

**TABLES**



Table 1.—Kalamazoo River and tributary average daily discharge (cfs) summary. Watershed area corresponds to area upstream of each gauge location. Data from active gauges (Blumer et al. 2000) and miscellaneous measurements (Holtschlag and Eagle 1985). \*Miscellaneous discharge measurements that consist of periodic and occasional stream measurements (Holtschlag and Eagle 1985).

Segment and river	Location	Average discharge (cfs)	Watershed area (mi <sup>2</sup> )	Discharge per mi <sup>2</sup>
Headwaters				
S.B. Kalamazoo River*	Homer	65	139	0.47
S.B. Kalamazoo River	Albion	130	146	0.89
Upper				
Kalamazoo River	Marengo	240	267	0.90
Rice Creek*	Marshall	61	99	0.62
Middle				
Battle Creek	Charlotte	39	67	0.58
Battle Creek	Bellevue	148	178	0.83
Wanadoga Creek	Battle Creek	38	48	0.80
Battle Creek	Battle Creek	211	241	0.88
Kalamazoo River	Battle Creek	689	824	0.84
Seven Mile Creek*	Augusta	6	14	0.44
Augusta Creek*	Hickory Corners	15	20	0.74
Augusta Creek	Augusta	45	39	1.15
Kalamazoo River	Comstock	895	1010	0.87
Comstock Creek*	Comstock	7	18	0.37
Davis Creek*	Kalamazoo	4	15	0.26
Portage Creek	Portage	18	17	1.11
Portage Creek	Kalamazoo	41	22	1.83
West Fork Portage Creek	Oshtemo	6	13	0.48
West Fork Portage Creek	Kalamazoo	10	19	0.51
Spring Brook*	East Cooper	15	31	0.48
Kalamazoo River*	Cooper	820	1250	0.66
Silver Creek*	Plainwell	11	21	0.53
Pine Creek*	Otsego	34	10	3.51
Lower				
Kalamazoo River	Allegan	1358	1470	0.92
Mouth				
Rabbit River	Hopkins	61	71	0.85
Kalamazoo River*	Saugatuck	1925	2020	0.95

## Kalamazoo River Assessment

Table 2a.—Flow stability indices in the Kalamazoo River watershed, calculated from miscellaneous and short-time frame USGS gauge reports. Data from United States Geological Survey.

Segment and river	Location	Flow index	Classification
Headwaters			
S.B. Kalamazoo River	Albion	3.4	good
Upper			
Kalamazoo River	Marengo	2.4	good
Rice Creek	Marshall	4.4	good
Middle			
Battle Creek	Charlotte	13.2	poor
Battle Creek	Bellevue	14.0	poor
Wanadoga Creek	Battle Creek	5.6	fair
Battle Creek	Battle Creek	7.0	fair
Kalamazoo River	Battle Creek	3.4	good
Seven Mile Creek	Augusta	1.6	very good
Augusta Creek	Augusta	2.2	good
Kalamazoo River	Comstock	2.9	good
Portage Creek	Portage	1.6	very good
Portage Creek	Kalamazoo	1.6	very good
West Fork Portage Creek	Oshtemo	2.7	good
West Fork Portage Creek	Kalamazoo	2.5	good
Lower			
Kalamazoo River	Allegan	3.7	good
Mouth			
Kalamazoo River	Fennville	3.1	good
Rabbit River	Hopkins	6.0	fair
Kalamazoo River	Saugatuck	2.7	good

Table 2b.—Definition of flow stability indices using the ratio of mean high flow to mean low flow. Data from P. Seelbach, Michigan Department of Natural Resources, Fisheries Division.

Flow index	Classification	Description
1.0–2.0	very good	typical of self sustaining trout streams
2.1–5.0	good	better warmwater rivers
5.1–10	fair	somewhat flashy warmwater rivers
>10	poor	very flashy warmwater river

Table 3.—Communities participating in the National Flood Insurance Program in the Kalamazoo River watershed. Data from Federal Insurance Administration, Federal Emergency Management Agency (2000). NSFHA = no special flood hazard area.

Segment and community name	County	ID number	Date of current map
Headwaters			
Homer Township	Calhoun	260654	1979
Village of Homer	Calhoun	260331	1982
Upper			
City of Albion	Calhoun	260050	1982
Albion Township	Calhoun	260639	1982
Eckford Township	Calhoun	260653	1986
Emmett Township	Calhoun	260561	1983
Fendonina Township	Calhoun	260562	1987
Marengo Township	Calhoun	260563	1982
City of Marshall	Calhoun	260053	1982
Marshall Township	Calhoun	260642	1983
Sheridan Township	Calhoun	260649	1983
Concord Township	Jackson	260946	NSFHA
Village of Concord	Jackson	260423	1982
Middle			
Gun Plain Township	Allegan	260614	NSFHA
Village of Martin	Allegan	260793	1987
City of Otsego	Allegan	260007	1985
Otsego Township	Allegan	260740	1988
City of Plainwell	Allegan	260008	1985
Maple Grove Township	Barry	260644	1986
City of Battle Creek	Calhoun	260051	1983
Bedford Township	Calhoun	260052	1983
Lee Township	Calhoun	260668	1985
Newton Township	Calhoun	260647	1986
Pennfield Township	Calhoun	260564	1982
City of Springfield	Calhoun	260054	1979
Village of Bellevue	Eaton	260566	1986
Carmel Township	Eaton	260682	1979
City of Charlotte	Eaton	260065	1981
City of Olivet	Eaton	260069	1979
Village of Augusta	Kalamazoo	260312	1982
Charleston Township	Kalamazoo	260426	1982
Comstock Township	Kalamazoo	260427	1982
Cooper Township	Kalamazoo	260428	1979
City of Kalamazoo	Kalamazoo	260315	1992
Kalamazoo Township	Kalamazoo	260429	1994
Oshtemo Township	Kalamazoo	260736	1984
City of Portage	Kalamazoo	260577	1983
Richland Township	Kalamazoo	260885	NSFHA
Ross Township	Kalamazoo	260624	1982
City of Galesburg	Kalamazoo	260576	1976

Table 3.–Continued.

Segment and community name	County	ID number	Date of current map
Lower			
City of Allegan	Allegan	260003	1989
Mouth			
Village of Douglas	Allegan	260549	1980
Laketown Township	Allegan	260253	1980
Lee Township	Allegan	260722	1985
Monterey Township	Allegan	261000	NSFHA
City of Saugatuck	Allegan	260305	1980
Saugatuck Township	Allegan	260009	1980
City of Wayland	Allegan	260744	1989
Manlius Township	Allegan	260348	1977

Table 4.—Number of stream crossings, by county, for the Kalamazoo River basin. Counties are in descending order beginning at the headwaters. Data from MIRIS county transportation and utility data (MDNR, SDL 1992).

County	County roads	Highways	Streets	Trails	Railroads	Powerlines	Pipelines	Total
Hillsdale	40	2	1	3	1	0	2	49
Jackson	72	7	2	14	2	1	10	115
Calhoun	320	55	46	31	27	26	10	515
Eaton	127	22	4	5	8	3	0	169
Barry	77	8	4	12	0	7	0	108
Kalamazoo	162	46	63	29	174	36	3	513
Van Buren	23	2	0	3	0	3	0	31
Ottawa	48	0	0	1	0	2	0	51
Kent	14	0	0	1	2	0	0	17
Allegan	773	81	23	84	67	124	35	1187
TOTAL	1656	223	143	183	281	202	60	2755

Kalamazoo River Assessment

Table 5.—Kalamazoo River and tributary cross section data. Data from United States Geological Survey, 1999 and Michigan Department of Environmental Quality, 1999. Hydraulic diversity index was calculated using the Shannon-Wiener information statistic. Width and discharge (Q) measurements were used to calculate expected width with the following formulas:

$$\begin{aligned} \text{Lower 95\% width} &= 10^{(0.662895 + (0.471522*\log(Q)))}; \\ \text{Expected mean width} &= 10^{(0.741436 + (0.498473*\log(Q)))}; \\ \text{Upper 95\% width} &= 10^{(0.819976 + (0.525423*\log(Q)))}. \end{aligned}$$

Segment and river	Location	Width (ft)	Average discharge (cfs)	Lower 95% width (ft)	Expected mean width (ft)	Upper 95% width (ft)	Hydraulic diversity index
<b>Headwaters</b>							
S.B. Kalamazoo	Mosherville	16	12	15	19	24	
S.B. Kalamazoo	Albion	66	130	46	62	85	
Beaver Creek	Mosherville	10	2	6	7	9	
<b>Upper</b>							
N.B. Kalamazoo	Horton	11	5	10	12	15	
N.B. Kalamazoo	Concord	26	26	21	28	37	
N.B. Kalamazoo	Albion	35	58	31	42	56	
Kalamazoo	Albion	94	282	66	92	128	
Kalamazoo	Marengo	96	259	63	88	123	2.41
Kalamazoo	Marshall	100	317	70	97	136	
Rice Creek	Marshall	36	48	29	38	51	
S.B. Rice Creek	Albion	18	7	11	14	18	
Kalamazoo	Battle Creek	77	280	66	92	128	
<b>Middle</b>							
Battle Creek	Charlotte	26	39	26	34	45	
Battle Creek	Bellevue	61	142	48	65	89	
Battle Creek	Battle Creek	59	211	57	79	110	2.10
Wanadoga Creek	Battle Creek	44	57	31	41	55	2.20
Kalamazoo	Battle Creek	77	686	100	143	204	2.66
Seven Mile Creek	Battle Creek	14	5	10	12	15	
Kalamazoo	Augusta	68	100	40	55	74	
Augusta Creek	Gull Lake	22	45	28	37	49	2.45
Kalamazoo	Galesburg	200	630	96	137	195	
Kalamazoo	Comstock	74	890	113	163	234	2.87
Portage Creek	Portage	23	32	24	31	41	1.97
W.F. Portage	Oshtemo	17	5	10	13	16	1.34
W.F. Portage	Portage	17	8	12	15	19	1.16
Portage Creek	Kalamazoo	31	53	30	40	53	2.00
Kalamazoo	Kalamazoo	130	900	114	164	236	
Spring Brook	East Cooper	9	6	10	13	16	
Silver Creek	Lake Doster	13	6	11	14	17	
Kalamazoo	Plainwell	202	980	118	171	246	
Gun River	Neeley	26	29	23	30	39	
Pine Creek	Otsego	32	24	21	27	35	



Table 5.–Continued.

Segment and river	Location	Width (ft)	Average discharge (cfs)	Lower 95% width (ft)	Expected mean width (ft)	Upper 95% width (ft)	Hydraulic diversity index
Lower							
Kalamazoo	Otsego	171	1100	125	181	262	
Kalamazoo	Allegan	170	1060	123	178	257	
Kalamazoo	Allegan	148	1480	144	210	306	
Dumont Creek	Millgrove	18	9	13	16	21	
Mouth							
Swan Creek	116 <sup>th</sup> Avenue	18	12	15	19	24	
Kalamazoo	Fennville	148	900	114	164	236	
Rabbit River	Hopkins	46	446	82	115	163	2.76
Kalamazoo	New Richmond	170	1180	129	187	272	3.12
Kalamazoo	Saugatuck	211	3300	210	313	466	2.95

Table 6.—Dams in the Kalamazoo River watershed. Dam purpose: flood control (C), hydroelectric (H), retired hydroelectric (RH), recreation (R), water supply (S), or other (O). Hazard type: 1=high, 2=significant, and 3=low. High hazard means loss of life would occur; significant hazard means large amounts of property damage would occur. Blanks indicate no data available. Data from Michigan Department of Environmental Quality, Land and Water Management.

Name	Stream	Date built	Current purpose	Owner	Head (ft)	Surface acres	Storage (acre-ft)	Average depth (ft)	Hazard type
Headwaters									
Fowle Mill Dam	S.B. Kalamazoo River	1852	R,O	Private	1	2	40	20.0	3
Big Mosherville Dam	S.B. Kalamazoo River	1898	R	County	7	17	92	5.4	3
Albion Dam	S.B. Kalamazoo River	1856	RH	City	7	42	600	14.3	2
Upper									
Farwell Lake Control	N.B. Kalamazoo River	1970	O	County	1	195	80	0.4	3
Round Lake Lake Control	N.B. Kalamazoo River	1971	R	County	1	137	55	0.4	3
Horton Dam	N.B. Kalamazoo River	1850	R	County	7	21	50	2.4	2
Concord Dam	N.B. Kalamazoo River	1830	R	Private	9	63	300	4.8	2
Wilder Creek Dam	Wilder Creek	1933	O	Private	8	8.5	27	3.2	3
Lower Brace Lake Control	Tributary to Wilder Creek	1937	O	County	3	146	175	1.2	3
Marshall City Dam	Kalamazoo River	1890	H	City	14	234	1500	6.4	2
Rice Creek Dam	Rice Creek	1835	R	City	10	8	30	3.8	3
Ceresco Dam	Kalamazoo River	1906	RH	Private	15	367	2200	6.0	3
Harry Conway Dam	Harper Creek	1840	R,O	Private	10	3	20	6.7	3
Binder Dam	Harper Creek	1930	R	Private	4	3	0	0.0	3
Graham Lake Dam	Barnum Creek	1917	O	County	5	143	286	2.0	3
Middle									
Duck Lake Control	Duck Lake Ditch	1945	R	Private	2	630	380	0.6	3
Narrow Lake Control	Battle Creek	1950	R	County	1	93	40	0.4	3
Giesler Dam	Tributary To Battle Creek	1968	O	Private	1	4	20	5.0	3
Bellevue Mill Dam	Battle Creek	1875	H	City	13	15	80	5.3	3
Verona Dam	Battle Creek	1905	O	City	5	5	10	2.0	3
Fisher's Dam	Tributary to Battle Creek	1958	R,O	Private	1	2	15	7.5	3
B. C. Kiwanis Club Dam	Ackley Creek	1975	R	Private	5	114	500	4.4	3
Monroe Street Dam	Kalamazoo River	1894	RH	City	12	30	140	4.7	2
Sewer Crossing	Kalamazoo River		O	City	2	4	3	0.8	3

Table 6.–Continued.

Name	Stream	Date built	Current purpose	Owner	Head (ft)	Surface acres	Storage (acre-ft)	Average depth (ft)	Hazard type
Middle – continued									
Beaver Dam	Tributary To Kalamazoo	1959	R	City	12	5	25	5.0	2
Binda Dam	Minges Brook	1975	R	Private	1	1		0.0	3
Wolff Dam	Wabascon Creek	1966	R,O	Private	1	3	32	10.7	3
St Marys Lake Level	Wabascon Creek	1966	R	Ford	2	114	70	0.6	3
Zindler Dam	Wabascon Creek	1958	O	Private	3	10	0	0.0	3
Engineer Lake Dam	Tributary to Kalamazoo	1992	O	City	19	15	200	13.3	3
Brook Lodge Dam	Ransom Creek	1880	S	Private	8	3	40	13.3	2
Knapper Mill Upper Dam	Augusta Creek	1936	R	Private	5	1	0	0.0	3
Knapper Milling Co Lower Dam	Augusta Creek	1840	O	Private	8	2	6	3.0	3
Eagle Lake Dam	Tributary to Kalamazoo	1982	R	MDNR	12.5	186	960	5.2	3
Jackson Lake Dam	Tributary to Kalamazoo	1962	R	MDNR	5	59	115	1.9	3
Whitford Lake Dam	Tributary to Kalamazoo	1960	R	MDNR	5	127	250	2.0	3
Gull Lake Dam	Gull Lake Outlet	1920	R	Private	18	2050	0	0.0	3
Roelof Dam	Gull Lake Outlet	1955	R	Private	3	2	2	1.0	3
Roelof Dam	Gull Creek		R	Private	3	1	1	1.0	3
Roelof Dam	Gull Creek	1958	R	Private	3	1	1	1.0	3
North Crum County Park Dam	Gull Creek	1950	R,O	Private	1	7	0	0.0	3
South Crum County Park Dam	Gull Creek	1950	R,O	County	5	2	4	2.0	3
Howlandsburg Dam	Gull Creek	1837	R	Private	11	29	120	4.1	1
Christian Dam	Bonnie Brook	1952	R	Private	3	1	0	0.0	3
Upjohn Dam	Castle Creek	1845	R	Private	7	2	70	35.0	3
Morrow Dam	Kalamazoo River	1941	H	Private	14	1000	6000	6.0	1
Lower Comstock Dam	Comstock Creek	1850	R	Township	11	2	50	25.0	1
Middle Comstock Dam	Comstock Creek	1890	R	Township	14	3	50	16.7	1
Vanrick Industrial Park Dam	Davis Creek	1970	C	City	13	2	17	8.5	3
Austin Lake Dam	Portage Creek	1915	R	County	3	1050	1200	1.1	3
Milham Dam	Celery Creek	1950	R	Private	4	1	0	0.0	3
Limekiln Lake Control	W.B. Portage Creek	1988	R,O	County	4	21	40	1.9	3
Dillon Dam	W.B. Portage Creek	1955	R	Private	3	2	6	3.0	3
W.F. Portage Creek USGS	W.B. Portage Creek	1959	O	USGS	1	1	0	0.0	3

Table 6.–Continued.

Name	Stream	Date built	Current purpose	Owner	Head (ft)	Surface acres	Storage (acre-ft)	Average depth (ft)	Hazard type
Middle – continued									
Upjohn Conference Center Dam	Unnamed Creek	1830	R	Private	15	2	14	7.0	3
Milham Park Dam	Portage Creek	1927	R	City	3	4	0	0.0	3
Monarch Paper Mill Dam	Portage Creek	1916	S	Private	16	21	81	3.9	1
Bryant Mill Dam	Portage Creek	1948	RH	Private	14	41	104	2.5	1
Hannifin-Parker Pond Dam	None	1979	S	Private	10	1	2	2.0	3
Willow Lake Dam	Little Portage Creek	1974	O	Private	3	7	13	1.9	3
Spring Valley Park Dam	Spring Valley Lake Outlet	1956	R	City	10	64	180	2.8	2
Williams Pond Dam	Spring Valley Lake Outlet	1880	R	City	16	2	11	5.5	2
Boudeman Dam	Tributary to Kalamazoo		O	Private	1	4	0	0.0	3
Chamberlain Dam	Chart Creek		R	Private	2	1	0	0.0	3
Plainwell Dam Number 1	Kalamazoo River	1902	RH	MDNR	7	56	490	8.8	1
Plainwell Dam Number 2	Kalamazoo River	1856	RH	Private	1	0	60	0.0	3
Lake Doster Dam	Tributary To Silver Creek	1962	R	Private	28	107	1200	11.2	1
Cobb Lake Outlet Dam	Cobb Lake Drain		O	Private	3	2	0	0.0	3
Hall Lake Dam	Hall Lake Outlet	1964	R	MDNR	7	42	120	2.9	2
Patterson Road Dam	Gun River		O	County	1	0	0	0.0	3
Gun Lake Dam	Gun River	1950	R	County	3	2611	3130	1.2	3
Upper Crystal Lake	Crystal Lake Inlet	1968	R	Private	6	1	12	12.0	3
Lower Crystal Lake	Tamarack Creek	1970	R	Private	23	40	475	11.9	3
Fawn Lake Outlet Dam	Fawn Lake Outlet	1940	O	Private	1	20	0	0.0	3
Fine Lake Dam	Fine Lake Drain	1959	R	Private	1	320	0	0.0	3
Orangeville Dam	Orangeville Creek	1920	R	County	6.5	208	35	0.2	2
Orangeville Rearing Ponds Dam	Orangeville Creek	1939	P	Private	3	2	17	8.5	3
Canterbury Lake Dam	Tributary to Gun River	1973	R	Private	13	17	110	6.5	3
Gun River Dam	Gun River	1951	C	County	3	5	0	0.0	3
Gun River Trib Dam	Tributary to Gun River	1951	C	County	1	1	0	0.0	3
Snyder Dam	Rankin Creek	1958	R,C	Private	3	1	0	0.0	3
Lubic Dam	Rankin Creek		R	Private	6	2	0	0.0	3
Love Dam	Rankin Creek	1928	O	Private	8	2	6	3.0	3

Table 6.–Continued.

Name	Stream	Date built	Current purpose	Owner	Head (ft)	Surface acres	Storage (acre-ft)	Average depth (ft)	Hazard type
Middle – continued									
Menasha Paper Company Dam	Kalamazoo River	1886	RH	City	9	73	350	4.8	2
Otsego Dam	Kalamazoo River	1904	RH	MDNR	5	67		0.0	1
Minkler Lake Dam	Minkler Lake Outlet	1962	R	Private	2	44	35	0.8	3
Baseline Lake Control	Base Line Creek	1979	R	Private	2	188	150	0.8	3
Pine Creek Dam	Tributary to Pine Creek		O	Private	1	3	0	0.0	3
Williams Mill Dam	Mill Creek	1870	R	Private	15	4	55	13.8	3
Pine Creek Dam	Pine Creek	1973	R	County	7	38	200	5.3	2
Lower									
Trowbridge Dam	Kalamazoo River	1899	RH	MDNR	11	59	590	10.0	1
Miner Lake Control	Miner Creek	1965	R	MDNR	3	257	206	0.8	3
Richards Dam	Tributary to Schnable Brook	1976	R	Private		2		0.0	3
Robinson Dam	Tributary to Schnable Brook	1968	R	Private	1	3		0.0	3
Jones Dam	Tributary to Kalamazoo	1959	R	Private	10	4	0	0.0	3
Allegan City Dam	Kalamazoo River	1900	RH	City	12	135	800	5.9	1
Calkins Bridge Dam	Kalamazoo River	1930	H	Private	33	1587	12000	7.6	3
Mouth									
Swan Creek Dam	Swan Creek	1937	R	MDNR	10	140	560	4.0	3
Highbanks Dam	Swan Creek	1961	R	MDNR	5	32	80	2.5	3
Cross Dike Dam	Palmer Bayou	1959	R	MDNR	2	109	320	2.9	3
Palmer Bayou Dam	Palmer Bayou	1952	O	MDNR	7	340	950	2.8	3
Monterey Lake Dam	Pigeon Creek	1971	R	Private	15	240	1780	7.4	1
Ende Dam	Tributary to Rabbit River	1965	P	Private	5	3	0	0.0	3
Koops Dam	Joost Betlens Creek	1975	O	Private	4	16	25	1.6	3
Hall Dam (Lower)	Shoemaker Drain		O	Private	1	1	0	0.0	3
Hall Dam (Upper)	Shoemaker Drain		O	Private	1	1	0	0.0	3
Hamilton Dam	Rabbit River	1900	RH	Township	5	28	150	5.4	3
Peterson Mill Pond Dam	Goshorn Creek	1957	R	Private	0	4	0	0.0	3
Silver Valley Ponds Dam	Tannery Creek		O	Private	20	7	40	5.7	3
Spring Valley Ponds Dam	Tannery Creek	1963	R,I	Private	20	1	0	0.0	3

Kalamazoo River Assessment

Table 7.—Designated trout streams (as of 2002) in the Kalamazoo River watershed. Streams are designated upstream of the town, range, and section number unless specified otherwise. County name is in italics.

Segment, county, & stream	Location
<b>Headwaters</b>	
<i>Hillsdale</i>	
South Branch Kalamazoo River	From Concord Road Bridge (T5S, R3W, S10) upstream to Strait Road Bridge (T4S, R2W, S31) Mainstem Only
<b>Upper</b>	
<i>Calhoun</i>	
Rice Creek	From confluence of Rice Creek and Kalamazoo River (T2S, R6W, S25) upstream to Concord Road
Minges Creek	Upstream from confluence w/Harper Creek (T2S, R7W, S19)
<b>Middle</b>	
<i>Allegan</i>	
Gun River	(T1N, R11W, S18) (US-131) upstream to T2N, R11W, S12 (122nd Avenue) EXCEPT: Tributaries
Chart Creek	(T1N, R11W, S32) EXCEPT: East Branch, Chart Creek (T1N, R11W, S31)
Pine Creek Tributary	(T1N, R12W, S29) upstream to 101st Avenue
Silver Creek	(T1S, R11W, S4)
Pine Creek Tributary (Rupert Lake Drain)	(T1N, R12W, S32)
Pine Creek	Upstream from 101st Avenue (T1N, R12W, S32)
<i>Barry</i>	
All Fish Lake tributaries	(T2N, R10W, S16 and 21)
Prairieville Creek	(T1N, R10W, S36)
Ellis Creek	From West Lake to Guy Road (T1N, R7W, S15)
<i>Calhoun</i>	
Seven Mile Creek	(T1S, R9W, S25)
<i>Kalamazoo</i>	
Cooper Glen Creek	(T1S, R11W, S27)
Travis Creek	(T1S, R11W, S9)
Allen Creek	(T2S, R11W, S3)
Lee Creek	(T2S, R10W, S28)
Sand Creek	(T1S, R12W, S30)
Demming Creek	(T1S, R11W, S3)
Unnamed Tributary to Kalamazoo River	(T1S, R11W, S15)
Spring Brook	(T1S, R11W, S27)
Portage Creek	Upstream from Kilgore Road (T3S, R11W, S3)
Augusta Creek	To the Knappen Mills Dam (T1S, R9W, S34)
<b>Mouth</b>	
<i>Allegan</i>	
Rabbit River Mainstem	From Kalamazoo River to US-131 Bridge (T4N, R11W, S31)

Table 7.–Continued.

Segment, county & stream	Location
Mouth – continued	
<i>Allegan</i> – continued	
Swan Creek	(T2N, R14W, S9) up to 109th Avenue (T1N, R14W, S7) EXCEPT: Swan Creek Pond (T2N, R14W, S17&20)
Mann Creek	(T3N, R15W, S17)
Silver Creek	(T4N, R14W, S34)
Miller Creek	(T4N, R14W, S36)
Unnamed Tributaries	Upstream from Miller Creek
Big Rabbit River and tributaries	From (T4N, R11W, S31) (US-131) upstream to origin EXCEPT: Green Lake Creek
All tributaries upstream of Miller Lake	(T2N, R12W, S12)
Bear Creek	(T3N, R14W, S29)
Sand Creek	(T2N, R14W, S5)

Kalamazoo River Assessment

Table 8a.—Monthly maximum river temperatures (°F) allowed in selected streams. These standards are applied to all permitted stream discharges and are given a 2–5 °F variance as shown in Table 8b. Data from Michigan Department of Environmental Quality, Surface Water Quality Division.

Stream	Month											
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
	Temperature (°F)											
cold water streams	38	38	43	54	65	68	68	68	63	56	48	40
warm water streams	41	40	50	63	76	84	85	85	79	68	55	43

Table 8b.—Dissolved oxygen (mg/l) and temperature (°F) standards for designated uses of the Kalamazoo River and tributaries. Temperatures represent allowable degrees of increase from the monthly river maximum. Data from Michigan Department of Environmental Quality, Surface Water Quality Division.

Designated use	Minimum dissolved oxygen (mg/l)	Temperature (°F)
warmwater fish	5.0	5
coldwater fish		
designated trout	7.0	2
designated migratory route	5.0	5



Table 9.—Areas not attaining designated uses (as of 2002) in the Kalamazoo River watershed by valley segment. Acronyms: BD=biological degradation, NPS=Nonpoint source pollution, PCB=polychlorinated biphenyl, DO=dissolved oxygen, *E. coli*=bacteria associated with human and animal fecal waste. Data from Michigan 2002 305(b) reports (MDEQ 2002).

Stream	County	Location	Problems
Upper			
Crooked Creek	Calhoun	11 Mile Road	BD
Rice Creek	Calhoun	22 1/5 mile Road	BD
Middle			
Chart Creek	Allegan	Plainwell	BD
Fenner Lake	Allegan	Martin	PCB, NPS, Nutrients
Gun River	Allegan	122nd Ave upstream	BD
Kalamazoo River	Allegan	Entire reach	PCB
Selkirk Lake	Allegan	Shelbyville	Mercury
Gun Lake	Barry	Yankee Springs State Park	<i>E. coli</i>
Pine Creek	Barry	Praireville	Mercury
Wanadoga Creek	Barry	Baseline Road	BD
Battle Creek River	Calhoun	Kalamazoo River confluence	PCB
Kalamazoo River	Calhoun	Battle Creek downstream	PCB
Augusta Creek	Kalamazoo	Augusta Avenue	BD
Davis Creek	Kalamazoo	Cork Street	BD
Gull Lake	Kalamazoo	MSU Kellogg Biological Station	PCB, Mercury
Kalamazoo River	Kalamazoo	Entire reach	PCB
Morrow Pond	Kalamazoo	Comstock	PCB
Portage Creek	Kalamazoo	Romence Road	PCB, BD
Lower			
Kalamazoo River	Allegan	Entire reach	PCB
Lake Allegan	Allegan	Allegan	PCB, NPS, Nutrients
Mouth			
Black Creek	Allegan	140th Avenue	BD, NPS, Nutrients
Kalamazoo Lake	Allegan	Saugatuck	PCB
Kalamazoo River	Allegan	New Richmond	Mercury
Kalamazoo River	Allegan	Entire reach	PCB
Little Rabbit River	Allegan	Rabbit River confluence	BD
Mann Creek	Allegan	57th Street	BD
Rabbit River	Allegan	Wayland	BD, NPS, Pesticide
Red Run	Allegan	Entire reach	BD, DO

Kalamazoo River Assessment

Table 10.—National Pollution Discharge Elimination System permits issued (as of 2002) in the Kalamazoo River watershed by Michigan Department of Environmental Quality, Surface Water Quality Division (Web: <<http://www.deq.state.mi.us/documents/deq-swq-npdes-permlst.xls>> [Accessed 2002: Oct. 3]). Acronyms: WWTP=waste water treatment plant, WWSL=waste water sewage lagoon, WW=waste water.

Facility	Watercourse	City
<b>Headwaters</b>		
Homer Wastewater Treatment Facility	S.B. Kalamazoo River	Homer
Mark I Molded Plastics	S.B. Kalamazoo River	Jonesville
<b>Upper</b>		
Albion WWTP	Kalamazoo River	Albion
Cooper Industries, Incorporated	Kalamazoo River	Albion
Guardian Fiberglass Incorporated	Kalamazoo River	Albion
Hayes-Albion Corporation	Kalamazoo River	Albion
Hoffman Manufacturing Inc	Kalamazoo River	Concord
Concord Wastewater Stabilization Lagoon	Kalamazoo River	Concord
Marshall WWTP	Kalamazoo River	Marshall
Marshall City Power Plant	Kalamazoo River	Marshall
Village of Springport WW Lagoon	South Branch Rice Creek	Springport
Village of Parma	Spring Arbor-Concord Dr.	Parma
Joseph Campbell Company	Talmadge Creek	Marshall
Equilon Enterprises LLC	Talmadge Creek	Marshall
Eaton Corporation	Wilder Creek	Marshall
<b>Middle</b>		
Food City Pickle Company, Inc.	Pigeon Creek	Battle Creek
Clark Retail Enterprises, Inc.	Arcadia Creek	Kalamazoo
Kalamazoo Center Holdings Company	Arcadia Creek	Kalamazoo
Hanson Management Company	Arcadia Creek	Kalamazoo
Verona Well Field	Battle Creek River	Battle Creek
Grand Trunk Western Railroad	Battle Creek River	Battle Creek
Battle Creek Department of Public Works	Battle Creek River	Battle Creek
Kraft Foods, Incorporated	Battle Creek River	Battle Creek
Kraft Foods, Incorporated	Battle Creek River	Battle Creek
Cello-Foil Products, Inc.	Battle Creek River	Battle Creek
Verona Pumping Station WWTP	Battle Creek River	Battle Creek
F. G. Limestone Company	Battle Creek River	Bellevue
Bellevue WWTP	Battle Creek River	Bellevue
Charlotte WWTP	Battle Creek River	Charlotte
Browning-Ferris Industries	Battle Creek River	Marshall
Parker Hannifin Corporation	Baughman Drain	Otsego
Mitech Electronics Corp	Baughman Drain	Otsego
Kalamazoo Nature Center	Collier Creek	Kalamazoo
International Paper	Davis Creek	Kalamazoo
Bunting Bearings Corp.	Davis Creek	Portage
Convenience King Group	Dickinson Creek	Battle Creek
Halbert Dairy Farm	Seven Mile Creek	Battle Creek
Gun Lake Area Sewer Authority WWTP	Gun River	Shelbyville
De Young Hog Farm	Gun River	Plainwell
Duck Lake WWSL	Hogle & Miller Drain	Springport

Table 10.–Continued.

Facility	Watercourse	City
Middle – continued		
Olivet Wastewater Stabilization Lagoons	Indian Creek	Olivet
Michigan Carton and Paperboard	Kalamazoo River	Battle Creek
Rock-Tenn Company	Kalamazoo River	Battle Creek
Rock-Tenn Company	Kalamazoo River	Battle Creek
Culligan Water Conditioning	Kalamazoo River	Battle Creek
City of Battle Creek	Kalamazoo River	Battle Creek
Battle Creek WWTP	Kalamazoo River	Battle Creek
A. M. Todd Company	Kalamazoo River	Kalamazoo
Speedway SuperAmerica #6264	Kalamazoo River	Kalamazoo
Glassmaster Controls Company, Inc.	Kalamazoo River	Kalamazoo
Checker Motors Corporation	Kalamazoo River	Kalamazoo
Graphic Packaging Corp.	Kalamazoo River	Kalamazoo
Georgia-Pacific Corporation	Kalamazoo River	Kalamazoo
Kalamazoo WWTP	Kalamazoo River	Kalamazoo
City of Kalamazoo	Kalamazoo River	Kalamazoo
Eaton Corporation	Kalamazoo River	Marshall
Calhoun County Community Development	Kalamazoo River	Marshall
Otsego WWTP	Kalamazoo River	Otsego
Menasha Corporation	Kalamazoo River	Otsego
Plainwell WWTP	Kalamazoo River	Plainwell
Preferred Plastics, Incorporated	Kalamazoo River	Plainwell
Packerland Packing	Kalamazoo River	Plainwell
MDEQ	Kalamazoo River	Plainwell
Arco Industries Corporation	Kalamazoo River	Schoolcraft
Eaton Corporation	Kalamazoo River	Springfield
Ralston Foods, Inc.	Kalamazoo River	Battle Creek
WDS Ventures, LLC	Payne Lake	Middleville
Strebor Incorporated	Portage Creek	Kalamazoo
Kalamazoo Public Services Department	Portage Creek	Kalamazoo
Pharmacia & Upjohn Company	Portage Creek	Kalamazoo
Lower		
Allegan WWTP	Kalamazoo River	Allegan
Perrigo Company	Kalamazoo River	Allegan
Perrigo Company	Kalamazoo River	Allegan
Allegan Metal Finishing	Kalamazoo River	Allegan
Mouth		
Leighton Twp-Green Lake WWSL	Green Lake Creek	Allegan County
City of Moline WWTP	Green Lake Creek	Moline
Village of Hopkins WWSL	Herlan Drain	Hopkins
Petro Farms	Swan Creek	Allegan
Kalamazoo Lake WWTP	Kalamazoo River	Douglas
Kruger Commodities, Incorporated	Kalamazoo River	Hamilton
Kalamazoo Lake WWTP	Kalamazoo River	Saugatuck
Hamilton Community Schools WWSL	Lohman Drain	Hamilton
Acro, Inc	Mann Creek	Fennville

Table 10.–Continued.

Facility	Watercourse	City
Mouth – continued		
Dean Foods Company	Rabbit River	Wayland
Northbrook Estates	Rabbit River	Wayland
Crossroads Dairy	Rabbit River	Wayland
Schaendorf Dairy	Rabbit River	Wayland
Walnut Dairy	Rabbit River	Wayland
Wolverine Power Supply	Red Run Drain	Dorr
Amoco Oil Company	Red Run Drain	Dorr
Hamilton Farm Bureau Co-op, Incorporated	Sweets Creek	Hamilton

Table 11.–Industrial storm water permits issued (as of 2002) by Michigan Department of Environmental Quality, Surface Water Quality Division, in the Kalamazoo River watershed (Web: <<http://www.deq.state.mi.us/documents/deq-swq-npdes-stormlst.xls>> [Accessed 2002: Oct. 3]).

Stream name	Facility name	Location
Headwaters		
S.B. Kalamazoo River	Calhoun Foundry Company	Homer
S.B. Kalamazoo River	Trojan Heat Treat Incorporated	Homer
S.B. Kalamazoo River	Mark I Molded Plastics	Jonesville
Upper		
Kalamazoo River	Michigan Dept. of Military & Veterans Affairs	Albion
Kalamazoo River	Albion Industries Incorporated	Albion
Kalamazoo River	Guardian Fiberglass Incorporated	Albion
Kalamazoo River	Clariant Corporation--Masterbatches Division	Albion
Kalamazoo River	Sheridan Industries Incorporated	Albion
Kalamazoo River	Surfinco Incorporated	Albion
Kalamazoo River	American Colloid Company	Albion
Kalamazoo River	Team One Plastics Incorporated	Albion
Kalamazoo River	Morris Stulberg Property	Marshall
Kalamazoo River	Comcast Urethane	Marshall
Kalamazoo River	Collins & Aikman	Marshall
Kalamazoo River	US Filter/VL RAMPE-Lining Plant	Marshall
Kalamazoo River	US Filter/VL Rampe	Marshall
Kalamazoo River	Tenneco Automotive	Marshall
Kalamazoo River	Progressive Dynamics Incorporated	Marshall
Kalamazoo River	Hayes Machine Company	Marshall
Pretty Branch Drain	Lab & Tool Engineering Company	Spring Arbor
South Branch Rice Creek	Shafer Redi-Mix	Albion
Talmadge Creek	Tenneco Automotive	Marshall
Talmadge Creek	Equilon Enterprises Limited Liability Corporation	Marshall
Middle		
Adjacent Pond	Statler Ready Mix Concrete	Battle Creek
Arcadia Creek	Western Michigan University	Kalamazoo
Battle Creek River	Dare Products Incorporated	Battle Creek
Battle Creek River	Bear Metals Incorporated	Battle Creek
Battle Creek River	Halders Parts	Battle Creek
Battle Creek River	Norfolk Southern Railway Company	Battle Creek
Battle Creek River	Grand Trunk Western Railroad Incorporated	Battle Creek
Battle Creek River	Plymouth Packaging Incorporated	Battle Creek
Battle Creek River	Cello-Foil Products, Incorporated	Battle Creek
Battle Creek River	Kraft Foods, Incorporated	Battle Creek
Battle Creek River	Grand Trunk WRR	Battle Creek
Battle Creek River	Care-Free Windows	Charlotte
Battle Creek River	Spartan Motors Incorporated	Charlotte
Bear Creek	Hopkins Elevator Limited Liability Corporation.	Hopkins
Bear Creek	Sebright Products, Incorporated	Hopkins
Big Marsh Drain	Land O'Lakes, Farmland Feed	Battle Creek
Davis Creek	International Paper	Kalamazoo

Table 11.–Continued.

Stream name	Facility name	Location
Middle – continued		
Davis Creek	Cytec Industries Incorporated	Kalamazoo
Davis Creek	Reliable Disposal	Kalamazoo
Davis Creek	Green Bay Packaging, Incorporated	Kalamazoo
Davis Creek	Kalamazoo Metal Finishers	Kalamazoo
Davis Creek	Tower Automotive	Kalamazoo
Davis Creek	Kalamazoo Scrap & Processing	Kalamazoo
Davis Creek	Pharmacia & Upjohn-Kilgore	Kalamazoo
Davis Creek	FedEx Ground	Kalamazoo
Davis Creek	Schupan & Sons, Incorporated	Kalamazoo
Davis Creek	Schupan & Sons-Miller Road	Kalamazoo
Davis Creek	Thompson-McCully Company	Kalamazoo
Davis Creek	International Paper	Kalamazoo
Davis Creek	United States Postal Service	Kalamazoo
Davis Creek	Roadway Express, Inc. (T271)	Kalamazoo
Davis Creek	5200 East Cork Street Investors	Kalamazoo
Davis Creek	Alvan Motor Freight, Incorporated	Kalamazoo
Davis Creek	Bunting Bearings Corporation	Portage
Dickinson Creek	Greslys, Incorporated	Battle Creek
Duck Lake	Discount Auto Salvage	Springport
Duffy Drain	L.L. Johnson Lumber Manufacturing Company	Charlotte
Eagle Lake	Mich. Dept. Military & Veterans Affairs	Augusta
Gun Creek	Gun Lake Salvage	Shelbyville
Harts Lake	Mich Air Nat Guard	Battle Creek
Harts Lake	W. K. Kellogg Airport	Battle Creek
Kalamazoo River	Fort Custer-UTES	Augusta
Kalamazoo River	Murf's Storage	Battle Creek
Kalamazoo River	AC Foundry, Incorporated	Battle Creek
Kalamazoo River	US Postal Service Battle Creek	Battle Creek
Kalamazoo River	Choice Auto Parts, Incorporated	Battle Creek
Kalamazoo River	Denso Manufacturing Michigan, Incorporated	Battle Creek
Kalamazoo River	I. I. Stanley Company, Incorporated	Battle Creek
Kalamazoo River	Ickes-Wilbert Vault	Battle Creek
Kalamazoo River	Lotte USA Incorporated	Battle Creek
Kalamazoo River	Omega Castings Incorporated	Battle Creek
Kalamazoo River	David Brown Union Pump Company	Battle Creek
Kalamazoo River	US Army AMSA 135(G)	Battle Creek
Kalamazoo River	Ato Findley Incorporated	Battle Creek
Kalamazoo River	Technical Auto Parts Incorporated	Battle Creek
Kalamazoo River	Benteler Automotive	Galesburg
Kalamazoo River	Delrod Sales Corp	Kalamazoo
Kalamazoo River	Kalamazoo Metal Recyclers Incorporated	Kalamazoo
Kalamazoo River	Ksm Ind Scrap Processors	Kalamazoo
Kalamazoo River	Lake St Used Auto Parts	Kalamazoo
Kalamazoo River	Azon USA, Incorporated	Kalamazoo
Kalamazoo River	Michigan Recycling Industries	Kalamazoo
Kalamazoo River	Reliable Disposal	Kalamazoo

Table 11.–Continued.

Stream name	Facility name	Location
Middle – continued		
Kalamazoo River	Norfolk Southern-Botsford Yard	Kalamazoo
Kalamazoo River	Consumers Concrete Products	Kalamazoo
Kalamazoo River	General Chemical Corporation	Kalamazoo
Kalamazoo River	Hammond Machinery/Roto Finish	Kalamazoo
Kalamazoo River	Haviland Products Company	Kalamazoo
Kalamazoo River	Indian Trails, Incorporated.	Kalamazoo
Kalamazoo River	INX International Ink Company	Kalamazoo
Kalamazoo River	Jackson Iron & Metal Company	Kalamazoo
Kalamazoo River	Kalamazoo Lumber and Manufacturing	Kalamazoo
Kalamazoo River	Kalamazoo Transit System	Kalamazoo
Kalamazoo River	Koolant Coolers Incorporated	Kalamazoo
Kalamazoo River	Parker Hannifin Corporation	Kalamazoo
Kalamazoo River	Schafer Bakeries	Kalamazoo
Kalamazoo River	Statler Ready Mixed Concrete	Kalamazoo
Kalamazoo River	Wright Coating Company Incorporated	Kalamazoo
Kalamazoo River	Graphic Packaging Corporation	Kalamazoo
Kalamazoo River	Borroughs Corporation	Kalamazoo
Kalamazoo River	Precision Heat Treating	Kalamazoo
Kalamazoo River	Eagle Auto Parts	Kalamazoo
Kalamazoo River	Checker Motors Corporation	Kalamazoo
Kalamazoo River	Flowserve Corporation	Kalamazoo
Kalamazoo River	Weller Auto Parts-Kalamazoo	Kalamazoo
Kalamazoo River	KTS Industries Incorporated	Kalamazoo
Kalamazoo River	Nucon Schokbeton	Kalamazoo
Kalamazoo River	Graphic Packaging Corp.	Kalamazoo
Kalamazoo River	Kalamazoo-Battle Creek International Airport	Kalamazoo
Kalamazoo River	Hammond Machinery/Roto-Finish	Otsego
Kalamazoo River	River Coatings Incorporated	Otsego
Kalamazoo River	Hercules Incorporated	Parchment
Kalamazoo River	Fort James Operating Company	Parchment
Kalamazoo River	Specialty Minerals (Michigan) Incorporated	Plainwell
Kalamazoo River	Murco Foods, Incorporated	Plainwell
Kalamazoo River	Lam-Fab Incorporated	Springfield
Kalamazoo River	Springport Steel Wire Prdts	Springport
Kalamazoo River Cutoff Channel	Ralston Foods, Incorporated	Battle Creek
Minges Brook Creek	Brutsche Concrete Product	Battle Creek
Portage Creek	Steel Supply & Engineering Co	Kalamazoo
Portage Creek	Pharmacia & Upjohn Company	Kalamazoo
Portage Creek	Kalamazoo Armory OMS#4A	Kalamazoo
Portage Creek	Arvco Container Corporation	Kalamazoo
Portage Creek	Strebor, Incorporated	Kalamazoo
Portage Creek	WMH Fluid Power	Portage
Spring Brook	Richland Auto Truck Salvage, Incorporated	Richland
Susan Creek	Franklin Iron & Metal	Battle Creek
unnamed wetland	Kalamazoo Valley Group	Galesburg
Zantman Drain	Flint Ink North America Corporation	Kalamazoo

Table 11.–Continued.

Stream name	Facility name	Location
Lower		
Fields Brook	Truheat Corporation	Allegan
Fields Brook	Allegan City Airport	Allegan
Kalamazoo River	Waanders Concrete	Allegan
Kalamazoo River	Haworth, Incorporated	Allegan
Kalamazoo River	Crescent Metal Products Company	Allegan
Mouth		
Bisbee Drain	Ace Trucking	Moline
Goshorn Creek	Paramount Tool Co Incorporated	Saugatuck
Kalamazoo River	Haworth, Incorporated-Douglas	Douglas
Kalamazoo River	Tower Marine	Douglas
Kalamazoo River	Douglas Marine Corporation	Douglas
Kalamazoo River	Broward Marine Incorporated	Saugatuck
Kalamazoo River	West Shore Marine-Saugatuck	Saugatuck
Kalamazoo River	Saugatuck Yacht Service	Saugatuck
Mann Creek	Acro Incorporated	Fennville
Miller Creek	Sebright Products, Incorporated	Allegan County
Mineral Spring	C Stoddard & Sons, Incorporated	Wayland
Rabbit River	Dean Foods Company	Wayland



Table 12.–Contamination sites of the Kalamazoo River watershed, by valley segment, 2002. Data from Michigan Department of Environmental Quality, Environmental Response Division. Acronyms: BTEX=benzene, toluene, ethylbenzene, and xylene; DCA=dichloroethane; DCE=dichloroethylene; DDE=dichlorodiphenyldichloroethylene; MTBE=methyl tertiary butyl ether; DDT=Dichlorodiphenyltrichloroethane; PCB=polychlorinated biphenyl; PCE or PERC=perchloroethylene; PNAs=polynuclear aromatic hydrocarbons; TCA=trichloroethane; TCE=trichloroethylene; TPH=total petroleum hydrocarbons; LF=landfill. (Web: <<http://www.deq.state.mi.us/erd1/sites/index.jsp>> [Accessed 2002: July 21]).

Segment and site	Location	Pollutant
<b>Headwaters</b>		
SE Michigan Gas	Albion	BTEX, pnas, Metals
Petco Albion	Calhoun County	Crude oil, btex, chloride
Barnett, Cecil 1	Hillsdale County	Brine, chloride
Industrial Wells	Mosherville	Chlorides
Mosherville Oil Pit Dump	Mosherville	Pnas
Scio Gas Plant	Mosherville	Chromium, phenols, nickel, benzene
<b>Upper</b>		
Airco Rare and Specialty Glass	Albion	Chromium, zinc
Albion-Sheridan Twp Landfill	Albion	Chromium, lead, nickel, cyanide
Brooks Foundry Building	Albion	Methylene, Chloride, pcbs, pnas, Pesticides, Lead, Zinc
Brooks Foundry Lagoon	Albion	Pnas, pcbs, Lead, Zinc, Cadmium
Brown Weld Service	Albion	Toluene
Calhoun Co Rd Comm Albion	Albion	Brine, chloride
Former Albion City Waste Yard	Albion	Tce, lead, phenanthrene
McGraw Edison Corporation	Albion	Tce
Mid Mich Metal Production	Albion	Cadmium, copper, lead, zinc, tce, dce, pce
Union Street Products Plant #1	Albion	Lead, cyanide
Woods, M.B. #1	Calhoun County	Btex, crude oil, brine, chloride
Woods, M.B. #2	Calhoun County	Btex, crude oil, brine, chloride
Keith Fransted Construction	Concord	Gasoline
Quality Production Corporation	Concord	Paint waste
Horton Area GW Contamination	Horton	Btex, isopentane, dce
Bostik Company	Marshall	Perchloroethylene
Calhoun Co Rd Comm Marshall	Marshall	Btex, methylene, chloride, tce, tca, dichloropropane
Clark Oil Apex Oil	Marshall	Lead, benzene, ethylbenzene
Consumers Energy	Marshall	Lead, Cyanide, pnas
Eaton Corporation	Marshall	Tce, pce, vinyl chloride
Marshall City LF	Marshall	Domestic waste
Marshall Iron and Metal	Marshall	Lead, cadmium, copper
Residential Well 23 Mile Road	Marshall	Benzene, toluene, xylene, oil, phenols
Ronan & Kunzl Airport	Marshall	Tce
Ronan & Kunzl Main Building	Marshall	Tce
V and L Industries	Marshall	Aluminum oxide, Curene
Springport Waste Water Treatment Plant	Springport	Chlorides, ammonia
<b>Middle</b>		
Ft. Custer Military Reserve	Augusta	Lead, arsenic
American Fibril	Battle Creek	Heavy manufacturing
Battle Creek Adventist Hospital	Battle Creek	Pnas
Battle Creek Aquatic Center	Battle Creek	Metals, Arsenic, BTEX, pnas

Table 12.–Continued.

Segment and site	Location	Pollutant
Middle – continued		
Calhoun Co Rd Comm BC	Battle Creek	Benzene, toluene, chloride
Cereal City Landfill	Battle Creek	Benzene, ammonia, vinyl chloride, arsenic
Cliff Street Wells	Battle Creek	Chloroform, dca, chlorodibromometha, dichlorobromoetha
East Columbia	Battle Creek	Btex, dca, dce
Farm Bureau Services	Battle Creek	Mercury, benzene, copper, nickel
Fouth Street Area	Battle Creek	Tce, tca, dca, dce, vinylidene, chloride
Global Paint and Ink	Battle Creek	Tca, xylene, tce
Grand Trunk Western Rail Road	Battle Creek	Tca, tce, dca, dce, diesel
Kelloggs Kelpaco	Battle Creek	Benzene, ethylbenzene, toluene, xylene
Kendall Street	Battle Creek	PCE, TCA, DCA, Metals, pnas
Main Street Dump	Battle Creek	Domestic waste
McLeieer Oil	Battle Creek	BTEX, pnas, Metals
Michigan Paperboard Corporation	Battle Creek	Ethylbenzene, xylene, toluene, naphthalene
Morgan Road Ground Water	Battle Creek	Pce, dca, tca
Pink Poodle Cleaners	Battle Creek	Perchloroethylene
Quad L Corp	Battle Creek	Xylene, toluene, ethylbenzene
Raymond Road Landfill	Battle Creek	Dce, toluene, xylene, nickel, zinc
Residential Well 240 Wilson	Battle Creek	Tce, dce
Residential Well Beadle Lake Road	Battle Creek	Vinyl chloride, dce, lead, copper, magnesium, zinc
S&A Industries	Battle Creek	Cutting oil, paint
Shay Motor Company	Battle Creek	Methylene, chloride, tce, chromium, benzene, toluene
United Steel Michner Plating	Battle Creek	Metals, cyanide, halogenated hydrocar, tca, pce
Verona Well Field	Battle Creek	Tce, xylene, pce, dce
West Urbandale Area Wells	Battle Creek	Tce
AE Hoover	Charlotte	Pcb, mercury, lead
Johnson Iron Industries	Charlotte	Pcbs, Lead, Nickel, BTEX
Res Wells Oriole Drive	Charlotte	Chlorides, sodium
5177 Comstock Avenue	Comstock	Lead, chromium, zinc
Hydreco	Comstock	Tce, vinyl chloride, dce
Modern Septic Tank	Comstock	Tce, pce, tca, chloroform, dca
River Street Area	Comstock	Btex, tce, methylene, chloride
D Ave Cooper Twp	Cooper	Pcbs
MSU Kellogg Biological Station	Hickory Corners	Phenanthrene, BTEX
1606 S. Burdick Street	Kalamazoo	Lead, phenanthrene, tce
629 Hoek Court	Kalamazoo	Arsenic
Acme Printing Ink	Kalamazoo	Pce, toluene, lead, chrome
Allen Test Products	Kalamazoo	Arsenic, TCE
Allied Chemical Corporation	Kalamazoo	Pesticides
American Cyanamid	Kalamazoo	Tce, toluene, dce,
APEC Ampersee St Lots	Kalamazoo	Btex
Arcadia Creek	Kalamazoo	Pnas, Metals, Organic Hand Cleaner
Auto Ion Chemicals	Kalamazoo	Cyanide, chromium
Bank Street	Kalamazoo	Pna, tce, dce
Boroughs Corporation	Kalamazoo	Pnas, PCE, TCE, BTEX
Checker Motors Corporation	Kalamazoo	Tce, dce

Table 12.–Continued.

Segment and site	Location	Pollutant
Middle – continued		
Clausing Industrial N. Pitcher	Kalamazoo	Tce, dce
Comstock Land Ltd	Kalamazoo	Benzene, toluene, lead, arsenic, chromium
Conrail Mill Street	Kalamazoo	Diesel fuel
Consumers Energy	Kalamazoo	Arsenic, PCB, Benzo(a)pyrene
D Ave Alamo Twp	Kalamazoo	Dca, naphthalene, btex, mtbe
DeMeyers Country Kitchen	Kalamazoo	Lead, chromium
Drake Road & W Michigan	Kalamazoo	Zinc, tca, arsenic
East Willard	Kalamazoo	Arsenic, Acenaphthene, Benzo(b)fluoranthen
Fairfield Ave Area/Kal-Aero	Kalamazoo	Pce, chloroform, tca, dca
Farm Bureau Services	Kalamazoo	Chordane, nitrogen nitrite, nitrogen ammonia
Former Fisher-Graff Prop	Kalamazoo	Lead, pentachlorophenol, tce
GM BOC	Kalamazoo	Lead, Arsenic, pnas
Griffin Pest Control	Kalamazoo	Chordane, diazinon, chlorpyrifus
Kalamazoo Comm Ed Center	Kalamazoo	Benzo(a)pyrene, Benzene
Kalamazoo Wells Central No 1	Kalamazoo	Pce, tca
Kalamazoo Wells No 11	Kalamazoo	Dca, vinyl chloride
Kalamazoo Wells No 14	Kalamazoo	Tce
KL Ave LF	Kalamazoo	Zinc, BTEX, Acetone, DCE, DCA, 4-methyl 2-pentanone
Lakeside Refining Company	Kalamazoo	Benzene, lead, chromium
Lyons Machine Builders	Kalamazoo	BTEX, pnas, Metals
McLeieer Oil	Kalamazoo	Petroleum
Michigan Disposal Cork Street	Kalamazoo	Arsenic, benzene
N. Pitcher St – BIC	Kalamazoo	Arsenic, phenanthrene, tce
Nazareth College	Kalamazoo	BTEX, pnas
Newport Rd and East Milham	Kalamazoo	Pce, tce
Panelyte	Kalamazoo	Pcbs
Pitcher and Patterson Streets	Kalamazoo	Arsenic, chromium, dce, lead, toluene
Pitcher and Prouty	Kalamazoo	Pce, tce
Plastic Engineering Vanderbilt	Kalamazoo	Tca, pce, tce
Portage and Bishop Street	Kalamazoo	Methylene, Chloride, t-Butanol, DCE, THF, Acetone
Portage and Second Street Area	Kalamazoo	Tce, dca, pce
Portage Creek & Kalamazoo River	Kalamazoo	Pcb, mercury
Production Printing	Kalamazoo	Toluene, zylene, tce
Residential Well Lakeridge Road	Kalamazoo	Benzene, toluene, diatom filter cake
Residential Well Wayne Street	Kalamazoo	Tce
Roto-Finish Co., Incorporated	Kalamazoo	Tce, tca, dce
Savage Rowe Plating Company	Kalamazoo	Chromium, TCE
Schippers Crossing	Kalamazoo	Lead, mercury, chromium
SER	Kalamazoo	Heavy manufacturing
Sinclair Bulk Stor Amer Aggregate	Kalamazoo	Btex
Speare Flex	Kalamazoo	Tce, dce, pcb
Spring Street	Kalamazoo	Petroleum and Coal Products
Strebor	Kalamazoo	Pentachlorophenol
Travis St. Cooper Twp	Kalamazoo	Tca
W. Michigan and 6 <sup>th</sup> Street	Kalamazoo	TCE, TCA, DCA, vinylidene, Chloride
Waste Oil Storage	Kalamazoo	Chloroform, DCA, TCE, TCA
Waste Oil Storage Hazard St	Kalamazoo	Methylene, chloride, tca, tce, dca
Jefferson Street	Otsego	Tce

Table 12.–Continued.

Segment and site	Location	Pollutant
Middle – continued		
Parker Hannifin Corporation	Otsego	Dca, tca, dce, tce
Calhoun Co Rd Comm Pennfield	Pennfield	Salt
585 10 <sup>th</sup> Street	Plainwell	Lead, chromium, cadmium
A1 Disposal Landfill	Plainwell	Lead, arsenic, nickel, tca, tce, methylenechlorid
A1 Disposal Plainwell	Plainwell	Lead, arsenic, mercury, tca, pce
Acorn Street Industrial Park	Plainwell	Cyanide
Bloomfield Res Well	Plainwell	Dca, pce, dcb, tca
Church and Allegan	Plainwell	Benzene
Conrail-Plainwell	Plainwell	Phenanthrene, naphthalene, ethylbenzene
Gun Plain Twp Landfill	Plainwell	Zinc, Lead, vocs
Hughes Engraving	Plainwell	Tca, tce, nitrites
Jersey Street	Plainwell	Tce, dce
Kewaunee Sci Equip Company	Plainwell	Tce, chromium, arsenic, nickel, zinc
Neo-Tech	Plainwell	Nickel, chromium
Sec. 25 Gun Plain Twp	Plainwell	Benzene, TCE
3900 Milham	Portage	Sodium, manganese
D&A Auto Body	Portage	Pce
Lovers Lane	Portage	Dca
Portage and Zylman Res Well	Portage	Tce
Portage Steel Fabricating	Portage	Toluene, methylene chloride, ethylbenzene
Romence and Westnedge	Portage	Tca, dca,
Rosedale Subdivision	Portage	Pce, dce, tce, tca
Upjohn Co Milham Road	Portage	Tph
Kavco Landfill	Prairieville Twp	Chromium, dce, nickel, benzene, organics
North 34 <sup>th</sup> Street Area	Richland	Benzene, tce, pce, tca, chrome, copper, nickel
Production Plated Plastics	Richland	Chromium, copper
Clark Equipment	Springfield	Pce, tca, dce, dca
Dickman Auto Parts	Springfield	Tce, dce, dca, tca, metals
Dickman Landfill	Springfield	Tce, dce, dca, tca, metals, benzene, toluene
Eaton Corp	Springfield	Dce, tca, dca
Martin-Vogt Plating	Springfield	Chromium, nickel, lead, cyanide
Springfield Salt Storage	Springfield	Salt
Springfield Wells Lafayette Area	Springfield	Benzene, metals
Q Ave - Crooked Lake	Texas Corners	Benzene, xylene, toluene
Chief Noonday - Archwood	Wayland	Dichloroethane, toluene, benzene, xylene
Lower		
300 Water Street	Allegan	Phenanthrene, Benzo(a)pyrene, Acenaphthene
Allegan Metal Finishing	Allegan	Cyanide, chromium, zinc
Cappon Oil Transport Loss	Allegan	Benzene, toluene, xylene
City of Allegan	Allegan	Lead, arsenic, phenanthrene
Huitt and Sons	Allegan	Domestic and Industrial Waste
Res Wells Lincoln Road	Allegan	Pce, tce
Rockwell International Corp	Allegan	Lead, pcb, chromium
Water Street	Allegan	BTEX, pnas
Mesick Maude 1	Allegan County	Crude oil, bext, chloride

Table 12.–Continued.

Segment and site	Location	Pollutant
Mouth		
Busk, Augie 3	Allegan County	Btex, crude oil, chloride
Ebert Farm	Allegan County	Pesticides
Sindlinger #1	Allegan County	Btex, brine, chloride, crude oil
Sutter, Frederick Well 1	Allegan County	Crude oil, brine, chloride
Village of Douglas Contamination Site	Douglas	Chromium, nickel, tce, tca, dce
LaGrange Lab Processors, Inc.	Fennville	Chloroform, DCA
MDOT Fennville	Fennville	Chlorides
Michigan Fruit Cannery	Fennville	DDT, Manganese
Res Well 68th Street	Fennville	TCE
Pilgrim Farms Pickle Plant	Hamilton	Chlorides
Exit 41 Landfill	Saugatuck	DCA, DCE
Gleason Property	Saugatuck	Diesel Fuel
136th and 12th	Wayland	Lead
Goodale Facility	Wayland	TCE, Chlorides, Ethylbenzene
Sunrise Landfill	Wayland	TCE, DCE, Vinyl Chloride, Toluene Xylene

Kalamazoo River Assessment

Table 13.–Sites within the Kalamazoo River watershed listed under the Comprehensive Environmental Response, Compensation and Liability Act or CERCLA (Superfund). Acronyms: pre-remedial (DS=discovery, SI=site inspection, NF=final national priority list); removals (RS=removal investigation, RV=removal action); remedial (AR=administrative record, RA=remedial action, RD=remedial design); event lead is the agency directing the site actions (EPA=Environmental Protection Agency; RP=responsible party, State = State of Michigan). (Web: <<http://www.deq.state.mi.us/erd1/sfnpl/index>> [Accessed 2002: July 21]).

Site name	City	Last action	Date	Event lead
<b>Upper</b>				
Albion Ether Site	Albion	DS	10/24/1991	State
Albion-Sheridan Twp Landfill	Albion	RD	09/30/1999	RP
Brooks Foundry Lagoons	Albion	SI	02/10/1993	State
McGraw Edison Corporation	Albion	RA	10/29/1999	State
Union Steel Products Plant 1	Albion	RA	02/05/1997	EPA
<b>Middle</b>				
Orbit Enterprises	Battle Creek	AR	08/18/2000	EPA
Thomas Solvent Company	Battle Creek	AR	02/19/1991	EPA
Verona Well Field	Battle Creek	RA	04/07/1999	RP
Johnson Iron Industries	Charlotte	RA	03/15/1999	EPA
Allied Paper, Incorporated	Kalamazoo	RV	10/22/1999	RP
Auto Ion Chemicals Incorporated	Kalamazoo	RA	09/04/1998	RP
K&L Ave Landfill	Kalamazoo	NF	11/17/1992	EPA
Michigan Disposal Service	Kalamazoo	RD	12/01/1999	RP
Panelyte	Kalamazoo	RA	10/25/1995	EPA
Roto-Finish Company	Kalamazoo	RA	07/31/1998	EPA
SER-Plating Company	Kalamazoo	RV	06/12/1992	EPA
Spearflex Corporation	Kalamazoo	SI	02/06/1997	State
Production Plated Plastics	Richland	SP	09/28/1994	State
Portage Creek/Kalamazoo River	Several	RA	06/01/2001	EPA
<b>Lower</b>				
Rockwell International	Allegan	RS	04/22/1998	RP
Portage Creek/Kalamazoo River	Several	RA	06/01/2001	EPA
<b>Mouth</b>				
Chase Mfg Company	Douglas	SI	10/31/1991	State

Table 14.—July average stream temperature (°F) for the Kalamazoo River and tributaries. Blanks indicate missing information (MDNR, FD, unpublished data).

Stream	County	Site	Year	Temperature(°F)		
				Minimum	Maximum	Mean
Headwaters						
S.B. Kalamazoo River	Jackson	Grover Road	2001	57.6	78.4	67.5
Upper						
Kalamazoo River	Calhoun	Above Ceresco	2001	65.7	79.7	72.3
Kalamazoo River	Calhoun	B Drive North	2001	64.2	79.2	71.6
Kalamazoo River	Calhoun	Below Ceresco	2001	64.4	82.2	73.2
Kalamazoo River	Calhoun	Marshall	2001	64.4	79.5	71.4
Kalamazoo River	Calhoun	Old US 27	2001	67.5	79.7	73.2
N.B. Kalamazoo River	Jackson	Bath Mills	2001	61.2	82.2	71.1
N.B. Kalamazoo River	Jackson	Crispell Road	2001	58.8	88.3	73.9
Rice Creek	Calhoun	20 Mile	1998	60.6	72.8	66.6
Rice Creek	Calhoun	22 1/2 Mile	1998	57.5	67.2	61.0
Rice Creek	Calhoun	26 Mile	1998	59.7	71.6	66.5
Rice Creek	Calhoun	Michigan	1998	60.0	71.3	66.0
Rice Creek	Calhoun	Monroe	2001	58.5	72.1	64.9
Rice Creek	Calhoun	Partello	2001	59.0	70.0	64.0
Middle						
Allen Creek	Kalamazoo	Pitcher Street	2000	51.3	75.2	60.5
August Creek	Kalamazoo	C Avenue	2001	58.1	77.4	68.4
August Creek	Kalamazoo	Covered Bridge	1994	61.7	77.0	69.4
August Creek	Kalamazoo	Kellogg Forest	1994	60.8	75.4	68.0
Battle Creek	Eaton	Ainger	2001	60.3	71.1	65.8
Battle Creek	Calhoun	Battle Creek	2001	66.7	79.2	72.7
Battle Creek	Eaton	I-69	2001	57.9	74.1	66.0
Battle Creek	Eaton	Kalamo	2001	58.8	72.5	64.6
Battle Creek	Eaton	Nye Road	2001	57.0	72.1	64.9
Battle Creek	Calhoun	Pine Lake Road	2001	64.4	76.5	70.9
Battle Creek	Eaton	Sherwood Road	2001	60.1	72.1	66.4
Battle Creek	Calhoun	Vine Road	2001	64.4	75.7	70.2
Bonnie Brook	Kalamazoo	25th Street	2000	50.7	66.4	57.5
Burns Creek	Kalamazoo	D Avenue	1996	48.0	62.1	55.2
Castle Creek	Kalamazoo	Miller Drive	2000	54.1	66.9	60.6
Chart Creek	Allegan	10th	1993	55.9	75.6	65.1
Cooper Creek	Kalamazoo	Westnedge	2000	51.6	76.3	61.5
Demming Creek	Kalamazoo	19th	1996	50.9	67.1	59.0
Gull Lake Outlet	Kalamazoo	37th	2001	66.6	86.7	76.1
Gun River	Allegan	10th	1993	54.9	71.6	64.0
Indian Creek	Eaton	Messenger	2001	59.0	71.1	65.3
Kalamazoo River	Kalamazoo	35th Street	2001	68.9	84.4	76.5
Kalamazoo River	Kalamazoo	Below Morrow Pond	2001	63.7	83.1	75.7
Kalamazoo River	Kalamazoo	M-96	2001	64.4	86.0	75.4
Kalamazoo River	Kalamazoo	Mosel	2001	68.7	83.3	75.7
Kalamazoo River	Allegan	River Street	2001	67.6	82.6	74.8

## Kalamazoo River Assessment

Table 14.–Continued.

Stream	County	Site	Year	Temperature(°F)		
				Minimum	Maximum	Mean
Middle – continued						
Lee Creek	Kalamazoo	ML		55.8	67.5	61.5
Portage Creek	Kalamazoo	Milham Road	2000	59.1	75.6	67.2
Portage Creek	Kalamazoo	Oakland	2000	57.1	71.9	64.2
Portage Creek	Kalamazoo	Westnedge	2000	56.5	72.1	64.1
Rankin Creek	Allegan	3rd	2000	50.5	59.9	54.2
Seven Mile Creek	Calhoun	2 Mile	2000	54.4	71.0	62.9
Seven Mile Creek	Calhoun	M-89	2000	57.7	72.8	65.1
Seven Mile Creek	Calhoun	R Drive North	2000	57.5	72.8	64.9
Seven Mile Creek	Calhoun	V Drive North	2000	52.3	67.1	59.3
Silver Creek	Kalamazoo	19th	2000	53.7	68.4	61.3
Silver Creek	Allegan	19 <sup>th</sup>	1995	53.8	73.4	63.3
Silver Creek	Allegan	M-89	1995	53.6	74.5	63.3
Sping Brook	Kalamazoo	DE	2000	52.3	66.1	59.0
Spring Brook	Kalamazoo	M-89	1994	52.9	69.4	59.7
Spring Brook	Kalamazoo	Riverview	1994	54.1	67.8	60.1
Spring Brook	Kalamazoo	DE	2001	50.7	66.9	59.4
Spring Brook Trib	Kalamazoo	25 <sup>th</sup>	2000	50.9	65.8	56.8
Travis Creek	Kalamazoo	B Avenue	1996	50.5	64.6	57.0
Wanadoga Creek	Calhoun	M-66	2001	59.9	74.7	67.6
Lower						
Kalamazoo River	Allegan	26 <sup>th</sup> Street		71.3	85.8	78.4
Kalamazoo River	Allegan	Bridge Street	2001	68.0	83.1	75.4
Kalamazoo River	Allegan	Iron Bridge	2001	68.4	79.7	74.1
Kalamazoo River	Allegan	M 222	2001	68.2	79.2	73.8
Schnable Brook	Allegan	22 <sup>nd</sup>	2001	58.6	75.0	66.9
Mouth						
Bear Creek	Allegan	M-40		57.0	73.6	65.7
Kalamazoo River	Allegan	57 <sup>th</sup>	2001	69.3	80.2	75.0
Kalamazoo River	Allegan	Allegan Dam Rd	2001	64.8	80.1	72.1
Little Rabbit River	Allegan	21 <sup>st</sup>	1996	51.1	70.0	61.0
Little Rabbit River	Allegan	22 <sup>nd</sup>	1996	53.1	75.9	64.8
Little Rabbit River	Allegan	Wustman	1996	52.0	77.0	64.0
Mann Creek	Allegan	54 <sup>th</sup>	1995	53.1	72.3	62.4
Mann Creek	Allegan	57 <sup>th</sup>	1995	54.1	75.6	64.9
Miller Creek	Allegan	34 <sup>th</sup>	2000	49.5	59.5	52.2
Miller Creek	Allegan	US 131		53.5	62.2	57.4
Rabbit River	Allegan	12 <sup>th</sup>	1995	58.3	78.8	67.8
Rabbit River	Allegan	135 <sup>th</sup>	2001	60.4	71.6	66.0
Rabbit River	Allegan	18 <sup>th</sup> Street	2001	62.1	75.7	68.5
Rabbit River	Allegan	30 <sup>th</sup>	1995	56.8	75.2	65.7
Rabbit River	Allegan	4 <sup>th</sup> Street	1995	51.3	67.6	59.5
Rabbit River	Allegan	54 <sup>th</sup> Street	1995	61.7	77.0	68.7



Table 14.–Continued.

Stream	County	Site	Year	Temperature(°F)		
				Minimum	Maximum	Mean
Mouth – continued						
Rabbit River	Allegan	M-40	2001	62.6	72.5	67.3
Sand Creek	Kalamazoo	2nd		55.4	66.0	60.8
Sand Creek	Allegan	M-89	2001	50.2	69.1	58.6
Silver Creek	Allegan	134th	2001	46.8	68.0	55.6
Silver Creek	Allegan	136th		52.3	70.7	60.3
Swan Creek	Allegan	10th	1995	53.4	59.5	55.8
Swan Creek	Allegan	116th	1995	55.2	68.4	61.9

## Kalamazoo River Assessment

Table 15.–Trigger levels for nine chemicals used by the Michigan Department of Community Health in the establishment of fish consumption advisories (ppm = parts per million; ppt = parts per trillion).

Chemical	Advisory triggers
Total chlordane	0.3 ppm
Total DDT	5.0 ppm
Dieldrin	0.3 ppm
Toxic dioxin equivalents	10.0 ppt
Heptachlor	0.3 ppm
Mercury	0.5 ppm
Mirex	0.1 ppm
Total PCB	2.0 ppm
Toxaphene	5.0 ppm

Table 16.–State and federal statutes administered by Michigan Department of Environmental Quality, Geological and Land Management and Water divisions that protect the aquatic resource in Michigan. N.R.E.P. Act = Natural Resources and Environmental Protection Act.

State and Federal Acts	Description of Acts
State of Michigan	
Public Health Code (1978 PA 386, as amended)	Aquatic Nuisance Control
Part 13 N.R.E.P. Act (1994 PA 451)	Floodplain Regulatory Authority
Part 31 N.R.E.P. Act (1994 PA 451)	Water Resource Protection
Part 91 N.R.E.P. Act (1994 PA 451)	Soil Erosion and Sedimentation Control
Part 301 N.R.E.P. Act (1994 PA 451)	Inland Lakes and Streams
Part 303 N.R.E.P. Act (1994 PA 451)	Wetland Protection
Part 305 N.R.E.P. Act (1994 PA 451)	Natural Rivers
Part 307 N.R.E.P. Act (1994 PA 451)	Inland Lake Level
Part 309 N.R.E.P. Act (1994 PA 451)	Inland Improvement
Part 315 N.R.E.P. Act (1994 PA 451)	Dam Safety
Part 323 N.R.E.P. Act (1994 PA 451)	Shoreland Protection and Management
Part 325 N.R.E.P. Act (1994 PA 451)	Great Lakes Submerged Lands
Part 341 N.R.E.P. Act (1994 PA 451)	Irrigation
US Federal	
Federal Water Pollution Control Act, Section 314 (PL 92-55)	
Coastal Zone Management Act (PL 92-583, 1972)	
Clean Water Act, Section 404 (PL 95-2117)	
River and Harbor Act, Section 10 (1899)	
Coastal Energy Impact Program (PL 92-538)	

Kalamazoo River Assessment

Table 17.—Designated drain names, length (mi), and establishment date (Est.) in the Kalamazoo River watershed by valley segment. Information provided by each county drain office.

Drain	Length (mi)	Est.	Drain	Length (mi)	Est.
<b>Headwaters</b>					
<i>Hillsdale County</i>			<i>Calhoun County – continued</i>		
• <i>Litchfield Township</i>			• <i>Homer Township – continued</i>		
Bowen	2.25		Gidley & Adams Drain	2.30	1893
Bowen Branch #1	0.75		Heppler & Worthington Drain	1.80	1891
• <i>Moscow Township</i>			Howard & Smith Drain	0.50	1897
Willetts	0.50		Juckett & Megley Drain	0.80	1901
Poe	1.75		Keifer & Palmer Drain	2.10	1977
• <i>Scipio Township</i>			Lampson Run Drain	2.60	1916
Conger	1.25		Litchfield & Homer Drain	0.90	1982
Conger Branch #2	0.13		Maybee & Billman Drain	1.50	1887
Conger Branch #3	0.38		North & South Drain	2.90	1918
Conger Branch #4	0.25		Whitcomb Lake Drain	1.10	1915
<i>Calhoun County</i>			Worthington & Billman Drain	0.90	1921
• <i>Homer Township</i>			Beaver Creek Intercounty Drain	1.40	1907
Amsterburg Drain	1.40	1919	• <i>Albion Township</i>		
Arthur Drain	1.10	1874	Ball & Patterson	5.70	1950
Benham Drain	2.60	1893	Murdock Drain	1.40	1909
Chamberlain Drain	1.80	1897	<i>Jackson County</i>		
Champion Drain	2.60	1883	• <i>Pulaski Township</i>		
Doty Joint Drain	2.10	1903	Beaver Creek Inter/County	1.13	1908
<b>Upper</b>					
<i>Jackson County</i>			<i>Jackson County – continued</i>		
• <i>Hanover Township</i>			• <i>Springport Township</i>		
Cavanaugh	2.35	1923	Gillette Dey & Ludlow	1.46	1913
Cooper	1.00	1940	Hammond-Bridenstine	0.94	1905
Farwell & Pine Hill Lake Level		1970	Seifert Br. #1 Inter/Co.	0.69	1893
Horton Mill Pond Impr.		1965	Whitman & Br. Inter/Co.	0.70	1900
Hubbard Densmore	2.25	1894	<i>Calhoun County</i>		
Mitchell	2.26	1899	• <i>Albion Township</i>		
• <i>Spring Arbor Township</i>			Spectacle Lake Outlet Drain	0.70	1903
Dolbee Branch	2.09	1891	• <i>Eckford Township</i>		
Ogle Laterals	1.13	1972	Dean & Miller Drain	1.60	1879
Saltzgaber	0.71	1968	Hoagland & Putnam Drain	2.40	1898
Spring Arbor & Concord	5.63	1886	Huckleberry Drain	2.10	1884
Springbrook & Pretty Br.	5.31	1891	Wilder Creek, Ball & Patterson & Hopkins & Chase	5.70	1878
Sunneydell & Branches	0.97	1964	• <i>Clarence Township</i>		
• <i>Concord Township</i>			Gang of Lakes Intercounty Drain	16.60	1913
Brodock-Hungerford	0.80	1900	• <i>Sheridan Township</i>		
Loder	3.22	1918	Gang of Lakes Intercounty Drain		1913
Three Oaks Estates	0.48	1981	Rice Creek	7.30	

Table 17.–Continued.

Drain	Length (mi)	Est.	Drain	Length (mi)	Est.
<b>Upper – continued</b>			<b>Calhoun County – continued</b>		
<i>Calhoun County – continued</i>			<i>Calhoun County – continued</i>		
• <i>Sheridan Township</i>			• <i>Marshall – continued</i>		
Heisler Drain	1.20	1906	Townline Drain	0.30	1885
Sheridan Drain # 1	1.60	1974	• <i>Fredonia Township</i>		
Wolter Drain	0.50	1916	Cedar Lake Outlet Drain	2.50	1885
• <i>Marengo Township</i>			Hyde & Hollow Drain	3.30	1885
Deforest & Chittenden Drain	0.80	1899	Mud Lake & Squaw Creek Drain	1.30	1879
Fish Lake Drain	0.50	1886	West Brace Lake Outlet Ditch & Tallmadge Creek	2.20	1880
Kibler & McWithey Ext. Drain	1.0	1915	Wilson Drain	1.10	1884
Marston & Cooper Drain	0.30	1897	• <i>Newton Township</i>		
Pattison Drain	0.80	1869	Goff Drain	1.20	1903
Rothrick Drain	0.60		Phillips Drain	1.20	1917
Smith & Wagoner Drain	0.40	1900	Porter Lake Drain (goes into NE)	4.10	1912
Starks & Miller Drain	0.50	1897	Root Drain	2.20	1907
Rice Creek			• <i>Emmett Township</i>		
• <i>Marshall Township</i>			Emmet County Drain	5.40	1959
Bear Creek/Hubbard Drain	7.0	1885	Styles Drain	3.10	1894
Bear Crook Drain	0.30	1906	Willow Creek Drain	1.40	
Easterly & Dibble Drain	3.30	1900	• <i>Leroy Township</i>		
Steven & Day Drain	1.10	1950	Barnum Lake Outlet Drain	7.40	1917
<b>Middle</b>			<b>Eaton County – continued</b>		
<i>Eaton County</i>			<i>Eaton County – continued</i>		
• <i>Brookfield Township</i>			• <i>Eaton Township</i>		
Battle Creek	8.92	1875	Battle Creek	4.92	1875
Croup	1.69		Childs	3.38	
Devils Lake	3.00		Cooley	1.54	1875
Duck Lake	0.23		Huber	3.00	1876
East Page	2.08	1867	• <i>Carmel Township</i>		
Elliott	0.61		Ames	1.38	1875
Finch	0.77		Battle Creek	3.38	1875
Hall	1.77	1867	Brown	2.54	
Hess	0.77	1867	Carmel and Eaton	0.77	
Hogle Miller	2.54		Cole	2.08	1877
Hotchkiss	1.31		Cooper, Frost, Reynolds	3.61	1881
Hyatt	1.23		Dillon	2.00	1877
Mack	1.46	1866	Foote	1.54	1877
Narrow Lake	1.00		Glenview Terrace	0.46	
Relaid Mills	1.54	1877	Ochsenbein	1.00	1877
Sherman	0.77		Ransom	1.53	
Tuma	1.69		Ray	0.31	
Wilcox	0.61	1867	Stemphler	1.69	
			Townline Brook	1.08	

Table 17.–Continued.

Drain	Length (mi)	Est.	Drain	Length (mi)	Est.
<b>Middle – continued</b>			<b>Calhoun County – continued</b>		
<i>Eaton County – continued</i>			<i>Clarence Township – continued</i>		
• <i>Walton Township</i>			Noviss Drain		
Battle Creek	7.07	1875	Ponto-Linger Drain	1.60	1902
Brown	0.38		Popple Swamp Drain	1.50	1891
Butterfield	0.62		Root & Small Creek Drain	1.10	1884
Denniston	1.38		Santer & McCoomb Drain	1.90	1897
Dillon Relaid	2.92	1877	Seifert Drain	0.60	
East Page	0.38	1867	Sine Drain	1.40	1920
Fisher	1.54		Sink Hole Drain	1.40	1891
Five Corners	2.23		Smith, Landon & Snyder Drain	0.80	1892
Foote	0.31	1877	Spring Groove Drain	0.60	1983
Griffin	1.31		Starks & Henderson Drain	0.90	1885
Indian Creek	4.85		State & Indian Creek Drain	10.60	1914
Loveless	0.38	1867	Vannocker Drain	0.90	1878
Martins	1.54	1876	Whitman Drain	3.10	1916
Martins #1	0.77	1876	• <i>Lee Township</i>		
McCreery	1.62		Bolles Brown Drain	1.20	1894
New Comb	0.31		Brott Drain	0.50	1922
Olivet	0.31		Church & Hookway Drain	1.70	1909
Page	0.69	1867	Clute & Long Drain	1.0	1955
Page, Sleeper, Big Creek	4.92	1867	Coon & Stults Drain	1.30	1928
Riddle	1.00		Finch & Miller Drain	2.50	1887
State	0.62		Fountain Drain	0.60	1906
Townline Brook	2.85		Hogel Miller Intercounty Drain	2.10	1897
• <i>Kalamo Township</i>			Lake of the Woods So. Ext. Drain	7.70	1909
Mud Lake	1.50	1875	Langton & Jackson Drain	2.0	1914
Murray & Roberts	3.33	1874	Lee Center Drain	2.80	1894
• <i>Bellevue Township</i>			Mather Drain	1.50	1915
Battle Creek	4.61		McCreery Drain	0.70	1906
Bellevue	0.54		Page-Big Creek & Sleeper Drain	3.90	1888
Denniston	0.38	1890	Page-Murray Drain	3.40	1884
Denniston Treadwell	2.54		Parker & Crow Drain	0.90	1955
Hamilton	1.85		Partello Drain	0.50	1906
Monroe	0.85		Phillips & Sanders Drain	1.60	1912
Owen	1.38		Sellen Drain	0.70	1914
<i>Calhoun County</i>			• <i>Convis Township</i>		
• <i>Clarence Township</i>			Debolt Drain	2.30	1920
Baseline Drain	0.40	1944	Garfield Lake Drain	1.90	1896
Burkwalt Drain	0.30	1947	Kenyon Lake Drain	0.50	1921
Chappel Drain	2.30	1884	Otto, Winans & Vansickle Drain	1.40	1914
Cooper & McGee Drain	1.70	1887	Pardy Lake Drain	0.30	1915
Cortright & Starks Drain	2.50	1884	Steward Dilno Drain	1.30	1897
Duck Lake Drain	1.70	1883	Wheaton & Pardy Lake	2.0	
Geyer Drain	3.80	1917	• <i>Pennfield Township</i>		
Gillett & Craft Drain	0.50	1878	Pennfield Twp. #1	0.80	1974
Gurley Drain	0.40	1902			

Table 17.–Continued.

Drain	Length (mi)	Est.	Drain	Length (mi)	Est.
<b>Middle – continued</b>					
<i>Calhoun County – continued</i>			<i>Barry County – continued</i>		
• <i>Leroy Township</i>			• <i>Assyria Township – continued</i>		
Clark Ditch Drain	1.40	1880	Quaker Brook	5.87	
Cranberry Run Drain	1.40	1894	Shafe	0.39	
Fish Drain	0.60	1886	Spruce Swamp	2.83	
Frey Drain	0.70	1899	Welcher	0.50	
Fuller Drain	3.00	1913	Wertz	0.60	
Leroy #2	1.10	1896	• <i>Barry Township</i>		
Leroy #3	2.80	1926	Watson	1.85	
Leroy #4 Battle Creek Drain	1.40	1893	Fair Lake	0.65	
Robins-Chamberlin Drain	1.50	1889	• <i>Orangeville Township</i>		
Rolfe Drain	1.40	1895	Bray	1.20	
Sprague Drain	0.50	1906	Deal	1.01	
Wright	0.50	1897	Fish Lake	0.31	
• <i>Battle Creek Township</i>			Gun Lake	1.25	
Big Marsh Drain	2.30	1916	Gun River	0.28	
Fowles Drain	0.30	1915	Lewis/Johnson	0.43	
Joslyn Drain	0.90	1915	Livingston	1.63	
Lloyd & Owens Drain	2.10	1920	Orangeville Creek	1.80	
Pioneer Acres Drain	1.20		Saddler	0.25	
Slatterlee Drain	0.40	1927	<i>Kalamazoo County</i>		
Watkins & Betz Drain	1.10	1916	• <i>Rosstownship</i>		
• <i>Bedford Township</i>			Goff	1.71	
Bedford Village Drain	0.30	1909	Pool	1.07	
Carter Drain	0.50	1946	• <i>Charleston Township</i>		
Romans Drain	0.50	1901	Pool	0.57	
Sperry-Morgan Drain	2.80	1897	East Corporation	0.64	
West Urbandale Drain	0.50	1916	• <i>Richland Township</i>		
Pool & Bryant - Eaton & Baker	4.30	1878	Schelb	0.43	
<i>Barry County</i>			• <i>Comstock Township</i>		
• <i>Maple Grove Township</i>			Lyons	0.57	
Lower Squaw Creek	1.12		Comstock Road	0.86	1909
Fox/Yourex/Hoffman	0.00		Wait & Van Buren	0.71	1908
• <i>Assyria Township</i>			Pease	0.71	
Assyria Center	0.09		East Branch Cramer	0.71	
Briggs	0.45		Gilbert	0.43	
Butler Lake	0.17		Gilbert Branch	0.29	
Ely	0.39		Gilbert Branch #1	0.57	
Fox/Yourex/Hoffman	2.70		Davis & Gilbert	0.93	
Gibson/Triscott	3.43		Blakeslee Plat	0.29	
Green	1.17		Carmel	0.79	
High Hill	1.69		Campbell Creek	0.71	1910
Kent	0.84		• <i>Portage Township</i>		
Kenyon	2.47		Portage Creek - Hampton	4.71	
Mayo	1.12		Portage Twp Consolidated	2.86	
Murray/Roberts	2.39		Zylman	2.00	

Kalamazoo River Assessment

Table 17.–Continued.

Drain	Length (mi)	Est.	Drain	Length (mi)	Est.
<b><u>Middle – continued</u></b>					
<i>Kalamazoo County – continued</i>			<i>Van Buren County – continued</i>		
• <i>Portage Township – continued</i>			• <i>Bloomington Township – continued</i>		
Portage Village	0.57		Roberts	0.43	
• <i>Kalamazoo Township</i>			Bell	0.29	
Parchment	0.64		Carpenter & Extension	1.86	
Lesterhouse	0.64		Marsh	1.14	
Wiersma	0.36		Pine Grove & Bloomington	1.43	
West Street	1.43		• <i>Pine Grove Township</i>		
Twin Lakes	0.57		Carpenter & Extension	1.00	
Zantman	1.64	1910	Connery	0.57	
State	1.50		Veley	2.14	
Scholton	1.14		Wood and Spencer	0.72	
Early	0.43		Baseline Inter-County	1.21	
Lake	0.21		Graham	1.14	
Olmstead	0.86		May	0.57	
Gilbert	0.29		Pine Grove & Bloomington	0.57	
Gilbert #1	0.29		Pine Creek #1	1.43	
Davis & Gilbert	1.14		Pine Creek #2	1.86	
S. Westnedge	1.71		McGregor	1.71	
Milwood	2.71		Tallman Inter-County	0.43	
• <i>Cooper Township</i>			<i>Allegan County</i>		
Richards	0.57		• <i>Martin Township</i>		
East Cooper Branch	0.64		Boss	0.67	1911
East Cooper	1.50		Boysen	0.68	1917
Travis	1.43		Briggs	1.61	1899
Spring Brook	1.71		Culver	4.43	1906
• <i>Alamo Township</i>			Doster	0.74	1919
Otsego & Alamo	0.75		Fenner Lake	2.90	1899
Andrews	1.00		Gilger	1.48	1899
Franklin	1.75	1911	Greggs Brook	4.29	1894
Hubbard	2.25		Holland	0.93	1908
Murray Lake	2.25		Holt	0.49	1906
Brown & Richards	0.63	1912	Deal	1.01	1919
Ransom	1.75		Dean	2.08	1903
Richards	0.71		Devine	0.74	1919
Fron	0.29		Harden	0.85	1929
Cold Springs	2.00		Monteith	0.93	1936
Cold Springs & Adams	0.43		North Townline	3.35	1900
Pine Creek	3.57		Reno	1.23	1915
William	0.86	1908	Adams & Branch	0.67	1907
Pine Creek #2 Inter-County	0.29		Laraway	1.45	1946
Ransom #1	1.25		Martin-Watson	2.72	1878
Ransom #2	0.75		Monteith & Branch	2.38	1892
<i>Van Buren County</i>			Orangville Creek	2.38	1919
• <i>Bloomington Township</i>			Pratt	1.03	1899
Allan and Jennings	0.29		Saddler I.C.	1.04	1915



Table 17.–Continued.

Drain	Length (mi)	Est.	Drain	Length (mi)	Est.
<b>Middle – continued</b>			<b>Allegan County – continued</b>		
<i>Allegan County – continued</i>			<i>Allegan County – continued</i>		
• <i>Martin Township – continued</i>			• <i>Otsego Township – continued</i>		
Sutherland	1.37	1919	Brainard & Pease		1888
Williams	1.10	1936	Bridge Acres		1972
Shelbyville	0.12	1899	Bridge Acres #1		1972
• <i>Gun Plain Township</i>			Clock	0.16	1880
Bellingham & Extension	1.32	1921	Drury	1.16	1918
Brown & Staley	1.41	1912	Hubbard I.C.	0.04	1909
Doster	3.06	1926	Hubbard & Stratton	0.93	1894
Gratop	0.88	1923	Fox	1.09	1889
Gun River I.C.	10.00	1892	Leighton	0.68	1943
Chart Creek	1.48	1928	Murray Lake Drain	3.77	1919
Nyberg	1.33	1961	Nelson-Gilkey	1.25	1897
Richmond	0.33	1946	Otsego & Alamo I.C.	4.30	1893
Scott & Whitcomb	2.42	1905	Casey & Closs	0.16	1888
Smith	0.94	1924	Lindsley & Hubbard	0.37	1894
Richmond & Barker	1.13	1888	• <i>Trowbridge Township</i>		
• <i>Otsego Township</i>			Baseline Lake	1.00	1882
Baseline I.C.	1.36	1880	Baseline #7	0.13	1879
Baughman	1.65	1902	Minkler Lake & Ext	0.72	1879
<b>Lower</b>			<b>Allegan County – continued</b>		
<i>Allegan County</i>			<i>Allegan County – continued</i>		
• <i>Watson Township</i>			• <i>Watson Township – continued</i>		
Andress		1983	Tiffany	0.58	1902
Beach	0.62	1919	• <i>Trowbridge Township</i>		
Beaver & Branches	2.96	1889	Allen	0.19	1878
Bently	1.55	1883	Almond	0.62	1891
Butternut Creek	3.48	1887	Bradock	0.83	1884
Carlson	1.00	1976	Buck Lake	0.22	1878
Edgerton & Branch	2.91	1878	Cackler	0.61	1892
Goldspring	1.54	1883	Carey	0.64	1916
Gorton	0.48	1910	Carpenter I.C.	3.70	1915
McVean	1.64	1903	Clair	1.23	1893
Marron	1.38	1897	Colburn	1.58	1879
Pope & Yeldon	2.41	1905	Colburn Ext	1.25	1881
Rowe & Branch	2.88	1878	Curtis & Ext	0.08	1882
Spring Run & Ext	2.30	1883	Dreher	1.40	1880
Taylor	0.32	1889	Dunklee	0.20	1894
Waldron	0.86	1916	Emerson Lake	0.53	1878
Watson Trunk Line	0.63	1921	Graves	0.30	1947
Jones	0.25	1880	Helmer	0.59	1878
Patterson	0.19	1880	Lamphere Branch	1.20	1875
Pullen	0.24	1882	Morse	0.52	1882
Shea	0.89	1883	Mosher	0.48	1888
Tiger	0.58	1889	Myers	0.79	1883

Kalamazoo River Assessment

Table 17.–Continued.

Drain	Length (mi)	Est.	Drain	Length (mi)	Est.
<b>Lower – continued</b>					
<i>Allegan County – continued</i>			<i>Allegan County – continued</i>		
• <i>Trowbridge Township – continued</i>			• <i>Trowbridge Township – continued</i>		
Osgood Lake	1.92	1880	Rockwell & Mosher	0.39	1893
Rowe	1.05	1884	Scott	0.19	1881
Ruppel	0.68	1879	Sheffer	0.70	1882
Slater #17 & Ext	1.38	1880	Spenny	0.44	1881
Trowbridge-Cheshire	3.03	1878	• <i>Monterey Township</i>		
Turner	0.98	1879	Dumont Lake	1.85	1889
Ward & Ext	1.48	1894	• <i>Allegan Township</i>		
Wilkes	0.87	1892	Agan & Branch	1.09	1910
Gillett	0.59	1880	Barnum & Anderson	2.03	1894
Harper	0.63	1881	Gley	0.83	1908
Harrington	0.31	1887	Godfrey	0.69	1940
Hicks	0.53	1892	Miner Lake Drain & Branch	3.99	1887
Hodge #9	0.36	1879	Spitzer	0.72	1922
Hyde	0.90	1888	Steffens & Branch	1.51	1893
Tayer	0.26	1894	Wall	0.63	1915
Tower	0.24	1894	Warner	1.04	1909
Youngs	0.16	1887	Flynn	0.13	1918
Blackman	0.93	1910	Setter	0.73	1905
French	0.83	1892	Thompson	0.40	1895
Hayes	1.27	1887	Lobin	2.13	1909
Merchant	0.22	1882	• <i>Cheshire Township</i>		
Pritchard	0.98	1883	Austin & Branch	1.38	1883
Rockwell		1877	Cheshire Town Line		
<b>Mouth</b>					
<i>Kent County</i>			<i>Kent County – continued</i>		
• <i>Gaines Township</i>			• <i>Byron Township – continued</i>		
King	0.33	1938	Byron-Dorr Intercounty	1.08	1894
McIntosh Intercounty	0.33	1915	Byron-Dorr Extension	7.20	1995
• <i>Byron Township</i>			<i>Ottawa County</i>		
Kenowa - 92nd	0.38	1969	• <i>Jamestown Township</i>		
Koster	0.66	1939	Black Creek	16.00	1883
Wolf	0.99	1914	Bredeweg	0.57	1918
Wagner Intercounty	1.85	1877	Hilsey	0.38	1883
Thomas Intercounty	0.71	1903	Kampen & Stuik	3.00	1882
Hamm	2.75	1880	Kampen & Stuik Branch	1.17	
Byron Co. Estates	0.26	1995	Kampen & Stuik #1	1.67	
Byron Co. Estates #2	0.05	1999	Kampen & Stuik #2	0.33	
Byron Co. Estates #3	0.14	2000	Kampen & Stuik #3	0.67	
South Ridge Estates	0.06	1998	Kampen & Stuik #4	1.33	
Jakes	1.73	1976	Kirtland	0.50	1882
Faber	0.92	1965	Knoll I.C.	0.67	1917
De Weerd	2.08	1925	Otter Creek	2.67	1882
Grundy	1.85	1904	Schneider	4.00	1884
Herp	0.80	1905	Wagner Intercounty	3.00	1929

Table 17.–Continued.

Drain	Length (mi)	Est.	Drain	Length (mi)	Est.
<b><u>Mouth – continued</u></b>					
<i>Allegan County</i>			<i>Allegan County – continued</i>		
• <i>Trowbridge Township</i>			• <i>Cheshire Township – continued</i>		
Buck Lake	0.54	1893	Cheshire #8	0.63	1876
Burk Lake	0.54	1893	Cheshire #7	0.44	1876
Graham	0.90	1881	Kaylor	0.81	1898
• <i>Heath Township</i>			Laws	0.45	1893
Arndt & Branch	1.09	1925	Lower #4 Branch & Ext	2.44	1893
Berkel & Extension	1.04	1911	Luce	0.15	1884
Lugtigheid Branch & Ext	2.90	1893	Manor	0.60	1913
Mottor	0.36	1905	Marble	0.52	1884
Poll	1.50	1941	Pague	0.29	1883
Slotman	1.20	1913	Patterson	0.13	1883
Thieves Den	0.41	1893	Powers	0.30	1884
Webber	1.28	1906	Rose	0.09	1883
• <i>Valley Township</i>			Schoolcraft	0.72	1883
Aldsworth	0.95	1898	Spotts	0.83	1883
Peet	1.01	1898	Sprague	0.41	1883
Progressive	2.13	1914	Spring Brook	0.84	1884
Shcultz	1.00	1913	Stearns	0.19	1883
Steele	0.76	1894	Upper #4 & Branch	2.34	1883
Bush Creek	1.99	1895	Weeks	0.79	1886
• <i>Cheshire Township</i>			Harrington	0.50	1884
Alberts & Winters	0.23	1887	Rowe	1.73	1883
Albright	0.63	1883	• <i>Clyde Township</i>		
Bensley	0.19	1910	Aull		
Brenen	0.69	1887	Fennville & Billings	5.11	1920
Brown			Pullman & Arnold	1.03	1883
Cheshire #9	0.22	1876	• <i>Manlius Township</i>		
Cheshire #10	1.08	1886	Ash	0.88	1924
Cheshire #11	1.03	1883	Gibson	0.48	1892
Cheshire #14	0.28	1883	Lubbers	0.11	1916
Cheshire #17	1.94	1878	Mann Creek	3.10	1902
Cheshire #20	0.65	1878	Slocum	0.54	1878
Cheshire #21	1.23	1883	Veldhoff & Ext	1.18	1914
Cheshire #23	0.37	1878	Voss	0.74	1886
Cheshire #25	0.20	1878	Harrington	0.25	1892
Cheshire #26		1887	Walnut Park		1994
Fox	0.20	1883	Lohman		1997
Enos	0.73	1888	• <i>Lee Township</i>		
Florian-Burton	0.43	1974	Flanegan	1.06	1916
Garton	0.84	1880	Utter	3.01	1893
Gillespie & Branch #1	0.60	1883	• <i>Leighton Township</i>		
Hamilton	1.32	1903	Buck Creek I.C.	2.84	1924
Hillman	0.60	1883	Cook & Chappel	1.40	1897
Hodgman & Ext	1.42	1885	Cranberry Lake I.C.		1881
Cheshire #3	3.18	1883	Fisher	0.40	1907
Cheshire #5	0.86	1874	Frey	1.14	1910
Cheshire #6	0.87	1886	Gilbert & Wademan	1.41	1896

Table 17.–Continued.

Drain	Length (mi)	Est.	Drain	Length (mi)	Est.
<b><u>Mouth – continued</u></b>					
<i>Allegan County – continued</i>			<i>Allegan County – continued</i>		
• <i>Leighton Township – continued</i>			• <i>Manlius Township – continued</i>		
Green Lake Stream		1978	Mann Creek	3.10	1902
Haney	4.60	1902	Slocum	0.54	1878
Hanna	0.49	1930	Veldhoff & Ext	1.18	1914
Heney	0.18	1878	Voss	0.74	1886
Hinkley	0.65	1881	Harrington	0.25	1892
Hooker-Harvey	2.12	1926	Walnut Park		1994
Indian Lake	0.72	1895	Lohman		1997
Johnson	1.15	1898	• <i>Wayland Township</i>		
Dexter	1.17	1875	Abbot	1.37	1890
Harvey	0.28	1873	Andrews	0.90	1886
Haywood	0.38	1901	Buskirk, Ext. & Branch	2.87	1882
McConnel	1.00	1896	Byles	0.27	1887
McIntosh	0.56	1915	Cooch	1.36	1906
Walker & Brooks	1.81	1896	Cuddy I.C.	3.33	1953
Wilson	0.45	1910	Damouth	3.33	1914
Winters	3.47	1907	Doan Lake	0.36	1915
Klopfenstein	2.58	1910	Gardner	2.06	1882
Leighton Township #1	2.32	1964	Hill	0.20	1911
Paul	0.77	1883	Holbrook & Branch	1.72	1935
Potts & Wagner	1.18	1882	McIntgile Lake	1.25	1902
Rodgers	0.20	1907	Norris	2.21	1905
Sackett	0.83	1875	Mineral Springs	2.78	1886
Sargent	0.53	1915	Morris	0.34	1910
Tollenaar	4.04	1951	Pickerel Lake	1.41	1896
Devenwater	0.36	1899	Sager Lake	2.40	1899
Aubil Lake	0.38	1877	Selkirk & Sprague	3.54	1895
Clark & Phillips	0.24	1882	Sessions	0.19	1888
Cook & Johnson	0.51	1879	Towsley	1.97	1888
Hackett	0.76	1882	Veda	0.48	1931
Hooker-Runnel-Harvey	1.24	1882	Boot Lake	0.82	1891
Jettings	0.09	1881	Boyles	0.21	1905
Jones	0.41	1880	Briggs	0.04	1886
Johnson & Gillon	0.09	1879	Bucknell	0.29	1908
Leland		1883	Corning	0.56	1900
Lester	0.31	1881	Gamwell	0.30	1887
Miller-Rodgers	0.10	1907	Hersey	0.66	1890
Shriner & McIntyre		1896	Jackson	0.33	1885
Smith & Corning	0.33	1880	Lewis	0.76	
Williams	0.40	1883	Lincoln	0.81	1882
Wilkie	0.06	1996	Miller	0.28	1889
• <i>Manlius Township</i>			Parker	0.06	1882
Ash	0.88	1924	Robins	0.24	1882
Gibson	0.48	1892	Wayland Meadows		1996
Lubbers	0.11	1916			

Table 17.–Continued.

Drain	Length (mi)	Est.	Drain	Length (mi)	Est.
<b><u>Mouth – continued</u></b>					
<i>Allegan County – continued</i>			<i>Allegan County – continued</i>		
• <i>Watson Township</i>			• <i>Hopkins Township – continued</i>		
Germain	0.86	1879	Wilcox	0.57	1884
Miller Lake Ditch	0.94	1878	Yeakey	1.23	1886
• <i>Hopkins Township</i>			Baker	0.15	1901
Allen	0.10	1883	Nolan	0.30	1888
Baird	1.43	1888	Spaulding	0.38	
Bear Swamp	3.89	1887	East Lake	0.51	1884
Brown	1.40	1886	• <i>Dorr Township</i>		
Burchart	0.25	1911	Angel	0.53	1876
Burchart	0.25	1911	Bates	1.52	1899
Button & Extension	1.40	1884	Belka	0.18	1892
Geere	0.50	1880	Bisbee I.C.	2.09	1898
Germain	0.93	1911	Brown	0.43	1903
Hiebel	0.44	1921	Buck Hole	0.41	1885
Herlon	1.07	1880	Byron & Dorr	3.92	1894
Hillardards	0.66	1887	Dolegowski	0.57	1917
Hoke	1.41	1883	Dorr Village	0.22	1910
Hopkins Station	0.29	1890	Engle	0.29	1887
Iciek, Ehle & Ext	0.77	1894	Gillons	0.39	1917
Hazen	0.53	1916	Grandy		1904
Iciek	0.48	1911	Gray & Bastian	0.51	1892
Keon	0.21	1896	Gulch & Branch	0.49	1914
McDougall	5.09	1945	Herp	0.75	1970
McKinnon	0.20	1912	Herp I.C.		1923
Rabbit River		1988	Hoffman, Harrington, Ext	4.71	1875
Tiefenthal	0.40	1883	Iciek, Ehle & Ext	0.54	1931
Wilson	0.22	1889	Jones & Branch	0.93	1893
Knuth & Ext	2.17	1888	Blain	0.78	1891
Krug & Ext	1.29	1884	Blain #1	0.75	1885
Lyle		1970	Blain #2	0.40	1895
Mankins	1.33	1883	Blain & Perry	0.65	1916
Martin	0.54	1886	Cedar Creek	2.29	1876
Parmelee	0.33	1884	Fox Lake Drain	0.65	1912
Paul	0.47	1919	Harrington	0.63	1881
Pickett	0.43	1885	Kettleman	0.66	1882
Pierce & Ext	1.85	1884	Kettleman #2	0.09	1886
Ring & Perkins	0.76	1886	McConnel	0.85	1886
Salem-Monterey	4.52	1895	Newman	0.13	1876
Section #31		1935	Nichols	1.93	1902
Section #34	0.25	1919	Red Run	2.91	1895
Stone	0.61	1949	Shad Lake	2.50	1885
Sulski	0.39	1883	South Branch Line	0.59	1882
Schwartz	0.50	1888	Sink	0.38	1916
Thompson	0.90	1887	Sink Hole	1.29	1894
Welsh & Wait	1.14	1906	Thompson	0.37	1892

Table 17.–Continued.

Drain	Length (mi)	Est.	Drain	Length (mi)	Est.
<b><u>Mouth – continued</u></b>					
<i>Allegan County – continued</i>			<i>Allegan County – continued</i>		
• <i>Dorr Township – continued</i>			• <i>Salem Township – continued</i>		
Winks	2.12	1920	Wiest	1.73	1902
Wolf	0.76	1875	Little Rabbit River	3.90	1904
Kleibusch	1.14	1922	Lynch	1.43	1889
Krumbach	1.26	1889	Moomey	1.49	1914
Leighton & Dorr	0.44	1883	Moored	1.82	1906
Lenhart	0.32	1958	Ritz & Ext	2.81	1916
Miller	0.63	1895	Schneider I.C.	2.01	1947
Moline & Branch	2.08	1897	Schumaker	1.96	1905
Murphy & Ext	3.69	1885	Selby	0.81	1903
Myers & Patterson	0.67	1896	Snyder	0.68	1899
Perry	0.80	1883	Ward		1998
Rozema	0.37	1922	• <i>Monterey Township</i>		
Scheiren & Ext	1.61	1877	Belden & Branches	0.84	1898
Smith	0.48	1902	Buck	0.62	1911
Snider	0.64	1887	Butcher	0.79	1897
Sommers	1.66	1882	Clawson	0.87	1902
Sooy	0.97	1884	Coffey	2.29	1913
South & Ext	1.14	1881	Felts	1.43	1898
South Center Line	0.73	1875	Hewitt	0.07	1896
Steinke	1.33	1907	Layton	0.54	1906
Sterling & ext	1.19	1876	May	0.67	1910
Sturm & Ext	1.35	1891	Monterey and Heath	1.84	1896
Tanner	0.83	1883	Pickle	1.11	1941
Thomas I.C.	1.93	1903	Rumery	0.25	1898
Welfare	0.34	1885	Sarah Buck	0.65	1957
West Truax	1.35	1882	Sterling	0.93	1901
Wyman	0.50	1893	Stranahan & Branch	0.54	1897
Barney	0.38	1876	Weick	1.23	1946
Samuel Blain	0.51	1888	Keel	1.13	1946
Sawald	0.12	1887	Kelly	1.09	1894
Varney	0.50	1894	Reeves	0.31	1897
Pine Hills		1986	Rheinhardt	1.50	1899
Dorr Meadows		1992	• <i>Fillmore Township</i>		
Garden View Pines		1993	B. Smit	0.28	1934
Secluded Pines #2		1996	Kooiker	0.28	1916
• <i>Salem Township</i>			• <i>Ganges Township</i>		
Chestog	3.21	1898	Rose Marsh	1.95	1829
Darga	0.91	1910	• <i>Saugatuck Township</i>		
Ebmeyer	2.51	1899	Barr	0.14	1928
Green & Branch	2.44	1902	Fales		1914
Haan	1.13	1907	Golf	0.66	1927
Jacobs	0.79	1905	Herring	0.22	1949
Fleser	1.83	1899	Jager Crane	0.25	1938
Fleser & Snyder	2.70	1920	Silver Lake	1.78	1895

Table 17.–Continued.

Drain	Length (mi)	Est.	Drain	Length (mi)	Est.
<b><u>Mouth – continued</u></b>					
<i>Allegan County – continued</i>			<i>Allegan County – continued</i>		
• <i>Saugatuck Township – continued</i>			• <i>Saugatuck Township – continued</i>		
Knicklebine	0.31	1888	Terell	1.46	1913
Luplow	0.26	1907	Wadsworth-Canal & Birkholz	1.98	1886
Mead	0.60	1906	Warnock & Ext	1.36	1908
Interceptor # 20		1993	Amity Lane	0.28	1995
Rose	1.53	1889			

Table 18.—Fishes in the Kalamazoo River watershed. Data from University of Michigan, Museums of Zoology; Michigan Department of Natural Resources, Institute for Fisheries Research and Plainwell Field Office. Species origin: N= native; C= colonized; and I= introduced. Kalamazoo status: P= recent observation; O= extirpated; U= historic record, current status unknown.

Common name	Scientific name	Species origin	Kalamazoo status
<b>Lampreys</b>			
chestnut lamprey	<i>Ichthyomyzon castaneus</i>	N	P
northern brook lamprey	<i>Ichthyomyzon fossor</i>	N	P
American brook lamprey	<i>Lampetra appendix</i>	N	P
sea lamprey	<i>Petromyzon marinus</i>	C	P
<b>Sturgeons</b>			
lake sturgeon ( <b>threatened</b> )	<i>Acipenser fulvescens</i>	N	P
<b>Gars</b>			
spotted gar ( <b>rare</b> )	<i>Lepisosteus oculatus</i>	N	P
longnose gar	<i>Lepisosteus osseus</i>	N	P
<b>Bowfins</b>			
bowfin	<i>Amia calva</i>	N	P
<b>Freshwater eels</b>			
American eel	<i>Anguilla rostrata</i>	C	U
<b>Herrings</b>			
alewife	<i>Alosa pseudoharengus</i>	C	P
gizzard shad	<i>Dorosoma cepedianum</i>	N	P
<b>Minnows</b>			
central stoneroller	<i>Campostoma anomalum</i>	N	P
goldfish	<i>Carassius auratus</i>	I	P
spotfin shiner	<i>Cyprinella spiloptera</i>	N	P
common carp	<i>Cyprinus carpio</i>	I	P
brassy minnow	<i>Hybognathus hankinsoni</i>	N	P
striped shiner	<i>Luxilus chrysocephalus</i>	N	P
common shiner	<i>Luxilus cornutus</i>	N	P
hornyhead chub	<i>Nocomis biguttatus</i>	N	P
river chub	<i>Nocomis micropogon</i>	N	P
golden shiner	<i>Notemigonus crysoleucas</i>	N	P
pugnose shiner ( <b>rare</b> )	<i>Notropis anogenus</i>	N	P
emerald shiner	<i>Notropis atherinoides</i>	N	P
bigmouth shiner	<i>Notropis dorsalis</i>	N	P
blackchin shiner	<i>Notropis heterodon</i>	N	P
blacknose shiner	<i>Notropis heterolepis</i>	N	P
spottail shiner	<i>Notropis hudsonius</i>	N	P
rosyface shiner	<i>Notropis rubellus</i>	N	P
sand shiner	<i>Notropis stramineus</i>	N	P
mimic shiner	<i>Notropis volucellus</i>	N	P
weed shiner ( <b>extirpated</b> )	<i>Notropis texanus</i>	N	O
northern redbelly dace	<i>Phoxinus eos</i>	N	U
bluntnose minnow	<i>Pimephales notatus</i>	N	P
fathead minnow	<i>Pimephales promelas</i>	N	P



Table 18.–Continued.

Common name	Scientific name	Species origin	Kalamazoo status
Minnows – continued			
western blacknose dace	<i>Rhinichthys obtusus</i>	N	P
longnose dace	<i>Rhinichthys cataractae</i>	N	P
creek chub	<i>Semotilus atromaculatus</i>	N	P
Suckers			
quillback carpsucker	<i>Carpionodes cyprinus</i>	N	P
longnose sucker	<i>Catostomus catostomus</i>	N	P
white sucker	<i>Catostomus commersonii</i>	N	P
Western creek chubsucker <b>(threatened)</b>	<i>Erimyzon claviformis</i>	N	U
lake chubsucker	<i>Erimyzon sucetta</i>	N	P
northern hog sucker	<i>Hypentelium nigricans</i>	N	P
black buffalo <b>(rare)</b>	<i>Ictiobus niger</i>	I	P
spotted sucker	<i>Minytrema melanops</i>	N	P
silver redhorse	<i>Moxostoma anisurum</i>	N	P
black redhorse	<i>Moxostoma duquesnei</i>	N	P
golden redhorse	<i>Moxostoma erythrurum</i>	N	P
shorthead redhorse	<i>Moxostoma macrolepidotum</i>	N	P
greater redhorse	<i>Moxostoma valenciennesi</i>	N	P
Catfishes			
black bullhead	<i>Ameiurus melas</i>	N	P
yellow bullhead	<i>Ameiurus natalis</i>	N	P
brown bullhead	<i>Ameiurus nebulosus</i>	N	P
channel catfish	<i>Ictalurus punctatus</i>	N	P
stonecat	<i>Noturus flavus</i>	N	P
tadpole madtom	<i>Noturus gyrinus</i>	N	P
flathead catfish	<i>Pylodictis olivaris</i>	N	P
Pikes			
grass pickerel	<i>Esox americanus vermiculatus</i>	N	P
northern pike	<i>Esox lucius</i>	N	P
muskellunge	<i>Esox masquinongy</i>	N	P
Mudminnows			
central mudminnow	<i>Umbra limi</i>	N	P
Smelts			
rainbow smelt	<i>Osmerus mordax</i>	C	P
Trouts			
cisco <b>(threatened)</b>	<i>Coregonus artedi</i>	N	P
lake whitefish	<i>Coregonus clupeaformis</i>	N	P
coho salmon	<i>Oncorhynchus kisutch</i>	I	P
rainbow trout	<i>Oncorhynchus mykiss</i>	I	P
Chinook salmon	<i>Oncorhynchus tshawytscha</i>	I	P
round whitefish	<i>Prosopium cylindraceum</i>	N	P
Atlantic salmon	<i>Salmo salar</i>	I	P
brown trout	<i>Salmo trutta</i>	I	P
brook trout	<i>Salvelinus fontinalis</i>	I	P
lake trout	<i>Salvelinus namaycush</i>	N	P

Table 18.–Continued.

Common name	Scientific name	Species origin	Kalamazoo status
Trout-perches			
trout-perch	<i>Percopsis omiscomaycus</i>	N	P
Pirate perches			
pirate perch	<i>Aphredoderus sayanus</i>	N	P
Codfishes			
burbot	<i>Lota lota</i>	N	P
Killifishes			
banded killifish	<i>Fundulus diaphanus</i>	N	P
blackstripe topminnow	<i>Fundulus notatus</i>	N	U
Silversides			
brook silverside	<i>Labidesthes sicculus</i>	N	P
Sticklebacks			
brook stickleback	<i>Culaea inconstans</i>	N	P
ninespine stickleback	<i>Pungitius pungitius</i>	N	P
threespine stickleback	<i>Gasterosteus aculeatus</i>	I	P
Sculpins			
mottled sculpin	<i>Cottus bairdii</i>	N	P
Striped basses			
striped bass x white bass hybrid	<i>Morone saxatilis x M. chrysops</i>	I	P
Sunfishes			
rock bass	<i>Ambloplites rupestris</i>	N	P
green sunfish	<i>Lepomis cyanellus</i>	N	P
pumpkinseed	<i>Lepomis gibbosus</i>	N	P
warmouth	<i>Lepomis gulosus</i>	N	P
bluegill	<i>Lepomis macrochirus</i>	N	P
northern longear sunfish	<i>Lepomis peltastes</i>	N	P
redear sunfish	<i>Lepomis microlophus</i>	I	P
smallmouth bass	<i>Micropterus dolomieu</i>	N	P
largemouth bass	<i>Micropterus salmoides</i>	N	P
white crappie	<i>Pomoxis annularis</i>	N	P
black crappie	<i>Pomoxis nigromaculatus</i>	N	P
Perches			
rainbow darter	<i>Etheostoma caeruleum</i>	N	P
Iowa darter	<i>Etheostoma exile</i>	N	P
johnny darter	<i>Etheostoma nigrum</i>	N	P
least darter ( <b>rare</b> )	<i>Etheostoma microperca</i>	N	P
yellow perch	<i>Perca flavescens</i>	N	P
logperch	<i>Percina caprodes</i>	N	P
blackside darter	<i>Percina maculata</i>	N	P
walleye	<i>Sander vitreus</i>	N	P

Table 18.–Continued.

Common name	Scientific name	Species origin	Kalamazoo status
Drums freshwater drum	<i>Aplodinotus grunniens</i>	N	P
Gobies round goby	<i>Neogobius melanostomus</i>	I	P

Kalamazoo River Assessment

Table 19.—Fish stocking in the Kalamazoo River watershed, 1990–2000. Data from Michigan Department of Natural Resources, Fisheries Division. Strains of species are in italics. Age codes: SF = spring fingerling, FF = fall fingerling, YR = yearling, and AD = adult. Cost is based on the total number of fish stocked between the years of 1990 and 2000.

Segment and stocking location	Species and strain	Years	Total number	Total cost (\$)
<b>Headwaters</b>				
S.B. Kalamazoo River	Brown trout – <i>Plymouth Rock</i> YR	91–93	12,268	8,956
	Brown trout – <i>Soda Lake</i> YR	90	4,792	3,498
<b>Upper</b>				
Bear Creek	Brown trout – <i>Plymouth Rock</i> YR	91	983	718
	Brown trout – <i>Soda Lake</i> YR	90	1,000	730
Farwell Lake	Rainbow trout – Arlee YR	95	10,700	7,811
	Rainbow trout – Shasta YR	92–94, 96–00	78,473	57,285
Gordon Lake	Northern pike SF	91, 92	8,500	765
	Channel catfish SF	91, 92	6,600	396
Kalamazoo River	Northern pike SF	91, 92	600	54
	Northern pike FRY	96	3,000	90
	Northern pike SF	90–92	5,800	522
Lake of the Woods	Northern pike SF	90–92	5,800	522
N.B. Rice Creek	Brown trout – <i>Soda Lake</i> YR	90	3,190	2,329
Rice Creek	Brown trout – <i>Plymouth Rock</i> YR	92–93	7,950	5,803
	Brown trout – <i>Saint Croix</i> YR	94	4,000	2,920
	Brown trout – <i>Soda Lake</i> YR	90–91	8,154	5,952
	Brown trout – <i>Wild Rose</i> YR	95	3,788	2,765
Round Lake	Redear sunfish SF	91, 92	31,238	937
	Walleye FF	00	3,000	450
S.B. Rice Creek	Brown trout – <i>Plymouth Rock</i> YR	91–93	27,675	20,203
	Brown trout – <i>Saint Croix</i> YR	94	10,681	7,797
	Brown trout – <i>Seeforellen</i> YR	95, 98	16,339	11,927
	Brown trout – <i>Soda Lake</i> YR	90, 91	25,732	18,784
	Brown trout – <i>Wild Rose</i> YR	93–97, 99, 00	59,677	43,564
<b>Middle</b>				
Seven Mile Creek	Brown trout – <i>Plymouth Rock</i> YR	92, 93	2,997	2,188
	Brown trout – <i>Saint Croix</i> YR	94	1,496	1,092
	Brown trout – <i>Seeforellen</i> YR	95, 97–99	5,998	4,379
	Brown trout – <i>Soda Lake</i> YR	90, 91	3,074	2,244
	Brown trout – <i>Wild Rose</i> YR	96, 00	2,441	1,782
Augusta Creek	Brown trout – <i>Plymouth Rock</i> YR	91–93	17,526	12,794
	Brown trout – <i>Seeforellen</i> YR	97–99	18,055	13,180
	Brown trout – <i>Soda Lake</i> YR	90	5,800	4,234
	Brown trout – <i>Wild Rose</i> YR	94–96, 00	21,356	15,590
Baseline Lake	Northern pike SF	90–95	11,084	998
		90, 91, 95–97, 99,		
Battle Creek	Channel catfish SF	00	27,485	1,649
Duck Lake	Redear sunfish SF	95	27,000	810
Fish Lake	Brown trout – <i>Plymouth Rock</i> YR	91–93	11,845	8,647
	Brown trout – <i>Saint Croix</i> YR	94	4,287	3,130
	Brown trout – <i>Soda Lake</i> YR	90	3,998	2,918
	Walleye – <i>Muskegon</i> SF	91, 93	14,959	898
Gull Lake	Atlantic salmon YR	90–92	108,792	79,418
	Brown trout – <i>Seeforellen</i> YR	97–00	47,647	34,782

Table 19.–Continued.

Segment and stocking location	Species and strain	Years	Total number	Total cost (\$)
Middle – continued				
Gull Lake – continued	Brown trout – <i>Wild Rose</i> YR	97	3,410	2,489
	Lake trout – <i>Marquette</i> SF	96	4,000	480
	Rainbow smelt ADULT	91, 93, 95	105,109	2,102
	Rainbow smelt EGG	92, 93, 99, 00	2,125,000	637
	Rainbow trout – <i>Arlee</i> YR	91	20,209	14,752
	Rainbow trout – <i>Eagle Lake</i> YR	90, 92–96, 00	140,139	102,301
	Rainbow trout – <i>Shasta</i> YR	91	1,833	1,338
	Rainbow trout – <i>MI Winter</i> YR	98	1,727	1,261
	Rainbow trout – <i>Skamania</i> YR	98	1,597	1,166
Gun Lake	Walleye SF	90–93, 96–99	1,231,148	73,869
Gun River	Brown trout – <i>Plymouth Rock</i> YR	91–93	23,795	17,370
	Brown trout – <i>Saint Croix</i> YR	94	8,480	6,190
	Brown trout – <i>Soda Lake</i> YR	90	9,650	7,044
	Brown trout – <i>Wild Rose</i> YR	95–00	48,448	35,367
Hall Lake	Northern pike – SF	91	1,000	90
	Flathead catfish – ADULT	99	13	34
Kellogg Forest Pond	Brown trout – <i>Soda Lake</i> YR	90	240	175
	Brown trout – <i>Wild Rose</i> YR	98–00	375	274
	Rainbow trout – <i>Eagle Lake</i> YR	99	110	80
	Rainbow trout – <i>Shasta</i> YR	00	125	91
Lake 16	Rainbow trout – <i>Arlee</i> YR	90, 91, 95	5,468	3,991
	Rainbow trout – <i>Eagle Lake</i> YR	98–00	3,034	2,223
	Rainbow trout – <i>Shasta</i> YR	92–97	9,967	7,275
Lower Crooked Lake	Northern muskellunge FF	00	641	109
	Tiger muskellunge FF	90–91	3,451	311
Morrow Lake	Walleye – <i>Muskegon</i> SF	90, 96, 98, 00	268,229	16,093
Narrow Lake	Channel catfish SF	90, 95, 96	10,200	612
	Redear sunfish SF	95–97	25,265	758
	Walleye SF	90, 91	2,000	120
Pine Creek	Brown trout – <i>Plymouth Rock</i> YR	91–93	12,633	9,222
	Brown trout – <i>Saint Croix</i> YR	94	4,480	3,270
	Brown trout – <i>Seeforellen</i> YR	95–00	26,097	19,051
	Brown trout – <i>Soda Lake</i> YR	00	4,200	3,066
Pine Lake	Northern pike SF	90	9,900	891
Pleasant Lake	Walleye – <i>Muskegon</i> SF	93–00	64,864	3,892
Portage Creek	Brown trout – <i>Plymouth Rock</i> YR	92	2,410	1,759
	Brown trout – <i>Soda Lake</i> YR	90, 91	4,060	2,964
	Brown trout – <i>Wild Rose</i> YR	93–00	22,797	16,642
Rankin Creek	Brown trout – <i>Seeforellen</i> YR	98, 99	5,000	3,650
	Brown trout – <i>Wild Rose</i> YR	97	2,496	1,822
Ruppert Lake	Brown trout – <i>Seeforellen</i> YR	95	265	193
	Brown trout – <i>Wild Rose</i> YR	96–00	1,227	896
	Rainbow trout – <i>Arlee</i> YR	90, 91, 95	4,224	3,084
	Rainbow trout – <i>Shasta</i> YR	92–99	8,257	6,028
	Rainbow trout – <i>Eagle Lake</i> YR	00	850	621
Sand Creek	Brown trout – <i>Plymouth Rock</i> YR	91–93	4,838	3,531
	Brown trout – <i>Saint Croix</i> YR	94	1,870	1,365
	Brown trout – <i>Seeforellen</i> YR	95–00	9,069	6,620
	Brown trout – <i>Soda Lake</i> YR	90	1,600	1,168

Kalamazoo River Assessment

Table 19.–Continued.

Segment and stocking location	Species and strain	Years	Total number	Total cost (\$)
Middle – continued				
Selkirk Lake	Walleye – <i>Muskegon</i> SF	90, 98–00	27,803	1,668
Three Lakes	Rainbow trout – <i>Arlee</i> YR	91, 95	3,400	2,482
	Rainbow trout – <i>Eagle Lake</i> YR	96	840	613
	Rainbow trout – <i>Shasta</i> YR	90, 92–94, 97, 98	11,299	8,248
Unnamed Tributary	Brown trout – <i>Seeforellen</i> YR	98, 99	5,000	3,650
	Brown trout – <i>Wild Rose</i> YR	97	2,492	1,819
Wabascon Lake	Northern pike SF	91–93	10,450	941
Lower				
Dumont Lake	Tiger muskellunge FF	90, 91	4,100	369
Miner’s Lake	Northern pike SF	90–92, 94, 96	29,012	2,611
Pike Lake	Rainbow trout – <i>Arlee</i> YR	90, 91	2,998	2,189
	Rainbow trout – <i>Eagle Lake</i> YR	96	1,520	1,109
	Rainbow trout – <i>Shasta</i> YR	92–95, 97–00	9,914	7,237
Mouth				
Bear Creek	Brook trout – <i>Assinica</i> YR	90	1,400	1022
	Brook trout – <i>Owhi</i> YR	91, 92	2,800	2,044
	Brown trout – <i>Gilchrist</i> YR	99, 00	2,800	2,044
	Brown trout – <i>Plymouth Rock</i> YR	91–93	5,360	3,912
	Brown trout – <i>Saint Croix</i> YR	94	1,600	1,168
	Brown trout – <i>Soda Lake</i> YR	90	1,840	1,343
	Brown trout – <i>Wild Rose</i> YR	95–98	6,277	4,582
Duck Lake	Northern pike SF	90, 91, 93–95	6,500	585
Green Lake	Walleye – <i>Muskegon</i> SF	90	16,076	965
Kalamazoo River	Brown trout – <i>Plymouth Rock</i> YR	91–93	45,342	33,099
	Brown trout – <i>Saint Croix</i> YR	94	14,997	10,947
	Brown trout – <i>Soda Lake</i> YR	90	15,000	10,950
	Brown trout – <i>Wild Rose</i> YR	97	18,996	13,867
	Brown trout – <i>Seeforellen</i> YR	95, 96, 98–00	94,379	68,896
	Chinook salmon SF	90–00	984,545	118,145
	Lake trout – <i>Lewis Lake</i> SF	93	96,000	11,520
	Lake trout – <i>Apostle</i> SF	00	60,600	7,272
	Northern pike FRY	90, 91, 96	749,325	225
	Rainbow trout – MI winter YR	90–00	153,249	111,871
	Walleye – <i>Muskegon</i> FRY	90, 98	5,050,000	1,515
	Walleye – <i>Muskegon</i> SF	90–99	813,290	48,797
	Mann Creek	Brook trout – <i>Assinica</i> YR	90	4,500
Brook trout – <i>Owhi</i> YR		91, 92	7,830	5,715
Miller Creek	Brook trout – <i>Assinica</i> YR	90, 93–97	6,320	4,613
	Brook trout – <i>Owhi</i> YR	91, 92	2,600	1,898
Monterey Lake	Channel catfish SF	93	1,000	60
Rabbit River	Brown trout – <i>Plymouth Rock</i> YR	90–93	21,102	15,404
	Brown trout – <i>Saint Croix</i> YR	93–94	6,525	4,763
	Brown trout – <i>Soda Lake</i> YR	90	4,977	3,633
	Brown trout – <i>Wild Rose</i> YR	95–00	24,588	17,949
	Rainbow trout – MI Winter YR	90–00	91,923	67,103
Swan Creek	Brown trout – <i>Plymouth Rock</i> YR	92	2,305	1,682
	Brown trout – <i>Soda Lake</i> YR	90	2,348	1,714
	Brown trout – <i>Wild Rose</i> YR	93–00	25,878	18,890

Table 20.—Occurrence of natural features of Kalamazoo River watershed by mainstem segment. Data from Michigan Department of Natural Resources, Wildlife Division, Natural Features Inventory, January 2002. State status codes: E=endangered, T=threatened, SC=special concern (rare, may become E or T in the future), X=extirpated. Federal status codes: LE=listed endangered, LT=listed threatened, C=candidate to be listed. Blanks indicate that none of the categories are applicable. Mainstem segment codes: H=Headwaters, U=Upper, M=Middle, L=Lower, and Mo=Mouth.

Common name or feature	Scientific name	Federal status	State status	Mainstem code				
				H	U	M	L	Mo
Vertebrate								
Bald Eagle	<i>Haliaeetus leucocephalus</i>		T				X	X
Cerulean warbler	<i>Dendroica cerulea</i>		SC			X		
Common Loon	<i>Gavia immer</i>		T			X	X	
Hooded Warbler	<i>Wilsonia citrina</i>		SC			X		
King Rail	<i>Rallus elegans</i>		E			X		
Northern Harrier	<i>Circus cyaneus</i>		SC			X		
Osprey	<i>Pandion haliaetus</i>		T			X		
Prairie Warbler	<i>Dendroica discolor</i>		E					X
Red-shouldered Hawk	<i>Buteo lineatus</i>		T					X
black buffalo	<i>Ictiobus niger</i>		SC					X
creek chubsucker	<i>Erimyzon oblongus</i>		E	X	X			X
lake sturgeon	<i>Acipenser fulvescens</i>		T					X
pugnose shiner	<i>Notropis anogenus</i>		SC	X		X		
spotted gar	<i>Lepisosteus oculatus</i>		SC			X		X
weed shiner	<i>Notropis texanus</i>		X		X	X		X
Blanchard's cricket frog	<i>Acris crepitans blanchardi</i>		SC			X	X	X
least shrew	<i>Cryptotis parva</i>		T			X		X
prairie vole	<i>Microtus ochrogaster</i>		E			X		
woodland vole	<i>Microtus pinetorum</i>		SC			X		X
marbled salamander	<i>Ambystoma opacum</i>		T				X	
black rat snake	<i>Elaphe obsoleta obsoleta</i>		SC					X
copperbelly water snake	<i>Nerodia erythrogaster neglecta</i>		E			X		
eastern Massasauga	<i>Sistrurus catenatus catenatus</i>	C	SC	X	X	X	X	X
Kirtland's snake	<i>Clonophis kirtlandii</i>		E			X		
Blanding's turtle	<i>Emydoidea blandingii</i>		SC			X		X
eastern box turtle	<i>Terrapene carolina carolina</i>		SC		X	X	X	X
spotted turtle	<i>Clemmys guttata</i>		T			X		
wood turtle	<i>Clemmys insculpta</i>		SC					X
Invertebrate								
American burying beetle	<i>Nicrophorus americanus</i>	LE	E			X		
angular spittlebug	<i>Lepyronia angulifera</i>		SC		X			
barrens buckmoth	<i>Hemileuca maia</i>		SC			X		
blazing star borer	<i>Papaipema beeriana</i>		SC			X		X
culvers root borer	<i>Papaipema sciata</i>		SC					X
Douglas stenelmis riffle beetle	<i>Stenelmis douglasensis</i>		SC			X		
frosted elfin	<i>Incisalia irus</i>		T				X	X
golden borer	<i>Papaipema cerina</i>		SC			X		
Henry's elfin	<i>Incisalia henrici</i>		SC			X		
karnar blue	<i>Lycaeides melissa samuelis</i>	LE	T				X	X
Laura's snaketail	<i>Stylurus laurae</i>		SC			X		
leafhopper	<i>Flexamia delongi</i>		SC					X

Table 20.–Continued.

Common name or feature	Scientific name	Federal status	State status	Mainstem code				
				H	U	M	L	Mo
Invertebrate – continued								
magdalen underwing	<i>Catocala illecta</i>		SC			X		
maritime sunflower borer	<i>Papaipema maritima</i>		SC					X
Mitchell's satyr	<i>Neonympha mitchellii mitchellii</i>	LE	E	X		X		
ottoo skipper	<i>Hesperia ottoe</i>		T				X	X
persius duskywing	<i>Erynnis persius persius</i>		T			X		X
quiet underwing	<i>Catocala dulciola</i>		SC			X		
regal fern borer	<i>Papaipema speciosissima</i>		SC			X		X
regal fritillary	<i>Speyeria idalia</i>		E			X		
silphium borer moth	<i>Papaipema silphii</i>		T		X			
sprague's pygarctia	<i>Pygarctia spraguei</i>		SC			X		X
swamp metalmark	<i>Calephelis mutica</i>		SC			X		
tamarack tree cricket	<i>Oecanthus laricis</i>		SC			X		X
ellipse	<i>Venustaconcha ellipsiformis</i>		SC	X				
purple wartyback	<i>Cyclonaias tuberculata</i>		SC					X
rainbow	<i>Villosa iris</i>		SC	X				
round pigtoe	<i>Pleurobema coccineum</i>		SC	X				
slippershell mussel	<i>Alasmidonta viridis</i>		SC	X				X
spindle lymnaea	<i>Acella haldemani</i>		SC			X		
watercress snail	<i>Fontigens nickliniana</i>		SC			X		
wavy-rayed lampmussel	<i>Lampsilis fasciola</i>		T	X				
Vascular plant								
American chestnut	<i>Castanea dentata</i>		E			X		
Appalachian quillwort	<i>Isoetes engelmannii</i>		E					X
Atlantic blue-eyed-grass	<i>Sisyrinchium atlanticum</i>		T					X
bald-rush	<i>Psilocarya scirpoides</i>		T			X		
beak grass	<i>Diarrhena americana</i>		T			X		
beaked agrimony	<i>Agrimonia rostellata</i>		SC			X		
black haw	<i>Viburnum prunifolium</i>		SC			X		
black-fruited spike-rush	<i>Eleocharis melanocarpa</i>		SC			X	X	X
climbing fern	<i>Lygodium palmatum</i>		E			X		
climbing fumitory	<i>Adlumia fungosa</i>		SC					X
compass-plant	<i>Silphium laciniatum</i>		T			X		
cream wild indigo	<i>Baptisia leucophaea</i>		E			X		
creeping whitlow-grass	<i>Draba reptans</i>		T			X		
cross-leaved milkwort	<i>Polygala cruciata</i>		SC					X
cut-leaved water-parsnip	<i>Berula erecta</i>		T			X		X
dodder	<i>Cuscuta pentagona</i>		SC			X		
downy gentian	<i>Gentiana puberulenta</i>		E					X
downy sunflower	<i>Helianthus mollis</i>		T			X		
dropseed	<i>Sporobolus clandestinus</i>		SC					X
dwarf burhead	<i>Echinodorus tenellus</i>		E					X
dwarf-bulrush	<i>Hemicarpha micrantha</i>		SC			X		
eastern few-fruited sedge	<i>Carex oligocarpa</i>		T			X		
engelmann's spike-rush	<i>Eleocharis engelmannii</i>		SC		X			X
erect pinweed	<i>Lechea stricta</i>		SC			X		
false boneset	<i>Kuhnia eupatorioides</i>		SC			X		
flattened spike-rush	<i>Eleocharis compressa</i>		T			X		
fleshy stitchwort	<i>Stellaria crassifolia</i>		T			X		



Table 20.–Continued.

Common name or feature	Scientific name	Federal status	State status	Mainstem code				
				H	U	M	L	Mo
Vascular plant – continued								
furrowed flax	<i>Linum sulcatum</i>		SC			X		
ginseng	<i>Panax quinquefolius</i>		T			X		X
globe beak-rush	<i>Rhynchospora globularis</i>		E					X
goldenseal	<i>Hydrastis canadensis</i>		T		X	X		
goosefoot corn-salad	<i>Valerianella chenopodiifolia</i>		T			X		
green violet	<i>Hybanthus concolor</i>		SC			X		
hairy angelica	<i>Angelica venenosa</i>		SC		X	X		
hairy skullcap	<i>Scutellaria elliptica</i>		SC			X		
Hall's bulrush	<i>Scirpus hallii</i>		T					X
horsetail spike-rush	<i>Eleocharis equisetoides</i>		SC			X		
kitten-tails	<i>Besseyia bullii</i>		T			X		
knotweed dodder	<i>Cuscuta polygonorum</i>		SC			X		
leadplant	<i>Amorpha canescens</i>		SC		X	X		
least pinweed	<i>Lechea minor</i>		SC			X		
Leggett's pinweed	<i>Lechea pulchella</i>		T					X
Leiberg's panic-grass	<i>Panicum leibergii</i>		T	X	X	X		
lesser ladies'-tresses	<i>Spiranthes ovalis</i>		T			X		
log fern	<i>Dryopteris celsa</i>		T			X		
long-bracted spiderwort	<i>Tradescantia bracteata</i>		X					X
long-leaved panic-grass	<i>Panicum longifolium</i>		T					X
maryland meadow-beauty	<i>Rhexia mariana var mariana</i>		T					X
mat muhly	<i>Muhlenbergia richardsonis</i>		T			X		
meadow-beauty	<i>Rhexia virginica</i>		SC			X	X	X
Missouri rock-cress	<i>Arabis missouriensis var deamii</i>		SC			X		X
narrow-leaved reedgrass	<i>Calamagrostis stricta</i>		T			X		
northern prostrate clubmoss	<i>Lycopodium appressum</i>					X		
orange or yellow fringed orchid	<i>Platanthera ciliaris</i>		T			X		X
pale avens	<i>Geum virginianum</i>		SC		X			
panicled hawkweed	<i>Hieracium paniculatum</i>		SC					X
panicled screw-stem	<i>Bartonia paniculata</i>		T					X
Pitcher's thistle	<i>Cirsium pitcheri</i>	LT	T					X
prairie birdfoot violet	<i>Viola pedatifida</i>		T		X	X		
prairie coreopsis	<i>Coreopsis palmata</i>		T			X		
prairie dropseed	<i>Sporobolus heterolepis</i>		SC			X		X
prairie fringed orchid	<i>Platanthera leucophaea</i>	LT	E			X		
prairie indian-plantain	<i>Cacalia plantaginea</i>		SC			X		
prairie-smoke	<i>Geum triflorum</i>		T				X	
purple milkweed	<i>Asclepias purpurascens</i>		SC		X			
purple twayblade	<i>Liparis liliifolia</i>		SC			X		
queen-of-the-prairie	<i>Filipendula rubra</i>		T		X	X		
rattlesnake-master	<i>Eryngium yuccifolium</i>		T			X		
rose-pink	<i>Sabatia angularis</i>		T			X		
rosinweed	<i>Silphium integrifolium</i>		T			X		
scirpus-like rush	<i>Juncus scirpoides</i>		T			X		X
churchmouse threeawn grass	<i>Aristida dichotoma</i>		X			X		
short-fruited rush	<i>Juncus brachycarpus</i>		T					X
showy orchis	<i>Galearis spectabilis</i>		T			X		
side-oats grama grass	<i>Bouteloua curtipendula</i>		T			X		

Table 20.–Continued.

Common name or feature	Scientific name	Federal status	State status	Mainstem code				
				H	U	M	L	Mo
Vascular plant – continued								
small skullcap	<i>Scutellaria parvula</i>		T			X		
small-fruited panic-grass	<i>Panicum microcarpon</i>		SC			X		
spike-rush	<i>Eleocharis radicans</i>		X			X		
spotted pondweed	<i>Potamogeton pulcher</i>		T			X		
starry campion	<i>Silene stellata</i>		T			X		
stiff gentian	<i>Gentianella quinquefolia</i>		T			X		
swamp rose-mallow	<i>Hibiscus moscheutos</i>		SC		X	X		
tall beak-rush	<i>Rhynchospora macrostachya</i>		SC			X		X
tall nut-rush	<i>Scleria triglomerata</i>		SC					X
three-birds orchid	<i>Triphora trianthophora</i>		T			X		
three-ribbed spike-rush	<i>Eleocharis tricostata</i>		T					X
tinted spurge	<i>Euphorbia commutata</i>		T				X	
tooth-cup	<i>Rotala ramosior</i>		SC			X		X
umbrella-grass	<i>Fuirena squarrosa</i>		T			X		
upland boneset	<i>Eupatorium sessilifolium</i>		T		X	X		
Vasey's rush	<i>Juncus vaseyi</i>		T					X
Virginia bluebells	<i>Mertensia virginica</i>		T			X		
Virginia flax	<i>Linum virginianum</i>		T			X		
waterthread pondweed	<i>Potamogeton bicupulatus</i>		T			X		
whiskered sunflower	<i>Helianthus hirsutus</i>		SC		X	X		X
white lady-slipper	<i>Cypripedium candidum</i>		T	X	X	X		
white or prairie false indigo	<i>Baptisia lactea</i>		SC	X	X	X		X
whorled mountain-mint	<i>Pycnanthemum verticillatum</i>		SC					X
whorled pogonia	<i>Isotria verticillata</i>		T			X		
wild-rice	<i>Zizania aquatica var aquatica</i>		T		X	X		
yellow fumewort	<i>Corydalis flavula</i>		T			X		
yellow ladies'-tresses	<i>Spiranthes ochroleuca</i>		SC			X		
zigzag bladderwort	<i>Utricularia subulata</i>		T					X
Plant community								
interdunal wetland								X
prairie fen				X	X	X		X
lakeplain wet-mesic prairie								X
open dunes								X
dry sand prairie								X
woodland prairie						X		
hillside prairie						X		
coastal plain marsh						X	X	X
wet-mesic prairie					X			
mesic prairie						X		
wet prairie					X			
southern floodplain forest						X		
bog						X		X
dry-mesic southern forest						X		X
southern swamp						X		
dry-mesic northern forest								X
Great Lakes marsh								X
oak-pine barrens								X
hardwood-conifer swamp								X

Table 21.—Fish population data by number per acre (pounds per acre) from 1982 rotenone surveys conducted at 13 sites on the Kalamazoo River. Dashes (–) not present. Data from Towns (1984).

Species	Headwaters				Middle				Lower				Mouth	
	26 Mile Road	B Drive	15 Mile Road	Raymond Road	Custer Road	38 <sup>th</sup> Street	Sprinkle Road	Mosel Avenue	U.S. 131	Below Otsego Dam	Bridge Street	M-89	57 <sup>th</sup> Street	
chestnut lamprey	–	–	–	–	3.8 (0.10)	–	–	–	–	–	–	–	–	
bowfin	–	–	–	–	1.3 (5.25)	0.4 (1.33)	–	–	–	–	–	–	–	
alewife	–	–	–	–	–	–	–	–	–	–	–	–	0.4 (0.00)	
gizzard shad	–	–	–	–	–	–	–	–	–	–	–	146.1 (13.46)	0.7 (0.56)	
central mudminnow	1.1 (0.01)	0.8 (0.00)	8.6 (0.04)	–	–	–	–	–	0.3 (0.00)	0.3 (0.00)	1.3 (0.00)	–	–	
grass pickerel	2.2 (0.56)	–	2.9 (0.43)	1.5 (0.15)	–	–	–	–	0.3 (0.00)	0.3 (0.00)	–	–	–	
northern pike	7.8 (1.59)	2.3 (6.77)	10.7 (5.39)	2.3 (3.5)	3.8 (0.75)	5.4 (1.26)	–	–	0.3 (0.00)	5.1 (0.54)	2.2 (0.52)	0.7 (0.01)	1.9 (0.17)	
quillback	–	–	–	–	–	–	–	–	–	–	–	0.7 (0.39)	0.4 (1.00)	
shorthead redhorse	–	–	23.6 (33.3)	0.8 (0.31)	–	0.2 (0.63)	–	–	–	–	–	3.9 (3.64)	4.8 (3.78)	
black redhorse	–	–	–	–	–	–	–	–	–	–	–	–	0.4 (0.00)	
golden redhorse	6.7 (4.3)	7.7 (6.31)	15.0 (13.1)	223.1 (10.58)	63.8 (30.83)	27.6 (13.1)	15.0 (26.38)	–	–	0.3 (0.43)	–	2.5 (0.00)	0.4 (0.00)	
silver redhorse	–	–	–	–	–	–	–	–	–	–	–	–	2.2 (3.81)	
greater redhorse	–	–	5.7 (0.74)	–	–	–	–	–	–	–	–	–	–	

Table 21.–Continued.

1961

Species	Headwaters	Upper			Middle	Lower					Mouth		
	26 Mile Road	B Drive	15 Mile Road	Raymond Road	Custer Road	38 <sup>th</sup> Street	Sprinkle Road	Mosel Avenue	U.S. 131	Below Otsego Dam	Bridge Street	M-89	57 <sup>th</sup> Street
northern hog sucker	44.4 (19.78)	65.4 (13.3)	84.3 (36.3)	139.2 (68.95)	26.3 (5.30)	8.3 (0.72)	13.8 (9.75)	-	-	-	0.4 (0.00)	-	-
white sucker	114.4 (63.23)	26.9 (5.56)	53.6 (2.99)	98.5 (1.06)	32.5 (19.50)	49.3 (10.9)	57.5 (48.75)	1.0 (0.13)	104.7 (6.35)	127.1 (98.20)	41.7 (8.65)	1.9 (0.04)	1.9 (0.06)
creek chubsucker	1.1 (0.01)	-	-	-	-	-	-	-	-	-	-	-	-
common carp	1.1 (15.8)	3.1 (8.31)	14.3 (70.9)	0.8 (4.00)	12.5 (42.63)	15.7 (75.7)	5.0 (16.38)	27.9 (102.42)	143.0 (47.73)	194.9 (142.40)	45.7 (95.74)	198.9 (441.82)	47.0 (191.48)
central stoneroller	1.1 (0.00)	0.8 (0.00)	-	-	8.8 (0.04)	-	-	-	-	-	-	-	-
golden shiner	-	-	-	0.8 (0.02)	-	-	-	-	-	-	-	-	1.5 (0.00)
creek chub	18.9 (0.50)	5.4 (0.25)	0.7 (0.03)	36.2 (0.33)	70.0 (2.35)	0.7 (0.02)	1.3 (0.03)	1.0 (0.07)	0.3 (0.00)	10.3 (0.91)	13.9 (0.65)	-	0.4 (0.00)
hornyhead chub	123.3 (5.98)	22.3 (1.22)	0.7 (0.06)	1.5 (0.05)	71.3 (2.18)	1.5 (0.03)	-	-	-	-	-	-	-
river chub	-	6.9 (0.38)	-	0.8 (0.05)	-	-	-	-	-	-	-	-	-
blacknose dace	-	-	-	-	-	-	-	-	0.3 (0.00)	-	-	-	-
emerald shiner	-	-	-	-	-	-	-	-	-	-	-	14.3 (0.09)	43.7 (0.26)
rosyface shiner	-	12.3 (0.05)	2.9 (0.01)	15.4 (0.05)	45.0 (0.22)	-	-	-	-	-	-	-	-
common shiner	257.8 (4.89)	20.0 (0.13)	70.7 (2.5)	180.8 (1.72)	111.3 (7.81)	117.4 (4.25)	27.5 (2.81)	0.3 (0.03)	2.0 (0.00)	3.1 (0.40)	1.3 (0.00)	-	-

Table 21.–Continued.

191

Species	Headwaters				Upper				Middle				Lower				Mouth	
	26 Mile Road	B Drive	15 Mile Road	Raymond Road	Custer Road	38 <sup>th</sup> Street	Sprinkle Road	Mosel Avenue	U.S. 131	Below Otsego Dam	Bridge Street	M-89	57 <sup>th</sup> Street					
mimic shiner	-	-	-	-	-	-	-	-	-	-	-	-	0.4 (0.00)					
spottail shiner	-	-	-	-	-	-	-	-	-	-	-	9.6 (0.04)	93.3 (1.01)					
spotfin shiner	-	-	-	-	-	-	18.8 (0.25)	-	-	0.9 (0.00)	0.9 (0.00)	39.6 (0.21)	79.3 (0.86)					
striped shiner	15.0 (0.35)	-	70.7 (2.50)	64.6 (1.71)	183.8 (11.43)	117.4 (0.92)	27.5 (2.81)	-	-	-	-	-	-					
sand shiner	-	-	38.6 (0.13)	8.5 (0.03)	13.8 (0.04)	4.8 (0.02)	-	-	-	0.3 (0.00)	-	1.8 (0.01)	4.8 (0.00)					
bluntnose minnow	3.3 (0.00)	18.5 (0.03)	38.6 (0.17)	42.3 (0.31)	27.5 (0.11)	59.6 (0.29)	7.5 (0.01)	-	0.5 (0.00)	0.3 (0.00)	4.8 (0.00)	45.7 (0.18)	104.1 (0.43)					
bullhead spp.	82.5 (11.00)	-	-	-	-	-	-	-	-	-	-	-	1.5 (0.02)					
black bullhead	-	5.4 (0.39)	-	-	-	-	0.2 (0.02)	-	-	-	-	0.7 (0.00)	-					
brown bullhead	-	-	-	-	-	-	-	-	-	2.3 (0.46)	0.4 (0.00)	-	-					
yellow bullhead	5.5 (0.89)	5.6 (0.89)	3.6 (0.57)	3.1 (0.92)	20.0 (4.13)	7.4 (1.46)	23.8 (3.50)	-	2.3 (0.00)	0.3 (0.11)	4.3 (0.74)	3.6 (0.50)	0.4 (0.00)					
channel catfish	-	-	-	-	-	2.6 (2.43)	-	-	-	-	-	86.4 (61.86)	52.6 (7.19)					
flathead catfish	-	-	-	-	-	-	-	-	-	-	-	27.9 (27.81)	15.2 (15.87)					
stonecat	148.9 (10.84)	10.8 (0.86)	11.4 (1.00)	249.2 (22.8)	2.5 (0.50)	5.9 (0.48)	38.8 (3.00)	-	-	-	-	-	-					

Table 21.–Continued.

200

Species	Headwaters	26 Mile Road	Upper	B Drive	15 Mile Road	Raymond Road	Middle	Custer Road	38 <sup>th</sup> Street	Sprinkle Road	Mosel Avenue	U.S. 131	Below Otsego Dam	Lower	Bridge Street	Mouth	M-89	57 <sup>th</sup> Street
tadpole madtom	-	-	-	-	-	-	-	-	1.3 (0.01)	-	-	-	-	-	-	-	-	1.5 (0.00)
burbot	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5 (0.07)
pirate perch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4 (0.00)	-
brook silverside	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4 (0.00)
mottled sculpin	-	-	-	0.7 (0.00)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
smallmouth bass	7.8 (1.16)	9.2 (4.02)	50.7 (7.69)	62.3 (12.2)	23.8 (1.26)	14.6 (2.28)	158.8 (26.46)	4.0 (2.89)	19.0 (0.68)	1.7 (0.71)	0.9 (0.61)	13.9 (5.82)	6.3 (1.81)					
largemouth bass	3.3 (0.03)	-	5.7 (0.01)	0.8 (0.00)	12.5 (3.14)	2.8 (0.00)	-	0.3 (0.08)	11.5 (0.43)	-	1.7 (0.00)	0.7 (0.00)	1.5 (0.04)					
green sunfish	2.2 (0.00)	-	26.4 (1.17)	10 (0.38)	13.8 (0.80)	0.9 (0.00)	21.3 (1.00)	1.3 (0.07)	0.3 (0.00)	10.3 (0.46)	15.2 (0.96)	11.4 (0.32)	4.1 (0.11)					
pumpkinseed	1.1 (0.02)	-	0.7 (0.00)	-	12.5 (0.50)	3.5 (0.20)	8.8 (0.25)	0.3 (0.07)	0.3 (0.00)	6.0 (0.37)	3.9 (0.13)	2.1 (0.07)	0.7 (0.04)					
bluegill	2.2 (0.11)	-	0.7 (0.01)	-	5.0 (1.00)	0.2 (0.00)	7.5 (0.63)	1.3 (0.30)	-	3.7 (0.26)	0.4 (0.00)	1.8 (0.32)	3.7 (0.00)					
longear sunfish	-	-	-	-	-	-	-	-	-	-	-	0.4 (0.00)	-					
rock bass	162.2 (11.96)	30.8 (2.55)	39.3 (5.35)	73.8 (6.77)	20.0 (2.88)	15.2 (1.14)	50.0 (5.75)	1.0 (0.30)	0.8 (0.00)	2.3 (0.29)	6.1 (1.17)	12.9 (2.72)	29.6 (3.30)					
black crappie	-	-	-	0.8 (0.00)	-	0.2 (0.00)	2.5 (0.28)	-	0.3 (0.00)	2.0 (0.17)	-	9.6 (0.96)	4.1 (0.07)					

Table 21.–Continued.

Species	Headwaters	Upper			Middle	Lower					Mouth		
	26 Mile Road	B Drive	15 Mile Road	Raymond Road	Custer Road	38 <sup>th</sup> Street	Sprinkle Road	Mosel Avenue	U.S. 131	Below Otsego Dam	Bridge Street	M-89	57 <sup>th</sup> Street
walleye	-	-	-	-	-	-	-	-	-	-	-	4.6 (12.46)	6.3 (21.52)
yellow perch	-	-	-	-	-	0.7 (0.00)	-	-	-	5.4 (0.37)	1.3 (0.13)	1.1 (0.01)	0.7 (0.00)
blackside darter	68.9 (0.39)	0.8 (0.00)	57.9 (0.27)	37.7 (0.21)	20.0 (0.11)	5.0 (0.05)	2.5 (0.00)	-	-	2.6 (0.00)	18.7 (0.04)	3.6 (0.01)	3.0 (0.00)
logperch	-	-	-	-	-	-	-	-	-	-	-	17.5 (0.11)	17.4 (0.19)
johnny darter	4.4 (0.01)	1.5 (0.00)	10.0 (0.01)	29.2 (0.10)	2.5 (0.00)	0.4 (0.00)	1.3 (0.00)	-	-	-	-	7.1 (0.03)	34.8 (0.07)
rainbow darter	52.2 (0.13)	0.8 (0.00)	7.14 (0.01)	-	1.3 (0.00)	-	-	-	-	-	-	-	-
Iowa darter	-	0.7 (0.01)	-	-	-	-	1.3 (0.00)	-	-	-	-	-	-
freshwater drum	-	-	-	-	-	-	-	-	-	-	-	5.7 (1.71)	2.6 (1.22)
brook stickleback	1.1 (0.00)	-	-	-	-	-	-	-	-	-	-	-	-
Species per site (n)	27	22	28	25	26	27	21	10	16	21	19	31	37

Kalamazoo River Assessment

Table 22.—Aquatic macroinvertebrates of the headwater and upper segments of the Kalamazoo River and select tributaries. Phylogenetic order names in bold. Data code: X= present, blank indicates not collected. Data from MDNR (1994) and MDEQ (2000a).

Taxa	Sites												
	S.B. Kalamazoo (Lower)	S.B. Kalamazoo (Middle)	S.B. Kalamazoo(Upper)	N.B. Kalamazoo (Lower)	N.B. Kalamazoo (Upper)	Kalamazoo (Below Albion)	Kalamazoo River (Marshall)	Wilder Creek	Rice Creek (Lower)	N.B. Rice Creek	Rice Creek (Middle)	Rice Creek (Upper)	Talmadge Creek
<b>Porifera</b> (sponges)	-	-	-	X	-	-	-	-	-	-	-	-	-
<b>Bryozoa</b> (moss animals)	-	-	-	-	-	-	-	X	-	-	-	-	-
<b>Platyhelminthes</b> (flatworms)													
Turbellaria	-	X	-	-	-	X	-	-	-	-	-	-	-
<b>Annelida</b> (segmented worms)													
Hirudinea (leeches)	X	-	X	-	-	-	-	-	-	-	X	-	-
Oligochaeta (worms)	X	-	-	X	-	-	-	-	-	-	X	X	-
<b>Arthropoda</b>													
Crustacea													
Amphipoda (scuds)	X	X	X	X	X	X	X	X	X	-	X	X	X
Decapoda (crayfish)	X	X	X	X	X	-	-	-	-	-	-	X	X
Isopoda (sowbugs)	-	-	-	-	-	X	X	-	-	-	-	-	-
Arachnoidea													
Hydracarina (mites)	-	X	-	X	X	-	-	-	-	-	-	X	X
<b>Insecta</b>													
Ephemeroptera (mayflies)													
Baetiscidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Baetidae	X	X	X	X	X	X	X	X	X	X	X	X	X
Caenidae	-	X	X	X	X	X	-	X	-	-	-	X	X
Ephemerellidae	X	-	-	X	-	X	-	-	X	-	-	-	-
Ephemeridae	X	X	-	X	X	-	-	-	X	-	-	-	-
Heptageniidae	X	X	X	X	X	X	X	X	X	X	X	-	-
Isonychiidae	X	-	-	X	X	-	-	-	-	-	-	-	-
Siphonuridae	-	-	-	-	-	X	X	-	-	-	-	-	-
Tricorythidae	X	-	X	X	X	X	-	-	-	-	-	-	-
Odonata													
Anisoptera (dragonflies)													
Aeshnidae	X	X	X	X	X	X	-	X	-	X	X	X	X
Corduliidae	-	X	-	-	-	-	-	-	-	-	-	-	-
Gomphidae	X	-	-	X	X	-	-	-	X	X	-	-	X
Libellulidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Zygoptera (damselflies)													
Calopterygidae	X	X	X	X	X	X	X	X	X	X	X	-	-
Coenagrionidae	X	X	-	-	X	-	X	-	-	X	-	X	X
Lestidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Perlodidae	X	-	-	-	-	X	-	-	X	-	X	-	-



Table 22.–Continued.

Taxa	Sites												
	S.B. Kalamazoo (Lower)	S.B. Kalamazoo (Middle)	S.B. Kalamazoo(Upper)	N.B. Kalamazoo (Lower)	N.B. Kalamazoo (Upper)	Kalamazoo (Below Albion)	Kalamazoo River (Marshall)	Wilder Creek	Rice Creek (Lower)	N.B. Rice Creek	Rice Creek (Middle)	Rice Creek (Upper)	Talmadge Creek
<b>Insecta – continued</b>													
Plecoptera (stone flies)							X						
Perlidae	X	-	-	X	-	X	X	-	-	-	-	-	-
Pteronarcyidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Hemiptera (true bugs)													
Belastomatidae	-	-	-	-	-	-	X	X	X	-	-	-	-
Corixidae	X	X	X	X	X	-	-	X	X	-	X	X	X
Gerridae	X	-	X	X	X	X	X	X	-	X	X	X	X
Mesoveliidae	X	-	-	-	-	X	X	-	-	-	X	-	X
Naucoridae	-	-	-	-	-	-	-	-	-	X	-	-	-
Nepidae	-	X	-	-	-	-	X	-	X	-	-	-	-
Neuroptera	-	-	-	-	-	-	-	-	-	-	-	-	-
Notonectidae	-	-	X	-	X	-	-	-	-	-	-	-	-
Veliidae	X	-	-	-	X	-	-	X	-	X	X	-	X
Pleidae	-	X	-	X	-	X	-	-	-	-	-	-	-
Megaloptera													
Corydalidae (dobson flies)	X	-	-	X	X	-	-	-	-	-	-	-	-
Sialidae (alder flies)	X	X	X	-	-	-	-	-	X	X	-	X	X
Trichoptera (caddisflies)													
Brachycentridae	X	-	-	-	X	X	-	X	X	-	X	-	-
Glossosmatidae	-	-	-	-	-	-	-	X	X	-	-	-	-
Helicopsychidae	X	-	-	-	-	X	-	-	X	-	-	-	-
Hydropsychidae	X	X	X	X	-	X	X	-	X	X	X	X	X
Hydroptilidae	-	X	-	X	X	-	-	X	-	-	-	-	-
Lepidostomatidae	-	-	-	-	-	X	-	-	-	-	-	-	-
Leptoceridae	X	-	-	-	X	-	X	-	X	X	X	X	-
Limnephilidae	X	X	X	X	-	X	X	X	X	X	-	-	X
Molannidae	-	-	-	-	-	-	-	-	-	X	-	-	-
Odontoceridae	-	-	-	-	-	-	-	-	-	-	-	-	-
Philopotamidae	X	-	-	X	X	-	X	-	X	-	-	-	-
Phryganeidae	-	X	-	-	-	X	-	-	-	-	-	-	-
Polycentropodidae	X	-	-	-	X	-	-	-	-	X	-	-	-
Uenoidae	-	-	X	-	-	-	-	-	X	-	-	-	-
Lepidoptera													
Pyrilidae	-	-	-	-	X	-	-	-	-	-	-	-	-
Coleoptera (beetles)													
Dryopidae	-	-	-	-	-	X	-	-	-	-	-	-	-
Dytiscidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Elmidae	-	X	-	X	X	X	X	X	X	-	-	X	X
Gyrinidae	X	-	X	X	X	X	-	-	X	X	X	-	-
Haliplidae	-	-	-	-	X	-	-	-	X	X	X	-	-
Hydrophilidae	X	X	-	-	-	X	-	-	-	-	-	-	-
Psephenidae	-	-	-	X	X	-	-	-	-	-	-	-	-
Ptilodactylidae	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 22.–Continued.

Taxa	Sites												
	S.B. Kalamazoo (Lower)	S.B. Kalamazoo (Middle)	S.B. Kalamazoo(Upper)	N.B. Kalamazoo (Lower)	N.B. Kalamazoo (Upper)	Kalamazoo (Below Albion)	Kalamazoo River (Marshall)	Wilder Creek	Rice Creek (Lower)	N.B. Rice Creek	Rice Creek (Middle)	Rice Creek (Upper)	Talmadge Creek
<b>Insecta</b> – continued													
Diptera (flies)													
Athericidae	-	-	-	-	-	-	-	X	X	-	-	-	-
Ceratopogonidae	-	-	X	-	-	-	-	-	-	-	-	X	X
Chaoboridae	-	-	-	-	-	-	-	-	-	-	-	-	-
Chironomidae	X	X	X	X	X	X	X	X	X	X	X	X	X
Culicidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Dixidae	-	-	-	-	X	-	-	-	-	-	X	X	-
Dolichopodidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Empididae	-	-	-	-	-	-	-	-	-	-	-	-	-
Ephydriidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Sciomyzidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Simuliidae	-	X	-	X	X	X	X	X	X	X	X	X	X
Tabanidae	-	X	-	-	-	-	-	-	-	-	-	X	X
Tipulidae	-	X	-	-	-	-	-	-	-	-	-	X	-
<b>Mollusca</b>													
Gastropoda (snails and limpets)													
Ancylidae	-	X	-	X	X	-	-	-	-	-	-	-	X
Lymnaeidae	-	-	-	X	-	-	-	-	X	-	-	X	X
Physidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Planorbidae	-	-	-	X	-	-	-	X	X	-	-	X	X
Bithyniidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrobiidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Pleuroceridae	-	X	-	-	-	-	-	-	-	-	-	-	-
Pomatiopsidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Vivaparidae	X	X	X	X	-	-	-	-	-	X	-	-	-
Bivalvia (bivalves)													
Sphaeriidae	X	X	X	X	-	-	-	X	X	X	X	X	X
Unionidae	X	X	-	-	-	-	-	-	-	X	-	-	-
Anodontinae	-	-	-	-	-	-	-	-	-	-	-	-	-
Lampsilinae	-	-	-	-	-	-	-	-	-	-	-	-	-
Dreissenidae	-	-	-	-	-	-	-	-	X	-	-	-	-

Table 23.—Aquatic macroinvertebrates of the upper and middle segments of the Kalamazoo River and select tributaries. Phylogenetic order names in bold. Data code: X= present, dash (-) indicates not collected. Data from MDNR (1982b) and MDEQ (2000a).

Taxa	Sites													
	Bear Creek	Harper Creek	Battle Creek (Middle)	Battle Creek (Upper)	Wanadoga Creek (Lower)	Wanadoga Creek (Upper)	Kalamazoo (Battle Creek)	Wabascon Creek (Lower)	Wabascon Creek (Middle)	Wabascon Creek (Upper)	Seven Mile Creek	Augusta Creek (Middle)	Augusta Creek (Upper)	
<b>Porifera</b> (sponges)	-	X	-	-	-	X	X	-	-	-	-	-	-	
<b>Bryozoa</b> (moss animals)	-	-	-	-	-	-	X	X	-	-	-	-	-	
<b>Platyhelminthes</b> (flatworms)														
Turbellaria	-	X	-	-	-	-	X	-	-	-	-	-	X	
<b>Annelida</b> (segmented worms)														
Hirudinea (leeches)	-	-	X	-	X	-	-	-	-	-	-	-	-	
Oligochaeta (worms)	-	-	-	X	-	-	X	-	-	-	-	X	-	
<b>Arthropoda</b>														
Crustacea														
Amphipoda (scuds)	X	X	X	X	X	X	X	X	X	X	X	X	X	
Decapoda (crayfish)	-	X	X	X	X	X	X	X	-	-	X	X	X	
Isopoda (sowbugs)	-	-	-	X	-	-	X	-	-	-	-	X	X	
Arachnoidea														
Hydracarina (mites)	-	-	-	X	-	-	-	-	X	-	X	X	-	
<b>Insecta</b>														
Ephemeroptera (mayflies)														
Baetiscidae	-	-	-	-	-	-	-	-	X	-	-	-	-	
Baetidae	X	X	X	X	X	X	X	X	X	-	X	X	X	
Caenidae	-	-	X	-	X	X	-	-	X	-	-	X	X	
Ephemerellidae	-	-	-	-	-	-	-	-	-	-	-	X	X	
Ephemeridae	-	X	-	-	-	-	X	-	X	-	-	X	X	
Heptageniidae	-	X	X	X	X	X	-	-	X	-	-	X	X	
Isonychiidae	-	-	-	-	X	-	X	X	-	-	-	-	X	
Siphonuridae	-	X	-	-	-	-	-	-	-	-	-	-	-	
Tricorythidae	-	-	-	-	-	-	X	-	-	-	-	-	-	
Odonata														
Anisoptera (dragonflies)														
Aeshnidae	-	X	X	-	-	X	X	X	X	-	X	X	-	
Corduliidae	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gomphidae	-	X	X	-	-	-	-	-	-	X	-	X	-	
Libellulidae	-	-	-	-	-	-	-	-	-	X	-	-	-	
Zygoptera (damselflies)														
Calopterygidae	-	X	-	X	-	X	X	X	-	-	X	-	X	
Coenagrionidae	-	-	X	-	-	X	X	-	X	-	-	-	-	
Lestidae	-	X	-	-	-	-	-	-	-	-	-	-	-	

Table 23.–Continued.

Taxa	Sites												
	Bear Creek	Harper Creek	Battle Creek (Middle)	Battle Creek (Upper)	Wanadoga Creek (Lower)	Wanadoga Creek (Upper)	Kalamazoo (Battle Creek)	Wabascon Creek (Lower)	Wabascon Creek (Middle)	Wabascon Creek (Upper)	Seven Mile Creek	Augusta Creek (Middle)	Augusta Creek (Upper)
<b>Insecta – continued</b>													
Plecoptera (stone flies)													
Perlidae	-	-	X	-	X	-	-	-	-	X	-	X	X
Perlodidae	-	-	X	X	X	-	-	-	-	-	-	X	-
Pteronarcyidae	-	-	-	-	-	-	-	-	-	-	-	X	-
Hemiptera (true bugs)													
Belastomatidae	-	X	-	-	-	-	-	X	-	-	X	-	-
Corixidae	-	-	X	X	-	-	-	X	-	-	-	X	X
Gerridae	-	X	X	-	X	X	X	X	X	-	-	X	X
Mesoveliidae	-	X	-	-	-	-	X	-	-	-	-	-	-
Naucoridae	-	-	-	-	-	-	-	-	-	-	-	-	-
Nepidae	-	-	-	-	-	-	-	X	X	-	-	-	-
Neuroptera	-	-	-	-	-	-	X	-	-	-	-	-	-
Notonectidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Veliidae	X	-	X	-	X	X	X	X	-	-	X	-	X
Pleidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Megaloptera													
Corydalidae (dobson flies)	-	-	-	-	-	X	-	X	X	-	-	-	-
Sialidae (alder flies)	-	X	X	X	-	X	-	X	-	X	-	-	-
Trichoptera (caddisflies)													
Brachycentridae	-	X	-	X	-	-	X	X	-	-	X	X	-
Glossosmatidae	-	-	-	-	-	-	-	-	-	-	-	X	-
Helicopsychidae	-	X	-	-	X	X	X	X	X	-	-	X	X
Hydropsychidae	X	X	X	X	X	X	X	-	-	-	-	X	X
Hydroptilidae	-	X	-	-	-	-	X	-	-	-	-	-	-
Lepidostomatidae	-	-	-	-	X	-	-	-	-	-	-	-	-
Leptoceridae	-	X	X	X	-	X	X	X	X	X	-	-	-
Limnephilidae	X	X	X	X	X	X	-	X	X	-	X	X	X
Molannidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Odontoceridae	-	-	-	-	-	X	-	-	-	-	-	-	-
Philopotamidae	-	X	-	-	X	-	-	-	-	-	-	-	X
Phryganeidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Polycentropodidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Uenoidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidoptera													
Pyrilidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Coleoptera (beetles)													
Dryopidae	-	-	X	-	X	X	-	-	-	-	-	-	-
Dytiscidae	-	-	X	X	-	-	X	-	-	-	-	-	-
Elmidae	-	X	X	X	X	X	X	X	-	-	-	X	X
Gyrinidae	-	-	X	-	-	-	-	-	-	-	-	-	-
Halplidae	-	-	-	X	-	-	-	-	-	-	X	-	-
Hydrophilidae	-	-	-	X	-	-	-	-	-	-	-	-	-
Psephenidae	-	X	-	-	-	-	-	X	-	-	-	X	X
Ptilodactylidae	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 23.–Continued.

Taxa	Sites												
	Bear Creek	Harper Creek	Battle Creek (Middle)	Battle Creek (Upper)	Wanadoga Creek (Lower)	Wanadoga Creek (Upper)	Kalamazoo (Battle Creek)	Wabascon Creek (Lower)	Wabascon Creek (Middle)	Wabascon Creek (Upper)	Seven Mile Creek	Augusta Creek (Middle)	Augusta Creek (Upper)
<b>Insecta – continued</b>													
Diptera (flies)													
Athericidae	-	-	-	-	-	-	X	-	-	-	-	-	-
Ceratopogonidae	-	-	-	-	-	-	-	-	X	-	-	-	-
Chaoboridae	-	-	X	-	-	X	-	-	-	-	-	-	-
Chironomidae	X	X	X	X	X	X	X	X	X	X	X	X	-
Culicidae	-	-	-	X	-	-	-	-	-	-	X	-	-
Dixidae	-	-	-	-	-	-	-	-	X	-	X	-	-
Dolichopodidae	-	-	X	-	-	-	-	X	-	-	-	-	-
Empididae	-	-	X	-	-	-	-	-	-	-	-	-	-
Ephydriidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Sciomyzidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Simuliidae	X	X	X	X	X	X	X	X	-	-	X	X	X
Tabanidae	-	-	-	-	-	-	-	-	-	X	-	X	-
Tipulidae	-	-	X	X	-	-	X	-	-	-	-	-	X
<b>Mollusca</b>													
Gastropoda (snails and limpets)													
Ancylidae	-	-	X	-	X	-	X	X	-	-	-	-	-
Lymnaeidae	-	-	X	-	-	-	-	-	-	-	-	-	-
Physidae	-	-	X	X	-	-	X	-	X	-	-	X	-
Planorbidae	-	-	-	-	X	-	-	X	X	-	X	-	-
Bithyniidae	-	-	X	-	-	X	-	-	-	-	-	-	-
Hydrobiidae	-	-	-	-	X	-	-	-	-	-	-	-	-
Pleuroceridae	-	X	X	-	-	-	-	-	-	-	-	-	-
Pomatiopsidae	-	-	-	-	-	X	-	-	-	-	-	-	-
Vivaparidae	-	-	X	-	-	-	-	-	X	-	-	-	-
Bivalvia (bivalves)													
Sphaeriidae	-	-	X	X	X	-	X	X	X	X	-	-	-
Unionidae	-	-	-	X	X	-	-	-	-	-	-	-	-
Anodontinae	-	X	-	-	-	-	-	-	-	-	-	-	-
Lampsilinae	-	X	-	-	-	-	-	-	-	-	-	-	-
Dreissenidae	-	X	-	-	-	-	-	-	-	-	-	-	-

Kalamazoo River Assessment

Table 24.—Aquatic macroinvertebrates of the middle segment of the Kalamazoo River and select tributaries. Phylogenetic order names in bold. Data code: X= present, dash (–) indicates not collected. Data from MDNR (1982b) and MDEQ (2000a), (2001a), and (2001b).

Taxa	Sites												
	Kalamazoo (Augusta)	Kalamazoo (Galesburg)	Gull Lake Outlet	Comstock Creek	Davis Creek	Portage Creek (Lower)	Portage Creek (Middle)	Portage Creek (Upper)	Spring Brook	Kalamazoo (D Avenue)	Silver Creek	Kalamazoo (Plainwell)	Gun River
<b>Porifera</b> (sponges)	X	–	–	–	–	–	–	–	–	–	–	–	–
<b>Bryozoa</b> (moss animals)	–	–	–	–	–	–	–	–	X	–	–	–	–
<b>Platyhelminthes</b> (flatworms)													
Turbellaria	–	X	X	X	X	X	X	X	X	X	–	X	–
<b>Annelida</b> (segmented worms)													
Hirudinea (leeches)	–	X	–	X	X	X	X	X	–	–	–	–	–
Oligochaeta (worms)	X	X	X	–	X	X	X	X	X	X	X	X	–
<b>Arthropoda</b>													
Crustacea													
Amphipoda (scuds)	X	X	X	X	X	X	X	X	X	X	X	X	X
Decapoda (crayfish)	X	X	–	X	X	X	X	X	X	X	X	X	X
Isopoda (sowbugs)	X	X	X	–	X	X	X	X	X	–	–	X	X
Arachnoidea													
Hydracarina (mites)	–	–	–	–	–	–	X	–	–	–	–	–	X
<b>Insecta</b>													
Ephemeroptera (mayflies)													
Baetiscidae	X	X	–	–	–	–	X	–	–	–	–	–	–
Baetidae	–	–	X	X	X	–	X	X	X	X	X	X	X
Caenidae	–	–	–	X	–	X	X	–	X	–	–	–	–
Ephemerellidae	–	–	X	X	–	–	–	–	X	–	–	–	–
Ephemeridae	X	X	–	X	–	–	–	–	–	–	–	–	–
Heptageniidae	–	–	X	X	–	X	X	X	X	–	X	X	X
Isonychiidae	–	X	–	–	–	–	–	–	–	–	–	–	–
Siphonuridae	–	–	–	–	–	–	–	–	–	–	–	–	–
Tricorythidae	X	X	–	X	–	–	–	–	X	–	X	–	–
Odonata													
Anisoptera (dragonflies)													
Aeshnidae	–	–	X	X	X	X	X	X	X	X	X	–	X
Corduliidae	–	–	–	–	–	–	–	–	–	–	–	–	–
Gomphidae	–	–	–	X	–	–	–	–	–	–	–	–	–
Libellulidae	–	–	–	X	–	–	–	–	–	–	–	–	–
Zygoptera (damselflies)													
Calopterygidae	X	X	X	X	X	X	X	X	–	X	X	X	X
Coenagrionidae	–	–	–	X	X	X	X	X	–	–	–	X	–
Lestidae	–	–	–	X	–	–	–	–	–	–	–	–	–

Table 24.–Continued.

Taxa	Sites												
	Kalamazoo (Augusta)	Kalamazoo (Galesburg)	Gull Lake Outlet	Comstock Creek	Davis Creek	Portage Creek (Lower)	Portage Creek (Middle)	Portage Creek (Upper)	Spring Brook	Kalamazoo (D Avenue)	Silver Creek	Kalamazoo (Plainwell)	Gun River
<b>Insecta</b> – continued													
Plecoptera (stone flies)													
Nemouridae	-	-	-	-	-	-	-	-	X	-	-	-	-
Perlidae	X	-	-	-	-	-	-	-	X	-	X	X	-
Perlodidae	X	-	-	-	-	-	-	-	-	-	-	-	-
Pteronarcyidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Taeniopterygidae	-	-	-	-	-	-	-	-	X	-	-	-	-
Hemiptera (true bugs)													
Belastomatidae	-	-	-	-	-	-	-	-	-	-	-	X	-
Corixidae	-	-	-	-	X	-	-	X	-	-	X	-	X
Gerridae	X	X	-	X	X	-	-	X	X	X	X	X	-
Mesoveliidae	X	X	-	X	-	X	-	-	-	-	-	-	-
Naucoridae	-	-	-	-	-	-	-	-	-	-	-	-	-
Nepidae	-	-	-	-	-	-	-	-	-	-	-	-	X
Neuroptera	-	-	-	-	-	-	-	-	-	-	-	-	-
Notonectidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Veliidae	-	-	-	-	-	-	-	-	-	-	-	-	X
Pleidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Megaloptera													
Corydalidae (dobson flies)	X	-	-	-	-	-	-	-	-	-	X	-	-
Sialidae (alder flies)	-	-	-	X	-	-	-	-	-	-	-	-	-
Trichoptera (caddisflies)													
Brachycentridae	X	-	-	-	-	-	-	-	X	X	X	X	-
Glossosomatidae	-	-	X	-	-	-	-	-	X	-	-	-	-
Helicopsychidae	-	-	X	X	-	-	-	-	-	-	-	-	-
Hydropsychidae	X	X	X	X	X	X	X	X	X	X	X	X	X
Hydroptilidae	X	-	-	-	-	-	-	-	-	-	-	-	-
Lepidostomatidae	-	-	X	-	-	-	-	-	-	-	-	-	-
Leptoceridae	-	-	X	-	X	X	X	X	X	-	-	-	-
Limnephilidae	X	X	X	X	X	X	X	X	X	X	-	X	-
Molannidae	-	-	-	X	-	-	-	-	X	-	-	-	-
Odontoceridae	-	-	-	-	-	-	-	-	-	-	-	-	-
Philopotamidae	-	-	X	X	-	-	-	-	X	-	-	-	-
Phryganeidae	-	-	-	X	-	X	-	X	-	-	-	-	-
Polycentropodidae	-	X	-	X	-	-	-	-	-	-	-	-	-
Psychomyiidae	-	-	-	X	-	-	-	-	-	-	-	-	-
Uenoidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidoptera													
Pyralidae	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 24.–Continued.

Taxa	Sites												
	Kalamazoo (Augusta)	Kalamazoo (Galesburg)	Gull Lake Outlet	Comstock Creek	Davis Creek	Portage Creek (Lower)	Portage Creek (Middle)	Portage Creek (Upper)	Spring Brook	Kalamazoo (D Avenue)	Silver Creek	Kalamazoo (Plainwell)	Gun River
<b>Insecta</b> – continued													
Coleoptera (beetles)													
Dryopidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Dytiscidae	X	X	-	-	-	-	-	-	-	-	-	-	-
Elmidae	X	X	X	X	X	X	X	X	X	X	X	X	X
Gyrinidae	X	-	-	-	X	-	-	-	-	-	-	-	-
Haliplidae	-	-	-	X	X	-	X	X	-	-	-	-	-
Hydrophilidae	-	-	-	-	X	-	-	-	X	-	-	-	-
Psephenidae	-	-	X	-	-	-	-	-	-	-	-	-	-
Ptilodactylidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Diptera (flies)													
Athericidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Ceratopogonidae	-	X	X	X	-	-	-	-	X	-	-	-	-
Chaoboridae	-	-	-	-	-	-	-	-	-	-	-	-	-
Chironomidae	X	X	X	X	X	X	X	X	X	X	X	X	X
Culicidae	-	-	-	X	X	-	-	-	-	-	-	-	-
Dixidae	-	-	-	-	-	-	-	-	X	-	-	-	-
Dolichopodidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Empididae	-	-	-	-	-	-	-	-	-	-	-	-	-
Ephydriidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Sciomyzidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Simuliidae	-	X	X	X	X	X	X	X	X	X	X	-	X
Tabanidae	-	-	-	-	-	-	-	-	X	-	-	-	-
Tipulidae	-	-	X	-	-	-	-	-	X	-	-	-	-
<b>Mollusca</b>													
Gastropoda (snails and limpets)													
Ancylidae	X	X	-	-	-	-	-	-	-	-	-	-	-
Lymnaeidae	-	-	-	-	-	X	X	X	-	-	-	-	-
Physidae	-	X	X	-	X	-	X	X	X	-	X	-	X
Planorbidae	-	-	-	-	-	X	-	-	-	-	-	-	-
Bithyniidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrobiidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Pleuroceridae	-	-	-	X	-	-	-	-	-	-	-	-	-
Pomatiopsidae	-	-	-	-	-	-	-	-	-	-	-	-	-
Vivaparidae	-	-	-	X	X	-	-	-	-	-	-	-	-
Bivalvia (bivalves)													
Sphaeriidae	-	X	X	X	X	X	X	-	-	-	X	X	-
Unionidae	-	-	X	-	-	-	-	-	-	-	-	X	-
Anodontinae	-	-	-	X	-	-	-	-	-	-	-	-	-
Corbiculidae	-	-	-	-	-	-	-	-	-	X	-	-	-
Dreissenidae	-	-	X	-	-	-	-	-	-	-	-	-	-
Pisidiidae	-	-	-	-	-	-	-	-	-	-	-	X	-



Table 25.—Aquatic macroinvertebrates of the middle, lower, and mouth segments of the Kalamazoo River and select tributaries. Phylogenetic order names in bold. Data code: X= present, dash (–) indicates not collected. Data from MDNR (1990) and MDEQ (1999a), (2000a), and (2000b).

Taxa	Sites											
	Pine Creek	Dumont Creek	Swan Creek	Sand Creek	Bear Creek	Mann Creek	Rabbit River (Upper)	Rabbit River (Middle)	Little Rabbit River	Silver Creek (Saugatuck)	Tannery Creek	Goshorn Creek
<b>Porifera</b> (sponges)	–	–	–	–	–	–	–	–	–	–	–	–
<b>Bryozoa</b> (moss animals)	–	–	–	–	–	–	X	–	–	–	–	–
<b>Platyhelminthes</b> (flatworms)												
Turbellaria	–	X	–	–	–	–	X	–	X	–	X	X
<b>Annelida</b> (segmented worms)												
Hirudinea (leeches)	–	X	–	–	–	X	X	–	–	–	X	–
Oligochaeta (worms)	X	–	X	–	X	X	X	–	–	–	–	X
<b>Arthropoda</b>												
Crustacea												
Amphipoda (scuds)	X	X	–	X	X	–	X	X	X	X	X	X
Decapoda (crayfish)	–	X	–	X	X	–	X	X	X	–	X	–
Isopoda (sowbugs)	–	–	X	–	–	X	X	–	X	–	–	X
Arachnoidea												
Hydracarina (mites)	–	–	X	–	–	–	–	–	–	–	–	–
<b>Insecta</b>												
Ephemeroptera (mayflies)												
Baetiscidae	–	–	–	–	–	–	–	–	–	–	–	–
Baetidae	–	X	X	X	X	X	X	X	X	–	X	X
Caenidae	X	–	X	–	–	–	–	–	–	–	–	X
Ephemerellidae	–	X	–	–	–	–	–	–	–	–	–	–
Ephemeridae	–	–	–	–	–	–	–	–	–	–	–	–
Heptageniidae	X	X	X	X	X	–	X	X	X	–	X	X
Isonychiidae	–	–	–	–	–	–	–	–	–	–	–	–
Siphonuridae	–	–	–	–	–	–	–	–	–	–	–	–
Tricorythidae	–	–	–	–	–	–	–	–	–	–	–	–
Odonata												
Anisoptera (dragonflies)												
Aeshnidae	–	X	–	X	X	X	–	X	X	–	X	X
Cordulegastridae	–	–	–	–	X	–	–	–	–	–	–	–
Corduliidae	–	–	–	–	–	–	–	–	–	–	–	–
Gomphidae	–	–	–	–	–	–	–	–	–	–	–	–
Libellulidae	–	–	–	–	–	X	–	–	–	–	–	–
Zygoptera (damselflies)												
Calopterygidae	X	X	–	–	–	–	–	X	X	–	X	–
Coenagrionidae	–	–	–	–	–	X	–	X	–	–	–	–
Lestidae	–	–	–	–	–	–	–	–	–	–	–	–

Table 25.–Continued.

Taxa	Sites											
	Pine Creek	Dumont Creek	Swan Creek	Sand Creek	Bear Creek	Mann Creek	Rabbit River (Upper)	Rabbit River (Middle)	Little Rabbit River	Silver Creek (Saugatuck)	Tannery Creek	Goshorn Creek
Plecoptera (stone flies)												
Nemouridae	-	-	-	X	-	-	-	-	-	-	-	-
Perlidae	-	X	X	X	X	-	-	X	-	-	X	-
Perlodidae	-	-	-	X	X	-	-	-	-	-	-	-
Pteronarcyidae	-	-	-	-	-	-	-	-	-	-	-	-
Taeniopterygidae	-	-	-	-	-	-	-	-	X	-	-	-
Hemiptera (true bugs)												
Belastomatidae	-	-	-	-	-	-	X	-	-	-	-	-
Corixidae	-	-	X	-	-	X	X	-	X	-	-	-
Gerridae	-	X	-	X	-	X	X	-	X	X	X	X
Mesoveliidae	-	X	-	X	-	-	X	-	X	-	X	X
Naucoridae	-	-	-	-	-	-	-	-	-	-	-	-
Nepidae	-	-	-	-	-	-	-	-	X	-	-	-
Neuroptera	-	-	-	-	-	-	-	-	-	-	-	-
Notonectidae	-	-	-	-	-	-	X	-	X	-	-	-
Veliidae	-	-	-	-	-	-	-	-	-	-	-	-
Pleidae	-	-	-	-	-	-	-	-	-	-	-	-
Megaloptera												
Corydalidae (dobson flies)	X	-	-	X	X	-	X	X	X	-	-	-
Sialidae (alder flies)	-	-	X	X	X	X	-	-	-	-	-	-
Trichoptera (caddisflies)												
Brachycentridae	-	-	X	-	X	-	-	-	-	-	-	X
Glossosomatidae	-	X	-	X	-	-	-	-	-	-	X	-
Helicopsychidae	-	X	-	-	-	-	-	-	-	-	X	-
Hydropsychidae	-	X	X	X	X	-	X	X	X	-	X	X
Hydroptilidae	-	X	-	X	X	-	-	X	X	-	-	-
Lepidostomatidae	-	X	-	-	-	-	-	-	-	-	-	-
Leptoceridae	-	X	X	X	X	-	-	-	-	-	X	X
Limnephilidae	-	X	-	X	X	-	-	-	X	-	X	X
Molannidae	-	-	-	-	X	-	-	-	-	-	-	-
Odontoceridae	-	-	-	-	-	-	-	-	-	-	X	-
Philopotamidae	-	X	-	X	X	-	-	-	-	-	X	-
Phryganeidae	-	X	-	-	-	-	-	-	-	-	-	-
Polycentropodidae	-	X	-	X	-	-	-	-	-	-	-	-
Psychomyiidae	-	-	-	X	-	-	-	-	-	-	-	-
Uenoidae	-	-	-	-	-	-	-	-	-	-	-	-
Lepidoptera												
Pyalidae	-	-	-	-	-	-	-	-	-	-	-	-
Coleoptera (beetles)												
Dryopidae	-	-	-	-	-	-	-	-	-	-	-	X
Dytiscidae	-	-	-	-	-	X	X	-	-	-	-	X
Elmidae	-	-	X	X	X	-	X	X	-	-	X	-
Gyrinidae	-	-	-	-	-	-	X	-	-	-	-	-
Haliplidae	-	X	-	-	-	X	X	-	X	-	-	-

Table 25.–Continued.

Taxa	Sites											
	Pine Creek	Dumont Creek	Swan Creek	Sand Creek	Bear Creek	Mann Creek	Rabbit River (Upper)	Rabbit River (Middle)	Little Rabbit River	Silver Creek (Saugatuck)	Tannery Creek	Goshorn Creek
Hydrophilidae	-	-	-	-	-	-	X	-	-	-	X	X
Psephenidae	-	X	-	-	-	-	-	-	-	-	X	-
Ptilodactylidae	-	-	-	-	-	-	-	-	-	-	-	-
<b>Diptera (flies)</b>												
Athericidae	-	-	-	-	-	-	-	-	-	-	-	-
Ceratopogonidae	-	-	-	-	-	-	-	-	-	-	X	X
Chaoboridae	-	-	-	-	-	-	-	-	-	-	X	-
Chironomidae	X	X	X	X	X	X	X	X	X	X	X	X
Culicidae	-	-	-	-	-	X	-	-	-	-	X	X
Dixidae	-	-	-	-	-	X	-	-	-	-	-	-
Dolichopodidae	-	-	-	-	-	-	-	-	-	-	-	-
Empididae	-	-	-	-	-	-	-	-	-	-	-	-
Ephydriidae	-	-	-	-	-	-	-	-	-	-	-	-
Sciomyzidae	-	-	-	-	-	-	-	-	-	-	-	-
Simuliidae	-	X	X	X	X	X	X	-	X	-	X	-
Tabanidae	-	-	-	X	-	-	-	-	-	-	X	-
Tipulidae	-	-	X	X	X	-	X	-	-	-	X	X
<b>Mollusca</b>												
<b>Gastropoda (snails and limpets)</b>												
Ancylidae	-	-	-	-	-	-	X	-	-	-	-	-
Lymnaeidae	X	-	-	-	-	X	X	-	-	-	-	-
Physidae	-	X	-	X	X	X	X	-	X	-	-	-
Planorbidae	-	-	-	-	-	X	X	-	-	-	X	-
Bithyniidae	-	-	-	-	-	-	-	-	-	-	-	-
Hydrobiidae	-	-	-	-	-	-	-	-	-	-	-	-
Pleuroceridae	-	-	-	-	-	X	-	-	-	-	-	-
Pomatiopsidae	-	-	-	-	-	-	-	-	-	-	-	-
Vivaparidae	-	X	-	-	-	-	-	-	-	-	-	-
<b>Bivalvia (bivalves)</b>												
Sphaeriidae	-	X	-	-	-	-	X	-	X	-	-	-
Unionidae	-	-	-	-	-	-	-	-	-	-	-	-
Anodontinae	-	-	-	-	-	-	-	-	-	-	-	-
Lampsilinae	-	-	-	-	-	-	-	-	-	-	-	-
Dreissenidae	-	-	-	-	-	-	-	-	-	-	-	-
Pisidiidae	-	-	-	-	-	-	-	-	-	-	-	-

Kalamazoo River Assessment

Table 26.—Mussels of the middle, lower, and mouth segments of the Kalamazoo River. Data code: Number indicates the number of live individual mussels found, Letter (S) indicates only a shell of the species was found. Data from Sherman-Mulcrone and Mehne (2001).

Common name	Sites															
	Wattles Park	Willow Blvd	King Highway	B Avenue	U.S. 131 Bridge	Plainwell Impoundment	Below Plainwell Dam	Otsego Impoundment	Below Trowbridge Dam	Trowbridge Impoundment	Allegan City Impoundment	Below Allegan City Dam	Lake Allegan	Below Calkins Dam	Saugatuck Township	Douglas at Schultz Park
mucket	27	18	32	27	68	15	25	7	7	10	–	5	–	S	–	–
elktoe	1	S	1	3	1	–	–	1	S	S	–	–	–	–	–	–
three ridge	–	–	–	–	–	–	–	–	–	–	–	–	–	–	S	–
purple wartyback	–	–	–	–	–	–	–	–	S	–	–	–	–	–	–	–
spike	–	S	–	S	–	–	–	–	–	S	–	–	–	–	–	S
wabash pigtoe	1	7	7	S	S	–	–	–	S	S	–	–	–	3	4	4
fat mucket	–	1	–	–	–	–	S	–	–	–	–	–	–	–	–	S
pocketbook	–	3	2	6	9	2	5	1	1	2	–	3	–	7	–	S
white heelsplitter	S	17	17	24	15	3	3	1	4	8	–	1	–	6	3	2
creek heelsplitter	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–
fluted shell	S	–	2	2	2	–	S	–	–	S	–	–	–	S	–	–
fragile papershell	–	–	–	1	1	–	–	–	–	–	–	–	–	14	3	2
black sandshell	–	–	–	–	–	–	–	–	S	–	–	–	–	–	–	–
round pigtoe	–	–	–	S	–	–	–	–	–	–	–	–	–	–	–	S
pink heelsplitter	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	S
floater	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	3
pimpleback	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	S
mapleleaf	–	–	–	–	–	–	–	–	–	–	–	–	–	52	34	47
squawfoot	S	1	1	1	–	1	–	2	S	S	–	1	–	5	–	–
fawnsfoot	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
deertoe	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4
paper pondshell	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	S
ellipse	–	–	–	S	–	–	–	–	S	–	–	–	–	–	–	–
Total	30	47	62	64	96	21	33	12	12	20	0	10	0	90	48	63

Table 27.—Amphibians and reptiles found in the Kalamazoo River watershed. Data from distributions described by Holman et al (1989); Harding and Holman (1990 and 1992).

Common name	Scientific name
<b>Turtles</b>	
snapping turtle	<i>Chelydra serpentina</i>
eastern box turtle ( <b>special concern</b> )	<i>Terrapene carolina carolina</i>
map turtle	<i>Graptemys geographica</i>
painted turtle	<i>Chrysemys picta marginata</i>
Blanding's turtle ( <b>special concern</b> )	<i>Emydiodes blandingi</i>
spiny softshell	<i>Apalone spinifera</i>
common musk turtle	<i>Sternotherus odoratus</i>
spotted turtle ( <b>threatened</b> )	<i>Clemmys guttata</i>
wood turtle ( <b>special concern</b> )	<i>Clemmys insculpta</i>
<b>Snakes</b>	
eastern garter snake	<i>Thamnophis sirtalis sirtalis</i>
eastern hognose snake	<i>Heterodon platyrhinos</i>
blue racer	<i>Coluber constrictor foxi</i>
smooth green snake	<i>Opheodrys vernalis</i>
black rat snake ( <b>special concern</b> )	<i>Elaphe obsoleta obsoleta</i>
eastern milk snake	<i>Lampropeltis triangulum triangulum</i>
Kirtland's snake ( <b>endangered</b> )	<i>Clonophis kirtlandii</i>
copperbelly water snake ( <b>endangered</b> )	<i>Nerodia erythrogaster neglecta</i>
northern water snake	<i>Nerodia sipedon sipedon</i>
queen snake	<i>Regina septemvittata</i>
brown snake	<i>Storeria dekayi</i>
northern red-bellied snake	<i>Storeria occipitomaculata occipitomaculata</i>
northern ribbon snake	<i>Thamnophis sauritus septentrionalis</i>
northern ringneck snake	<i>Diadophis punctatus edwardsii</i>
eastern Massasauga rattlesnake ( <b>special concern</b> )	<i>Sistrurus catenatus catenatus</i>
<b>Salamanders and lizards</b>	
mudpuppy	<i>Necturus maculosus maculosus</i>
western lesser siren	<i>Siren intermedia nettingi</i>
blue-spotted salamander	<i>Ambystoma laterale</i>
spotted salamander	<i>Ambystoma maculatum</i>
eastern tiger salamander	<i>Ambystoma tigrinum tigrinum</i>
marbled salamander ( <b>threatened</b> )	<i>Ambystoma opacum</i>
central newt	<i>Notophthalmus viridescens louisianensis</i>
red-backed salamander	<i>Plethodon cinereus</i>
four-toed salamander	<i>Hemidactylium scutatum</i>
five-lined skink	<i>Eumeces fasciatus</i>

Table 27.–Continued.

Common name	Scientific name
Frogs and toads	
American toad	<i>Bufo americanus</i>
Fowler's toad	<i>Bufo woodhousei fowleri</i>
Blanchard's cricket frog	<i>Acris crepitans blanchardi</i>
spring peeper	<i>Pseudacris crucifer</i>
gray treefrog	<i>Hyla versicolor</i>
western chorus frog	<i>Pseudacris triseriata triseriata</i>
bullfrog	<i>Rana catesbeiana</i>
green frog	<i>Rana clamitans melanota</i>
wood frog	<i>Rana sylvatica</i>
northern leopard frog	<i>Rana pipiens</i>
pickerel frog	<i>Rana palustris</i>

Table 28.—Birds found in the Kalamazoo River watershed. Data from Brewer et al. 1991 and Michigan Department of Natural Resources, Wildlife Division Staff, personal communication 2005. Occurrence status: N=Nesting, RM=Regular Migrant, SV=Summer Visitor, WR=Winter Resident.

Common name	Scientific name	Occurrence status
Common Loon ( <b>threatened</b> )	<i>Gavia immer</i>	RM
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	SV
Tied-billed Grebe	<i>Podilymbus podiceps</i>	N
American Bittern	<i>Botaurus lentiginosus</i>	N
Least Bittern	<i>Ixobrychus exilis</i>	N
Great Blue Heron	<i>Ardea herodias</i>	N
Green-backed Heron	<i>Butorides striatus</i>	N
Great Egret	<i>Casmerodius albus</i>	RM
Tundra Swan	<i>Cygnus columbianus</i>	RM
Mute Swan	<i>Cygnus olor</i>	N
Trumpeter Swan ( <b>threatened</b> )	<i>Cygnus buccinator</i>	RM
Snow Goose	<i>Chen caerulescens</i>	RM
Canada Goose	<i>Branta canadensis</i>	RM
Wood Duck	<i>Aix sponsa</i>	N
Green-winged Teal	<i>Anas crecca</i>	RM
American Black Duck	<i>Anas rubripes</i>	RM
Mallard	<i>Anas platyrhynchos</i>	N
Blue-winged Teal	<i>Anas discors</i>	RM
Northern Shoveler	<i>Anas clypeata</i>	RM
Northern Pintail	<i>Anas acuta</i>	RM
Gadwall	<i>Anas strepera</i>	RM
American Wigeon	<i>Anas americana</i>	RM
Canvasback	<i>Aythya valisineria</i>	RM
Redhead	<i>Aythya americana</i>	RM
Greater Scaup	<i>Aythya marila</i>	RM
Lesser Scaup	<i>Aythya affinis</i>	RM
Ring-necked Duck	<i>Aythya collaris</i>	RM
Common Goldeneye	<i>Bucephala clangula</i>	WR
Bufflehead	<i>Bucephala albeola</i>	RM
Hooded Merganser	<i>Lophodytes cucullatus</i>	N
Common Merganser	<i>Mergus merganser</i>	WR
Red-breasted Merganser	<i>Mergus serrator</i>	WR
Ruddy Duck	<i>Oxyura jamaicensis</i>	RM
Turkey Vulture	<i>Cathartes aura</i>	N
Osprey ( <b>threatened</b> )	<i>Pandion haliaetus</i>	N
Golden Eagle	<i>Aquila chrysaetos</i>	N
Bald Eagle ( <b>threatened</b> )	<i>Haliaeetus leucocephalus</i>	N
Northern Harrier	<i>Circus cyaneus</i>	N
Sharp-shinned Hawk	<i>Accipiter striatus</i>	N
Cooper's Hawk	<i>Accipiter cooperii</i>	N
Northern Goshawk	<i>Accipiter gentilis</i>	N
Red-shouldered Hawk ( <b>threatened</b> )	<i>Buteo lineatus</i>	N
Broad-winged Hawk	<i>Buteo platypterus</i>	N
Red-tailed Hawk	<i>Buteo jamaicensis</i>	N
Rough-legged Hawk	<i>Buteo lagopus</i>	WR
American Kestrel	<i>Falco sparverius</i>	N

Table 28.–Continued.

Common name	Scientific name	Occurrence status
Ring-necked Pheasant	<i>Phasianus colchicus</i>	N
Ruffed Grouse	<i>Bonasa umbellus</i>	N
Wild Turkey	<i>Meleagris gallopavo</i>	N
Northern Bobwhite	<i>Colinus virginianus</i>	N
King Rail ( <b>endangered</b> )	<i>Rallus elegans</i>	RM
Virginia Rail	<i>Rallus limicola</i>	N
Sora	<i>Porzana carolina</i>	N
Common Moorhen	<i>Gallinula chloropus</i>	N
American Coot	<i>Fulica americana</i>	N
Sandhill Crane	<i>Grus canadensis</i>	N
Killdeer	<i>Charadrius vociferus</i>	N
Greater Yellowlegs	<i>Tringa flavipes</i>	RM
Lesser Yellowlegs	<i>Tringa melanoleuca</i>	RM
Spotted Sandpiper	<i>Actitis macularia</i>	N
Upland Sandpiper	<i>Bartramia longicauda</i>	N
Least Sandpiper	<i>Calidris minutilla</i>	RM
Common Snipe	<i>Capella gallinago</i>	N
American Woodcock	<i>Scolopax minor</i>	N
Bonaparte's Gull	<i>Loxia curvirostra</i>	SV
Ring-billed Gull	<i>Larus delawarensis</i>	SV
Herring Gull	<i>Larus argentatus</i>	SV
Caspian Tern ( <b>threatened</b> )	<i>Sterna caspia</i>	SV
Common Tern ( <b>threatened</b> )	<i>Sterna hirundo</i>	SV
Black Tern	<i>Chlidonias niger</i>	N
Rock Dove	<i>Columba livia</i>	N
Mourning Dove	<i>Zenaida macroura</i>	N
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	N
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	N
Eastern Screech Owl	<i>Otus asio</i>	N
Great Horned Owl	<i>Bubo virginianus</i>	N
Barred Owl	<i>Strix varia</i>	N
Long-eared Owl ( <b>threatened</b> )	<i>Asio otus</i>	RM
Short-eared Owl ( <b>endangered</b> )	<i>Asio flammeus</i>	RM
Northern Saw-whet Owl	<i>Aegolius acadicus</i>	N
Common Nighthawk	<i>Chordeiles minor</i>	N
Whip-poor-will	<i>Caprimulgus vociferus</i>	N
Chimney Swift	<i>Chaetura pelagica</i>	N
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	N
Belted Kingfisher	<i>Ceryle alcyon</i>	N
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	N
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>	N
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	N
Downy Woodpecker	<i>Picoides pubescens</i>	N
Hairy Woodpecker	<i>Picoides villosus</i>	N
Northern Flicker	<i>Colaptes auratus</i>	N
Pileated Woodpecker	<i>Dryocopus pileatus</i>	N
Olive-sided Flycatcher	<i>Contopus borealis</i>	RM
Eastern Wood-pewee	<i>Contopus virens</i>	N



Table 28.–Continued.

Common name	Scientific name	Occurrence status
Acadian Flycatcher	<i>Empidonax vireescens</i>	N
Alder Flycatcher	<i>Empidonax alnorum</i>	N
Willow Flycatcher	<i>Empidonax traillii</i>	N
Least Flycatcher	<i>Empidonax minimus</i>	N
Eastern Phoebe	<i>Sayornis phoebe</i>	N
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	N
Eastern Kingbird	<i>Tyrannus tyrannus</i>	N
Horned Lark	<i>Eremophila alpestris</i>	N
Purple Martin	<i>Progne subis</i>	N
Tree Swallow	<i>Iridoprocne bicolor</i>	N
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	N
Bank Swallow	<i>Riparia riparia</i>	N
Cliff Swallow	<i>Hirundo pyrrhonota</i>	N
Barn Swallow	<i>Hirundo rustica</i>	N
Blue Jay	<i>Cyanocitta cristata</i>	N
American Crow	<i>Corvus brachyrhynchos</i>	N
Black-capped Chickadee	<i>Parus atricapillus</i>	N
Tufted Titmouse	<i>Parus bicolor</i>	N
Red-breasted Nuthatch	<i>Sitta canadensis</i>	N
White-breasted Nuthatch	<i>Sitta carolinensis</i>	N
Brown Creeper	<i>Certhia americana</i>	N
Carolina Wren	<i>Thryothorus ludovicianus</i>	WR
House Wren	<i>Troglodytes aedon</i>	N
Winter Wren	<i>Troglodytes troglodytes</i>	WR
Sedge Wren	<i>Cistothorus platensis</i>	N
Marsh Wren	<i>Cistothorus palustris</i>	N
Golden-crowned Kinglet	<i>Regulus satrapa</i>	WR
Ruby-crowned Kinglet	<i>Regulus calendula</i>	WR
Blue-gray Gnatcatcher	<i>Poliptila caerulea</i>	N
Eastern Bluebird	<i>Sialia sialis</i>	N
Veery	<i>Catharus fuscescens</i>	N
Hermit Thrush	<i>Catharus guttatus</i>	N
Gray-cheeked thrush	<i>Catharus minimus</i>	N
Swainson's Thrush	<i>Catharus ustulatus</i>	N
Wood Thrush	<i>Hylocichla mustelina</i>	N
American Robin	<i>Turdus migratorius</i>	N
Gray Catbird	<i>Dumetella carolinensis</i>	N
Northern Mockingbird	<i>Mimus polyglottos</i>	N
Brown Thrasher	<i>Toxostoma rufum</i>	N
American Pipit	<i>Anthus spinoletta</i>	WR
Cedar Waxwing	<i>Bombycilla cedrorum</i>	N
Loggerhead Shrike ( <b>endangered</b> )	<i>Lanius ludovicianus</i>	N
Northern Shrike	<i>Lanius excubitor</i>	WR
European Starling	<i>Sturnus vulgaris</i>	N
Solitary Vireo	<i>Vireo solitarius</i>	N
Yellow-throated Vireo	<i>Vireo flavifrons</i>	N
Warbling Vireo	<i>Vireo gilvus</i>	N
Philadelphia Vireo	<i>Vireo philadelphicus</i>	RM

Table 28.–Continued.

Common name	Scientific name	Occurrence status
Red-eyed Vireo	<i>Vireo olivaceus</i>	N
Blue-winged Warbler	<i>Vermivora pinus</i>	N
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	N
Tennessee Warbler	<i>Vermivora peregrina</i>	RM
Orange-crowned Warbler	<i>Vermivora celata</i>	RM
Nashville Warbler	<i>Vermivora ruficapilla</i>	RM
Northern Parula	<i>Parula americana</i>	RM
Yellow Warbler	<i>Dendroica petechia</i>	N
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	N
Magnolia Warbler	<i>Dendroica magnolia</i>	N
Cape-mary Warbler	<i>Dendroica tigrina</i>	RM
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	RM
Yellow-rumped Warbler ( <b>threatened</b> )	<i>Dendroica coronata</i>	RM
Black-throated Green Warbler	<i>Dendroica virens</i>	N
Blackburnian Warbler	<i>Dendroica fusca</i>	N
Pine Warbler	<i>Dendroica pinus</i>	N
Prairie Warbler	<i>Dendroica discolor</i>	N
Bay-breasted Warbler	<i>Dendroica castanea</i>	RM
Black-poll Warbler	<i>Dendroica striata</i>	RM
Cerulean Warbler	<i>Dendroica cerulea</i>	N
Black-and-white Warbler	<i>Mniotilta varia</i>	N
American Redstart	<i>Setophaga ruticilla</i>	N
Prothonotary Warbler	<i>Protonotaria citrea</i>	N
Worm-eating Warbler	<i>Helmitheros vermivorus</i>	N
Ovenbird	<i>Seiurus aurocapillus</i>	N
Northern Waterthrush	<i>Seiurus noveboracensis</i>	RM
Louisiana Waterthrush	<i>Seiurus motacilla</i>	N
Connecticut Warbler	<i>Oporornis agilis</i>	RM
Mourning Warbler	<i>Oporornis philadelphia</i>	N
Common Yellowthroat	<i>Geothlypis trichas</i>	N
Hooded Warbler	<i>Wilsonia citrina</i>	N
Wilson's Warbler	<i>Wilsonia pusilla</i>	RM
Canada Warbler	<i>Wilsonia canadensis</i>	N
Yellow-breasted Chat	<i>Icteria virens</i>	N
Scarlet Tanager	<i>Piranga olivacea</i>	N
Northern Cardinal	<i>Cardinalis cardinalis</i>	N
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	N
Indigo Bunting	<i>Passerina cyanea</i>	N
Dickcissel	<i>Spiza americana</i>	N
Rufous-sided Towhee	<i>Pipilo erythrophthalmus</i>	N
Chipping Sparrow	<i>Spizella passerina</i>	N
American Tree Sparrow	<i>Spizella arborea</i>	N
Field Sparrow	<i>Spizella pusilla</i>	N
Vesper Sparrow	<i>Poocetes gramineus</i>	N
Savannah Sparrow	<i>Passerculus sandwichensis</i>	N
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	N
Henslow's Sparrow ( <b>threatened</b> )	<i>Ammodramus henslowii</i>	N
Song Sparrow	<i>Melospiza melodia</i>	N

Table 28.–Continued.

Common name	Scientific name	Occurrence status
Fox Sparrow	<i>Passerella iliaca</i>	RM
Swamp Sparrow	<i>Melospiza georgiana</i>	N
White-throated Sparrow	<i>Zonotrichia albicollis</i>	WR
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	RM
Dark-eyed Junco	<i>Junco hyemalis</i>	WR
Lapland Longspur	<i>Calcarius lapponicus</i>	WR
Snow Bunting	<i>Plectrophenax nivalis</i>	WR
Bobolink	<i>Dolichonyx oryzivorus</i>	N
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	N
Eastern Meadowlark	<i>Sturnella magna</i>	N
Western Meadowlark	<i>Sturnella neglecta</i>	N
Rusty Blackbird	<i>Euphagus carolinus</i>	RM
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	N
Common Grackle	<i>Quiscalus quiscula</i>	N
Brown-headed Cowbird	<i>Molothrus ater</i>	N
Orchard Oriole	<i>Icterus spurius</i>	N
Northern Oriole	<i>Icterus galbula</i>	N
Purple Finch	<i>Carpodacus purpureus</i>	WR
House Finch	<i>Carpodacus mexicanus</i>	N
Red Crossbill	<i>Loxia curvirostra</i>	WR
White-winged Crossbill	<i>Loxia leucoptera</i>	WR
Pine Grosbeak	<i>Pinicola enucleator</i>	WR
American Goldfinch	<i>Carduelis tristis</i>	N
Pine Siskin	<i>Carduelis pinus</i>	N
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	WR
Common Redpoll	<i>Acanthis flammea</i>	WR
Hoary Redpoll	<i>Acanthis hornemanni</i>	WR
House Sparrow	<i>Passer domesticus</i>	N

Table 29.—Mammals found in Kalamazoo River watershed. Data from Michigan Department of Natural Resources, Wildlife Division.

Common name	Scientific name
opossum	<i>Didelphus marsupialis</i>
short-tail shrew	<i>Blarina brevicauda</i>
masked shrew	<i>Sorex cinereus</i>
least shrew ( <b>threatened</b> )	<i>Cryptotis parva</i>
eastern mole	<i>Scalopus aquaticus</i>
starnose mole	<i>Condylura cristata</i>
big brown bat	<i>Eptesicus fuscus</i>
silver-haired bat	<i>Lasionycteris noctivagans</i>
red bat	<i>Lasiurus borealis</i>
hoary bat	<i>Lasiurus cinereus</i>
little brown bat	<i>Myotis lucifugus</i>
Indiana bat	<i>Myotis sodalis</i>
keen bat	<i>Myotis keenii</i>
evening bat	<i>Nycticeius humeralis</i>
eastern cottontail	<i>Sylvilagus floridanus</i>
eastern chipmunk	<i>Tamias striatus</i>
woodchuck	<i>Marmota monax</i>
thirteen-lined ground squirrel	<i>Spermophilus tridecemlineatus</i>
eastern fox squirrel	<i>Sciurus niger</i>
eastern gray squirrel	<i>Sciurus carolinensis</i>
red squirrel	<i>Tamiasciurus hudsonicus</i>
southern flying squirrel	<i>Glaucomys volans</i>
beaver	<i>Castor canadensis</i>
white-footed mouse	<i>Peromyscus leucopus</i>
deer mouse	<i>Peromyscus maniculatus</i>
prairie vole ( <b>endangered</b> )	<i>Microtus ochrogaster</i>
meadow vole	<i>Microtus pennsylvanicus</i>
woodland vole	<i>Microtus pinetorum</i>
pine vole	<i>Pitymys pinetorum</i>
muskrat	<i>Ondatra zibethicus</i>
southern bog lemming	<i>Synaptomys cooperi</i>
norway rat	<i>Rattus norvegicus</i>
house mouse	<i>Mus musculus</i>
meadow jumping mouse	<i>Zapus hudsonius</i>
bobcat	<i>Felis rufus</i>
coyote	<i>Canis latrans</i>
red fox	<i>Vulpes vulpes</i>
gray fox	<i>Urocyon cinereoargenteus</i>
raccoon	<i>Procyon lotor</i>
porcupine	<i>Erethizon dorsatum</i>
long-tail weasel	<i>Mustela frenata</i>
least weasel	<i>Mustela nivalis</i>
mink	<i>Mustela vison</i>
badger	<i>Taxidea taxus</i>
striped skunk	<i>Mephitis mephitis</i>
river otter	<i>Lutra canadensis</i>
white-tailed deer	<i>Odocoileus virginianus</i>

Table 30.–Organizations with interests in the Kalamazoo River watershed.

Organization name
Augusta Creek Watershed Association
Battle Creek Watershed Steering Committee
Citizens for Environmental Concern
Ducks Unlimited
Forum for Kalamazoo County River Partners
Gun River Rod and Gun Club
Gun River Watershed Steering Committee
Izaak Walton League
Kalamazoo Nature Center
Kalamazoo River Group
Kalamazoo River Protection Association
Kalamazoo River Public Advisory Council
Kalamazoo River Valley Trailway Partnership
Kalamazoo River Watershed Council
Kalamazoo Valley Trout Unlimited
Michigan Chapter of American Fisheries Society
Michigan Duck Hunters Association
Michigan Lake and Stream Association
Michigan Nature Association
Michigan Riparian
Michigan Salmon and Steelhead Fishing Association
Michigan Trappers Assoc.
Michigan United Conservation Club Districts 3, 4, 5, and 6
Nature Conservancy
Pheasants Forever
Pikemasters
Rabbit River Watershed Steering Committee
Rice Creek Watershed Steering Committee
Southwest Michigan Land Conservancy
Trout Unlimited
Wetlands Conservation Association
Whitehouse Nature Center



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