

Table 1.—Number of archaeological sites (654) in the River Raisin drainage, listed by congressional township. Data from: B. Mead, Office of the State Archaeologist, personal communication.

County	Township	Number of sites
Jackson	T2S, R1E	1
	T2S, R2E	1
	T3S, R1E	8
	T3S, R2E	2
	T4S, R1E	10
	T4S, R2E	5
Washtenaw	T3S, R3E	3
	T3S, R5E	6
	T3S, R6E	9
	T4S, R3E	8
	T4S, R4E	4
	T4S, R5E	11
	T4S, R6E	10
Lenawee	T5S, R1E	12
	T5S, R2E	35
	T5S, R3E	20
	T5S, R4E	17
	T5S, R5E	6
	T6S, R1E	14
	T6S, R2E	32
	T6S, R3E	23
	T6S, R4E	13
	T6S, R5E	6
	T7S, R2E	19
	T7S, R3E	18
	T7S, R4E	11
	T7S, R5E	9
	T8S, R2E	5
	T8S, R3E	16
	T8S, R4E	9
	T8S, R5E	2
	T9S, R1E	1
	T9S, R2E	2
Monroe	T5S, R6E	16
	T5S, R7E	10
	T6S, R6E	41
	T6S, R7E	66
	T6S, R8E	109
	T6S, R9E	11
	T7S, R6E	20
	T7S, R7E	7
	T7S, R8E	5
T7S, R9E	21	

Table 2.—Geology data for the River Raisin watershed. Data from: ERDAS database, P. Seelbach, Michigan Department of Natural Resources, Fisheries Division. See Figure 4 for locations. Blanks indicate a value of zero. Numbers are percentages.

Location	Lacustrine clay & silt	Lacustrine sand & gravel	Glacial outwash sand, gravel, & postglacial alluvium	Fine textured glacial till	End moraines fine textured till	Medium textured till	End moraines medium textured till	Coarse textured gravel till	End moraines coarse textured till
a	19.6	3.2	17.4	9.3	49.2	1.3			
b	18.4	12.4	15.6	8.4	44.1	1.2			
c			10.0	34.8	45.1				10.0
1			37.1				1.4	26.7	34.8
2			43.1				0.9	25.9	30.0
3			45.6			2.8	0.8	22.8	27.9
4			44.2		4.7	4.4	0.7	20.7	25.3
5			38.8	6.1	14.1	2.8	0.4	13.2	24.6
6	0.1		29.2	15.5	28.2	1.6	0.3	7.6	17.6
7	0.1	2.0	28.5	15.3	27.9	1.6	0.2	7.4	17.1
8	14.7	7.0	20.6	11.3	27.7	1.1	0.2	5.2	12.2
9	17.1	12.8	18.4	10.1	24.9	1.0	0.2	4.7	10.9
10	25.6	12.0	15.2	8.2	27.0	0.8	0.1	3.3	7.7
11	26.0	12.4	15.0	8.1	26.7	0.8	0.1	3.3	7.6
12	26.3	12.5	14.9	8.1	26.5	0.8	0.1	3.2	7.5
d	63.9	2.8		5.6	27.8				
e	35.8	12.2	1.6	2.8	47.6				
f	53.5				46.5				
g	82.9	4.1			13.0				

Note: The geological groups are expressed as a cumulative figure within the watershed. The geology value given for a specific location includes the entire watershed upstream from that point. For example, the value for location 9 (Dundee) for lacustrine clay & silt means that 17.1% of the geology in the River Raisin watershed upstream from Dundee is lacustrine clay & silt geology.

Table 3.–Soil type data for the River Raisin watershed. Data from: ERDAS database, P. Seelbach, Michigan Department of Natural Resources, Fisheries Division. See Figure 4 for locations. Blanks indicate a value of zero. Numbers are percentages.

Location	Soil type					
	Clayey	Loamy	Loamy on sand/gravel	Sandy	Wet clayey	Wet loamy
a	52.1	2.9	25.4		2.3	17.4
b	46.7	2.6	22.8	1.2	2.0	24.8
c	51.7		6.1		28.7	
1		54.3	39.8			
2		35.0	60.3			
3		30.8	65.1			
4	5.1	28.4	62.8			
5	19.2	17.9	54.3		5.1	0.6
6	32.1	10.3	34.6		13.3	2.7
7	32.1	10.0	33.5		12.9	4.7
8	30.0	7.1	23.9		25.4	6.3
9	26.8	6.3	21.3	1.9	23.5	13.6
10	26.6	4.8	18.7	2.0	23.7	19.4
11	26.3	4.8	18.5	2.0	23.4	20.4
12	26.1	4.7	18.4	2.0	23.3	20.9
d	72.2				19.4	
e	43.3				37.8	1.2
f	27.2		13.2		36.8	22.8
g	13.0				52.0	35.0

Note: Soil type is expressed as a cumulative figure within the watershed. Soil type value given for a specific location includes the entire watershed upstream from that point. For example, the value for location 9 (Dundee) for clayey soils means that 26.8% of the land in the River Raisin watershed upstream from Dundee has clayey soils.

Table 4.–Land use data for the River Raisin watershed. Data from: ERDAS database, P. Seelbach, Michigan Department of Natural Resources, Fisheries Division. See Figure 4 for locations. Blanks indicate a value of zero. Numbers are percentages.

Location	Land use type					
	Urban	Agriculture	Hardwood forest	Water	Forested wetland	Non-forested wetland
a	6.4	91.3	2.3			
b	5.8	91.4	2.9			
c	2.5	94.9	1.2	1.0	0.5	
1	1.8	85.5	0.9	5.9	4.1	1.8
2	1.2	82.2	5.0	4.7	5.2	1.7
3	1.0	83.6	5.1	4.1	4.6	1.5
4	0.9	85.1	4.7	3.7	4.2	1.4
5	2.3	85.1	5.6	2.9	2.9	1.2
6	2.5	89.0	4.0	2.0	1.9	0.7
7	2.5	89.2	3.8	2.0	1.8	0.7
8	1.8	91.9	3.0	1.6	1.3	0.5
9	1.6	92.7	2.6	1.5	1.1	0.4
10	1.9	93.5	2.4	1.0	0.8	0.3
11	1.9	93.6	2.4	1.0	0.8	0.3
12	1.9	93.7	2.3	1.0	0.8	0.3
d		100.0				
e		97.2	1.2	1.6		
f		98.2	1.8			
g		100.0				

Note: Land use type is expressed as a cumulative figure within the watershed. The land use value given for a specific site includes the entire watershed upstream from that point. For example, the value for location 9 (Dundee) for agriculture means that 92.7% of the land in the River Raisin upstream from Dundee is in agricultural land use.

Table 5a.—Seasonal water withdrawals for the River Raisin watershed, 1984. Data from: Fulcher et al. 1986.

Type of withdrawal	Withdrawals (cfs)				
	May	June	July	August	September
Irrigation	4.31	17.83	44.22	32.36	8.92
Self-supplied industrial	10.67	12.40	13.34	14.67	11.02
Public supply	12.64	16.32	15.80	15.80	13.06
Power generation	0	0	0	0	0

Table 5b.—Effects of consumptive use (cfs) on the River Raisin flow at four locations. Data from: Fulcher et al. 1986.

Location	Drainage area square miles	95% exceedence flows before consumptive uses			Consumptive uses			95% exceedence flows after consumptive uses		
		June	July	Aug	June	July	Aug	June	July	Aug
		R. Raisin near Manchester	132	25	13	9.8	-5.2	-11	-8.5	20
R Raisin upstream S. Br. R. Raisin	270	49	34	28	-7.7	-18	-13	41	16	15
R. Raisin upstream of Black Creek	467	73	56	45	-8.1	-18	-14	65	38	31
R. Raisin near Monroe	1042	120	64	45	-6.8	-23	-14	110	41	31

Table 6.—Flow measurements taken at various locations in the River Raisin watershed during the 1988 drought. Data from: D. Hamilton, Michigan Department of Environmental Quality, Land and Water Management Division, personal communication. Dashes indicate flow measurement not taken.

Stream	Location	TRS	Flow in cubic ft/sec	
			06/21/88	07/13/88
River Raisin	Wolf Lake Road	04S 02E 08	5.88	5.43
River Raisin	Mill Road	04S 02E 03	1.13	2.96
River Raisin	Sharon Valley Road	03S 03E 33	7.06	4.02
River Raisin	Gage #1756(Manchester)	04S 03E 02	8.51	7.72
River Raisin	Dam at M-52 (Manchester)	04S 03E 01	--	0
Trib. to River Raisin	Austin Road	04S 03E 12	--	1.21
River Raisin	Allen Road	04S 04E 32	18.50	14.30
Iron Creek	Bartlett Road	04S 04E 29	3.36	--
River Raisin	Gage #1757 (Tecumseh)	05S 04E 34	39.00	30.40
S. Br. River Raisin	Adrian	06S 03E 35	12.90	3.38
S. Br. River Raisin	Carleton Road	07S 03E 15	--	2.84
River Raisin	Gage #1756 (Adrian)	06S 04E 32	58.30	44.00
River Raisin	Blissfield	07S 05E 31	60.30	--
Black Creek	Bruce Hwy.	08S 04E 04	--	0.17
River Raisin	Dundee	06S 06E 13	51.40	11.90
N. Br. Macon Creek	Wilcox Road	06S 06E 11	0.19	0
Swamp Raisin Creek	Petersburg Rd.	06S 06E 22	--	0
Swamp Raisin Creek	Larabee Road	06S 05E 27	--	0
Little River Raisin	Petersburg Road	06S 06E 22	--	0
Schroeder Brook	Pocklington Road	06S 05E 14	--	0
Chauncy & Dibble Dr.	Hoaglund Hwy.	06S 05E 14	--	0
Bear Creek	E. Horton Road	08S 04E 04	--	0
Bear Swamp Creek	Oelke Road	05S 06E 36	0	--
N. Br. Macon Creek	Couper Road	05S 06E 26	0	--
N. Br. Macon Creek	Hack Road	05S 06E 05	0.10	--
Saline River	Maple Road (Gage #1764)	04S 06E 18	14.00	11.20
Wolf Creek	Wolf Creek Hwy.	06S 03E 33	--	1.75

Table 7.—Gradient of River Raisin mainstem from Lake Erie to headwaters. Data from: U.S.G.S. topographic maps, P. Seelbach and G. Whelan, Michigan Department of Natural Resources, Fisheries Division.

River miles (cumulative)	Distance in miles (to next upstream point)	Gradient ft/mi	Comments
0	3.07	3.31	Lake Erie to impoundment
3.07	2.98	3.31	Six impoundments
6.05	1.14	4.39	595 ft contour
7.19	1.11	4.49	Raisinville Road
8.31	2.43	2.06	605 ft contour
10.74	0.96	5.19	610 ft contour
11.70	1.32	3.79	615 ft contour
13.02	0.58	8.68	Ida-Maybee Road
13.60	0.16	0.90	Grape Impoundment
13.76	1.61	0.90	Grape Impoundment
15.37	3.80	0.90	River above Grape Impoundment
19.17	2.96	1.69	630 ft contour
22.13	1.51	1.11	635 ft contour
23.64	1.63	1.11	Dundee Impoundment
25.27	10.38	1.11	Above Dundee Impoundment
35.65	3.55	1.41	650 ft contour
39.20	7.74	0.65	655 ft contour
46.94	4.41	1.13	660 ft contour
51.35	6.03	0.96	Below Blissfield Dam
57.37	1.81	0.96	Blissfield Impoundment
59.18	7.86	0.96	675 ft contour
67.04	4.54	1.10	680 ft contour-Penn Central RR
71.57	3.83	1.31	685 ft contour
75.40	5.87	1.70	690 ft contour
81.27	2.86	3.49	Laberdee Road
84.14	4.54	1.32	Suffon Road-710 ft contour
88.68	3.01	1.32	720 ft contour
91.69	1.20	8.33	Mill Highway
92.89	0.73	13.76	730 ft contour
93.62	0.26	38.02	740 ft contour
93.88	0.02	12.27	750 ft contour
93.90	0.02	12.27	760 ft contour
93.92	0.26	12.27	Globe Impoundment
94.18	0.59	12.27	Between Standish & Globe Impds
94.76	0.21	12.27	Standish Mill Pond
94.97	0.54	12.27	Above Standish Impoundment
95.50	0.01	4.29	Below Red Mill Pond
95.52	1.37	4.29	Red Mill Pond-780 ft contour
96.88	0.95	4.29	Above Red Mill Pond
97.83	2.96	3.38	Newburg Road
100.79	1.54	6.51	Clinton-790 ft contour
102.33	0.01	5.15	800 ft contour

Table 7.–Continued.

River miles (cumulative)	Distance in miles (to next upstream point)	Gradient ft/mi	Comments
102.34	0.70	5.15	Clinton Impoundment
103.04	3.17	5.15	820 ft contour
106.21	1.77	5.64	Wilbur Road
107.99	2.90	3.44	Wallace Road
110.89	1.37	7.28	840 ft contour
112.26	1.10	9.13	Austin Road - 850 ft contour
113.36	0.05	21.90	Downstream Manchester Ford Impd.
113.41	1.16	21.90	890 ft contour
114.56	0.16	21.90	Between Manchester Impoundments
114.73	0.01	1.79	Manchester Mill Pond Dam
114.73	0.75	1.79	Manchester Mill Pond
115.48	4.83	1.79	900 ft contour
120.31	0.02	3.25	Sharon Hollow Dam
120.33	1.04	3.25	Sharon Hollow Impoundment
121.37	2.02	3.25	910 ft contour
123.39	3.50	2.86	Pierce Road
126.89	1.38	7.23	920 ft contour
128.27	0.02	1.76	Norvell Dam
128.29	1.94	1.76	Norvell Impoundment
130.24	3.72	1.76	Palmer Road
133.95	0.39	25.77	Case Road
134.34	0.02	4.74	Brooklyn Dam
134.37	4.20	4.74	Brooklyn Impd.-970 ft contour
135.72	1.35	7.41	MIS, contour 980 ft
137.83	2.11	4.74	US-12, contour 990 ft
139.07	1.24	8.06	Miller Hwy., contour 1000 ft
141.18	2.11	4.74	Contour 1010 ft
141.44	0.26	38.46	Sanford Road, contour 1020 ft
142.23	0.79	12.66	Parkhurst Hwy., contour 1030 ft
142.77	0.54	18.52	Contour 1040 ft
143.72	0.95	10.53	Headwater, contour 1050 ft



Table 8.—River Raisin mainstem and major tributary cross-section data summary. Expected width was calculated using average width of rivers with the same mean discharge. Hydraulic diversity index was calculated using the Shannon-Weiner diversity index. Data from: S. Bloomer, United States Geological Survey - gauge data and miscellaneous measurements.

Waterbody	Location	Measured flow (cfs)	Mean flow (cfs)	Actual width (ft)	Expected width (ft)	Hydraulic diversity index	Index rating
River Raisin	Palmer Road	15.3				1.50	poor
River Raisin	Manchester gauge	93	107	28	57	1.73	fair
River Raisin	Wilbur Road	119				2.16	good
River Raisin	Tecumseh M-50	179				2.48	good
River Raisin	Tecumseh gauge	118	182	55	74	2.44	good
River Raisin	Adrian gauge	97	340	63	101	1.51	fair
River Raisin	Blissfield@US-223	180				2.22	good
River Raisin	Dundee@M-50	217				1.67	fair
River Raisin	Ida-Maybee Rd. gauge		741	194	149		
Wolf Creek	Adrian WWTP	8				1.43	poor
S.Br. R.Raisin	Adrian gauge	16	131	44	68	1.17	poor
Black Creek	Jasper	12				1.04	poor
Saline River	Maple Rd. gauge	22	64	32	44	1.00	poor
Saline River	Bigelow Road	30				0.78	poor

Note: Available information for cross section analysis is inadequate in River Raisin watershed. Available flow measurements are taken during extreme low flow periods and actual widths are taken at USGS gauge stations.

Table 9.—Soils of the River Raisin basin. Data from: Michigan Water Resources Commission 1965.

Soil association	Glacial origin	Texture	Natural drainage
Thomas, Wisner, Bono, Toledo	lake bed plains and lacustrine deposits	loams	wet
Nappanee, Hoytville, Pewamo	lake bed plains and lacustrine deposits	clay loams, silty clays, clays	wet
Macomb, Berville, Rimer, Wauseon, Colwood	lake bed plains and lacustrine deposits	clay loams, silty clays, clays	wet
Brady, Sebewa	lake bed plains and lacustrine deposits	loams, sandy loams, loamy sands	wet
Berrien, Plainfield, Allendale, Wauseon, Colwood	lake bed plains and lacustrine deposits	loamy fine sands, fine sandy loams	wet
Blount, Pewamo, Napanee	till plain	clay loams, silty clay loams, clays	imperfect to poor
Morley, Blount, St. Clair, Nappanee	till plain	clay loams, silty clay loams, clays	well to imperfect
Miami, Hillsdale, Brookston	till plain	loams	well to imperfect
Bellefontaine, Hillsdale, Coloma	moraines	sandy loams, loamy sands	dry
Fox, Oshtemo, Bronson	outwash	sandy loams	dry

Table 10.–List of fishes in the River Raisin watershed. Data from: Smith et al. 1981; Towns 1985; C. Latta, University of Michigan, personal communication. Common family names are in bold print. Origin: X = native, C = colonized, I = introduced. Status: O = extirpated, P = recent observations, U = historic record-current status unknown, E = Lake Erie, found in impingement study, Detroit Edison Monroe Power Plant.

Common name	Scientific name	Origin	Status
<b>Lampreys</b>			
Northern brook lamprey	<i>Ichthyomyzon fossor</i>	X	P
Silver lamprey	<i>Ichthyomyzon unicuspis</i>	X	P
American brook lamprey	<i>Lampetra appendix</i>	X	P
<b>Sturgeons</b>			
Lake sturgeon	<i>Acipenser fulvescens</i>	X	O
<b>Gars</b>			
Longnose gar	<i>Lepisosteus osseus</i>	X	P
<b>Bowfins</b>			
Bowfin	<i>Amia calva</i>	X	P
<b>Mooneye</b>			
Mooneye	<i>Hiodon tergisus</i>	X	E
<b>Freshwater eels</b>			
American eel	<i>Anguilla rostrata</i>	C	U
<b>Herrings</b>			
Alewife	<i>Alosa pseudoharengus</i>	C	E
Gizzard shad	<i>Dorosoma cepedianum</i>	X	E
<b>Minnnows</b>			
Central stoneroller	<i>Campostoma anomalum</i>	X	P
Goldfish	<i>Carassius auratus</i>	I	P
Spotfin shiner	<i>Cyprinella spiloptera</i>	X	P
Common carp	<i>Cyprinus carpio</i>	I	P
Striped shiner	<i>Luxilus chrysocephalus</i>	X	P
Common shiner	<i>Luxilus cornutus</i>	X	P
Redfin shiner	<i>Lythrurus umbratilis</i>	X	P
Silver chub	<i>Macrhybopsis storeriana</i>	X	E
Hornyhead chub	<i>Nocomis biguttatus</i>	X	P
River chub	<i>Nocomis micropogon</i>	X	P
Golden shiner	<i>Notemigonus crysoleucas</i>	X	P
Bigeye chub	<i>Notropis amblops</i>	X	O
Pugnose shiner	<i>Notropis anogenus</i>	X	U
Emerald shiner	<i>Notropis atherinoides</i>	X	P
Silverjaw minnow	<i>Notropis buccatus</i>	X	P
Blackchin shiner	<i>Notropis heterodon</i>	X	P
Blacknose shiner	<i>Notropis heterolepis</i>	X	P
Spottail shiner	<i>Notropis hudsonius</i>	X	P
Silver shiner	<i>Notropis photogenis</i>	X	P
Rosyface shiner	<i>Notropis rubellus</i>	X	P

Table 10.–Continued.

Common name	Scientific name	Origin	Status
Minnows continued			
Sand shiner	<i>Notropis stramineus</i>	X	P
Mimic shiner	<i>Notropis volucellus</i>	X	P
Pugnose minnow	<i>Opsopoeodus emiliae</i>	X	P
Southern redbelly dace	<i>Phoxinus erythrogaster</i>	X	P
Bluntnose minnow	<i>Pimephales notatus</i>	X	P
Fathead minnow	<i>Pimephales promelas</i>	X	P
Blacknose dace	<i>Rhinichthys atratulus</i>	X	P
Creek chub	<i>Semotilus atromaculatus</i>	X	P
Suckers			
Quillback	<i>Carpiodes cyprinus</i>	X	E
White sucker	<i>Catostomus commersoni</i>	X	P
Creek chubsucker	<i>Erimyzon oblongus</i>	X	P
Lake chubsucker	<i>Erimyzon sucetta</i>	X	P
Northern hog sucker	<i>Hypentelium nigricans</i>	X	P
Spotted sucker	<i>Minytrema melanops</i>	X	P
Silver redhorse	<i>Moxostoma anisurum</i>	X	P
Black redhorse	<i>Moxostoma duquesnei</i>	X	P
Golden redhorse	<i>Moxostoma erythrurum</i>	X	P
Shorthead redhorse	<i>Moxostoma macrolepidotum</i>	X	P
Greater redhorse	<i>Moxostoma valenciennesi</i>	X	P
Bullhead catfishes			
Black bullhead	<i>Ameiurus melas</i>	X	P
Yellow bullhead	<i>Ameiurus natalis</i>	X	P
Brown bullhead	<i>Ameiurus nebulosus</i>	X	P
Channel catfish	<i>Ictalurus punctatus</i>	X	P
Stonecat	<i>Noturus flavus</i>	X	P
Tadpole madtom	<i>Noturus gyrinus</i>	X	P
Brindled madtom	<i>Noturus miurus</i>	X	P
Pikes			
Grass pickerel	<i>Esox americanus vermiculatus</i>	X	P
Northern pike	<i>Esox lucius</i>	X	P
Muskellunge	<i>Esox masquinongy</i>	X	P
Tiger muskellunge	<i>E. lucius x E. masquinongy</i>	I	U
Mudminnows			
Central mudminnow	<i>Umbra limi</i>	X	P
Smelts			
Rainbow smelt	<i>Osmerus mordax</i>	C	E
Trouts			
Lake herring	<i>Coregonus artedi</i>	X	U
Lake whitefish	<i>Coregonus clupeaformis</i>	X	O
Coho salmon	<i>Oncorhynchus kisutch</i>	I	O

Table 10.–Continued.

Common name	Scientific name	Origin	Status
Trouts continued			
Rainbow trout	<i>Oncorhynchus mykiss</i>	I	P
Chinook salmon	<i>Oncorhynchus tshawytscha</i>	I	E
Brown trout	<i>Salmo trutta</i>	I	E
Brook trout	<i>Salvelinus fontinalis</i>	I	O
Lake trout	<i>Salvelinus namaycush</i>	X	U
Trout-perches			
Trout-perch	<i>Percopsis omiscomaycus</i>	X	E
Cods			
Burbot	<i>Lota lota</i>	X	E
Killifishes			
Banded killifish	<i>Fundulus diaphanus</i>	X	P
Blackstripe topminnow	<i>Fundulus notatus</i>	X	P
Livebearers			
Western mosquito fish	<i>Gambusia affinis</i>	I	O
Silversides			
Brook silversides	<i>Labidesthes sicculus</i>	X	P
Sticklebacks			
Brook stickleback	<i>Culaea inconstans</i>	X	P
Sculpins			
Mottled sculpin	<i>Cottus bairdi</i>	X	P
Temperate basses			
White perch	<i>Morone americana</i>	C	E
White bass	<i>Morone chrysops</i>	X	E
Sunfishes			
Rock bass	<i>Ambloplites rupestris</i>	X	P
Green sunfish	<i>Lepomis cyanellus</i>	X	P
Pumpkinseed	<i>Lepomis gibbosus</i>	X	P
Warmouth	<i>Lepomis gulosus</i>	X	P
Orangespotted sunfish	<i>Lepomis humilis</i>	C	P
Bluegill	<i>Lepomis macrochirus</i>	X	P
Longear sunfish	<i>Lepomis megalotis</i>	X	P
Redear sunfish	<i>Lepomis microlophus</i>	I	P
Smallmouth bass	<i>Micropterus dolomieu</i>	X	P
Largemouth bass	<i>Micropterus salmoides</i>	X	P
White crappie	<i>Pomoxis annularis</i>	X	P
Black crappie	<i>Pomoxis nigromaculatus</i>	X	P
Perches			
Eastern sand darter	<i>Ammocrypta pellucida</i>	X	U
Greenside darter	<i>Etheostoma blennioides</i>	X	P
Rainbow darter	<i>Etheostoma caeruleum</i>	X	P

Table 10.–Continued.

Common name	Scientific name	Origin	Status
Perches continued			
Iowa darter	<i>Etheostoma exile</i>	X	P
Barred fantail darter	<i>Etheostoma flabellare</i>	X	P
Least darter	<i>Etheostoma microperca</i>	X	P
Johnny darter	<i>Etheostoma nigrum</i>	X	P
Orangethroat darter	<i>Etheostoma spectabile</i>	X	P
Yellow perch	<i>Perca flavescens</i>	X	P
Logperch	<i>Percina caprodes</i>	X	P
Blackside darter	<i>Percina maculata</i>	X	P
Walleye	<i>Stizostedion vitreum</i>	X	P
Drums			
Freshwater drum	<i>Aplodinotus grunniens</i>	X	E
Gobies			
Round goby	<i>Neogobius melanostomus</i>	I	P

Table 11.—Fish stocking in the River Raisin watershed, 1986-1995. Data from: Michigan Department of Natural Resources, Fisheries Division. Significant private plants are included. MP=millpond.

Common name	Stocking location	Years	Numbers	Comments
<b>Hillsdale County</b>				
Channel catfish	Lake Somerset	89	150	Private plant
Hybrid sunfish	Lake Somerset	86,89-90,92	5,725	Private plants
Northern pike	Lake Somerset	86,91-94	1,766	Private plants
Yellow perch	Lake Somerset	86,90,92	3,700	Private plants
Walleye	Lake Somerset	89-94	19,225	Private plants
<b>Jackson County</b>				
Channel catfish	River Raisin	87	200	
Northern pike	Vineyard Lake	87-88	1401	Rearing pond
Walleye	Clark Lake	93,95	7,000	Fall fingerlings
Walleye	Vineyard Lake	86	19,712	Spring fingerlings
Walleye	Vineyard Lake	91-92,94-95	6,000	Fall fingerlings
<b>Lenawee County</b>				
Black crappie	Globe & Standish MP	87	300	Drawdown
Channel catfish	Globe & Standish MP	88-89,91	2700	Augment population
Channel catfish	River Raisin	88-91,95	71,828	Augment population
Fathead minnow	Lake Loch Erin	88	132,000	Private plant
Largemouth bass	Globe & Standish MP	87	87	Drawdown
Largemouth bass	Lake Loch Erin	91,95	4,259	Private plants
Muskellunge	Globe & Standish MP	87	12	
Muskellunge	Lake Hudson	86-87,89-90,93,95	11,596	Broodstock lake
Muskellunge	Lake Loch Erin	89	50	Private plant
Northern pike	Globe & Standish MP	87,88	1,182	Drawdown
Northern pike	Lake Loch Erin	88,89	1,500	Private plant
Rainbow trout	Allens Lake	86-95	34,734	Continued program
Rainbow trout	Deep Lake	87-95	21,808	Continued program
Redear sunfish	Sand Lake	91-92	71,394	Introduction
Redear sunfish	Wamplers Lake	90-91	80,285	Introduction
Tiger muskie	Wamplers Lake	86,88,90	4,800	Continued program
Walleye	Globe & Standish MP	87	28,000	Drawdown
Walleye	Lake Hudson	88	40,000	Introduction
Walleye	Lake Loch Erin	88-90	8,588	Private plants
Walleye	River Raisin	86-87	39,568	Spring fingerlings
Walleye	Sand Lake	86	21,522	Spring fingerlings
Walleye	Sand Lake	91,95	1,223	Fall fingerlings
Walleye	Wamplers Lake	92,94-95	2,980	Fall fingerlings
<b>Monroe County</b>				
none				
<b>Washtenaw County</b>				
Walleye	Saline River Millpond	87	1000	Post-treatment

Table 12.–Natural features of the River Raisin watershed by county of occurrence. Status codes(State or Federal): E=endangered, T=threatened, SC=special concern (rare, may become E or T). County codes: H=Hillsdale, J=Jackson, L=Lenawee, M=Monroe, W=Washtenaw. Blanks occur when no status categories apply. Data from: Michigan Department of Natural Resources, Wildlife Division, Natural Features Inventory, June, 1998.

Common name	Species	State status	Fed. status	County code				
				H	J	L	M	W
<b>Vertebrate</b>								
Indiana bat	<i>Myotis sodalis</i>	E	E					X
King rail	<i>Rallus elegans</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>	SC				X		X
Blanchard's cricket frog	<i>Acris crepitans blanchardi</i>	SC				X	X	
Black rat snake	<i>Elaphe obsoleta obsoleta</i>	SC				X		
Eastern fox snake	<i>Elaphe vulpina gloydi</i>	T					X	
Eastern massasauga	<i>Sistrurus catenatus catenatus</i>	SC		X	X	X		X
Kirtland's snake	<i>Clonophis kirtlandii</i>	E				X		X
Smallmouth salamander	<i>Ambystoma texanum</i>	E					X	
Black redhorse	<i>Moxostoma duquesnei</i>	SC				X		X
Brindled madtom	<i>Noturus miurus</i>	SC						X
Creek chubsucker	<i>Erimyzon oblongus</i>	T				X		
Eastern sand darter	<i>Ammocrypta pellucida</i>	T				X		
Pugnose shiner	<i>Notropis anogenus</i>	SC				X		
Silver shiner	<i>Notropis photogenis</i>	T						X
Southern redbelly dace	<i>Phoxinus erythrogaster</i>	T				X		
<b>Invertebrate</b>								
Brown walker	<i>Pomatiopsis cincinnatiensis</i>	SC				X	X	X
Culvers root borer	<i>Papaipema sciata</i>	SC					X	
Duke's skipper	<i>Euphyes dukesi</i>	T					X	
Dusted skipper	<i>Atrytonopsis hianna</i>	T					X	
Leafhopper	<i>Flexamia reflexa</i>	SC				X		
Mitchell's satyr	<i>Neonympha mitchellii mitchellii</i>	E	E			X		X
Poweshiek skipper	<i>Oarisma poweshiek</i>	T				X		
Regal fritillary	<i>Speyeria idalia</i>	E						X
Silphium borer moth	<i>Papaipema silphii</i>	T						X
Northern riffleshell	<i>Dysnomia torulosa rangiana</i>	E	E				X	
Purple lilliput	<i>Carunculina glans</i>	E					X	
Purple wartyback	<i>Cyclonaias tuberculata</i>	SC				X		
Rayed villosa	<i>Villosa fabalis</i>	E					X	
Round hickorynut	<i>Obovaria subrotunda</i>	E				X	X	
Salamander mussel	<i>Simpsoniconcha ambigua</i>	E					X	
Wavyrayed lampmussel	<i>Lampsilis fasciola</i>	T			X	X		



Table 12.—Continued.

Common name	Species	State status	Fed. status	County code				
				H	J	L	M	W
Plant								
Alleghany plum	<i>Prunus alleghaniensis var davisii</i>	SC				X		
American lotus	<i>Nelumbo lutea</i>	T					X	
Barens buckmoth	<i>Hemileuca maia</i>	SC					X	
Beak grass	<i>Diarrhena americana</i>	T				X	X	
Beaked agrimony	<i>Agrimonia rostellata</i>	SC				X		
Black haw	<i>Viburnum prunifolium</i>	SC				X		
Cup-plant	<i>Silphium perfoliatum</i>	T				X	X	
Climbing fumitory	<i>Adlumia fungosa</i>	SC				X		X
Davis's sedge	<i>Carex davisii</i>	SC				X	X	
Dwarf hackberry	<i>Celtis tenuifolia</i>	SC				X		
Edible valerian	<i>Valeriana ciliata</i>	T		X		X		
False pennyroyal	<i>Trichostema brachiatum</i>	T				X		
Fescue sedge	<i>Carex festucacea</i>	SC						X
Frank's sedge	<i>Carex frankii</i>	SC				X		
Ginseng	<i>Panax quinquefolius</i>	T					X	X
Goldenseal	<i>Hydrastis canadensis</i>	T				X		X
Gravel pyrg	<i>Pyrgulopsis letsoni</i>	SC						X
Green violet	<i>Hybanthus concolor</i>	SC						X
Hairy angelica	<i>Angelica venenosa</i>	SC				X	X	X
Hairy-fruited sedge	<i>Carex trichocarpa</i>	SC				X		
Jacob's ladder	<i>Polemonium reptans</i>	T				X		
Kitten tails	<i>Besseyia bullii</i>	T			X			
Kentucky coffee-tree	<i>Gymnocladus dioicus</i>	SC				X	X	
Knotwood dodder	<i>Cuscuta polygonorum</i>	SC				X		
Mat muhly	<i>Muhlenbergia richardsonis</i>	T			X			
Prairie buttercup	<i>Ranunculus rhomboideus</i>	T						X
Prairie dropseed	<i>Sporobolus heterolepis</i>	T			X	X		
Prairie false indigo	<i>Baptisia lactea</i>	T						X
Prairie indian-plantain	<i>Cacalia plantaginea</i>	T				X		
Prairie rose	<i>Rosa setigera</i>	SC				X		
Purple twayblade	<i>Liparis liliifolia</i>	SC		X				
Raven's-foot sedge	<i>Carex crus-corvi</i>	T					X	
Red mulberry	<i>Morus rubra</i>	SC				X		
Sedge	<i>Carex squarrosa</i>	SC				X	X	
Seedbox	<i>Ludwigia alternifolia</i>	T					X	
Shellbark hickory	<i>Carya laciniosa</i>	SC				X	X	
Showy coneflower	<i>Rudbeckia fulgida var sullivantii</i>	SC				X		
Showy orchis	<i>Galearis spectabilis</i>	SC				X		X
Small love grass	<i>Eragrostis pilosa</i>	SC				X		
Southeastern adder's tongue	<i>Ophioglossum pycnostichum</i>	T				X		
Sullivant's milkweed	<i>Asclepias sullivantii</i>	T				X	X	
Tall green milkweed	<i>Asclepias hirtella</i>	T			X		X	
Toadshade	<i>Trillium sessile</i>	T				X		

Table 12.–Continued.

Common name	Species	State status	Fed. status	County code				
				H	J	L	M	W
Plant continued								
Trailing wild bean	<i>Strophostyles helvula</i>	SC					X	
Violet wood-sorvel	<i>Oxalis violacea</i>	T					X	
Virginia snakeroot	<i>Aristolochia serpentaria</i>	T				X		
Virginia water horehound	<i>Lycopus virginicus</i>	T				X		
Water willow	<i>Justicia americana</i>	T					X	
Whiskered sunflower	<i>Helianthus hirsutus</i>	SC				X		
White gentian	<i>Gentiana flavida</i>	E						X
White lady-slipper	<i>Cypripedium candidum</i>	T		X		X		X
Wild-hyacinth	<i>Camassia scilloides</i>	T				X		
Wild rice	<i>Zizania aquatica var aquatica</i>	T					X	
Plant Community								
Dry-mesic forest							X	
Hillside prairie					X			
Lakeplain oak openings							X	
Mesic southern forest						X	X	
Prairie fen				X	X	X		X
Southern floodplain forest								X
Champion Tree								
Black ash	<i>Fraxinus nigra</i>					X		
Boxelder	<i>Acer negundo</i>							X
Ohio buckeye	<i>Aesculus glabra</i>					X		
Sycamore	<i>Platanus occidentalis</i>					X		
Other Feature								
Great blue heron rookery				X	X	X		

Table 13.—Collected macroinvertebrates of the River Raisin, 1991-1995 - preliminary list. Data from: E. Bright, University of Michigan, School of Natural Resources and Environment, personal communication.

Order	Family	Genus	Species
Non-insect taxa			
Amphipoda	Gammaridae	<i>Gammarus</i>	<i>fasciatus</i>
Amphipoda	Gammaridae	<i>Gammarus</i>	<i>lacustris</i>
Amphipoda	Talitridae	<i>Hyalella</i>	<i>azteca</i>
Annelidae	Haenopidae	<i>Haemopis</i>	<i>sp.</i>
Cladocera	Daphniidae	<i>Daphnia</i>	<i>sp.</i>
Gastropoda	Ancylidae	<i>Laevopex</i>	<i>sp.</i>
Gastropoda	Hydrobiidae	<i>Amnicola</i>	<i>sp.</i>
Gastropoda	Hydrobiidae	<i>Pyrgulopsis</i>	<i>sp.</i>
Gastropoda	Lymnaeidae	<i>Fossaria</i>	<i>sp.</i>
Gastropoda	Lymnaeidae	<i>Lymnaea</i>	<i>sp.</i>
Gastropoda	Physidae	<i>Physella</i>	<i>sp.</i>
Gastropoda	Planorbidae	<i>Gyraulus</i>	<i>sp.</i>
Gastropoda	Vivparidae	<i>Vivparus</i>	<i>sp.</i>
Hirudinae	various families	various genera	<i>spp.</i>
Isopoda	Asellidae	<i>Asellus</i>	<i>sp.</i>
Mollusca	Pisidiidae	<i>Pisidium</i>	<i>sp.</i>
Ostracoda	undet. families	undet. genera	<i>spp.</i>
Planaria	undet. families	undet. genera	<i>spp.</i>
Decapoda	Cambaridae	<i>Orconectes</i>	<i>sp.</i>
Insect taxa			
Coleoptera	Dytiscidae	<i>Agabus</i>	<i>sp.</i>
Coleoptera	Dytiscidae	<i>Oreodytes</i>	<i>sp.</i>
Coleoptera	Elmidae	<i>Dubiraphia</i>	<i>sp.</i>
Coleoptera	Elmidae	<i>Macronychus</i>	<i>glabratus</i>
Coleoptera	Elmidae	<i>Optioservus</i>	<i>spp.</i>
Coleoptera	Elmidae	<i>Stenelmis</i>	<i>spp.</i>
Coleoptera	Gyrinidae	<i>Dineutus</i>	<i>sp.</i>
Coleoptera	Helodidae	<i>Cyphon</i>	<i>sp.</i>
Coleoptera	Hydrophilidae	<i>Berosus</i>	<i>sp.</i>
Coleoptera	Psephenidae	<i>Psephenus</i>	<i>herricki</i>
Coleoptera	Psephenidae	<i>Ectopria</i>	<i>sp.</i>
Copepoda	Cyclopoida	<i>Cyclops</i>	<i>sp.</i>
Diptera	Anthericidae	<i>Antherix</i>	<i>variegata</i>
Diptera	Ceratopogonidae	<i>Culicoides</i>	<i>sp.</i>
Diptera	Chironomidae	many genera	<i>spp.</i>
Diptera	Culicidae	<i>Culex</i>	<i>sp.</i>
Diptera	Psychodidae	<i>Pericoma</i>	<i>sp.</i>
Diptera	Simuliidae	<i>Prosimulium</i>	<i>spp.</i>
Diptera	Simuliidae	<i>Simulium</i>	<i>spp.</i>
Diptera	Tabanidae	<i>Chrysops</i>	<i>sp.</i>
Diptera	Tipulidae	<i>Hexatoma</i>	<i>sp.</i>

Table 13.–Continued.

Order	Family	Genus	Species
Insect taxa continued			
Diptera	Tipulidae	<i>Tipula</i>	<i>abnormalis</i>
Ephemeroptera	Baetidae	<i>Baetis</i>	<i>sp.</i>
Ephemeroptera	Caenidae	<i>Caenis</i>	<i>spp.</i>
Ephemeroptera	Ephemerellidae	<i>Ephemerella</i>	<i>subvaria</i>
Ephemeroptera	Ephemerellidae	<i>Ephemerella</i>	<i>invaria</i>
Ephemeroptera	Ephemeridae	<i>Ephemera</i>	<i>simulans</i>
Ephemeroptera	Heptageniidae	<i>Stenacron</i>	<i>interpunctatum</i>
Ephemeroptera	Heptageniidae	<i>Stenonema</i>	<i>pulchellum</i>
Ephemeroptera	Heptageniidae	<i>Stenonema</i>	<i>terminatum</i>
Ephemeroptera	Heptageniidae	<i>Stenonema</i>	<i>vicarium</i>
Ephemeroptera	Leptophlebiidae	<i>Leptophlebia</i>	<i>sp.</i>
Ephemeroptera	Leptophlebiidae	<i>Paraleptophlebia</i>	<i>sp.</i>
Ephemeroptera	Siphonuridae	<i>Siphonurus</i>	<i>sp.</i>
Ephemeroptera	Tricorythidae	<i>Tricorythodes</i>	<i>sp.</i>
Ephemeroptera	Isonychiidae	<i>Isonychia</i>	<i>sayi</i>
Hemiptera	Belostomatidae	<i>Belostoma</i>	<i>flumineum</i>
Hemiptera	Corixidae	<i>Hesperocorixa</i>	<i>sp.</i>
Hemiptera	Corixidae	<i>Sigara</i>	<i>sp.</i>
Hemiptera	Gerridae	<i>Gerris</i>	<i>remigis</i>
Hemiptera	Gerridae	<i>Gerris</i>	<i>buenoi</i>
Hemiptera	Gerridae	<i>Limnopus</i>	<i>dissortis</i>
Hemiptera	Gerridae	<i>Microbates</i>	<i>hesperius</i>
Hemiptera	Gerridae	<i>Trepobates</i>	<i>sp.</i>
Hemiptera	Nepidae	<i>Renatra</i>	<i>fusca</i>
Hemiptera	Notonectidae	<i>Notonecta</i>	<i>sp.</i>
Hemiptera	Veliidae	<i>Rhagovelia</i>	<i>obesa</i>
Hemiptera	Veliidae	<i>Rhagovelia</i>	<i>oriander</i>
Lepidoptera	Pyralidae	<i>Paragyraetis</i>	<i>sp.</i>
Megaloptera	Corydalidae	<i>Corydalus</i>	<i>cornutus</i>
Megaloptera	Corydalidae	<i>Nigronia</i>	<i>sp.</i>
Megaloptera	Sialidae	<i>Sialis</i>	<i>spp.</i>
Odonata	Aeschniidae	<i>Boyeria</i>	<i>vinosa</i>
Odonata	Calopterygidae	<i>Hetaerina</i>	<i>americana</i>
Odonata	Ceonagrionidae	<i>Argia</i>	<i>spicalis</i>
Odonata	Ceonagrionidae	<i>Argia</i>	<i>tibalis</i>
Odonata	Coenagrionidae	<i>Enallagma</i>	<i>vesperum</i>
Plecoptera	Capniidae	<i>Allocapnia</i>	<i>sp.</i>
Plecoptera	Nemouridae	<i>Nemoura</i>	<i>sp.</i>
Plecoptera	Perlidae	<i>Acroneuria</i>	<i>abnormis</i>
Plecoptera	Perlidae	<i>Perlinella</i>	<i>drymo</i>
Plecoptera	Perlidae	<i>Agneta</i>	<i>capitata</i>
Plecoptera	Perlidae	<i>Perlesta</i>	<i>placida</i>
Plecoptera	Perlodidae	<i>Isoperia</i>	<i>sp.</i>
Plecoptera	Taeniopterygidae	<i>Taeniopteryx</i>	<i>burksi</i>
Plecoptera	Taeniopterygidae	<i>Taeniopteryx</i>	<i>nivalis</i>

Table 13.–Continued.

Order	Family	Genus	Species
Insect taxa continued			
Trichoptera	Brachycentridae	<i>Brachycentrus</i>	<i>numerosus</i>
Trichoptera	Glossosomatidae	<i>Glossosoma</i>	<i>sp.</i>
Trichoptera	Helicopsychoidea	<i>Heliopsyche</i>	<i>borealis</i>
Trichoptera	Hydropsychidae	<i>Cheumatopsyche</i>	<i>spp.</i>
Trichoptera	Hydropsychidae	<i>Hydropsyche</i>	<i>bronta</i>
Trichoptera	Hydropsychidae	<i>Hydropsyche</i>	<i>simulans</i>
Trichoptera	Hydropsychidae	<i>Hydropsyche</i>	<i>betteni</i>
Trichoptera	Leptoceridae	<i>Ceraclea</i>	<i>sp.</i>
Trichoptera	Leptoceridae	<i>Mystacides</i>	<i>sepulchralis</i>
Trichoptera	Leptoceridae	<i>Nectopsyche</i>	<i>diarina</i>
Trichoptera	Limnephilidae	<i>Neophylax</i>	<i>sp.</i>
Trichoptera	Limnephilidae	<i>Pycnopsyche</i>	<i>sp.</i>
Trichoptera	Philopotamidae	<i>Chimarra</i>	<i>obscura</i>
Trichoptera	Phryganeidae	<i>Ptilostoma</i>	<i>sp.</i>
Trichoptera	Polycentropidae	<i>Polycentropus</i>	<i>sp.</i>
Trichoptera	Polycentropodidae	<i>Neureclipsis</i>	<i>sp.</i>
Trichoptera	Psychomyiidae	<i>Lype</i>	<i>diversa</i>

Table 14.—Distribution and abundance of mussels found in the River Raisin watershed. Data from: Strayer 1979. A = abundant, C = common, R = rare, D = only dead shells found.

Collecting Station	Mussels																												
	<i>Amblema costata</i>	<i>Cyclonaias tuberculata</i>	<i>Elliptio dilatata</i>	<i>Fusconaia flava</i>	<i>Pleurobema coccineum</i>	<i>Alasmidonta calceolus</i>	<i>Alasmidonta marginata</i>	<i>Pyganodon grandis</i>	<i>Utterbackia imbecillis</i>	<i>Anodontaoides ferussacianus</i>	<i>Lasimigona complanata</i>	<i>Lasimigona compressa</i>	<i>Lasimigona costata</i>	<i>Simpsoniata ambigua</i>	<i>Strophitus undulatus</i>	<i>Actinonaias ligamentina</i>	<i>Toxolasma lividus</i>	<i>Toxolasma parvus</i>	<i>Epioblasma torulosa</i>	<i>Ligumia fusiola</i>	<i>Lampsilis siliquoidea</i>	<i>Lampsilis ovata</i>	<i>Ligumia recta</i>	<i>Villosa fabilis</i>	<i>Villosa iris</i>	<i>Psychobranchus fasciolaris</i>			
<b>Monroe County</b>																													
R. Raisin, Monroe St. Monroe		D			D			A			C		D				D	R		D	A						D		
R. Raisin, Telegraph Rd. Monroe		D	D	D				A	D								D	D			A	D			D		D		
R. Raisin, Raisinville Rd.	D	D	D	D				A													C	D				D	D		
R. Raisin, Doty Rd.	D	D	D	D				C									D				C	D							
Macon Ck., Stowell Rd.	D	D	D	D	D	D		D		D				D	D	D	D		D		D		D	D	D	D	D	D	
Macon Ck., Dundee-Azalia Rd.	D			C	D	D				D											A								
N. Br. Macon Ck., Day Rd.								D		D																			
M. Br. Macon Ck., Wilcox Rd.	C			D						D											A								
M. Br. Macon Ck., Petersburg Rd.				D		C				C		C									A								
S. Br. Macon Ck., Wilcox Rd.	A			C		C		D		D											A								
S. Br. Macon Ck., Petersburg Rd.	A			C		R		R		D		C			D						A								
<b>Lenawee County</b>																													
Wolf Ck., Tipton Hwy., Adrian						R				R											A								
Evans Ck., Maumee St., Tecumseh																													
R. Raisin, Evans St., Tecumseh								C	D												A	C							
R. Raisin, Staib Rd.			D	R				C	D			C			D						R	A	C				D		
Goose Ck., Cement City Hwy.																													
<b>Washtenaw County</b>																													
R. Raisin, Austin Rd., Manchester		D	D	D		D	D								D							D	D				D		
R. Raisin, Sharon Valley Rd., (downstream)		C	C	C	C	D						C			R						C	C	A				C		
R. Raisin, Sharon Valley Rd., (upstream)		R	R	C	R			D				D									D	C					D		

Table 15.—Amphibians and reptiles in the River Raisin watershed. Data from: Holman et al. 1989; Harding and Holman 1990; Harding and Holman 1992 - range maps.

Common name	Scientific name
<b>Salamanders</b>	
Mudpuppy	<i>Necturus maculosus maculosus</i>
Blue-spotted salamander	<i>Ambystoma laterale</i>
Spotted salamander	<i>Ambystoma maculatum</i>
Small-mouthed salamander	<i>Ambystoma texanum</i>
Eastern tiger salamander	<i>Ambystoma tigrinum tigrinum</i>
Red-spotted newt	<i>Notophthalmus viridescens viridescens</i>
Red-backed salamander	<i>Plethodon cinereus</i>
Four-toed salamander	<i>Hemidactylium scutatum</i>
<b>Frogs and toads</b>	
Eastern American toad	<i>Bufo americanus americanus</i>
Fowler's toad	<i>Bufo woodhousii fowleri</i>
Blanchard's cricket frog	<i>Acris crepitans blanchardi</i>
Western chorus frog	<i>Pseudacris triseriata triseriata</i>
Northern spring peeper	<i>Pseudacris crucifer crucifer</i>
Eastern gray tree frog	<i>Hyla versicolor</i>
Cope's gray tree frog	<i>Hyla chrysoscelis</i>
Green frog	<i>Rana clamitans melanota</i>
Bullfrog	<i>Rana catesbeiana</i>
Northern leopard frog	<i>Rana pipiens</i>
Pickerel frog	<i>Rana palustris</i>
Wood frog	<i>Rana sylvatica</i>
<b>Turtles and lizards</b>	
Snapping turtle	<i>Chelydra serpentina</i>
Common musk turtle	<i>Sternotherus odoratus</i>
Spotted turtle	<i>Clemmys guttata</i>
Eastern box turtle	<i>Terrapene carolina carolina</i>
Blanding's turtle	<i>Emydoidea blandingii</i>
Common map turtle	<i>Graptemys geographica</i>
Painted turtle	<i>Chrysemys picta</i>
Red-eared slider	<i>Trachemys scripta elegans</i>
Spiny softshell	<i>Apalone spinifera</i>
Five-lined skink	<i>Eumeces fasciatus</i>
<b>Snakes</b>	
Kirtland's snake	<i>Clonophis kirtlandi</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>
Eastern garter snake	<i>Thamnophis sirtalis sirtalis</i>
Butler's garter snake	<i>Thamnophis butleri</i>
Northern ribbon snake	<i>Thamnophis sauritus septentrionalis</i>

Table 15.–Continued.

Common name	Scientific name
Snakes continued	
Northern ringneck snake	<i>Diadophis punctatus edwardsi</i>
Eastern hognose snake	<i>Heterodon platyrhinos</i>
Blue racer	<i>Coluber constrictor foxi</i>
Black rat snake	<i>Elaphe obsoleta obsoleta</i>
Eastern fox snake	<i>Elaphe vulpina gloydi</i>
Eastern milk snake	<i>Lampropeltis triangulum triangulum</i>
Eastern smooth green snake	<i>Opheodrys vernalis vernalis</i>
Eastern massasauga rattlesnake	<i>Sistrurus catenatus catenatus</i>



Table 16.–List of mammals in River Raisin watershed. Data from: Baker 1983 - range maps. \* denotes extirpated from River Raisin watershed.

Common name	Scientific name
Virginia opossum	<i>Didelphis virginiana</i>
Masked shrew	<i>Sorex cinereus</i>
Short-tailed shrew	<i>Blarina brevicauda</i>
Least shrew	<i>Cryptotis parva</i>
Eastern mole	<i>Scalopus aquaticus</i>
Star-nosed mole	<i>Condylura cristata</i>
Keen's bat	<i>Myotis keenii</i>
Little brown bat	<i>Myotis lucifugus</i>
Indiana bat	<i>Myotis sodalis</i>
Silver-haired bat	<i>Lasionycteris noctivagans</i>
Big brown bat	<i>Eptesicus fuscus</i>
Red bat	<i>Lasiurus borealis</i>
Hoary bat	<i>Lasiurus cinereus</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>
Gray squirrel	<i>Sciurus carolinensis</i>
Fox squirrel	<i>Sciurus niger</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>
Meadow vole	<i>Microtus pennsylvanicus</i>
Woodland vole	<i>Microtus 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>
Coyote	<i>Canis latrans</i>
Gray wolf*	<i>Canis lupus</i>
Red fox	<i>Vulpes vulpes</i>
Gray fox	<i>Urocyon cinereoargenteus</i>
Black bear*	<i>Ursus americanus</i>
Raccoon	<i>Procyon lotor</i>
Long-tailed weasel	<i>Mustela frenata</i>
Least weasel	<i>Mustela nivalis</i>
Mink	<i>Mustela vison</i>
Wolverine*	<i>Gulo gulo</i>
Badger	<i>Taxidea taxus</i>
Striped skunk	<i>Mephitis mephitis</i>
River otter*	<i>Lutra canadensis</i>

Table 16.–Continued.

Common name	Scientific name
Mountain lion*	<i>Felis concolor</i>
Lynx*	<i>Felis lynx</i>
Bobcat	<i>Felis rufus</i>
Elk*	<i>cervus elaphus</i>
White-tailed deer	<i>Odocoileus virginianus</i>
Moose*	<i>Alces alces</i>
Bison*	<i>Bison bison</i>

Table 17.—Government agencies with authority in the River Raisin watershed. Data from: Manson et al., 1994.

Level of government	Agency
Federal	International Joint Commission Army Corps of Engineers Environmental Protection Agency United States Geological Survey Federal Energy Regulatory Commission United States Department of Agriculture Natural Resources Conservation Service Farm Service Agency
State	Michigan Department of Environmental Quality Air Quality Division Surface Water Quality Division Environmental Response Division Underground Storage Tank Division Land and Water Management Division Waste Management Division Michigan Department of Natural Resources Law Enforcement Division Parks and Recreation Forest Management Division Fisheries Division Wildlife Division Michigan Department of Agriculture Natural Resources Conservation Districts Michigan Department of Management and Budget
Regional	SEMCOG - Washtenaw, Monroe Co. Region 2 Planning Council-Jackson, Hillsdale, Lenawee Counties River Raisin Watershed Council
County	Drain Commission Road Commission Planning Commission Environmental/Health Office Board of Commissioners Building Inspector, zoning ordinances
Municipal	Township/Village/City Board Zoning Board Planning Commission
Citizen Groups	Conservation groups/clubs Lake associations Service clubs Raisin Valley Land Trust River Raisin Public Advisory Committee

Table 17.–Continued.

Level of government	Agency
County	Hillsdale Jackson Washtenaw Lenawee Monroe
Cities	City of Milan City of Saline City of Adrian City of Tecumseh City of Monroe City of Petersburg
Villages	Village of Brooklyn Cement City Village of Manchester Village of Blissfield Village of Britton Village of Clayton Village of Clinton Village of Deerfield Village of Onsted Village of Dundee
Townships	
Hillsdale County	Somerset Township
Jackson County	Columbia Township Norvell Township Napoleon Township
Washtenaw County	Bridgewater Township Freedom Township Lodi Township Pittsfield Township Manchester Township Saline Township Sharon Township York Township
Lenawee County	Adrian Township Blissfield Township Cambridge Township Clinton Township Deerfield Township

Table 17.–Continued.

Level of government	Agency
Lenawee County continued	Dover Township
	Fairfield Township
	Franklin Township
	Hudson Township
	Madison Township
	Macon Township
	Medina Township
	Ogden Township
	Palmyra Township
	Raisin Township
	Ridgeway Township
	Riga Township
	Rollin Township
	Rome Township
	Seneca Township
Tecumseh Township	
Woodstock Township	
Monroe County	Dundee Township
	Frenchtown Charter Township
	London Township
	Milan Township
	Monroe Charter Township
	Raisinville Township
	Summerfield Township

Table 18.—Statutes administered by Michigan Department of Environmental Quality, Land and Water Management Division, that protect the aquatic resource. N.R.P. Act=Natural Resources and Environmental Protection Act. Data from: Beam and Braunscheidel 1996.

State of Michigan Acts	Previous statute
Public Health Code (1978 PA 386, as amended)	Amendments to Aquatic Nuisance Control Act (PA 86, 1977)
Part 13 N.R.P. Act (1994 PA 451)	Floodplain Regulatory Authority (PA 167, 1968)
Part 91 N.R.P. Act (1994 PA 451)	Soil Erosion & Sedimentation Control Act (PA 347, 1972)
Part 301 N.R.P. Act (1994 PA 451)	Inland Lakes and Streams Act (PA 346, 1972)
Part 303 N.R.P. Act (1994 PA 451)	Wetland Protection Act (PA 203, 1979)
Part 307 N.R.P. Act (1994 PA 451)	Inland Lake Level Act (PA 146, 1961)
Part 309 N.R.P. Act (1994 PA 451)	Inland Improvement Act (PA 345, 1966)
Part 315 N.R.P. Act (1994 PA 451)	Dam Safety Act (PA 300, 1989)
Part 323 N.R.P. Act (1994 PA 451)	Shoreland Protection & Management Act (PA 245, 1970)
Part 325 N.R.P. Act (1994 PA 451)	Great Lakes Submerged Lands Act (PA 247, 1955)
Part 341 N.R.P. Act (1994 PA 451)	Irrigation District Act (PA 205, 1967)

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US Federal Acts

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Federal Water Pollution Control Act, Section 314 (PL 92-55)  
 Coastal Zone Management Act (PL 92-583, 1972)  
 Clean Water Act, Section 404 (PL 95-217)  
 River and Harbor Act, Section 10 (1899)  
 Coastal Energy Impact Program (PL 92-538)

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Table 19.—Designated drains in the River Raisin watershed by county and township.  
Data from: county drain commission offices.

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Hillsdale County	
<i>Somerset Township</i>	
none	
Jackson County	
<i>Columbia Township</i>	<i>Napoleon Township</i>
East Clark Lake Drain	Austin Drain No. 1
Imperial Shores Drain	Russell Drain
Kedron Drain	Stoney Lake Drain
Lynn Haven Drain	
Nooney Drain	<i>Norvell Township</i>
Palmer and Case Drain	Ashley Swale Drain
Plumb Brook Drain	Cobb Lake Drain
Sunset View Drain	Griffith Lake Drain
	Ladd and Main Drain
<i>Grass Lake Township</i>	Moore & O'Neil Drain
Branch Drain	Norvell & Manchester Intercounty Dr.
South Grass Lake Drain	Sweezy Lake Drain
Washtenaw County	
<i>Bridgewater Township</i>	<i>Freedom Township</i>
Arnold Tile	Bauer
Boettner Tile	Branch of J. J. Knapp
Br. Village Tile	Freedom & Bridgewater
Bridgewater #1	J. J. Knapp
Bridgewater #2	Kapp & Dettling
Bridgewater & Saline	Freedom & Lodi
Carmer Open	Koebbe
Carmer Tile	
Columbia Lake	<i>Lodi Township</i>
Every & Schmidt	Bauer
Saline & Bridgewater	Brookview Highlands
Saline River	Freedom & Lodi
Feld Kamp & Klager	Lodi County Estates Sub # 4,5,6
Freedom & Bridgewater	Pittsfield # 1
Gadd	Rouse Pittsfield
J.J. Knapp	Travis Point South Sub.
Joslin Lake	Valley View Estates Sub.
Macon-Clinton Ext.	W. Br. Saline Village Tile
N. Br. Saline & Bridgewater	Wood Outlet
Schaffer Lake	
Socks Tile	
Tait Tile	
Van Dusen	

Table 19.–Continued.

## Washtenaw County continued

*Saline Township*

Bauer  
 Biscayne Sub.  
 Bridgewater # 1  
 Bridgewater # 2  
 Bridgewater & Saline  
 Brookview Highlands  
 Cammett & Luckhardt  
 East Horizons  
 Feldkamp & Klager  
 Golden Acres  
 Gross Tile  
 Hammond Br. of Weinette  
 Hertler-Nissley  
 Highcreek Sub.  
 Lane & Rentz  
 Lenawee & Washtenaw  
 Lodi County Estates Sub. #4,5,6  
 Mallard Cove Sub.  
 Maple Creek Condos.  
 McCormick Place  
 McMann Tile  
 Mel Dan Woods Sub.  
 Oak Park Estates Sub.  
 Pittsfield # 1  
 Pittsfield # 5  
 Pittsfield Junction  
 Rhodes & Finkbeiner  
 Rouse (Saline)  
 Saline & Bridgewater  
 Saline & Macon  
 Saline Mill Pond  
 Saline Relief # 1  
 Saline River  
 Saline Village  
 Saline Village Ext.  
 Saline/W. Michigan Avenue  
 Silo Ridge Sub. # 3,4,5  
 State 12 Plaza Br. A & B  
 Travis Point South Sub.  
 Valleyview Estates Sub.  
 W. Br. Saline Village Tile  
 W. Br. Weinette  
 Weinette  
 Wood Outlet  
 York & Saline  
 York Woods Sub.

*Manchester Township*

Cooley Tile  
 Half Moon Lake Drain  
 Manchester Drain  
 Manchester Village Tile  
 Iron Lake Level  
 Sharon & Manchester Ext.

*Pittsfield Township*

Brian Hill  
 Columbia Center  
 Eberbach  
 Hertler-Nissley  
 Hickory Groves Estates  
 Hunters Ridge Sub.  
 Koch & Warner  
 Mallard Cove Sub.  
 Maple Creek Condos  
 McCormick Place  
 Pittsfield Junction  
 Pittsfield # 1  
 Pittsfield # 5  
 State 12 Plaza Br. A & B  
 Rouse  
 Timberview Sub.  
 Valley Ranch Bus. Park  
 Silo Ridge Sub. #3,4,5  
 Warner Creek # 5  
 Warner Creek Sub  
 Wood Outlet

*Sharon Township*

Manchester Drain  
 Parks Drain



Table 19.–Continued.

Washtenaw County continued

*York Township*

Biscayne Sub.  
 County Lanes Sub. # 2  
 Craig Drain  
 Golden Acres  
 Highcreek Sub.  
 Hobbs Drain  
 Josenhaus Drain  
 Koch Warner  
 Macon

*York Township (continued)*

Mary Drain  
 Mel Dan Woods Sub.  
 Saline Relief # 1 & Br.  
 Saline River Intercounty  
 Territorial Road Drian  
 Warner  
 Wheeler Drain  
 York & Saline Drain  
 York Woods Sub.

Lenawee County

*Adrian Township*

Bailey Tile  
 Baker Tile  
 Barrus  
 Black Creek  
 Boyd Tile  
 Bulson Tile  
 Burnor  
 Calvin  
 Case  
 Cherry Villa  
 Coleman Tile  
 Cook, A. P.  
 Cox Tile  
 Derby, Peter  
 Dibble, C. A.  
 Driscoll Tile  
 Elliott  
 Fauty  
 Fike & Frayer  
 Fisk  
 Greenwald Tile  
 Halstead & Knowles  
 Harkness  
 Harkness, Branch of  
 Hervey Tile  
 Kidman  
 Kidman, Branch of

*Adrian Township (continued)*

Kimball  
 Knight Tile  
 Lewis  
 Lewis Extension  
 Marvin  
 McConnell  
 McDonald  
 Older  
 Older Tile  
 Robbins  
 Robinson Tile  
 Ryan & Extension  
 Slater  
 Slater, North Branch  
 Sloan  
 Spielman  
 Springer Tile  
 Stevenson Tile  
 Stocking Tile  
 Thompson  
 Titus Tile  
 Torry Extension  
 Treat  
 Turner Tile  
 Turner Tile, North Branch  
 Turner Tile, West Branch  
 Wilson Tile

Table 19.–Continued.

## Lenawee County continued

*Blissfield Township*

Blissfield & Riga  
 Brenot  
 Brown & Extension  
 Camp  
 Cemetery  
 Clement  
 Crandall # 71  
 Driggs Road  
 Eddy Extension  
 Floodwood Creek  
 Forsyth  
 Foster  
 Fry  
 Fry Cut Off  
 Goll  
 Goodrich  
 Goodrich & Bowerman  
 Hartley  
 Hill or No. 7  
 Isley  
 Keller & Riga Outlet  
 Lamley  
 Lamley & Foster  
 Langwell  
 Little Raisin Jt. Co., S. Br. of  
 Marks  
 Miller, Van R.  
 Pease  
 Pollard  
 Pollard # 2  
 Ricker  
 Riga Ditch  
 Rouget, Charles  
 Scholzen  
 Springbrook  
 Swamp Raisin Joint County  
 Wiley

*Cambridge Township*

Bilby Tile  
 Bryan Tile  
 Cole, L. P.  
 Cox Tile  
 Driscoll Tile  
 Fisk  
 Geddes Lake & Extension  
 Jessup Tile  
 Mann Tile  
 Neering  
 Onsted Tile  
 Onsted-Cambridge #1  
 Plumb Brook Joint County  
 Reed  
 Vanderpool & Rexford  
 Wolf Creek

*Clinton Township*

Clinton # 2  
 Clinton Tile  
 Dillingham  
 Goheen  
 Hatch  
 Little Raisin  
 Hulett  
 Little Raisin, Ext. of N. End  
 Little Raisin, North End of  
 Macon # 7  
 Macon & Clinton Extension Jt. Co.  
 Macon Joint County, Middle Branch  
 Macon Joint County, South Branch  
 McGuire Tile  
 Metzger  
 Norcross Lake  
 Payne  
 Pennington  
 Rector Tile  
 Schnerlia Tile  
 Schwartz Tile  
 Schwartz Tile, Branch  
 Stoner  
 VanDeusen Joint County

Table 19.–Continued.

Lenawee County continued

*Deerfield Township*

Adams & Lane  
 Baxer Ave. & Schwab  
 Brenot  
 Burton & White Joint County  
 Camp  
 Cannon  
 Carpenter & Davis  
 Cook Joint County  
 Diver  
 Dusseau  
 Floodwood Creek  
 Forche  
 Forsyth  
 Fry  
 Hall & Munson  
 Isley  
 Keller & Riga Outlet  
 Knapp, John I.  
 Lamley  
 Leonard  
 Little Raisin Jt. Co., S. Br. of  
 Macon Jt. Co., South Branch  
 Rouget, Charles  
 Schwab & Schwab Extension  
 Seidel  
 Springbrook  
 Swamp Raisin Joint County

*Dover Township*

Anderson, John C.  
 Ayers & Town #2  
 Baker  
 Baker & Buchanan  
 Baker Tile  
 Bear Creek  
 Benfield Tile  
 Benner  
 Big Swamp  
 Big Swamp, Branch of  
 Big Swamp Extension  
 Bird Tile  
 Bovee  
 Bovee & Hubbell  
 Brazee Tile  
 Bryant, E. J.  
 Bryant & Russell

*Dover Township (continued)*

Burkhart Tile  
 Cadmus Open  
 Cadmus, South  
 Cadmus Tile  
 Carpenter  
 Clayton Tile  
 Collins & Loonam  
 Complex  
 Compton  
 Culhane  
 Deline  
 Deline & Extension  
 Dickerson  
 Douglass  
 Dutcher  
 Farmer, James A.  
 Furman Tile  
 Harrison  
 Harrison, Br. 1 & S. Br. of Br. 1  
 Hathaway Tile  
 Hill, H. M.  
 Horning Tile  
 Hudson & Dover  
 Kerr & Clemenson  
 Lord & Rorick  
 Lowery  
 Mason Tile  
 Miller Tile  
 Nash  
 No. 46 & Extension  
 No. 46 & Extension, Branch of  
 Perkins  
 Raisin River, South Branch  
 Raisin River, Upper End, South Br.  
 Rice Lake  
 Rome Sec. 26  
 Shaw  
 Stoney Creek  
 Stoney Creek, South Branch  
 Thompson # 44  
 Town Line  
 Townsend  
 Tuttle Tile  
 Voorhees Tile  
 Warren  
 Warren, Branch of (South)

Table 19.–Continued.

Lenawee County continued  
*Dover Township* (continued)

Warren, North Branch of  
Whaley  
Winslow

*Fairfield Township*

Abbott  
Aldrich Tile  
Allen Tile  
Anderson, B. H. Tile  
Baker, Bennett C.  
Baker & May  
Brown # 1  
Bryant & Russell  
Burgess & Ayers  
Carpenter & Green  
Chandler  
Day Tile  
Deland, Martin  
Dunbar  
Foote  
Force & Rathbun  
Fuller Tile  
Griffith  
Hall  
Hillard  
Hoadley, Art  
Hoadley Tile  
Holly Tile  
Holmes  
Horton, G. B. Extension  
Hough  
Jacobs Open  
Jasper  
Jasper, West Branch of  
Knapp & Extension  
Knox Tile  
Lord Tile  
Morse  
Nelson Extension  
Nelson Tile  
Nile  
Nile Extension  
Peavey  
Pitcher & Livesay  
Raymond  
Raymond & Witt

*Fairfield Township* (continued)

Ross & Smith  
Scharer  
Smith & Kellogg  
Stoney Creek  
Stoney Creek, South Branch  
Sturtevant & Bovee  
Swich  
Ulrich  
Walker & Morse  
Welch  
Weston  
Whitehead  
Witt

*Franklin Township*

Black Creek  
Bowen  
Boyd Tile  
Brugger  
Burns  
Burns Extension  
Coleman Tile  
Cooley Joint County  
Cox Tile  
Derby, Peter  
Driscoll Tile  
Elliott  
Evans Creek  
Evans Creek, Extension of  
Evans Lake Park  
Fisk  
Hunter Tile  
Keeney  
Keeney Extension  
Kemp, Sec. 34  
Kemp Tile  
Kerr Tile  
Lamkin Tile  
Lewis  
Lewis Extension  
Love  
Munger & Extension  
Munger Tile  
Norcross  
Norcross, North Branch  
Payne

Table 19.–Continued.

Lenawee County continued  
*Franklin Township* continued

Peters  
Powell Tile  
Preston Tile  
Slater  
Slater, North Branch  
Sloan  
Smith  
Stoner  
Tallman  
Tallman, West Branch  
Taylor Tile  
Thielan  
Tipton Tile  
Tripp  
Vanderpool & Rexford  
VanValkenburg  
Vollmer Tile  
Whelan Tile  
Wilson & Bowen  
Wilson Tile  
Wisner Extension  
Wisner Tile

*Hudson Township*

Bear Creek  
Bear Creek Extension  
Benfield Tile  
Bird Tile  
Camp & Extension  
Clayton Tile  
Dowling Tile  
Elston  
Henning Tile  
Hudson & Dover  
J. B.  
Miller Tile  
Milliken  
McCarty  
Raisin River, Upper End, South Br.  
Rice Lake  
Rooney  
Tucker  
Vedder

*Macon Township*

Bear Swamp Joint County  
Clark  
Coats  
Craig  
Downing-Steele  
Foote Tile  
Ford-Macon  
Frayser Tile  
Gibson  
Gibson, Alec  
Gould Tile  
Harrington Tile  
Hatch  
Hendershot Tile  
Karcher  
Lake Ridge  
Lenawee & Washtenaw Jt. Co.  
Little Raisin  
Little Raisin, Ext. of North End  
Little Raisin, North End of  
Little Raisin, West Br. of N. End  
Macon # 2  
Macon # 2 Joint County, Middle Br.  
Macon # 7  
Macon # 21  
Macon Central  
Macon & Clinton Extension Jt. Co.  
Macon Joint County  
Macon Joint County, Middle Branch  
Macon Joint County, South Branch  
Macon, New # 8 & Extension  
Macon, Old # 8  
Milan # 4 Joint County  
Murphy  
Patterson & Extension  
Paul Tile  
Pennington  
Rendell Joint County  
Rendell Joint County  
Richardson Joint County  
Richmond  
Riley Joint County  
Saline & Macon Joint County  
Schroeder Brook  
Squires Tile  
Steele

Table 19.–Continued.

<p>Lenawee County continued</p> <p><i>Macon Township</i> continued</p> <p>Steele Joint County</p> <p>Suydam Tile</p> <p>Swick</p> <p>Vandeventer Joint County</p> <p>Watson Tile &amp; Extension</p> <p>Wilson Springbrook</p> <p><i>Madison Township</i></p> <p>Adrian-Madison-Beecher</p> <p>Baker &amp; May</p> <p>Big Meadow</p> <p>Bixby</p> <p>Bryant &amp; Russell</p> <p>Cadoo Tile</p> <p>Daniels Swamp</p> <p>Stoney Creek, South Branch</p> <p>Titus Tile</p> <p>Waltermire Tile</p> <p>Dutcher</p> <p>Fike &amp; Frayer</p> <p>Hoadley Tile</p> <p>Home Acres</p> <p>Holmes</p> <p>Jordan Tile</p> <p>King Tile</p> <p>Knox Tile</p> <p>Marvin</p> <p>Mitchell</p> <p>Palmyra # 70</p> <p>Pitcher &amp; Livesay</p> <p>Porter, L. A.</p> <p>Savage</p> <p>Stoney Creek</p> <p>West Tile</p> <p><i>Ogden Township</i></p> <p>Baker, Bennett C.</p> <p>Baluss &amp; West Branch</p> <p>Bay</p> <p>Bell &amp; Extension</p> <p>Big Briney Outlet</p> <p>Bruce</p> <p>Burk</p> <p>Carpenter &amp; Green</p> <p>Clement</p> <p>Footo</p>	<p><i>Ogden Township</i> continued</p> <p>Hahn</p> <p>Hahn, Extension of</p> <p>Hambrook &amp; King</p> <p>Hazzard</p> <p>Hoadley, Art</p> <p>Hodges</p> <p>Johnson</p> <p>Malburg</p> <p>Ogden</p> <p>Ogden Outlet</p> <p>Ovenshire</p> <p>Ovenshire &amp; S. Br. of Ovenshire</p> <p>Ovenshire, South Branch</p> <p>Peavey</p> <p>Pence Tile</p> <p>Rau</p> <p>Rinehart</p> <p>Rockwood</p> <p>Sebring, Clough &amp; Corbin</p> <p>Swick</p> <p>Uloth</p> <p>Underwood</p> <p>Walker Brook</p> <p>Wickter</p> <p>Wilt</p> <p><i>Palmyra Township</i></p> <p>Bailey, J.</p> <p>Big Meadow</p> <p>Bixby</p> <p>Brenot</p> <p>Camp</p> <p>Clapp Tile</p> <p>Colvin</p> <p>Crandall # 71</p> <p>DeBar</p> <p>Demlow Tile</p> <p>Driggs</p> <p>Gaffney</p> <p>Goodrich &amp; Bowerman</p> <p>Graham Tile</p> <p>Grinnell</p> <p>Hambrook &amp; King</p> <p>Harsh, L. A. &amp; Extension</p> <p>Hartley</p> <p>Hill or No. 7</p>
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Table 19.–Continued.

Lenawee County continued  
*Palmyra Township* continued

Isley  
 Keeber  
 Leonard, F. W.  
 Little Raisin, Jt. Co., S. Br. of  
 Nichols  
 Palmyra # 70  
 Palmyra # 70, Branch of  
 Palmyra Tile # 2  
 Palmyra Township # 1  
 Pease  
 Palmyra # 1 Tile  
 Palmyra # 1 Tile, Branch of  
 Pifer, G. A.  
 Pifer, G. A. Extension  
 Pope, R. D.  
 Ricker  
 Robb  
 Rogers, Dwight  
 Stafford & Rogers  
 Swamp Raisin Joint County  
 VanFleet  
 VanFleet, Branch of  
 Westgate  
 Westgate, South Branch  
 Whitmarsh  
 Wiley  
 Wooster Tile

*Raisin Township*

Ash  
 Baxter Ave. & Schwab  
 Boyd Tile  
 Champlain Brook Extension  
 Clapp Tile  
 Cook  
 Cook Drain & Extension  
 Crommer Tile  
 Demlow Tile  
 Dibble, Chauncey  
 Farrah Tile  
 Gateview # 3  
 Harkness  
 Harkness, Branch of  
 Hathaway  
 Hedrick Tile  
 Kelley, Ben

*Raisin Township* continued

Kelley, Ben Extension of  
 Little Raisin  
 Macon Joint County, S. Br.  
 Marks  
 Miller, Van R.  
 Moore Tile  
 Neuman  
 Nichols  
 Pine Grove Tile  
 Pleasant Acre Farm  
 Raisin # 32  
 Riley Tile  
 Scholzen  
 Schwab & Schwab Extension  
 Seminary & Extension  
 Slater  
 Slater, North Branch  
 Spalding  
 Springbrook  
 Springbrook Extension  
 Sutton  
 Swamp Raisin Joint County  
 Tallman  
 Wade Tile  
 Walker Brook  
 Westgate  
 Westgate Extension  
 Westgate, South Branch  
 Woodruff Brook, West Branch  
 Palmer

*Ridgeway Township*

Ackley  
 Andrews Tile  
 Baxter Ave & Schwab  
 Britton Tile  
 Clement & Osterhout  
 Coats  
 Craig  
 Dibble, Chauncey  
 Downing-Steele  
 Exelby  
 Gibson, Alec  
 Gittus Tile  
 Hansen Tile  
 Hathaway

Table 19.–Continued.

Lenawee County continued	
<i>Ridgeway Township</i> continued	
Hecksteadt Tile	
Iveson	
Kelley, Ben Extension of	
Kelley, Ben	
Hoagland	
Libstaff & Lenawee Co. Special Joint Co.	
Linn	
Little Raisin	
Macon # 2 Jt. Co., Middle Branch	
Macon Extension, Middle Branch	
Macon Jt. Co., Middle Branch	
Macon Joint County, South Branch	
Oliver	
Osgood Tile	
Ousterhout & Rixom	
Packard Joint County	
Palmer	
Ransom	
Richardson Joint County	
Ridgeway Village	
Riley Tile	
Scholzen	
Schroeder Brook	
Schwab & Schwab Extension	
Spalding	
Springbrook	
Steele	
Steele Joint County	
Sutton	
Suydam Tile	
Swamp Raisin Joint County	
Wahoo Prairie Joint County	
Wilson & Extension	
Wilson Springbrook	
Wilson Springbrook, West Branch	
Witt Tile	
<i>Riga Township</i>	
Beagle	
Blissfield & Riga	
Burton & White Joint Co.	
Clement	
Eddy Extension	
Floodwood Creek	
Foster	
East Riga	
	<i>Riga Township</i> continued
	Gary & Pat Smith
	Goll
	Hazzard
	Keller & Riga Outlet
	Knapp, John I.
	Lamley
	Pollard
	Riga Ditch
	Rosewinkle
	Smith, Patrick
	<i>Rollin Township</i>
	Hazen Creek
	Hudson, Floyd
	Ketcham Tile
	Rooney
	<i>Rome Township</i>
	Atwood Tile
	Barrus
	Billings Tile
	Curtis Tile
	Douglass
	Dowling Tile
	Driscoll Tile
	Fauty
	Fleming & Extension
	Gilbert
	Gregg Tile
	Harris & North Branch
	Harrison
	Hawley Tile
	Hazen Creek
	Hood
	Hudson, Floyd
	Hunt Tile
	Kobneck Tile
	Lowery
	Lowery, North End
	Mann Tile
	Meyers Tile, Ed
	McDonald
	Nash
	Penrod Tile
	Pickford & Extension
	Pickford Tile



Table 19.–Continued.

## Lenawee County continued

*Rome Township* continued

Rome Sec. 26  
 Ryan & Extension  
 Schnerlia  
 Smead  
 Stoddard  
 Torry Extension  
 Wallace

*Seneca Township*

Bear Creek  
 Big Swamp  
 Big Swamp Extension  
 Bryant, E. J.  
 Bryant & Russell  
 Burch Tile  
 Chandler  
 Clement Tile  
 Complex  
 Complex Branch  
 Day Tile  
 Deline # 14  
 Deline #14, Branch #2  
 Drainage District #1  
 Ennis Tile  
 Furman Tile  
 Horton, G. B. Extension  
 Lord & Rorick  
 Meister  
 Metcalf  
 Metcalf, South Branch  
 Milliken  
 Morrison  
 Morris Tile  
 Nile  
 Nile Extension  
 Plate Tile  
 Potter, M. S.  
 Smith, Potter  
 Stoney Creek  
 Stoney Creek, South Branch  
 Town Line  
 Tufts, C. L.  
 Tuggle, S. F.  
 Welch  
 Williams

*Tecumseh Township*

Boyd Tile  
 Champlain Brook Extension  
 Cook  
 Cook Drain & Extension  
 Cook Extension  
 Evans Creek, Extension of  
 Goheen  
 Gove Tile  
 Hatch  
 Little Raisin  
 Little Raisin, Extension of N. End  
 Little Raisin, North End of  
 Little Raisin, West Br. Of N. End  
 Macon Joint County, S. Branch  
 Payne  
 Rector Tile  
 Slater  
 Stone  
 Sutton  
 Tallman  
 Tallman, South Branch  
 Tallman, West Branch  
 VanValkenburg  
 Westhaven

*Woodstock Township*

Briggs Lake  
 Burk  
 Moyer & Bedell  
 Plumb Brook Joint County  
 Shiner Lake  
 Tompkins Tile  
 Woodstock & Somerset Joint Co.

Table 19.–Continued.

Monroe County	
<i>Dundee Township</i>	
Bunce Drain, N. & S. Div.	
Burnett Drain	
Carney and Wilson Drain	
Cassidy Drain	
Curtis Drain	
Curtis and Rowley Drain	
Dundee and Milan No. 3 Drain	
Dunlap Drain	
Dunlap Drain, E. Div.	
George Day Drain	
Graham Tile Drain	
Hagen Drain	
Hunt and Stowell Drain	
Janney Drain	
Johnes Drain	
Kent and Suydam Drain	
Knoll Drain	
Koster Drain	
Lafler Drain	
Lenawee County Special Drain	
Lipstaff Drain	
Macon Drain	
Martin and Marine Drain	
Middle Branch Drain	
Morrison Drain	
Neiman Drain	
North Macon Drain	
Plumadore Drain	
Roe Drain	
Roskeda Drain	
Smith and Morse Drain	
Smith and Roe Drain	
South Branch Macon River Drain	
South Little River Raisin Drain	
Stowell School Drain	
Swamp Raisin Creek Crain	
Toten Drain	
Wahoo Prairie Drain	
Woodruff Drain	
<i>Frenchtown Township</i>	
Bates Drain	
Brost Drain	
Dr. Laboe Drain	
Jarbo Drain	
Mason Run Drain	
<i>Frenchtown Township</i> continued	
Moore Drain	
Southworth Drain	
Zimmerman Drain	
<i>London Township</i>	
Barnes Drain	
Bear Creek Drain	
Beaver Meadow Drain	
Carmel Drain	
Davis Drain	
Ingraham Drain	
Lewis Wann Drain	
Master Drain	
Stevens Drain	
Spiecker Drain	
Sugar Run Drain	
Wanty Drain	
Wilson Drain	
<i>Milan Township</i>	
Albert Johnson Drain	
Bear Creek Drain	
Bear Swamp Drain	
Campbell Swamp Drain	
Comfort Drain	
Crowe Drain	
Dibble Drain	
Ellis Drain	
Hall and Hanlon Drain	
Hall and Reeves Drain	
Hoag and Auten Drain	
Holcomb Drain	
Howe Drain	
John Cone Drain	
J. Rice Drain	
Kehow Drain	
Lee and Fulcher Drain	
Leet and Weidner Drain	
Leppleman Drain	
Macon Drain	
Macon and Milan Drain	
Maltby-Murry Drain	
Mary Drain	
Milan Center Ditch	
Milan No. 1 Drain	
Milan No. 3 Drain	

Table 19.–Continued.

Monroe County continued

*Milan Township* continued

Milan No. 4 Drain  
 Mooney Drain  
 Nolan and Engle Drain  
 N. Macon Creek Drain  
 Philips Drain  
 Pilbeam and Hazen Tile Drain  
 Pullen Drain  
 Rendell Tile Drain  
 Richardson Drain  
 Roskeda Drain  
 Sherman and Wilson Drain  
 Smith & Allen Drain  
 Steele Drain  
 Thayer Drain  
 Vanderventer Drain  
 VanSchoich Drain  
 Warren Lewis Drain  
 Zeloff Drain

*Raisinville Township*

Ansel Drain  
 Barnaby Drain  
 Baum Drain  
 Brost Drain  
 Brown Drain  
 Burdeau Drain  
 Karn Drain  
 Mason Run Drain  
 Middle Branch Willow Run Drain  
 Moore Drain  
 North Branch Willow Run Drain  
 Nosar and Scheitz Drain  
 Porth Drain  
 Rath Drain  
 Seitz Drain  
 Smock Drain  
 South Branch Willow Run Drain  
 Sullivan Drain  
 Wakefield Tile Drain

*Summerfield Township*

Ball Drain  
 Bennett and Archer Drain  
 Beverly Drain  
 Burnham Drain  
 Burton and White Drain  
 Dernier and Towner Drain  
 Goodrich Drain  
 Hall Drain  
 Miller Drain No. 4  
 Montri Drain  
 Perry Drain  
 Roe Drain  
 Russell Drain  
 Shaler Drain  
 Stacy Drain  
 Thompson and Martin Drain  
 Thompson and Tyler Drain  
 Veits Drain  
 West Branch Southwell Drain  
 West Division Dunlap Drain

City of Monroe

Ives Drain  
 Mason Run Cutoff  
 Rye Drain  
 Southworth Drain

Table 20.—Boat access sites in the River Raisin watershed. Data from: Michigan Department of Natural Resources, Parks and Recreation Division. Access key: 1=concrete ramp, 2=gravel ramp, 3=informal access, 4=carry-in access, 5=fee access, 6=access from adjoining waters with public access, 7=Hellenberg Field, access to Lake Erie. Dashes indicate number of parking spaces unknown or access from adjoining waters.

Body of water	County	TRS	Access type	Parking spaces	Water (acres)
Goose Lake	Hillsdale	T5S R1W Sec. 17	2	4	69
Lombard Lake	Hillsdale	T5S R1W Sec. 15	4	6	281
Moon Lake	Hillsdale	T5S R1W Sec. 15	4	4	32
Clark Lake	Jackson	T4S R1E Sec. 16	2	4	580
Vineyard Lake	Jackson	T4S R2E Sec. 28	1	30	505
Norvell lake	Jackson	T4S R2E Sec. 04	3	3	154
Mud lake	Jackson	T4S R2E Sec. 36	5	-	119
Goose Lake	Lenawee	T5S R1E Sec. 08	5	-	200
One Mile Lake	Lenawee	T5S R1E Sec. 12	4	10	29
Cleveland Lake	Lenawee	T5S R1E Sec. 12	4	4	14
Grassy Lake	Lenawee	T5S R2E Sec. 18	3	4	54
Deep Lake	Lenawee	T5S R2E Sec. 18	2	10	65
Allens Lake	Lenawee	T5S R2E Sec. 03	1	15	63
Wolf Lake	Lenawee	T5S R2E Sec. 09	6	-	69
Meadow Lake	Lenawee	T5S R2E Sec. 10	6	-	26
Kellys Lake	Lenawee	T5S R2E Sec. 11	6	-	43
Killarney Lake	Lenawee	T5S R2E Sec. 10	5&6	-	19
Lake Adrian	Lenawee	T6S R3E Sec. 26	4	-	86
Iron Lake	Lenawee	T5S R2E Sec. 02	3	6	78
Sand Lake	Lenawee	T5S R2E Sec. 12	1	24	440
Evans Lake	Lenawee	T5S R3E Sec. 06	5	-	201
Wamplers Lake	Len/Jac	T5S R2E Sec. 02	1	150	780
Round Lake	Len/Jac/Was	T5S R3E Sec. 06	2&6	10	67
Lake Hudson	Lenawee	T7S R1E Sec. 25	1	30	500
Demings Lake	Lenawee	T7S R2E Sec. 26	3	3	29
Globe Mill Pond	Lenawee	T5S R4E Sec. 27	2	10	38
Standish Mill Pond	Lenawee	T5S R4E Sec. 27	1	10	13
Saline Pond	Washtenaw	T4S R5E Sec. 01	3	-	28
Milan Pond	Washtenaw	T4S R6E Sec. 35	2	-	20
River Raisin	Monroe	T7S R9E Sec. 05	7	50	Lake Erie

Table 21.—Dams in the River Raisin watershed. Data from: Michigan Department of Environmental Quality, Land and Water Management Division. Major dams (see Figure 21) are bolded. Lk-Lvl Control Str.=lake-level control structure.

Dam name	River	Twp.	Range	Section
Hillsdale				
<b>Lake Somerset Dam</b>	Goose Creek	5S	1W	01
Lombard Lake Dam	Trib. Goose Creek	5S	1W	15
Jackson				
Sharonville SGA Pond 2	Unnamed swamp	3S	2E	36
Sharonville SGA Pond 1	Trib. River Raisin	3S	2E	36
Clark Lake Dam	Goose Creek	4S	1E	15
<b>Lake Columbia Dam</b>	Goose Creek	4S	1E	22
Sweezy Lk-Lvl Control Str.	Trib. River Raisin	4S	2E	02
<b>Norvell Dam</b>	River Raisin	4S	2E	03
Vineyard Lk-Lvl Control Str.	River Raisin	4S	2E	29
<b>Brooklyn Dam</b>	River Raisin	4S	2E	19
Lenawee				
Juniper Hills Dam	Brigg's Lake Creek	5S	1E	01
South Lake Dam	South Lake	5S	1E	14
Goose Lk-Lvl Control Str.	Goose Creek	5S	1E	08
Pratt Dam	Wolf Creek	5S	2E	14
Springville Mill Dam	Wolf Creek	5S	2E	11
Dewey Lk-Lvl Control Str.	Trib. Wolf Creek	5S	2E	17
Springville Dam	Trib. Wolf Creek	5S	2E	14
<b>Loch Erin Dam</b>	Wolf Creek	5S	3E	25
Evans Lk-Lvl Control Str.	Evans Creek	5S	3E	07
<b>Standish Dam</b>	River Raisin	5S	4E	27
<b>Red Millpond Dam</b>	River Raisin	5S	4E	27
<b>Globe Mill Dam</b>	River Raisin	5S	4E	34
<b>Atles Mill Dam</b>	River Raisin	5S	4E	05
Satterthwaite Dam	Trib. River Raisin	5S	4E	27
O'Neal Dam	Macon Creek	5S	5E	08
Sparrow Dam	Hazen Creek	6S	1E	25
Fry Lake Dam	Squaw Creek	6S	2E	03
Squaw Creek Dam	Trib. Squaw Creek	6S	2E	03
<b>Lake Adrian Dam</b>	Wolf Creek	6S	3E	35
Ruesink Dam	Trib. Beaver Creek	6S	3E	16
<b>Lake Hudson Dam</b>	Bear Creek	7S	1E	35
Raisin Dam	Trib. S. Br. Raisin R.	7S	2E	27
Adrian City Rec. Pond Dam	Trib. S. Br. R. Raisin	7S	3E	03
McCoy's Pond Dam	Trib. River Raisin	7S	4E	07
<b>Blissfield Dam</b>	River Raisin	7S	5E	29
River Raisin Weir	River Raisin	7S	5E	12

Table 21.–Continued.

Dam name	River	Twp.	Range	Section
Monroe				
<b>Milan Dam</b>	Saline River	5S	6E	02
Dundee Cement Co. Dam	N. Br. Macon Creek	6S	6E	01
<b>Dundee Mill Dam</b>	River Raisin	6S	6E	13
<b>Murciak Dam</b>	River Raisin	6S	7E	13
<b>Waterloo Dam</b>	River Raisin	6S	8E	36
West of Sisters Island	River Raisin	6S	9E	31
East of Sisters Island	River Raisin	6S	9E	31
West of Monroe Street	River Raisin	6S	9E	31
West of Macomb Street	River Raisin	6S	9E	32
City Filtration Plant	River Raisin	7S	9E	05
Hellenberg Field	River Raisin	7S	9E	05
Washtenaw				
<b>Sharon Mills Dam</b>	River Raisin	3S	3E	29
Deppmann Dam	Trib. Saline River	3S	5E	32
Warner Drain Dam	Koch Warner Drain	3S	6E	34
Kirk Dam	Trib. Iron Creek	4S	3E	22
Par 3 Ranch Dam	Trib. River Raisin	4S	3E	03
<b>Manchester Mill Dam</b>	River Raisin	4S	3E	02
Iron Lake Dam	Iron Creek	4S	3E	28
Broucek Dam	Trib. River Raisin	4S	3E	11
Curtiss Park Dam	Saline River	4S	5E	01
<b>Saline River Dam</b>	Saline River	4S	5E	01
Spring Brook Dam	Koch & Warner Dr.	4S	5E	12
Ella Lee Lake Dam	Trib. Saline River	4S	6E	18
<b>Ford Manchester Dam</b>	River Raisin	4S	6E	01

Table 22.—Numbers of major fish species impinged at the Detroit Edison Monroe Power Plant from May, 1985 through April, 1986. Data from: A. Nuhfer, Michigan Department of Natural Resources, Fisheries Division, personal communication.

Species	Month												Totals
	May	June	July	August	Sept	October	November	December	January	Feb	March	April	
Gizzard shad	2,944	3,417	4,057	396,217	114,484	3,272,676	1,704,038	3,233,888	555,285	11,473	7,296	4,248	9,310,023
White perch	7,884	10,074	5,044	41,071	169,234	94,769	28,917	12,757	84,114	2,813	343	4,248	461,268
Trout-perch	10,727	9,225	528	609	2,135	1,450	649	21	18,709	6,882	54,632	32,287	137,854
White bass	615	900	4,177	33,352	40,684	9,393	7,084	2,135	7,121	0	493	328	106,282
Freshwater drum	4,526	5,991	2,020	12,834	15,899	32,535	15,125	431	2,495	616	1,037	3,338	96,847
Yellow perch	20,401	15,326	11,040	6,661	6,445	6,859	2,010	676	2,928	153	3,160	2,587	78,246
Emerald shiner	1,151	3,174	3,700	632	1,313	2,332	4,676	4,022	4,959	374	552	2,573	29,458
Spottail shiner	1,441	2,451	1,526	508	1,091	927	551	49	173	165	1,144	1,007	11,033
Walleye	288	533	1,854	902	321	536	467	141	1,874	48	152	258	7,374
Smelt	228	1,328	407	28	865	1,543	1,251	64	307	57	26	117	6,221
Other species	1,217	2,147	1,001	917	2,617	3,314	3,689	3,240	3,086	597	1,570	1,422	24,817
<b>TOTAL</b>	<b>51,422</b>	<b>54,566</b>	<b>35,354</b>	<b>493,731</b>	<b>355,088</b>	<b>3,426,334</b>	<b>1,768,457</b>	<b>3,257,424</b>	<b>681,051</b>	<b>23,178</b>	<b>70,405</b>	<b>52,413</b>	<b>10,269,423</b>

Table 23.—Estimated numbers of fish larvae entrained February 13, 1982 through February 12, 1983 at Detroit Edison’s Monroe Power Plant located at the mouth of the River Raisin. In the following months no larvae were collected: February 1982, October 1982 - February 1983. Data from: Jude et al. 1983.

Species	Month							Total	% of total
	March	April	May	June	July	August	Sept		
Gizzard shad	0	17,300,000	853,000,000	3,020,000,000	184,000,000	3,040,000	41,200	4,080,000,000	86.80
Freshwater drum	0	0	0	129,000,000	29,400,000	58,900	0	158,000,000	3.37
White bass and white perch	0	0	11,500,000	127,000,000	17,600,000	197,000	0	156,000,000	3.32
Yellow perch	0	0	103,000,000	23,300,000	933,000	93,600	0	128,000,000	2.72
Common carp	0	50,300,000	16,500,000	10,900,000	1,840,000	43,200	0	79,700,000	1.70
Damaged larvae	0	214,000	14,400,000	21,200,000	2,400,000	122,000	0	38,300,000	0.81
Emerald shiner	0	0	1,480,000	12,100,000	2,820,000	5,440,000	756,000	22,600,000	0.48
Rainbow smelt	0	0	0	9,360,000	914,000	717,000	0	11,000,000	0.23
Spottail shiner	0	0	3,420,000	1,050,000	0	238,000	309,000	5,020,000	0.11
Quillback	0	3,080,000	1,340,000	457,000	0	0	0	4,870,000	0.10
Channel catfish	0	0	804,000	2,040,000	1,210,000	93,600	0	4,160,000	0.09
Unidentified cyprinidae	0	0	2,490,000	233,000	17,400	58,900	0	2,800,000	0.06
Burbot	0	239,000	2,530,000	0	0	0	0	2,770,000	0.06
Trout-perch	0	2,130	2,340,000	34,600	0	0	0	2,380,000	0.05
Walleye	0	29,800	2,050,000	0	0	0	0	2,080,000	0.04
White sucker	103,000	0	664,000	448,000	0	0	0	1,210,000	0.03
<i>Lepomis spp.</i>	0	0	77,800	28,800	388,000	428,000	0	923,000	0.02
Logperch	0	0	46,700	0	50,900	473,000	33,000	603,000	0.01
Largemouth bass	0	0	435,000	164,000	0	0	0	599,000	0.01
<i>Pomoxis spp</i>	0	0	580,000	0	0	0	0	580,000	0.01
Unidentified coregoninae	0	14,900	175,000	0	0	0	0	190,000	0.00
Northern hog sucker	124,000	0	0	0	0	0	0	124,000	0.00
TOTALS	227,000	71,300,000	1,020,000,000	3,360,000,000	242,000,000	11,000,000	1,140,000	4,700,000,000	



Table 24.–National Pollution Discharge Elimination System permits issued in the River Raisin watershed by Michigan Department of Environmental Quality, Surface Water Quality Division. In addition, there are 60 industrial site and 18 construction site storm water permits.

Facility	Location	Waste	Receiving water
Adrian WWTP	Adrian	Sanitary	S. Br. River Raisin
Aget Mfg. Co.	Adrian	Non-contact cooling water	River Raisin
Amoco Oil Co.	Napoleon	Process water	Stoney Lake Drain
Big M Paperboard	Palmyra	Process water	River Raisin
Blissfield Mfg. Co.	Blissfield	Cooling, runoff	River Raisin
Blissfield WWTP	Blissfield	Sanitary, runoff	River Raisin
Boysville of Mi., Inc.	Clinton	Sanitary	S. Macon Creek
Brooklyn WTP	Brooklyn	Process Water	River Raisin
Brooklyn WWSL	Brooklyn	Sanitary	Goose Creek
Clayton WWSL	Clayton	Sanitary	S. Br. River Raisin
Clinton WWTP	Clinton	Sanitary	River Raisin
Deerfield WWTP	Deerfield	Sanitary	River Raisin
Diehl, Inc.	Adrian	Non-contact cooling water	S. Br. River Raisin
Dundee WWTP	Dundee	Sanitary, process water	River Raisin
Fairfield Twp.-Jasper WWSL	Weston	Sanitary	Black Creek
Ford Motor Co.	Monroe	Non-contact cooling water	River Raisin
Holnam, Inc.	Dundee	Runoff, process water, sanitary, non-contact cooling water	Macon Creek
Jude Stone Quarry	Napoleon	Process water	Austin No. 1 Dr.
Laidlaw Landfill	Adrian	Process water, stormwater runoff	River Raisin
Wamplers Lake WWSL	Franklin Twp.	Sanitary	Evans Creek
Lake Loch Erin WWTP	Onsted	Sanitary	Wolf Creek
Lenawee Farm Bureau Oil-Co-op	Adrian	Process water	River Raisin
Manchester WWTP	Manchester	Sanitary	River Raisin
Marco Products, Inc.	Adrian	Runoff, process water	East Side Dr.
Lake Hudson WWSL	Clayton	Sanitary	Bear Creek
Milan WWTP	Milan	Sanitary, Process water	Saline River
NSK Bearing Corp.	Saline	Process water, sanitary, cooling, runoff	Saline River
Onsted WWSL	Onsted	Sanitary	Wolf Creek
Orbital Engine Co.	Tecumseh	Non-contact cooling water	Cook Drain
Orchard Grove MHP	Saline	Sanitary	Saline River
Orchard Grove WWTP	Saline	Sanitary	Rouse Drain
Petersburg WWTP	Petersburg	Sanitary	River Raisin
PPG Industries, Inc.	Adrian	Non-contact cooling water, cooling water, runoff	Savage Drain
Saline WWTP	Saline	Sanitary, process water	Saline River
Tecumseh Products Co.	Tecumseh	Non-contact cooling water	River Raisin
Tecumseh WWTP	Tecumseh	Sanitary, process water	River Raisin
Union Camp Corp	Monroe	Process water, cooling water	River Raisin
Wacker Silicones Corp.	Adrian	Sanitary, cooling, runoff, process	River Raisin
Wickes Mfg. Co.	Adrian	Non-contact cooling water	S. Br. River Raisin

Table 25.—Maximum-minimum July water temperatures for several locations in the River Raisin watershed. Data from: Michigan Department of Natural Resources, Fisheries Division. Site refers to locations on Figure 4.

Stream and Location	Twp.	Range	Section	Site	Temperature (°F)		
					Max.	Min.	Median
River Raisin							
Austin Road	4S	3E	12	3	79	68	73
Allen Road	4S	4E	29	4	79	65	72
Russell Road	5S	4E	34	5	80	66	73
E. Gorman Road	7S	4E	34	7	78	66	72
Dundee	6S	6E	13	9	80	71	76
Ida-Maybee Road	6S	7E	13	10	82	73	77
Raisinville Road	6S	8E	27	11	81	69	75
Saline River							
Sherman Road	5S	7E	07	a	78	68	73
S. Br. River Raisin							
Heritage Park	6S	4E	30	c	73	64	68
N. Br. Macon Creek							
Day Road	5S	6E	36	g	79	64	71

Table 26.—Organizations with interest in the River Raisin watershed.

Organization
Brest Bay Sportsmens Club
Canvasback Club
Carleton Sportsmens Club
Ducks Unlimited-Adrian Chapter
Ducks Unlimited-Brooklyn Chapter
Ducks Unlimited-Monroe Chapter
Grass Lake Sportsmens Club
Heart of the Lakes Sportsmens Club (Brooklyn)
Hillsdale County Conservation Club
Irish Hills Rod & Gun Club
Jackson County Outdoor Club
Johnson's Sporting Goods (Adrian)
Knutson's Reccreational Sales (Brooklyn)
Lenawee County Conservation League
Manchester Sportsmens Club
Maybe Sportsmens Club
Michigan Salmon & Steelheaders Association-Jackson Chapter
Michigan United Conservation Clubs Districts 2 & 3
Monroe County Rod & Gun Club
National Wild Turkey Federation - Monroe Chapter
National Wild Turkey Federation-Waterloo Long Beards Chapter
Pheasants Forever - Adrian Chapter
Pheasants Forever - Jackson Chapter
Pheasants Forever - Monroe Chapter
Pheasants Forever - Washtenaw Chapter
River Raisin Land Trust
River Raisin Sportsmens Club (Blissfield)
River Raisin Watershed Council
Tri-County Sportsmens League
Trout Unlimited - Adrian Chapter
Whitetails Unlimited - Adrian Chapter
Whitetails Unlimited - Monroe Chapter
Michigan Lakes and Streams Association
Lake Columbia Property Owners Association
Lake Loch Erin Association
Lake Somerset Association
Norvell Lake Association
Sand Lake Association
Wamplers Lake Association