Biological and Water Quality Study of the Black River Watershed, 2012

Ashland, Cuyahoga, Huron, Lorain, and Medina Counties, Ohio

Black River at Elyria at Cascade Park (RM 14.95)

Division of Surface Water
Ecological Assessment Section
October 2014

RECOMMENDATIONS

The streams in the Black River basin study area currently listed in the Ohio Water Quality Standards (WQS) are assigned the Warmwater Habitat (WWH) aquatic life use designation. The aquatic life use designation of many of these streams had been previously verified using biological data, with the exception of Elk Creek and a portion of the West Branch Black River (headwaters to RM 16.56). These two streams were originally designated for aquatic life use in the 1978 and 1985 Ohio WQS but the techniques used then did not include standardized approaches to the collection of instream biological data or numerical biological criteria. Powdermaker Ditch, Gable Ditch, Heider Ditch, unnamed tributary to Black River (RM 10.18), unnamed tributaries to East Branch Black River (RM 5.89 [Brentwood Tributary], RM 22.65, RM 28.65, RM 39.06, and RM 41.41), unnamed tributary to Charlemont Creek (RM 0.51), and Kelner Ditch have never been designated for aquatic life use. This study used biological and habitat data to evaluate, establish, and confirm aquatic life uses for streams in the Black River study area (Tables 1 and 2).

Twenty-seven streams in the Black Creek study area were evaluated for aquatic life and recreational use potential in 2012 (Table 3). Significant findings include the following:

- Two unnamed tributaries to East Branch Black River (RM 39.06 and RM 41.41) were not listed in the Ohio WQS but were included as part of the 2012 sampling effort. Biological sampling results indicate that the Coldwater Habitat (CWH) aquatic life use would be appropriate for these streams (Table 3). The unnamed tributary to East Branch Black River (RM 39.06) had four coldwater macroinvertebrates (Dicranota sp., Zavrelimyia sp., Parametriochemus sp., and Paratanytarsus longistylus) and one fish species (mottled sculpin). Three coldwater fish (mottled sculpin, redside dace, and southern redbelly dace) and two coldwater macroinvertebrates (*Leuctra* sp. and *Ceratopsyche slossonae*) were found in the unnamed tributary to the East Branch Black River (RM 41.41). Based upon the presence of these taxa, the two unnamed tributaries to East Branch Black River (RM 39.06 and RM 41.41) are recommended for the CWH aquatic life use.

- Fifteen streams with an existing WWH use designation should be maintained (Table 3). These streams include the Black River, French Creek, East Branch Black River, Willow Creek, Salt Creek, Crow Creek, Coon Creek, East Fork East Branch Black River, West Fork East Branch Black River, Clear Creek, West Branch Black River, Plum Creek, Wellington Creek, Charlemont Creek, and Buck Creek. Only a portion of West Branch Black River from RM 14.42 to the mouth had been previously verified as WWH; however, 2012 biological sampling confirmed WWH for the remainder of the stream (Table 3).

- Elk Creek currently has an unverified WWH aquatic life use dating back to the 1985 Ohio WQS. Biological sampling conducted on Elk Creek verified that WWH is appropriate (Table 3). As noted above, only a portion of West Branch Black River had been verified in the WQS but 2012 sampling confirmed WWH for the rest of the stream.

- The remaining nine streams from the 2012 study – Powdermaker Ditch, Gable Ditch, Heider Ditch, unnamed tributary to Black River (RM 10.18), unnamed tributaries to East Branch Black River (RM 5.89 [Brentwood Tributary], RM 22.65, and RM 28.65), unnamed tributary to Charlemont Creek (RM 0.51), and unnamed tributary to Charlemont Creek (RM 0.51) – were not listed in the Ohio WQS but were included as part of the 2012 sampling effort. Biological monitoring indicated that the WWH aquatic life use is appropriate and are recommended for these streams (Table 3).

- The State Resource Water (SRW) designation for two waterbodies (three stream reaches) in the Black River basin is recommended for removal (Table 3). Ohio EPA is in the process of re-assigning

waterbodies currently listed as SRW in the use designation rules (rules 3745-1-08 to 32 of the OAC) to a new antidegradation tier under Ohio's antidegradation rule (rule 3745-1-05 of the OAC). In 2012, Ohio EPA completed biological and habitat surveys of these two waterbodies, Wellington Creek and the West Branch Black River, and can assess the appropriateness of the SRW designation in the designated reaches (Wellington Creek within the boundaries of Findley State Forest [RMs 16.60-14.69] and the West Branch Black River from Parsons Rd. [RM 14.39] to U.S. Rt. 20 [RM 7.85]). The resulting data, along with any historical data available, demonstrate that these two waterbodies have attributes consistent with the general high quality water (GHQW) antidegradation category. The current SRW designation, therefore, no longer has any significance for these waterbodies. Consistent with paragraph (A)(25) of rule 3745-1- 05 of the OAC, the SRW designation for the waterbody segments is recommended for removal. The three stream reaches for the two waterbodies are listed in Table 4 with details supporting the SRW removal.

All 27 streams in this study should retain or be assigned the Primary Contact Recreation use (Class A for the Black River, East Branch Black River [St. Rt. 162 RM 38.73 to the mouth], and West Branch Black River [Hughes Rd. RM 18.10 to the mouth] and Class B for all other streams and stream reaches), along with the Agricultural Water Supply and Industrial Water Supply uses (Table 3).

Table 1. Aquatic life use attainment status for stations sampled in the Black River basin based on data collected July-October 2012. 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 biotic community. The Qualitative Habitat Evaluation Index (QHEI) is a measure of the ability of the physical habitat to support a biotic community. All sites are located within the Erie Ontario Lake Plain (EOLP) ecoregion.

Location	River Mile^	Drain Area	ALU	IBI	MIwb[a]	QHEI	ICI[b]	Attain. Status[c]	Causes	Sources
Black R. at Elyria at Cascade Park	14.95 (501520)	396.00[B]	WWH	45	9.34	83.0	36	FULL		
Black R. dst. Elyria, near Spring Valley Golf Club	11.50 (B01S09)	398.00[B]	WWH	42	9.51	72.5	36	FULL		
Black R. 250 ft. upst. Elyria WWTP	10.70 (B01W07)	401.00[B]	WWH	41	9.87	81.5	--	(FULL)		
Black R. dst. Elyria WWTP at Ford Rd.	9.80 (501510)	412.00[B]	WWH	44	9.41	79.5	26*	**PARTIAL**	Specific Conductance Nutrient/eutrophication biological indicators	Municipal point source discharge
Black R. at Sheffield at North Ridge Rd.	8.35 (B01S07)	418.00[B]	WWH	42	10.13	76.5	32[NS]	FULL		
Trib. Black R. (RM 10.18) at Gulf Rd.	0.68 (301954)	10.20[H]	WWH[+]	50	n/a	54.0	G	FULL		
French Creek E of Elyria at Mills Rd.	10.41 (B01P19)	11.80[H]	WWH	38[NS]	n/a	49.5	LF*	**PARTIAL**	Nutrient/eutrophication biological indicators Direct habitat alterations	On-site treatment systems (septic) Channelization
French Creek SE of Avon at Riegelsberger Rd.	9.02 (B01P18)	17.20[H]	WWH	32*	n/a	57.0	LF*	**NON**	Nutrient/eutrophication biological indicators Direct habitat alterations	On-site treatment systems (septic) Channelization
French Creek at Bridge Point Trail	5.50 (301953)	25.40[W]	WWH	34[NS]	8.02	81.3	34	FULL		
French Creek NE of Lorain at Abbe Rd. (St. Rt. 301)	3.20 (B01P32)	32.30[W]	WWH	30*	6.21*	72.5	36	**PARTIAL**	Impairment unknown	Source unknown
French Creek near Lorain at E. River Rd.	0.54 (B01S14)	38.60[W]	WWH	35[NS]	8.51	87.0	38	FULL		
Heider Ditch at Electric Ave.	0.25 (301955)	7.84[H]	WWH[+]	38[NS]	n/a	54.3	LF*	**PARTIAL**	Direct habitat alterations	Channel erosion from upstream hydromodifications
Gable Ditch at Electric Ave.	0.30 (301956)	1.39[H]	WWH[+]	26*	n/a	55.8	P*	**NON**	Direct habitat alterations	Channel erosion from upstream hydromodifications
Powdermaker Ditch at Electric Ave.	0.15 (301958)	4.25[H]	WWH[+]	32*	n/a	54.5	P*	**NON**	Direct habitat alterations	Channel erosion from upstream hydromodifications Loss of riparian habitat

Location	River Mile^	Drain Area	ALU	IBI	MIwb[a]	QHEI	ICI[b]	Attain. Status[c]	Causes	Sources
E. Br. Black R. NW of Lodi at Shaw Rd. (Twp. Rd. 99)	41.45 (B01S34)	68.00[W]	WWH	42	8.51	63.5	F*	**PARTIAL**	Sedimentation/ siltation	Dam or impoundment
E. Br. Black R. NW of Lodi, upst. Old Mill Dam (Twp. Rd. 68)	40.80 (302107)	72.00[B]	WWH	36[NS]	8.12[NS]	56.5	--	(FULL)		
E. Br. Black R. NW of Lodi at Old Mill Rd. (Twp. Rd. 68)	40.47 (B01K07)	72.00[W]	WWH	35[NS]	9.59	67.5	34	FULL		
E. Br. Black R. W of Spencer Lake at River Corners Rd.	36.80 (201591)	96.00[W]	WWH	36[NS]	9.07	69.5	46	FULL		
E. Br. Black R. at Lorain/Medina Co. line (Smith Rd.)	32.42 (B01S33)	104.0[W]	WWH	--	--	--	38	(FULL)		
E. Br. Black R. SE of LaGrange at Short Rd.	24.60 (201589)	136.0[W]	WWH	37[NS]	9.37	65.0	G	FULL		
E. Br. Black R. E of LaGrange at Vermont St. (Co. Rd. 62)	18.94 (B01S32)	158.0[W]	WWH	38	8.25	65.5	52	FULL		
E. Br. Black R. at Grafton at Parsons Rd.	11.34 (B01S31)	179.0[W]	WWH	45	9.49	81.0	50	FULL		
E. Br. Black R. dst. Grafton WWTP at Indian Hollow Park	10.50 (B01S30)	180.0[W]	WWH	36[NS]	9.14	68.5	38	FULL		
E. Br. Black R. S of Elyria, upst. Brentwood Trib.	6.00 (B01S29)	185.0[W]	WWH	31*	9.09	51.5	52	**PARTIAL**	Natural conditions (flow or habitat)	Natural sources
E. Br. Black R. upst. Elyria at Fuller Rd.	3.07 (B01S11)	217.0[W]	WWH	40	9.59	70.0	34	FULL		
E. Br. Black R. at Elyria at Washington St.	0.36 (B01P07)	222.0[B]	WWH	33*	7.62*	64.5	8*	**NON**	Sedimentation/ Siltation	Dam or impoundment
Trib. to E. Br. Black R. (RM 41.41) at Shaw Rd. (Lower)	0.35 (302006)	1.77[H]	CWH+	44	n/a	60.0	VG	FULL		
Trib. to E. Br. Black R. (RM 39.06) at Spencer Lake Rd. (2013)	3.60 (B01K13)	3.20[H]	CWH+	n/a	n/a	n/a	MG	FULL		
Trib. to E. Br. Black R. (RM 39.06) at Spencer Lake Rd.	2.16 (Q01K04)	4.66[H]	CWH+	38[NS]	n/a	69.3	G	FULL		
Coon Creek at River Corners Rd.	0.88 (301933)	10.20[H]	WWH	40	n/a	73.0	MG[NS]	FULL		
Trib. to E. Br. Black R. (RM 28.65) at Foster Rd.	1.50 (201599)	5.30[H]	WWH[+]	38[NS]	n/a	45.5	MG[NS]	FULL		
Crow Creek NE of Penfield at Vermont Rd.	0.80 (201602)	3.70[H]	WWH	42	n/a	48.0	F*	**PARTIAL**	Natural conditions (flow or habitat)	Natural sources
Trib. to E. Br. Black R. (RM 22.65) at Vermont Rd.	0.60 (B01K09)	6.40[H]	WWH[+]	30*	n/a	54.5	LF*	**NON**	Natural conditions (flow or habitat)	Natural sources
Salt Creek at Chamberlain Rd.	0.53 (301934)	6.73[H]	WWH	40	n/a	58.0	F*	**PARTIAL**	Natural conditions (flow or habitat)	Natural sources

Location	River Mile^	Drain Area	ALU	IBI	MIwb[a]	QHEI	ICI[b]	Attain. Status[c]	Causes	Sources
Trib. to E. Br. Black R. (RM 5.89) (Brentwood Trib.) at Waterfall Dr.	1.00 (301936)	4.45[H]	WWH[+]	44	n/a	58.0	F*	PARTIAL	Natural conditions (flow or habitat)	Natural sources
Trib. to E. Br. Black R. (RM 5.89) (Brentwood Trib.) at Robson Dr.	0.10 (301937)	7.19[H]	WWH[+]	46	n/a	57.5	MG[NS]	FULL		
Willow Creek upst. Eaton Estates at Island Rd.	6.59 (301935)	2.99[H]	WWH	26*	n/a	41.0	P*	NON	Organic Enrichment Sedimentation/ Siltation Direct habitat alterations	On-site treatment systems (septic) Agriculture Channelization
Willow Creek SE of Elyria at Durkee Rd. (upst. crossing)	2.85 (B01S38)	13.30[H]	WWH	22*	n/a	62.5	F*	NON	Organic enrichment Sedimentation/ Siltation Direct habitat alterations	On-site treatment systems (septic) Agriculture Channelization
E. Fk. E. Br. Black R. N of Lodi at Chippewa Lake Rd.	5.84 (B01W12)	7.60[H]	WWH	38[NS]	n/a	70.5	G	FULL		
E. Fk. E. Br. Black R. at Lodi at Lodi City Park	2.67 (B01S36)	12.90[H]	WWH	36[NS]	n/a	52.5	F*	PARTIAL	Other flow regime alterations	Urban runoff/storm sewers
E. Fk. E. Br. Black R. 75 ft. upst. Lodi WWTP	1.73 (B01W11)	13.90[H]	WWH	36[NS]	n/a	77.0	F*	PARTIAL	Other flow regime alterations	Urban runoff/storm sewers
E. Fk. E. Br. Black R. dst. Lodi WWTP	1.60 (B01S35)	14.00[H]	WWH	52	n/a	82.0	F*	PARTIAL	Other flow regime alterations	Urban runoff/storm sewers
E. Fk. E. Br. Black R. at mouth at Richmond Rd.	0.06 (B01W10)	15.20[H]	WWH	44	n/a	52.5	F*	PARTIAL	Sedimentation/ siltation	Urban runoff/storm sewers
W. Fk. E. Br. Black R. at Twp. Rd. 391	13.97 (301931)	14.10[H]	WWH	24*	n/a	59.0	F*	NON	Organic enrichment Natural conditions (flow or habitat)	Livestock (grazing or feeding operations) Natural sources
W. Fk. E. Br. Black River at Homer at St. Rt. 301	8.90 (201609)	25.00[W]	WWH	28*	7.70[NS]	49.0	LF*	NON	Organic enrichment Natural conditions (flow or habitat)	Livestock (Grazing or feeding operations) Natural sources
W. Fk. E. Br. Black River W of Lodi, dst. St. Rt. 421 and railroad	2.30 (201607)	41.10[W]	WWH	41	9.16	83.5	38	FULL		
W. Fk. E. Br. Black River W of Lodi at Hidden Hollow Park	1.15 (201606)	41.7[W]	WWH	--	--	--	VG	--		
W. Fk. E. Br. Black River at Sanford Rd.	0.34 (B01W13)	42.20[W]	WWH	39	9.29	71.5	36	FULL		
Clear Creek SW of Lodi at Pawnee Rd.	1.80 (201615)	6.20[H]	WWH	42	n/a	69.5	MG[NS]	FULL		
W. Br. Black R. S of Rochester at Stewart Rd.	48.10 (201627)	4.30[H]	WWH[+]	--	n/a	--	LF*	--		
W. Br. Black R.at Rochester at St. Rt. 511 (upst. crossing)	41.67 (B01S41)	16.00[H]	WWH[+]	--	n/a	--	MG[NS]	--		

Location	River Mile^	Drain Area	ALU	IBI	MIwb[a]	QHEI	ICI[b]	Attain. Status[c]	Causes	Sources
W. Br. Black R. S of Brighton at St. Rt. 511 (dst. crossing)	37.30 (201624)	28.00[W]	WWH[+]	32*	6.64*	63.5	MG[NS]	**PARTIAL**	Sedimentation/ siltation	Agriculture
W. Br. Black R. NW of Wellington at Pitts Rd.	28.50 (B01K21)	28.50[W]	WWH[+]	28*	6.73*	64.0	G	**PARTIAL**	Sedimentation/ siltation	Agriculture
W. Br. Black R. N of Wellington at St. Rt. 58	25.30 (B01S40)	67.00[W]	WWH[+]	30*	6.05*	70.30	36	**PARTIAL**	Sedimentation/ siltation	Agriculture
W. Br. Black R. E of Pittsfield at St. Rt. 303	19.60 (201620)	80.00[W]	WWH[+]	29*	6.77*	67.3	42	**PARTIAL**	Sedimentation/ siltation	Agriculture
W. Br. Black R. at West Rd. (Kipton Nickel Plate Rd.)	16.56 (B01W19)	83.00[W]	WWH[+]	27*	6.52*	61.3	34	**NON**	Sedimentation/ Siltation Fish passage barrier	Agriculture Dam or impoundment
W. Br. Black R. at Metro Parks Equestrian Area	10.60 (201619)	132.0[W]	WWH	35[NS]	8.02	65.5	42	FULL		
W. Br. Black R. at Butternut Ridge Rd.	7.68 (B01P01)	161.0[W]	WWH	32*	7.07*	67.5	40	**PARTIAL**	Sedimentation/ siltation Fish passage barrier	Agriculture Dam or impoundment
W. Br. Black R. upst. Elyria at Oberlin-Elyria Rd.	4.18 (B01S13)	169.0[W]	WWH	35[NS]	8.56	60.0	32[NS]	FULL		
W. Br. Black R. at Elyria, upst. Third St.	1.20 (B01K18)	172.0[W]	WWH	--	--	80.0	46	(FULL)		
Buck Creek SE of Rochester at Bursley Rd.	0.95 (B01S46)	4.80[H]	WWH	38[NS]	n/a	47.3	F*	**PARTIAL**	Natural conditions (flow or habitat)	Natural sources
Charlemont Creek at Baker Rd.	8.55 (301938)	10.80[H]	WWH	28*	n/a	65.0	F*	**NON**	Nutrient/eutrophication biological indicators	On-site treatment systems (septic)
Charlemont Creek W of Wellington at Pitts Rd.	2.20 (201634)	22.60[W]	WWH	32*	6.91*	64.5	G	**PARTIAL**	Nutrient/eutrophication biological indicators	On-site treatment systems (septic)
Charlemont Creek dst. of Wellington at Peck-Wadsworth Rd.	0.39 (B01P05)	25.80[W]	WWH	27*	6.03*	64.5	28*	**NON**	Nutrient/eutrophication biological indicators	Municipal point source discharge
Trib. to Charlemont Creek (RM 0.51) upst. Wellington WWTP	1.00 (301940)	1.75[H]	WWH[+]	26*	n/a	70.5	F*	**NON**	Impairment unknown	Source unknown
Trib. to Charlemont Creek (RM 0.51) dst. Wellington WWTP	0.76 (301943)	1.75[H]	WWH[+]	38[NS]	n/a	64.0	P*	**NON**	Nutrient/eutrophication biological indicators	Municipal point source discharge
Wellington Creek at Bursley Rd.	17.10 (201633)	5.20[H]	WWH	28*	n/a	57.0	LF*	**NON**	Natural conditions (flow or habitat)	Natural sources
Wellington Creek at Wellington at Cemetery Rd.	13.09 (B01S43)	10.50[H]	WWH	26*	n/a	62.3	LF*	**NON**	Natural conditions (flow or habitat)	Natural sources
Wellington Creek NE of Wellington at Webster Rd.	8.40 (201632)	19.70[H]	WWH	30*	n/a	60.0	MG[NS]	**PARTIAL**	Nutrient/eutrophication biological indicators	On-site treatment systems (septic)
Wellington Creek near mouth at Nickel Plate Rd.	0.60 (201630)	29.60[W]	WWH	33*	7.37*	65.0	MG[NS]	**PARTIAL**	Nutrient/eutrophication biological indicators	On-site treatment systems (septic)

Location	River Mile^	Drain Area	ALU	IBI	MIwb[a]	QHEI	ICI[b]	Attain. Status[c]	Causes	Sources
Elk Creek at Metro Park property off Parsons Rd.	0.15 (301945)	7.55[H]	WWH[+]	26*	n/a	61.0	MG[NS]	**NON**	Nutrient/eutrophication biological indicators Direct habitat alterations	Agriculture Channelization (upstream)
Plum Creek at Oberlin at Morgan St.	5.57 (301944)	4.77[H]	WWH	24*	n/a	52.5	F*	**NON**	Sedimentation/ siltation	Urban runoff/storm sewers
Plum Creek upst. Oberlin WWTP at St. Rt. 511	3.19 (B01P03)	7.60[H]	WWH	34*	n/a	63.0	F*	**NON**	Sedimentation/ siltation	Urban runoff/storm sewers
Plum Creek just dst. Oberlin WWTP	2.80 (B01S10)	7.90[H]	WWH	32*	n/a	66.0	F*	**NON**	Sedimentation/ siltation	Urban runoff/storm sewers
Plum Creek E of Oberlin at Oberlin-Elyria Rd.	0.83 (B01P02)	9.28[H]	WWH	38[NS]	n/a	75.5	F*	**PARTIAL**	Bacterial slimes	Landfills
Kelner Ditch E of Oberlin at Parsons Rd.	3.0 (201629)	4.40[H]	WWH[+]	30*	n/a	62.5	F*	**NON**	Nutrient/eutrophication biological indicators	On-site treatment systems (septic) Agriculture
Kelner Ditch E of Oberlin at Nickel Plate Diagonal Rd.	1.0 (B01W15)	9.40[H]	WWH[+]	28*	n/a	67.3	G	**PARTIAL**	Nutrient/eutrophication biological indicators	On-site treatment systems (septic) Agriculture

a - MIwb is not applicable to headwater streams with drainage areas ≤ 20 mi^2.
b - An 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. P=Poor, LF=Low Fair, F=Fair, MG=Marginally Good, G=Good, VG=Very Good, E=Exceptional
c - Attainment is given for the proposed aquatic life use when a change is recommended. WWH = Warmwater Habitat; CWH = Coldwater Habitat
ns - Nonsignificant departure from biocriteria (≤4 IBI or ICI units, or ≤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.
^ - Letters in superscript refer to the fish site type and associated biocriteria as indicated in the table below. B = boat; W = wading; and H = headwater.
\+ - Recommended aquatic life use based on data from this survey.

Biological Criteria

Erie Ontario Lake Plain	
Index – Site Type	**WWH**
IBI – Headwaters	40
IBI – Wading	38
IBI – Boat	40
MIwb – Wading	7.9
MIwb – Boat	8.7
ICI	34

Table 2. QHEI attributes for the Black River basin, 2012.

			WWH Attributes											MWH Attributes																		
Key QHEI Components														*High Influence*						*Moderate Influence*												
River Mile	QHEI	Gradient (ft/mi)	Not Channelized or Recovered	Boulder/Cobble/Gravel Substrates	Silt Free Substrates	Good/Excellent Development	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Normal Embeddedness	Max Depth>40cm	Low/Normal Riffle 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 Silt Cover	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	M.I. Modified Attributes	MWH H.I.+1/WWH+1 Ratio	MWH M.I./WWH Ratio
13-006-000			**Heider Ditch**																															
Year:		**2012**																																
0.2	54.3	47.62	X	X		X		X		X	X	X	7				X		1					X	X		X	X	X	X		6	0.25	0.88
13-010-000			**Gable Ditch**																															
Year:		**2012**																																
0.4	55.8	27.78	X				X			X		X	4				X	X	2					X				X			2	0.60	0.60
13-011-000			**Powdermaker Ditch**																															
Year:		**2012**																																
0.2	54.5	8.06		X		X	X	X			X		5				X		1	X	X						X	X	X	X		6	0.50	1.17
20-001-000			**Black River**																															
Year:		**2012**																																
15.4	83.0	8.62	X	X		X	X	X		X	X	X	8						0		X							X	X			3	0.11	0.56
11.5	72.5	5.62	X	X		X	X	X			X	X	7	X					1		X							X	X			3	0.25	0.63
10.7	81.5	5.62	X	X		X	X	X			X	X	7						0		X							X	X			3	0.13	0.63
9.8	79.5	5.62	X	X		X	X	X		X	X		7						0		X							X	X	X		4	0.13	0.75
8.0	76.5	4.00	X			X	X	X		X	X	X	7						0		X							X	X			3	0.13	0.63
20-001-001			**Trib. to Black River (RM 10.18)**																															
Year:		**2012**																																
0.6	54.0	26.32		X			X			X	X		4	X			X		2		X			X			X	X	X	X		6	0.60	1.40
20-002-000			**French Creek**																															
Year:		**2012**																																
10.4	49.5	8.62							X		X	X	3				X		1	X	X			X	X		X		X	X		7	0.75	2.25
9.0	57.0	6.17		X							X		2				X		1	X	X			X	X			X	X	X		7	1.00	3.00
5.6	81.3	17.24	X	X		X	X	X		X	X	X	8						0		X							X	X	X		4	0.11	0.56
2.6	72.5	16.13	X	X		X	X	X			X		6						0		X						X	X	X	X		5	0.14	0.86
0.6	87.0	16.13	X	X		X	X	X	X		X		7						0										X	X		2	0.13	0.38
20-010-000			**East Branch Black River**																															
Year:		**2012**																																
41.9	63.5	3.34	X	X			X	X			X		5						0		X			X				X	X		X	5	0.17	1.17
40.8	56.5	0.10	X	X			X	X			X		5						0		X			X				X	X		X	5	0.17	1.17

Table 2. Continued.

			WWH Attributes											MWH Attributes																						
Key QHEI Components														*High Influence*									*Moderate Influence*													
River Mile	QHEI	Gradient (ft/mi)	Not Channelized or Recovered	Boulder/Cobble/Gravel Substrates	Silt Free Substrates	Good/Excellent Development	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Normal Embeddedness	Max Depth>40cm	Low/Normal Riffle Embeddedness	WWH Attributes	Channelized/No Recovery	Silt/Muck Substrates	No Sinuosity	Sparse/No Cover	Max Depth <40cm	High-influence Modified Attributes	Heavy/Moderate Silt Cover	Recovering Channel	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	M.I. Modified Attributes	MWH H.I.+1/WWH+1 Ratio	MWH M.I./WWH Ratio
20-010-000			**East Branch Black River**																																	
Year:		**2012**																																		
40.5	67.5	8.47	X	X			X	X			X		5						0			X			X				X	X	X		5	0.17	1.17
36.8	69.5	3.05	X	X		X	X	X		X	X		7						0			X							X	X	X		4	0.13	0.63
24.6	65.0	1.95	X	X			X	X			X		5						0			X			X				X	X	X		5	0.17	1.17
19.0	65.5	2.98	X	X				X			X		4						0			X			X	X			X	X		X	6	0.20	1.40
11.4	81.0	12.82	X	X		X	X	X		X	X	X	8						0			X							X	X			3	0.11	0.44
10.5	68.5	12.82	X			X		X		X	X		5						0			X			X	X			X	X	X		6	0.17	1.17
6.0	51.5	8.33	X								X		2				X		1			X			X	X		X	X	X	X		7	0.67	2.67
3.0	70.0	13.51	X			X	X	X		X	X	X	7						0			X							X	X			3	0.13	0.63
0.8	64.5	0.10	X	X			X	X			X		5						0			X			X				X	X		X	5	0.17	1.17
20-010-001			**Willow Creek**																																	
Year:		**2012**																																		
6.6	41.0	8.93						X			X		2	X	X	X			3			X			X	X			X	X	X		6	1.33	2.33
2.8	62.5	6.41				X	X	X	X		X		5		X				1	X		X			X					X	X		5	0.50	1.17
20-010-006			**Trib. to E. Br. Black R. (RM 22.65)**																																	
Year:		**2012**																																		
0.6	54.5	13.16	X	X			X						3				X	X	2			X			X				X	X		X	5	0.75	1.50
20-010-008			**Trib. to E. Br. Black R. (RM 28.65)**																																	
Year:		**2012**																																		
1.5	45.5	45.45	X	X			X						3				X	X	2			X			X			X	X	X		X	6	0.75	1.75
20-010-010			**Trib. to E. Br. Black R. (RM 39.06)**																																	
Year:		**2012**																																		
2.2	69.3	29.41	X			X	X	X			X	X	6						0			X			X			X	X	X	X	X	7	0.14	1.14
20-010-011			**Trib. to E. Br. Black R. (RM 41.41)**																																	
Year:		**2012**																																		
0.4	60.0	28.57	X				X	X			X		4				X		1			X			X			X	X	X	X	X	7	0.40	1.80
20-010-012			**Trib. to E. Br. Black R. (RM 5.89)**																																	
Year:		**2012**																																		
1.0	58.0	83.33	X	X			X	X			X		5				X		1			X			X			X	X	X	X	X	7	0.33	1.33
0.1	57.5	29.41	X	X			X			X		X	5				X	X	2			X			X	X			X	X	X		6	0.50	1.17

Table 2. Continued.

Key QHEI Components			WWH Attributes											MWH Attributes																		
														High Influence					*Moderate Influence*													
River Mile	QHEI	Gradient (ft/mi)	Not Channelized or Recovered	Boulder/Cobble/Gravel Substrates	Silt Free Substrates	Good/Excellent Development	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Normal Embeddedness	Max Depth>40cm	Low/Normal Riffle 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 Silt Cover	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	M.I. Modified Attributes	MWH H.I.+1/WWH+1 Ratio	MWH M.I./WWH Ratio
20-011-000			**Salt Creek**																															
Year:		**2012**																																
0.5	58.0	11.63	X	X			X	X					4		X			X	2		X			X				X	X	X	X	6	0.60	1.40
20-012-000			**Crow Creek**																															
Year:		**2012**																																
0.8	48.0	14.71					X	X			X		3		X				1	X	X			X			X	X	X	X		7	0.75	2.00
20-013-000			**Coon Creek**																															
Year:		**2012**																																
0.9	73.0	24.39	X	X		X	X	X			X		6						0		X							X	X	X	X	5	0.14	1.00
20-014-000			**East Fork East Branch Black River**																															
Year:		**2012**																																
5.8	70.5	19.61	X	X		X	X	X			X	X	7						0	X	X			X				X	X		X	6	0.25	0.88
2.7	52.5	30.30	X	X			X			X		X	5				X	X	2					X	X			X		X	X	5	0.50	1.00
1.8	77.0	16.95	X	X		X	X	X			X		6						0		X							X	X		X	4	0.14	0.71
1.6	82.0	16.95	X	X		X	X	X			X	X	7						0		X							X	X			3	0.13	0.50
0.1	52.5	4.69	X	X				X			X		4						0		X			X	X		X	X	X	X		7	0.20	1.60
20-015-000			**West Fork East Branch Black River**																															
Year:		**2012**																																
14.0	59.0	8.13	X	X			X	X			X		5		X		X		2		X			X				X	X	X	X	6	0.50	1.17
9.7	49.0	9.62	X	X			X	X			X		5				X		1		X			X			X	X	X		X	6	0.33	1.17
2.3	83.5	10.64	X	X		X	X	X		X	X		7						0									X	X	X		3	0.13	0.50
0.4	71.5	4.39	X	X		X	X	X			X		6						0		X							X	X	X		4	0.14	0.71
20-016-000			**Clear Creek**																															
Year:		**2012**																																
1.8	69.5	50.00	X	X		X	X	X		X	X	X	8						0					X			X	X				3	0.11	0.44
20-020-000			**West Branch Black River**																															
Year:		**2012**																																
37.4	63.5	6.76	X	X			X	X			X		5				X		1		X			X				X	X		X	5	0.33	1.17
28.5	64.0	2.91	X	X			X	X			X		5						0		X			X				X	X		X	5	0.17	1.00
25.3	70.3	3.62	X	X		X	X	X			X		6						0		X		X	X				X	X	X		6	0.14	1.00
20.5	67.3	3.09	X	X		X	X	X			X		6						0		X		X	X				X	X	X	X	7	0.14	1.14

Table 2. Continued.

			WWH Attributes											MWH Attributes																		
Key QHEI Components														*High Influence*							*Moderate Influence*											
River Mile	QHEI	Gradient (ft/mi)	Not Channelized or Recovered	Boulder/Cobble/Gravel Substrates	Silt Free Substrates	Good/Excellent Development	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Normal Embeddedness	Max Depth>40cm	Low/Normal Riffle Embeddedness	WWH Attributes	Channelized/No Recovery	Silt/Muck Substrates	No Sinuosity	Sparse/No Cover	Max Depth <40cm	High-influence Modified Attributes	Heavy/Moderate Silt Cover	Recovering Channel	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	M.I. Modified Attributes	MWH H.I.+1/WWH+1 Ratio	MWH M.I./WWH Ratio
20-020-000			**West Branch Black River**																															
Year:		**2012**																																
16.9	57.0	2.06	X	X			X	X			X		5				X		1		X		X	X				X	X	X		6	0.33	1.17
16.7	65.5	2.06	X	X			X	X			X		5						0		X		X	X				X	X	X		6	0.17	1.17
10.2	65.5	2.16	X	X		X		X			X		5				X		1		X		X	X	X			X	X	X		7	0.33	1.50
7.6	67.5	2.59	X	X		X	X	X			X		6						0		X		X	X				X	X		X	6	0.14	1.00
4.1	60.0	3.52	X	X		X	X			X	X	X	7				X		1		X			X			X	X	X			5	0.25	0.75
0.4	80.0	6.49	X	X		X	X	X		X	X	X	8						0		X							X	X			3	0.11	0.44
20-020-001			**Kelner Ditch**																															
Year:		**2012**																																
3.0	62.5	11.90	X	X			X	X			X		5						0		X			X	X		X	X	X	X		7	0.17	1.50
1.0	67.3	11.36	X	X			X	X			X		5						0		X			X				X	X	X	X	6	0.17	1.33
20-021-000			**Plum Creek**																															
Year:		**2012**																																
5.6	52.5	14.71	X	X			X						3				X	X	2		X			X				X	X		X	5	0.75	1.50
3.3	63.0	9.43	X	X			X	X			X		5						0		X			X				X	X		X	5	0.17	1.00
2.8	66.0	10.42	X	X			X	X			X		5						0		X			X				X	X	X		5	0.17	1.00
0.2	75.5	5.95	X	X		X	X	X			X		6						0		X							X	X	X		4	0.14	0.71
20-022-000			**Elk Creek**																															
Year:		**2012**																																
0.2	61.0	13.89	X	X			X	X					4				X	X	2		X			X				X	X		X	5	0.60	1.20
20-023-000			**Wellington Creek**																															
Year:		**2012**																																
17.1	57.0	11.63	X				X	X			X	X	5		X		X		2		X			X	X			X	X	X	X	7	0.50	1.50
13.1	62.3	7.46	X			X	X	X			X	X	6		X				1		X			X				X	X	X	X	6	0.29	1.14
8.4	60.0	8.26	X	X			X				X		4				X		1		X			X			X	X	X	X		6	0.40	1.60
0.5	65.0	8.06	X	X							X		3				X		1		X			X	X			X	X		X	6	0.50	1.75
20-024-000			**Charlemont Creek**																															
Year:		**2012**																																
8.6	65.0	9.35	X	X			X	X			X	X	6				X		1		X			X				X	X	X	X	6	0.29	1.14
2.2	64.5	5.21	X	X			X	X			X		5						0		X			X				X	X		X	5	0.17	1.17

Table 2. Continued.

Key
QHEI
Components

River Mile	QHEI	Gradient (ft/mi)	WWH Attributes: Not Channelized or Recovered	Boulder/Cobble/Gravel Substrates	Silt Free Substrates	Good/Excellent Development	Moderate/High Sinuosity	Extensive/Moderate Cover	Fast Current/Eddies	Low/Normal Embeddedness	Max Depth>40cm	Low/Normal Riffle Embeddedness	WWH Attributes	MWH Attributes – High Influence: Channelized/No Recovery	Silt/Muck Substrates	No Sinuosity	Sparse/No Cover	Max Depth <40cm	High-influence Modified Attributes	MWH Attributes – Moderate Influence: Heavy/Moderate Silt Cover	Recovering Channel	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	M.I. Modified Attributes	MWH H.I.+1/WWH+1 Ratio	MWH M.I./WWH Ratio
20-024-000			**Charlemont Creek**																															
Year:	**2012**																																	
0.4	64.5	8.93	X	X				X			X		4						0		X			X	X			X	X	X		6	0.20	1.40
20-024-001			**Trib. to Charlemont Creek (RM 0.51)**																															
Year:	**2012**																																	
1.0	70.5	25.00	X	X		X	X	X	X		X		7						0		X						X		X	X		4	0.13	0.63
0.7	64.0	50.00	X	X		X	X	X	X		X		7						0		X								X	X		3	0.13	0.63
20-025-000			**Buck Creek**																															
Year:	**2012**																																	
1.0	47.3	13.70	X	X							X		3				X		1		X			X	X		X	X	X		X	7	0.50	2.25

Table 3. Waterbody use designation recommendations for the Black Creek watershed. Designations based on the 1978 and 1985 water quality standards appear as asterisks (*). A plus sign (+) indicates a confirmation of an existing use and a triangle (Δ) denotes a new recommended use based on the findings of this report. Designated use based on justification other than the result of a biological field assessment performed by the Ohio EPA appears as an open circle (o). The Ohio EPA is re-assigning waterbodies currently listed as SRW in the use designation rules to the antidegradation tier, GHQW, and are shown on the table as asterisks (*) shaded in gray.

Waterbody Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Powdermaker Ditch		Δ							Δ	Δ		Δ		
Gable Ditch		Δ							Δ	Δ		Δ		
Heider Ditch		Δ							Δ	Δ		Δ		
Black River		+			+				+	+		+		
Trib. Black R. (RM 10.18)		Δ							Δ	Δ		Δ		
French Creek - Gulf rd. to mouth		+			+				+	+		+		
- all other segments		+							+	+		+		
East Branch		+							+	+		+		
Willow Creek (East Branch RM 5.56)		+							+	+		+		
Trib. to E. Br. Black River (RM 5.89) (Brentwood Trib.)		Δ							Δ	Δ		Δ		
Salt Creek		+							+	+		+		
Trib. to E. Br. Black R. (RM 22.65)		Δ							Δ	Δ		Δ		
Crow Creek		+							+	+		Δ		
Trib. to E. Br. Black R. (RM 28.65)		Δ							Δ	Δ		Δ		
Coon Creek		+							+	+		+		
Trib. to E. Br. Black R. (RM 39.06)						Δ			Δ	Δ		Δ		
Trib. to E. Br. Black R. (RM 41.41)						Δ			Δ	Δ		Δ		
East Fork		+							+	+		+		
West Fork		+							+	+		+		
Clear Creek		+							+	+		+		
West Branch - U.S. Rte. 20 to the Black River		+							+	+		+		
- Parsons rd. to U.S. Rte. 20	*	+							+	+		+		
- at RM 14.42	*	+						o	+	+		+		PWS intake - Oberlin
- all other segments		*\+							*\+	*\+		*\+		
Plum Creek		+							+	+		+		

Waterbody Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Elk Creek		*\+							*\+	*\+		*\+		
Wellington Creek - Findley State Forest boundaries	*	+							+	+		+		
- all other segments		+							+	+		+		
Charlemont Creek - at RM 2.97		+						o	+	+		+		PWS intake - Wellington
- all other segments		+							+	+		+		
Trib. to Charlemont Creek (RM 0.51)		Δ							Δ	Δ		Δ		
Buck Creek		+							+	+		+		
Kelner Ditch		Δ							Δ	Δ		Δ		

Table 4. Ohio Streams and River Antidegradation Category: SRW to GHQW Justification

River Code 20023

Recommended Tier GHQW	
URM:	20.00
LRM:	10.00
Miles	10.00

Wellington Creek

Wellington Creek, a tributary of the West Branch Black River draining the western edge of Medina County, possesses attributes consistent with a General High Quality Water. Endangered species are absent but there is one threatened species (Bigmouth Shiner). However, narrative assessments of macroinvertebrates are only fair, habitat quality is average, and IBI scores are consistently low.

Declining Fish

None

Endangered Fish

None
ETS Invertebrates

--No. Collected----Name------
None

Threatened Fish

BIGMOUTH SHINER - Years: 1992, 1994 - Number Collected: 12

Special Concern Fish

None

QHEI Values
---RM---QHEI----Gradient----Narrative
---Year:2012----------
13.10 62.5 - 7.46 -
17.10 57.0 - 11.63 -
---Year:2001----------
10.80 67.0 - 8.33 -
---Year:1994----------
10.80 54.5 - 8.33 -
16.30 63.5 - 9.62 -
18.30 58.5 - 38.46 -
---Year:1992----------
10.80 55.0 - 8.33 -
13.10 69.0 - 7.35 -

IBI Values
---RM----IBI----Rating
---Year:2012----------
13.10 26 -
---Year:2001----------
10.80 30 -
---Year:1992----------
13.10 29 -
10.80 19 -

ICI Values
---RM----ICI----Rating
---Year:2012----------
17.10 LF -
13.09 LF -
---Year:2001----------
17.10 P -
10.80 F -
---Year:1994----------
18.20 F -
18.20 F -
16.60 16 -
16.60 F -
10.80 8 -
---Year:1992----------
13.10 F -
10.80 F -

River Code 20020

Recommended Tier GHQW	
URM:	10.00
LRM:	0.00
Miles	10.00

West Branch Black River

The West Branch Black River, a tributary of the Black River draining parts of Lorain, Huron and Medina counties, possesses attributes consistent with a General High Quality Water. Endangered species are absent but there is one threatened species (Bigmouth Shiner). However, ICI scores are mostly fair, habitat quality is predominately average, and IBI scores are consistently fair.

Declining Fish

MIMIC SHINER - Years: 2012 - Number Collected: 222

Endangered Fish

None
ETS Invertebrates

--No. Collected----Name------
None

Threatened Fish

BIGMOUTH SHINER - Years: 1983, 1992, 1997, 2012 - Number Collected: 20

Special Concern Fish

None

QHEI Values
---RM---QHEI----Gradient----Narrative
---Year:2012----------
0.40 80.0 - 6.49 - Excellent
4.10 62.0 - 3.52 -
7.60 67.5 - 2.59 -
---Year:1997----------
1.20 47.5 - 7.14 -
---Year:1992----------
1.20 69.5 - 7.14 -

IBI Values
---RM----IBI----Rating
---Year:2012----------
7.60 32 -
0.40 36 -
---Year:1997----------
1.20 30 -
---Year:1992----------
4.10 24 -
1.20 32 -

ICI Values
---RM----ICI----Rating
---Year:2012----------
7.68 40 -
4.18 32 -
1.20 46 - Exceptional ICI
---Year:1997----------
0.10 38 -
---Year:1992----------
4.20 22 -

Table 4. Continued.

| | | |