

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY  
WATER RESOURCES DIVISION  
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STAFF REPORT

A BIOLOGICAL SURVEY OF SITES IN THE KALAMAZOO RIVER WATERSHED  
ALLEGAN, BARRY, CALHOUN, EATON, HILLSDALE, JACKSON, KALAMAZOO, AND  
VAN BUREN COUNTIES, MICHIGAN  
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**INTRODUCTION**

Staff of the Surface Water Assessment Section (SWAS) conducted qualitative biological surveys during the summer of 2009 to assess point and nonpoint source (NPS) pollution throughout the Kalamazoo River watershed (Figure 1). The goals of the monitoring were to: (1) support the development of water quality-based effluent limits for National Pollutant Discharge Elimination System permits; (2) support the NPS Program; (3) determine if waters of the state are attaining Michigan Water Quality Standards (WQS); and (4) determine if water quality is changing over time. The objective of this survey was to qualitatively characterize the biotic integrity of macroinvertebrate communities with respect to existing habitat conditions at randomly selected sites as well as several targeted locations throughout the Kalamazoo River watershed.

The Kalamazoo River watershed encompasses approximately 2,020 square miles that includes all or portions of 10 different counties in southwest Michigan (Figure 1). The entire watershed is located in the Southern Michigan/Northern Indiana Till Plain ecoregion. Wesley (2005), in the Kalamazoo River Assessment, provides a comprehensive review of the Kalamazoo River watershed summarizing the geography, history, geology and hydrology, soils and land use, dams, water quality, biological communities, and recreational use. The management options portion of the report details options for consideration addressing history, geology and hydrology, soils and land use patterns, channel morphology, dams and barriers, water quality, special jurisdictions, biological communities, fishery management, recreational use, and citizen involvement. The management options are based upon a watershed approach that is consistent with the goal of maintaining biotic integrity.

The aquatic biota throughout the Kalamazoo River watershed has recently been evaluated by SWAS biologists in 2004 (Cooper, 2005 and Walterhouse, 2005a; 2005b; and 2005c), 1999 (Cooper, 2000), and 1994 (Heaton, 1997 and Kosek, 1994). In general, recent surveys have found acceptable water quality, biological communities, and habitat at most locations. The common element at sites with impaired biological communities is stream channels that have been modified (dredged) to facilitate drainage, primarily for agricultural land use. Wesley (2005) provides a detailed, yet succinct, summary of historic water quality problems throughout the Kalamazoo River watershed and also outlines current efforts to address PCB contamination, NPS pollution problems, nutrient enrichment, fish contaminants, and other issues that impact designated uses.

The surveys described in this report conducted at wadeable sites were conducted according to the guidelines of the SWAS Procedure 51 (MDEQ, 1990). The macroinvertebrate communities were scored with metrics that rate water bodies from excellent (+5 to +9) to poor (-5 to -9). Macroinvertebrate ratings from +4 to -4 are considered acceptable. Negative ratings that are acceptable are indicative of water bodies that are strongly tending toward poor, while positive ratings that are acceptable indicate slight impairment (Creal et al., 1996). Stream habitat was

qualitatively evaluated at each station using a scoring system, which ranged in value from 0 (poor) to 200 (excellent).

Macroinvertebrate community and habitat evaluations conducted during this survey at nonwadable sites were conducted according to a draft SWAS procedure (MDEQ, 2007 draft) by staff from the Great Lakes Environmental Center. The nonwadable macroinvertebrate communities were scored with metrics that rate water bodies from excellent (76 to 100) to poor (0 to 25).

Two site selection methods were used to assess the Kalamazoo River watershed in 2009: stratified random and targeted. A probabilistic monitoring approach, using stratified random site selection to address statewide and regional questions about water quality was used to select 40 stations throughout the Kalamazoo River watershed (MDEQ, 2006 draft). In addition to probabilistic monitoring, 2 sites within the Kalamazoo River watershed were selected for targeted monitoring to clarify the attainment status of the water bodies, 3 sites were selected to provide baseline information for an anticipated remediation project, and 1 site was selected in a subwatershed where NPS issues associated with expected development are likely.

Sampling locations are shown in Figure 1. Macroinvertebrate community ratings at nonwadable sites are presented in Table 1. Macroinvertebrate community ratings and habitat evaluations at wadable stations are given in Tables 2A and 2B, and Table 3, respectively. A summary of the site locations and sampling results from this survey are presented in Table 4.

Digital images were taken upstream and downstream at each of the sites that were surveyed during this investigation. The photographs are available upon request.

## **SUMMARY**

In summary, water quality throughout the Kalamazoo River watershed was adequate to support acceptable to excellent biological communities at locations with suitable riparian and in-stream habitat.

## **SAMPLING RESULTS**

### Macroinvertebrate Communities

The macroinvertebrate community scores ranged from -4 to 6 at the 43 wadeable sites that were evaluated throughout the watershed. No sites were rated as poor. Eight sites were rated as excellent and 35 sites were rated as acceptable. Of the 35 sites that were rated as acceptable, 7 of the sites scored in the negative range. The 7 sites with negative scores, tending toward poor that would be considered moderately impaired, were located at the following locations: Bear Creek at 16½ Mile Road (Station 17), Crooked Creek at 11 Mile Road (Station 18), State and Indian Creek at 19½ Mile Road (Station 27), Davis Creek downstream of Cork Street (Station 32), Gun River upstream of 11<sup>th</sup> Street (Station 36), Franklin Drain at Ravine Road (Station 41), and Swan Lake Drain at 41<sup>st</sup> Street (Station 43).

The sites on Bear Creek (Station 17), Crooked Creek (Station 18), State and Indian Creek Drain (Station 27), Franklin Drain (Station 41), and Swan Lake Drain (Station 43) were locations where the streams have been channelized and periodically maintained, limiting the amount of suitable instream habitat. The site on Davis Creek (Station 32) was at a segment where stream habitat was restored as part of clean-up efforts at the Lakeside Refinery site. The majority of Davis Creek has historically been channelized and the surrounding urban landscape produces stormwater flows that limit the amount of stable instream habitat. The Gun River (Station 36) at the Conservation Club has also been dredged, but the stream channel and riparian zone are recovering. The sampling at this site was conducted during a storm event, one of many during

the summer of 2009, that increased the flow of the Gun River making it difficult to sample all of the available stream habitat. The abundance of sites throughout the watershed that support macroinvertebrate communities that rate either excellent or acceptable with minimal impairment demonstrates general attainment of WQS throughout the watershed.

### Habitat

Overall stream habitat scores, which consider in-stream habitat as well as the adjacent stream banks and riparian habitat, at the 43 wadable sites in the Kalamazoo River watershed ranged from 63 (marginal) to 173 (excellent). Glide/pool metrics were used to evaluate habitat at 28 of the sites and riffle/run metrics were used at the remaining 15 sites. None of the sites in the watershed were rated as poor with the overall stream habitat rating protocol. Stream habitat at 10 of the sites was rated as marginal, 25 were rated as good, and 8 were rated as excellent. The sites with better overall habitat that were categorized as excellent with scores of at least 155 included: Kalamazoo River off Michigan Avenue at 24 Mile Road (Station 8), South Branch Kalamazoo River at 29 Mile Road (Station 10), South Branch Kalamazoo River at Folks Road (Station 11), South Branch Kalamazoo River at Pope Road (Station 12), South Branch Kalamazoo River at Strait Road (Station 13), South Branch Kalamazoo River at Roundtree Road (Station 14), Dickinson Creek at Historic Bridge Park (Station 19), and Harper Creek at B Drive North (Station 20). The sites where habitat scores were better had natural (unmodified) stream channels, a diversity of substrate types with an abundance of large woody debris, and wide, wooded, or wetland corridors adjacent to the stream channel.

### Stratified Random Sample Results

In 2009, 96.5 +/- 3.5 percent of the streams in the Kalamazoo River watershed were estimated to be supporting the other indigenous aquatic life designated use component of R 323.1100(1)(e) of Michigan's WQS. This estimate is based on the results of sampling at 40 randomly selected sites in the Kalamazoo River watershed. Details of these results along with statewide random sampling results will be available in a separate report.

### NPS Problem Summary

Overall, water quality in the Kalamazoo River and its tributaries is good. Limitations to the biological communities can be primarily attributed to habitat limitations throughout the Kalamazoo River watershed in headwater streams where historic and current efforts to quickly drain water from agricultural portions of the watershed create homogenous stream habitat that limits the diversity of the aquatic biota.

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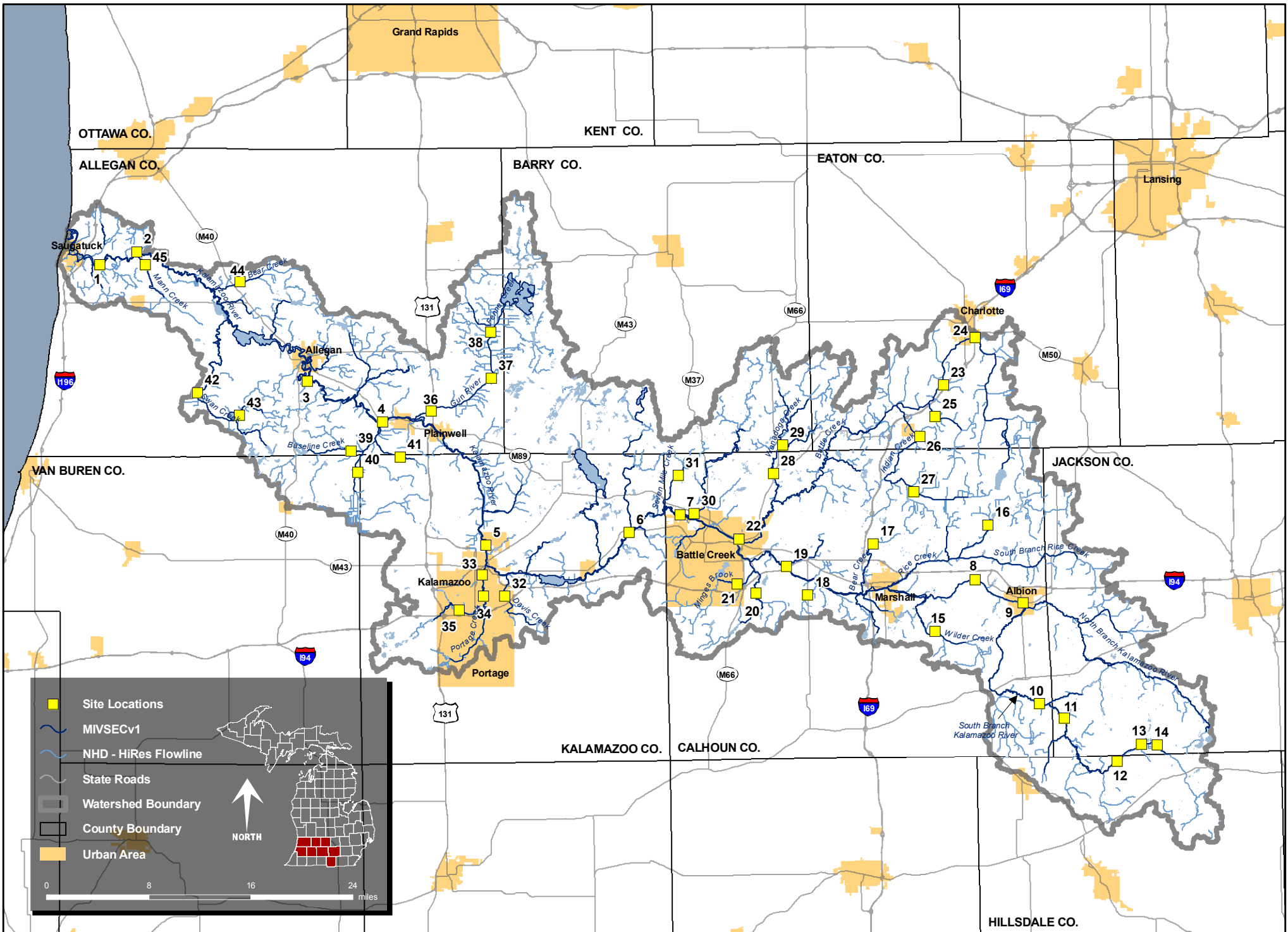


Figure 1. Station locations in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Kalamazoo, Jackson, and Van Buren Counties, 2009.

Table 1A. Qualitative macroinvertebrate sampling results for sites in the Kalamazoo River Watershed, Allegan, Calhoun, Eaton, Hillsdale, Kalamazoo, Van Buren Counties, 2009.

TAXA	Kalamazoo River 63rd Street 7/1/2009 STATION 1	Kalamazoo River Old Allegan Rd. 7/2/2009 STATION 2
PLATYHELMINTHES (flatworms)		
Turbellaria	1	
ANNELIDA (segmented worms)		
Oligochaeta (worms)	1	
ARTHROPODA		
Crustacea		
Amphipoda (scuds)	271	46
Isopoda (sowbugs)		4
Arachnoidea		
Hydracarina	98	2
Insecta		
Ephemeroptera (mayflies)		
Baetidae	3	13
Ephemeridae	2	1
Heptageniidae	2	5
Tricorythidae	8	10
Odonata		
Zygoptera (damselflies)		
Coenagrionidae	7	1
Hemiptera (true bugs)		
Belostomatidae		1
Corixidae	71	60
Gerridae	1	
Naucoridae		1
Notonectidae	2	1
Pleidae	2	1
Trichoptera (caddisflies)		
Hydropsychidae	2	5
Lepidostomatidae	1	
Leptoceridae	5	3
Phryganeidae	2	
Polycentropodidae		2
Coleoptera (beetles)		
Gyrinidae (adults)	43	20
Elmidae		1
Gyrinidae (larvae)		5
Diptera (flies)		
Ceratopogonidae	5	2
Chironomidae	25	48
Simuliidae	9	12
MOLLUSCA		
Gastropoda (snails)		
Lymnaeidae	2	
Physidae	31	2
Planorbidae	5	
Pleuroceridae	1	
Total Individuals	600	248

METRIC	63rd Street Value	Old Allegan Rd. Value
TOTAL ABUNDANCE	600	248
TOTAL RICHNESS	25	23
NUMBER OF EPHEMEROPTERA FAMILIES	4	4
NUMBER OF PLECOPTERA FAMILIES	0	0
NUMBER OF TRICHOPTERA FAMILIES	4	3
NUMBER OF DIPTERA TAXA	3	3
TRICHOPTERA ABUNDANCE	10	10
ABUNDANCE OF DOMINANT TAXON	271	60
SHREDDER ABUNDANCE	279	53
SCRAPER ABUNDANCE	41	7
COLL-FILTERER ABUNDANCE	11	17
COLL-GATH ABUNDANCE	111	135
PREDATOR ABUNDANCE	158	36

Metric Calculations	Value	Score	Value	Score
FFG Diversity (25)	1.84	25	1.77	25
Habitat Stability FFG Surrogate (25)	0.13	8	0.13	8
% Trichoptera (20)	1.67	7	4.03	14
EPT Richness (8)	8.00	6	7.00	6
Total Richness (7)	25.00	7	23.00	5
Diptera Richness (5)	3.00	2	3.00	2
Plecoptera Richness (5)	0.00	0	0.00	0
% Dominance (5)	45.17	4	24.19	5
Total Score (100)		59		65
Macroinvertebrate Community Rating		Good		Good

Table 2A. Qualitative macroinvertebrate sampling results for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

	Kalamazoo River Williams Bridge Road 9/16/2009 STATION 3	Kalamazoo River off Jefferson Road 9/16/2009 STATION 4	Kalamazoo River Mosel Ave 9/16/2009 STATION 5	Kalamazoo River 508 South Church Street 9/15/2009 STATION 6
TAXA				
ANNELIDA (segmented worms)				
Hirudinea (leeches)			1	
Oligochaeta (worms)	2	7		1
ARTHROPODA				
Crustacea				
Amphipoda (scuds)	63	108	77	39
Decapoda (crayfish)	1	2		2
Isopoda (sowbugs)	9	9	4	9
Arachnoidea				
Hydracarina		1		
Insecta				
Ephemeroptera (mayflies)				
Baetiscidae				2
Baetidae	9	13	17	3
Caenidae	1		1	1
Heptageniidae	23	3	3	1
Isomyiidae	1		2	
Leptophlebiidae			1	
Tricorythidae	1	2	3	3
Odonata				
Anisoptera (dragonflies)				
Aeshnidae	1	1		
Gomphidae	1			1
Libellulidae	1		1	1
Zygoptera (damselflies)				
Calopterygidae		1	9	2
Coenagrionidae	6	6	11	18
Plecoptera (stoneflies)				
Pteronarcyidae	1			1
Hemiptera (true bugs)				
Belostomatidae		3	1	
Corixidae	64	1		82
Geridae	1	1	1	1
Nepidae		2		
Notonectidae				1
Pseidae		1		14
Veliidae	1	7	4	3
Megaloptera				
Corydalidae (dobson flies)				1
Trichoptera (caddisflies)				
Brachycentridae	5	9	3	14
Hydropsychidae	29	35	30	20
Leptoceridae	1	1	25	22
Limnephilidae	5		2	
Philopotamidae		3	1	
Phryganeidae			5	2
Polycentropodidae	3		2	
Coleoptera (beetles)				
Gyrinidae (adults)	14	1		1
Halipidae (adults)		1		4
Psephenidae (adults)				1
Elmidae	31	20	11	7
Diptera (flies)				
Athericidae	1			
Chironomidae	13	80	14	9
Dixidae				1
Simuliidae	1	9	1	1
MOLLUSCA				
Gastropoda (snails)				
Ancylidae (limpets)		4	5	13
Hydrobiidae			6	
Physidae		6	24	3
Pleuroceridae	1		9	
Pelecypoda (bivalves)				
Corbiculidae	1	1	3	2
Dreissenidae		1		
Sphaeriidae (clams)		1		
Unionidae (mussels)				1
TOTAL INDIVIDUALS	291	340	277	287

Table 2B. Macroinvertebrate metric evaluation of sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

	Kalamazoo River Williams Bridge Road 9/16/2009 STATION 3		Kalamazoo River off Jefferson Road 9/16/2009 STATION 4		Kalamazoo River Mosel Ave 9/16/2009 STATION 5		Kalamazoo River 508 South Church Street 9/15/2009 STATION 6	
METRIC	Value	Score	Value	Score	Value	Score	Value	Score
TOTAL NUMBER OF TAXA	29	1	31	1	30	1	35	1
NUMBER OF MAYFLY TAXA	5	1	3	0	6	1	5	1
NUMBER OF CADDISFLY TAXA	5	1	4	0	7	1	4	0
NUMBER OF STONEFLY TAXA	1	1	0	-1	0	-1	1	1
PERCENT MAYFLY COMP.	12.03	0	5.29	0	9.75	0	3.48	0
PERCENT CADDISFLY COMP.	14.78	0	14.12	0	24.55	0	20.23	0
PERCENT DOMINANT TAXON	21.99	0	31.76	0	27.80	0	28.57	0
PERCENT ISOPOD, SNAIL, LEECH	3.44	1	5.59	0	17.69	-1	8.71	0
PERCENT SURF AIR BREATHERS	27.49	-1	5.00	1	2.17	1	37.28	-1
TOTAL SCORE	4		1		3		2	
MACROINV. COMMUNITY RATING	ACCEPT		ACCEPT.		ACCEPT		ACCEPT	

Table 2A(cont). Qualitative macroinvertebrate sampling results for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

TAXA	Kalamazoo River Custer Drive 9/15/2009 STATION 7	Kalamazoo River off Michigan Ave/24 Mile Rd 9/8/2009 STATION 8	Kalamazoo River M-99 (Superior Street) 9/8/2009 STATION 9	South Branch Kalamazoo River 29 Mile Road 8/27/2009 STATION 10
<b>ANNELIDA (segmented worms)</b>				
Hirudinea (leeches)			1	
Oligochaeta (worms)		1	5	
<b>ARTHROPODA</b>				
<b>Crustacea</b>				
Amphipoda (scuds)	56	37	62	70
Decapoda (crayfish)	1	1	2	3
Isopoda (sowbugs)	2	6		
<b>Insecta</b>				
<b>Ephemeroptera (mayflies)</b>				
Baetiscidae	1			
Baetidae	16	43	20	7
Caenidae		1		
Ephemerellidae			1	
Ephemeridae				8
Heptageniidae	1	19	13	5
Isonychiidae		2	12	
Potamanthidae		1		
Tricorythidae	3		1	
<b>Odonata</b>				
<b>Anisoptera (dragonflies)</b>				
Aeshnidae	1			1
Gomphidae	2			
Libellulidae	3			
<b>Zygoptera (damselflies)</b>				
Calopterygidae		12		3
Coenagrionidae	12			
<b>Plecoptera (stoneflies)</b>				
Perlidae	1			
Pteronarcyidae	1			
<b>Hemiptera (true bugs)</b>				
Belostomatidae	1			
Corixidae		2		15
Gerridae	2	1		
Pleidae	1			
Veliidae	2	1	1	
<b>Megaloptera</b>				
Corydalidae (dobson flies)	1			
<b>Trichoptera (caddisflies)</b>				
Brachycentridae	5	10	10	1
Helicopsychidae		63	24	12
Hydropsychidae	103	21	34	7
Leptoceridae	3	6	2	6
Limnephilidae			4	5
Molannidae	2			
Philopotamidae	2	2		
Phryganeidae	1			1
Polycentropodidae				1
Uenoidae		3	7	
<b>Coleoptera (beetles)</b>				
Dytiscidae (total)	1			
Gyrinidae (adults)	1	9		
Psephenidae (adults)		2	1	
Elmidae	16	8	4	6
<b>Diptera (flies)</b>				
Chironomidae	54	3	4	
Simuliidae	2	20	13	7
Tipulidae		2		
<b>MOLLUSCA</b>				
<b>Gastropoda (snails)</b>				
Ancylidae (limpets)	6	7	13	2
Hydrobiidae			3	
Physidae	4			
Pleuroceridae	1	15	17	78
<b>Pelecypoda (bivalves)</b>				
Corbiculidae			10	5
Dreissenidae		4		
Sphaeriidae (clams)		1		1
Unionidae (mussels)	1			
<b>TOTAL INDIVIDUALS</b>	<b>309</b>	<b>303</b>	<b>264</b>	<b>244</b>

Table 2B(cont). Macroinvertebrate metric evaluation of sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

METRIC	Kalamazoo River Custer Drive 9/15/2009 STATION 7		Kalamazoo River off Michigan Ave/24 Mile Rd 9/8/2009 STATION 8		Kalamazoo River M-99 (Superior Street) 9/8/2009 STATION 9		S. Branch Kalamazoo River 29 Mile Road 8/27/2009 STATION 10	
	Value	Score	Value	Score	Value	Score	Value	Score
TOTAL NUMBER OF TAXA	33	1	29	1	24	0	21	0
NUMBER OF MAYFLY TAXA	4	1	5	1	5	1	3	0
NUMBER OF CADDISFLY TAXA	6	1	6	1	6	1	7	1
NUMBER OF STONEFLY TAXA	2	1	0	-1	0	-1	0	-1
PERCENT MAYFLY COMP.	6.80	0	21.78	1	17.80	0	8.20	0
PERCENT CADDISFLY COMP.	37.54	1	34.65	1	30.68	1	13.52	0
PERCENT DOMINANT TAXON	33.33	0	20.79	0	23.48	0	31.97	0
PERCENT ISOPOD, SNAIL, LEECH	4.21	0	9.24	0	12.88	-1	32.79	-1
PERCENT SURT AIR BREATHERS	2.59	1	4.95	1	0.76	1	6.15	1
<b>TOTAL SCORE</b>	<b>6</b>		<b>5</b>		<b>2</b>		<b>0</b>	
<b>MACROINV. COMMUNITY RATING</b>	<b>EXCELLENT</b>		<b>EXCELLENT</b>		<b>ACCEPT.</b>		<b>ACCEPT.</b>	



Table 2A(cont). Qualitative macroinvertebrate sampling results for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

TAXA	Sth Br Kalamazoo River		Sth Br Kalamazoo River		Sth Br Kalamazoo River		Sth Br Kalamazoo River	
	Folks Road		Pope Road		Strait Road		Roundtree Road	
	8/27/2009		8/27/2009		8/27/2009		8/27/2009	
	STATION 11		STATION 12		STATION 13		STATION 14	
<b>ANNELIDA (segmented worms)</b>								
Hirudinea (leeches)					2		1	
Oligochaeta (worms)			1				1	
<b>ARTHROPODA</b>								
<b>Crustacea</b>								
Amphipoda (scuds)	49		68		37		43	
Decapoda (crayfish)	2		3		1		1	
<b>Arachnoidea</b>								
Hydracarina			1		1			
<b>Insecta</b>								
<b>Ephemeroptera (mayflies)</b>								
Baetiscidae	1				1			
Baetidae	40		13		70		34	
Caenidae					12		1	
Ephemeridae	2		1		6		2	
Heptageniidae	8		1		7		23	
Isonychiidae	2							
Leptophlebiidae	1							
Tricorythidae	2						1	
<b>Odonata</b>								
<b>Anisoptera (dragonflies)</b>								
Aeshnidae	6		7		2		1	
<b>Zygoptera (damselflies)</b>								
Calopterygidae	16		12		28		2	
Coenagrionidae			1		7			
<b>Plecoptera (stoneflies)</b>								
Perlidae	1							
<b>Hemiptera (true bugs)</b>								
Corixidae	2		20		1		2	
Gerridae			1		1		1	
Nepidae			1					
Pleidae	4		3					
Velidae					1			
<b>Trichoptera (caddisflies)</b>								
Brachycentridae	18		51		5		1	
Helicopsychidae	8						3	
Hydropsychidae	15		6		16		21	
Leptoceridae	13		8		9		1	
Limnephilidae	2		3				1	
Molannidae					2		1	
Phryganeidae	6		2				2	
Polycentropodidae	3		2		3			
Uenoidae	9							
<b>Coleoptera (beetles)</b>								
Gyrinidae (adults)	1				2			
Halipidae (adults)			1					
Hydrophilidae (total)	1				1			
Elmidae	13		3		1		2	
Psephenidae (larvae)	6							
<b>Diptera (flies)</b>								
Ceratopogonidae							1	
Chironomidae	16		12		11		12	
Callitidae					1		1	
Dixidae			1		1		1	
Simuliidae	27		1		80		92	
Stratiomyidae			1					
Tabanidae			1					
Tipulidae	6							
<b>MOLLUSCA</b>								
<b>Gastropoda (snails)</b>								
Ancylidae (limpets)	11				4			
Hydrobiidae							1	
Physidae	1		15		8		4	
Planorbidae			1				2	
Pleuroceridae	11				1			
Viviparidae							1	
<b>Pelecypoda (bivalves)</b>								
Sphaeriidae (clams)	1		4					
<b>TOTAL INDIVIDUALS</b>	<b>304</b>		<b>245</b>		<b>322</b>		<b>260</b>	

Table 2B(cont). Macroinvertebrate metric evaluation of sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

METRIC	Sth Br Kalamazoo River		Sth Br Kalamazoo River		Sth Br Kalamazoo River		Sth Br Kalamazoo River	
	Folks Road		Pope Road		Strait Road		Roundtree Road	
	8/27/2009		8/27/2009		8/27/2009		8/27/2009	
	STATION 11		STATION 12		STATION 13		STATION 14	
	Value	Score	Value	Score	Value	Score	Value	Score
TOTAL NUMBER OF TAXA	33	1	30	1	30	1	30	1
NUMBER OF MAYFLY TAXA	7	1	3	0	5	1	5	1
NUMBER OF CADDISFLY TAXA	8	1	6	1	5	1	7	1
NUMBER OF STONEFLY TAXA	1	1	0	-1	0	-1	0	-1
PERCENT MAYFLY COMP.	18.42	0	6.12	0	29.81	1	23.46	1
PERCENT CADDISFLY COMP.	24.34	0	29.39	1	10.87	0	11.54	0
PERCENT DOMINANT TAXON	16.12	1	37.26	0	24.84	0	35.38	0
PERCENT ISOPOD, SNAIL, LEECH	7.57	0	6.53	0	4.66	0	3.46	1
PERCENT SURF AIR BREATHERS	2.63	1	11.02	0	2.17	1	1.54	1
<b>TOTAL SCORE</b>	<b>6</b>		<b>2</b>		<b>4</b>		<b>5</b>	
<b>MACROINV. COMMUNITY RATING</b>	<b>EXCELLENT</b>		<b>ACCEPT.</b>		<b>ACCEPT.</b>		<b>EXCELLENT</b>	

Table 2A(cont). Qualitative macroinvertebrate sampling results for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

TAXA	Wildier Creek 21 Mile Road 9/8/2009 STATION 15	North Branch Rice Creek L Drive 9/8/2009 STATION 16	Bear Creek 16.5 Mile Road 9/10/2009 STATION 17	Crooked Creek 11 Mile Road 9/10/2009 STATION 18
<b>PLATYHELMINTHES (flatworms)</b>				
Turbellaria		1		29
<b>ANNELIDA (segmented worms)</b>				
Hirudinea (leeches)			4	5
Oligochaeta (worms)	2	1	2	3
<b>ARTHROPODA</b>				
<b>Crustacea</b>				
Amphipoda (scuds)	27	2	8	3
Decapoda (crayfish)	1	1		
Isopoda (sowbugs)				80
<b>Arachnoidea</b>				
Hydracarina		2		23
<b>Insecta</b>				
<b>Ephemeroptera (mayflies)</b>				
Baetidae	8	5	1	10
Caenidae			4	5
Heptageniidae		15		
<b>Odonata</b>				
<b>Anisoptera (dragonflies)</b>				
Aeshnidae	12		1	
Gomphidae		7	1	
Libellulidae			1	1
<b>Zygoptera (damselflies)</b>				
Calopterygidae	39			
Coenagrionidae	18	18	11	4
<b>Hemiptera (true bugs)</b>				
Belostomatidae	4		7	2
Corixidae	1		4	24
Ceridae	5		5	2
Nepidae	1		1	
Notonectidae	2		4	1
Pleidae	41		6	7
Veliidae	4		1	
<b>Megaloptera</b>				
Sialidae (alder flies)	3	2		
<b>Trichoptera (caddisflies)</b>				
Brachycentridae	39			
Helicopsychidae	1	6		
Hydropsychidae	3	40	8	14
Hydroptilidae		1		1
Leptoceridae	28	17	1	
Limnephilidae	2	6		
Molanidae		1		
Phryganeidae	5			
Polycentropodidae		4		
<b>Coleoptera (beetles)</b>				
Gyrinidae (adults)		10	1	
Halplidae (adults)	13			35
Hydrophilidae (total)				1
Elmidae	2	30		2
<b>Diptera (flies)</b>				
Ceratopogonidae			1	
Chironomidae	10	14	190	68
Culicidae			1	
Dixidae	2		1	
Ptychopteridae			1	
Simuliidae		6	41	18
Tabanidae		10		
<b>MOLLUSCA</b>				
<b>Gastropoda (snails)</b>				
Lymnaeidae			3	
Physidae	6		2	1
Planorbidae		1	5	2
<b>Pelecypoda (bivalves)</b>				
Corbiculidae		30		
Sphaeriidae (clams)		31		
<b>TOTAL INDIVIDUALS</b>	<b>279</b>	<b>261</b>	<b>316</b>	<b>341</b>

Table 2B(cont). Macroinvertebrate metric evaluation of sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

METRIC	Wildier Creek 21 Mile Road 9/8/2009 STATION 15		North Branch Rice Creek L Drive 9/8/2009 STATION 16		Bear Creek 16.5 Mile Road 9/10/2009 STATION 17		Crooked Creek 11 Mile Road 9/10/2009 STATION 18	
	Value	Score	Value	Score	Value	Score	Value	Score
TOTAL NUMBER OF TAXA	26	1	25	1	28	1	24	0
NUMBER OF MAYFLY TAXA	1	-1	2	0	2	0	2	0
NUMBER OF CADDISFLY TAXA	6	1	7	1	2	0	2	0
NUMBER OF STONEFLY TAXA	0	-1	0	-1	0	-1	0	-1
PERCENT MAYFLY COMP.	2.87	-1	7.66	0	1.58	-1	4.40	0
PERCENT CADDISFLY COMP.	27.96	0	28.74	1	2.85	-1	4.40	0
PERCENT DOMINANT TAXON	14.70	1	15.33	1	60.13	-1	23.46	0
PERCENT ISOPOD, SNAIL, LEECH	2.15	1	0.38	1	4.43	0	25.81	-1
PERCENT SURF. AIR BREATHERS	25.45	-1	3.83	1	9.81	0	21.11	-1
<b>TOTAL SCORE</b>	<b>0</b>		<b>5</b>		<b>-3</b>		<b>-3</b>	
<b>MACROINV. COMMUNITY RATING</b>	<b>ACCEPT</b>		<b>EXCELLENT</b>		<b>ACCEPT</b>		<b>ACCEPT</b>	

Table 2A (cont). Qualitative macroinvertebrate sampling results for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

TAXA	Dickinson Creek Historic Bridge Park 9/9/2009 STATION 19	Harper Creek B Drive North 9/9/2009 STATION 20	Minges Brook Riverside Drive 9/10/2009 STATION 21	Battle Creek River Michigan Avenue 8/26/2009 STATION 22
ANNELIDA (segmented worms)				
Hirudinea (leeches)			1	1
Oligochaeta (worms)	3			2
ARTHROPODA				
Crustacea				
Amphipoda (scuds)	24	18	90	1
Decapoda (crayfish)	4	2	18	
Isopoda (sowbugs)	7	1		1
Arachnoidea				
Hydracarina				2
Insecta				
Ephemeroptera (mayflies)				
Baetiscidae		1		
Baetidae	25	16	22	48
Caenidae		1		1
Heptageniidae	5	22	7	8
Isonychiidae	1	1		32
Leptophlebiidae	1			
Tricorythidae		1		7
Odonata				
Anisoptera (dragonflies)				
Aeshnidae	4	2		
Zygoptera (damselflies)				
Calopterygidae	13	4	24	
Coenagrionidae		21		
Plecoptera (stoneflies)				
Perlidae	1	1		
Hemiptera (true bugs)				
Belostomatidae	1			
Coridae	1	9		
Gerridae	2	6	3	
Notonectidae	1			
Psephenidae		2		
Veliidae	1		1	
Megaloptera				
Corydalidae (dobson flies)	3			
Trichoptera (caddisflies)				
Brachycentridae	19		5	1
Glossosomatidae	6			
Helicopsychidae			1	
Hydropsychidae	71	104	36	44
Hydroptilidae	2		1	
Leptoceridae	1	7	3	
Limnephilidae	2		1	
Philopotamidae	4	1		10
Phryganetidae	2			2
Polycentropodidae				1
Uenoidae				1
Coleoptera (beetles)				
Hydrophilidae (total)	1			
Elmidae	13	11	12	7
Diptera (flies)				
Ceratopogonidae	2			
Chironomidae	23	23	26	54
Dixidae	1			1
Empididae			2	
Simuliidae	20	72	5	34
Tipulidae	1	1	2	
MOLLUSCA				
Gastropoda (snails)				
Ancylidae (limpets)		6		1
Hydrobiidae		2		
Physidae	9	2	9	
Planorbidae		6		
Pleuroceridae			3	
Pelecypoda (bivalves)				
Corbiculidae			2	
Sphaeriidae (clams)	1			1
TOTAL INDIVIDUALS	275	344	274	260

Table 2B (cont) Macroinvertebrate metric evaluation of sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009

METRIC	Dickinson Creek Historic Bridge Park 9/9/2009 STATION 19		Harper Creek B Drive North 9/9/2009 STATION 20		Minges Brook Riverside Drive 9/10/2009 STATION 21		Battle Creek River Michigan Avenue 8/26/2009 STATION 22	
	Value	Score	Value	Score	Value	Score	Value	Score
TOTAL NUMBER OF TAXA	34	1	28	1	22	0	22	0
NUMBER OF MAYFLY TAXA	4	1	6	1	2	0	5	1
NUMBER OF CADDISFLY TAXA	8	1	3	0	6	1	6	1
NUMBER OF STONEFLY TAXA	1	1	1	1	0	-1	0	-1
PERCENT MAYFLY COMP.	11.64	0	12.21	0	10.58	0	36.92	1
PERCENT CADDISFLY COMP.	38.91	1	32.56	1	17.15	0	22.69	0
PERCENT DOMINANT TAXON	25.82	0	30.23	0	32.85	0	20.77	0
PERCENT ISOPOD, SNAIL, LEECH	5.82	0	4.94	0	4.74	0	1.15	1
PERCENT SURF AIR BREATHERS	2.55	1	4.94	1	1.46	1	0.00	1
TOTAL SCORE	6		5		1		4	
MACROINV. COMMUNITY RATING	EXCELLENT		EXCELLENT		ACCEPT.		ACCEPT.	

Table 2A(Cont). Qualitative macroinvertebrate sampling results for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

TAXA	Battle Creek River	Battle Creek River	Big Creek	Indian Creek
	Spicerville Highway 8/26/2009 STATION 23	upstream I-69 9/10/2009 STATION 24	Miller Highway 9/8/2009 STATION 25	Butterfield Highway 9/8/2009 STATION 26
ANNELIDA (segmented worms)				
Hirudinea (leeches)	1	1		1
Oligochaeta (worms)	7		11	4
ARTHROPODA				
Crustacea				
Amphipoda (scuds)	71	8		80
Decapoda (crayfish)	19	3	4	8
Arachnoida				
Hydracarina	2		8	1
Insecta				
Ephemeroptera (mayflies)				
Baetiscidae				1
Baetidae	20	4	25	21
Caenidae	1			
Heptageniidae	4	22	72	30
Leptophlebiidae		5	1	4
Tricorythidae				1
Odonata				
Anisoptera (dragonflies)				
Aeshnidae		1	2	9
Cordulegastridae			1	
Gomphidae	2	2	1	5
Zygoptera (damselflies)				
Calopterygidae	26	12	4	17
Coenagrionidae	1			
Hemiptera (true bugs)				
Belostomatidae			1	
Corixidae	10	87		
Gerridae	2	4	2	1
Nepidae		2	1	
Notonectidae		13		1
Pleidae		8		
Veliidae		1		
Megaloptera				
Corydalidae (dobson flies)			1	
Sialidae (alder flies)			1	2
Trichoptera (caddisflies)				
Brachycentridae		1		4
Glossosomatidae			2	
Helicopsychidae			2	1
Hydropsychidae	16	3	120	20
Leptoceridae	5	16		3
Limnephilidae		1		
Molannidae				1
Phygadeiidae		2		
Polycentropodidae	1			
Coleoptera (beetles)				
Halplidae (adults)		3		
Hydrophilidae (totati)	1	2		2
Dryopidae			2	
Elmidae	25	14	9	52
Diptera (flies)				
Ceratopogonidae	1			1
Chironomidae	22	30	59	18
Culicidae		11		
Dixidae		2	1	1
Simuliidae	12		2	17
Tabanidae		3	7	2
Tipulidae	1	1	9	
MOLLUSCA				
Gastropoda (snails)				
Ancylidae (limpets)		1	1	
Hydrobiidae		2	1	
Physidae		13		2
Planorbidae		2		
Pleuroceridae				1
Viviparidae		1		
Pelecypoda (bivalves)				
Corbiculidae		1		
Sphaeriidae (clams)	10	2		1
TOTAL INDIVIDUALS	260	284	350	312

Table 2B(Cont). Macroinvertebrate metric evaluation of sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

METRIC	Battle Creek River		Battle Creek River		Big Creek		Indian Creek	
	Spicerville Highway 8/26/2009 STATION 23 Value	Score	upstream I-69 9/10/2009 STATION 24 Value	Score	Miller Highway 9/8/2009 STATION 25 Value	Score	Butterfield Highway 9/8/2009 STATION 26 Value	Score
TOTAL NUMBER OF TAXA	23	0	35	1	27	1	31	1
NUMBER OF MAYFLY TAXA	3	0	3	0	1	0	5	1
NUMBER OF CADDISFLY TAXA	3	0	5	1	3	0	5	1
NUMBER OF STONEFLY TAXA	0	-1	0	-1	0	-1	0	-1
PERCENT MAYFLY COMP.	9.62	0	10.92	0	28.00	1	18.27	0
PERCENT CADDISFLY COMP.	8.46	0	8.10	0	35.43	1	9.29	0
PERCENT DOMINANT TAXON	27.31	0	30.63	0	34.29	0	25.64	0
PERCENT ISOPOD, SNAIL, LEECH	0.38	1	7.04	0	0.57	1	1.28	1
PERCENT SURF. AIR BREATHERS	5.00	1	46.13	-1	1.14	1	1.28	1
TOTAL SCORE		1		0		4		4
MACROINV. COMMUNITY RATING		ACCEPT		ACCEPT		ACCEPT		ACCEPT

Table 2A(cont). Qualitative macroinvertebrate sampling results for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

TAXA	State and Indian Creek Drain	Wanadoga Creek	Wanadoga Creek	Wabasca Creek
	19.5 Mile Road 8/27/2009 STATION 27	M-66 9/15/2009 STATION 28	Huff Road 9/10/2009 STATION 29	M-89 8/26/2009 STATION 30
ANNELIDA (segmented worms)				
Hirudinea (leeches)	2		1	1
Oligochaeta (worms)		10	1	2
ARTHROPODA				
Crustacea				
Amphipoda (scuds)	30	132	77	51
Decapoda (crayfish)	5	6	6	
Isopoda (sowbugs)	2		1	1
Insecta				
Ephemeroptera (mayflies)				
Baetidae	4	13	10	3
Caenidae		1	1	
Ephemeridae		1		
Heptageniidae	2	21	8	43
Leptophlebiidae			1	
Odonata				
Anisoptera (dragonflies)				
Aeshnidae	1		1	1
Gomphidae				4
Zygoptera (damselflies)				
Calopterygidae		26	32	
Coenagrionidae	8	1	26	
Plecoptera (stoneflies)				
Pertidae		1	7	
Hemiptera (true bugs)				
Belostomatidae	1	2	1	
Corixidae	1	22	4	
Gerridae	2		4	
Nepidae		3	1	
Notonectidae		4	1	
Pleidae	31	2	1	
Veliidae	5		1	1
Megaloptera				
Corydalidae (dobson flies)		3	1	
Sialidae (alder flies)		1	1	
Trichoptera (caddisflies)				
Brachycentridae				7
Helicopsychidae		1	2	6
Hydropsychidae	6		9	4
Leptoceridae		1	8	11
Limnephilidae		1	3	
Phryganeidae	15			
Polycentropodidae		3		
Uenoidae		1	3	6
Coleoptera (beetles)				
Dytiscidae (total)		2		
Gyrinidae (adults)	8			
Hydrophilidae (adults)	10	1	1	
Hydrophilidae (total)	2	1	1	
Elmidae	33	2	16	19
Psephenidae (larvae)				1
Diptera (flies)				
Chironomidae	62	6	18	10
Culicidae	5			
Dixidae	9			
Simuliidae		5	31	2
Tabanidae			2	
Tipulidae	1			
MOLLUSCA				
Gastropoda (snails)				
Ancylidae (limpets)	5	1	8	6
Physidae	15	1	2	
Pleuroceridae		2	4	
Pelecypoda (bivalves)				
Corbiculidae		2	2	
Sphaeriidae (clams)	19	8	40	
Unionidae (mussels)			2	
TOTAL INDIVIDUALS	275	287	339	179

Table 2B(cont) Macroinvertebrate metric evaluation of sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

METRIC	State and Indian Creek Drain		Wanadoga Creek		Wanadoga Creek		Wabasca Creek	
	Value	Score	Value	Score	Value	Score	Value	Score
TOTAL NUMBER OF TAXA	26	1	33	1	39	1	19	0
NUMBER OF MAYFLY TAXA	2	0	4	1	4	1	2	0
NUMBER OF CADDISFLY TAXA	2	0	5	1	5	1	5	1
NUMBER OF STONEFLY TAXA	0	-1	1	1	1	1	0	-1
PERCENT MAYFLY COMP.	2.18	-1	12.54	0	5.90	0	25.70	1
PERCENT CADDISFLY COMP.	7.64	0	2.44	-1	7.37	0	18.99	0
PERCENT DOMINANT TAXON	22.55	0	45.99	-1	22.71	0	28.49	0
PERCENT ISOPOD, SNAIL, LEECH	8.73	0	1.59	1	4.72	0	4.47	0
PERCENT SURF AIR BREATHERS	23.64	-1	12.89	0	4.42	1	0.56	1
TOTAL SCORE		-2		3		5		2
MACROINV. COMMUNITY RATING		ACCEPT.		ACCEPT.		EXCELLENT		ACCEPT.

Table 2A(cont). Qualitative macroinvertebrate sampling results for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009

TAXA	Seven Mile Creek U Drive (Meachem Road) 9/15/2009 STATION 31		Davis Creek Downstream of Cork Street 9/9/2009 STATION 32		Portage Creek Vine Avenue 9/9/2009 STATION 33		Portage Creek Cork Street 9/9/2009 STATION 34		
	PLATYHELMINTHES (flatworms)								
	Turbellaria			15				1	
ANNELIDA (segmented worms)									
Hirudinea (leeches)			1		4		2		
Oligochaeta (worms)	1		7		9		12		
ARTHROPODA									
Crustacea									
Amphipoda (scuds)	59		186		64		4		
Decapoda (crayfish)			5				7		
Isopoda (sowbugs)					8		14		
Arachnoidea									
Hydracarina			1		1				
Insecta									
Ephemeroptera (mayflies)									
Baetidae	4		24		30		11		
Caenidae	6								
Ephemeridae	1								
Heptageniidae	13				1				
Leptophlebiidae	2								
Odonata									
Anisoptera (dragonflies)									
Aeshnidae	2				1		1		
Cordulegastridae	1								
Gomphidae	1						1		
Libellulidae	1								
Zygoptera (damselflies)									
Calopterygidae	46		7				2		
Coenagrionidae	8						1		
Hemiptera (true bugs)									
Belostomatidae	5								
Corixidae	8								
Gerridae	1		1		1				
Nepidae	2								
Notonectidae	1								
Pleidae	6								
Veliidae	1								
Megaloptera									
Sialidae (alder flies)	1								
Trichoptera (caddisflies)									
Brachycentridae	11				3				
Hydropsychidae	17		66		19		138		
Leptoceridae	16				1		1		
Limnephilidae	2		1				4		
Philopotamidae	1						1		
Phryganeidae	1				1		2		
Polycentropodidae	1								
Uenoidae							12		
Coleoptera (beetles)									
Gyrinidae (adults)	1								
Elmidae	2				6		6		
Diptera (flies)									
Chironomidae	31		23		12		16		
Dixidae	4								
Simuliidae	28				80		25		
MOLLUSCA									
Gastropoda (snails)									
Ancylidae (limpets)	5				3		1		
Physidae							1		
Pleuroceridae					1				
Pelecypoda (bivalves)									
Corbiculidae					21		1		
Sphaeriidae (clams)	1								
TOTAL INDIVIDUALS	291		331		266		264		

Table 2B(cont). Macroinvertebrate metric evaluation of sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

METRIC	Seven Mile Creek U Drive (Meachem Road) 9/15/2009 STATION 31		Davis Creek Downstream of Cork Street 9/9/2009 STATION 32		Portage Creek Vine Avenue 9/9/2009 STATION 33		Portage Creek Cork Street 9/9/2009 STATION 34	
	Value	Score	Value	Score	Value	Score	Value	Score
	TOTAL NUMBER OF TAXA	35	1	12	0	19	0	23
NUMBER OF MAYFLY TAXA	5	1	1	-1	2	0	1	-1
NUMBER OF CADDISFLY TAXA	7	1	2	0	4	0	6	1
NUMBER OF STONEFLY TAXA	0	-1	0	-1	0	-1	0	-1
PERCENT MAYFLY COMP.	8.93	0	7.25	0	11.65	0	4.17	0
PERCENT CADDISFLY COMP.	16.84	0	20.24	0	9.02	0	59.85	1
PERCENT DOMINANT TAXON	30.27	0	54.38	-1	30.08	0	52.27	-1
PERCENT ISOPOD, SNAIL, LEECH	1.72	1	0.30	1	6.02	0	6.82	0
PERCENT SURF AIR BREATHERS	8.59	0	0.30	1	0.38	1	0.00	1
TOTAL SCORE		3		-1		0		0
MACROINV. COMMUNITY RATING		ACCEPT.		ACCEPT.		ACCEPT.		ACCEPT.

Table 2A(cont.) Qualitative macroinvertebrate sampling results for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009

TAXA	W Br Portage Creek	Gun River	Gun River	Fenner Creek
	D/S Oakland Drive 9/9/2009	Conservation Club u/s 11th Street 8/26/2009	2nd Street 9/16/2009	2nd Street 9/16/2009
	STATION 35	STATION 36	STATION 37	STATION 38
<b>PLATYHELMINTHES (flatworms)</b>				
Turbellaria				1
<b>ANNELIDA (segmented worms)</b>				
Hirudinea (leeches)	9			
Oligochaeta (worms)	2	19	2	9
<b>ARTHROPODA</b>				
<b>Crustacea</b>				
Amphipoda (scuds)	10	110	60	84
Decapoda (crayfish)	1	1	2	4
Isopoda (sowbugs)	4	56	10	9
<b>Arachnoidea</b>				
Hydracarina			1	1
<b>Insecta</b>				
<b>Ephemeroptera (mayflies)</b>				
Baetidae	2	1	23	26
Ephemeridae	1			
Heptageniidae		16	15	1
<b>Odonata</b>				
<b>Anisoptera (dragonflies)</b>				
Aeshnidae		2		2
<b>Zygoptera (damselflies)</b>				
Calopterygidae	6	3	16	3
Coenagrionidae	8		3	
<b>Hemiptera (true bugs)</b>				
<b>Belostomatidae</b>				
Gerridae	1		2	3
Pleidae		5		
Veliidae	1			1
<b>Trichoptera (caddisflies)</b>				
<b>Brachycentridae</b>				
		12	14	13
<b>Helicopsychidae</b>				
	25			
<b>Hydropsychidae</b>				
	108	21	55	35
<b>Leptoceridae</b>				
	12		9	4
<b>Limnephilidae</b>				
	2		1	
<b>Molamniidae</b>				
	2			
<b>Philopotamidae</b>				
	1			
<b>Phryganeidae</b>				
		1	3	1
<b>Polycentropodidae</b>				
	8			
<b>Coleoptera (beetles)</b>				
<b>Gyrinidae (adults)</b>				
	1			1
<b>Halplidae (adults)</b>				
	1			
<b>Elmidae</b>				
	14	8	6	19
<b>Diptera (flies)</b>				
<b>Chironomidae</b>				
	34	6	13	23
<b>Dixidae</b>				
		1		
<b>Simuliidae</b>				
	12	16	21	50
<b>Stratiomyidae</b>				
				1
<b>Tabanidae</b>				
	1			1
<b>Tipulidae</b>				
	11			
<b>MOLLUSCA</b>				
<b>Gastropoda (snails)</b>				
<b>Ancylidae (limpets)</b>				
		1		
<b>Hydrobiidae</b>				
	2			
<b>Physidae</b>				
			1	
<b>Pleuroceridae</b>				
	1			
<b>Viviparidae</b>				
				1
<b>Pelecypoda (bivalves)</b>				
<b>Corbiculidae</b>				
	12			
<b>Sphaeriidae (clams)</b>				
	11		1	
<b>TOTAL INDIVIDUALS</b>	<b>303</b>	<b>279</b>	<b>262</b>	<b>293</b>

Table 2B(cont.) Macroinvertebrate metric evaluation of sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

METRIC	W Br Portage Creek		Gun River		Gun River		Fenner Creek	
	D/S Oakland Drive		Conservation Club u/s 11th St		2nd Street		2nd Street	
	9/9/2009		8/26/2009		9/16/2009		9/16/2009	
	STATION 35		STATION 36		STATION 37		STATION 38	
	Value	Score	Value	Score	Value	Score	Value	Score
TOTAL NUMBER OF TAXA	29	1	17	0	20	0	23	1
NUMBER OF MAYFLY TAXA	2	0	2	0	2	0	2	1
NUMBER OF CADDISFLY TAXA	7	1	3	0	5	1	4	1
NUMBER OF STONEFLY TAXA	0	-1	0	-1	0	-1	0	-1
PERCENT MAYFLY COMP.	0.99	-1	6.09	0	16.03	0	9.22	0
PERCENT CADDISFLY COMP.	52.15	1	12.19	0	31.30	1	18.09	0
PERCENT DOMINANT TAXON	35.64	0	39.43	-1	22.90	0	28.67	0
PERCENT ISOPOD, SNAIL, LEECH	5.28	0	20.43	-1	4.20	0	3.41	1
PERCENT SURF AIR BREATHERS	1.32	1	1.79	1	0.76	1	2.05	1
<b>TOTAL SCORE</b>				-2		2		4
<b>MACROINV. COMMUNITY RATING</b>		<b>ACCEPT</b>		<b>ACCEPT</b>		<b>ACCEPT</b>		<b>ACCEPT</b>

Table 2A(cont) Qualitative macroinvertebrate sampling results for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

TAXA	Base Line Creek	Pine Creek	Franklin Drain	Swan Creek
	24th Avenue 8/25/2009 STATION 39	5th Avenue 8/25/2009 STATION 40	Ravine Road 8/25/2009 STATION 41	upstream 110th Avenue 8/25/2009 STATION 42
ANNELIDA (segmented worms)				
Hirudinea (leeches)	2	1		
Oligochaeta (worms)	4	45		2
ARTHROPODA				
Crustacea				
Amphipoda (scuds)	53	31	177	5
Decapoda (crayfish)	9		7	9
Isopoda (sowbugs)		3	17	41
Insecta				
Ephemeroptera (mayflies)				
Baenidae	6	15		13
Heptageniidae	78	6		44
Leptophlebiidae	1			3
Odonata				
Anisoptera (dragonflies)				
Aeshnidae	6		1	7
Gomphidae	1			
Zygoptera (damselflies)				
Calopterygidae	15	8	15	27
Hemiptera (true bugs)				
Gerridae	3		30	1
Notonectidae	1			2
Pleidae			9	
Veliidae			8	
Megaloptera				
Corydalidae (dobson flies)	1	3		1
Sialidae (aidler flies)				4
Trichoptera (caddisflies)				
Brachycentridae	12	133		34
Hydropsychidae	24	16	1	4
Lepidostomatidae				1
Limnephilidae	1	1	3	
Philopotamidae				6
Phryganeidae	2		6	
Coleoptera (beetles)				
Gyrinidae (adults)	1			
Hydrophilidae (total)			8	3
Dryopidae	3			
Elmidae	10	1	1	4
Diptera (flies)				
Athericidae	1			
Ceratopogonidae	1			5
Chironomidae	17	17	11	39
Culicidae				1
Dixidae	2	2		9
Simuliidae	12	14		19
Tabanidae	1	1		
Tipulidae	3			1
MOLLUSCA				
Gastropoda (snails)				
Hydrobiidae			1	
Physidae			1	
Planorbidae			1	
Pelecypoda (bivalves)				
Sphaeriidae (clams)	1		1	
<b>TOTAL INDIVIDUALS</b>	<b>271</b>	<b>297</b>	<b>298</b>	<b>285</b>

Table 2B(cont) Macroinvertebrate metric evaluation of sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

METRIC	Base Line Creek		Pine Creek		Franklin Drain		Swan Creek	
	24th Avenue		5th Avenue		Ravine Road		upstream 110th Avenue	
	8/25/2009		8/25/2009		8/25/2009		8/25/2009	
	STATION 39		STATION 40		STATION 41		STATION 42	
	Value	Score	Value	Score	Value	Score	Value	Score
TOTAL NUMBER OF TAXA	28	1	16	0	18	1	25	1
NUMBER OF MAYFLY TAXA	3	0	2	0	0	-1	3	0
NUMBER OF CADDISFLY TAXA	4	0	3	0	3	0	4	0
NUMBER OF STONEFLY TAXA	0	-1	0	-1	0	-1	0	-1
PERCENT MAYFLY COMP.	31.37	1	7.07	0	0.00	-1	21.05	1
PERCENT CADDISFLY COMP.	14.39	0	50.51	1	3.36	-1	15.79	0
PERCENT DOMINANT TAXON	28.78	0	44.78	-1	59.40	-1	15.44	1
PERCENT ISOPOD, SNAIL, LEECH	0.74	1	1.35	1	6.71	0	14.39	-1
PERCENT SURF-AIR BREATHERS	1.85	1	0.00	1	18.46	0	2.46	1
<b>TOTAL SCORE:</b>	<b>3</b>		<b>1</b>		<b>-4</b>		<b>2</b>	
<b>MACROINV. COMMUNITY RATING</b>	<b>ACCEPT</b>		<b>ACCEPT</b>		<b>ACCEPT</b>		<b>ACCEPT</b>	



Table 2A(cont). Qualitative macroinvertebrate sampling results for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009

TAXA	Swan Lake Drain	Bear Creek	Mann Creek
	41st Street 8/25/2009 STATION 43	41st Street 8/25/2009 STATION 44	downstream 56th Street 8/25/2009 STATION 45
<b>ANNELIDA (segmented worms)</b>			
Hirudinea (leeches)	2		
Oligochaeta (worms)	3	1	2
<b>ARTHROPODA</b>			
<b>Crustacea</b>			
Amphipoda (scuds)	161	120	113
Decapoda (crayfish)	2		2
Isopoda (sowbugs)	15		39
<b>Arachnoidea</b>			
Hydracarina		1	
<b>Insecta</b>			
<b>Ephemeroptera (mayflies)</b>			
Baetidae	1	9	9
Heptageniidae	16	5	8
Leptophlebiidae	4	1	
<b>Odonata</b>			
<b>Anisoptera (dragonflies)</b>			
Aeshnidae	6	1	1
Gomphidae	1		
<b>Zygotera (damselflies)</b>			
Calopterygidae	19	4	5
Coenagrionidae	9		
<b>Plecoptera (stoneflies)</b>			
Pertidae		1	1
<b>Hemiptera (true bugs)</b>			
Gerridae	5	1	1
Pleidae	3		
Velidae	2	2	2
<b>Megaloptera</b>			
<b>Corydalidae (dobson flies)</b>			
Statiidae (alder flies)	4		3
<b>Trichoptera (caddisflies)</b>			
Brachycentridae	7	57	24
Hydropsychidae		1	24
Leptoceridae	1		3
Limnephilidae	1	1	8
Philopotamidae			1
Phryganeidae	3	1	
<b>Coleoptera (beetles)</b>			
<b>Gyrinidae (adults)</b>			
Dryopidae		2	1
Elmidae	4	1	1
<b>Diptera (flies)</b>			
Ceratopogonidae	1		2
Chironomidae	28	35	15
Culicidae	1		1
Simuliidae		11	5
Syrphidae			1
Tabanidae	1		1
Tipulidae		2	
<b>MOLLUSCA</b>			
<b>Gastropoda (snails)</b>			
Ancylidae (limpets)	1		
Physidae	10	1	
Planorbidae	2		
Pleuroceridae	1		1
<b>Pelecypoda (bivalves)</b>			
Sphaeriidae (clams)	3		
<b>TOTAL INDIVIDUALS</b>	<b>257</b>	<b>264</b>	<b>274</b>

Table 2B(cont). Macroinvertebrate metric evaluation of sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

METRIC	Swan Lake Drain		Bear Creek		Mann Creek	
	41st Street 8/25/2009 STATION 43	Score	41st Street 8/25/2009 STATION 44	Score	downstream 56th Street 8/25/2009 STATION 45	Score
TOTAL NUMBER OF TAXA	30	1	23	0	26	1
NUMBER OF MAYFLY TAXA	3	0	3	0	2	0
NUMBER OF CADDISFLY TAXA	4	0	4	0	5	1
NUMBER OF STONEFLY TAXA	0	-1	1	1	1	1
PERCENT MAYFLY COMP.	8.17	0	5.68	0	6.20	0
PERCENT CADDISFLY COMP.	4.67	0	23.48	0	21.90	0
PERCENT DOMINANT TAXON	39.30	-1	45.45	-1	41.24	-1
PERCENT ISOPOD, SNAIL, LEECH	12.06	-1	0.38	1	14.60	-1
PERCENT SURF AIR BREATHERS	4.28	1	1.89	1	2.19	1
<b>TOTAL SCORE</b>		<b>-1</b>		<b>2</b>		<b>2</b>
<b>MACROINV. COMMUNITY RATING</b>		<b>ACCEPT</b>		<b>ACCEPT</b>		<b>ACCEPT</b>

Table 3. Habitat evaluation for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

	Kalamazoo River Williams Bridge Road GLIDE/POOL STATION 3	Kalamazoo River off Jefferson Road GLIDE/POOL STATION 4	Kalamazoo River Mosel Ave GLIDE/POOL STATION 5	Kalamazoo River 508 South Chruoh Street GLIDE/POOL STATION 6	Kalamazoo River Custer Drive GLIDE/POOL STATION 7
<b>Substrate and Instream Cover</b>					
Epifaunal Substrate/ Avail Cover (20)	11	8	11	8	10
Embeddedness (20)*					
Velocity/Depth Regime (20)*					
Pool Substrate Characterization (20)**	11	13	13	10	13
Pool Variability (20)**	11	13	10	10	10
<b>Channel Morphology</b>					
Sediment Deposition (20)	15	11	13	8	11
Flow Status - Maint. Flow Volume (10)	8	8	8	8	8
Flow Status - Flashiness (10)	3	3	6	5	3
Channel Alteration (20)	18	16	16	16	16
Frequency of Riffles/Bends (20)*					
Channel Sinuosity (20)**	16	15	16	15	15
<b>Riparian and Bank Structure</b>					
Bank Stability (L) (10)	8	8	9	7	8
Bank Stability (R) (10)	8	8	9	7	9
Vegetative Protection (L) (10)	9	6	9	9	9
Vegetative Protection (R) (10)	9	6	2	3	9
Riparian Veg. Zone Width (L) (10)	9	9	8	10	9
Riparian Veg. Zone Width (R) (10)	9	9	3	1	9
TOTAL SCORE (200):	145	133	133	117	139
HABITAT RATING:	GOOD (SLIGHTLY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)
Note: Individual metrics may better describe conditions directly affecting the biological community while the Habitat Rating describes the general riverine environment at the site(s).					
Date:	9/16/2009	9/16/2009	9/16/2009	9/15/2009	9/15/2009
Weather:	Sunny	Sunny	Sunny	Sunny	Sunny
Air Temperature:	62 Deg. F.	70 Deg. F.	68 Deg. F.	75 Deg. F.	72 Deg. F.
Water Temperature:	64 Deg. F.	64 Deg. F.	70 Deg. F.	65 Deg. F.	67 Deg. F.
Ave. Stream Width:	250 Feet	270 Feet	300 Feet	200 Feet	300 Feet
Ave. Stream Depth:	4 Feet	5 Feet	2.5 Feet	2.5 Feet	2 Feet
Surface Velocity:	1 Ft./Sec.	0.9 Ft./Sec.	1 Ft./Sec.	0.75 Ft./Sec.	0.75 Ft./Sec.
Estimated Flow:	1000 CFS	1215 CFS	750 CFS	375 CFS	450 CFS
Stream Modifications:	None	Impounded	None	None	None
Nuisance Plants (Y/N):	N	N	N	N	N
STORET No.:	30246	30690	390082	390604	130052
Stream Name:	Kalamazoo River	Kalamazoo River	Kalamazoo River	Kalamazoo River	Kalamazoo River
Road Crossing/Location:	Williams Bridge Road	off Jefferson Road	Mosel Ave	508 South Chruoh Street	Custer Drive
County Code:	03	03	39	39	13
TRS:	01N13W04	01N12W21	02S11W10	02S09W03	01S08W29
Latitude (dd):	42.50477	42.45821	42.31784	42.33085	42.35074
Longitude (dd):	-85.84473	-85.72992	-85.57284	-85.35381	-85.27561
Ecoregion:	SMNITP	SMNITP	SMNITP	SMNITP	SMNITP
Stream Type:	Warmwater	Warmwater	Warmwater	Warmwater	Warmwater
USGS Basin Code:	4050003	4050003	4050003	4050003	4050003

\* Applies only to Riffle/Run stream Surveys

\*\* Applies only to Glide/Pool stream Surveys

COMMENTS:

Table 3 (cont). Habitat evaluation for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

HABITAT METRIC	Kalamazoo River off Michigan Av/24 Mile R RIFFLERUN STATION 8	Kalamazoo River M-99 (Superior Street) RIFFLERUN STATION 9	S Br Kalamazoo River 29 Mile Road GLIDE/POOL STATION 10	S Br Kalamazoo River Folks Road GLIDE/POOL STATION 11	S Br Kalamazoo River Pope Road GLIDE/POOL STATION 12
<b>Substrate and Instream Cover</b>					
Epifaunal Substrate/ Avail Cover (20)	16	11	13	11	14
Embeddedness (20)*	16	15			
Velocity/Depth Regime (20)*	16	10			
Pool Substrate Characterization (20)**			15	16	15
Pool Variability (20)**			10	10	14
<b>Channel Morphology</b>					
Sediment Deposition (20)	16	15	13	18	16
Flow Status - Maint. Flow Volume (10)	9	9	9	9	10
Flow Status - Flashiness (10)	8	6	8	9	10
Channel Alteration (20)	18	1	18	20	20
Frequency of Riffles/Bends (20)*	15	16			
Channel Sinuosity (20)**			16	20	18
<b>Riparian and Bank Structure</b>					
Bank Stability (L) (10)	9	10	10	10	8
Bank Stability (R) (10)	9	10	10	10	10
Vegetative Protection (L) (10)	9	0	10	10	9
Vegetative Protection (R) (10)	9	0	10	10	9
Riparian Veg. Zone Width (L) (10)	10	0	10	10	9
Riparian Veg. Zone Width (R) (10)	10	0	10	10	9
TOTAL SCORE (200):	170	103	162	173	171
HABITAT RATING:	EXCELLENT (NON- IMPAIRED)	MARGINAL (MODERATELY IMPAIRED)	EXCELLENT (NON- IMPAIRED)	EXCELLENT (NON- IMPAIRED)	EXCELLENT (NON- IMPAIRED)
Note: Individual metrics may better describe conditions directly affecting the biological community while the Habitat Rating describes the general riverine environment at the site(s).					
Date:	9/8/2009	9/8/2009	8/27/2009	8/27/2009	8/27/2009
Weather:	Rainy	Cloudy	Cloudy	Rainy	Cloudy
Air Temperature:	70 Deg. F.	65 Deg. F.	70 Deg. F.	66 Deg. F.	65 Deg. F.
Water Temperature:	65 Deg. F.	64 Deg. F.	64 Deg. F.	62 Deg. F.	59 Deg. F.
Ave. Stream Width:	90 Feet	75 Feet	50 Feet	40 Feet	18 Feet
Ave. Stream Depth:	2 Feet	1 Feet	2 Feet	1 Feet	1.5 Feet
Surface Velocity:	1 Ft./Sec.	1.5 Ft./Sec.	1 Ft./Sec.	1 Ft./Sec.	0.75 Ft./Sec.
Estimated Flow:	180 CFS	112.5 CFS	100 CFS	40 CFS	20.25 CFS
Stream Modifications:	None	Canopy Removal Bank Stabilization	None	None	Canopy Removal
Nuisance Plants (Y/N):	N	N	N	N	N
STORET No.:	130396	130397	130395	380481	300203
Stream Name:	Kalamazoo River	Kalamazoo River	S Br Kalamazoo River	S Br Kalamazoo River	S Br Kalamazoo River
Road Crossing Location:	off Michigan Av/24 Mile R	M-99 (Superior Street)	29 Mile Road	Folks Road	Pope Road
County Code:	13	13	13	38	30
TRS:	02S04W30	03S04W02	04S04W12	04S03W19	05S03W01
Latitude (dd):	42.27325	42.24568	42.13106	42.11417	42.064
Longitude (dd):	-84.8254	-84.753	-84.73036	-84.69231	-84.61278
Ecoregion:	SMNITP	SMNITP	SMNITP	SMNITP	SMNITP
Stream Type:	Warmwater	Warmwater	Warmwater	Coldwater	Coldwater
USGS Basin Code:	4050003	4050003	4050003	4050003	4050003

\* Applies only to Riffle/Run stream Surveys

\*\* Applies only to Glide/Pool stream Surveys

Table 3 (cont). Habitat evaluation for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

	S Br Kalamazoo River Strait Road GLIDE/POOL STATION 13	S Br Kalamazoo River Roundtree Road GLIDE/POOL STATION 14	Wilder Creek 21 Mile Road GLIDE/POOL STATION 15	North Br Rice Creek L. Drive GLIDE/POOL STATION 16	Bear Creek 16.5 Mile Road GLIDE/POOL STATION 17
<b>Substrate and Instream Cover</b>					
Epifaunal Substrate/ Avail Cover (20)	15	10	4	8	6
Embeddedness (20)*					
Velocity/Depth Regime (20)*					
Pool Substrate Characterization (20)**	16	15	6	8	11
Pool Variability (20)**	5	10	5	5	6
<b>Channel Morphology</b>					
Sediment Deposition (20)	18	16	5	13	11
Flow Status - Maint. Flow Volume (10)	10	9	10	8	9
Flow Status - Flashiness (10)	10	9	9	6	9
Channel Alteration (20)	15	15	6	11	6
Frequency of Riffles/Bends (20)*					
Channel Sinuosity (20)**	13	15	1	5	3
<b>Riparian and Bank Structure</b>					
Bank Stability (L) (10)	10	10	8	8	9
Bank Stability (R) (10)	10	10	8	8	9
Vegetative Protection (L) (10)	10	10	5	8	6
Vegetative Protection (R) (10)	10	10	2	8	6
Riparian Veg. Zone Width (L) (10)	10	10	5	8	3
Riparian Veg. Zone Width (R) (10)	10	10	1	8	9
TOTAL SCORE (200):	162	159	75	112	103
HABITAT RATING:	EXCELLENT (NON- IMPAIRED)	EXCELLENT (NON- IMPAIRED)	MARGINAL (MODERATELY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)	MARGINAL (MODERATELY IMPAIRED)
Note: Individual metrics may better describe conditions directly affecting the biological community while the Habitat Rating describes the general riverine environment at the site(s).					
Date:	8/27/2009	8/27/2009	9/8/2009	9/8/2009	9/10/2009
Weather:	Rainy	Cloudy	Rainy	Rainy	Sunny
Air Temperature:	65 Deg. F.	65 Deg. F.	65 Deg. F.	70 Deg. F.	72 Deg. F.
Water Temperature:	62 Deg. F.	62 Deg. F.	61 Deg. F.	72 Deg. F.	60 Deg. F.
Ave. Stream Width:	12 Feet	10 Feet	15 Feet	20 Feet	10 Feet
Ave. Stream Depth:	2 Feet	2 Feet	2 Feet	1 Feet	0.5 Feet
Surface Velocity:	0.5 Ft./Sec.	0.5 Ft./Sec.	0.25 Ft./Sec.	1 Ft./Sec.	0.1 Ft./Sec.
Estimated Flow:	12 CFS	10 CFS	7.5 CFS	20 CFS	0.5 CFS
Stream Modifications:	None	None	Dredged Canopy Removal Snagging	Dredged	Dredged Snagging
Nuisance Plants (Y/N):	N	N	N	N	N
STORET No.:	380482	380483	130398	130399	130400
Stream Name:	S Br Kalamazoo River	S Br Kalamazoo River	Wilder Creek	North Branch Rice Creek	Bear Creek
Road Crossing/Location:	Strait Road	Roundtree Road	21 Mile Road	L. Drive	16.5 Mile Road
County Code:	38	38	13	13	13
IRS:	04S02W32	04S02W33	03S05W15	01S04W32	02S06W11
Latitude (dd):	42.08311	42.08244	42.21476	42.33439	42.31509
Longitude (dd):	-84.57519	-84.55102	-84.88761	-84.80438	-84.98075
Ecoregion:	SMNITP	SMNITP	SMNITP	SMNITP	SMNITP
Stream Type:	Warmwater	Warmwater	Warmwater	Warmwater	Warmwater
USGS Basin Code:	4050003	4050003	4050003	4050003	4050003

\* Applies only to Riffle/Run stream Surveys

\*\* Applies only to Glide/Pool stream Surveys

Table 3 (cont). Habitat evaluation for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

	Crooked Creek 11 Mile Road RIFFLE/RUN STATION 18	Dickinson Creek Historic Bridge Park RIFFLE/RUN STATION 19	Harper Creek B Drive North RIFFLE/RUN STATION 20	Minges Brook Riverside Drive RIFFLE/RUN STATION 21	Battle Creek River Michigan Avenue RIFFLE/RUN STATION 22
<b>Substrate and Instream Cover</b>					
Epifaunal Substrate/ Avail Cover (20)	8	15	16	10	15
Embeddedness (20)*	15	11	18	15	16
Velocity/Depth Regime (20)*	6	13	16	16	13
Pool Substrate Characterization (20)**					
Pool Variability (20)**					
<b>Channel Morphology</b>					
Sediment Deposition (20)	10	13	16	13	15
Flow Status - Maint. Flow Volume (10)	6	9	7	7	9
Flow Status - Flashiness (10)	6	9	8	9	6
Channel Alteration (20)	6	18	18	18	2
Frequency of Riffles/Bends (20)*	11	16	15	13	15
Channel Sinuosity (20)**					
<b>Riparian and Bank Structure</b>					
Bank Stability (L) (10)	8	9	9	8	10
Bank Stability (R) (10)	8	9	9	8	10
Vegetative Protection (L) (10)	7	10	8	2	0
Vegetative Protection (R) (10)	5	10	8	2	0
Riparian Veg. Zone Width (L) (10)	8	7	6	0	1
Riparian Veg. Zone Width (R) (10)	8	10	6	3	1
TOTAL SCORE (200):	112	159	160	124	113
HABITAT RATING:	GOOD (SLIGHTLY IMPAIRED)	EXCELLENT (NON- IMPAIRED)	EXCELLENT (NON- IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)
Note: Individual metrics may better describe conditions directly affecting the biological community while the Habitat Rating describes the general riverine environment at the site(s).					
Date:	9/10/2009	9/9/2009	9/9/2009	9/10/2009	8/26/2009
Weather:	Sunny	Sunny	Sunny	Sunny	Cloudy
Air Temperature:	72 Deg. F.	75 Deg. F.	75 Deg. F.	72 Deg. F.	75 Deg. F.
Water Temperature:	64 Deg. F.	63 Deg. F.	68 Deg. F.	64 Deg. F.	68 Deg. F.
Ave. Stream Width:	8 Feet	10 Feet	25 Feet	12 Feet	110 Feet
Ave. Stream Depth:	0.3 Feet	0.5 Feet	1 Feet	0.75 Feet	0.5 Feet
Surface Velocity:	0.8 Ft./Sec.	1 Ft./Sec.	1.25 Ft./Sec.	1 Ft./Sec.	2 Ft./Sec.
Estimated Flow:	1.92 CFS	5 CFS	31.25 CFS	9 CFS	110 CFS
Stream Modifications:	Dredged Canopy Removal Snagging	None	None	None	Dredged Canopy Removal Bank Stabilization
Nuisance Plants (Y/N):	N	N	N	N	N
STORET No.:	130344	130374	130313	130401	130402
Stream Name:	Crooked Creek	Dickinson Creek	Harper Creek	Minges Brook	Battle Creek River
Road Crossing/Location:	11 Mile Road	Historic Bridge Park	B Drive North	Riverside Drive	Michigan Avenue
County Code:	13	13	13	13	13
IRS:	02S07W35	02S07W15	02S07W31	02S08W25	02S08W01
Latitude (dd):	42.25794	42.29055	42.26089	42.27147	42.32256
Longitude (dd):	-85.08117	-85.11351	-85.16008	-85.18882	-85.18568
Ecoregion:	SMN1TP	SMN1TP	SMN1TP	SMN1TP	SMN1TP
Stream Type:	Warmwater	Coldwater	Warmwater	Coldwater	Warmwater
USGS Basin Code:	4050003	4050003	4050003	4050003	4050003

\* Applies only to Riffle/Run stream Surveys

\*\* Applies only to Glide/Pool stream Surveys

COMMENTS:

Table 3 (cont). Habitat evaluation for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

	Battle Creek River Spicerville Highway GLIDE/POOL STATION 23	Battle Creek River upstream I-69 GLIDE/POOL STATION 24	Big Creek Miller Highway RIFFLE/RUN STATION 25	Indian Creek Butterfield Highway RIFFLE/RUN STATION 26	State & Indian Creek Drain 19.5 Mile Road GLIDE/POOL STATION 27
<b>Substrate and Instream Cover</b>					
Epifaunal Substrate/ Avail Cover (20)	3	8	8	10	6
Embeddedness (20)*			10	6	
Velocity/Depth Regime (20)*			13	10	
Pool Substrate Characterization (20)**	6	11			6
Pool Variability (20)**	8	6			5
<b>Channel Morphology</b>					
Sediment Deposition (20)	10	11	10	6	6
Flow Status - Maint. Flow Volume (10)	9	9	7	8	9
Flow Status - Flashiness (10)	4	5	5	4	6
Channel Alteration (20)	6	6	8	6	6
Frequency of Riffles/Bends (20)*			15	8	
Channel Sinuosity (20)**	3	2			1
<b>Riparian and Bank Structure</b>					
Bank Stability (L) (10)	7	9	7	3	4
Bank Stability (R) (10)	7	9	7	3	4
Vegetative Protection (L) (10)	5	9	5	6	4
Vegetative Protection (R) (10)	5	3	5	6	4
Riparian Veg. Zone Width (L) (10)	9	10	5	3	1
Riparian Veg. Zone Width (R) (10)	9	7	5	3	1
TOTAL SCORE (200):	91	105	110	82	63
HABITAT RATING:	MARGINAL (MODERATELY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)	MARGINAL (MODERATELY IMPAIRED)	MARGINAL (MODERATELY IMPAIRED)
Note: Individual metrics may better describe conditions directly affecting the biological community while the Habitat Rating describes the general riverine environment at the site(s).					
Date:	8/26/2009	9/10/2009	9/8/2009	9/8/2009	8/27/2009
Weather:	Cloudy	Cloudy	Cloudy	Rainy	Cloudy
Air Temperature:	72 Deg. F.	75 Deg. F.	67 Deg. F.	70 Deg. F.	62 Deg. F.
Water Temperature:	68 Deg. F.	61 Deg. F.	60 Deg. F.	62 Deg. F.	62 Deg. F.
Ave. Stream Width:	25 Feet	25 Feet	18 Feet	20 Feet	10 Feet
Ave. Stream Depth:	2 Feet	2 Feet	0.4 Feet	1 Feet	0.75 Feet
Surface Velocity:	0.75 Ft./Sec.	0.25 Ft./Sec.	0.5 Ft./Sec.	0.25 Ft./Sec.	0.5 Ft./Sec.
Estimated Flow:	37.5 CFS	12.5 CFS	3.6 CFS	5 CFS	3.75 CFS
Stream Modifications:	Dredged Canopy Removal Snagging	Snagging Dredged	Dredged Canopy Removal Snagging	Dredged Canopy Removal Snagging	Dredged Canopy Removal
Nuisance Plants (Y/N):	N	N	N	N	N
STORET No.:	230014	230248	230218	230221	130403
Stream Name:	Battle Creek River	Battle Creek River	Big Creek	Indian Creek	State & Indian Creek Drain
Road Crossing/Location:	Spicerville Highway	upstream I-69	Miller Highway	Butterfield Highway	19.5 Mile Road
County Code:	23	23	23	23	13
TRS:	01N05W11	02N04W19	01N05W22	01N05W33	01S05W20
Latitude (dd):	42.49461	42.5475	42.45915	42.43655	42.37374
Longitude (dd):	-84.86917	-84.81997	-84.88304	-84.90669	-84.91739
Ecoregion:	SMN11P	SMN11P	SMN11P	SMN11P	SMN11P
Stream Type:	Warmwater	Warmwater	Warmwater	Warmwater	Warmwater
USGS Basin Code:	4050003	4050003	4050003	4050003	4050003

\* Applies only to Riffle/Run stream Surveys

\*\* Applies only to Glide/Pool stream Surveys

Table 3 (cont). Habitat evaluation for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

	Wanadoga Creek M-66 GLIDE/POOL STATION 28	Wanadoga Creek Huff Road GLIDE/POOL STATION 29	Wabascon Creek M-89 GLIDE/POOL STATION 30	Seven Mile Creek U Drive (Meachem Road) GLIDE/POOL STATION 31	Davis Creek Downstream Cork Street RIFFLE/RUN STATION 32
<b>Substrate and Instream Cover</b>					
Epifaunal Substrate/ Avail Cover (20)	8	10	11	8	13
Embeddedness (20)*					13
Velocity/Depth Regime (20)*					11
Pool Substrate Characterization (20)**	11	16	13	13	
Pool Variability (20)**	8	10	10	5	
<b>Channel Morphology</b>					
Sediment Deposition (20)	10	13	16	6	13
Flow Status - Maint. Flow Volume (10)	9	9	9	10	9
Flow Status - Flashiness (10)	6	7	9	10	8
Channel Alteration (20)	15	13	18	18	15
Frequency of Riffles/Bends (20)*					13
Channel Sinuosity (20)**	13	10	18	16	
<b>Riparian and Bank Structure</b>					
Bank Stability (L) (10)	8	8	9	10	9
Bank Stability (R) (10)	8	8	9	10	9
Vegetative Protection (L) (10)	6	1	3	10	7
Vegetative Protection (R) (10)	6	9	3	10	7
Riparian Veg. Zone Width (L) (10)	5	1	3	10	3
Riparian Veg. Zone Width (R) (10)	5	9	3	10	3
TOTAL SCORE (200):	118	124	134	146	133
HABITAT RATING:	GOOD (SLIGHTLY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)
Note: Individual metrics may better describe conditions directly affecting the biological community while the Habitat Rating describes the general riverine environment at the site(s).					
Date:	9/15/2009	9/10/2009	8/26/2009	9/15/2009	9/9/2009
Weather:	Cloudy	Sunny	Cloudy	Partly Cloudy	Cloudy
Air Temperature:	68 Deg. F.	74 Deg. F.	72 Deg. F.	70 Deg. F.	70 Deg. F.
Water Temperature:	59 Deg. F.	66 Deg. F.	68 Deg. F.	62 Deg. F.	61 Deg. F.
Ave. Stream Width:	25 Feet	25 Feet	20 Feet	10 Feet	12 Feet
Ave. Stream Depth:	2 Feet	2 Feet	2 Feet	2.5 Feet	0.6 Feet
Surface Velocity:	0.5 Ft./Sec.	0.5 Ft./Sec.	1.2 Ft./Sec.	0.25 Ft./Sec.	0.75 Ft./Sec.
Estimated Flow:	25 CFS	25 CFS	48 CFS	6.25 CFS	5.4 CFS
Stream Modifications:	None	Dredged	None	None	Habitat Improvement
Nuisance Plants (Y/N):	N	N	N	N	N
STORET No.:	130346	80249	130171	130404	390356
Stream Name:	Wanadoga Creek	Wanadoga Creek	Wabascon Creek	Seven Mile Creek	Davis Creek
Road Crossing/Location:	M-66	Huff Road	M-89	U Drive (Meachem Road)	Downstream Cork Street
County Code:	13	08	13	13	39
TRS:	01S07W09	01N07W34	01S08W28	01S08W08	02S11W25
Latitude (dd):	42.39653	42.42841	42.35195	42.3951	42.259448
Longitude (dd):	-85.13157	-85.11721	-85.25389	-85.27715	-85.54417
Ecoregion:	SMN1TP	SMN1TP	SMN1TP	SMN1TP	SMN1TP
Stream Type:	Warmwater	Warmwater	Coldwater	Coldwater	Warmwater
USGS Basin Code:	4050003	4050003	4050003	4050003	4050003

\* Applies only to Riffle/Run stream Surveys

\*\* Applies only to Glide/Pool stream Surveys

Table 3 (cont). Habitat evaluation for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

	Portage Creek Vine Avenue GLIDE/POOL STATION 33	Portage Creek Cork Street RIFFLE/RUN STATION 34	W Br Portage Creek d/s Oakland Drive RIFFLE/RUN STATION 35	Gun River Cons Club u/s 11th Street GLIDE/POOL STATION 36	Gun River 2nd Street GLIDE/POOL STATION 37
<b>Substrate and Instream Cover</b>					
Epifaunal Substrate/ Avail Cover (20)	8	16	10	13	10
Embeddedness (20)*		15	15		
Velocity/Depth Regime (20)*		18	11		
Pool Substrate Characterization (20)**	11			15	8
Pool Variability (20)**	5			10	10
<b>Channel Morphology</b>					
Sediment Deposition (20)	11	15	13	15	7
Flow Status - Maint. Flow Volume (10)	7	9	7	9	9
Flow Status - Flashiness (10)	7	9	8	8	3
Channel Alteration (20)	8	13	16	11	11
Frequency of Riffles/Bends (20)*		16	10		
Channel Sinuosity (20)**	5			6	5
<b>Riparian and Bank Structure</b>					
Bank Stability (L) (10)	8	9	9	8	8
Bank Stability (R) (10)	8	9	9	8	8
Vegetative Protection (L) (10)	5	5	6	10	6
Vegetative Protection (R) (10)	5	1	6	7	7
Riparian Veg. Zone Width (L) (10)	2	3	6	10	4
Riparian Veg. Zone Width (R) (10)	2	1	6	5	4
TOTAL SCORE (200):	92	139	132	135	100
HABITAT RATING:	MARGINAL (MODERATELY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)	MARGINAL (MODERATELY IMPAIRED)
Note: Individual metrics may better describe conditions directly affecting the biological community while the Habitat Rating describes the general riverine environment at the sites).					
Date:	9/9/2009	9/9/2009	9/9/2009	8/26/2009	9/16/2009
Weather:	Sunny	Cloudy	Sunny	Rainy	Sunny
Air Temperature:	75 Deg. F.	65 Deg. F.	72 Deg. F.	70 Deg. F.	70 Deg. F.
Water Temperature:	66 Deg. F.	63 Deg. F.	70 Deg. F.	65 Deg. F.	63 Deg. F.
Ave. Stream Width:	45 Feet	22 Feet	15 Feet	24 Feet	35 Feet
Ave. Stream Depth:	1 Feet	1 Feet	0.5 Feet	2.5 Feet	1.5 Feet
Surface Velocity:	0.8 Ft./Sec.	1.2 Ft./Sec.	1 Ft./Sec.	1.25 Ft./Sec.	1.2 Ft./Sec.
Estimated Flow:	36 CFS	26.4 CFS	7.5 CFS	75 CFS	63 CFS
Stream Modifications:	Dredged Canopy Removal	Canopy Removal Bank Stabilization Dredged	None	Dredged	Dredged
Nuisance Plants (Y/N):	N	N	N	N	N
STORET No.:	390111	390106	390605	30691	30692
Stream Name:	Portage Creek	Portage Creek	W Br Portage Creek	Gun River	Gun River
Road Crossing/Location:	Vine Avenue	Cork Street	d/s Oakland Drive	Cons Club u/s 11th Street	2nd Street
County Code:	39	39	39	03	03
FRS:	02S11W22	02S11W27	03S11W05	01N11W18	01N11W01
Latitude (dd):	42.28386	42.259587	42.24409	42.47015	42.50682
Longitude (dd):	-85.57887	-85.576948	-85.61412	-85.655356	-85.56291
Ecoregion:	SMNITP	SMNITP	SMNITP	SMNITP	SMNITP
Stream Type:	Warmwater	Warmwater	Warmwater	Coldwater	Coldwater
USGS Basin Code:	4050003	4050003	4050003	4050003	4050003

\* Applies only to Riffle/Run stream Surveys

\*\* Applies only to Glide/Pool stream Surveys



Table 3 (cont). Habitat evaluation for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

	Fenner Creek 2nd Street RIFFLE/RUN STATION 38	Base Line Creek 24th Avenue RIFFLE/RUN STATION 39	Pine Creek 5th Avenue GLIDE/POOL STATION 40	Franklin Drain Ravine Road GLIDE/POOL STATION 41	Swan Creek u/s 110th Avenue GLIDE/POOL STATION 42
<b>HABITAT METRIC</b>					
<b>Substrate and Instream Cover</b>					
Epifaunal Substrate/ Avail Cover (20)	6	8	10	7	8
Embeddedness (20)*	13	13			
Velocity/Depth Regime (26)*	10	13			
Pool Substrate Characterization (20)**			10	7	6
Pool Variability (20)**			10	3	11
<b>Channel Morphology</b>					
Sediment Deposition (20)	11	11	13	6	10
Flow Status - Maint. Flow Volume (10)	8	8	7	7	7
Flow Status - Flashiness (10)	9	5	5	6	6
Channel Alteration (20)	5	13	11	6	15
Frequency of Riffles/Bends (20)*	13	11			
Channel Sinuosity (20)**			5	6	15
<b>Riparian and Bank Structure</b>					
Bank Stability (L) (10)	6	6	4	6	7
Bank Stability (R) (10)	6	9	4	6	7
Vegetative Protection (L) (10)	3	6	8	5	9
Vegetative Protection (R) (10)	3	9	8	5	9
Riparian Veg. Zone Width (L) (10)	2	4	9	4	9
Riparian Veg. Zone Width (R) (10)	2	9	9	4	9
TOTAL SCORE (200):	97	125	113	78	128
HABITAT RATING:	MARGINAL (MODERATELY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)	MARGINAL (MODERATELY IMPAIRED)	GOOD (SLIGHTLY IMPAIRED)
Note: Individual metrics may better describe conditions directly affecting the biological community while the Habitat Rating describes the general riverine environment at the site(s).					
Date:	9/16/2009	8/25/2009	8/25/2009	8/25/2009	8/25/2009
Weather:	Sunny	Sunny	Sunny	Sunny	Sunny
Air Temperature:	68 Deg. F.	76 Deg. F.	76 Deg. F.	72 Deg. F.	70 Deg. F.
Water Temperature:	63 Deg. F.	66 Deg. F.	63 Deg. F.	66 Deg. F.	64 Deg. F.
Ave. Stream Width:	6 Feet	14 Feet	19 Feet	5 Feet	12 Feet
Ave. Stream Depth:	0.3 Feet	1 Feet	1.25 Feet	0.25 Feet	1 Feet
Surface Velocity:	0.8 Ft./Sec.	0.5 Ft./Sec.	0.75 Ft./Sec.	0.5 Ft./Sec.	0.5 Ft./Sec.
Estimated Flow:	1.44 CFS	7 CFS	17.8125 CFS	0.625 CFS	6 CFS
Stream Modifications:	Dredged Canopy Removal Snagging	None	Dredged	Dredged	Snagging
Nuisance Plants (Y/N):	N	N	N	N	N
STORET No.:	30542	30618	800580	390606	30693
Stream Name:	Fenner Creek	Base Line Creek	Pine Creek	Franklin Drain	Swan Creek
Road Crossing/Location:	2nd Street	24th Avenue	5th Avenue	Ravine Road	u/s 110th Avenue
County Code:	03	03	80	39	03
IRS:	02N11W14	01N13W36	01S13W12	01S12W03	01N14W07
Latitude (dd):	42.55932	42.42491	42.4008	42.41803	42.49151
Longitude (dd):	-85.562594	-85.77839	-85.76837	-85.70289	-86.01357
Ecoregion:	SMN1TP	SMN1TP	SMN1TP	SMN1TP	SMN1TP
Stream Type:	Warmwater	Warmwater	Coldwater	Warmwater	Coldwater
USGS Basin Code:	4050003	4050003	4050003	4050003	4050003

\* Applies only to Riffle/Run stream Surveys

\*\* Applies only to Glide/Pool stream Surveys

Table 3 (cont). Habitat evaluation for sites in the Kalamazoo River Watershed, Allegan, Barry, Calhoun, Eaton, Hillsdale, Jackson, Kalamazoo, and Van Buren Counties, 2009.

	Swan Lake Drain 41st Street GLIDE/POOL STATION 43	Bear Creek 41st Street GLIDE/POOL STATION 44	Mann Creek downstream 56th Street RIFFLE/RUN STATION 45
<b>HABITAT METRIC</b>			
<b>Substrate and Instream Cover</b>			
Epifaunal Substrate/Avail Cover (20)	5	11	12
Embeddedness (20)*			9
Velocity/Depth Regime (20)*			10
Pool Substrate Characterization (20)**	7	8	
Pool Variability (20)**	9	13	
<b>Channel Morphology</b>			
Sediment Deposition (20)	8	11	6
Flow Status - Maint. Flow Volume (10)	7	9	7
Flow Status - Flashiness (10)	5	8	7
Channel Alteration (20)	13	18	19
Frequency of Riffles/Bends (20)*			11
Channel Sinuosity (20)**	4	16	
<b>Riparian and Bank Structure</b>			
Bank Stability (L) (10)	6	8	8
Bank Stability (R) (10)	6	8	8
Vegetative Protection (L) (10)	10	9	9
Vegetative Protection (R) (10)	10	9	9
Riparian Veg. Zone Width (L) (10)	10	9	9
Riparian Veg. Zone Width (R) (10)	10	9	9
<b>TOTAL SCORE (200):</b>	<b>110</b>	<b>146</b>	<b>133</b>
<b>HABITAT RATING:</b>	<b>GOOD</b> (SLIGHTLY IMPAIRED)	<b>GOOD</b> (SLIGHTLY IMPAIRED)	<b>GOOD</b> (SLIGHTLY IMPAIRED)

Note: Individual metrics may better describe conditions directly affecting the biological community while the Habitat Rating describes the general riverine environment at the site(s).

Date:	8/25/2009	8/25/2009	8/25/2009
Weather:	Sunny	Sunny	Sunny
Air Temperature:	78 Deg. F.	60 Deg. F.	78 Deg. F.
Water Temperature:	66 Deg. F.	58 Deg. F.	60 Deg. F.
Ave. Stream Width:	14 Feet	10 Feet	20 Feet
Ave. Stream Depth:	0.5 Feet	0.75 Feet	0.25 Feet
Surface Velocity:	0.2 Ft./Sec.	0.75 Ft./Sec.	0.75 Ft./Sec.
Estimated Flow:	1.4 CFS	5.625 CFS	3.75 CFS
Stream Modifications:	Dredged Snagging	None	None
Nuisance Plants (Y/N):	N	N	N
STORET No.:	30694	30521	30537
Stream Name:	Swan Lake Drain	Bear Creek	Mann Creek
Road Crossing/Location:	41st Street	41st Street	downstream 56th Street
County Code:	03	03	03
FRS:	01N14W15	03N14W27	03N15W21
Latitude (dd):	42.46591	42.6175	42.63672
Longitude (dd):	-85.94946	-85.9478	-86.09405
Ecoregion:	SMN1TP	SMN1TP	SMN1TP
Stream Type:	Warmwater	Coldwater	Coldwater
USGS Basin Code:	4050003	4050003	4050003

\* Applies only to Riffle/Run stream Surveys

\*\* Applies only to Glide/Pool stream Surveys

Table 4. Summary of station locations and sampling results in the Kalamazoo River Watershed, 2009.

St #	Stream	Survey Location	Random Trend Type (#)	Macroinvertebrate Community Rating (score)	Stream Habitat Rating (score)
1	Kalamazoo River	off 63rd St**	Warm-V-Large (8)	Good (59)	draft
2	Kalamazoo River	Old Allegan Rd**	Warm-V-Large (5)	Good (65)	draft
3	Kalamazoo River	Williams Bridge Rd	Warm-V-Large (4)	Acceptable (4)	Good (145)
4	Kalamazoo River	off Jefferson Rd	Warm-V-Large (7)	Acceptable (1)	Good (133)
5	Kalamazoo River	Mosel Ave	Warm-V-Large (2)	Acceptable (2)	Good (133)
6	Kalamazoo River	508 S Church St d/s of M-96 (Aug)	Warm-V-Large (6)	Acceptable (2)	Good (117)
7	Kalamazoo River	Custer Drive	Warm-V-Large (1)	Excellent (6)	Good (139)
8	Kalamazoo River	off Michigan Ave & 24 Mile Rd	Warm-Large (2)	Excellent (5)	Excellent (170)
9	Kalamazoo River	M-99 (Superior St) (Albion)	Warm-Large (3)	Acceptable (2)	Marginal (103)
10	South Br Kalamazoo River	29 Mile Rd	Warm-Medium (5)	Acceptable (0)	Excellent (162)
11	South Br Kalamazoo River	Folks Rd	Warm-Medium (1)	Excellent (6)	Excellent (173)
12	South Br Kalamazoo River	Pope Rd	Cold-Small (8)	Acceptable (2)	Excellent (171)
13	South Br Kalamazoo River	Strait Rd	Cold-Small (10)	Acceptable (4)	Excellent (162)
14	South Br Kalamazoo River	Roundtree Rd	Cold-Small (6)	Excellent (5)	Excellent (159)
15	Wilder Creek	21 Mile Rd	Cold-Small (17)	Acceptable (0)	Marginal (75)
16	North Br Rice Creek	L Dr N	Cold-Small (9)	Excellent (5)	Good (112)
17	Bear Creek	16 1/2 Mile Rd	Cold-Small (14)	Acceptable (-3)	Marginal (103)
18	Crooked Creek	11 Mile Rd		Acceptable (-3)	Good (112)
19	Dickinson Creek	Bridge Park		Excellent (6)	Excellent (159)
20	Harper Creek	B Dr N	Cold-Small (16)	Excellent (5)	Excellent (160)
21	Minges Brook	Riverside Dr	Cold-Small (13)	Acceptable (1)	Good (124)
22	Battle Creek River	Michigan Ave/Main	Warm-Large (1)	Acceptable (4)	Good (113)
23	Battle Creek River	Spicerville Hwy	Warm-Medium (2)	Acceptable (1)	Marginal (91)
24	Battle Creek River	I-69	Warm-Medium (6)	Acceptable (0)	Good (110)
25	Big Creek	Miller Hwy	Warm-Small (5)	Acceptable (4)	Good (110)
26	Indian Creek	Butterfield Hwy	Warm-Small (2)	Acceptable (4)	Marginal (82)
27	State and Indian Creek Drain	19 1/2 Mile Rd	Warm-Small (1)	Acceptable (-2)	Marginal (63)
28	Wanadoga Creek	M-66 (Capital Ave)	Warm-Medium (4)	Acceptable (3)	Good (118)
29	Wanadoga Creek	Huff Rd	Warm-Medium (3)	Excellent (5)	Good (124)
30	Wabascon Creek	M-89 (Michigan Ave)	Cold-Small (3)	Acceptable (2)	Good (134)
31	Seven Mile Creek	U Drive (Meachem Rd)	Cold-Small (12)	Acceptable (3)	Good (146)
32	Davis Creek	d/s Cork St	Cold-Small (5)	Acceptable (-1)	Good (133)
33	Portage Creek	Vine St		Acceptable (0)	Marginal (92)
34	Portage Creek	Cork St		Acceptable (0)	Good (139)
35	West Fork Portage Creek	Oakland Dr	Cold-Small (7)	Acceptable (2)	Good (132)
36	Gun River	u/s 11th St @ Cons Club	Cold-Medium (1)	Acceptable (-2)	Good (135)
37	Gun River	2nd Street	Cold-Medium (3)	Acceptable (2)	Marginal (100)
38	Fenner Creek	2nd St		Acceptable (4)	Marginal (97)
39	Baseline Creek	24th St	Cold-Small (11)	Acceptable (3)	Good (125)
40	Pine Creek	5th Ave	Cold-Small (15)	Acceptable (1)	Good (113)
41	Franklin Drain (Unnamed Trib to Baseline Creek)	Ravine Rd (6th St)	Cold-Small (1)	Acceptable (-4)	Marginal (78)
42	Swan Creek	110th Ave	Cold-Small (2)	Acceptable (2)	Good (128)
43	Swan Lake Drain	41st St	Cold-Small (4)	Acceptable (-1)	Good (110)
44	Bear Creek	41st St	Warm-Small (4)	Acceptable (2)	Good (146)
45	Mann Creek	56th St	Warm-Small (3)	Acceptable (2)	Good (133)
X	Portage Creek	Alcott St	Cold-Medium (2)	replaced with alternate	
X	Kalamazoo River	M-89 (Lincoln Rd)	Warm-V-Large (3)	replaced with alternate	
	Axtel Creek	Maple Street		visual/photos	

\*\*Non-Wadable Procedure used to evaluate sites