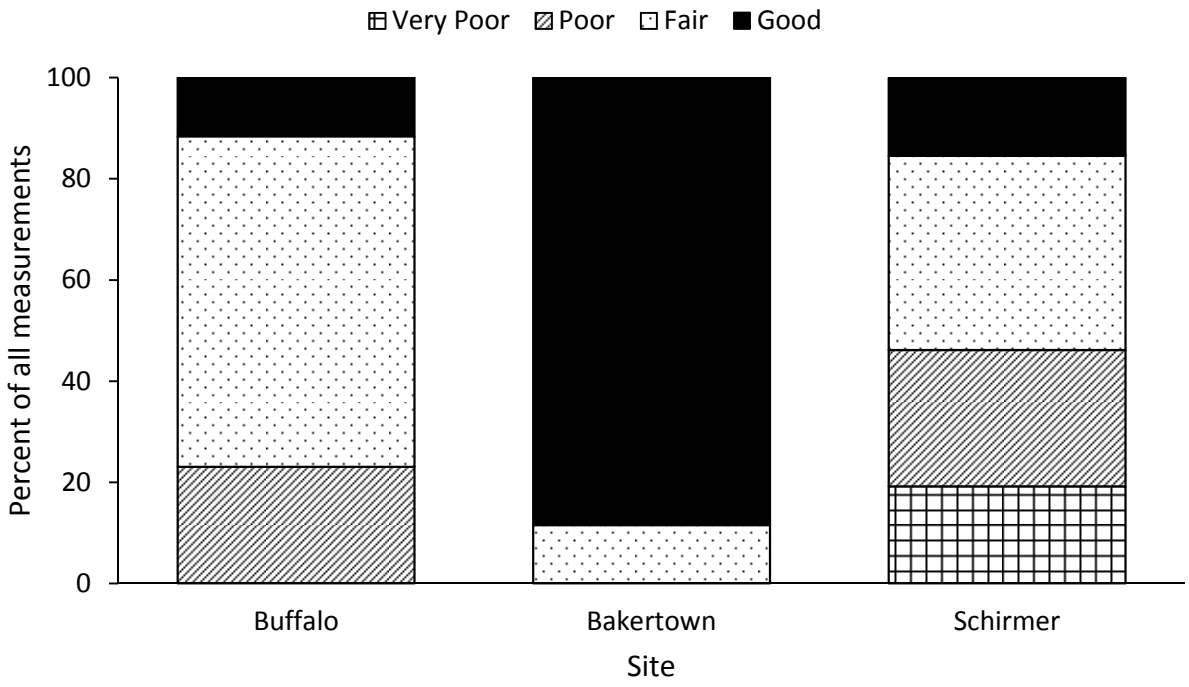

Figure 5.–Bank stability ratings at the Buffalo Road, Bakertown Road, and Schirmer Parkway sampling stations on McCoy Creek, September 27-October 2, 2013. (Very poor = >75% bare soil, Poor = 50-75% bare soil, Fair = 25-50% bare soil, and Good = <25% bare soil).

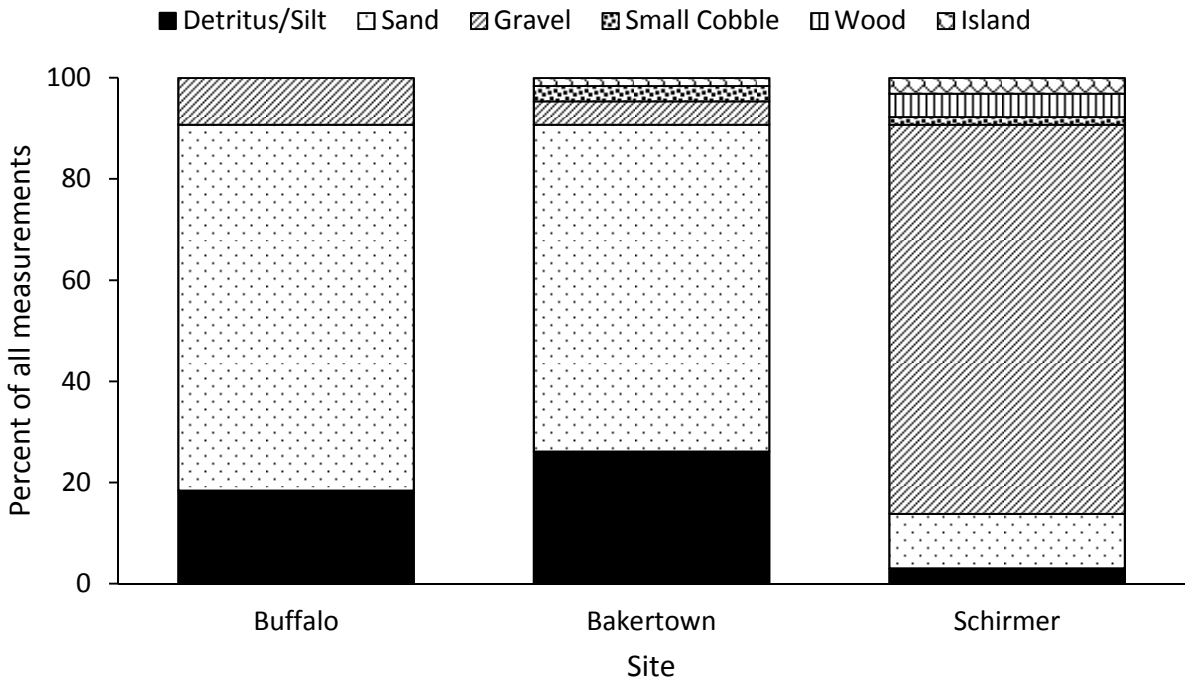

Figure 6.–Predominant substrate types at the Buffalo Road, Bakertown Road, and Schirmer Parkway sampling stations on McCoy Creek, September 27-October 2, 2013.

Table 1.–Yearling brown trout (Gilchrist Creek strain) stocking in McCoy Creek, 2003-2013.

Year	Site	Number	Average length (inches)
2003	Buffalo Road	600	5.14
	US-12	700	5.14
	Bakertown Road	700	5.14
	Schirmer Parkway	700	5.14
2004	Buffalo Road	650	5.09
	US-12	750	5.09
	Bakertown Road	750	5.09
	Schirmer Parkway	750	5.09
2005	Buffalo Road	600	5.70
	US-12	700	5.70
	Bakertown Road	700	5.70
	Schirmer Parkway	700	5.70
2006	Buffalo Road	720	7.40
	US-12	770	7.40
	Bakertown Road	770	7.40
	Schirmer Parkway	770	7.40
2007	Buffalo Road	570	7.36
	US-12	660	7.36
	Bakertown Road	660	7.36
	Schirmer Parkway	660	7.36
2008	Buffalo Road	600	4.16
	US-12	700	4.16
	Bakertown Road	700	4.16
	Schirmer Parkway	700	4.16
2009	Buffalo Road	750	4.47
	US-12	800	4.47
	Bakertown Road	800	4.47
	Schirmer Parkway	800	4.47
2010	Buffalo Road	720	4.86
	US-12	770	4.86
	Bakertown Road	770	4.86
	Schirmer Parkway	770	4.86
2011	Buffalo Road	855	4.82
	Bakertown Road	945	4.82
	Schirmer Parkway	630	4.82
2012	Buffalo Road	1,108	4.89
	Bakertown Road	1,224	4.89
	Schirmer Parkway	848	4.89
2013	Buffalo Road	950	4.77
	Bakertown Road	1,050	4.77
	Schirmer Parkway	700	4.77

Table 2.–Numbers, calculated weights, total lengths, and thermal classifications for fish species collected at the Buffalo Road electrofishing station on McCoy Creek on September 26, 2013. Thermal classifications from Lyons et al. (2009).

Species	Number	Percent by number	Weight (lb)	Percent by weight	Total length range (inches)	Thermal classification
Johnny darter	130	53.3	0.5	11.4	1-2	Transitional
Mottled sculpin	50	20.5	0.4	10.5	1-3	Coldwater
Creek chub	33	13.5	0.6	14.5	1-9	Transitional
White sucker	8	3.3	1.6	38.8	2-14	Transitional
Brown trout	6	2.5	0.8	18.3	5-8	Coldwater
Green sunfish	5	2.0	0.1	2.1	2-3	Warmwater
Rainbow darter	5	2.0	0.0	0.2	1-2	Warmwater
Central mudminnow	4	1.6	0.0	0.5	2-2	Transitional
Grass pickerel	3	1.2	0.2	3.6	4-7	Warmwater
Total	244		4.2			

Table 3.–Numbers, calculated weights, total lengths, and thermal classifications for fish species collected at the Bakertown Road electrofishing station on McCoy Creek on September 26, 2013. Thermal classifications from Lyons et al. (2009).

Species	Number	Percent by number	Weight (lb)	Percent by weight	Total length range (inches)	Thermal classification
Johnny darter	43	24.4	0.2	0.7	1-3	Transitional
Mottled sculpin	40	22.7	0.4	1.6	1-3	Coldwater
Brown trout	39	22.2	8.1	34.9	3-12	Coldwater
White sucker	33	18.8	13.2	56.5	2-20	Transitional
Grass pickerel	7	4.0	0.6	2.7	4-11	Warmwater
Creek chub	7	4.0	0.6	2.5	2-8	Transitional
Green sunfish	5	2.8	0.2	0.9	3-4	Warmwater
Rainbow trout	1	0.6	0.0	0.1	4	Coldwater
Central mudminnow	1	0.6	0.0	0.1	3	Transitional
Total	176		23.3			

Table 4.–Numbers, calculated weights, total lengths, and thermal classifications for fish species collected at the Schirmer Parkway electrofishing station on McCoy Creek on September 26, 2013. Thermal classifications from Lyons et al. (2009).

Species	Number	Percent by number	Weight (lb)	Percent by weight	Total length range (inches)	Thermal classification
Brown trout	131	46.6	12.5	59.7	2-15	Coldwater
Creek chub	46	16.4	0.3	1.5	1-4	Transitional
Rainbow darter	31	11.0	0.1	0.4	1-2	Warmwater
Northern hog sucker	19	6.8	2.3	10.8	2-12	Transitional
Johnny darter	15	5.3	0.0	0.2	1-2	Transitional
Rainbow trout	7	2.5	0.6	2.9	2-8	Coldwater
Spotfin shiner	5	1.8	0.1	0.2	2-3	Warmwater
Smallmouth bass	4	1.4	2.5	11.9	8-12	Warmwater
Rock bass	4	1.4	1.1	5.4	6-7	Warmwater
White sucker	4	1.4	1.1	5.4	2-11	Transitional
Pirate perch	4	1.4	0.1	0.5	3-3	Warmwater
Green sunfish	3	1.1	0.1	0.2	2-3	Warmwater
Longnose dace	3	1.1	0.0	0.1	2-2	Transitional
Mottled sculpin	2	0.7	0.0	0.0	1-1	Coldwater
Yellow bullhead	1	0.4	0.1	0.4	5	Warmwater
Central stoneroller	1	0.4	0.1	0.3	5	Warmwater
Bluntnose minnow	1	0.4	0.0	0.1	3	Warmwater
Total	281		20.9			

Table 5.–Mean total lengths at age (in inches) for Brown Trout captured in McCoy Creek at the Buffalo Road, Bakertown Road, and Schirmer Parkway sampling stations on September 26, 2014. The number of samples for each age group is indicated in parentheses. Length-at-age data for all sites were pooled to generate the combined estimates.

Age	Buffalo Road	Bakertown Road	Schirmer Parkway	Combined
0	---	4.5 (4)	3.8 (28)	3.9 (32)
1	6.8 (5)	7.3 (23)	7.1 (35)	7.1 (63)
2	8.8 (1)	9.4 (10)	10.3 (5)	9.6 (15)

Table 6.–Physical habitat characteristics and predominant riparian vegetation types for the Buffalo Road, Bakertown Road, and Schirmer Parkway sampling stations on McCoy Creek. Data were collected at Buffalo Road on September 27, 2013 and at the other stations on October 2, 2013. Sampling followed the methods described by Wills et al. (2006).

Site	Mean width (ft)	Mean depth (ft)	Mean velocity (ft/s)	Discharge (cfs)	Primary vegetation type/ secondary vegetation type	Coarse woody habitat (lineal ft)
Buffalo Road	17.9	1.11	0.25	4.70	Tag alder types Yard	222
Bakertown Road	19.2	1.00	0.31	6.37	Tag alder types Grassland	450
Schirmer Parkway	23.5	0.70	0.61	11.28	Large deciduous Small deciduous	1,229