APPENDIX G

Habitat and Sediment Analyses Using the Qualitative Habitat Evaluation Index (QHEI)

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A.1 Description of the QHEI

The QHEI is a quantitative expression of a qualitative, visual assessment of habitat in free flowing streams and was developed by the Ohio EPA to assess available habitat for fish communities (Rankin, 1989, 1995). The QHEI is a composite score of six physical habitat categories: 1) substrate, 2) in-stream cover, 3) channel morphology, 4) riparian zone and bank erosion, 5) pool/glide and riffle/run quality, and 6) gradient. Each of these categories are subdivided into specific attributes that are assigned a point value reflective of the attribute's impact on the aquatic life. Highest scores are assigned to the attributes correlated to streams with high biological diversity and integrity and lower scores are progressively assigned to less desirable habitat features.

A QHEI evaluation form is used by a trained evaluator while in the stream itself. Each of the components are evaluated on site, recorded on the form, the score totaled, and the data later analyzed in an electronic database. The evaluation form is available online at http://www.epa.state.oh.us/dsw/bioassess/QHEIFieldSheet062401.pdf

The QHEI is a macro-scale approach that measures the emergent properties of habitat (sinuosity, pool/riffle development) rather than the individual factors that shape these properties (current velocity, depth, substrate size). The QHEI is used to evaluate the characteristics of a short stream segment, as opposed to the characteristics of a single sampling site. As such, individual sites may have poorer physical habitat due to a localized disturbance yet still support aquatic communities closely resembling those sampled at adjacent sites with better habitat, provided water quality conditions are similar. However, QHEI evaluations are segment specific and do not give a strong indication of the quality of the habitat in other stream segments.

QHEI scores can range from 12 to 100. The appropriate QHEI target score was determined by statistical analysis of Ohio's statewide database of paired QHEI and IBI scores. Simple linear and exponential regressions and frequency analyses of combined and individual components of QHEI metrics in relation to the IBI were examined. The regressions indicated that the QHEI is significantly correlated with the IBI. Scores greater than 75 indicate excellent stream habitat, scores between 60 and 75 indicate good habitat quality, and scores less than 45 demonstrate habitat not conducive to WWH. Scores between 45 and 60 need separate evaluation by trained field staff to determine the potential aquatic life use for the stream.

A number of stream classifications are found within the Hocking River basin. Most existing and/or recommended stream classifications are for warmwater habitat. Limited resource waters are the next most common classification, primarily due to acid mine drainage. There are some exceptional warmwater sites (in the Federal Creek basin), and a few coldwater and modified warmwater sites. QHEI targets are 60 for warmwater sites and 75 for exceptional warmwater sites (Ohio EPA, 1999). The other three categories have no formally documented QHEI targets.

The empirical nature of the QHEI and the data that underlie it provide measurable targets that are parallel concepts to a loading capacity for a pollutant. The components provide a way to evaluate whether habitat is a limiting factor for the fish community and which attributes are the likely stressors. The QHEI can assess both the source of the sediment (riparian corridor, bank stability) and the effects on the stream itself (i.e., the historic sediment deposition) and thus, has aspects of both a loading model and a receiving stream model. When used with biological indices, the numeric measurability of the index provides a means to monitor progress when implementing a TMDL and to validate that a target has been reached.

Current attainment levels of Hocking River segments, along with QHEI scores and causes and sources of impairment, are presented in Table A.1.

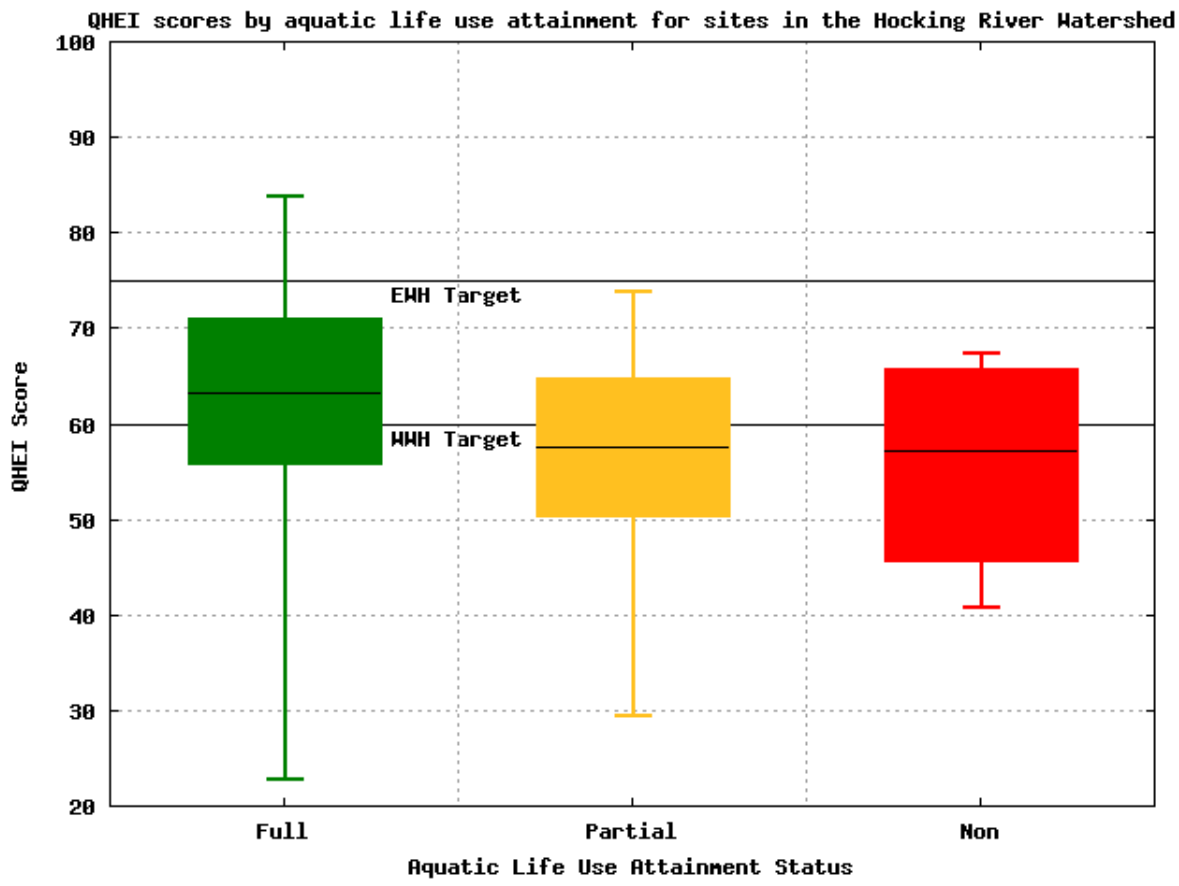

Figure 1. Box-whisker plots of QHEI scores and attainment.

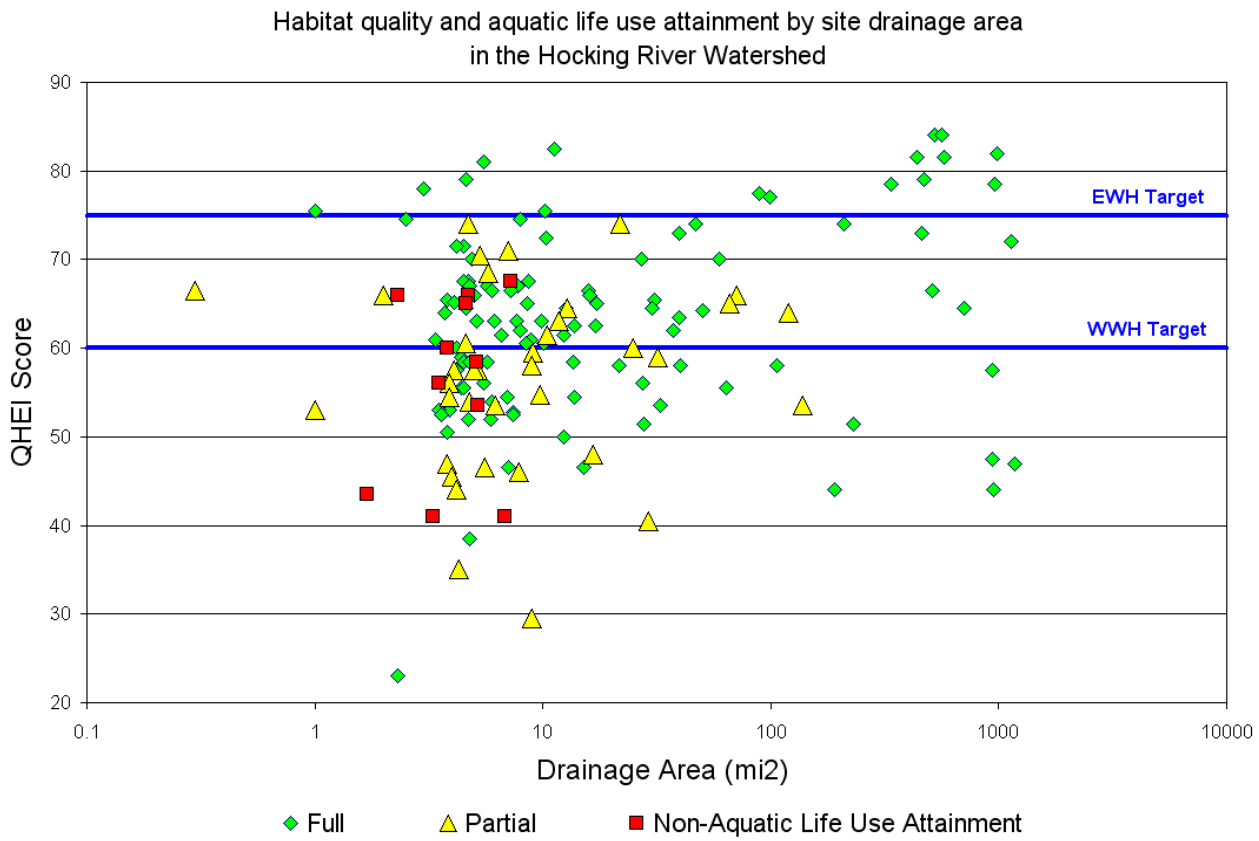

Figure 2. QHEI scores and attainment plotted by drainage area.

Figures 1 and 2 show the QHEI scores for all sites in the watershed grouped by attainments status for warmwater and exceptional warmwater sites. The figures show that most of the fully attaining sites have QHEI scores above 60. The majority of sites that are impaired have QHEI scores less than 60. This demonstrates the importance the quality of the habitat has on attaining water quality standards in Ohio.

A.2 QHEI Habitat TMDL

The analysis of the QHEI components as they relate to IBI scores led to the development of a list of attributes that are associated with degraded communities. These attributes are modifications of natural habitat and are listed in Table A.2. These modified attributes were further divided into high influence or moderate influence attributes based on the statistical strength of the relationships. Habitat scores for these attributes are organized by 11-digit HUC and are given in tables A.3 through A.10.

The presence of these attributes can strongly influence the aquatic biology and the QHEI score itself may not reflect this effect. This explains why habitat can be impaired even with a QHEI score above 60 (because other less influential habitat components are in place).

These three factors (QHEI score, number of high-influence attributes, and total number of modified attributes) appear to have about an equal weight. An accumulation of four modified attributes corresponds to fewer than 50% of sites achieving a WWH target IBI score of 40. High influence modified attributes are particularly detrimental given that the presence of one is likely to result in impairment, and two will likely preclude a site from achieving an IBI of 40 (OEPA, 1999). The QHEI score of 60 or greater is correlated with IBIs of 40 or greater. A complete habitat TMDL needs to reflect both a good QHEI score and the relative presence of these modified attributes.

The habitat TMDL equation presented below reflects the relationship between the QHEI score, modified attributes, and aquatic community performance. It is based upon a total score of three (3), and is the sum of three component scores each worth one point.

$$\begin{aligned} \text{Habitat TMDL} &= \text{QHEI Score} \geq \text{Target} + \text{High Influence Attribute Score} + \text{Modified Attribute Score} \\ &= 1 + 1 + 1 \\ &= 3 \end{aligned}$$

A.3 QHEI Bedload TMDL

The QHEI can also be used to evaluate the degree of bedload and the quality of the substrate at a particular site. The substrate, riparian characteristic, and channel metrics all evaluate stream attributes related to bedload. The substrate metric includes an assessment of streambed sediment quality, quantity, and origin. The riparian metric evaluates riparian width, quality, and bank erosion. The channel metric describes stream physical morphology including sinuosity and extent of development. Each of these factors influences the degree to which siltation affects a stream, and cumulatively serves as its numeric target.

The bedload TMDL equation which follows is a subset of those factors of the QHEI most directly related to sediment type, quality, build up, and source origin. The target is a score of 32 for WWH sites and 35 for EWH sites. The individual components of the bedload TMDL (QHEI scores for substrate, channel, and riparian) are allocated as described below and in Table A.2.

Bedload TMDL	=	Substrate + Channel Morphology + Riparian Zone/Bank Erosion
For WWH	≥	13 + 14 + 5
	≥	32
For EWH	≥	15 + 15 + 5
	≥	35

A.4 Results

The bedload and habitat TMDL results are summarized in tables A.11 through A.18. These are organized by the eight HUC11s. The allocations are site specific, and all sites with a habitat assessment within the major watershed are presented in the tables. It is important to note that a site's attributes may contribute to downstream impairment (especially bedload) without the site itself being impaired.

The tables show the applicable targets per component in the header row of the table. The information presented in the body of the table is sub-grouped by each of the 14-digit HUC subwatersheds in sequential order, and is organized by stream and site river mile.

The percent deviation of the actual bedload score from the allowable bedload score is shown in the tables followed by the main impaired QHEI category of the three used in determining the bedload score. The existing total habitat score per site can be compared to the allowable habitat score to make the same deviation determination.

The tables show what components of the habitat need improvement and to what degree, and can be used to guide management decisions and implementation activities.

The HUC maps in figures 3 through 18 illustrate the bedload and habitat TMDL deficits for non and partial attainment sites. The worse the deficit, the more likely the bedload or habitat is a contributing factor to the non/partial attainment status.

References

1. Rankin, E. T. 1989. The qualitative habitat evaluation index (QHEI), rationale, methods, and application. Ohio Environmental Protection Agency, Division of Water Quality Planning and Assessment, Ecological Assessment Section, Columbus, OH.

2. Rankin, E. T. 1995. Habitat indices in water resource quality assessments, pp. 181- 208 in Biological Assessment and Criteria: Tools for Water Resource Planning and Decision Making. Davis, W.S. and Simon, T.P. (eds.), Lewis Publishers, Boca Raton, FL.

3. Ohio EPA. 1999. Association Between Nutrients, Habitat, and the Aquatic Biota in Ohio Rivers and Streams. Ohio EPA Technical Bulletin. MAS/1999-1-1. Columbus, OH.

4. Ohio EPA. 2005. Biological and Water Quality Study of the Hocking River Basin, 2003. Division of Surface Water, Columbus OH. EAS/2005-5-5, pp. 27-34.

Table A.1 Aquatic life use attainment status of the Hocking River basin, 2004. The Index of Biotic Integrity (IBI), Modified Index of Well Being (MIwb) and Invertebrate Community Index (ICI) scores are based on the performance of fish (IBI, MIwb) and macroinvertebrate (ICI) communities. The Qualitative Habitat Evaluation Index (QHEI) is a measure of the ability of the physical habitat to support biological communities.

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes	Sources
WAU: 05030204 010 Hocking River (headwaters to Enterprise [except Rush and Clear Creeks])								
Hocking River				*ECBP - WWH*				
100.2[H]	NON	30*	NA	F*	41.0	3.3		
96.8[H]	Full	42	NA	VG	72.5	10.4		
				EOLP - MWH				
91.9[W]	Full	32	6.8	56	52.0	32		
Claypool Run				*EOLP - WWH*				
0.4[H]	Full	36[ns]	NA	MG[ns]	38.5	4.8		
Hunters Run				*EOLP - WWH*				
4.9[H]	Full	48	NA	G	53.0	3.9		
2.5[H]	Full	MG[ns]	NA	G	60.5	8.4		
Baldwin Run				*EOLP - WWH*				
2.7[H]	Full	40	NA	MG[ns]	65.5	3.8		
Fetters Run				*EOLP - WWH*				
2.2[H]	Full	40	NA	G	70.0	4.9		

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes	Sources
WAU: 05030204 010 (continued)								
Pleasant Run				*EOLP - WWH*				
8.4[H]	Full	48	NA	G	60.0	4.2		
5.6 / 5.5[H]	Full	49	NA	G	67.5	8.6		
0.6[H]	Full	47	NA	MG[ns]	65.0	17.2		
Hocking River				*EOLP - MWH*				
89.4[W]	Full	34	6.6	40	69.0	51.4		
				EOLP - WWH				
89.0[W, MZ]	NA	29	5.6	–	NA	64.0		
88.9[W]	Full	35[ns]	8.1	MG[ns]	55.5	64.0		
87.3[W]	Partial	30*	7.3*	40	65.0	66.0		
81.9 / 82.0[W]	Full	39[ns]	7.5[ns]	MG[ns]	77.0	98.5		
Trib. to Hocking R. (RM 84.38)				*EOLP - WWH*				
0.2[H]	Partial	30*	NA	F	47.0	3.8		
Trib. to Hocking R. (RM 82.57)				*EOLP - WWH*				
1.1[H]	Partial	32*	NA	G	54.0	4.8		
Buck Run				*EOLP - WWH*				
2.8[H]	Full	36[ns]	NA	MG[ns]	57.5	4.2		
0.9[H]	Partial	38[ns]	NA	F*	61.5	10.5		

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes	Sources
WAU: 05030204 010 (continued)								
East Branch Buck Run				*EOLP - WWH*				
0.1[H]	Partial	40[ns]	NA	F*	56.0	3.9		
Hocking River				*WAP - WWH*				
81.3 / 81.4[B]	Full	54	10.2	42	78.5	336		
77.2[B]	Full	51	9.8	52	81.5	437		
73.6 / 73.4[B]	Full	52	9.8	44	73.0	459		
Brushy Fork				*EOLP - WWH*				
0.9[H]	Partial	36[ns]	NA	F*	44.0	4.2		
Trib. to Hocking R. (RM 74.82)				*EOLP - WWH*				
0.4[H]	Full	51	NA	VG	66.0	5.0		

Table A.1 (con't)

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes[d]	Sources[e]
WAU: 05030204 020 Rush Creek (headwaters to above Little Rush Creek)								
Rush Creek				*WAP - LRW*				
29.7[H]	NON	12*	NA	VP*	74.5	8.2		
27.1 / 27.0[W]	NON	14*	3.1*	VP*	67.5	23.0		
21.1 / 21.0[W]	NON	12*	0.0*	10*	52.0	45.6		
Dry Run				*WAP - WWH*				
0.4[H]	Partial	28*	NA	MG[ns]	57.5	5.2		
Trib. to Rush Creek (RM 30.32)				*WAP - LRW*				
– / 1.2[H]	(NON)	–	–	VP	–	2.0		
Trib. to Rush Creek (RM 28.46)				*WAP - WWH*				
0.2 / 0.1[H]	NON	26*	NA	F*	65.0	4.6		
Trib. to Rush Creek (RM 27.40)				*WAP - WWH*				
0.2 / 0.3[H]	NON	24*	NA	F*	60.0	3.8		
Turkey Run				*WAP - LRW*				
0.9[H]	FULL	24*	NA	P*	58.0	4.2		

Table A.1 (con't)

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes[d]	Sources[e]
WAU: 05030204 020 (continued)								
Center Branch				*WAP - WWH*				
6.4[H]	Partial	36*	NA	G	74.0	4.7		
3.0[H]	Full	42[ns]	NA	G	46.5	15.2		
0.1[W]	Partial	39*	7.3*	48	60.0	24.9		
Somerset Creek				*EOLP - WWH*				
0.6[H]	Full	42	NA	G	63.0	6.1		
Rush Creek				*WAP - LRW*				
17.4[W]	NON	13*	3.2*	12*	59.5	89.0		
Trib. to Rush Creek (RM 19.40)				*EOLP - WWH*				
1.8[H]	Partial	28*	NA	MG[ns]	60.5	4.6		
Trib. to Rush Creek (RM 17.89)				*EOLP - WWH*				
0.1[H]	Full	48	NA	G	61.0	3.4		

Table A.1 (con't)

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes[d]	Sources[e]
WAU: 05030204 030 Rush Creek (above Little Rush Creek to Hocking River)								
Little Rush Creek				*EOLP - WWH*				
18.7[H]	Full	38[ns]	NA	MG[ns]	53.0	3.5		
17.3[H]	Full	38[ns]	NA	MG[ns]	–	15.8		
7.2 / 7.3[W]	Full	40	8.7	52	64.5	30.0		
Trib. to Little Rush Creek (RM 17.51)				*EOLP - WWH*				
0.7[H]	Full	38[ns]	NA	MG[ns]	46.5	7.1		
Little Rush Creek				*EOLP - WWH*				
1.7[W]	Full	46	9.6	G	70.0	59.2		
Indian Creek				*EOLP - WWH*				
2.5[H]	Full	38[ns]	NA	MG[ns]	52.5	3.6		
0.6[H]	Partial	46	NA	F*	71.0	7.1		
Raccoon Run				*EOLP - WWH*				
4.8[H]	Partial	44	NA	F*	68.5	5.8		
3.3 / 3.0[H]	Full	40	NA	MG[ns]	54.5	13.8		
0.4[W]	Full	47	7.8[ns]	46	56.0	27.4		

Table A.1 (con't)

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes[d]	Sources[e]
WAU: 05030204 030 (continued)								
Trib. to Raccoon Run (RM 3.62)				*WAP - WWH*				
2.5[H]	NON	30*	NA	P*	56.0	3.5		
0.1[H]	NON	32*	NA	F*	41.0	6.8		
Rush Creek				*WAP - MWH*				
15.4 / 15.5[W]	Full	29*	5.8*	44	46.5	160		
14.4 / 14.8[W]	Full	36	5.9	40	46.5	162		
				WAP - WWH				
12.7 / 12.4[B]	Full	40	8.4[ns]	46	44.0	191		
9.1[W]	Full	44	8.4[ns]	54	74.0	210		
2.1[B]	Full	46	9.1	44	51.5	230		
Durbin Run				*EOLP - WWH*				
0.4 / 0.2[H]	Full	38[ns]	NA	MG[ns]	23.0	2.3		
Trib. to Rush Creek (RM 2.06)				*EOLP - CWH*				
0.1[H]	NON	26*	NA	MG[ns]	53.0	3.7		
Turkey Run				*WAP - WWH*				
1.4 / 1.2[H]	Full	40*	NA	54	54.5	7.0		

Table A.1 (con't)

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes[d]	Sources[e]
WAU: 05030204 040 Clear Creek								
Clear Creek				*EOLP - WWH*				
21.5[H]	Full	46	NA	G	67.5	4.7		
19.6[H]	Full	46	NA	G	50.0	12.4		
14.1 / 14.3[W]	Full	36[ns]	NA	50	58.0	21.6		
9.5 / 9.3[W]	Full	48	9.1	54	74.0	47.0		
Cattail Creek, Trib. to Clear Cr. (RM 9.52)				*WAP - WWH*				
0.1[H]	Full	42[ns]	NA	G	58.5	5.7		
Muddy Prairie Run				*EOLP - WWH*				
3.8[H]	Full	46	NA	VG	58.5	4.5		
0.5[H]	Full	42	NA	G	75.5	10.2		
Arney Run				*EOLP - WWH*				
4.3[H]	Full	40	NA	G	52.0	5.9		
0.1[H]	Full	36[ns]	NA	G	82.5	11.2		
Clear Creek				*WAP - WWH*				
2.0[W]	Full	47	8.6	46	77.5	89.0		
Trib. to Clear Creek (RM 6.80)				*EOLP - CWH*				
0.1[H]	Full	36[ns]	NA	G	69.5	4.6		

Table A.1 (con't)

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes[d]	Sources[e]
WAU: 05030204 040 (continued)								
Trib. to Clear Creek (RM 4.93)				*WAP - CWH*				
0.1[H]	Full	46	NA	VG	66.0	4.6		

Table A.1 (con't)

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes[d]	Sources[e]
WAU: 05030204 050 Hocking River (below Enterprise to above Monday Creek)								
Hocking River				*WAP - WWH*				
69.6[B]	Full	48	10.5	36	79.0	469		
67.6 / 67.7[B]	Full	43	9.8	42	66.5	511		
67.4 / 67.5[B]	Full	47	10.1	38	84.0	524		
Harper Run				*WAP - WWH*				
– / 1.4[H]	(Full)	–	–	MG[ns]	–	4.9		
Scott Creek				*WAP - WWH*				
8.9[H,c]	Partial	33*	NA	G	66.5	0.3		
5.6[H,c]	Partial	34*	NA	MG[ns]	54.7	9.7		
2.1[W,c]	Partial	36*	6.7*	40	74.0	22.0		
0.1[W]	Full	50	8.5	44	74.5 / 63.5	39.8		
Dry Run				*WAP - WWH*				
0.2[H]	Full	44	NA	G	63.0	7.7		
Trib. to Dry Run (RM 1.48)				*WAP - WWH*				
0.4 / 0.3[H]	Partial	38*	NA	G	57.5	4.1		

Table A.1 (con't)

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes[d]	Sources[e]
WAU: 05030204 050 (continued)								
Clear Fork, Scott Cr. Trib.				*WAP - WWH*				
4.8[H]	Partial	38*	NA	MG[ns]	45.5	4		
0.1 / 1.1[H]	Full	40[ns]	8.0[ns]	MG[ns]	66.0	16.1		
Duck Creek				*WAP - WWH*				
2.0[H]	Full	40[ns]	NA	MG[ns]	52.5	7.4		
Oldtown Creek				*WAP - WWH*				
4.1[H]	Full	40[ns]	NA	MG[ns]	62.0	8.0		
0.6[H]	Full	48	NA	MG[ns]	58.5	13.6		
Trib. to Oldtown Creek (RM 4.25)				*WAP - WWH*				
0.1[H]	Full	44	NA	G	59.0	4.4		
Fivemile Creek				*WAP - WWH*				
3.5[H]	Partial	36*	NA	MG[ns]	46.5	5.6		
1.0[H]	Full	44	NA	MG[ns]	62.5	13.7		
Trib. to Fivemile Creek (RM 3.44)				*WAP - WWH*				
0.1[H]	Full	42[ns]	NA	MG[ns]	52.0	4.7		

Table A.1 (con't)

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes[d]	Sources[e]
WAU: 05030204 050 (continued)								
Hocking River				*WAP - WWH*				
60.8 / 61.0[B]	Full	48	10.1	42	84.0	562		
51.4[B]	Full	43	9.9	46	81.5	579		
Threemile Creek				*WAP - WWH*				
3.9[H]	Partial	34*	NA	MG[ns]	54.5	3.9		
1.9[H]	Partial	36*	NA	MG[ns]	46.0	7.9		
Trib. to Hocking R. (RM 62.18)				*WAP - WWH*				
1.1[H]	Full	42[ns]	NA	G	60.0	4.2		
Minkers Run[c]				*WAP - WWH*				
0.8[H]	NON	30*	NA	P*	58.5	5.1		

Table A.1 (con't)

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes[d]	Sources[e]
WAU: 05030204 080 Hocking River (below Monday Creek to Athens / RM 33.1 (except Sunday Creek)								
Hocking River				*WAP - WWH*				
48.0 / 47.9[B]	Full	38	8.4[ns]	52	64.5	707		
Trib. to Hocking R. (RM 48.70)[c]				*WAP - LRW*				
0.1[H]	NON	12*	NA	VP*	46.5	2.5		
Hamley Run[c]				*WAP - WWH*				
2.1[H]	NON	36*	NA	P*	66.0	4.7		
0.4[H]	Partial	44	NA	F*	63.0	11.8		
Hocking River				*WAP - WWH*				
36.3 / 36.0[B]	Full	46	8.6	48	57.5	937		
Sugar Creek[c]				*WAP - WWH*				
2.2[H]	Full	42[ns]	NA	MG[ns]	63.0	5.1		
Margaret Creek[c]				*WAP - WWH*				
11.3[H]	NON	28*	NA	F*	53.5	5.2		
8.6[H] / 8.5	Partial	32*	NA	G	48.0	16.7		
6.1[W]	Partial	35*	7.5*	MG[ns]	40.5	29.0		
Biddle Creek[c]				*WAP - WWH*				
2.0[H]	Partial	32*	NA	MG[ns]	53.5	6.2		

Table A.1 (con't)

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes[d]	Sources[e]
WAU: 05030204 080 (continued)								
Margaret Creek[c]				*WAP - WWH*				
3.3[W]	Full	41[ns]	8.4	42	58.0	40.0		
1.4[W] / –	(Full)	40[ns]	8.1[ns]	–	64.3	50.0		
– / 0.5[W]	(Full)	–	–	MG[ns]	–	60.0		
W. Br. Margaret Cr.[c]				*WAP - WWH*				
2.3[H]	Partial	42[ns]	NA	F*	35.0	4.3		
1.2[H]	Partial	38*	NA	G	29.5	9.0		
Factory Creek[c]				*WAP - WWH*				
3.8[H]	Partial	36*	NA	MG[ns]	70.5	5.3		
0.7[H]	Partial	36*	NA	G	59.5	9.1		

Table A.1 (con't)

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes	Sources
WAU: 05030204 090	**Federal Creek**							
Hyde Fork[c]				*WAP - WWH*				
1.8[H]	Full	48	NA	MG[ns]	67.0	4.8		
Miners Fork[c]				*WAP - WWH*				
2.3[H] / 2.2	Full	44	NA	G	55.5	4.4		
0.05[H] / 0.1	Full	46	NA	G	63.0	9.9		
Federal Creek[c]				*WAP - EWH*				
16.2[H] / 15.5	Full	52	NA	48	62.5	17.0		
11.7[W]	Full	48[ns]	8.9[ns]	VG[ns]	51.5	27.7		
11.3[W] / 11.4	Partial	46[ns]	9.5	F*	59.0	32.1		
Kasler Creek[c]				*WAP - WWH*				
1.8[H] / –	(Full)	46	NA	–	78.0	3.0		
– / 0.4	(NON)	–	–	F*	–	3.7		
Linscott Run[c]				*WAP - WWH*				
3.8[H] / 3.7	Partial	38*	NA	VG	66.0	2.0		
0.8[H]	Full	50	NA	MG[ns]	71.5	4.5		

Table A.1 (con't)

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes	Sources
WAU: 05030204 090 (continued)								
McDougall Branch[c]				*WAP - WWH*				
5.0[H] / 4.9	Full	48	NA	G	55.5	4.5		
4.5[H] / 4.6	Full	50	NA	VG	61.5	12.4		
Bryson Branch[c]				*WAP - WWH*				
1.2[H] / 1.4	Full	44	NA	G	67.0	5.7		
Mush Run[c]				*WAP - WWH*				
1.8[H]	Full	52	NA	G	58.5	4.8		
1.0[H]	Full	50	NA	G	64.5	12.7		
Dutch Creek[c]				*WAP - WWH*				
1.7[H]	Full	46	NA	G	75.5	1.0		
McDougall Branch[c]				*WAP - WWH*				
2.9[W]	Full	46	8.3[ns]	G	70.0	27.0		
0.5[W]	Full	49	8.8	48	62.0	37.4		
Wyatt Run[c]				*WAP - WWH*				
0.4[H]	Full	42[ns]	NA	E	61.5	6.6		

Table A.1 (con't)

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes	Sources
WAU: 05030204 090 (continued)								
Opossum Run[c]				*WAP - WWH*				
4.1[H]	NON	24*	NA	E	66.0	2.3		
2.6[H]	Full	44	NA	VG	67.5	4.5		
0.8[H]	Full	48	NA	G	54.0	6.0		
0.2[H]	Full	52	NA	VG	61.0	8.9		
Sharps Fork[c]				*WAP - WWH*				
10.7[H]	Full	50	NA	E	79.0	4.6		
9.1[H]	Full	50	NA	VG	66.5	6.0		
8.1[H] / 8.5	Full	54	NA	VG	65.0	8.5		
5.3[H] / 5.2	Full	50	NA	VG	66.5	15.8		
– / 2.6	(Full)	–	–	VG	–	30.3		
1.7[W] / –	(Full)	48	8.8	–	65.5	30.8		
1.6[W]	Full	46	8.3[ns]	G	53.5	32.8		
0.01[W] / 0.1	Full	56	8.3[ns]	38	–	35.7		
Sulphur Run[c]				*WAP - WWH*				
0.8[H]	Partial	46	NA	F*	53.0	1.0		
0.0[H]	NON	50	NA	P*	43.5	1.7		

Table A.1 (con't)

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes	Sources
WAU: 05030204 090 (continued)								
Marietta Run[c]				*WAP - WWH*				
3.2[H] / 3.5	Full	50	NA	E	81.0	5.5		
1.6[H] / 1.0	Full	44	NA	MG[ns]	74.5	8.0		
0.1[H]	Full	40[ns]	NA	VG	60.5	10.1		
Big Run[c]				*WAP - WWH*				
3.9[H]	Full	50	NA	G	71.5	4.2		
1.7[H] / 1.6	Partial	44	NA	F*	58.0	9.0		
Federal Creek[c]				*WAP - EWH*				
9.3[W] / –	(Partial)	48[ns]	7.9*	–	66.0	71.2		
9.1[W] / –	(Full)	47[ns]	8.9[ns]	–	58.0	107.0		
– / 7.5[W]	(Full)	–	–	42[ns]	–	107.8		
4.9[W]	Partial	48[ns]	7.2*	34*	64.0	119.8		
0.9[W]	Partial	44*	9.5	MG*	53.5	138.0		
Sharps Run[c]				*WAP - WWH*				
0.01[H] / 1.0	Full	44	NA	VG	56.0	5.5		

Table A.1 (con't)

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes	Sources
WAU: 05030204 100 Hocking River below Athens / RM 33.1 to Ohio River [except Federal Creek]								
Hocking River				*WAP - WWH*				
33.1 / 32.8[B]	Full	50	10.2	40	47.5	942		
32.0 / 32.2[B]	Full	47	10.0	42	44.0	945		
27.8[B]	Full	46	10.0	46	78.5	957		
Strouds Run[c]				*WAP - WWH*				
0.3[H] / 0.4	NON	34*	NA	P*	67.5	7.2		
Willow Creek[c]				*WAP - WWH*				
2.2[H] / 2.6	Full	44	NA	MG[ns]	71.5	4.2		
1.4[H]	Full	44	NA	MG[ns]	66.5	7.2		
0.2[H]	Partial	40[ns]	NA	F*	64.5	12.8		
Scott Creek[c]				*WAP - WWH*				
0.1[H]	Full	42[ns]	NA	VG	73.0	2.5		
Hocking River				*WAP - WWH*				
19.7[B]	Full	47	9.7	52	82.0	985		
13.6 / 14.0[B]	Full	44	9.0	50	72.0	1141		
5.4[B]	Full[d]	42	8.0	F	47.0	1172		

Table A.1 (con't)

Stream River Mile, Invertebrate / Fish	Attainment Status[a]	IBI	MIwb	ICI / Narrative[b]	QHEI	Drainage Area	Causes	Sources
WAU: 05030204 100 (continued)								
Jordan Run[c]				*WAP - WWH*				
2.8[H]	Full	48	NA	VG	65.2	4.1		
0.1[H]	Full	46	NA	MG[ns]	52.7	7.4		
Frost Run[c]				*WAP - WWH*				
0.35[H] / 0.5	Partial	42[ns]	NA	F*	57.5	5.0		
Skunk Run[c]				*WAP - WWH*				
1.3[H]	Full	44	NA	G	64.0	3.7		
Fourmile Creek[c]				*WAP - WWH*				
2.5[H]	Full	48	NA	MG[ns]	64.5	4.6		
1.8[H]	Full	50	NA	VG	67.0	7.8		
East Fourmile Creek[c]				*WAP - WWH*				
1.8[H] / 1.9	Full	44	NA	G	50.5	3.8		

Table A.1 (con't)

*	Significant departure from biocriteria (>4 IBI or ICI units, >0.5 MIwb units), poor/very poor results underlined.
ns	Nonsignificant departure from biocriterion (≤4 IBI or ICI units; ≤0.5 MIwb units).
a	Narrative evaluation based on qualitative sample (E-exceptional, VG-very good, G-good, MG-marginally good, F-fair, P-poor, and VP-very poor) is used in lieu of the ICI where quantitative data are not available.
b	Attainment status based upon one organism group is parenthetically expressed.
c	Biological samples collected and processed by Mid-west Biodiversity Institute (MBI). Unless otherwise indicated, all other samples collected and processed by Ohio EPA staff.
d	Ohio River backwater, biocriteria do not apply in impounded waters.
NA	Not Applicable. The MIwb is not applicable to headwater sites.
WAU	Watershed Assessment Unit.
H	Headwater station (drainage area ≤20 miles^2), the MIwb is not applicable.
W	Wading station.
B	Boat station.
MZ	Mixing zone, biocriteria do not apply.

Table A.1 (con't)

Ecoregional Biological Criteria (OQC 3745-1-07, Table 7-14)

Erie Ontario Lake Plain (EOLP)

Index - Site Type	WWH	EWH	MWH[e]
IBI - Headwater	40	50	24
IBI - Wading	38	50	24
IBI - Boat	40	48	24
MIwb - Wading	7.9	9.4	6.2
MIwb - Boat	8.7	9.6	5.8
ICI	34	46	22

Western Allegheny Plateau (WAP)

Index - Site Type	WWH	EWH	MWH[e]
IBI - Headwater	44	50	24
IBI - Wading	44	50	24
IBI - Boat	40	48	24
MIwb - Wading	8.4	9.4	6.2/5.5
MIwb - Boat	8.6	9.6	5.8/5.4
ICI	36	46	22/30

Eastern Corn Belt Plain (ECBP)

Index - Site Type	WWH	EWH	MWH[e]
IBI - Headwater/Wading	40	50	24
MIwb - Wading	8.3	9.4	6.2
ICI	36	46	22

e - Modified Warmwater Habitat (MWH) for channel modified areas/mine affected area.

Table A.2 Details of Habitat and Bedload TMDLs

Bedload TMDL Categories			Modified Attributes	
QHEI Category	Target		High Influence	Moderate Influence
	WWH	EWH	• Recent Channelization or No Recovery	• Recovering Channelization
Substrate	≥13	≥15	• Silt or Muck Substrate	• Silt Heavy or Silt Moderate
Channel	≥14	≥15	• Low or No Sinuosity and Drainage Area ≤ 20 sq. mi.	• Sand Substrate (boat sites)
Riparian	≥5	≥5	• Sparse or Nearly Absent Cover	• Hardpan Substrate Origin
Bedload TMDL ➤	≥32	≥35	• < 40 cm Max. Pool Depth (wadeable or headwater sites)	• Fair or Poor Development
				• Low or No Sinuosity and Drainage Area > 20 sq. mi.
				• Two or Less Cover Types
				• Intermittent Pools and Max. Pool Depth < 40 cm
				• No Fast Current Velocity
				• Extensive or Moderate Substrate Embeddedness
				• Extensive or Moderate Riffle Embeddedness
				• No Riffle

Habitat TMDL Categories			
QHEI Category	Target		Score
	WWH	EWH	
QHEI Score	≥ 60	≥ 75	+1
High Influence #	< 2	0	+1
Total # Modified	< 5	< 3	+1
Habitat TMDL ➤			3

Table A.3 Habitat Assessment Results for WAU 05030204 010: Hocking River (headwaters to Enterprise [except Rush and Clear Creeks])

		WWH Attributes											MWH Attributes: High Influence						MWH Attributes: Moderate Influence												
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-010-010 - Hocking River headwaters to above Hunters Run																															
Hocking River (WWH)																															
100	41.0									■		1	■	■	■	■		4	■	■			■				■	■		■	6	●
96.8	72.5		■						■	■	■	4			■	■		2	■	■			■				■				4	○
Hocking River (MWH)																															
91.9	52.0		■						■	■	■	4	■			■		2	■				■	■			■		■		5	○
Claypool Run (WWH)																															
0.4	38.5									■		1	■		■	■		3		■			■				■	■		■	5	○
05030204-010-020 - Hunters Run																															
Hunters Run (WWH)																															
4.9	53.0		■						■		■	3			■	■	■	3	■	■			■				■				4	○
2.5	60.5		■		■	■		■		■		5				■		1	■	■								■	■		4	○
05030204-010-030 - Baldwin Run																															
Baldwin Run (WWH)																															
2.7	65.5	■			■	■	■	■		■		6						0		■		■	■					■	■		5	○
Fetters Run (WWH)																															
2.2	70.0	■	■			■	■	■		■		6			■			1		■			■					■	■		4	○
05030204-010-040 - Pleasant Run																															
Pleasant Run (WWH)																															
8.4	60.0		■				■	■		■		4			■			1	■	■			■					■	■		5	○
5.6	67.5	■	■		■	■	■	■		■	■	8						0		■								■	■		3	○
0.6	65.0		■			■	■		■	■	■	6			■			1	■				■				■				3	○

Table A.3 (con't) **Habitat Assessment Results for WAU 05030204 010: Hocking River (headwaters to Enterprise [except Rush and Clear Creeks])**

		WWH Attributes											MWH Attributes																		
													High Influence					Moderate Influence													
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-010-050 - Hocking River below Hunters Run to above Rush Cr. [except Baldwin Run and Pleasant Run]																															
Hocking River (MWH)																															
89.4	69.0		■		■		■	■	■	■		6				■		1	■				■	■					■		4	○
Hocking River (WWH)																															
88.9	55.5		■							■	■	3	■			■		2	■	■			■	■			■	■	■		7	○
87.3	65.0		■		■	■		■	■	■	■	7				■		1	■	■			■	■				■	■		6	◑
81.9	77.0	■	■		■	■	■	■	■	■	■	9						0					■								1	○
Trib. to Hocking R. (RM 84.38) (WWH)																															
0.2	47.0										■	1			■	■	■	3	■	■			■				■	■			5	◑
Trib. to Hocking R. (RM 82.57) (WWH)																															
1.1	54.0	■						■	■	■		4			■	■		2					■						■		2	◑
05030204-010-060 - Buck Run																															
Buck Run (WWH)																															
2.8	57.5	■		■		■				■		4			■	■		2	■				■				■	■	■		5	○
0.9	61.5				■	■	■			■	■	5						0	■				■				■	■	■		5	◑
East Branch Buck Run (WWH)																															
0.1	56.0	■			■	■				■		4				■		1		■			■				■	■	■		5	◑

Table A.3 (con't) **Habitat Assessment Results for WAU 05030204 010: Hocking River (headwaters to Enterprise [except Rush and Clear Creeks])**

		WWH Attributes											MWH Attributes																		
													High Influence						Moderate Influence												
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-010-070 - Hocking River below Rush Cr. to Enterprise [except Clear Cr. and Buck Run]																															
Hocking River (WWH)																															
81.3	78.5	■	■		■	■	■			■	■	7						0		■							■	■	■		4	○
77.2	81.5	■	■		■	■	■	■	■	■	■	9						0		■								■	■		3	○
73.6	73.0	■	■				■	■	■	■	■	7						0	■	■	■		■	■				■	■		7	○
Brushy Fork (WWH)																															
0.9	44.0			■								1	■		■	■	■	4	■				■				■	■	■		5	◑
Trib. to Hocking R. (RM 74.82) (WWH)																															
0.4	66.0	■	■		■	■	■			■		6				■		1		■			■				■	■	■		5	○

Table A.4 Habitat Assessment Results for WAU 05030204 020: Rush Creek (headwaters to above Little Rush Creek)

		WWH Attributes											MWH Attributes																		
													High Influence						Moderate Influence												
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-020-010 - Rush Creek headwaters to above Center Branch																															
Rush Creek (LRW)																															
29.7	74.5	■	■	■			■		■	■	■	7			■			1					■				■				2	●
27.1	67.5	■	■				■		■	■		5						0					■	■			■		■		4	●
21.1	52.0	■			■		■			■		4				■		1		■			■	■			■	■	■		6	●
Dry Run (WWH)																															
0.4	57.5	■			■	■	■	■				5		■			■	2		■		■	■					■	■		5	◑
Trib. to Rush Creek (RM 28.46) (WWH)																															
0.2	65.0		■				■	■		■		4	■		■			2	■	■			■					■	■		5	●
Trib. to Rush Creek (RM 27.40) (WWH)																															
0.2	60.0	■	■			■		■		■		5				■		1		■		■	■					■	■		5	●
Turkey Run (LRW)																															
0.9	58.0	■	■				■			■		4			■	■		2		■			■				■	■	■		5	○
05030204-020-020 - Center Branch																															
Center Branch (WWH)																															
6.4	74.0	■	■		■	■	■	■		■		7						0										■	■		2	◑
3.0	46.5			■						■		2	■		■	■		3					■				■	■	■	■	5	○
0.1	60.0	■			■	■	■			■		5						0		■							■	■	■		4	◑
Somerset Creek (WWH)																															
0.6	63.0		■			■	■			■		4						0	■	■			■				■	■	■		6	○

Table A.4 (con't) **Habitat Assessment Results for WAU 05030204 020: Rush Creek (headwaters to above Little Rush Creek)**

		WWH Attributes											MWH Attributes																		
													High Influence						Moderate Influence												
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-020-030 - Rush Creek below Center Branch to above L. Rush Cr.																															
Rush Creek (LRW)																															
17.4	59.5	■			■	■	■		■	■	■	7				■		1		■			■	■			■	■	■		6	●
Trib. to Rush Creek (RM 19.40) (WWH)																															
1.8	60.5	■	■		■	■	■			■		6				■		1		■			■				■	■	■		5	◑
Trib. to Rush Creek (RM 17.89) (WWH)																															
0.1	61.0	■	■									2			■	■	■	3		■		■	■				■	■	■		6	○

Table A.5 Habitat Assessment Results for WAU 05030204 030: Rush Creek (above Little Rush Creek to Hocking River)

		WWH Attributes											MWH Attributes																		
													High Influence						Moderate Influence												
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-030-010 - Little Rush Cr. headwaters to near Rushville																															
Little Rush Creek (WWH)																															
18.7	53.0		■				■					2			■		■	2	■				■				■	■	■		5	○
7.2	64.5	■	■		■	■	■			■	■	7						0		■							■	■	■		4	○
Trib. to L. Rush Creek (RM 17.51) (WWH)																															
0.7	46.5	■				■				■		3		■		■		2		■		■	■				■	■	■		6	○
05030204-030-020 - Little Rush Cr. near Rushville to Rush Cr.																															
Little Rush Creek (WWH)																															
1.7	70.0	■	■		■	■	■	■	■	■	■	9	■					1		■			■	■				■	■		5	○
Indian Creek (WWH)																															
2.5	52.5		■				■			■		3	■		■			2	■	■			■				■	■	■		6	○
0.6	71.0	■	■		■	■	■			■		6						0				■	■				■	■	■		5	◑
05030204-030-030 - Raccoon Run																															
Raccoon Run (WWH)																															
4.8	68.5	■	■		■	■	■	■		■		7						0	■									■	■		3	◑
3.3	54.5		■			■		■		■		4				■		1	■	■		■	■					■	■		6	○
0.4	56.0						■	■		■		3	■			■		2	■	■			■	■				■	■		6	○
Trib. to Raccoon Run (RM 3.62) (WWH)																															
2.5	56.0	■				■	■			■		4						0		■		■	■				■	■	■		6	●
0.1	41.0									■		1		■	■	■		3	■	■		■	■				■	■	■		7	●

Table A.5 (con't) **Habitat Assessment Results for WAU 05030204 030: Rush Creek (above Little Rush Creek to Hocking River)**

		WWH Attributes											MWH Attributes: High Influence						MWH Attributes: Moderate Influence													
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-030-040 - Rush Creek below L. Rush Cr. to Hocking R. [except Raccoon Run]																																
Rush Creek (MWH)																																
15.4	46.5						■			■		2	■			■		2		■			■	■			■	■		■	6	○
14.4	46.5		■					■			■	3	■			■	■	3		■			■	■				■	■		5	○
Rush Creek (WWH)																																
12.7	44.0						■			■		2	■	■				2		■	■		■	■			■	■		■	7	○
9.1	74.0	■	■		■		■	■		■	■	7						0		■				■				■	■		4	○
2.1	51.5	■					■			■		3	■					1		■	■		■	■			■	■	■		7	○
Durbin Run (WWH)																																
0.4	23.0											0	■	■	■	■	■	5		■			■		■		■	■		■	6	○
Trib. to Rush Creek (RM 2.06) (CWH)																																
0.1	53.0	■				■			■			3				■	■	2				■	■				■			■	4	●
Turkey Run (WWH)																																
1.4	54.5	■			■	■	■					4				■	■	2		■			■				■	■	■		5	○

Table A.6 Habitat Assessment Results for WAU 05030204 040: Clear Creek

		WWH Attributes											MWH Attributes: High Influence						MWH Attributes: Moderate Influence													
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-040-010 - Clear Creek headwaters to above Muddy Prairie Run																																
Clear Creek (WWH)																																
21.5	67.5		■			■	■	■		■	■	6			■	■		2	■	■			■					■	■		5	○
19.6	50.0									■		1	■		■	■		3	■	■			■				■	■	■		6	○
14.1	58.0		■						■	■	■	4	■			■		2	■	■			■	■			■	■			6	○
9.5	74.0	■	■		■	■	■	■	■	■	■	9						0	■				■	■							3	○
Cattail Creek, Trib. to Clear Creek (RM 9.52) (WWH)																																
0.1	58.5		■			■	■		■	■	■	6			■	■		2	■	■			■				■	■			5	○
05030204-040-020 - Muddy Prairie Run																																
Muddy Prairie Run (WWH)																																
3.8	58.5	■	■		■			■	■	■	■	7			■	■		2		■			■					■			3	○
0.5	75.5	■	■		■	■	■	■	■	■	■	9						0										■			1	○
05030204-040-030 - Arney Run																																
Arney Run (WWH)																																
4.3	52.0		■							■	■	3			■	■		2	■				■				■	■			4	○
0.1	82.5	■	■	■	■	■	■	■	■	■	■	10						0													0	○
05030204-040-040 - Clear Creek below Muddy Prairie Run to Hocking R. [except Arney Run]																																
Clear Creek (WWH)																																
2.0	77.5	■			■	■	■	■	■	■	■	8						0		■			■					■			3	○
Trib. to Clear Creek (RM 6.80) (CWH)																																
0.6	69.5	■	■	■	■	■			■	■	■	8				■		1					■				■				2	○
Trib. to Clear Creek (RM 4.93) (CWH)																																
0.1	66.0	■		■	■	■				■	■	6				■		1					■				■	■			3	○

Table A.7 Habitat Assessment Results for WAU 05030204 050: Hocking River (below Enterprise to above Monday Creek)

		WWH Attributes											MWH Attributes																		
													High Influence						Moderate Influence												
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-050-010 - Hocking River at Enterprise to above Fivemile Cr. [except Scott Cr. and Oldtown Cr.]																																
Hocking River (WWH)																																
69.6	79.0	■	■		■	■	■	■	■	■	■	9						0	■		■			■				■			4	○
67.6	66.5						■			■	■	3				■		1	■	■	■		■	■			■	■	■		8	○
67.4	84.0	■	■		■	■	■	■	■	■	■	9						0		■	■							■			3	○
05030204-050-020 - Scott Creek [except Clear Fk.]																																
Scott Creek (WWH)																																
8.9	66.5	■	■		■	■	■		■		■	7					■	1									■				1	◑
5.6	54.7	■								■		2			■	■		2		■			■				■	■	■	■	6	◑
2.1	74.0	■	■		■		■	■	■	■	■	8						0						■							1	◑
0.1	74.5	■	■		■	■	■	■		■	■	8				■		1		■							■	■			3	○
0.1	63.5		■		■	■	■			■		5				■		1	■	■			■				■	■	■		6	○
Dry Run (WWH)																																
0.2	63.0	■			■	■	■			■		5						0		■		■					■	■	■		5	○
Trib. to Dry Run (RM 1.48) (WWH)																																
0.4	57.5	■	■			■	■			■		5						0		■		■	■				■	■		■	6	◑
05030204-050-030 - Clear Fork																																
Clear Fork, Scott Cr. Trib. (WWH)																																
4.8	45.5						■	■		■		3	■	■	■			3		■			■					■	■		4	◑
0.1	66.0						■			■		2			■			1	■	■			■				■	■		■	6	○
Duck Creek (WWH)																																
2.0	52.5		■				■			■		3			■			1	■	■			■				■	■		■	6	○

Table A.7 (con't) **Habitat Assessment Results for WAU 05030204 050: Hocking River (below Enterprise to above Monday Creek)**

		WWH Attributes											MWH Attributes: High Influence						MWH Attributes: Moderate Influence													
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-050-040 - Oldtown Creek																																
Oldtown Creek (WWH)																																
4.1	62.0	■			■	■	■			■		5						0		■			■				■	■	■		5	○
0.6	58.5	■				■	■			■		4			■			1		■		■	■				■	■	■		6	○
Trib. to Oldtown Creek (RM 4.25) (WWH)																																
0.1	59.0					■	■			■		3			■			1	■	■			■				■	■	■		6	○
05030204-050-050 - Fivemile Creek																																
Fivemile Creek (WWH)																																
3.5	46.5	■				■				■		3		■		■		2		■		■	■				■	■		■	6	◑
1.0	62.5	■			■	■	■		■	■		6						0					■				■			■	3	○
Trib. to Fivemile Creek (RM 3.44) (WWH)																																
0.1	52.0	■			■	■	■			■		5						0		■		■	■				■	■	■		6	○
05030204-050-060 - Hocking River below Fivemile Cr. to above Monday Cr.																																
Hocking River (WWH)																																
60.8	84.0	■	■		■	■	■	■	■	■	■	9						0		■	■										2	○
51.4	81.5	■	■		■	■	■	■	■	■	■	9						0	■	■								■			3	○
Threemile Creek (WWH)																																
3.9	54.5	■			■	■	■			■		5						0		■			■				■	■	■		5	◑
1.9	46.0	■			■	■	■			■		5			■	■		2		■		■	■				■	■		■	6	◑
Trib. to Hocking R. (RM 62.18) (WWH)																																
1.1	60.0	■	■			■	■			■		5				■		1		■			■				■	■	■		5	○
Minkers Run (WWH)																																
0.8	58.5	■	■				■		■	■	■	6			■			1		■			■				■	■			4	●

Table A.8 Habitat Assessment Results for WAU 05030204 080: Hocking River (below Monday Creek to Athens / RM 33.1 [except Sunday Creek])

		WWH Attributes											MWH Attributes																		
													High Influence					Moderate Influence													
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-080-010 - Hocking River below Monday Cr. to above Sunday Cr.																															
Hocking River (WWH)																															
48.0	64.5		■	■		■			■	■		5				■		1	■		■		■	■			■	■		■	7	○
Trib. to Hocking R. (RM 48.70) (LRW)																															
0.1	46.5	■							■	■	■	4		■	■	■		3		■			■				■	■			4	●
Hamley Run (WWH)																															
2.1	66.0	■	■		■	■	■		■	■	■	8				■		1		■							■				2	●
0.4	63.0	■				■	■			■		4						0		■			■				■	■	■	■	6	◑
05030204-080-020 - Hocking River below Sunday Cr. to Athens [except Margaret Cr.]																															
Hocking River (WWH)																															
36.3	57.5						■			■		2		■				1	■	■	■		■	■			■	■		■	8	○
Sugar Creek (WWH)																															
2.2	63.0	■	■		■		■		■	■	■	7			■	■		2					■				■				2	○
05030204-080-030 - Margaret Creek headwaters to above W. Branch																															
Margaret Creek (WWH)																															
11.3	53.5	■	■			■	■			■		5				■		1		■			■				■	■	■	■	6	●
8.5	48.0	■				■				■		3		■	■	■		3		■			■				■	■	■		5	◑
6.1	40.5	■				■				■		3		■		■		2		■			■	■			■	■	■		6	◑
Biddle Creek (WWH)																															
2.0	53.5	■	■							■		3			■	■		2		■			■				■	■	■		5	◑

Table A.8 (con't) **Habitat Assessment Results for WAU 05030204 080: Hocking River (below Monday Creek to Athens / RM 33.1 [except Sunday Creek])**

		WWH Attributes											MWH Attributes																		
													High Influence						Moderate Influence												
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-080-040 - Margaret Creek above W. Branch to above Factory Cr.																															
Margaret Creek (WWH)																															
3.3	58.0	■				■	■			■		4		■		■		2		■			■	■			■	■	■		6	○
1.4	64.3	■	■		■	■	■		■	■	■	8						0		■							■	■			3	○
West Branch Margaret Creek (WWH)																															
2.3	35.0	■								■		2		■	■	■		3		■			■				■	■	■	■	6	◑
1.2	29.5	■								■		2		■	■	■		3		■			■				■	■	■	■	6	◑
05030204-080-050 - Margaret Creek above Factory Cr. to Hocking R.																															
Factory Creek (WWH)																															
3.8	70.5	■	■		■	■	■		■	■	■	8						0					■				■		■		3	◑
0.7	59.5	■	■			■	■		■	■	■	7				■		1					■				■				2	◑

Table A.9 Habitat Assessment Results for WAU 05030204 090: Federal Creek

		WWH Attributes											MWH Attributes																		
													High Influence						Moderate Influence												
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-090-010 - Federal Creek headwaters to below Hyde Fk. and Miners Fk. confluence																															
Hyde Fork (WWH)																															
1.8	67.0	■	■		■	■	■			■		6						0									■		■	■	3	○
Miners Fork (WWH)																															
2.3	55.5	■	■		■	■	■		■	■	■	8				■		1					■				■				2	○
0.1	63.0	■	■		■		■		■	■	■	7			■	■		2									■				1	○
05030204-090-020 - Federal Creek below Miners Fk. to above McDougall Branch																															
Federal Creek (EWH)																															
16.2	62.5	■	■			■	■			■		5			■	■		2		■			■				■		■	■	5	○
11.7	51.5	■	■				■			■		4				■		1		■			■	■			■	■	■		6	○
11.3	59.0	■				■	■		■	■	■	6				■		1					■	■			■				3	◑
Kasler Creek (WWH)																															
1.8	78.0	■	■		■	■	■		■	■	■	8						0									■				1	○
Linscott Run (WWH)																															
3.8	66.0	■	■		■	■	■	■	■	■	■	9				■		1													0	◑
0.8	71.5	■	■		■	■	■	■	■	■	■	9				■		1		■											1	○
05030204-090-030 - McDougall Branch above Mush Run																															
McDougall Branch (WWH)																															
5.0	55.5	■	■			■				■		4				■		1					■				■		■	■	4	○
4.5	61.5	■	■						■	■	■	5			■	■		2					■				■				2	○
Bryson Branch (WWH)																															
1.2	67.0	■	■		■	■	■		■	■	■	8						0									■				1	○

Table A.9 (con't) **Habitat Assessment Results for WAU 05030204 090: Federal Creek**

		WWH Attributes											MWH Attributes																		
													High Influence						Moderate Influence												
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-090-040 - Mush Run																															
Mush Run (WWH)																															
1.8	58.5	■	■			■	■			■		5						0					■				■		■	■	4	○
1.0	64.5	■	■			■	■			■		5						0		■			■				■		■	■	5	○
Dutch Creek (WWH)																															
1.7	75.5	■	■		■	■	■		■	■	■	8						0									■				1	○
05030204-090-050 - McDougall Branch below Mush Run to Federal Cr.																															
McDougall Branch (WWH)																															
2.9	70.0	■	■		■	■	■	■	■	■	■	9						0													0	○
0.5	62.0	■			■	■	■		■	■	■	7						0		■							■	■	■		4	○
Wyatt Run (WWH)																															
0.4	61.5	■	■			■				■		4			■	■		2					■				■		■	■	4	○

Table A.9 (con't) **Habitat Assessment Results for WAU 05030204 090: Federal Creek**

		WWH Attributes											MWH Attributes																		
													High Influence						Moderate Influence												
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-090-060 - Sharps Fork																															
Opossum Run (WWH)																															
4.1	66.0	■	■		■	■	■		■		■	7			■	■	■	3							■		■				2	●
2.6	67.5	■	■				■	■	■	■	■	7			■			1		■			■					■			3	○
0.8	54.0	■	■			■				■		4				■		1		■			■				■	■	■	■	6	○
0.2	61.0	■	■		■	■		■	■	■	■	8				■		1		■		■	■					■			4	○
Sharps Fork (WWH)																															
10.7	79.0	■	■		■	■	■		■	■	■	8						0									■				1	○
9.1	66.5	■	■				■		■	■	■	6			■	■		2		■			■				■	■			4	○
8.1	65.0	■	■		■	■	■			■		6						0		■			■				■	■	■	■	6	○
5.3	66.5	■	■		■	■	■		■	■	■	8				■		1									■				1	○
1.7	65.5	■	■			■	■	■	■	■	■	8				■		1		■		■	■	■				■			5	○
1.6	53.5	■					■			■		3				■		1		■			■	■			■	■	■	■	7	○
Sulphur Run (WWH)																															
0.8	53.0	■	■		■	■	■	■		■		7				■		1		■			■					■	■		4	◑
0.0	43.5	■	■		■	■		■		■		6		■	■	■		3		■			■					■	■		4	●
05030204-090-070 - Marietta Run																															
Marietta Run (WWH)																															
3.2	81.0	■	■		■	■	■	■	■	■	■	9						0													0	○
1.6	74.5	■	■		■	■	■		■	■	■	8						0		■							■	■	■		4	○
0.1	60.5	■	■		■	■	■			■		6						0		■			■				■	■	■		5	○
05030204-090-080 - Big Run																															
Big Run (WWH)																															
3.9	71.5	■	■		■	■	■		■	■	■	8				■		1									■				1	○
1.7	58.0	■	■				■		■	■	■	6			■	■		2		■			■				■	■			4	◑

Table A.9 (con't) **Habitat Assessment Results for WAU 05030204 090: Federal Creek**

		WWH Attributes											MWH Attributes																		
													High Influence						Moderate Influence												
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-090-090 - Federal Creek below McDougall Branch to Hocking R. [except Sharps Fk., Marietta Run, and Big Run]																															
Federal Creek (EWH)																															
9.3	66.0	■	■		■	■	■	■	■	■	■	9				■		1													0	◑
9.1	58.0	■							■	■	■	4				■		1		■			■	■			■				4	○
4.9	64.0	■				■	■			■		4						0					■				■		■	■	4	◑
0.9	53.5	■								■		2				■		1		■			■	■			■	■	■		6	◑
Sharps Run (WWH)																															
0.0	56.0	■	■			■	■	■		■		6				■		1		■			■					■	■		4	○

Table A.10 Habitat Assessment Results for WAU 05030204 100: Hocking River below Athens / RM 33.1 to Ohio River [except Federal Creek]

		WWH Attributes											MWH Attributes																		
													High Influence					Moderate Influence													
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-100-010 - Hocking River from Athens to above Willow Cr.																															
Hocking River (WWH)																															
33.1	47.5								■	■		2	■			■		2	■	■	■		■	■			■	■		■	8	○
32.0	44.0									■		1	■			■		2		■	■		■	■			■	■		■	7	○
27.8	78.5	■	■		■	■	■	■		■	■	8						0	■	■	■			■				■			5	○
Strouds Run (WWH)																															
0.3	67.5	■	■				■			■		4			■			1		■			■				■	■	■		5	●
05030204-100-020 - Willow Creek																															
Willow Creek (WWH)																															
2.2	71.5	■	■		■	■	■		■	■	■	8						0		■							■				2	○
1.4	66.5	■	■		■	■	■		■	■	■	8						0		■							■	■	■		4	○
0.2	64.5	■			■	■	■	■		■		6			■	■		2		■								■	■		3	◑
Scott Creek (WWH)																															
0.1	73.0	■	■		■	■	■		■	■	■	8						0									■				1	○
05030204-100-030 - Hocking River below Willow Cr. to above Federal Cr.																															
Hocking River (WWH)																															
19.7	82.0	■	■		■	■	■	■	■	■	■	9						0	■	■	■							■			4	○

Table A.10 (con't) **Habitat Assessment Results for WAU 05030204 100: Hocking River below Athens / RM 33.1 to Ohio River [except Federal Creek]**

		WWH Attributes											MWH Attributes																		
													High Influence						Moderate Influence												
River Mile	QHEI	No Channelization or Recovered	Boulder or Cobble or Gravel Substrate	Silt Free Substrate	Excellent or Good Development	Moderate or High Sinuosity	Extensive or Moderate Cover	Fast Velocity or Eddies	Normal or No Substrate Embeddedness	Maximum Pool Depth > 40 cm	Low or No Riffle/Run Embeddedness	**Total WWH Attributes**	Recent Channelization or No Recovery	Silt or Muck Substrate	Low or No Sinuosity and Drainage Area <= 20 sq. mi.	Sparse or Nearly Absent Cover	< 40 cm Max. Pool Depth and Wadeable or Headwater Site	**Total High-Influence MWH Attributes**	Recovering Channelization	Silt Heavy or Silt Moderate	Sand Substrate and Boat Site	Hardpan Substrate Origin	Fair or Poor Development	Low or No Sinuosity and Drainage Area > 20 sq. mi.	Two or Less Cover Types	Intermittent Pools and Max. Pool Depth < 40 cm	No Fast Current Velocity	Extensive or Moderate Substrate Embeddedness	Extensive or Moderate Riffle Embeddedness	No Riffle	**Total Moderate-Influence MWH Attributes**	Current Use Attainment Status (○ = full, ◑ = partial, ● = non)
05030204-100-040 - Hocking River below Federal Cr. to Ohio R. [except Fourmile Cr.]																															
Hocking River (WWH)																															
13.6	72.0	■	■		■	■	■	■	■	■		8						0		■	■		■	■			■	■		■	7	○
5.4	47.0	■					■			■		3		■		■		2		■			■	■			■	■		■	6	○
Jordan Run (WWH)																															
2.8	65.2	■	■		■	■	■		■	■	■	8			■			1							■		■				2	○
0.1	52.7	■				■	■			■		4			■	■		2		■			■				■	■	■	■	6	○
Frost Run (WWH)																															
0.4	57.5	■				■	■			■		4				■		1		■			■				■	■	■		5	◑
Skunk Run (WWH)																															
1.3	64.0	■	■			■	■		■	■	■	7				■		1		■			■				■	■	■		5	○
05030204-100-050 - Fourmile Creek																															
Fourmile Creek (WWH)																															
2.5	64.5	■	■		■		■		■	■	■	7			■	■		2		■			■				■	■	■		5	○
1.8	67.0	■	■		■	■	■		■	■	■	8			■			1					■				■				2	○
East Fourmile Creek (WWH)																															
1.8	50.5	■	■							■		3			■	■		2		■			■				■	■	■		5	○

Table A.11 Bedload and Habitat TMDLs for WAU† 05030204 010: Hocking River (headwaters to Enterprise [except Rush and Clear Creeks])

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-010-010 - Hocking River headwaters to above Hunters Run														
Hocking River (WWH)	100.2	6	7	4	17	47%	substrate	41	4	10	0	0	0	0
	96.8	17.5	10	9.5	37	—	channel	72.5	2	6	1	0	0	1
Hocking River (MWH)	91.9	15.5	7	5	27.5	n/a	n/a	52	2	7	n/a	n/a	n/a	n/a
Claypool Run (WWH)	0.4	9.5	5.5	4.5	19.5	39%	channel	38.5	3	8	0	0	0	0
05030204-010-020 - Hunters Run														
Hunters Run (WWH)	4.9	15.5	10	2.5	28	13%	riparian	53	3	7	0	0	0	0
	2.5	15	13	4.5	32.5	—	riparian	60.5	1	5	1	1	0	2

† Watershed Assessment Unit

Table A.11 Bedload and Habitat TMDLs for WAU 05030204 010: Hocking River (headwaters to Enterprise [except Rush and Clear Creeks]) (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-010-030 - Baldwin Run														
Baldwin Run (WWH)	2.7	7	15	4.5	26.5	17%	substrate	65.5	0	5	1	1	0	2
Fetters Run (WWH)	2.2	16	14.5	6.5	37	—	—	70	1	5	1	1	0	2
05030204-010-040 - Pleasant Run														
Pleasant Run (WWH)	8.4	14.5	9	4.5	28	13%	channel	60	1	6	1	1	0	2
	5.6	11	16	7	34	—	substrate	67.5	0	3	1	1	1	3
	0.6	15.5	10.5	5	31	3%	channel	65	1	4	1	1	1	3

Table A.11 Bedload and Habitat TMDLs for WAU 05030204 010: Hocking River (headwaters to Enterprise [except Rush and Clear Creeks]) (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-010-050 - Hocking River below Hunters Run to above Rush Cr. [except Baldwin Run and Pleasant Run]														
Hocking River (MWH)	89.4	15.5	9.5	6	31	n/a	n/a	69	1	5	n/a	n/a	n/a	n/a
Hocking River (WWH)	88.9	13.5	7	5	25.5	20%	channel	55.5	2	9	0	0	0	0
	87.3	14.5	10.5	4	29	9%	channel	65	1	7	1	1	0	2
	81.9	15.5	14.5	6	36	—	—	77	0	1	1	1	1	3
Trib. to Hocking R. (RM 84.38) (WWH)	0.2	9.5	9.5	3	22	31%	riparian	47	3	8	0	0	0	0
Trib. to Hocking R. (RM 82.57) (WWH)	1.1	12	11	6	29	9%	channel	54	2	4	0	0	1	1

Table A.11 Bedload and Habitat TMDLs for WAU 05030204 010: Hocking River (headwaters to Enterprise [except Rush and Clear Creeks]) (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories: Substrate	Channel	Riparian	Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
05030204-010-060 - Buck Run														
Buck Run (WWH)	2.8	11.5	9	7	27.5	14%	channel	57.5	2	7	0	0	0	0
	0.9	10.5	11.5	4	26	19%	riparian	61.5	0	5	1	1	0	2
East Branch Buck Run (WWH)	0.1	11	16	6	33	—	substrate	56	1	6	0	1	0	1
05030204-010-070 - Hocking River below Rush Cr. to Enterprise [except Clear Cr. and Buck Run]														
Hocking River (WWH)	81.3	14.5	15	6.5	36	—	—	78.5	0	4	1	1	1	3
	77.2	15.5	15	5.5	36	—	—	81.5	0	3	1	1	1	3
	73.6	14.5	10.5	5.5	30.5	5%	channel	73	0	7	1	1	0	2
Brushy Fork (WWH)	0.9	13.5	6	4.5	24	25%	channel	44	4	9	0	0	0	0
Trib. to Hocking R. (RM 74.82) (WWH)	0.4	12	15	6	33	—	substrate	66	1	6	1	1	0	2

Table A.12 Bedload and Habitat TMDLs for WAU 05030204-020: Rush Creek (headwaters to above Little Rush Creek)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-020-010 - Rush Creek headwaters to above Center Branch														
Rush Creek (LRW)	29.7	16.5	11	8	35.5	n/a	n/a	74.5	1	3	n/a	n/a	n/a	n/a
	27.1	16	13	5.5	34.5	n/a	n/a	67.5	0	4	n/a	n/a	n/a	n/a
	21.1	9	13.5	7	29.5	n/a	n/a	52	1	7	n/a	n/a	n/a	n/a
Dry Run (WWH)	0.4	5	14.5	9	28.5	11%	substrate	57.5	2	7	0	0	0	0
Trib. to Rush Creek (RM 28.46) (WWH)	0.2	13.5	8	3.5	25	22%	channel	65	2	7	1	0	0	1
Trib. to Rush Creek (RM 27.40) (WWH)	0.2	11.5	14	7	32.5	—	substrate	60	1	6	1	1	0	2
Turkey Run (LRW)	0.9	13.5	10	5.5	29	n/a	n/a	58	2	7	n/a	n/a	n/a	n/a

Table A.12 Bedload and Habitat TMDLs for WAU 05030204-020: Rush Creek (headwaters to above Little Rush Creek) (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories: Substrate	Channel	Riparian	Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
05030204-020-020 - Center Branch														
Center Branch (WWH)	6.4	14	15	5	34	—	—	74	0	2	1	1	1	3
	3.0	11	5	8.5	24.5	23%	channel	46.5	3	8	0	0	0	0
	0.1	7.5	16	6	29.5	8%	substrate	60	0	4	1	1	1	3
Somerset Creek (WWH)	0.6	14.5	11	5.5	31	3%	channel	63	0	6	1	1	0	2
05030204-020-030 - Rush Creek below Center Branch to above L. Rush Cr.														
Rush Creek (LRW)	17.4	11	12.5	5.5	29	n/a	n/a	59.5	1	7	n/a	n/a	n/a	n/a
Trib. to Rush Creek (RM 19.40) (WWH)	1.8	13	14.5	5	32.5	—	—	60.5	1	6	1	1	0	2
Trib. to Rush Creek (RM 17.89) (WWH)	0.1	13.5	14	6.5	34	—	—	61	3	9	1	0	0	1

Table A.13 Bedload and Habitat TMDLs for WAU 05030204 030: Rush Creek (above Little Rush Creek to Hocking River)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories: Substrate	Channel	Riparian	Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
05030204-030-010 - Little Rush Cr. headwaters to near Rushville														
Little Rush Creek (WWH)	18.7	14	8	5	27	16%	channel	53	2	7	0	0	0	0
	7.2	13	16	5	34	—	—	64.5	0	4	1	1	1	3
Trib. to L. Rush Creek (RM 17.51) (WWH)	0.7	3	11	5	19	41%	substrate	46.5	2	8	0	0	0	0
05030204-030-020 - Little Rush Cr. near Rushville to Rush Cr.														
Little Rush Creek (WWH)	1.7	16.5	12	5	33.5	—	channel	70	1	6	1	1	0	2
Indian Creek (WWH)	2.5	8.5	9	5	22.5	30%	channel	52.5	2	8	0	0	0	0
	0.6	13.5	14	8	35.5	—	—	71	0	5	1	1	0	2

Table A.13 Bedload and Habitat TMDLs for WAU 05030204 030: Rush Creek (above Little Rush Creek to Hocking River) (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-030-030 - Raccoon Run														
Raccoon Run (WWH)	4.8	13	14.5	5.5	33	—	—	68.5	0	3	1	1	1	3
	3.3	9.5	10	3	22.5	30%	riparian	54.5	1	7	0	1	0	1
	0.4	11.5	8.5	4.5	24.5	23%	channel	56	2	8	0	0	0	0
Trib. to Raccoon Run (RM 3.62) (WWH)	2.5	7	15	5	27	16%	substrate	56	0	6	0	1	0	1
	0.1	3	8	8	19	41%	substrate	41	3	10	0	0	0	0

Table A.13 Bedload and Habitat TMDLs for WAU 05030204 030: Rush Creek (above Little Rush Creek to Hocking River) (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories: Substrate	Channel	Riparian	Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
05030204-030-040 - Rush Creek below L. Rush Cr. to Hocking R. [except Raccoon Run]														
Rush Creek (MWH)	15.4	9	7.5	5	21.5	n/a	n/a	46.5	2	8	n/a	n/a	n/a	n/a
	14.4	12	6	5.5	23.5	n/a	n/a	46.5	3	8	n/a	n/a	n/a	n/a
Rush Creek (WWH)	12.7	4.5	6	4.5	15	53%	substrate	44	2	9	0	0	0	0
	9.1	14	14.5	7	35.5	—	—	74	0	4	1	1	1	3
	2.1	9	9.5	6	24.5	23%	channel	51.5	1	8	0	1	0	1
Durbin Run (WWH)	0.4	0	4	4	8	75%	substrate	23	5	11	0	0	0	0
Trib. to Rush Creek (RM 2.06) (CWH)	0.1	10	13	9	32	n/a	n/a	53	2	6	0	0	0	0
Turkey Run (WWH)	1.4	8.5	15	4.5	28	13%	substrate	54.5	2	7	0	0	0	0

Table A.14 Bedload and Habitat TMDLs for WAU 05030204 040: Clear Creek

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-040-010 - Clear Creek headwaters to above Muddy Prairie Run														
Clear Creek (WWH)	21.5	15	10.5	4	29.5	8%	channel	67.5	2	7	1	0	0	1
	19.6	9.5	7	2	18.5	42%	riparian	50	3	9	0	0	0	0
	14.1	14.5	7	3	24.5	23%	channel	58	2	8	0	0	0	0
	9.5	15.5	12	3	30.5	5%	riparian	74	0	3	1	1	1	3
Cattail Creek, Trib. to Clear Creek (RM 9.52) (WWH)	0.1	12.5	10	3	25.5	20%	riparian	58.5	2	7	0	0	0	0
05030204-040-020 - Muddy Prairie Run														
Muddy Prairie Run (WWH)	3.8	14.5	12	3	29.5	8%	riparian	58.5	2	5	0	0	0	0
	0.5	15	15.5	4	34.5	—	riparian	75.5	0	1	1	1	1	3

Table A.14 Bedload and Habitat TMDLs for WAU 05030204 040: Clear Creek (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-040-030 - Arney Run														
Arney Run (WWH)	4.3	12.5	10	4	26.5	17%	channel	52	2	6	0	0	0	0
	0.1	16.5	18	5	39.5	—	—	82.5	0	0	1	1	1	3
05030204-040-040 - Clear Creek below Muddy Prairie Run to Hocking R. [except Arney Run]														
Clear Creek (WWH)	2.0	12	15	8.5	35.5	—	substrate	77.5	0	3	1	1	1	3
Trib. to Clear Creek (RM 6.80) (CWH)	0.6	15.5	14.5	6.5	36.5	n/a	n/a	69.5	1	3	1	1	1	3
Trib. to Clear Creek (RM 4.93) (CWH)	0.1	13.5	14.5	8	36	n/a	n/a	66	1	4	1	1	1	3

Table A.15 Bedload and Habitat TMDLs for WAU 05030204 050: Hocking River (below Enterprise to above Monday Creek)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-050-010 - Hocking River at Enterprise to above Fivemile Cr. [except Scott Cr. and Oldtown Cr.]														
Hocking River (WWH)	69.6	15	13.5	6	34.5	—	channel	79	0	4	1	1	1	3
	67.6	12	9.5	6.5	28	13%	channel	66.5	1	9	1	1	0	2
	67.4	14.5	16.5	7.5	38.5	—	—	84	0	3	1	1	1	3

Table A.15 Bedload and Habitat TMDLs for WAU 05030204 050: Hocking River (below Enterprise to above Monday Creek) (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-050-020 - Scott Creek [except Clear Fk.]														
Scott Creek (WWH)	8.9	17	17	10	44	—	—	66.5	1	2	1	1	1	3
	5.6	10	10	5.7	25.7	20%	channel	54.7	2	8	0	0	0	0
	2.1	13	15	4.5	32.5	—	riparian	74	0	1	1	1	1	3
	0.1	14.5	17	6	37.5	—	—	74.5	1	4	1	1	1	3
	0.1	13.5	11.5	6	31	3%	channel	63.5	1	7	1	1	0	2
Dry Run (WWH)	0.2	6	16.5	8.5	31	3%	substrate	63	0	5	1	1	0	2
Trib. to Dry Run (RM 1.48) (WWH)	0.4	10.5	14	5	29.5	8%	substrate	57.5	0	6	0	1	0	1

Table A.15 Bedload and Habitat TMDLs for WAU 05030204 050: Hocking River (below Enterprise to above Monday Creek) (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-050-030 - Clear Fork														
Clear Fork, Scott Cr. Trib. (WWH)	4.8	6.5	6	4	16.5	48%	channel	45.5	3	7	0	0	0	0
	0.1	19	11	7	37	—	channel	66	1	7	1	1	0	2
Duck Creek (WWH)	2.0	10.5	11	7	28.5	11%	channel	52.5	1	7	0	1	0	1
05030204-050-040 - Oldtown Creek														
Oldtown Creek (WWH)	4.1	10	14	4	28	13%	substrate	62	0	5	1	1	0	2
	0.6	9	13.5	6	28.5	11%	substrate	58.5	1	7	0	1	0	1
Trib. to Oldtown Creek (RM 4.25) (WWH)	0.1	10.5	10	4	24.5	23%	channel	59	1	7	0	1	0	1

Table A.15 Bedload and Habitat TMDLs for WAU 05030204 050: Hocking River (below Enterprise to above Monday Creek) (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-050-050 - Fivemile Creek														
Fivemile Creek (WWH)	3.5	4	12	1.5	17.5	45%	riparian	46.5	2	8	0	0	0	0
	1.0	10	14	6.5	30.5	5%	substrate	62.5	0	3	1	1	1	3
Trib. to Fivemile Creek (RM 3.44) (WWH)	0.1	6	14	2	22	31%	riparian	52	0	6	0	1	0	1

Table A.15 Bedload and Habitat TMDLs for WAU 05030204 050: Hocking River (below Enterprise to above Monday Creek) (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-050-060 - Hocking River below Fivemile Cr. to above Monday Cr.														
Hocking River (WWH)	60.8	15	16	7.5	38.5	—	—	84	0	2	1	1	1	3
	51.4	15.5	15.5	6	37	—	—	81.5	0	3	1	1	1	3
Threemile Creek (WWH)	3.9	9	15	4.5	28.5	11%	substrate	54.5	0	5	0	1	0	1
	1.9	7	12.5	5.5	25	22%	substrate	46	2	8	0	0	0	0
Trib. to Hocking R. (RM 62.18) (WWH)	1.1	13	12	5.5	30.5	5%	channel	60	1	6	1	1	0	2
Minkers Run (WWH)	0.8	11	12.5	5	28.5	11%	substrate	58.5	1	5	0	1	0	1

Table A.16 Bedload and Habitat TMDLs for WAU 05030204 080: Hocking River (below Monday Creek to Athens / RM 33.1 [except Sunday Creek])

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*	QHEI	High Influence	# Modified Attributes	*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories: Substrate	Channel	Riparian	Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes				Total Habitat Score
05030204-080-010 - Hocking River below Monday Cr. to above Sunday Cr.														
Hocking River (WWH)	48.0	15	10.5	7	32.5	—	channel	64.5	1	8	1	1	0	2
Trib. to Hocking R. (RM 48.70) (LRW)	0.1	0.5	10	9	19.5	n/a	n/a	46.5	3	7	n/a	n/a	n/a	n/a
Hamley Run (WWH)	2.1	15	16	6	37	—	—	66	1	3	1	1	1	3
	0.4	12	13	7	32	—	substrate	63	0	6	1	1	0	2
05030204-080-020 - Hocking River below Sunday Cr. to Athens [except Margaret Cr.]														
Hocking River (WWH)	36.3	8	10	3.5	21.5	33%	substrate	57.5	1	9	0	1	0	1
Sugar Creek (WWH)	2.2	12	13	5	30	6%	substrate	63	2	4	1	0	1	2

Table A.16 Bedload and Habitat TMDLs for WAU 05030204 080: Hocking River (below Monday Creek to Athens / RM 33.1 [except Sunday Creek]) (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories: Substrate	Channel	Riparian	Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
05030204-080-030 - Margaret Creek headwaters to above W. Branch														
Margaret Creek (WWH)	11.3	12.5	13	5	30.5	5%	channel	53.5	1	7	0	1	0	1
	8.5	6	12.5	3.5	22	31%	substrate	48	3	8	0	0	0	0
	6.1	0.5	11.5	4	16	50%	substrate	40.5	2	8	0	0	0	0
Biddle Creek (WWH)	2.0	11	12.5	6	29.5	8%	substrate	53.5	2	7	0	0	0	0
05030204-080-040 - Margaret Creek above W. Branch to above Factory Cr.														
Margaret Creek (WWH)	3.3	7.5	13	6.5	27	16%	substrate	58	2	8	0	0	0	0
	1.4	13	16	6.3	35.3	—	—	64.3	0	3	1	1	1	3
West Branch Margaret Creek (WWH)	2.3	1	11.5	6.5	19	41%	substrate	35	3	9	0	0	0	0
	1.2	1	10	2.5	13.5	58%	substrate	29.5	3	9	0	0	0	0

Table A.16 Bedload and Habitat TMDLs for WAU 05030204 080: Hocking River (below Monday Creek to Athens / RM 33.1 [except Sunday Creek]) (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-080-050 - Margaret Creek above Factory Cr. to Hocking R.														
Factory Creek (WWH)	3.8	15	14.5	9.5	39	—	—	70.5	0	3	1	1	1	3
	0.7	13	13	6	32	—	channel	59.5	1	3	0	1	1	2

Table A.17 Bedload and Habitat TMDLs for WAU 05030204 090: Federal Creek

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-090-010 - Federal Creek headwaters to below Hyde Fk. and Miners Fk. confluence														
Hyde Fork (WWH)	1.8	16	16	5	37	—	—	67	0	3	1	1	1	3
Miners Fork (WWH)	2.3	13	14	5.5	32.5	—	—	55.5	1	3	0	1	1	2
	0.1	13	15	5.5	33.5	—	—	63	2	3	1	0	1	2
05030204-090-020 - Federal Creek below Miners Fk. to above McDougall Branch														
Federal Creek (EWH)	16.2	14.5	12.5	5.5	32.5	7%	channel	62.5	2	7	0	0	0	0
	11.7	11.5	12.5	4	28	20%	substrate	51.5	1	7	0	0	0	0
	11.3	12	12.5	5.5	30	14%	substrate	59	1	4	0	0	0	0
Kasler Creek (WWH)	1.8	17	17	9.5	43.5	—	—	78	0	1	1	1	1	3
Linscott Run (WWH)	3.8	14	16.5	4	34.5	—	riparian	66	1	1	1	1	1	3
	0.8	17.5	17	5	39.5	—	—	71.5	1	2	1	1	1	3

Table A.17 Bedload and Habitat TMDLs for WAU 05030204 090: Federal Creek (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-090-030 - McDougall Branch above Mush Run														
McDougall Branch (WWH)	5.0	14	13.5	5	32.5	—	channel	55.5	1	5	0	1	0	1
	4.5	14	12	5	31	3%	channel	61.5	2	4	1	0	1	2
Bryson Branch (WWH)	1.2	13	15.5	6.5	35	—	—	67	0	1	1	1	1	3
05030204-090-040 - Mush Run														
Mush Run (WWH)	1.8	13	14	5.5	32.5	—	—	58.5	0	4	0	1	1	2
	1.0	13.5	13	7	33.5	—	channel	64.5	0	5	1	1	0	2
Dutch Creek (WWH)	1.7	16	16.5	7.5	40	—	—	75.5	0	1	1	1	1	3

Table A.17 Bedload and Habitat TMDLs for WAU 05030204 090: Federal Creek (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-090-050 - McDougall Branch below Mush Run to Federal Cr.														
McDougall Branch (WWH)	2.9	13	15	6	34	—	—	70	0	0	1	1	1	3
	0.5	6	16	4	26	19%	substrate	62	0	4	1	1	1	3
Wyatt Run (WWH)	0.4	14	12.5	7.5	34	—	channel	61.5	2	6	1	0	0	1
05030204-090-060 - Sharps Fork														
Opossum Run (WWH)	4.1	20	16.5	9.5	46	—	—	66	3	5	1	0	0	1
	2.6	12	12.5	5.5	30	6%	channel	67.5	1	4	1	1	1	3
	0.8	11	11	5	27	16%	channel	54	1	7	0	1	0	1
	0.2	11.5	15.5	5	32	—	substrate	61	1	5	1	1	0	2

Table A.17 Bedload and Habitat TMDLs for WAU 05030204 090: Federal Creek (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories: Substrate	Channel	Riparian	Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
05030204-090-060 - Sharps Fork (con't)														
Sharps Fork (WWH)	10.7	16	16	8.5	40.5	—	—	79	0	1	1	1	1	3
	9.1	14	13	7.5	34.5	—	channel	66.5	2	6	1	0	0	1
	8.1	15	15	6	36	—	—	65	0	6	1	1	0	2
	5.3	13	16	7.5	36.5	—	—	66.5	1	2	1	1	1	3
	1.7	11.5	12.5	5.5	29.5	8%	substrate	65.5	1	6	1	1	0	2
	1.6	8	10	5.5	23.5	27%	substrate	53.5	1	8	0	1	0	1
Sulphur Run (WWH)	0.8	9	14.5	6	29.5	8%	substrate	53	1	5	0	1	0	1
	0.0	5	14.5	5	24.5	23%	substrate	43.5	3	7	0	0	0	0

Table A.17 Bedload and Habitat TMDLs for WAU 05030204 090: Federal Creek (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*	QHEI	High Influence	# Modified Attributes	*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories: Substrate	Channel	Riparian	Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes				Total Habitat Score
05030204-090-070 - Marietta Run														
Marietta Run (WWH)	3.2	14.5	19.5	9.5	43.5	—	—	81	0	0	1	1	1	3
	1.6	13.5	17	9	39.5	—	—	74.5	0	4	1	1	1	3
	0.1	10	14	9	33	—	substrate	60.5	0	5	1	1	0	2
05030204-090-080 - Big Run														
Big Run (WWH)	3.9	14	16	8	38	—	—	71.5	1	2	1	1	1	3
	1.7	12	11.5	5	28.5	11%	channel	58	2	6	0	0	0	0

Table A.17 Bedload and Habitat TMDLs for WAU 05030204 090: Federal Creek (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-090-090 - Federal Creek below McDougall Branch to Hocking R. [except Sharps Fk., Marietta Run, and Big Run]														
Federal Creek (EWH)	9.3	13	16	6.5	35.5	—	substrate	66	1	1	0	0	1	1
	9.1	10.5	10.5	7	28	20%	channel	58	1	5	0	0	0	0
	4.9	13	12	8	33	6%	channel	64	0	4	0	1	0	1
	0.9	9	11	7.5	27.5	21%	substrate	53.5	1	7	0	0	0	0
Sharps Run (WWH)	0.0	10	13	5.5	28.5	11%	substrate	56	1	5	0	1	0	1

Table A.18 Bedload and Habitat TMDLs for WAU 05030204 100: Hocking River below Athens / RM 33.1 to Ohio River [except Federal Creek]

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories: Substrate	Channel	Riparian	Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
05030204-100-010 - Hocking River from Athens to above Willow Cr.														
Hocking River (WWH)	33.1	10.5	6.5	3.5	20.5	36%	channel	47.5	2	10	0	0	0	0
	32.0	9	5.5	3.5	18	44%	channel	44	2	9	0	0	0	0
	27.8	13.5	12.5	3	29	9%	riparian	78.5	0	5	1	1	0	2
Strouds Run (WWH)	0.3	13.5	12.5	8	34	—	channel	67.5	1	6	1	1	0	2
05030204-100-020 - Willow Creek														
Willow Creek (WWH)	2.2	15.5	15	7	37.5	—	—	71.5	0	2	1	1	1	3
	1.4	13	15	6.5	34.5	—	—	66.5	0	4	1	1	1	3
	0.2	11.5	14.5	4.5	30.5	5%	substrate	64.5	2	5	1	0	0	1
Scott Creek (WWH)	0.1	16	15.5	7	38.5	—	—	73	0	1	1	1	1	3

Table A.18 Bedload and Habitat TMDLs for WAU 05030204 100: Hocking River below Athens / RM 33.1 to Ohio River [except Federal Creek] (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories: Substrate	Channel	Riparian	Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
05030204-100-030 - Hocking River below Willow Cr. to above Federal Cr.														
Hocking River (WWH)	19.7	14.5	14	4.5	33	—	riparian	82	0	4	1	1	1	3
05030204-100-040 - Hocking River below Federal Cr. to Ohio R. [except Fourmile Cr.]														
Hocking River (WWH)	13.6	14	13.5	4.5	32	—	riparian	72	0	7	1	1	0	2
	5.4	0	13	7	20	38%	substrate	47	2	8	0	0	0	0
Jordan Run (WWH)	2.8	16	16	7.2	39.2	—	—	65.2	1	3	1	1	1	3
	0.1	10	10.5	6.2	26.7	17%	channel	52.7	2	8	0	0	0	0
Frost Run (WWH)	0.4	9	13	8.5	30.5	5%	substrate	57.5	1	6	0	1	0	1
Skunk Run (WWH)	1.3	14	13.5	6.5	34	—	channel	64	1	6	1	1	0	2

Table A.18 Bedload and Habitat TMDLs for WAU 05030204 100: Hocking River below Athens / RM 33.1 to Ohio River [except Federal Creek] (con't)

		Bedload TMDL						Habitat TMDL						
	Use	Allocations			TMDL			Allocations			Subscore			TMDL
TMDL Targets ▶	*EWH*	*≥15*	*≥15*	*≥5*	*35*			*≥75 = 1*	*0 = 1 pt*	*<3 = 1 pt*				*3 pts*
	WWH	*≥13*	*≥14*	*≥5*	*32*			*≥60 = 1*	*<2 = 1 pt*	*<5 = 1 pt*				*3 pts*
Existing Scores Stream/River (Use) *blue = partial attainment* *red = non-attainment*	**River Mile**	QHEI Categories			Total Bedload Score	% Deviation from Target	Main Impaired Category if any	QHEI Score	# of High Influence Attributes	Total # of Modified Attributes	QHEI	High Influence	# Modified Attributes	Total Habitat Score
		Substrate	Channel	Riparian										
05030204-100-050 - Fourmile Creek														
Fourmile Creek (WWH)	2.5	13	14	7	34	—	—	64.5	2	7	1	0	0	1
	1.8	15	14	8	37	—	—	67	1	3	1	1	1	3
East Fourmile Creek (WWH)	1.8	12	12	3.5	27.5	14%	riparian	50.5	2	7	0	0	0	0

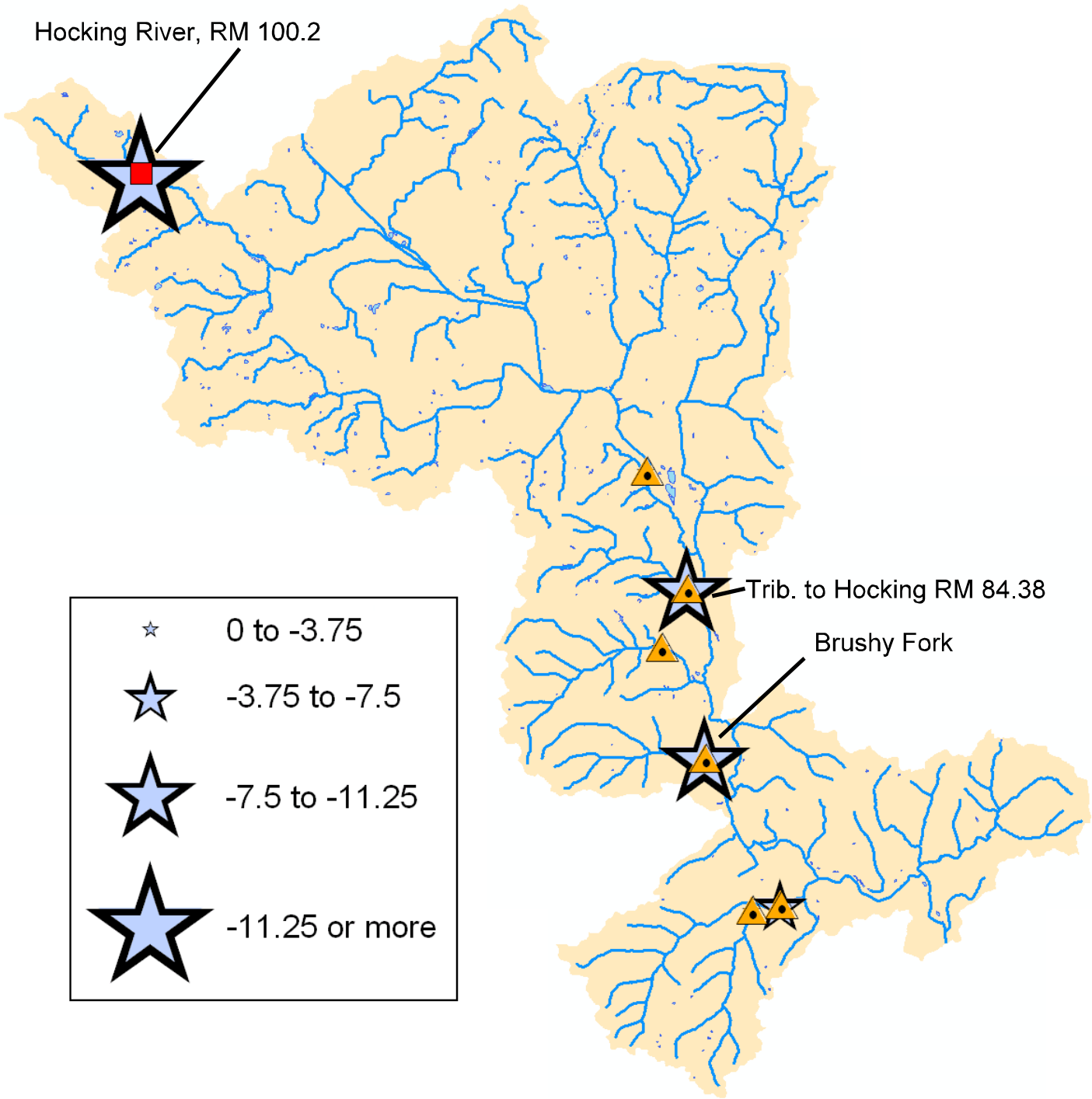

Figure 3. Bedload TMDL Deficits for 05030204-010: Hocking River headwaters to Enterprise, except Rush and Clear Creeks.

(Red boxes = non-attaining sites; orange triangles = partially attaining sites. Fully attaining sites not shown.)

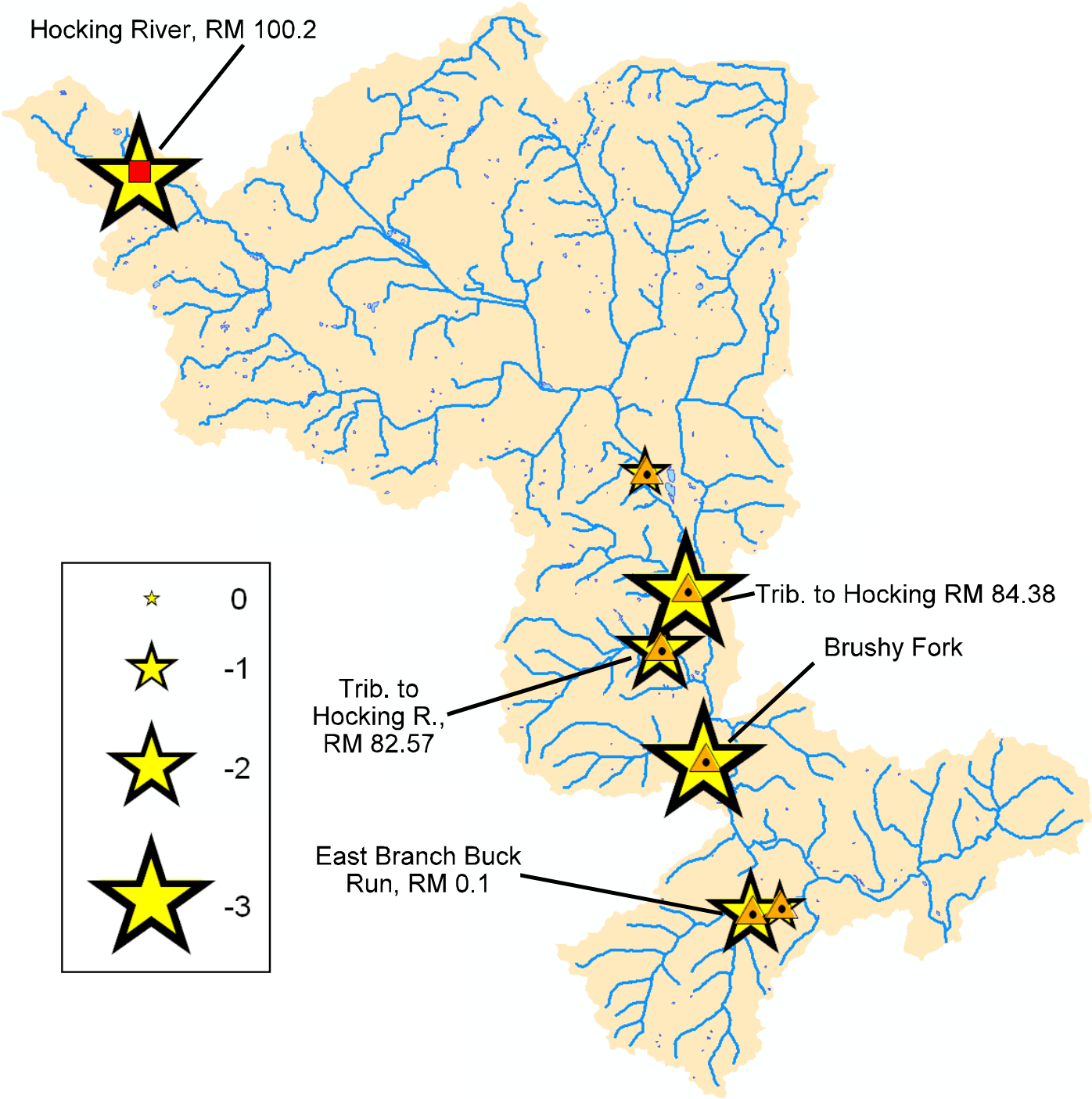

Figure 4. Habitat TMDL deficits for 05030204-010: Hocking River headwaters to Enterprise, except Rush and Clear Creeks.

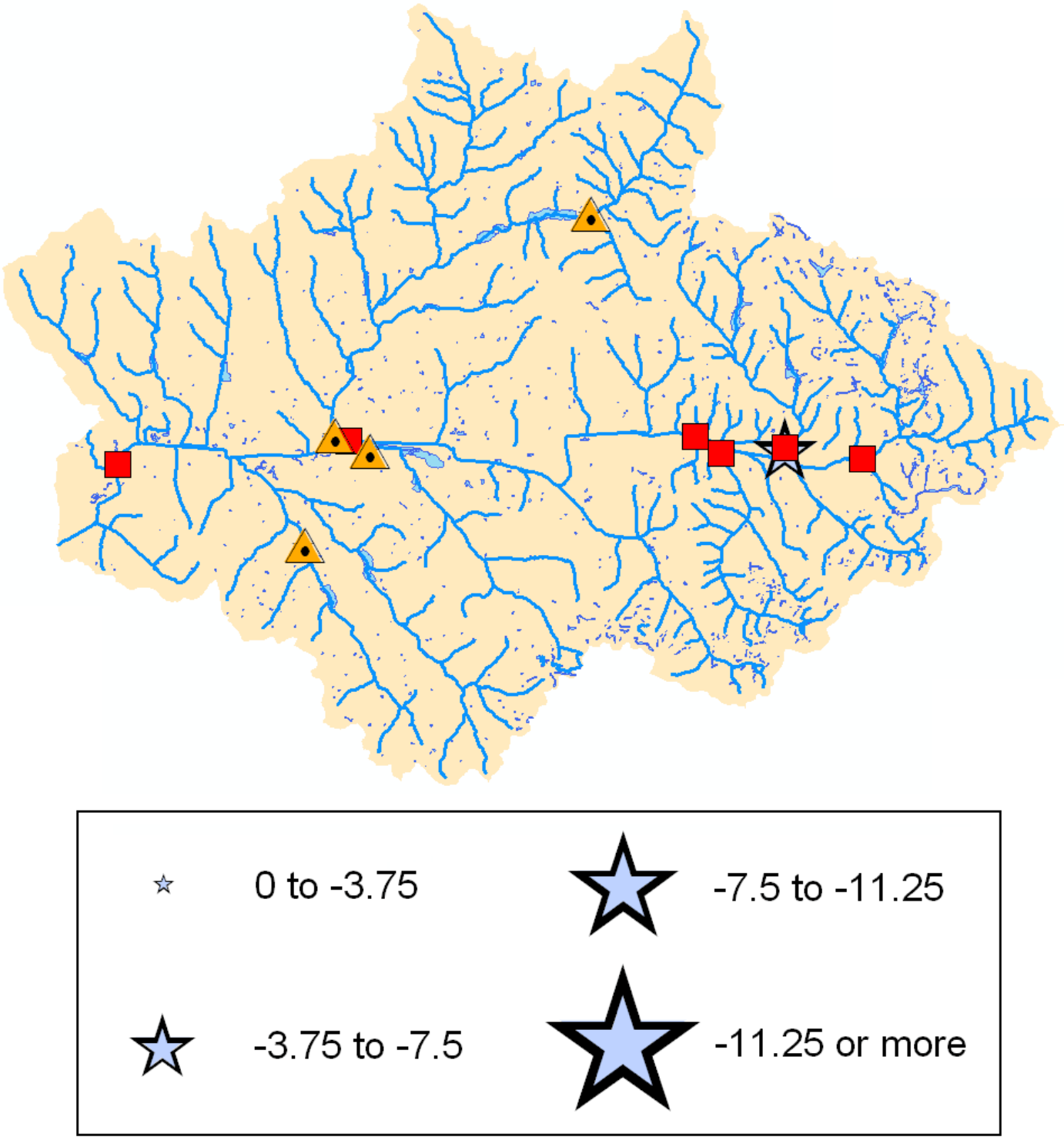

Figure 5. Bedload TMDL Deficits for 05030204-020: Rush Creek headwaters to above Little Rush Creek.

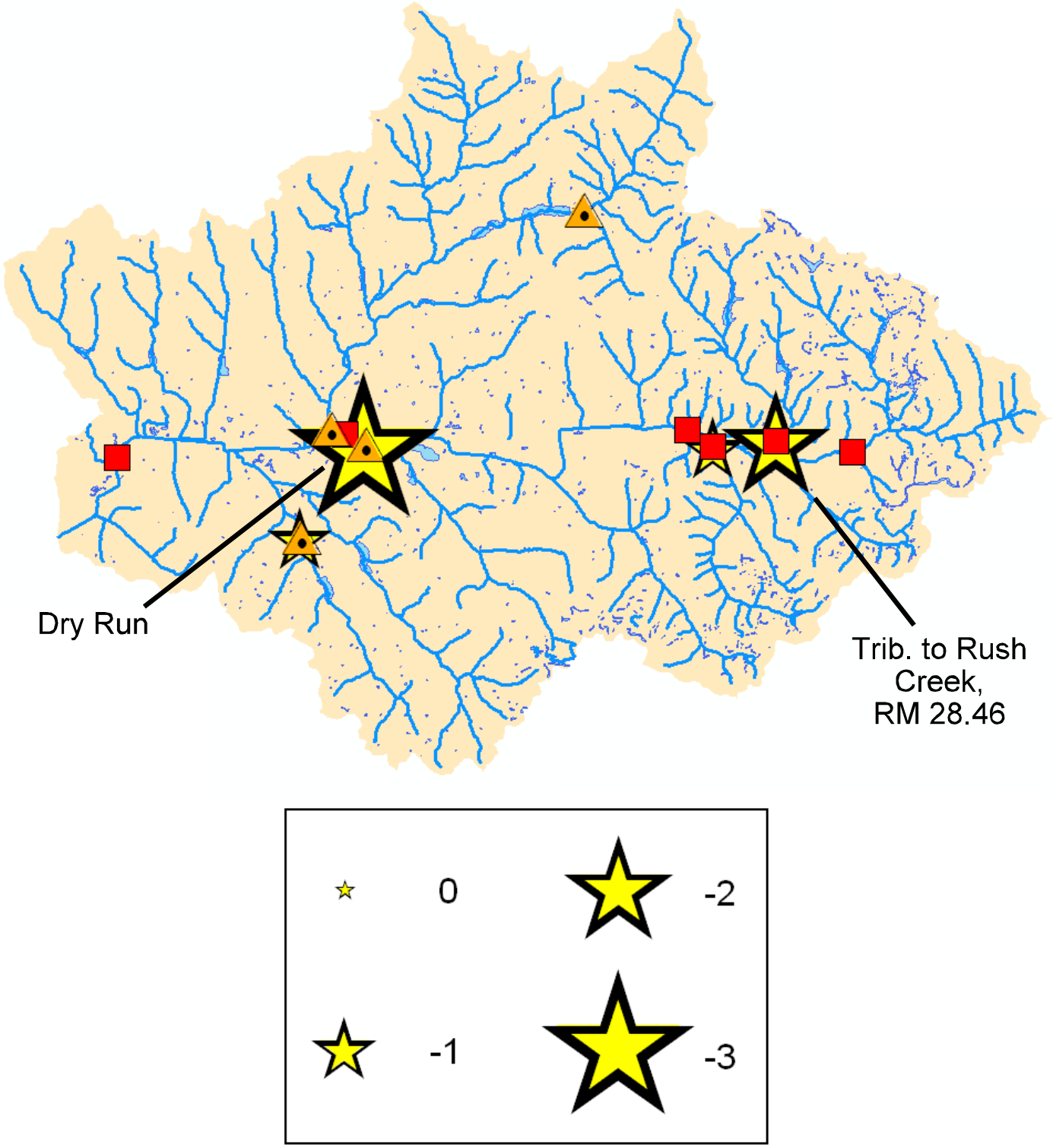

Figure 6. Habitat TMDL deficits for 05030204-020: Rush Creek headwaters to above Little Rush Creek.

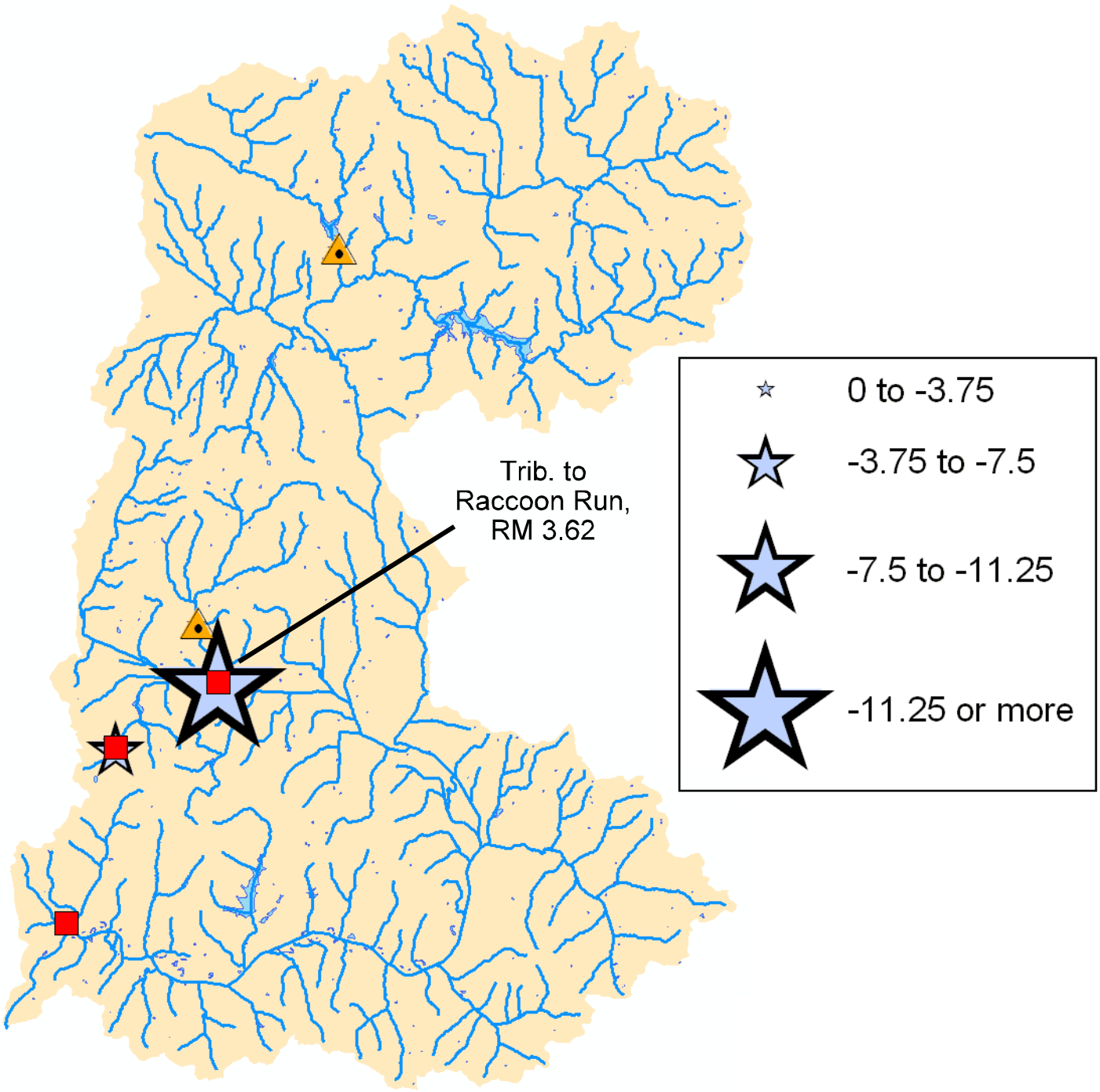

Figure 7. Bedload TMDL Deficits for 05030204-030: Rush Creek, above Little Rush Creek to Hocking River.

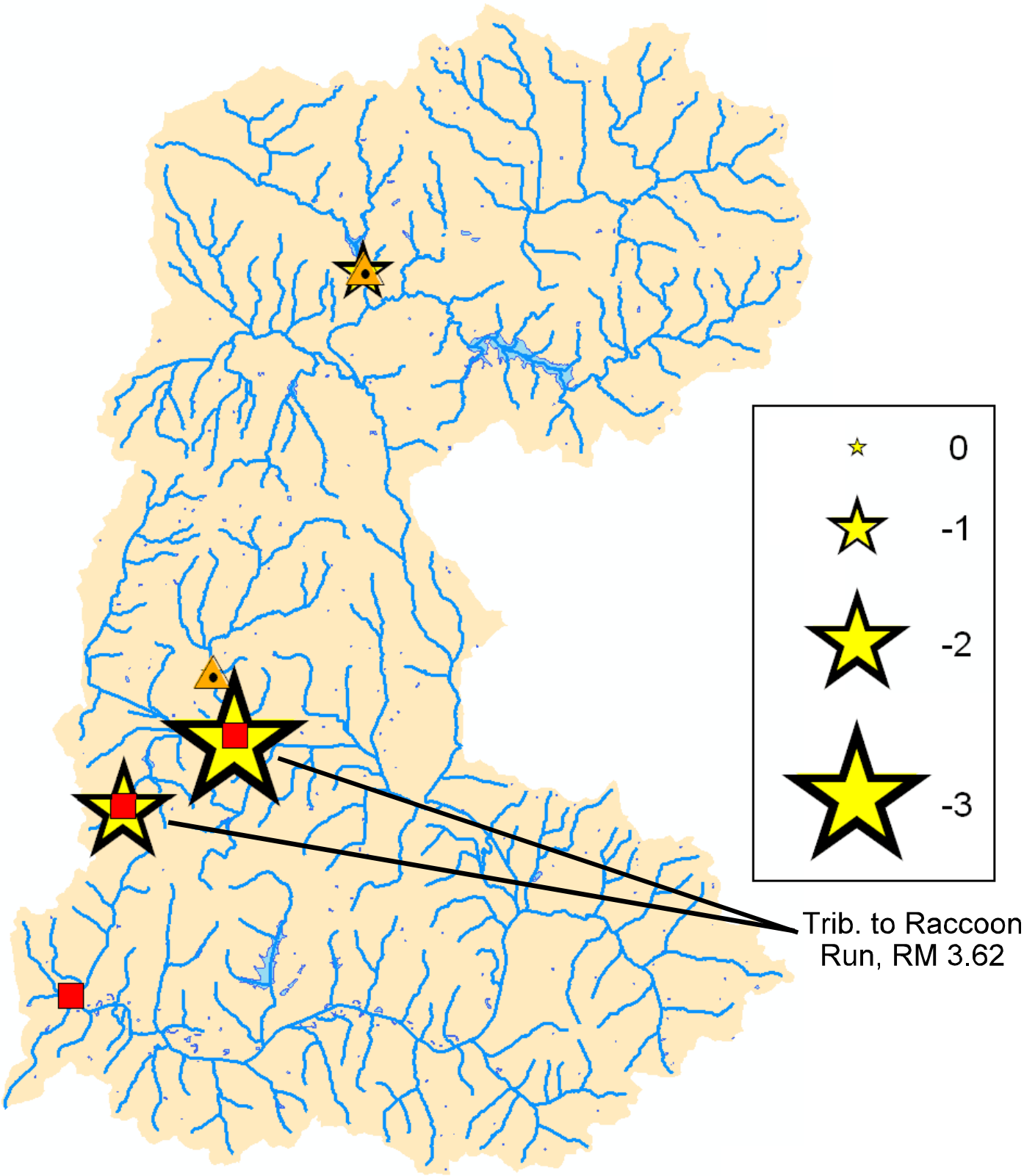

Figure 8. Habitat TMDL deficits for 05030204-030: Rush Creek above Little Rush Creek to Hocking River.

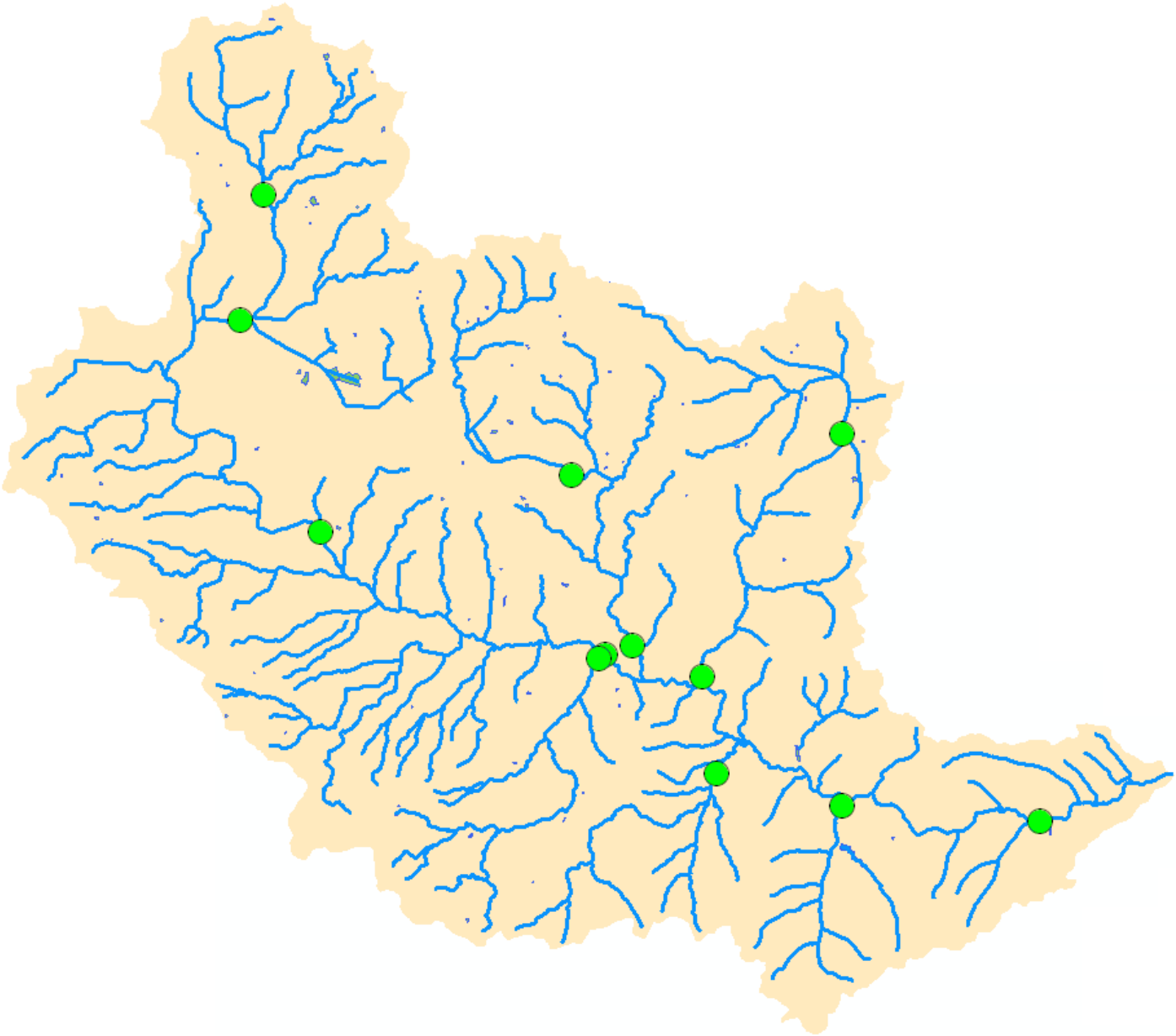

Figure 9. 05030204-040: Clear Creek (all QHEI sites are attaining.)

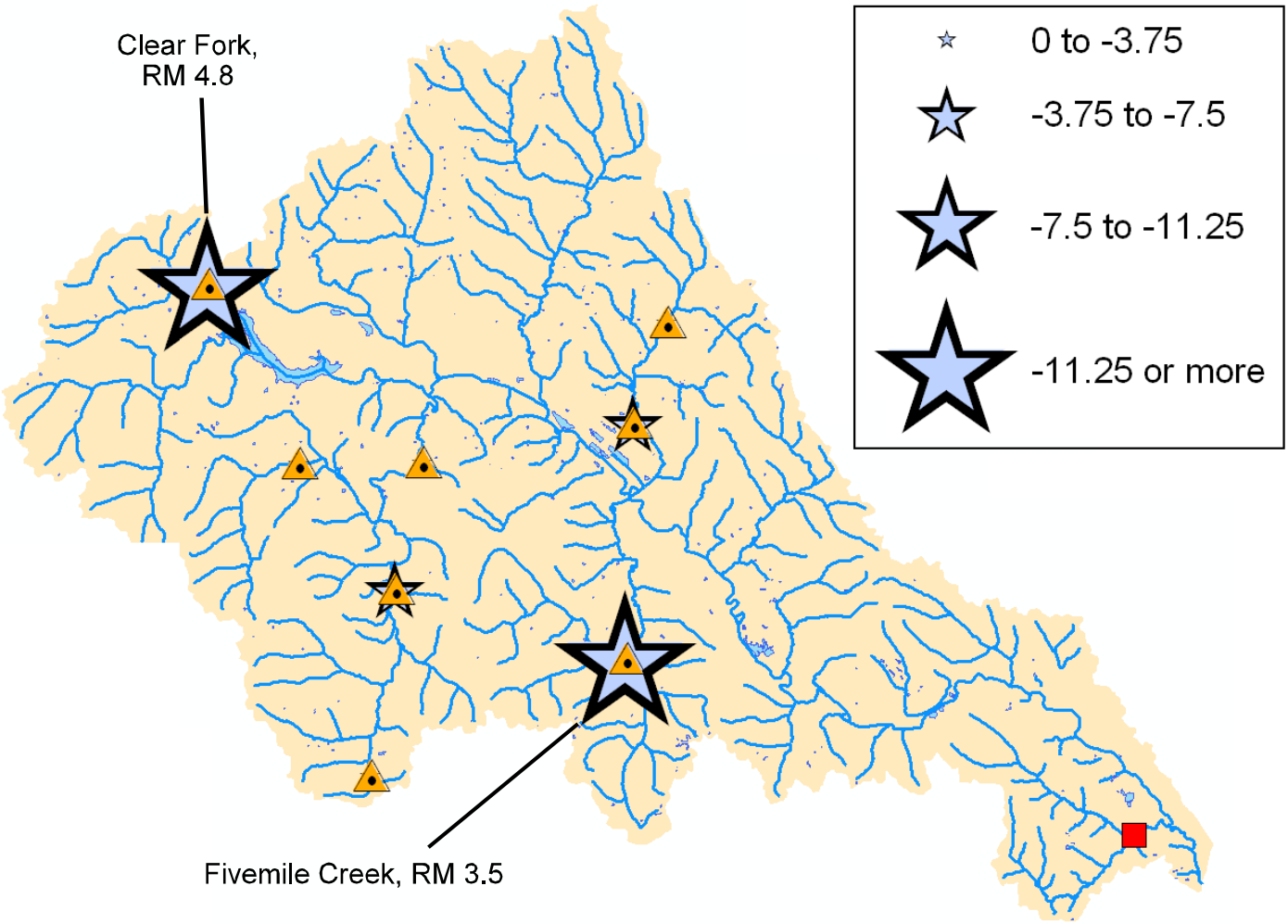

Figure 10. Bedload TMDL Deficits for 05030204-050: Hocking River below Enterprise to above Monday Creek.

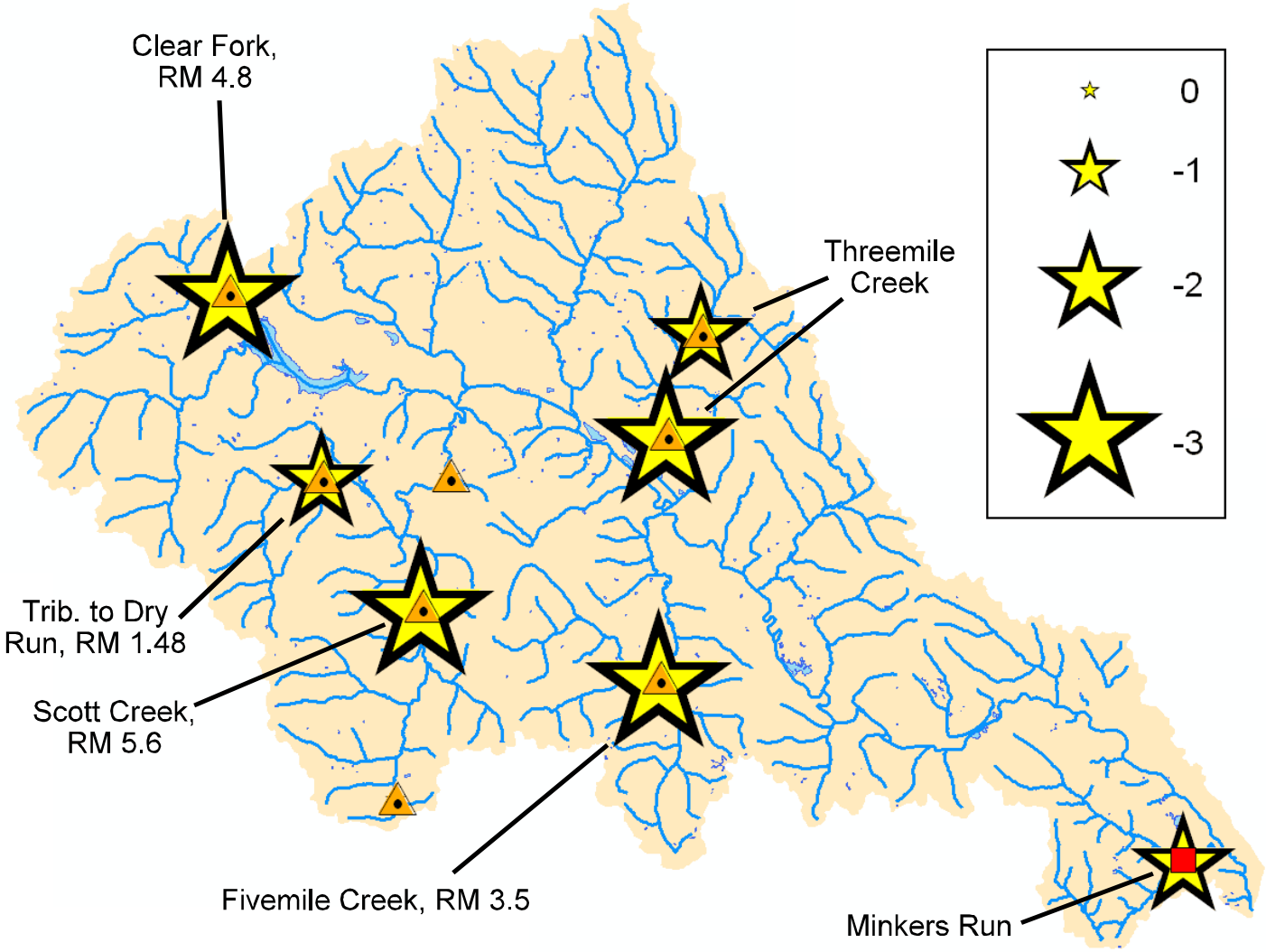

Figure 11. Habitat TMDL Deficits for 05030204-050: Hocking River below Enterprise to above Monday Creek.

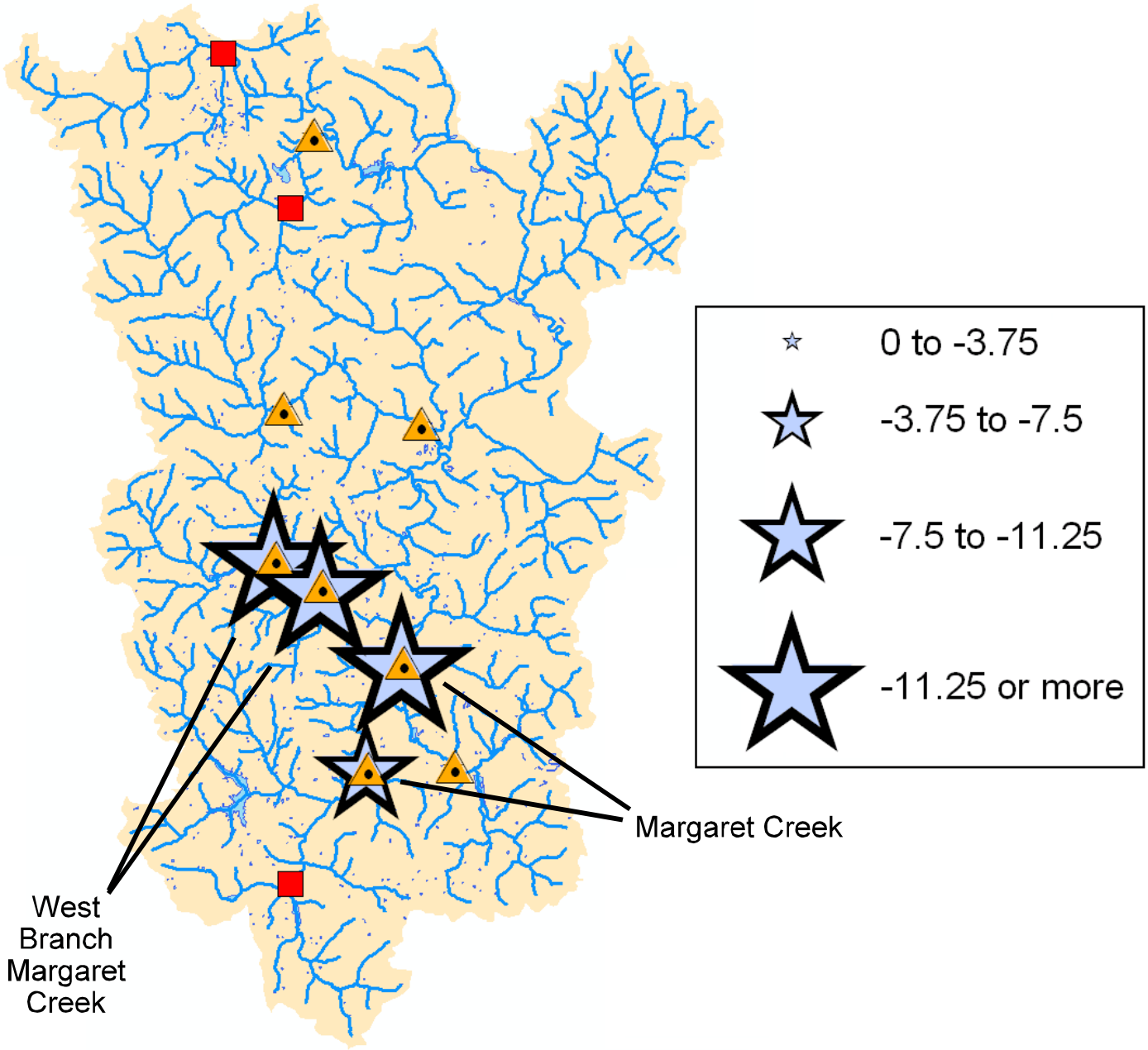

Figure 12. Bedload TMDL deficits for 05030204-080: Hocking River below Monday Creek to Athens / RM 33.1, except Sunday Creek.

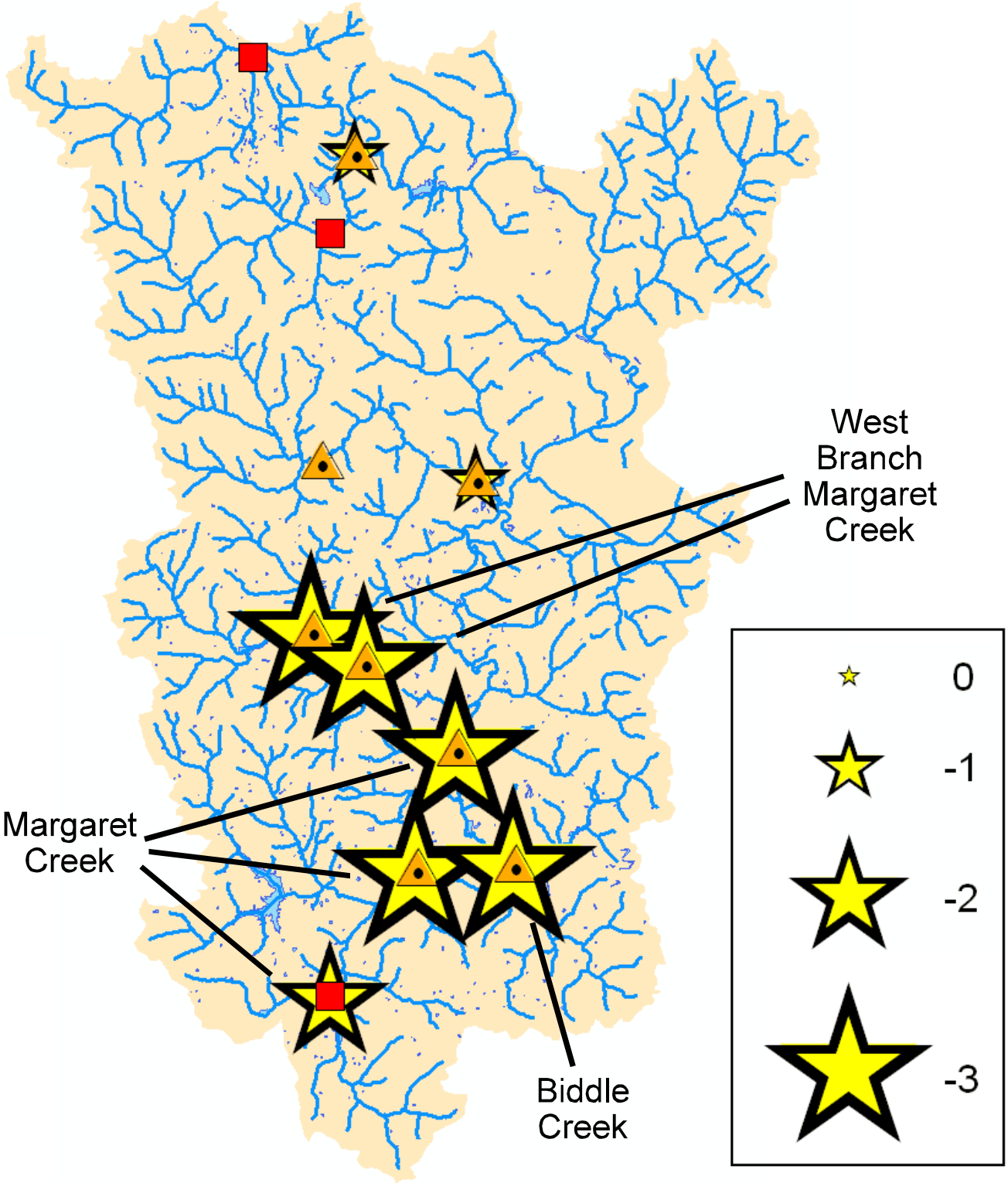

Figure 13. Habitat TMDL Deficits for 05030204-080: Hocking River below Monday Creek to Athens / RM 33.1, except Sunday Creek.

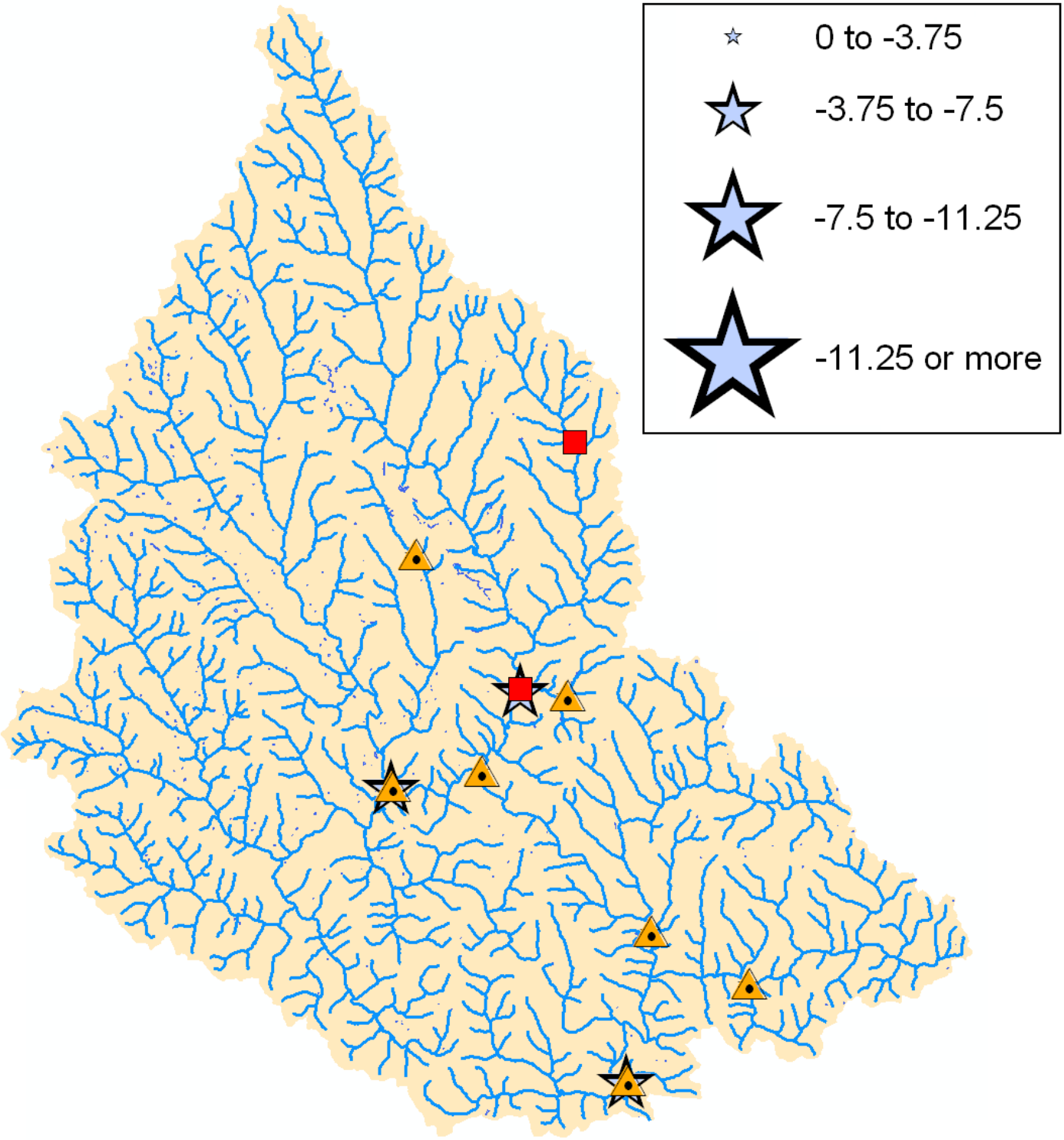

Figure 14. Bedload TMDL Deficits for 05030204-090: Federal Creek.

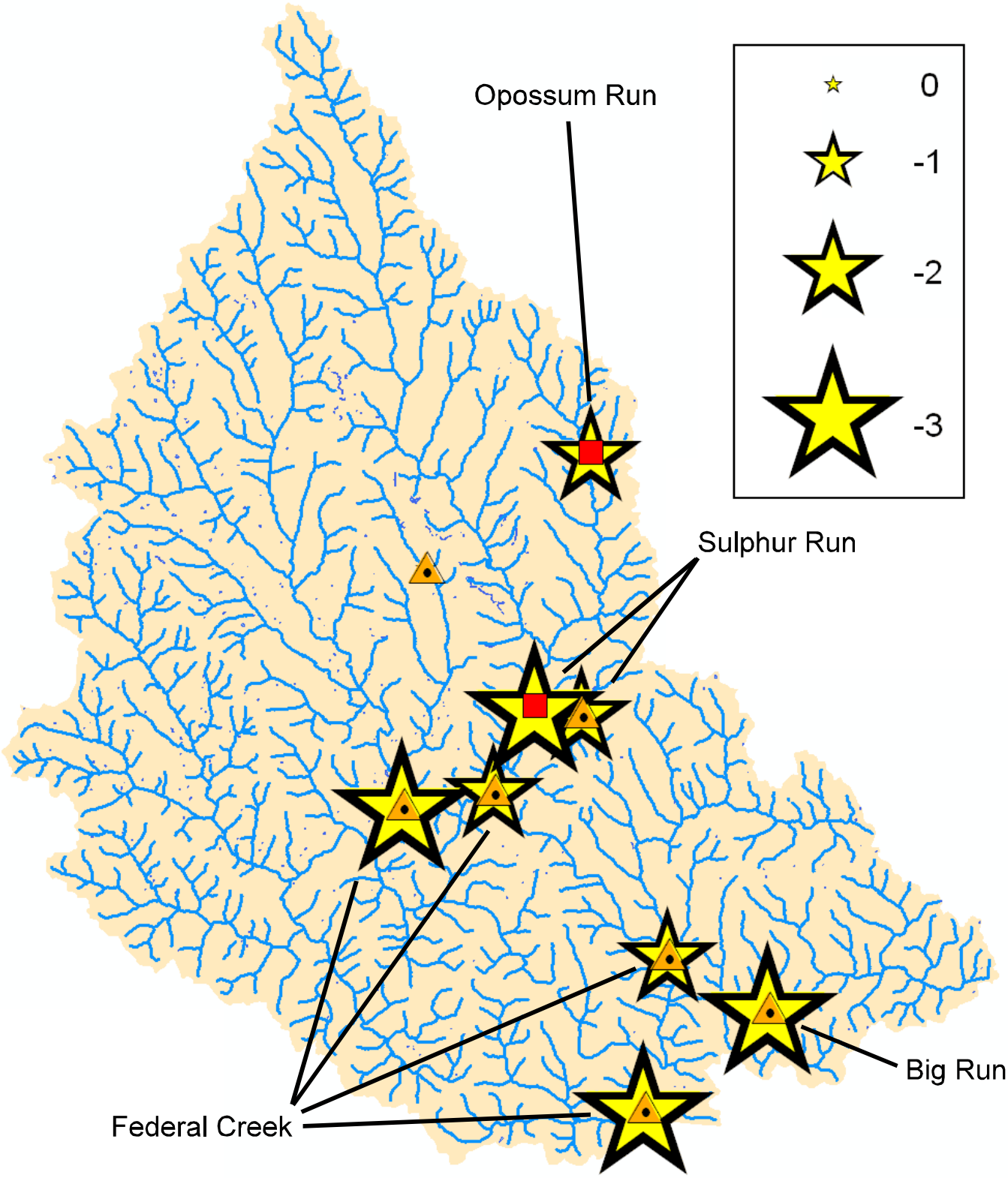

Figure 15. Habitat TMDL Deficits for 05030204-090: Federal Creek.

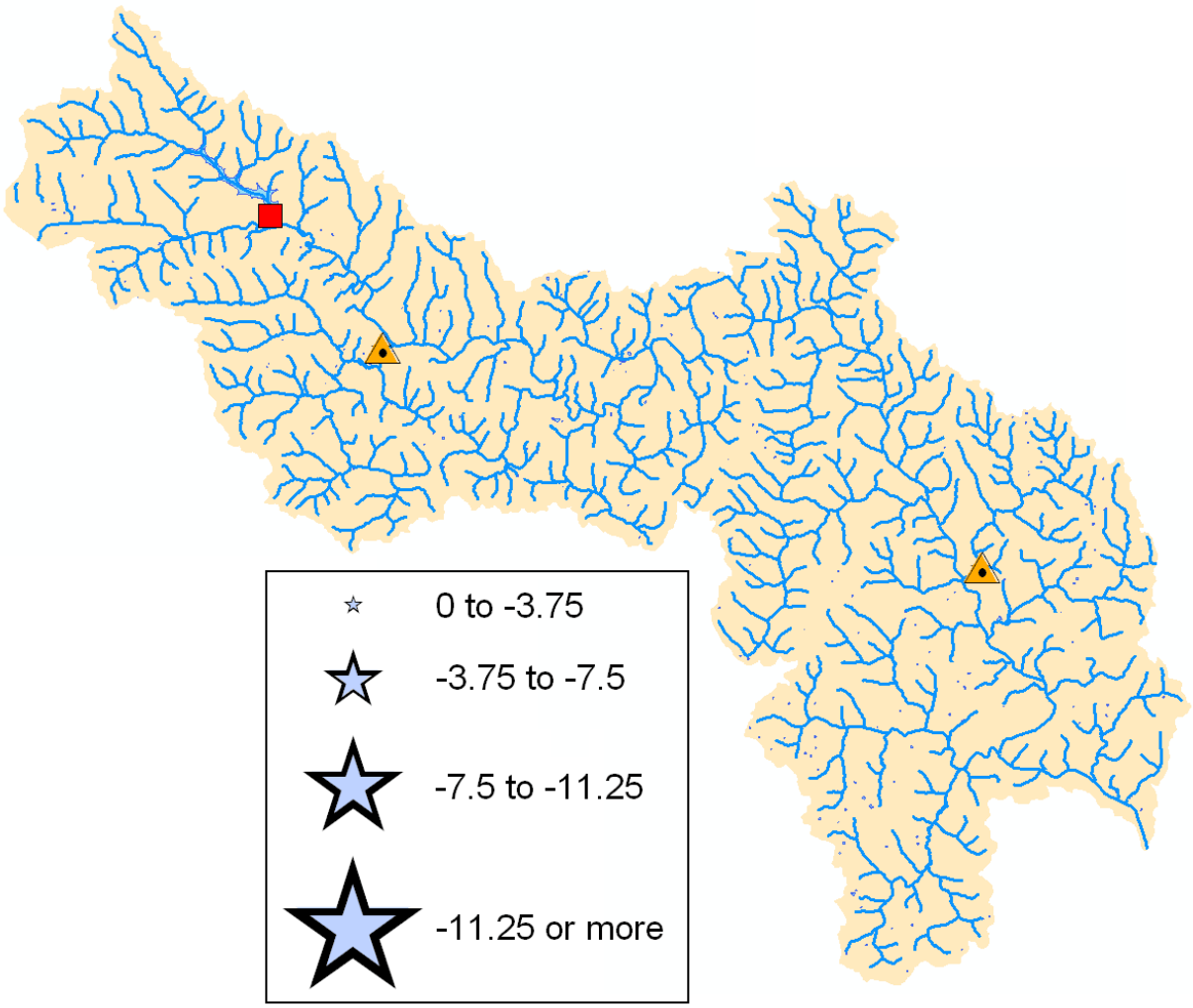

Figure 16. Bedload TMDL Deficits for 05030204-100: Hocking River below Athens / RM 33.1 to Ohio River, except Federal Creek.

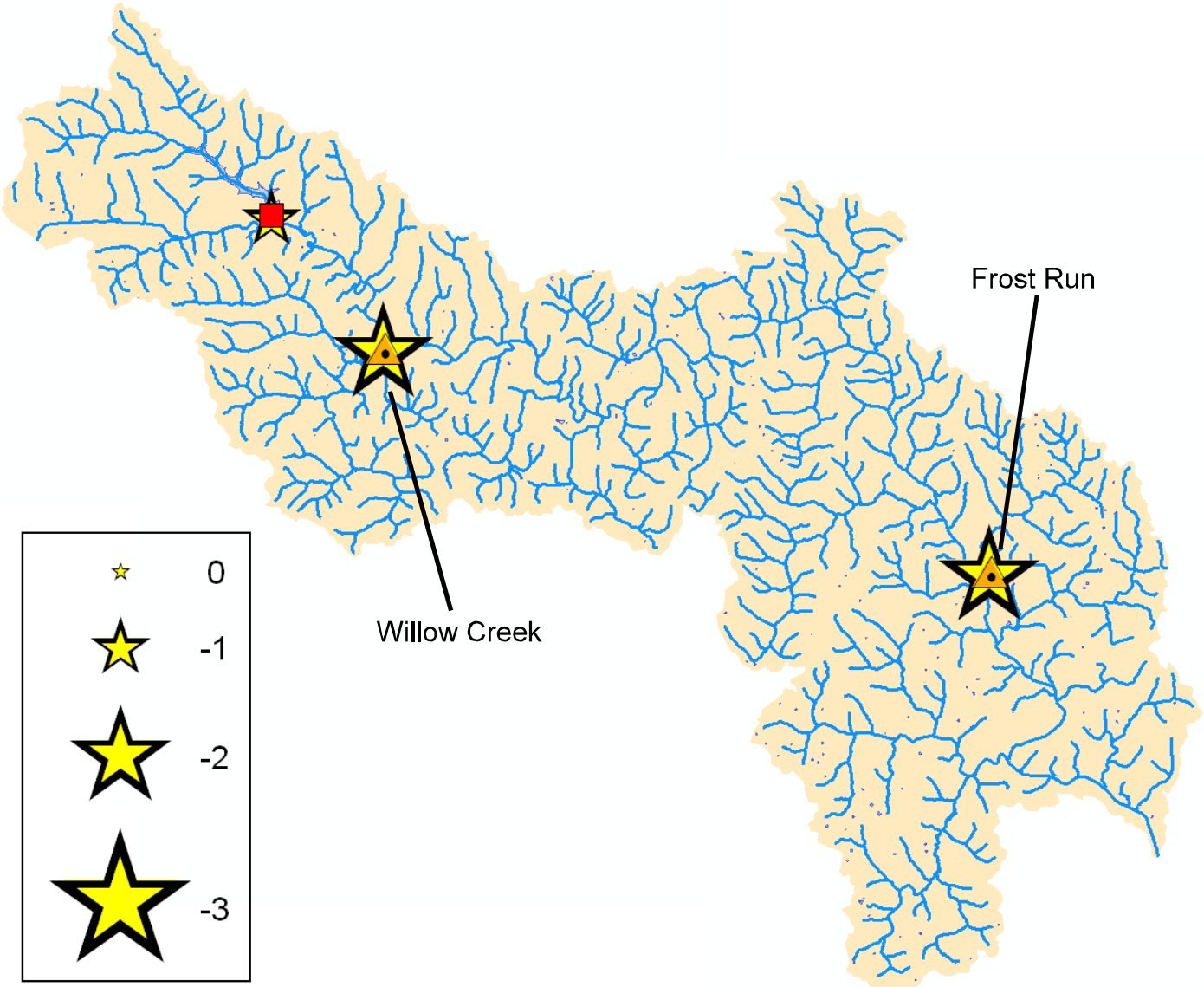

Figure 17. Habitat TMDL Deficits for 05030204-100: Hocking River below Athens / RM 33.1 to Ohio River, except Federal Creek.