APPENDIXES

Appendix table 1-1. Concentrations of nutrients, major ions, trace elements, and wastewater indicators detected in blank samples in the Birmingham area, Alabama, 2000–01

[E, estimated; mg/L, milligrams per liter; <, less than; LRL, laboratory reporting level; µg/L, micrograms per liter; MRL, minimum reporting level]

Constituent	Concentration	Reporting level	Reporting level type	Type of blank
Nitrogen, ammonia plus organic, dissolved	E 0.071 mg/L	< 0.1 mg/L	LRL	Field
Total organic carbon	E .344 mg/L	< .6 mg/L	LRL	Field
Phosphorus, dissolved	E .003 mg/L	< .006 mg/L	LRL	Field
Silica	E .0422 mg/L	< .09 mg/L	LRL	Field
Copper	E .976 µg/L	< 1.8 µg/L	LRL	Field
Chloride	E .06 mg/L	< .08 mg/L	LRL	Field
Calcium	.0092 mg/L	< .02 mg/L	LRL	Equipment
Magnesium	.0019 mg/L	< .014 mg/L	LRL	Equipment
Silica	.0826 mg/L	< .09 mg/L	LRL	Equipment
Zinc	3.137 µg/L	< 1.0 µg/L	MRL	Equipment
Acetephenone	E .095 µg/L	< .10 µg/L	MRL	Lab
Caffeine	.063 µg/L	< .08 µg/L	MRL	Lab
3-B Coprostanol	E .310 µg/L	< .60 µg/L	MRL	Lab
Ethanol, 2-butoxy-phosphate	E .122 µg/L	< .070 µg/L	MRL	Lab
NPEO2-Total	E .102 µg/L	< 1.1 µg/L	MRL	Lab
OPEO1-Total	E .073 µg/L	< .10 µg/L	MRL	Lab
OPEO1-Total	E .063 µg/L	< .12 µg/L	MRL	Lab
OPEO1-Total	E .200 µg/L	< 1.0 µg/L	MRL	Lab
OPEO1-Total	E .200 µg/L	< 1.0 µg/L	MRL	Lab
Triclosan	.069 µg/L	< .04 µg/L	MRL	Lab
Triclosan	E .044 µg/L	< .05 µg/L	MRL	Lab
Triclosan	E .034 µg/L	< .05 µg/L	MRL	Field
Tri(dichlorisopropyl)phosphate	.127 µg/L	< .10 µg/L	MRL	Lab

Appendix table 1-2. Concentrations and relative percentage differences for nutrients, major ions, trace elements, pesticides, and wastewater indicators detected in replicate samples in the Birmingham area, Alabama, 2000–01

[mg/L, milligrams per liter; E, estimated; µg/L, micrograms per liter]

Nutrients and major ions (mg/L)	Concentration in replicates	Relative percent difference
Total nitrogen	1.564	2.2
	1.598	
	.289	5.0
	.275	
	3.010	0.7
	2.988	
Dissolved nitrogen	1.214	2.2
	1.241	
	2.989	0.2
	2.994	
Total organic nitrogen	.776	4.5
	.812	
	.336	9.7
	.305	
Dissolved organic nitrogen	.426	6.6
	.455	
	.315	1.3
	.311	
Total ammonia-plus-organic nitrogen	.905	3.8
	.94	
	.109	9.6
	.099	
	.568	5.4
	.538	
Dissolved ammonia-plus-organic nitrogen	.5549	5.0
	.5832	
	E .068	7.8
	E .088	
	.547	0.6
	.544	
Dissolved ammonia nitrogen	.129	0.8
	.128	
	.232	0.4
	.233	
Dissolved nitrite nitrogen	.017	0.0
	.017	
	.07	1.4
	.071	
Dissolved nitrate nitrogen	.642	0.2
	.641	
	2.372	0.3
	2.379	
Dissolved nitrite-plus-nitrate nitrogen	.659	0.2
	.658	
	.18	2.2
	.176	
	2.442	0.3
	2.45	
Total phosphorus	.121	0.8
	.122	
	.007	54.6
	.004	
	.057	0.0
	.057	

Nutrients and major ions (mg/L)	Concentration in replicates	Relative percent difference
Dissolved phosphorus	0.036	0.0
	.036	
	.052	0.0
	.052	
Orthophosphorus	E .013	14.3
	E .015	
	.038	2.6
	.039	
Calcium	89.236	1.1
	90.218	
	51.571	2.0
	50.527	
	67.269	0.6
	66.879	
Magnesium	16.783	3.3
	17.352	
	17.021	4.8
	16.231	
	16.265	0.8
	16.128	
Sodium	15.503	1.4
	15.724	
	3.388	6.2
	3.1856	
	10.113	1.1
	10.001	
Potassium	26.05	1.2
	26.35	
	1.11	0.0
	1.11	
	3.28	2.5
	3.2	
Chloride	91.94	1.1
	92.97	
	4.91	2.9
	4.77	
	10.56	1.6
	10.73	
Sulfate	65.57	0.2
	65.7	
	10.02	0.3
	10.05	
	56.19	0.4
	55.98	
Fluoride	.537	2.8
	.552	
	E .114	19.2
	E .094	
	.236	4.3
	.226	
Silica	13.84	0.3
	13.883	
	5.0611	3.0
	4.9124	
	7.7197	0.9
	7.6538	

Appendix table 1-2. Concentrations and relative percentage differences for nutrients, major ions, trace elements, pesticides, and wastewater indicators detected in replicate samples in the Birmingham area, Alabama, 2000–01—Continued

[mg/L, milligrams per liter; E, estimated; µg/L, micrograms per liter]

Trace elements (mg/L)	Concentration in replicates	Relative percent difference
Aluminum	32.68	4.2
	34.07	
	45.998	3.3
	47.54	
Arsenic	E 1.561	9.2
	E 1.712	
Barium	426.43	1.6
	433.27	
	29.974	0.5
	29.813	
Cadmium	2.1	1.9
	2.141	
Chromium	2.386	3.0
	2.459	
Copper	5.19	0.7
	5.225	
Iron	235.55	5.0
	247.76	
	63.928	5.7
	67.685	
Lead	3.776	2.0
	3.702	
Lithium	44.935	0.7
	45.263	
Manganese	57.326	1.6
	58.263	
	46.121	0.3
	45.979	
Molybdenum	31.082	2.2
	30.408	
Nickel	E 1.304	29.9
	E 1.763	
Zinc	155.32	1.6
	152.79	
Pesticides (µg/L)	**Concentration in replicates**	**Relative percent difference**
Atrazine	2.58	4.0
	2.48	
	.0321	2.2
	.0328	
Deethylatrazine	E .0357	3.8
	E .0371	
Diazinon	.0832	12.5
	.0734	
	.0596	11.1
	.0666	
Pendimethalin	.0654	7.4
	.0607	

Pesticides (µg/L) (Continued)	Concentration in replicates	Relative percent difference
Prometon	0.926	3.5
	.894	
	.151	2.0
	.154	
Simazine	.184	9.3
	.202	
	.0261	13.6
	.0299	
Trifluralin	E .00635	5.5
	E .00671	
Wastewater indicators (µg/L)	**Concentration in replicates**	**Relative percent difference**
Acetephenone	0.348	27.1
	.265	
Caffeine	.464	1.1
	.469	
	.799	18.1
	.958	
Cholesterol	1.67	12.1
	1.48	
Cotinine	.063	29.7
	.085	
	.066	16.7
	.078	
3B-Coprostanol	.941	16.6
	.797	
Diethoxynonylphenol (NPEO2-total)	3.0	8.7
	2.75	
Ethanol, 2-butoxy-phosphate	1.44	6.4
	1.35	
Monoethoxyoctylphenol (OPEO1)	.693	6.6
	.74	
	.434	10.7
	.39	
Para-nonylphenol-total	.794	34.9
	1.13	
	2.54	6.9
	2.37	
Tri (2-chloro ethyl) phosphate	.128	4.6
	.134	
	.316	7.0
	.339	
Triclosan	.181	37.4
	.124	
	.078	8.0
	.072	
Triphenyl phosphate	.136	2.2
	.133	

Appendix table 2-1. Summary of major ion concentrations during different flow conditions at sites in the Birmingham area, Alabama, 2000–01

[Meq/L, milliequivalents per liter]

Site label (fig. 1)	Hydrologic condition	Date	Calcium (Meq/L)	Magnesium (Meq/L)	Sodium (Meq/L)	Potassium (Meq/L)	Chloride (Meq/L)	Sulfate (Meq/L)	Bicarbonate (Meq/L)
VIL-1	Low flow	8/30/2000	2.19	1.62	0.12	0.02	0.13	0.17	3.87
VIL-1	High flow	1/29/2001	.57	.26	.04	.03	.04	.09	.72
VIL-1	Median		2.30	1.55	.14	.02	.13	.19	3.67
VIL-2	Low flow	8/30/2000	2.88	1.50	.34	.27	1.00	1.09	2.92
VIL-2	High flow	1/29/2001	.72	.25	.06	.06	.10	.18	.82
VIL-2	Median		2.50	1.40	.28	.12	.26	.80	2.88
VIL-3	Low flow	8/29/2000	2.30	1.25	.30	.16	.34	.83	2.75
VIL-3	High flow	3/30/2000	.93	.36	.08	.06	.07	.25	1.10
VIL-3	Median		2.45	1.16	.29	.16	.34	.93	2.58
VAL-1	Low flow	8/31/2000	2.63	1.10	.48	.10	.33	1.01	2.80
VAL-1	High flow	2/12/2001	.41	.08	.04	.02	.03	.11	.43
VAL-1	Median		2.55	1.03	.47	.09	.31	1.01	2.63
VAL-2	Low flow	8/29/2000	2.50	1.26	.46	.08	.35	.86	3.16
VAL-2	High flow	2/9/2001	.86	.24	.10	.03	.09	.30	.75
VAL-2	Median		2.88	1.26	.46	.08	.33	.86	3.38
VAL-3	Low flow	8/31/2000	2.12	1.26	.45	.10	.36	.70	2.74
VAL-3	High flow	2/13/2001	.69	.18	.05	.04	.03	.17	.69
VAL-3	Median		2.25	1.15	.32	.11	.23	.66	2.67
FMC	Low flow	8/28/2000	2.04	1.32	.11	.03	.11	.08	3.36
FMC	High flow	3/20/2001	.80	.37	.06	.02	.07	.13	.95
FMC	Median		1.91	1.03	.11	.03	.11	.19	2.75

Appendix table 2-2. Field water-quality properties, bacteria, and chemical constituents at sites in the Birmingham area, Alabama, 2000–01

[Shaded samples were collected during high flow. ft^3/s, cubic feet per second; mg/L, milligrams per liter; µg/L, micrograms per liter; µS/cm, microsiemens per centimeter; col/100 mL, colonies per 100 milliliters; —, no data; >, actual value greater than plate value; <, less than; K, counts greater than or less than ideal; V, estimated due to equipment problems]

Site label (fig. 1)	Date	Discharge (ft^3/s)	BOD_5 (mg/L)	Chlorophyll *a* (µg/L)	pH	Specific conduc-tance (µS/cm)	Dissolved oxygen (mg/L)	Total organic carbon (mg/L)	Fecal coliform (col/100 mL)	*E. coli* (col/100 mL)	Enterococci (col/100 mL)
VIL-1	3/1/2000	3.7	—	—	7.9	393	8.8	1.32	330	260	—
VIL-1	4/1/2000	10.7	—	—	7.7	381	8.8	3.44	270	> 800	330
VIL-1	5/17/2000	3.86	—	—	7.9	389	8.2	—	680	560	—
VIL-1	6/30/2000	2.7	—	—	7.7	390	7.4	1.62	4,900	K 530	1,000
VIL-1	8/1/2000	2.46	1.5	< 0.1	8.1	379	7.1	1.09	1,300	1,200	1,200
VIL-1	8/302000	1.3	1.7	< .1	8.1	389	7.0	.809	510	490	690
VIL-1	10/4/2000	1.2	.3	< .1	8.0	374	8.0	.534	700	760	1,500
VIL-1	11/8/2000	126	—	—	7.4	76	7.9	12.4	K 28,000	K 31,000	K 69,000
VIL-1	12/14/2000	2.17	.6	< .1	8.0	375	8.4	1.32	1,700	1,400	1,700
VIL-1	1/24/2001	6.47	1.6	< .1	8.1	389	8.7	1.96	K 8,500	K 13,000	K 15,000
VIL-1	1/29/2001	101	—	< .1	6.9	86	9.1	18.1	K 1,500	K 800	8,800
VIL-1	3/19/2001	7.02	—	—	7.8	371	9.2	—	—	250	—
VIL-2	8/1/2000	27.9	2.5	< .1	7.8	366	5.4	6.02	2,400	3,000	5,700
VIL-2	8/30/2000	10.5	3.6	< .1	8.0	503	6.2	4.35	K 1,900	K 4,100	K 7,400
VIL-2	10/4/2000	7.47	1.4	< .1	8.0	333	5.5	2.78	K 350	440	1,600
VIL-2	11/14/2000	12.8	8.7	< .1	7.7	760	6.5	23.4	520	850	900
VIL-2	12/14/2000	20.7	7.8	< .1	7.4	227	7.9	7.88	K 13,000	9,200	K 18,000
VIL-2	1/24/2001	29.5	2.5	< .1	8.1	450	10.5	3.34	4,700	2,500	3,500
VIL-2	1/29/2001	911	—	10	7.0	114.	8.6	17.5	K 2,300	3,300	18,000
VIL-3	3/2/2000	23	—	—	8.1	467	11.8	4.05	180	K 280	—
VIL-3	3/30/2000	410	—	—	7.2	184	8.2	9.14	K 7,800	> 8,000	> 6,000
VIL-3	6/30/2000	16.2	—	—	8.5	386	11.1	5.94	K 1,400	K 380	K 260
VIL-3	8/2/2000	413	8.5	< .1	8.1	212	5.9	4.78	19,000	17,000	25,000
VIL-3	8/29/2000	14.6	6.8	9.1	8.1	393	9.9	3.98	400	220	370
VIL-3	10/3/2000	15.6	1.1	< .1	8.3	355	10.6	3.09	190	K 110	73
VIL-3	11/14/2000	18.3	.9	< .1	7.8	420	8.9	4.12	—	—	—
VIL-3	12/12/2000	13.8	1.3	< .1	8.1	445	9.6	3.95	V 49	V 20	V 21
VIL-3	1/23/2001	47.3	1	< .1	8.1	459	9.0	3.72	K 23	K 34	K 17
VIL-3	2/14/2001	108	3	< .1	7.9	409	8.6	5.17	1,200	K 2,200	1,300
VIL-4	3/2/2000	87	—	—	7.2	510	8.6	4.12	K 180	200	—
VIL-4	4/2/2000	2440	—	—	7.2	144	0.0	12.7	> 3,000	> 4,000	> 3,000
VIL-4	7/1/2000	77.5	—	—	7.4	477	0.0	5.65	K 2,000	44,000	K 4,000
VAL-1	3/1/2000	1.83	—	—	7.9	473	8.2	4.12	3,700	4,500	—
VAL-1	3/31/2000	1.77	—	—	7.6	599	7.1	5.35	22,000	60,000	4,300
VAL-1	6/29/2000	33.4	—	—	7.5	205	5.1	16.6	> 33,000	> 44,000	—
VAL-1	8/2/2000	2.25	4.9	< 0.1	8.0	408	5.3	27.1	K 64,000	K 78,000	K 15,000
VAL-1	8/31/2000	1.12	4.8	< .1	7.9	416	5.0	3.45	4,000	1,900	K 600
VAL-1	10/3/2000	1.12	1.7	< .1	7.9	386	3.3	3.64	2,100	3,200	830

Appendix table 2-2. Field water-quality properties, bacteria, and chemical constituents at sites in the Birmingham area, Alabama, 2000–01—Continued

[Shaded samples were collected during high flow. ft^3/s, cubic feet per second; mg/L, milligrams per liter; µg/L, micrograms per liter; µS/cm, microsiemens per centimeter; col/100 mL, colonies per 100 milliliters; —, no data; >, actual value greater than plate value; <, less than; K, counts greater than or less than ideal; V, estimated due to equipment problems]

Site label (fig. 1)	Date	Discharge (ft^3/s)	BOD_5 (mg/L)	Chlorophyll *a* (µg/L)	pH	Specific conductance (µS/cm)	Dissolved oxygen (mg/L)	Total organic carbon (mg/L)	Fecal coliform (col/100 mL)	*E. coli* (col/100 mL)	Enterococci (col/100 mL)
VAL-1	11/9/2000	37	—	—	7.6	135	8.2	5.88	K 85,000	63,000	70,000
VAL-1	12/12/2000	1.64	4.8	< .1	7.6	407	4.2	7.05	V 44,000	V 19,000	V 4,300
VAL-1	1/23/2001	2.49	2.4	< .1	7.9	480	7.8	4.24	3,800	770	4,100
VAL-1	2/12/2001	120	4.4	< .1	7.3	58	10.4	8.21	5,900	8,200	9,900
VAL-2	2/29/2000	13	—	—	8.5	491	13.1	2.21	K 41	K 150	—
VAL-2	3/31/2000	20.7	—	—	7.5	455	8.0	2.4	1,000	> 1,600	980
VAL-2	5/16/2000	9.7	—	—	7.6	498	6.8	—	400	340	—
VAL-2	6/29/2000	22.6	—	—	7.9	265	5.6	6.98	> 6,000	> 8,000	2,000
VAL-2	8/3/2000	18.2	1.2	< .1	8.2	423	7.8	3.14	1,700	1,200	360
VAL-2	8/29/2000	6.03	2.4	6	8.4	432	4.3	4.55	K 640	800	120
VAL-2	10/5/2000	5.2	.9	< .1	8.0	393	4.7	2.70	150	140	260
VAL-2	11/15/2000	8.73	.9	< .1	8.2	539	9.9	2.89	K 16,000	K 21,000	2,300
VAL-2	12/13/2000	7.84	.8	< .1	8.1	468	11.0	3.39	720	200	180
VAL-2	1/25/2001	14.0	.5	< .1	8.0	492	9.3	2.82	K 80	K 51	59
VAL-2	2/9/2001	374	—	31	7.7	126	6.1	29.2	—	25,000	22,000
VAL-3	2/29/2000	27.3	—	—	7.9	455	10.1	5.18	K 72	K 130	—
VAL-3	3/29/2000	42	—	—	7.7	454	10.4	1.93	120	320	39
VAL-3	6/28/2000	14.7	—	—	7.6	358	7.0	3.31	330	720	250
VAL-3	8/3/2000	32.9	1	< .1	7.9	278	7.2	5.41	1,400	700	4,100
VAL-3	8/31/2000	11.7	8.6	< .1	8.2	386	11.1	2.63	K 71	K 86	K 33
VAL-3	10/2/2000	12.3	.5	< .1	8.1	347	10.2	2.75	K 40	50	92
VAL-3	11/9/2000	240	—	—	7.9	163	6.5	5.45	16,000	11,000	52,000
VAL-3	12/13/2000	13.7	.7	< .1	8.3	452	13.9	2.34	75	K 9	110
VAL-3	1/25/2001	33	.3	< .1	8.4	489	11.1	2.80	K 10	K 5	K 12
VAL-3	2/13/2001	960	8.4	16	7.6	103	10.1	9.64	4,700	6,600	25,000
LCR	2/28/2000	28.1	—	—	8.0	296	9.9	4.45	490	430	—
LCR	3/28/2000	27.3	—	—	7.7	378	9.2	2.15	K 62	1,800	K 72
LCR	6/27/2000	6.85	—	—	7.5	403	6.6	2.50	200	270	290
FMC	5/15/2000	1.84	—	—	8.0	323	7.4	—	K 17	K 13	—
FMC	7/31/2000	12.4	2.5	< 0.1	7.8	185	6.6	8.14	3,000	3,000	K 14,000
FMC	8/28/2000	.55	1.1	< .1	8.1	335	8.2	1.57	K 70	K 54	220
FMC	11/13/2000	1.16	.6	< .1	7.9	298	10.0	2.99	160	250	5,000
FMC	12/11/2000	.877	.5	< .1	8.2	364	10.7	1.84	9	K 3	K 62
FMC	1/22/2001	21.7	.3	< .1	7.9	276	12.2	4.49	K 70	100	190
FMC	2/13/2001	31.6	7.4	< .1	7.9	230	9.4	—	540	520	1,400
FMC	3/20/2001	220	8.6	< .1	7.4	128	9.9	—	—	930	—

Appendix table 2-3. Wastewater indicators detected in water samples from streams in the Birmingham area, Alabama, 2000–01

[Shaded samples were collected during high flow; BHA, 3-*tert*-butyl-4-hydroxyanisole; µg/L, micrograms per liter; <, not detected; E, estimated; —, no data; *, censored; OPEO1, monoethoxyoctylphenol; OPEO2, diethoxyoctylphenol; NPEO2, diethoxynonylphenol]

Site label (fig. 1)	Date	Food by-products				Pharmaceutical by-products		
		BHA (µg/L)	Caffeine (µg/L)	3B-Coprostanol (µg/L)	Cholesterol (µg/L)	Triclosan (µg/L)	17B-estradiol (µg/L)	Cotinine (µg/L)
VIL-1	3/1/2000	< 0.120	E 0.056	< 0.600	< 1.500	E 0.038	< 0.500	< 0.040
VIL-1	4/1/2000	< .120	< .080	< .600	E .464	.082	< .500	< .040
VIL-1	6/30/2000	< .120	< .080	< .600	< 1.500	.074	< .500	< .040
VIL-1	8/1/2000	< .120	E .047	< .600	< 1.500	.118	< .500	< .040
VIL-1	8/30/2000	< .120	< .080	< .600	< 1.500	—	< .500	< .040
VIL-1	10/4/2000	< .120	< .080	< .600	< 1.500	< .050	< .500	< .080
VIL-1	11/8/2000	< .120	.219	E .873	E 1.450	.077	< .500	< .080
VIL-1	12/14/2000	< .120	E .061	< .600	< 1.500	< .050	< .500	< .080
VIL-1	1/24/2001	< 5.000	.56	E 4.500	E 5.600	E .130	< 5.000	E .250
VIL-1	1/29/2001	< 5.000	1.1	E 1.500	E 2.400	< 1.000	< 5.000	E .280
VIL-2	8/1/2000	< .120	.217	< .600	< 1.500	.132	< .500	.066
VIL-2	8/30/2000	< .120	.428	< .600	< 1.500	—	< .500	.16
VIL-2	10/4/2000	< .120	.195	< .600	< 1.500	E .039	< .500	< .080
VIL-2	11/14/2000	< .120	.464	< .600	< 1.500	.181	< .500	E .063
VIL-2	12/14/2000	< .120	.799	E .941	E 1.670	.078	< .500	E .066
VIL-2	1/24/2001	< 5.000	.8	E 4.100	E 5.000	E .380	< 5.000	E .230
VIL-2	1/29/2001	< 5.000	E .490	E 2.700	E 3.700	< 1.000	< 5.000	< 1.000
VIL-3	3/2/2000	< .120	1.6	E 1.520	E 1.610	.185	< .500	.126
VIL-3	3/30/2000	E .114	.386	E 1.350	E 1.810	.185	< .500	< .040
VIL-3	6/30/2000	< .120	.379	< .600	< 1.500	.251	< .500	.112
VIL-3	8/2/2000	< .120	3.38	E 1.420	E 2.820	.962	< .500	.212
VIL-3	8/29/2000	< .120	.163	< .600	< 1.500	E .049	< .500	E .065
VIL-3	10/3/2000	< .120	.15	< .600	< 1.500	.062	E .128	E .067
VIL-3	11/14/2000	< .120	.152	< .600	< 1.500	.113	< .500	< .080
VIL-3	12/12/2000	< .120	.314	E .546	< 1.500	.106	E .309	.089
VIL-3	1/23/2001	< 5.000	E .270	E 1.000	E 1.800	E .092	< 5.000	< 1.000
VIL-3	2/14/2001	< 5.000	E .240	E .480	E .790	< 1.000	< 5.000	< 1.000
VIL-4	3/2/2000	< .120	1.5	E 1.170	E 1.410	.252	< .500	.133
VIL-4	4/2/2000	< .120	.466	E 3.100	E 3.870	.338	< .500	.076
VIL-4	7/1/2000	< .120	*	< .600	< 1.500	.161	< .500	.053
VAL-1	3/1/2000	< .120	2.47	E 3.100	E 4.290	.434	< .500	.161
VAL-1	3/31/2000	E .056	5.69	E 5.930	E 7.960	.689	< .500	.23
VAL-1	6/29/2000	< .120	1.01	E 1.030	E .981	.071	< .500	< .040
VAL-1	8/2/2000	< .120	.474	< .600	< 1.500	.126	< .500	.119
VAL-1	8/31/2000	< .120	.442	< .600	E 2.180	—	< .500	.115
VAL-1	10/3/2000	< .120	.971	E 1.670	E 2.290	.328	< .500	.092
VAL-1	11/9/2000	< .120	.469	E 2.230	E 2.730	.192	< .500	< .080
VAL-1	12/12/2000	< .120	2.97	E 2.050	E 2.520	.845	E .188	.222
VAL-1	1/23/2001	< 5.000	4	E 4.500	E 6.500	E .330	< 5.000	< 1.000
VAL-1	2/12/2001	< 5.000	2.6	E 7.600	E 10.000	E .210	< 5.000	< 1.000
VAL-2	2/29/2000	< .120	.502	E 1.030	E 2.220	.11	< .500	.067
VAL-2	3/31/2000	< .120	.772	E .849	E 1.460	.188	< .500	.099
VAL-2	6/29/2000	< .120	.542	< .600	< 1.500	.492	< .500	.086
VAL-2	8/3/2000	< .120	.109	< .600	< 1.500	.062	< .500	.045
VAL-2	8/29/2000	< .120	< .080	< .600	< 1.500	E .041	< .500	< .080
VAL-2	10/5/2000	< .120	< .080	< .600	< 1.500	.065	< .500	< .080
VAL-2	11/15/2000	< .120	.361	E .772	E 1.340	.234	< .500	< .080
VAL-2	12/13/2000	< .120	.705	< .600	< 1.500	.228	< .500	.097
VAL-2	1/25/2001	< 5.000	.68	E .880	E 1.800	< 1.000	< 5.000	E .240
VAL-2	2/9/2001	< 5.000	.82	E 2.700	E 4.100	< 1.000	< 5.000	< 1.000
VAL-3	2/29/2000	< .120	.106	E .415	E 1.100	.128	< .500	.066
VAL-3	3/29/2000	E .127	E .076	< .600	E .761	.096	< .500	< .040
VAL-3	6/28/2000	< .120	E .043	< .600	< 1.500	.05	< .500	< .040
VAL-3	8/3/2000	< .120	.208	E .313	< 1.500	.088	E .357	.058
VAL-3	8/31/2000	< .120	< .080	< .600	< 1.500	—	< .500	E .028
VAL-3	10/2/2000	< .120	< .080	< .600	< 1.500	E .046	E .109	< .080

Appendix table 2-3. Wastewater indicators detected in water samples from streams in the Birmingham area, Alabama, 2000–01—Continued

[Shaded samples were collected during high flow; BHA, 3-*tert*-butyl-4-hydroxyanisole; µg/L, micrograms per liter; <, not detected; E, estimated; —, no data; *, censored; OPEO1, monoethoxyoctylphenol; OPEO2, diethoxyoctylphenol; NPEO2, diethoxynonylphenol]

Site label (fig. 1)	Date	Food by-products				Pharmaceutical by-products		
		BHA (µg/L)	Caffeine (µg/L)	3B-Coprostanol (µg/L)	Cholesterol (µg/L)	Triclosan (µg/L)	17B-estradiol (µg/L)	Cotinine (µg/L)
VAL-3	11/9/2000	< .120	.205	E .541	< 1.500	.074	< .500	< .080
VAL-3	12/13/2000	< .120	.109	< .600	< 1.500	E .033	< .500	< .080
VAL-3	1/25/2001	< 5.000	E .110	< 2.000	< 2.000	< 1.000	< 5.000	< 1.000
VAL-3	2/13/2001	< 5.000	E .160	E 1.400	E 2.300	< 1.000	< 5.000	< 1.000
LCR	2/28/2000	< .120	.188	< .600	< 1.500	.078	< .500	.04
LCR	3/28/2000	< .120	E .044	< .600	< 1.500	< .040	< .500	< .040
LCR	6/27/2000	< .120	E .032	< .600	< 1.500	E .022	< .500	< .040
FMC	7/31/2000	< .120	E .065	< .600	< 1.500	.116	E .339	< .040
FMC	8/28/2000	< .120	< .080	< .600	< 1.500	< .050	< .500	< .080
FMC	11/13/2000	< .120	E .065	< .600	< 1.500	*	< .500	< .080
FMC	12/11/2000	< .120	< .080	< .600	< 1.500	< .050	< .500	< .080
FMC	1/22/2001	< 5.000	E .082	< 2.000	< 2.000	< 1.000	< 5.000	< 1.000
FMC	2/13/2001	< 5.000	E .150	< 2.000	< 2.000	< 1.000	< 5.000	< 1.000

Site label (fig. 1)	Date	Phosphate-based chemical surfactants and additives				Detergent agents				Fragrances
		Tri (2-chloro-ethyl) phos-phate (µg/L)	Tri (dichloro-isopropyl) phosphate (µg/L)	Ethanol, 2-butoxy phosphate (µg/L)	Triphenyl phosphate (µg/L)	OPEO1 (µg/L)	OPEO2 (µg/L)	NPEO2-total (µg/L)	Para-nonylphe-nol-total (µg/L)	Acetephe-none (µg/L)
VIL-1	3/1/2000	< 0.040	< 0.100	< 0.070	< 0.100	E 0.092	< 0.200	< 1.100	< 0.500	< 1.0
VIL-1	4/1/2000	< .040	< .100	< .070	E .021	< .100	< .200	< 1.100	E .750	< 1.0
VIL-1	6/30/2000	< .040	< .100	< .070	< .100	< .100	< .200	< 1.100	< .500	< 1.0
VIL-1	8/1/2000	< .040	< .100	< .200	< .100	E .068	< .200	< 1.100	< .500	< .220
VIL-1	8/30/2000	.103	< .100	.249	< .100	*	< .200	< 1.100	E 1.360	< .150
VIL-1	10/4/2000	< .040	< .100	< .200	< .100	< .120	< .200	< 1.100	< .700	< .220
VIL-1	11/8/2000	.05	< .100	.657	E .069	E .234	< .200	E 2.100	E .645	< .220
VIL-1	12/14/2000	< .040	< .100	< .200	< .100	E .090	< .200	< 1.100	E .459	< .220
VIL-1	1/24/2001	< .500	< .500	< .500	E .074	< 1.000	< 1.000	< 5.000	< 5.000	< .500
VIL-1	1/29/2001	E .100	E .099	.75	E .130	< 1.000	< 1.000	E 2.700	< 5.000	< .500
VIL-2	8/1/2000	.38	< .100	.804	1.93	E .348	< .200	E 1.390	< .500	<1.0
VIL-2	8/30/2000	.327	.149	.716	< .100	E .260	< .200	< 1.100	E 1.730	< .150
VIL-2	10/4/2000	.564	< .100	< .200	< .100	E .090	< .200	< 1.100	E .438	< .220
VIL-2	11/14/2000	.128	< .100	< .200	< .100	E .693	< .200	< 1.100	E .794	.23
VIL-2	12/14/2000	.316	< .100	1.44	.136	E .434	E .104	E 3.000	E 2.540	.348
VIL-2	1/24/2001	E .340	E .068	E .380	E .091	< 1.000	< 1.000	E 1.800	< 5.000	< .500
VIL-2	1/29/2001	E .250	E .150	.6	E .180	< 1.000	< 1.000	E 2.000	< 5.000	E .28
VIL-3	3/2/2000	.302	< .100	2.13	< .100	E .712	E .159	E 4.640	E 1.720	1.14
VIL-3	3/30/2000	.3	< .100	1.32	E .052	< .100	< .200	E .584	E 1.770	1.51
VIL-3	6/30/2000	.263	< .100	.612	< .100	E .235	E .132	E 2.850	E .666	< .220
VIL-3	8/2/2000	.085	< .100	E 34.200	E .082	E .183	< .200	E 11.400	E 1.590	< .220
VIL-3	8/29/2000	.045	< .100	.301	< .100	E .189	< .200	< 1.100	E .542	< .220
VIL-3	10/3/2000	.086	< .100	E .159	< .100	E .247	< .200	E 1.430	E .560	< .220
VIL-3	11/14/2000	E .031	< .100	1.75	< .100	E .132	< .200	< 1.100	E .375	< .220
VIL-3	12/12/2000	.072	< .100	.907	< .100	E .347	< .200	< 1.100	E 1.040	.856
VIL-3	1/23/2001	E .230	E .160	E .320	E .093	< 1.000	< 1.000	< 5.000	< 5.000	2.8
VIL-3	2/14/2001	E .270	E .180	E .220	E .083	< 1.000	< 1.000	< 5.000	< 5.000	5.6
VIL-4	3/2/2000	.473	< .100	1.14	E .054	E .362	< .200	< 1.100	E 1.080	.43
VIL-4	4/2/2000	.217	< .100	1.45	E .066	< .100	E .039	E 1.900	E 1.610	.528
VIL-4	7/1/2000	.13	< .100	.223	< .100	E .089	< .200	< 1.100	< .500	< .220
VAL-1	3/1/2000	.119	< .100	2.74	E .066	E .159	< .200	E 6.990	E 1.936	.32
VAL-1	3/31/2000	.087	< .100	3.3	E .087	< .100	E .247	E 7.660	E 2.470	.475
VAL-1	6/29/2000	.056	< .100	.59	E .057	E .092	E .016	E .864	E .638	.202
VAL-1	8/2/2000	.139	< .100	.454	.138	E .324	< .200	E 2.520	E .538	.242
VAL-1	8/31/2000	.141	.356	13.9	E .052	E .177	< .200	E 9.360	E 2.950	< .150
VAL-1	10/3/2000	.056	< .100	17.6	< .100	E .185	< .200	E 9.050	E 1.750	< .220
VAL-1	11/9/2000	.068	< .100	.537	E .084	E .176	< .200	E 2.070	E .633	< .220

Appendix table 2-3. Wastewater indicators detected in water samples from streams in the Birmingham area, Alabama, 2000–01—Continued

[Shaded samples were collected during high flow; BHA, 3-*tert*-butyl-4-hydroxyanisole; µg/L, micrograms per liter; <, not detected; E, estimated; —, no data; *, censored; OPEO1, monoethoxyoctylphenol; OPEO2, diethoxyoctylphenol; NPEO2, diethoxynonylphenol]

Site label (fig. 1)	Date	Phosphate-based chemical surfactants and additives				Detergent agents				Fragrances
		Tri (2-chloro-ethyl) phos-phate (µg/L)	Tri (dichloro-isopropyl) phosphate (µg/L)	Ethanol, 2-butoxy phosphate (µg/L)	Triphenyl phosphate (µg/L)	OPEO1 (µg/L)	OPEO2 (µg/L)	NPEO2-total (µg/L)	Para-nonylphe-nol-total (µg/L)	Acetephe-none (µg/L)
VAL-1	12/12/2000	.086	< .100	15.1	E .062	E .542	E .615	E 7.300	E 2.620	< .220
VAL-1	1/23/2001	E .065	< .500	E .440	E .076	< 1.000	< 1.000	E 2.800	E .550	< .500
VAL-1	2/12/2001	E .100	E .110	3.7	E .140	< 1.000	< 1.000	E 3.200	E 1.700	E .35
VAL-2	2/29/2000	.118	< .100	1.72	E .083	E .205	E .083	E 2.270	E .617	< 1.0
VAL-2	3/31/2000	.075	< .100	.998	E .069	E .117	E .150	E 3.040	E 1.020	.13
VAL-2	6/29/2000	.138	< .100	2.83	< .100	E .344	E .135	E 2.540	E .423	< .220
VAL-2	8/3/2000	.061	< .100	1.91	E .056	E .150	< .200	< 1.100	E .490	< .220
VAL-2	8/29/2000	< .040	< .100	E .167	< .100	< .120	< .200	< 1.100	E .206	< .220
VAL-2	10/5/2000	.079	< .100	E .163	< .100	< .120	< .200	< 1.100	E .312	< .220
VAL-2	11/15/2000	< .040	< .100	1.87	< .100	< .120	< .200	E 1.490	E .246	< .220
VAL-2	12/13/2000	.067	< .100	2.56	< .100	E .410	E .208	E 1.580	E .654	< .220
VAL-2	1/25/2001	E .069	< .500	1.5	E .077	< 1.000	< 1.000	E 2.000	< 5.000	< .500
VAL-2	2/9/2001	E .130	E .120	.76	E .200	< 1.000	< 1.000	E 2.500	E .880	E .3
VAL-3	2/29/2000	.222	< .100	.48	E .062	E .233	< .200	< 1.100	E .777	< 1.0
VAL-3	3/29/2000	.12	< .100	.62	E .049	< .100	< .200	< 1.100	E .598	< 1.0
VAL-3	6/28/2000	E .021	< .100	.122	E .009	< .100	< .200	E .145	< .500	< 1.0
VAL-3	8/3/2000	.11	< .100	.77	E .066	E .192	< .200	< 1.100	E .582	< .220
VAL-3	8/31/2000	.124	.149	.234	< .100	E .082	< .200	< 1.100	< .500	< .150
VAL-3	10/2/2000	< .040	< .100	< .200	< .100	E .114	< .200	E .557	E .266	< .220
VAL-3	11/9/2000	.065	< .100	.444	E .062	E .167	< .200	< 1.100	E .406	< .220
VAL-3	12/13/2000	< .040	< .100	.493	< .100	E .086	< .200	< 1.100	E .248	< .220
VAL-3	1/25/2001	E .084	< .500	.53	< .500	< 1.000	< 1.000	< 5.000	< 5.000	< .500
VAL-3	2/13/2001	E .082	E .081	E .440	E .110	< 1.000	< 1.000	< 5.000	< 5.000	< .500
LCR	2/28/2000	.146	< .100	.425	E .054	< .100	< .200	< 1.100	< .500	< 1.0
LCR	3/28/2000	< .040	< .100	< .070	< .100	< .100	< .200	< 1.100	< .500	< 1.0
LCR	6/27/2000	< .040	< .100	< .070	< .100	< .100	< .200	< 1.100	< .500	< 1.0
FMC	7/31/2000	< .040	< .100	E .147	< .100	E .191	< .200	E 1.000	< .500	< .220
FMC	8/28/2000	< .040	< .100	< .200	< .100	< 0.120	< 0.200	< 1.100	< 0.700	< 0.220
FMC	11/13/2000	< .040	< .100	< .200	< .100	< .120	< .200	< 1.100	< .700	< .220
FMC	12/11/2000	< .040	< .100	< .200	< .100	< .120	< .200	< 1.100	< .700	< .220
FMC	1/22/2001	< .500	< .500	< .500	< .500	< 1.000	< 1.000	< 5.000	< 5.000	< .500
FMC	2/13/2001	E .067	E .098	E .290	E .074	< 1.000	< 1.000	< 5.000	< 5.000	< .500

Appendix table 2-4. Pesticides detected in water samples from streams in the Birmingham area, Alabama, 2000–01

[Shaded samples were collected during high flow; µg/L, micrograms per liter; —, no data; <, less than; E, estimated; DNOC, 4,6-dinitro-2-methylphenol]

Site label (fig. 1)	Date	Aldicarb (µg/L)	Aldicarb sulfone (µg/L)	Atrazine (µg/L)	Benfluralin (µg/L)	Bentazon (µg/L)	Bromacil (µg/L)	Bromoxy-nil (µg/L)	Carbaryl (µg/L)	Chlorpyri-fos (µg/L)	Deethyl atrazine (µg/L)	Diazinon (µg/L)	Dieldrin (µg/L)	Diuron (µg/L)
VIL-1	5/17/2000	—	—	0.0189	< 0.002	—	—	—	< 0.003	< 0.004	E 0.0146	E 0.00133	< 0.001	—
VIL-1	8/1/2000	< 0.54	< 0.1	.0188	< .002	< 0.035	< 0.12	< 0.04	< .003	E.00399	E .0128	E .00366	.00469	< 0.06
VIL-1	8/30/2000	< .57	< .1	.012	< .002	< .035	< .06	< .04	< .003	< .004	E .0109	< .002	< .001	< .06
VIL-1	11/8/2000	< 1.48	< .26	.0127	< .01	< .035	< 3.45	< .07	< .041	.00568	< .006	.0884	< .0048	< .056
VIL-1	1/29/2001	< .76	< .2	1.580	E.00619	< .035	< .23	< .07	E.00375	.0127	E .0123	.0264	< .0048	< .21
VIL-1	3/19/2001	—	—	.011	< .01	—	—	—	< .041	< .005	E .00837	< .005	.00498	—
VIL-2	8/1/2000	< .21	< .15	.0255	< .002	< .035	.57	< .04	E .419	< .004	< .01	.0298	< .001	.3075
VIL-2	8/30/2000	< 1.5	< .1	< .01	< .002	< .035	< .62	.07	< .003	< .004	< .002	< .002	< .001	< .06
VIL-2	1/29/2001	< .76	< .2	.135	< .01	< .035	< .29	< .07	E .0131	E.00463	< .006	.0205	< .0048	< .049
VIL-3	3/30/2000	< 8.1	< .1	.202	< .002	< .035	.99	< .04	E .426	E .0121	< .02	.081	< .001	2.264
VIL-3	8/2/2000	< 10.8	< .1	.0237	< .002	< .035	< .32	< .04	E .0371	E .0195	< .01	.0151	< .001	E .291
VIL-3	8/29/2000	< 10.9	< 1.47	< .04	< .002	< .035	< .22	< .04	< .3	< .04	< .2	< .002	< .001	< .12
VIL-3	2/14/2001	< 2.9	< .2	—	—	< .035	—	< .07	—	—	—	—	—	< .056
VIL-4	4/2/2000	< 3.49	< .1	.156	< .002	< .035	1.03	< .04	E .0893	E.00714	< .0125	.154	< .005	1.8052
VAL-1	6/29/2000	< 3	< .47	.013	< .002	< .035	< 3.1	< .04	< .003	.0105	< .007	.0516	< .001	< .27
VAL-1	8/2/2000	< 3.9	< 1.3	.00918	< .002	.196	< .47	< .04	< .003	.00592	E .00436	.00865	< .001	< .06
VAL-1	8/31/2000	< .21	< .1	.0129	< .002	< .16	< .48	< .04	< .003	.0208	E .00603	.00671	< .001	< .06
VAL-1	11/9/2000	< .49	< .2	.0209	< .01	< .035	< .27	< .07	E .0152	< .005	< .006	.0122	< .0048	< .056
VAL-1	2/12/2001	< .21	< .2	.0321	< .01	< .035	< .5	< .07	< .041	< .005	< .006	.0596	< .0048	< .27
VAL-2	5/16/2000	—	—	.0108	< .002	—	—	—	< .003	< .004	E .00668	.0139	< .001	—
VAL-2	6/29/2000	< .21	< .64	.0216	< .002	< .035	< .53	< .04	< .003	.0117	E .00776	.0397	< .001	< .06
VAL-2	8/29/2000	< 2.1	< .1	.0171	< .002	< .035	< .23	< .04	< .003	.00756	E .00836	.0202	< .001	< .06
VAL-2	2/9/2001	< 6.87	< 3.75	2.58	< .01	< .035	< 1.09	< .07	< .041	< .005	E .0357	.0832	< .0048	< .3
VAL-3	2/29/2000	< .53	< .12	8.88	< .002	< .035	< 1.85	< .04	E.00588	E .0033	E .522	.00878	< .001	< .06
VAL-3	8/31/2000	< .21	< .1	.0238	< .002	< .035	.12	< .04	< .003	E .0026	E .0123	.00662	< .001	< .06
VAL-3	11/9/2000	< .25	< .2	.0107	< .01	< .035	< 3	< .07	E .031	.00678	E .0053	.0489	< .0048	< .1
VAL-3	2/13/2001	< .3	< .2	1.94	< .01	< .035	< .09	< .07	< .041	.0073	E .0497	.0214	< .0048	< .11
LCR	2/28/2000	< .25	< 1.81	.132	< .002	< .035	< 5.35	< .04	E.00455	.00499	E .0126	.035	< .001	< 1.74
LCR	6/27/2000	E .064	E .083	.0145	< .002	< .035	< 3.48	< .04	E .0756	< .004	E .00672	.0132	< .001	< .06
FMC	5/15/2000	—	—	.0109	< .002	—	—	—	< .003	< .004	E .00388	< .002	.00403	—
FMC	7/31/2000	< .77	< .58	.0323	< .002	< .035	< .06	< .04	< .01	< .01	E .0106	.0773	< .001	< .06
FMC	8/28/2000	< .42	< .1	.00538	< .002	< .035	< .06	< .04	< .003	< .004	E .00423	< .002	< .001	< .06
FMC	2/13/2001	< .21	< .2	.0348	< .01	< .035	< 19.15	< .07	< .041	< .005	E .00619	< .005	< .0048	< .056
FMC	3/20/2001	—	—	.6	< .01	—	—	—	< .041	< .005	E .0242	.00868	< .0048	—

Appendix table 2-4. Pesticides detected in water samples from streams in the Birmingham area, Alabama, 2000–01—Continued

[Shaded samples were collected during high flow; µg/L, micrograms per liter; —, no data; <, less than; E, estimated; DNOC, 4,6-dinitro-2-methylphenol]

Site label (fig. 1)	Date	DNOC (µg/L)	Malathion (µg/L)	Metolachlor (µg/L)	Pendimethalin (µg/L)	Prometon (µg/L)	Pronamide (µg/L)	Simazine (µg/L)	Tebuthiuron (µg/L)	Terbuthylazine (µg/L)	Triclopyr (µg/L)	Trifluralin (µg/L)
VIL-1	5/17/2000	—	< 0.005	< 0.002	< 0.004	E 0.0102	< 0.003	0.0208	0.0102	—	—	< 0.002
VIL-1	8/1/2000	< 0.42	< .005	< 0.002	< .004	E .00897	< .003	.016	E .00922	—	< 0.25	< .002
VIL-1	8/30/2000	< .42	< .005	< 0.002	< .004	E .00523	< .003	.0135	< .01	—	< .25	< .002
VIL-1	11/8/2000	< .25	< .027	< 0.013	< .01	< .015	< .0041	.684	< .016	—	< .24	< .009
VIL-1	1/29/2001	< .25	< .027	< 0.013	< .02	< .015	< .0041	.526	< .016	—	< .07	E .0065
VIL-1	3/19/2001	—	< .027	< 0.013	< .01	E .00858	< .0041	.0229	E .00638	—	—	< .009
VIL-2	8/1/2000	< .57	< .005	< 0.002	< .004	< .018	< .003	< .005	.136	E 0.0197	E .099	< .002
VIL-2	8/30/2000	< .42	< .005	< 0.002	< .004	< .018	< .003	< .02	< .03	—	< .25	< .002
VIL-2	1/29/2001	< .25	< .027	< 0.013	< .01	< .015	< .0041	.532	< .08	—	< .07	< .009
VIL-3	3/30/2000	< .42	< .025	< 0.002	< .04	.146	< .003	.0561	< .075	—	< .25	E .00113
VIL-3	8/2/2000	< .42	—	< 0.002	.0265	E .0169	< .003	.00779	E .07	E .0382	< .25	E .00197
VIL-3	8/29/2000	< .42	< .005	< 0.002	< .004	< .04	< .003	< .03	< .01	E .0292	< .25	< .002
VIL-3	2/14/2001	< .25	—	—	—	—	—	—	—	—	< .355	—
VIL-4	4/2/2000	< .42	< .015	.00414	.0389	.0583	< .003	.0438	E .0649	—	< .25	< .002
VAL-1	6/29/2000	< .42	.156	< .002	.0193	< .018	< .003	.248	< .01	E .243	< .25	< .002
VAL-1	8/2/2000	< .42	< .005	< .002	< .004	E .0296	< .003	.0187	E .0464	E .145	< .25	< .002
VAL-1	8/31/2000	< .42	< .005	< .002	< .004	.0223	< .003	.0172	< .02	E .00585	< .25	< .002
VAL-1	11/9/2000	< .25	< .027	< .013	< .01	E .00819	< .0041	.415	.0514	—	< .27	< .009
VAL-1	2/12/2001	< .25	< .027	< .013	< .01	.151	< .0041	.0261	< .016	—	< .71	< .009
VAL-2	5/16/2000	—	< .005	< .002	< .004	.021	< .003	.018	< .02	.116	—	< .002
VAL-2	6/29/2000	< .42	.0496	.00543	.0133	.0317	< .003	.0533	< .01	E .401	< .34	< .002
VAL-2	8/29/2000	< .42	< .005	< .005	< .004	.0263	< .003	.0158	.0188	—	< .25	< .002
VAL-2	2/9/2001	< .29	< .027	< .013	.0654	.926	< .0041	.184	< .016	—	< .68	E.00635
VAL-3	2/29/2000	< .42	< .005	< .002	< .004	.0199	< .003	.428	E .0257	—	E .201	< .002
VAL-3	8/31/2000	< .42	< .005	< .002	< .004	.0212	< .003	.0119	.0171	—	< .25	< .002
VAL-3	11/9/2000	< .25	E .00473	< .013	< .01	E .0134	< .0041	.481	E .0136	—	.300	< .009
VAL-3	2/13/2001	E .30	< .027	< .013	.0447	.0187	< .0041	.215	< .016	—	.384	< .009
LCR	2/28/2000	< .42	.0079	.00432	< .004	E .00754	< .003	.161	E .0108	—	< .25	< .002
LCR	6/27/2000	< .42	< .005	< .002	< .004	E .00962	< .003	.00537	E .00762	—	< .25	< .002
FMC	5/15/2000	—	< .005	< .002	< .004	E .00216	< .003	.0104	E .00648	—	—	< .002
FMC	7/31/2000	< .42	< .005	< .002	< .004	.0207	< .003	.00907	< .01	—	< .25	< .002
FMC	8/28/2000	< .42	< .005	< .002	< .004	< .018	< .003	.00833	< .01	—	< .25	< .002
FMC	2/13/2001	< .25	< .027	< .013	< .01	E .00855	< .0041	8.6	< .016	—	< .07	< .009
FMC	3/20/2001	—	< .027	< .013	< .01	E .00425	.0127	.428	< .016	—	—	< .009

Appendix table 2-5. Polycyclic aromatic hydrocarbons detected in water samples from streams in the Birmingham area, Alabama, 2000–01

[Shaded samples were collected during high flow; µg/L, micrograms per liter; E, estimated; <, less than]

Site label (fig. 1)	Date	Acenaph-thene (µg/L)	Acenaph-thylene (µg/L)	Anthracene (µg/L)	Benz[a]-anthracene (µg/L)	Benzo[a]-pyrene (µg/L)	Benzo[b]-fluoran-thene (µg/L)	Benzo[ghi]-perylene (µg/L)	Benzo[k]-fluoran-thene (µg/L)
VIL-1	3/1/2000	E 0.014	< 1.93	E 0.052	E 0.528	E 0.813	E 0.903	E 0.796	E 0.679
VIL-1	10/4/2000	E.00946	E .011	< 1.9	< 1.6	< 2.8	< 2.6	< 2.5	< 2.8
VIL-1	11/8/2000	E .0297	< 1.1	E .102	E .408	E .528	E .959	E .552	E .322
VIL-1	1/29/2001	E .0316	E .0197	E .072	E .491	E .792	E 1.44	E .717	E .475
VIL-2	10/4/2000	< 1.1	E .0125	< 1.9	< 1.6	< 2.8	< 2.6	< 2.5	< 2.8
VIL-2	11/14/2000	E .14	E .112	< 1.9	< 1.6	< 2.8	< 2.6	< 2.5	< 2.8
VIL-2	1/29/2001	E .0543	E .0318	E .0818	E .297	E .421	E .73	E .315	E .234
VIL-3	3/2/2000	< 1.85	< 1.93	< 1.97	< 2.4	< 2.8	< 3.02	< 3.08	< 3.24
VIL-3	10/3/2000	< 1.1	< 1.1	< 1.9	< 1.6	< 2.8	< 2.6	< 2.5	< 2.8
VIL-3	2/14/2001	E .0567	E .0774	E .0261	< 1.6	< 2.8	< 2.6	< 2.5	< 2.8
VIL-4	3/2/2000	E .0461	< 1.93	< 1.97	< 2.4	< 2.8	E .0404	< 3.08	< 3.24
VAL-1	3/1/2000	< 1.85	< 1.93	< 1.97	< 2.4	< 2.8	< 3.02	< 3.08	< 3.24
VAL-1	6/29/2000	< 1.85	E .0414	E .0878	E .189	E .215	E .502	E .279	E .385
VAL-1	8/31/2000	< 1.85	< 1.93	< 1.97	< 2.4	< 2.8	< 3.02	< 3.08	< 3.24
VAL-1	10/3/2000	< 1.1	< 1.1	E .0127	< 1.6	< 2.8	< 2.6	< 2.5	< 2.8
VAL-1	11/9/2000	E .0218	< 1.1	E .0376	< 1.6	E .032	E .0643	E .0452	E .0329
VAL-1	2/12/2001	E .0821	E .0528	E .192	E .714	E .885	E 1.56	E 1.11	E .505
VAL-2	2/29/2000	E .0226	< 1.93	< 1.97	< 2.4	< 2.8	< 3.02	< 3.08	< 3.24
VAL-2	6/29/2000	< 1.85	E .00856	E .0325	< 2.4	< 2.8	< 3.02	< 3.08	< 3.24
VAL-2	8/3/2000	E .0237	< 1.93	E .0217	< 2.4	< 2.8	< 3.02	< 3.08	< 3.24
VAL-2	10/5/2000	E .0142	< 1.1	< 1.9	< 1.6	< 2.8	< 2.6	< 2.5	< 2.8
VAL-2	2/9/2001	E .0722	E .0531	E .168	E .855	E 1.2	E 2.3	E 1.53	E .744
VAL-3	2/29/2000	< 1.85	< 1.93	< 1.97	< 2.4	< 2.8	< 3.02	< 3.08	< 3.24
VAL-3	10/2/2000	< 1.1	< 1.1	< 1.9	< 1.6	< 2.8	< 2.6	< 2.5	< 2.8
VAL-3	11/9/2000	E .026	< 1.1	E .0498	E .0662	E .06	E .105	E .0637	E .0444
VAL-3	2/13/2001	E .0405	E .0272	E .0919	E .417	E .55	E 1.04	E .738	E .355
LCR	2/28/2000	< 1.85	< 1.93	< 1.97	< 2.4	< 2.8	< 3.02	< 3.08	< 3.24
LCR	6/27/2000	< 1.85	< 1.93	< 1.97	< 2.4	< 2.8	< 3.02	< 3.08	< 3.24
FMC	12/11/2000	< 1.1	< 1.1	< 1.9	< 1.6	< 2.8	< 2.6	< 2.5	< 2.8
FMC	2/13/2001	E .00845	E .00522	E .0106	E .0441	E .013	E .0449	< 2.5	E .0161

Appendix table 2-5. Polycyclic aromatic hydrocarbons detected in water samples from streams in the Birmingham area, Alabama, 2000–01—Continued

[Shaded samples were collected during high flow; µg/L, micrograms per liter; E, estimated; <, less than]

Site label (fig. 1)	Date	Chrysene (µg/L)	Dibenz[a,h]-anthracene (µg/L)	Fluoranthene (µg/L)	Fluorene (µg/L)	Indeno[1,2,3-cd] pyrene (µg/L)	Naphthalene (µg/L)	Phenanthrene (µg/L)	Pyrene (µg/L)
VIL-1	3/1/2000	E 0.827	E 0.329	E 1.17	E 0.0269	E 1.42	< 2.07	E 0.319	E 0.911
VIL-1	10/4/2000	< 1.9	< 2.7	E .0105	E .0182	< 1.9	E .0971	< 1.5	E .0224
VIL-1	11/8/2000	E .765	E .172	E 1.51	E .0621	E .514	E .0502	E .673	E 1.04
VIL-1	1/29/2001	E 1.16	E .186	E 2.04	E .0529	E .879	E .262	E 0.894	E 1.47
VIL-2	10/4/2000	< 1.9	< 2.7	E .211	< 1.2	E .0355	E .102	< 1.5	E .163
VIL-2	11/14/2000	< 1.9	< 2.7	E .0783	E .131	< 1.9	E .241	E 0.164	E .176
VIL-2	1/29/2001	E .454	E .123	E .904	E .0853	E .416	E .232	E 0.45	E .698
VIL-3	3/2/2000	< 2.65	< 3.35	E .0537	E .0373	E .103	< 2.07	< 2.05	E .0446
VIL-3	10/3/2000	< 1.9	< 2.7	< 1.5	< 1.2	< 1.9	E .034	< 1.5	< 1.5
VIL-3	2/14/2001	< 1.9	< 2.7	E .0385	E .0957	< 1.9	E .358	E 0.0556	E .0377
VIL-4	3/2/2000	E .0284	< 3.35	E .0731	E .0262	< 3	< 2.07	< 2.05	E .0442
VAL-1	3/1/2000	< 2.65	< 3.35	< 2.33	< 2.04	< 3	< 2.07	< 2.05	< 2.23
VAL-1	6/29/2000	E .416	< 3.35	E .525	E .0578	E .246	< 2.07	E .187	E .456
VAL-1	8/31/2000	E .0285	< 3.35	E .0427	< 2.04	< 3	< 2.07	< 2.05	E .0548
VAL-1	10/3/2000	< 1.9	< 2.7	E .245	< 1.2	< 1.9	E .0289	E .156	E .186
VAL-1	11/9/2000	E .051	< 2.7	E .121	E .03	E .0315	E .0761	E .0973	E .0913
VAL-1	2/12/2001	E 1.2	E .417	E 2.1	E .134	E 1.18	E .222	E 1.35	E 1.64
VAL-2	2/29/2000	E .0265	< 3.35	E .049	< 2.04	< 3	< 2.07	< 2.05	E .0364
VAL-2	6/29/2000	< 2.65	< 3.35	E .0456	E .0306	< 3	< 2.07	E .0243	E .0531
VAL-2	8/3/2000	< 2.65	< 3.35	E .0485	E .0126	< 3	E .0662	E .0285	E .0502
VAL-2	10/5/2000	< 1.9	< 2.7	E .0161	E .0102	< 1.9	E .0315	< 1.5	E .016
VAL-2	2/9/2001	E 1.66	E .616	2.82	E .1	E 1.6	E .185	E 1.25	E 2.17
VAL-3	2/29/2000	E .0146	< 3.35	E .0379	< 2.04	< 3	< 2.07	< 2.05	E .0291
VAL-3	10/2/2000	< 1.9	< 2.7	< 1.5	< 1.2	< 1.9	< 1	2.27	< 1.5
VAL-3	11/9/2000	E .072	< 2.7	E .145	E .0224	E .0512	E .0423	E .097	E .123
VAL-3	2/13/2001	E .714	E .255	E 1.16	E .0542	E .806	E .0878	E .492	E .917
LCR	2/28/2000	< 2.65	< 3.35	< 2.33	< 2.04	< 3	< 2.07	< 2.05	< 2.23
LCR	6/27/2000	< 2.65	< 3.35	< 2.33	< 2.04	< 3	< 2.07	< 2.05	< 2.23
FMC	12/11/2000	< 1.9	< 2.7	E .0117	< 1.2	< 1.9	< 1	< 1.5	E .0106
FMC	2/13/2001	E .0327	< 2.7	E .0926	< 1.2	< 1.9	< 1	E .0293	E .07

Appendix table 3-1. Trace and major elements detected in bed-sediment samples from streams in the Birmingham area, Alabama, 2000

[LRL, laboratory reporting level; µg/g, micrograms per gram; <, less than]

Analyte (unit)	VIL-1	VIL-2	VIL-3	VAL-1	VAL-2	FMC	LRL
Aluminum (percent)	6.1	4.3	4.9	4.9	2.5	3.7	0.005
Antimony (µg/g)	1.3	5.1	3.8	6.5	1.4	.5	.1
Arsenic (µg/g)	22	20	21	21	14	11	.01
Barium (µg/g)	260	350	300	470	230	200	1
Beryllium (µg/g)	3.1	1.8	2.3	2.2	2	1.2	1
Bismuth (µg/g)	< 1	2	< 1	1.5	< 1	< 1	10
Cadmium (µg/g)	.6	19	10	3.6	.82	< .1	.1
Calcium (percent)	1.3	3.7	4.2	5	5.3	.3	.005
Carbon, inorganic (µg/g)	.41	1.3	1.6	1.74	1.6	.01	.01
Carbon, organic (µg/g)	2.7	5.35	3.63	6.08	4.05	1.7	.01
Carbon, total (µg/g)	3.1	6.7	5.3	7.82	5.7	1.7	.01
Cerium (µg/g)	110	86	84	91	58	85	4
Chromium (µg/g)	83	170	110	180	88	47	1
Cobalt (µg/g)	19	14	14	14	8.2	8	1
Copper (µg/g)	45	210	120	320	54	16	1
Europium (µg/g)	2	< 1	< 1	1.1	< 1	1	2
Gallium (µg/g)	15	11	13	12	5.9	9	4
Gold (µg/g)	< 1	< 1	< 1	< 1	< 1	< 1	8
Holmium (µg/g)	1.4	< 1	< 1	< 1	< 1	< 1	4
Iron (percent)	4.5	4.5	4	4.8	3.1	2.1	.005
Lanthanum (µg/g)	48	37	38	39	25	37	2
Lead (µg/g)	130	430	240	800	160	23	4
Lithium (µg/g)	44	35	37	37	23	31	2
Magnesium (percent)	.7	1.2	1.3	1.7	1.3	.28	.005
Manganese (µg/g)	1,300	1,300	1,200	1,300	840	430	4
Mercury (µg/g)	.27	.45	.23	1.6	.19	< .02	.02
Molybdenum (µg/g)	1.4	7.1	4.6	6.9	2	.7	2
Neodymium (µg/g)	44	31	31	32	22	29	4
Nickel (µg/g)	38	57	41	47	21	18	2
Niobium (µg/g)	19	17	17	17	6.3	19	4
Phosphorus (percent)	.085	.12	.092	.15	.088	.036	.005
Potassium (percent)	1.2	.66	.92	.92	.44	.58	.05
Scandium (µg/g)	12	9	10	9.9	6.1	7	2
Selenium (µg/g)	.8	1.9	1.2	1.5	.7	.51	.1
Silver (µg/g)	.2	4	1.4	20	.9	.44	.1
Sodium (percent)	.055	.06	.058	.075	.078	.062	.005
Strontium (µg/g)	44	80	74	100	94	30	2
Sulfur (percent)	.08	.28	.24	.51	.16	.05	.06
Tantalum (µg/g)	1	1	1	1.6	< 1	1	40
Thallium (µg/g)	< 1	< 1	< 1	< 1	< 1	< 1	40
Thorium (µg/g)	14	11	11	12	7.2	10	4
Tin (µg/g)	6	33	16	32	6.3	2	10
Titanium (percent)	.41	.36	.36	.38	.18	.42	.005
Uranium (µg/g)	4.1	3.5	3.4	3.6	2.1	3.3	.05
Vanadium (µg/g)	87	72	76	88	53	56	2
Ytterbium (µg/g)	4	3	2	2.7	1.7	2	1
Yttrium (µg/g)	36	23	23	24	17	21	2
Zinc (µg/g)	270	4,000	2,400	1,200	330	120	4

Appendix table 3-2. Benthic-invertebrate taxa, density, and relative abundance in streams in the Birmingham area, Alabama, 2000

[m^2, square meter]

Site label (fig. 1)	Collection date	Phylum	Class	Order	Suborder	Family	Subfamily	Tribe	Identification	Density (per m^2)	Percent of total
VIL1	06/09/2000	Arthropoda	Insecta	Collembola					Collembola	11	0.322
VIL1	06/09/2000	Arthropoda	Insecta	Diptera	Nematocera	Tipulidae	Limoniinae		Antocha sp.	11	.322
VIL1	06/09/2000	Arthropoda	Insecta	Trichoptera	Spicipalpia	Hydroptilidae	Hydroptilinae		Hydroptila sp.	11	.322
VIL1	06/09/2000	Arthropoda	Insecta	Trichoptera	Annulipalpia	Hydropsychidae	Hydropsychinae		Hydropsyche depravata group	11	.322
VIL1	06/09/2000	Nematoda							Nematoda	11	.322
VIL1	06/09/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Elmidae			Stenelmis sp.	12	.345
VIL1	06/09/2000	Platyhelminthes	Turbellaria						Turbellaria	22	.645
VIL1	06/09/2000	Arthropoda	Malacostraca	Isopoda	Asellota	Asellidae			Lirceus sp.	23	.668
VIL1	06/09/2000	Mollusca	Gastropoda						Gastropoda	78	2.256
VIL1	06/09/2000	Annelida	Oligochaeta						Megadrile	101	2.901
VIL1	06/09/2000	Arthropoda	Insecta	Trichoptera	Annulipalpia	Hydropsychidae	Hydropsychinae		Cheumatopsyche sp.	158	4.558
VIL1	06/09/2000	Arthropoda	Insecta	Diptera	Brachycera	Empididae	Hemerodromiinae		Hemerodromiinae	168	4.835
VIL1	06/09/2000	Annelida	Oligochaeta	Tubificida	Tubificina	Naididae			Naididae	314	9.024
VIL1	06/09/2000	Arthropoda	Insecta	Diptera	Nematocera	Simuliidae			Simuliidae	325	9.347
VIL1	06/09/2000	Arthropoda	Insecta	Diptera	Nematocera	Chironomidae			Chironomidae	594	17.082
VIL1	06/09/2000	Arthropoda	Insecta	Ephemeroptera	Pisciforma	Baetidae			Baetis sp.	739	21.272
VIL1	06/09/2000	Arthropoda	Arachnida						Acari	885	25.462
									Total density	**3,475**	
VIL1	10/25/2000	Annelida	Oligochaeta	Tubificida	Tubificina	Tubificidae			Tubificidae	1	0.34
VIL1	10/25/2000	Arthropoda	Insecta	Collembola					Collembola	1	.34
VIL1	10/25/2000	Arthropoda	Insecta	Odonata	Zygoptera	Calopterygidae			Hetaerina sp.	1	.34
VIL1	10/25/2000	Arthropoda	Insecta	Odonata	Zygoptera	Coenagrionidae			Argia sp.	1	.34
VIL1	10/25/2000	Arthropoda	Insecta	Trichoptera	Spicipalpia	Hydroptilidae	Hydroptilinae		Hydroptila sp.	1	.34
VIL1	10/25/2000	Nematoda							Nematoda	2	.68
VIL1	10/25/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Elmidae			Stenelmis sp.	3	1.01
VIL1	10/25/2000	Arthropoda	Insecta	Diptera	Nematocera	Ceratopogonidae	Forcipomyiinae		Forcipomyia sp.	4	1.35
VIL1	10/25/2000	Platyhelminthes	Turbellaria						Turbellaria	4	1.35
VIL1	10/25/2000	Mollusca	Gastropoda						Gastropoda	5	1.69
VIL1	10/25/2000	Arthropoda	Insecta	Diptera	Brachycera	Empididae	Hemerodromiinae		Hemerodromia sp.	6	2.03
VIL1	10/25/2000	Annelida	Oligochaeta						Megadrile	8	2.70

Appendix table 3-2. Benthic-invertebrate taxa, density, and relative abundance in streams in the Birmingham area, Alabama, 2000—Continued

[m^2, square meter]

Site label (fig. 1)	Collection date	Phylum	Class	Order	Suborder	Family	Subfamily	Tribe	Identification	Density (per m^2)	Percent of total
VIL1	10/25/2000	Annelida	Oligochaeta	Tubificida	Tubificina	Naididae			Naididae	9	3.04
VIL1	10/25/2000	Arthropoda	Insecta	Diptera	Nematocera	Simuliidae			Simuliidae	12	4.06
VIL1	10/25/2000	Arthropoda	Arachnida						Acari	22	7.44
VIL1	10/25/2000	Arthropoda	Insecta	Ephemeroptera					Ephemeroptera	45	15.21
VIL1	10/25/2000	Arthropoda	Insecta	Diptera	Nematocera	Chironomidae			Chironomidae	85	28.39
VIL1	10/25/2000	Arthropoda	Insecta	Trichoptera	Annulipalpia	Hydropsychidae			Hydropsychidae	88	29.40
									Total density	**299**	
VIL3	06/15/2000	Arthropoda	Insecta	Megaloptera		Corydalidae	Corydalinae		Corydalus cornutus (Linnaeus)	1	0.04
VIL3	06/15/2000	Arthropoda	Malacostraca	Decapoda	Pleocyemata	Cambaridae			Cambaridae	1	.04
VIL3	06/15/2000	Annelida	Oligochaeta	Tubificida	Tubificina	Naididae			Naididae	7	.34
VIL3	06/15/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Hydrophilidae			Enochrus sp.	7	.34
VIL3	06/15/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Elmidae			Stenelmis sp.	7	.34
VIL3	06/15/2000	Arthropoda	Insecta	Diptera	Nematocera	Ceratopogonidae	Forcipomyiinae		Atrichopogon sp.	7	.34
VIL3	06/15/2000	Arthropoda	Insecta	Diptera	Nematocera	Culicidae			Culicidae	7	.34
VIL3	06/15/2000	Arthropoda	Insecta	Hemiptera	Heteroptera	Gerridae			Gerridae	7	.34
VIL3	06/15/2000	Annelida	Oligochaeta						Megadrile	8	.38
VIL3	06/15/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Hydrophilidae			Berosus sp.	13	.68
VIL3	06/15/2000	Arthropoda	Insecta	Hemiptera	Heteroptera	Veliidae	Microveliinae		Microvelia sp.	13	.68
VIL3	06/15/2000	Arthropoda	Insecta	Collembola					Collembola	20	1.02
VIL3	06/15/2000	Arthropoda	Insecta	Diptera	Brachycera	Empididae	Hemerodromiinae		Hemerodromiinae	20	1.02
VIL3	06/15/2000	Arthropoda	Insecta	Trichoptera	Annulipalpia	Hydropsychidae			Hydropsychidae	27	1.36
VIL3	06/15/2000	Arthropoda	Insecta	Odonata	Zygoptera				Zygoptera	108	5.49
VIL3	06/15/2000	Mollusca	Gastropoda						Gastropoda	376	19.08
VIL3	06/15/2000	Arthropoda	Insecta	Diptera	Nematocera	Chironomidae			Chironomidae	1,344	68.15
									Total density	**1,972**	
VIL3	10/25/2000	Arthropoda	Insecta	Megaloptera		Corydalidae	Corydalinae		Corydalus cornutus (Linnaeus)	1	0.03
VIL3	10/25/2000	Arthropoda	Insecta	Odonata	Zygoptera	Calopterygidae			Hetaerina sp.	1	.03
VIL3	10/25/2000	Arthropoda	Malacostraca	Decapoda	Pleocyemata	Cambaridae			Cambaridae	1	.03
VIL3	10/25/2000	Annelida	Hirudinea	Arhynchobdel-lae		Erpobdellidae			Erpobdellidae	2	.05
VIL3	10/25/2000	Arthropoda	Insecta	Trichoptera	Spicipalpia	Hydroptilidae	Hydroptilinae		Hydroptila sp.	9	.29
VIL3	10/25/2000	Arthropoda	Insecta	Odonata	Anisoptera	Gomphidae			Gomphidae	14	.45

Appendix table 3-2. Benthic-invertebrate taxa, density, and relative abundance in streams in the Birmingham area, Alabama, 2000—Continued

[m^2, square meter]

Site label (fig. 1)	Collection date	Phylum	Class	Order	Suborder	Family	Subfamily	Tribe	Identification	Density (per m^2)	Percent of total
VIL3	10/25/2000	Nematoda							Nematoda	18	0.59
VIL3	10/25/2000	Arthropoda	Insecta	Diptera	Nematocera	Simuliidae			Simuliidae	28	.88
VIL3	10/25/2000	Arthropoda	Insecta	Diptera	Brachycera	Empididae	Hemerodromiinae		Hemerodromia sp.	28	.88
VIL3	10/25/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Hydrophilidae			Berosus sp.	37	1.18
VIL3	10/25/2000	Mollusca	Gastropoda	Basommato-phora		Ancylidae			Hebetancylus excentricus (Morelet)	55	1.76
VIL3	10/25/2000	Mollusca	Gastropoda	Basommato-phora		Physidae	Physinae		Physella sp.	74	2.35
VIL3	10/25/2000	Annelida	Oligochaeta						Megadrile	129	4.12
VIL3	10/25/2000	Arthropoda	Insecta	Trichoptera	Annulipalpia	Hydropsychidae			Hydropsychidae	323	10.30
VIL3	10/25/2000	Arthropoda	Insecta	Diptera	Nematocera	Chironomidae			Chironomidae	2,415	77.07
									Total density	**3,133**	
VAL1	06/14/2000	Annelida	Hirudinea	Arhynchobdel-lae		Erpobdellidae			Erpobdellidae	1	0.00
VAL1	06/14/2000	Annelida	Oligochaeta						Megadrile	1	.00
VAL1	06/14/2000	Mollusca	Gastropoda	Basommato-phora		Ancylidae			Hebetancylus excentricus (Morelet)	1	.00
VAL1	06/14/2000	Mollusca	Gastropoda	Basommato-phora		Physidae	Physinae		Physella sp.	3,102	7.94
VAL1	06/14/2000	Annelida	Oligochaeta	Tubificida	Tubificina	Naididae			Naididae	10,466	26.78
VAL1	06/14/2000	Arthropoda	Insecta	Diptera	Nematocera	Chironomidae			Chironomidae	25,519	65.28
									Total density	**39,090**	
VAL1	10/24/2000	Annelida	Oligochaeta						Megadrile	1	0.01
VAL1	10/24/2000	Arthropoda	Insecta	Trichoptera	Annulipalpia	Hydropsychidae	Hydropsychinae		Cheumatopsyche sp.	1	.01
VAL1	10/24/2000	Arthropoda	Insecta	Trichoptera	Spicipalpia	Hydroptilidae	Hydroptilinae		Hydroptila sp.	27	.29
VAL1	10/24/2000	Platyhelminthes	Turbellaria						Turbellaria	54	.58
VAL1	10/24/2000	Annelida	Oligochaeta	Tubificida	Tubificina	Tubificidae			Tubificidae	108	1.16
VAL1	10/24/2000	Annelida	Oligochaeta	Tubificida	Tubificina	Naididae			Naididae	806	8.69
VAL1	10/24/2000	Mollusca	Gastropoda						Gastropoda	1,183	12.76
VAL1	10/24/2000	Arthropoda	Insecta	Diptera	Nematocera	Chironomidae			Chironomidae	7,096	76.50
									Total density	**9,276**	
VAL2	06/08/2000	Arthropoda	Malacostraca	Decapoda	Pleocyemata	Cambaridae			Cambaridae	1	0.01
VAL2	06/08/2000	Mollusca	Gastropoda	Basommato-phora		Physidae	Physinae		Physella sp.	1	.01

Appendix table 3-2. Benthic-invertebrate taxa, density, and relative abundance in streams in the Birmingham area, Alabama, 2000—Continued

[m^2, square meter]

Site label (fig. 1)	Collection date	Phylum	Class	Order	Suborder	Family	Subfamily	Tribe	Identification	Density (per m^2)	Percent of total
VAL2	06/08/2000	Arthropoda	Insecta	Odonata	Anisoptera	Gomphidae			Gomphidae	2	0.01
VAL2	06/08/2000	Mollusca	Bivalvia	Veneroida		Corbiculidae			Corbicula sp.	8	.07
VAL2	06/08/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Hydrophilidae			Berosus sp.	35	.32
VAL2	06/08/2000	Nematoda							Nematoda	35	.32
VAL2	06/08/2000	Arthropoda	Insecta	Odonata	Zygoptera	Coenagrionidae			Coenagrionidae	72	.66
VAL2	06/08/2000	Mollusca	Gastropoda	Basommato-phora		Ancylidae			Ancylidae	72	.66
VAL2	06/08/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Elmidae			Elmidae	106	.96
VAL2	06/08/2000	Annelida	Oligochaeta	Tubificida	Tubificina	Naididae			Naididae	107	.98
VAL2	06/08/2000	Annelida	Oligochaeta						Megadrile	107	.98
VAL2	06/08/2000	Arthropoda	Insecta	Diptera	Brachycera	Empididae			Empididae	286	2.61
VAL2	06/08/2000	Platyhelminthes	Turbellaria						Turbellaria	286	2.61
VAL2	06/08/2000	Annelida	Oligochaeta	Tubificida	Tubificina	Tubificidae			Tubificidae	394	3.59
VAL2	06/08/2000	Arthropoda	Arachnida						Acari	1,147	10.46
VAL2	06/08/2000	Arthropoda	Insecta	Trichoptera	Spicipalpia	Hydroptilidae			Hydroptilidae	1,685	15.36
VAL2	06/08/2000	Arthropoda	Insecta	Trichoptera	Annulipalpia	Hydropsychidae			Hydropsychidae	2,187	19.94
VAL2	06/08/2000	Arthropoda	Insecta	Diptera	Nematocera	Chironomidae			Chironomidae	4,440	40.47
									Total density	**10,971**	
VAL2	10/24/2000	Arthropoda	Insecta	Lepidoptera					Lepidoptera	1	0.02
VAL2	10/24/2000	Arthropoda	Insecta	Diptera	Nematocera	Ceratopogonidae			Ceratopogonidae	15	.30
VAL2	10/24/2000	Arthropoda	Insecta	Diptera	Nematocera	Simuliidae			Simuliidae	15	.30
VAL2	10/24/2000	Arthropoda	Insecta	Odonata	Zygoptera	Coenagrionidae			Argia sp.	16	.32
VAL2	10/24/2000	Annelida	Oligochaeta						Megadrile	17	.33
VAL2	10/24/2000	Arthropoda	Insecta	Odonata	Anisoptera	Gomphidae			Gomphidae	18	.35
VAL2	10/24/2000	Arthropoda	Arachnida						Acari	31	.61
VAL2	10/24/2000	Arthropoda	Insecta	Diptera	Brachycera	Empididae	Hemerodromiinae		Hemerodromia sp.	31	.61
VAL2	10/24/2000	Arthropoda	Insecta	Ephemeroptera	Pisciforma	Baetidae			Baetis sp.	31	.61
VAL2	10/24/2000	Mollusca	Gastropoda	Basommato-phora		Ancylidae			Ancylidae	31	.61
VAL2	10/24/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Hydrophilidae			Berosus sp.	108	2.13
VAL2	10/24/2000	Mollusca	Bivalvia	Veneroida		Corbiculidae			Corbicula sp.	140	2.78
VAL2	10/24/2000	Arthropoda	Insecta	Trichoptera	Spicipalpia	Hydroptilidae			Hydroptilidae	276	5.48
VAL2	10/24/2000	Arthropoda	Insecta	Diptera	Nematocera	Chironomidae			Chironomidae	2,028	40.19
VAL2	10/24/2000	Arthropoda	Insecta	Trichoptera	Annulipalpia	Hydropsychidae	Hydropsychinae		Cheumatopsyche sp.	2,289	45.36
									Total density	**5,045**	

Appendix table 3-2. Benthic-invertebrate taxa, density, and relative abundance in streams in the Birmingham area, Alabama, 2000—Continued

[m^2, square meter]

Site label (fig. 1)	Collection date	Phylum	Class	Order	Suborder	Family	Subfamily	Tribe	Identification	Density (per m^2)	Percent of total
LCR	06/12/2000	Arthropoda	Malacostraca	Decapoda	Pleocyemata	Cambaridae			Cambaridae	2	0.03
LCR	06/12/2000	Annelida	Oligochaeta						Megadrile	2	.04
LCR	06/12/2000	Annelida	Oligochaeta	Tubificida	Tubificina	Tubificidae			Tubificidae	18	.34
LCR	06/12/2000	Arthropoda	Insecta	Diptera	Nematocera	Chironomidae	Orthocladiinae		Parametriocnemus sp.	18	.34
LCR	06/12/2000	Arthropoda	Insecta	Diptera	Brachycera	Empididae	Hemerodromiinae		Hemerodromia sp.	18	.34
LCR	06/12/2000	Arthropoda	Insecta	Trichoptera	Integripalpia	Helicopsychidae			Helicopsyche borealis (Hagen)	18	.34
LCR	06/12/2000	Arthropoda	Malacostraca	Amphipoda					Amphipoda	18	.34
LCR	06/12/2000	Mollusca	Bivalvia	Veneroida		Sphaeriidae	Sphaeriinae		Sphaerium sp.	18	.34
LCR	06/12/2000	Arthropoda	Insecta	Megaloptera		Corydalidae	Corydalinae		Corydalus cornutus (Linnaeus)	20	.36
LCR	06/12/2000	Mollusca	Bivalvia	Veneroida		Corbiculidae			Corbicula sp.	24	.44
LCR	06/12/2000	Arthropoda	Arachnida						Acari	37	.67
LCR	06/12/2000	Arthropoda	Insecta	Diptera	Nematocera	Simuliidae			Simuliidae	37	.67
LCR	06/12/2000	Arthropoda	Insecta	Trichoptera	Spicipalpia	Hydroptilidae	Hydroptilinae		Hydroptila sp.	37	.67
LCR	06/12/2000	Arthropoda	Insecta	Diptera	Nematocera	Tipulidae	Limoniinae		Antocha sp.	55	1.01
LCR	06/12/2000	Nematoda							Nematoda	55	1.01
LCR	06/12/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Psephenidae			Psephenus herricki (DeKay)	92	1.68
LCR	06/12/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Elmidae			Microcylloepus sp.	110	2.01
LCR	06/12/2000	Arthropoda	Malacostraca	Isopoda					Isopoda	129	2.35
LCR	06/12/2000	Arthropoda	Insecta	Trichoptera	Spicipalpia	Glossosomatidae	Protoptilinae		Protoptila sp.	147	2.68
LCR	06/12/2000	Arthropoda	Insecta	Trichoptera	Integripalpia	Brachycentridae			Micrasema sp.	221	4.02
LCR	06/12/2000	Arthropoda	Insecta	Trichoptera	Annulipalpia	Psychomyiidae	Psychomyiinae		Psychomyia flavida Hagen	314	5.71
LCR	06/12/2000	Arthropoda	Insecta	Ephemeroptera					Ephemeroptera	515	9.38
LCR	06/12/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Elmidae			Stenelmis sp.	811	14.77
LCR	06/12/2000	Mollusca	Gastropoda	Mesogastropoda		Pleuroceridae			Elimia sp.	875	15.94
LCR	06/12/2000	Arthropoda	Insecta	Trichoptera	Annulipalpia	Hydropsychidae			Hydropsychidae	921	16.77
LCR	06/12/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Elmidae			Optioservus sp.	977	17.79
									Total density	**5,491**	
LCR	10/26/2000	Arthropoda	Insecta	Odonata	Anisoptera	Gomphidae			Lanthus sp.	1	0.02
LCR	10/26/2000	Mollusca	Bivalvia	Veneroida		Corbiculidae			Corbicula sp.	6	.14
LCR	10/26/2000	Arthropoda	Insecta	Diptera	Nematocera	Tipulidae	Limoniinae		Antocha sp.	12	.29
LCR	10/26/2000	Arthropoda	Insecta	Plecoptera					Plecoptera	12	.29

Appendix table 3-2. Benthic-invertebrate taxa, density, and relative abundance in streams in the Birmingham area, Alabama, 2000—Continued

[m^2, square meter]

Site label (fig. 1)	Collection date	Phylum	Class	Order	Suborder	Family	Subfamily	Tribe	Identification	Density (per m^2)	Percent of total
LCR	10/26/2000	Arthropoda	Insecta	Trichoptera	Annulipalpia	Philopotamidae	Chimarrinae		Chimarra sp.	12	0.29
LCR	10/26/2000	Arthropoda	Insecta	Trichoptera	Integripalpia	Brachycentridae			Micrasema sp.	12	.29
LCR	10/26/2000	Arthropoda	Insecta	Trichoptera		Glossosomatidae	Agapetinae		Agapetus sp.	12	.29
LCR	10/26/2000	Arthropoda	Malacostraca	Amphipoda					Amphipoda	12	.29
LCR	10/26/2000	Arthropoda	Malacostraca	Isopoda	Asellota	Asellidae			Asellidae	12	.29
LCR	10/26/2000	Platyhelminthes	Turbellaria						Turbellaria	12	.29
LCR	10/26/2000	Annelida	Oligochaeta						Megadrile	12	.30
LCR	10/26/2000	Arthropoda	Arachnida						Acari	23	.57
LCR	10/26/2000	Arthropoda	Insecta	Megaloptera		Corydalidae	Corydalinae		Corydalus cornutus (Linnaeus)	24	.60
LCR	10/26/2000	Arthropoda	Insecta	Trichoptera	Annulipalpia	Psychomyiidae	Psychomyiinae		Psychomyia flavida Hagen	35	.86
LCR	10/26/2000	Arthropoda	Insecta	Odonata	Zygoptera				Zygoptera	47	1.16
LCR	10/26/2000	Arthropoda	Insecta	Diptera	Nematocera	Chironomidae			Chironomidae	58	1.43
LCR	10/26/2000	Arthropoda	Insecta	Diptera	Nematocera	Simuliidae			Simuliidae	92	2.29
LCR	10/26/2000	Arthropoda	Insecta	Trichoptera	Spicipalpia	Glossosomatidae	Protoptilinae		Protoptila sp.	115	2.86
LCR	10/26/2000	Arthropoda	Insecta	Ephemeroptera	Pisciforma	Baetidae			Baetidae	230	5.73
LCR	10/26/2000	Mollusca	Gastropoda	Mesogastropoda		Pleuroceridae			Pleuroceridae	267	6.64
LCR	10/26/2000	Arthropoda	Insecta	Trichoptera	Annulipalpia	Hydropsychidae			Hydropsychidae	288	7.16
LCR	10/26/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Elmidae			Stenelmis sp.	427	10.63
LCR	10/26/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Psephenidae			Psephenus herricki (DeKay)	519	12.91
LCR	10/26/2000	Arthropoda	Insecta	Ephemeroptera	Setisura	Heptageniidae			Heptageniidae	519	12.91
LCR	10/26/2000	Arthropoda	Insecta	Ephemeroptera	Setisura	Isonychiidae			Isonychia sp.	553	13.75
LCR	10/26/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Elmidae			Optioservus sp.	714	17.76
									Total density	**4,022**	
FMC	06/08/2000	Arthropoda	Insecta	Odonata	Zygoptera	Coenagrionidae			Argia sp.	1	0.02
FMC	06/08/2000	Arthropoda	Malacostraca	Decapoda	Pleocyemata	Cambaridae	Cambarinae		Orconectes sp.	1	.02
FMC	06/08/2000	Annelida	Oligochaeta						Megadrile	2	.03
FMC	06/08/2000	Arthropoda	Insecta	Diptera	Nematocera	Tipulidae	Tipulinae		Tipula sp.	2	.03
FMC	06/08/2000	Arthropoda	Insecta	Megaloptera		Corydalidae	Corydalinae		Corydalus cornutus (Linnaeus)	2	.03
FMC	06/08/2000	Arthropoda	Insecta	Collembola					Collembola	14	.30
FMC	06/08/2000	Arthropoda	Insecta	Diptera	Nematocera	Tipulidae	Limoniinae		Antocha sp.	14	.30
FMC	06/08/2000	Arthropoda	Insecta	Lepidoptera		Pyralidae	Nymphulinae	Argy-actini	Petrophila sp.	14	.30

Appendix table 3-2. Benthic-invertebrate taxa, density, and relative abundance in streams in the Birmingham area, Alabama, 2000—Continued

[m^2, square meter]

Site label (fig. 1)	Collection date	Phylum	Class	Order	Suborder	Family	Subfamily	Tribe	Identification	Density (per m^2)	Percent of total
FMC	06/08/2000	Arthropoda	Insecta	Odonata	Anisoptera	Aeshnidae			Boyeria vinosa (Say)	14	0.31
FMC	06/08/2000	Mollusca	Bivalvia	Veneroida		Corbiculidae			Corbicula sp.	19	.42
FMC	06/08/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Elmidae			Optioservus sp.	27	.59
FMC	06/08/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Psephenidae			Ectopria sp.	27	.59
FMC	06/08/2000	Arthropoda	Insecta	Diptera	Brachycera	Empididae	Hemerodromiinae		Hemerodromiinae	27	.59
FMC	06/08/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Elmidae			Dubiraphia sp.	40	.87
FMC	06/08/2000	Arthropoda	Insecta	Megaloptera		Corydalidae	Chauliodinae		Nigronia serricornis (Say)	40	.87
FMC	06/08/2000	Arthropoda	Insecta	Trichoptera	Spicipalpia	Glossosomatidae	Protoptilinae		Protoptila sp.	67	1.46
FMC	06/08/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Elmidae			Microcylloepus sp.	81	1.76
FMC	06/08/2000	Arthropoda	Insecta	Trichoptera	Annulipalpia	Philopotamidae	Chimarrinae		Chimarra sp.	107	2.33
FMC	06/08/2000	Arthropoda	Insecta	Diptera	Nematocera	Simuliidae			Simuliidae	121	2.63
FMC	06/08/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Psephenidae			Psephenus herricki (DeKay)	134	2.92
FMC	06/08/2000	Mollusca	Bivalvia	Veneroida		Sphaeriidae	Sphaeriinae		Sphaerium sp.	201	4.37
FMC	06/08/2000	Arthropoda	Arachnida						Acari	242	5.25
FMC	06/08/2000	Arthropoda	Malacostraca	Isopoda	Asellota	Asellidae			Lirceus sp.	242	5.25
FMC	06/08/2000	Arthropoda	Insecta	Trichoptera	Integripalpia	Brachycentridae			Micrasema sp.	296	6.43
FMC	06/08/2000	Arthropoda	Insecta	Diptera	Nematocera	Chironomidae			Chironomidae	297	6.45
FMC	06/08/2000	Arthropoda	Insecta	Ephemeroptera					Ephemeroptera	457	9.93
FMC	06/08/2000	Arthropoda	Insecta	Trichoptera	Annulipalpia	Hydropsychidae			Hydropsychidae	551	11.98
FMC	06/08/2000	Mollusca	Gastropoda	Mesogastropoda		Pleuroceridae			Pleuroceridae	770	16.73
FMC	06/08/2000	Arthropoda	Insecta	Coleoptera	Polyphaga	Elmidae			Stenelmis sp.	793	17.23
									Total density	**4,600**	

Appendix table 3-3. Benthic-invertebrate community metrics in streams in the Birmingham area, Alabama, 2000

[EPT, Ephemeroptera, Plecoptera, Trichoptera; na, not applicable; nc, not calculated]

Site	VIL-1 (June)	VIL-3 (June)	VAL-1 (June)	VAL-2 (June)	LCR (June)	FMC (June)	VIL-1 (October)	VIL-3 (October)	VAL-1 (October)	VAL-2 (October)	LCR (October)
METRIC	**RICHNESS and DENSITY**										
Community richness (number of distinct taxa)	17	17	6	18	26	29	18	15	8	15	26
EPT Index (number of EPT taxa, without Hydropsychidae)	2	0	0	1	6	4	2	1	1	2	8
Mayfly taxa	1	0	0	0	1	1	1	0	0	1	3
Stonefly taxa	0	0	0	0	0	0	0	0	0	0	1
Caddisfly taxa	3	1	0	2	6	4	2	2	2	2	6
Density (organisms per square meter)	3,475	1,972	39,090	10,971	5,491	4,600	299	3,133	9,276	5,045	4,022
Mayfly density	739	0	0	0	515	457	45.5	0	0	31	1,303
Stonefly density	0	0	0	0	0	0	0	0	0	0	11.5
Caddisfly density	181	26.9	0	3,872	1,658	1,022	88.9	332	27.7	2,565	472
EPT density	750	0	0	1,685	1,252	927	46	9	27	307	1,498
Chironomid density	594	1,344	25,519	4,440	18.4	297	84.9	2,415	7,096	2,028	57.6
Shannon's Index of Diversity	.900	.478	.362	.767	1.04	1.12	.856	.410	.339	.557	1.06
Pinkham-Pearson Index of Similarity[a] to FMC	.081	.052	.005	.035	.194	na	nc	nc	nc	nc	nc
TAXA	**RELATIVE ABUNDANCE OF TAXA (as percent of total abundance)**										
EPT taxa (without Hydropsychidae)	21.6	0.0	0.0	15.4	22.8	20.2	15.4	0.29	0.29	6.09	37.2
Mayflies (Ephemeroptera)	21.3	.0	.0	.0	9.4	9.9	15.2	.0	.0	.6	32.4
Stoneflies (Plecoptera)	0	0	0	0	0	0	0	0	0	0	0
Caddisflies (Trichoptera)	5.20	1.36	.00	35.3	30.2	22.2	29.7	10.6	.30	50.8	11.7
Midges (Chironomidae)	17.1	68.1	65.3	40.5	.3	6.5	28.4	77.1	76.5	40.2	1.4

[a] The similarity index was calculated only for the June samples because site FMC was dry during the October collection period.

Appendix table 3-4. Fish species collected from streams in the Birmingham area, Alabama, 2001

[x, not captured at the site; kg, kilogram; na, not applicable; ns, no seine collection. Taxa comprising the largest proportion of the community at each site are shaded]

Family	Scientific name	Common name	Presence and proportional abundance (percentage) of fishes collected by electrofishing					
			VIL-1	VIL-3	VAL-1	VAL-2	LCR	FMC
Suckers (Catostomidae)	*Hypentelium etowanum*	Alabama hog sucker	x	x	x	0.138	3.18	6.51
	Minytrema melanops	spotted sucker	x	x	x	x	.353	x
Sunfishes (Centrarchidae)	*Lepomis* (undetermined species)	sunfish	x	x	x	x	2.12	x
	Lepomis cyanellus	green sunfish	4.55	22.9	x	.138	29.7	1.78
	Lepomis gulosus x Lepomis microlophus	warmouth x redear sunfish	x	x	x	x	.353	x
	Lepomis macrochirus	bluegill	18.2	20.9	x	.276	24.4	**52.1**
	Lepomis megalotis	longear sunfish	x	x	4.67	9.53	2.12	22.5
	Lepomis microlophus	redear sunfish	.758	x	x	x	4.24	x
	Lepomis miniatus	scarlet sunfish	x	x	x	x	x	1.18
	Micropterus punctulatus	spotted bass	x	x	x	x	1.41	x
	Micropterus salmoides	largemouth bass	x	.290	x	x	x	.592
	Micropterus species	black bass species	.758	x	x	x	x	x
	Pomoxis nigromaculatus	black crappie	x	.290	x	x	x	x
Sculpins (Cottidae)	*Cottus carolinae*	banded sculpin	x	x	x	x	3.89	0.592
Minnows (Cyprinidae)	*Campostoma oligolepis*	largescale stoneroller	**74.2**	**41.4**	2.33	**62.3**	17.0	7.69
	Cyprinella trichroistia	tricolor shiner	x	x	x	x	.353	x
	Cyprinella venusta	blacktail shiner	x	x	x	.552	.707	x
	Notropis stilbius	silverstripe shiner	x	x	x	x	x	1.78
	Semotilus atromaculatus	creek chub	x	x	1.67	x	x	x
Top minnows (Cyprino-dontidae)	*Fundulus olivaceus*	blackspotted topminnow	x	x	x	x	0.353	1.78
Catfishes (Ictaluridae)	*Ameiurus natalis*	yellow bullhead	1.52	0.290	x	x	x	x
	Ictaluridae	bullhead catfishes	x	.580	x	x	x	x
Darters (Percinidae)	*Etheostoma ramseyi*	Alabama darter	x	x	x	x	x	2.37
	Etheostoma stigmaeum	speckled darter	x	x	x	x	x	1.18
	Percina caprodes	logperch	x	x	x	x	0.353	x
	Percina kathae	Mobile logperch	x	x	x	x	9.19	x
	Percina nigrofasciata	blackbanded darter	x	x	x	0.276	x	x

Appendix table 3-4. Fish species collected from streams in the Birmingham area, Alabama, 2001—Continued

[x, not captured at the site; kg, kilogram; na, not applicable; ns, no seine collection. Taxa comprising the largest proportion of the community at each site are shaded]

Family	Scientific name	Common name	Presence and proportional abundance (percentage) of fishes collected by electrofishing					
			VIL-1	VIL-3	VAL-1	VAL-2	LCR	FMC
Mosquitofishes (Poecilidae)	*Gambusia affinis*	western mosquitofish	x	x	**x**	26.8	0.353	x
	Gambusia species		x	13.3	**91.3**	x	x	x
COLLECTION DATA								
Total individuals by electrofishing			132	345	300	724	283	169
Total species collected by electrofishing			6	7	3	8	15	12
Units of effort expended			4.4	12.9	3.4	10.2	6.7	8.7
Fish collected per unit of effort			30	27	88	71	42	33
Total biomass (kg) collected by electrofishing			1	4.85	0.705	3.72	3.80	2.64
Total species collected by electrofishing and seining			6	8	ns	9	15	13
Total individuals collected by seining			2	62	ns	211	5	5
Biomass (kg) collected by seining			0.202	0.032	na	0.612	0.019	0.011
Additional species collected by seining			0	0	na	*M. salmoides*	0	*G. affinis*
Similarity of fish community to that of site FMC			0.440	0.400	0.250	0.500	0.400	1.00
Shannon's Index of Diversity			1.26	2.02	0.551	1.56	2.87	2.32
FISH-COMMUNITY METRICS								
Total number of minnow taxa			1	1	2	2	3	2
Total number of sunfish taxa (excluding black bass, crappie, and hybrids)			3	2	1	3	5	4
Relative abundance of darters			0	0	0	0.276	9.541	3.550
Relative abundance of sunfish (excluding bass, crappie, green sunfishes, and undetermined species)			18.9	20.9	4.7	9.8	30.7	75.7
Relative abundance of suckers			0	0	0	0.138	3.53	6.51
Relative abundance of anomalies			0	0	12	6	2.2	1.2