



# **Beneficial Use Recommendations Summary for the Cuyahoga River drainage basin (OAC 3745-1-26)**



**Division of Surface Water  
Assessment and Modeling Section  
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## Beneficial Use Designations and Recommendations

The Cuyahoga River basin has been subjected to regular monitoring and assessment beginning in 1983 and the 2017-18 survey marks the fourth comprehensive study of the watershed by Ohio EPA. Numerous other smaller efforts have occurred over the intervening and subsequent years. Pursuant to these efforts, the beneficial use designations for many streams within the Cuyahoga River basin have been verified using standardized biological field collections. Given the amount of information collected from this watershed since 1983, a relatively high proportion of streams in this watershed already have confirmed beneficial use designations. However, waterbodies do remain where designations for aquatic life use(s) are still based on the original 1978 and 1985 state water quality standards. The techniques in use at that time did not include standardized approaches to the collection of in-stream biological data or numeric biocriteria. There are also other streams, usually smaller and formally unnamed, that were not listed in the water quality standards and remain unlisted and undesignated to this date.

The last revision to beneficial uses in the Cuyahoga River drainage basin (OAC 3745-1-26) occurred in December 2006. A technical support document (TSD) was published in 2023 for the 2017-18 watershed survey, but Ohio EPA has also conducted numerous other minor sampling efforts within the watershed since 2006. Results from these efforts are used here to either confirm existing or recommend appropriate beneficial use designations. Additional sampling efforts have been conducted by level 3 participants in Ohio EPA's Credible Data Program. Results from those surveys are typically submitted to Ohio EPA; approved CDP data from areas lacking information were also used to recommend appropriate beneficial uses.

Sampling results are summarized in Table 1 and include evaluations of the fish and macroinvertebrate communities as well as the results of the habitat assessment as measured by the Qualitative Habitat Evaluation Index (QHEI) score. Affirmation of current designations, recommendations for re-designation of currently unverified designations, and designation of previously unlisted waters are also presented within this table and in Table 2. A more detailed matrix of stream habitat quality attributes that comprise the QHEI score is included as Table 3. The QHEI scores various habitat features such as riparian condition, stream channel and substrate features. The QHEI scores and components are presented in the QHEI matrix by waterbody and by station for streams where multiple QHEI assessments occurred.

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## ***Aquatic Life Beneficial Use***

Streams outside of the 2017-2018 basin survey were sampled as part of several efforts: a 2015 intensive survey effort of direct Lake Erie tributaries, a 2019 study of small headwater tributaries, and other smaller monitoring efforts (Ohio EPA 2019, 2020). Data from these surveys were used to either verify or recommend an appropriate aquatic life use. Significant findings from this survey included the following:

- The lower Cuyahoga River supports the passage and residency of steelhead trout. Although not stocked, the Cuyahoga River is known to support populations of “lost” fish that haven’t homed in on the stream in which they were stocked. This is not surprising given that all the other major Lake Erie tributaries from the Vermilion River eastward maintain a seasonal salmonid habitat (SSH) aquatic life use designation and many are stocked with steelhead (Ohio DNR, Div. of Wildlife). Both NEORSD and Ohio EPA sampling records indicate a continued presence of steelhead trout during the summer sampling index period. Over 60, mostly adult, steelhead trout have been collected by both agencies combined, with the first two individuals being recorded in April 1993 from RM 6.0 (200020). Subsequent survey efforts have documented numerous other individuals between RMs 15.61 and RM 6.0. These river mile ranges are those routinely sampled by NEORSD’s annual monitoring program. Due to the more intensive inter-annual sampling regime employed by NEORSD through these reaches of the Cuyahoga River mainstem, most steelhead trout records referenced were collected by NEORSD. The records by NEORSD and Ohio EPA also likely under-represent the total amount of steelhead trout present in the river during peak migration periods (December-March) because the standard biological monitoring index period only extends from June 15th through October 15th. Many of the steelhead collected during routine monitoring are likely among the earliest arrivals for the fall migration into the rivers as summer water temperatures cool down.

The Station Road dam at RM 20.7 has blocked more substantial steelhead trout migration upstream, however there are still records beyond this barrier and some migration upstream during high flow events is likely to occur. A relatively large individual was collected in lower Furnace Run during the 2018 tributary survey and sporadic records from anglers have produced steelhead records as far upstream as Akron (video, Ohio DNR). Stable rainbow trout populations have also been documented in another smaller tributary to the Cuyahoga mainstem downstream from the dam. Even in the absence of the Station Road dam, the Edison Dam and Gorge escarpment at RM 44.6 will still present likely barriers to upstream fish passage.

Given the preponderance of data suggesting continued seasonal presence of steelhead throughout the lower Cuyahoga mainstem, the reach from the mouth extending upstream to the Edison Dam/Gorge area (RM 44.6) is recommended to receive the SSH beneficial use designation.

- Numerous other streams were evaluated during smaller sampling efforts since 2006 associated with habitat improvement projects. This sampling typically occurred before and after project implementation, and was conducted to primarily assess project efficacy. Biological assemblages from many of these streams either met or fell short of WWH criteria. In many impaired areas, habitat should be sufficient or should improve to the point to support stable biological communities. Other factors (natural background conditions, permanent hydrological modification) may limit some biological performance in some stream systems even after habitat has recovered. Sufficient data were collected as part of these projects to recommend aquatic life use changes for the following streams:
  - Streams sampled during these habitat improvement projects that are recommended to receive the WWH beneficial use included (year(s) sampled in parentheses): Bath Creek (2010), tributary to Pond Brook at RM 3.9 (2016); Stickney Creek (2018); Kelsey Brook (2019); tributary to the Cuyahoga River at RM 23.4 (2020); Wolf Creek (2020); tributary to Brandywine Creek at RM 10.07 (2020).
  - The tributary to the Cuyahoga River at RM 21.7 (2020) supported 8 coldwater macroinvertebrate taxa and two coldwater fish species (reidside dace, s. redbelly dace). This

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small undesignated stream is recommended to receive the CWH aquatic life use given the presence of numerous coldwater indicator species.

- Miscellaneous fish and habitat sampling was conducted in the tributary to Salt Run at RM 1.65 (undesignated) by Ohio EPA Northeast District Office staff in 2010 and 2017. A redbreasted dace was recorded here in 2017 during electrofishing. No macroinvertebrate samples have been collected from this small tributary historically. Its parent tributary, Salt Run, has a confirmed CWH use. Despite the lack of macroinvertebrate data from this small unnamed tributary, the presence of redbreasted dace suggests that this stream supports coldwater organisms. It is recommended to receive the CWH use designation.
- Several streams in the Cuyahoga River basin were surveyed as part of an intensive effort to sample smaller, mostly undesignated, streams around Ohio in 2018 and 2019 (Ohio EPA 2019). Many of these small streams were selected because they had the potential to be higher quality. This sampling included three unnamed tributaries to the Cuyahoga River at RMs 92.15, 92.8, and 93.13. All three had extremely high numbers of coldwater taxa (17, 17, 21 respectively) rarely seen in Ohio's streams. Though only wetland stream fish species persisted, numerous high quality salamander species were documented including: northern spring, northern dusky, mountain dusky, and 2 lined salamanders in the tributary at RM 92.15; a northern dusky salamander in the tributary at RM 92.8; northern red, northern dusky, mountain dusky, and 2 lined salamanders in the tributary at RM 93.13. Given the very high numbers of coldwater macroinvertebrate taxa and presence of high-quality salamanders, these three streams are recommended to receive the CWH designation.

Deerlick Run was also sampled as part of this targeted survey effort at RM 0.78. This small stream network only drains 3.4 mi<sup>2</sup> total and only about 0.89 mi<sup>2</sup> at RM 0.78. Most of upper Deerlick Run maintains a LRW designation, while its lowermost reaches are designated WWH (Table 2). Fish have historically been absent from the upstream reaches of Deerlick Creek because of the very high gradient (~200 ft/mi) and natural escarpments. Fish are not expected to be a component of the biological assemblage in much of this system. However, macroinvertebrate assemblages in 2019 at RM 0.78 included 5 coldwater taxa; sampling from 2000 also included 4 coldwater taxa among the macroinvertebrate taxa collected. Given the relatively high number of coldwater macroinvertebrate taxa and the natural limitations to fish assemblages, Deerlick Run from its headwaters to the escarpment at RM 0.37 are recommended to receive the CWH use designation; its lowermost reach should remain WWH until more data are available. Future monitoring efforts should target this small sub-watershed to evaluate the potential for a higher aquatic life use designation. Given natural limitations in this system, macroinvertebrate performance should be the primary indicator of biological integrity.

Several other streams were evaluated by level 3 participants in Ohio EPA's Credible Data program since 2006, including staff from the Northeast Ohio Regional Sewer District (NEORS) and the Cleveland Metroparks. Results from those surveys are typically submitted to Ohio EPA. Approved data from areas lacking information were used to recommend appropriate beneficial uses. Results from these efforts are summarized below:

- NEORS collects data annually from selected streams in their service area. Several undesignated streams were sampled as part of NEORS's annual efforts from 2006-2018. Approved data from these areas were assessed and used to recommend an appropriate ALU. These streams included: tributary to West Creek at RM 0.85; tributary to Cuyahoga River at RM 14.63; tributary to Big Creek at RM 7.78, tributary to Chippewa Creek at RM 3.7; South Branch Doan Brook; tributary to Ninemile Creek at RM 3.3; tributary to Euclid Creek at RM 5.49. All these tributaries are recommended to receive the WWH aquatic life use designation.

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- L3 certified collectors from the Cleveland Metroparks collects fish and habitat data periodically from streams in their service area. Approved data from these efforts were sufficient to recommend an appropriate life use for two streams: tributary to Big Creek at RM 9.6 and tributary to Cuyahoga River 21.7/0.55. Data were sufficient to support a WWH recommendation for the tributary to Big Creek (9.6). Despite no macroinvertebrate data being collected from the tributary to Cuyahoga River 21.7/0.55, notable amounts of both redbreast (5.69%) and southern redbelly dace (1.76%) were collected. Additionally, its parent tributary is being recommended CWH.

### ***Recreation Beneficial Use***

Most streams evaluated during the survey maintain the PCR recreation beneficial use; those streams should retain the PCR use. Any tributaries evaluated with a SCR use, should be upgraded to the PCR use.

### ***Agricultural, Industrial, and Public Water Supply Beneficial Uses***

All streams or stream segments with existing AWS and IWS use designations should retain those uses. Those streams listed in Tables 1 and 2 with unverified AWS and IWS use designations should have those uses confirmed. It is recommended that streams assessed in this document and not listed in the WQS receive the AWS and IWS beneficial use designations.

**Table 1. Biological index and QHEI scores for streams sampled in the Cuyahoga River basin. Primary data displayed were collected from June-October 2017-18 as part of the Cuyahoga River watershed TMDL survey. Results from other smaller projects since 2006 were also included where sufficient data existed to recommend an appropriate aquatic life use (ALU). These results include approved data that was submitted to Ohio EPA by level 3 participants in the Ohio EPA Credible Data program. The Index of Biotic Integrity (IBI), Modified Index of well-being (MIwb), and Invertebrate Community Index (ICI) are scores based on the performance of the biological communities. The Qualitative Habitat Evaluation Index (QHEI) is a measure of the ability of the physical habitat of the stream to support a biotic community. The Cuyahoga River watershed is located entirely within the Erie Ontario Lake Plain (EOLP<sup>1</sup>) ecoregion. Biological index scores were evaluated against criteria for the existing or recommended ALU<sup>2</sup>. Specific sampling locations for fish and macroinvertebrates may differ slightly from what is listed in the below table. Scores separated by a "/" indicate two scores from consecutive sampling years.**

Location	STORET	River Mile <sup>a</sup>	Drain. (mi <sup>2</sup> )	IBI	MIwb <sup>b</sup>	ICI <sup>c</sup>	QHEI	Collector	Associated Project	Sampling Year(s) Displayed
<b>Trib. to Cuyahoga River (93.13) (19-001-048)</b>								<b>Undesignated/CWH Recommended</b>		
South of St. Rt. 322	304111	0.2	0.2 <sup>H</sup>	-	-	E	-	Ohio EPA	PHW Study	2019
<b>Trib. to Cuyahoga River (92.80) (19-001-047)</b>								<b>Undesignated/CWH Recommended</b>		
In Headwaters Park	304110	0.3	0.5 <sup>H</sup>	24	--	E	-	Ohio EPA	PHW Study	2019
<b>Trib. to Cuyahoga River (92.15) (19-001-046)</b>								<b>Undesignated/CWH Recommended</b>		
In Headwaters Park	304109	0.4	0.7 <sup>H</sup>	30	-	E	-	Ohio EPA	PHW Study	2019
<b>Bath Creek (19-022-001)</b>								<b>Undesignated/WWH Recommended</b>		
Upst. restoration area	301227	2.3	1.7 <sup>H</sup>	<u>26*</u>	-	F*	43.5	Ohio EPA	Habitat Restoration Monitoring	2010
Within restoration area	301226	2.1	1.8 <sup>H</sup>	30*	-	MG <sup>NS</sup>	54.5	Ohio EPA	Habitat Restoration Monitoring	2010
At Derrwood Rd.	301225	1.8	3.1 <sup>H</sup>	<u>26*</u>	-	<u>P*</u>	45.5	Ohio EPA	Habitat Restoration Monitoring	2010
<b>Dickerson Run (19-017-000)</b>								<b>WWH Existing/CWH Recommended</b>		
<b>Tributary to Salt Run (1.65) (19-016-001)</b>								<b>Undesignated/CWH Recommended</b>		
Upst. Virginia Kendall Lake	301421	0.4	1.2 <sup>H</sup>	<u>24, 38</u>	-	-	63.5, 67.5	Ohio EPA	Misc. Sampling	2010, 2017
<b>Tributary to Cuyahoga River (23.40) (19-001-050)</b>								<b>Undesignated/WWH Recommended</b>		
Near Buckeye Trail	304205	0.9	0.5 <sup>H</sup>	32*	-	MG <sup>NS</sup>	57.5	Ohio EPA	Habitat Restoration Monitoring	2020
<b>Trib. to Brandywine Creek (10.07) (19-010-002)</b>								<b>Undesignated/WWH Recommended</b>		
At W. Prospect St.	304201	0.4	2.2 <sup>H</sup>	<u>26*</u>	-	F*	64.25	Ohio EPA	Habitat Restoration Monitoring (Pre-proj.)	2020
<b>Tributary to Cuyahoga River (21.70) (19-001-036)</b>								<b>Undesignated/CWH Recommended</b>		
Upst. West Branch	302646	0.65	0.9 <sup>H</sup>	50, 52	-	VG	71.0, 68.5	Cleveland Metroparks, Ohio EPA	Misc. Sampling, Habitat Restoration Monitoring (Pre-proj.)	2012, 2020

Location	STORET	River Mile <sup>a</sup>	Drain. (mi <sup>2</sup> )	IBI	MIwb <sup>b</sup>	ICI <sup>c</sup>	QHEI	Collector	Associated Project	Sampling Year(s) Displayed
At Riverview Rd.	303940	0.15	2.6 <sup>H</sup>	52	-	-	81.0	Cleveland Metroparks	Misc. Sampling	2017
Dst. Riverview Rd. dst. tributary	302644	0.1	3.2 <sup>H</sup>	42	-	-	68.0	Cleveland Metroparks	Misc. Sampling	2012
<b>Tributary to Cuyahoga River (21.70/0.55) (19-001-037)</b>								<b>Undesignated/CWH Recommended</b>		
Near mouth	302645	0.35	1.4 <sup>H</sup>	50	-	-	58.5	Cleveland Metroparks	Misc. Sampling	2012
<b>Tributary to Chippewa Creek (3.70) (19-009-003)</b>								<b>Undesignated/WWH Recommended</b>		
Near mouth	200098	0.1	2.3 <sup>H</sup>	<u>27*</u> , <u>26*</u>	-	-	65.5, 66.0	NEORS	Annual Sampling	2017, 2018
<b>Deerlick Run (19-007-002)</b>								<b>LRW Existing/CWH Recommended</b>		
At Park Drive	F01S39	0.9	0.76 <sup>H</sup>	-	-	MG	-	Ohio EPA	PHW Study	2019
<b>Tributary to the Cuyahoga River (14.63) (19-001-040)</b>								<b>Undesignated/WWH Recommended</b>		
Dst. railroad tracks	303732	0.1	0.7 <sup>H</sup>	46, 42	-	LF*, 14	65.0, 68.5	NEORS	Annual Sampling	2015, 2016
<b>Wolf Creek (19-006-003)</b>								<b>Undesignated/WWH Recommended</b>		
Near mouth	304200	0.15	2.2 <sup>H</sup>	<u>12*</u>	-	F	70.0	Ohio EPA	Habitat Restoration Monitoring (Pre-Proj.)	2020
<b>Tributary to West Creek (0.85) (19-001-039)</b>								<b>Undesignated/WWH Recommended</b>		
Upst. I-480	303733	0.4	1.6 <sup>H</sup>	<u>22*</u>	F*	-	75.0	NEORS	Annual Sampling	2015
<b>Tributary to Big Creek (7.78) (19-005-003)</b>								<b>Undesignated/WWH Recommended</b>		
Near mouth	302642	0.05	2.5 <sup>H</sup>	30*, 30*	-	32 <sup>NS</sup>	67.25, 67.0	NEORS	Annual Sampling	2015 (fish/hab.), 2016
<b>Tributary to Big Creek (9.60) (19-005-004)</b>								<b>Undesignated/WWH Recommended</b>		
Near mouth	302643	0.05	1.6 <sup>H</sup>	28*, 28*	-	-	63.0, 70.0	Cleveland Metroparks	Misc. Sampling	2012, 2017
<b>South Branch Doan Brook (19-039-001)</b>								<b>Undesignated/WWH Recommended</b>		
At Attleboro Rd.	301429	1.31	3.4 <sup>H</sup>	<u>22*</u> , <u>24*</u>	-	16*	67.5, 60.0	NEORS	Annual Sampling	2013, 2014 (bugs & fish)
<b>Tributary to Ninemile Creek (3.30) (19-040-001)</b>								<b>Undesignated/WWH Recommended</b>		
Upst. Belvoir Blvd.	301436	0.01	3.2 <sup>H</sup>	<u>12*</u> , <u>12*</u>	-	<u>p*</u>	55.0, 52.0	NEORS	Annual Sampling	2011 (fish & bugs), 2013
<b>Tributary to Euclid Creek (5.49) (19-041-003)</b>								<b>Undesignated/WWH Recommended</b>		
At Richmond Rd.	302508	1.35	1.2 <sup>H</sup>	<u>22*</u>	-	14*, 18*	58.5, 59.5	NEORS	Annual Sampling	2013 (bugs & fish), 2014

- a River Mile (RM) represents the Point of Record (POR) for the station and may not be the actual sampling RM.
- b MIwb is not applicable to headwater streams with drainage areas  $\leq 20$  mi<sup>2</sup>.
- c A narrative evaluation of the qualitative sample based on attributes such as EPT taxa richness, number of sensitive taxa, and community composition was used when quantitative data was not available or considered unreliable. VP=Very Poor, P=Poor, LF=Low Fair, F=Fair, MG=Marginally Good, G=Good, VG=Very Good, E=Exceptional
- ns Nonsignificant departure from biocriteria ( $\leq 4$  IBI or ICI units, or  $\leq 0.5$  MIwb units).
- \* Indicates significant departure from applicable biocriteria ( $>4$  IBI or ICI units, or  $>0.5$  MIwb units). Underlined scores are in the Poor or Very Poor range.
- H Headwater site (draining  $\leq 20$  miles<sup>2</sup>)
- W Wading site (non-boat site draining  $>20$  miles<sup>2</sup>)
- B Boat site (large or deep waters, necessitating the use of Boat sampling methods)
- 1 Level III Ecoregions: Eastern Ontario Lake Plains (EOLP)
- 2 Aquatic Life Use (ALU) designations: Exceptional Warmwater Habitat (EWH), Warmwater Habitat (WWH), Modified Warmwater Habitat (MWH), Coldwater Habitat (CWH)
- 3 Biological criteria presented in OAC 3745-1-24, Table 24-1

<b>Biological Criteria<sup>3</sup> – EOLP<sup>1</sup></b>			
<b>Index – Site Type</b>	<b>EWH</b>	<b>WWH</b>	<b>MWH</b>
<b>IBI – Headwaters</b>	50	40	24
<b>IBI – Wading</b>	50	38	24
<b>IBI – Boat</b>	48	40	24
<b>MIwb – Wading</b>	9.4	7.9	6.2
<b>MIwb – Boat</b>	9.6	8.7	5.8
<b>ICI</b>	46	34	22

Table 2. Waterbody use designations and recommendations for the Cuyahoga River basin. Designations based on the 1978 and 1985 Ohio Water Quality Standards are indicated with asterisks (\*) while designations based on the results of a previous biological field assessment performed by Ohio EPA are symbolized using a plus sign (+) and designation based on other information/data are symbolized with a circle (o). Verification of current designations based on this study are symbolized as (\*/+ ) while a triangle (▲) denotes a new/revised recommendation use based on the findings of these studies. Text in red are recommendations from this report, blue are from the 2017/18 Cuyahoga River basin study, green are from the 2015 Lake Erie Central Basin Tributaries study, orange are from recent 319 studies. Streams not assessed in any of these studies are highlighted gray.

Water Body Segment	Use Designations												Comments
	Aquatic Life Habitat						Water Supply			Recreation			
	S R W	W W H	E W H	M W H	S S H	C W H	L R W	P W S	A W S	I W S	B W W	P C R	
<p>               </p> <p>Cuyahoga river – Dennison Road bridge (RM 6.9) to the mouth (Including the old river channel)</p> <p>- Lake Rockwell (Cuyahoga river RM 62.0 to RM 57.97)</p> <p>- Brandywine Cr. to Tinkers Cr (RM 24.17 to RM 16.36)</p> <p>- all other segments</p> <p>Burk branch (Burke brook) - uncovered segment adjacent to I-77</p> <p>Big creek - within boundaries of Cleveland metro park</p> <p>- all other segments</p> <p>Ford branch (Big creek RM 4.4)</p> <p>Unnamed tributary (Big creek RM 4.91)</p> <p>Unnamed tributary (Big creek RM 7.78)</p> <p>Unnamed tributary (Big creek RM 9.6)</p> <p>West creek (Cuyahoga river RM 11.05)</p> <p>Unnamed tributary (West creek RM 0.85)</p> <p>Mill creek</p>					▲				▲	▲		▲	See paragraph (E) of this rule.
	+		+				+						PWS intake - Akron
			▲					+	+	+		+	Channel modification
	*	+						+	+	+		+	
		+					+	+	+			+	Small drainageway maintenance
		▲						▲	▲			▲	
		o						o	o			o	
		o						o	o			o	
		+						+	+			+	
		o						o	o			o	
		+						+	+			+	
		+						+	+			+	



Water Body Segment	Use Designations												Comments
	S R W	Aquatic Life Habitat					Water Supply			Recreation			
		W H	E W H	M W H	S S H	C W H	L R W	P W S	A W S	I W S	B W	P C R	
 Bear creek (Tinkers creek RM 6.94) Hawthorne creek (Tinkers creek RM 7.8) Beaver Meadow run (Tinkers creek RM 10.6) Pond brook (Tinkers creek RM 22.5) <b>Unnamed tributary (Pond brook RM 3.9)</b> <b>Unnamed tributary (Tinkers creek RM 25.44)</b> <b>North branch (unnamed tributary RM 0.18)</b> <b>Unnamed tributary (Tinkers creek RM 27.72)</b> Chippewa creek - St. Rt. 82 (RM 2.5) to the mouth - all other segments <b>Unnamed tributary (Chippewa Creek RM 0.8)</b> <b>Unnamed tributary (Chippewa Creek RM 3.7)</b> <b>Unnamed tributary (Cuyahoga river RM 21.7)</b> <b>Unnamed tributary (Cuyahoga river RM 21.7/0.55)</b> Brandywine cr. - Penn Central railroad tracks (RM 2.2) to the mouth - all other segments Indian creek <b>Unnamed tributary (Brandywine creek RM 10.07)</b> <b>Unnamed tributary (Cuyahoga river RM 23.40)</b> <b>Unnamed tributary (Cuyahoga river RM 25.41)</b> Stanford run		+						+	+		+		EOLP ecoregion - channel modification
	+							+	+		+		
	+							+	+		+		
		▲						▲	▲		▲		
	+							+	+		+		
	+	▲						▲	▲		▲		
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	▲							▲	▲		▲		
	▲							▲	▲		▲		
			▲					▲	▲		▲		
	o	+						+	+		+		

Water Body Segment	Use Designations												Comments
	S R W	Aquatic Life Habitat					Water Supply			Recreation			
		W H	E W H	M W H	S S H	C W H	L R W	P W S	A W S	I W S	B W	P C R	
Spring creek					▲			▲	▲		▲		
Slipper run					+			+	+		+		
Boston run	0				+			+	+		+		
Haskell run	0	+						+	+		+		
Ritchie run	0	*						*	*		*		
Salt run	0				+			+	+		+		
Unnamed tributary (Salt run RM 1.65)					▲			▲	▲		▲		
Dickerson run - RM 3.1 to the mouth	0	+			▲			+	+		+		
- all other segments		*						*	*		*		
Langes run - RM 2.4 to the mouth	0				+			+	+		+		
- all other segments					+			+	+		+		
Robinson run	0				+			+	+		+		
Furnace run - headwaters to Riding Run (RM 1.98)					▲			+	+		+		
- Riding Run to mouth		+	▲					+	+		+		
Unnamed tributary (Furnace run RM 1.20)					▲			▲	▲		▲		
Riding run (Furnace run RM 1.98)					▲			▲	▲		▲		
Rock creek (Furnace run RM 7.81)					▲			▲	▲		▲		
Unnamed tributary (Furnace run RM 7.90)					▲			▲	▲		▲		
Yellow creek - North Fork (RM 4.64) to mouth		+						+	+		+		
-headwaters to North Fork (RM 4.64)			▲					+	+		+		



Water Body Segment	Use Designations												Comments
	Aquatic Life Habitat						Water Supply			Recreation			
	S R W	W W H	E W H	M W H	S S H	C W H	L R W	P W S	A W S	I W S	B W	P C R	
 Unnamed tributary (Plum creek RM 2.77) Breakneck creek (Cuyahoga river RM 56.82) Brimfield ditch (Breakneck creek RM 1.67) Lake Hodgson Wahoo ditch (Breakneck Creek RM 4.81) Hommon avenue ditch Congress lake outlet/Feeder canal Potter creek (Congress lake outlet RM 10.2) Eckert ditch (Cuyahoga river RM 59.95) Unnamed tributary (Eckert ditch RM 0.92) Unnamed tributary (Cuyahoga river RM 63.43) Unnamed tributary (Cuyahoga river RM 63.82) Unnamed tributary (Cuyahoga river RM 65.19) Harper ditch (Cuyahoga river RM 66.33) - headwaters to Beck road - Beck rd. (RM 0.2) to the mouth Unnamed tributary (Harper ditch RM 0.61) Unnamed tributary (Cuyahoga river RM 69.43) Black brook (Cuyahoga river RM 76.64)) Sawyer brook (Cuyahoga river RM 79.15)		▲							▲	▲		▲	
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PWS intake - Ravenna  
EOLP ecoregion - channel modification  
Small drainageway maintenance  
~~EOLP ecoregion - channel modification~~









Key QHEI Components					WWH Attributes					MWH Attributes					MWH H.I.+1 / WWH+1 Ratio		MWH M.I. / WWH Ratio											
					Boulder/Cobble/Gravel Substrates Not Channelized or Recovered	Good/Excellent Development	Silt Free Substrate	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Normal Embeddedness	Max Depth > 40cm	Low/Normal Embeddedness	Channelized/No Recovery					Silt/Muck Substrates	No Sinuosity	Sparse/No Cover	Max Depth < 40cm	High-Influence Modified Attributes	Heavy/Moderate Substrates Recovering Channel	Fair/Poor Development Hardpan Substrate Origin Sand Substrates (Boat)	Low Sinuosity	Only 1 or 2 Cover Types	Intermittent/Poor Pools
Station	River Mile	Drain. Area	QHEI	Gradient (ft/mi)																								
<b>Potter Creek (19-028-005)</b>																												
Year: 2018																												
F01W71	1.5	3.2	64.3	10.00	X		X	X		X	X	5				0	X		X	X		X	X	X	6	0.17	1.33	
<b>Congress Lake Outlet (Feeder Canal) (19-028-004)</b>																												
Year: 2018																												
F01T02	11.7	25.6	71.5	5.05	X	X		X	X		X	5				0	X		X			X	X	X	5	0.17	1.00	
F01A19	5.6	43.7	27.5	2.63							X	1	X	X	X	4	X		X			X	X	X	6	2.50	3.50	
<b>Wahoo Ditch (19-028-002)</b>																												
Year: 2018																												
F01S53	1.2	3.9	58.3	9.70	X	X	X	X		X	5					0	X	X		X	X		X	X	X	8	0.33	1.67
F01P32	0.4	5.5	48.3	11.49						X	X	2	X	X	X	3	X	X		X	X		X	X	X	7	1.33	3.00
<b>Brimfield Ditch (19-028-001)</b>																												
Year: 2018																												
200113	0.8	4.7	49.8	5.00	X		X	X		X	X	5	X			1	X		X	X		X		X	5	0.33	1.17	
<b>Breakneck Creek (19-028-000)</b>																												
Year: 2018																												
303969	18.7	33.9	68.8	7.30	X	X	X	X		X	6					0	X		X	X	X		X	X	X	7	0.14	1.29
F01A31	14.6	42.3	67.5	1.58	X		X	X	X		X	6				0	X		X	X			X		4	0.14	0.86	
F01S03	7.0	56.2	70.3	1.27	X	X		X	X		X	7				0	X		X	X			X	X	X	6	0.13	1.00
F01S51	3.3	24.4	71.0	3.08	X	X	X	X		X	7					0	X		X			X	X	X	5	0.13	0.88	
F01W83	0.3	78.7	73.5	3.48	X	X	X	X	X	X	8	X				1			X				X	X	3	0.22	0.44	
<b>Trib. To Plum Ck.(2.77)@ Sunnybrook Rd (19-027-001)</b>																												
Year: 2018																												

Key QHEI Components					WWH Attributes							MWH Attributes							MMWH H.I.+1 / WWH+1 Ratio		MMWH M.I. / WWH Ratio													
					Boulder/Cobble/Gravel Substrates Not Channelized or Recovered	Good/Excellent Development	Silt Free Substrate	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Normal Embeddedness	Max Depth > 40cm	Low/Normal Embeddedness	High-Influence Modified Attributes	Channelized/No Recovery	Silt/Muck Substrates	No Sinuosity	Sparse/No Cover					Max Depth < 40cm	High-Mod. Riffle Embeddedness	High/Moderate Embeddedness	No Fast Current	Intermittent/Poor Pools	Only 1 or 2 Cover Types	Low Sinuosity	Fair/Poor Development	Hardpan Substrate Origin	Sand Substrates (Boat)	Heavy/Moderate Substrates	Recovering Channel
Station	River Mile	Drain. Area	QHEI	Gradient (ft/mi)																														
303963	0.4	4.2	68.3	66.60	X	X	X	X	X	X	X			X	1	X											X	X				0.25	0.50	
<b>Plum Creek (19-027-000)</b>																																		
Year: 2018																																		
F01G23	3.7	4.2	63.5	21.28	X	X		X	X						0				X	X		X	X	X									0.20	1.60
F01P34	0.2	13.1	71.8	6.25	X			X		X	X				0	X			X	X							X	X	X				0.40	1.60
<b>Fish Creek (19-026-000)</b>																																		
Year: 2018																																		
F01W37	0.4	11.4	72.8	16.90	X	X		X		X					0				X	X	X		X	X	X								0.20	1.60
<b>Powers Brook (19-025-000)</b>																																		
Year: 2018																																		
F01S46	0.7	7.0	64.5	12.98	X	X		X	X	X	X				0	X	X		X								X	X					0.25	0.88
<b>Mud Brook (19-024-000)</b>																																		
Year: 2018																																		
F01P25	8.3	14.9	57.0	3.44	X	X		X		X			X		1	X		X				X	X	X									0.40	1.40
F01P24	0.2	29.3	63.8	37.04	X	X			X		X			X		1											X	X					0.40	1.20
<b>Woodward Creek (19-023-000)</b>																																		
Year: 2018																																		
F01G26	0.6	2.9	75.5	25.00	X	X		X	X	X	X		X		1										X								0.22	0.22
Year: 2019																																		
F01G26	0.6	2.9	70.5	25.00	X	X		X	X	X	X		X		0			X		X		X	X										0.13	0.75
<b>North Fork Yellow Creek (19-022-000)</b>																																		
Year: 2018																																		
F01P21	0.1	9.8	77.3	27.78	X	X		X	X	X					0				X							X	X	X					0.14	0.86

Key QHEI Components					WWH Attributes					MWH Attributes					MWH H.I.+1 / WWH+1 Ratio		MWH M.I. / WWH Ratio																		
					Boulder/Cobble/Gravel Substrates Not Channelized or Recovered	Good/Excellent Development	Silt Free Substrate	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Normal Embeddedness	Max Depth > 40cm	Low/Normal Riffle Embeddedness	Channelized/No Recovery					Silt/Muck Substrates	No Sinuosity	Sparse/No Cover	Max Depth < 40cm	High-Influence Modified Attributes	Recovering Channel	Heavy/Moderate Substrates	Sand Substrates (Boat)	Hardpan Substrate Origin	Fair/Poor Development	Low Sinuosity	Only 1 or 2 Cover Types	Intermittent/Poor Pools	No Fast Current	High/Moderate Embeddedness	High/Mod. Riffle Embeddedness	No Riffle
Station	River Mile	Drain. Area	QHEI	Gradient (ft/mi)																															
<b>Yellow Creek (19-021-000)</b>																																			
Year: 2018																																			
F01G46	5.3	10.6	81.3	24.10	X	X	X	X	X	X	X	X	X	9																			0	0.10	0.10
F01P16	4.1	22.9	69.5	62.50	X	X	X	X	X	X				7													X	X	X				3	0.13	0.63
F01P15	0.1	31.0	73.3	31.25	X	X	X	X	X	X	X	X	X	9														X	X				2	0.10	0.30
<b>Trib To Furnace Run (1.20) (19-020-004)</b>																																			
Year: 2019																																			
303970	0.1	1.9	74.5	86.90	X	X	X	X	X	X	X	X	X	9													X	X				2	0.10	0.30	
<b>Riding Run @Wheatley Rd (19-020-003)</b>																																			
Year: 2018																																			
303964	0.1	1.3	71.8	100.00	X	X	X	X	X	X	X	X	X	8													X	X				2	0.11	0.33	
Year: 2019																																			
303964	0.1	1.3	72.5	100.00	X	X	X	X	X	X	X	X	X	9													X	X				2	0.10	0.30	
<b>Rock Creek (19-020-002)</b>																																			
Year: 2018																																			
300085	0.2	1.4	76.3	76.92	X	X	X	X	X	X	X	X	X	8													X					1	0.11	0.22	
<b>Trib. To Furnace Run (Rm 7.90) (19-020-001)</b>																																			
Year: 2018																																			
200102	0.2	0.7	69.5	125.00	X	X	X	X	X	X	X	X	X	8													X	X				2	0.11	0.33	
<b>Furnace Run (19-020-000)</b>																																			
Year: 2018																																			
300088	7.3	5.6	76.8	33.30	X	X	X	X	X	X				7													X	X				2	0.13	0.38	
F01P14	0.3	20.3	78.0	22.70	X	X	X	X	X	X	X	X	X	8													X		X				4	0.11	0.56

Key QHEI Components					WWH Attributes					MWH Attributes										MWH H.I.+1 / WWH+1 Ratio		MWH M.I. / WWH Ratio										
					Boulder/Cobble/Gravel Substrates Not Channelized or Recovered	Good/Excellent Development	Silt Free Substrate	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Normal Embeddedness	Max Depth > 40cm	Low/Normal Riffle Embeddedness	Channelized/No Recovery	Silt/Muck Substrates	No Sinuosity	Sparse/No Cover	Max Depth < 40cm	High-Influence Modified Attributes					Recovering Channel	Heavy/Moderate Substrates	Sand Substrates (Boat)	Hardpan Substrate Origin	Fair/Poor Development	Low Sinuosity	Only 1 or 2 Cover Types	Intermittent/Poor Pools	No Fast Current
Station	River Mile	Drain. Area	QHEI	Gradient (ft/mi)																WWH Attributes	High-Influence Modified Attributes	Mod. Influence Modified Attributes										
<b>Robinson Run (19-019-000)</b>																																
Year: 2019																																
F01G27	0.1	1.4	52.5	83.33	X	X		X	X					4					X	1							X	X	X	5	0.40	1.40
<b>Dickerson Run (19-017-000)</b>																																
Year: 2019																																
F01G29	0.6	2.0	70.0	27.78	X			X	X		X			4					0		X	X	X			X	X	X	6	0.20	1.60	
<b>Salt Run (19-016-000)</b>																																
Year: 2018																																
F01G30	0.3	2.8	79.0	27.03	X	X		X	X	X		X		6					0		X					X	X	X	4	0.14	0.86	
<b>Boston Run (19-013-000)</b>																																
Year: 2018																																
F01G32	0.2	2.7	65.8	33.33	X	X		X	X	X		X		6					0		X					X	X	X	X	5	0.14	1.00
<b>Slipper Run (19-012-000)</b>																																
Year: 2018																																
F01G33	0.2	1.4	59.0	333.33	X					X	X	X		4					X	1				X	X		X			3	0.40	0.80
<b>Stanford Run (19-011-000)</b>																																
Year: 2018																																
F01G34	0.9	1.9	73.0	40.00	X	X		X	X	X		X		6					0		X					X	X	X	X	5	0.14	0.86
<b>Indian Creek (19-010-001)</b>																																
Year: 2018																																
F01W15	0.0	6.5	57.5	9.35		X			X		X			3					X	1	X	X		X	X	X	X	X	X	7	0.75	2.25
Year: 2019																																
F01W15	0.4	4.7	63.5	9.35	X	X		X	X		X			5					0		X	X		X		X	X	X	6	0.33	1.17	

Key QHEI Components					WWH Attributes					MWH Attributes					MWH H.I.+1 / WWH+1 Ratio		MWH M.I. / WWH Ratio															
					Boulder/Cobble/Gravel Substrates Not Channelized or Recovered	Good/Excellent Development	Silt Free Substrate	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Normal Embeddedness	Max Depth > 40cm	Low/Normal Embeddedness	Channelized/No Recovery					Silt/Muck Substrates	No Sinuosity	Sparse/No Cover	Max Depth < 40cm	High-Influence Modified Attributes	Recovering Channel	Heavy/Moderate Substrates	Sand Substrates (Boat)	Hardpan Substrate Origin	Fair/Poor Development	Low Sinuosity	Only 1 or 2 Cover Types	Intermittent/Poor Pools	No Fast Current
Station	River Mile	Drain. Area	QHEI	Gradient (ft/mi)																												
<b>Brandywine Creek (19-010-000)</b>																																
Year: 2018																																
F01W11	7.0	8.7	67.5	5.88	X	X		X		X		4				0	X	X	X					X	X	X		7	0.20	1.80		
F01P35	4.0	16.1	64.5	5.99	X	X		X		X		4				0			X	X					X	X	X		5	0.20	1.20	
F01S49	0.3	27.2	79.0	34.48	X	X	X	X	X	X	X	9				0	X									X			2	0.10	0.30	
<b>Trib. To Chippewa Creek (Rm 3.70) (19-009-001)</b>																																
Year: 2018																																
302647	0.1	1.2	69.0	84.00	X	X	X	X	X		X	X	7				0	X	X						X	X	X		5	0.13	0.75	
<b>Chippewa Creek (19-009-000)</b>																																
Year: 2018																																
F01S59	6.0	6.3	71.0	27.80	X	X	X	X	X	X	X	8				0									X	X	X	X	4	0.11	0.56	
F01P13	0.4	17.6	75.0	20.93	X	X	X	X	X		X	X	7				0									X	X	X		3	0.13	0.50
<b>Pond Brook (19-008-000)</b>																																
Year: 2018																																
F01S40	1.4	15.7	35.0	4.52						X		1	X	X		2	X	X		X	X			X	X	X		7	2.00	4.00		
Year: 2019																																
F01W28	2.2	11.6	51.3	3.57	X			X	X		X		4	X			1	X		X					X	X	X		5	0.40	1.20	
<b>Beaver Meadow Run (19-007-010)</b>																																
Year: 2018																																
F01P44	0.1	6.1	79.5	7.46	X	X	X	X	X	X	X	7				0	X								X	X			3	0.13	0.50	
<b>Hawthorn Creek (19-007-008)</b>																																
Year: 2018																																
F01W57	1.1	6.3	88.0	22.00	X	X	X	X	X	X	X	X	10				0													0	0.09	0.09

Key QHEI Components						WWH Attributes							MWH Attributes							MWH H.I.+1 / WWH+1 Ratio		MWH M.I. / WWH Ratio												
						Boulder/Cobble/Gravel Substrates Not Channelized or Recovered	Good/Excellent Development	Silt Free Substrate	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Normal Embeddedness	Max Depth > 40cm	Low/Normal Embeddedness	Channelized/No Recovery	Silt/Muck Substrates	No Sinuosity	Sparse/No Cover	Max Depth < 40cm					High-Influence Modified Attributes	Recovering Channel	Heavy/Moderate Substrates	Sand Substrates (Boat)	Hardpan Substrate Origin	Fair/Poor Development	Low Sinuosity	Only 1 or 2 Cover Types	Intermittent/Poor Pools	No Fast Current	High/Moderate Embeddedness
Station	River Mile	Drain. Area	QHEI	Gradient (ft/mi)																														
<b>Bear Creek (19-007-007)</b>																																		
Year: 2018																																		
F01G22	0.2	4.5	<b>66.8</b>	66.67	X		X	X	X	X	X	X	X	7			X										X					1	0.25	0.25
<b>Wood Creek (19-007-001)</b>																																		
Year: 2018																																		
F01S36	0.2	3.2	<b>69.5</b>	83.30	X	X	X	X	X	X	X	X	X	10			X										X	X				2	0.18	0.27
<b>Tinkers Creek (19-007-000)</b>																																		
Year: 2018																																		
F99Q10	28.9	3.6	<b>59.8</b>	15.00	X	X		X	X		X		5		X				X	X	X		X	X	X	X	X	X	X	X	7	0.33	1.33	
200081	18.0	48.0	<b>52.8</b>	4.12	X	X		X	X		X		5			X			X	X						X	X	X			6	0.33	1.33	
F01S29	13.8	53.5	<b>68.5</b>	3.62		X		X	X	X	X		5			X	X		X	X						X	X				6	0.33	1.17	
502090	8.8	68.5	<b>79.8</b>	5.65	X	X		X	X	X	X		7			X			X							X	X				4	0.13	0.63	
502220	6.4	84.0	<b>77.3</b>	23.25	X		X	X	X	X	X	X	7							X											1	0.13	0.25	
F01S25	2.5	91.0	<b>64.8</b>	25.00	X		X		X	X	X		5			X				X						X	X				3	0.33	0.67	
F01S24	0.2	96.0	<b>76.3</b>	5.32	X	X		X	X	X	X		7							X						X	X				3	0.13	0.50	
<b>Mill Creek (19-006-000)</b>																																		
Year: 2018																																		
F01P09	4.2	12.5	<b>61.5</b>	42.60	X	X			X	X			4			X			X	X						X	X				5	0.40	1.20	
502110	0.2	18.4	<b>77.5</b>	10.42	X	X		X	X	X	X		7													X	X				2	0.13	0.50	
502110	0.1	18.5	<b>52.5</b>	45.90		X			X	X			3			X			X	X						X	X				6	0.75	2.00	
<b>Big Creek (19-005-000)</b>																																		
Year: 2018																																		

Key QHEI Components					WWH Attributes					MWH Attributes							MWH H.I.+1 / WWH+1 Ratio		MWH M.I. / WWH Ratio																	
					Boulder/Cobble/Gravel Substrates Not Channelized or Recovered	Silt Free Substrate	Good/Excellent Development	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Normal Embeddedness	Max Depth > 40cm	Low/Normal Embeddedness	WWH Attributes	Channelized/No Recovery	Silt/Muck Substrates					No Sinuosity	Sparse/No Cover	Max Depth < 40cm	High-Influence Modified Attributes	Recovering Channel	Heavy/Moderate Substrates	Sand Substrates (Boat)	Hardpan Substrate Origin	Fair/Poor Development	Low Sinuosity	Only 1 or 2 Cover Types	Intermittent/Poor Pools	No Fast Current	High/Moderate Embeddedness	High/Mod. Riffle Embeddedness	No Riffle
Station	River Mile	Drain. Area	QHEI	Gradient (ft/mi)																																
F01S21	7.4	12.7	71.0	22.22	X	X	X	X	X	X	6											X			X	X				3	0.14	0.57				
301193	4.4	19.3	60.5	17.60	X	X	X		X	X	7	X		X								X	X	X							3	0.38	0.50			
F01S20	2.4	34.9	63.3	22.00				X	X	X	5	X			X						X	X										3	0.33	0.67		
502120	0.2	37.1	64.0	17.60	X			X		X	3	X									X	X		X	X	X						5	0.50	1.75		
<b>Trib To Cuyahoga R. (25.41) @ Riverview Rd (19-001-045)</b>																																				
Year: 2018																																				
303971	0.2	2.0	81.5	124.00	X	X	X	X	X	X	9																						0	0.10	0.10	
<b>Trib. To Cuyahoga R. (63.82) (19-001-041)</b>																																				
Year: 2018																																				
200064	0.1	3.7	75.0	47.60	X	X	X	X	X	X	7										X				X							2	0.13	0.38		
<b>Trib. To Cuyahoga R. (Rm 69.43) (19-001-024)</b>																																				
Year: 2018																																				
F01G13	0.2	3.8	61.8	1.61	X		X	X		X	5		X		1		X	X	X						X	X						5	0.33	1.17		
<b>Trib. To Cuyahoga R. (Rm 65.19) (19-001-023)</b>																																				
Year: 2018																																				
F01P53	0.4	2.6	61.3	22.70	X	X	X	X		X	6	X			1	X	X		X	X		X	X	X	X	X						7	0.43	1.14		
<b>Trib. To Cuyahoga R. (63.43) (19-001-022)</b>																																				
Year: 2018																																				
F01G16	0.4	2.3	60.8	43.40	X	X	X	X	X	X	8		X		1	X								X	X	X	X					5	0.22	0.78		
<b>Harper Ditch (19-001-020)</b>																																				
Year: 2018																																				
F01G15	0.2	4.7	73.8	6.58	X	X	X	X	X	X	8						X								X							2	0.11	0.33		
<b>Sand Run (19-001-014)</b>																																				





Key QHEI Components					WWH Attributes					MWH Attributes					MWH H.I.+1 / WWH+1 Ratio		MWH M.I. / WWH Ratio															
					Boulder/Cobble/Gravel Substrates Not Channelized or Recovered	Good/Excellent Development	Silt Free Substrate	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Normal Embeddedness	Low/Normal Embeddedness	Max Depth > 40cm	Channelized/No Recovery					Silt/Muck Substrates	No Sinuosity	Sparse/No Cover	Max Depth < 40cm	High-Influence Modified Attributes	Recovering Channel	Heavy/Moderate Substrates	Sand Substrates (Boat)	Hardpan Substrate Origin	Fair/Poor Development	Low Sinuosity	Only 1 or 2 Cover Types	Intermittent/Poor Pools	No Fast Current
Station	River Mile	Drain. Area	QHEI	Gradient (ft/mi)																												
200025	8.7	745.0	78.8	2.03	X	X	X	X	X	X	8							X								X	X		3	0.11	0.56	
502130	7.1	786.0	67.3	2.03	X	X		X	X		5		X					X		X	X				X	X	X	X	7	0.33	1.50	
F01W43	5.9	788.0	32.5	0.10						X	1	X	X	X				X		X	X				X	X		X	6	2.00	4.00	
<b>Cuyahoga River (19-001-000)</b>																																
Year: 2018																																
F01P51	30.9	18.6	70.0	6.45	X	X	X	X		X	5		X					X		X	X				X	X	X		6	0.33	1.17	
Year: 2019																																
F01W64	41.4	402.0	60.5	8.62	X		X			X	3		X					X	X	X	X				X	X	X		7	0.75	2.25	
<b>Trib. To Euclid Creek (8.10) (19-041-004)</b>																																
Year: 2016																																
303299	0.5	0.1	62.0	66.67	X	X	X	X	X		6									X					X	X	X	X	X	6	0.14	1.14
303298	0.2	0.3	54.8	100.00		X		X	X		3		X	X				X		X	X				X	X	X	X	7	1.00	2.25	
<b>Nine Mile Creek (19-040-000)</b>																																
Year: 2015																																
301432	0.3	11.6	66.0	10.46	X	X	X	X	X		6							X		X					X	X	X		5	0.14	0.86	
<b>Trib. To Brandywine Creek (Rm 10.07) (19-010-002)</b>																																
Year: 2020																																
304201	0.4	2.2	64.3	13.30	X		X	X		X	4							X	X		X				X	X	X	X	7	0.40	1.80	
<b>Wolf Creek (19-006-003)</b>																																
Year: 2020																																
304200	0.2	2.2	70.0	22.20	X	X	X	X	X		6		X							X						X	X		3	0.29	0.57	
<b>Trib. To Cuyahoga R. (Rm 23.40) (19-001-050)</b>																																
Year: 2020																																

Key QHEI Components					WWH Attributes					MWH Attributes										MWH H.I.+1 / WWH+1 Ratio		MWH M.I. / WWH Ratio												
					Boulder/Cobble/Gravel Substrates Not Channelized or Recovered	Good/Excellent Development	Silt Free Substrate	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Normal Embeddedness	Max Depth > 40cm	Low/Normal Embeddedness	High-Influence Modified Attributes	Channelized/No Recovery	Silt/Muck Substrates	No Sinuosity	Sparse/No Cover	Max Depth < 40cm					High-Influence Modified Attributes	Recovering Channel	Heavy/Moderate Substrates	Sand Substrates (Boat)	Hardpan Substrate Origin	Fair/Poor Development	Low Sinuosity	Only 1 or 2 Cover Types	Intermittent/Poor Pools	No Fast Current	High/Moderate Embeddedness
Station	River Mile	Drain. Area	QHEI	Gradient (ft/mi)																														
304205	0.9	0.5	57.5	100.00	X	X	X	X							4																	0.60	1.00	
<b>Trib. To Cuyahoga R. (Rm 22.65) (19-001-049)</b>																																		
Year: 2020																																		
304204	0.4	0.1	47.0	133.30	X	X		X							3	X			X	X													1.00	2.25
<b>Trib. To Cuyahoga R. (21.70) (19-001-036)</b>																																		
Year: 2020																																		
302646	0.7	1.0	68.5	66.70	X	X	X	X	X						6											X	X	X	X		4	0.14	0.71	
302646	0.7	1.0	68.5	66.70	X	X	X	X	X						6												X	X	X	X		4	0.14	0.71
<b>Trib. To Big Creek (4.91) (19-005-002)</b>																																		
Year: 2019																																		
200073	0.8	4.3	55.5	22.20	X										1				X	X													1.50	3.00
<b>Trib. To Pond Brook (3.90) (19-008-004)</b>																																		
Year: 2016																																		
302680	0.9	1.2	77.0	38.46	X	X	X	X	X	X					X												X	X			3	0.11	0.44	
302678	0.5	1.3	65.5	26.32	X	X	X	X	X						X				X		X						X	X			5	0.25	0.88	
302677	0.0	1.6	24.8	42.10	X										1	X	X	X	X	X							X	X	X		6	3.00	3.50	
Year: 2014																																		
302678	0.5	1.3	70.3	26.32	X	X	X	X	X						X					X							X	X			3	0.13	0.63	
302677	0.0	1.6	41.8	3.92	X				X						3				X	X	X	X				X	X	X	X		9	0.50	2.75	
<b>Trib. To Salt Run (Rm 1.65) (19-016-001)</b>																																		
Year: 2017																																		
301421	0.4	1.2	67.5	63.00	X			X	X	X					6												X	X	X	X		5	0.14	1.00
Year: 2010																																		

Key QHEI Components					WWH Attributes							MWH Attributes							MWH H.I.+1 / WWH+1 Ratio		MWH M.I. / WWH Ratio														
					Boulder/Cobble/Gravel Substrates Not Channelized or Recovered	Silt Free Substrate	Good/Excellent Development	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Normal Embeddedness	Max Depth > 40cm	Low/Normal Embeddedness	WWH Attributes	Channelized/No Recovery	Silt/Muck Substrates	No Sinuosity	Sparse/No Cover					Max Depth < 40cm	High-Influence Modified Attributes	Recovering Channel	Heavy/Moderate Substrates	Sand Substrates (Boat)	Hardpan Substrate Origin	Fair/Poor Development	Low Sinuosity	Only 1 or 2 Cover Types	Intermittent/Poor Pools	No Fast Current	High/Moderate Embeddedness	High/Mod. Riffle Embeddedness
Station	River Mile	Drain. Area	QHEI	Gradient (ft/mi)																															
301421	0.4	1.2	63.5	63.52	X	X	X	X	X	X	X	X	X	7																		0.13	1.00		
<b>Bath Creek (19-022-001)</b>																																			
Year: 2010																																			
301227	2.3	1.7	43.5	9.35				X		X				2	X	X	X																1.33	2.67	
301226	2.1	1.8	54.5	15.87	X		X			X	X			4			X							X	X	X	X	X				0.60	1.80		
301225	1.8	3.1	45.5	15.87						X				1	X	X	X																2.50	3.00	
<b>Kelsey Creek At Cuyhoga Falls @ Intersection Kelsey/Rainier (19-001-035)</b>																																			
Year: 2018																																			
302252	0.8	2.6	53.0	44.20	X			X	X	X	X			5			X									X	X	X				0.50	1.67		
302252	0.8	2.6	70.0	44.20	X	X	X	X	X		X			6			X	X					X	X	X	X							0.14	0.86	
302253	0.6	3.0	72.5	43.20	X	X	X	X	X	X	X			8			X									X	X						0.11	0.56	
Year: 2016																																			
302716	0.9	2.5	64.5	45.30	X	X	X	X	X	X	X	X	X	10			X																0.09	0.27	
302252	0.8	2.6	62.5	44.20	X			X	X	X				5			X							X	X								0.33	1.00	
302253	0.6	3.0	70.3	43.20	X	X	X	X	X	X	X			8												X							0.11	0.33	
302254	0.3	3.3	55.5	41.30	X			X	X	X				5	X	X										X	X	X					0.50	1.33	
<b>Trib. To Euclid Creek (Rm 5.49) (19-041-003)</b>																																			
Year: 2014																																			
302508	1.5	1.2	59.5	38.50	X				X	X				3			X									X	X	X	X				0.75	1.75	
Year: 2013																																			
302508	1.4	1.2	58.5	57.14	X			X	X					3			X									X	X		X	X				0.75	1.50
<b>South Branch Doan Brook (19-039-001)</b>																																			
Year: 2014																																			

Key QHEI Components					WWH Attributes						MWH Attributes						MWH H.I.+1 / WWH+1 Ratio		MWH M.I. / WWH Ratio																
					Boulder/Cobble/Gravel Substrates Not Channelized or Recovered	Silt Free Substrate	Good/Excellent Development	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Normal Embeddedness	Max Depth > 40cm	Low/Normal Embeddedness	Channelized/No Recovery	Silt/Muck Substrates	No Sinuosity					Sparse/No Cover	Max Depth < 40cm	High-Influence Modified Attributes	Recovering Channel	Heavy/Moderate Substrates	Sand Substrates (Boat)	Hardpan Substrate Origin	Fair/Poor Development	Low Sinuosity	Only 1 or 2 Cover Types	Intermittent/Poor Pools	No Fast Current	High/Moderate Embeddedness	High/Mod. Riffle Embeddedness	No Riffle
Station	River Mile	Drain. Area	QHEI	Gradient (ft/mi)																															
301429	1.4	3.4	61.5	43.00	X	X			X	X	X									X	X			X	X	X						5	0.14	1.00	
Year: 2013																																			
301429	1.4	3.4	60.0	43.50	X	X			X	X	X									X	X			X	X	X							6	0.17	1.33
<b>Trib. To Ninemile Creek (Nela Park) (19-040-001)</b>																																			
Year: 2011																																			
301436	0.0	3.2	55.0	47.10	X	X			X	X										X	X					X							3	0.60	0.80
Year: 2010																																			
301436	0.0	3.2	52.0	47.10	X	X			X	X	X									X	X					X							3	0.50	0.67
<b>Trib. To Big Creek (7.78) (19-005-003)</b>																																			
Year: 2016																																			
302642	0.2	2.5	67.0	51.28	X		X	X	X	X	X									X	X					X	X	X					5	0.13	0.88
Year: 2015																																			
302642	0.1	2.5	67.3	51.28	X	X	X	X	X	X	X	X													X	X	X						3	0.11	0.56
<b>Trib. To Big Creek (4.91) (19-005-002)</b>																																			
Year: 2017																																			
303948	1.2	3.1	59.8	41.67	X	X	X	X	X	X	X									X	X			X	X	X							5	0.25	0.88
Year: 2016																																			
200073	0.2	4.9	64.0	22.20	X	X	X	X	X	X	X									X	X			X	X	X	X						6	0.14	1.00
<b>Trib To West Creek (0.85) (19-001-039)</b>																																			
Year: 2015																																			
303733	0.4	1.6	75.0	117.60	X	X	X	X	X	X	X															X							1	0.11	0.22
<b>Trib. To Cuyahoga River (14.63) (19-001-040)</b>																																			
Year: 2016																																			



Key QHEI Components					WWH Attributes				MWH Attributes							MWH H.I.+1 / WWH+1 Ratio MWH M.I. / WWH Ratio																		
					Boulder/Cobble/Gravel Substrates Not Channelized or Recovered	Silt Free Substrate	Good/Excellent Development	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Normal Embeddedness	Max Depth > 40cm	Low/Normal Riffle Embeddedness	High-Influence Modified Attributes	Channelized/No Recovery			Silt/Muck Substrates	No Sinuosity	Sparse/No Cover	Max Depth < 40cm	High-Influence Modified Attributes	Recovering Channel	Heavy/Moderate Substrates	Sand Substrates (Boat)	Hardpan Substrate Origin	Fair/Poor Development	Low Sinuosity	Only 1 or 2 Cover Types	Intermittent/Poor Pools	No Fast Current	High/Moderate Embeddedness	High/Mod. Riffle Embeddedness	No Riffle
Station	River Mile	Drain. Area	QHEI	Gradient (ft/mi)																														
302647	0.1	1.2	56.5	84.00	X	X				X	X	4			X	X	2				X	X			X		X						0.60	
<b>Trib. To Big Creek (9.60) (19-005-004)</b>																																		
Year: 2012																																		
302643	0.1	1.6	70.0	120.00	X	X	X	X	X	X	X	9			X		1																0.20	0.20
<b>Trib. To Big Creek (7.78) (19-005-003)</b>																																		
Year: 2012																																		
302642	0.1	2.5	73.5	30.30	X	X		X	X	X	X	X	7				0		X								X	X					0.13	0.63
<b>Trib. To Cuyahoga R. (21.70/0.55) (19-001-037)</b>																																		
Year: 2012																																		
302645	0.4	1.4	58.5	101.00	X	X		X				4			X		1		X		X	X				X	X	X	X				0.40	1.80
<b>Trib To Cuyahoga River (21.70 (19-001-036)</b>																																		
Year: 2012																																		
302646	0.7	1.0	71.0	153.85	X	X		X	X	X		8					0									X		X					0.11	0.44
302644	0.1	3.2	68.0	40.00	X	X		X	X			5					0		X		X					X	X	X	X				0.17	1.33

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