PROJECT DATA

Results from Selected Sites in the Great Miami and Little Miami River Basin (National Water-Quality Assessment Program)

CHLOROPHYLL AND NUTRIENTS MEASUREMENTS

Field measurements of water quality and samples of algal chlorophyll *a* and *b* were taken from the water column (phytoplankton) and from the stream bottom (periphyton) in riffles representing the richest-targeted habitat and depositional-targeted habitats as defined in the NAWQA algal protocols (Porter, S.D., Cuffney, T.F., Gurtz, M.E., and Meador, M.R., 1993, Methods for collecting algal samples as part of the National Water-Quality Assessment Program: U.S. Geological Survey Open-file Report 93-409, 39 p.). Partial support to collect these data was provided by the U.S. Environmental Protection Agency as a collaborative study to provide data on stream nutrient and algal conditions for the devolpment of nutrient criteria. In some cases, the nutrient samples were collected at the water-quality gaging station near the ecological station. Those sites that are in close proximity are:

Stillwater River at Martindale Road near Union, Ohio, (395355084173600) and Stillwater River at Old Springfield Road near Union, Ohio (395433084175300),
Great Miami River at Ross Road near Vanadalia, Ohio (395457084095100) and Great Miami River near Tipp City, Ohio, (395534084091400)
Mad River at St. Paris Pike at Eagle City, Ohio (03267900) and Mad River near Highway 41 near Springfield, Ohio (395650083504400).

WATER-QUALITY DATA

[µg/L, micrograms per liter; (70953), USGS National Water Information System parameter code; mg/m^2, milligrams per square meter; rth, richest-targeted habitat for periphyton; dth, depositional-targeted habitat for periphyton; --, no data; <, concentration or value reported is less than that indicated]

Date	Time	Sample type	Phytoplankton, chlorophyll *a* (µg/L) (70953)	Phytoplankton, chlorophyll *b* (µg/L) (70954)	Periphyton, chlorophyll *a* (mg/m^2) (70957)	Periphyton, chlorophyll *b* (mg/m^2) (70958)
03245500 LITTLE MIAMI RIVER AT MILFORD, OHIO						
7/13/00	1430		--	--	--	--
7/26/00	1410		--	--	--	--
7/26/00	1446	rth	--	--	116	18.7
7/26/00	1501	dth	--	--	30.2	3.6
7/26/00	1611		33.3	2.1	--	--
03246400 EAST FORK LITTLE MIAMI RIVER NEAR WILLIAMSBURG, OHIO						
7/06/00	1030		--	--	--	--
7/18/00	1040		--	--	--	--
7/26/00	1001	rth	--	--	86.6	11.6
7/26/00	1031	dth	--	--	28.9	2.6
7/26/00	1200		--	--	--	--
7/26/00	1201		55.4	5.9	--	--
03271510 GREAT MIAMI RIVER AT MIAMISBURG, OHIO						
7/14/00	0931	rth	--	--	77.3	16.6
7/14/00	1031	dth	--	--	32.3	2.5
7/14/00	1231		51.9	3.4	--	--
7/14/00	1245		--	--	--	--
392246084340100 GREAT MIAMI RIVER BELOW HAMILTON, OHIO						
7/12/00	1116	rth	--	--	60.0	8.6
7/12/00	1331	dth	--	--	40.5	3.0
7/12/00	1431		73.9	3.6	--	--
7/12/00	1720		--	--	--	--
393944084120700 HOLES CREEK IN HUFFMAN PARK AT KETTERING, OHIO—REACH A						
7/11/00	0941	rth	--	--	144	18.3
7/11/00	1020		--	--	--	--
7/11/00	1131	dth	--	--	35.6	2.1
7/11/00	1231		4.5	1.1	--	--
7/11/00	1600		--	--	--	--
393944084120700 HOLES CREEK IN HUFFMAN PARK AT KETTERING, OHIO—REACH B						
7/10/00	1040		--	--	--	--
7/10/00	1131	dth	--	--	7.9	1.1
393944084120700 HOLES CREEK IN HUFFMAN PARK AT KETTERING, OHIO—REACH C						
7/13/00	0931	rth	--	--	95.9	12.7
7/13/00	1101	dth	--	--	30.7	0.9
7/13/00	1300		--	--	--	--
395355084173600 STILLWATER RIVER AT MARTINDALE ROAD NEAR UNION, OHIO						
7/20/00	1100		--	--	--	--
395433084175300 STILLWATER RIVER AT OLD SPRINGFIELD ROAD NEAR UNION, OHIO						
7/20/00	0946	rth	--	--	302	104
7/20/00	1046	dth	--	--	14.9	1.2
7/20/00	1216		88.7	6.4	--	--

WATER-QUALITY DATA—Continued

[µg/L, micrograms per liter; (70953), USGS National Water Information System parameter code; mg/m^2, milligrams per square meter; rth, richest-targeted habitat for periphyton; dth, depositional-targeted habitat for periphyton; --, no data; <, concentration or value reported is less than that indicated]

Date	Sample time	Sample type	Phytoplankton, chlorophyll *a* (µg/L) (70953)	Phytoplankton, chlorophyll *b* (µg/L) (70954)	Periphyton, chlorophyll *a* (mg/m^2) (70957)	Periphyton, chlorophyll *b* (mg/m^2) (70958)
395534084091400 GREAT MIAMI RIVER NEAR TIPP CITY, OHIO						
7/20/00	1431	rth	--	--	115	12.2
7/20/00	1631	dth	--	--	12.8	<0.1
7/20/00	1732		16.4	1.3	--	--
395650083504400 MAD RIVER NEAR HIGHWAY 41 NEAR SPRINGFIELD, OHIO—REACH A						
7/17/00	0931	rth	--	--	310	36.9
7/17/00	1031	dth	--	--	78.8	6.7
7/17/00	1401		2.8	0.11	--	--
395650083504400 MAD RIVER NEAR HIGHWAY 41 NEAR SPRINGFIELD, OHIO—REACH B						
7/18/00	0931	rth	--	--	164	15.7
7/18/00	1001	dth	--	--	85.8	3.8
395650083504400 MAD RIVER NEAR HIGHWAY 41 NEAR SPRINGFIELD, OHIO—REACH C						
7/19/00	0931	rth	--	--	230	23.2
7/19/00	1031	dth	--	--	111	4.6
393259085101200 WHITEWATER RIVER NEAR NULLTOWN, INDIANA						
7/25/00	1031	rth	--	--	153	15.7
7/25/00	1131	dth	--	--	101	<0.1
7/25/00	1230		--	--	--	--
7/25/00	1231		5.4	0.2	--	--

PROJECT DATA

Results from Selected Sites in the Great Miami and Little Miami River Basin (National Water-Quality Assessment Program)

CHLOROPHYLL AND NUTRIENTS MEASUREMENTS—CONTINUED

WATER-QUALITY DATA—Continued

[mg/L, milligrams per liter; (00608), USGS National Water Information System parameter code; --, no data; <, concentration or value reported is less than that indicated]

Date	Nitrogen, ammonia, dissolved (mg/L as N) (00608)	Nitrogen, nitrite, dissolved (mg/L as N) (00613)	Nitrogen, ammonia plus organic, dissolved (mg/L as N) (00623)	Nitrogen, ammonia plus organic, total (mg/L as N) (00625)	Nitrogen, nitrite plus nitrate, dissolved (mg/L as N) (00631)	Phosphorus, total (mg/L as P) (00665)	Phosphorus, dissolved (mg/L as P) (00666)	Phosphorus, ortho-phosphate, dissolved (mg/L as P) (00671)
03245500 LITTLE MIAMI RIVER AT MILFORD, OHIO								
7/13/00	<0.02	0.02	0.4	0.7	3.5	0.30	0.20	0.18
7/26/00	0.02	0.02	0.4	0.6	3.8	0.27	0.19	0.16
7/26/00	--	--	--	--	--	--	--	--
7/26/00	--	--	--	--	--	--	--	--
7/26/00	--	--	--	--	--	--	--	--
03246400 EAST FORK LITTLE MIAMI RIVER NEAR WILLIAMSBURG, OHIO								
7/06/00	0.04	0.02	0.7	1.2	1.2	0.44	0.27	0.24
7/18/00	<0.02	<0.01	0.4	0.9	0.5	0.18	0.05	0.03
7/26/00	--	--	--	--	--	--	--	--
7/26/00	--	--	--	--	--	--	--	--
7/26/00	<0.02	<0.01	0.5	0.8	0.1	0.2	0.09	0.07
7/26/00	--	--	--	--	--	--	--	--
03267900 MAD RIVER AT ST. PARIS PIKE AT EAGLE CITY, OHIO								
7/11/00	--	0.01	0.2	0.2	3.6	0.06	0.05	0.05
7/17/00	--	0.01	0.2	0.2	3.6	0.03	0.02	0.01
7/18/00	--	0.03	0.2	0.2	3.8	0.03	0.02	0.02
7/19/00	--	0.02	0.2	0.4	3.5	0.07	0.03	0.03
03271510 GREAT MIAMI RIVER AT MIAMISBURG, OHIO								
7/14/00	--	--	--	--	--	--	--	--
7/14/00	--	--	--	--	--	--	--	--
7/14/00	--	--	--	--	--	--	--	--
7/14/00	<0.02	0.02	0.4	0.9	3.8	0.35	0.26	0.21
392246084340100 GREAT MIAMI RIVER BELOW HAMILTON, OHIO								
7/12/00	--	--	--	--	--	--	--	--
7/12/00	--	--	--	--	--	--	--	--
7/12/00	--	--	--	--	--	--	--	--
7/12/00	<0.02	0.02	0.4	1.1	4.1	0.28	0.16	0.13
393944084120700 HOLES CREEK IN HUFFMAN PARK AT KETTERING, OHIO—REACH A								
7/11/00	--	--	--	--	--	--	--	--
7/11/00	<0.02	<0.01	0.3	0.4	0.8	0.04	0.02	0.01
7/11/00	--	--	--	--	--	--	--	--
7/11/00	--	--	--	--	--	--	--	--
7/11/00	0.03	0.02	0.5	0.8	0.6	0.18	0.01	<0.01
393944084120700 HOLES CREEK IN HUFFMAN PARK AT KETTERING, OHIO—REACH B								
7/10/00	<0.02	<0.01	0.3	0.5	0.8	0.04	0.02	0.02
7/10/00	--	--	--	--	--	--	--	--
7/13/00	--	--	--	--	--	--	--	--
393944084120700 HOLES CREEK IN HUFFMAN PARK AT KETTERING, OHIO—REACH C								
7/13/00	--	--	--	--	--	--	--	--
7/13/00	<0.02	<0.01	0.3	0.4	0.6	0.04	0.01	<0.01
395355084173600 STILLWATER RIVER AT MARTINDALE ROAD NEAR UNION, OHIO								
7/20/00	--	0.02	0.3	0.9	1.6	0.83	0.02	<0.01
395457084095100 GREAT MIAMI RIVER AT ROSS ROAD NEAR VANADALIA, OHIO								
7/20/00	--	0.02	0.4	0.6	1.8	0.30	0.26	0.22
393259085101200 WHITEWATER RIVER NEAR NULLTOWN, INDIANA								
7/25/00	--	--	--	--	--	--	--	--
7/25/00	--	--	--	--	--	--	--	--
7/25/00	<0.02	0.02	0.1	0.2	3.1	0.02	0.01	0.01

PROJECT DATA

Results from Selected Sites in the Great Miami and Little Miami River Basin (National Water-Quality Assessment Program)

CHLOROPHYLL AND NUTRIENTS MEASUREMENTS—CONTINUED

Selected water-quality parameters including water temperature, pH, specific conductance, dissolved oxygen and in vivo chlorophyll were monitored at 15-minute intervals for approximately 48 hours at selected sites in July 2000. Data collection was done by use of multi-probe data sondes. Data collection was done to measure diurnal fluctuations in these parameters in relation to in-stream productivity, nutrient concentrations, and habitat features at each site. Partial support to collect these data was provided by the U.S. Environmental Protection Agency and YSI Incorporated (Yellow Springs, Ohio) as a collaborative study to provide data on stream nutrient and algal conditions for the devolpment of nutrient criteria.

WATER-QUALITY DATA—Continued

[µg/L, micrograms per liter]

Beginning sample date	End sample date	Chlorophyll, minimum (µg/L)	Chlorophyll, maximum (µg/L)	Chlorophyll, range (µg/L)	Chlorophyll, median (µg/L)
03245500 LITTLE MIAMI RIVER AT MILFORD, OHIO					
7/25/00	7/27/00	10.6	34.2	23.6	20.2
03246400 EAST FORK LITTLE MIAMI RIVER NEAR WILLIAMSBURG, OHIO					
7/25/00	7/27/00	36.9	70.7	33.8	56.6
03271510 GREAT MIAMI RIVER AT MIAMISBURG, OHIO					
7/12/00	7/14/00	30.0	104.5	74.5	55.4
392246084340100 GREAT MIAMI RIVER BELOW HAMILTON, OHIO					
7/12/00	7/14/00	35.7	119.8	84.1	73.1
393944084120700 HOLES CREEK AT KETTERING, OHIO—REACH A					
7/09/00	7/11/00	3.4	26.0	22.6	7.0
393944084120700 HOLES CREEK AT KETTERING, OHIO—REACH B					
7/09/00	7/11/00	3.8	24.7	20.9	7.3
393944084120700 HOLES CREEK AT KETTERING, OHIO—REACH C					
7/09/00	7/12/00	6.3	34.9	28.6	9.3
395433084175300 STILLWATER RIVER AT OLD SPRINGFIELD ROAD NEAR UNION, OHIO					
7/19/00	7/21/00	38.4	73.2	34.8	57.0
395534084091400 GREAT MIAMI RIVER NEAR TIPP CITY, OHIO					
7/12/00	7/14/00	26.4	60.3	33.9	41.3
7/19/00	7/21/00	10.3	26.7	20.6	23.3
395650083504400 MAD RIVER NEAR HIGHWAY 41 NEAR SPRINGFIELD, OHIO—REACH A					
7/17/00	7/19/00	2.3	6.1	3.8	3.7
7/19/00	7/21/00	3.1	7.2	4.1	4.5
395650083504400 MAD RIVER NEAR HIGHWAY 41 NEAR SPRINGFIELD, OHIO—REACH B					
7/17/00	7/19/00	0.7	7.2	6.5	4.1
395650083504400 MAD RIVER NEAR HIGHWAY 41 NEAR SPRINGFIELD, OHIO, REACH C					
7/17/00	7/19/00	0.8	5.9	5.1	2.3
393259085101200 WHITEWATER RIVER NEAR NULLTOWN, INDIANA					
7/25/00	7/27/00	2.0	6.2	4.2	4.4

WATER-QUALITY DATA—Continued

[mg/L, milligrams per liter; (00300), USGS National Water Information System parameter code]

Dates	Oxygen, dissolved, minimum (mg/L) (00300)	Oxygen, dissolved, maximum (mg/L) (00300)	Oxygen, dissolved, range (mg/L) (00300)	Oxygen, dissolved, median (mg/L) (00300)	pH, whole water, field, minimum (standard units) (00400)	pH, whole water, field, maximum (standard units) (00400)	pH, whole water, field, range (standard units) (00400)	pH, whole water, field, median (standard units) (00400)
03245500 LITTLE MIAMI RIVER AT MILFORD, OHIO								
7/25-27/00	7.5	13.3	4.8	9.0	8.3	8.6	0.3	8.4
03246400 EAST FORK LITTLE MIAMI RIVER NEAR WILLIAMSBURG, OHIO								
7/25-27/00	7.8	12.2	4.4	9.3	8.1	8.8	0.7	8.5
03271510 GREAT MIAMI RIVER AT MIAMISBURG, OHIO								
7/12-14/00	7.0	14.7	7.7	9.5	8.3	8.8	0.5	8.5
392246084340100 GREAT MIAMI RIVER BELOW HAMILTON, OHIO								
7/12-14/00	7.5	11.2	3.7	9.2	8.4	8.7	0.3	8.6
393944084120700 HOLES CREEK AT KETTERING, OHIO—REACH A								
7/10-11/00	7.0	8.2	1.2	7.3	8.2	8.5	0.3	8.3
393944084120700 HOLES CREEK AT KETTERING, OHIO—REACH B								
7/10-11/00	7.3	9.1	1.8	8.5	8.0	8.4	0.4	8.2
393944084120700 HOLES CREEK AT KETTERING, OHIO—REACH C								
7/10-11/00	7.3	10.6	3.3	7.9	8.2	8.5	0.3	8.3
395433084175300 STILLWATER RIVER AT OLD SPRINGFIELD ROAD NEAR UNION, OHIO								
7/19-21/00	8.4	14.0	5.6	10.4	8.2	8.7	0.5	8.5
395534084091400 GREAT MIAMI RIVER NEAR TIPP CITY, OHIO								
7/12-14/00	6.5	15.0	8.5	9.3	8.2	8.7	0.5	8.5
7/19-21/00	6.4	13.0	6.6	8.1	8.1	8.6	0.5	8.2
395650083504400 MAD RIVER NEAR HIGHWAY 41 NEAR SPRINGFIELD, OHIO—REACH A								
7/17-19/00	7.8	16.6	8.8	9.6	8.0	8.5	0.5	8.1
7/19-21/00	8.3	17.23	9.3	10.5	8.0	8.5	0.5	8.2
395650083504400 MAD RIVER NEAR HIGHWAY 41 NEAR SPRINGFIELD, OHIO—REACH B								
7/17-19/00	7.6	13.3	5.7	8.8	7.9	8.3	0.4	8.0
395650083504400 MAD RIVER NEAR HIGHWAY 41 NEAR SPRINGFIELD, OHIO, REACH C								
7/17-19/00	7.4	13.9	6.5	8.9	7.9	8.4	0.5	8.0
393259085101200 WHITEWATER RIVER NEAR NULLTOWN, INDIANA								
7/25-27/00	6.8	13.6	6.7	9.5	8.0	8.4	0.4	8.2

WATER-QUALITY DATA—Continued

[µS/cm, microsiemens per centimeter; (00095), USGS National Water Information System parameter code; deg C, degrees Celsius]

Dates	Specific conductance, field, minimum (µS/cm) (00095)	Specific conductance, field, maximum (µS/cm) (00095)	Specific conductance, field, range (µS/cm) (00095	Specific conductance, field, median (µS/cm) (00095	Water temperature, minimum (deg C) (00010)	Water temperature, maximum (deg C) (00010)	Water temperature, range (deg C) (00010)	Water temperature, median (deg C) (00010)
03245500 LITTLE MIAMI RIVER AT MILFORD, OHIO								
7/25-27/00	661	800	139	738	23.4	26.3	2.9	24.5
03246400 EAST FORK LITTLE MIAMI RIVER NEAR WILLIAMSBURG, OHIO								
7/25-27/00	243	331	88	323	22.7	25.5	2.8	23.7
03271510 GREAT MIAMI RIVER AT MIAMISBURG, OHIO								
7/12-14/00	647	736	89	718	24.3	27.6	3.3	25.2
392246084340100 GREAT MIAMI RIVER BELOW HAMILTON, OHIO								
7/12-14/00	658	760	102	745	26.0	28.6	2.6	27.4
393944084120700 HOLES CREEK AT KETTERING, OHIO—REACH A								
7/10-11/00	587	798	211	719	20.5	30.5	10.0	23.7
393944084120700 HOLES CREEK AT KETTERING, OHIO—REACH B								
7/10-11/00	602	795	193	717	20.2	26.3	6.1	23.5
393944084120700 HOLES CREEK AT KETTERING, OHIO—REACH C								
7/10-11/00	549	738	189	663	19.9	26.0	6.1	23.6
395433084175300 STILLWATER RIVER AT OLD SPRINGFIELD ROAD NEAR UNION, OHIO								
7/19-21/00	535	591	56	573	21.9	25.3	3.4	23.4
395534084091400 GREAT MIAMI RIVER NEAR TIPP CITY, OHIO								
7/12-14/00	682	710	28	701	22.9	27.0	4.9	24.6
7/19-21/00	740	759	19	749	21.7	25.9	4.2	23.3
395650083504400 MAD RIVER NEAR HIGHWAY 41 NEAR SPRINGFIELD, OHIO—REACH A								
7/17-19/00	--	--	--	--	17.3	22.3	5.0	19.4
7/19-21/00	--	--	--	--	15.9	20.4	4.5	17.5
395650083504400 MAD RIVER NEAR HIGHWAY 41 NEAR SPRINGFIELD, OHIO—REACH B								
7/17-19/00	651	720	69	710	17.1	21.3	4.2	19.2
395650083504400 MAD RIVER NEAR HIGHWAY 41 NEAR SPRINGFIELD, OHIO, REACH C								
7/17-19/00	654	718	64	710	17.2	21.2	4.0	19.2
393259085101200 WHITEWATER RIVER NEAR NULLTOWN, INDIANA								
7/25-27/00	627	667	40	652	19.8	24.9	5.1	22.1