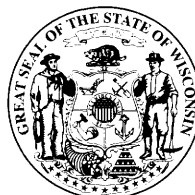


Water Resources Data Wisconsin Water Year 1999

Water-Data Report WI-99-1



**U.S. Department of the Interior
U.S. Geological Survey**



**Prepared in cooperation with the
State of Wisconsin
and with other agencies**

CALENDAR FOR WATER YEAR 1999

1998

OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
				1	2	3	1	2	4	4	5	6	7			1	2	3	4	5
4	5	6	7	8	9	10	8	9	10	11	12	13	14	6	7	8	9	10	11	12
11	12	13	14	15	16	17	15	16	17	18	19	20	21	13	14	15	15	17	18	19
18	19	20	21	22	23	24	22	23	24	25	26	27	28	20	21	22	23	24	25	26
25	26	27	28	29	30	31	29	30						27	28	29	30	31		

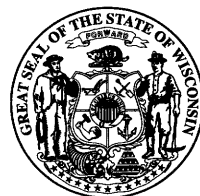
1999

JANUARY							FEBRUARY							MARCH						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
					1	2		1	2	3	4	5	6		1	2	3	4	5	6
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10	11	12	13	14	15	16	14	15	16	17	18	19	20	14	15	16	17	18	19	20
17	18	19	20	21	22	23	21	22	23	24	25	26	27	21	22	23	24	25	26	27
24	25	26	27	28	29	30	28							28	29	30	31			
31																				
APRIL							MAY							JUNE						
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11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19
18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26
25	26	27	28	29	30		23	24	25	26	27	28	29	27	28	29	30			
							30	31												
JULY							AUGUST							SEPTEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
				1	2	3	1	2	3	4	5	6	7				1	2	3	4
4	5	6	7	8	9	10	9	9	10	11	12	13	14	5	6	7	8	9	10	11
11	12	13	14	15	16	17	15	16	17	18	19	20	21	12	13	14	15	16	17	18
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25	26	27	28	29	30	31	29	30	31					26	27	28	29	30		

Water Resources Data Wisconsin Water Year 1999

By B.K. Holmstrom, D.L. Olson, and B.R. Ellefson

Water-Data Report WI-99-1



U. S. DEPARTMENT OF THE INTERIOR
BRUCE BABBITT, Secretary

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CHARLES G. GROAT, Director

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City of Middleton
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Milwaukee Metropolitan Sewerage District
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Rock River Watershed
City of Fort Atkinson
Superior Wastewater Treatment Plant

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8505 Research Way
Middleton, Wisconsin 53562

PREFACE

This volume of the annual hydrologic data report of Wisconsin is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and water quality provide the hydrologic information needed by State, local, and Federal agencies, and the private sector for developing and managing our Nation's land and water resources.

This report is the culmination of a concerted effort by a number of people who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. The authors had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines. Most of the data were collected, computed and processed from area field offices. Technicians-in-charge of the field offices are:

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Jeffrey J. Hanig, Merrill, northeast
Josef Habale, Middleton, southwest

The data were collected, computed, and processed by the following personnel:

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G. W. Gill	H. R. House

This report was prepared under the general supervision of Warren A. Gebert, District Chief; Herbert S. Garn, Hydrologic Studies and Data Section Chief; Peter E. Hughes, Environmental Studies Section Chief; and James T. Krohelski, Hydrogeologic Studies and Data Section Chief.

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**SURFACE-WATER STATIONS, IN DOWNSTREAM ORDER, FOR WHICH
RECORDS ARE PUBLISHED IN THIS VOLUME**

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[Letters after station names designate type of data: (c) chemical, (d) discharge, (g) gage height, (m) microbiological, (pr) precipitation, (r) radiochemical, (sd) secchi-depth, (s) sediment, (t) water temperature]

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**SURFACE-WATER STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS
ARE PUBLISHED IN THIS VOLUME**

[Letters after station names designate type of data: (c) chemical, (d) discharge, (g) gage height, (m) microbiological, (pr) precipitation, (r) radiochemical, (sd) secchi-depth, (s) sediment, (t) water temperature]

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DISCONTINUED SURFACE-WATER DISCHARGE STATIONS

The following continuous-record surface-water discharge stations in Wisconsin have been discontinued. Daily streamflow records were collected and published for the period of record, expressed in water years, shown for each station. Those stations with an asterisk (*) after the station number are currently operated as crest-stage partial-record stations. Some of the discontinued project stations with less than 3 years of record have not been included. Information regarding these stations may be obtained from the District Office at the address given on the back side of the title page of this report

Station name	Station number	Drainage area (mi ²)	Period of record
STREAMS TRIBUTARY TO LAKE SUPERIOR			
Tower Avenue at Superior, WI	04024080	0.034	1993-95
Little Balsam Creek at Patzau, WI	04024314	4.89	1976-78
Little Balsam Creek near Patzau, WI	04024315	5.05	1976-78
Little Balsam Creek Tributary near Patzau, WI	04024318	0.60	1976-78
Little Balsam Creek near Foxboro, WI	04024320	6.27	1977-78
Amnicon River near Poplar (Amnicon Falls), WI	04025000	110	1914-16
Bois Brule (Brule) River near Brule, WI	04026000	160	1914-17
Sioux River near Washburn, WI	04026300*	33.9	1965-66
Pine Creek at Moquah, WI	04026347	6.20	1976-78
Pine Creek Tributary at Moquah, WI	04026348	0.48	1976-78
Pine Creek near Moquah, WI	04026349	19.9	1976-78
North Fish Creek near Moquah, WI	040263491	65.4	1990-91, 1995-97
Bad River near Mellen, WI	04026450*	82.0	1971-75
Bad River at Mellen, WI	04026500	98.3	1948-55
Alder Creek near Upson, WI	04026870	22.2	1972-77
Montreal River near Kimball, WI	04028500	100	1924-26
West Fork Montreal River at Gile, WI	04029000	75.0	1918-26, 1943-47
West Fork Montreal River near Kimball, WI	04029500	86.2	1924-26
STREAMS TRIBUTARY TO LAKE MICHIGAN			
North Branch Pine River at Windsor Dam nr Alvin, WI	04063640*	27.8	1967-68
Pine River near Florence, WI	04064000	510	1914-23
Pike River at Amberg, WI	04066500	255	1914-70
Menominee River, at Mouth, at Marinette, WI	04067651	4,070	1988-90, 1994-95
Peshigo River at High Falls near Crivitz, WI	04068000	537	1912-57
Pensaukee River near Krakow, WI	04071795	35.8	1993-95
Pensaukee River near Pensaukee, WI	04071858	134	1973-96
Suamico River at Suamico, WI	04072000	60.7	1951-52
Lawrence Creek near Westfield, WI	04072750	13.4	1968-73
Grand River near Kingston, WI	04073050	73.5	1968-75
West Branch White River near Wautoma, WI	04073405	38.9	1964-65
Silver Creek at South Koro Road near Ripon, WI	040734644	36.2	1987-96
Swamp Creek above Rice Lake at Mole Lake, WI	04074538	46.3	1977-83, 1985-87
Swamp Creek below Rice Lake at Mole Lake, WI	04074548	56.8	1977-79, 1982-85
Wolf River near White Lake, WI	04075000	485	1935-38
Evergreen Creek near Langlade, WI	04075200*	8.09	1964-73
Wolf River above West Branch Wolf River, WI	04075500	616	1928-62
West Branch Wolf River at Neopit, WI	04076000	93.2	1911-17
West Branch Wolf River near Keshena, WI	04076500	163	1928-32
Little Wolf River near Galloway, WI	04079602	22.6	1974-79
Spaulding Creek near Big Falls, WI	04079700*	5.57	1964-66
Little Wolf River at Royalton, WI	04080000	507	1914-70, 1983-85
Tomorrow River near Nelsonville, WI	04080798	44.0	1993-95
Emmons Creek near Rural, WI	04080950	25.1	1968-74
Storm Sewer to Mirror Lake at Waupaca, WI	04080976	0.04	1971-74
Waupaca River near Waupaca, WI	04081000	265	1916-66, 1983-85
Daggets Creek at Butte Des Morts, WI	04081800	10.6	1977
West Branch Fond du Lac River at Fond du Lac, WI	04083000	83.1	1939-54
East Branch Fond du Lac River near Fond du Lac, WI	04083500	78.4	1939-54

Station name	Station number	Drainage area (mi ²)	Period of record
STREAMS TRIBUTARY TO LAKE MICHIGAN—CONTINUED			
Brothertown Creek at Brothertown, WI	04084200	5.10	1976–77
East River at Midway Road near De Pere, WI	04085109	47.0	1993–95
Bower Creek, at County MM, near De Pere, WI	04085119	14.8	1991–95, 1996–97
East Twin River at Mishicot, WI	04085281	110	1972–96
Onion River at Hingham, WI	04085813	37.2	1979–80
Onion River near Sheboygan Falls, WI	04085845	94.1	1979–82
Milwaukee River at Kewaskum, WI	04086150	138	1968–81
East Branch Milwaukee River near New Fane, WI	04086200	54.1	1968–81
North Branch Milwaukee River near Random Lake, WI	040863075	51.4	1993–95
North Branch Milwaukee River near Fillmore, WI	04086340	148	1968–81
Milwaukee River at Waubeka, WI	04086360	432	1968–81, 1994
Mud Lake Outlet near Decker Corner, WI	04086488	7.36	1983–84
Lincoln Creek, at 47th Street, at Milwaukee, WI	040869415	9.56	1993–1995, 1997 ¹
Milwaukee River above North Ave Dam at Milwaukee, WI	04087010	702	1982–84
Menomonee River at Germantown, WI	04087018	19.0	1975–77
Jefferson Park Drainageway at Germantown, WI	04087019	1.82	1976–78
Menomonee River at Butler, WI	04087040	60.6	1975–79
Little Menomonee River near Freistadt, WI	04087050	8.0	1975–79
Noyes Creek at Milwaukee, WI	04087060	1.94	1975–80, 1990
Little Menomonee River at Milwaukee, WI	04087070	19.7	1975–77
Honey Creek at Wauwatosa, WI	04087119	10.3	1975–81
Schoonmaker Creek at Wauwatosa, WI	04087125	1.94	1975–79
Hawley Road Storm Sewer at Milwaukee, WI	04087130	1.83	1975–77
Menomonee River at Milwaukee, WI	04087138	134	1982–84
Kinnickinnic River at Milwaukee, WI	04087160	20.4	1976–83
Milwaukee River at Mouth at Milwaukee, WI	04087170	872	1994–96
ST. CROIX RIVER BASIN			
Namekagon River at Trego, WI	05332000	433	1914–27
Loon Creek near Danbury, WI	05335010	17.6	1970–71
Bashaw Brook near Shell Lake, WI	05335380	26.6	1964–66
Clam River near Webster, WI	05335500	361	1941–42
St. Croix River near Grantsburg, WI	05336000	2,980	1923–70
Wood River near Grantsburg, WI	05339000	185	1939–40
Rice Creek near Balsam Lake, WI	05341375	12.5	1988–89
Balsam Branch at Balsam Lake, WI	05341402	52.8	1988–90
Kinnickinnic River near River Falls, WI	05342000	165	1917–21
CHIPPEWA RIVER BASIN			
West Fork Chippewa River at Lessards, nr Winter, WI	05355500	474	1912–16
Couderay River near Couderay, WI	05356121	169	1981–83
Flambeau River at Flambeau Flowage (Flambeau Reservoir), WI	05357500	622	1927–61
Flambeau River near Butternut, WI	05358000	688	1914–39
Pine Creek near Oxbo, WI	05358300	38.9	1971–75
Flambeau River at Babbs Island near Winter, WI	05358500	967	1929–75
South Fork Flambeau River near Phillips, WI	05359500	609	1929–75
Price Creek near Phillips, WI	05359600*	16.9	1964–66
Flambeau River near (at) Ladysmith, WI	05360000	1,790	1903–06, 1914–61
Chippewa River near Holcombe, WI	05361000	♦ 3,720	1944–49
South Fork Jump River near Ogema, WI	05361500	327	1944–54
Chippewa River at Holcombe, WI	05362500	4,680	1943–49
Fisher River at (near) Holcombe, WI	05363000	81.5	1944–45
O'Neil Creek near Chippewa Falls, WI	05363500	78.1	1944–45
Yellow River near Hannibal, WI	05363700	86.7	1962–63
Yellow River at Cadott, WI	05364000*	364	1943–61

DISCONTINUED SURFACE-WATER DISCHARGE STATIONS

Station name	Station number	Drainage area (mi ²)	Period of record
CHIPPEWA RIVER BASIN—CONTINUED			
Duncan Creek at Bloomer, WI	05364500*	50.3	1944–52
Duncan Creek Tributary near Tilden, WI	05364850	4.17	1987–89
Duncan Creek at Chippewa Falls, WI	05365000	117	1943–55
Eau Claire River near Augusta, WI	05366000	509	1914–26
Bridge Creek at Augusta, WI	05366300	35.0	1980
Eau Claire River near Fall Creek, WI	05366500*	760	1943–55
Chippewa River at (near) Eau Claire, WI	05367000	6,620	1903–09, 1944–54
Red Cedar River near Cameron, WI	05367425	442	1966–70
Red Cedar River near Cameron, WI	05367426	443	1971–73
Red Cedar River near Colfax, WI	05367500	1,100	1914–61, 1990
Eau Galle River near Woodville, WI	05369900	39.4	1978–83
Eau Galle River at Low-Watr Bridge at Spring Valley, WI	05369945	47.9	1982–83, 1986–96
French Creek near Spring Valley, WI	05369955	6.03	1981–83
Lousy Creek near Spring Valley, WI	05369970	5.97	1981–83
Lohn Creek near Spring Valley, WI	05369985	2.53	1981–83
Eau Galle River at Elmwood, WI	05370500	91.6	1943–54
BUFFALO RIVER BASIN			
Buffalo River near Tell, WI	05372000	406	1933–51
WAUMANDEE CREEK BASIN			
Joos Valley Creek near Fountain City, WI	05378183	5.89	1990–96
Eagle Creek, at County Highway G, near Fountain City, WI	05378185	14.3	1990–96
TREMPEALEAU RIVER BASIN			
Bruce Valley Creek near Pleasantville, WI	05379288	10.1	1980
Elk Creek near Independence, WI	05379305	108	1980
Trempealeau River at Arcadia, WI	05379400	553	1960–77
Trempealeau River near Trempealeau, WI	05380000	719	1932–34
BLACK RIVER BASIN			
Black River at Medford, WI	05380806	48.1	1984–87
Poplar River near Owen, WI	05380900*	155	1964–66
LA CROSSE RIVER BASIN			
Little LaCrosse River near Leon, WI	05382500	76.9	1934–61, 1979–81
LaCrosse River near West Salem, WI	05383000	396	1914–70
COON CREEK BASIN			
Spring Coulee Creek near Coon Valley, WI	05386490	9.01	1979–81
Coon Creek at Coon Valley, WI	05386500	77.2	1934–40, 1978–81
Coon Creek near Stoddard, WI	05386999	120	1934–40, 1979–81
BAD AXE RIVER BASIN			
North Fork Bad Axe River near Genoa, WI	05387100*	80.8	1964–66
WISCONSIN RIVER BASIN			
Wisconsin River at Conover, WI	05390180	177	1967–71
Pelican River near Rhinelander, WI	05391226	101	1976–79
Wisconsin River at Whirlpool Rapids, nr Rhinelander, WI	05392000	1,220	1906–61
Bearskin Creek near Harshaw, WI	05392350*	31.1	1964–66
Tomahawk River near Bradley, WI	05392400	422	1915–27, 1929
Tomahawk River at Bradley, WI	05393000	544	1930–73
New Wood River near Merrill, WI	05394000	82.2	1953–61
Rib River at Rib Falls, WI	05396000	303	1925–57
Little Rib River near Wausau, WI	05396500	79.1	1914–16
East Branch Eau Claire River near Antigo, WI	05397000	81.5	1949–55

DISCONTINUED SURFACE-WATER DISCHARGE STATIONS

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Station name	Station number	Drainage area (mi ²)	Period of record
WISCONSIN RIVER BASIN--CONTINUED			
Eau Claire River near Antigo, WI	05397110	185	1975-81
Bull Junior Creek (Bull Creek Junior) nr Rothschild, WI	05398500	27.4	1944-52
Big Eau Pleine River near Colby, WI	05399000	78.1	1941-54
Hamann Creek near Stratford, WI	05399431	11.3	1977-79
Wisconsin River at Knowlton, WI	05400000	4,530	1921-42
Plover River near Stevens Point, WI	05400500	145	1914-20, 1944-52
Little Plover River near Arnott, WI	05400600	2.24	1959-75
Little Plover River at Plover, WI	05400650	19.0	1959-87
Fourmile Creek near Kellner, WI	05400870	75.0	1964-67
Buena Vista Creek near Kellner, WI	05400853	53.1	1964-67
Tenmile Creek Ditch 5 near Bancroft, WI	05401020	9.73	1964-73
Fourteenmile Creek near New Rome, WI	05401100	91.1	1964-79
Wisconsin River near Necedah, WI	05401500	5,990	1903-14, 1944-50
Big Roche a Cri Creek near Hancock, WI	05401510	9.61	1964-67
Big Roche a Cri Creek near Adams, WI	05401535	52.8	1964-78
Yellow River at Sprague, WI	05402500	392	1927-40
Yellow River at Necedah, WI	05403000	491	1941-57
Lemonweir River at New Lisbon, WI	05403500	507	1944-87, 1994
Hulbert Creek near Wisconsin Dells, WI	05403630	11.2	1971-77
Dell Creek near Lake Delton, WI	05403700	44.9	1957-65, 1971-80
Narrows Creek at Loganville, WI	05404200	40.1	1964-66
Wisconsin River at Prairie du Sac, WI	05406000	9,180	1946-54
Black Earth Creek at Cross Plains, WI	05406460	12.8	1985-86, 1990-93
Black Earth Creek at Mills Street at Cross Plains, WI	05406476	25.5	1990-95
Garfoot Creek near Cross Plains, WI	05406491	5.39	1985-86, 1990-94, 1994-98
Black Earth Creek at South Valley Road nr Black Earth, WI	05406497	40.6	1990-93
Trout Creek at Confluence with Arneson Creek near Barneveld, WI	05406573	8.37	1976-78
Trout Creek at Twin Parks Dam 8 nr Barneveld, WI	05406574	9.02	1976-79
Trout Creek at County Highway T nr Barneveld, WI	05406575	12.1	1976-78
Trout Creek near Ridgeway, WI	05406577	13.5	1976-79
Knight Hollow Creek near Arena, WI	05406590	7.57	1976-78
Otter Creek near Highland, WI	05406640	16.8	1968-69, 1970-75
Kickapoo River at Ontario, WI	05407500	151	1939, 1973-77
Knapp Creek near Bloomingdale, WI	05408500	8.44	1955-69
West Fork Kickapoo River near Readstown, WI	05409000	106	1939
Kickapoo River at Soldiers Grove, WI	05409500	530	1939
North Fork Nederlo Creek near Gays Mills, WI	05409830	2.21	1968-79
Nederlo Creek near Gays Mills, WI	05409890	9.46	1968-80
Kickapoo River at Gays Mills, WI	05410000	617	1914-34, 1964-77
GRANT RIVER BASIN			
Pigeon Creek near Lancaster, WI	05413400*	6.93	1964-66
Kuenster Creek at Muskellunge Road nr North Andover, WI	054134435	9.59	1982-96
Rattlesnake Creek near North Andover, WI	05413449	42.4	1987-96
Rattlesnake Creek near Beetown, WI	05413451	45.2	1990-91
GALENA RIVER BASIN			
Little Platte River near Platteville, WI	05414213	79.7	1987-90
Sinsinawa River near Hazel Green, WI	05414800	24.9	1987-90
Pats Creek near Belmont, WI	05414894	5.42	1981-82
Madden Branch Tributary near Belmont, WI	05414915	2.83	1981-82
Madden Branch near Meekers Grove, WI	05414920	15.04	1981-82
Galena River at Buncombe, WI	05415000	125	1939-92

DISCONTINUED SURFACE-WATER DISCHARGE STATIONS

Station name	Station number	Drainage area (mi ²)	Period of record
APPLE RIVER BASIN			
Apple River near Shullsburg, WI	05418731	9.34	1981-82
ROCK RIVER BASIN			
West Branch Rock River near Waupun, WI	05423000	40.7	1949-70, 1978-81
West Branch Rock River at County Trunk Highway D near Waupun, WI	05423100	43.9	1978-81
Johnson Creek near Johnson Creek, WI	05425537	1.13	1978-80
Johnson Creek near Johnson Creek, WI	05425539	13.3	1978-80
Pratt Creek near Juneau, WI	05425928	3.54	1978-80
Rock River at Jefferson, WI	05426031	1,850	1978-94 ²
Whitewater Creek near Whitewater, WI	05426500	11.8	1926-28, 1946-54
Whitewater Creek at Millis Road near Whitewater, WI	05426900	20.6	1978-81
Whitewater Creek at Whitewater, WI	05427000	22.8	1926-28, 1946-54
Koshkonong Creek near Rockdale, WI	05427507	150	1977-82
Token Creek near Madison, WI	05427800	24.3	1964-66, 1976-81
Sixmile Creek near Waunakee, WI	05427900	41.1	1976-82
South Fork Pheasant Branch at Highway 14 near Middleton, WI	05427945	5.74	1978-81
Pheasant Branch at Century Avenue at Middleton, WI	05427950	20.8	1977-81
Pheasant Branch at mouth at Middleton, WI	05427952	24.5	1978-81
Willow Creek at Madison, WI	05427970	3.15	1974-83
Olbrich Park Storm Ditch at Madison, WI	05428665	2.57	1976-80
Manitou Way Storm Sewer at Madison, WI	05429040	0.23	1971-77
Nakoma Storm Sewer at Madison, WI	05429050	2.30	1972-77
Lake Wingra Outlet at Madison, WI	05429120	6.00	1971-77
Nine Springs Creek Storm Sewer Tributary at Madison, WI	05429268	0.18	1991-93
Door Creek near Cottage Grove, WI	05429580	15.3	1976-79
Yahara River near Edgerton, WI	05430000	430	1917-18
Oregon Branch at Oregon, WI	05430030	9.93	1979-81
Badfish Creek at County Highway A near Stoughton, WI	05430095	40.9	1956-66, 1986-88
Badfish Creek near Stoughton, WI	05430100	41.3	1956-66
Delavan Lake Trib at South Shore Drive at Delavan, WI	05431018	7.66	1985-86, 1989-91
Jackson Creek at Petrie Road near Elkhorn, WI	05431014	8.96	1984-95
Livingston Branch Pecatonica River nr Livingston, WI	05432055	16.4	1987-91
Yellowstone River near Blanchardville, WI	05433500*	28.5	1954-65, 1978-79
Pecatonica River at Dill, WI	05434000	944	1914-19
Steiner Branch near Waldwick, WI	05433510	5.9	1978-79
Skinner Creek at Skinner Hollow Road near Monroe, WI	05434235	32.6	1978-81
Skinner Creek at Klondyke Road near Monroe, WI	05434240	35.0	1978-81
West Branch Sugar River near Mount Vernon, WI	05435980	32.7	1979-80
Mount Vernon Creek near Mount Vernon, WI	05436000	16.4	1954-65, 1976-80
ILLINOIS RIVER BASIN			
White River near Burlington, WI	05545300	110	1964-66, 1973-82

¹ No winter record in water year 1997² No winter record in water years 1993 and 1994

DISCONTINUED SURFACE-WATER-QUALITY STATIONS

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The following daily- or continuous-record surface-water-quality stations were discontinued prior to the 1999 water year. Discontinued stations with less than 1 year of record or where data collection frequency was less than daily are not included. Some of the stations in the list are still in operation for purposes other than collection of daily or continuous water-quality data. Information regarding these stations may be obtained from the District Office at the address given on the back of the title page of this report.

[Type of record: T (water temperature), SC (specific conductance), DO (dissolved-oxygen concentration), PH (pH), SED (daily sediment discharge), C (daily discharge of one or more chemical constituents)]

Station name	Station number	Drainage area (mi ²)	Type of record	Period of record
STREAMS TRIBUTARY TO LAKE SUPERIOR				
Little Balsam Creek at Patzau, WI	04024314	5.00	SED	1976-78
Little Balsam Creek near Patzau, WI	04024315	4.57	SED	1976-78
Little Balsam Creek Tributary near Patzau, WI	04024318	0.64	SED	1976-78
Little Balsam Creek near Foxboro, WI	04024320	6.27	SED	1977-78
Nemadji River near South Superior, WI	04024430	420	SED	1974-78
North Fish Creek near Benoit, WI	04026346	36	SED	1990-91
Pine Creek at Moquah, WI	04026347	5.90	SED	1976-78
Pine Creek Tributary at Moquah, WI	04026348	0.57	SED	1976-78
Pine Creek near Moquah, WI	04026349	21.5	SED	1976-78
North Fish Creek near Moquah, WI	040263491	65.4	SED	1990-91
North Fish Creek near Ashland, WI	04026350	74.4	SED	1990-91
Bad River near Odanah, WI	04027000	597	T,SC	1976-78
White River near Mason, WI	04027080	--	T	1970-72
Sadjak Springs Trib to White River near Mason, WI	04027086	1.00	T	1970-72
Bad River at Odanah, WI	04027595	970	T,SC	1978-81
STREAMS TRIBUTARY TO LAKE MICHIGAN				
Escanaba River at mouth at Escanaba, MI	040590345	928	SED	1988-90
Popple River near Fence, WI	04063700	139	T	1964-80
Menominee River near McAllister, WI	04067500	3,930	T,SC	1979-80
			SED	1988-90
Menominee River at mouth at Marinette, WI	04067651	4,070	SED	1988-90
Peshtigo River at Peshtigo, WI	04069500	1,080	T	1989-90
			SED	1988-90
Peshtigo River at mouth near Peshtigo, WI	04069530	1,100	SED	1988-90
Oconto River near Oconto, WI	04071765	966	SED	1989-90
Oconto River at mouth at Oconto, WI	04071775	982	SED	1989-90
Duck Creek near Howard, WI	04072150	108	C	1992
White Creek at Forest Glen Beach near Green Lake, WI	04073462	3.05	SED,C	1982-88
Middle Branch Embarrass River near Wittenberg, WI	0407809265	76.3	T	1990-91
Fox River at Appleton, WI	04084445	5,950	T	1987-90
			SED	1986-90
Fox River at State Highway 55 at Kaukauna, WI	04084475	5,980	SED	1989-90
Fox River at Wrightstown, WI	04085000	6,050	T,SC	1975-81
Fox River at Little Rapids, WI	04085054	6,100	SED	1989-90
Fox River at De Pere, WI	04085059	6,110	SED	1989-90
Bower Creek at Sunnyview Road near De Pere, WI	04085118	4.82	SED,C	1985-86
Bower Creek at Highway MM near DePete, WI	04085119	14.8	T,C	1991-97 ²
East River at Monroe Street in Green Bay, WI	040851378	144.9	SED,C	1985-86
Fox River at mouth at Green Bay, WI	04085139	6,330	T,SC,DO,PH	1989-90
Manitowoc River at Manitowoc, WI	04085427	526	T,SC	1979-80
Cedar Lake near Kiel, WI	04085500	1.43	T	1974-77
Otter Creek #3A at County Highway J near Plymouth, WI	0408570045	9.10	C	1994-97 ²
Otter Creek at Laack Farm near Plymouth, WI	0408570047	9.16	C	1994-97 ²
Onion River at Hingham, WI	04085813	37.2	T,SC,SED	1979-80
			C	1980
Onion River near Sheboygan Falls, WI	04085845	94.1	T,SC,SED	1979-80
			C	1980
Parnell Creek near Dundee, WI	04086175	9.35	T	1997
Milwaukee River near Cedarburg, WI	04086600	607	SED	1982-84

DISCONTINUED SURFACE-WATER-QUALITY STATIONS

Station name	Station number	Drainage area (mi ²)	Type of record	Period of record
STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED				
Lincoln Creek at 47th Street at Milwaukee, WI	040869415	9.56	T	1993-97 ²
			DO	1994-97 ²
Milwaukee River at Milwaukee, WI	04087000	696	T,SC	1973-80 ²
			SED	1982-84
Milwaukee River above North Avenue Dam at Milwaukee, WI	04087010	702	SED	1982-84
Menomonee River at Germantown, WI	04087018	19	SED	1975-77
Jefferson Park Drain at Germantown, WI	04087019	1.82	SED	1977-78
Menomonee River at Menomonee Falls, WI	04087030	34.7	SED	1975-77, 1982-84
Menomonee River at Butler, WI	04087040	60.64	SED	1975-77
Little Menomonee River near Freistadt, WI	04087050	8.0	SED	1975-77
Noyes Creek at Milwaukee, WI	04087060	1.94	SED	1975-77
Little Menomonee River at Milwaukee, WI	04087070	19.7	SED	1975-77
Underwood Creek at Wauwatosa, WI	04087088	18.2	SED	1975-77
Honey Creek at Wauwatosa, WI	04087119	10.3	SED	1975-77
Menomonee River at Wauwatosa, WI	04087120	123	SED	1975-77, 1982-84
Schoonmaker Creek at Wauwatosa, WI	04087125	1.94	SED	1975-77
Hawley Road Storm Sewer at Wauwatosa, WI	04087130	1.83	SED	1975-77
Menomonee River at Milwaukee, WI	04087138	134	SED	1983-84
Menomonee River at Falk Corp at Milwaukee, WI	04087140	133.82	SED	1975-77, 1982
Kinnickinnic River at South 11th Street at Milwaukee, WI	04087159	20.2	SED	1983-84
ST. CROIX RIVER BASIN				
Round Lake near Gordon, WI	461342091561002	--	T	1981-85
St. Croix River at St. Croix Falls, WI	05340500	6,240	T,SC	1975-81
			SED	1982
Rice Creek near Balsam Lake, WI	05341375	12.5	C	1988-89
Balsam Branch at Balsam Lake, WI	05341402	52.8	C	1988-89
CHIPPEWA RIVER BASIN				
Duncan Creek Tributary near Tilden, WI	05364850	4.17	T,C,SED	1987-89
			DO	1987-88 ¹
Red Cedar River near Colfax, WI	05367500	1,090	C	1959, 1990
Hay River at Wheeler, WI	05368000	418	C	1959, 1990
Chippewa River at Durand, WI	05369500	9,010	T,SC	1975-81 ²
			SED	1974-79
Eau Galle River near Woodville, WI	05369900	39.4	T,SC	1978-83 ²
Eau Galle River at Low-Water Bridge at Spring Valley, WI	05369945	47.9	T	1982-83, 1987-93
			SC	1983
Eau Galle River at Spring Valley, WI	05370000	64.1	T,SC	1978-90
WAUMANDEE CREEK BASIN				
Joos Valley Creek near Fountain City, WI	05378183	5.89	T,C	1990-96
			DO	1990-92
Eagle Creek at County Highway G near Fountain City, WI	05378185	14.3	T,C	1990-96
			DO	1990-92
TREMPEALEAU RIVER BASIN				
Bruce Valley Creek near Pleasantville, WI	05379288	10.1	T,SC,SED,C	1980
Elk Creek near Independence, WI	05379305	108	T,SC,SED,C	1980
BLACK RIVER BASIN				
Black River near Galesville, WI	05382000	2,080	SED	1976-79
WISCONSIN RIVER BASIN				
Lake Clara near Tomahawk, WI	453100089343002	0.46	T	1982-86
Little Rock Lake near Woodruff, WI	455946089415704	--	T	1984-87
Buena Vista Creek near Kellner, WI	05400853	53.1	T	1965-67
Tenmile Creek Ditch 5 near Bancroft, WI	05401020	9.73	T	1965-72
Dell Creek near Lake Delton, WI	05403700	44.9	T,SED	1958-65
Black earth Creek at Cross Plains, WI	05406460	12.8	C,SED	1985-86
			T	1985-86, 1990-95
			DO	1984-86, 1989-95

DISCONTINUED SURFACE-WATER-QUALITY STATIONS

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Station name	Station number	Drainage area (mi ²)	Type of record	Period of record
WISCONSIN RIVER BASIN--CONTINUED				
Brewery Creek at Cross Plains, WI	05406470	10.5	T,C,SED DO	1985-86, 1990-98 1990-91
Black Earth Creek at Mills Street at Cross Plains, WI	05406476	25.5	T,DO	1990-95
Garfoot Creek near Cross Plains, WI	05406491	5.39	SED DO	1985-86, 1992-98 1984-85, 1990-98
Black Earth Creek at South Valley Rd near Black Earth, WI	05406497	40.6	T,C T,DO	1985-86, 1990-98 1990-98
Black Earth Creek at Black Earth, WI	05406500	45.6	T DO SED C	1954-65, 1985-86 1986 ¹ 1956-65, 1985-86 1985-86
Trout Creek Confluence Arneson Creek near Barneveld, WI	05406573	8.37	T,SC	1976-79
Trout Creek at Twin Parks Dam 8 near Barneveld, WI	05406574	9.02	SED	1976-79
Trout Creek at CTH T near Barneveld, WI	05406575	12.1	T,SED	1976-78
Trout Creek near Ridgeway, WI	05406577	13.5	T,SED	1976-79
Wisconsin River at Muscoda, WI	05407000	10,400	T,SC SED	1975-80 ¹ , 1981 1975-79
Kickapoo River at Ontario, WI	05407500	150	T SED	1974-77 1973-77
Kickapoo River near Rockton, WI	05407920	260	T,SED	1972-77
Kickapoo River at LaFarge, WI	05408000	266	T,SC SED	1971-77 1972-77
North Fork Nederlo Creek at mouth near Gays Mills, WI	05409842	2.31	T	1970 ¹ , 1974-78
South Fork Nederlo Creek near Gays Mills, WI	05409860	4.11	T	1970 ¹ , 1974-78
Nederlo Creek at Utica Town Hall near Gays Mills, WI	05409870	6.70	T	1968-78
GRANT RIVER BASIN				
Kuenster Creek at Muskellunge Road near North Andover, WI	054134435	9.59	T,DO C	1992-96 1993-96
Rattlesnake Creek near North Andover, WI	05413449	42.4	T,DO C	1987-96 1992-94
GALENA RIVER BASIN				
Little Platte River near Platteville, WI	05414213	79.7	T DO	1987-90 1987-90 ¹
Sinsinawa River near Hazel Green, WI	05414800	24.9	T DO	1987-90 1987-90 ¹
Pats Creek near Belmont, WI	05414894	5.42	T,SC,C DO	1981-82 1982 ¹
Madden Branch Tributary near Belmont, WI	05414915	2.83	T,SC,C DO	1981-82 1981 ¹
Madden Branch near Meekers Grove, WI	05414920	15.06	T,SC,C DO PH	1981-82 1981-82 ¹ 1982 ¹
APPLE RIVER BASIN				
Apple River near Shullsburg, WI	05418731	9.34	T,SC,C DO	1981-82 1981 ¹
ROCK RIVER BASIN				
Crawfish River at Milford, WI	05426000	762	SED	1980-82
Rock River at Indianford, WI	05427570	2,630	T SC,DO,PH	1975-78 1976-78
South Fork Pheasant Branch at Hwy 14 near Middleton, WI	05427945	5.74	SED	1978-81
Pheasant Branch at Centruy Avenue at Middleton, WI	05427950	20.8	SED	1978-81
Pheasant Branch at mouth at Middleton, WI	05427952	24.5	SED	1978-81
Willow Creek at Madison, WI	05427970	3.15	SED	1973-84
Rock River at Afton, WI	05430500	3,340	T	1955-83
Jackson Creek at Petrie Road near Elkhorn, WI	05431014	8.96	C,SED	1984-85 1993-95
Delavan Lake Trib at South Shore Drive at Delavan, WI	05431018	9.99	SED,C	1984-85, 1990-91
Livingston Branch Pecatonica River near Livingston, WI	05432055	16.4	T DO	1987-91 1987-91 ¹

DISCONTINUED SURFACE-WATER-QUALITY STATIONS

Station name	Station number ¹	Drainage area (mi ²)	Type of record	Period of record
ROCK RIVER BASIN--CONTINUED				
Yellowstone River near Blanchardville, WI	05433500	28.5	T SED	1954-60 1958-60, 1978-79
Steiner Branch near Waldwick, WI	05433510	5.90	T,SC,SED,C	1978-79
Pecatonica River at Martintown, WI	05434500	1,034	SED	1980-82
Mount Vernon Creek near Mount Vernon, WI	05436000	16.4	T SED	1954-60 1956-60
Sugar River near Brodhead, WI	05436500	523	SED	1978-86
ILLINOIS RIVER BASIN				
Powers Lake Tributary at Powers Lake, WI	05548163	1.83	C	1987

¹ Seasonal record, non-freezing periods² Numerous periods of missing record³ Station currently in operation for constituents(s) not listed here

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with local, State and Federal agencies, obtains a large amount of data pertaining to the water resources of Wisconsin each year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data - Wisconsin." Lake stage and in-lake water-quality data previously published in this series are now published annually in a report series "Water-Quality and Lake-Stage Data for Wisconsin Lakes." This Open-File Report series began in 1994; 1999 water year data for lakes are published in Open-File Report 00-89.

Water-resources data for Wisconsin for the 1999 water year include records of streamflow at gaging stations, partial-record stations, and miscellaneous sites; stage and contents of lakes and reservoirs; chemical, physical, and biological characteristics of surface and ground water; and water levels in observation wells. Records from several stations in bordering states are also included. These volumes contain discharge records from 140 gaging stations and peak stage and discharge from 79 crest-stage stations; stage for 8 lakes and contents for 24 reservoirs; water-quality data from 47 streams and from 3 lakes; precipitation from 16 sites; and water-level records from 48 observation wells. Additional water data were collected at various sites not involved in the systematic data-collection program, and are published in this report as miscellaneous measurements.

This series of annual reports for Wisconsin began in the 1961 water year with streamflow data, the 1964 water year with water-quality data, and the 1971 water year with ground-water data. Beginning with the 1975 water year, streamflow, water-quality, and ground-water data for each State were published in present format. These annual reports are for sale, in paper copy or microfiche, by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for Wisconsin were published in U.S. Geological Survey Water-Supply Papers. Records of stream discharges and of water levels in lakes and reservoirs were published annually through 1960 and then for the 5-year periods 1961-65 and 1966-70 in the series "Surface-Water Supply of the United States". Chemical-quality, water-temperature, and suspended-sediment data were published annually, from 1941 to 1970, in the series "Quality of Surface Waters of the United States." Records of ground-water levels were published annually from 1935 to 1974, in the series "Ground-Water Levels in the United States." The above mentioned Water-Supply Papers may be consulted in the libraries of the principal cities of the United States and may be purchased from U.S. Geological Survey, Box 25425, Federal Center, Denver, CO 80225.

Publications similar to this report are published annually by the Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report WI-99-1." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.

Additional information, including current prices for ordering specific reports, may be obtained from the District Chief at the address given on the back of the title page, or by telephone (608)828-9901.

Water-resources data, including stage and discharge data at most streamflow-gaging stations, water levels in selected wells, and some water-quality data, are available through the World Wide Web on the Internet. Current and historical data provided in water-data reports are available. The Universal Resource Locator (URL) to the Wisconsin District's home page is: <http://www.dwmndn.er.usgs.gov/>. Information on all U.S. Geological Survey reports and products (including maps, images, and computerized data) is available by calling 1-888-ASK-USGS. Additional earth science information is available by accessing the U.S. Geological Survey Home Page at <http://www.usgs.gov>.

COOPERATION

The U.S. Geological Survey and the State of Wisconsin have worked under cooperative agreements since 1913 collecting streamflow data, since 1955 collecting water-quality data, and since 1964 collecting ground-water level data. Agencies that worked cooperatively with the Survey during this year collecting data are:

Wisconsin Department of Natural Resources, George E. Meyer, secretary.
Southeastern Wisconsin Regional Planning Commission, Phillip Evenson, executive director.
U.S. Army Corps of Engineers.
Wisconsin Department of Transportation, Harold Amundson, chief bridge engineer.
The University of Wisconsin-Extension, Geological and Natural History Survey, James Robertson, state geologist and director.
Dane County Department of Planning and Development, Jeanie Sieling, director.
Dane County Regional Planning Commission, Thomas Favour, executive director.
City of Madison, Susan Bauman, mayor.
City of Middleton, Dan Ramsey, mayor.
City of Beaver Dam, Robert Sackett, utilities superintendent.
City of Thorp, Justin Rosemeyer, mayor.
Madison Metropolitan Sewerage District, James L. Nemke, chief engineer and director.
Milwaukee Metropolitan Sewerage District, Ralph Hollman, acting executive director.
Green Bay Metropolitan Sewerage District, Paul E. Thormodsgard, general manager.

City of Hillsboro, Janice G. Boekme, mayor.
 Illinois Department of Transportation, Melvin Allison, chief, bureau of planning.
 City of Waupun, Dennis Westhuis, manager, public utilities.
 City of Peshtigo, J. F. Dale Berman, mayor.
 Rock County Public Works Department, Thomas G. Kautz, parks and conservation director.
 Village of Wittenberg, Patricia Wruck.
 Menominee Indian Tribe of Wisconsin, Betty Jo Wozniak, administrator.
 Oneida Indian Tribe of Wisconsin, Melissa Schmitz, environmental department.
 Town of Delavan, Wayne Polzon, town chairman.
 Green Lake Sanitary District, Charlie Marks, administrator.
 City of Fond du Lac, Mark O. Lentz, city engineer.
 City of Barron, Bard Kittleson, mayor.
 Lac du Flambeau Band of Lake Superior Chippewa, Thomas Maulson, president.
 Stockbridge/Munsee Indian Tribe, Robert Chicks, tribal President.
 City of Sparta, Milo Seubert, mayor.
 City of Brookfield, Kathryn C. Bloomberg, mayor.
 Fontana/Walworth Water Pollution Control Commission, Dean M. Donner, superintendent.
 Bad River Band of Lake Superior Chippewa Indians, Donald Moore, tribal chairman.
 Walworth County Metropolitan Sewerage District, Joseph S. Canestra, administrator.
 City of Muskego, Tom Zagar, grants coordinator.
 Department of Agriculture, Trade and Consumer Protection, Ben Brancel, secretary.
 Milwaukee County, Greg Failey, airport environmental compliance manager.
 Wisconsin Department of Tourism, Marcy West, executive director
 Minnesota Pollution Control Agency, Bruce Biser, chief financial officer.
 U.S. Fish and Wildlife Service, Richard S. King, biologist.
 Minnesota-Wisconsin Boundary Commission
 Rock River Watershed, Mike Kelly, Treasurer
 City of Fort Atkinson, Paul Christensen
 Superior Wastewater Treatment Plant, Dan J. Roman

The following organizations aided in collecting streamflow records: Wisconsin Valley Improvement Co., Wisconsin Public Service Corp., Northern States Power Co., Dairyland Power Cooperative, Alliant Utilities., Wisconsin Electric Power Co., Scott Paper Co., Milwaukee County Park Commission, and Niagara of Wisconsin Paper Corp. Organizations that supplied data are acknowledged in station descriptions.

SUMMARY OF HYDROLOGIC CONDITIONS

Streamflow

The statewide average precipitation of 36.00 inches for the 1999 water year was 4.35 inches greater than the normal annual precipitation of 31.65 inches for water years 1961-90. Average precipitation values ranged from 83 percent of normal at both the Rosholt 9 NNE weather station in north central Wisconsin and Shawano 2 SSW WWTP weather station in northeast Wisconsin to 155 percent of normal at the Solon Springs weather station in northwestern Wisconsin (from tables provided by JoAnne Kruepke, UW-Extension, Wisconsin Geological and Natural History Survey, written commun., 2000).

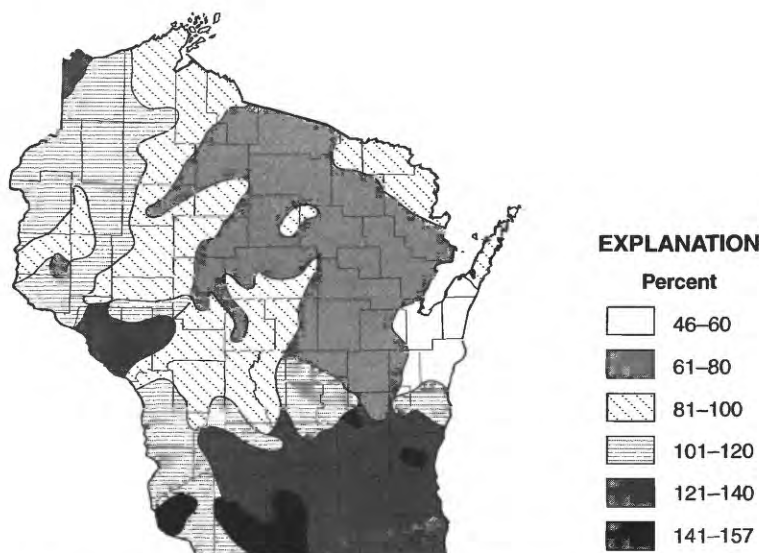


Figure 1. 1999 runoff as percentage of long-term average runoff.

Runoff differed for rivers throughout the State and ranged from 46 percent in east central Wisconsin to 157 percent in south central Wisconsin. Runoff was lowest (46 percent of the average annual runoff from 1989-99) for the Duck Creek near Oneida station and highest (157 percent of the average annual runoff from 1949-69, 1988-99) for the South Branch Rock River at Waupun station in south central Wisconsin. Departures of runoff in the 1999 water year as a percent of long-term average runoff in the State (determined using stations with drainage areas greater than 150 square miles and at least 20 years of record) are shown in Figure 1.

Annual discharges for the individual water years (1916-99) at the Oconto River near Gillett, Jump River at Sheldon, and Sugar River near Brodhead are shown in Figure 2. The comparison of monthly and annual discharges for the 1999 water year to discharge for a 84-year base period at the same three gaging stations are shown in Figure 3.

Low flows occurred at 13 gaging stations where the annual minimum 7-consecutive day average flows (Q7) had recurrence intervals of 5 or more years. Precipitation was well below normal in the summer and early fall months of 1998 in northern Wisconsin (Holmstrom and others, 1999). This resulted in Q7 values which equalled or exceeded the 5-year recurrence interval at a number of stations in north central and northwestern Wisconsin in early October and December. Below normal precipitation totals in August and early September in east central and southeastern Wisconsin (from tables provided by JoAnne Kruepke, UW-Extension, Wisconsin Geological and Natural History Survey, written commun., 2000) also resulted in Q7 values equal to or greater than the 5-year recurrence interval for stations in that area. The Q7 values and recurrence intervals for 13 gaging stations that equalled or exceeded 5 years are listed in the following table:

Station number	Station name	Date	Q7 (ft ³ /s)	Recurrence interval (years)
04027500	White River near Ashland	Dec. 18	135	5
04074950	Wolf River at Langlade	Dec. 21	179	6
04085200	Kewaunee River near Kewaunee	Sept. 6	8.7	5
04087120	Menomonee River at Wauwatosa	Sept. 5	8.7	5
04087159	Kinnickinnic River at South 11th Street at Milwaukee	Jan. 1	3.7	10
04087204	Oak Creek at South Milwaukee	Sept. 5	0.88	5
04087220	Root River near Franklin	Sept. 6	2.2	7
04087240	Root River at Racine	Sept. 9	2.2	10
05360500	Flambeau River near Bruce	Dec. 22	319	32
05365500	Chippewa River at Chippewa Falls	Dec. 21	1080	5
05395000	Wisconsin River at Merrill	Oct. 20	797	9
05398000	Wisconsin River at Rothschild	Oct. 21	1060	9
05400760	Wisconsin River at Wisconsin Rapids	Oct. 11	1070	16

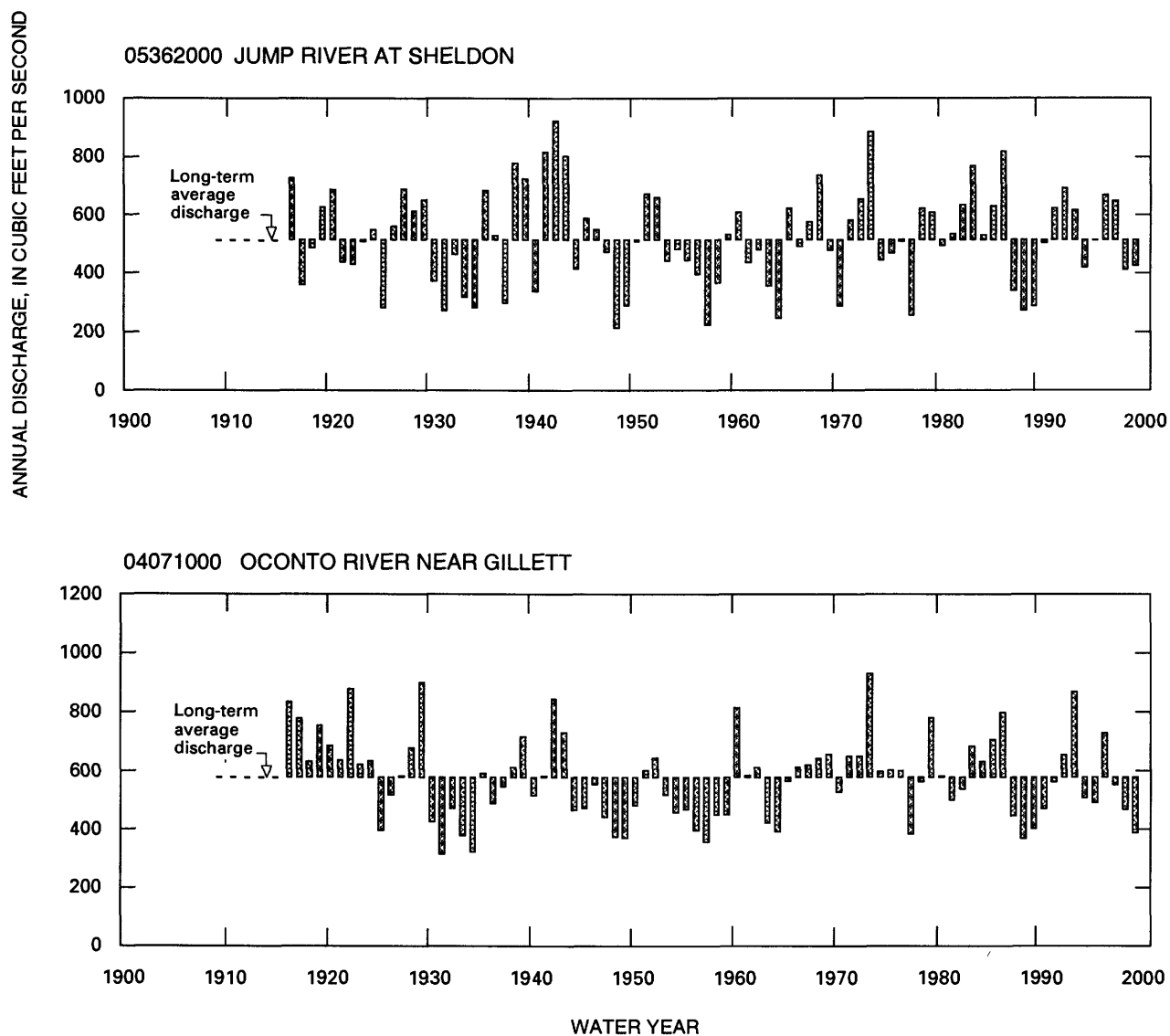


Figure 2. Comparison of annual discharge at representative gaging stations to their long-term average discharge for water years 1916–1999.

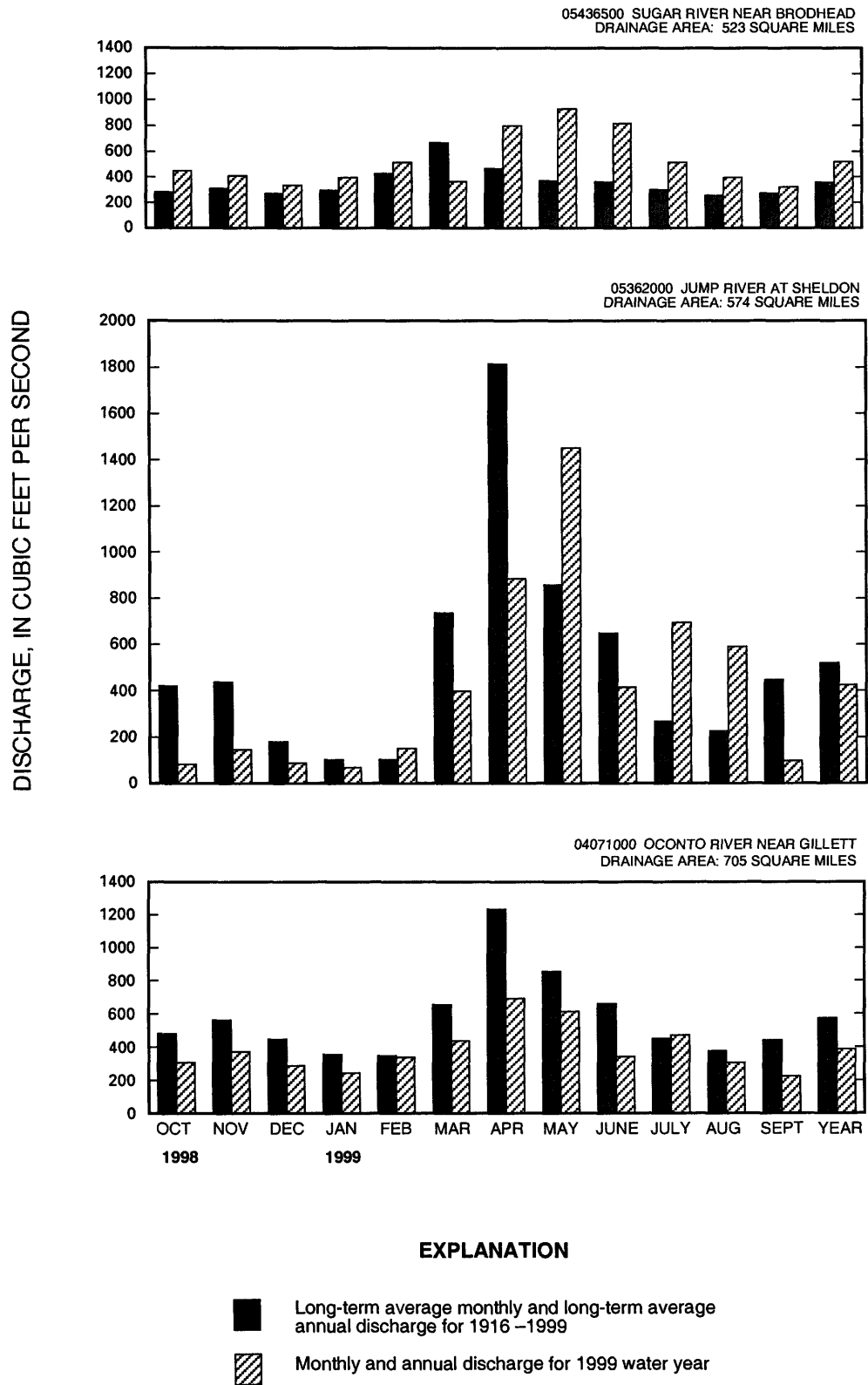


Figure 3. Comparison of discharge at representative gaging stations during 1999 water year with discharge for 1916–1999.

Runoff from rainfall caused flooding in Wisconsin in late April. Storms in mid May, mid June, and July also caused floods with discharges that equalled or exceeded those with a recurrence interval of 10 years (Krug and others, 1991). Heavy rains and isolated thunderstorms in April through July caused localized flooding in south central and southeastern Wisconsin. Thunderstorms in northern Wisconsin during the month of July caused flood damages. Isolated thunderstorms occurring in a short time period late on July 15 and early on July 16 caused road damages estimated to be \$1.5 million and damage to homes of about \$80,000 in Florence County (Wisconsin State Journal, July 17, 1999). The rainfall at Florence was 7.3 inches, and a recording station seven miles south of Florence recorded 5.1 inches (Wisconsin State Journal, July 16, 1999). The 7.3 inches at Florence exceeds the 100-year 24-hour precipitation value of about 6 inches for the Florence area (Huff and Angel, 1992). Thunderstorms in northwestern Wisconsin on July 26 produced rainfall amounts at many stations which exceeded 3 inches, and the largest recorded values of 5.60 inches at Solon Springs and 5.04 inches at Gordon (National Oceanic and Atmospheric Administration, July 1999) occurred in Douglas County. Governor Thompson requested Federal Emergency Management Agency assistance for flood damages in Bayfield, Douglas, Rusk, and Sawyer counties as a result of these storms in late July (Federal Emergency Management Agency, July 28, 1999). Peak discharges at 14 stations which had recurrence intervals that equalled or exceeded 10 years are summarized in the following table:

Station number	Station name	Date	Peak discharge (ft ³ /s)	Recurrence interval (years)
04024400	Stony Brook near Superior	July 26	480	20
04025200	Pearson Creek near Maple	July 26	878	10
04027200	Pearl Creek at Grandview	July 8	406	10
04064500	Pine River near Florence	July 15	3260	11
04087088	Underwood Creek at Wauwatosa	July 21	3280	>100
04087100	Honey Creek at Milwaukee	June 13	1040	>100
04087200	Oak Creek near South Milwaukee	Apr. 23	910	35
04087204	Oak Creek at South Milwaukee	Apr. 23	1060	27
04087250	Pike Creek near Kenosha	Apr. 23	174	10
05430175	Yahara River near Fulton	May 17	2490	11
05436200	Gill Creek near Brooklyn	May 17	960	>100
05545200	White River tributary near Burlington	June 13	354	>100
05545750	Fox River near New Munster	June 15	4670	11
05548150	North Branch Nippersink Creek near Genoa City	June 13	517	>100

References cited:

- Federal Emergency Management Agency, July 28, 1999, Wisconsin Requests Damage Assessments: accessed July 30, 1999, at URL <http://www.fema.gov/nwz99/wi0728.htm>.
- Holmstrom, B.K., Olson, D.L., and Ellefson, B.R., 1999, Water Resources data-Wisconsin, water year 1998: U.S. Geological Survey Water-Data Report WI-98-1, p. 5.
- Huff, Floyd A. and Angel, James R., 1992, Rainfall Frequency Atlas of the Midwest: Midwestern Climate Center Research Report 92-03, Bulletin 71, p. 89.
- Krug, W. R., Conger, D. H., and Gebert, W. A., 1991, Flood-frequency Characteristics of Wisconsin Streams: U.S. Geological Survey Water-Resources Investigations Report 91-4128, 185 p.
- National Oceanic and Atmospheric Administration, 1999, Climatological data, Wisconsin, July 1999, Vol. 104, Number 07, p. 9.
- Wisconsin State Journal, Severe flooding damages highways: Madison, Wis., July 17, 1999.
- _____, Major roads still out in Florence County: Madison, Wis., July 16, 1999.

Water Quality

Suspended-sediment yields for water year 1999 at two monitoring stations in southern Wisconsin showed suspended sediment yields in southwestern Wisconsin greater than long-term average and in southeastern Wisconsin yields were lower than the long-term average. The suspended-sediment yield at the Grant River at Burton in southwestern Wisconsin was 318 tons/mi² (tons per square mile), or 129 percent of the average annual yield for 1978-99. The suspended-sediment yield for Jackson Creek Tributary near Elkhorn in southeastern Wisconsin for water year 1999 was 65 tons/mi², which was 89 percent of the average annual yield for the period 1984-99. The total phosphorus yield for Jackson Creek Tributary was 353 lbs/mi² (pounds per square mile), or 80 percent of the 1984-99 annual average.

Ground-Water Levels

Maps showing the seasonal ground-water trends for the year (fig. 4) are based on water-level data from 22 shallow-aquifer wells, each having at least 15 years of record. Water-level measurements from each well are grouped so that FALL consists of measurements from October through December 1998; WINTER consists of measurements from January through March 1999; SPRING consists of measurements from April through June 1999; and SUMMER consists of measurements from July through September 1999. Mean seasonal water levels were compared to the long-term mean seasonal water levels. The 1999 water level was considered normal if it was within one-half of the standard deviation on the long-term mean.

In general, shallow ground-water levels during the 1999 water year were normal to above normal for most of the wells in the State. Milwaukee and Kenosha Counties had below normal ground-water levels at the beginning of the water year, and these levels remained below normal for most of the water year. The large extent of normal and above-normal ground-water levels can be attributed to near normal rainfall during the 1999 water year and normal rainfall during the previous water year.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Network is a network of 50 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by human activities.

National Stream-Quality Accounting Network (NASQAN) monitors the water quality of large rivers within four of the Nation's Largest river basins--the Mississippi, Columbia, Colorado, and Rio Grande. The network consists of 39 stations. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment Program (NAWQA); (3) to characterize processes unique to large-river systems such as storage and re-mobilization of sediments and associated contaminants; and (4) to refine existing estimates of off-continent transport of water, sediment, and chemicals for assessing human effects on the world's oceans and for determining global cycles of carbon, nutrients, and other chemicals.

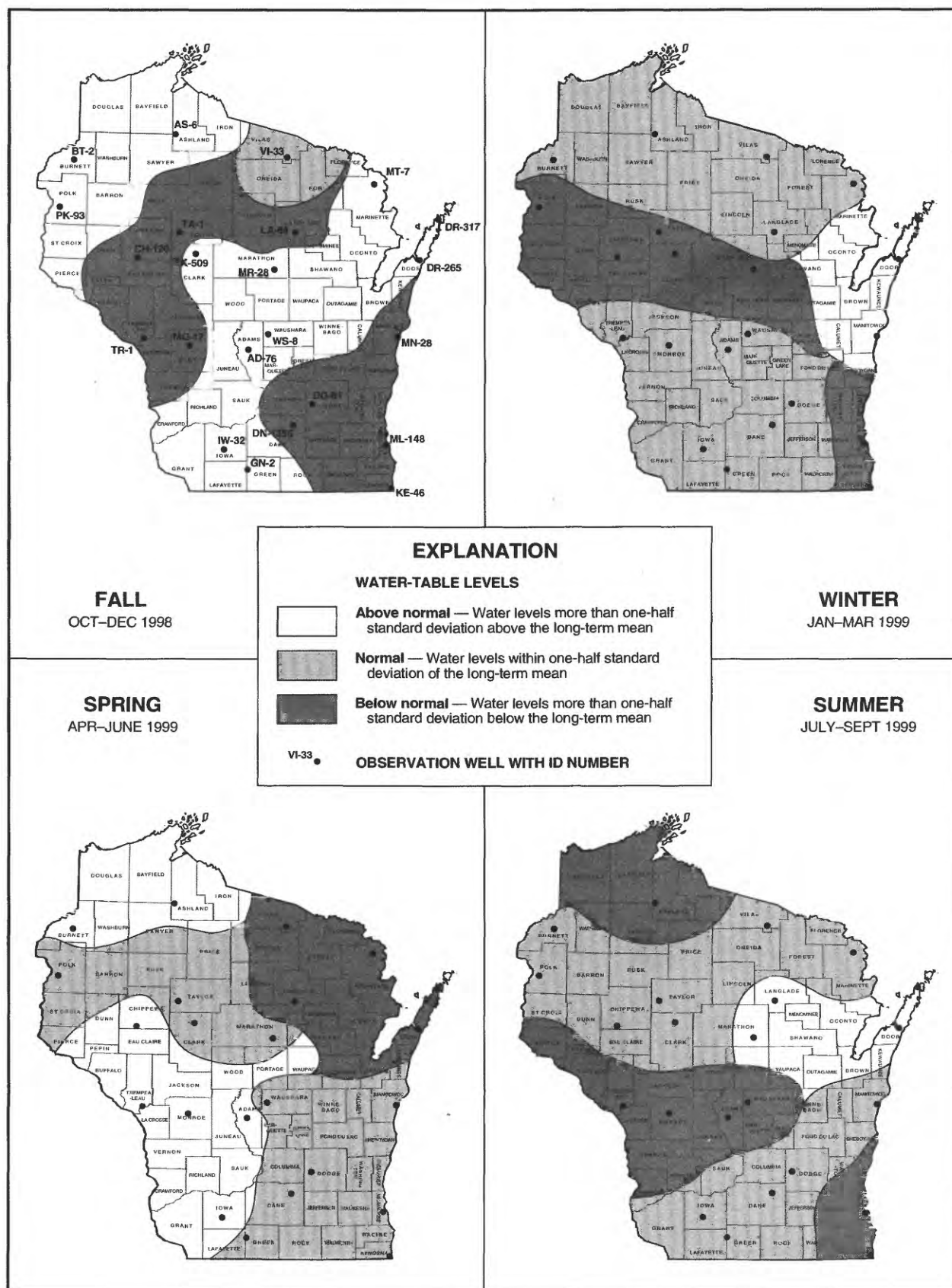


Figure 4. Relation of seasonal water-table levels to long-term means.

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) provides continuous measurement and assessment of the chemical climate of precipitation throughout the United States. As the lead federal agency, the USGS works together with over 100 organizations to accomplish the following objectives; (1) provide a long-term, spatial and temporal record of atmospheric deposition generated from a network of 191 precipitation chemistry monitoring sites, (2) provide the mechanism to evaluate the effectiveness of the significant reduction in SO₂ emissions that began in 1995 as implementation of the Clean Air Act Amendments (CAAA) occurred, (3) provide the scientific basis and nationwide evaluation mechanism for implementation of the Phase II CAAA emission reductions for SO₂ and NO_x scheduled to begin in 2000.

Data from the network, as well as information about individual sites, are available through the world wide web at:

<http://nadp.nrel.colostat.edu/NADP>

The National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water-quality conditions for a large representative part of the Nation's ground- and surface-water resources; provide an improved understanding of the primary natural and human factors affecting these observed conditions and trends; and provide information that supports development and evaluation of management, regulatory, and monitoring decisions by other agencies.

Assessment activities are being conducted in 53 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for decision making by water-resources managers and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Communication and coordination between USGS personnel and other local, State, and federal interests are critical components of the NAWQA Program. Each study unit has a local liaison committee consisting of representative from key federal, State, and local water resources agencies, Indian nations, and universities in the study unit. Liaison committees typically meet semiannually to discuss their information needs, monitoring plans and progress, desired information products, and opportunities to collaborate efforts among the agencies.

Additional information about the NAWQA Program is available through the world wide web at:

http://wwwrvares.er.usgs.gov/nawqa/nawqa_home.html

EXPLANATION OF THE RECORDS

The surface-water and ground-water records published in this report are from the 1999 water year that began October 1, 1998, and ended September 30, 1999. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data; stage and content data for lakes and reservoirs; precipitation data; surface and ground water; and ground-water-level data. Figure 5 shows major surface-water drainage basins and an index of hydrologic records. The locations of the stations and wells where the data were collected are shown in basin location maps and figure 6.

The following sections of introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

In this report each data station, whether streamsite or well, is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "downstream order number" is used for most surface-water stations on streams and a unique 15-digit number is used for lakes, wells, and precipitation monitoring sites.

Downstream Order and Station Number

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary to the stream to which it is immediately tributary is indicated by an indentation in the "List of Stations" in the front of this report. Each indentation represents one rank. This downstream order and system of indentation show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. No station-number distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight- to ten-digit number for each station, such as 04087000, 054310157, or 0407809265, which appears just to the left of the station name, includes the two-digit Part number "04" or "05" plus the six- to eight-digit downstream-order number ("087000", "4310157", or "07809265"). The Part number designates the major river basin; for example, records in this report are in Part 04 (St. Lawrence River basin) or Part 05 (Upper Mississippi River basin).

In some special cases, stations on streams may be identified with the numbering system used for ground-water and lake-data sites described in the following paragraph. This is generally done only for special purpose short-term stations where station density precludes convenient assignment of downstream order numbers.

Numbering System for Ground-Water, Lake, and Precipitation Data Sites

Wells, springs, sites on lakes, and precipitation gages where data are collected are identified by a unique 15-digit number that is a concatenation of the site's latitude, longitude, and a two-digit sequence number. The sequence number is used to distinguish between sites located at the same latitude-longitude designation. The site identification number is permanently assigned to the site; actual latitude and longitude of the site are subject to update and are stored separately. Each ground-water site is also identified by a local number based on the cadastral-survey system of the U.S. Government. The number consists of an abbreviation of the county name, the township, range and section, and a four-digit number assigned to the well.

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained from a continuous stage-recording device by which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained from a continuous stage-recording device, but need not be. Because daily mean discharges are commonly published for such stations, they are referred to as "daily stations." By contrast, partial records consist of discrete measurements, without using a continuous stage-recording device. Two types of surface-water partial-record stations are operated: (1) crest-stage partial-record stations, for which maximum discharge is recorded; and (2) miscellaneous stations, for which periodic discharge measurements and/or limited water-quality analyses are made. Each type of station is presented separately in this report.

Data Collection and Computation

The basic data collected at complete-record gaging stations include stage and discharge measurements of streams, and stage, surface area, and content measurements of lakes and reservoirs. Factors affecting stage-discharge relationships, weather records, and other information supplement the basic data used to determine daily flow. Records of stage are obtained by reading a non-recording gage, from a continuous graph, from a tape punched at selected intervals on a water-stage recorder, or from electronic data logger. Measurements of discharge are made with a current meter by using methods described in "U.S. Geological Survey Techniques of Water Resources Investigations" listed in "Publications on techniques of water-resources investigations."

Rating tables of stream stage and corresponding discharges are prepared from stage-discharge relationship curves. Extended-rating curves, based on step-backwater techniques, velocity-area studies, logarithmic plotting, and indirect measurements of peak discharge are used to estimate discharges greater than those measured. Daily mean discharges are computed from gage heights and rating tables, and the monthly and yearly means are computed from the daily figures. If the stage-discharge relationship varies due to changes in the control, such as aquatic growth, debris, or scour and fill, daily mean discharge is computed by a shifting-control method in which correction factors, based on individual discharge measurements and notes by observers, are used when the gage heights are applied to the rating tables.

The slope method is used to compute discharge at stream-gaging stations where backwater from lakes or reservoirs, tributary streams, or other sources affect the stage-discharge relationship. Acoustic velocity meters have also been installed at some locations where aforementioned problems occur. The rate of change of stage is used to compute discharge at stations where the stage-discharge relationship is affected by rapid changes in stage. When ice conditions at stream-gaging stations affect the stage-discharge relationship, gage-height records, winter discharge measurements, temperature and precipitation data, and comparable records of discharge for nearby stations are used to compute discharge. At gaging stations where gage-height records are faulty or non-existent for some periods, the daily discharges are estimated based on the recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for nearby stations.

Descriptions of the stations and tabulations of data are included in this report. A table showing daily, monthly, and yearly discharges is given for each gaging station on a stream or canal. A table showing the monthly summary of stage is given for gaging stations on lakes.

Data Presentation

Streamflow data in this report are presented in a format that is considerably different from the format in data reports prior to the 1992 water year. The major changes are that statistical characteristics of discharge now appear in tabular summaries following the water-year data table and less information is provided in the text or stations manuscript above the table. These changes represent the results of a pilot program to reformat the annual water-data report to meet current user needs and data preferences.

The records published for each continuous-record surface-water discharge station (gaging station) now consists of four parts: the manuscript or station description; the data table of daily mean values of discharge for the current water year with summary data; a tabular statistical summary of monthly mean flow data for a designated period, by water year; and a summary statistics table that includes statistical data of annual, daily, and instantaneous flows as well as data pertaining to annual runoff, 7-day low-flow minimums, and flow duration.

Station manuscripts

The manuscript provides, under various headings, descriptive information such as station location; period of record; historical extremes outside the period of record; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages were provided by the U.S. Army Corps of Engineers or other agencies.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Because the type of map available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation when the present station was not, and whose location was such that records from it can reasonably be considered equivalent with records from the present station.

REVISED RECORDS.--Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. All the reports in which revisions have been published for the station and the water years to which the revisions apply are listed under this heading. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage referred to sea level (see definition of terms), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations, or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify an estimated record, this information will be presented as the first entry of the paragraph. The paragraph is also used to present information about the accuracy of the records, special methods of computation, conditions that affect natural flow at the station and any other pertinent items.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES OUTSIDE PERIOD OF RECORD.--Information concerning major floods or unusually low flows that occurred outside the stated period of record is included here. The information may or may not have been obtained by the U.S. Geological Survey.

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although it is rare, occasionally the records of a discontinued gaging station may need revision. Because there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations, who obtained the record from previously published data reports, may wish to contact the District office to determine if the published records were ever revised after the station was discontinued. If the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

The data presented for most gaging stations on lakes include a description of the station and a monthly summary table of stage.

Headings for AVERAGE DISCHARGE, EXTREMES FOR PERIOD OF RECORD, AND EXTREMES FOR CURRENT YEAR have been deleted and the information contained in these paragraphs, except for the listing of secondary instantaneous peak discharges in the EXTREMES FOR CURRENT YEAR paragraph, is now presented in the tabular summaries following the discharge table or in the REMARKS paragraph, as appropriate. The RATING TABLE heading has also been deleted. No changes have been made to the data presentation of lake contents.

Data table of daily mean values

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month is usually also expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN."), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, or if the drainage area includes large noncontributing areas.

Statistics of monthly mean data

A tabular summary of the mean (line headed "MEAN"), maximum (line headed "MAX"), and minimum (line headed "MIN") of monthly mean flows for each month for a designated period is provided below the mean values table. The water years of the first occurrence of the maximum and minimum monthly flows are provided immediately below those figures. The designated period will be expressed as "FOR WATER YEARS _____ - _____, BY WATER YEAR (WY)," and will list the first and last water years of the range of years selected from the PERIOD OF RECORD paragraph in the station manuscript. It will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript.

Summary statistics

A table titled "SUMMARY STATISTICS" follows the statistics of monthly mean data tabulation. This table consists of four columns, with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly, daily, and instantaneous flows, not only for the current water year but also for the previous calendar year and for a designated period as appropriate. The designated period selected, "WATER YEARS _____ - _____," will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript. All of the calculations for the statistical characteristics designated ANNUAL (see line headings below), except for the "ANNUAL" 7-DAY MINIMUM" statistic, are calculated for the designated period using complete water years. The other statistical characteristics may be calculated using partial water years.

The date or water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the REMARKS paragraph of the manuscript or in footnotes. Because the designated period may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily and instantaneous extremes in the designated-period column may not be within the selected water years listed in the heading. When this occurs, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration curve statistics and runoff data are also given. Runoff data may be omitted if there is extensive regulation or diversion of flow in the drainage basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to follow clarify information presented under the various line headings of the summary statistics table.

ANNUAL TOTAL.--The sum of the daily mean values of discharge for the year. At some stations the annual total discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

ANNUAL MEAN.--The arithmetic mean of the individual daily mean discharges for the year noted or for the designated period. At some stations the yearly mean discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

HIGHEST ANNUAL MEAN.--The maximum annual mean discharge occurring for the designated period.

LOWEST ANNUAL MEAN.--The minimum annual mean discharge occurring for the designated period.

HIGHEST DAILY MEAN.--The maximum daily mean discharge for the year or for the designated period.

LOWEST DAILY MEAN.--The minimum daily mean discharge for the year or for the designated period.

ANNUAL 7-DAY MINIMUM.--The lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1-March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

INSTANTANEOUS PEAK FLOW.--The maximum instantaneous discharge occurring for the water year or for the designated period. Note that secondary instantaneous peak discharges above a selected base discharge are stored in District computer files for stations meeting certain criteria. Those discharge values may be obtained by writing to the District Office (see address on back of title page of this report).

INSTANTANEOUS PEAK STAGE.--The maximum instantaneous stage occurring for the water year or for the designated period. If the date of occurrence for the instantaneous peak flow and instantaneous peak stage differ, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

INSTANTANEOUS LOW FLOW.--The minimum instantaneous discharge occurring for the water year or for the designated period.

ANNUAL RUNOFF.--Indicates the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurement in presenting annual runoff data:

Acre-foot (AC-FT) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equal to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile area drained, assuming the runoff is distributed uniformly in time and area.

Inches (INCHES) indicates the depth to which the drainage area would be covered if all of the runoff for a given time period were uniformly distributed on it.

10 PERCENT EXCEEDS.--The discharge that is exceeded 10 percent of the time for the designated period.

50 PERCENT EXCEEDS.--The discharge that is exceeded 50 percent of the time for the designated period.

90 PERCENT EXCEEDS.--The discharge that is exceeded 90 percent of the time for the designated period.

Data collected at crest-stage partial-record stations are given in a table of annual maximum stages and discharges that follows the information for continuous-record sites. The crest-stage partial-record stations table is followed by a list of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for special reasons are called measurements at miscellaneous sites.

Identifying Estimated Daily Discharge

Estimated daily-discharge values are identified by listing the dates of the estimated record in the REMARKS paragraph of the station description.

Accuracy of the Records

The accuracy of streamflow records depends primarily on: (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements; and (2) the accuracy of measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the true value; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned, are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft³/s; to the nearest tenth between 1.0 and 10 ft³/s; to the nearest whole number between 10 and 1,000 ft³/s; and to 3 significant figures for more than 1,000 ft³/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Discharge at many stations, indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff, in inches, are not published unless satisfactory adjustments can be made for diversions, or changes in contents or reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents.

Other Records Available

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables are on file in the Wisconsin District office. Also, most of the daily mean discharges are in computer-readable form and have been statistically analyzed. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the District office.

Records of Surface-Water Quality

Records of stream-water quality ordinarily are obtained at or near streamgaging stations, because interpretation of records of stream-water quality nearly always requires corresponding stream discharge data. The stream discharge shown with a water-quality analysis is the instantaneous value corresponding to the time of sample collection ("Streamflow, Instantaneous") whenever possible. When an instantaneous discharge value is not available, the daily mean discharge ("Discharge, in Cubic Feet per Second") is given if available. Water samples from lakes are collected at locations identified by latitude and longitude; the depth at which the sample was collected is given with each analysis. Records of surface-water quality in this report include a variety of types of data and measurement frequencies.

Classification and Arrangement of Records

The water-quality data collected at surface-water sites fall into two general classifications. Continuous-record stations are sites where data are collected on a regularly scheduled basis as part of a monitoring program or interpretive investigation. Water-quality records for these stations accompany stream-discharge or lake-stage records, where available, in the Surface Water Records section of this report. More limited water-quality data are collected at gaging stations and other sites on streams. These data include measurements of water temperature and specific conductance made at gaging stations and water-quality analyses of samples collected at gaging stations and other sites on streams for reconnaissance and other special purposes. These data are presented separately at the end of the Surface-Water Records section.

On-site Measurements and Sample Collection

In obtaining water-quality data, care is taken to assure that the data obtained represent the quality of the water at the time of sampling. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen concentration, are made on site when the samples are taken. To assure that measurements made in the laboratory also reflect the original quality of the water, prescribed procedures are followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for on-site measurements and for collecting, treating, and shipping samples are detailed in the TWRI Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, and A4. These references are listed in the PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS section of this report. These methods are consistent with ASTM standards and generally follow ISO standards.

One sample can adequately define the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections using depth-integrating samplers to obtain a representative sample needed for an accurate mean concentration and for use in calculating the discharge of suspended and dissolved materials. Water quality in lakes may differ with depth and laterally at a particular depth depending on thermal stratification and other physical and biological factors.

Water-quality data published in this report are considered to be representative values for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis.

For chemical-quality stations equipped with digital monitors, daily maximum, minimum, and mean values for each constituent or property are computed and reported herein. Records of recorded values used in the computations are on file at the U.S. Geological Survey (USGS) Wisconsin District Office.

Transport of suspended and dissolved materials

Samples used for computing discharge of suspended and dissolved materials (suspended sediment, suspended solids, phosphorus, and nitrogen) are collected using a number of sampling methods. Sample types include flow-integrated samples collected using a depth-integrating sampler at multiple locations in a stream cross section (equal-width increment or EWI samples), samples collected using depth-integrating sampler at a single location in a cross section, or point samples collected by an automated sampler from a single point in a cross section. Coefficients are used to compensate for concentration differences between flow-integrated samples and samples collected at single points or single locations.

Samples are collected more frequently during periods of rapidly-changing stream discharge than during stable periods. Discharges of suspended and dissolved materials for days of rapidly-changing stream discharge are computed by the subdivided day (time-discharge weighted average) method. Methods used in the computation of sediment records are described in the TWRI Book 3, Chapters C1 and C3 listed in PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS. These methods are consistent with ASTM standards and generally follow ISO standards. For periods when no samples were collected, discharges of suspended and dissolved material are estimated from stream discharge and constituent concentrations from adjacent time periods and periods with similar stream discharges. Suspended-sediment and suspended-solids discharges of less than 0.005 tons/day are reported as 0.00 tons/day, and phosphorus and nitrogen discharges of less than 0.005 pounds per day (lb/day) are reported as 0.00 lb/day.

In addition to the records of suspended-sediment discharge and concentration, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included for some stations.

Laboratory Measurements

Samples for suspended-sediment concentration and particle-size determination are analyzed by the USGS Iowa District Sediment Laboratory. Chemical analyses, other than field measurements, are done by the USGS National Water Quality Laboratory unless indicated otherwise in the descriptive heading for the station. Methods used by USGS laboratories to analyze water and sediment samples and to compute sediment records are described in the TWRI Book 5, Chapter C1. Methods used by the U.S. Geological Survey laboratories are given in the TWRI Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, A4, and A5. These methods are consistent with ASTM standards and generally follow ISO standards.

In March 1989, the USGS National Water-Quality Laboratory discovered a bias in their turbidimetric method for sulfate analysis, indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and July 1989. The magnitude of the bias differs among stations.

A problem has been identified with total phosphorus and total Kjeldahl nitrogen analyses done by the USGS National Water Quality Laboratory prior to Oct. 1, 1991. Some time after 1975, an error was introduced during a rewrite of the laboratory method for digestion of samples for total phosphorus or total Kjeldahl nitrogen analyses. The error resulted in incomplete digestion of samples causing a negative bias in the total phosphorus and total Kjeldahl nitrogen concentrations reported for many samples. The amount of bias is variable, but it generally increases with increasing concentrations of particulate phosphorus, suspended sediment, or organic carbon in the sample. In the absence of split-sample data, there is no scientifically defensible way to correct for the bias. Total phosphorus loads calculated using concentration data for samples analyzed prior to October 1991 may also have a sizeable negative bias. A new digestion procedure was implemented effective Oct. 1, 1991, that eliminated the bias.

Dissolved Trace-Element Concentrations

Traditionally, dissolved trace-element concentrations have been reported at the microgram per liter ($\mu\text{g/L}$) level. Recent evidence, mostly from large rivers, indicates that actual dissolved-phase concentrations for a number of trace elements are within the range of 10's to 100's of nanograms per liter (ng/L). Data above the $\mu\text{g/L}$ level should be reviewed with caution. Such data may actually represent elevated environmental concentrations from natural or human causes; however, these data could reflect contamination introduced during sampling, processing, or analysis. To confidently produce dissolved trace-element data with insignificant contamination, the U.S. Geological Survey began using new trace-element protocols at some stations in water year 1994. Full implementation of the protocols took place during the 1995 water year.

Collecting and Analyzing Agencies

All water-quality analyses stored in USGS computer files (WATSTORE) contain codes that identify the agencies that collected the sample (collecting agency) and analyzed it (analyzing agency). Codes in use for Wisconsin data are as follows:

<u>Agency</u>	<u>Agency Code</u>
U.S. Geological Survey	1028
U.S. Geological Survey, National Water- Quality Laboratory	80020
Wisconsin State Laboratory of Hygiene	85543
Wisconsin Department of Natural Resources	85545

Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, laboratories (if other than USGS), cooperation, and extremes for daily discharges of suspended and dissolved materials. For each station, tables of data collected at less-than-daily frequency are presented first followed by tables of daily values.

The concentrations of some constituents are given as less than a particular value (see "Remark Codes"); that value is the detection for the analytical method used for the analysis. Occasionally these values differ, or an actual concentration is given that is less than a higher detection limit indicated for the constituent in another analysis. These differences are due to differences in analytical methods.

The five-digit numbers in parentheses in column headings in many of the water-quality tables are codes that identify the constituent or property in USGS computer files (WATSTORE).

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of constituents or properties measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for each constituent or property.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor, temperature recorder, automated sediment sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records. Laboratories other than USGS laboratories are identified.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximum and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of USGS water-quality data are encouraged to obtain all required data from the appropriate computer file to insure the most recent updates or check with the District Office to determine if updates were made.

The surface-water-quality records for water-quality partial-record stations are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its station number and name in the regular downstream-order sequence.

Remark Codes

The following remark codes may appear with the water-quality data in this report:

PRINTED OUTPUT

REMARK

E, e	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)

Records of Ground-Water Levels

Water-level data for 48 wells are given in this report. The locations of these wells are shown in figure 6. These wells are part of a national network of observation wells, and the water-level data are intended to provide a sampling and historical record of water-level changes in the Nation's most important aquifers.

Data in this report represent natural water-table and artesian conditions in the principal aquifers of the State, except in the sandstone aquifer in southeastern Wisconsin where heavy municipal and industrial pumping is causing a continual decline in the water level. Water in this aquifer is under artesian pressure where confined by the overlying Maquoketa Shale.

Although records of water levels for 48 wells are presented in this report, water-level data are currently being collected for a total of 128 wells in Wisconsin through a cooperative program with the Wisconsin Geological and Natural History Survey (WG&NHS). Many federal, state, county and local agencies, as well as interested area residents, assist in this program by measuring and reporting water levels. All water level data are placed in computer storage. Reports containing hydrographs, showing water-level changes in all of these wells, are periodically published by the WG&NHS.

The amplitude of water-level changes is typified by nine well hydrographs in this report that show annual maximum and minimum water levels for the period of record.

Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are consistently accurate and reliable.

Tables of water-level data are presented by county arranged in alphabetical order. The prime identification number for a given well is the 15-digit number that appears in the heading. It is followed by the secondary identification number (the local number), that consists of a two-letter abbreviation of the county name, the township-range-section location of the well, and a four-digit identification number that is unique within the county.

Water-level records are obtained from direct measurements with a steel tape or from a continuous water-level recorder. The water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. The altitude of the lsd above sea level and the distance of the measuring point (MP) above or below the lsd is given in each well description. Water levels are normally reported to a hundredth of a foot. The absolute value of the depth to water may be in error by a few tenths of a foot, but the error in determining the net change in water level between successive measurements is normally only a hundredth or a few hundredths of a foot.

Data Presentation

Each well record consists of two parts, the station description and the data table of water levels observed during the water year. The description of the well precedes the tabular data. The comments below clarify information presented under the various headings.

LOCATION.--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds); the hydrologic-unit number; and the land owner's name.

AQUIFER.--This entry designates by name the primary aquifer(s) open to the well.

WELL CHARACTERISTICS.--This entry describes the well in terms of depth, diameter, casing depth and/or screened interval, method of construction, and use.

INSTRUMENTATION.--This paragraph provides information on both the frequency of measurement and the collection method.

DATUM.--This entry describes both the measuring point and the land-surface elevation at the well. The measuring point is described physically (such as top of casing, top of breather pipe, hole in pump base and so on), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above (or below) sea level; it is reported with a precision dependent on the method of determination.

REMARKS.--This entry describes factors that may influence the water level in a well or the measurement of the water level.

PERIOD OF RECORD.--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year.

EXTREMES FOR PERIOD OF RECORD.--This entry contains the highest and lowest water levels of the period of published record, with respect to land-surface datum, and the dates of their occurrence.

A table of water levels follows the station description for each well. Water levels are reported in feet below land-surface datum and all taped measurements of water level are listed. For wells equipped with recorders, only abbreviated tables are published; daily lows are listed for every fifth day and at the end of the month (eom). For these wells the highest and lowest water levels of the water year and their dates of occurrence are shown on a line below the abbreviated table. Because all values are not published for these wells, the extremes may be values that are not listed in the table. Missing records are indicated by dashes in place of the water level.

ACCESS TO U.S. GEOLOGICAL SURVEY WATER DATA

The U.S. Geological Survey provides near real-time stage and discharge data for many of the gaging stations equipped with the necessary telemetry and historic daily-mean and peak-flow discharge data for most current or discontinued gaging stations through the world wide web (WWW). These data may be accessed at

<http://water.usgs.gov>

Some water-quality and ground-water data also are available through the WWW. In addition, data can be provided in various machine-readable formats on magnetic tape or 3-1/2 inch floppy disk. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division's District offices. (See address on the back of the title page.)

DEFINITION OF TERMS

Terms used in this report with reference to streamflow, water-quality, and other hydrologic data are defined below. For conversion of inch-pound units and International System (SI) units see the table on the inside of the back cover.

Acid neutralizing capacity (ANC) is the equivalent sum of all bases or base-producing materials, solutes plus particulates, in an aqueous system that can be titrated with acid to an equivalence point.

Acre-foot (acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot. It is the equivalent of 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters.

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measurement of ATP, therefore, provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Alkalinity is the capacity of solutes in an aqueous system to neutralize acid.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Bacteria are microscopic, unicellular organisms, typically spherical, rod-like, or spiral and threadlike in shape, and often clumped into colonies. Some bacteria cause disease; others perform essential roles in the natural recycling of materials such as decomposing organic matter into forms available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. This group includes coliforms that inhabit the intestine of warm-blooded animals and those that inhabit soils. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C plus or minus 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are present in the intestines of warmblooded animals and are used to determine the sanitary quality of water. They are defined as those organisms that produce blue colonies within 24 hours when incubated at $44.5^{\circ}\text{C} + 0.2^{\circ}$ on M-FC culture medium. Their concentrations are expressed as number of colonies per 100 ml of sample.

Fecal streptococci bacteria are also found in the intestines of warmblooded animals. Their presence in water is used to verify fecal pollution. They are characterized as gram-positive, spherical bacteria capable of growth in brain-heart infusion broth. They are defined as those organisms that produce red or pink colonies within 48 hours at $35^{\circ} \pm 1.0^{\circ}$ on KF-streptococcus culture medium. Their concentrations are expressed as number of colonies per 100 ml of sample.

Enterococcus bacteria are commonly found in the feces of humans and other warm-blooded animals. Although some strains are ubiquitous and not related to fecal pollution, the presence of enterococci in water is an indication of fecal pollution and the possible presence of enteric pathogens. Enterococcus bacteria are those bacteria which produce pink to red colonies with black or reddish-brown precipitate after incubation at 41°C on mE agar and subsequent transfer to EIA medium. Enterococci include *Streptococcus faecalis*, *Streptococcus faecium*, *Streptococcus avium*, and their variants.

Bedload is the sediment which moves along in essentially continuous contact with the streambed by rolling, sliding, and making brief excursions into the flow a few diameters above the bed.

Bed load discharge (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

Bed material is the unconsolidated material at the bottom of a streambed, lake, pond, reservoir, or estuary.

Benthic invertebrates are invertebrate animals inhabiting the bottoms of lakes, streams, and other water bodies. They are useful as indicators of water quality.

Biochemical oxygen demand (BOD) measures the quantity of dissolved oxygen, in milligrams per liter, used by microorganisms for the decomposition of organic matter.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square mil (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 105°C for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL or liters (L)).

Cfs-day is the volume of water produced by a flow of 1 cubic foot per second for 24 hours. It is the equivalent of 86,400 cubic feet, 1.9835 acre-feet, 646,000 gallons, or 2,447 cubic meters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with BOD or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll *a* and *b* are the two most common green pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of platinum-cobalt scale.

Control is a feature downstream from a gage that determines the stage-discharge relation at the gage. The control may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Cubic foot per second (ft^3/s) represents a volume of 1 cubic foot of water passing a given point during 1 second and is the equivalent of 7.48 gallons per second, 448.8 gallons per minute, or 0.02832 cubic meters per second.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Discharge is the volume of fluid or mass of suspended sediment passing a given point in a given period of time.

Mean discharge (MEAN) is the arithmetic average of all daily mean discharges for a specific period of time.

Instantaneous discharge is the discharge at a particular time.

Annual 7-day minimum is the lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1-March 31). The date shown in the summary statistics tables is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

Dissolved is an operational definition used by Federal and State agencies collecting water data as that material in a water sample which passes through a 0.45 μm membrane filter. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculation of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

Drainage area of a stream at a specified location is measured in a horizontal plane and constitutes an area enclosed by a topographic divide from which surface runoff above the specified point drains by gravity into the stream. Values of the drainage areas given herein include closed basins and noncontributing areas within the basin, as noted.

Drainage basin is part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Extractable organic halides (EOX) are organic compounds which contain halogen atoms such as chlorine. These organic compounds are semi-volatile and extractable by ethyl acetate from air-dried stream bottom sediments. The ethyl acetate extract is combusted, and the concentration is determined by microcoulometric determination of the halides formed. The concentration is reported as micrograms of chlorine per gram of the dry weight of the stream bottom sediments.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the general term "stage", although gage height is more appropriate when referring to a reading on a gage. See also Lake stage.

Gaging station is a particular site on a stream or lake where systematic hydrologic data are collected.

Geologic unit is a geologic formation or group of formations; in this report, the term is used in the same sense as "aquifer" and refers to the geologic formation(s) open to the uncased or screened portion of a well.

Hardness is a physical-chemical characteristic of water that is attributable principally to the presence of calcium and magnesium and is expressed as calcium carbonate (CaCO_3). Hardness is commonly recognized by the increased quantity of soap required to produce lather.

Hydrologic unit designates part or all of a surface-drainage basin delineated by the Office of Water Data Coordination; each hydrologic unit is identified by an 8-digit number.

Lake stage is the elevation of the lake's water surface referred to some arbitrary gage datum.

Membrane filter is a thin microporous material of specific pore size used to filter bacteria, algae, and other very small particles from water.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

Micrograms per gram ($\mu\text{g/g}$) indicates the concentration of a chemical constituent as the mass (micrograms) of that constituent per unit mass (gram) of sediment.

Micrograms per kilogram ($\mu\text{g/kg}$) indicates the concentration of a chemical constituent as mass (micrograms) of that constituent per unit mass (kilogram) of sediment.

Micrograms per liter ($\mu\text{g/L}$) indicates the concentration of a chemical constituent as the mass (micrograms) of that constituent per unit volume (liter) of water. One thousand micrograms per liter is equivalent to 1 milligram per liter.

Microsiemens per centimeter ($\mu\text{S/cm}$), US/CM) is a unit expressing the amount of electrical conductivity of a solution as measured between opposite faces of a centimeter cube of solution at a specified temperature. Siemens is the International System of unit nomenclature. It is synonymous with mhos and is the reciprocal of resistance in ohms.

Milligrams per liter (mg/L) indicates the concentration of a chemical constituent or suspended sediment as the mass (milligrams) per unit volume (liter) of water.

Most probable number (MPN) is an index of the number of coliform bacteria that, more probably than any other number, would give the results shown by the laboratory examination; it is not an actual enumeration. It is determined from the distribution of gas-positive cultures among multiple inoculated tubes.

Multiple-plate samples are artificial substrates of known surface area used for obtaining benthic-invertebrate samples. They consist of a series of spaced, hardboard plates on an eyebolt.

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent mean sea level at any particular place.

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meter (m²), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter code is a 5-digit number used in the U.S. Geological Survey computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent. The codes used in NWIS are the same as those used in the U.S. Environmental Protection Agency data system STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

Partial-record station is a site for the systematic collection of limited streamflow or water-quality data over a period of years.

Particle size is measured as the diameter, in millimeters (mm), of suspended sediment and bed material determined by sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) measure the fall diameter of particles in distilled water (chemically dispersed) or native water (surface water at the time and point of sampling).

Particle-size classification for this report is based on recommendations of the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

<u>Classification</u>	<u>Size (mm)</u>	<u>Method of analysis</u>
Clay.....	0.00024 - 0.004	Sedimentation.
Silt.....	.004 - .062	Sedimentation.
Sand	.062 - 2.0	Sedimentation or sieve.
Gravel.....	2.0 - 64.0	Sieve.

The partial-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed, and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass, or volume.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surface. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

Pesticides are chemical compounds used to control undesirable plants and animals. They include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides control insects and plants respectively and are the two categories reported.

Picocurie (PCi) is one trillionth (1×10^{-12}) of a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} disintegrations per second. A picocurie yields 2.22 disintegrations per minute.

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and river.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Polychlorinated biphenyls (PCB's) are industrial chemicals composed of biphenyl compounds containing various amounts of chlorine. Their chemical structure is similar to the organochlorine insecticides.

Polychlorinated naphthalenes (PCN's) are industrial chemicals composed of naphthalene compounds containing various amounts of chlorine. Their chemical structure is similar to the organochlorine insecticides.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Recoverable from bottom material is the amount of a given constituent that is in solution after a sample of bottom material has been digested by an acid or mixture of acids that results in dissolution of only readily soluble substances. Complete dissolution of all bottom material usually is not achieved by the digestion treatment and thus the determination represents less than the total amount of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

River mile as used herein, is the distance above the mouth of Delaware Bay, measured along the center line of the navigation channel or the main stem of the Delaware River. River mile data were furnished by the Delaware River Basin Commission.

Runoff in inches (IN, in) indicates the depth of water that would cover a drainage area if all runoff for a given time period were uniformly distributed.

Sea level, in the report, refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)--a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

Secchi disk is a black and white plate, 20-25 cm in diameter, which is lowered into a lake on a calibrated line until it is no longer visible. The depth, in meters, at which the disk just disappears is reported as a measure of transparency.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, and deposited by water; it includes chemical and biochemical precipitates and decomposed organic material such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in a sample zone (from the water surface to approximately 0.3 ft above the streambed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L). The entire sample is used for the analysis.

Mean concentration is the time-weighted concentration of suspended sediment passing through a stream cross section during a 24-hour period.

Suspended-sediment discharge is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) times discharge (ft³/s) times 0.0027.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

Suspended total residue at 105°C concentration is the concentration of suspended sediment in the sampled zone expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L). A small aliquot of the sample is used for the analysis.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a section during a given time.

Total sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total sediment discharge.

Sodium-adsorption ratio (SAR) expresses the relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance dissolved in water.

Specific conductance is a measure of the ability of water to conduct electrical current and is expressed in microsiemens per centimeter at 25°C. It is related to the number and specific types of ions in solution, and is useful for approximating the concentration of dissolved solids in the water. Commonly, the concentration of dissolved solids mg/L is from 55 to 75 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation correlates height (stage) and the volume of water flowing in a channel per unit of time.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lives.

Natural substrate refers to any naturally occurring immersed or submersed solid surface, such as a rock or tree, upon which an organism lives.

Artificial substrate is a device which purposely placed in a stream or lake for colonization or organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samples (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest USGS topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimeted. all areas shown are those for the stage when the planimeted map was made.

Surficial bed material is the part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is associated with the material retained on a 0.45-micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a water-sediment sample retained on a 0.45 µm membrane filter has been digested by dilute acid that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter usually is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of dissolved and total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a water-sediment sample that is retained on a 0.45 mm membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of dissolved and total recoverable concentrations of the constituent.

Synoptic studies are short-term investigations of specific water-quality conditions during selected seasonal or hydrologic periods to provide improved spatial resolution for critical water-quality conditions. For the period and conditions sampled, they assess the spatial distribution of selected water-quality conditions in relation to causative factors, such as land use and contaminant sources.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry weight of a constituent in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the measure of a substance that passes a stream section in solution or suspension during a 24-hour period.

Total is the total amount of a given constituent in a water-sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." The term indicates the sample consists of a water-sediment mixture and that the analytical method determines all of the constituent in the sample.

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross-section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total recoverable is the amount of a given constituent that is in solution after a water-sediment sample has been digested by dilute acid resulting in dissolution of only readily soluble substances. Complete dissolution of all particulate matter usually is not achieved, thus the determination represents something less than the "total" amount of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Volatile organic compounds (VOCs) are organic compounds that can be isolated from the water phase of a sample by purging the water sample with inert gas, such as helium, and subsequently analyzed by gas chromatography. Many VOCs are man-made chemicals that are used and produced in the manufacture of paints, adhesives, petroleum products, pharmaceuticals, and refrigerants. They are often components of fuels, solvents, hydraulic fluids, paint thinners, and dry cleaning agents commonly used in urban settings. VOC contamination of drinking-water supplies is a human health concern because many are toxic and are known or suspected human carcinogens (U.S. Environment Protection Agency, 1996).

WDR is the abbreviation for "Water-Data Report" used in the summary REVISIONS paragraph to indicate previously published State annual basic data report (WRD was used an abbreviation for "Water-Resources Data" in reports published prior to 1976).

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the correspond period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WSP is the abbreviation for "Water-Supply Paper" used in references to previously published reports.

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S. Geological Survey, Branch of Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

Book 1. Collection of Water Data by Direct Measurement

Section D. Water Quality

- 1-D1. *Water temperature—influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J.F. Ficke, and G. F. Smoot: USGS–TWRI Book 1, Chapter D1. 1975. 65 pages.
- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W. Wood: USGS–TWRI Book 1, Chapter D2. 1976. 24 pages.

Book 2. Collection of Environmental Data

Section D. Surface Geophysical Methods

- 2-D1. *Application of surface geophysics to ground-water investigations*, by A.A. R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS–TWRI Book 2, Chapter D1. 1974. 116 pages.
- 2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F.P. Haeni: USGS–TWRI Book 2, Chapter D2. 1988. 86 pages.

Section E. Subsurface Geophysical Methods

- 2-E1. *Application of borehole geophysics to water-resources investigations*, by W.S. Keys and L.M. MacCary: USGS–TWRI Book 2, Chapter E1. 1971. 126 pages.
- 2-E2. *Borehole geophysics applied to ground-water investigations*, by W.S. Keys: USGS–TWRI Book 2, Chapter E2. 1990. 150 pages.

Section F. Drilling and Sampling Methods

- 2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and W.E. Teasdale: USGS–TWRI Book 2, Chapter F1. 1989. 97 pages.

Book 3. Applications of Hydraulics

Section A. Surface-Water Techniques

- 3-A1. *General field and office procedures for indirect discharge measurements*, by M.A. Benson and Tate Dalrymple: USGS–TWRI Book 3, Chapter A1. 1967. 30 pages.
- 3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M.A. Benson: USGS–TWRI Book 3, Chapter A2. 1967. 12 pages.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G.L. Bodhaine: USGS–TWRI Book 3, Chapter A3. 1968. 60 pages.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H.F. Matthai: USGS–TWRI Book 3, Chapter A4. 1967. 44 pages.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS–TWRI Book 3. Chapter A5. 1967. 29 pages.
- 3-A6. *General procedure for gaging streams*, by R.W. Carter and Jacob Davidian: USGS–TWRI Book 3, Chapter A6. 1968. 13 pages.
- 3-A7. *Stage measurement at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS–TWRI Book 3, Chapter A7. 1968. 28 pages.

- 3-A8. *Discharge measurements at gaging stations*, by T.J. Buchanan and W.P. Somers: USGS-TWRI Book 3, Chapter A8. 1969. 65 pages.
- 3-A9. *Measurement of time of travel in streams by dye tracing*, by F.A. Kilpatrick and J.F. Wilson, Jr.: USGS-TWRI Book 3, Chapter A9. 1989. 27 pages.
- 3-A10. *Discharge ratings at gaging stations*, by E.J. Kennedy: USGS-TWRI Book 3, Chapter A10. 1984. 59 pages.
- 3-A11. *Measurement of discharge by the moving-boat method*, by G.F. Smoot and C.E. Novak: USGS-TWRI Book 3, Chapter A11. 1969. 22 pages.
- 3-A12. *Fluorometric procedures for dye tracing*, Revised, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS-TWRI Book 3, Chapter A12. 1986. 34 pages.
- 3-A13. *Computation of continuous records of streamflow*, by E.J. Kennedy: USGS-TWRI Book 3, Chapter A13. 1983. 53 pages.
- 3-A14. *Use of flumes in measuring discharge*, by F.A. Kilpatrick and V.R. Schneider: USGS-TWRI Book 3, Chapter A14. 1983. 46 pages.
- 3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS-TWRI Book 3, Chapter A15. 1984. 48 pages.
- 3-A16. *Measurement of discharge using tracers*, by F.A. Kilpatrick and E.D. Cobb: USGS-TWRI Book 3, Chapter A16. 1985. 52 pages.
- 3-A17. *Acoustic velocity meter systems*, by Antonius Laenen: USGS-TWRI Book 3, Chapter A17. 1985. 38 pages.
- 3-A18. *Determination of stream reaeration coefficients by use of tracers*, by F.A. Kilpatrick, R.E. Rathbun, Nobuhiro Yotsukura, G.W. Parker, and L.L. DeLong: USGS-TWRI Book 3, Chapter A18. 1989. 52 pages.
- 3-A19. *Levels at streamflow gaging stations*, by E.J. Kennedy: USGS-TWRI Book 3, Chapter A19. 1990. 31 pages.
- 3-A20. *Simulation of soluble waste transport and buildup in surface waters using tracers*, by F.A. Kilpatrick: USGS-TWRI Book 3, Chapter A20. 1993. 38 pages.
- 3-A21. *Stream-gaging cableways*, by C. Russell Wagner: USGS-TWRI Book 3, Chapter A21. 1995. 56 pages.

Section B. Ground-Water Techniques

- 3-B1. *Aquifer-test design, observation, and data analysis*, by R.W. Stallman: USGS-TWRI Book 3, Chapter B1. 1971. 26 pages.
- 3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G.D. Bennett: USGS-TWRI Book 3, Chapter B2. 1976. 172 pages.
- 3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J.E. Reed: USGS-TWRI Book 3, Chapter B3. 1980. 106 pages.
- 3-B4. *Regression modeling of ground-water flow*, by R.L. Cooley and R.L. Naff: USGS-TWRI Book 3, Chapter B4. 1990. 232 pages.
- 3-B4. *Supplement 1. Regression modeling of ground-water flow --Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems*, by R.L. Cooley: USGS-TWRI Book 3, Chapter B4. 1993. 8 pages.
- 3-B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems—An introduction*, by O.L. Franke, T.E. Reilly, and G.D. Bennett: USGS-TWRI Book 3, Chapter B5. 1987. 15 pages.
- 3-B6. *The principle of superposition and its application in ground-water hydraulics*, by T.E. Reilly, O.L. Franke, and G.D. Bennett: USGS-TWRI Book 3, Chapter B6. 1987. 28 pages.
- 3-B7. *Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow*, by E.J. Wexler: USGS-TWRI Book 3, Chapter B7. 1992. 190 pages.

Section C. Sedimentation and Erosion Techniques

- 3-C1. *Fluvial sediment concepts*, by H.P. Guy: USGS-TWRI Book 3, Chapter C1. 1970. 55 pages.
- 3-C2. *Field methods for measurement of fluvial sediment*, by H.P. Guy and V.W. Norman: USGS-TWRI Book 3, Chapter C2. 1970. 59 pages.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS-TWRI Book 3, Chapter C3. 1972. 66 pages.

Book 4. Hydrologic Analysis and Interpretation**Section A. Statistical Analysis**

- 4-A1. *Some statistical tools in hydrology*, by H.C. Riggs: USGS-TWRI Book 4, Chapter A1. 1968. 39 pages.
- 4-A2. *Frequency curves*, by H.C. Riggs: USGS-TWRI Book 4, Chapter A2. 1968. 15 pages.

Section B. Surface Water

- 4-B1. *Low-flow investigations*, by H.C. Riggs: USGS-TWRI Book 4, Chapter B1. 1972. 18 pages.
- 4-B2. *Storage analyses for water supply*, by H.C. Riggs and C.H. Hardison: USGS-TWRI Book 4, Chapter B2. 1973. 20 pages.
- 4-B3. *Regional analyses of streamflow characteristics*, by H.C. Riggs: USGS-TWRI Book 4, Chapter B3. 1973. 15 pages.

Section D. Interrelated Phases of the Hydrologic Cycle

- 4-D1. *Computation of rate and volume of stream depletion by wells*, by C.T. Jenkins: USGS-TWRI Book 4, Chapter D1. 1970. 17 pages.

Book 5. Laboratory Analysis**Section A. Water Analysis**

- 5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M.J. Fishman and L.C. Friedman, editors: USGS-TWRI Book 5, Chapter A1. 1989. 545 pages.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P.R. Barnett and E.C. Mallory, Jr.: USGS-TWRI Book 5, Chapter A2. 1971. 31 pages.
- 5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R.L. Wershaw, M.J. Fishman, R.R. Grabbe, and L.E. Lowe: USGS-TWRI Book 5, Chapter A3. 1987. 80 pages.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L.J. Britton and P.E. Greenson, editors: USGS-TWRI Book 5, Chapter A4. 1989. 363 pages.
- 5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS-TWRI Book 5, Chapter A5. 1977. 95 pages.
- 5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L.C. Friedman and D.E. Erdmann: USGS-TWRI Book 5, Chapter A6. 1982. 181 pages.

Section C. Sediment Analysis

- 5-C1. *Laboratory theory and methods for sediment analysis*, by H.P. Guy: USGS-TWRI Book 5, Chapter C1. 1969. 58 pages.

Book 6. Modeling Techniques**Section A. Ground Water**

- 6-A1. *A modular three-dimensional finite-difference ground-water flow model*, by M.G. McDonald and A.W. Harbaugh: USGS-TWRI Book 6, Chapter A1. 1988. 586 pages.
- 6-A2. *Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model*, by S.A. Leake and D.E. Prudic: USGS-TWRI Book 6, Chapter A2. 1991. 68 pages.
- 6-A3. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual*, by L.J. Torak: USGS-TWRI Book 6, Chapter A3. 1993. 136 pages.
- 6-A4. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions*, by R.L. Cooley: USGS-TWRI Book 6, Chapter A4. 1992. 108 pages.

- 6-A5. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details*, by L.J. Torak: USGS-TWRI Book 6, Chapter A5, 1993. 243 pages.
- 6-A6. *A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction*, by Eric D. Swain and Eliezer J. Wexler. 1996. 125 pages.

Book 7. Automated Data Processing and Computations

Section C. Computer Programs

- 7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P.C. Trescott, G.F. Pinder, and S.P. Larson: USGS-TWRI Book 7, Chapter C1. 1976. 116 pages.
- 7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L.F. Konikow and J.D. Bredehoeft: USGS-TWRI Book 7, Chapter C2. 1978. 90 pages.
- 7-C3. *A model for simulation of flow in singular and interconnected channels*, by R.W. Schaffranek, R.A. Baltzer, and D.E. Goldberg: USGS-TWRI Book 7, Chapter C3. 1981. 110 pages.

Book 8. Instrumentation

Section A. Instruments for Measurement of Water Level

- 8-A1. *Methods of measuring water levels in deep wells*, by M.S. Garber and F.C. Koopman: USGS-TWRI Book 8, Chapter A1. 1968. 23 pages.
- 8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J.D. Craig: USGS-TWRI Book 8, Chapter A2. 1983. 57 pages.

Section B. Instruments for Measurement of Discharge

- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G.F. Smoot and C.E. Novak: USGS-TWRI Book 8, Chapter B2. 1968. 15 pages.

Book 9. Handbooks for Water-Resources Investigations

Section A. National Field Manual for the Collection of Water-Quality Data

- 9-A1. *National Field Manual for the Collection of Water-Quality Data: Preparations for Water Sampling*, by F.D. Wilde, D.B. Radtke, Jacob Gibbs, and R.T. Iwatsubo: USGS-TWRI book 9, chap. A1. 1998. 47 p.
- 9-A2. *National Field Manual for the Collection of Water-Quality Data: Selection of Equipment for Water Sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibbs, and R.T. Iwatsubo: USGS-TWRI book 9, chap. A2. 1998. 94 p.
- 9-A3. *National Field Manual for the Collection of Water-Quality Data: Cleaning of Equipment for Water Sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibbs, and R.T. Iwatsubo: USGS-TWRI book 9, chap. A3. 1998. 75 p.
- 9-A4. *National Field Manual for the Collection of Water-Quality Data: Collection of Water Samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibbs, and R.T. Iwatsubo: USGS-TWRI book 9, chap. A4. 1999. 156 p.
- 9-A5. *National Field Manual for the Collection of Water-Quality Data: Processing of Water Samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibbs, and R.T. Iwatsubo: USGS-TWRI book 9, chap. A5. 1999, 149 p.
- 9-A6. *National Field Manual for the Collection of Water-Quality Data: Field Measurements*, edited by F.D. Wilde and D.B. Radtke: USGS-TWRI Book 9, Chapter A6. 1998. Variously paginated.
- 9-A7. *National Field Manual for the Collection of Water-Quality Data: Biological Indicators*, by D.N. Myers and F.D. Wilde: USGS-TWRI Book 9, Chapter A7. 1997. 49 pages.
- 9-A8. *National Field Manual for the Collection of Water-Quality Data: Bottom-material samples*, by D.B. Radtke: USGS-TWRI Book 9, Chapter A8. 1998. 48 pages.
- 9-A9. *National Field Manual for the Collection of Water-Quality Data: Safety in Field Activities*, by S.L. Lane and R.G. Fay: USGS-TWRI Book 9, Chapter A9. 1998. 60 pages.

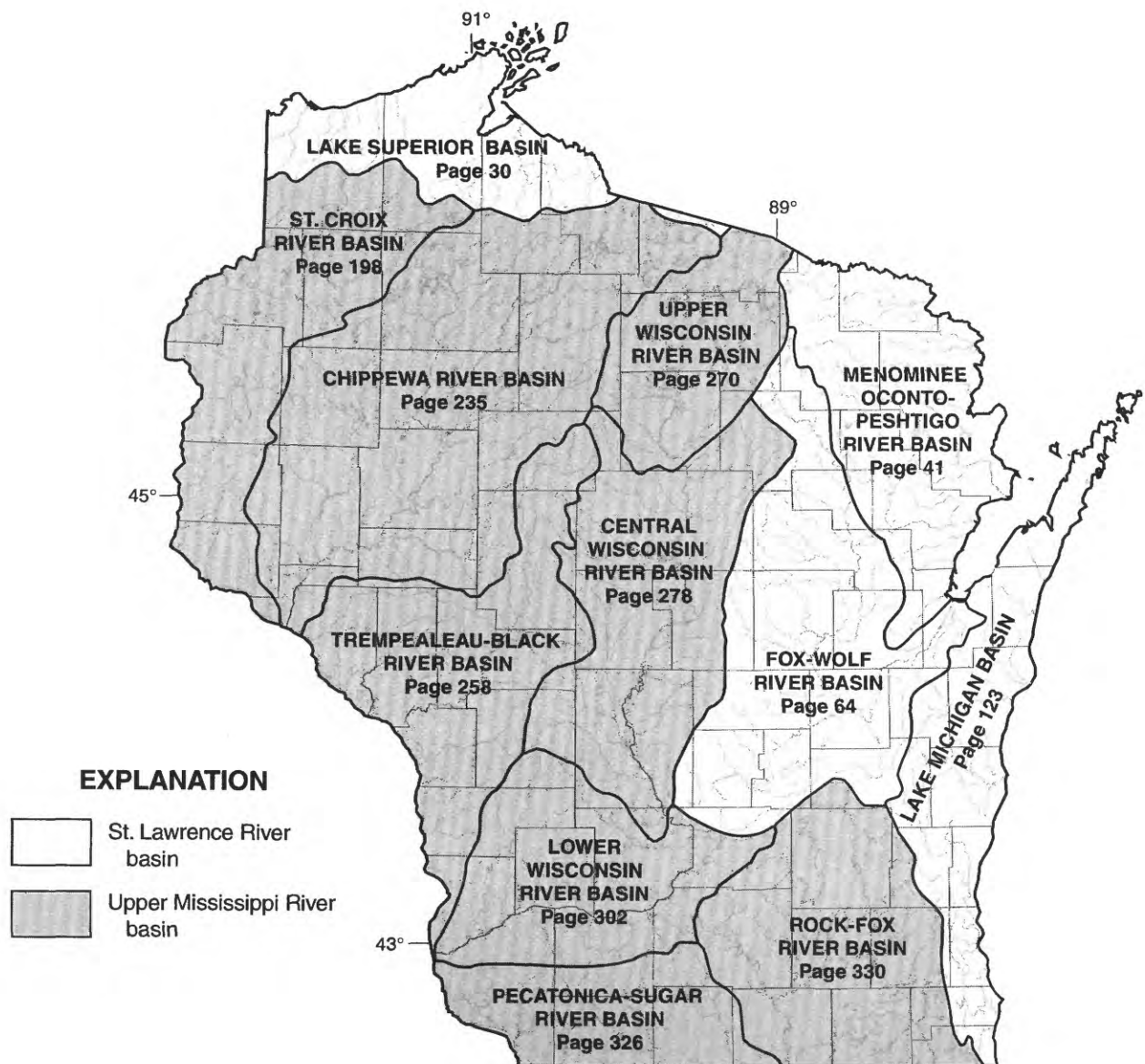
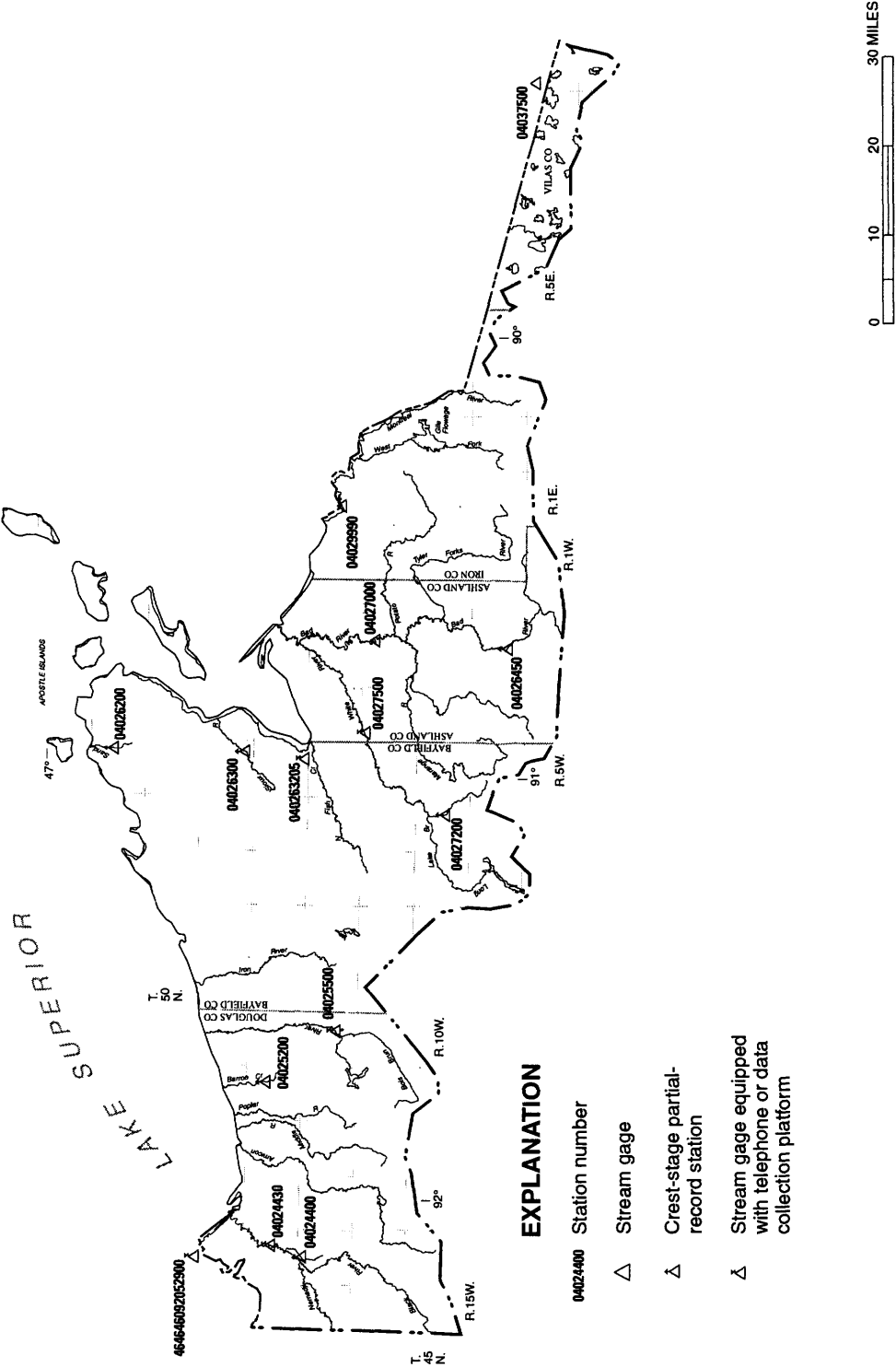


Figure 5. Major surface-water drainage basins and index of hydrologic records.

ST. LAWRENCE RIVER BASIN RECORDS



Base from U.S. Geological Survey 1:100,000 digital data modified by Wisconsin Department of Natural Resources Wisconsin Transverse Mercator projection.

LAKE SUPERIOR BASIN

STREAMS TRIBUTARY TO LAKE SUPERIOR
464646092052900 SUPERIOR BAY DULUTH SHIP CANAL AT DULUTH, MN

31

LOCATION.--Lat 46°46'46", long 92°05'29", in SE 1/4 SE 1/4 sec.27, T.50 N., R.14 W., St. Louis County, Hydrologic Unit 04020300, on left bank about 200 ft downstream from lift bridge on Lake Avenue at Canal Park marine museum in Duluth, MN.

DRAINAGE AREA.--4,200 mi², approximately, equals total drainage area to Superior Bay.

PERIOD OF RECORD.--October 1994 to current year (fragmentary).

REVISED RECORDS.--WRD WI-96-1: Drainage area.

GAGE.--Acoustical Velocity Meter (AVM) system. Two-path transducer installation.

REMARKS.--No estimated daily discharges. Records fair (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	-263	1110	1520	688	986	190	3610	---	---	---	---	---
2	327	2360	1020	1120	1620	3150	3200	---	---	---	---	---
3	1440	2100	1870	4040	1370	1510	---	---	---	---	---	-372
4	142	-531	218	729	426	-622	---	---	---	---	---	1140
5	1210	-1630	3380	630	952	-1100	---	---	---	---	---	1690
6	1640	-526	-683	3120	258	1220	---	---	---	---	---	2720
7	-1530	204	1490	695	627	-80	---	---	---	---	---	2030
8	251	-8.0	930	956	873	266	---	---	---	---	---	2160
9	-61	137	883	1400	914	469	---	---	---	---	---	3200
10	-729	3550	261	3090	34	329	---	---	---	---	---	2370
11	419	377	1310	456	3270	374	---	---	---	---	---	2360
12	-1320	437	411	470	1750	449	---	---	---	---	---	633
13	-3070	1130	1020	335	289	514	---	---	---	---	---	1420
14	2000	-110	1980	999	287	80	---	---	---	---	---	2450
15	657	507	-559	1320	-1350	115	---	---	---	---	---	1880
16	-194	1780	658	250	4430	96	---	---	---	---	---	2480
17	1530	317	173	214	600	3050	---	---	---	---	---	1120
18	144	2110	1600	3220	256	502	---	---	---	---	---	1330
19	174	-166	-557	-109	977	782	---	---	---	---	---	-1110
20	247	732	1140	454	513	2050	---	---	---	---	---	1990
21	407	1390	1980	-1850	294	652	---	---	---	---	---	1720
22	1980	1440	1260	19	361	1070	---	---	---	---	---	2290
23	1540	848	315	1400	414	328	---	---	---	---	---	1630
24	291	224	-53	330	-423	885	---	---	---	---	---	1580
25	2990	1760	806	1130	676	1310	---	---	---	---	---	133
26	1460	736	-70	-1400	505	197	---	---	---	---	---	1880
27	971	1570	1450	-20	712	116	---	---	---	---	---	4260
28	92	718	-232	584	2170	2830	---	---	---	---	---	4060
29	2640	2180	2680	352	---	1480	---	---	---	---	---	4120
30	519	444	54	324	---	2820	---	---	---	---	---	3350
31	517	---	1490	603	---	2230	---	---	---	---	---	---
TOTAL	16421	25190.0	27745	25549	23791	27262	6810	---	---	---	---	54514
MEAN	530	840	895	824	850	879	3405	---	---	---	---	1947
MAX	2990	3550	3380	4040	4430	3150	3610	---	---	---	---	4260
MIN	-3070	-1630	-683	-1850	-1350	-1100	3200	---	---	---	---	-1110

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 1999, BY WATER YEAR (WY)

	1995	1996	1997	1998	1999
MEAN	858	864	1000	1048	999
MAX	1933	1317	1205	1993	1786
(WY)	1996	1997	1997	1996	1995
MIN	110	638	895	242	547
(WY)	1997	1995	1999	1998	1998

SUMMARY STATISTICS FOR 1998 CALENDAR YEAR FOR 1999 WATER YEAR (PARTIAL YEAR) WATER YEARS 1995 - 1999

ANNUAL TOTAL	222698.1				
ANNUAL MEAN	610				
HIGHEST ANNUAL MEAN		1476			
LOWEST ANNUAL MEAN		1476			1996
HIGHEST DAILY MEAN	3980	Apr 13	4430	Feb 16	13400
LOWEST DAILY MEAN	-4080	Aug 3	-3070	Oct 13	-5660
ANNUAL SEVEN-DAY MINIMUM	-1680	Aug 1	-863	Oct 7	-1970
10 PERCENT EXCEEDS	1980		2710		2630
50 PERCENT EXCEEDS	538		724		886
90 PERCENT EXCEEDS	-649		-186		-500

STREAMS TRIBUTARY TO LAKE SUPERIOR
04024430 NEMADJI RIVER NEAR SOUTH SUPERIOR, WI

LOCATION.--Lat 46°38'00", long 92°05'38", in SW 1/4 sec.14, T.48 N., R.14 W., Douglas County, Hydrologic Unit 04010301, on right bank at downstream side of bridge on County Trunk Highway C, 2.0 mi south of South Superior and 7.8 mi downstream from Black River.

DRAINAGE AREA.--420 mi².

PERIOD OF RECORD.--December 1973 to current year.

REVISED RECORDS.--WDR WI-75-1: 1974(M). WDR WI-82-1: Drainage area and 1981.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 601.13 ft above sea level.

REMARKS.--Estimated daily discharges: May 24 to June 11, Sept. 10-14, and ice-affected period, Dec. 8 to Mar. 28. Records good except those for estimated daily discharges, which are poor (see page 13). Gage-height telemeter at station.

EXTREMES OUTSIDE THE PERIOD OF RECORD.--A flood of Aug. 17, 1972, may have exceeded floods at this location since then.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	76	230	94	100	160	1180	223	200	377	1040	327
2	51	74	215	86	100	160	968	212	250	403	672	294
3	49	73	202	82	110	170	897	199	200	436	1260	271
4	48	70	191	78	120	170	2350	187	170	793	1920	350
5	48	68	309	74	120	170	3320	184	230	624	1010	804
6	57	68	794	74	110	160	2150	352	250	766	747	587
7	69	67	562	74	110	160	3440	1110	300	552	594	397
8	71	67	350	74	120	150	3920	1140	270	770	523	1390
9	65	67	310	72	120	160	2250	758	240	4740	458	999
10	58	100	280	72	130	160	1520	579	240	2890	459	840
11	56	598	260	72	130	160	1230	481	280	1110	433	740
12	52	406	240	72	120	160	1220	585	333	706	562	1000
13	49	274	240	72	120	160	1050	755	311	523	3650	620
14	49	256	230	72	120	170	872	619	242	421	2170	420
15	49	223	220	74	130	180	767	503	197	358	976	347
16	55	212	210	76	130	210	976	425	170	716	768	307
17	93	197	190	78	120	270	896	386	150	1130	629	276
18	177	191	180	80	120	350	743	362	136	592	549	254
19	140	390	150	80	130	420	642	324	125	436	903	238
20	117	480	140	80	130	480	566	287	117	365	650	238
21	106	301	130	80	130	520	510	271	112	312	515	222
22	97	335	120	80	120	500	467	257	426	275	440	202
23	91	440	120	80	130	540	413	245	2510	269	1930	186
24	85	581	110	80	130	600	367	270	2830	280	4420	178
25	80	432	110	82	130	580	341	250	1540	328	1750	167
26	79	358	110	80	130	560	312	230	846	5740	889	191
27	78	312	110	78	140	600	286	210	565	4910	686	315
28	76	274	110	84	150	1200	272	200	431	1600	580	291
29	76	258	110	90	---	3040	254	190	442	881	490	236
30	78	242	100	96	---	2390	234	180	414	669	413	207
31	77	---	100	100	---	1500	---	180	---	1530	362	---
TOTAL	2331	7490	6733	2466	3450	16210	34413	12154	14527	35502	32448	12894
MEAN	75.2	250	217	79.5	123	523	1147	392	484	1145	1047	430
MAX	177	598	794	100	150	3040	3920	1140	2830	5740	4420	1390
MIN	48	67	100	72	100	150	234	180	112	269	362	167
CFSM	.18	.59	.52	.19	.29	1.25	2.73	.93	1.15	2.73	2.49	1.02
IN.	.21	.66	.60	.22	.31	1.44	3.05	1.08	1.29	3.14	2.87	1.14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1999, BY WATER YEAR (WY)

MEAN	331	319	144	84.0	101	464	1382	601	489	380	223	354
MAX	1082	1200	418	177	336	1088	2426	1355	1357	1145	1047	1485
(WY)	1983	1992	1992	1984	1984	1995	1986	1979	1993	1999	1999	1986
MIN	41.0	33.9	28.2	27.3	29.8	102	244	119	82.9	46.6	40.6	34.4
(WY)	1977	1977	1977	1977	1977	1980	1987	1998	1988	1988	1976	1976

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR			FOR 1999 WATER YEAR			WATER YEARS 1974 - 1999		
ANNUAL TOTAL	87087			180618					
ANNUAL MEAN	239			495			406		
HIGHEST ANNUAL MEAN							786		
LOWEST ANNUAL MEAN							200		
HIGHEST DAILY MEAN	2180			5740			7630		
LOWEST DAILY MEAN	35			48			(a) 19		
ANNUAL SEVEN-DAY MINIMUM	37			53			(a) 26		
INSTANTANEOUS PEAK FLOW				7320			(b) 13700		
INSTANTANEOUS PEAK STAGE				22.37			25.97		
ANNUAL RUNOFF (CFSM)	.57			1.18			.97		
ANNUAL RUNOFF (INCHES)	7.71			16.00			13.13		
10 PERCENT EXCEEDS	564			1040			1000		
50 PERCENT EXCEEDS	107			250			151		
90 PERCENT EXCEEDS	50			76			58		

(a) Ice affected

(b) From rating curve extended above 9,000 ft³/s

STREAMS TRIBUTARY TO LAKE SUPERIOR
04025500 BOIS BRULE RIVER AT BRULE, WI

33

LOCATION.--Lat 46°32'16", long 91°35'43", in NW 1/4 SW 1/4 sec.23, T.47 N., R.10 W., Douglas County, Hydrologic Unit 04010301, on right bank, 1.4 mi southwest of Brule Post Office, 1.4 mi downstream from Nebagamon Creek, and 1.7 mi upstream from Little Bois Brule River.

DRAINAGE AREA.--118 mi².

PERIOD OF RECORD.--October 1942 to September 1981, January 1984 to current year. Prior to January 1943, monthly discharge published in WSP 1307. January 1984 to September 1994, incorrectly published as "near Brule."

REVISED RECORDS.--WSP 1337: 1943(M), 1944, 1945-50(M). WDR WI-92-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 948.49 ft above sea level. Prior to October 1964, nonrecording gage at same site and datum, supplemented by water-stage recorder part of 1959-62.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 18 to Jan. 28, Feb. 17-22, and Mar. 5-8. Records good except those for ice-affected periods, which are fair (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	126	151	110	133	136	283	160	139	240	424	179
2	123	126	149	120	134	135	244	157	143	224	377	175
3	122	125	148	120	133	134	221	154	139	240	409	171
4	122	125	147	120	130	133	247	152	136	242	374	178
5	122	124	171	130	132	130	265	158	177	341	339	200
6	133	124	189	130	131	130	374	169	195	382	323	193
7	133	124	180	120	130	130	419	181	277	287	303	188
8	128	124	169	120	132	130	409	180	252	275	290	272
9	125	125	159	120	132	135	355	172	225	381	270	269
10	123	144	154	120	131	134	318	164	207	351	257	247
11	123	163	151	120	135	133	315	165	307	339	243	230
12	123	154	149	120	147	133	296	183	322	321	292	238
13	122	144	147	120	165	134	275	178	273	289	456	223
14	122	138	146	130	136	134	258	168	246	261	380	214
15	122	139	145	130	134	135	258	160	226	261	329	208
16	127	141	144	140	136	137	256	158	205	343	319	202
17	163	142	142	140	130	140	244	170	188	325	282	196
18	160	147	140	140	130	139	234	170	179	271	275	191
19	144	174	140	130	130	139	224	165	172	250	270	198
20	134	172	140	130	130	141	217	161	169	230	256	189
21	127	162	140	130	130	141	211	158	164	218	246	183
22	125	157	130	130	130	142	203	153	400	207	238	179
23	125	172	130	130	134	144	196	153	469	220	248	176
24	124	175	130	140	134	145	189	157	392	210	247	173
25	126	170	130	130	134	146	184	153	333	239	239	170
26	131	164	130	130	134	149	179	149	299	633	236	191
27	128	159	130	130	137	159	174	145	270	473	228	195
28	126	156	140	130	138	197	170	142	247	422	217	189
29	128	155	140	133	---	223	167	139	233	387	204	182
30	130	154	130	133	---	254	163	137	221	383	194	177
31	129	---	120	132	---	307	---	136	---	557	187	---
TOTAL	3995	4405	4511	3958	3762	4699	7548	4947	7205	9802	8952	5976
MEAN	129	147	146	128	134	152	252	160	240	316	289	199
MAX	163	175	189	140	165	307	419	183	469	633	456	272
MIN	122	124	120	110	130	130	163	136	136	207	187	170
CFSM	1.09	1.24	1.23	1.08	1.14	1.28	2.13	1.35	2.04	2.68	2.45	1.69
IN.	1.26	1.39	1.42	1.25	1.19	1.48	2.38	1.56	2.27	3.09	2.82	1.88

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1999, BY WATER YEAR (WY)

	MEAN	159	161	143	133	133	154	278	233	194	170	150	158
MAX	259	295	205	164	187	265	399	495	416	345	289	297	
(WY)	1978	1972	1972	1984	1966	1945	1976	1950	1944	1952	1999	1951	
MIN	110	119	113	104	104	105	157	140	122	108	114	108	
(WY)	1949	1949	1948	1948	1948	1943	1959	1958	1948	1964	1948	1948	

STREAMS TRIBUTARY TO LAKE SUPERIOR
04025500 BOIS BRULE RIVER AT BRULE, WI--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1943 - 1999	
ANNUAL TOTAL	55863		69760		172	
ANNUAL MEAN	153		191		223	
HIGHEST ANNUAL MEAN					1972	
LOWEST ANNUAL MEAN					133	
HIGHEST DAILY MEAN	417	Mar 30	633	Jul 26	1270	Jun 5 1944
LOWEST DAILY MEAN	116	Sep 11,12	(a) 110	Jan 1	74	Mar 23 1943
ANNUAL SEVEN-DAY MINIMUM	117	Sep 6	(a) 120	Jan 7	89	Mar 23 1943
INSTANTANEOUS PEAK FLOW			(b) 676	Jul 26	(c) 1520	Jun 5 1944
INSTANTANEOUS PEAK STAGE			(a) 4.00	Jan 1	(d) 5.20	Jun 5 1944
INSTANTANEOUS LOW FLOW			(a)		67	Mar 13 1943
ANNUAL RUNOFF (CFSM)	1.30		1.62		1.46	
ANNUAL RUNOFF (INCHES)	17.61		21.99		19.79	
10 PERCENT EXCEEDS	193		307		257	
50 PERCENT EXCEEDS	139		159		147	
90 PERCENT EXCEEDS	120		126		120	

- (a) Ice affected
 (b) Gage height, 3.80 ft
 (c) From rating curve extended above 750 ft³/s
 (d) From graph based on gage readings

STREAMS TRIBUTARY TO LAKE SUPERIOR
040263205 WHITTLESEY CREEK NEAR ASHLAND, WI

35

LOCATION.--Lat 46°35'40", long 90°57'47", in SE 1/4 NW 1/4 sec.35, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, at Cherryville road, 3.7 mi west of courthouse in Ashland.

DRAINAGE AREA.--37.6 mi².

PERIOD OF RECORD.--April to September 1999.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 615 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Apr. 1-21 and May 30 to June 2. Records good except those for Apr. 1-21, which are poor, and May 30 to June 2, which are fair (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	30	18	20	19	21	19
2	---	---	---	---	---	---	25	18	19	19	20	19
3	---	---	---	---	---	---	23	18	18	22	20	19
4	---	---	---	---	---	---	25	18	18	24	20	20
5	---	---	---	---	---	---	30	18	35	286	20	23
6	---	---	---	---	---	---	50	19	24	63	19	21
7	---	---	---	---	---	---	36	21	22	28	20	20
8	---	---	---	---	---	---	30	20	20	127	19	22
9	---	---	---	---	---	---	26	19	19	67	20	20
10	---	---	---	---	---	---	22	19	19	32	20	20
11	---	---	---	---	---	---	22	20	48	24	19	20
12	---	---	---	---	---	---	26	27	37	21	43	22
13	---	---	---	---	---	---	22	21	23	22	45	20
14	---	---	---	---	---	---	22	19	21	21	24	20
15	---	---	---	---	---	---	23	19	20	20	23	20
16	---	---	---	---	---	---	22	19	19	22	33	20
17	---	---	---	---	---	---	22	22	19	20	22	20
18	---	---	---	---	---	---	22	24	19	20	32	20
19	---	---	---	---	---	---	22	20	19	20	26	21
20	---	---	---	---	---	---	22	20	20	19	22	20
21	---	---	---	---	---	---	22	19	19	19	21	20
22	---	---	---	---	---	---	22	19	27	19	20	20
23	---	---	---	---	---	---	22	19	30	27	20	20
24	---	---	---	---	---	---	22	19	25	21	20	20
25	---	---	---	---	---	---	22	18	20	21	20	20
26	---	---	---	---	---	---	21	18	19	23	20	20
27	---	---	---	---	---	---	21	18	19	20	20	20
28	---	---	---	---	---	---	21	18	20	19	20	20
29	---	---	---	---	---	---	20	18	19	19	19	20
30	---	---	---	---	---	---	19	18	20	21	19	20
31	---	---	---	---	---	---	---	18	---	29	19	---
TOTAL	---	---	---	---	---	---	734	601	677	1134	706	606
MEAN	---	---	---	---	---	---	24.5	19.4	22.6	36.6	22.8	20.2
MAX	---	---	---	---	---	---	50	27	48	286	45	23
MIN	---	---	---	---	---	---	19	18	18	19	19	19
CFSM	---	---	---	---	---	---	1.11	.88	1.02	1.65	1.03	.91
IN.	---	---	---	---	---	---	1.23	1.01	1.14	1.91	1.19	1.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 1999, BY WATER YEAR (WY)

MEAN	---	---	---	---	---	---	24.5	19.4	22.6	36.6	22.8	20.2
MAX	---	---	---	---	---	---	24.5	19.4	22.6	36.6	22.8	20.2
(WY)	---	---	---	---	---	---	1999	1999	1999	1999	1999	1999
MIN	---	---	---	---	---	---	24.5	19.4	22.6	36.6	22.8	20.2
(WY)	---	---	---	---	---	---	1999	1999	1999	1999	1999	1999

SUMMARY STATISTICS

FOR 1999 WATER YEAR
(APRIL - SEPTEMBER)

HIGHEST DAILY MEAN	286	Jul 5
LOWEST DAILY MEAN	18	(a) May 1-5
ANNUAL SEVEN-DAY MINIMUM	18	May 25
INSTANTANEOUS PEAK FLOW	710	Jul 5
INSTANTANEOUS PEAK STAGE	(b) 6.17	Jul 5
INSTANTANEOUS LOW FLOW	17	(c) Apr 30
10 PERCENT EXCEEDS	30	
50 PERCENT EXCEEDS	20	
90 PERCENT EXCEEDS	19	

(a) Also occurred May 25-31 and June 3, 4

(b) From inside gage; 7.18 ft, from crest-stage gage

(c) Also occurred May 1-3, 28

EXTREMES OUTSIDE THE PERIOD OF RECORD.--Flood of June 24, 1946, reached a stage of at least 22.2 ft, top of former downstream bridge submerged, information from Indian Service.

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	195	248	180	210	410	3240	274	315	232	808	211
2	122	188	238	180	210	410	3070	253	291	340	498	199
3	121	179	229	190	210	380	3380	238	270	829	404	189
4	117	170	223	190	200	350	3300	225	247	1740	495	182
5	115	167	469	190	190	330	3430	216	254	1870	516	185
6	110	165	1100	190	200	320	4970	242	595	3480	508	203
7	121	165	958	190	200	300	4960	663	1060	1830	427	201
8	133	164	744	190	200	280	4070	2430	1010	1330	436	220
9	136	159	580	190	210	280	3030	2450	773	4840	395	265
10	132	170	580	190	210	270	2320	1860	633	4200	351	248
11	126	239	500	190	250	270	1920	1360	1470	2900	317	243
12	115	296	400	190	350	260	1690	1220	2920	1870	342	314
13	112	254	350	190	400	260	1420	1090	1920	1270	2920	574
14	112	249	320	190	480	260	1220	895	1310	999	2380	520
15	110	232	330	200	540	270	1070	727	952	1510	1490	468
16	126	231	250	200	540	350	974	611	707	993	1140	404
17	244	230	190	200	500	500	855	549	552	694	931	342
18	519	229	170	200	470	700	748	1100	443	538	715	297
19	511	304	150	210	450	700	680	1310	370	449	623	281
20	385	429	140	210	420	760	666	1090	325	386	549	376
21	306	340	130	200	390	740	646	928	304	341	467	471
22	251	350	150	200	370	620	598	787	290	298	405	425
23	223	366	180	210	340	640	540	743	323	304	401	368
24	211	431	200	210	320	720	485	1150	460	468	575	317
25	201	414	200	210	310	680	439	1210	379	391	516	281
26	191	372	200	200	300	720	405	1020	304	510	421	255
27	187	333	190	200	310	900	371	795	254	633	362	244
28	185	303	190	210	350	1700	341	629	225	482	318	234
29	178	281	200	220	---	1900	313	513	235	373	282	222
30	184	265	190	220	---	1950	289	416	226	328	248	210
31	192	---	190	210	---	2640	---	351	---	1310	226	---
TOTAL	5898	7870	10189	6150	9130	20870	51440	27345	19417	37738	20466	8949
MEAN	190	262	329	198	326	673	1715	882	647	1217	660	298
MAX	519	431	1100	220	540	2640	4970	2450	2920	4840	2920	574
MIN	110	159	130	180	190	260	289	216	225	232	226	182
CFSM	.32	.44	.55	.33	.55	1.13	2.87	1.48	1.08	2.04	1.11	.50
IN.	.37	.49	.63	.38	.57	1.30	3.21	1.70	1.21	2.35	1.28	.50

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1999, BY WATER YEAR (WY)

MEAN	472	527	292	190	196	669	2187	1060	655	490	302	356
MAX	1861	2151	638	410	713	2494	4187	2752	2054	2311	1565	1775
(WY)	1986	1992	1992	1992	1984	1973	1960	1950	1951	1949	1972	1977
MIN	67.1	95.2	107	95.0	69.3	113	513	202	121	77.9	68.2	74.3
(WY)	1949	1949	1977	1917	1964	1917	1987	1998	1948	1964	1948	1976

STREAMS TRIBUTARY TO LAKE SUPERIOR
04027000 BAD RIVER NEAR ODANAH, WI--CONTINUED

37

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1914 - 1999	
ANNUAL TOTAL	155538		225462		619	
ANNUAL MEAN	426		618		942	1983
HIGHEST ANNUAL MEAN					346	1990
LOWEST ANNUAL MEAN					22000	Apr 24 1960
HIGHEST DAILY MEAN	9380	Mar 30	4970	Apr 6	52	(a) Oct 1 1948
LOWEST DAILY MEAN	74	Sep 12	110	Oct 6, 15	54	Feb 19 1964
ANNUAL SEVEN-DAY MINIMUM	79	Sep 6	118	Oct 1	(b) 27700	Apr 24 1960
INSTANTANEOUS PEAK FLOW			5870	Apr 6	(c) 21.70	Apr 24 1960
INSTANTANEOUS PEAK STAGE			10.06	Apr 6	(d) 34	Nov 8 1976
INSTANTANEOUS LOW FLOW			107	Oct 15	1.04	
ANNUAL RUNOFF (CFSM)	.71		1.03		14.08	
ANNUAL RUNOFF (INCHES)	9.69		14.05		1430	
10 PERCENT EXCEEDS	656		1340		275	
50 PERCENT EXCEEDS	200		340		119	
90 PERCENT EXCEEDS	96		185			

(a) Also occurred Aug. 6, 7, 1964

(b) From rating curve extended above 12,000 ft³/s and a comparison with contracted-opening measurement of peak flow 45,600 ft³/s at Odanah, drainage area, 990 mi²

(c) From floodmarks

(d) Result of freezeup

STREAMS TRIBUTARY TO LAKE SUPERIOR

04027500 WHITE RIVER NEAR ASHLAND, WI

LOCATION.--Lat 46°29'50", long 90°54'15", in NE 1/4 sec.6, T.46 N., R.4 W., Ashland County, Hydrologic Unit 04010302, at downstream end of powerplant of Lake Superior District Power Co., 0.3 mi downstream from bridge on State Highway 112 over dam, and 4.5 mi south of Ashland city limits.

DRAINAGE AREA.--301 mi².

PERIOD OF RECORD.--May 1948 to current year.

REVISED RECORDS.--WDR WI-82-1: Drainage area. WDR WI-92-1: 1952-53(M), 1960(M), 1967(M), 1972(M), and 1978(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 660.15 ft above sea level (Lake Superior District Power Co. bench mark). Prior to May 20, 1976, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Ice-affected period, Jan. 1-17. Records good except those for ice-affected period, which is fair (see page 13). Diurnal fluctuation caused by hydroelectric plant at gage. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	170	167	179	160	177	225	643	159	207	393	373	186
2	170	166	176	150	176	211	562	158	198	430	458	181
3	161	165	175	150	176	208	466	157	192	818	472	177
4	153	165	174	170	182	192	575	157	187	582	430	178
5	154	164	202	170	182	186	538	156	175	1380	374	244
6	162	164	264	160	175	189	1260	155	236	1020	329	206
7	167	164	260	170	181	171	971	214	325	638	296	231
8	168	164	211	160	182	191	875	311	270	797	263	212
9	167	164	183	180	186	191	775	323	189	1260	260	197
10	165	168	178	170	207	178	621	264	176	834	227	215
11	164	186	179	170	192	187	536	229	403	873	224	190
12	152	201	175	160	202	175	408	328	546	755	475	208
13	151	182	172	160	170	188	351	376	406	562	1090	241
14	153	173	169	170	200	189	306	350	421	866	634	230
15	153	173	170	180	239	174	283	288	319	1180	675	213
16	160	172	170	170	206	204	255	214	213	587	594	214
17	177	173	167	170	192	259	242	197	180	552	456	198
18	221	177	168	181	189	290	215	270	156	471	354	180
19	190	245	169	177	177	280	225	277	157	398	306	177
20	184	244	159	176	191	308	202	263	158	353	287	190
21	176	233	109	173	194	315	186	230	158	296	250	197
22	170	199	91	179	175	320	192	229	217	235	261	157
23	168	194	102	171	187	349	189	227	356	236	242	172
24	166	240	149	167	200	430	182	232	387	224	239	174
25	165	221	181	169	190	381	177	217	275	226	239	169
26	165	196	195	172	187	408	172	211	221	248	259	167
27	166	181	170	173	197	563	168	182	182	269	237	169
28	166	175	174	172	211	733	164	199	177	320	211	174
29	166	179	168	172	---	727	162	206	185	310	200	171
30	167	180	173	176	---	722	160	211	180	458	186	166
31	169	---	151	178	---	732	---	214	---	1050	177	---
TOTAL	5186	5575	5363	5256	5323	9876	12061	7204	7452	18621	11078	5784
MEAN	167	186	173	170	190	319	402	232	248	601	357	193
MAX	221	245	264	181	239	733	1260	376	546	1380	1090	244
MIN	151	164	91	150	170	171	160	155	156	224	177	157
CFSM	.56	.62	.57	.56	.63	1.06	1.34	.77	.83	2.00	1.19	.64
IN.	.64	.69	.66	.65	.66	1.22	1.49	.89	.92	2.30	1.37	.71

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 1999, BY WATER YEAR (WY)

	MEAN	238	250	203	187	194	310	578	362	288	272	228	239
MAX	445	509	285	248	318	666	1062	867	707	697	744	635	
(WY)	1983	1992	1961	1952	1984	1973	1996	1950	1952	1953	1972	1960	
MIN	152	160	150	146	136	178	238	175	140	142	147	146	
(WY)	1949	1977	1964	1991	1968	1965	1987	1998	1948	1988	1948	1948	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1948 - 1999

ANNUAL TOTAL	85233	98779	
ANNUAL MEAN	234	271	
HIGHEST ANNUAL MEAN			280
LOWEST ANNUAL MEAN			426
HIGHEST DAILY MEAN	2250	Apr 1	217
LOWEST DAILY MEAN	91	(a) Jan 11	4100
ANNUAL SEVEN-DAY MINIMUM	135	Dec 18	61
INSTANTANEOUS PEAK FLOW			68
INSTANTANEOUS PEAK STAGE			Jul 14
ANNUAL RUNOFF (CFSM)	.78		(b) 8100
ANNUAL RUNOFF (INCHES)	10.53		7.90
10 PERCENT EXCEEDS	285		.93
50 PERCENT EXCEEDS	180		12.62
90 PERCENT EXCEEDS	156		160

(a) Also occurred Dec. 22

(b) From rating curve extended above 3,000 ft³/s

LOCATION.--Lat 46°32'13", long 90°22'47", in SW 1/4 NW 1/4 sec.21, T.47 N., R.1 E., Iron County, Hydrologic Unit 04010302, at Saxon Falls powerhouse, 3.4 mi northeast of Saxon, and 3.8 mi upstream from mouth.

DRAINAGE AREA.--262 mi².

PERIOD OF RECORD.--September 1938 to September 1970, October 1986 to current year. Published as "Montreal River near Saxon" (04030000), September 1938 to September 1970.

REVISED RECORDS.--WSP 894: 1938-39. WSP 924: 1939-40. WSP 1307: 1948(M). WSP 1627: 1958.

GAGE.--Headwater and tailwater gages read by Northern States Power Company. September 1938 to September 1970, water-stage recorder at site 1.8 mi downstream at elevation of 760 ft above sea level (from Power Company data).

REMARKS.--No estimated daily discharges. Diurnal fluctuation caused by Saxon Falls powerplant. Flow regulated by Gile Reservoir on West Branch Montreal River (capacity 1,290,000,000 ft³/s) since April 1941.

COOPERATION.--Records were provided by Northern States Power Company and reviewed by the Geological Survey.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	77	89	77	95	169	1980	210	250	210	685	140
2	76	71	105	71	101	169	1980	210	255	190	330	155
3	47	76	100	71	95	167	1980	203	233	375	255	154
4	47	71	100	75	101	149	1980	198	235	375	226	167
5	41	65	185	83	95	137	2010	195	235	1000	203	167
6	53	59	220	83	95	137	2260	225	235	1390	203	167
7	65	65	445	77	95	137	2270	335	410	998	203	178
8	65	65	326	77	101	137	2380	805	375	648	205	200
9	65	53	221	89	95	125	1710	805	310	1310	213	188
10	51	71	216	89	110	119	1210	862	248	1310	203	190
11	51	82	216	71	125	119	1210	649	240	1310	203	183
12	41	100	131	83	167	107	718	526	720	680	197	183
13	41	100	131	77	162	107	615	438	720	520	425	243
14	41	88	119	71	165	107	520	375	470	424	590	225
15	41	88	115	71	247	113	445	330	375	376	590	205
16	47	95	105	83	223	107	395	330	330	330	275	203
17	87	95	95	83	200	143	343	1040	275	290	235	183
18	100	83	95	77	193	149	343	583	255	290	205	183
19	151	107	83	77	170	173	185	788	225	260	205	183
20	140	160	83	83	170	178	305	643	225	260	185	230
21	118	131	50	95	170	178	319	530	200	255	185	178
22	90	131	66	95	150	83	298	470	200	190	185	124
23	100	173	83	83	150	173	269	470	225	205	143	118
24	76	220	71	83	150	188	269	870	255	331	143	88
25	76	220	71	83	137	188	269	950	240	331	143	94
26	82	220	89	77	137	195	241	795	225	256	100	94
27	71	220	89	83	140	248	219	655	225	249	100	82
28	76	149	89	83	140	248	233	425	215	225	100	65
29	71	149	89	89	---	650	226	345	215	190	100	71
30	82	89	89	89	---	870	194	375	215	183	100	71
31	82	---	77	89	---	1300	---	375	---	685	100	---
TOTAL	2256	3373	4043	2517	3979	7070	27376	16010	8836	15646	7235	4712
MEAN	72.8	112	130	81.2	142	228	913	516	295	505	233	157
MAX	151	220	445	95	247	1300	2380	1040	720	1390	685	243
MIN	41	53	50	71	95	83	185	195	200	183	100	65
CFSM	.28	.43	.50	.31	.54	.87	3.48	1.97	1.12	1.93	.89	.60
IN.	.32	.48	.57	.36	.56	1.00	3.89	2.27	1.25	2.22	1.03	.69

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1999, BY WATER YEAR (WY)

MEAN	202	253	179	163	159	312	961	526	369	289	195	195
MAX	495	800	391	295	321	888	1795	1180	1172	1068	432	894
(WY)	1942	1992	1952	1969	1969	1945	1939	1954	1939	1992	1953	1941
MIN	38.2	34.2	38.1	27.8	21.0	55.4	213	127	101	74.1	36.1	33.6
(WY)	1949	1949	1949	1949	1949	1940	1987	1941	1987	1987	1987	1939

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1938 - 1999

ANNUAL TOTAL	80247		103053				
ANNUAL MEAN	220		282			316	
HIGHEST ANNUAL MEAN						487	1952
LOWEST ANNUAL MEAN						85.7	1971
HIGHEST DAILY MEAN	3850	Mar 30	2380	Apr 8	9880		Jul 3 1992
LOWEST DAILY MEAN	17	Sep 11	41	(a) Oct 5		7.2	Oct 24 1948
ANNUAL SEVEN-DAY MINIMUM	43	Sep 7	45	Oct 10		7.7	Oct 29 1948
ANNUAL RUNOFF (CFSM)	.84		1.08			1.21	
ANNUAL RUNOFF (INCHES)	11.39		14.63			16.41	
10 PERCENT EXCEEDS	287		648			648	
50 PERCENT EXCEEDS	113		178			191	
90 PERCENT EXCEEDS	65		73			86	

(a) Also occurred Oct. 12-15

STREAMS TRIBUTARY TO LAKE SUPERIOR
04037500 CISCO BRANCH ONTONAGON RIVER AT CISCO LAKE OUTLET, MI

LOCATION.--Lat 46°15'12", long 89°27'05", in NE 1/4 sec.32, T.45 N., R.41 W., Gogebic County, Hydrologic Unit 04020102, on left bank 80 ft downstream from Cisco Lake Dam, 2.5 mi upstream from Langford Creek, 5.0 mi upstream from U.S. Highway 2, and 13 mi west of Watersmeet.

DRAINAGE AREA.--50.7 mi².

PERIOD OF RECORD.--October 1944 to current year.

REVISED RECORDS.--WSP 1911: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,672.69 ft above sea level. Prior to Oct. 1, 1968, nonrecording gage at same site and at datum 4.00 ft higher.

REMARKS.--No estimated daily discharges. Records good except for discharges below 3.0 ft³/s, which are poor (see page 13). Flow regulated by Cisco Lake (station 04037400). Several measurements of water temperature were made during the year. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	75	103	4.5	19	40	20	81	.34	15	16	15	1.0
2	38	64	4.5	19	39	20	82	.33	24	25	36	1.0
3	16	34	4.7	21	40	21	83	.30	20	33	47	1.0
4	16	33	23	37	39	21	86	.30	21	121	47	.97
5	16	43	39	60	39	30	111	.33	26	174	29	.89
6	16	49	37	60	38	38	128	.59	29	173	14	.86
7	16	48	37	59	38	38	130	42	49	102	14	.77
8	16	48	49	47	38	37	130	111	73	33	14	.70
9	16	47	58	27	28	36	128	134	89	87	14	.70
10	16	74	35	20	12	36	126	159	76	129	14	.70
11	17	92	19	20	6.8	35	123	171	61	125	14	.70
12	16	90	19	21	36	25	120	165	67	121	15	.70
13	16	89	19	21	62	19	117	159	65	117	49	.64
14	16	85	12	21	62	20	114	63	39	87	70	.61
15	23	84	4.9	21	60	20	67	2.6	6.9	40	99	.61
16	28	84	4.9	21	60	20	19	1.9	2.4	6.3	119	.61
17	29	83	5.0	21	73	20	3.8	6.5	2.3	5.7	63	.65
18	28	84	5.8	32	80	43	3.3	47	2.0	5.5	12	.68
19	22	82	6.1	40	56	59	2.7	96	1.4	5.4	3.6	.96
20	16	51	6.6	50	35	58	1.9	128	1.1	5.1	3.6	28
21	9.1	26	27	59	35	57	1.6	125	.92	4.9	3.6	69
22	2.4	26	47	58	28	45	1.5	122	.71	4.5	3.0	67
23	2.1	46	55	60	20	38	1.3	122	.62	3.5	17	64
24	2.1	71	60	59	28	29	1.0	117	.61	3.0	21	37
25	2.0	65	59	59	36	10	.76	65	.61	2.7	11	13
26	33	44	57	48	26	3.3	.51	19	.56	27	4.0	13
27	100	44	57	40	20	3.6	.40	3.5	.52	60	3.5	7.1
28	118	44	38	40	20	4.1	.41	2.6	.52	41	3.1	.80
29	116	44	19	40	---	31	.40	3.3	.52	18	2.7	.80
30	112	23	19	40	---	73	.37	4.7	.46	14	1.8	.80
31	107	---	19	40	---	82	---	1.4	---	15	1.2	---
TOTAL	1055.7	1800	851.0	1180	1094.8	992.0	1664.95	1873.69	676.15	1604.6	764.1	315.25
MEAN	34.1	60.0	27.5	38.1	39.1	32.0	55.5	60.4	22.5	51.8	24.6	10.5
MAX	118	103	60	60	80	82	130	171	89	174	119	69
MIN	2.0	23	4.5	19	6.8	3.3	.37	.30	.46	2.7	1.2	.61
CFSM	.67	1.18	.54	.75	.77	.63	1.09	1.19	.44	1.02	.49	.21
IN.	.77	1.32	.62	.87	.80	.73	1.22	1.37	.50	1.18	.56	.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1999, BY WATER YEAR (WY)

	MEAN	68.9	67.4	48.1	39.4	34.9	43.6	61.1	47.0	45.1	32.3	25.7	37.6
MAX	151	116	84.1	62.6	81.0	92.1	117	160	123	113	99.7	104	
(WY)	1986	1968	1961	1983	1945	1973	1997	1996	1953	1953	1978	1977	
MIN	13.1	14.5	23.5	23.1	20.6	24.1	2.02	.17	.11	.25	.15	.23	
(WY)	1958	1945	1990	1959	1950	1956	1948	1977	1977	1977	1970	1976	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

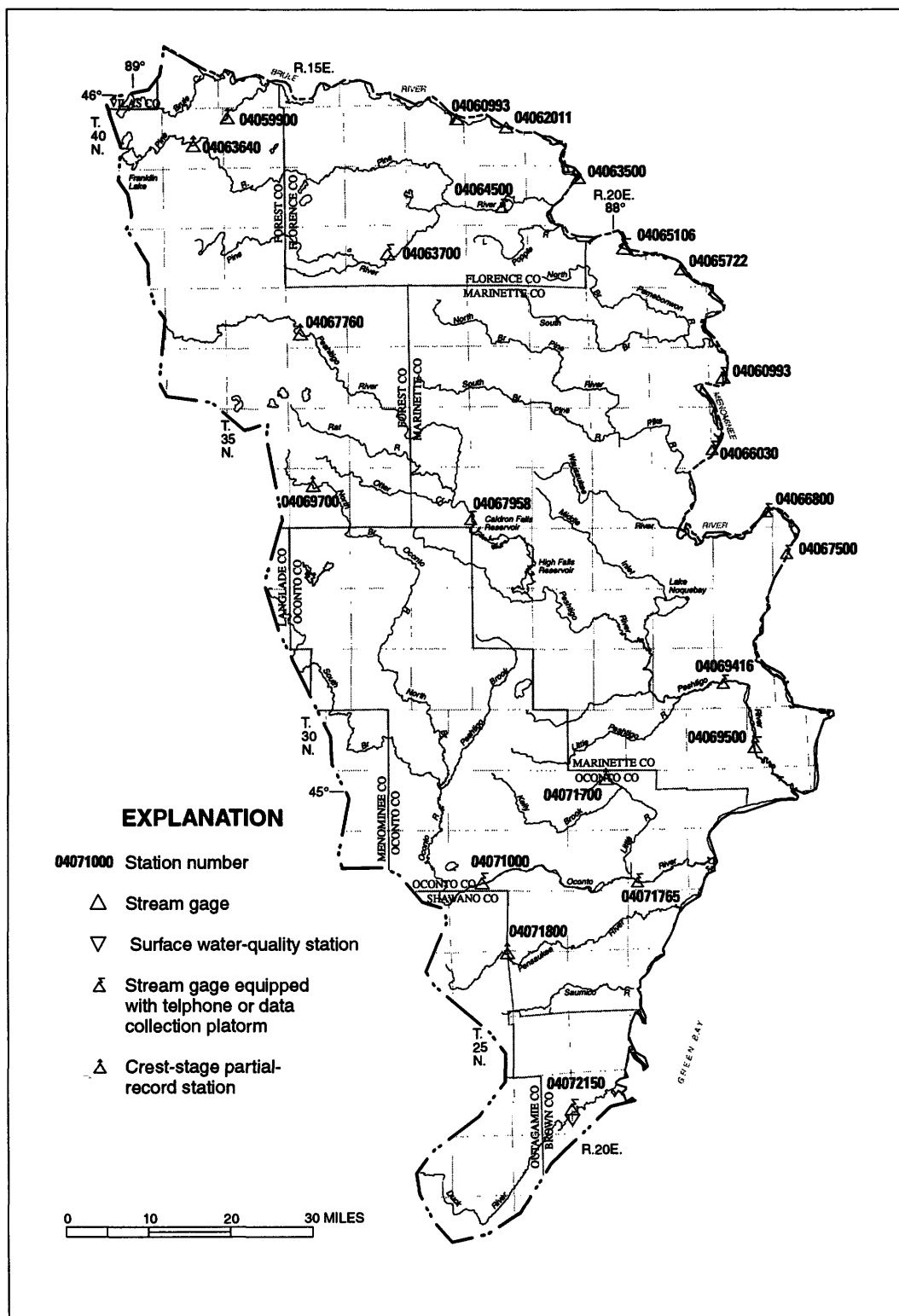
FOR 1999 WATER YEAR

WATER YEARS 1945 - 1999

ANNUAL TOTAL	11022.52	13872.24	
ANNUAL MEAN	30.2	38.0	45.9
HIGHEST ANNUAL MEAN			65.9
LOWEST ANNUAL MEAN			25.2
HIGHEST DAILY MEAN	144	Apr 1	288
LOWEST DAILY MEAN	.28	May 23, 24	.30
ANNUAL SEVEN-DAY MINIMUM	.29	May 23	.34
INSTANTANEOUS PEAK FLOW			181
INSTANTANEOUS PEAK STAGE			5.60
ANNUAL RUNOFF (CFSM)	.60		.75
ANNUAL RUNOFF (INCHES)	8.09		10.18
10 PERCENT EXCEEDS	79		99
50 PERCENT EXCEEDS	23		26
90 PERCENT EXCEEDS	.37		.84
			.92

(a) Also occurred Aug. 2, 3, 1988

(b) Present datum



STREAMS TRIBUTARY TO LAKE MICHIGAN
04060993 BRULE RIVER NEAR FLORENCE, WI

LOCATION.--Lat 45°57'39", long 88°18'57", in NW 1/4 SE 1/4 sec.9, T.41 N., R.32 W., Michigan Meridian, Iron County, Hydrologic Unit 04030106, on left bank 30 ft upstream from bridge on U.S. Highway 2, 4.0 mi upstream from Paint River, 4.0 mi northwest of Florence, and 8.0 mi upstream from confluence with Michigamme River.

DRAINAGE AREA.--366 mi², approximately.

PERIOD OF RECORD.--January 1914 to February 1916, June 1944 to current year.

REVISED RECORDS.--WSP 1387: 1914-16. WDR MI-92-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,240 ft above sea level, from topographic map. Prior to Aug. 29, 1944, nonrecording gage, and Aug. 19, 1944 to Apr. 4, 1994, water-stage recorder at site 3.0 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Dec. 20 to Mar. 24, June 12-22, and July 17 to Aug. 12. Records fair (see page 13). Discharge includes some mine pumpage prior to August 1977. Several measurements of water temperature were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	218	212	242	260	220	220	711	224	305	283	350	229
2	209	203	238	260	220	220	811	216	299	283	350	223
3	213	198	233	260	220	220	835	212	283	314	300	221
4	214	193	230	260	220	220	882	213	266	466	300	221
5	201	192	227	260	220	215	867	215	259	394	290	222
6	221	209	236	260	220	210	891	285	353	400	290	240
7	233	216	234	250	230	210	918	636	420	346	290	245
8	216	206	222	250	230	210	828	981	374	313	290	259
9	198	203	220	250	230	210	701	970	387	664	290	238
10	197	239	241	240	230	210	581	793	321	699	290	232
11	193	350	236	240	240	210	497	602	291	501	290	231
12	191	306	250	240	250	210	454	472	350	374	290	236
13	186	256	237	240	250	220	408	397	310	322	625	242
14	183	258	242	230	250	220	376	349	280	290	646	233
15	182	247	228	230	250	230	358	320	270	3170	466	224
16	182	251	218	230	250	240	340	306	260	2390	431	220
17	185	250	210	230	240	240	324	345	250	1700	410	213
18	215	249	219	230	240	240	315	620	240	1000	363	214
19	218	348	221	230	230	240	301	794	240	850	344	226
20	202	366	220	230	230	240	290	645	230	800	324	260
21	193	297	220	230	220	240	294	661	230	600	303	259
22	189	283	210	230	210	250	297	628	220	500	294	259
23	188	283	210	230	210	250	287	608	220	400	287	242
24	194	284	220	230	210	250	273	733	278	440	288	229
25	198	276	240	220	215	250	254	639	256	440	288	226
26	247	266	250	220	220	253	251	540	228	400	273	221
27	232	256	250	220	220	278	243	464	216	370	262	242
28	212	248	260	220	220	329	237	403	218	330	255	259
29	209	244	260	220	---	364	238	361	268	320	244	242
30	232	245	260	220	---	400	230	330	267	340	235	231
31	225	---	260	220	---	464	---	306	---	350	232	---
TOTAL	6376	7634	7244	7340	6395	7763	14292	15268	8389	20049	10190	7039
MEAN	206	254	234	237	228	250	476	493	280	647	329	235
MAX	247	366	260	260	250	464	918	981	420	3170	646	260
MIN	182	192	210	220	210	210	230	212	216	283	232	213
CFSM	.56	.70	.64	.65	.62	.68	1.30	1.35	.76	1.77	.90	.64
IN.	.65	.78	.74	.75	.65	.79	1.45	1.55	.85	2.04	1.04	.72

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1999, BY WATER YEAR (WY)

	MEAN	326	336	277	251	244	320	650	501	394	339	290	310
MAX	612	600	424	369	406	833	1235	1104	712	983	604	582	
(WY)	1986	1916	1986	1986	1984	1973	1967	1965	1981	1953	1972	1959	
MIN	179	202	175	156	163	178	235	242	194	185	186	182	
(WY)	1949	1990	1990	1995	1995	1965	1990	1998	1988	1989	1948	1948	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1914 - 1999

ANNUAL TOTAL	99859	117979	
ANNUAL MEAN	274	323	352
HIGHEST ANNUAL MEAN			512
LOWEST ANNUAL MEAN			221
HIGHEST DAILY MEAN	1400	Mar 31	4420
LOWEST DAILY MEAN	160	Sep 12	130
ANNUAL SEVEN-DAY MINIMUM	169	Sep 6	140
INSTANTANEOUS PEAK FLOW			4310
INSTANTANEOUS PEAK STAGE			8.41
INSTANTANEOUS LOW FLOW			180
ANNUAL RUNOFF (CFSM)	.75	.88	(a) 8.41
ANNUAL RUNOFF (INCHES)	10.15	11.99	(b) 118
10 PERCENT EXCEEDS	351	500	.96
50 PERCENT EXCEEDS	240	250	13.05
90 PERCENT EXCEEDS	185	210	205

(a) Present site and datum; peak stage at previous site and datum, 8.60 ft, Dec. 20, 1983, backwater from ice

(b) Oct. 15, 16, 17

(c) Discharge measurement

STREAMS TRIBUTARY TO LAKE MICHIGAN
04062011 BRULE RIVER NEAR COMMONWEALTH, WI

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LOCATION.--Lat 45°56'51" long 88°12'55", in NW 1/4 sec.14, T.40 N., R.18 E., Wisconsin Meridian, Florence County, Hydrologic Unit 04030106, on right bank 900 ft downstream from Brule Island Dam, 1.5 mi upstream from confluence with Michigamme River, and 2.8 mi north of Commonwealth, WI.

DRAINAGE AREA.--1,020 mi².

PERIOD OF RECORD.--October 1989 to current year.

REVISED RECORD.--WDR MI-91-1: 1990(M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,130 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharge: Feb. 26 to Mar. 1, July 23, and Aug. 4. Records good (see page 13). Flow regulated by powerplant 900 ft upstream and by Lower Paint Dam 8.2 mi upstream. Records not adjusted for diversion to Michigamme River by Paint River Diversion Canal.

COOPERATION.--Gage-height record was provided by Wisconsin Electric Power Co., under general supervision of the Geological Survey.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	342	338	329	319	328	e350	832	351	849	392	523	343
2	334	325	361	295	333	353	869	325	597	420	499	331
3	300	319	314	351	322	337	1130	314	433	480	416	320
4	336	311	334	291	348	304	1410	309	369	581	450	336
5	337	308	353	295	304	355	1520	324	430	1030	425	331
6	346	317	346	305	306	301	1820	486	501	1360	412	338
7	387	352	335	327	363	325	1830	1060	553	817	436	350
8	324	332	320	312	314	303	1740	2080	496	409	427	384
9	295	324	289	297	345	339	1340	2180	569	1240	415	348
10	321	449	334	313	323	340	990	1900	462	1330	442	343
11	316	478	311	299	380	318	710	1690	463	590	413	314
12	320	472	299	286	464	296	493	1340	617	488	454	348
13	322	310	313	315	401	339	527	940	436	435	762	371
14	289	404	268	301	368	329	488	596	408	386	749	344
15	312	334	347	298	393	310	452	408	396	3390	561	324
16	304	377	359	288	385	374	453	434	380	2570	541	326
17	290	353	322	302	355	371	425	481	390	1930	521	325
18	358	346	268	322	344	372	419	1140	344	1250	449	323
19	360	477	262	314	339	373	430	1920	364	1160	470	322
20	309	493	264	305	350	374	380	1600	339	899	414	372
21	297	383	280	314	335	408	401	1580	351	764	429	350
22	338	349	246	327	316	330	433	1470	315	695	394	380
23	302	441	187	319	337	380	387	1610	360	540	397	351
24	300	359	294	329	353	385	374	1790	406	660	400	321
25	319	389	300	310	315	395	361	1500	406	606	409	331
26	387	378	295	315	360	378	358	1250	316	571	363	330
27	371	362	300	314	330	405	363	1390	374	560	382	368
28	338	345	300	339	360	436	349	1380	331	459	374	368
29	326	349	308	311	---	461	327	1500	406	486	341	339
30	381	375	301	339	---	519	326	1650	377	478	337	341
31	343	---	314	312	---	548	---	1310	---	511	326	---
TOTAL	10204	11149	9453	9664	9771	11408	21937	36308	13038	27487	13931	10272
MEAN	329	372	305	312	349	368	731	1171	435	887	449	342
MAX	387	493	361	351	464	548	1830	2180	849	3390	762	384
MIN	289	308	187	286	304	296	326	309	315	386	326	314

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1999, BY WATER YEAR (WY)

	MEAN	422	402	345	331	337	427	985	900	484	462	365	362
MAX	712	571	416	424	410	634	2288	2757	730	887	465	467	
(WY)	1991	1993	1992	1997	1997	1998	1996	1996	1996	1999	1996	1997	
MIN	276	307	270	259	270	359	322	355	334	272	296	285	
(WY)	1990	1990	1990	1991	1991	1994	1990	1998	1992	1990	1990	1998	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1990 - 1999

ANNUAL TOTAL	149018	184622	
ANNUAL MEAN	408	506	485
HIGHEST ANNUAL MEAN			810
LOWEST ANNUAL MEAN			325
HIGHEST DAILY MEAN	3620	3390	7750
LOWEST DAILY MEAN	187	187	182
ANNUAL SEVEN-DAY MINIMUM	257	257	202
INSTANTANEOUS PEAK FLOW		5780	8480
INSTANTANEOUS PEAK STAGE		11.93	13.91
10 PERCENT EXCEEDS	478	1010	685
50 PERCENT EXCEEDS	352	360	372
90 PERCENT EXCEEDS	278	304	278

STREAMS TRIBUTARY TO LAKE MICHIGAN

04063500 MENOMINEE RIVER AT TWIN FALLS NEAR IRON MOUNTAIN, MI

LOCATION.--Lat 45°52'17", long 88°04'12" in NE 1/4 SE 1/4 sec.12, T.40 N., R.31 W., Michigan Meridian, Dickinson County, Hydrologic Unit 04030108, on left bank 150 ft downstream from Wisconsin Electric Power Company powerhouse at Twin Falls Dam, 3.6 mi north of Iron Mountain, and at mile 106.6.

DRAINAGE AREA.--1,800 mi².

PERIOD OF RECORD.--January 1914 to current year. Published as "near Florence, WI" October 1957 to September 1989.

REVISED RECORDS.--WDR MI-91-1: 1990(M). WDR MI-92-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,062 ft above sea level (levels by Wisconsin Electric Power Co.). Prior to September 1957, headwater and tailwater gages and generation data entered hourly in daily log sheets by company employees. October 1957 to September 1989, water-stage recorder at site 10.4 mi upstream at different datum. November 1989 to July 1993, water-stage recorder at site 150 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good (see page 13). Prior to September 1957, discharge determined from powerplant records computed on basis of load-discharge rating of hydroelectric units and rating for tailwater gage during periods of spill; ratings developed by U.S. Geological Survey. Flow regulated by powerplants, by Michigamme Reservoir, capacity, 119,950 acre-ft, by Peavy Pond, capacity, 33,860 acre-ft, on Michigamme River, and by many smaller reservoirs upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1340	891	961	1050	1430	1900	1290	879	3140	1290	1520	1210
2	1290	919	1020	1050	1380	2000	1250	987	2410	1550	1560	1240
3	1540	939	1010	1050	1510	1980	1460	1200	2110	1720	1480	1320
4	1140	924	993	1160	1600	1980	1550	1250	1980	2150	1310	808
5	1050	909	891	1300	1160	1980	2200	1150	2040	2900	1520	914
6	1410	954	901	1240	1030	1980	2640	1480	2510	3340	1430	1110
7	1720	856	1160	1250	1030	1980	3330	2910	2120	2820	1200	1370
8	1690	883	1190	1240	1290	1970	3470	5800	2370	2260	1260	1400
9	1330	945	1210	1300	1630	1970	3330	5850	2560	2960	1490	1430
10	1270	931	1050	1280	1660	1970	2960	6110	2300	3710	1650	1470
11	1280	890	1040	1280	1670	1870	2320	4780	1960	2060	1630	1010
12	1490	865	1020	1280	1740	1950	2260	3530	1970	2160	1490	890
13	1400	1080	1020	1330	1800	1980	2350	2780	1970	2140	2090	941
14	1310	1050	1090	1290	1810	1970	1900	2190	2010	2030	1720	942
15	1310	1160	974	1280	1810	1980	1720	1810	1550	4900	1710	987
16	971	1140	965	1260	1790	2060	1540	1810	1470	4950	1810	1160
17	1020	1160	986	1200	1750	2020	1380	1940	1650	3520	1710	1350
18	998	948	1140	1330	1780	1860	1380	3300	1570	2300	1740	1270
19	961	1220	1060	1320	1810	1800	1650	5400	1440	2560	1610	658
20	902	1160	1080	1280	1800	1790	1410	4480	1570	2270	1430	925
21	940	1240	1060	1310	1810	1780	1470	4290	1370	1900	934	1180
22	926	1320	1080	1310	1800	1790	1470	3880	1210	1750	1400	1270
23	963	1170	1070	1430	1800	1790	1260	4230	1320	1940	1590	1110
24	914	1200	1070	1340	1800	1870	1180	4190	1360	1820	1470	1350
25	934	1220	1080	1290	1790	1920	1180	4060	1440	1720	1730	969
26	941	931	1080	1380	1790	1870	1190	3760	1560	1530	1830	820
27	894	1170	1030	1230	1800	1850	1260	4280	1370	1390	1720	1050
28	869	1150	1100	1270	1800	1910	1140	4210	1410	1500	1310	1430
29	955	984	1080	1350	---	1730	1190	3720	1280	1690	1180	1230
30	946	1030	1100	1390	---	1660	1190	4790	1380	1790	1360	1180
31	844	---	1040	1350	---	1450	---	3720	---	1570	1390	---
TOTAL	35548	31239	32551	39420	45870	58610	53920	104766	54400	72190	47274	33994
MEAN	1147	1041	1050	1272	1638	1891	1797	3380	1813	2329	1525	1133
MAX	1720	1320	1210	1430	1810	2060	3470	6110	3140	4950	2090	1470
MIN	844	856	891	1050	1030	1450	1140	879	1210	1290	934	658

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1999, BY WATER YEAR (WY)

	MEAN	1479	1605	1462	1405	1384	1606	3175	3061	2142	1611	1309	1409
MAX	3537	3465	2640	2253	2514	3544	8159	6319	5035	4309	2359	3149	
(WY)	1986	1986	1984	1983	1984	1973	1916	1960	1916	1953	1972	1968	
MIN	726	725	765	691	647	692	707	595	799	721	545	718	
(WY)	1949	1964	1925	1924	1926	1914	1990	1987	1988	1925	1925	1925	

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1914 - 1999
ANNUAL TOTAL	459482	609782	
ANNUAL MEAN	1259	1671	1804
HIGHEST ANNUAL MEAN			3069
LOWEST ANNUAL MEAN			922
HIGHEST DAILY MEAN	6190	6110	18100
LOWEST DAILY MEAN	659	658	57
ANNUAL SEVEN-DAY MINIMUM	710	903	277
INSTANTANEOUS PEAK FLOW		7150	(a) 19500
INSTANTANEOUS PEAK STAGE		10.44	(b) 12.54
10 PERCENT EXCEEDS	1770	2560	3040
50 PERCENT EXCEEDS	1080	1400	1480
90 PERCENT EXCEEDS	806	955	855

(a) Gage height, 14.15 ft, site and datum then in use
(b) Present site and datum

STREAMS TRIBUTARY TO LAKE MICHIGAN

45

04063700 POPPLE RIVER NEAR FENCE, WI
(HYDROLOGIC BENCHMARK STATION)

LOCATION.--Lat 45°45'49", long 88°27'47", in NW 1/4 NW 1/4 sec.23, T.38 N., R.16 E., Florence County, Hydrologic Unit 04030108, on left bank 20 ft upstream from bridge on U. S. Forest Service Road 2159, 1.8 mi downstream from Mud Creek, 2.6 mi northwest of Fence, and 11.5 mi upstream from mouth.

DRAINAGE AREA.--139 mi².

PERIOD OF RECORD.--October 1963 to current year.

REVISED RECORDS.--WDR WI-76-1: 1972(M). WDR WI-80-1: Drainage area. WDR WI-81-1: 1965 (M).

GAGE.--Water-stage recorder. Datum of gage is 1,406.16 ft above sea level. Prior to June 18, 1964, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 19 to Mar. 21. Records good except those for ice-affected period, which is poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	37	50	26	33	45	225	45	86	74	113	48
2	26	39	49	27	33	46	237	42	75	87	105	47
3	24	41	48	28	33	45	252	40	70	209	101	44
4	25	46	45	29	32	43	278	39	64	313	103	42
5	24	43	43	28	34	41	293	38	58	355	99	40
6	36	40	43	27	35	40	311	52	106	378	94	40
7	44	38	43	26	36	39	315	188	190	339	86	40
8	38	36	38	26	35	40	301	316	196	317	80	39
9	32	33	37	25	37	40	291	346	314	493	76	39
10	30	44	40	25	39	40	269	321	324	530	74	39
11	29	64	35	25	43	40	246	283	337	556	74	39
12	28	54	37	26	47	40	225	248	388	465	73	40
13	26	50	34	26	45	39	201	222	439	385	114	41
14	26	48	33	26	47	40	175	185	445	333	130	41
15	26	45	35	27	48	41	150	145	403	328	119	41
16	27	44	35	28	50	41	129	120	343	274	112	40
17	29	46	31	29	50	44	114	111	284	263	109	38
18	34	46	30	30	47	47	103	180	227	264	99	37
19	36	74	32	29	44	49	93	202	165	252	93	37
20	34	84	31	29	42	50	86	184	115	225	87	41
21	32	72	30	29	40	54	82	197	91	205	80	44
22	31	67	28	30	39	55	80	201	80	184	76	42
23	31	66	25	30	39	57	78	207	73	167	72	40
24	31	63	23	30	39	62	73	222	75	155	72	39
25	30	61	22	30	39	64	67	215	84	145	70	37
26	33	58	23	30	40	67	62	204	82	145	66	36
27	33	54	25	30	41	78	56	186	74	141	63	42
28	31	52	26	30	43	94	52	162	69	132	59	50
29	29	51	27	31	---	110	51	135	71	126	55	49
30	33	50	27	32	---	131	49	111	71	118	51	47
31	37	---	26	32	---	172	---	94	---	114	49	---
TOTAL	951	1546	1051	876	1130	1794	4944	5241	5399	8072	2654	1239
MEAN	30.7	51.5	33.9	28.3	40.4	57.9	165	169	180	260	85.6	41.3
MAX	44	84	50	32	50	172	315	346	445	556	130	50
MIN	24	33	22	25	32	39	49	38	58	74	49	36
CFSM	.22	.37	.24	.20	.29	.42	1.19	1.22	1.29	1.87	.62	.30
IN.	.25	.41	.28	.23	.30	.48	1.32	1.40	1.44	2.16	.71	.33

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1999, BY WATER YEAR (WY)												
MEAN	118	114	65.6	48.5	47.9	86.2	307	219	143	81.7	66.5	107
MAX	265	220	116	86.6	107	356	613	617	345	260	147	356
(WY)	1972	1986	1992	1969	1984	1973	1979	1965	1993	1999	1978	1980
MIN	25.0	30.9	23.9	24.6	26.0	30.5	54.6	52.0	21.2	17.5	23.1	16.4
(WY)	1990	1977	1990	1977	1982	1964	1990	1998	1988	1988	1989	1989

SUMMARY STATISTICS				FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1964 - 1999	
ANNUAL TOTAL				23886		34897			
ANNUAL MEAN				65.4		95.6		117	
HIGHEST ANNUAL MEAN								175	
LOWEST ANNUAL MEAN								64.3	
HIGHEST DAILY MEAN				663		556		1610	
LOWEST DAILY MEAN				18		(a)22		10	
ANNUAL SEVEN-DAY MINIMUM				19		(a)24		12	
INSTANTANEOUS PEAK FLOW						568		1640	
INSTANTANEOUS PEAK STAGE						2.97		4.70	
INSTANTANEOUS LOW FLOW								(c)5.9	
ANNUAL RUNOFF (CFSM)				.47		.69		.84	
ANNUAL RUNOFF (INCHES)				6.39		9.34		11.44	
10 PERCENT EXCEEDS				113		252		257	
50 PERCENT EXCEEDS				40		48		71	
90 PERCENT EXCEEDS				23		29		33	

(a) Ice affected

(b) Also occurred Sept. 20, 1989

(c) Result of temporary storage from beaver dam

STREAMS TRIBUTARY TO LAKE MICHIGAN

04064500 PINE RIVER BELOW PINE RIVER POWERPLANT NEAR FLORENCE, WI

LOCATION.--Lat 45°50'16", long 88°13'31", in SW 1/4 sec.22, T.39 N., R.18 E., Florence County, Hydrologic Unit 04030108, on left bank 60 ft upstream from bridge on County Trunk Highway N, 1.9 mi downstream from powerplant of Wisconsin-Michigan Power Co., 6.0 mi south of Florence, and 7.0 mi downstream from Popple River.

DRAINAGE AREA.--533 mi².

PERIOD OF RECORD.--October 1923 to December 1975, October 1996 to current year.

REVISED RECORDS.--WRD WI-97-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,098.84 ft above mean sea level. Prior to October 1968, record obtained from Pine River Powerplant 1.9 mi upstream with a drainage area of 528 mi².

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 21 to Mar. 18. Records good except those for ice-affected period, which is fair (see page 13). Flow regulated by Pine River Powerplant 1.9 mi upstream; since storage capacity is small, monthly flows are not affected appreciably. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	136	189	239	170	190	220	888	213	331	296	449	204
2	141	192	236	160	200	210	908	217	309	305	423	209
3	118	178	230	160	190	220	959	203	293	594	399	202
4	118	184	225	160	200	210	1040	175	281	1290	422	209
5	122	155	230	150	200	200	1080	175	244	1260	391	170
6	144	179	221	160	180	200	1130	306	361	1330	404	207
7	213	187	213	170	190	190	1160	788	537	1070	367	184
8	187	165	200	170	200	190	1090	1170	539	950	354	210
9	167	149	161	170	180	200	998	1160	698	1770	338	205
10	145	244	191	160	200	210	896	1030	682	1800	370	201
11	140	304	162	150	240	210	804	831	668	1730	359	213
12	143	305	185	160	210	190	709	706	721	1470	339	196
13	148	255	170	160	270	180	641	603	748	1170	555	197
14	127	262	143	150	270	190	569	502	724	968	584	207
15	131	219	207	170	250	190	504	435	667	2510	518	200
16	124	252	226	160	250	200	438	370	591	1460	498	183
17	137	236	151	160	220	230	409	397	521	1550	448	179
18	202	231	127	160	220	250	391	610	454	1210	419	180
19	197	321	127	170	240	247	361	726	377	1050	402	187
20	205	413	177	170	230	264	352	672	323	862	368	210
21	186	332	160	180	230	250	329	724	265	781	339	182
22	148	336	140	180	200	289	332	813	242	695	335	190
23	169	326	150	180	200	272	319	832	245	636	311	191
24	143	296	150	180	210	297	298	864	262	598	309	180
25	153	290	150	170	210	301	284	818	291	552	305	175
26	184	278	140	180	220	289	272	727	274	567	289	167
27	194	267	150	180	220	326	240	646	243	550	281	199
28	145	248	150	190	210	400	232	547	254	507	264	232
29	171	249	170	180	---	461	210	464	283	515	253	234
30	159	245	160	190	---	523	234	390	265	479	226	197
31	181	---	170	190	---	665	---	358	---	477	212	---
TOTAL	4878	7487	5511	5240	6030	8274	18077	18472	12693	31002	11531	5900
MEAN	157	250	178	169	215	267	603	596	423	1000	372	197
MAX	213	413	239	190	270	665	1160	1170	748	2510	584	234
MIN	118	149	127	150	180	180	210	175	242	296	212	167
CFSM	.30	.47	.33	.32	.40	.50	1.13	1.12	.79	1.88	.70	.37
IN.	.34	.52	.38	.37	.42	.58	1.26	1.29	.89	2.16	.80	.41

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1999, BY WATER YEAR (WY)

	MEAN	377	392	259	218	198	312	946	809	549	386	304	367
MAX	1017	694	431	473	351	1188	1882	2127	1424	1000	760	1115	
(WY)	1929	1946	1971	1939	1969	1973	1967	1965	1939	1999	1938	1928	
MIN	100	185	139	120	80.7	74.5	325	209	190	117	80.3	108	
(WY)	1949	1964	1964	1964	1964	1964	1931	1998	1948	1934	1933	1998	

SUMMARY STATISTICS

	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1924 - 1999
ANNUAL TOTAL	101413	135095	
ANNUAL MEAN	278	370	427
HIGHEST ANNUAL MEAN			658
LOWEST ANNUAL MEAN			210
HIGHEST DAILY MEAN	2260	2510	4380
LOWEST DAILY MEAN	76	118	.00 (a)
ANNUAL SEVEN-DAY MINIMUM	90	136	41
INSTANTANEOUS PEAK FLOW		3260	
INSTANTANEOUS PEAK STAGE		7.67	
ANNUAL RUNOFF (CFSM)	.52	.69	.80
ANNUAL RUNOFF (INCHES)	7.08	9.43	10.88
10 PERCENT EXCEEDS	482	794	887
50 PERCENT EXCEEDS	220	236	300
90 PERCENT EXCEEDS	111	160	149

(a) No flow at times during 1924, 1926-27, 1930-31, 1933, 1940

STREAMS TRIBUTARY TO LAKE MICHIGAN

47

04065106 MENOMINEE RIVER AT NIAGARA, WI

LOCATION.--Lat 45°46'04", long 87°58'50", in NE 1/4 NE 1/4 sec.15, T.38 N., R.20 E., Marinette County, Hydrologic Unit 04030108, on right bank 0.7 mi downstream from Little Quinnesec Falls Dam, at Niagara.

DRAINAGE AREA.--2,470 mi².

PERIOD OF RECORD.--October 1992 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 880 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: July 3-6 and ice-affected period, Dec. 20 to Mar. 16. Records good except those for estimated daily discharges, which are fair (see page 13). Flow regulated by powerplants, by Michigamme Reservoir, capacity, 119,950 acre-ft, by Peavy Pond, capacity, 33,860 acre-ft, on Michigamme River, and by smaller reservoirs upstream of gage. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1570	1110	1280	1200	1600	2000	2370	1240	3690	1690	2130	1530
2	1530	1200	1340	1200	1600	2100	2410	1250	2890	1840	1910	1480
3	1710	1180	1350	1200	1700	2200	2370	1410	2470	2100	2090	1580
4	1490	1130	1280	1400	1700	2100	2810	1430	2310	3300	1700	1230
5	1230	1140	1240	1500	1300	2100	3330	1470	2280	4300	2040	1160
6	1610	1140	1240	1500	1200	2100	4050	1830	2860	4900	1950	1420
7	2060	1120	1340	1500	1200	2100	4570	3400	2860	4150	1690	1900
8	1950	1150	1450	1500	1400	2100	4800	7000	2990	3410	1670	1820
9	1560	1150	1450	1500	1700	2100	4590	7150	3260	4740	1900	1690
10	1460	1200	1360	1500	1800	2100	4000	7710	3200	5890	2000	1670
11	1490	1360	1250	1500	1900	2000	3410	6070	2860	4060	2290	1280
12	1680	1160	1260	1500	2100	2000	2960	4560	2690	4000	1840	1270
13	1620	1490	1270	1500	2100	2100	3210	3690	2800	3530	2790	1380
14	1950	1320	1270	1500	2100	2100	2810	2870	3020	3200	2460	1270
15	1470	1490	1270	1600	2100	2200	2280	2430	2400	7830	2450	1290
16	1200	1470	1270	1500	2100	2300	2150	2330	1940	7810	2340	1530
17	1200	1470	1270	1500	2000	2280	1860	2470	2350	5590	2320	1360
18	1250	1300	1290	1500	2000	2170	1840	3560	2170	3880	2360	1340
19	1240	1550	1260	1500	2000	2120	1960	6360	1970	3850	2230	1370
20	1110	1580	1200	1400	2100	2180	1990	5390	1890	3550	1770	1250
21	1200	1640	1200	1500	2100	2220	1860	5010	1860	2760	1540	1480
22	1180	1690	1200	1500	2100	2130	1890	4970	1420	2670	1800	1570
23	1130	1630	1200	1600	2000	2090	1680	4970	1570	2700	1970	1510
24	1170	1600	1200	1600	2100	2190	1500	5550	1710	2480	1900	1470
25	1170	1550	1200	1500	2100	2300	1540	5120	1730	2520	1980	1130
26	1130	1250	1200	1500	2000	2290	1540	4620	1870	2260	2170	1160
27	1130	1550	1200	1500	1900	2280	1560	4830	1720	1950	2290	1660
28	1190	1400	1200	1500	2000	2300	1450	5110	1790	2130	1790	1590
29	1170	1260	1200	1600	---	2390	1480	4060	1610	2250	1630	1340
30	1160	1320	1200	1600	---	2340	1420	5240	1670	2470	1610	1410
31	1200	---	1200	1600	---	2290	---	4400	---	2160	1610	---
TOTAL	42810	40600	39140	46000	52000	67270	75690	127500	69850	109970	62220	43140
MEAN	1381	1353	1263	1484	1857	2170	2523	4113	2328	3547	2007	1438
MAX	2060	1690	1450	1600	2100	2390	4800	7710	3690	7830	2790	1900
MIN	1110	1110	1200	1200	1200	2000	1420	1240	1420	1690	1540	1130

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1999, BY WATER YEAR (WY)

	1993	1994	1995	1996	1997	1998	1999
MEAN	1814	1838	1819	1803	1949	2072	3542
MAX	2810	2531	2458	2258	2286	2455	6167
(WY)	1996	1993	1993	1993	1997	1998	1996
MIN	1381	1283	1263	1369	1391	1764	1953
(WY)	1999	1995	1999	1995	1995	1994	1998

SUMMARY STATISTICS FOR 1998 CALENDAR YEAR FOR 1999 WATER YEAR WATER YEARS 1993 - 1999

	1998	1999	1993-1999
ANNUAL TOTAL	595159	776190	2248
ANNUAL MEAN	1631	2127	3135
HIGHEST ANNUAL MEAN			1707
LOWEST ANNUAL MEAN			1996
HIGHEST DAILY MEAN	8960	Apr 1	16000
LOWEST DAILY MEAN	917	May 27	917
ANNUAL SEVEN-DAY MINIMUM	951	May 24	951
INSTANTANEOUS PEAK FLOW			16100
INSTANTANEOUS PEAK STAGE			15.11
10 PERCENT EXCEEDS	2300	3690	3600
50 PERCENT EXCEEDS	1340	1710	1900
90 PERCENT EXCEEDS	1050	1200	1230

(a) Also occurred Nov. 1

STREAMS TRIBUTARY TO LAKE MICHIGAN
04065722 MENOMINEE RIVER NEAR VULCAN, MI

LOCATION.--Lat 45°44'12", long 87°51'48", sec.34, T.39 N., R.29 W., Michigan Meridian, Dickinson County, Hydrologic Unit 04030108, on left bank 0.35 mi downstream from Sturgeon Falls Dam, 3.0 mi south of Vulcan, and at mile 78.7.

DRAINAGE AREA.--2,900 mi².

PERIOD OF RECORD.--December 1987 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 820 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records good (see page 13). Flow regulated by powerplants, by Michigamme Reservoir, capacity, 119,950 acre-ft, by Peavy Pond, capacity, 33,860 acre-ft, on Michigamme River, and by smaller reservoirs upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1770	1220	1420	1330	1720	2350	3440	1370	4480	1950	2410	1640
2	1690	1240	1420	1340	1800	2480	3640	1420	3640	2120	2070	1600
3	1740	1260	1520	1340	1870	2480	3630	1580	2970	2660	2330	1660
4	1630	1250	1450	1530	1930	2410	4200	1560	2830	4400	1870	1320
5	1280	1190	1380	1580	1520	2430	4850	1620	2700	4930	2060	1250
6	1570	1230	1370	1650	1340	2440	5760	2100	3230	6110	2130	1390
7	2260	1200	1510	1620	1390	2450	6390	4010	3450	5170	1810	2070
8	2130	1210	1550	1610	1610	2450	6500	8110	3410	4240	1820	1900
9	1700	1230	1640	1710	1970	2480	6290	8670	3990	5580	1940	1790
10	1510	1280	1470	1640	2100	2350	5460	9290	4070	7150	2200	1760
11	1590	1550	1410	1740	2080	2400	4620	7650	3700	5220	2500	1380
12	1710	1310	1380	1760	2390	2340	3910	5820	3680	4950	2020	1320
13	1780	1540	1370	1800	2300	2390	4210	4730	4070	4350	3220	1500
14	1600	1540	1370	1830	2390	2430	3610	3690	4310	3720	2960	1360
15	1540	1650	1370	1890	2410	2460	2960	2930	3460	7830	3120	1360
16	1290	1650	1370	1710	2580	2530	2690	2850	2510	9290	2930	1620
17	1280	1620	1370	1620	2430	2550	2370	2980	2810	6620	2920	1460
18	1310	1490	1370	1630	2310	2460	2200	4110	2670	4900	2880	1380
19	1350	1720	1370	1630	2320	2420	2320	7380	2350	4590	2750	1520
20	1170	1840	1290	1570	2470	2500	2400	6870	2230	4340	2090	1320
21	1240	1820	1340	1600	2380	2600	2200	6190	2220	3330	1810	1530
22	1240	2030	1280	1640	2390	2560	2260	6440	1650	3150	2010	1640
23	1200	1870	1320	1800	2240	2470	1990	6270	1780	3120	2320	1680
24	1200	1840	1350	1790	2360	2610	1780	7070	1920	2870	2160	1550
25	1220	1780	1360	1610	2380	2800	1790	6610	1890	2900	2160	1220
26	1220	1490	1340	1640	2320	2780	1850	6050	2210	2600	2380	1220
27	1170	1660	1330	1540	2190	2800	1820	6140	1920	2130	2480	1760
28	1210	1650	1330	1630	2310	2920	1650	6340	1980	2340	1990	1700
29	1250	1440	1330	1640	---	3130	1690	4900	1820	2420	1850	1490
30	1250	1470	1340	1770	---	3260	1590	6180	1850	2670	1780	1530
31	1290	---	1320	1690	---	3230	---	5360	---	2430	1680	---
TOTAL	45390	45270	43040	50880	59500	79960	100070	156290	85800	130080	70650	45920
MEAN	1464	1509	1388	1641	2125	2579	3336	5042	2860	4196	2279	1531
MAX	2260	2030	1640	1890	2580	3260	6500	9290	4480	9290	3220	2070
MIN	1170	1190	1280	1330	1340	2340	1590	1370	1650	1950	1680	1220

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1999, BY WATER YEAR (WY)

	1998	2309	2183	2031	2050	2479	4293	3923	2892	2264	1704	1869
MEAN	1998	2309	2183	2031	2050	2479	4293	3923	2892	2264	1704	1869
MAX	3401	4412	3008	2533	2548	3037	8159	8850	4832	4196	2598	2456
(WY)	1996	1989	1989	1993	1997	1998	1996	1996	1993	1999	1996	1994
MIN	1081	1382	1388	1489	1442	2028	1356	1344	1062	1100	1184	1223
(WY)	1990	1990	1999	1995	1995	1994	1990	1998	1988	1988	1998	1989

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1988 - 1999
ANNUAL TOTAL	695600	912850	
ANNUAL MEAN	1906	2501	2549
HIGHEST ANNUAL MEAN			3781
LOWEST ANNUAL MEAN			1864
HIGHEST DAILY MEAN	11300	9290	21500
LOWEST DAILY MEAN	1040	1170	846
ANNUAL SEVEN-DAY MINIMUM	1040	1210	932
INSTANTANEOUS PEAK FLOW		10600	22000
INSTANTANEOUS PEAK STAGE		12.39	17.39
INSTANTANEOUS LOW FLOW		1070	603
10 PERCENT EXCEEDS	2940	4660	4140
50 PERCENT EXCEEDS	1540	1930	2090
90 PERCENT EXCEEDS	1130	1320	1320

(a) Also occurred July 16

LOCATION.--Lat 45°34'46", long 87°47'13", in NE 1/4, sec.29, T. 37 N., R.28 W., Michigan Meridian, Menominee County, MI, Hydrologic Unit 04030108, on left bank 40 ft downstream from County Trunk Z bridge, 0.9 mi downstream from Pemene Creek, 3.9 mi west of Nathan, MI, 10.6 mi southeast of Pembine, and at mile 64.3.

PERIOD OF RECORD.--October 1949 to current year. Published as "near Pembine" (04066000) prior to August 1982. Monthly discharges for some periods published in WSP 1307.

GAGE.--Water-stage recorder. Elevation of gage is 740 ft above sea level, from topographic map. October 1949 to Oct. 27, 1972, water-stage recorder at site 1.0 mi upstream at elevation 745, from river-profile map, and Oct. 28, 1972, to August 1982, water-stage recorder at site 1.5 mi upstream at elevation 770, from river-profile map.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 21 to Mar. 11. Records good except those for ice-affected period, which is fair (see page 13). Flow regulated by powerplants and by Michigamme Reservoir, capacity, 119,950 acre-ft, and Peavy Pond, capacity, 33,860 acre-ft, on the Michigamme River, and by many smaller reservoirs above station. Gage-height telemeter at station.

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1730	1330	1510	1400	1800	2400	3780	1610	4690	2200	2780	1620
2	1690	1250	1490	1400	1800	2500	3980	1500	4120	2320	2090	1640
3	1670	1330	1590	1500	1900	2600	3980	1630	3170	2690	2530	1620
4	1950	1310	1530	1500	2000	2500	4360	1650	3100	4510	2060	1550
5	1290	1270	1450	1500	1700	2600	5030	1640	2880	5080	2080	1310
6	1460	1270	1460	1600	1600	2500	5810	2060	3230	6410	2190	1270
7	2320	1260	1470	1600	1500	2500	6700	3790	3730	5640	2010	1970
8	2210	1250	1600	1600	1700	2500	6640	7620	3530	4610	1830	1980
9	1880	1290	1690	1600	1900	2600	6700	9240	4050	5620	1960	1980
10	1540	1400	1640	1700	2100	2600	5830	9760	4190	7740	2330	1880
11	1700	1620	1530	1700	2300	2500	4930	8400	3870	6310	2600	1590
12	1650	1480	1430	1800	2600	2510	4160	6230	3830	5430	2140	1390
13	1890	1490	1450	1800	2500	2470	4240	4940	3990	4710	2910	1600
14	1670	1790	1460	1700	2500	2530	3890	4110	4460	4000	3410	1550
15	1650	1670	1430	1800	2500	2550	3260	3050	4060	6550	3390	1470
16	1450	1720	1430	1700	2700	2590	2950	3120	2560	10400	3130	1520
17	1280	1710	1440	1600	2600	2660	2630	3110	3020	7520	3090	1650
18	1330	1670	1440	1700	2600	2620	2390	3960	2940	6070	2940	1490
19	1360	1670	1470	1700	2500	2580	2410	6980	2550	5060	2910	1600
20	1340	1960	1390	1700	2500	2630	2560	7410	2380	4850	2220	1450
21	1230	2010	1400	1600	2500	2750	2250	6290	2310	3900	1990	1520
22	1360	2200	1400	1700	2600	2740	2430	6910	1880	3390	1920	1710
23	1310	1900	1400	1800	2500	2650	2270	6220	1730	3410	2380	1880
24	1250	1950	1400	1900	2400	2740	1980	7270	2010	3260	2140	1670
25	1300	1890	1400	1900	2500	2930	1900	6730	2000	3080	2160	1480
26	1330	1690	1400	1800	2600	2930	1910	6240	2380	2950	2410	1280
27	1250	1570	1400	1800	2400	2990	1950	6190	2100	2280	2510	1710
28	1250	1820	1400	1700	2500	3140	1770	6600	2010	2440	2050	1700
29	1290	1620	1400	1700	---	3370	1820	4890	2060	2610	1830	1790
30	1300	1560	1400	1800	---	3570	1640	5910	1910	2690	1790	1560
31	1310	---	1400	1800	---	3600	---	5570	---	2620	1750	---
TOTAL	47240	47950	45300	52100	63300	84350	106150	160630	90740	140350	73530	48430
MEAN	1524	1598	1461	1681	2261	2721	3538	5182	3025	4527	2372	1614
MAX	2320	2200	1690	1900	2700	3600	6700	9760	4690	10400	3410	1980
MIN	1230	1250	1390	1400	1500	2400	1640	1500	1730	2200	1750	1270

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1999, BY WATER YEAR (WY)

MEAN	2485	2624	2302	2128	2107	2617	5574	4828	3389	2560	2094	2310
MAX	5660	5766	3939	3035	3810	7461	10000	12100	6118	6523	3505	5335
(WY)	1986	1986	1986	1986	1984	1973	1967	1960	1953	1953	1952	1968
MIN	1028	1043	1167	1080	1201	1461	1432	1341	1152	1201	1003	1009
(WY)	1977	1977	1977	1977	1964	1964	1990	1987	1988	1988	1977	1976

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1950 - 1999

ANNUAL TOTAL	705510		960070				
ANNUAL MEAN	1933		2630			2918	
HIGHEST ANNUAL MEAN						4318	1960
LOWEST ANNUAL MEAN						1778	1977
HIGHEST DAILY MEAN	12600	Apr 2	10400	Jul 16	26700		May 8 1960
LOWEST DAILY MEAN	1030	Aug 5	1230	Oct 21	840		Aug 14 1977
ANNUAL SEVEN-DAY MINIMUM	1070	Jul 31	1280	Nov 2	914		Aug 8 1977
INSTANTANEOUS PEAK FLOW			11000	Jul 16	(a) 26900		May 8 1960
INSTANTANEOUS PEAK STAGE			12.31	Jul 16	(b) 18.94		Dec 17 1985
10 PERCENT EXCEEDS	3000		4930				
50 PERCENT EXCEEDS	1550		2010			2300	
90 PERCENT EXCEEDS	1130		1400			1450	

(a) Gage height, 13.90 ft, site and datum then in use

(a) Gage height,
(b) Ice affected

STREAMS TRIBUTARY TO LAKE MICHIGAN
04066030 MENOMINEE RIVER AT WHITE RAPIDS DAM NEAR BANAT, MI

LOCATION.--Lat 45°28'55", long 87°48'08", in SE 1/4 SE 1/4, sec.30, T. 36 N., R.28 W., Michigan Meridian, Menominee County, Hydrologic Unit 04030108, on left bank at powerplant at White Rapids Dam, 5.7 mi southwest of Banat, MI.

DRAINAGE AREA.--3,190 mi².

PERIOD OF RECORD.--October 1998 to September 1999.

GAGE.--Water-stage recorder. Datum of gage is 680.00 ft above sea level (levels by Wisconsin Electric Power Company).

REMARKS.--Estimated daily discharges: Oct. 1-9. Records good except those estimated daily discharges, which are fair (see page 13). Flow regulated by powerplants, by Michigamme Reservoir, capacity, 119,950 acre-ft, by Peavy Pond, capacity, 33,860 acre-ft, on the Michigamme River, and by many smaller reservoirs above station. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1800	1460	1600	1430	1940	2420	3900	1690	4440	2120	2700	1660
2	1600	1310	1670	1490	1860	2610	4100	1660	4490	2530	2430	1700
3	1700	1260	1620	1570	2050	2660	4230	1420	3110	2810	2400	1680
4	2100	1310	1530	1520	2140	2590	4340	1650	3180	4520	2580	1740
5	1300	1370	1570	1700	2010	2640	5360	1750	2920	5070	2240	1440
6	1400	1290	1640	1740	1610	2570	6020	2380	3160	6250	2280	1230
7	2300	1260	1510	1810	1520	2570	6740	4040	3760	5390	2150	1670
8	2200	1240	1700	1660	1480	2580	6910	7600	3740	5000	1980	2220
9	1900	1320	1800	1740	2070	2690	6690	9380	3940	5470	2060	2140
10	1580	1580	1720	1870	2230	2560	5900	9560	4260	7650	2320	1970
11	1820	1740	1580	1710	2410	2520	5000	8400	4080	6690	2800	1650
12	1700	1560	1450	2000	2710	2520	4200	6260	3880	5200	2460	1230
13	1960	1440	1480	1900	2430	2480	4280	4970	4020	4770	2640	1340
14	1710	1830	1620	1770	2880	2580	3940	4310	4420	4050	3920	1620
15	1740	1620	1520	1870	2690	2630	3410	3270	4280	6100	3330	1600
16	1620	1960	1480	1940	2870	2590	2830	3170	2720	10600	3370	1510
17	1260	1790	1510	1650	2630	2760	2930	3170	2870	7280	3200	1550
18	1300	1670	1480	1820	2650	2620	2290	3950	3100	6460	3130	1480
19	1430	1710	1520	1730	2480	2640	2560	6720	2720	4680	2960	1840
20	1450	2100	1470	1740	2570	2740	2670	7820	2420	4980	2660	1260
21	1180	2100	1480	1740	2560	2790	2410	6290	2140	4060	2120	1410
22	1290	2250	1230	1710	2690	2760	2390	7030	2170	3480	1880	1650
23	1330	1930	1160	1940	2550	2830	2360	6190	1850	3370	2310	1700
24	1330	2040	1520	2020	2370	2760	1940	7160	2230	3820	2670	1780
25	1290	1950	1380	1880	2610	3040	2150	6780	2080	3200	2330	1700
26	1350	1880	1620	1780	2660	3060	1870	6340	2100	3010	2200	1320
27	1300	1570	1540	1900	2440	3010	2150	6270	2140	2770	2580	1330
28	1320	1910	1400	1690	2540	3270	1830	6540	2100	2460	2480	2020
29	1310	1720	1530	1850	---	3480	1790	4940	2080	2570	1890	1540
30	1430	1610	1290	1930	---	3680	1830	5760	2020	3080	1870	1490
31	1290	---	1560	1880	---	3740	---	5920	---	2660	1900	---
TOTAL	48290	49780	47180	54980	65650	86390	109020	162390	92420	142100	77840	48470
MEAN	1558	1659	1522	1774	2345	2787	3634	5238	3081	4584	2511	1616
MAX	2300	2250	1800	2020	2880	3740	6910	9560	4490	10600	3920	2220
MIN	1180	1240	1160	1430	1480	2420	1790	1420	1850	2120	1870	1230

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 1999, BY WATER YEAR (WY)

MEAN	1558	1659	1522	1774	2345	2787	3634	5238	3081	4584	2511	1616
MAX	1558	1659	1522	1774	2345	2787	3634	5238	3081	4584	2511	1616
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999
MIN	1558	1659	1522	1774	2345	2787	3634	5238	3081	4584	2511	1616
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999

SUMMARY STATISTICS

FOR 1999 WATER YEAR

ANNUAL TOTAL	984510	
ANNUAL MEAN	2697	
HIGHEST DAILY MEAN	10600	Jul 16
LOWEST DAILY MEAN	1160	Dec 23
ANNUAL SEVEN-DAY MINIMUM	1290	Nov 2
INSTANTANEOUS PEAK FLOW	12000	May 10
INSTANTANEOUS PEAK STAGE	11.70	May 10
10 PERCENT EXCEEDS	4990	
50 PERCENT EXCEEDS	2140	
90 PERCENT EXCEEDS	1430	

LOCATION.--Lat 45°23'14", long 87°42'07", in SE 1/4 NE 1/4, sec.36, T. 35 N., R.28 W., Michigan Meridian, Menominee County, MI, Hydrologic Unit 04030108, on left upstream bank 30 ft from river and 18 ft west of County Trunk JJ (Koss) bridge, 0.3 mi southeast of Koss and 3.4 mi upstream of Grand Rapids Dam.

PERIOD OF RECORD.--July 1907 to March 1909 (published as "at Koss"), July 1913 to September 1981 (published as 04067000 Menominee River below Koss, MI), June 1998 to current year. Records prior to October 1913 published in WSP 244, 264, and 384.

GAGE.--Water-stage recorder. Elevation of gage is 665 ft above sea level, from topographic map. June 1913 to September 1981, headwater and tailwater gages and generation data entered hourly in daily log sheet by Wisconsin Public Service Corp. employees at powerplant 4 mi downstream. Records of daily discharge furnished by Wisconsin Public Service Corp. Prior to June 1913, chain gage on railroad bridge at Koss.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 20 to Mar. 23. Records good except those for ice-affected period and Sept. 7-30 when there was variable backwater, which are fair (see page 13). Flow regulated by powerplants and by Michigamme Reservoir, capacity, 119,950 acre-ft, and Peavy Pond, capacity, 33,860 acre-ft, on the Michigamme River, and by many smaller reservoirs above station. Gage-height telemeter at station.

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1800	1590	1880	1600	2100	3000	4490	2040	5710	2420	2780	1650
2	1950	1740	1770	1700	2200	3100	4830	1960	4900	2680	3030	1660
3	1930	1670	1890	1700	2300	3100	4930	1850	4170	2960	2410	1650
4	1970	1630	1890	1800	2300	3100	5120	1730	3510	3810	2610	1670
5	2000	1690	1980	1900	2100	3100	6020	1970	3240	5400	2600	1680
6	1610	1700	1860	1900	1900	3000	6790	2160	3140	6170	2360	1430
7	2140	1600	1930	1900	1700	3000	7630	3600	3820	6630	2170	1690
8	2580	1630	2340	1900	1700	3000	8150	6620	4060	5820	2320	2180
9	2330	1630	2140	1900	2000	3100	8020	9480	4110	5760	1870	2120
10	1890	1820	1950	1900	2500	3000	7380	10500	4450	7540	2320	2130
11	1720	1950	1850	1900	2800	2900	6440	10700	4750	8630	2590	1930
12	1870	2050	1670	2000	2900	2900	5440	8900	4290	6950	2790	1520
13	1960	1790	1670	2000	3000	2900	4770	6530	4370	6030	2450	1280
14	2000	1920	1650	2000	3100	3000	4720	5340	4620	5190	3750	1480
15	1970	1910	1730	2000	3000	3100	4220	4260	4840	4830	3700	1600
16	1880	2120	1680	1900	3100	3100	3420	3400	3990	8390	3450	1590
17	1660	2010	1610	1800	3200	3100	3400	3690	2990	9870	3350	1540
18	1510	1910	1660	1900	3000	3100	2790	3890	3260	8340	3290	1550
19	1560	1860	1660	1800	2900	3200	2730	5850	3080	6370	3140	1670
20	1720	2210	1700	1800	3000	3200	2900	8290	2670	5710	2990	1520
21	1610	2410	1600	1800	3000	3300	2830	7890	2460	5290	2410	1340
22	1540	2300	1400	1900	3000	3300	2610	7360	2330	4370	2000	1600
23	1670	2220	1500	2100	3000	3300	2640	7540	2060	3700	2060	1670
24	1580	2260	1600	2100	2900	3380	2540	7540	2200	4150	2580	1700
25	1530	2160	1700	2000	3000	3410	2230	8030	2420	3800	2520	1690
26	1590	2060	1700	2000	3000	3770	2190	7480	2040	3410	2220	1580
27	1630	1660	1700	2000	3000	3510	2340	6860	2400	3210	2360	1380
28	1600	1970	1600	2100	2900	3690	2250	6820	2410	2770	2510	1740
29	1620	2060	1600	2100	---	3930	2090	6470	2360	2650	2240	1750
30	1700	1910	1600	2100	---	4250	2040	5470	2400	2950	1850	1610
31	1640	---	1600	2100	---	4390	---	6480	---	3140	2050	---
TOTAL	55760	57440	54110	59600	74600	101230	127950	180700	103050	158940	80770	49600
MEAN	1799	1915	1745	1923	2664	3265	4265	5829	3435	5127	2605	1653
MAX	2580	2410	2340	2100	3200	4390	8150	10700	5710	9870	3750	2180
MIN	1510	1590	1400	1600	1700	2900	2040	1730	2040	2420	1850	1280

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1913 - 1999, BY WATER YEAR (WY)

MEAN	2568	2838	2203	1980	1872	2693	6619	5754	3893	2775	2160	2433
MAX	6178	5597	3588	3174	3176	7973	13650	13180	10780	6159	3800	5538
(WY)	1929	1917	1919	1969	1969	1973	1916	1960	1916	1953	1972	1928
MIN	1131	1170	1166	989	864	1199	2479	2220	1708	1111	731	1013
(WY)	1977	1977	1931	1926	1926	1934	1964	1977	1977	1934	1934	1933

SUMMARY STATISTICS

SUMMARY STATISTICS	FOR 1999	WATER YEAR	WATER YEARS 1913 - 1999
ANNUAL TOTAL	1103750		
ANNUAL MEAN	3024		3155
HIGHEST ANNUAL MEAN			5262
LOWEST ANNUAL MEAN			1642
HIGHEST DAILY MEAN	10700	May 11	33000
LOWEST DAILY MEAN	1280	Sep 13	162
ANNUAL SEVEN-DAY MINIMUM	1510	Sep 12	402
INSTANTANEOUS PEAK FLOW	11000	May 11	
INSTANTANEOUS PEAK STAGE	13.76	May 11	
10 PERCENT EXCEEDS	5780		5940
50 PERCENT EXCEEDS	2330		2340
90 PERCENT EXCEEDS	1630		1380

STREAMS TRIBUTARY TO LAKE MICHIGAN
04067500 MENOMINEE RIVER NEAR MC ALLISTER, WI

LOCATION.--Lat 45°19'33", long 87°39'48", in SW 1/4 SE 1/4 sec.17, T.33 N., R.23 E., Marinette County, Hydrologic Unit 04030108, on right bank 85 ft downstream from bridge on County Highway JJ, 2.9 mi downstream from Grand Rapids Dam, 2.6 mi east of McAllister, 1.9 mi downstream from Little Cedar River, and at mile 22.6.

DRAINAGE AREA.--3.930 mi².

PERIOD OF RECORD.--March 1945 to September 1961; October 1961 to September 1979, miscellaneous measurements and peaks only; October 1979 to September 1986; October 1986 to March 1987, crest-stage partial-record station; April 1988 to September 1990; April 1993 to September 1995; October 1997 to current year.

REVISED RECORDS.--WDR WI-80-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 622.20 ft above sea level (Michigan Department of Transportation reference mark). Prior to May 15, 1945, nonrecording gage 1,400 ft downstream at same datum; May 16, 1945 to September 1961, water-stage recorder 1,000 ft downstream at same datum; October 1961 to September 1979, crest-stage gage 1,100 ft downstream at same datum; October 1979 to September 1986, water-stage recorder at same site and datum; October 1986 to March 1987, crest-stage gage at same site and datum. April 1988 to September 1990, and April 1993 to September 1995, water-stage recorder at same site and datum.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 22 to Mar. 23. Records good except those for ice-affected period, which is fair (see page 13). Flow regulated by powerplants, by Michigamme Reservoir, capacity, 119,950 acre-ft, and Peavy Pond, capacity, 33,860 acre-ft on the Michigamme River, and by many smaller reservoirs above station. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1770	1440	1770	1600	2000	2800	4880	2010	5950	2320	2960	1840
2	1870	1540	1760	1700	2000	2800	5200	1910	5070	2780	3130	1810
3	1860	1450	1830	1600	2000	2900	5260	1810	4510	3050	2550	1810
4	1880	1410	1780	1800	2200	3000	5500	1690	3690	3730	2730	1740
5	2030	1430	1880	1700	2300	3000	6240	1920	3420	5490	2800	1780
6	1620	1490	1670	1900	2100	3000	7090	2140	3350	6220	2500	1550
7	2030	1440	1700	1900	1900	3000	7950	3670	3930	6880	2400	1620
8	2610	1400	1740	1800	2000	3000	8440	6600	4190	6020	2400	2330
9	2400	1380	1990	1800	1900	3000	8270	9230	4210	6060	2110	2230
10	2020	1590	1940	1900	2400	3000	7670	10200	4490	7700	2360	2230
11	1700	1910	1830	2000	2500	2900	6790	10500	4870	8800	2710	2010
12	1900	2070	1670	1900	2700	3000	5800	8910	4450	7370	2950	1650
13	1870	1710	1620	1900	2900	2900	5100	6780	4430	6320	2760	1360
14	2020	1870	1580	2000	2800	3000	5060	5570	4640	5450	3860	1550
15	1810	1900	1720	1900	3200	3000	4510	4600	4930	4980	4070	1690
16	1810	2060	1690	2000	3200	3000	3690	3520	4220	7900	3800	1670
17	1630	2060	1600	2000	3200	3100	3500	3930	2960	9750	3650	1610
18	1420	1890	1640	1900	3100	3300	3140	4110	3390	8390	3470	1620
19	1450	1880	1600	1900	3000	3300	2740	5690	3290	6740	3330	1740
20	1560	2270	1590	2000	2900	3400	2970	8060	2810	5880	3160	1690
21	1520	2510	1560	2000	3000	3600	2980	7930	2580	5630	2640	1430
22	1290	2390	1200	2000	3000	3800	2710	7300	2440	4680	2210	1620
23	1500	2330	1500	2100	3000	3700	2740	7600	2180	4110	2160	1750
24	1470	2300	1600	2100	2900	3470	2660	7520	2210	4390	2700	1800
25	1420	2260	1700	2300	2900	3490	2320	8080	2400	4170	2730	1810
26	1450	2140	1700	2100	2900	3840	2260	7620	2080	3710	2380	1680
27	1460	1880	1800	2100	3000	3650	2250	7000	2440	3420	2480	1470
28	1470	1830	1800	2000	2900	3940	2290	6940	2380	3040	2740	1770
29	1440	1970	1700	1900	---	4140	2060	6760	2330	2820	2340	1870
30	1510	1900	1700	2000	---	4570	1990	5650	2310	3040	1920	1530
31	1570	---	1600	2100	---	4820	---	6560	---	3390	2140	---
TOTAL	53360	55700	52460	59900	73900	103420	134060	181810	106150	164230	86140	52260
MEAN	1721	1857	1692	1932	2639	3336	4469	5865	3538	5298	2779	1742
MAX	2610	2510	1990	2300	3200	4820	8440	10500	5950	9750	4070	2330
MIN	1290	1380	1200	1600	1900	2800	1990	1690	2080	2320	1920	1360

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1999, BY WATER YEAR (WY)

MEAN	2960	3255	2600	2390	2402	3046	6518	5324	3934	3216	2381	2656
MAX	6755	7332	4561	3777	4710	5687	12800	15930	6958	7127	4056	5952
(WY)	1986	1986	1986	1983	1984	1983	1951	1960	1993	1951	1952	1959
MIN	1195	1753	1532	1621	1245	1897	1869	1636	1296	1374	1312	1390
(WY)	1949	1990	1990	1949	1948	1956	1990	1998	1988	1988	1998	1989

STREAMS TRIBUTARY TO LAKE MICHIGAN
04067500 MENOMINEE RIVER NEAR MC ALLISTER, WI--CONTINUED

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SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1945 - 1999	
ANNUAL TOTAL	838020		1123390		3402	
ANNUAL MEAN	2296		3078		5496	1960
HIGHEST ANNUAL MEAN					2118	1948
LOWEST ANNUAL MEAN					31800	May 9 1960
HIGHEST DAILY MEAN	15200	Apr 3	10500	May 11	810	Oct 26 1948
LOWEST DAILY MEAN	1040	Sep 7	(a) 1200	Dec 22	952	Oct 24 1948
ANNUAL SEVEN-DAY MINIMUM	1140	Aug 1	1430	Nov 3	32500	May 9 1960
INSTANTANEOUS PEAK FLOW			11000	May 11	(b) 20.00	May 9 1960
INSTANTANEOUS PEAK STAGE			14.20	May 11	(c) 538	Oct 6 1946
INSTANTANEOUS LOW FLOW					6080	
10 PERCENT EXCEEDS	3600		5980		2620	
50 PERCENT EXCEEDS	1830		2360		1640	
90 PERCENT EXCEEDS	1260		1600			

(a) Ice affected

(b) From graph based on gage readings

(c) Observed

STREAMS TRIBUTARY TO LAKE MICHIGAN

04067958 PESHTIGO RIVER NEAR WABENO, WI

LOCATION.--Lat 45°23'16", long 88°18'18", in NW 1/4 NW 1/4 sec.31, T.34 N., R.18 E., Marinette County, Hydrologic Unit 04030105, on left upstream bank 50 ft from river's edge and 12 ft north of County Trunk C, 12.2 mi west of Athelstane and 17.7 mi east of Wabeno.

DRAINAGE AREA.--447 mi².

PERIOD OF RECORD.--June 1998 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 980 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 9 to Mar. 30. Records good except those for ice-affected period, which is poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	195	232	250	140	190	220	702	229	288	288	251	166
2	188	226	248	140	180	240	814	223	269	295	239	164
3	182	215	245	140	180	230	859	216	256	310	234	162
4	189	208	238	140	170	220	875	210	241	425	235	159
5	184	205	247	130	180	220	898	208	231	551	236	157
6	219	202	249	140	170	210	908	242	270	542	234	172
7	245	205	240	150	170	200	904	474	411	493	222	168
8	250	208	233	150	180	200	872	908	478	476	213	174
9	235	209	220	140	190	200	799	1020	460	679	207	163
10	217	259	220	150	210	200	710	951	556	846	208	158
11	207	326	210	150	230	200	632	792	680	945	208	159
12	206	332	200	140	250	210	550	656	739	913	207	162
13	197	289	200	140	250	210	482	519	773	763	254	166
14	191	276	190	140	260	220	430	415	742	622	332	167
15	189	274	190	140	260	220	391	358	638	511	420	169
16	189	277	180	150	250	230	363	337	517	451	418	167
17	191	266	180	160	240	250	341	359	419	564	373	165
18	237	264	170	160	230	260	327	432	358	559	338	160
19	260	307	160	160	220	280	316	540	317	551	306	160
20	254	365	150	170	210	290	307	586	289	471	276	174
21	242	365	150	170	200	290	304	570	278	427	256	174
22	221	335	140	170	200	290	303	548	258	398	241	175
23	212	324	140	170	200	280	298	559	249	370	228	172
24	211	308	140	160	200	300	287	575	255	345	223	169
25	210	292	140	160	200	330	277	578	256	324	214	164
26	207	284	140	160	210	350	263	536	260	325	205	162
27	208	273	140	160	210	380	253	477	251	317	198	178
28	210	265	140	160	220	400	243	413	256	310	191	190
29	211	256	140	170	---	440	238	358	274	289	182	196
30	218	255	140	170	---	500	235	319	283	266	172	195
31	221	---	150	190	---	579	---	298	---	276	168	---
TOTAL	6596	8102	5780	4770	5860	8649	15181	14906	11552	14902	7689	5067
MEAN	213	270	186	154	209	279	506	481	385	481	248	169
MAX	260	365	250	190	260	579	908	1020	773	945	420	196
MIN	182	202	140	130	170	200	235	208	231	266	168	157
CFSM	.48	.60	.42	.34	.47	.62	1.13	1.08	.86	1.08	.55	.38
IN.	.55	.67	.48	.40	.49	.72	1.26	1.24	.96	1.24	.64	.42

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

	MEAN	213	270	186	154	209	279	506	481	326	332	212	165
MAX	213	270	186	154	209	279	506	481	385	481	248	169	
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	
MIN	213	270	186	154	209	279	506	481	267	183	176	160	
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1998	1998	1998	1998	

SUMMARY STATISTICS

FOR 1999 WATER YEAR

WATER YEARS 1998 - 1999

ANNUAL TOTAL	109054												
ANNUAL MEAN	299									299			
HIGHEST ANNUAL MEAN										299			1999
LOWEST ANNUAL MEAN										299			1999
HIGHEST DAILY MEAN	1020	May	9							1020	May	9	1999
LOWEST DAILY MEAN	(a) 130	Jan	5							(a) 130	Jan	5	1999
ANNUAL SEVEN-DAY MINIMUM	(a) 140	Dec	22							137	Jul	30	1998
INSTANTANEOUS PEAK FLOW	1030	May	9							1030	May	9	1999
INSTANTANEOUS PEAK STAGE	5.54	May	9							5.54	May	9	1999
INSTANTANEOUS LOW FLOW	(b) 124	Dec	9							(b) 124	Dec	9	1998
ANNUAL RUNOFF (CFSM)	.67									.67			
ANNUAL RUNOFF (INCHES)	9.08									9.08			
10 PERCENT EXCEEDS	553									484			
50 PERCENT EXCEEDS	237									220			
90 PERCENT EXCEEDS	160									150			

(a) Ice affected

(b) Result of freezeup

STREAMS TRIBUTARY TO LAKE MICHIGAN
04069416 PESHTIGO RIVER NEAR PORTERFIELD, WI

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LOCATION.--Lat 45°08'36", long 87°48'02", in SE 1/4 NE 1/4 sec.19, T.31 N., R.22 E., Marinette County, Hydrologic Unit 04030105, on right bank 15 ft upstream from County Trunk E bridge, 0.8 mi south of Porterfield.

DRAINAGE AREA.--1,020 mi².

PERIOD OF RECORD.--June 1998 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 625 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 9-13 and ice-affected period, Dec. 20 to Mar. 17. Records good except those for estimated daily discharges, which are poor (see page 13). Diurnal fluctuation caused by powerplant upstream. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	343	564	501	420	450	490	1160	462	740	517	599	262
2	326	468	447	400	440	540	1080	454	662	792	489	273
3	310	412	459	390	480	580	1140	468	587	592	406	247
4	291	455	448	400	470	600	1270	466	505	709	421	290
5	315	447	469	430	450	560	1430	472	415	787	395	251
6	379	448	519	450	440	560	1500	527	582	742	419	290
7	413	380	542	470	430	580	1860	974	669	695	382	317
8	433	352	485	450	470	600	1950	1310	790	738	395	318
9	450	362	455	440	500	580	2040	1830	760	960	381	369
10	470	493	419	440	520	560	1640	2020	683	1460	347	402
11	520	692	389	450	580	560	1100	2040	748	1390	336	314
12	490	653	374	450	620	560	1180	1520	973	1450	377	214
13	460	590	360	450	600	560	1110	1200	1050	1340	443	266
14	484	610	365	450	600	520	893	905	1020	1150	543	276
15	475	510	362	430	640	580	833	664	999	970	691	265
16	464	545	413	410	660	660	827	485	891	848	627	259
17	463	742	430	420	660	780	810	749	651	867	667	270
18	461	625	432	430	600	981	735	1130	664	1030	613	307
19	443	586	328	440	560	900	679	1120	553	1030	514	295
20	449	526	290	430	520	800	576	1200	440	1060	558	342
21	450	578	300	430	520	832	535	1090	454	857	443	362
22	532	674	320	440	540	804	616	1080	474	775	343	325
23	455	598	310	450	500	807	722	1040	495	708	398	370
24	475	573	350	440	500	812	646	1190	484	797	455	413
25	433	497	350	430	520	781	603	1130	474	724	399	357
26	427	465	330	420	500	859	551	1040	423	647	330	336
27	472	495	340	420	490	962	595	889	392	592	296	345
28	542	460	380	420	480	1070	521	855	577	444	266	366
29	511	496	380	430	---	952	497	674	557	473	275	355
30	526	500	410	460	---	1230	469	613	521	450	299	432
31	533	---	450	470	---	1210	---	506	---	568	212	---
TOTAL	13795	15796	12407	13460	14740	22870	29568	30103	19233	26162	13319	9488
MEAN	445	527	400	434	526	738	986	971	641	844	430	316
MAX	542	742	542	470	660	1230	2040	2040	1050	1460	691	432
MIN	291	352	290	390	430	490	469	454	392	444	212	214
CFSM	.44	.52	.39	.43	.52	.72	.97	.95	.63	.83	.42	.31
IN.	.50	.58	.45	.49	.54	.83	1.08	1.10	.70	.95	.49	.35

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

	1998	1999	1999	1999	1999	1999	1999	1999	1998	1999	1999	1999
MEAN	445	527	400	434	526	738	986	971	625	591	392	351
MAX	445	527	400	434	526	738	986	971	641	844	430	386
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1998
MIN	445	527	400	434	526	738	986	971	609	338	353	316
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1998	1998	1998	1999

SUMMARY STATISTICS

FOR 1999 WATER YEAR

WATER YEARS 1998 - 1999

ANNUAL TOTAL	220941		
ANNUAL MEAN	605	605	
HIGHEST ANNUAL MEAN		605	1999
LOWEST ANNUAL MEAN		605	1999
HIGHEST DAILY MEAN	2040	(a) Apr 9	2040 (a) Apr 9 1999
LOWEST DAILY MEAN	212	Aug 31	164 Sep 25 1998
ANNUAL SEVEN-DAY MINIMUM	261	Aug 31	218 Jul 28 1998
INSTANTANEOUS PEAK FLOW	2130	May 11	2130 May 11 1999
INSTANTANEOUS PEAK STAGE	9.87	May 11	9.87 May 11 1999
ANNUAL RUNOFF (CFSM)	.59		.59
ANNUAL RUNOFF (INCHES)	8.06		8.06
10 PERCENT EXCEEDS	1040		954
50 PERCENT EXCEEDS	500		473
90 PERCENT EXCEEDS	338		300

(a) Also occurred May 11

LOCATION.--Lat 45°02'49", long 87°44'40", in NE 1/4 sec.30, T.30 N., R.23 E., Marinette County, Hydrologic Unit 04030105, on left bank 75 ft downstream from Chicago and Northwestern Railway bridge, 0.5 mi downstream from Wisconsin Public Service Corp. Powerplant at Peshtigo, and 11.5 mi upstream from mouth.

DRAINAGE AREA.--1,080 mi².

PERIOD OF RECORD.--June 1953 to current year.

REVISED RECORDS.--WDR WI-80-1: Drainage area. WDR WI-84-1: 1983 average discharge.

GAGE.--Water-stage recorder. Datum of gage is 584.64 ft above sea level.

REMARKS.--Estimated daily discharges: Oct. 27-30, and ice-affected period, Dec. 28 to Mar. 16. Records good except those for estimated daily discharges, which are poor (see page 13). Diurnal fluctuation caused by two powerplants upstream. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	247	527	520	400	460	520	1240	416	833	607	699	192
2	245	512	488	370	430	520	1160	411	854	863	577	237
3	234	399	460	370	500	560	1210	411	712	781	474	254
4	226	435	448	360	490	580	1330	413	612	818	500	306
5	280	453	467	370	450	540	1510	410	457	819	454	227
6	376	452	567	400	430	560	1620	559	667	962	484	287
7	396	386	567	420	410	540	1910	1070	720	788	455	390
8	436	332	516	400	450	560	1980	1440	884	870	441	294
9	446	362	482	380	460	540	2120	1910	871	997	420	346
10	525	477	436	400	490	520	1810	2010	868	1490	388	455
11	500	810	392	410	500	560	1230	2100	853	1480	376	349
12	456	743	383	400	600	540	1170	1630	1100	1470	419	250
13	424	635	357	380	720	520	1170	1300	1180	1390	606	232
14	467	677	352	400	620	500	985	1010	1140	1240	656	262
15	444	583	368	430	640	520	869	787	1100	1010	778	247
16	454	594	425	400	620	620	852	520	979	904	811	246
17	442	785	459	410	660	884	846	744	761	1010	779	254
18	456	734	434	440	680	1120	783	1240	699	1090	764	311
19	434	643	330	430	580	1110	689	1200	606	1170	528	281
20	421	597	286	410	560	1000	563	1240	460	1140	616	276
21	438	591	248	400	540	1020	531	1220	453	996	534	341
22	492	721	315	420	560	985	573	1150	482	921	383	277
23	437	679	272	440	520	987	692	1160	518	842	453	306
24	449	615	351	470	500	998	613	1250	531	913	512	411
25	411	517	380	430	500	900	587	1220	501	897	472	325
26	411	510	298	420	520	962	525	1160	442	773	388	273
27	420	513	296	410	490	1090	526	1010	416	728	332	313
28	470	484	340	420	500	1180	519	935	554	552	311	345
29	500	489	370	420	---	1120	440	751	630	534	271	336
30	500	525	400	420	---	1280	426	679	601	534	327	373
31	535	---	410	450	---	1320	---	632	---	629	297	---
TOTAL	12972	16780	12417	12680	14880	24656	30479	31988	21484	29218	15505	8996
MEAN	418	559	401	409	531	795	1016	1032	716	943	500	300
MAX	535	810	567	470	720	1320	2120	2100	1180	1490	811	455
MIN	226	332	248	360	410	500	426	410	416	534	271	192
CFSM	.39	.52	.37	.38	.49	.74	.94	.96	.66	.87	.46	.28
IN.	.45	.58	.43	.44	.51	.85	1.05	1.10	.74	1.01	.53	.31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1999, BY WATER YEAR (WY)

MEAN	802	903	636	545	553	1072	2062	1470	1057	656	590	738
MAX	1728	2197	1128	1219	1449	3272	3813	4639	2768	1362	1242	1706
(WY)	1986	1986	1966	1960	1984	1973	1979	1960	1993	1993	1974	1959
MIN	310	328	250	268	282	424	485	538	228	300	285	264
(WY)	1990	1977	1990	1990	1990	1964	1990	1977	1988	1989	1957	1989

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1953 - 1999

ANNUAL TOTAL	234746	232055	
ANNUAL MEAN	643	636	924
HIGHEST ANNUAL MEAN			1559
LOWEST ANNUAL MEAN			591
HIGHEST DAILY MEAN	5340	2120	9600
LOWEST DAILY MEAN	176	192	84
ANNUAL SEVEN-DAY MINIMUM	220	257	172
INSTANTANEOUS PEAK FLOW		2350	(a) 9790
INSTANTANEOUS PEAK STAGE		5.14	11.59
ANNUAL RUNOFF (CFSM)	.60	.59	.86
ANNUAL RUNOFF (INCHES)	8.09	7.99	11.62
10 PERCENT EXCEEDS	1140	1160	1810
50 PERCENT EXCEEDS	484	518	677
90 PERCENT EXCEEDS	268	329	352

(a) From rating curve extended above 5,000 ft³/s on basis of computation of peak flow through dam gates

STREAMS TRIBUTARY TO LAKE MICHIGAN

04071000 OCONTO RIVER NEAR GILLETT, WI

04071000 OCONTO RIVER NEAR GILLETT, WI

04071000 OCONTO RIVER NEAR GILLETT, WI

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04071000 OCONTO RIVER NEAR GILLETT, WI

STREAMS TRIBUTARY TO LAKE MICHIGAN

04071765 OCONTO RIVER NEAR OCONTO, WI

LOCATION.--Lat 44°51'38", long 87°59'02", in NW 1/4 NW 1/4 sec.32, T.28 N., R.21 E., Oconto County, Hydrologic Unit 04030104, on right bank 50 ft upstream from County Highway J bridge, 0.7 mi downstream from mouth of Little River, and 4.6 mi west of Oconto.

DRAINAGE AREA.--966 mi².

PERIOD OF RECORD.--October 1988 to September 1990, October 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 583 ft above sea level.

REMARKS.--Estimated daily discharges: June 30, July 1, and ice-affected period, Dec. 18 to Mar. 15. Records good except those for ice-affected period, which is poor (see page 13). Flow regulated by Machickanee Flowage (capacity, 556 acre-ft) 3.9 mi upstream. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	323	342	407	290	360	430	811	364	461	380	351	172
2	327	339	388	280	350	460	834	357	482	389	315	210
3	312	338	412	280	360	470	861	317	477	459	319	173
4	294	310	395	280	370	480	1000	322	372	421	311	153
5	324	268	338	280	380	440	1130	319	436	391	321	192
6	332	301	378	280	370	420	1330	366	363	375	339	180
7	346	306	430	290	360	410	1400	602	453	346	334	189
8	417	306	368	290	400	390	1460	979	479	393	297	190
9	423	305	365	300	380	340	1330	1070	430	1130	241	190
10	379	481	357	300	390	420	1260	1120	365	1110	276	217
11	353	499	349	300	440	430	1190	1180	402	1040	276	192
12	346	509	296	300	620	430	993	1080	383	1100	290	203
13	318	651	355	290	580	420	923	961	442	757	319	195
14	292	550	406	290	560	420	829	707	500	657	309	191
15	291	513	340	290	520	420	724	642	416	517	354	188
16	267	515	351	290	540	461	656	557	360	461	379	186
17	291	483	322	290	520	661	570	607	354	536	361	171
18	286	473	340	300	500	701	576	648	356	587	392	192
19	286	473	290	300	490	772	533	736	308	609	338	213
20	284	450	170	310	440	817	520	805	236	576	282	207
21	285	478	180	320	430	973	499	807	279	580	251	197
22	282	467	190	310	440	794	484	736	283	570	293	193
23	342	449	190	330	410	952	476	702	275	516	286	186
24	292	450	180	360	410	863	416	704	291	496	277	182
25	303	435	330	340	410	713	459	738	247	467	291	193
26	299	426	360	350	380	789	497	696	264	457	277	195
27	356	402	300	340	360	690	380	669	271	386	242	216
28	364	402	300	360	400	745	390	568	341	351	249	242
29	335	400	300	340	---	740	353	542	402	340	240	229
30	321	442	300	350	---	760	340	482	370	293	199	250
31	318	---	290	350	---	733	---	440	---	391	231	---
TOTAL	9988	12763	9977	9580	12170	18544	23224	20823	11098	17081	9240	5887
MEAN	322	425	322	309	435	598	774	672	370	551	298	196
MAX	423	651	430	360	620	973	1460	1180	500	1130	392	250
MIN	267	268	170	280	350	340	340	317	236	293	199	153
CFSM	.33	.44	.33	.32	.45	.62	.80	.70	.38	.57	.31	.20
IN.	.38	.49	.38	.37	.47	.71	.89	.80	.43	.66	.36	.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1999, BY WATER YEAR (WY)

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1999, BY WATER YEAR (WY)												
MEAN	355	444	317	310	385	928	888	675	819	424	337	427
MAX	574	556	382	344	565	1132	1460	995	1439	551	518	1044
(WY)	1998	1989	1989	1998	1998	1990	1998	1990	1990	1999	1990	1990
MIN	250	378	251	263	263	598	423	448	370	260	261	196
(WY)	1990	1990	1990	1990	1990	1999	1990	1998	1999	1989	1989	1999

SUMMARY STATISTICS FOR 1998 CALENDAR YEAR FOR 1999 WATER YEAR WATER YEARS 1989 - 1999

	198093	160375	526
ANNUAL TOTAL	543	439	623
ANNUAL MEAN			439
HIGHEST ANNUAL MEAN			1990
LOWEST ANNUAL MEAN			1999
HIGHEST DAILY MEAN	(a) 4700	Mar 31	1460
LOWEST DAILY MEAN	(b) 170	Dec 20	153
ANNUAL SEVEN-DAY MINIMUM	181	Jul 30	181
INSTANTANEOUS PEAK FLOW		(d) 1890	Apr 6
INSTANTANEOUS PEAK STAGE		(b) 7.17	Feb 24
ANNUAL RUNOFF (CFSM)	.56	.45	(e) 5300
ANNUAL RUNOFF (INCHES)	7.63	6.18	(b) 11.24
10 PERCENT EXCEEDS	1060	742	.54
50 PERCENT EXCEEDS	366	366	7.39
90 PERCENT EXCEEDS	225	238	961
			370
			220

(a) Estimated, discharge measurement of 4,700 ft³/s on Mar. 31, 1998

(b) Ice affected

(c) Also occurred Sept. 3, 1999

(d) Gage height, 6.83 ft

(e) Estimated, gage height 10.91 ft, backwater from ice

04072150 DUCK CREEK NEAR HOWARD, WI

LOCATION.--Lat 44°32'01", long 88°07'46", in SW 1/4 sec. 19, T.24 N., R.20 E., Brown County, Hydrologic Unit 04030103, at County Highway FF near Howard and about 1 mi upstream from mouth.

DRAINAGE AREA.--108 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1988 to current year.

GAGE.--Continuous water-stage recorder since April 1988. Elevation of gage is 615 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Mar. 12-16 and ice-affected periods, Dec. 15-17 and Dec. 21 to Mar. 11. Records good except for estimated daily discharges and discharges less than 0.5 ft³/s, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	2.8	4.2	1.7	8.0	50	18	11	36	11	3.4	.08
2	2.7	2.6	4.0	1.9	9.0	45	18	10	87	9.1	3.1	.08
3	2.3	2.4	4.0	2.1	11	35	24	9.3	200	9.8	2.9	.07
4	1.8	2.3	4.0	2.1	15	31	60	8.0	139	9.3	2.6	.00
5	2.1	2.2	4.0	2.1	20	27	141	7.8	83	9.6	2.6	.00
6	6.8	2.2	4.0	2.1	19	22	161	12	58	9.3	1.8	.00
7	5.2	2.2	3.8	2.1	16	24	179	30	77	7.9	1.5	.00
8	6.5	2.2	3.5	2.1	15	21	149	77	93	8.6	1.9	.00
9	5.2	2.3	3.4	2.1	14	19	125	97	55	17	1.5	.00
10	4.5	14	3.4	2.1	25	17	164	72	37	21	1.4	.00
11	3.3	9.9	3.6	2.1	35	17	135	45	139	20	1.2	.00
12	2.4	12	3.3	2.1	560	16	95	31	308	14	1.0	.00
13	1.7	10	3.3	2.1	430	17	73	25	153	11	1.2	.00
14	3.2	7.6	2.9	2.2	270	18	58	20	96	17	.95	.00
15	1.9	5.9	2.9	2.3	170	20	47	17	104	24	.72	.00
16	1.4	6.0	2.9	2.8	130	25	38	16	80	19	.67	.00
17	1.1	6.6	3.0	3.1	88	31	32	19	58	39	.66	.00
18	1.3	6.1	3.0	3.3	70	37	27	25	47	40	.61	.00
19	1.9	5.8	2.9	3.8	60	36	23	28	35	68	.63	.00
20	2.1	5.4	2.8	4.0	50	33	21	25	25	126	.54	.00
21	2.1	5.9	2.4	5.0	45	30	19	20	19	87	.41	.00
22	2.0	5.2	2.0	8.0	35	27	21	17	15	58	.33	.00
23	2.0	4.8	1.7	11	30	25	24	20	13	40	.43	.00
24	2.0	4.7	2.0	20	23	23	26	24	16	26	.55	.00
25	2.1	4.7	2.1	18	20	21	25	26	13	18	.53	.00
26	2.2	4.3	2.3	16	17	19	21	23	9.7	13	.38	.00
27	2.4	3.1	2.3	14	16	18	18	18	9.1	9.4	.29	.00
28	3.3	3.5	2.4	12	21	17	17	15	11	7.2	.20	.00
29	2.9	3.5	2.4	10	---	17	15	12	9.9	5.7	.13	.08
30	3.5	4.2	2.4	9.0	---	17	13	9.3	12	4.6	.11	.10
31	3.0	---	2.0	8.0	---	17	---	17	---	4.6	.10	---
TOTAL	88.1	154.4	92.9	179.2	2222.0	772	1787	786.4	2037.7	764.1	34.34	0.41
MEAN	2.84	5.15	3.00	5.78	79.4	24.9	59.6	25.4	67.9	24.6	1.11	.014
MAX	6.8	14	4.2	20	560	50	179	97	308	126	3.4	.10
MIN	1.1	2.2	1.7	1.7	8.0	16	13	7.8	9.1	4.6	.10	.00
CFSM	.03	.05	.03	.05	.73	.23	.55	.23	.63	.23	.01	.00
IN.	.03	.05	.03	.06	.77	.27	.62	.27	.70	.26	.01	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1999, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	11.8	36.8	20.2	7.87	28.6	152	171	44.2	102	36.2	7.06	8.92
MAX	52.7	207	93.5	36.8	102	250	318	109	370	295	28.1	36.8
(WY)	1996	1993	1993	1996	1998	1991	1994	1990	1990	1993	1994	1990
MIN	.26	1.81	.59	.11	.51	24.9	9.40	2.79	.000	.000	.000	.000
(WY)	1989	1990	1990	1990	1989	1999	1990	1988	1988	1988	1988	1989

SUMMARY STATISTICS

	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1988 - 1999
ANNUAL TOTAL	20215.02	8918.55	
ANNUAL MEAN	55.4	24.4	53.6
HIGHEST ANNUAL MEAN			123
LOWEST ANNUAL MEAN			19.8
HIGHEST DAILY MEAN	2050	(a)560	3690
LOWEST DAILY MEAN	.07	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.09	.00	.00
INSTANTANEOUS PEAK FLOW		(b)	(c)4520
INSTANTANEOUS PEAK STAGE		(a)16.51	(d)21.00
INSTANTANEOUS LOW FLOW		.00	.00
ANNUAL RUNOFF (CFSM)	.51	.23	.50
ANNUAL RUNOFF (INCHES)	6.96	3.07	6.74
10 PERCENT EXCEEDS	139	59	110
50 PERCENT EXCEEDS	4.5	9.0	7.2
90 PERCENT EXCEEDS	.53	.36	.13

(a) Ice affected

(b) Unknown, ice affected

(c) Based on rating curve extended above 1,500 ft³/s on basis of contracted-opening measurement of peak flow

(d) Estimated from floodmarks

STREAMS TRIBUTARY TO LAKE MICHIGAN
04072150 DUCK CREEK NEAR HOWARD, WI--CONTINUED
(NATIONAL WATER-QUALITY ASSESSMENT PROGRAM STATION)

WATER-QUALITY RECORD

PERIOD OF RECORD.--October 1988 to December 1992, April 1995 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)
OCT 1998											
15...	1025	1.8	720	7.9	8.4	11.4	748	64	30	34	6.3
NOV											
19...	1050	5.8	1030	7.8	5.4	11.5	738	88	37	58	7.2
DEC											
09...	1235	3.8	1030	8.2	1.5	--	752	87	39	58	7.4
JAN 1999											
14...	1335	2.2	1400	7.8	.2	--	750	120	58	103	9.9
FEB											
17...	0745	88	--	7.9	.0	--	--	69	24	18	8.2
MAR											
11...	0930	17	860	8.0	.0	15.1	750	90	33	33	6.0
APR											
07...	0730	179	703	7.9	5.7	12.0	753	80	28	24	8.3
MAY											
12...	0730	32	799	8.1	13.7	9.1	755	89	32	25	7.8
JUN											
09...	0745	62	725	7.9	20.3	8.7	753	87	29	19	6.8
JUL											
08...	0745	7.3	841	8.1	21.5	7.6	755	84	32	32	6.4
AUG											
11...	0705	1.2	830	8.1	18.9	6.4	744	78	37	33	7.8

DATE	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
OCT 1998										
15...	279	--	229	51	66	.31	3.7	419	<.050	<.010
NOV										
19...	337	--	276	70	120	.19	4.8	598	.090	<.010
DEC										
09...	305	8	264	80	120	.20	1.4	596	.076	<.010
JAN 1999										
14...	488	--	400	110	200	.28	6.5	906	.913	.021
FEB										
17...	177	--	145	70	49	<.10	6.3	392	6.09	.047
MAR										
11...	276	--	226	93	83	.12	5.6	546	2.03	<.010
APR										
07...	224	--	183	77	60	.12	6.7	458	3.47	.032
MAY										
12...	283	--	232	78	64	.14	4.5	534	2.14	.045
JUN										
09...	273	--	224	62	52	.19	7.8	465	3.91	.106
JUL										
08...	327	--	268	56	78	.21	8.8	585	.246	<.010
AUG										
11...	346	--	284	52	77	.16	9.4	502	.103	<.010

STREAMS TRIBUTARY TO LAKE MICHIGAN
04072150 DUCK CREEK NEAR HOWARD, WI--CONTINUED

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	NITRO- GEN, AMMONIA + DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. & FINER THAN .062 MM (70331)
OCT 1998										
15...	.023	.58	.57	.129	.104	.091	31	15	4	75
NOV										
19...	.030	.49	.42	.072	.063	.054	24	9.0	--	--
DEC										
09...	<.020	.50	.52	.024	.022	.021	28	11	--	--
JAN 1999										
14...	.235	.79	.81	.042	.032	.025	37	24	--	--
FEB										
17...	.167	1.5	1.4	.217	.189	.157	41	11	--	--
MAR										
11...	.025	.82	.86	.093	.079	.062	36	13	--	--
APR										
07...	.057	1.5	1.4	.194	.135	.104	51	14	--	--
MAY										
12...	.035	1.4	1.5	.164	.146	.105	54	23	6	--
JUN										
09...	.062	1.5	1.2	.214	.176	.133	34	10	--	--
JUL										
08...	.030	1.3	1.0	.360	.347	.276	19	33	--	--
AUG										
11...	<.020	.76	.81	.196	.229	.209	12	34	--	--

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
APR 1999					
04...	1137	57	598	--	.152
05...	0847	127	606	--	.245
05...	1453	157	566	--	.205
05...	1455	157	586	--	.214
08...	0712	159	566	--	.182
08...	1912	132	526	--	.154
09...	0712	127	562	--	.144
10...	0657	157	586	--	.148
10...	1857	177	538	--	.136
11...	0658	145	572	--	.138
12...	0658	100	564	--	.404
MAY					
06...	1716	13	644	--	.191
07...	1716	36	640	--	.154
09...	2400	94	586	--	.220
10...	1203	71	600	--	.199
13...	0002	28	622	--	.143
17...	0700	19	626	--	.145
18...	0700	E23	628	--	.156
19...	0700	29	638	--	.164
20...	0700	26	618	--	.197
21...	0700	22	620	--	.195
22...	1900	16	634	--	.212
23...	1900	28	632	--	.246
24...	1900	27	642	--	.189
25...	1900	25	642	--	.184
27...	1900	16	618	--	.157
JUN					
01...	2100	41	606	--	.263
02...	2100	114	542	--	.314
03...	1700	205	540	--	.306
04...	1335	132	552	--	.259
04...	1340	132	574	--	.255
04...	1715	123	572	--	.245
05...	1715	76	610	--	.194
08...	0330	63	608	--	.234
11...	0730	77	632	--	.394
11...	1305	145	590	--	.329
11...	1306	145	594	--	.328
11...	2100	224	608	--	.474
12...	0445	327	528	--	.533
12...	2330	238	452	--	.389
13...	1930	120	536	--	.332
17...	1930	54	668	--	.258

STREAMS TRIBUTARY TO LAKE MICHIGAN
04072150 DUCK CREEK NEAR HOWARD, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
JUL 1999					
08...	2205	15	724	--	.607
09...	0030	26	778	--	.728
10...	1250	22	662	--	.523
11...	0050	25	616	--	.401
11...	1250	20	618	--	.419
12...	0050	16	572	--	.365
14...	1315	29	626	--	.413
15...	0115	20	512	--	.331
16...	1315	16	494	--	.346
17...	0745	46	422	--	.418
18...	1950	31	534	--	.361
19...	0440	80	542	--	.395
19...	2000	99	--	65	.392
20...	1445	133	--	105	.470
21...	0245	106	--	121	.517
22...	0245	66	--	77	.420
23...	1445	38	--	34	.336
25...	0245	20	--	25	.327

PESTICIDE ANALYSES

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	ACETO- CHLOR, WATER, FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)
APR 1999												
07...	0730	179	703	7.9	5.7	12.0	753	<.0030	.0113	<.002	<.0020	.036
29...	0945	15	810	8.6	12.1	11.0	764	<.0030	<.0020	<.002	<.0020	.029
MAY												
12...	0730	32	799	8.1	13.7	9.1	755	<.0030	.486	.004	<.0020	.432
27...	0730	19	819	8.2	14.6	8.7	752	<.0030	.304	.007	<.0020	.182
JUN												
09...	0745	62	725	7.9	20.3	8.7	753	<.0030	.359	.007	<.0020	.937
23...	0955	12	852	8.3	22.5	9.5	748	<.0030	<.0020	<.002	<.0020	.835
JUL												
08...	0745	7.3	841	8.1	21.5	7.6	755	<.0030	<.0020	<.002	<.0020	.496
20...	0930	130	537	7.9	21.6	7.7	742	<.0030	.0145	<.002	<.0020	.334
AUG												
11...	0705	1.2	830	8.1	18.9	6.4	744	<.0030	<.0020	<.002	<.0020	.187
25...	0800	.60	766	7.7	19.5	7.5	750	<.0030	<.0020	<.002	<.0020	.027
DATE		BEN- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DIAZ- INON D10 SRG WAT FLT 0.7 U GF, REC PERCENT (91063)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82672)
APR 1999												
07...	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020	E.0258	<.002	80.3	<.001	<.0170
29...	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020	E.0242	<.002	98.9	<.001	<.0170
MAY												
12...	<.0020	<.0020	<.0030	<.0030	<.0040	.0099	<.0020	E.0619	<.002	106	<.005	<.0170
27...	<.0020	<.0020	<.0030	<.0030	<.0040	E.0077	<.0020	E.0326	<.002	118	<.001	<.0170
JUN												
09...	<.0020	<.0020	<.0030	<.0030	<.0040	<.0350	<.0020	E.122	<.002	104	<.001	<.0170
23...	<.0020	<.0020	<.0030	<.0030	<.0040	.0215	<.0020	E.0970	<.002	92.6	<.001	<.0170
JUL												
08...	<.0020	<.0020	<.0030	<.0030	<.0040	.0126	<.0020	E.108	.013	104	<.001	<.0170
20...	<.0020	<.0020	<.0030	<.0030	<.0040	.0130	<.0020	E.146	<.010	95.4	<.001	<.0170
AUG												
11...	<.0020	<.0020	<.0030	<.0030	<.0040	.0096	<.0020	E.101	<.002	110	<.001	<.0170
25...	<.0020	<.0020	<.0030	<.0030	<.0040	<.0100	<.0020	E.0274	<.002	117	<.001	<.0170

STREAMS TRIBUTARY TO LAKE MICHIGAN
04072150 DUCK CREEK NEAR HOWARD, WI--CONTINUED

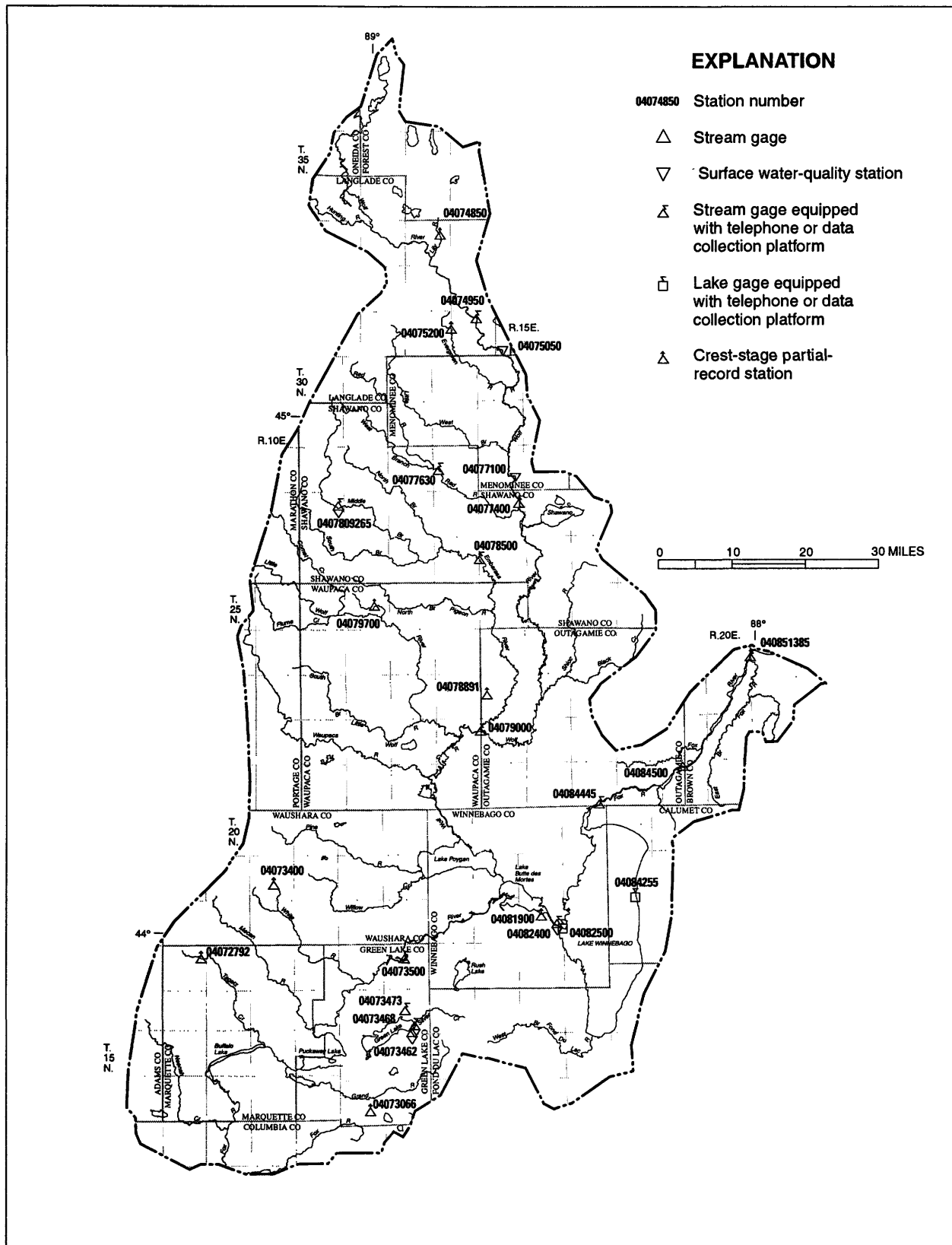
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WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PESTICIDE ANALYSES

DATE	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	HCH ALPHA D6 SRG WAT FLT 0.7 U GF, REC PERCENT (UG/L) (91065)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)
APR 1999											
07...	<.0020	<.0040	<.0030	<.0030	70.3	<.004	<.0020	<.005	<.0010	<.0060	.026
29...	<.0020	<.0040	<.0030	<.0030	110	<.004	<.0020	<.005	<.0010	<.0060	.011
MAY											
12...	E.0025	<.0040	<.0030	<.0030	91.9	<.004	<.0020	<.005	<.0010	<.0060	.853
27...	<.0020	<.0040	<.0030	<.0030	129	<.004	<.0020	<.005	<.0010	<.0060	.914
JUN											
09...	E.0038	<.0040	<.0030	<.0030	78.2	<.004	<.0020	<.005	<.0010	.0190	1.76
23...	<.0020	<.0040	<.0030	<.0030	93.2	<.004	<.0020	<.005	<.0010	<.0060	.235
JUL											
08...	<.0020	<.0040	<.0030	<.0030	84.9	<.004	<.0020	<.005	<.0010	<.0060	.204
20...	.0588	<.0040	<.0030	<.0030	94.3	<.004	<.0020	<.005	<.0010	.144	.373
AUG											
11...	<.0020	<.0040	<.0030	<.0030	106	<.004	<.0020	<.005	<.0010	<.0600	.028
25...	<.0020	<.0040	<.0030	<.0030	94.5	<.004	<.0020	<.005	<.0010	<.0060	<.010
DATE	METRI- BUZIN SENCOR WATER DISSOLV (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PARA- THION, DIS- SOLVED (UG/L) (39542)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	P, P' DDE DISSOLV (34653)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PRO- METON, WATER, DISS, REC (UG/L) (04037)
APR 1999											
07...	<.004	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180
29...	<.004	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180
MAY											
12...	.075	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	E.0021	<.0030	E.0039
27...	<.020	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180
JUN											
09...	.433	<.0040	<.0030	<.004	<.0040	.0095	<.0050	<.0020	<.0060	<.0030	<.0180
23...	.021	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180
JUL											
08...	<.004	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180
20...	.019	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0045
AUG											
11...	<.004	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0040
25...	<.004	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180
DATE	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PROP- CHLOR, WATER, DISS, REC (UG/L) (04024)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	TERBUTH YLAZINE SURROGT WAT FLT 0.7 U GF, REC PERCENT (91064)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)
APR 1999											
07...	<.0040	<.0130	<.0070	.0154	<.0070	<.0100	<.0130	74.8	<.0020	<.0010	<.0020
29...	<.0040	<.0130	<.0070	.0125	<.0070	<.0100	<.0130	119	<.0020	<.0010	<.0020
MAY											
12...	<.0040	<.0130	<.0070	.0384	<.0070	<.0100	<.0130	94.5	<.0020	<.0010	<.0020
27...	<.0040	<.0130	<.0070	.0417	<.0070	<.0100	<.0130	--	<.0020	<.0010	<.0020
JUN											
09...	<.0040	<.0130	<.0070	.0744	<.0070	<.0100	<.0130	--	<.0020	<.0010	<.0020
23...	<.0040	<.0130	<.0070	.0185	<.0070	<.0100	<.0130	--	<.0020	<.0010	<.0020
JUL											
08...	<.0040	<.0130	<.0070	.0485	<.0070	<.0100	<.0130	E.0754	<.0020	<.0010	<.0020
20...	<.0040	<.0130	<.0070	.0370	<.0070	<.0100	<.0130	--	<.0020	<.0010	<.0020
AUG											
11...	<.0040	<.0130	<.0070	.0134	<.0070	E.0030	<.0130	--	<.0020	<.0010	<.0020
25...	<.0040	<.0130	<.0070	<.0050	<.0070	<.0100	<.0130	--	<.0020	<.0010	<.0020

E Estimated



FOX-WOLF RIVER BASIN

STREAMS TRIBUTARY TO LAKE MICHIGAN

04073462 WHITE CREEK AT FOREST GLEN BEACH NEAR GREEN LAKE, WI

LOCATION.--Lat 43°48'58", long 88°55'42", in SE 1/4 SE 1/4 NW 1/4 sec.34, T.16 N., R.13 E., Green Lake County, Hydrologic Unit 04030201, at culvert on Spring Grove Road at Forest Glen Beach, 2.6 mi southeast of Green Lake.

DRAINAGE AREA.--3.05 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1981 to June 1988, October 1996 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 800 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 30 to Jan. 3 and Jan. 6-8. Records are fair except those for Dec. 22 to Jan. 21, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.32	.19	.27	.15	.44	2.8	1.1	4.6	5.3	4.0	6.3	2.6
2	.24	.20	.37	.15	.69	2.6	1.1	4.5	8.1	3.0	6.0	2.5
3	.23	.30	.35	.15	1.3	2.5	2.6	4.4	6.0	3.6	6.1	2.5
4	.21	.34	.31	.14	2.1	2.4	2.4	4.4	6.0	3.1	6.1	2.4
5	.61	.30	.32	.14	1.7	2.3	2.0	4.4	6.1	2.9	5.4	2.4
6	.54	.23	.27	.14	1.1	2.2	2.1	4.9	6.2	2.7	5.1	2.3
7	.39	.21	.21	.14	.87	2.1	2.0	4.5	6.2	2.5	5.1	2.2
8	.27	.18	.21	.14	.75	2.0	2.1	4.2	6.2	3.2	4.7	2.1
9	.22	.26	.24	.14	3.9	2.1	3.3	4.0	6.1	4.7	4.5	2.1
10	.20	1.3	.24	.13	7.1	1.9	3.1	3.9	6.1	3.6	4.5	2.0
11	.19	.51	.24	.13	22	1.9	6.2	3.8	6.3	3.3	4.2	2.0
12	.24	.46	.22	.12	13	1.8	7.1	3.7	6.1	3.2	4.1	2.0
13	.30	.51	.21	.11	9.2	1.9	8.6	3.6	6.0	3.1	4.0	1.9
14	.33	.50	.23	.11	7.4	1.8	8.9	3.6	5.7	3.1	3.8	1.8
15	.37	.44	.21	.11	6.3	1.9	8.8	3.5	5.5	2.8	3.7	1.8
16	.45	.71	.20	.11	5.7	1.9	8.3	3.6	5.4	4.0	3.7	1.7
17	.71	.45	.20	.17	5.1	2.0	7.9	6.6	5.1	4.3	3.5	1.6
18	.59	.35	.20	.18	4.5	2.0	7.5	5.3	4.7	3.9	3.5	1.6
19	.43	.40	.19	.14	4.0	1.9	6.8	4.9	4.6	4.2	3.5	1.6
20	.33	.34	.21	.13	3.8	1.8	6.3	5.2	4.4	4.8	3.3	1.6
21	.29	.33	.20	.13	3.6	1.7	6.1	5.6	4.2	19	3.2	1.5
22	.26	.37	.16	.57	3.4	1.6	6.6	5.7	4.1	9.8	3.2	1.4
23	.21	.32	.13	.84	3.2	1.5	6.2	6.3	4.2	9.2	3.3	1.4
24	.19	.35	.12	1.0	3.0	1.4	5.5	6.1	4.0	8.8	3.3	1.3
25	.17	.32	.10	1.2	2.8	1.3	5.3	5.9	3.8	8.5	3.1	1.3
26	.15	.21	.11	.99	2.7	1.3	5.2	5.8	3.6	8.8	3.0	1.2
27	.22	.25	.15	.85	3.2	1.2	5.0	5.7	3.5	8.1	2.9	1.4
28	.19	.22	.14	.65	3.0	1.2	4.8	5.6	3.7	7.7	2.9	1.4
29	.23	.28	.14	.49	---	1.2	4.7	5.4	3.3	7.3	2.8	1.3
30	.25	.30	.15	.47	---	1.1	4.7	5.3	3.1	6.9	2.7	1.2
31	.19	---	.15	.46	---	1.1	---	5.5	---	7.4	2.7	---
TOTAL	9.52	11.13	6.45	10.38	125.85	56.4	152.3	150.5	153.6	171.5	124.2	54.1
MEAN	.31	.37	.21	.33	4.49	1.82	5.08	4.85	5.12	5.53	4.01	1.80
MAX	.71	1.3	.37	1.2	22	2.8	8.9	6.6	8.1	19	6.3	2.6
MIN	.15	.18	.10	.11	.44	1.1	1.1	3.5	3.1	2.5	2.7	1.2
CFSM	.10	.12	.07	.11	1.47	.60	1.66	1.59	1.68	1.81	1.31	.59
IN.	.12	.14	.08	.13	1.53	.69	1.86	1.84	1.87	2.09	1.51	.66

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1999, BY WATER YEAR (WY)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	3.34	3.79	3.15	2.17	3.81	7.78	8.00	4.67	3.67	3.25	2.54	3.53						
MAX	12.9	12.7	7.47	5.28	9.29	16.1	15.7	8.31	7.37	5.53	4.39	18.5						
(WY)	1987	1986	1986	1983	1984	1986	1998	1983	1984	1999	1986	1986						
MIN	.31	.30	.21	.33	1.74	1.82	3.61	2.22	1.29	1.40	.83	.45						
(WY)	1999	1988	1999	1999	1987	1999	1984	1997	1988	1987	1987	1998						

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1982 - 1999

ANNUAL TOTAL	1212.19	1025.93	
ANNUAL MEAN	3.32	2.81	4.47
HIGHEST ANNUAL MEAN			7.94
LOWEST ANNUAL MEAN			2.77
HIGHEST DAILY MEAN	27	(a) Mar 31	89
LOWEST DAILY MEAN	(b) .10	Dec 25	(b) .10
ANNUAL SEVEN-DAY MINIMUM	.13	Dec 23	.12
INSTANTANEOUS PEAK FLOW			99
INSTANTANEOUS PEAK STAGE			5.32
ANNUAL RUNOFF (CFSM)	1.09		.92
ANNUAL RUNOFF (INCHES)	14.78		12.51
10 PERCENT EXCEEDS	8.5		6.2
50 PERCENT EXCEEDS	1.2		2.1
90 PERCENT EXCEEDS	.22		.19
			.50

(a) Also occurred Apr. 6

(b) Result of freezeup

STREAMS TRIBUTARY TO LAKE MICHIGAN
04073462 WHITE CREEK AT FOREST GLEN BEACH NEAR GREEN LAKE, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1981 to June 1988, October 1996 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1981 to June 1988, October 1996 to current year.

TOTAL AMMONIA-NITROGEN DISCHARGE: October 1981 to June 1988.

TOTAL-PHOSPHORUS DISCHARGE: October 1981 to June 1988, October 1996 to current year.

INSTRUMENTATION.--Automatic pumping sampler since December 1981.

REMARKS.--Records are good.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 51,300 mg/L, Apr. 3, 1982; minimum observed, 1 mg/L, Sept. 26, 1981, Nov. 28, 1984, Sept. 5, 1985, Jan. 14, 1987, Aug. 12, 1998, and Sept. 2, 1998.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 2,420 tons, Apr. 3, 1982; minimum daily, 0.00 ton, on many days during 1982, 1987, 1988, 1997, 1998, and 1999 water years.

TOTAL AMMONIA-NITROGEN CONCENTRATIONS: Maximum observed, 8.4 mg/L, Apr. 3, 1982; minimum observed, <0.01 mg/L, many days.

TOTAL AMMONIA-NITROGEN DISCHARGE.--Maximum daily, 490 lb, Apr. 3, 1982; minimum daily, 0.01 lb, Nov. 27, Dec. 2-4, 1987.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 7.6 mg/L, May 31, 1987; minimum observed, <0.01 mg/L, many days.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 1,130 lb, Sept. 10, 1986; minimum daily, 0.04 lb, Oct. 26 and Dec. 25-26, 1998.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 3,120 mg/L, Feb. 11; minimum observed, 3 mg/L, Oct. 1.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 72 tons, Feb. 11; minimum daily, 0 ton, Oct. 1-4, 8-16, Oct. 19 to Nov. 8, Jan. 13-16, and 19-21.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 3.33 mg/L, Feb. 11; minimum observed, 0.04 mg/L, Mar. 18 and May 4.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 181 lb, Feb. 11; minimum daily, 0.04 lb, Oct. 26 and Dec. 25-26.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
OCT 1998					
*01...	1222	--	.31	.050	3
05...	2040	--	1.5	.181	46
12...	2020	--	.21	.053	4
NOV					
10...	0210	--	1.8	.266	34
*17...	1242	--	.45	.065	21
JAN 1999					
*06...	1500	.14	--	.072	24
22...	0730	--	.48	.082	12
25...	0355	--	1.2	.085	10
*29...	1000	--	.47	.055	--
FEB					
03...	0910	--	1.4	.063	19
04...	1510	--	2.2	.056	11
09...	0050	--	1.9	.082	35
09...	0650	--	3.1	.095	58
09...	1850	--	5.5	.232	165
10...	0050	--	7.1	.228	131
10...	1250	--	5.9	.165	38
11...	0050	--	10	.321	215
11...	1250	--	15	.467	315
11...	1505	--	23	.908	1050
11...	1545	--	56	1.96	2070
11...	1710	--	80	3.33	3120
11...	1910	--	43	1.65	885
11...	2335	--	17	1.07	635
12...	1135	--	13	.296	169
13...	0535	--	9.7	.134	68
14...	1135	--	7.2	.082	38
15...	1735	--	6.1	.070	24
17...	1135	--	5.1	.063	26
21...	2335	--	3.5	.073	44
26...	1304	--	2.6	.049	10

* Equal-width increment (EWI) sample

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04073462 WHITE CREEK AT FOREST GLEN BEACH NEAR GREEN LAKE, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDEDED (MG/L) (80154)
MAR 1999				
*18...	1204	1.9	.042	11
APR				
03...	0815	1.7	.100	69
03...	0930	4.6	.563	517
03...	1530	4.7	.255	127
04...	0435	2.0	.068	21
04...	1035	2.8	.091	15
05...	0515	1.9	.053	20
07...	1255	2.0	.051	19
09...	0100	3.4	.104	50
11...	0100	3.2	.066	32
11...	0705	3.8	.107	64
11...	0820	7.8	.295	288
11...	1420	8.4	.192	96
11...	2020	6.3	.143	66
*12...	1303	7.3	.122	108
12...	1305	7.3	.132	93
13...	1420	8.7	.093	76
14...	2020	9.0	.079	72
18...	1420	7.2	.050	25
MAY				
*04...	1617	4.4	.042	25
14...	1125	3.6	.082	93
17...	0030	5.7	.203	271
17...	0630	6.9	.222	192
17...	1230	5.7	.352	285
17...	1835	7.0	.278	224
18...	0650	5.5	.114	48
JUN				
02...	0500	12	.532	459
02...	1100	8.1	.160	77
*25...	1410	3.8	.047	18
JUL				
*01...	0550	7.9	.739	624
09...	1510	3.7	.098	41
27...	1326	8.0	.056	24
31...	0510	13	.255	351
AUG				
20...	1514	3.3	.048	14

* Equal-width increment (EWI) sample

DAILY MEAN VALUES

WTR YR 1999 TOTAL 265.00

DAILY MEAN VALUES

WTR YR 1999	TOTAL	797.64

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04073468 GREEN LAKE INLET AT COUNTY TRUNK HIGHWAY A NEAR GREEN LAKE, WI

LOCATION.--Lat 43°49'28" (revised), long 88°55'36", in NE 1/4 SE 1/4 SE 1/4 sec.27, T.16 N., R.13 E., Green Lake County, Hydrologic Unit 04030201, on left bank at downstream side of County Trunk Highway A, 2.3 mi southeast of Green Lake.

DRAINAGE AREA.--53.5 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1987 to current year.

GAGE.--Acoustical Velocity Meter (AVM) system. Single-path, mid-depth transducer installation. Cross-path, dual-depth transducers installed on June 6, 1990. Datum of gage is 790.00 ft above sea level (from Wisconsin Department of Natural Resources benchmark).

REMARKS.--Estimated daily discharges: Apr. 3-6, May 14-19, and Aug. 2. Estimated discharges are based on discharges from downstream station, Puchyan River near Green Lake (04073473) and lake levels at Green Lake at County Trunk Highway A near Green Lake. Flows fluctuate due to seiche from Green Lake. Records are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	13	15	12	19	34	26	25	31	39	45	16
2	12	9.6	19	9.3	24	33	20	23	73	34	27	14
3	11	11	16	12	25	26	27	21	52	29	36	13
4	6.3	4.6	15	13	26	26	40	21	49	27	69	14
5	15	11	12	13	26	20	46	22	37	21	44	11
6	37	8.1	13	12	24	17	57	41	41	35	41	13
7	28	10	13	13	22	24	68	46	35	25	39	9.4
8	19	8.1	15	13	26	23	70	54	26	25	37	5.9
9	13	15	11	12	32	17	79	39	27	76	33	11
10	12	21	13	11	37	21	69	37	26	37	36	16
11	11	84	11	10	92	21	95	27	31	41	30	13
12	9.2	34	19	10	95	22	96	31	31	32	27	9.9
13	14	23	11	12	68	21	77	24	26	29	28	13
14	12	27	7.7	11	69	22	70	21	29	30	24	12
15	9.8	22	4.6	11	64	24	60	15	22	21	22	15
16	10	26	13	13	57	29	53	19	27	37	22	12
17	7.2	29	14	13	45	32	40	37	22	59	23	12
18	26	22	12	21	36	37	41	42	24	40	27	11
19	11	26	15	19	32	31	41	52	22	92	49	8.5
20	15	26	9.4	15	28	31	40	63	20	53	33	15
21	11	14	8.9	13	25	26	39	58	17	213	27	9.7
22	6.4	23	16	19	23	23	53	48	12	155	25	12
23	13	17	12	28	21	26	56	52	21	120	27	16
24	10	18	14	28	23	20	49	55	17	103	24	10
25	11	16	13	25	23	23	50	43	14	89	22	9.3
26	10	19	13	22	28	20	46	38	14	79	21	9.0
27	11	15	12	20	43	21	42	33	19	69	19	12
28	13	15	13	22	34	23	34	29	44	57	18	15
29	12	10	14	21	---	24	32	25	43	51	17	16
30	12	16	14	19	---	19	28	22	27	30	16	13
31	14	---	13	17	---	23	---	24	---	58	17	---
TOTAL	417.9	593.4	401.6	489.3	1067	759	1544	1087	879	1806	925	366.7
MEAN	13.5	19.8	13.0	15.8	38.1	24.5	51.5	35.1	29.3	58.3	29.8	12.2
MAX	37	84	19	28	95	37	96	63	73	213	69	16
MIN	6.3	4.6	4.6	9.3	19	17	20	15	12	21	16	5.9
CFSM	.25	.37	.24	.30	.71	.46	.96	.66	.55	1.09	.56	.23
IN.	.29	.41	.28	.34	.74	.53	1.07	.76	.61	1.26	.64	.25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1999, BY WATER YEAR (WY)

	MEAN	21.3	27.4	21.6	16.4	25.3	68.8	66.2	39.5	43.6	36.9	24.2	18.7
MAX	64.1	71.3	47.5	46.1	60.7	107	185	89.9	156	190	67.5	38.8	
(WY)	1996	1996	1993	1996	1996	1997	1993	1993	1993	1993	1990	1993	
MIN	7.00	12.4	5.73	6.66	6.71	24.5	31.2	16.1	4.57	3.78	5.03	9.01	
(WY)	1989	1998	1990	1989	1989	1999	1990	1988	1988	1988	1988	1988	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1987 - 1999

ANNUAL TOTAL	10597.8	10335.9	
ANNUAL MEAN	29.0	28.3	34.9
HIGHEST ANNUAL MEAN			79.9
LOWEST ANNUAL MEAN		213	705
LOWEST DAILY MEAN	4.6 (a) Nov 4	4.6 (a) Nov 4	-4.1 May 31 1989
ANNUAL SEVEN-DAY MINIMUM	7.2 Sep 7	8.9 Nov 2	2.1 Jun 14 1994
ANNUAL RUNOFF (CFSM)	.54	.53	.65 Jul 27 1988
ANNUAL RUNOFF (INCHES)	7.37	7.19	8.86
10 PERCENT EXCEEDS	61	53	71
50 PERCENT EXCEEDS	17	22	21
90 PERCENT EXCEEDS	9.5	11	7.6

(a) Also occurred Dec. 15

STREAMS TRIBUTARY TO LAKE MICHIGAN

04073468 GREEN LAKE INLET AT COUNTY TRUNK HIGHWAY A NEAR GREEN LAKE, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1987 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: February 1987 to current year.

TOTAL-PHOSPHORUS DISCHARGE: February 1987 to current year.

INSTRUMENTATION.--Automatic pumping sampler from March 1997; manual samples February 1987 to February 1997.

REMARKS.--Records are fair. Phosphorus analyses by the Wisconsin State Laboratory of Hygiene. Samples are point samples unless otherwise indicated.

COOPERATION.--Observer furnished by the Green Lake Sanitary District.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 701 mg/L, May 30, 1989; minimum observed, 0 mg/L, Mar. 25, 1988.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 456 tons, May 31, 1989; minimum daily, -0.22 ton, June 14, 1994.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 1.45 mg/L, May 30, 1989; minimum observed, <0.02 mg/L, Oct. 10, 1991.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 3,230 lb, May 31, 1989; minimum daily, -5.5 lb, June 14, 1994.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 522 mg/L, Nov. 11; minimum observed, 1 mg/L, Feb. 3.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 77 tons, Nov. 11; minimum daily, 0.07 ton, Nov. 4 and Feb. 3.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 0.645 mg/L, Nov. 11; minimum observed, 0.043 mg/L, Oct. 1.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 215 lb, July 21; minimum daily, 1.6 lb, Dec. 15.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
OCT 1998					
01...	1135	--	-23	.043	8
05...	0029	--	92	.136	20
06...	1729	--	71	.168	16
12...	1829	--	98	.144	22
16...	1159	--	4.6	.127	23
17...	1314	--	156	.132	23
17...	2129	--	42	.164	51
18...	0544	--	150	.183	68
30...	1159	--	39	.102	10
NOV					
06...	1159	--	41	.087	5
10...	0659	--	60	.126	32
10...	1659	--	165	.261	260
11...	0044	--	184	.645	522
11...	1559	--	91	.350	214
13...	1244	--	54	.067	18
23...	1429	--	146	.095	26
DEC					
01...	2129	--	106	.080	12
26...	1229	--	19	.054	8
JAN 1999					
27...	1214	--	28	.109	12
FEB					
03...	1159	--	3.1	.064	1
11...	1459	--	87	.072	2
11...	2244	--	147	.091	7
13...	1259	--	93	.180	20
17...	1159	--	51	.118	4
24...	1214	--	42	.059	4
MAR					
10...	1159	--	26	.062	8
18...	1150	--	59	.057	6
24...	1244	--	31	.055	6
30...	1759	--	124	.087	24

STREAMS TRIBUTARY TO LAKE MICHIGAN
04073468 GREEN LAKE INLET AT COUNTY TRUNK HIGHWAY A NEAR GREEN LAKE, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
APR 1999					
06...	2029	57	--	.215	60
07...	1259	--	139	.201	51
08...	0914	--	103	.216	79
09...	1059	--	140	.291	125
11...	0344	--	119	.139	30
11...	1159	--	143	.144	27
12...	0329	--	107	.145	30
12...	1344	--	106	.141	26
13...	0700	--	86	.212	36
14...	0430	--	79	.166	74
15...	1200	--	94	.171	66
16...	1045	--	105	.214	72
19...	1815	--	84	.128	35
21...	2229	--	155	.187	72
22...	1444	--	182	.197	69
23...	0744	--	151	.198	56
23...	1159	--	68	.199	62
26...	1829	--	94	.155	45
30...	1159	--	54	.179	57
MAY					
04...	1500	--	70	.212	128
06...	1130	--	120	.160	115
07...	1200	--	37	.191	116
07...	1945	--	138	.277	195
19...	1530	52	--	.161	101
20...	1515	--	119	.179	109
23...	1530	--	69	.252	173
26...	1200	--	20	.147	89
JUN					
01...	1400	--	90	.131	88
02...	0745	--	102	.177	89
02...	2000	--	97	.151	31
06...	1745	--	108	.120	31
10...	1945	--	21	.115	33
17...	1200	--	22	.157	23
24...	1200	--	20	.161	28
JUL					
01...	0245	--	89	.177	36
01...	1200	--	110	.179	26
05...	2215	--	122	.151	32
09...	0715	--	118	.224	60
16...	2015	--	114	.152	32
20...	0730	--	75	.206	31
21...	0630	--	242	.180	26
21...	2200	--	179	.195	20
22...	1330	--	129	.182	26
23...	1200	--	113	.196	26
24...	0500	--	114	.192	48
26...	1215	--	105	.148	16
31...	1200	--	88	.164	23
AUG					
06...	0400	--	95	.197	43
09...	1830	--	67	--	24
15...	1200	--	27	.115	26
22...	1215	--	3.8	.112	23
29...	1215	--	34	.161	30
SEP					
09...	1630	--	103	.174	34
13...	1700	--	160	.180	39
19...	1200	--	-7.1	.138	28
30...	1830	--	147	.151	43

STREAMS TRIBUTARY TO LAKE MICHIGAN
04073468 GREEN LAKE INLET AT COUNTY TRUNK HIGHWAY A NEAR GREEN LAKE, WI--CONTINUED

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.37	.29	.50	.28	.11	.47	2.1	4.6	7.5	2.9	3.1	1.4
2	.35	.20	.59	.22	.09	.47	1.9	5.2	11	2.5	2.1	1.2
3	.36	.20	.51	.29	.07	.40	2.8	5.9	4.3	2.2	3.2	1.1
4	.28	.07	.47	.32	.08	.43	4.8	7.1	4.1	2.2	6.6	1.2
5	.76	.16	.35	.32	.08	.34	6.3	7.1	3.1	1.8	4.8	.97
6	1.6	.12	.38	.30	.08	.30	8.8	13	3.4	3.3	4.5	1.2
7	1.3	.23	.39	.33	.08	.44	10	18	3.0	3.0	3.7	.84
8	.88	.29	.44	.32	.11	.44	16	26	2.2	3.4	3.0	.53
9	.63	.86	.33	.32	.14	.36	23	17	2.4	12	2.2	.98
10	.64	27	.37	.29	.18	.44	10	14	2.3	5.4	2.4	1.5
11	.63	77	.32	.27	.87	.44	7.3	9.4	2.7	5.5	2.0	1.3
12	.54	7.1	.52	.28	2.5	.45	7.4	9.4	2.5	3.9	1.8	1.0
13	.84	1.4	.30	.32	3.3	.41	9.1	6.7	2.0	3.3	1.9	1.4
14	.75	1.3	.20	.32	2.5	.40	13	5.1	2.1	3.1	1.7	1.2
15	.60	1.2	.12	.32	1.6	.43	11	3.3	1.5	2.0	1.5	1.4
16	.63	1.4	.33	.37	.94	.51	9.9	4.3	1.8	3.2	1.5	1.1
17	.25	1.6	.35	.38	.51	.53	6.2	8.9	1.4	5.1	1.6	1.0
18	3.8	1.3	.29	.61	.39	.61	5.1	11	1.6	3.4	1.8	.88
19	.96	1.6	.36	.56	.34	.51	4.2	14	1.5	7.8	3.2	.65
20	1.1	1.6	.22	.45	.30	.50	4.8	18	1.4	4.3	2.1	1.2
21	.75	.93	.21	.40	.27	.42	6.6	19	1.2	14	1.7	.80
22	.38	1.6	.36	.59	.25	.37	9.7	19	.86	10	1.6	1.0
23	.68	1.2	.27	.87	.22	.43	9.0	23	1.5	9.5	1.7	1.4
24	.50	1.2	.30	.86	.25	.33	7.4	21	1.3	11	1.6	.93
25	.47	.97	.28	.79	.26	.47	6.8	13	1.1	6.3	1.5	.88
26	.41	1.0	.28	.69	.33	.51	5.8	9.5	1.2	3.6	1.5	.91
27	.41	.73	.27	.63	.54	.65	5.3	8.0	1.6	3.2	1.4	1.2
28	.44	.69	.28	.51	.45	.92	4.6	7.1	3.9	2.8	1.4	1.5
29	.37	.42	.32	.34	---	1.2	4.6	6.0	3.9	2.7	1.4	1.8
30	.32	.60	.31	.22	---	1.2	4.3	5.2	2.5	1.7	1.3	1.6
31	.34	---	.30	.14	---	1.6	---	5.8	---	3.6	1.4	---
TOTAL	22.34	134.26	10.52	12.91	16.84	16.98	227.8	344.6	80.86	148.7	71.2	34.07

WTR YR 1999 TOTAL 1121.08

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	6.9	6.5	4.1	7.7	11	15	25	23	38	41	14
2	4.1	5.0	7.9	3.2	8.8	11	14	24	64	32	26	12
3	4.4	5.6	6.8	4.2	8.9	8.6	20	23	40	26	36	12
4	3.7	2.2	6.3	4.7	9.3	8.7	34	24	36	23	69	13
5	12	5.1	4.7	4.8	9.2	6.6	45	22	26	17	46	10
6	32	3.9	5.1	4.6	8.6	5.6	63	37	27	30	43	12
7	25	5.4	5.2	5.0	8.0	7.9	75	54	23	25	39	8.7
8	16	4.6	5.8	4.8	9.5	7.5	87	76	16	27	34	5.5
9	11	9.1	4.4	4.9	12	5.8	115	51	17	90	29	10
10	10	56	4.9	4.6	14	6.9	70	44	16	42	30	15
11	9.1	214	4.3	4.2	39	6.9	74	30	20	44	24	12
12	7.1	32	7.0	4.4	58	7.3	78	30	21	33	20	9.5
13	11	9.6	4.0	5.1	62	6.9	80	22	18	28	20	13
14	9.1	9.9	2.7	5.1	60	6.9	64	17	22	27	16	11
15	6.9	8.6	1.6	5.1	51	7.6	57	12	17	18	14	14
16	7.0	10	4.4	6.0	41	9.1	58	15	22	30	14	11
17	4.7	12	4.8	6.2	29	9.8	39	30	18	51	14	9.7
18	24	9.4	3.8	10	21	11	34	35	21	39	16	8.6
19	8.5	12	4.8	9.5	17	9.6	30	45	19	95	30	6.4
20	11	12	3.0	7.6	13	9.4	31	60	17	57	20	11
21	8.0	6.8	2.8	6.9	11	7.8	36	62	15	215	17	7.4
22	4.4	11	4.9	10	8.9	6.9	56	57	10	156	15	9.3
23	8.5	8.6	3.7	15	7.2	7.9	60	68	18	126	17	13
24	6.7	9.3	4.1	15	7.5	6.0	49	65	15	103	16	7.8
25	6.7	8.1	3.8	14	7.3	7.3	46	41	13	80	15	7.3
26	6.3	9.2	3.8	12	9.0	7.0	39	31	13	64	15	7.1
27	6.8	7.1	3.7	12	14	7.7	36	26	17	56	15	9.2
28	7.7	7.2	3.8	12	11	9.1	30	23	41	47	15	12
29	6.9	4.7	4.5	11	---	10	30	19	40	43	15	13
30	6.5	7.2	4.4	9.0	---	8.9	27	16	25	26	14	11
31	7.6	---	4.3	7.6	---	12	---	18	---	51	15	---
TOTAL	296.7	512.5	141.8	232.6	562.9	254.7	1492	1102	690	1739	750	315.5

WTR YR 1999 TOTAL 8089.7

04073473 PUCHYAN RIVER DOWNSTREAM NORTH LAWSON DRIVE NEAR GREEN LAKE, WI

LOCATION.--Lat 43°51'27", long 88°56'47", in NE 1/4 SE 1/4 sec.16, T.16 N., R.13 E., Green Lake County, Hydrologic Unit 04030201, on right bank 220 ft downstream from bridge on North Lawson Drive, 1.0 mi northeast of dam at outlet of Green Lake at Green Lake.

DRAINAGE AREA.--105 mi².

PERIOD OF RECORD.--November 1996 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 777.47 ft above sea level.

REMARKS.--No estimated daily discharges. Records are good (see page 13). Flow regulated by dams 1.1 mi and 180 ft upstream. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	3.9	12	7.0	33	54	28	122	116	45	212	37
2	10	3.7	9.9	7.1	36	54	28	120	148	42	193	33
3	9.1	3.6	10	9.5	36	53	39	118	149	50	150	31
4	8.7	3.4	10	9.4	36	55	50	102	145	54	117	30
5	9.4	3.6	11	9.1	34	56	53	86	145	55	113	29
6	10	3.6	12	8.8	35	52	67	97	141	58	114	26
7	9.0	3.1	12	8.5	35	53	83	115	145	58	107	25
8	8.2	2.8	13	8.3	36	53	89	122	136	58	101	24
9	8.4	3.0	13	8.6	38	55	124	118	128	92	85	22
10	8.7	21	12	8.7	37	56	155	115	124	103	70	20
11	8.4	9.0	13	8.8	49	56	168	109	123	99	65	19
12	8.1	5.2	12	9.1	57	55	174	106	122	94	59	18
13	7.0	5.1	10	10	58	54	170	102	119	92	58	18
14	6.1	5.1	12	10	60	54	165	82	117	95	55	17
15	6.4	5.0	12	11	63	48	158	69	94	90	50	17
16	6.4	6.8	10	11	65	35	150	70	76	89	48	16
17	7.8	6.8	11	13	68	37	148	92	78	97	47	15
18	8.1	7.0	12	16	67	32	145	96	74	97	44	16
19	6.4	9.2	10	17	66	32	141	117	68	132	50	16
20	5.7	6.3	10	17	65	34	131	135	61	146	48	16
21	5.3	5.9	12	16	64	32	108	135	63	218	45	16
22	5.4	7.1	10	22	55	33	108	130	57	216	41	15
23	4.7	6.0	10	28	49	34	120	136	48	230	42	15
24	4.7	6.9	8.7	31	49	32	124	144	44	234	46	15
25	4.9	9.3	8.3	33	50	31	121	151	35	227	46	14
26	4.7	8.5	7.6	33	51	31	117	144	32	241	45	14
27	5.2	7.8	7.9	33	55	31	114	140	29	246	43	15
28	5.2	8.5	7.5	34	54	31	110	133	34	248	40	15
29	4.9	9.8	8.0	34	---	28	117	128	34	244	35	15
30	4.7	11	7.8	33	---	29	128	121	33	231	36	15
31	4.1	---	7.6	33	---	29	---	121	---	227	38	---
TOTAL	216.7	198.0	322.3	537.9	1401	1319	3433	3576	2718	4208	2243	594
MEAN	6.99	6.60	10.4	17.4	50.0	42.5	114	115	90.6	136	72.4	19.8
MAX	11	21	13	34	68	56	174	151	149	248	212	37
MIN	4.1	2.8	7.5	7.0	33	28	28	69	29	42	35	14
CFSM	.07	.06	.10	.17	.48	.41	1.09	1.10	.86	1.29	.69	.19
IN.	.08	.07	.11	.19	.50	.47	1.22	1.27	.96	1.49	.79	.21

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1999, BY WATER YEAR (WY)

	1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
MEAN	11.9	8.56	12.8	24.5	47.0	101	163	100	80.4	90.7	54.6	24.8
MAX	16.8	12.2	14.8	36.6	56.0	184	247	115	90.9	136	72.4	41.0
(WY)	1998	1998	1997	1997	1997	1997	1998	1999	1997	1999	1999	1997
MIN	6.99	6.60	10.4	17.4	35.1	42.5	114	91.6	59.6	59.6	28.2	13.7
(WY)	1999	1999	1999	1999	1998	1999	1999	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1997 - 1999

ANNUAL TOTAL	19854.0	20766.9	
ANNUAL MEAN	54.4	56.9	56.4
HIGHEST ANNUAL MEAN			56.9
LOWEST ANNUAL MEAN			55.9
HIGHEST DAILY MEAN	383	248	383
LOWEST DAILY MEAN	2.8	2.8	2.8
ANNUAL SEVEN-DAY MINIMUM	3.3	3.3	3.3
INSTANTANEOUS PEAK FLOW		298	423
INSTANTANEOUS PEAK STAGE		5.21	5.60
ANNUAL RUNOFF (CFSM)	.52	.54	.54
ANNUAL RUNOFF (INCHES)	7.03	7.36	7.30
10 PERCENT EXCEEDS	116	136	140
50 PERCENT EXCEEDS	29	36	43
90 PERCENT EXCEEDS	7.0	7.0	10

LOCATION.--Lat 43°57'14", long 88°57'08", in NE 1/4 sec.16, T.17 N., R.13 E., Green Lake County, Hydrologic Unit 04030201, on left bank, 0.4 mi downstream from government dam, 1.0 mi south of Huron Street bridge in Berlin, 2.5 mi upstream from Barnes Creek, and at mile 89.0.

DRAINAGE AREA.--1,340 mi².

PERIOD OF RECORD.--January 1898 to current year.

REVISED RECORDS.--WSP 1337: 1910. WDR WI-80-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 744.52 ft above mean tide at New York City (by U.S. Army Corps of Engineers). Prior to Oct. 27, 1954, nonrecording gage at site 0.3 mi upstream at same datum.

REMARKS.--Estimated daily discharges: June 28-30, July 9, and ice-affected period, Dec. 22 to Feb. 13. Records good except those for ice-affected period, which is poor (see page 13). Usually less than about 10 ft³/s was diverted into the basin from the Wisconsin River at Portage Canal throughout the year. Data-collection platform and gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	477	770	1060	560	600	1400	999	1780	1120	983	2930	1120
2	512	765	1040	540	600	1410	968	1750	1270	1080	2860	1070
3	509	705	999	540	600	1420	1000	1720	1450	1110	2800	1030
4	491	702	948	540	620	1410	1150	1670	1590	1140	2820	990
5	557	735	880	540	660	1410	1250	1640	1710	1170	2770	950
6	649	759	915	520	700	1380	1330	1640	1780	1220	2720	908
7	711	761	926	520	740	1310	1400	1620	1810	1170	2600	874
8	745	761	918	520	780	1300	1470	1620	1790	1150	2490	863
9	742	751	907	520	840	1270	1600	1600	1760	1250	2450	835
10	739	856	867	520	940	1210	1660	1560	1710	1320	2390	815
11	723	1120	846	520	1100	1190	1760	1520	1650	1340	2330	784
12	717	1200	854	520	1300	1170	1900	1460	1630	1330	2300	758
13	707	1170	872	520	1700	1160	2020	1400	1640	1310	2260	757
14	680	1160	822	520	1870	1130	2110	1340	1640	1290	2080	754
15	676	1130	774	520	2110	1110	2170	1290	1610	1270	2070	739
16	686	1140	797	520	2020	1100	2190	1250	1540	1250	2060	718
17	706	1150	790	520	1890	1110	2180	1280	1420	1310	2010	707
18	776	1220	782	540	1800	1120	2150	1340	1320	1360	1890	698
19	805	1300	788	540	1740	1110	2100	1370	1250	1610	1940	693
20	783	1340	689	540	1700	1130	2050	1400	1200	1740	1880	682
21	747	1350	533	540	1650	1150	2000	1430	1130	2050	1830	674
22	706	1330	560	560	1610	1110	1980	1450	1070	2310	1780	674
23	728	1310	620	560	1550	1110	1960	1490	1050	2530	1740	678
24	741	1260	660	560	1490	1120	1940	1510	1030	2710	1670	671
25	736	1200	640	560	1440	1100	1920	1500	981	2850	1570	661
26	719	1150	620	580	1410	1070	1920	1490	938	2940	1490	674
27	715	1120	600	580	1410	1060	1910	1470	894	3000	1420	710
28	745	1100	600	580	1420	1050	1880	1460	890	3030	1370	720
29	762	1090	580	580	---	1040	1840	1360	910	3020	1310	724
30	773	1080	560	600	---	1010	1810	1200	900	2970	1220	732
31	773	---	560	600	---	990	---	1110	---	2990	1170	---
TOTAL	21536	31485	24007	16880	36290	36660	52617	45720	40683	55803	64220	23663
MEAN	695	1050	774	545	1296	1183	1754	1475	1356	1800	2072	789
MAX	805	1350	1060	600	2110	1420	2190	1780	1810	3030	2930	1120
MIN	477	702	533	520	600	990	968	1110	890	983	1170	661
CFSM	.52	.78	.58	.41	.97	.88	1.31	1.10	1.01	1.34	1.55	.59
IN.	.60	.87	.67	.47	1.01	1.02	1.46	1.27	1.13	1.55	1.78	.66

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1898 - 1999, BY WATER YEAR (WY)

	MEAN	982	1077	896	698	765	1759	2228	1461	1181	921	805	889
MAX	3819	2463	1871	1631	1803	4272	4225	3801	4230	4072	2540	3491	
(WY)	1987	1986	1986	1939	1966	1973	1979	1973	1905	1993	1993	1938	
MIN	347	380	369	311	318	495	667	600	367	384	346	364	
(WY)	1959	1977	1977	1959	1959	1964	1902	1934	1988	1988	1958	1958	

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1898 - 1999
ANNUAL TOTAL	409989	449564	
ANNUAL MEAN	1123	1232	1141
HIGHEST ANNUAL MEAN			2203
LOWEST ANNUAL MEAN			559
HIGHEST DAILY MEAN	2970	3030	6900
LOWEST DAILY MEAN	385	477	217
ANNUAL SEVEN-DAY MINIMUM	449	(a) 520	266
INSTANTANEOUS PEAK FLOW		3030	6900
INSTANTANEOUS PEAK STAGE		12.67	15.50
INSTANTANEOUS LOW FLOW		462	210
ANNUAL RUNOFF (CFSM)	.84	.92	.85
ANNUAL RUNOFF (INCHES)	11.38	12.48	11.57
10 PERCENT EXCEEDS	2060	2020	2170
50 PERCENT EXCEEDS	889	1130	865
90 PERCENT EXCEEDS	596	580	500

(a) Ice affected

STREAMS TRIBUTARY TO LAKE MICHIGAN
04074950 WOLF RIVER AT LANGLADE, WI

75

LOCATION.--Lat 45°11'24", long 88°44'00", in SE 1/4 SW 1/4 sec.3, T.31 N., R.14 E., Langlade County, Hydrologic Unit 04030202, on left bank, upstream of bridge on State Highway 64 at Langlade, 1.5 mi east of White Lake, 3.0 mi upstream from White Lake Creek, and at about mile 170 above mouth.

DRAINAGE AREA.--463 mi².

PERIOD OF RECORD.--March 1966 to September 1979, October 1980 to current year.

REVISED RECORDS.--WDR WI-81-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,240 ft above sea level, from topographic map. Prior to Oct. 1, 1976, nonrecording gage 50 ft downstream at same elevation.

REMARKS.--Estimated daily discharges: Nov. 10-14 and ice-affected period, Dec. 8 to Mar. 26. Records good except those for estimated daily discharges, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	227	276	277	180	220	270	735	266	335	380	450	257
2	219	268	270	180	210	270	747	247	353	341	451	259
3	211	260	286	190	200	260	766	237	353	344	431	257
4	211	254	334	190	210	260	785	232	343	381	404	241
5	219	249	337	180	210	250	793	229	335	415	378	231
6	271	247	326	190	210	250	802	286	398	404	397	234
7	306	248	265	190	210	250	756	705	531	321	391	231
8	355	246	250	190	220	250	708	917	591	312	382	222
9	321	246	240	180	230	250	705	863	588	614	353	219
10	264	336	240	180	250	250	708	801	532	691	353	226
11	247	404	240	180	280	250	662	756	474	698	335	225
12	236	388	250	180	310	250	569	695	471	699	318	223
13	226	365	240	180	300	250	500	538	448	658	411	231
14	224	332	230	190	300	250	491	399	414	660	518	236
15	224	309	230	190	310	260	528	405	390	632	543	233
16	227	302	230	190	300	280	436	397	367	606	529	220
17	234	296	220	200	290	290	407	427	353	736	479	215
18	323	296	210	200	280	310	406	509	339	751	438	215
19	316	347	200	200	270	320	390	619	326	695	392	216
20	284	391	190	200	260	340	376	651	315	594	367	223
21	267	412	180	200	260	340	378	650	305	562	349	228
22	258	408	170	200	250	330	379	608	300	566	336	224
23	254	390	180	190	240	330	373	581	288	561	337	221
24	248	309	180	180	240	340	359	593	325	556	336	221
25	249	291	180	180	240	350	315	615	426	542	352	213
26	251	289	180	190	240	360	284	612	359	533	320	215
27	251	278	180	190	250	380	274	537	277	513	307	235
28	254	276	180	190	260	419	266	451	291	522	294	262
29	258	274	190	200	---	461	261	427	341	502	284	262
30	277	279	190	210	---	518	254	441	414	423	273	251
31	288	---	190	220	---	603	---	432	---	479	268	---
TOTAL	8000	9266	7065	5910	7050	9791	15413	16126	11582	16691	11776	6946
MEAN	258	309	228	191	252	316	514	520	386	538	380	232
MAX	355	412	337	220	310	603	802	917	591	751	543	262
MIN	211	246	170	180	200	250	254	229	277	312	268	213
CFSM	.56	.67	.49	.41	.54	.68	1.11	1.12	.83	1.16	.82	.50
IN.	.64	.74	.57	.47	.57	.79	1.24	1.30	.93	1.34	.95	.56

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1999, BY WATER YEAR (WY)

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	444	447	372	318	316	468	822	609	485	362	327	404																						
MAX	813	788	578	548	482	1227	1330	1312	1013	874	632	813																						
(WY)	1986	1986	1986	1969	1984	1973	1976	1973	1991	1968	1972	1968																						
MIN	196	204	226	191	213	278	263	289	173	183	188	171																						
(WY)	1977	1977	1977	1999	1982	1982	1990	1998	1988	1989	1989	1989																						

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1966 - 1999
ANNUAL TOTAL	119904	125616	
ANNUAL MEAN	329	344	449
HIGHEST ANNUAL MEAN			666
LOWEST ANNUAL MEAN			326
HIGHEST DAILY MEAN	1560	917	2420
LOWEST DAILY MEAN	152	(a) 170	137
ANNUAL SEVEN-DAY MINIMUM	155	(a) 179	142
INSTANTANEOUS PEAK FLOW		(b) 934	2440
INSTANTANEOUS PEAK STAGE		(a) 8.97	10.40
INSTANTANEOUS LOW FLOW		(c) 156	119
ANNUAL RUNOFF (CFSM)	.71	.74	.97
ANNUAL RUNOFF (INCHES)	9.63	10.09	13.18
10 PERCENT EXCEEDS	522	593	757
50 PERCENT EXCEEDS	276	289	370
90 PERCENT EXCEEDS	180	200	240

- (a) Ice affected
(b) Gage height, 8.95 ft
(c) Result of freezeup

04077400 WOLF RIVER NEAR SHAWANO, WI

LOCATION.--Lat 44°50'09", long 88°37'30", in SE 1/4 NW 1/4 sec.12, T.27 N., R.15 E., Shawano County, Hydrologic Unit 04030202, on left bank 350 ft downstream from dam, 3.7 mi north of Shawano, 1.5 mi upstream from Red River, and at mile 130.6.

DRAINAGE AREA.--816 mi².

PERIOD OF RECORD.--May 1907 to March 1909, October 1910 to current year. Monthly discharge only for some periods, published in WSP 1307. Published as "at Keshena" prior to April 1928. Published as "at Keshena Falls" April 1928 to September 1981. Published as "at Keshena Falls near Keshena" October 1981 to September 1985. Prior to October 1985, all records published under station number 04077000.

REVISED RECORDS.--WSP 1337: 1914-15(M), 1918-19(M), 1921, 1923(M), 1926(M), 1928(M), 1933. WDR WI-80-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 810 ft above sea level, from topographic map. Prior to Mar. 23, 1928, nonrecording gage at bridge in Keshena 4.1 mi upstream at different datum, and from Mar. 23, 1928 to Sept. 30, 1985, water-stage recorder at site 5.8 mi upstream at different datum.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 12, 13, 15, 16, 18-22, and Dec. 24 to Mar. 16. Records good except those for the period July 9-28, which are fair, and those for ice-affected periods, which are poor (see page 13). Minor regulation by power dam upstream. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	549	523	520	400	500	660	1160	395	615	661	674	471
2	475	538	519	420	520	660	1290	395	505	627	639	457
3	476	512	503	430	540	660	1330	391	507	566	664	464
4	471	482	514	420	540	640	1440	419	475	637	657	459
5	471	479	601	420	520	620	1460	415	455	628	629	414
6	583	477	634	410	520	600	1550	456	471	645	631	421
7	685	483	618	410	520	560	1490	883	549	571	610	430
8	656	471	486	410	520	540	1310	1660	680	501	610	443
9	640	484	426	410	540	540	1210	1810	714	910	616	413
10	581	655	462	410	580	520	1090	1440	658	1680	597	400
11	496	923	448	410	640	520	1050	1270	649	1670	576	391
12	476	934	450	410	680	540	913	1080	656	1370	546	396
13	467	858	460	420	640	540	768	962	624	1150	579	393
14	458	796	454	430	600	540	685	724	604	989	714	399
15	440	700	460	450	620	560	615	564	527	1020	813	397
16	435	593	450	470	640	560	649	591	544	889	793	398
17	466	623	385	460	620	579	529	680	499	923	791	383
18	456	628	420	450	600	637	488	822	485	1100	702	379
19	546	630	420	450	560	674	503	890	468	1170	675	380
20	548	657	390	460	540	689	471	920	471	1030	627	400
21	490	699	380	470	540	727	491	901	459	901	595	391
22	463	712	350	480	540	684	494	867	443	821	582	384
23	469	679	305	470	540	642	527	827	489	812	617	387
24	448	700	350	460	540	675	563	833	461	834	605	380
25	445	594	360	450	560	706	525	811	477	798	582	380
26	449	532	380	450	580	711	480	838	550	782	605	366
27	478	531	400	470	620	694	453	800	515	727	558	397
28	434	531	420	480	640	734	439	660	448	711	519	471
29	508	497	440	480	---	771	416	592	607	744	543	484
30	552	503	430	490	---	792	398	559	615	695	499	479
31	476	---	420	490	---	1050	---	559	---	623	500	---
TOTAL	15587	18424	13855	13740	16000	20025	24787	25014	16220	27185	19348	12407
MEAN	503	614	447	443	571	646	826	807	541	877	624	414
MAX	685	934	634	490	680	1050	1550	1810	714	1680	813	484
MIN	434	471	305	400	500	520	398	391	443	501	499	366
CFSM	.62	.75	.55	.54	.70	.79	1.01	.99	.66	1.07	.76	.51
IN.	.71	.84	.63	.63	.73	.91	1.13	1.14	.74	1.24	.88	.57

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1907 - 1999, BY WATER YEAR (WY)

MEAN	719	747	607	524	503	731	1341	1099	898	683	614	699
MAX	1573	1517	1115	937	888	1972	2526	2265	1990	1186	1277	1699
(WY)	1942	1912	1986	1986	1984	1973	1922	1960	1993	1968	1912	1941
MIN	376	383	335	323	315	385	574	510	328	366	294	330
(WY)	1949	1977	1928	1926	1936	1956	1990	1931	1988	1933	1934	1933

STREAMS TRIBUTARY TO LAKE MICHIGAN
04077400 WOLF RIVER NEAR SHAWANO, WI--CONTINUED

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SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1907 - 1999	
ANNUAL TOTAL	233125		222592		764	
ANNUAL MEAN	639		610		1119	
HIGHEST ANNUAL MEAN					510	
LOWEST ANNUAL MEAN					1973	
HIGHEST DAILY MEAN	2920	Apr 2	1810	May 9	(a) 5200	Mar 15 1973
LOWEST DAILY MEAN	(b) 305	Dec 23	(b) 305	Dec 23	(a) 194	Feb 7 1936
ANNUAL SEVEN-DAY MINIMUM	334	Jul 29	(a) 359	Dec 20	(a) 260	Feb 3 1936
INSTANTANEOUS PEAK FLOW			1920	May 8		
INSTANTANEOUS PEAK STAGE			9.77	May 8	(c) 15.59	Dec 2 1983
INSTANTANEOUS LOW FLOW			(b) 136	Dec 23	(d) 77	Nov 19 1989
ANNUAL RUNOFF (CFSM)	.78		.75		.94	
ANNUAL RUNOFF (INCHES)	10.63		10.15		12.76	
10 PERCENT EXCEEDS	1030		889		1290	
50 PERCENT EXCEEDS	528		540		640	
90 PERCENT EXCEEDS	380		410		415	

(a) Ice affected

(b) Regulation

(c) From high-water mark in well, at site and datum then in use, backwater from ice

(d) Regulation; minimum unregulated discharge 91 ft³/s, Dec. 22, 1939, site then in use, result of ice storage

STREAMS TRIBUTARY TO LAKE MICHIGAN
04077630 RED RIVER, AT MORGAN ROAD, NEAR MORGAN, WI

LOCATION.--Lat 44°53'53", long 88°50'39", in NW 1/4 NE 1/4 sec.19, T.28 N., R.14 E., Shawano County, Hydrologic Unit 04030202, on left bank 1.7 mi northwest of Morgan, 1.1 mi downstream of the confluence with the West Branch of the Red River, and 2.2 mi upstream of Smith Creek.

DRAINAGE AREA.--114 mi².

PERIOD OF RECORD.--October 1992 to current year.

REVISED RECORDS.--WDR WI-95-1: 1993(M).

GAGE.--Water-stage recorder. Elevation of gage is 990 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 8 to Mar. 16 and Mar. 19-27. Records good except those for May 29 to Aug. 19, which are fair, and ice-affected periods, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	105	95	97	60	78	110	226	95	98	124	87	72
2	97	91	97	60	82	110	227	93	96	133	83	71
3	90	87	96	62	82	110	226	92	93	133	79	72
4	86	85	95	62	82	100	256	91	90	136	85	71
5	87	84	96	62	82	110	265	91	90	120	91	71
6	109	83	96	62	84	100	256	112	94	106	73	72
7	118	83	95	60	86	100	241	251	105	102	71	73
8	112	82	88	60	90	100	216	391	102	101	78	72
9	103	82	84	58	94	100	187	339	92	255	76	70
10	95	127	80	58	98	100	160	278	89	333	89	72
11	90	189	80	56	100	110	143	197	98	250	89	72
12	84	177	78	58	120	110	135	153	108	164	84	71
13	82	137	76	58	110	110	127	136	102	121	95	73
14	82	121	74	60	110	110	122	124	93	108	112	73
15	80	114	72	60	110	110	116	117	82	107	109	72
16	82	111	68	62	110	110	115	115	87	102	103	72
17	83	109	66	62	110	123	110	161	95	153	102	71
18	88	109	64	64	110	126	107	204	86	193	99	70
19	103	110	62	64	110	110	106	182	83	156	92	69
20	103	111	60	64	110	110	104	148	84	121	85	71
21	93	110	60	66	110	110	105	132	84	110	81	72
22	88	105	58	66	110	120	111	126	87	109	80	72
23	84	104	58	68	110	120	139	136	96	102	92	71
24	84	101	58	70	110	120	137	152	98	107	94	70
25	82	101	60	68	100	110	120	135	97	96	89	69
26	82	101	60	68	100	110	112	120	90	90	83	68
27	82	99	60	66	100	120	105	112	85	87	80	77
28	91	98	60	68	110	139	101	105	95	87	81	88
29	93	96	62	70	---	149	98	101	166	83	76	85
30	95	97	62	72	---	170	96	96	144	85	74	80
31	95	---	62	74	---	197	---	96	---	87	74	---
TOTAL	2848	3199	2284	1968	2808	3634	4569	4681	2909	4061	2686	2182
MEAN	91.9	107	73.7	63.5	100	117	152	151	97.0	131	86.6	72.7
MAX	118	189	97	74	120	197	265	391	166	333	112	88
MIN	80	82	58	56	78	100	96	91	82	83	71	68
CFSM	.81	.94	.65	.56	.88	1.03	1.34	1.32	.85	1.15	.76	.64
IN.	.93	1.04	.75	.64	.92	1.19	1.49	1.53	.95	1.33	.88	.71

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1999, BY WATER YEAR (WY)

	MEAN	137	141	111	101	105	132	221	170	168	136	132	115
MAX	175	221	164	126	124	170	331	254	313	217	209	160	
(WY)	1996	1993	1993	1993	1998	1998	1996	1993	1996	1996	1995	1993	
MIN	91.9	107	73.7	63.5	79.3	117	139	108	97.0	78.8	86.6	72.7	
(WY)	1999	1999	1999	1999	1995	1999	1995	1998	1999	1995	1999	1999	

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1993 - 1999
ANNUAL TOTAL	41640	37829	
ANNUAL MEAN	114	104	139
HIGHEST ANNUAL MEAN			184
LOWEST ANNUAL MEAN			104
HIGHEST DAILY MEAN	452	391	952
LOWEST DAILY MEAN	(a)58	(a)56	(a)56
ANNUAL SEVEN-DAY MINIMUM	(a)59	(a)58	(a)58
INSTANTANEOUS PEAK FLOW		(b)416	1060
INSTANTANEOUS PEAK STAGE		(c)7.46	8.88
INSTANTANEOUS LOW FLOW		(d)52	(d)31
ANNUAL RUNOFF (CFSM)	1.00	.91	1.22
ANNUAL RUNOFF (INCHES)	13.59	12.34	16.57
10 PERCENT EXCEEDS	172	141	220
50 PERCENT EXCEEDS	96	95	120
90 PERCENT EXCEEDS	74	66	84

(a) Ice affected
(b) Gage height, 7.31 ft
(c) Backwater from ice
(d) Result of freezeup

STREAMS TRIBUTARY TO LAKE MICHIGAN

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0407809265 MIDDLE BRANCH EMBARRASS RIVER NEAR WITTENBERG, WI

LOCATION.--Lat 44°49'31", long 89°07'05", in NW 1/4 NW 1/4 sec.13, T.27 N., R.11 E., Shawano County, Hydrologic Unit 04030202, on right bank 60 ft upstream from Cardinal Lane, 2.5 mi east of Wittenberg, and 2.5 mi upstream from Wilson Creek.

DRAINAGE AREA.--76.3 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1989 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,118.24 ft above sea level (levels by Wisconsin Department of Transportation).

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 19 to Feb. 28, Mar. 4-16, and Mar. 19-28. Records good except those for ice-affected periods, which are poor (see page 13). Flow affected by pumping for irrigation many times during summer months. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	36	29	21	27	26	139	36	37	53	34	28
2	31	34	29	22	28	21	151	34	36	60	35	25
3	20	33	29	23	29	23	149	33	36	62	34	25
4	20	30	29	23	28	25	156	32	36	60	34	25
5	24	29	29	23	29	24	169	32	35	57	34	25
6	36	29	29	22	30	23	179	40	36	47	36	24
7	37	28	29	22	29	22	168	167	40	44	39	24
8	38	28	28	22	30	22	157	265	45	42	37	23
9	35	24	28	21	31	22	121	294	41	80	35	22
10	34	29	28	21	33	23	88	228	38	157	34	22
11	33	70	28	20	34	23	71	138	37	178	33	21
12	33	74	28	20	33	24	63	86	37	95	33	20
13	32	52	28	20	32	24	58	70	39	58	33	20
14	27	43	27	20	33	25	58	60	38	50	32	20
15	19	39	27	21	34	28	55	54	36	47	37	20
16	19	38	27	21	35	31	50	51	35	45	38	20
17	20	37	33	22	35	34	46	66	35	88	37	22
18	21	36	20	22	34	39	45	109	35	132	38	22
19	38	36	16	22	33	44	42	99	34	139	36	24
20	42	38	18	21	33	46	40	72	34	81	34	23
21	35	38	17	22	33	45	40	62	31	67	33	63
22	32	36	17	23	33	50	45	60	24	66	33	34
23	32	35	18	24	33	47	73	65	23	56	32	15
24	32	33	19	24	32	52	78	82	23	55	32	15
25	31	33	20	24	31	54	61	71	29	54	32	15
26	26	32	20	24	31	52	53	59	31	48	32	15
27	19	31	21	24	32	58	47	52	29	43	32	16
28	19	31	22	24	32	72	43	47	30	40	32	17
29	24	30	23	24	---	81	41	43	69	38	31	27
30	29	30	22	25	---	96	37	41	66	36	31	30
31	35	---	22	26	---	116	---	39	---	36	30	---
TOTAL	909	1092	760	693	887	1272	2523	2587	1095	2114	1053	702
MEAN	29.3	36.4	24.5	22.4	31.7	41.0	84.1	83.5	36.5	68.2	34.0	23.4
MAX	42	74	33	26	35	116	179	294	69	178	39	63
MIN	19	24	16	20	27	21	37	32	23	36	30	15
CFSM	.38	.48	.32	.29	.42	.54	1.10	1.09	.48	.89	.45	.31
IN.	.44	.53	.37	.34	.43	.62	1.23	1.26	.53	1.03	.51	.34

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1999, BY WATER YEAR (WY)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	54.1	58.6	39.3	30.3	33.3	70.7	142	95.6	87.9	52.5
MAX	94.7	128	73.3	45.7	44.1	116	241	167	222	96.3
(WY)	1996	1993	1993	1996	1998	1990	1996	1993	1993	1996
MIN	23.2	27.2	13.5	18.5	18.5	41.0	40.4	46.7	31.6	21.9
(WY)	1990	1990	1990	1995	1995	1999	1990	1998	1995	1995

SUMMARY STATISTICS

	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1990 - 1999
ANNUAL TOTAL	17640	15687	
ANNUAL MEAN	48.3	43.0	63.7
HIGHEST ANNUAL MEAN			100
LOWEST ANNUAL MEAN			43.0
HIGHEST DAILY MEAN	306	294	697
LOWEST DAILY MEAN	(a)16	15	(b)11
ANNUAL SEVEN-DAY MINIMUM	18	17	12
INSTANTANEOUS PEAK FLOW		306	905
INSTANTANEOUS PEAK STAGE		2.70	(d)5.09
ANNUAL RUNOFF (CFSM)	.63	.56	.83
ANNUAL RUNOFF (INCHES)	8.60	7.65	11.34
10 PERCENT EXCEEDS	89	71	126
50 PERCENT EXCEEDS	32	33	43
90 PERCENT EXCEEDS	19	21	22

(a) Ice affected

(b) Result of freezeup

(c) Also occurred Dec. 19, ice affected

(d) Recorded gage height, 5.09 ft, result of drawdown, outside crest-gage peak, 5.29 ft

STREAMS TRIBUTARY TO LAKE MICHIGAN
0407809265 MIDDLE BRANCH EMBARRASS RIVER NEAR WITTENBERG, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: December 1989 to current year.

INSTRUMENTATION.--Continuous water temperature recorder since December 1989. Sensor located at midstream.

REMARKS.--Records represent water temperature at sensor within 0.5°C. Record was faulty Dec. 17 to Mar. 22.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum, 30.5°C, June 18, 1994, July 14, 1995, and July 30, 1999; minimum, 0.0°C, on many days during winter.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 30.5°C, July 30; minimum, 0.0°C, probably many days in winter when record was faulty.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	14.5	11.5	13.0	11.0	8.5	10.0	7.0	5.0	6.0	---	---	---
2	13.0	10.0	11.5	9.5	7.0	8.5	7.5	6.0	6.5	---	---	---
3	12.5	9.5	11.0	8.5	6.0	7.0	8.5	6.0	7.0	---	---	---
4	13.5	9.5	11.0	6.5	5.0	6.0	7.0	5.0	6.0	---	---	---
5	12.0	10.5	11.0	5.0	4.0	4.5	7.0	6.5	6.5	---	---	---
6	12.5	12.0	12.5	5.0	3.5	4.5	7.0	4.5	6.5	---	---	---
7	12.5	11.5	12.0	5.0	4.0	4.5	4.5	3.0	3.5	---	---	---
8	13.5	10.0	11.5	5.0	4.0	4.5	4.0	2.0	3.0	---	---	---
9	14.0	9.5	11.5	5.5	4.0	4.5	4.0	2.0	3.0	---	---	---
10	14.5	10.0	12.0	7.0	4.5	5.5	3.5	2.0	3.0	---	---	---
11	14.5	10.0	12.0	4.5	3.0	4.0	3.5	1.5	2.5	---	---	---
12	14.0	11.5	12.5	3.5	2.0	3.0	3.5	1.5	2.5	---	---	---
13	11.5	9.5	10.5	4.0	2.0	2.5	3.5	1.5	2.5	---	---	---
14	11.5	8.5	9.5	4.5	3.0	3.5	3.5	1.0	2.0	---	---	---
15	10.5	7.5	9.0	4.0	2.5	3.0	3.5	2.0	2.5	---	---	---
16	14.0	9.0	11.5	4.0	2.5	3.0	3.0	1.5	2.0	---	---	---
17	14.5	11.5	13.0	4.0	2.5	3.0	---	---	---	---	---	---
18	13.5	10.0	12.0	4.5	3.0	4.0	---	---	---	---	---	---
19	12.5	9.0	10.5	5.0	3.0	4.0	---	---	---	---	---	---
20	11.0	9.0	9.5	3.5	2.0	3.0	---	---	---	---	---	---
21	10.0	7.5	9.0	3.0	1.0	2.0	---	---	---	---	---	---
22	10.0	6.0	8.0	4.5	2.5	3.0	---	---	---	---	---	---
23	11.0	7.0	9.0	5.0	2.5	3.5	---	---	---	---	---	---
24	12.0	8.0	9.5	4.5	2.5	3.5	---	---	---	---	---	---
25	11.5	9.5	10.5	5.5	3.5	4.0	---	---	---	---	---	---
26	13.5	10.0	11.5	5.0	3.0	4.0	---	---	---	---	---	---
27	12.0	10.0	11.0	5.5	2.5	4.0	---	---	---	---	---	---
28	13.0	9.0	10.5	5.5	3.0	4.5	---	---	---	---	---	---
29	11.0	8.5	10.0	7.0	5.0	6.0	---	---	---	---	---	---
30	11.0	10.0	10.5	7.5	5.5	7.0	---	---	---	---	---	---
31	11.0	10.0	10.5	---	---	---	---	---	---	---	---	---
MONTH	14.5	6.0	10.9	11.0	1.0	4.5	---	---	---	---	---	---

STREAMS TRIBUTARY TO LAKE MICHIGAN

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0407809265 MIDDLE BRANCH EMBARRASS RIVER NEAR WITTENBERG, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	7.0	5.0	6.0	21.5	12.0	16.0
2	---	---	---	---	---	---	8.5	6.0	7.0	21.5	12.5	16.5
3	---	---	---	---	---	---	8.5	7.5	8.0	20.5	13.5	16.5
4	---	---	---	---	---	---	8.0	7.0	7.5	21.0	14.5	17.5
5	---	---	---	---	---	---	7.0	5.5	6.5	18.0	15.5	16.5
6	---	---	---	---	---	---	5.5	5.0	5.5	16.0	14.0	15.0
7	---	---	---	---	---	---	6.5	4.5	5.5	14.0	12.5	13.0
8	---	---	---	---	---	---	8.5	6.0	7.0	12.5	11.5	12.0
9	---	---	---	---	---	---	10.0	7.5	8.5	13.5	11.5	12.5
10	---	---	---	---	---	---	10.5	7.5	8.5	15.5	13.5	14.5
11	---	---	---	---	---	---	7.5	6.5	7.0	15.0	13.5	14.5
12	---	---	---	---	---	---	11.0	5.5	8.0	14.0	12.5	13.5
13	---	---	---	---	---	---	12.5	6.0	9.0	16.5	11.5	13.5
14	---	---	---	---	---	---	15.0	7.5	10.5	18.0	11.5	14.0
15	---	---	---	---	---	---	12.5	9.5	11.0	17.0	13.5	15.0
16	---	---	---	---	---	---	15.0	10.0	11.5	18.0	15.0	16.0
17	---	---	---	---	---	---	12.5	9.0	10.5	18.0	15.5	17.0
18	---	---	---	---	---	---	11.0	8.5	9.5	18.5	16.0	17.0
19	---	---	---	---	---	---	11.0	7.5	9.0	19.0	15.0	16.5
20	---	---	---	---	---	---	10.0	7.0	8.5	17.0	15.5	16.0
21	---	---	---	---	---	---	10.5	8.0	9.0	18.5	16.0	17.0
22	---	---	---	---	---	---	8.5	7.0	7.5	20.5	15.5	17.5
23	---	---	---	6.0	1.0	2.5	11.0	6.5	8.0	17.5	15.0	16.5
24	---	---	---	6.0	1.0	2.5	13.0	7.0	9.5	15.0	12.5	14.0
25	---	---	---	4.5	1.0	2.5	16.0	8.5	11.5	12.5	11.5	12.0
26	---	---	---	7.0	1.0	3.0	17.5	10.0	13.0	17.5	10.5	13.5
27	---	---	---	7.5	1.5	4.0	16.0	10.5	13.0	20.0	12.0	15.5
28	---	---	---	4.5	3.0	3.5	17.5	10.5	13.5	22.5	14.5	18.0
29	---	---	---	6.5	2.5	4.0	19.0	10.5	14.0	24.5	16.5	20.0
30	---	---	---	7.5	2.5	5.0	20.0	11.0	15.0	24.5	17.5	20.5
31	---	---	---	7.5	4.5	5.5	---	---	---	23.0	18.5	20.5
MONTH	---	---	---	---	---	---	20.0	4.5	9.3	24.5	10.5	15.7
	JUNE			JULY			AUGUST			SEPTEMBER		
1	20.5	17.5	18.5	21.5	17.5	19.0	27.0	22.0	24.0	23.5	17.0	20.0
2	23.5	16.5	19.5	22.0	17.5	19.5	26.0	20.5	23.0	24.5	18.0	21.0
3	23.0	15.5	18.5	21.0	19.0	20.0	22.0	20.0	21.0	25.5	19.0	22.0
4	19.0	15.5	17.0	26.0	20.0	22.5	24.5	18.5	21.0	26.0	20.5	22.5
5	23.0	16.5	19.5	26.0	22.0	23.5	24.5	18.0	21.0	23.0	19.5	21.5
6	25.5	18.5	21.0	27.5	22.0	24.5	25.0	19.5	21.5	23.0	17.5	20.0
7	25.0	19.5	22.0	27.0	21.0	23.5	22.0	19.5	21.0	22.5	16.5	19.5
8	27.0	20.0	22.5	22.5	19.0	21.0	24.0	18.5	21.0	23.0	18.0	20.0
9	27.0	20.5	23.5	23.0	19.0	20.5	20.5	18.0	19.0	18.5	16.0	17.5
10	26.5	21.5	23.5	20.5	18.0	19.0	22.0	18.0	20.0	17.0	15.0	16.0
11	25.5	21.5	23.5	20.0	17.5	18.5	24.5	17.5	20.5	19.0	12.5	15.5
12	23.5	21.0	22.0	22.0	17.5	19.5	20.5	19.0	20.0	18.0	14.5	16.0
13	25.0	20.0	21.5	22.0	18.0	20.0	22.0	18.5	20.5	17.0	13.5	15.5
14	21.5	17.5	20.0	24.0	19.0	21.0	23.0	17.0	19.5	16.5	13.0	14.5
15	19.5	15.5	17.5	27.0	20.0	22.5	22.5	16.5	19.0	17.5	12.0	14.5
16	19.5	15.0	17.0	27.5	21.5	23.5	24.5	18.5	21.0	18.0	11.5	14.5
17	21.0	13.5	17.0	26.0	22.5	24.0	24.0	19.5	21.5	18.5	11.5	14.5
18	22.0	14.5	18.0	23.5	21.5	22.5	20.5	18.5	19.5	18.5	11.5	15.0
19	22.0	16.0	18.5	22.5	21.0	21.5	22.5	18.0	19.5	17.0	13.5	15.0
20	24.0	17.5	20.0	21.5	20.5	21.0	23.5	17.0	20.0	16.0	12.5	14.0
21	25.5	17.5	21.0	21.5	20.0	20.5	23.5	18.0	20.5	14.5	10.0	12.5
22	26.0	18.5	22.0	24.0	19.5	21.5	21.0	18.5	19.5	15.5	11.0	13.0
23	22.5	20.0	21.5	26.0	20.5	23.0	20.0	19.0	19.0	16.0	12.5	13.5
24	27.5	19.5	23.0	27.5	22.0	24.5	23.0	18.5	20.0	16.0	9.5	12.5
25	28.5	19.0	23.5	28.0	22.0	24.5	24.0	18.0	20.5	15.5	9.0	12.5
26	27.5	20.5	24.0	28.0	22.5	25.0	25.0	19.0	21.5	16.5	12.5	14.5
27	28.0	21.5	24.5	28.0	22.0	24.5	26.0	20.0	22.5	15.5	13.5	14.5
28	23.0	19.5	21.5	28.5	22.5	25.0	25.5	20.5	22.5	14.0	12.5	13.5
29	22.0	18.5	20.0	29.5	23.0	25.5	24.0	19.0	21.0	15.0	10.5	13.0
30	19.5	17.5	18.5	30.5	23.0	26.5	21.5	17.0	19.0	15.0	11.0	12.5
31	---	---	---	29.5	24.0	26.0	22.5	16.5	19.0	---	---	---
MONTH	28.5	13.5	20.7	30.5	17.5	22.4	27.0	16.5	20.6	26.0	9.0	16.0

STREAMS TRIBUTARY TO LAKE MICHIGAN
04078500 EMBARRASS RIVER NEAR EMBARRASS, WI

LOCATION.--Lat 44°43'29", long 88°44'10", in SW 1/4 sec. 18, T.26 N., R.15 E., Shawano County, Hydrologic Unit 04030202, on right bank 40 ft downstream from bridge on county road, 1.3 mi downstream from Mill Creek, and 4.0 mi northwest of Embarrass.

DRAINAGE AREA.--384 mi².

PERIOD OF RECORD.--June 1919 to September 1985, December 1993 to current year.

REVISED RECORDS.--WSP 1337: 1920-26(M), 1928, 1929-30(M), 1933-34, 1936-37, 1938(M), 1940. WDR WI-80-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 803.95 ft above sea level. Prior to Aug. 23, 1938, nonrecording gage at same site and datum. Aug. 23, 1938 to May 8, 1984, at site 40 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 10-20 and Dec. 22 to Mar. 15. Records good except those for ice-affected periods, which are poor (see page 13). Slight diurnal fluctuation caused by powerplants above station. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	178	183	166	120	130	160	550	184	155	345	150	105
2	169	182	166	120	130	170	594	176	151	296	154	105
3	160	170	161	130	140	160	579	169	136	309	145	102
4	147	163	158	120	140	160	671	164	125	283	141	98
5	136	157	160	120	140	150	800	159	121	281	144	96
6	168	154	159	120	140	150	806	185	136	247	153	94
7	221	152	158	120	140	150	757	560	107	209	154	93
8	220	152	154	120	140	150	669	1080	108	185	156	96
9	200	154	143	110	150	150	570	1220	111	236	149	90
10	181	236	130	110	150	150	435	1070	97	449	140	88
11	169	443	130	110	150	150	384	747	105	528	141	88
12	159	449	130	110	150	160	313	467	149	445	135	88
13	150	379	130	120	160	160	292	345	195	312	137	88
14	146	293	130	120	170	170	272	302	171	231	140	89
15	147	264	130	120	170	170	258	247	138	211	133	89
16	143	247	130	120	170	190	244	232	127	197	130	89
17	139	239	120	120	170	260	230	308	129	199	131	88
18	144	235	120	120	160	302	217	577	129	255	128	87
19	144	234	120	120	160	324	196	597	124	433	129	92
20	158	232	120	120	160	327	196	488	116	448	133	90
21	175	221	105	120	150	362	196	339	113	361	128	89
22	171	214	110	120	150	387	207	329	110	319	122	94
23	166	206	110	130	150	376	277	320	110	293	154	121
24	165	196	110	130	140	400	362	401	137	249	157	108
25	160	193	110	120	140	417	337	376	139	203	148	90
26	154	188	120	120	150	371	284	328	126	189	120	83
27	156	181	120	120	150	361	247	283	120	171	100	83
28	152	178	120	130	160	396	222	240	119	157	130	95
29	149	176	120	130	---	436	205	176	196	146	116	110
30	159	172	130	130	---	479	192	157	359	136	108	106
31	176	---	120	130	---	496	---	148	---	145	107	---
TOTAL	5062	6643	4090	3750	4210	8244	11562	12374	4159	8468	4213	2834
MEAN	163	221	132	121	150	266	385	399	139	273	136	94.5
MAX	221	449	166	130	170	496	806	1220	359	528	157	121
MIN	136	152	105	110	130	150	192	148	97	136	100	83

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 1999, BY WATER YEAR (WY)

MEAN	267	289	197	152	158	393	759	441	354	219	188	239
MAX	1324	932	908	377	517	1386	1892	1324	1105	826	579	886
(WY)	1987	1986	1987	1939	1986	1973	1922	1973	1943	1978	1928	1938
MIN	86.8	89.5	67.3	52.8	57.8	98.5	151	148	111	75.5	44.5	59.5
(WY)	1949	1934	1934	1959	1959	1931	1931	1931	1977	1932	1931	1933

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1919 - 1999

ANNUAL TOTAL	97624	75609	
ANNUAL MEAN	267	207	299
HIGHEST ANNUAL MEAN			515
LOWEST ANNUAL MEAN			126
HIGHEST DAILY MEAN	1920	1220	6280
LOWEST DAILY MEAN	90	83	24
ANNUAL SEVEN-DAY MINIMUM	96	88	27
INSTANTANEOUS PEAK FLOW		1250	(a) 7080
INSTANTANEOUS PEAK STAGE		5.32	(a) 12.13
10 PERCENT EXCEEDS	509	377	655
50 PERCENT EXCEEDS	170	154	192
90 PERCENT EXCEEDS	119	109	94

(a) Affected by failure of dam near Pella, 9.2 mi above station

04079000 WOLF RIVER AT NEW LONDON, WI

LOCATION.--Lat 44°23'32", long 88°44'25", in NE 1/4 SE 1/4 sec.12, T.22 N., R.14 E., Waupaca County, Hydrologic Unit 04030202, on right bank 100 ft downstream from Pearl Street bridge in New London, 0.2 mi downstream from Embarrass River, and at mile 56.3.

DRAINAGE AREA.--2,260 mi².

PERIOD OF RECORD.--March 1896 to current year. Prior to October 1913 monthly discharges only, published in WSP 1307.

REVISED RECORDS.--WSP 1114: 1943(M). WSP 1337: 1931. WDR WI-80-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 747.94 ft above sea level (levels by U.S. Army Corps of Engineers). Prior to Oct. 4, 1951, nonrecording gage.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 21, 22, and Dec. 24 to Mar. 14. Records good except those for ice-affected periods, which are poor (see page 13). Gage-height telemeter and data-collection platform at station.

COOPERATION.--Values prior to October 1913 taken from House Document 276, 72nd Congress, First Session (computed by Corps of Engineers).

EXTREMES OUTSIDE OF PERIOD OF RECORD.--Flood of Apr. 16, 1888, reached a stage of 11.6 ft, from information by U.S. Army Corps of Engineers.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1220	974	1110	700	860	1500	1670	1110	1670	1430	1340	816
2	1140	990	1100	700	860	1500	1720	1040	1750	1580	1320	792
3	1080	978	1080	720	880	1500	1830	1000	1880	1680	1290	784
4	1030	965	1060	700	900	1500	2010	978	1870	1720	1280	770
5	979	973	1040	680	900	1500	2210	957	1770	1670	1240	758
6	995	969	1030	660	900	1500	2390	984	1680	1640	1200	734
7	1030	919	1000	660	920	1400	2530	1190	1620	1600	1190	707
8	1070	877	965	660	940	1400	2630	1570	1570	1530	1170	716
9	1110	859	960	660	980	1400	2730	2020	1490	1520	1160	696
10	1120	962	997	660	1000	1400	2820	2320	1460	1520	1130	685
11	1120	1140	995	660	1100	1400	2900	2480	1510	1660	1090	672
12	1100	1320	939	680	1200	1300	2940	2560	1560	1830	1070	682
13	1040	1530	892	680	1200	1300	2960	2630	1570	1950	1070	687
14	954	1640	874	700	1300	1300	2910	2730	1570	2010	1050	679
15	900	1670	872	720	1500	1360	2820	2810	1530	1990	1040	663
16	884	1640	866	740	1600	1340	2680	2790	1470	1970	1080	659
17	890	1560	882	740	1600	1390	2510	2710	1420	1980	1120	664
18	918	1480	870	720	1600	1520	2360	2600	1350	1960	1140	661
19	885	1400	868	700	1600	1670	2140	2550	1300	2020	1160	660
20	848	1320	810	720	1600	1830	1900	2530	1260	2070	1150	658
21	823	1260	760	720	1500	1850	1700	2510	1200	2190	1110	665
22	844	1230	680	740	1500	1740	1570	2470	1140	2270	1060	663
23	906	1220	649	740	1500	1710	1550	2430	1110	2250	1010	651
24	925	1190	680	760	1400	1690	1570	2370	1120	2150	977	650
25	911	1170	700	760	1400	1690	1600	2320	1110	2010	997	663
26	898	1150	720	760	1400	1690	1570	2270	1130	1830	1030	672
27	889	1150	720	780	1500	1670	1500	2220	1130	1690	1010	687
28	894	1140	740	800	1500	1650	1390	2120	1140	1580	954	686
29	923	1120	740	820	---	1620	1280	1990	1180	1500	912	698
30	952	1130	720	820	---	1620	1190	1830	1260	1390	893	698
31	958	---	700	820	---	1640	---	1710	---	1340	850	---
TOTAL	30236	35926	27019	22380	35140	47580	63580	63799	42820	55530	34093	20876
MEAN	975	1198	872	722	1255	1535	2119	2058	1427	1791	1100	696
MAX	1220	1670	1110	820	1600	1850	2960	2810	1880	2270	1340	816
MIN	823	859	649	660	860	1300	1190	957	1110	1340	850	650
CFM	.43	.53	.39	.32	.56	.68	.94	.91	.63	.79	.49	.31
IN.	.50	.59	.44	.37	.58	.78	1.05	1.05	.70	.91	.56	.34

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1896 - 1999, BY WATER YEAR (WY)

	1896	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	1999
MEAN	1488	1623	1227	958	932	2131	3962	2779	2143	1484	1141	1329
MAX	4761	4738	3258	2149	2003	7566	9169	7452	5764	5005	4485	4544
(WY)	1987	1986	1912	1960	1984	1973	1922	1960	1993	1993	1912	1938
MIN	533	617	429	301	388	486	1157	901	595	427	443	429
(WY)	1949	1934	1899	1911	1900	1896	1931	1931	1988	1910	1933	1933

STREAMS TRIBUTARY TO LAKE MICHIGAN
04079000 WOLF RIVER AT NEW LONDON, WI--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1896 - 1999	
ANNUAL TOTAL	556054		478979		1772	
ANNUAL MEAN	1523		1312		3200	
HIGHEST ANNUAL MEAN					866	
LOWEST ANNUAL MEAN					15500	
HIGHEST DAILY MEAN	8140	Apr 5	2960	Apr 13	216	Apr 13 1922
LOWEST DAILY MEAN	455	Sep 13	649	Dec 23	337	Aug 27 1931
ANNUAL SEVEN-DAY MINIMUM	494	Sep 8	658	Sep 18		Sep 3 1933
INSTANTANEOUS PEAK FLOW			2960	Apr 13		
INSTANTANEOUS PEAK STAGE			6.34	Apr 13	(a) 11.83	Apr 3 1979
ANNUAL RUNOFF (CFSM)	.67		.58		.80	
ANNUAL RUNOFF (INCHES)	9.15		7.88		10.85	
10 PERCENT EXCEEDS	3280		2140		3510	
50 PERCENT EXCEEDS	1020		1150		1280	
90 PERCENT EXCEEDS	659		700		710	

(a) Backwater from ice

STREAMS TRIBUTARY TO LAKE MICHIGAN

85

04082400 FOX RIVER AT OSHKOSH, WI

LOCATION.--Lat 44°00'49", long 88°32'27" in SW 1/4 SW 1/4 sec.24, T.18 N., R.16 E., Winnebago County, Hydrologic Unit 04030201, on right bank about 400 ft downstream from U.S. Highway 45 and State Highway 26 bridge, at Oshkosh.

DRAINAGE AREA.--5,310 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1991 to current year.

GAGE.--Acoustical Velocity Meter (AVM) system. Single-path transducer installation.

REMARKS.--Estimated daily discharges: Dec. 16, 17, and Jan. 5, 6. Records fair, except those for days with negative mean daily flow, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3670	1430	-719	1560	2540	3150	3150	3250	2650	4340	4440	3680
2	-1160	156	3210	1750	2900	4810	4690	1380	7300	1940	4340	1290
3	-109	4700	3290	1540	2480	5200	1360	903	3330	3270	3740	1910
4	659	4380	1240	1390	3650	2250	5970	510	3310	4310	5210	743
5	-798	2260	3800	1300	2170	3210	356	2470	6660	4210	4290	5000
6	6850	3390	5380	1400	3120	4580	9970	7110	5440	5410	1370	902
7	4610	682	35	1530	2630	3720	5910	4420	7010	1540	6640	-829
8	-930	2810	3510	1840	2720	1630	1540	7020	3050	-730	4460	5280
9	2980	-1750	2290	1700	3480	4080	4640	669	3930	8290	3520	2320
10	2350	2750	3770	1850	1640	4580	4060	1990	3330	3410	5700	1200
11	103	8420	1670	1650	4680	3650	9130	4520	3810	3610	3820	-2150
12	6660	1210	2040	1780	5330	3150	8990	2530	5020	3950	1610	3050
13	3780	2010	2380	1680	3430	3150	6480	6000	2480	4340	6320	2740
14	-3490	6010	2540	1650	4230	3200	6480	6100	6040	4270	2980	2130
15	-648	1430	3210	1640	4760	3000	6220	4130	2750	4600	2570	-98
16	3740	3820	1500	1790	5020	3210	5860	4910	2690	5060	4730	855
17	504	3430	800	1820	5270	7310	7730	5370	3740	4290	4610	1730
18	7750	-1060	436	2000	4250	2540	6210	7260	1920	3760	355	1580
19	1570	11100	3970	1800	4760	856	5510	2010	1250	6140	4410	3320
20	1030	4210	1070	1910	4830	4740	5380	3580	3960	5580	4030	191
21	783	-1970	3170	2130	4820	6390	3870	6050	1630	8090	3400	1930
22	1400	4480	-380	2250	3790	2410	959	3600	3750	7510	2540	2030
23	1630	6550	1460	2290	4110	4130	7560	8700	2810	7830	371	278
24	1840	-1200	1430	2050	4590	3620	6810	8060	4440	8510	4340	388
25	1470	5700	1530	2260	4330	2740	5530	4620	1860	5870	3800	-284
26	2240	2850	1690	2120	3610	3270	3110	1170	2660	8070	2400	3360
27	1750	2730	1800	2520	4800	2560	1570	4110	3210	6470	3800	1660
28	1390	3090	1550	2600	6110	4400	4070	3350	3010	6750	2710	2420
29	43	2340	2110	2450	---	5350	6040	4130	3070	5430	168	3050
30	5050	7190	1520	2480	---	1750	4340	2770	990	3730	1960	2780
31	1420	---	1660	2390	---	2770	---	5190	---	7230	2910	---
TOTAL	58137	93148	62962	59120	110050	111406	153495	127882	107100	157080	107544	52456
MEAN	1875	3105	2031	1907	3930	3594	5116	4125	3570	5067	3469	1749
MAX	7750	11100	5380	2600	6110	7310	9970	8700	7300	8510	6640	5280
MIN	-3490	-1970	-719	1300	1640	856	356	510	990	-730	168	-2150
CFSM	.35	.58	.38	.36	.74	.68	.96	.78	.67	.95	.65	.33
IN.	.41	.65	.44	.41	.77	.78	1.08	.90	.75	1.10	.75	.37

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1999, BY WATER YEAR (WY)

	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	3434	4272	3584	2704	3032	5254	8525	6345
MAX	6411	6201	6811	3673	3930	6348	12870	11050
(WY)	1996	1996	1993	1992	1999	1992	1993	1993
MIN	1875	2520	2031	1907	1870	3594	5116	3333
(WY)	1999	1998	1999	1999	1995	1999	1999	1998

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1992 - 1999
ANNUAL TOTAL	1272979	1200380	
ANNUAL MEAN	3488	3289	4504
HIGHEST ANNUAL MEAN			7221
LOWEST ANNUAL MEAN			3289
HIGHEST DAILY MEAN	14600	Apr 10	18600
LOWEST DAILY MEAN	-3490	Oct 14	-6270
ANNUAL SEVEN-DAY MINIMUM	756	Jul 28	756
ANNUAL RUNOFF (CFSM)	.66	.62	.85
ANNUAL RUNOFF (INCHES)	8.92	8.41	11.52
10 PERCENT EXCEEDS	7140	6260	8940
50 PERCENT EXCEEDS	2730	3150	3710
90 PERCENT EXCEEDS	486	793	1570

STREAMS TRIBUTARY TO LAKE MICHIGAN
04082400 FOX RIVER AT OSHKOSH, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: April 1992 to current year.

INSTRUMENTATION.--Continuous water temperature recorder since April 1992.

REMARKS.--Records represent water temperature at sensor within 0.5°C.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum observed, 30.5°C, July 30, 31, 1999; minimum observed, 0.0°C, for many days.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 30.5°C, July 30, 31; minimum observed, 0.0°C, Dec. 21-23, Feb. 12, 13, and Mar. 6.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	18.0	16.5	17.0	12.5	12.0	12.0	7.5	6.0	6.5	1.0	1.0	1.0
2	16.5	16.0	16.5	12.0	10.0	11.0	7.5	7.0	7.5	1.0	1.0	1.0
3	16.0	15.0	15.5	11.0	8.5	9.0	8.0	7.5	8.0	1.0	1.0	1.0
4	15.5	14.5	15.0	8.5	7.0	7.5	8.0	8.0	8.0	1.5	1.0	1.0
5	14.5	14.5	14.5	7.0	5.5	6.5	8.5	8.0	8.5	1.5	1.0	1.0
6	14.5	14.0	14.5	6.0	5.5	5.5	8.5	7.5	8.5	1.0	1.0	1.0
7	14.0	13.5	14.0	5.5	5.5	5.5	7.5	6.5	7.0	1.0	1.0	1.0
8	14.5	13.5	14.0	5.5	5.5	5.5	7.0	5.0	6.0	1.0	1.0	1.0
9	14.0	13.5	13.5	6.0	5.5	5.5	5.5	4.5	5.0	1.0	1.0	1.0
10	14.5	13.5	14.0	7.0	5.5	6.5	4.5	3.0	4.0	1.0	1.0	1.0
11	15.0	14.0	14.5	5.5	4.5	5.0	3.5	3.0	3.0	1.0	.5	1.0
12	15.0	14.0	14.0	5.5	4.0	5.0	3.0	2.0	2.5	1.0	.5	1.0
13	14.0	12.5	13.0	4.5	3.5	4.0	2.5	2.0	2.5	1.0	.5	.5
14	12.5	12.0	12.5	4.5	3.5	4.0	3.0	2.5	2.5	1.0	.5	.5
15	12.5	12.0	12.0	4.5	4.0	4.5	3.0	2.5	2.5	1.0	.5	.5
16	13.0	12.0	12.5	4.5	4.0	4.5	---	---	---	1.0	.5	.5
17	14.5	13.0	13.5	4.0	4.0	4.0	---	---	---	.5	.5	.5
18	14.5	14.0	14.0	5.5	4.0	4.5	2.5	1.5	2.0	.5	.5	.5
19	14.0	12.5	13.0	5.5	4.5	5.0	1.5	.5	1.0	.5	.5	.5
20	13.0	11.5	12.0	4.5	3.0	3.5	1.0	.5	1.0	.5	.5	.5
21	12.0	11.0	11.5	3.5	3.0	3.5	.5	.0	.0	.5	.5	.5
22	11.0	10.0	10.5	3.5	2.5	3.0	.5	.0	.0	.5	.5	.5
23	10.5	10.0	10.5	4.0	3.0	3.5	.5	.0	.5	.5	.5	.5
24	10.5	10.0	10.5	4.0	3.5	4.0	.5	.5	.5	1.0	.5	.5
25	12.0	10.5	11.0	4.5	4.0	4.0	.5	.5	.5	1.0	.5	.5
26	12.5	11.5	12.0	4.5	4.0	4.0	1.0	.5	.5	.5	.5	.5
27	13.0	12.0	12.5	5.0	3.5	4.0	1.0	.5	1.0	.5	.5	.5
28	13.5	12.5	13.0	5.5	4.5	5.0	1.0	1.0	1.0	.5	.5	.5
29	13.0	12.0	12.5	6.5	5.0	5.5	1.0	1.0	1.0	1.0	.5	.5
30	13.0	12.5	12.5	8.0	6.5	7.5	1.0	1.0	1.0	1.0	.5	.5
31	12.5	12.5	12.5	---	---	---	1.0	1.0	1.0	.5	.5	.5
MONTH	18.0	10.0	13.2	12.5	2.5	5.4	---	---	---	1.5	.5	.7

STREAMS TRIBUTARY TO LAKE MICHIGAN
04082400 FOX RIVER AT OSHKOSH, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	.5	.5	.5	1.5	.5	1.0	11.5	10.5	11.0	16.0	14.5	15.5
2	1.0	.5	.5	2.0	1.5	1.5	14.0	11.0	12.0	17.5	15.5	16.5
3	1.0	.5	.5	2.0	1.0	1.5	14.0	13.0	13.5	18.0	15.5	16.5
4	1.0	.5	.5	1.5	1.0	1.0	13.0	12.0	12.5	18.0	16.0	17.5
5	.5	.5	.5	1.5	1.0	1.5	12.5	9.0	11.5	18.0	17.5	17.5
6	1.0	.5	1.0	1.0	.0	.5	10.5	9.0	9.5	18.0	17.0	17.5
7	1.0	.5	1.0	1.5	.5	1.0	10.5	8.5	9.5	17.0	15.5	16.5
8	1.0	.5	1.0	1.5	.5	1.0	11.0	10.0	10.5	15.5	15.0	15.0
9	1.5	.5	1.0	1.0	.5	.5	10.5	9.5	10.0	16.0	14.5	15.0
10	1.5	.5	1.0	1.5	.5	1.0	10.0	9.0	9.0	16.5	15.0	15.5
11	2.5	1.0	1.5	1.5	.5	1.0	9.5	8.0	8.5	16.0	15.5	16.0
12	1.5	.0	.5	2.0	1.0	1.5	9.0	7.5	8.0	16.0	15.0	16.0
13	1.0	.0	.5	2.0	1.5	2.0	10.0	8.5	9.0	15.5	14.0	14.5
14	1.5	.5	1.0	2.5	2.0	2.5	12.0	9.5	10.5	15.5	14.0	14.5
15	1.5	1.0	1.5	3.5	2.5	3.0	12.0	11.0	11.5	16.0	15.5	15.5
16	1.0	1.0	1.0	4.0	3.0	3.5	11.5	10.5	11.0	17.5	16.0	16.5
17	1.0	.5	1.0	5.0	2.0	4.0	11.5	10.0	11.0	18.0	17.5	18.0
18	1.0	.5	.5	4.0	2.0	3.0	10.5	9.5	10.0	18.5	17.5	18.0
19	1.0	.5	.5	4.5	2.5	3.5	11.0	10.0	10.5	19.0	18.0	18.5
20	1.0	.5	.5	4.0	3.0	3.5	11.0	10.5	11.0	19.0	18.5	19.0
21	1.0	.5	1.0	4.0	3.0	3.5	11.5	11.0	11.0	18.5	18.0	18.5
22	1.0	.5	1.0	4.0	3.5	3.5	11.0	10.0	10.5	19.5	18.5	19.0
23	1.0	.5	1.0	5.0	3.5	4.0	10.0	8.5	9.5	19.5	17.5	18.5
24	1.0	.5	1.0	5.5	4.5	5.0	10.5	8.5	9.5	17.5	15.5	16.0
25	1.0	.5	1.0	5.0	3.5	4.5	12.5	9.5	11.0	15.5	14.0	14.5
26	1.5	.5	1.0	5.0	3.5	4.0	14.0	11.5	12.5	15.5	14.0	15.0
27	1.5	1.0	1.0	5.5	4.5	5.0	13.0	12.5	12.5	17.5	15.5	16.5
28	1.0	1.0	1.0	6.0	5.0	6.0	13.5	12.0	12.5	19.5	17.5	18.5
29	---	---	---	7.5	5.5	6.5	14.0	12.5	13.0	21.5	19.0	20.0
30	---	---	---	8.0	6.0	7.5	15.5	13.5	14.5	22.5	21.5	21.5
31	---	---	---	10.5	8.0	9.0	---	---	---	22.5	22.0	22.5
MONTH	2.5	.0	.9	10.5	.0	3.1	15.5	7.5	10.9	22.5	14.0	17.1
	JUNE			JULY			AUGUST			SEPTEMBER		
1	22.5	21.5	22.0	23.5	22.5	23.0	29.0	27.5	28.0	23.0	22.0	22.5
2	21.5	20.0	20.5	23.5	23.0	23.0	27.5	26.5	27.0	24.0	22.5	23.0
3	21.0	20.0	20.5	23.5	23.0	23.5	27.0	25.5	26.0	25.0	23.0	24.0
4	20.5	19.5	20.0	26.0	23.5	24.5	26.0	25.0	25.5	25.0	23.5	24.5
5	22.0	19.5	20.0	27.5	26.0	26.5	25.5	25.0	25.5	25.0	23.5	24.0
6	23.5	21.5	22.5	28.0	27.0	27.5	26.0	25.0	25.5	24.5	23.5	24.0
7	24.5	23.0	23.5	27.5	25.5	26.5	25.0	24.0	24.0	24.0	23.0	23.5
8	26.0	24.0	24.5	26.5	25.0	25.5	24.0	23.0	23.5	23.5	22.5	23.0
9	26.0	24.5	25.5	25.5	24.0	25.0	23.0	22.0	22.5	23.0	21.0	22.0
10	26.5	25.5	26.0	25.0	24.0	24.5	22.5	22.0	22.0	21.0	19.0	20.0
11	27.0	26.0	26.5	25.0	24.0	24.5	24.0	22.5	23.0	20.5	19.0	19.5
12	27.0	26.5	26.5	26.5	25.0	25.5	24.0	24.0	24.0	20.0	18.5	19.5
13	26.5	25.5	26.0	26.0	25.0	25.5	24.0	22.5	23.0	18.5	17.5	18.0
14	25.5	23.5	24.5	25.5	24.5	24.5	22.5	21.5	22.0	18.0	16.5	17.0
15	24.0	22.0	23.0	26.0	24.5	25.0	23.0	22.0	22.0	17.5	16.5	17.0
16	22.0	20.5	21.0	27.0	26.0	26.0	23.0	22.0	22.5	18.0	16.5	17.0
17	20.5	19.5	20.0	27.5	26.5	27.0	23.5	22.5	23.0	18.5	17.0	17.5
18	21.0	20.0	20.5	27.5	26.5	27.0	23.5	22.5	23.0	18.5	18.0	18.0
19	21.5	20.0	20.5	26.5	26.0	26.0	23.0	22.0	22.5	18.5	17.5	18.0
20	21.5	20.0	20.5	26.0	25.5	26.0	23.5	22.5	23.0	18.0	17.0	17.5
21	23.5	21.0	22.0	25.5	25.0	25.5	23.5	23.0	23.0	17.0	15.5	16.5
22	23.0	21.5	22.0	27.0	25.0	26.0	24.0	23.5	23.5	16.0	15.5	16.0
23	23.5	23.0	23.5	27.5	26.5	27.0	23.5	23.0	23.0	17.0	15.5	16.0
24	25.0	23.0	24.0	29.0	27.0	28.0	23.5	22.5	23.0	16.5	16.0	16.5
25	27.0	24.5	25.5	29.5	28.0	28.5	24.5	22.5	23.0	17.0	16.0	16.5
26	27.0	26.0	26.5	29.0	27.5	28.5	25.0	23.5	24.0	17.5	16.0	16.5
27	27.0	26.5	26.5	29.5	28.0	28.5	25.5	24.0	24.5	17.5	17.0	17.5
28	27.0	25.0	26.5	29.5	28.5	29.0	26.5	25.0	25.5	17.0	16.0	16.5
29	25.0	23.5	23.5	29.0	28.0	28.5	26.0	25.0	26.0	16.5	15.5	16.0
30	23.5	23.0	23.0	30.5	29.0	29.5	25.0	23.0	24.5	16.0	15.0	15.5
31	---	---	---	30.5	29.0	29.5	23.0	22.5	22.5	---	---	---
MONTH	27.0	19.5	23.2	30.5	22.5	26.3	29.0	21.5	23.9	25.0	15.0	19.1

STREAMS TRIBUTARY TO LAKE MICHIGAN
04082500 LAKE WINNEBAGO AT OSHKOSH, WI

LOCATION.--Lat 44°00'35", long 88°31'38", in NE 1/4 NE 1/4 sec.25, T.18 N., R.16 E., Winnebago County, Hydrologic Unit 04030203, at 905 Bay Shore Drive, 800 ft east of mouth of the upper Fox River.

DRAINAGE AREA.--5,880 mi², at lake outlet at Menasha Dam. Area of Lake Winnebago, 215 mi².

PERIOD OF RECORD.--October 1938 to current year in reports of Geological Survey. Records from 1882 to 1938 in files of Geological Survey and U.S. Army Corps of Engineers. A report on Fox River by U.S. Army Corps of Engineers, published as House Document No. 146, 67th Congress, 2nd session, contains semi-monthly records of inflow of Lake Winnebago for the period 1896-1917.

REVISED RECORD.--WDR WI-83-1: Drainage area.

GAGE.--Water-stage recorder. Nonrecording gage read once daily October 1938 to October 1978. Datum of gage is 745.05 ft above mean tide at New York City (levels by U.S. Army Corps of Engineers). Datum of Deuchman gage is 745.00 ft above mean tide at New York City.

REMARKS.--No estimated daily gage heights. Records good (see page 13). Lake elevations controlled by dams at Menasha and Neenah, which are operated in the interest of navigation. Crests of both dams are at elevation 746.73 ft. Present limits of regulation are from 21 1/4 in. above the crest of Menasha dam to crest during navigation season, plus additional 18 in. below crest during winter. Oshkosh staff gage gives true level of lake, while Deuchman gage readings are affected by loss of head in the channel between lake and dam. Data-collection platform at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 5.33 ft (Deuchman gage) Nov. 8, 1881; minimum observed, -2.00 ft (Deuchman gage) Nov. 28, 1891.

EXTREMES FOR CURRENT YEAR.--Maximum daily mean gage height, 3.22 ft, July 22; minimum recorded, 1.65 ft, Feb. 11 and Mar. 28.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.62	2.79	2.46	2.11	1.85	1.91	1.96	2.63	3.04	2.94	3.04	2.92
2	2.63	2.82	2.45	2.12	1.83	1.89	1.98	2.63	3.06	2.98	3.03	2.93
3	2.67	2.75	2.43	2.15	1.81	1.90	2.11	2.62	3.09	3.00	3.01	2.92
4	2.63	2.69	2.42	2.15	1.80	1.89	2.19	2.62	3.06	3.02	3.01	2.92
5	2.65	2.69	2.40	2.14	1.77	1.86	2.29	2.61	3.00	3.02	3.03	2.90
6	2.65	2.66	2.38	2.14	1.75	1.85	2.13	2.62	2.99	3.07	3.00	2.91
7	2.70	2.66	2.40	2.13	1.73	1.84	2.32	2.64	2.95	3.08	2.94	2.89
8	2.73	2.65	2.36	2.11	1.72	1.84	2.40	2.71	2.98	3.07	2.95	2.83
9	2.71	2.66	2.35	2.10	1.71	1.82	2.52	2.78	2.97	3.03	2.89	2.82
10	2.73	2.51	2.33	2.09	1.70	1.83	2.50	2.78	2.96	3.07	2.87	2.79
11	2.74	2.57	2.31	2.08	1.72	1.83	2.49	2.78	2.99	3.05	2.89	2.81
12	2.69	2.70	2.31	2.08	1.79	1.83	2.52	2.85	2.98	3.01	2.89	2.76
13	2.72	2.68	2.30	2.08	1.80	1.83	2.60	2.85	3.01	2.96	2.93	2.75
14	2.75	2.66	2.27	2.07	1.82	1.82	2.64	2.83	3.00	2.90	2.95	2.74
15	2.74	2.68	2.26	2.05	1.83	1.82	2.67	2.86	2.97	2.89	2.93	2.75
16	2.71	2.69	2.24	2.03	1.85	1.82	2.71	2.87	2.97	2.86	2.89	2.75
17	2.74	2.71	2.24	2.03	1.88	1.79	2.67	3.01	2.95	2.91	2.91	2.74
18	2.67	2.71	2.20	2.05	1.89	1.84	2.68	3.05	2.93	2.88	2.94	2.72
19	2.74	2.55	2.19	2.04	1.88	1.83	2.68	3.12	2.90	2.96	2.96	2.69
20	2.75	2.67	2.21	2.02	1.89	1.82	2.66	3.09	2.87	3.05	2.95	2.73
21	2.75	2.66	2.09	1.99	1.89	1.84	2.64	3.08	2.85	3.19	2.97	2.71
22	2.74	2.60	2.12	2.00	1.89	1.87	2.71	3.10	2.82	3.22	2.97	2.68
23	2.74	2.56	2.15	2.03	1.88	1.85	2.70	3.04	2.82	3.17	2.99	2.70
24	2.73	2.61	2.14	2.04	1.88	1.90	2.61	3.08	2.85	3.12	3.01	2.69
25	2.75	2.55	2.13	2.03	1.89	1.91	2.60	3.05	2.86	3.09	3.02	2.66
26	2.76	2.56	2.13	2.01	1.88	1.91	2.59	3.04	2.84	3.00	3.02	2.64
27	2.77	2.54	2.12	1.98	1.89	1.92	2.60	3.01	2.86	2.97	3.01	2.73
28	2.79	2.52	2.12	1.96	1.90	1.89	2.60	3.01	2.95	2.94	3.01	2.77
29	2.78	2.50	2.12	1.93	---	1.91	2.58	3.00	2.95	2.96	3.04	2.77
30	2.75	2.43	2.12	1.90	---	1.95	2.60	2.99	2.93	2.98	2.97	2.71
31	2.78	---	2.12	1.88	---	1.94	---	2.97	---	3.00	2.92	---
MEAN	2.72	2.63	2.25	2.05	1.83	1.86	2.50	2.88	2.95	3.01	2.97	2.78
MAX	2.79	2.82	2.46	2.15	1.90	1.95	2.71	3.12	3.09	3.22	3.04	2.93
MIN	2.62	2.43	2.09	1.88	1.70	1.79	1.96	2.61	2.82	2.86	2.87	2.64

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04083420 PARSONS CREEK, UPSTREAM SITE, NEAR FOND DU LAC, WI

LOCATION.--Lat 43°41'36", long 88°28'19", in SE 1/4 SW 1/4 sec.9, T.14 N., R.17 E., Fond du Lac County, Hydrologic Unit 04030203, on left downstream side of culvert at Hickory Road, 5.9 mi south of Fond du Lac.

DRAINAGE AREA.--5.3 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1997 to September 1999.

GAGE.--Water-stage recorder. Elevation of gage is 875 ft above sea level, from topographic map.

REMARKS.--

DECEMBER 1997 TO SEPTEMBER 1998.--Estimated daily discharges: Dec. 1-31 and ice-affected periods, Jan. 1-19, Feb. 6-7, and Mar. 8-12. Records good except those for estimated periods, which are poor (see page 13).

1999 WATER YEAR.--Estimated daily discharges: Ice-affected periods, Dec. 21 to Jan. 26, Jan. 29, Feb. 13, 20-22, 24, and Mar. 6-7. Records good except those for ice-affected periods, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	1.1	1.1	1.2	2.4	18	7.3	3.0	2.1	1.9	1.5
2	---	---	1.1	1.2	1.5	2.4	10	6.1	2.8	2.0	1.8	1.5
3	---	---	1.3	1.3	1.3	2.3	7.8	5.3	2.7	2.1	1.7	1.5
4	---	---	1.3	1.4	1.2	2.2	6.5	5.2	2.5	2.5	1.8	1.5
5	---	---	1.3	2.4	1.1	2.0	5.7	4.7	2.5	2.0	2.1	1.4
6	---	---	1.2	1.9	1.0	2.0	5.2	4.6	2.6	2.2	3.6	1.4
7	---	---	1.2	1.5	1.0	1.9	4.9	5.2	2.5	2.3	2.3	1.4
8	---	---	1.1	1.3	1.0	1.8	4.7	5.7	2.3	2.3	2.0	1.4
9	---	---	1.1	1.3	1.0	1.7	4.8	4.5	2.8	2.2	1.8	1.4
10	---	---	1.1	1.2	1.0	1.6	4.3	4.1	2.8	2.1	1.8	1.3
11	---	---	1.1	1.1	1.2	1.6	4.2	3.9	4.1	2.0	1.7	1.3
12	---	---	1.1	1.1	1.3	1.5	4.1	3.8	3.9	2.0	1.7	1.3
13	---	---	1.1	1.1	1.2	1.5	4.1	3.8	2.8	2.0	1.7	1.3
14	---	---	1.1	1.1	1.2	1.4	4.6	3.5	2.5	2.0	1.7	3.0
15	---	---	1.1	1.1	1.8	1.4	20	3.3	2.3	2.3	1.7	2.5
16	---	---	1.1	1.1	3.4	1.3	32	3.5	2.2	2.2	1.7	1.6
17	---	---	1.2	1.1	8.8	1.3	8.3	3.2	2.1	2.2	2.1	1.4
18	---	---	1.1	1.1	6.9	12	6.4	3.0	2.6	2.2	1.8	1.2
19	---	---	1.1	1.1	4.5	11	5.6	2.9	3.6	2.3	1.7	1.4
20	---	---	1.1	1.1	3.7	6.9	4.9	2.8	2.3	2.1	1.6	1.2
21	---	---	1.1	1.1	3.3	6.0	4.6	2.7	2.2	3.3	1.6	1.2
22	---	---	1.1	1.1	3.0	5.1	4.5	2.7	2.1	2.3	1.9	1.2
23	---	---	1.1	1.1	2.6	4.3	4.6	2.6	2.0	2.2	2.0	1.2
24	---	---	1.1	1.1	3.1	4.0	4.4	2.8	2.3	2.1	1.8	1.3
25	---	---	1.1	1.1	2.4	4.1	4.1	2.7	1.9	2.6	1.6	1.3
26	---	---	1.1	1.1	2.3	4.4	9.4	2.5	1.8	2.2	1.5	1.2
27	---	---	1.1	1.1	5.4	3.5	5.9	2.5	3.3	2.1	1.5	1.2
28	---	---	1.1	1.1	3.2	3.0	4.9	3.0	4.9	1.9	1.7	1.2
29	---	---	1.1	1.1	---	2.7	4.5	3.0	2.8	1.9	1.6	1.1
30	---	---	1.1	1.0	---	45	4.6	2.8	2.5	1.9	1.5	1.7
31	---	---	1.1	1.0	---	116	---	4.6	---	1.9	1.5	---
TOTAL	---	---	35.0	37.5	70.6	258.3	217.6	118.3	80.7	67.5	56.4	43.1
MEAN	---	---	1.13	1.21	2.52	8.33	7.25	3.82	2.69	2.18	1.82	1.44
MAX	---	---	1.3	2.4	8.8	116	32	7.3	4.9	3.3	3.6	3.0
MIN	---	---	1.1	1.0	1.0	1.3	4.1	2.5	1.8	1.9	1.5	1.1
CFSM	---	---	.21	.23	.48	1.57	1.37	.72	.51	.41	.34	.27
IN.	---	---	.25	.26	.50	1.81	1.53	.83	.57	.47	.40	.30
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1998, BY WATER YEAR (WY)												
MEAN	---	---	1.13	1.21	2.52	8.33	7.25	3.82	2.69	2.18	1.82	1.44
MAX	---	---	1.13	1.21	2.52	8.33	7.25	3.82	2.69	2.18	1.82	1.44
(WY)	---	---	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998
MIN	---	---	1.13	1.21	2.52	8.33	7.25	3.82	2.69	2.18	1.82	1.44
(WY)	---	---	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(DECEMBER 1997-SEPTEMBER 1998)

ANNUAL TOTAL	985.0
ANNUAL MEAN	3.24
HIGHEST DAILY MEAN	116 Mar 31
LOWEST DAILY MEAN	1.0 (a) Jan. 30,31
ANNUAL SEVEN-DAY MINIMUM	1.0 Feb 4
INSTANTANEOUS PEAK FLOW	(b) 340 Mar 31
INSTANTANEOUS PEAK STAGE	(c) 9.78 Mar 31
INSTANTANEOUS LOW FLOW	.42 Feb 7
ANNUAL RUNOFF (CFSM)	.61
ANNUAL RUNOFF (INCHES)	6.91
10 PERCENT EXCEEDS	4.9
50 PERCENT EXCEEDS	2.0
90 PERCENT EXCEEDS	1.1

(a) Also occurred FEB. 6-10

(b) From rating curve extended above 30 ft³/s on basis of slope-area measurement of peak flow

(c) From floodmark

STREAMS TRIBUTARY TO LAKE MICHIGAN
04083420 PARSONS CREEK, UPSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	1.3	1.5	1.2	1.4	1.7	1.4	2.5	2.6	3.5	2.2	1.9
2	1.3	1.4	1.5	1.2	3.1	1.7	1.5	2.3	3.5	2.1	2.2	1.8
3	1.3	1.3	1.5	1.2	3.6	1.6	14	2.3	2.7	2.4	2.2	1.8
4	1.3	1.3	1.5	1.2	4.1	1.5	15	2.2	2.5	2.0	2.7	1.8
5	2.8	1.3	1.4	1.2	3.7	1.6	6.0	2.3	2.4	1.7	2.4	1.8
6	3.4	1.3	1.5	1.2	1.8	1.5	5.0	3.6	3.0	1.8	2.3	1.8
7	2.1	1.3	1.5	1.2	1.8	1.4	3.8	3.4	3.9	1.6	2.2	1.8
8	1.7	1.1	1.4	1.2	2.0	1.4	3.3	2.9	2.4	1.9	2.3	1.8
9	1.5	1.3	1.5	1.2	4.0	1.3	6.9	2.6	2.2	7.6	2.2	1.8
10	1.5	5.4	1.4	1.2	4.0	1.4	4.1	2.3	2.3	2.1	2.6	1.9
11	1.3	1.9	1.5	1.2	18	1.5	5.2	2.2	2.7	1.9	2.3	1.8
12	1.3	1.5	1.4	1.2	8.0	1.5	4.7	2.4	2.4	1.9	2.2	1.9
13	1.2	1.5	1.2	1.2	3.9	1.4	3.7	2.2	2.3	1.8	2.3	1.9
14	1.2	1.4	1.2	1.2	3.1	1.4	3.4	2.0	2.2	2.1	2.2	1.8
15	1.2	1.3	1.5	1.2	2.9	1.5	3.2	2.0	2.0	2.1	2.1	1.7
16	1.1	1.8	1.3	1.2	2.8	1.6	2.9	2.1	2.0	2.1	2.1	1.7
17	1.4	1.7	1.3	2.5	2.5	2.0	2.6	30	2.0	2.8	2.0	1.7
18	1.5	1.7	1.3	1.8	2.1	1.9	2.5	10	1.9	2.3	2.0	1.7
19	1.4	1.8	1.1	1.4	2.0	1.5	2.4	5.4	1.9	30	2.1	1.7
20	1.4	1.5	1.1	1.2	1.9	1.6	2.3	3.9	1.8	4.6	2.0	1.8
21	1.5	1.5	1.2	1.2	1.8	1.5	2.3	3.6	1.7	16	1.9	1.8
22	1.4	1.5	1.2	4.0	1.7	1.4	6.9	3.5	1.8	4.2	1.9	1.7
23	1.3	1.6	1.2	10	1.7	1.5	27	3.9	2.1	3.2	2.0	1.7
24	1.3	1.5	1.2	4.0	1.7	1.4	6.2	3.6	1.9	2.9	2.0	1.7
25	1.3	1.5	1.2	2.7	1.6	1.4	4.6	3.2	1.7	2.5	1.9	1.7
26	1.2	1.4	1.2	2.2	1.7	1.3	3.8	2.9	1.7	2.6	1.8	1.9
27	1.7	1.5	1.3	2.1	2.1	1.2	3.3	2.7	1.7	2.5	1.8	3.1
28	1.3	1.5	1.5	2.1	1.9	1.3	3.0	2.6	1.7	2.4	1.8	2.6
29	1.4	1.5	1.4	1.7	---	1.3	2.8	2.4	1.7	2.4	1.8	2.1
30	1.3	1.8	1.2	1.4	---	1.3	2.5	2.4	1.6	2.2	1.8	1.8
31	1.3	---	1.2	1.2	---	1.4	---	2.7	---	2.3	1.9	---
TOTAL	46.3	48.4	41.4	58.7	90.9	46.0	156.3	122.1	66.3	121.5	65.2	56.0
MEAN	1.49	1.61	1.34	1.89	3.25	1.48	5.21	3.94	2.21	3.92	2.10	1.87
MAX	3.4	5.4	1.5	10	18	2.0	27	30	3.9	30	2.7	3.1
MIN	1.1	1.1	1.1	1.2	1.4	1.2	1.4	2.0	1.6	1.6	1.8	1.7
CFSM	.28	.30	.25	.36	.61	.28	.98	.74	.42	.74	.40	.35
IN.	.32	.34	.29	.41	.64	.32	1.10	.86	.47	.85	.46	.39

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
MEAN	1.49	1.61	1.23	1.55	2.88	4.91	6.23	3.88	2.45	3.05	1.96	1.65
MAX	1.49	1.61	1.34	1.89	3.25	8.33	7.25	3.94	2.69	3.92	2.10	1.87
(WY)	1999	1999	1999	1999	1999	1998	1998	1999	1998	1999	1999	1999
MIN	1.49	1.61	1.13	1.21	2.52	1.48	5.21	3.82	2.21	2.18	1.82	1.44
(WY)	1999	1999	1998	1998	1998	1999	1999	1998	1999	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1998 - 1999

ANNUAL TOTAL	1086.1	919.1	
ANNUAL MEAN	2.98	2.52	2.85
HIGHEST ANNUAL MEAN			3.24
LOWEST ANNUAL MEAN			2.52
HIGHEST DAILY MEAN	116	30	116
LOWEST DAILY MEAN	1.0 (b) Jan. 30, 31	1.1 (c) Oct 16	1.0 (b) Jan. 30, 31
ANNUAL SEVEN-DAY MINIMUM	1.0 Feb 4	1.2 Dec 19	1.0 Feb 4
INSTANTANEOUS PEAK FLOW		105 May 17	(d) 340 May 17
INSTANTANEOUS PEAK STAGE		(e) 8.42 May 17	(e) 9.78 May 17
INSTANTANEOUS LOW FLOW		.28 Mar 6	.28 Mar 6
ANNUAL RUNOFF (CFSM)	.56	.48	.54
ANNUAL RUNOFF (INCHES)	7.62	6.45	7.30
10 PERCENT EXCEEDS	4.7	3.7	4.5
50 PERCENT EXCEEDS	1.8	1.8	1.9
90 PERCENT EXCEEDS	1.2	1.2	1.2

(a) Also occurred July 19

(b) Also occurred Feb. 6-10

(c) Also occurred Nov. 8, Dec. 19 and 20

(d) From rating curve extended above 30 ft³/s on basis of slope-area measurement of peak flow

(e) From floodmark

04083420 PARSONS CREEK, UPSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 30, 1997 to September 1999.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: April 1998 to current year.

SUSPENDED-SOLIDS DISCHARGE: December 1997 to July 1999.

TOTAL-PHOSPHORUS DISCHARGE: December 1997 to July 1999.

INSTRUMENTATION.--Continuous water-temperature recorder since April 1998. Stage-activated water-quality sampler since December 1997.

REMARKS.--Chemical analyses by the Wisconsin State Laboratory of Hygiene. Samples are point samples unless otherwise indicated. Records represent water temperature at sensor within 0.5°C.

EXTREMES FOR CURRENT PERIOD.--

DECEMBER 1997-SEPTEMBER 1998

WATER TEMPERATURE.--Maximum observed, 21.0°C, June 25 and 28; minimum observed, 7.5°C, Apr. 29.

SUSPENDED-SOLIDS DISCHARGE.--Maximum daily, 516 tons, Mar. 31; minimum observed, 0.006 ton, Sept. 12-13.

TOTAL-PHOSPHORUS DISCHARGE.--Maximum daily, 1,570 lb, Mar. 31; minimum observed, 0.15 lb, Dec. 1-2.

1999 WATER YEAR:

WATER TEMPERATURE.--Maximum observed, 23.0°C, July 5; minimum observed, 0.0°C, many days.

SUSPENDED-SOLIDS DISCHARGE.--Maximum daily, 165 tons, May 17; minimum observed, 0.007 ton, many days.

TOTAL-PHOSPHORUS DISCHARGE.--Maximum daily, 636 lb, May 17; minimum observed, 0.14 lb, Mar. 27-28.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (000060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (000061)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 1997											
*30...	1300	--	E1.5	8.4	.8	10	<5	--	<.013	.042	.011
NOV											
*25...	1505	--	E1.1	8.4	.7	10	<5	--	<.013	.027	.015
JAN 1998											
*07...	1510	1.5	--	7.8	.8	90	<5	--	<.013	.044	.025
*28...	1518	--	1.1	--	--	--	<5	--	.006	.045	--
FEB											
11...	1400	--	1.2	--	--	--	9	--	<.013	.037	.009
11...	1630	--	1.2	--	--	--	<5	--	<.013	.023	.010
11...	1830	--	1.3	--	--	--	<5	--	.014	.028	.013
12...	0030	--	1.5	--	--	--	<5	--	.055	.033	.024
17...	0800	--	9.4	--	--	--	191	--	.162	.694	--
17...	1625	--	9.8	--	--	--	86	--	.201	.558	--
18...	0025	--	8.7	--	--	--	47	--	.170	.461	--
18...	1033	--	7.0	8.2	1.9	--	16	--	.109	.329	.260
18...	1034	--	7.0	8.1	1.7	--	16	--	.093	.336	.270
18...	1945	--	6.0	--	--	--	22	--	.145	.289	--
19...	0815	--	4.3	--	--	--	11	--	.087	.188	--
*23...	1154	--	2.5	8.4	.9	40	<5	--	<.013	.061	.035
27...	0500	--	3.1	8.3	1.0	70	14	--	<.013	.056	--
27...	0600	--	3.6	8.3	1.0	360	17	--	.014	.066	--
27...	0720	--	4.6	8.3	1.6	110	26	--	<.013	.084	--
27...	0835	--	6.3	8.3	2.1	220	42	--	<.013	.122	--
27...	1041	--	8.0	8.2	3.0	130	57	--	<.013	.171	--
*27...	1042	--	8.0	8.2	2.8	80	53	--	<.013	.162	--
27...	1240	--	8.3	8.0	7.1	8000	92	--	.083	.422	--
27...	1600	--	7.0	8.1	3.8	2900	43	--	.109	.390	--
27...	2010	--	5.1	8.1	2.9	1100	29	--	.083	.281	--
28...	0720	--	3.3	8.1	2.0	190	12	--	.028	.111	--
MAR											
17...	2035	--	1.8	8.3	1.1	50	<5	--	<.013	.037	.006
18...	0540	--	3.1	8.2	1.5	140	13	--	<.013	.059	.015
18...	0710	--	5.1	8.1	2.7	120	42	--	<.013	.123	.020
18...	0915	--	8.7	8.0	7.5	300	172	--	.078	.409	.066
18...	1131	--	13	7.9	9.1	530	294	--	.134	.692	.128
*18...	1132	--	13	7.9	7.8	510	250	--	.127	.618	.130
18...	1505	--	16	7.9	13	320	408	--	.148	.887	.114
18...	1835	--	22	7.9	11	1700	456	--	.180	1.11	.254
18...	2235	--	20	7.9	8.5	7000	180	--	.373	.933	.440
19...	0845	--	11	8.1	2.9	3800	36	--	.236	.450	.306
19...	1210	--	13	8.1	3.5	1300	272	--	.195	.958	.190
19...	1445	--	11	8.1	2.6	1300	180	--	.125	.752	.184
19...	2245	--	8.0	8.1	2.0	1400	40	--	.094	.294	.185
20...	0910	--	5.4	8.2	1.3	340	15	--	.018	.150	.100

E Estimated

* Equal-width increment (EWI) sample

STREAMS TRIBUTARY TO LAKE MICHIGAN
04083420 PARSONS CREEK, UPSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
MAR 1998										
*26...	1422	4.7	8.7	3.8	10	8	--	<.013	.079	.031
30...	1810	9.0	8.2	6.5	100000	284	54	.101	.524	.052
30...	1910	71	--	16	11000	4290	--	.268	5.46	.114
30...	2010	84	--	16	1900000	2420	--	.511	4.83	.500
30...	2055	182	--	15	52000	5170	640	.368	6.79	.264
31...	0100	340	7.9	7.7	41000	2990	330	.320	4.42	.490
31...	0440	192	--	4.5	3200	2130	260	.183	2.63	.470
31...	1245	56	--	5.9	27000	244	40	.067	.959	.370
*31...	1246	55	--	2.8	30000	204	32	<.013	.894	.370
31...	2025	52	--	--	17000	218	--	.166	.917	.400
APR										
01...	1225	15	--	--	1500	43	--	.049	.279	.162
02...	0630	10	--	1.1	220	25	5	.018	.151	.090
*06...	1345	5.2	--	--	40	10	--	<.013	.068	.027
15...	1230	11	--	2.0	1100	77	--	.019	.165	.015
15...	1715	18	--	5.3	50000	177	29	.101	.570	.187
15...	1830	64	--	9.6	27000	994	132	.125	1.55	.202
15...	2030	71	--	9.8	74000	1050	156	.248	2.24	.430
15...	2310	43	--	3.8	22000	344	48	.126	1.10	.320
16...	0405	61	--	3.1	3900	229	--	.110	.710	.250
16...	0810	49	--	2.8	25000	198	--	.108	.865	.350
16...	1531	20	--	1.7	2000	52	--	.059	.405	.200
*16...	1532	20	--	1.7	7000	50	--	.053	.418	.200
16...	2220	12	--	--	--	32	--	.031	.241	--
17...	0935	8.7	--	--	--	11	--	<.013	.123	--
*23...	0848	4.5	8.4	.8	160	7	--	<.013	.052	--
26...	0950	12	--	--	--	67	--	.030	.149	--
26...	1050	15	--	--	--	64	--	.016	.175	--
26...	1150	16	--	--	--	90	--	<.013	.235	--
26...	1550	12	--	--	--	54	--	.087	.478	--
26...	1950	8.7	--	--	--	27	--	.031	.242	--
27...	0750	5.9	--	--	--	8	--	.015	.057	--
MAY										
01...	0515	5.9	--	--	--	14	--	<.013	.054	--
01...	0645	8.7	--	--	--	22	--	<.013	.072	--
01...	1045	9.6	--	--	--	11	--	<.013	.064	--
01...	1445	7.8	--	--	--	8	--	<.013	.105	--
02...	0645	6.2	--	--	--	10	--	<.013	.057	--
*07...	1144	4.7	8.3	1.5	320	<5	--	.015	.036	--
*20...	1416	2.8	8.4	1.5	210	10	--	<.013	.053	--
31...	0245	3.9	--	--	--	177	--	.021	.294	--
31...	0315	4.9	--	--	--	156	--	.042	.265	--
31...	0345	6.6	--	--	--	1420	--	.062	1.46	--
31...	0415	6.6	--	--	--	562	--	.051	.652	--
31...	0445	14	--	--	--	532	--	.050	.648	--
31...	0515	10	--	--	--	1220	--	.094	1.18	--
31...	0740	6.6	--	--	--	342	--	.112	.630	--
31...	1540	3.6	--	--	--	46	--	.057	.168	--
JUN										
*03...	1534	2.8	8.4	1.1	360	18	--	.035	.060	.026
*18...	0932	2.3	8.3	1.2	1900	33	--	.017	.085	.027
18...	2115	3.6	8.5	--	7900	122	22	.048	.214	.030
18...	2215	4.5	8.4	--	4000	94	20	.041	.189	.034
18...	2315	7.0	8.4	--	6400	153	27	.046	.253	.040
18...	2345	7.4	8.4	--	27000	152	28	.030	.258	.046
19...	0245	5.5	8.3	--	17000	127	23	.027	.292	.050
19...	0815	3.3	8.2	--	140000	51	14	.199	.430	.179
27...	0350	3.3	8.4	--	22000	129	27	.019	.220	.030
27...	0450	3.3	8.4	--	3800	259	38	.031	.395	.033
27...	0520	3.6	8.4	--	5400	148	25	.025	.257	.035
27...	0550	4.9	8.4	--	3800	133	28	<.013	.235	.035
27...	0620	8.7	8.4	--	12000	322	51	.018	.436	.045
27...	0920	5.2	8.3	--	28000	298	42	.014	.541	.068
27...	1220	3.3	8.4	--	17000	87	17	<.013	.219	.054
27...	1520	2.8	8.4	--	30000	76	16	.017	.245	.074
28...	0020	2.3	8.4	2.5	4000	37	10	.018	.116	.047
28...	0320	3.3	8.4	2.8	5000	62	17	.019	.156	.044
28...	0525	11	8.3	3.5	12000	254	43	.016	.370	.054
28...	0610	12	8.3	6.2	40000	286	47	.021	.564	.122
28...	0905	7.4	8.2	6.0	320000	128	24	.071	.551	.214
28...	1205	5.2	8.3	5.8	210000	73	17	.127	.439	.244
28...	1505	3.9	8.3	5.7	210000	60	14	.244	.508	.254
28...	1805	3.3	8.4	4.2	320000	41	10	.179	.390	.202
28...	2105	2.8	8.4	3.5	170000	35	8	.154	.314	.175
29...	0305	2.6	8.4	1.8	10000	30	8	.059	.145	.071
29...	0905	2.6	8.4	2.2	10000	25	8	.031	.104	.050
JUL										
*01...	1432	1.9	--	--	1700	18	--	.017	.070	.030
*16...	0948	2.3	--	--	1600	21	--	.014	.052	.021
*30...	1206	1.9	--	--	300	6	--	--	.042	--

* Equal-width increment (EWI) sample

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04083420 PARSONS CREEK, UPSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDEED (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS ORTHOS, DIS- SOLVED (MG/L AS P) (00665)	PHOS- PHORUS ORTHOS, DIS- SOLVED (MG/L AS P) (00671)
AUG 1998							
*13...	0926	1.7	410	7	<.013	.049	.025
*27...	1422	1.3	420	6	<.013	.047	.025
SEP							
*09...	1312	1.3	270	<5	<.013	.049	.020
14...	1710	3.9	8900	57	<.013	.171	.069
14...	1840	4.9	16000	50	<.013	.180	.081
14...	1940	5.5	E42000	88	<.013	.259	.101
14...	2240	5.5	E53000	54	<.013	.260	.150
15...	0440	3.1	E11000	23	<.013	.160	.101
15...	1340	2.1	4200	8	<.013	.085	.057
*24...	1204	1.3	300	<5	.020	.042	.018

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDEED (MG/L) (00530)	RESIDUE VOLTA- TILE, SUS- PENDEED (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHOS, DIS- SOLVED (MG/L AS P) (00671)
OCT 1998											
*09...	1604	--	1.5	--	--	150	12	--	.013	.046	.021
*22...	1312	--	1.5	--	--	20	<5	--	<.013	.029	.016
NOV											
*06...	1118	--	1.3	--	--	30	<5	--	<.013	.025	.013
DEC											
*01...	1344	--	1.5	--	--	<10	<5	--	<.013	.034	.018
JAN 1999											
*14...	1558	1.2	--	--	--	20	<5	--	.042	.037	.019
FEB											
09...	1235	--	2.7	--	--	--	<5	--	.058	.247	--
09...	1510	--	3.7	--	--	--	<5	--	.037	.184	--
09...	2110	--	7.0	--	--	--	38	--	.065	.393	--
10...	0910	--	3.5	--	--	--	6	--	.069	.252	--
11...	0835	--	11	8.0	6.7	600	152	32	.131	.628	.278
11...	1213	--	13	7.9	8.2	700	256	48	.252	.851	.332
*11...	1214	--	13	8.0	7.5	900	240	44	.250	.736	.329
11...	1525	--	19	8.0	14	600	570	96	.236	1.10	.258
11...	1630	--	35	7.9	29	2000	1780	268	.288	2.67	.244
11...	2135	--	29	7.9	10	4400	402	62	.459	1.13	.427
12...	0025	--	19	8.0	4.8	2400	125	21	.291	.626	.318
12...	0455	--	10	8.0	2.3	650	43	9	.151	.322	.184
12...	1600	--	5.9	--	--	--	10	--	.064	.123	--
13...	1600	3.9	--	--	--	--	5	--	.032	.055	--
17...	1030	--	2.4	--	--	--	<5	--	.013	.033	--
MAR											
11...	1002	--	1.7	8.5	.8	20	<5	--	<.013	.021	.006
APR											
03...	1000	--	3.1	--	--	--	500	--	.185	.682	--
03...	1200	--	15	--	--	--	880	--	.183	.886	--
03...	1230	--	18	--	--	--	680	--	.192	.888	--
03...	1600	--	24	--	--	--	320	--	.265	2.88	--
03...	1640	--	35	--	--	--	1020	--	.339	1.41	--
03...	1740	--	39	--	--	--	884	--	.687	1.86	--
03...	1840	--	37	--	--	--	492	--	.494	1.33	--
03...	2245	--	19	--	--	--	116	--	.304	.586	--
04...	0445	--	11	--	--	--	41	--	.095	.251	--
04...	0745	--	11	--	--	--	63	--	.080	.252	--
04...	0900	--	15	--	--	--	164	--	.114	.421	--
04...	1200	--	25	--	--	--	181	--	.366	.962	--
04...	1500	--	18	--	--	--	61	--	.145	.454	--
05...	1119	--	5.9	--	--	--	8	--	.027	.103	--
*05...	1120	--	5.9	--	--	--	8	--	.025	.105	--
06...	0805	--	5.5	--	--	--	15	--	.022	.092	--
*21...	1054	--	2.3	8.4	<2.0	30	--	--	.013	.021	.010
22...	1510	--	7.8	--	--	--	97	--	.025	.165	--
22...	1610	--	13	--	--	--	236	--	.053	.401	--
22...	1910	--	15	--	--	--	224	--	.399	.942	--
23...	0105	--	9.6	--	--	--	45	--	.081	.262	--
23...	0330	--	14	--	--	--	64	--	.059	.236	--

* Equal-width increment (EWI) sample

STREAMS TRIBUTARY TO LAKE MICHIGAN
04083420 PARSONS CREEK, UPSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	CHARGE, INST. CUBIC FEET PER SECOND (00061)	WATER WHOLE LAB (STAND- ARD UNITS) (00403)	DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	TOTAL AT 105 DEG. C, PENDEDED (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDEDED (MG/L) (00535)	GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
APR 1999										
23...	0450	27	--	--	--	516	--	.095	.834	--
23...	0550	51	--	--	--	1290	--	.243	1.93	--
23...	0725	73	--	--	--	1100	--	.227	2.04	--
23...	1010	48	--	--	--	436	--	.165	1.19	--
*23...	1020	46	--	--	--	416	--	.161	1.15	--
23...	1140	34	--	--	--	258	--	.136	.883	--
23...	1605	16	--	--	--	84	--	.052	.378	--
24...	0045	8.7	--	--	--	24	--	.023	.146	--
*25...	1245	4.4	--	--	--	9	--	<.013	.050	--
MAY										
*10...	1218	2.4	8.5	<.1	40	<5	--	<.013	.024	.010
17...	0035	4.6	8.3	<6.0	--	215	43	.044	.337	.023
17...	0135	42	7.9	21	--	3140	396	.130	3.44	.072
17...	0205	89	7.9	34	--	8060	870	.518	12.3	.614
17...	0305	95	7.9	23	--	3450	420	.512	6.00	.581
17...	0355	100	7.9	18	--	3930	460	.446	6.89	.491
17...	0510	77	7.9	31	--	2320	280	.520	4.80	.487
17...	0635	54	7.9	28	--	955	120	.550	2.45	.526
17...	0830	33	8.0	18	--	416	68	.391	1.35	.410
17...	1117	19	8.1	<6.0	--	170	32	.226	.724	.278
*17...	1118	19	8.1	<6.0	--	164	28	.229	.730	.278
17...	1905	10	8.3	<6.0	--	51	11	.184	.290	.137
18...	0710	6.2	8.3	<6.0	--	27	6	.098	.147	.075
19...	0015	7.0	8.5	--	--	32	--	.101	.223	--
20...	0615	4.0	8.5	--	--	15	--	.042	.084	--
24...	1102	3.5	8.4	--	580	7	--	.020	.059	.031
JUN										
06...	1730	3.7	8.4	--	25000	71	--	.014	.188	.043
06...	1830	3.5	8.4	--	16000	84	--	.015	.751	.049
06...	2055	5.5	8.4	--	57000	108	--	.057	.395	.184
06...	2355	4.4	8.3	--	19000	46	--	.023	.193	.077
07...	0555	5.9	8.3	--	60000	51	--	.027	.243	.102
07...	1155	3.7	8.3	--	96000	31	--	.051	.331	.166
*07...	1808	3.0	8.4	--	25000	15	--	.022	.167	.099
*22...	1532	1.6	8.5	1.6	380	13	--	.017	.049	.025
JUL										
08...	2235	2.7	8.3	--	--	109	--	.075	.208	--
08...	2250	3.7	8.3	--	--	154	--	.050	.279	--
08...	2300	4.7	8.4	--	--	137	--	.051	.253	--
08...	2310	4.9	8.4	--	--	130	--	.046	.246	--
09...	0045	26	8.0	--	--	1090	--	.067	1.21	--
09...	0055	25	7.9	--	--	940	--	.115	1.49	--
09...	0155	28	7.8	--	--	428	--	.077	.797	--
09...	0255	22	7.8	--	--	302	--	.272	1.09	--
09...	0515	12	7.9	--	--	226	--	.481	1.43	--
09...	1235	3.7	8.3	--	--	34	--	.138	.530	--

* Equal-width increment (EWI) sample

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04083420 PARSONS CREEK, UPSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	---	---	---	12.0	10.5	11.0
2	---	---	---	---	---	---	---	---	---	12.0	10.0	11.0
3	---	---	---	---	---	---	---	---	---	11.5	9.5	10.5
4	---	---	---	---	---	---	---	---	---	17.0	8.5	12.5
5	---	---	---	---	---	---	---	---	---	16.5	11.0	13.5
6	---	---	---	---	---	---	---	---	---	14.5	10.0	12.5
7	---	---	---	---	---	---	---	---	---	12.0	11.0	11.5
8	---	---	---	---	---	---	---	---	---	17.0	10.5	13.0
9	---	---	---	---	---	---	---	---	---	16.5	10.0	13.0
10	---	---	---	---	---	---	---	---	---	16.0	9.0	12.5
11	---	---	---	---	---	---	---	---	---	15.5	9.5	12.5
12	---	---	---	---	---	---	---	---	---	15.5	10.5	13.0
13	---	---	---	---	---	---	---	---	---	17.5	11.5	14.0
14	---	---	---	---	---	---	---	---	---	18.0	11.5	14.5
15	---	---	---	---	---	---	---	---	---	18.0	13.0	15.5
16	---	---	---	---	---	---	---	---	---	18.0	14.0	16.0
17	---	---	---	---	---	---	---	---	---	18.0	12.0	15.0
18	---	---	---	---	---	---	---	---	---	19.0	13.5	16.0
19	---	---	---	---	---	---	---	---	---	18.5	14.0	16.0
20	---	---	---	---	---	---	---	---	---	16.5	12.5	14.0
21	---	---	---	---	---	---	---	---	---	15.5	11.0	13.0
22	---	---	---	---	---	---	---	---	---	13.5	9.5	11.5
23	---	---	---	---	---	---	---	---	---	14.5	9.5	12.0
24	---	---	---	---	---	---	---	---	---	12.5	10.5	11.0
25	---	---	---	---	---	---	---	---	---	15.5	10.0	12.5
26	---	---	---	---	---	---	---	---	---	16.5	11.0	13.5
27	---	---	---	---	---	---	---	---	---	17.0	11.5	14.0
28	---	---	---	---	---	---	---	---	---	19.5	13.0	16.0
29	---	---	---	---	---	---	13.5	7.5	10.0	17.5	14.5	16.0
30	---	---	---	---	---	---	13.0	8.5	11.0	15.0	11.5	13.5
31	---	---	---	---	---	---	---	---	---	17.0	14.0	15.0
MONTH	---	---	---	---	---	---	---	---	---	19.5	8.5	13.4
	JUNE			JULY			AUGUST			SEPTEMBER		
1	15.5	11.0	13.0	18.0	14.5	16.5	17.0	13.5	15.5	17.0	14.0	15.5
2	13.5	12.0	12.5	18.5	14.5	16.5	17.5	15.0	16.5	16.0	13.5	15.0
3	13.5	10.5	11.5	17.5	15.0	16.5	16.5	15.0	15.5	15.5	13.0	14.5
4	14.0	9.5	11.5	18.0	15.5	16.5	16.0	15.5	16.0	16.0	13.0	14.5
5	12.0	10.0	11.0	17.5	13.5	16.0	16.0	15.5	15.5	17.0	14.5	16.0
6	12.0	9.0	10.5	17.0	15.0	16.0	18.0	16.0	17.0	18.0	16.0	17.0
7	13.5	9.0	11.0	16.5	14.5	15.5	17.5	16.0	17.0	17.5	15.5	16.5
8	14.5	9.5	12.0	17.5	14.5	16.0	18.5	16.5	17.5	15.5	12.5	14.0
9	12.5	11.0	11.5	18.0	14.5	16.5	18.5	16.5	17.5	14.0	11.5	13.0
10	13.0	11.0	12.0	17.5	15.5	16.5	18.5	16.5	17.5	15.5	12.5	14.0
11	14.5	11.5	12.5	17.5	13.0	15.5	17.5	16.0	16.5	17.5	14.5	16.0
12	17.5	13.5	15.0	18.0	14.0	16.0	16.0	14.0	15.0	17.5	15.5	16.5
13	17.0	13.0	15.0	19.0	15.0	17.0	16.5	14.0	15.5	18.5	16.0	17.0
14	16.0	13.0	14.5	19.5	16.5	18.0	17.5	14.5	16.0	18.0	16.5	17.0
15	17.5	12.5	14.5	19.0	17.0	18.5	17.0	15.5	16.0	17.5	16.0	17.0
16	18.0	13.0	15.5	18.5	16.0	17.5	17.0	14.0	15.5	16.0	13.5	15.0
17	18.0	13.5	15.5	17.5	15.5	17.0	17.0	16.0	16.5	16.0	14.0	15.0
18	17.5	14.5	16.0	18.0	14.5	16.5	17.0	15.5	16.0	16.5	14.0	15.5
19	18.0	15.0	16.0	19.5	15.5	17.5	17.0	15.0	16.0	17.5	15.0	16.5
20	19.5	14.5	16.5	19.5	16.0	18.0	18.0	15.0	16.5	18.0	16.0	17.0
21	18.0	15.0	16.5	20.0	17.5	18.5	17.5	16.0	17.0	17.0	13.5	14.5
22	18.0	14.5	16.0	18.5	16.0	17.0	18.0	16.0	17.0	14.0	12.0	13.0
23	18.5	14.0	16.5	17.0	15.0	16.0	20.0	17.5	18.5	13.0	10.0	12.0
24	19.5	15.0	17.0	16.5	13.5	15.0	19.5	17.5	18.0	13.5	12.0	13.0
25	21.0	16.5	18.5	17.0	14.0	15.5	18.5	16.0	17.5	16.0	12.5	14.0
26	19.5	16.0	18.0	17.0	14.0	15.5	17.5	15.5	16.5	18.5	16.0	17.5
27	20.5	16.0	18.5	18.5	15.5	17.0	17.0	15.5	16.5	18.5	15.0	17.0
28	21.0	16.5	19.0	19.0	15.5	17.0	17.0	15.5	16.5	15.0	12.5	13.5
29	19.5	16.0	18.0	17.5	15.0	16.5	18.0	15.5	16.5	15.5	13.5	14.5
30	18.0	15.5	17.0	18.0	15.5	16.5	16.5	14.0	15.5	15.0	12.5	14.0
31	---	---	---	17.0	14.0	15.5	16.0	13.5	15.0	---	---	---
MONTH	21.0	9.0	14.8	20.0	13.0	16.6	20.0	13.5	16.4	18.5	10.0	15.2

STREAMS TRIBUTARY TO LAKE MICHIGAN
04083420 PARSONS CREEK, UPSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	12.5	10.0	11.0	11.0	9.5	10.0	7.5	5.5	6.5	1.0	.0	.0
2	10.5	8.5	9.5	9.5	6.5	8.0	9.0	7.0	8.0	.0	.0	.0
3	11.0	10.0	10.5	7.0	5.5	6.5	11.0	9.0	9.5	.5	.0	.0
4	12.5	11.0	11.5	6.0	4.5	5.0	9.5	8.0	9.0	1.5	.0	.5
5	14.0	11.5	12.5	5.0	4.0	4.5	11.5	9.0	10.0	1.5	.0	.0
6	14.5	13.0	14.0	6.0	4.0	5.0	10.5	5.5	8.5	.0	.0	.0
7	13.0	11.5	12.0	6.0	4.0	5.5	5.5	3.5	4.5	.0	.0	.0
8	12.0	10.5	11.0	6.0	5.0	5.5	3.5	2.0	3.0	.5	.0	.0
9	11.5	9.0	10.5	6.5	5.5	6.0	3.5	2.0	3.0	.5	.0	.0
10	12.0	9.5	11.0	9.5	5.0	7.5	3.5	2.0	3.0	1.0	.0	.5
11	12.0	10.0	11.0	5.5	4.0	5.0	3.5	1.5	2.5	1.5	.0	.5
12	12.5	11.0	11.5	5.0	3.0	4.0	4.5	2.5	3.5	1.0	.0	.5
13	11.0	8.0	9.0	5.5	1.5	3.5	3.5	1.5	2.5	.5	.0	.0
14	9.5	7.5	8.5	8.0	5.0	6.5	4.0	1.5	2.5	.0	.0	.0
15	11.0	8.0	9.5	7.0	5.0	6.0	4.5	2.5	3.5	.0	.0	.0
16	14.0	11.0	12.5	6.5	5.5	6.0	3.5	2.0	3.0	.5	.0	.0
17	15.5	14.0	15.0	6.5	4.5	5.5	2.5	1.0	1.5	.5	.0	.0
18	15.0	10.5	13.0	8.0	5.5	7.0	3.5	.5	2.5	1.0	.0	.5
19	11.0	8.5	9.5	8.0	4.0	6.0	3.5	1.5	2.5	1.0	.0	.0
20	9.5	7.5	8.5	4.5	3.5	4.0	2.0	1.0	1.5	1.0	.0	.0
21	9.0	7.5	8.5	4.0	2.0	3.0	1.5	.0	.5	2.0	1.0	1.5
22	8.0	5.0	7.0	6.5	3.5	5.0	.0	.0	.0	2.0	.0	1.0
23	10.5	7.0	8.5	7.0	5.5	6.0	.0	.0	.0	1.5	.0	1.0
24	11.0	8.0	9.5	6.5	4.0	5.0	.0	.0	.0	2.0	.5	1.0
25	12.5	10.0	11.5	7.5	5.0	6.0	.0	.0	.0	2.0	.0	1.0
26	13.0	10.5	12.0	6.5	4.5	5.5	1.0	.0	.5	1.5	.0	.5
27	13.0	11.5	12.5	6.5	4.0	5.5	1.0	.0	.0	3.5	1.5	2.5
28	13.0	9.5	11.5	9.5	5.5	7.0	1.5	.0	1.0	3.5	2.0	2.5
29	10.5	8.0	9.5	12.5	9.5	11.0	.0	.0	.0	3.0	1.0	2.0
30	12.0	10.5	11.5	12.5	7.5	11.0	1.5	.0	.5	2.5	.0	1.0
31	11.5	11.0	11.0	---	---	---	.0	.0	.0	3.5	.5	2.0
MONTH	15.5	5.0	10.8	12.5	1.5	6.1	11.5	.0	3.0	3.5	.0	.6
FEBRUARY			MARCH			APRIL			MAY			
1	3.5	1.5	3.0	6.0	2.0	4.0	13.0	10.5	11.5	18.0	8.5	12.5
2	4.0	1.5	3.0	5.0	3.0	4.0	17.0	9.5	13.0	17.5	9.0	13.0
3	3.5	1.5	2.5	4.0	1.0	2.5	13.5	8.5	11.0	18.0	9.5	13.5
4	2.5	.0	1.0	3.5	.0	1.5	10.0	7.5	8.5	19.0	10.5	14.5
5	2.0	.0	1.0	3.0	.5	1.5	8.0	6.5	7.0	17.0	12.5	14.5
6	3.5	1.0	2.0	2.0	.0	.5	8.0	6.0	7.5	14.5	11.5	12.5
7	3.0	1.0	2.0	1.0	.0	.5	13.5	5.0	9.0	12.5	10.5	11.5
8	4.0	1.0	2.5	1.5	.0	.5	12.0	7.0	9.5	12.0	10.0	11.0
9	4.5	1.5	2.5	3.0	.0	1.0	11.5	6.0	8.0	16.0	9.0	12.0
10	4.5	1.0	2.5	4.0	.0	1.5	11.0	4.5	7.5	16.0	9.5	12.5
11	5.0	2.0	3.5	4.5	.0	2.0	7.5	5.0	6.0	15.0	10.5	12.5
12	2.0	.0	.5	5.0	.0	2.0	10.5	3.5	7.0	13.0	10.5	11.5
13	2.0	.0	.5	5.5	.0	2.5	14.0	4.5	9.0	14.5	9.5	11.5
14	4.0	.5	2.5	6.5	.0	3.5	15.0	6.5	10.5	15.5	8.5	12.0
15	5.5	2.0	3.5	7.5	1.0	4.0	11.0	8.0	9.5	14.5	11.5	13.0
16	4.0	3.0	3.5	9.0	2.0	5.5	13.5	7.5	10.0	17.0	12.5	14.5
17	3.5	1.0	2.5	11.0	4.5	7.0	10.0	6.5	8.0	16.5	14.5	15.5
18	3.0	.0	1.5	6.0	3.0	4.5	10.0	5.5	8.0	15.5	13.0	14.0
19	3.0	.0	1.5	8.0	1.0	4.5	11.5	6.5	9.0	17.0	10.5	13.5
20	2.5	.0	1.0	9.0	2.0	5.5	11.5	6.0	9.0	15.0	11.5	13.5
21	2.0	.0	.5	7.0	3.0	4.5	12.5	8.0	10.0	14.0	12.5	13.5
22	2.5	.0	1.0	8.0	1.0	4.0	9.5	6.5	7.5	16.0	12.0	14.0
23	3.0	.5	1.5	9.0	1.5	5.5	11.5	5.0	7.5	14.0	11.5	12.5
24	1.5	.0	1.0	8.5	2.5	5.5	14.0	5.0	9.0	12.0	9.5	10.0
25	4.0	.5	2.0	5.0	2.0	3.5	15.5	6.0	10.5	11.5	8.5	10.0
26	6.0	2.0	4.0	9.0	.5	4.5	16.0	7.0	11.0	15.0	9.5	12.0
27	5.0	4.0	4.0	10.5	2.5	6.5	12.5	8.0	10.0	16.5	10.5	13.5
28	4.5	3.0	3.5	8.0	4.0	6.0	16.0	7.0	11.0	17.5	12.5	15.0
29	---	---	---	11.5	3.5	7.0	16.5	7.5	11.5	18.5	13.5	16.0
30	---	---	---	13.0	4.5	8.5	17.0	7.5	12.0	18.0	14.0	16.0
31	---	---	---	15.0	7.0	11.0	---	---	---	17.0	15.0	15.5
MONTH	6.0	.0	2.1	15.0	.0	4.0	17.0	3.5	9.3	19.0	8.5	13.1

STREAMS TRIBUTARY TO LAKE MICHIGAN
04083420 PARSONS CREEK, UPSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	15.5	13.0	14.0	21.0	14.5	16.5	19.0	16.0	17.5	16.5	13.5	15.0
2	14.0	12.0	13.0	18.5	15.5	16.5	17.5	15.0	16.5	17.5	14.5	16.0
3	15.5	11.5	13.5	19.0	16.0	17.5	17.5	15.0	16.5	18.5	15.5	17.0
4	13.5	11.0	12.5	22.5	18.5	20.5	18.0	16.0	17.0	18.5	16.0	17.5
5	19.0	12.5	15.5	23.0	19.5	21.5	17.5	15.0	16.5	18.0	16.0	17.0
6	20.0	17.0	18.5	22.0	18.5	20.0	17.5	15.5	16.5	17.0	14.5	15.5
7	20.5	16.5	18.5	19.5	16.0	18.0	16.5	15.0	15.5	16.0	13.0	14.5
8	19.5	15.5	17.5	18.5	16.5	17.5	15.5	14.0	15.0	17.0	15.0	16.0
9	18.5	15.5	17.5	21.0	17.5	19.5	14.5	13.0	14.0	15.5	13.0	13.5
10	19.5	16.0	18.0	18.5	15.5	17.0	17.0	14.5	15.5	14.0	12.0	13.0
11	20.5	16.5	18.5	18.0	14.5	16.5	17.5	14.5	16.0	14.5	12.0	13.5
12	19.5	17.0	18.0	17.5	15.0	16.5	17.0	15.0	16.0	15.0	14.0	14.5
13	18.0	15.0	16.0	18.0	15.0	16.5	16.5	15.0	16.0	14.0	12.5	13.0
14	16.0	14.0	15.0	19.5	16.0	17.5	16.0	13.0	14.5	13.0	11.5	12.0
15	14.0	11.5	13.0	20.5	17.0	19.0	16.5	13.0	15.0	13.0	11.0	12.0
16	13.5	12.0	12.5	21.5	18.5	20.0	17.5	15.0	16.0	12.5	10.0	11.5
17	14.5	10.0	12.5	20.0	19.0	19.5	17.0	15.0	16.5	13.0	10.0	12.0
18	15.5	11.5	13.5	19.0	17.0	17.5	16.0	14.5	15.0	14.0	11.5	13.0
19	16.0	13.0	14.5	21.0	17.0	20.0	16.0	14.0	15.0	15.5	12.5	14.0
20	17.0	13.5	15.0	19.5	16.5	18.0	16.0	13.0	14.5	14.0	11.0	12.0
21	17.0	13.5	15.5	20.5	18.0	19.5	16.5	14.0	15.5	11.0	9.0	10.5
22	18.5	14.5	16.5	20.5	17.5	19.0	16.0	14.5	15.0	13.0	9.0	11.0
23	17.5	16.5	17.0	20.0	18.0	19.0	16.0	14.5	15.0	14.0	11.5	13.0
24	18.5	16.0	17.5	21.0	17.0	19.0	16.5	15.0	16.0	13.0	10.5	12.0
25	19.0	15.0	17.0	19.5	16.5	18.5	17.0	14.5	16.0	13.5	10.0	12.0
26	19.0	15.5	17.5	19.0	17.0	18.0	17.5	14.5	16.0	16.5	13.5	14.5
27	19.0	16.0	17.5	18.5	16.0	17.5	18.0	15.5	17.0	16.0	12.5	14.0
28	18.5	16.0	17.0	20.0	16.5	18.0	18.0	16.0	17.0	12.5	12.0	12.0
29	16.5	13.5	15.0	21.5	17.0	19.0	17.0	14.5	15.5	12.5	10.5	11.5
30	16.5	14.0	15.5	21.0	17.5	19.5	15.0	12.5	14.0	12.5	9.5	11.0
31	---	---	---	21.0	18.5	19.5	16.0	12.5	14.5	---	---	---
MONTH	20.5	10.0	15.8	23.0	14.5	18.5	19.0	12.5	15.7	18.5	9.0	13.5

STREAMS TRIBUTARY TO LAKE MICHIGAN
04083420 PARSONS CREEK, UPSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED(TONS PER DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	.007	.007	.008	.016	3.47	.22	.29	.11	.032	.017
2	---	---	.007	.008	.010	.016	.69	.15	.20	.10	.030	.016
3	---	---	.009	.009	.009	.016	.41	.10	.14	.10	.029	.015
4	---	---	.009	.009	.008	.015	.28	.078	.12	.12	.031	.014
5	---	---	.009	.40	.008	.013	.19	.054	.13	.10	.036	.012
6	---	---	.008	.013	.007	.013	.15	.040	.13	.11	.75	.012
7	---	---	.008	.010	.007	.013	.13	.037	.13	.12	.041	.011
8	---	---	.007	.009	.007	.012	.12	3.20	.12	.12	.036	.010
9	---	---	.007	.009	.007	.011	.12	.037	.15	.12	.033	.009
10	---	---	.007	.008	.007	.011	.11	.038	.16	.11	.033	.008
11	---	---	.007	.007	.009	.011	.10	.040	1.50	.11	.032	.007
12	---	---	.007	.007	.009	.010	.095	.044	.22	.11	.032	.006
13	---	---	.007	.007	.009	.010	.093	.048	.16	.11	.032	.006
14	---	---	.007	.007	.009	.010	.10	.050	.15	.11	.031	.32
15	---	---	.007	.007	.025	.009	30.7	.053	.14	.13	.031	.12
16	---	---	.007	.007	.41	.009	17.9	.061	.14	.12	.031	.034
17	---	---	.008	.007	2.65	.009	.32	.063	.13	.11	.038	.030
18	---	---	.007	.007	.46	9.56	.17	.066	.37	.10	.032	.027
19	---	---	.007	.007	.14	3.29	.14	.071	.75	.097	.030	.030
20	---	---	.007	.007	.074	.33	.11	.074	.24	.081	.028	.027
21	---	---	.007	.008	.045	.22	.094	.073	.19	.75	.028	.026
22	---	---	.007	.008	.029	.17	.082	.072	.16	.076	.033	.026
23	---	---	.007	.008	.019	.13	.078	.071	.15	.067	.035	.026
24	---	---	.007	.007	.021	.11	.075	.074	.15	.057	.029	.029
25	---	---	.007	.007	.016	.099	.069	.073	.12	.066	.026	.029
26	---	---	.007	.007	.016	1.60	1.19	.068	.10	.052	.025	.028
27	---	---	.007	.007	.62	.076	.15	.067	1.42	.045	.024	.027
28	---	---	.007	.007	.086	.066	.10	.082	1.60	.038	.026	.027
29	---	---	.007	.007	---	.058	.096	.081	.19	.033	.023	.025
30	---	---	.007	.007	---	398	.097	.076	.15	.031	.020	.038
31	---	---	.007	.007	---	516	---	3.74	---	.032	.018	---
TOTAL	---	---	0.226	0.632	4.725	929.913	57.429	9.001	9.60	3.435	1.655	1.012

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED(TONS PER DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.087	.008	.010	.008	.009	.011	.010	.043	.050	1.00	---	---
2	.072	.008	.010	.008	.30	.011	.010	.040	1.00	.075	---	---
3	.064	.008	.010	.008	.40	.011	16.7	.038	.053	.084	---	---
4	.059	.007	.010	.008	.50	.010	3.49	.036	.049	.069	---	---
5	.40	.008	.009	.008	.30	.010	.21	.037	.047	.060	---	---
6	.50	.008	.010	.008	.012	.010	.19	1.10	.33	.062	---	---
7	.068	.008	.010	.008	.012	.009	.15	.70	.37	.057	---	---
8	.048	.007	.009	.008	.014	.010	.12	.029	.049	.22	---	---
9	.040	.007	.010	.008	.13	.009	4.50	.021	.045	6.18	---	---
10	.034	2.00	.009	.008	.13	.009	3.50	.016	.050	.085	---	---
11	.027	.011	.010	.008	28.2	.010	2.50	.016	.060	.077	---	---
12	.024	.009	.009	.008	.94	.010	.15	.018	.054	.075	---	---
13	.021	.009	.008	.008	.062	.009	.11	.018	.056	.074	---	---
14	.017	.008	.008	.008	.036	.010	.080	.018	.056	.086	---	---
15	.016	.008	.010	.008	.028	.010	.070	.018	.053	.083	---	---
16	.013	.060	.009	.008	.022	.011	.060	.021	.055	---	---	---
17	.015	.010	.009	.40	.017	.014	.060	165	.057	---	---	---
18	.014	.010	.009	.012	.014	.013	.060	.83	.057	---	---	---
19	.011	.011	.007	.009	.014	.010	.057	.36	.057	---	---	---
20	.010	.009	.007	.008	.013	.011	.053	.16	.057	---	---	---
21	.010	.009	.008	.008	.012	.010	.052	.12	.057	---	---	---
22	.009	.010	.008	1.40	.011	.010	2.32	.094	.062	---	---	---
23	.008	.010	.008	7.50	.012	.010	38.3	.088	.072	---	---	---
24	.008	.010	.008	1.00	.011	.010	.30	.069	.066	---	---	---
25	.008	.010	.008	.30	.011	.009	.10	.060	.060	---	---	---
26	.007	.009	.008	.015	.011	.009	.076	.056	.058	---	---	---
27	.010	.010	.009	.014	.014	.008	.063	.051	.058	---	---	---
28	.008	.010	.010	.014	.013	.009	.057	.049	.059	---	---	---
29	.008	.010	.009	.011	---	.009	.052	.046	.059	---	---	---
30	.008	.012	.008	.009	---	.009	.046	.046	.057	---	---	---
31	.008	---	.008	.008	---	.009	---	.051	---	---	---	---
TOTAL	1.632	2.314	0.275	10.836	31.248	0.310	73.446	169.249	3.213	---	---	---

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04083420 PARSONS CREEK, UPSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	.15	.24	.28	.90	37.7	3.04	2.06	.84	.44	.38
2	---	---	.15	.26	.33	.76	8.33	1.92	1.38	.75	.41	.39
3	---	---	.19	.29	.29	.73	4.95	1.47	.94	.75	.41	.38
4	---	---	.19	.32	.27	.65	3.40	1.31	.83	.88	.43	.38
5	---	---	.19	1.20	.24	.58	2.43	1.09	.85	.70	.51	.36
6	---	---	.18	.44	.22	.56	1.83	.97	.89	.75	6.00	.37
7	---	---	.18	.35	.21	.52	1.65	1.03	.88	.78	.58	.37
8	---	---	.17	.31	.21	.48	1.61	15.0	.85	.75	.50	.37
9	---	---	.17	.31	.21	.44	1.62	.92	1.05	.71	.47	.37
10	---	---	.17	.29	.20	.40	1.46	.87	1.07	.66	.47	.35
11	---	---	.18	.26	.21	.39	1.42	.85	8.00	.63	.45	.33
12	---	---	.18	.26	.23	.35	1.39	.86	1.54	.61	.44	.34
13	---	---	.18	.26	.22	.35	1.39	.88	1.13	.60	.45	.35
14	---	---	.18	.26	.21	.31	1.56	.84	1.03	.59	.44	2.70
15	---	---	.19	.26	.47	.29	133	.82	.97	.66	.44	1.79
16	---	---	.19	.26	4.27	.28	142	.88	.98	.62	.44	.68
17	---	---	.21	.26	26.9	.26	5.65	.85	.94	.60	.54	.55
18	---	---	.19	.26	13.0	53.9	1.39	.82	1.72	.59	.47	.45
19	---	---	.20	.26	4.57	38.3	1.03	.82	5.82	.61	.44	.46
20	---	---	.20	.27	2.80	6.20	.90	.79	1.33	.55	.42	.37
21	---	---	.20	.27	1.85	4.32	.86	.78	1.00	5.00	.42	.34
22	---	---	.21	.27	1.31	3.33	.83	.76	.95	.59	.50	.31
23	---	---	.21	.27	.90	2.50	.84	.75	.92	.56	.53	.29
24	---	---	.21	.27	1.03	2.11	.82	.79	1.05	.52	.45	.30
25	---	---	.22	.27	.79	1.96	.75	.78	.85	.64	.41	.29
26	---	---	.22	.27	.76	10.0	11.6	.72	.84	.54	.38	.28
27	---	---	.22	.27	7.27	1.51	2.26	.71	5.39	.50	.38	.27
28	---	---	.22	.26	2.04	1.30	1.47	.87	11.2	.45	.43	.27
29	---	---	.23	.26	---	1.15	1.36	.86	1.70	.44	.41	.26
30	---	---	.23	.24	---	1070	1.36	.80	1.17	.44	.39	.38
31	---	---	.24	.23	---	1570	---	11.2	---	.45	.38	---
TOTAL	---	---	6.05	9.50	71.29	2774.83	376.86	55.05	59.33	23.76	19.43	14.73

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.46	.19	.28	.23	.28	.23	.16	.59	.79	6.00	---	---
2	.41	.19	.28	.23	4.00	.23	.16	.55	6.00	.57	---	---
3	.39	.18	.28	.23	6.00	.21	78.9	.52	.82	.64	---	---
4	.39	.17	.28	.23	9.00	.20	36.6	.50	.76	.52	---	---
5	2.00	.18	.25	.24	5.00	.20	4.42	.51	.72	.46	---	---
6	5.10	.18	.27	.24	.38	.19	2.44	6.00	3.37	.47	---	---
7	.57	.18	.29	.24	.37	.17	1.67	5.50	4.93	.44	---	---
8	.43	.16	.26	.24	.58	.17	1.34	.76	1.25	.94	---	---
9	.38	.18	.28	.24	5.34	.16	26.0	.48	.67	38.4	---	---
10	.35	14.0	.25	.24	7.25	.16	9.00	.32	.69	1.09	---	---
11	.30	.27	.28	.24	125	.17	16.0	.32	.79	.49	---	---
12	.30	.22	.26	.24	12.6	.16	1.27	.39	.69	.47	---	---
13	.27	.22	.22	.24	1.42	.16	.91	.34	.67	.47	---	---
14	.25	.20	.23	.24	.83	.16	.76	.30	.64	.54	---	---
15	.24	.20	.28	.24	.68	.17	.64	.27	.58	.52	---	---
16	.22	.50	.25	.24	.57	.18	.54	.27	.57	---	---	---
17	.26	.26	.24	1.80	.45	.23	.43	636	.56	---	---	---
18	.26	.26	.24	.36	.37	.22	.38	10.0	.53	---	---	---
19	.24	.28	.21	.28	.34	.17	.33	4.67	.51	---	---	---
20	.23	.24	.20	.24	.32	.18	.29	1.80	.47	---	---	---
21	.24	.24	.23	.24	.29	.17	.27	1.47	.46	---	---	---
22	.23	.24	.23	8.00	.27	.16	15.5	1.30	.47	---	---	---
23	.20	.26	.23	45.0	.27	.17	162	1.35	.54	---	---	---
24	.20	.26	.23	6.00	.26	.16	3.69	1.14	.50	---	---	---
25	.20	.26	.23	2.00	.25	.16	1.38	1.01	.45	---	---	---
26	.18	.24	.23	.44	.25	.15	1.01	.93	.44	---	---	---
27	.25	.26	.25	.43	.31	.14	.85	.84	.44	---	---	---
28	.20	.26	.29	.43	.26	.14	.77	.80	.45	---	---	---
29	.21	.27	.27	.34	---	.15	.70	.75	.45	---	---	---
30	.19	.33	.23	.28	---	.15	.62	.73	.43	---	---	---
31	.19	---	.23	.24	---	.15	---	.81	---	---	---	---
TOTAL	15.34	20.88	7.78	69.88	182.94	5.42	369.03	681.22	30.64	---	---	---

STREAMS TRIBUTARY TO LAKE MICHIGAN

04083423 PARSONS CREEK, MIDDLE SITE, NEAR FOND DU LAC, WI--CONTINUED

LOCATION.--Lat 43°41'47", long 88°28'29", in NE 1/4 SW 1/4 sec.9, T.14 N., R.17 E., Fond du Lac County, Hydrologic Unit 04030203, on left bank 400 ft upstream from bridge on County Highway B, 5.6 mi south of Fond du Lac.

DRAINAGE AREA.--5.6 mi².

PERIOD OF RECORD.--October 1997 to September 1999.

PERIOD OF DAILY RECORD.--

SUSPENDED-SOLIDS DISCHARGE: December 1997 to July 1999.

TOTAL-PHOSPHORUS DISCHARGE: December 1997 to July 1999.

INSTRUMENTATION.--Stage-activated water-quality sampler since December 1997.

REMARKS.--Chemical analyses by the Wisconsin State Laboratory of Hygiene. Samples are point samples unless otherwise indicated. Water-discharge records computed by subtracting three percent from the downstream site discharge.

EXTREMES FOR CURRENT PERIOD.--

DECEMBER 1997-SEPTEMBER 1998

SUSPENDED-SOLIDS DISCHARGE.--Maximum daily, 569 tons, Mar. 31; minimum observed, 0.008 ton, many days.

TOTAL-PHOSPHORUS DISCHARGE.--Maximum daily, 2,040 lb, Mar. 31; minimum observed, 0.19 lb, Dec. 1-2.

1999 WATER YEAR:

SUSPENDED-SOLIDS DISCHARGE.--Maximum daily, 165 tons, May 17; minimum observed, 0.01 ton, Oct. 22-24.

TOTAL-PHOSPHORUS DISCHARGE.--Maximum daily, 692 lb, May 17; minimum observed, 0.18 lb, Mar. 30.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 1997										
*30...	1240	E1.6	8.5	.4	170	<5	--	<.013	.040	.011
NOV										
*25...	1450	E1.2	8.5	.7	300	<5	--	.023	.027	.015
JAN 1998										
*07...	1415	1.8	8.1	.7	140	<5	--	<.013	.048	.031
*28...	1414	2.1	--	--	--	<5	--	.020	.049	--
FEB										
11...	1400	1.3	--	--	--	<5	--	.012	.034	.014
11...	1630	1.4	--	--	--	<5	--	.023	.037	.017
11...	1830	1.5	--	--	--	7	--	.013	.034	.017
12...	0030	1.5	--	--	--	7	--	.016	.039	.016
17...	0800	11	--	--	--	230	--	.151	.668	--
17...	1625	12	--	--	--	108	--	.200	.585	--
18...	0025	10	--	--	--	66	--	.177	.515	--
18...	1013	7.7	8.2	2.2	--	22	--	.104	.345	.285
*18...	1014	7.7	8.2	1.7	--	19	--	.101	.352	.285
18...	1945	6.3	--	--	--	33	--	.120	.288	--
19...	0815	4.6	--	--	--	15	--	.138	.196	--
*23...	1134	2.7	8.5	.5	<10	<5	--	<.013	.060	.052
27...	0500	3.5	8.3	.8	100	17	--	.028	.073	--
27...	0600	4.3	8.3	1.1	150	27	--	.032	.143	--
27...	0720	5.5	8.3	1.2	330	23	--	<.013	.090	--
27...	0835	7.7	8.3	2.0	300	51	--	<.013	.172	--
27...	1041	9.5	8.3	2.3	210	61	--	<.013	.184	--
*27...	1042	9.5	8.3	2.4	220	52	--	<.013	.168	--
27...	1240	9.9	8.3	3.8	1800	74	--	.018	.244	--
27...	1600	7.7	8.2	4.2	2100	50	--	.086	.373	--
27...	2010	5.7	8.2	2.6	900	34	--	.081	.296	--
28...	0720	4.0	8.2	1.8	100	13	--	.036	.113	--
MAR										
17...	2035	2.4	8.3	2.0	150	13	--	<.013	.063	.022
18...	0540	4.8	8.2	5.9	390	74	--	.217	.602	.312
18...	0710	6.9	8.2	4.4	260	132	--	.144	.490	.242
18...	0915	13	8.1	7.3	380	224	--	.152	.633	.216
18...	1133	17	8.0	12	270	468	--	.187	.916	.178
*18...	1134	17	8.0	9.4	370	402	--	.178	.970	.179
18...	1505	21	8.0	8.4	400	448	--	.097	.848	.146
18...	1835	26	7.9	12	130	742	--	.171	1.40	.264
18...	2235	24	7.9	9.9	9000	354	--	.355	1.28	.430
19...	0845	13	8.1	3.4	6000	62	--	.237	.502	.261
19...	1210	15	8.1	3.6	2100	138	--	.161	.636	.226
19...	1445	13	8.1	2.9	2500	344	--	.142	.978	.199
19...	2245	9.2	8.2	2.5	1000	63	--	.096	.332	.186
20...	0910	6.5	8.3	1.3	400	18	--	.028	.160	.104
*26...	1348	5.1	8.8	3.6	<10	10	--	<.013	.079	.030
30...	1810	13	8.1	16	31000	1620	420	.454	6.27	.920
30...	1910	77	--	19	36000	6230	--	.559	8.12	.168
30...	2010	87	--	20	740000	3340	--	.691	8.04	1.02
30...	2055	197	--	17	75000	4980	670	.465	7.54	.430

E Estimated

* Equal-width increment (EWI) sample

STREAMS TRIBUTARY TO LAKE MICHIGAN
04083423 PARSONS CREEK, MIDDLE SITE, NEAR FOND DU LAC, WI--CONTINUED

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
MAR 1998										
31...	0100	412	7.9	9.0	35000	2930	390	.270	4.60	.480
31...	0440	237	--	5.5	32000	1570	195	.178	2.56	.430
31...	1247	68	--	3.4	8000	254	38	.140	.980	.362
31...	1248	68	--	3.4	270000	266	38	.124	.967	.370
*31...	2025	63	--	--	11000	334	--	.176	1.11	.410
APR										
01...	1225	18	--	--	2600	61	--	.045	.311	.167
02...	0630	11	--	1.1	220	30	6	.020	.163	.093
*06...	1150	5.6	--	--	60	14	--	<.013	.067	.030
15...	1230	12	--	2.7	2100	128	--	.020	.241	.044
15...	1715	26	--	5.1	26000	232	39	.099	.714	.202
15...	1830	66	--	8.8	26000	850	116	.120	1.34	.170
15...	2030	72	--	9.2	79000	904	128	.274	1.98	.420
15...	2310	43	--	4.0	22000	308	44	.135	1.16	.330
16...	0405	63	--	3.2	21000	196	--	.119	.780	.290
16...	0810	55	--	3.0	32000	180	--	.111	.888	.350
16...	1417	27	--	2.2	13000	50	--	.052	.434	.230
*16...	1418	27	--	2.0	17000	48	--	.046	.424	.230
16...	2220	15	--	--	--	34	--	.031	.247	--
17...	0935	10	--	--	--	14	--	.013	.129	--
*23...	0832	5.0	8.4	.5	90	4	--	<.013	.038	--
26...	0950	14	--	--	--	82	--	.030	.221	--
26...	1050	18	--	--	--	76	--	.021	.175	--
26...	1150	20	--	--	--	93	--	.015	.212	--
26...	1550	15	--	--	--	57	--	.086	.485	--
26...	1950	9.8	--	--	--	28	--	.030	.254	--
27...	0750	6.6	--	--	--	10	--	<.013	.062	--
MAY										
01...	0515	6.0	--	--	--	22	--	<.013	.070	--
01...	0645	8.5	--	--	--	26	--	<.013	.076	--
01...	1045	11	--	--	--	20	--	<.013	.070	--
01...	1445	9.1	--	--	--	22	--	<.013	.096	--
02...	0645	7.0	--	--	--	12	--	<.013	.063	--
*07...	1132	5.2	8.3	1.4	830	5	--	.026	.034	--
*20...	1322	3.3	8.5	2.8	600	17	--	<.013	.065	--
31...	0245	4.6	--	--	--	231	--	.074	.284	--
31...	0315	6.2	--	--	--	403	--	.406	2.17	--
31...	0345	7.2	--	--	--	219	--	.132	.770	--
31...	0415	7.6	--	--	--	754	--	.109	.970	--
31...	0445	8.2	--	--	--	634	--	.099	.789	--
31...	0515	15	--	--	--	318	--	.079	.699	--
31...	0740	7.6	--	--	--	478	--	.128	.726	--
31...	1540	4.1	--	--	--	410	--	.082	.250	--
JUN										
*03...	1354	3.0	8.5	1.1	550	18	--	.039	.061	.031
*18...	0915	2.7	7.9	1.4	600	27	--	.017	.075	.029
18...	2115	4.3	8.4	--	80000	120	26	.085	.350	.111
18...	2215	4.1	8.4	--	20000	103	19	.064	.263	.079
18...	2315	7.8	8.4	--	9000	208	34	.045	.358	.069
18...	2345	7.8	8.4	--	7700	151	27	.034	.271	.051
19...	0245	5.8	8.3	--	19000	171	27	.030	.357	.060
19...	0815	3.8	8.3	--	120000	58	15	.123	.443	.177
27...	0350	3.6	8.4	--	34000	122	16	.055	.177	.030
27...	0450	4.8	8.4	--	11000	144	30	.116	.397	.134
27...	0550	4.8	8.4	--	11000	156	26	.085	.332	.085
27...	0620	8.7	8.3	--	9000	486	64	.080	.580	.058
27...	0920	5.8	8.3	--	27000	366	56	.132	.639	.074
27...	1220	4.1	8.4	--	21000	128	23	.036	.292	.062
27...	1520	3.4	8.5	--	20000	79	14	.037	.208	.055
28...	0020	2.8	8.4	2.0	15000	52	10	.041	.151	.055
28...	0320	4.3	8.4	3.3	48000	108	24	.088	.385	.127
28...	0525	9.4	8.3	5.4	210000	244	41	.103	.738	.244
28...	0610	15	8.3	6.0	94000	296	46	.054	.565	.127
28...	0905	9.4	8.2	5.8	53000	179	31	.102	.609	.208
28...	1205	6.4	8.4	4.2	49000	102	19	.069	.417	.155
28...	1505	5.0	8.4	5.9	36000	71	16	.215	.534	.258
28...	1805	4.1	8.4	4.5	320000	50	12	.203	.430	.216
28...	2105	3.6	8.3	4.0	140000	41	11	.167	.372	.194
29...	0305	3.3	8.4	2.9	12000	69	13	.065	.226	.095
29...	0905	3.1	8.5	1.5	6000	26	5	.034	.136	.062
JUL										
*01...	1416	2.7	--	--	1100	20	--	<.013	.074	.032
*16...	0929	2.5	--	--	25000	23	--	.030	.073	.023
*30...	1158	2.2	--	--	2200	13	--	.007	.055	--

* Equal-width increment (EWI) sample

STREAMS TRIBUTARY TO LAKE MICHIGAN
04083423 PARSONS CREEK, MIDDLE SITE, NEAR FOND DU LAC, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDEED (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
AUG 1998							
*13...	0904	2.1	30000	8	<.013	.065	.032
*27...	1314	1.8	9500	8	.028	.075	.031
SEP							
*09...	1256	1.5	1300	5	.013	.048	.015
14...	1710	3.9	--	62	.167	.510	.308
14...	1840	4.8	--	85	.082	.387	.212
14...	1940	6.0	--	129	.110	.519	.274
14...	2240	5.4	--	98	.039	.348	.174
15...	0440	3.3	--	55	.032	.214	.114
15...	1340	2.2	E53000	15	.024	.110	.069
*24...	1146	1.6	2400	16	.019	.057	.021

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDEED (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDEED (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 1998											
*09...	1522	--	1.8	--	--	1100	10	--	.019	.058	.029
*22...	1258	--	1.4	--	--	360	<5	--	.016	.032	.019
NOV											
*06...	1106	--	1.3	--	--	680	5	--	<.013	.038	.017
DEC											
*01...	1332	--	1.5	--	--	210	13	--	.019	.048	.021
FEB 1999											
09...	1235	--	3.9	--	--	--	10	--	.085	.286	--
09...	1510	--	5.0	--	--	--	10	--	.071	.249	--
09...	2110	--	7.3	--	--	--	48	--	.083	.234	--
10...	0910	--	3.8	--	--	--	11	--	.094	.267	--
11...	0835	--	12	8.1	5.5	1000	192	31	.111	.531	.258
11...	1125	--	15	8.1	7.2	1300	239	39	.234	.704	.320
*11...	1126	--	15	8.1	6.7	700	239	39	.226	.667	.328
11...	1525	--	23	8.0	15	3000	660	130	.407	1.99	.629
11...	1630	--	34	7.9	18	2400	1340	204	.251	1.90	.274
11...	2135	--	33	7.9	13	3400	584	96	.490	1.34	.412
12...	0025	--	21	8.0	6.4	1700	212	34	.307	.740	.324
12...	0455	--	12	8.1	3.8	500	119	19	.167	.432	.199
12...	1600	--	6.5	--	--	--	234	--	.044	.353	--
13...	1600	--	3.9	--	--	--	33	--	.032	.088	--
17...	1030	--	2.9	--	--	--	102	--	.021	.206	--
MAR											
*11...	0944	1.8	--	8.5	.8	<10	8	--	<.013	.023	.007
APR											
03...	1000	--	2.4	--	--	--	186	--	.124	.214	--
03...	1200	--	6.7	--	--	--	404	--	.360	1.06	--
03...	1230	--	17	--	--	--	1050	--	.200	1.22	--
03...	1600	--	24	--	--	--	524	--	.361	1.18	--
03...	1640	--	38	--	--	--	1180	--	.333	1.70	--
03...	1740	--	40	--	--	--	1150	--	.566	2.12	--
03...	1840	--	38	--	--	--	644	--	.536	1.47	--
03...	2245	--	21	--	--	--	154	--	.306	.662	--
04...	0445	--	12	--	--	--	52	--	.124	.284	--
04...	0745	--	15	--	--	--	95	--	.182	.531	--
04...	0900	--	24	--	--	--	142	--	.096	.392	--
04...	1200	--	23	--	--	--	328	--	.591	2.03	--
04...	1500	--	16	--	--	--	82	--	.174	.505	--
05...	1029	--	6.9	--	--	--	12	--	.033	.117	--
*05...	1030	--	6.9	--	--	--	8	--	.031	.111	--
06...	0805	--	6.9	--	--	--	17	--	.028	.090	--
*21...	1032	--	2.5	8.4	<2.0	110	8	--	.021	.025	.012
22...	1510	--	8.5	--	--	--	40	--	.025	.099	--
22...	1610	--	17	--	--	--	254	--	.038	.366	--
22...	1910	--	21	--	--	--	316	--	.514	1.26	--
23...	0105	--	13	--	--	--	52	--	.103	.311	--
23...	0330	--	19	--	--	--	87	--	.088	.477	--
23...	0450	--	36	--	--	--	430	--	.076	.833	--
23...	0550	--	58	--	--	--	1100	--	.181	1.76	--
23...	0725	--	74	--	--	--	1390	--	.245	2.40	--
23...	1010	--	54	--	--	--	524	--	.172	1.33	--

* Equal-width increment (EWI) sample

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04083423 PARSONS CREEK, MIDDLE SITE, NEAR FOND DU LAC, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, PENDE (MG/L) (00530)	RESIDUE VOLATILE TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHOPHOS- PHE (MG/L AS P) (00671)
APR 1999										
23...	1140	38	--	--	--	304	--	.141	.923	--
23...	1605	20	--	--	--	100	--	.060	.412	--
*23...	1826	16	--	--	--	54	--	.040	.284	--
23...	1827	16	--	--	--	54	--	.045	.280	--
24...	0045	10	--	--	--	33	--	.038	.162	--
25...	1245	5.4	--	--	--	8	--	.020	.053	--
MAY										
06...	1645	5.6	8.6	--	--	44	8	.042	.126	--
17...	0105	31	8.3	34	--	1920	500	.532	8.57	1.13
17...	0205	70	7.9	33	--	7800	860	.443	10.6	.448
17...	0305	90	7.9	29	--	2700	440	.649	5.29	.768
17...	0355	108	7.9	29	--	3940	540	.442	6.49	.586
17...	0510	88	7.9	14	--	2500	320	.529	4.93	.495
17...	0635	63	7.9	9.7	--	1100	150	.533	2.74	.487
17...	0830	41	8.0	<6.0	--	492	72	.463	1.53	.422
*17...	1054	26	8.1	<6.0	--	440	76	.239	.839	.322
17...	1055	25	8.1	<6.0	--	212	36	.240	.865	.297
17...	1905	13	8.3	<6.0	--	70	16	.189	.330	.141
18...	0710	8.5	8.3	<6.0	--	36	7	.107	.165	.079
19...	0015	9.0	8.4	--	--	42	--	.111	.253	--
20...	0615	5.4	8.5	--	--	21	--	.040	.100	--
*24...	1036	4.7	8.5	--	2600	10	--	.034	.069	.037
JUN										
06...	1730	5.0	8.4	--	89000	152	--	.130	.706	.246
06...	1830	4.3	8.3	--	39000	82	--	.065	.389	.177
06...	2055	7.1	8.3	--	13000	107	--	.022	.252	.068
06...	2355	5.4	8.3	--	20000	79	--	.046	.261	.097
07...	0555	7.1	8.3	--	67000	68	--	.044	.251	.093
07...	1155	5.0	8.4	--	120000	46	--	.049	.368	.176
*07...	1756	3.6	8.4	--	49000	30	--	.035	.218	.121
*22...	1512	1.9	8.5	1.9	1100	22	--	.033	.062	.026
JUL										
08...	2235	2.6	8.5	--	--	143	--	.068	.193	--
08...	2250	3.8	8.5	--	--	191	--	.090	.419	--
08...	2300	5.4	8.5	--	--	628	--	.184	2.58	--
08...	2310	7.3	8.5	--	--	448	--	.341	2.33	--
09...	0045	17	8.2	--	--	596	--	.083	1.06	--
09...	0055	27	8.2	--	--	844	--	.062	1.20	--
09...	0155	31	8.1	--	--	496	--	.150	.915	--
09...	0255	24	8.0	--	--	342	--	.196	1.03	--
09...	0515	15	8.1	--	--	198	--	.430	1.21	--
09...	1235	4.7	8.4	--	--	53	--	.140	.641	--

* Equal-width increment (EWI) sample

STREAMS TRIBUTARY TO LAKE MICHIGAN
04083423 PARSONS CREEK, MIDDLE SITE, NEAR FOND DU LAC, WI--CONTINUED

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED(TONS PER DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	.009	.010	.010	.020	4.46	.35	.41	.16	.060	.029
2	---	---	.009	.010	.013	.019	.82	.20	.26	.14	.058	.027
3	---	---	.010	.010	.011	.019	.48	.14	.17	.14	.058	.026
4	---	---	.010	.012	.010	.018	.33	.12	.15	.17	.061	.025
5	---	---	.010	.45	.010	.017	.24	.091	.15	.14	.066	.023
6	---	---	.009	.016	.009	.017	.18	.075	.15	.15	.95	.023
7	---	---	.009	.013	.008	.016	.16	.077	.15	.16	.066	.020
8	---	---	.009	.011	.008	.017	.16	3.60	.15	.16	.057	.019
9	---	---	.009	.010	.008	.015	.15	.074	.19	.16	.053	.019
10	---	---	.009	.010	.008	.015	.14	.072	.19	.15	.051	.018
11	---	---	.008	.009	.014	.014	.13	.075	1.90	.15	.047	.017
12	---	---	.008	.009	.024	.013	.12	.078	.26	.15	.046	.018
13	---	---	.009	.009	.019	.013	.12	.083	.20	.15	.044	.017
14	---	---	.009	.009	.015	.012	.14	.082	.19	.15	.043	.50
15	---	---	.009	.009	.035	.011	31.0	.085	.19	.17	.044	.25
16	---	---	.009	.009	.60	.011	18.9	.094	.19	.16	.043	.054
17	---	---	.009	.009	3.20	.032	.47	.091	.18	.14	.051	.051
18	---	---	.009	.008	.55	12.0	.24	.093	.45	.13	.045	.048
19	---	---	.009	.008	.20	4.00	.19	.096	.95	.14	.043	.049
20	---	---	.009	.008	.096	.50	.15	.099	.28	.12	.043	.046
21	---	---	.009	.008	.060	.30	.12	.098	.22	.95	.044	.046
22	---	---	.009	.008	.041	.23	.10	.098	.20	.12	.052	.045
23	---	---	.009	.008	.027	.17	.092	.096	.19	.11	.054	.045
24	---	---	.009	.008	.031	.15	.089	.10	.21	.10	.046	.046
25	---	---	.009	.009	.025	.14	.084	.098	.19	.12	.043	.046
26	---	---	.009	.008	.023	2.00	1.53	.094	.18	.097	.040	.046
27	---	---	.009	.008	.73	.10	.20	.092	1.69	.090	.038	.044
28	---	---	.009	.009	.11	.091	.14	.11	2.30	.079	.038	.043
29	---	---	.009	.009	---	.082	.13	.10	.36	.071	.036	.040
30	---	---	.009	.008	---	460	.13	.093	.22	.069	.033	.055
31	---	---	.009	.008	---	569	---	3.85	---	.063	.030	---
TOTAL	---	---	0.280	0.730	5.895	1049.042	61.195	10.504	12.52	4.859	2.383	1.735

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED(TONS PER DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.099	.015	.054	.028	.023	.029	.034	.067	.085	1.20	---	---
2	.085	.016	.053	.027	.40	.029	.034	.061	1.20	.14	---	---
3	.076	.016	.051	.027	.50	.029	22.2	.058	.090	.16	---	---
4	.068	.017	.052	.027	.70	.030	4.80	.055	.084	.13	---	---
5	.50	.018	.050	.026	.35	.032	.24	.057	.079	.11	---	---
6	.60	.019	.050	.026	.033	.031	.23	1.20	.48	.11	---	---
7	.084	.019	.051	.026	.030	.033	.15	.80	.60	.11	---	---
8	.060	.019	.047	.025	.037	.034	.13	.081	.15	.59	---	---
9	.050	.022	.050	.025	.24	.034	6.00	.073	.12	6.70	---	---
10	.041	2.30	.048	.025	.33	.037	4.80	.069	.10	.18	---	---
11	.034	.036	.048	.024	37.0	.039	3.50	.037	.15	.16	---	---
12	.031	.031	.045	.024	1.30	.039	.16	.035	.14	.15	---	---
13	.028	.030	.043	.024	.080	.037	.12	.036	.13	.16	---	---
14	.025	.029	.042	.023	.047	.038	.090	.063	.12	.17	---	---
15	.022	.028	.044	.023	.038	.040	.080	.063	.14	.16	---	---
16	.019	.090	.040	.023	.031	.044	.070	.068	.15	---	---	---
17	.019	.036	.040	.45	.024	.055	.070	165	.15	---	---	---
18	.018	.035	.039	.033	.026	.047	.067	1.34	.14	---	---	---
19	.015	.042	.039	.027	.023	.040	.063	.61	.13	---	---	---
20	.013	.039	.038	.022	.023	.041	.057	.28	.13	---	---	---
21	.011	.040	.035	.021	.022	.040	.053	.20	.12	---	---	---
22	.010	.041	.034	1.50	.022	.039	3.70	.16	.13	---	---	---
23	.010	.044	.034	9.00	.020	.037	45.0	.16	.14	---	---	---
24	.010	.043	.034	1.10	.021	.035	.40	.13	.12	---	---	---
25	.011	.045	.033	.35	.022	.034	.14	.11	.11	---	---	---
26	.011	.045	.033	.037	.023	.033	.099	.097	.11	---	---	---
27	.015	.047	.035	.034	.031	.033	.085	.088	.11	---	---	---
28	.014	.048	.039	.034	.031	.034	.081	.084	.11	---	---	---
29	.013	.050	.036	.029	---	.033	.074	.080	.11	---	---	---
30	.014	.061	.033	.024	---	.032	.068	.077	.11	---	---	---
31	.014	---	.031	.020	---	.034	---	.087	---	---	---	---
TOTAL	2.020	3.321	1.301	13.084	41.427	1.122	92.595	171.326	5.538	---	---	---

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04083423 PARSONS CREEK, MIDDLE SITE, NEAR FOND DU LAC, WI--CONTINUED

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	.19	.31	.31	1.08	47.6	3.42	3.13	1.22	.61	.50
2	---	---	.19	.34	.39	.92	9.47	2.28	1.81	1.11	.59	.49
3	---	---	.23	.34	.34	.91	5.42	1.69	1.08	1.10	.61	.48
4	---	---	.22	.39	.30	.84	3.70	1.44	.95	1.23	.65	.47
5	---	---	.22	1.40	.28	.78	2.64	1.16	.95	1.06	.72	.45
6	---	---	.22	.56	.25	.79	2.03	1.00	.95	1.12	6.50	.45
7	---	---	.21	.46	.22	.74	1.84	1.04	.95	1.14	.76	.41
8	---	---	.21	.38	.22	.78	1.81	21.0	.93	1.12	.67	.40
9	---	---	.21	.36	.20	.71	1.79	.95	1.13	1.08	.63	.39
10	---	---	.21	.34	.20	.67	1.63	.91	1.14	1.04	.62	.38
11	---	---	.20	.31	.24	.63	1.57	.91	12.0	1.03	.59	.37
12	---	---	.20	.31	.29	.60	1.49	.93	1.55	1.00	.58	.37
13	---	---	.22	.31	.27	.57	1.51	.96	1.16	1.00	.58	.37
14	---	---	.22	.31	.26	.54	1.76	.93	1.10	.99	.57	4.75
15	---	---	.23	.31	.60	.51	135	.93	1.08	1.07	.58	2.43
16	---	---	.23	.31	5.24	.51	162	1.01	1.05	1.01	.58	.93
17	---	---	.24	.31	32.3	.71	7.18	.95	1.01	.95	.70	.81
18	---	---	.23	.29	15.3	84.6	1.73	.95	2.10	.91	.62	.70
19	---	---	.24	.29	4.97	48.0	1.29	.90	6.87	.95	.60	.66
20	---	---	.24	.29	3.02	7.69	1.15	.89	1.43	.89	.61	.57
21	---	---	.25	.29	2.02	5.14	1.10	.88	1.07	6.00	.63	.52
22	---	---	.25	.29	1.45	3.90	1.04	.87	1.05	.94	.75	.47
23	---	---	.26	.29	.99	2.93	1.00	.86	1.02	.89	.80	.43
24	---	---	.26	.30	1.13	2.47	.97	.85	1.13	.83	.69	.41
25	---	---	.26	.30	.92	2.26	.92	.84	1.05	.98	.64	.41
26	---	---	.26	.30	.86	14.0	14.1	.83	1.03	.83	.62	.40
27	---	---	.27	.30	7.58	1.66	2.71	.82	6.60	.79	.60	.38
28	---	---	.27	.31	2.40	1.43	1.76	.90	15.9	.72	.61	.37
29	---	---	.28	.30	---	1.30	1.64	.88	2.86	.66	.58	.35
30	---	---	.28	.28	---	1430	1.64	.82	1.75	.66	.54	.48
31	---	---	.28	.28	---	2040	---	15.4	---	.62	.52	---
TOTAL	---	---	7.28	11.16	82.55	3657.67	419.49	68.20	75.83	34.94	25.35	20.60

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.70	.27	.40	.27	.32	.36	.20	.83	1.18	8.00	---	---
2	.64	.28	.40	.27	5.00	.33	.19	.75	11.0	.85	---	---
3	.60	.28	.38	.27	7.00	.31	90.7	.71	1.25	.99	---	---
4	.57	.27	.40	.27	11.0	.30	52.5	.67	1.17	.79	---	---
5	3.00	.28	.38	.27	6.00	.29	5.49	.68	1.10	.70	---	---
6	7.50	.28	.38	.27	.50	.26	3.01	8.00	3.65	.70	---	---
7	.86	.28	.40	.27	.46	.25	1.92	7.00	7.04	.66	---	---
8	.64	.28	.37	.26	.86	.25	1.46	1.32	2.05	4.31	---	---
9	.57	.31	.39	.26	5.93	.22	40.0	.80	1.10	43.8	---	---
10	.50	23.0	.38	.26	7.95	.23	14.0	.55	1.13	1.97	---	---
11	.44	.47	.39	.26	149	.22	22.0	.59	1.32	1.13	---	---
12	.43	.40	.37	.26	16.2	.22	1.63	.77	1.11	1.05	---	---
13	.41	.38	.36	.26	2.00	.21	1.11	.67	1.06	1.02	---	---
14	.39	.35	.35	.26	1.00	.22	.92	.57	1.01	1.08	---	---
15	.37	.33	.37	.26	.80	.23	.77	.52	.90	.96	---	---
16	.33	.70	.34	.26	.96	.25	.66	.52	.88	---	---	---
17	.36	.40	.34	2.00	.75	.31	.54	692	.88	---	---	---
18	.35	.38	.34	.39	.75	.27	.46	13.7	.82	---	---	---
19	.31	.44	.34	.32	.61	.23	.42	6.85	.78	---	---	---
20	.29	.40	.34	.26	.56	.23	.37	2.70	.73	---	---	---
21	.27	.39	.31	.26	.50	.23	.34	2.16	.69	---	---	---
22	.25	.40	.31	14.0	.46	.22	24.7	1.86	.71	---	---	---
23	.25	.41	.31	62.0	.40	.22	195	2.02	.77	---	---	---
24	.24	.39	.31	12.0	.39	.20	5.06	1.72	.71	---	---	---
25	.24	.39	.31	2.50	.37	.19	1.72	1.49	.64	---	---	---
26	.25	.39	.30	.47	.36	.19	1.30	1.33	.63	---	---	---
27	.32	.39	.32	.45	.45	.19	1.10	1.22	.64	---	---	---
28	.29	.39	.37	.45	.42	.19	1.04	1.16	.65	---	---	---
29	.26	.39	.35	.39	---	.19	.94	1.10	.65	---	---	---
30	.27	.46	.32	.32	---	.18	.85	1.07	.65	---	---	---
31	.26	---	.30	.28	---	.19	---	1.20	---	---	---	---
TOTAL	22.16	33.78	10.93	100.32	221.00	7.38	470.40	756.53	46.90	---	---	---

STREAMS TRIBUTARY TO LAKE MICHIGAN

04083425 PARSONS CREEK, DOWNSTREAM SITE, NEAR FOND DU LAC, WI

LOCATION.--Lat 43°41'50", long 88°28'31", in NE 1/4 SW 1/4 sec.9, T.14 N., R.17 E., Fond du Lac County, Hydrologic Unit 04030203, on left upstream side of bridge on County Trunk B, 5.6 mi south of Fond du Lac.

DRAINAGE AREA.--5.7 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1997 to September 1999.

GAGE.--Water-stage recorder. Elevation of gage is 860 ft above sea level, from topographic map.

REMARKS.--

DECEMBER 1997 TO SEPTEMBER 1998.--Estimated daily discharges: Ice-affected periods, Dec. 13-15, 20, 21, 24-28, 30, 31, Jan. 1-3, 9-23, Feb. 6, 7, and Mar. 10-16. Records good except those for estimated periods, which are poor (see page 13).

1999 WATER YEAR.--Estimated daily discharges: Aug. 19 to Sept. 15, and ice-affected periods, Dec. 21 to Feb. 2, Feb. 20-22, 24, and Mar. 4-13. Records good except those for estimated periods, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	1.2	1.3	1.4	3.0	21	8.3	3.6	3.0	2.1	1.7
2	---	---	1.2	1.4	1.7	2.9	11	6.9	3.3	2.9	2.1	1.7
3	---	---	1.4	1.5	1.5	2.9	8.2	5.9	3.1	2.8	2.1	1.7
4	---	---	1.4	1.6	1.4	2.7	6.9	5.7	2.9	3.2	2.3	1.7
5	---	---	1.4	2.9	1.3	2.4	6.1	5.2	2.9	2.8	2.6	1.7
6	---	---	1.3	2.3	1.2	2.5	5.6	5.0	2.9	2.9	3.9	1.7
7	---	---	1.3	1.8	1.1	2.3	5.2	5.7	2.8	2.9	2.7	1.6
8	---	---	1.2	1.5	1.1	2.4	5.2	6.3	2.7	2.9	2.4	1.6
9	---	---	1.2	1.4	1.1	2.2	5.1	5.0	3.3	2.8	2.3	1.6
10	---	---	1.2	1.3	1.1	2.1	4.7	4.6	3.2	2.7	2.2	1.5
11	---	---	1.2	1.2	1.3	2.0	4.5	4.4	4.7	2.7	2.2	1.5
12	---	---	1.2	1.2	1.4	1.9	4.2	4.4	4.3	2.6	2.1	1.5
13	---	---	1.2	1.2	1.3	1.8	4.3	4.3	3.2	2.6	2.1	1.5
14	---	---	1.2	1.2	1.3	1.7	5.0	4.0	3.0	2.6	2.1	3.1
15	---	---	1.2	1.2	2.1	1.6	22	3.9	2.9	2.8	2.1	2.7
16	---	---	1.2	1.2	4.2	1.6	37	4.1	2.8	2.7	2.0	1.8
17	---	---	1.3	1.2	11	1.9	10	3.7	2.6	2.5	2.4	1.7
18	---	---	1.2	1.2	7.9	16	7.4	3.6	3.0	2.5	2.2	1.6
19	---	---	1.2	1.2	4.9	14	6.5	3.5	4.1	2.6	2.1	1.7
20	---	---	1.2	1.2	4.1	8.1	5.8	3.4	2.9	2.5	2.0	1.6
21	---	---	1.2	1.2	3.6	7.0	5.5	3.3	2.7	3.9	2.1	1.5
22	---	---	1.2	1.2	3.5	5.9	5.2	3.3	2.7	2.8	2.5	1.5
23	---	---	1.2	1.2	3.0	5.0	5.0	3.2	2.6	2.7	2.6	1.5
24	---	---	1.2	1.2	3.6	4.7	4.9	3.4	2.9	2.6	2.2	1.6
25	---	---	1.2	1.2	2.9	4.8	4.6	3.3	2.7	3.1	2.0	1.6
26	---	---	1.2	1.2	2.7	5.1	11	3.2	2.6	2.7	1.9	1.5
27	---	---	1.2	1.2	6.3	4.0	6.7	3.1	4.2	2.6	1.8	1.5
28	---	---	1.2	1.2	3.8	3.5	5.4	3.6	6.1	2.4	1.9	1.5
29	---	---	1.2	1.2	---	3.1	5.0	3.4	3.6	2.3	1.9	1.4
30	---	---	1.2	1.2	---	53	5.1	3.1	3.3	2.3	1.8	1.9
31	---	---	1.2	1.2	---	146	---	5.5	---	2.2	1.7	---
TOTAL	---	---	38.1	42.2	81.8	318.1	244.1	136.3	97.6	84.6	68.4	50.7
MEAN	---	---	1.23	1.36	2.92	10.3	8.14	4.40	3.25	2.73	2.21	1.69
MAX	---	---	1.4	2.9	11	146	37	8.3	6.1	3.9	3.9	3.1
MIN	---	---	1.2	1.2	1.1	1.6	4.2	3.1	2.6	2.2	1.7	1.4
CFSM	---	---	.22	.24	.51	1.80	1.43	.77	.57	.48	.39	.30
IN.	---	---	.25	.28	.53	2.08	1.59	.89	.64	.55	.45	.33

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1998, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1998	1.23	1.23	1998	1.23	1998
1998	1.36	1.36	1998	1.36	1998
1998	2.92	2.92	1998	2.92	1998
1998	10.3	10.3	1998	10.3	1998
1998	8.14	8.14	1998	8.14	1998
1998	4.40	4.40	1998	4.40	1998
1998	3.25	3.25	1998	3.25	1998
1998	2.73	2.73	1998	2.73	1998
1998	2.21	2.21	1998	2.21	1998
1998	1.69	1.69	1998	1.69	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(DECEMBER 1997-SEPTEMBER 1998)

HIGHEST DAILY MEAN	146	Mar 31
LOWEST DAILY MEAN	1.1	Feb 7-10
ANNUAL SEVEN-DAY MINIMUM	1.2	Feb 5
INSTANTANEOUS PEAK FLOW	(a) 425	Mar 31
INSTANTANEOUS PEAK STAGE	7.60	Mar 31
INSTANTANEOUS LOW FLOW	.62	Mar 15
10 PERCENT EXCEEDS	5.6	
50 PERCENT EXCEEDS	2.6	
90 PERCENT EXCEEDS	1.2	

(a) From rating curve extended above 60 ft³/s on basis of slope-area measurement of peak flow

04083425 PARSONS CREEK, DOWNSTREAM SITE, NEAR FOND DU LAC, WI-CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	1.4	1.6	1.3	1.5	2.1	1.6	3.1	3.3	4.3	2.6	2.2
2	1.5	1.5	1.6	1.3	3.3	2.1	1.6	2.8	4.5	2.4	2.6	2.1
3	1.5	1.4	1.5	1.3	4.0	2.0	15	2.7	3.4	2.8	2.7	2.1
4	1.5	1.4	1.6	1.3	4.7	1.9	16	2.5	3.2	2.3	3.4	2.1
5	3.0	1.4	1.5	1.3	3.8	1.9	7.3	2.6	3.0	2.0	2.9	2.1
6	4.1	1.4	1.6	1.3	2.4	1.8	6.4	4.3	3.7	2.0	2.5	2.1
7	2.6	1.4	1.6	1.3	2.2	1.8	4.5	4.3	5.0	1.8	2.8	2.1
8	2.0	1.4	1.5	1.3	2.8	1.8	3.7	3.9	3.2	2.2	2.6	2.1
9	1.9	1.5	1.6	1.3	5.3	1.7	8.8	3.4	2.9	9.1	2.6	2.1
10	1.7	6.5	1.6	1.3	4.9	1.8	5.0	3.2	3.0	2.4	2.9	2.2
11	1.6	2.2	1.6	1.3	22	1.9	6.5	2.9	3.6	2.1	2.5	2.1
12	1.6	1.9	1.5	1.3	9.4	1.9	5.8	3.3	3.0	2.1	2.5	2.2
13	1.6	1.8	1.5	1.3	4.4	1.8	4.3	3.0	2.9	2.1	2.5	2.2
14	1.6	1.6	1.5	1.3	3.4	1.8	3.9	2.7	2.8	2.3	2.3	2.1
15	1.6	1.5	1.6	1.3	3.3	1.9	3.6	2.6	2.5	2.1	2.2	2.0
16	1.5	2.0	1.5	1.3	3.3	2.1	3.3	2.8	2.5	2.2	2.3	2.0
17	1.7	1.8	1.5	2.8	3.0	2.6	2.9	35	2.5	3.1	2.2	1.9
18	1.7	1.7	1.5	1.9	3.1	2.2	2.7	13	2.4	2.4	2.3	1.9
19	1.6	1.9	1.4	1.6	2.6	1.9	2.7	7.1	2.3	35	2.4	1.9
20	1.6	1.7	1.4	1.3	2.4	1.9	2.6	5.1	2.2	5.2	2.3	2.0
21	1.6	1.7	1.3	1.3	2.2	1.9	2.5	4.6	2.1	20	2.2	1.9
22	1.5	1.7	1.3	5.0	2.1	1.8	8.9	4.3	2.2	4.8	2.2	1.9
23	1.5	1.7	1.3	12	1.9	1.8	31	5.1	2.4	3.6	2.3	1.9
24	1.4	1.6	1.3	5.0	1.9	1.7	8.0	4.7	2.1	3.2	2.3	1.9
25	1.4	1.7	1.3	3.0	1.9	1.6	5.5	4.1	1.9	2.7	2.2	1.9
26	1.4	1.6	1.3	2.3	2.0	1.6	4.7	3.7	1.9	2.8	2.1	2.0
27	1.8	1.6	1.5	2.2	2.5	1.6	4.0	3.4	1.9	2.8	2.1	3.5
28	1.6	1.6	1.7	2.2	2.4	1.6	3.8	3.2	1.9	2.7	2.1	3.1
29	1.5	1.6	1.6	1.8	---	1.6	3.5	3.0	1.9	2.6	2.1	2.4
30	1.5	1.8	1.4	1.5	---	1.5	3.1	2.9	1.9	2.5	2.1	2.0
31	1.4	---	1.3	1.3	---	1.6	---	3.3	---	2.7	2.2	---
TOTAL	54.1	54.0	46.0	66.0	108.7	57.2	183.2	152.6	82.1	140.3	75.0	64.0
MEAN	1.75	1.80	1.48	2.13	3.88	1.85	6.11	4.92	2.74	4.53	2.42	2.13
MAX	4.1	6.5	1.7	12	22	2.6	31	35	5.0	35	3.4	3.5
MIN	1.4	1.4	1.3	1.3	1.5	1.5	1.6	2.5	1.9	1.8	2.1	1.9
CFSM	.31	.32	.26	.37	.68	.32	1.07	.86	.48	.79	.42	.37
IN.	.35	.35	.30	.43	.71	.37	1.20	1.00	.54	.92	.49	.42

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
MEAN	1.75	1.80	1.36	1.75	3.40	6.05	7.12	4.66	2.99	3.63	2.31	1.91
MAX	1.75	1.80	1.48	2.13	3.88	10.3	8.14	4.92	3.25	4.53	2.42	2.13
(WY)	1999	1999	1999	1999	1999	1998	1998	1999	1999	1999	1999	1999
MIN	1.75	1.80	1.23	1.36	2.92	1.85	6.11	4.40	2.74	2.73	2.21	1.69
(WY)	1999	1999	1998	1998	1998	1999	1999	1998	1999	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1998 - 1999

ANNUAL TOTAL	1277.9	1083.2	
ANNUAL MEAN	3.50	2.97	2.97
HIGHEST ANNUAL MEAN			2.97 1999
LOWEST ANNUAL MEAN			2.97 1999
HIGHEST DAILY MEAN	146 Mar 31	35 (a) May 17	146 Mar 31 1998
LOWEST DAILY MEAN	1.1 Feb 7-10	1.3 Many days	1.1 Feb 7-10 1998
ANNUAL SEVEN-DAY MINIMUM	1.2 Feb 5	1.3 Dec 31	1.2 Feb 5 1998
INSTANTANEOUS PEAK FLOW		(b) 112 Jul 19	(c) 425 Mar 31 1998
INSTANTANEOUS PEAK STAGE		(d) 5.79 May 17	7.60 Mar 31 1998
INSTANTANEOUS LOW FLOW		.80 Dec 21	.62 Mar 15 1998
ANNUAL RUNOFF (CFSM)	.61	.52	.52
ANNUAL RUNOFF (INCHES)	8.34	7.07	7.07
10 PERCENT EXCEEDS	5.2	4.5	5.0
50 PERCENT EXCEEDS	2.1	2.1	2.2
90 PERCENT EXCEEDS	1.3	1.4	1.3

(a) Also occurred July 19

(b) Gage-height, 5.56 ft

(c) From rating curve extended above 60 ft³/s on basis of slope-area measurement of peak flow

(d) Backwater

STREAMS TRIBUTARY TO LAKE MICHIGAN

04083425 PARSONS CREEK, DOWNSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 30, 1997 to September 1999.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1997 to September 1999.

SUSPENDED-SOLIDS DISCHARGE: December 1997 to July 1999.

TOTAL-PHOSPHORUS DISCHARGE: December 1997 to July 1999.

INSTRUMENTATION.--Continuous water-temperature recorder since November 1997. Stage-activated water-quality sampler since December 1997.

REMARKS.--Chemical analyses by the Wisconsin State Laboratory of Hygiene. Samples are point samples unless otherwise indicated. Records represent water temperature at sensor within 0.5°C.

EXTREMES FOR CURRENT PERIOD.--

DECEMBER 1997-SEPTEMBER 1998

WATER TEMPERATURE.--Maximum observed, 23.5°C, July 14 and Aug. 23; minimum observed, 0.0°C, many days.

SUSPENDED-SOLIDS DISCHARGE.--Maximum daily, 627 tons, Mar. 31; minimum observed, 0.01 ton, many days.

TOTAL-PHOSPHORUS DISCHARGE.--Maximum daily, 2,070 lb, Mar. 31; minimum observed, 0.20 lb, Dec. 1-2.

1999 WATER YEAR:

WATER TEMPERATURE.--Maximum observed, 27.0°C, July 5; minimum observed, 0.0°C, many days.

SUSPENDED-SOLIDS DISCHARGE.--Maximum daily, 180 tons, May 17; minimum observed, 0.011 ton, Oct. 22.

TOTAL-PHOSPHORUS DISCHARGE.--Maximum daily, 750 lb, May 17; minimum observed, 0.19 lb, Mar. 30, 31, and Apr. 2.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 1997										
*30...	1230	E1.7	8.5	.4	130	<5	--	<.013	.039	.000
NOV										
*25...	1440	E1.3	8.4	.7	230	<5	--	<.013	.024	.014
JAN 1998										
*07...	1410	1.7	8.2	1.1	580	<5	--	.059	.104	.077
*28...	1348	1.2	--	--	--	<5	--	.017	.049	--
FEB										
11...	1400	1.3	--	--	--	<5	--	.137	.084	.058
11...	1630	1.5	--	--	--	9	--	.665	.431	.284
11...	1830	1.6	--	--	--	10	--	.463	.298	.189
12...	0030	1.6	--	--	--	6	--	.113	.098	.065
17...	0800	12	--	--	--	202	--	.269	.831	--
17...	1625	12	--	--	--	95	--	.233	.627	--
18...	0025	10	--	--	--	57	--	.255	.570	--
18...	1003	8.0	8.2	2.0	--	21	--	.168	.386	.275
*18...	1004	8.0	8.2	2.0	--	20	--	.157	.393	.290
18...	1945	6.5	--	--	--	28	--	.167	.315	--
19...	0815	4.8	--	--	--	11	--	.078	.216	--
*23...	1124	2.8	8.5	.5	40	<5	--	<.013	.076	.049
27...	0500	3.6	8.3	1.2	230	21	--	.038	.110	--
27...	0600	4.4	8.3	4.7	3500	47	--	.378	.651	--
27...	0720	5.7	8.2	5.6	4200	81	--	.520	.995	--
27...	0835	8.0	8.3	3.4	2600	86	--	.219	.616	--
27...	1041	9.8	8.3	3.0	1700	54	--	.087	.386	--
*27...	1042	9.8	8.3	2.8	2200	50	--	.121	.385	--
27...	1240	10	8.2	3.6	900	70	--	.080	.342	--
27...	1600	8.0	8.2	3.7	2200	47	--	.105	.412	--
27...	2010	5.9	8.2	2.7	1600	33	--	.105	.324	--
28...	0720	4.1	8.2	1.5	400	12	--	.043	.133	--
MAR										
17...	2035	2.5	8.3	1.4	110	10	--	.050	.068	.031
18...	0540	5.0	8.2	8.9	640	74	--	.407	.856	.550
18...	0710	7.1	8.2	7.5	410	111	--	.433	.937	.600
18...	0915	13	8.1	13	320	207	--	.355	1.07	.600
18...	1137	17	8.0	12	630	418	--	.287	1.12	.372
*18...	1138	17	8.0	10	690	364	--	.271	1.03	.354
18...	1505	22	8.0	8.7	1000	352	--	.215	.978	.351
18...	1835	27	7.9	9.4	1200	548	--	.241	1.28	.378
18...	2235	24	7.9	9.1	4100	238	--	.378	.988	.470
19...	0845	13	8.1	3.3	3400	49	--	.230	.496	.324
19...	1210	16	8.1	3.2	3300	141	--	.179	.651	.278
19...	1445	13	8.1	3.9	1200	282	--	.208	.516	.316
19...	2245	9.5	8.1	2.3	1700	41	--	.117	.359	.226
20...	0910	6.7	8.3	1.4	400	16	--	.046	.192	.136

E Estimated

* Equal-width increment (EWI) sample

STREAMS TRIBUTARY TO LAKE MICHIGAN
04083425 PARSONS CREEK, DOWNSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
MAR 1998										
*26...	1336	5.3	8.8	3.5	10	10	--	<.013	.090	.043
30...	1810	13	8.4	35	2500000	3740	1120	2.12	19.1	3.62
30...	1910	79	--	17	390000	6020	--	.458	7.35	.290
30...	2010	90	--	18	590000	3300	--	.846	9.47	1.58
30...	2055	203	7.9	18	150000	4320	620	.514	8.05	.760
31...	0100	425	7.9	8.3	70000	2470	320	.253	4.19	1.46
31...	0840	129	7.9	4.0	30000	818	106	.154	1.96	.400
31...	1251	69	--	3.4	20000	272	40	.144	.998	.390
*31...	1252	69	--	3.2	10000	250	42	.147	.951	.390
31...	2025	65	--	--	25000	250	--	.185	.934	.430
APR										
01...	1225	19	--	--	2800	49	--	.065	.329	.191
02...	0630	12	--	.9	200	28	6	.028	.176	.107
*06...	1145	5.7	--	--	60	13	--	<.013	.076	.036
15...	1230	12	--	2.6	12000	140	--	.048	.296	.083
15...	1715	27	--	5.7	31000	266	54	.132	.833	.294
15...	1830	69	--	8.9	38000	928	144	.137	1.60	.324
15...	2030	74	--	8.9	87000	868	132	.264	1.88	.450
15...	2310	44	--	3.8	37000	304	48	.126	1.07	.350
16...	0405	65	--	3.6	52000	236	--	.133	.951	.420
16...	0810	57	--	2.9	33000	190	--	.120	.921	.380
16...	1401	29	--	2.1	24000	53	--	.060	.469	.280
*16...	1402	29	--	2.2	15000	51	--	.061	.457	.272
16...	2220	16	--	--	--	36	--	.054	.284	--
17...	0935	10	--	--	--	16	--	.037	.158	--
23...	0824	5.2	8.4	.5	40	6	--	<.013	.048	--
26...	0950	15	--	--	--	102	--	.055	.289	--
26...	1050	18	--	--	--	100	--	.035	.269	--
26...	1150	21	--	--	--	102	--	.025	.264	--
26...	1550	15	--	--	--	55	--	.083	.480	--
26...	1950	10	--	--	--	26	--	.029	.262	--
27...	0750	6.8	--	--	--	8	--	<.013	.069	--
MAY										
01...	0515	6.1	--	--	--	22	--	<.013	.080	--
01...	0645	8.7	--	--	--	29	--	<.013	.094	--
01...	1045	11	--	--	--	20	--	<.013	.088	--
01...	1445	9.4	--	--	--	10	--	<.013	.093	--
02...	0645	7.2	--	--	--	9	--	<.013	.069	--
*07...	1124	5.4	8.4	1.2	2100	6	--	.025	.040	--
*20...	1308	3.4	8.5	1.6	470	12	--	<.013	.051	--
31...	0245	4.8	--	--	--	156	--	.069	.234	--
31...	0315	6.4	--	--	--	430	--	.340	2.49	--
31...	0345	7.4	--	--	--	250	--	.167	1.03	--
31...	0415	7.8	--	--	--	560	--	.107	.872	--
31...	0445	8.5	--	--	--	742	--	.106	.906	--
31...	0515	15	--	--	--	608	--	.086	.772	--
31...	0740	7.8	--	--	--	406	--	.099	.251	--
31...	1540	4.2	--	--	--	67	--	.148	.752	--
JUN										
*03...	1348	3.2	8.5	1.0	730	17	--	.044	.061	.031
*18...	0904	2.8	8.4	1.2	1200	25	--	.017	.075	.028
18...	2115	4.4	8.4	--	90000	140	31	.109	.439	.140
18...	2215	4.2	8.4	--	20000	102	19	.064	.256	.078
18...	2315	8.1	8.3	--	12000	183	30	.048	.336	.075
18...	2345	8.1	8.3	--	8000	159	30	.038	.278	.053
19...	0245	5.9	8.3	--	23000	186	31	.050	.358	.058
19...	0815	3.9	8.3	--	130000	78	18	.136	.434	.168
27...	0350	3.7	8.4	--	13000	115	14	.040	.180	.031
27...	0450	5.0	8.3	--	67000	162	31	.096	.433	.140
27...	0520	4.4	8.3	--	45000	118	23	.062	.315	.104
27...	0550	5.0	8.3	--	8000	131	22	.058	.317	.088
27...	0620	9.0	8.3	--	11000	271	39	.053	.408	.064
27...	0920	5.9	8.2	--	12000	362	56	.076	.630	.067
27...	1220	4.2	8.3	--	7000	138	25	.043	.301	.063
27...	1520	3.6	8.4	--	23000	80	14	.031	.209	.054
28...	0020	2.9	8.3	2.7	7000	57	11	.032	.154	.059
28...	0320	4.4	8.3	2.8	30000	90	16	.061	.253	.090
28...	0525	9.6	8.3	7.5	530000	220	46	.216	1.00	.450
28...	0610	15	8.3	6.0	190000	310	54	.114	.676	.199
28...	0905	9.6	8.2	6.4	46000	181	32	.122	.662	.242
28...	1205	6.6	8.3	4.8	210000	111	21	.084	.462	.174
28...	1505	5.2	8.4	5.6	37000	79	16	.220	.544	.264
28...	1805	4.2	8.4	4.7	72000	65	14	.202	.449	.230
28...	2105	3.7	8.3	3.8	62000	45	10	.174	.371	.195
29...	0305	3.4	8.3	2.1	16000	58	11	.067	.225	.100
29...	0905	3.2	8.4	1.6	5000	41	7	.031	.151	.063
JUL										
*01...	1404	2.9	--	--	1700	20	--	.020	.074	.031
*16...	0914	2.7	8.4	--	12000	57	--	.013	.076	.024
*30...	1152	2.3	--	--	1500	13	--	.010	.056	--

* Equal-width increment (EWI) sample

STREAMS TRIBUTARY TO LAKE MICHIGAN

04083425 PARSONS CREEK, DOWNSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
AUG 1998								
*13...	0854	2.2	--	9700	9	<.013	.053	.025
*27...	1306	1.9	--	5800	9	<.013	.062	.028
SEP								
*09...	1248	1.6	--	1400	<5	<.013	.046	.015
14...	1710	4.1	8.2	--	86	.144	.470	.272
14...	1840	5.0	8.2	--	84	.079	.383	.212
14...	1940	6.1	8.1	--	149	.115	.528	.276
14...	2240	5.6	8.1	--	118	.035	.363	.171
15...	0440	3.4	8.1	--	56	.046	.219	.115
15...	1340	2.3	8.3	5600	12	.028	.107	.071
*24...	1132	1.6	--	3500	17	<.013	.052	.019

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLATILE, TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 1998											
*09...	1514	--	1.9	8.4	--	840	10	--	.021	.059	.028
*22...	1252	--	1.5	--	--	300	<5	--	.015	.034	.020
NOV											
*06...	1058	--	1.4	--	--	1800	11	--	<.013	.046	.020
DEC											
*01...	1318	--	1.6	--	--	230	38	--	.020	.038	.021
JAN 1999											
*14...	1436	1.3	--	--	--	20	7	--	.051	.042	.021
FEB											
09...	1235	--	4.1	--	--	--	14	--	.202	.426	--
09...	1510	--	5.2	--	--	--	17	--	.483	.768	--
09...	2110	--	7.6	--	--	--	50	--	.127	.286	--
10...	0910	--	3.9	--	--	--	10	--	.116	.299	--
11...	0835	--	13	8.1	6.2	600	177	30	.182	.578	.299
11...	1117	--	16	8.1	6.7	1100	241	38	.271	.727	.353
*11...	1118	--	16	8.0	6.7	1200	233	37	.276	.716	.349
11...	1525	--	24	8.1	23	3200	1190	288	1.22	5.10	1.43
11...	1630	--	35	8.0	25	13000	1310	212	.594	2.56	.655
11...	2135	--	34	7.8	9.2	4900	422	66	.501	1.18	.453
12...	0025	--	21	8.0	5.3	2900	146	28	.311	.694	.337
12...	0455	--	12	8.1	2.8	1200	54	11	.172	.376	.221
12...	1600	--	6.6	--	--	--	12	--	.120	.165	--
13...	1600	--	4.0	--	--	--	8	--	.043	.073	--
17...	1030	--	3.0	--	--	--	<5	--	<.013	.049	--
MAR											
*11...	0932	1.9	--	8.5	.4	10	8	--	<.013	.022	.008
APR											
03...	1000	--	2.4	--	--	--	70	--	.139	.113	--
03...	1200	--	6.9	--	--	--	378	--	.577	1.57	--
03...	1230	--	18	--	--	--	1100	--	.307	1.47	--
03...	1600	--	25	--	--	--	702	--	1.14	2.83	--
03...	1640	--	40	--	--	--	1240	--	.731	2.78	--
03...	1740	--	41	--	--	--	1290	--	.567	2.50	--
03...	1840	--	39	--	--	--	676	--	.584	1.50	--
03...	2245	--	21	--	--	--	136	--	.158	.338	--
04...	0445	--	13	--	--	--	42	--	.302	.700	--
04...	0745	--	15	--	--	--	158	--	.432	1.46	--
04...	0900	--	25	--	--	--	162	--	.181	.722	--
04...	1200	--	24	--	--	--	294	--	.540	2.02	--
04...	1500	--	17	--	--	--	67	--	.181	.532	--
05...	1019	--	7.1	--	--	--	9	--	.060	.154	--
*05...	1020	--	7.1	--	--	--	8	--	.051	.141	--
06...	0805	--	7.1	--	--	--	15	--	.046	.134	--
*21...	1012	--	2.6	8.4	<2.0	50	8	--	.019	.032	.017
22...	1510	--	8.8	--	--	--	118	--	.139	.499	--
22...	1610	--	17	--	--	--	280	--	.093	.625	--
22...	1910	--	21	--	--	--	278	--	.454	1.21	--
23...	0105	--	13	--	--	--	49	--	.114	.376	--
23...	0330	--	19	--	--	--	260	--	.222	1.72	--
23...	0450	--	37	--	--	--	552	--	.179	1.88	--
23...	0550	--	60	--	--	--	992	--	.241	.533	--
23...	0725	--	76	--	--	--	1350	--	.260	2.28	--

* Equal-width increment (EWI) sample

04083425 PARSONS CREEK, DOWNSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
APR 1999										
23...	1010	56	--	--	--	468	--	.182	1.23	--
23...	1140	39	--	--	--	292	--	.143	.920	--
23...	1605	20	--	--	--	88	--	.067	.414	--
*23...	1818	17	--	--	--	56	--	.046	.303	--
23...	1819	17	--	--	--	51	--	.049	.297	--
24...	0045	11	--	--	--	27	--	.040	.180	--
25...	1245	5.6	--	--	--	6	--	.023	.069	--
MAY										
*10...	1122	3.3	8.7	<.1	230	9	--	<.013	.037	.017
12...	0810	3.5	8.4	--	--	5	<5	.020	.059	--
17...	0105	32	8.3	27	--	3850	930	.853	15.1	4.50
17...	0205	72	8.0	26	--	7020	860	.441	7.85	.576
17...	0305	93	7.9	21	--	2140	310	.674	4.70	.878
17...	0335	106	7.9	15	--	3630	450	.451	6.08	.663
17...	0510	91	7.9	13	--	2340	260	.471	4.55	.510
17...	0635	65	7.9	8.9	--	980	120	.484	2.56	.546
17...	0830	42	8.0	6.5	--	408	56	.402	1.52	.451
17...	1045	28	8.1	6.7	--	208	30	.242	.875	.334
*17...	1046	28	8.1	7.0	--	200	32	.232	.850	.333
17...	1905	14	8.3	<6.0	--	58	12	.184	.355	.187
18...	0710	8.8	8.3	<6.0	--	33	7	.106	.193	.099
19...	0015	9.2	8.4	--	--	24	--	.077	.180	--
20...	0615	5.6	8.4	--	--	40	--	.111	.273	--
*24...	1024	4.8	8.5	--	4800	11	--	.033	.089	.050
JUN										
06...	1730	5.2	8.4	--	110000	174	--	.114	.654	.194
06...	1830	4.4	8.3	--	86000	115	--	.096	.728	.361
06...	2055	7.3	8.4	--	48000	102	--	.061	.321	.126
06...	2355	5.6	8.3	--	26000	84	--	.070	.358	.159
07...	0555	7.3	8.3	--	54000	65	--	.064	.308	.136
07...	1155	5.2	8.4	--	79000	38	--	.058	.372	.192
*07...	1748	4.0	8.3	--	23000	25	--	.039	.208	.117
*22...	1428	2.0	8.5	2.1	880	24	--	.038	.074	.030
JUL										
08...	2235	2.7	8.4	--	--	234	--	.063	.353	--
08...	2250	3.9	8.6	--	--	253	--	.073	.344	--
08...	2300	5.6	8.5	--	--	276	--	.117	.762	--
08...	2310	7.6	8.4	--	--	628	--	.309	3.10	--
09...	0045	18	8.4	--	--	490	--	.307	1.46	--
09...	0055	28	8.3	--	--	844	--	.158	1.44	--
09...	0155	32	8.2	--	--	532	--	.213	1.06	--
09...	0255	25	8.1	--	--	352	--	.230	1.12	--
09...	0515	15	8.0	--	--	198	--	.469	1.23	--
09...	1235	4.8	8.4	--	--	48	--	.321	.635	--

* Equal-width increment (EWI) sample

STREAMS TRIBUTARY TO LAKE MICHIGAN
04083425 PARSONS CREEK, DOWNSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	---	---	---	3.5	2.5	3.0	.5	.5	.5
2	---	---	---	---	---	---	3.5	2.5	3.0	.5	.0	.0
3	---	---	---	---	---	---	3.5	1.5	2.5	5.0	.0	3.0
4	---	---	---	---	---	---	3.5	1.0	2.5	2.5	1.0	1.5
5	---	---	---	---	---	---	1.0	.0	.5	3.0	2.0	2.5
6	---	---	---	---	---	---	2.5	.0	1.0	3.5	2.0	3.0
7	---	---	---	---	---	---	3.5	.5	2.0	3.0	1.0	2.0
8	---	---	---	---	---	---	1.5	.0	1.0	1.0	.0	.5
9	---	---	---	---	---	---	3.0	1.5	2.5	.0	.0	.0
10	---	---	---	---	---	---	3.0	1.5	2.5	.0	.0	.0
11	---	---	---	---	---	---	3.0	2.0	2.5	.0	.0	.0
12	---	---	---	---	---	---	3.0	.5	1.5	.0	.0	.0
13	---	---	---	---	---	---	1.5	.0	.5	.0	.0	.0
14	---	---	---	---	---	---	1.0	.0	.5	.0	.0	.0
15	---	---	---	---	---	---	2.0	.0	1.0	.0	.0	.0
16	---	---	---	---	---	---	4.0	1.0	2.0	.0	.0	.0
17	---	---	---	---	---	---	3.0	.0	1.0	.0	.0	.0
18	---	---	---	---	---	---	3.5	1.0	2.0	.0	.0	.0
19	---	---	---	---	---	---	5.0	3.0	3.5	.0	.0	.0
20	---	---	---	---	---	---	3.5	.5	2.5	.0	.0	.0
21	---	---	---	---	---	---	1.0	.5	.5	.0	.0	.0
22	---	---	---	---	---	---	2.5	.5	1.5	.0	.0	.0
23	---	---	---	---	---	---	2.0	.5	1.5	.5	.0	.0
24	---	---	---	---	---	---	1.5	.5	1.0	.5	.0	.5
25	---	---	---	---	---	---	1.5	.5	1.0	.0	.0	.0
26	---	---	---	5.0	2.0	3.0	2.0	.5	1.0	1.0	.0	.5
27	---	---	---	3.5	1.0	2.0	1.5	.5	1.0	1.5	.5	1.0
28	---	---	---	5.0	3.0	4.0	1.5	.5	.5	1.5	1.0	1.5
29	---	---	---	5.0	4.0	4.5	.5	.5	.5	1.5	.5	1.0
30	---	---	---	5.5	3.5	4.5	1.0	.0	.5	1.5	.5	1.5
31	---	---	---	---	---	---	.5	.0	.5	2.0	.5	1.0
MONTH	---	---	---	---	---	---	5.0	.0	1.5	5.0	.0	.6
FEBRUARY			MARCH			APRIL			MAY			
1	2.5	1.0	1.5	6.0	3.5	4.5	9.0	6.0	7.5	12.5	10.5	11.5
2	3.0	1.0	2.0	4.5	3.0	4.0	8.0	6.0	7.0	12.5	10.0	11.0
3	2.5	1.0	2.0	4.0	2.0	3.0	7.0	5.5	6.5	12.0	9.5	10.5
4	1.0	.0	.5	4.0	1.5	2.5	11.5	4.5	7.5	17.5	8.5	12.5
5	1.5	.0	.5	5.0	2.0	3.0	12.0	4.0	8.0	17.5	11.5	14.0
6	.5	.0	.0	4.5	2.0	3.0	12.0	5.0	8.0	15.0	10.5	12.5
7	1.0	.0	.5	6.5	.5	3.0	12.5	6.0	9.0	12.5	11.5	11.5
8	3.0	.5	1.5	3.0	.0	1.5	9.0	6.5	7.5	17.5	10.5	13.5
9	2.5	.0	1.0	1.0	.0	.0	8.5	5.5	6.5	17.0	10.5	13.5
10	2.5	.0	1.5	.0	.0	.0	12.0	4.0	7.5	16.5	9.5	13.0
11	3.5	1.5	2.5	.0	.0	.0	13.0	6.0	9.0	16.5	9.5	13.0
12	3.5	1.0	2.0	.0	.0	.0	15.5	8.5	11.5	16.5	10.5	13.5
13	3.0	.0	1.5	.0	.0	.0	13.0	9.0	11.0	18.5	12.0	15.0
14	3.5	1.5	2.5	.0	.0	.0	14.5	10.0	11.5	19.0	12.0	15.5
15	4.5	1.5	3.0	1.0	.0	.5	11.0	5.5	8.0	19.0	14.0	16.5
16	4.0	2.0	3.0	1.5	.0	.5	5.5	4.0	5.0	19.5	14.5	17.0
17	2.0	1.0	1.5	2.5	.0	1.5	11.5	3.5	7.0	19.0	12.5	16.0
18	2.0	1.0	1.5	1.5	.0	.5	14.5	5.5	9.5	20.5	14.0	17.5
19	3.5	2.0	2.5	1.5	.5	1.0	14.0	7.0	10.5	19.5	15.0	17.0
20	3.5	2.0	3.0	4.0	.5	2.0	12.5	7.0	10.0	17.5	13.0	15.5
21	6.0	2.5	4.0	5.5	.0	2.5	12.5	8.0	10.0	16.5	11.0	14.0
22	7.0	2.5	4.5	7.0	.0	3.0	15.5	7.5	11.0	14.0	9.5	12.0
23	6.0	1.5	4.0	7.5	1.0	4.0	16.5	8.0	12.0	15.5	9.5	12.5
24	6.5	3.0	5.0	9.0	1.5	5.0	15.5	9.0	11.5	12.5	10.5	11.5
25	6.5	2.0	4.0	9.5	4.0	6.5	14.0	8.0	11.0	16.5	10.0	13.0
26	8.5	4.0	6.0	14.5	8.0	11.0	11.5	7.5	9.5	17.5	11.0	14.5
27	6.0	3.5	5.0	14.0	11.0	12.5	14.0	5.5	9.5	18.0	12.0	15.0
28	6.5	2.5	4.5	12.5	9.0	10.5	14.0	6.0	10.0	21.0	14.0	17.0
29	---	---	---	16.0	7.5	12.0	14.0	7.5	10.5	19.5	15.0	17.0
30	---	---	---	14.0	9.5	12.5	13.5	8.5	11.0	16.5	12.5	14.5
31	---	---	---	9.5	7.0	7.5	---	---	---	18.0	14.0	16.0
MONTH	8.5	.0	2.5	16.0	.0	3.8	16.5	3.5	9.1	21.0	8.5	14.1

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04083425 PARSONS CREEK, DOWNSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	16.5	11.5	14.0	20.5	15.0	17.5	20.5	14.0	17.0	19.5	14.5	17.0
2	14.0	12.0	13.0	20.5	15.0	18.0	21.0	15.5	18.0	18.5	14.0	16.0
3	14.5	10.5	12.5	20.0	16.5	18.0	18.5	16.0	17.0	19.0	13.5	16.0
4	14.5	9.5	12.0	20.5	16.0	18.0	18.0	16.5	17.0	19.0	13.5	16.0
5	13.0	10.0	11.5	20.0	14.5	17.0	17.0	16.5	16.5	20.5	14.5	17.0
6	12.5	9.5	11.0	18.5	16.0	17.0	19.5	16.5	17.5	22.0	17.0	19.0
7	14.0	9.5	12.0	18.5	15.5	17.0	20.0	17.0	18.0	20.0	15.0	17.5
8	15.0	9.5	12.5	20.0	16.0	17.5	22.0	17.5	19.0	17.5	13.0	15.0
9	13.0	11.5	12.0	21.0	15.5	18.0	22.5	17.5	19.5	17.5	11.5	14.0
10	14.5	11.5	12.5	20.5	16.0	18.0	22.0	17.5	19.0	18.5	12.5	15.0
11	15.0	12.0	13.0	20.0	13.5	16.5	19.5	16.0	17.5	20.5	14.5	17.0
12	18.5	13.5	16.0	20.5	15.0	17.5	19.0	14.5	16.5	21.5	15.5	18.0
13	18.5	14.0	16.0	22.0	16.0	18.5	19.5	14.5	17.0	22.0	16.5	18.5
14	17.5	13.5	15.5	23.5	17.5	20.5	21.0	15.5	17.5	18.5	17.5	18.0
15	18.5	13.0	16.0	22.5	18.5	20.0	21.0	16.0	17.5	19.5	16.0	17.5
16	20.0	14.0	17.0	21.5	17.0	19.0	20.5	14.0	17.0	18.5	14.0	16.0
17	19.0	14.5	17.0	21.0	16.5	18.5	20.0	17.0	17.5	19.0	14.5	16.5
18	20.0	15.0	17.0	21.5	15.5	18.0	20.5	16.0	17.5	19.5	14.5	16.5
19	19.0	15.5	17.0	23.0	17.0	19.5	20.5	15.5	17.0	20.5	15.5	17.5
20	21.5	15.5	18.0	23.0	17.5	19.5	21.5	15.5	18.0	21.0	16.5	18.0
21	20.5	16.0	18.0	22.0	18.0	20.0	21.0	17.0	18.5	17.0	14.0	15.5
22	19.5	15.5	17.5	21.5	17.5	18.5	21.0	17.0	18.0	16.0	11.5	13.5
23	20.0	15.0	18.0	19.5	15.5	17.5	23.5	18.0	20.0	15.5	10.0	12.5
24	21.5	16.0	18.5	19.0	14.5	16.5	21.5	18.5	19.5	14.5	12.5	13.5
25	23.0	17.5	20.5	18.5	15.0	16.5	22.0	17.0	19.0	18.5	12.5	15.0
26	22.0	17.5	20.0	20.0	14.5	17.0	21.5	16.0	18.5	20.5	16.0	18.5
27	22.5	16.5	19.5	21.5	16.5	18.5	20.0	16.0	18.0	19.0	15.0	17.5
28	22.5	17.0	20.0	22.0	16.5	19.0	19.5	16.5	17.5	17.0	12.5	14.5
29	21.0	17.0	19.0	20.5	15.5	18.0	21.5	16.0	18.0	18.0	13.5	15.5
30	19.5	16.5	18.0	21.0	16.0	18.0	20.0	14.5	17.0	15.5	12.0	14.0
31	---	---	---	20.5	15.0	17.5	19.5	13.5	16.5	---	---	---
MONTH	23.0	9.5	15.8	23.5	13.5	18.1	23.5	13.5	17.8	22.0	10.0	16.2

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13.5	10.0	11.5	11.0	9.0	10.0	8.0	5.0	6.5	2.0	.0	1.5
2	10.5	8.5	9.5	9.5	6.0	7.5	10.0	6.5	8.0	3.0	.0	1.5
3	12.0	9.5	10.5	7.0	4.5	6.0	11.5	9.0	10.0	.5	.0	.0
4	14.5	10.5	12.0	6.0	4.0	4.5	9.5	8.0	9.0	.5	.0	.0
5	14.0	11.5	12.5	5.0	3.0	4.0	11.5	9.0	10.0	.0	.0	.0
6	15.5	13.0	14.0	6.0	3.5	5.0	10.5	5.0	8.5	.0	.0	.0
7	13.0	11.5	12.0	6.5	3.5	5.0	5.5	3.0	4.0	.0	.0	.0
8	13.5	10.0	11.5	5.5	4.5	5.0	4.0	1.5	2.5	.0	.0	.0
9	13.5	8.5	10.5	6.5	5.0	5.5	4.0	1.5	2.5	.0	.0	.0
10	13.5	9.5	11.0	9.5	4.5	7.0	4.0	1.5	2.5	.0	.0	.0
11	14.0	9.5	11.5	6.0	3.0	4.5	4.0	.5	2.0	.0	.0	.0
12	14.5	10.5	12.0	5.5	2.5	3.5	4.5	2.0	3.0	.0	.0	.0
13	11.0	8.0	9.5	5.0	1.0	3.5	4.0	1.0	2.0	.0	.0	.0
14	10.0	7.5	8.5	8.5	4.5	6.0	4.0	.5	2.0	.0	.0	.0
15	12.0	8.0	9.5	6.5	4.5	5.5	5.0	2.0	3.0	.0	.0	.0
16	15.0	11.0	13.0	6.0	5.0	5.5	3.5	1.5	2.5	.0	.0	.0
17	16.5	14.5	15.5	6.0	4.0	5.0	2.0	.0	1.0	.0	.0	.0
18	15.5	10.0	13.0	8.0	5.0	6.5	3.0	.0	1.5	.0	.0	.0
19	12.0	8.5	10.0	8.0	3.5	5.5	3.0	.5	2.0	.0	.0	.0
20	10.5	7.0	8.5	4.0	3.0	3.5	1.0	.0	.5	.0	.0	.0
21	10.0	6.5	8.5	3.5	1.5	2.5	.5	.0	.0	.5	.0	.0
22	9.0	5.0	7.0	6.0	2.5	4.5	.0	.0	.0	.5	.0	.0
23	11.5	6.5	8.5	8.0	5.0	6.0	.0	.0	.0	.0	.0	.0
24	12.0	7.5	9.5	6.5	3.5	5.0	2.0	.0	1.0	1.0	.0	.5
25	14.0	9.5	11.5	7.0	4.5	6.0	2.5	.0	.5	1.0	.0	.5
26	14.5	10.5	12.5	7.0	4.0	5.5	1.0	.0	.5	1.0	.0	.0
27	13.0	12.0	12.5	7.0	3.5	5.0	1.0	.0	.5	2.5	1.0	1.5
28	13.5	9.5	12.0	9.5	5.0	7.5	2.5	.0	1.0	2.5	2.0	2.0
29	10.5	7.5	9.5	12.5	9.5	11.5	.5	.0	.0	2.0	1.0	1.5
30	12.0	10.5	11.5	13.0	7.0	11.5	2.5	.0	.5	1.5	.0	.5
31	11.5	10.5	11.0	---	---	---	1.0	.0	.5	2.5	.5	1.5
MONTH	16.5	5.0	11.0	13.0	1.0	5.8	11.5	.0	2.8	3.0	.0	.4

STREAMS TRIBUTARY TO LAKE MICHIGAN
04083425 PARSONS CREEK, DOWNSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	3.0	1.5	2.0	6.0	1.5	3.5	13.5	10.5	12.0	18.5	8.5	13.5
2	2.5	1.0	2.0	5.0	2.5	3.5	18.0	9.5	13.5	18.0	9.5	13.5
3	3.0	1.0	2.0	4.0	.5	2.0	14.0	8.5	11.0	18.5	10.0	14.0
4	2.0	.0	1.0	3.0	.0	1.5	10.5	8.0	9.0	19.5	11.0	15.0
5	1.5	.0	.5	2.0	.0	1.0	8.5	6.5	7.0	18.0	12.5	15.0
6	3.0	1.0	2.0	.5	.0	.0	8.0	6.0	7.5	15.0	11.5	13.0
7	2.5	.5	1.5	.5	.0	.0	14.0	5.0	9.0	13.0	10.5	11.5
8	3.0	1.0	2.0	.5	.0	.0	12.0	7.5	9.5	12.5	10.5	11.5
9	3.5	1.0	2.5	1.0	.0	.5	11.5	6.0	8.0	16.5	9.0	12.5
10	4.0	1.0	2.5	3.0	.0	1.0	11.0	4.5	7.5	16.5	9.5	13.0
11	5.0	2.0	3.5	3.5	.0	1.5	7.0	4.5	6.0	16.0	10.5	13.0
12	2.0	.0	.5	4.5	.0	2.0	10.5	3.5	7.0	13.5	10.5	12.0
13	.5	.0	.0	5.5	.0	2.5	14.5	4.5	9.0	15.5	9.0	12.0
14	3.5	.0	2.0	6.5	.0	3.0	15.0	6.5	10.5	16.5	8.5	12.5
15	5.5	1.5	3.5	7.5	.5	4.0	11.0	8.0	9.5	15.5	12.0	14.0
16	4.0	2.5	3.5	9.5	1.5	5.5	13.5	7.0	10.0	18.5	12.5	15.5
17	3.5	.5	2.0	11.0	4.5	7.0	10.5	6.5	8.0	17.0	15.0	16.0
18	3.0	.0	1.0	6.0	2.5	4.5	10.0	5.0	8.0	15.5	13.0	14.5
19	3.5	.0	1.0	8.5	1.0	4.5	12.0	6.5	9.0	17.5	11.0	14.0
20	1.5	.0	.5	9.0	1.5	5.5	11.5	6.0	9.0	15.5	12.0	14.0
21	1.0	.0	.5	7.0	2.5	4.5	13.0	8.0	10.0	14.5	13.0	14.0
22	1.5	.0	.5	8.0	.5	4.0	9.5	6.5	7.5	17.0	12.0	14.5
23	2.5	.0	1.0	9.5	1.0	5.5	11.5	5.0	7.5	14.0	12.0	13.0
24	1.0	.0	.5	9.0	2.0	5.5	14.0	5.0	9.0	12.0	9.5	10.5
25	3.5	.0	1.5	4.5	2.0	3.0	15.5	6.0	10.5	12.0	8.5	10.5
26	6.0	1.5	3.5	9.5	.5	4.5	16.5	7.0	11.5	16.0	9.5	12.5
27	4.5	3.5	4.0	11.0	2.0	6.5	12.5	8.0	10.0	17.5	11.0	14.5
28	4.0	2.5	3.5	8.0	3.5	6.0	16.0	7.0	11.0	19.5	13.0	16.0
29	---	---	---	12.0	3.5	7.5	16.5	7.5	11.5	20.0	14.5	17.0
30	---	---	---	13.5	4.0	9.0	17.5	7.5	12.5	20.0	14.5	17.5
31	---	---	---	15.5	7.0	11.5	---	---	---	18.0	15.5	16.5
MONTH	6.0	.0	1.8	15.5	.0	3.9	18.0	3.5	9.4	20.0	8.5	13.8
	JUNE			JULY			AUGUST			SEPTEMBER		
1	16.0	13.0	14.5	20.5	15.5	17.5	21.0	17.0	18.5	19.5	13.5	16.5
2	15.0	12.5	13.0	19.5	16.5	18.0	20.0	15.5	17.5	20.5	15.0	17.5
3	16.5	12.0	14.0	20.0	17.0	18.5	20.5	15.5	17.5	21.5	16.0	18.5
4	13.5	11.5	13.0	26.0	19.5	22.5	20.5	16.0	18.0	21.5	17.0	19.0
5	21.0	12.5	17.0	27.0	21.0	23.5	20.0	15.5	17.5	21.5	17.0	18.5
6	23.5	18.0	20.0	24.0	19.0	21.5	20.5	16.0	18.0	19.0	15.0	16.5
7	22.0	17.0	19.5	23.0	17.0	20.0	16.5	15.5	16.0	18.5	13.5	16.0
8	21.5	16.5	19.0	20.0	17.5	18.5	17.5	14.5	16.0	20.0	15.5	17.0
9	21.5	16.5	18.5	23.0	18.0	20.5	16.0	13.5	14.5	15.5	13.0	14.0
10	22.5	17.0	19.5	21.0	16.0	18.5	19.0	14.5	16.5	15.5	12.0	13.5
11	22.5	17.5	19.5	21.0	15.0	18.0	20.0	15.0	17.5	17.0	12.0	14.5
12	21.5	18.0	19.5	20.5	15.5	18.0	19.0	15.5	17.0	16.5	14.0	15.0
13	18.5	15.5	16.5	20.5	16.0	18.0	17.5	15.0	17.0	---	---	---
14	18.0	14.5	16.0	22.0	16.5	19.0	18.5	13.5	15.5	---	---	---
15	16.0	11.5	14.0	24.5	17.5	20.5	19.0	13.5	16.0	---	---	---
16	16.0	12.0	13.5	25.0	19.0	21.5	19.5	15.5	17.0	15.0	10.0	12.0
17	16.0	10.5	13.0	22.5	19.0	20.5	19.5	16.0	17.5	15.5	10.0	12.5
18	18.0	12.0	14.5	20.0	18.0	18.5	16.5	15.0	15.5	16.5	11.0	13.5
19	18.5	13.0	15.5	21.0	18.0	20.5	19.0	14.5	16.0	17.5	12.5	14.5
20	19.5	14.0	16.5	19.5	17.0	18.5	19.0	13.0	16.0	13.5	11.0	12.5
21	20.0	14.0	16.5	21.0	18.5	20.0	---	---	---	13.0	9.0	10.5
22	21.0	15.5	18.0	22.0	18.0	20.0	---	---	---	15.0	8.5	11.5
23	19.0	17.5	18.0	22.0	18.5	20.0	---	---	---	16.5	11.5	13.5
24	21.5	16.5	19.0	23.0	18.0	20.0	---	---	---	15.0	10.5	12.5
25	22.0	16.0	18.5	22.0	18.0	20.0	---	---	---	15.5	10.0	12.5
26	22.0	16.5	19.0	21.0	18.0	19.0	---	---	---	18.5	13.0	15.5
27	22.0	17.0	19.5	21.0	17.0	19.0	---	---	---	16.0	13.0	14.0
28	20.0	16.0	18.5	22.5	17.0	19.5	---	---	---	13.0	12.0	12.5
29	19.5	14.0	16.5	24.5	18.0	21.0	---	---	---	14.5	10.5	12.0
30	18.5	14.5	16.5	24.5	18.5	21.5	---	---	---	14.0	9.5	11.5
31	---	---	---	23.5	19.5	21.0	---	---	---	---	---	---
MONTH	23.5	10.5	16.9	27.0	15.0	19.8	---	---	---	---	---	---

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04083425 PARSONS CREEK, DOWNSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED(TONS PER DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	.011	.012	.012	.024	4.70	.37	.47	.17	.071	.035
2	---	---	.011	.013	.016	.024	.84	.21	.29	.16	.067	.033
3	---	---	.013	.014	.014	.024	.50	.16	.19	.16	.068	.032
4	---	---	.013	.015	.013	.022	.35	.13	.17	.18	.071	.030
5	---	---	.013	.50	.012	.020	.26	.11	.17	.16	.077	.029
6	---	---	.012	.020	.011	.020	.20	.091	.17	.17	1.10	.028
7	---	---	.012	.016	.010	.019	.18	.095	.18	.17	.077	.026
8	---	---	.011	.014	.010	.020	.18	3.80	.17	.17	.067	.025
9	---	---	.011	.013	.010	.018	.18	.089	.21	.17	.061	.024
10	---	---	.011	.012	.010	.017	.16	.087	.22	.16	.059	.023
11	---	---	.011	.011	.019	.017	.16	.089	2.00	.16	.055	.022
12	---	---	.011	.011	.023	.016	.15	.092	.30	.16	.053	.022
13	---	---	.011	.011	.020	.015	.15	.097	.23	.16	.052	.022
14	---	---	.011	.011	.019	.014	.18	.095	.22	.16	.050	.62
15	---	---	.011	.011	.046	.014	31.2	.097	.22	.18	.051	.29
16	---	---	.011	.011	.62	.014	19.9	.11	.21	.17	.050	.072
17	---	---	.011	.011	3.56	.031	.54	.10	.20	.16	.059	.068
18	---	---	.011	.011	.69	14.3	.29	.10	.48	.15	.052	.064
19	---	---	.011	.011	.22	4.58	.22	.11	1.11	.15	.050	.066
20	---	---	.011	.011	.12	.50	.18	.11	.31	.14	.049	.062
21	---	---	.011	.011	.079	.34	.15	.11	.23	1.10	.051	.061
22	---	---	.011	.011	.057	.27	.13	.11	.22	.14	.060	.060
23	---	---	.011	.011	.039	.21	.12	.10	.21	.13	.063	.060
24	---	---	.011	.011	.045	.18	.11	.11	.23	.12	.054	.061
25	---	---	.011	.011	.037	.17	.11	.11	.20	.13	.049	.061
26	---	---	.011	.010	.034	2.10	1.72	.10	.19	.11	.047	.061
27	---	---	.011	.011	.83	.13	.23	.10	1.87	.10	.045	.058
28	---	---	.011	.011	.11	.11	.16	.12	2.43	.092	.045	.057
29	---	---	.011	.011	---	.10	.15	.11	.40	.083	.042	.053
30	---	---	.011	.010	---	475	.15	.10	.26	.080	.039	.073
31	---	---	.011	.010	---	627	---	3.95	---	.074	.036	---
TOTAL	---	---	0.349	0.857	6.686	1125.319	63.55	11.162	13.76	5.419	2.770	2.198

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED(TONS PER DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.027	.081	.058	.038	.027	.036	.078	.097	1.30	---	---
2	.088	.030	.080	.058	.50	.028	.035	.072	1.30	.16	---	---
3	.079	.032	.078	.058	.60	.028	25.1	.069	.10	.18	---	---
4	.071	.035	.080	.057	.80	.028	4.92	.066	.096	.15	---	---
5	.60	.039	.077	.057	.40	.030	.26	.068	.090	.13	---	---
6	.70	.042	.078	.057	.052	.030	.25	1.30	.54	.13	---	---
7	.089	.042	.081	.057	.047	.032	.17	.90	.67	.12	---	---
8	.063	.042	.075	.057	.057	.033	.14	.095	.17	.69	---	---
9	.053	.048	.080	.056	.30	.033	6.80	.084	.15	6.98	---	---
10	.044	2.50	.077	.056	.33	.037	5.20	.074	.16	.20	---	---
11	.037	.074	.079	.056	37.0	.041	4.00	.052	.19	.18	---	---
12	.033	.064	.075	.056	1.33	.041	.18	.048	.17	.17	---	---
13	.030	.061	.072	.055	.10	.039	.13	.054	.17	.17	---	---
14	.027	.058	.071	.055	.058	.039	.11	.066	.16	.19	---	---
15	.024	.055	.075	.054	.040	.041	.098	.084	.15	.18	---	---
16	.020	.11	.074	.052	.030	.045	.088	.12	.15	---	---	---
17	.021	.068	.069	.50	.021	.056	.075	180	.15	---	---	---
18	.020	.066	.071	.072	.022	.048	.067	1.50	.15	---	---	---
19	.016	.076	.068	.059	.020	.041	.063	.70	.14	---	---	---
20	.014	.070	.067	.046	.019	.042	.058	.40	.14	---	---	---
21	.013	.070	.061	.045	.018	.041	.059	.20	.13	---	---	---
22	.011	.072	.061	1.60	.019	.040	3.77	.17	.14	---	---	---
23	.012	.075	.060	10.0	.018	.039	46.5	.17	.15	---	---	---
24	.013	.072	.060	1.20	.019	.036	.44	.14	.14	---	---	---
25	.014	.074	.060	.40	.020	.035	.15	.12	.13	---	---	---
26	.015	.074	.060	.069	.021	.034	.11	.11	.12	---	---	---
27	.021	.076	.068	.064	.029	.034	.098	.10	.12	---	---	---
28	.021	.076	.077	.062	.029	.035	.094	.095	.12	---	---	---
29	.020	.077	.072	.050	---	.035	.086	.090	.12	---	---	---
30	.023	.089	.063	.040	---	.033	.079	.088	.12	---	---	---
31	.024	---	.058	.034	---	.035	---	.098	---	---	---	---
TOTAL	2.316	4.294	2.208	15.140	41.937	1.136	99.166	187.211	6.233	---	---	---

STREAMS TRIBUTARY TO LAKE MICHIGAN
04083425 PARSONS CREEK, DOWNSTREAM SITE, NEAR FOND DU LAC, WI-CONTINUED

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	.20	.35	.35	1.39	49.8	3.86	3.24	1.27	.64	.52
2	---	---	.20	.38	.44	1.20	10.6	2.56	1.87	1.14	.62	.51
3	---	---	.24	.41	.38	1.17	6.12	1.94	1.11	1.14	.64	.50
4	---	---	.23	.46	.35	1.07	4.23	1.68	.98	1.28	.68	.48
5	---	---	.23	1.60	.33	.98	3.05	1.37	.98	1.11	.76	.47
6	---	---	.23	.65	.29	.99	2.37	1.19	.98	1.17	7.20	.46
7	---	---	.23	.54	.27	.92	2.15	1.26	.98	1.19	.80	.43
8	---	---	.22	.45	.27	.96	2.12	23.0	.96	1.18	.70	.41
9	---	---	.23	.41	.26	.86	2.09	1.11	1.17	1.14	.66	.41
10	---	---	.23	.38	.26	.81	1.91	1.04	1.17	1.10	.65	.40
11	---	---	.22	.35	.95	.77	1.84	1.03	13.0	1.09	.62	.38
12	---	---	.22	.35	.39	.72	1.74	1.03	1.60	1.07	.62	.39
13	---	---	.23	.34	.32	.68	1.77	1.05	1.19	1.07	.61	.38
14	---	---	.24	.34	.31	.64	2.06	1.00	1.13	1.05	.60	4.89
15	---	---	.24	.34	.73	.60	143	.98	1.11	1.14	.61	2.57
16	---	---	.25	.34	6.59	.59	173	1.04	1.09	1.09	.61	.98
17	---	---	.26	.34	38.5	.81	8.94	.97	1.04	1.02	.73	.85
18	---	---	.25	.34	17.5	89.1	2.26	.95	2.21	.97	.65	.74
19	---	---	.27	.33	5.67	50.5	1.68	.94	7.02	1.01	.63	.71
20	---	---	.26	.33	3.57	9.27	1.49	.93	1.47	.95	.63	.61
21	---	---	.27	.33	2.46	6.30	1.43	.92	1.10	7.20	.66	.55
22	---	---	.28	.33	1.83	4.73	1.35	.91	1.08	1.00	.78	.51
23	---	---	.29	.33	1.29	3.53	1.30	.89	1.05	.94	.83	.46
24	---	---	.28	.32	1.48	2.95	1.27	.93	1.16	.88	.72	.44
25	---	---	.29	.32	1.20	2.68	1.20	.91	1.09	1.04	.67	.44
26	---	---	.29	.31	1.12	15.0	16.4	.88	1.06	.88	.64	.44
27	---	---	.30	.31	13.2	1.95	3.06	.85	7.22	.83	.62	.42
28	---	---	.30	.31	2.90	1.68	2.02	1.00	17.9	.75	.63	.41
29	---	---	.32	.31	---	1.52	1.88	.94	3.12	.70	.60	.38
30	---	---	.31	.30	---	1550	1.88	.86	1.90	.69	.56	.53
31	---	---	.32	.30	---	2070	---	16.9	---	.65	.54	---
TOTAL	---	---	7.93	12.50	103.21	3824.37	454.01	74.92	80.98	37.74	26.91	21.67

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.71	.32	.47	.32	.34	.39	.20	1.15	1.57	9.00	---	---
2	.65	.34	.47	.32	5.50	.37	.19	1.04	12.0	.98	---	---
3	.62	.34	.45	.31	7.50	.34	107	.99	1.66	1.13	---	---
4	.59	.34	.46	.31	13.0	.32	70.2	.94	1.56	.90	---	---
5	3.50	.35	.44	.31	7.00	.31	7.21	.96	1.47	.79	---	---
6	8.00	.35	.45	.31	.54	.28	4.57	9.00	5.07	.79	---	---
7	.89	.35	.47	.31	.50	.28	2.92	8.00	8.12	.74	---	---
8	.67	.34	.43	.31	1.00	.27	2.19	1.78	2.21	5.18	---	---
9	.60	.38	.46	.30	10.1	.25	42.0	1.03	1.25	49.2	---	---
10	.53	25.0	.44	.30	9.21	.25	15.0	.69	1.29	2.14	---	---
11	.47	.58	.45	.30	177	.26	25.0	.75	1.52	1.27	---	---
12	.45	.49	.43	.30	17.4	.26	2.35	1.00	1.28	1.20	---	---
13	.43	.46	.41	.30	2.14	.24	1.58	.84	1.23	1.18	---	---
14	.42	.43	.41	.29	1.24	.24	1.30	.70	1.18	1.27	---	---
15	.39	.40	.42	.29	1.07	.25	1.08	.61	1.06	1.15	---	---
16	.35	.90	.42	.29	.96	.28	.92	.59	1.05	---	---	---
17	.39	.48	.39	2.50	.79	.34	.74	750	1.05	---	---	---
18	.38	.46	.40	.43	.80	.29	.63	15.5	.99	---	---	---
19	.34	.53	.38	.36	.65	.25	.56	10.5	.94	---	---	---
20	.31	.48	.37	.29	.58	.25	.49	5.24	.89	---	---	---
21	.30	.47	.34	.29	.51	.24	.44	2.66	.84	---	---	---
22	.28	.47	.34	14.5	.48	.23	29.5	2.36	.88	---	---	---
23	.27	.49	.34	68.0	.43	.23	225	2.62	.95	---	---	---
24	.27	.46	.33	14.0	.41	.21	6.02	2.28	.86	---	---	---
25	.27	.47	.33	3.00	.40	.20	2.27	1.99	.78	---	---	---
26	.28	.46	.33	.52	.40	.20	1.75	1.78	.76	---	---	---
27	.37	.47	.38	.50	.49	.20	1.49	1.62	.76	---	---	---
28	.34	.46	.43	.50	.46	.20	1.42	1.54	.77	---	---	---
29	.31	.46	.40	.41	---	.20	1.29	1.47	.77	---	---	---
30	.31	.52	.35	.34	---	.19	1.17	1.42	.76	---	---	---
31	.31	---	.32	.29	---	.19	---	1.60	---	---	---	---
TOTAL	24.00	38.05	12.51	110.80	260.90	8.01	556.48	832.65	55.52	---	---	---

04083425 PARSONS CREEK, DOWNSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--Nov. 25, 1997 to September 1999.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established Nov. 25, 1997. Rainfall estimated to be 0.00 for Dec. 3, 4, 6, 7, 9, 10, 26-28, 1997, Jan. 17, 23, 24, 26, 30, 31, Feb. 3, 10-12, 14, 17, 18, 20, 21, Mar. 8, 1998; and Jan. 16-18, 22-25, 27, Feb. 2, 25-26, 1999, because recorded precipitation interpreted as snowmelt.

EXTREMES FOR CURRENT PERIOD.--

November 1997 to September 1998.--Maximum daily rainfall, 3.00 in., Mar. 30.

1999 water year.--Maximum daily rainfall, 1.69 in., Apr. 3.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	.00	.00	.21	.00	.02	.61	.00	.00	.00	.03
2	---	---	.00	.00	.00	.06	.00	.01	.00	.00	.00	.01
3	---	---	.00	.00	.00	.01	.00	.03	.00	.29	.00	.00
4	---	---	.00	.45	.00	.00	.00	.00	.00	.02	.22	.00
5	---	---	.00	.24	.00	.00	.00	.00	.01	.00	.23	.00
6	---	---	.00	.10	.00	.06	.00	.00	.02	.02	.51	.00
7	---	---	.00	.00	.00	.00	.00	.41	.00	.00	.01	.00
8	---	---	.00	.00	.00	.00	.01	.00	.00	.01	.00	.00
9	---	---	.00	.00	.00	.00	.03	.00	.55	.00	.00	.00
10	---	---	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	---	---	.00	.00	.00	.00	.02	.00	.81	.00	.00	.00
12	---	---	.00	.00	.00	.00	.01	.01	.00	.00	.00	.00
13	---	---	.00	.00	.00	.00	.25	.00	.02	.00	.00	.00
14	---	---	.00	.00	.00	.00	.00	.00	.00	.00	.05	1.50
15	---	---	.00	.00	.00	.00	1.28	.31	.00	.41	.00	.00
16	---	---	.00	.00	.00	.00	.44	.00	.00	.00	.00	.00
17	---	---	.00	.00	.00	.33	.00	.00	.00	.00	.34	.00
18	---	---	.00	.00	.00	.88	.00	.00	.76	.00	.00	.00
19	---	---	.00	.00	.00	.02	.00	.00	.00	.22	.00	.00
20	---	---	.00	.00	.00	.00	.00	.00	.00	.73	.00	.00
21	---	---	.00	.00	.00	.00	.00	.00	.00	.27	.00	.00
22	---	---	.00	.00	.00	.00	.00	.00	.00	.00	.57	.00
23	---	---	.00	.00	.09	.00	.00	.00	.00	.00	.07	.00
24	---	---	.00	.00	.03	.00	.00	.16	.32	.00	.00	.08
25	---	---	.00	.00	.00	.00	.10	.00	.00	.39	.00	.00
26	---	.00	.00	.00	.04	.00	.73	.00	.00	.00	.00	.00
27	---	.04	.00	.00	.41	.00	.00	.00	.75	.00	.00	.00
28	---	.00	.00	.00	.00	.00	.00	.69	.82	.00	.12	.00
29	---	.00	.00	.00	---	.00	.00	.01	.00	.00	.00	.00
30	---	.00	.00	.00	---	3.00	.00	.00	.00	.00	.00	.51
31	---	---	.00	.00	---	.86	---	.80	---	.00	.00	---
TOTAL	---	---	0.00	0.79	0.78	5.22	2.89	3.04	4.06	2.36	2.12	2.13

STREAMS TRIBUTARY TO LAKE MICHIGAN
04083425 PARSONS CREEK, DOWNSTREAM SITE, NEAR FOND DU LAC, WI--CONTINUED

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.28	.26	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.27	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	1.69	.00	.00	.55	.60	.00
4	.00	.00	.00	.00	.00	.00	.31	.00	.07	.00	.17	.00
5	1.10	.00	.00	.00	.00	.00	.11	.23	.00	.23	.01	.00
6	.38	.00	.02	.00	.00	.00	.01	.67	.77	.02	.00	.00
7	.00	.00	.06	.00	.00	.00	.00	.04	.07	.00	.25	.00
8	.00	.00	.00	.00	.00	.00	.25	.02	.00	1.21	.00	.00
9	.00	.36	.00	.00	.00	.00	.24	.00	.00	.05	.00	.00
10	.00	.80	.00	.00	.00	.00	.00	.00	.50	.00	.27	.00
11	.00	.00	.00	.00	.50	.00	.32	.01	.02	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.22	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.23	.00	.05	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.01	.28	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00
16	.00	.28	.00	.00	.00	.00	.00	.28	.06	.24	.19	.00
17	.25	.00	.00	.00	.00	.00	.00	1.60	.00	.41	.00	.00
18	.02	.01	.00	.00	.00	.00	.00	.27	.00	.48	.02	.00
19	.00	.01	.00	.00	.00	.00	.00	.00	.00	.84	.19	.22
20	.00	.00	.00	.00	.00	.00	.01	.00	.00	.45	.00	.01
21	.00	.00	.00	.00	.00	.00	.01	.10	.00	.18	.00	.00
22	.00	.00	.00	.00	.00	.00	1.03	.00	.22	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.68	.39	.25	.06	.12	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.20	.00	1.25
27	.46	.00	.00	.00	.06	.00	.00	.00	.12	.00	.00	.69
28	.00	.00	.00	.00	.00	.00	.00	.00	.12	.00	.00	.49
29	.06	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.11	.09	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.21	---	.28	.00	---
TOTAL	2.38	1.55	0.08	0.00	0.56	0.00	4.66	4.07	2.99	5.74	1.90	2.66

STREAMS TRIBUTARY TO LAKE MICHIGAN
04084255 LAKE WINNEBAGO NEAR STOCKBRIDGE, WI

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LOCATION.--Lat 44°04'17", long 88°19'52", Stockbridge Indian Reservation, Calumet County, Hydrologic Unit 04030203, on east shore of Lake Winnebago, 300 ft south of County Highway E and 1.6 mi west of Stockbridge.

DRAINAGE AREA.--5,880 mi², at lake outlet at Menasha Dam. Area of Lake Winnebago, 215 mi².

PERIOD OF RECORD.--November 1982 to current year.

GAGE.--Water-stage recorder. Datum of gage is 745.05 ft above mean tide of New York City (levels by U. S. Army Corps of Engineers).

REMARKS.--No estimated daily gage heights. Records good (see page 13). Lake elevations controlled by dams at Menasha and Neenah, which are operated in the interest of navigation. Crests of both dams are at elevation 746.73 ft. Present limits of regulation are from 21 1/4 in. above the crest of Menasha dam to crest during navigation season, plus additional 18 in. below crest during winter. Data-collection platform at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily mean gage height, 3.85 ft, July 9, 11, 1993; minimum observed, 0.30 ft, Mar. 1, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum daily mean gage height, 3.21 ft, July 9; minimum recorded, 1.60 ft, Feb. 8.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.63	2.67	2.50	2.07	1.80	1.87	1.91	2.59	2.96	2.99	3.01	2.88
2	2.58	2.55	2.42	2.09	1.79	1.85	1.93	2.59	3.02	3.01	3.00	2.89
3	2.48	2.57	2.39	2.13	1.76	1.87	2.00	2.56	3.04	3.03	3.01	2.88
4	2.49	2.63	2.37	2.11	1.77	1.84	2.12	2.53	3.00	3.09	3.03	2.87
5	2.48	2.64	2.36	2.10	1.73	1.82	2.15	2.49	2.98	3.13	3.02	2.88
6	2.65	2.65	2.38	2.10	1.71	1.81	2.27	2.65	2.98	3.20	2.95	2.87
7	2.72	2.62	2.37	2.08	1.69	1.80	2.32	2.80	3.02	3.17	2.90	2.85
8	2.68	2.62	2.38	2.07	1.67	1.78	2.29	2.76	2.97	3.08	2.85	2.86
9	2.69	2.59	2.36	2.06	1.68	1.77	2.21	2.74	2.95	3.21	2.86	2.89
10	2.70	2.91	2.37	2.06	1.66	1.79	2.33	2.69	2.97	3.18	2.86	2.86
11	2.69	2.89	2.36	2.04	1.68	1.80	2.38	2.70	3.00	3.17	2.85	2.75
12	2.74	2.71	2.29	2.04	1.77	1.79	2.54	2.68	3.00	3.15	2.85	2.75
13	2.78	2.66	2.26	2.04	1.77	1.79	2.59	2.68	3.00	3.14	2.86	2.82
14	2.69	2.67	2.28	2.02	1.77	1.78	2.61	2.76	2.99	3.13	2.89	2.79
15	2.65	2.70	2.27	2.00	1.79	1.78	2.61	2.81	3.01	3.06	2.90	2.72
16	2.67	2.63	2.23	1.99	1.82	1.77	2.55	2.84	2.97	3.03	2.93	2.69
17	2.73	2.68	2.24	1.99	1.84	1.79	2.61	2.99	2.96	3.03	2.91	2.69
18	2.85	2.63	2.17	2.02	1.84	1.84	2.65	3.09	2.94	3.02	2.86	2.70
19	2.81	2.78	2.19	2.00	1.84	1.78	2.65	3.08	2.89	3.09	2.88	2.69
20	2.79	2.73	2.14	1.97	1.85	1.78	2.63	3.06	2.86	3.07	2.91	2.66
21	2.71	2.66	2.20	1.95	1.85	1.82	2.56	3.06	2.84	3.17	2.94	2.65
22	2.73	2.64	2.19	1.96	1.84	1.84	2.40	3.03	2.84	3.19	2.96	2.69
23	2.73	2.65	2.11	2.00	1.83	1.87	2.44	3.12	2.86	3.17	2.94	2.65
24	2.73	2.58	2.11	2.00	1.83	1.84	2.56	3.13	2.87	3.12	2.91	2.62
25	2.71	2.54	2.08	1.99	1.85	1.85	2.57	3.11	2.88	3.06	2.95	2.61
26	2.72	2.55	2.09	1.96	1.83	1.87	2.55	3.03	2.87	3.01	2.97	2.64
27	2.74	2.50	2.08	1.94	1.85	1.87	2.46	3.00	2.87	2.95	2.98	2.68
28	2.75	2.48	2.08	1.92	1.88	1.91	2.43	2.98	2.92	2.95	3.00	2.68
29	2.70	2.46	2.09	1.89	---	1.95	2.52	2.98	3.00	2.98	2.92	2.74
30	2.72	2.50	2.09	1.86	---	1.93	2.57	2.97	2.97	2.97	2.89	2.79
31	2.72	---	2.08	1.83	---	1.94	---	2.98	---	3.05	2.88	---
MEAN	2.69	2.64	2.24	2.01	1.79	1.83	2.41	2.85	2.95	3.08	2.92	2.76
MAX	2.85	2.91	2.50	2.13	1.88	1.95	2.65	3.13	3.04	3.21	3.03	2.89
MIN	2.48	2.46	2.08	1.83	1.66	1.77	1.91	2.49	2.84	2.95	2.85	2.61

STREAMS TRIBUTARY TO LAKE MICHIGAN

04084445 FOX RIVER AT APPLETON, WI

LOCATION.--Lat 44°14'53", long 88°25'23" in NW 1/4 SE 1/4 sec.34, T.21 N., R.17 E., Outagamie County, Hydrologic Unit 04030204, on left bank at south end of Lutz Park, approximately 2,600 ft upstream of Memorial Drive bridge at Appleton.

DRAINAGE AREA.--5,950 mi².

PERIOD OF RECORD.--July 1986 to current year.

GAGE.--Acoustical Velocity Meter (AVM) system. Two-path transducer installation.

REMARKS.--Estimated daily discharges: Jan. 10-20 and June 10-29. Records good, except for estimated daily discharges, which are fair (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1340	2660	4470	1960	4490	4850	2920	2650	4490	2200	4190	2000
2	1340	2490	4470	1960	4490	4830	2930	2660	5180	2130	4120	1890
3	1300	2430	4390	2030	4460	4810	3050	2680	6250	2250	4160	1880
4	1250	2510	3890	2070	4440	4820	3280	2690	6840	2360	4750	1890
5	1450	2570	3450	2080	4390	4700	3270	2710	7530	2450	5610	1850
6	1660	2590	3400	2380	4360	4760	3730	2860	7470	2620	6060	1600
7	1600	2610	3120	2800	4340	4760	3460	3720	6990	2920	6040	1740
8	1430	2610	3330	2800	3930	4490	3360	3200	5250	3620	5700	1790
9	1480	2620	3410	2820	3650	4280	3170	2770	4700	4530	5420	1710
10	1540	4280	3360	2800	3630	4060	3380	2840	4800	4860	4610	1690
11	1550	3110	3400	3000	3810	3750	3420	2890	4800	4930	3330	1580
12	1560	3380	3380	3000	3960	3590	4090	2840	4100	4920	3160	1600
13	1480	3850	3290	2700	3820	3660	4580	2790	4200	5360	3310	1590
14	1430	3800	3340	3200	3760	3680	5270	2870	4300	5940	3110	1590
15	1480	3740	3390	3200	3750	3710	5500	3040	4200	5730	3270	1470
16	1600	3760	3300	3000	3770	3680	5440	3130	4200	5620	3450	1370
17	1670	3740	3140	3000	4190	3720	5750	3600	4100	5650	3200	1390
18	1710	4040	3330	3100	4670	3660	5940	3600	4200	5470	3100	1470
19	1610	4590	3160	3100	4720	3370	6670	4350	4200	6370	3110	1490
20	1570	4470	3110	3400	4790	2860	7350	5330	4100	7020	2820	1360
21	1400	4450	2730	3860	4830	2760	7250	5700	4000	7880	2030	1260
22	1420	4610	2050	3910	4820	2800	6210	5580	3300	9370	2030	1400
23	1540	4490	2130	4010	4800	2820	5490	5740	2600	10400	2200	1400
24	1610	4610	2130	3990	4800	2860	5790	6050	2500	10600	1980	1300
25	1570	4660	2120	3950	4820	2840	5910	6630	1700	10400	1880	1320
26	1550	4580	2070	3910	4840	2880	5610	6130	1800	9830	2460	1400
27	1580	4530	2070	4390	4860	2900	4220	5060	1700	8410	3280	1390
28	1990	4500	2050	4660	4850	2960	2910	4600	2000	6030	3470	1370
29	2750	4500	2050	4550	---	2900	2500	4550	1800	4320	3240	1350
30	2800	4400	1980	4530	---	2940	2590	4440	2160	4170	3190	1490
31	2750	---	2000	4510	---	2990	---	4610	---	4320	2910	---
TOTAL	51010	111180	93510	100670	122040	113690	135040	122310	125460	172680	111190	46630
MEAN	1645	3706	3016	3247	4359	3667	4501	3945	4182	5570	3587	1554
MAX	2800	4660	4470	4660	4860	4850	7350	6630	7530	10600	6060	2000
MIN	1250	2430	1980	1960	3630	2760	2500	2650	1700	2130	1880	1260
CFSM	.28	.62	.51	.55	.73	.62	.76	.66	.70	.94	.60	.26
IN.	.32	.70	.58	.63	.76	.71	.84	.76	.78	1.08	.70	.29

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1999, BY WATER YEAR (WY)

MEAN	4133	4929	4196	3860	3984	5100	6506	5490	5221	4187	3069	3271
MAX	13510	7863	7509	5575	5422	7702	11920	11900	13300	15110	6259	8899
(WY)	1987	1996	1993	1987	1987	1994	1993	1993	1993	1993	1993	1986
MIN	1645	2923	2541	2535	2312	3024	2688	2682	1243	944	971	1226
(WY)	1999	1990	1990	1990	1995	1995	1990	1988	1988	1988	1988	1988

SUMMARY STATISTICS FOR 1998 CALENDAR YEAR FOR 1999 WATER YEAR WATER YEARS 1986 - 1999

ANNUAL TOTAL	1361260	1305410	4450
ANNUAL MEAN	3729	3576	8107
HIGHEST ANNUAL MEAN			2995
LOWEST ANNUAL MEAN			1993
HIGHEST DAILY MEAN	13100	10600	18000
LOWEST DAILY MEAN	1200	1250	840
ANNUAL SEVEN-DAY MINIMUM	1330	1350	899
ANNUAL RUNOFF (CFSM)	.63	.60	.75
ANNUAL RUNOFF (INCHES)	8.51	8.16	10.16
10 PERCENT EXCEEDS	6290	5610	8560
50 PERCENT EXCEEDS	3120	3360	3720
90 PERCENT EXCEEDS	1480	1580	1680

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04084500 FOX RIVER AT RAPIDE CROCHE DAM, NEAR WRIGHTSTOWN, WI

LOCATION.--Lat 44°19'03", long 88°11'50", in SE 1/4 sec.4, T.21 N., R.19 E., Outagamie County, Hydrologic Unit 04030204, at Rapide Croche Dam, 2.0 mi upstream from Wrightstown, and 18 mi upstream from mouth.

DRAINAGE AREA.--6,010 mi².

PERIOD OF RECORD.--March 1896 to September 1917 (monthly discharge only), October 1917 to current year.

REVISED RECORD.--WDR WI-80-1: Drainage area. WDR WI-81-1: 1980.

GAGE.--Recording headwater and tailwater gages and electric generation are read 24 times a day and used to compute the discharge records.

REMARKS.--Flow regulated by storage in Lake Winnebago (see sta. 04082500 and 04084255). Daily discharges determined from records of flow through turbines, head, gate openings, and lockages through navigation canal. Usually less than about 20 ft³/s is diverted into basin from Wisconsin River at Portage Canal throughout the year.

COOPERATION.--Figures of daily discharge furnished by Kaukauna Electric and Water Department. Records reviewed by Geological Survey.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1310	2640	4630	1750	4700	5190	3010	2560	4730	2210	4080	1690
2	1290	2290	4690	1750	4750	5200	3080	2480	5470	2000	3980	1880
3	1270	2370	4620	1880	4720	5200	3170	2520	6030	2220	3840	1780
4	1180	2290	4010	1810	4690	5200	3340	2590	6510	2330	4220	1900
5	1410	2460	3640	1850	4570	5060	3460	2650	7770	2360	4640	1770
6	1810	2500	3410	2370	4500	5050	3770	2900	7890	2870	4930	1520
7	1370	2410	3130	3190	4360	5140	3720	3780	6690	2660	4950	1480
8	1330	2340	3520	3150	4280	4710	3390	3450	4470	3640	4810	1800
9	1330	2600	3470	3060	3780	4460	3180	2660	4710	4470	4350	1520
10	1530	3970	3500	2720	3850	4110	3480	2750	4760	5030	4120	1570
11	1430	3090	3310	3100	4210	3770	3470	2910	4830	5020	2710	1460
12	1570	3570	3470	2980	4120	3590	3820	2870	4130	5030	3030	1440
13	1400	3870	3410	2670	4060	3730	4710	2830	4240	5230	3440	1490
14	1340	3900	3300	3220	4040	3890	5260	2670	4280	6260	2980	1430
15	1330	3740	3230	3170	3980	3890	5870	3030	4200	5490	2920	1270
16	1470	3920	3280	2990	3850	3930	5650	3010	4180	5840	3360	1220
17	1550	3910	3150	3010	4100	3850	5900	3810	4140	6090	3260	1290
18	1600	3920	3340	3150	4870	3710	6170	3820	4160	5840	2860	1370
19	1440	4800	3250	3040	5170	3530	6990	3910	4180	6930	2870	1370
20	1440	4810	3080	3410	4950	2930	8050	5500	4120	7560	2870	1250
21	1200	4680	2640	3950	5240	2660	7580	6020	4020	7980	1840	1080
22	1330	4770	1340	4050	5200	2650	6660	5960	3270	7880	1820	1400
23	1600	4820	1850	4150	5080	2770	5750	6030	2620	11300	2180	1340
24	1580	4810	1780	4150	5180	2870	5970	6440	2480	11800	1920	1090
25	1400	4720	1840	4080	5100	2810	6180	6790	1660	11200	1700	1160
26	1400	4800	1860	4050	5120	2850	5790	6460	1800	10700	2200	1380
27	1320	4700	1850	4390	5220	2870	4430	5760	1730	8810	3480	1390
28	1560	4610	1880	4940	5190	2890	2890	4690	1980	6460	3410	1360
29	2870	4590	1790	4770	---	2880	2360	4710	1840	3970	2940	1190
30	2720	4500	1790	4880	---	3060	2450	4540	2090	3260	3130	1330
31	2630	---	1740	4800	---	2670	---	4710	---	3970	3080	---
TOTAL	48010	112400	91800	102480	128880	117120	139550	124810	124980	176410	101920	43220
MEAN	1549	3747	2961	3306	4603	3778	4652	4026	4166	5691	3288	1441
MAX	2870	4820	4690	4940	5240	5200	8050	6790	7890	11800	4950	1900
MIN	1180	2290	1340	1750	3780	2650	2360	2480	1660	2000	1700	1080

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1896 - 1999, BY WATER YEAR (WY)

	MEAN	3324	3991	3996	4013	4085	4956	7193	6062	5031	3488	2691	2822
MAX	14230	12740	9879	7831	7831	12440	19360	20160	13330	15600	9623	11020	
(WY)	1987	1985	1983	1960	1939	1973	1929	1960	1993	1993	1924	1938	
MIN	728	1242	1562	1432	1768	1596	1590	1260	1098	983	761	709	
(WY)	1933	1931	1959	1977	1977	1964	1954	1931	1931	1931	1936	1933	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1896 - 1999

ANNUAL TOTAL	1451660	1311580	
ANNUAL MEAN	3977	3593	
HIGHEST ANNUAL MEAN			4312
LOWEST ANNUAL MEAN			8427
HIGHEST DAILY MEAN	15000	11800	1626
LOWEST DAILY MEAN	1070	1080	24000
ANNUAL SEVEN-DAY MINIMUM	1270	1240	138
10 PERCENT EXCEEDS	6980	5750	499
50 PERCENT EXCEEDS	3280	3410	7810
90 PERCENT EXCEEDS	1390	1440	1680

STREAMS TRIBUTARY TO LAKE MICHIGAN
040851385 FOX RIVER, AT OIL TANK DEPOT, AT GREEN BAY, WI

LOCATION.--Lat 44°31'43", long 88°00'36"(revised) in section 25, T.24 N., R.20 E., Brown County, Hydrologic Unit 04030204, about 0.5 mi upstream of Interstate Highway 43 bridge in Green Bay, and 0.8 mi upstream from mouth.

DRAINAGE AREA.--6,330 mi².

P^rIOD OF RECORD.--October 1988 to current year.

GAGE.--Acoustical Velocity Meter (AVM) system. Two-path transducer installation.

REMARKS.--Estimated daily discharges: Nov. 10, Dec. 21 to Jan. 21, Feb. 5-11, Feb. 14 to Mar. 6, Mar. 17-21, Apr. 16-22, 25, 26, May 4-26, and June 5. Records good except those for estimated daily discharges, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1720	1890	5000	2060	4550	5090	2150	2490	4620	2320	4270	2940
2	989	1740	4290	2060	4620	5070	2860	2550	5430	2340	4820	3130
3	-21	2840	4690	2130	3890	5050	1760	3150	7290	3200	4040	3160
4	227	2270	4410	2170	5960	5060	2820	2820	6870	2510	4450	3510
5	398	2200	3830	2180	4610	4930	4270	2840	7900	4680	6460	3510
6	1840	2610	3450	2500	4570	4990	4350	3000	8350	4150	5870	1830
7	1670	2720	3370	2940	4550	4900	3800	3900	7840	4070	5310	1980
8	618	2650	3380	2940	4120	4330	3050	3360	5090	4700	6860	2010
9	1650	2630	4060	2960	3830	3150	3060	2910	4690	3770	5520	1810
10	1360	9520	3440	2940	3810	3990	3060	2980	5230	5810	4900	1620
11	1270	4230	3860	3150	4000	4160	4150	3030	6390	5300	3990	2100
12	2210	2960	3260	3150	5370	3360	3830	2980	5050	4720	3030	1580
13	1280	4010	3170	2830	5330	3680	4760	2930	3770	5270	3230	2090
14	269	3940	4290	3360	3940	3410	5610	3010	4610	6870	3370	1530
15	1240	3850	3330	3360	3930	3660	5440	3190	3910	6450	3450	1050
16	1170	4180	3100	3150	3950	4040	5710	3280	3830	6010	3480	1230
17	1720	4050	3300	3150	4400	3900	6030	3780	4130	6090	2660	2090
18	2690	4180	2670	3250	4900	3840	6230	3780	4020	6000	2900	2780
19	470	4340	3230	3250	4950	3540	7000	4560	4030	7560	2300	1690
20	1360	4680	3060	3570	5020	3000	7710	5590	3300	7830	3170	413
21	553	5100	2860	4050	5070	2900	7610	5980	3950	8040	2430	1930
22	1360	4800	2150	4070	5060	2520	6510	5850	3920	10300	2290	1680
23	1470	4570	2230	4460	5040	2790	5670	6020	3670	11500	2350	-409
24	1320	4760	2230	5250	5040	2730	5980	6350	2800	11500	589	1320
25	643	4570	2220	4160	5060	2700	6200	6950	4450	11300	-1230	1320
26	495	4840	2170	4470	5080	2690	5150	6430	4550	10100	1080	1410
27	1680	4960	2170	4100	5100	2770	4820	5710	3860	9680	3870	736
28	692	4590	2150	5460	5090	3010	2900	4800	1480	7110	3700	38
29	2090	4930	2150	5180	---	2890	2350	4860	2660	3900	2590	478
30	3090	4870	2080	4520	---	2970	1790	6050	1680	4750	3690	1710
31	2590	---	2100	4720	---	3140	---	5930	---	3620	3650	---
TOTAL	40113	119480	97700	107540	130840	114260	136630	131060	139370	191450	109089	52266
MEAN	1294	3983	3152	3469	4673	3686	4554	4228	4646	6176	3519	1742
MAX	3090	9520	5000	5460	5960	5090	7710	6950	8350	11500	6860	3510
MIN	-21	1740	2080	2060	3810	2520	1760	2490	1480	2320	-1230	-409
CFSM	.20	.63	.50	.55	.74	.58	.72	.67	.73	.98	.56	.28
IN.	.24	.70	.57	.63	.77	.67	.80	.77	.82	1.13	.64	.31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1999, BY WATER YEAR (WY)

	MEAN	3544	5233	4573	3990	4052	6036	7580	6270	6585	5152	3722	3256
MAX	8504	8668	9446	6092	5814	7827	13660	13220	14780	15620	6855	6172	
(WY)	1996	1993	1993	1993	1996	1994	1993	1993	1993	1993	1993	1993	
MIN	1294	3069	2977	2768	2070	3320	3010	2710	2484	2140	1804	1355	
(WY)	1999	1990	1990	1990	1995	1995	1990	1998	1994	1995	1998	1998	

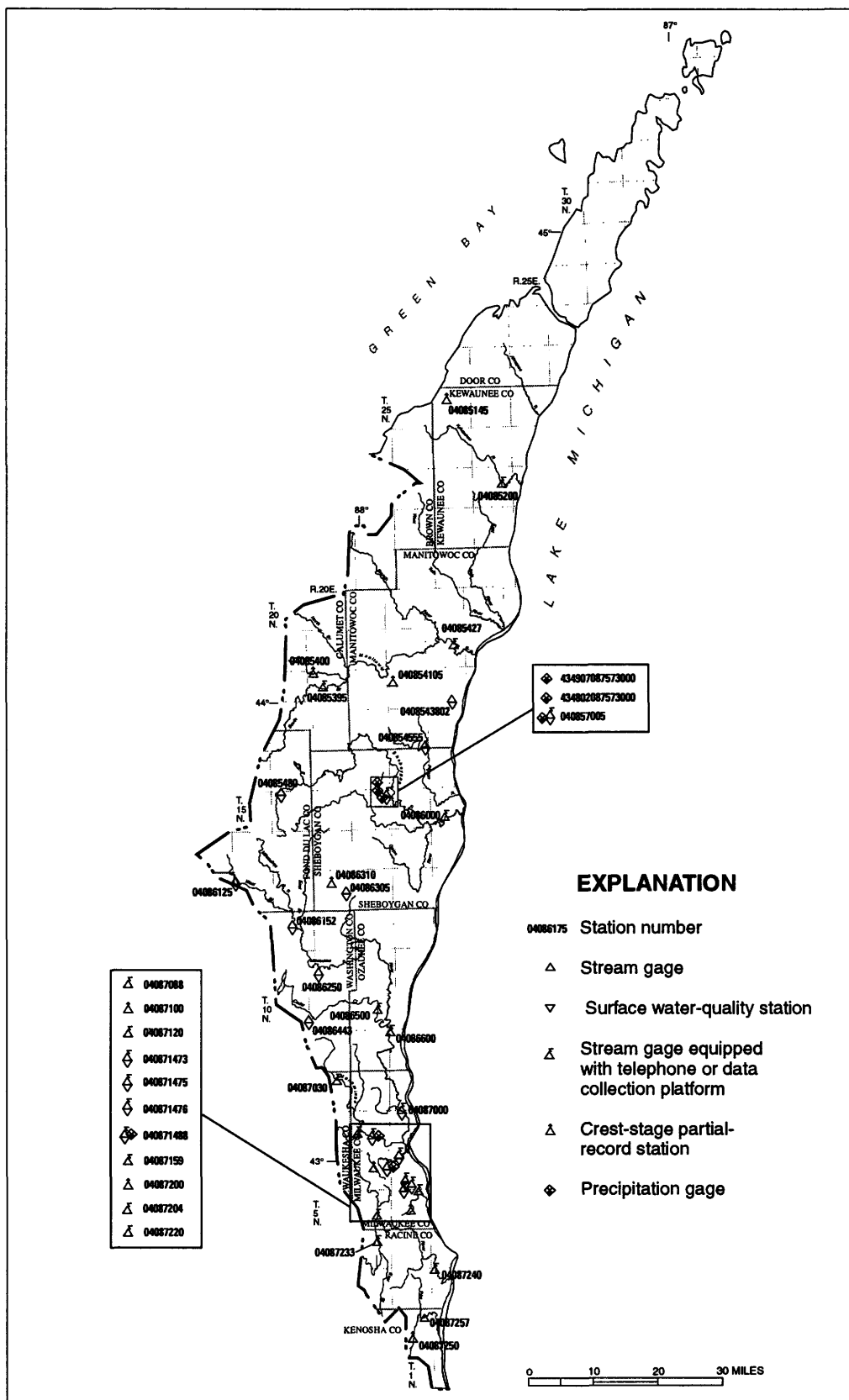
SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1989 - 1999

ANNUAL TOTAL	1439115	1369798	
ANNUAL MEAN	3943	3753	
HIGHEST ANNUAL MEAN			4999
LOWEST ANNUAL MEAN			9102
HIGHEST DAILY MEAN	16300	Apr 16	11500
LOWEST DAILY MEAN	-884	Jun 16	-1230
ANNUAL SEVEN-DAY MINIMUM	728	Sep 29	699
ANNUAL RUNOFF (CFSM)	.62	.59	.79
ANNUAL RUNOFF (INCHES)	8.46	8.05	10.73
10 PERCENT EXCEEDS	7240	5990	9610
50 PERCENT EXCEEDS	3160	3660	4040
90 PERCENT EXCEEDS	957	1600	1920



LAKE MICHIGAN BASIN

STREAMS TRIBUTARY TO LAKE MICHIGAN

04085200 KEWAUNEE RIVER NEAR KEWAUNEE, WI

LOCATION.--Lat 44°27'30", long 87°33'23", in SW 1/4 sec.14, T.23 N., R.24 E., Kewaunee County, Hydrologic Unit 04030102, on left bank just upstream (revised) from bridge on County Trunk Highway F, 2.3 mi west of Kewaunee, and about 7.0 mi upstream from mouth.

DRAINAGE AREA.--127 mi².

PERIOD OF RECORD.--Annual maximum, water years 1958-65, and occasional low-flow measurements, water years 1963-64. September 1964 to July 1996, November 1997 to current year. No winter records for years 1965 and 1966.

REVISED RECORDS.--WDR WI-79-1: Drainage area. WDR WI-85-1: 1962(M), 1965(M), 1967-69(M), 1971(M), 1973-74(M), 1976(M), 1978(M), 1980-82(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 579.64 ft above sea level (Wisconsin State Highway Commission benchmark). Apr. 3, 1957, to Sept. 2, 1964, crest-stage gage only at same site and datum.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 23-25, Dec. 31 to Jan. 16, Jan. 27 to Feb. 8, Feb. 16-25, and Mar. 4-11. Records good except those for ice-affected periods, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	17	23	14	47	119	47	31	67	24	23	10
2	19	17	23	14	54	104	48	30	156	40	21	9.9
3	18	16	23	14	60	88	66	29	189	36	21	9.6
4	16	16	22	13	80	58	120	28	120	37	22	9.3
5	17	16	23	13	100	50	140	28	84	30	21	9.1
6	35	16	23	13	94	44	120	69	67	25	21	8.9
7	66	16	23	13	84	41	105	160	71	22	20	8.5
8	59	16	22	13	76	39	88	138	67	22	19	8.6
9	43	16	21	13	103	37	83	115	57	183	18	8.5
10	32	44	21	13	171	36	81	84	47	179	20	8.8
11	26	64	20	13	459	36	72	65	41	138	19	8.5
12	23	47	20	13	1250	43	67	56	60	85	18	8.8
13	20	37	20	13	608	44	60	50	65	50	18	9.5
14	20	31	19	13	335	48	55	44	49	43	17	9.7
15	19	28	19	14	181	57	51	40	43	60	16	9.2
16	19	30	19	16	120	69	48	38	38	50	15	9.1
17	18	35	19	19	90	86	44	59	36	58	15	8.9
18	18	33	19	27	74	97	42	72	34	60	15	8.7
19	17	31	19	29	64	85	40	62	31	171	15	9.3
20	16	29	19	27	56	75	39	54	29	244	14	11
21	16	27	17	26	50	70	39	48	27	183	13	11
22	16	25	13	36	45	63	41	45	26	131	13	11
23	15	24	11	86	42	58	46	57	25	92	13	11
24	15	23	12	119	40	55	43	103	26	79	14	10
25	16	23	13	107	40	52	40	103	25	55	13	10
26	16	22	14	96	45	49	38	77	23	43	13	11
27	16	22	14	80	55	47	35	58	22	34	12	29
28	17	22	15	64	88	47	34	48	22	30	12	31
29	17	22	15	56	---	47	32	41	26	28	11	23
30	18	22	15	52	---	47	31	36	24	25	10	18
31	18	---	14	49	---	47	---	41	---	25	10	---
TOTAL	703	787	570	1088	4511	1838	1795	1909	1597	2282	502	348.9
MEAN	22.7	26.2	18.4	35.1	161	59.3	59.8	61.6	53.2	73.6	16.2	11.6
MAX	66	64	23	119	1250	119	140	160	189	244	23	31
MIN	15	16	11	13	40	36	31	28	22	22	10	8.5
CFSM	.18	.21	.14	.28	1.27	.47	.47	.48	.42	.58	.13	.09
IN.	.21	.23	.17	.32	1.32	.54	.53	.56	.47	.67	.15	.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1999, BY WATER YEAR (WY)

MEAN	46.9	67.0	53.3	37.4	63.0	261	206	83.1	86.0	41.8	33.4	55.7
MAX	221	458	226	265	314	567	450	354	483	342	113	454
(WY)	1985	1986	1993	1973	1984	1986	1993	1973	1990	1993	1975	1986
MIN	10.1	10.9	9.10	9.83	11.9	59.3	56.4	21.2	12.3	8.29	7.90	8.98
(WY)	1967	1977	1977	1977	1977	1999	1990	1977	1988	1965	1970	1966

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1964 - 1999
ANNUAL TOTAL	19505.6	17930.9	
ANNUAL MEAN	53.4	49.1	86.5
HIGHEST ANNUAL MEAN			178
LOWEST ANNUAL MEAN			35.7
HIGHEST DAILY MEAN	1630	1250	5950
LOWEST DAILY MEAN	6.6	8.5	5.9
ANNUAL SEVEN-DAY MINIMUM	7.0	8.7	6.3
INSTANTANEOUS PEAK FLOW		1510	(b) 8570
INSTANTANEOUS PEAK STAGE		12.58	(c) 16.03
INSTANTANEOUS LOW FLOW		7.9	(d) 3.8
ANNUAL RUNOFF (CFSM)	.42	.39	.68
ANNUAL RUNOFF (INCHES)	5.71	5.25	9.26
10 PERCENT EXCEEDS	122	91	173
50 PERCENT EXCEEDS	23	30	32
90 PERCENT EXCEEDS	9.4	13	13

(a) Also occurred Sept. 9, 11

(b) Gage height, 16.00 ft, from crest-stage gage

(c) Backwater from ice

(d) Also occurred Sept. 6, 7

(e) Result of freezeup

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04085395 SOUTH BRANCH MANITOWOC RIVER AT HAYTON, WI

LOCATION.--Lat 44°01'29", long 88°07'05", in SW 1/4 SW 1/4 sec.16, T.18 N., R.20 E., Calumet County, Hydrologic Unit 04030101, on left bank 100 ft downstream from Weeks Road bridge, at Hayton.

DRAINAGE AREA.--109 mi².

PERIOD OF RECORD.--July 1993 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 808 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 21 to Jan. 23. Records fair except those for ice-affected period and periods of flow less than 3 ft³/s, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.5	9.9	17	4.9	33	64	48	36	50	138	128	20
2	6.2	9.8	15	4.8	34	63	46	33	218	121	106	19
3	4.5	9.8	15	4.9	38	60	84	31	192	110	90	18
4	3.8	9.8	15	4.8	46	54	176	29	132	111	91	17
5	7.7	9.8	15	4.9	46	54	192	28	133	101	80	16
6	21	9.8	15	4.8	45	44	168	40	144	94	65	15
7	21	9.6	15	4.9	41	44	145	60	184	87	56	14
8	16	9.4	15	4.8	38	42	130	64	166	83	53	14
9	12	9.1	15	4.9	47	38	135	60	139	145	47	14
10	11	39	14	4.8	60	36	144	52	102	162	44	14
11	9.8	31	14	4.8	131	36	148	44	84	149	42	13
12	9.3	24	13	4.9	207	36	144	43	80	121	38	13
13	8.7	21	13	4.8	196	35	131	48	83	103	56	13
14	8.3	20	13	5.2	168	35	115	42	100	95	58	13
15	8.6	18	13	6.0	152	36	103	36	108	92	53	12
16	9.2	22	12	6.4	152	45	92	33	122	89	46	12
17	9.2	26	12	6.8	152	62	83	95	153	93	40	12
18	11	23	12	7.6	134	74	76	133	133	91	36	12
19	9.0	22	12	9.0	118	77	70	133	106	119	43	11
20	8.0	19	12	10	102	75	65	113	90	117	45	11
21	7.9	19	10	10	84	72	62	92	80	152	39	11
22	8.0	18	8.0	20	71	70	65	80	74	165	34	11
23	7.9	17	6.6	30	64	69	72	102	70	169	34	11
24	7.9	15	5.4	32	54	66	67	132	67	154	33	11
25	7.9	16	5.0	33	50	65	59	137	60	136	30	11
26	7.4	16	4.8	38	46	63	54	118	53	134	28	12
27	9.0	15	4.6	34	56	60	50	94	69	139	26	36
28	13	15	4.8	33	63	57	45	74	250	148	24	39
29	11	15	4.7	33	---	55	41	61	197	151	23	38
30	10	17	4.8	35	---	52	38	50	152	146	22	32
31	10	---	4.7	34	---	50	---	49	---	153	21	---
TOTAL	303.8	515.0	340.4	446.0	2428	1689	2848	2142	3591	3868	1531	495
MEAN	9.80	17.2	11.0	14.4	86.7	54.5	94.9	69.1	120	125	49.4	16.5
MAX	21	39	17	38	207	77	192	137	250	169	128	39
MIN	3.8	9.1	4.6	4.8	33	35	38	28	50	83	21	11
CFSM	.09	.16	.10	.13	.80	.50	.87	.63	1.10	1.14	.45	.15
IN.	.10	.18	.12	.15	.83	.58	.97	.73	1.23	1.32	.52	.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1999, BY WATER YEAR (WY)

	MEAN	22.9	15.0	13.6	48.2	97.8	115	49.8	70.1	71.0	22.7	13.7
MAX	29.3	47.5	24.0	21.6	86.7	189	259	69.1	170	232	49.4	35.3
(WY)	1994	1996	1994	1997	1999	1997	1998	1999	1996	1993	1999	1993
MIN	7.17	10.9	8.74	6.21	6.42	54.5	48.2	30.1	12.1	2.46	8.48	4.02
(WY)	1995	1995	1995	1995	1995	1999	1995	1995	1995	1995	1995	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1993 - 1999

ANNUAL TOTAL	17645.3	20197.2	45.8
ANNUAL MEAN	48.3	55.3	103
HIGHEST ANNUAL MEAN			17.3
LOWEST ANNUAL MEAN			1993
HIGHEST DAILY MEAN	914	250	914
LOWEST DAILY MEAN	2.2	3.8	.92
ANNUAL SEVEN-DAY MINIMUM	2.7	(a) 4.8	1.5
INSTANTANEOUS PEAK FLOW		373	947
INSTANTANEOUS PEAK FLOW		5.22	6.95
INSTANTANEOUS LOW FLOW			(b) .89
ANNUAL RUNOFF (CFSM)	.44	.51	.42
ANNUAL RUNOFF (INCHES)	6.02	6.89	5.71
10 PERCENT EXCEEDS	134	137	110
50 PERCENT EXCEEDS	15	39	21
90 PERCENT EXCEEDS	4.7	8.0	6.5

(a) Ice affected

(b) Also occurred July 31 to Aug. 1, 1995

STREAMS TRIBUTARY TO LAKE MICHIGAN
04085427 MANITOWOC RIVER AT MANITOWOC, WI

LOCATION.--Lat 44°06'26", long 87°42'55", in NE 1/4 NW 1/4 sec.23, T.19 N., R.23 E., Manitowoc County, Hydrologic Unit 04030101, on right bank 300 ft upstream from bridge on County Trunk Highway JJ, just west of the Manitowoc city limits and 6.6 mi upstream from mouth.

DRAINAGE AREA.--526 mi².

PERIOD OF RECORD.--July 1972 to September 1996, December 1997 to current year.

REVISED RECORDS.--WDR WI-79-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 610.12 ft above sea level.

REMARKS.--Estimated daily discharges: Nov. 18 to Dec. 2 and ice-affected period, Dec. 16 to Mar. 14. Records good except for estimated daily discharges, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	39	47	25	90	220	211	172	294	241	189	36
2	39	41	64	25	92	220	203	155	370	261	188	37
3	41	39	57	25	96	210	257	136	470	271	185	39
4	41	39	54	25	100	200	474	122	490	271	183	36
5	44	41	53	25	120	190	560	111	505	264	177	30
6	67	41	53	25	110	160	608	122	535	253	164	29
7	71	38	61	25	100	150	650	171	672	234	150	31
8	71	37	63	25	98	150	654	211	600	210	138	30
9	64	36	59	25	110	140	676	239	552	208	125	27
10	56	80	57	25	130	150	683	231	522	214	105	30
11	51	103	57	25	200	160	649	215	494	214	97	29
12	45	133	56	25	600	150	647	213	463	215	90	28
13	41	103	57	25	500	160	639	211	444	210	98	24
14	47	86	52	25	460	160	608	207	423	199	100	23
15	45	86	51	26	400	187	577	187	395	182	107	24
16	36	97	50	26	350	232	537	165	361	166	107	25
17	28	77	47	28	330	324	511	250	332	165	105	25
18	29	70	45	29	310	404	485	376	309	150	101	25
19	34	66	40	30	290	404	447	452	284	186	85	25
20	47	60	37	33	270	396	408	442	258	198	77	26
21	39	56	33	34	260	397	361	438	238	232	77	26
22	31	54	28	45	240	385	316	437	214	262	78	26
23	28	52	26	60	230	363	290	500	190	276	78	25
24	26	52	24	80	220	345	296	541	170	278	62	26
25	28	52	24	110	210	324	285	515	156	255	59	26
26	27	50	25	130	200	304	264	496	137	233	60	25
27	27	48	25	110	200	283	235	472	120	218	57	54
28	29	48	25	100	210	263	204	446	145	202	53	63
29	29	47	25	94	---	251	191	409	178	189	50	64
30	33	47	26	94	---	246	183	362	217	179	44	70
31	33	---	25	92	---	227	---	320	---	180	39	---
TOTAL	1269	1818	1346	1471	6526	7755	13109	9324	10538	6816	3228	984
MEAN	40.9	60.6	43.4	47.5	233	250	437	301	351	220	104	32.8
MAX	71	133	64	130	600	404	683	541	672	278	189	70
MIN	26	36	24	25	90	140	183	111	120	150	39	23
CFSM	.08	.12	.08	.09	.44	.48	.83	.57	.67	.42	.20	.06
IN.	.09	.13	.10	.10	.46	.55	.93	.66	.75	.48	.23	.07

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1999, BY WATER YEAR (WY)

	MEAN	203	262	189	119	198	859	989	380	278	143	74.9	142
MAX	1465	1367	575	503	1104	1951	2672	991	1396	1071	343	1711	
(WY)	1987	1986	1983	1973	1984	1985	1979	1978	1993	1993	1986	1986	
MIN	18.8	23.1	16.3	20.4	20.8	226	222	53.8	18.1	13.6	13.7	14.9	
(WY)	1977	1977	1977	1977	1977	1980	1990	1977	1988	1988	1988	1976	

SUMMARY STATISTICS

	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1972 - 1999
ANNUAL TOTAL	75311	64184	
ANNUAL MEAN	206	176	323
HIGHEST ANNUAL MEAN			728
LOWEST ANNUAL MEAN			82.7
HIGHEST DAILY MEAN	2040	683	8000
LOWEST DAILY MEAN	15	23	7.0
ANNUAL SEVEN-DAY MINIMUM	16	24	8.1
INSTANTANEOUS PEAK FLOW		(a) 746	(b) 8280
INSTANTANEOUS PEAK STAGE		(c) 8.38	(d) 13.30
INSTANTANEOUS LOW FLOW		17	6.8
ANNUAL RUNOFF (CFSM)	.39	.33	.61
ANNUAL RUNOFF (INCHES)	5.33	4.54	8.33
10 PERCENT EXCEEDS	601	445	859
50 PERCENT EXCEEDS	52	120	120
90 PERCENT EXCEEDS	25	26	29

(a) Gage height, 6.50 ft
(b) Gage height, 13.24 ft

(c) Backwater from ice

(d) From floodmarks

(e) Also occurred Oct. 3-5, 1989

STREAMS TRIBUTARY TO LAKE MICHIGAN

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0408543802 PINE CREEK AT NEWTON, WI

LOCATION.--Lat 44°00'14", long 87°43'19", in SE 1/4 NE 1/4 sec.27, T.18 N., R.23 E., Manitowoc County, Hydrologic Unit 04030101, on left bank 20 ft downstream from County Trunk CR culverts, 0.5 mi north of County Trunk U, at Newton.

DRAINAGE AREA.--6.2 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1998 to November 1999 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 630 ft above sea level, from topographic map.

REMARKS.--

DECEMBER 1998 TO SEPTEMBER 1999: Estimated daily discharges: Dec. 1, 2, May 24 to June 14, and ice-affected periods, Dec. 21 to Feb. 2, Feb. 13, 18-22, 24, and Mar. 4-7, 13-15. Records good except those for estimated daily discharges, which are poor (see page 13).

OCTOBER 1999 TO NOVEMBER 1999: No estimated daily discharge. Records are fair (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	.52	.22	3.0	4.8	2.0	1.3	2.4	1.9	.26	.07
2	---	---	.50	.21	9.0	4.2	1.9	1.2	13	1.6	.18	.07
3	---	---	.48	.21	18	3.9	9.7	1.2	7.2	1.6	.31	.10
4	---	---	.46	.21	22	3.5	16	1.1	4.0	1.5	.52	.09
5	---	---	.49	.20	19	2.8	11	1.1	5.8	1.1	.32	.09
6	---	---	.54	.20	8.3	2.6	11	3.1	12	.94	.24	.08
7	---	---	.69	.19	7.0	2.5	8.3	3.9	30	.73	.24	.09
8	---	---	.62	.19	6.3	2.3	6.6	3.8	9.0	.74	.23	.06
9	---	---	.55	.19	11	2.1	15	2.8	6.4	2.2	.19	.07
10	---	---	.54	.19	13	2.4	9.8	2.2	5.2	.92	.20	.09
11	---	---	.53	.18	34	2.7	7.2	1.9	5.6	.59	.21	.09
12	---	---	.49	.18	27	3.4	6.0	4.3	7.6	.47	.20	.10
13	---	---	.52	.17	15	4.4	5.1	3.6	32	.47	1.2	.11
14	---	---	.50	.17	8.6	4.6	4.5	2.5	17	.40	.44	.10
15	---	---	.49	.17	7.2	4.8	4.0	2.0	15	.40	.38	.10
16	---	---	.53	.19	6.4	5.0	3.3	1.8	10	.37	.41	.09
17	---	---	.51	1.5	5.6	5.9	2.8	15	7.5	1.6	.37	.09
18	---	---	.50	2.0	4.8	5.3	2.6	12	5.8	1.4	.33	.09
19	---	---	.47	.80	4.2	4.3	2.4	10	4.8	2.3	.36	.08
20	---	---	.46	.60	3.5	4.2	2.2	7.0	4.0	1.5	.22	.10
21	---	---	.40	.50	2.9	4.0	2.1	5.4	3.3	4.7	.16	.08
22	---	---	.35	4.0	2.4	3.5	2.7	4.3	2.8	2.9	.18	.08
23	---	---	.30	20	2.3	3.3	3.0	13	2.5	2.5	.30	.07
24	---	---	.28	12	2.2	3.1	2.3	9.6	2.4	1.9	.30	.08
25	---	---	.27	5.0	2.0	2.9	2.1	7.8	1.9	1.1	.24	.08
26	---	---	.26	12	2.0	2.5	1.9	6.4	1.6	.78	.19	.09
27	---	---	.25	8.2	4.1	2.4	1.8	4.2	1.5	.59	.16	.44
28	---	---	.24	6.0	5.0	2.3	1.5	3.8	2.9	.48	.10	.46
29	---	---	.23	4.5	---	2.2	1.5	3.7	2.9	.40	.06	.21
30	---	---	.22	6.0	---	2.1	1.4	3.0	2.0	.32	.05	.12
31	---	---	.22	3.5	---	2.1	---	2.6	---	.37	.07	---
TOTAL	---	---	13.41	89.67	255.8	106.1	151.7	145.6	228.1	38.77	8.62	3.47
MEAN	---	---	.43	2.89	9.14	3.42	5.06	4.70	7.60	1.25	.28	.12
MAX	---	---	.69	20	34	5.9	16	15	32	4.7	1.2	.46
MIN	---	---	.22	.17	2.0	2.1	1.4	1.1	1.5	.32	.05	.06
CFSM	---	---	.07	.47	1.47	.55	.82	.76	1.23	.20	.04	.02
IN.	---	---	.08	.54	1.53	.64	.91	.87	1.37	.23	.05	.02

SUMMARY STATISTICS

FOR 1999 WATER YEAR
(DECEMBER 1998-SEPTEMBER 1999)

HIGHEST DAILY MEAN	34	Feb 11
LOWEST DAILY MEAN	.05	Aug 30
ANNUAL SEVEN-DAY MINIMUM	.07	Aug 29
INSTANTANEOUS PEAK FLOW	(a) 95	Feb 11
INSTANTANEOUS PEAK STAGE	(b) 13.28	Jan 24
INSTANTANEOUS LOW FLOW	.03	(c) Aug 30
10 PERCENT EXCEEDS	9.0	
50 PERCENT EXCEEDS	1.9	
90 PERCENT EXCEEDS	.11	

(a) Gage height, 12.60 ft

(b) Backwater from ice

(c) Also occurred Sept. 8

STREAMS TRIBUTARY TO LAKE MICHIGAN
0408543802 PINE CREEK AT NEWTON, WI--CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.12	.11	---	---	---	---	---	---	---	---	---	---
2	.25	.10	---	---	---	---	---	---	---	---	---	---
3	.17	.11	---	---	---	---	---	---	---	---	---	---
4	.15	.10	---	---	---	---	---	---	---	---	---	---
5	.13	.10	---	---	---	---	---	---	---	---	---	---
6	.12	.09	---	---	---	---	---	---	---	---	---	---
7	.12	.09	---	---	---	---	---	---	---	---	---	---
8	.12	.09	---	---	---	---	---	---	---	---	---	---
9	.12	.09	---	---	---	---	---	---	---	---	---	---
10	.12	.09	---	---	---	---	---	---	---	---	---	---
11	.11	.10	---	---	---	---	---	---	---	---	---	---
12	.11	.11	---	---	---	---	---	---	---	---	---	---
13	.17	.11	---	---	---	---	---	---	---	---	---	---
14	.16	.12	---	---	---	---	---	---	---	---	---	---
15	.14	.13	---	---	---	---	---	---	---	---	---	---
16	.23	.13	---	---	---	---	---	---	---	---	---	---
17	.17	.11	---	---	---	---	---	---	---	---	---	---
18	.15	.11	---	---	---	---	---	---	---	---	---	---
19	.15	.12	---	---	---	---	---	---	---	---	---	---
20	.14	.12	---	---	---	---	---	---	---	---	---	---
21	.13	.11	---	---	---	---	---	---	---	---	---	---
22	.13	.11	---	---	---	---	---	---	---	---	---	---
23	.14	.21	---	---	---	---	---	---	---	---	---	---
24	.16	.15	---	---	---	---	---	---	---	---	---	---
25	.16	.13	---	---	---	---	---	---	---	---	---	---
26	.13	.12	---	---	---	---	---	---	---	---	---	---
27	.14	.11	---	---	---	---	---	---	---	---	---	---
28	.16	.10	---	---	---	---	---	---	---	---	---	---
29	.15	.11	---	---	---	---	---	---	---	---	---	---
30	.14	.11	---	---	---	---	---	---	---	---	---	---
31	.12	---	---	---	---	---	---	---	---	---	---	---
TOTAL	4.51	3.39	---	---	---	---	---	---	---	---	---	---
MEAN	.15	.11	---	---	---	---	---	---	---	---	---	---
MAX	.25	.21	---	---	---	---	---	---	---	---	---	---
MIN	.11	.09	---	---	---	---	---	---	---	---	---	---
CFSM	.02	.02	---	---	---	---	---	---	---	---	---	---
IN.	.03	.02	---	---	---	---	---	---	---	---	---	---

SUMMARY STATISTICS

FOR 1999 CALENDAR YEAR
(JANUARY-NOVEMBER)

FOR 2000 WATER YEAR
(OCTOBER-NOVEMBER)

WATER YEARS 1999 - 2000
(DECEMBER 1998-NOVEMBER 1999)

ANNUAL TOTAL	1035.73	7.90	2.87
ANNUAL MEAN	3.10	.13	3.43
HIGHEST ANNUAL MEAN			.13
LOWEST ANNUAL MEAN			
HIGHEST DAILY MEAN	34	Feb 11	34
LOWEST DAILY MEAN	.05	Aug 30	.05
ANNUAL SEVEN-DAY MINIMUM	.07	Aug 29	.07
INSTANTANEOUS PEAK FLOW			(b) .95
INSTANTANEOUS PEAK STAGE			(c) 13.28
INSTANTANEOUS LOW FLOW			.03
ANNUAL RUNOFF (CFSM)	.50	.021	.46
ANNUAL RUNOFF (INCHES)	6.21	.05	6.30
10 PERCENT EXCEEDS	8.3	.17	7.7
50 PERCENT EXCEEDS	1.5	.12	.74
90 PERCENT EXCEEDS	.10	.10	.10

(a) Also occurred Nov. 7-10

(b) Gage height, 12.60 ft

(c) Backwater from ice

(d) Also occurred Sept. 8, 1999

STREAMS TRIBUTARY TO LAKE MICHIGAN
0408543802 PINE CREEK AT NEWTON, WI--CONTINUED

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WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1998 to December 1999 (discontinued).

REMARKS.--Chemical analyses are by the Wisconsin State Laboratory of Hygiene. Samples are equal-width increment samples (EWI) unless otherwise indicated.

WATER-QUALITY DATA, NOVEMBER 1998 TO DECEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
NOV 1998						
06...	0622	--	.13	12	<.013	.048
17...	1230	--	1.4	<5	.101	.216
DEC						
02...	0652	--	.50	14	.025	.129
18...	0702	--	.53	8	.020	.063
29...	0708	--	.24	<5	.077	.031
JAN 1999						
14...	0654	--	.18	<5	.141	.045
26...	1642	--	12	<5	.142	.305
FEB						
02...	1300	9.0	--	41	.338	.562
08...	1742	--	6.5	7	.188	.212
22...	1628	--	2.4	<5	.043	.145
MAR						
10...	1512	--	2.6	<5	<.013	.126
23...	0702	--	3.3	<5	<.013	.079
APR						
*03...	1545	--	12	76	.283	.647
05...	1842	--	9.7	10	.028	.153
20...	1648	--	2.2	5	.024	.104
MAY						
03...	1402	--	1.1	<5	.024	.130
17...	1356	--	16	25	.056	.386
JUN						
02...	1858	--	14	25	.055	.318
07...	1604	--	28	35	.033	.358
15...	0732	--	17	25	.094	.253
29...	0732	--	3.5	27	.100	.386
JUL						
12...	1846	--	.45	11	.104	.417
28...	0744	--	.53	21	.071	.343
AUG						
09...	1744	--	.16	6	.031	.196
23...	1553	--	.30	16	.032	.205
SEP						
08...	0828	--	.09	19	.028	.158
23...	0836	--	.07	32	.026	.116

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 1999					
05...	1642	.13	8	.033	.073
18...	1624	.15	7	.022	.058
NOV					
01...	1652	.11	6	.019	.056
15...	1542	.13	6	.026	.047
DEC					
01...	1436	.11	6	.045	.043

* Point sample

STREAMS TRIBUTARY TO LAKE MICHIGAN

040854555 MEEME RIVER AT SOUTH CLEVELAND ROAD NEAR CLEVELAND, WI

LOCATION.--Lat 43°54'23", long 87°48'28", in NW 1/4 NE 1/4 sec.36, T.17 N., R.22 E., Manitowoc County, Hydrologic Unit 04030101, on left bank 100 ft downstream from bridge on South Cleveland Road, 6.5 mi southwest of Cleveland.

DRAINAGE AREA.--19.97 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1998 to November 1999 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 730 ft above sea level, from topographic map.

REMARKS.--

DECEMBER 1998 TO SEPTEMBER 1999: Estimated daily discharges: Dec. 1, 2 and ice-affected period, Dec. 21 to Feb. 26. Records good except those for July 28 to Sept. 30, which are fair, and those for estimated daily discharges, which are poor (see page 13).

OCTOBER 1999 TO NOVEMBER 1999: No estimated daily discharge. Records are fair (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	5.4	2.7	29	18	8.9	5.8	8.0	8.4	4.5	2.1
2	---	---	5.3	2.6	45	17	8.5	6.9	18	7.4	3.7	2.2
3	---	---	5.2	2.6	62	15	34	6.9	32	7.2	3.4	2.3
4	---	---	5.0	2.5	70	13	95	7.1	17	7.8	4.7	2.1
5	---	---	5.1	2.5	58	12	69	6.8	50	5.9	4.4	2.4
6	---	---	5.2	2.4	47	11	44	10	38	6.0	4.0	1.4
7	---	---	6.2	2.4	35	10	31	18	154	5.1	4.0	1.4
8	---	---	5.8	2.3	28	10	23	14	107	4.5	5.3	1.6
9	---	---	5.4	2.3	37	11	51	12	39	31	4.6	2.1
10	---	---	5.1	2.2	48	12	55	9.7	20	14	3.1	2.2
11	---	---	5.0	2.2	56	11	30	8.7	19	8.4	2.9	2.4
12	---	---	4.9	2.2	45	12	24	18	64	4.7	4.0	2.7
13	---	---	5.0	2.2	37	13	20	21	89	5.3	4.5	2.9
14	---	---	4.8	2.1	30	16	16	13	92	4.9	8.0	2.7
15	---	---	5.0	2.1	23	22	14	11	44	4.5	4.3	2.6
16	---	---	4.8	3.5	18	28	14	9.9	20	4.0	4.0	2.5
17	---	---	4.5	6.0	16	38	11	38	18	8.4	4.0	2.3
18	---	---	5.0	10	13	33	10	40	13	9.7	3.5	2.4
19	---	---	5.5	20	12	21	9.9	45	9.9	23	6.6	3.1
20	---	---	5.1	19	11	17	9.6	23	8.2	16	5.8	3.5
21	---	---	4.5	18	10	16	9.7	16	7.0	65	4.2	3.8
22	---	---	3.8	30	9.0	13	11	13	6.2	52	2.3	3.3
23	---	---	3.2	50	8.2	12	17	19	5.9	17	2.7	2.4
24	---	---	3.0	80	7.8	12	13	42	5.8	12	3.8	2.5
25	---	---	2.9	64	8.6	11	11	25	4.8	8.8	3.1	2.6
26	---	---	2.8	52	8.2	10	10	15	4.1	7.0	2.7	2.8
27	---	---	3.7	45	14	10	10	9.6	3.7	6.1	2.5	6.0
28	---	---	3.9	40	20	9.9	8.5	8.9	24	5.2	2.8	7.6
29	---	---	3.5	37	---	9.6	7.8	7.8	18	4.3	2.2	7.1
30	---	---	3.1	33	---	9.4	7.5	7.0	10	4.1	2.2	5.1
31	---	---	2.8	30	---	9.4	---	6.9	---	4.2	2.0	---
TOTAL	---	---	140.5	572.8	805.8	462.3	683.4	495.0	949.6	371.9	119.8	90.1
MEAN	---	---	4.53	18.5	28.8	14.9	22.8	16.0	31.7	12.0	3.86	3.00
MAX	---	---	6.2	80	70	38	95	45	154	65	8.0	7.6
MIN	---	---	2.8	2.1	7.8	9.4	7.5	5.8	3.7	4.0	2.0	1.4

SUMMARY STATISTICS

FOR 1999 WATER YEAR
(DECEMBER 1998-SEPTEMBER 1999)

HIGHEST DAILY MEAN	154	Jun 7
LOWEST DAILY MEAN	1.4	Sep 6,7
ANNUAL SEVEN-DAY MINIMUM	1.9	Sep 4
INSTANTANEOUS PEAK FLOW	(a) 210	Jun 7
INSTANTANEOUS PEAK STAGE	(b) 13.82	Jan 24
INSTANTANEOUS LOW FLOW	1.1	Sep 6
10 PERCENT EXCEEDS	40	
50 PERCENT EXCEEDS	8.4	
90 PERCENT EXCEEDS	2.5	

(a) Gage height, 13.36 ft
(b) Backwater from ice

STREAMS TRIBUTARY TO LAKE MICHIGAN

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040854555 MEEME RIVER AT SOUTH CLEVELAND ROAD NEAR CLEVELAND, WI--CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	3.2	---	---	---	---	---	---	---	---	---	---
2	4.2	3.1	---	---	---	---	---	---	---	---	---	---
3	5.0	3.2	---	---	---	---	---	---	---	---	---	---
4	4.2	3.2	---	---	---	---	---	---	---	---	---	---
5	3.9	3.3	---	---	---	---	---	---	---	---	---	---
6	3.3	3.1	---	---	---	---	---	---	---	---	---	---
7	3.3	3.1	---	---	---	---	---	---	---	---	---	---
8	3.0	3.2	---	---	---	---	---	---	---	---	---	---
9	3.2	3.3	---	---	---	---	---	---	---	---	---	---
10	3.2	3.1	---	---	---	---	---	---	---	---	---	---
11	3.0	2.9	---	---	---	---	---	---	---	---	---	---
12	3.1	3.1	---	---	---	---	---	---	---	---	---	---
13	3.2	3.0	---	---	---	---	---	---	---	---	---	---
14	3.9	2.9	---	---	---	---	---	---	---	---	---	---
15	3.8	2.8	---	---	---	---	---	---	---	---	---	---
16	3.5	2.9	---	---	---	---	---	---	---	---	---	---
17	3.3	3.0	---	---	---	---	---	---	---	---	---	---
18	3.2	3.1	---	---	---	---	---	---	---	---	---	---
19	3.1	3.2	---	---	---	---	---	---	---	---	---	---
20	3.2	3.2	---	---	---	---	---	---	---	---	---	---
21	3.2	3.2	---	---	---	---	---	---	---	---	---	---
22	3.2	3.2	---	---	---	---	---	---	---	---	---	---
23	3.1	4.4	---	---	---	---	---	---	---	---	---	---
24	2.9	7.0	---	---	---	---	---	---	---	---	---	---
25	3.1	4.9	---	---	---	---	---	---	---	---	---	---
26	3.2	4.1	---	---	---	---	---	---	---	---	---	---
27	3.2	4.0	---	---	---	---	---	---	---	---	---	---
28	3.2	3.6	---	---	---	---	---	---	---	---	---	---
29	3.1	3.5	---	---	---	---	---	---	---	---	---	---
30	3.1	3.1	---	---	---	---	---	---	---	---	---	---
31	3.1	---	---	---	---	---	---	---	---	---	---	---
TOTAL	104.7	102.9	---	---	---	---	---	---	---	---	---	---
MEAN	3.38	3.43	---	---	---	---	---	---	---	---	---	---
MAX	5.0	7.0	---	---	---	---	---	---	---	---	---	---
MIN	2.9	2.8	---	---	---	---	---	---	---	---	---	---

SUMMARY STATISTICS

FOR 1999 CALENDAR YEAR
(JANUARY-NOVEMBER)

FOR 2000 WATER YEAR
(OCTOBER-NOVEMBER)

WATER YEARS 1999 - 2000
(DECEMBER 1998-NOVEMBER 1999)

HIGHEST DAILY MEAN	154	Jun 7	7.0	Nov 24	154	Jun 7 1999
LOWEST DAILY MEAN	1.4	Sep 6,7	2.8	Nov 15	1.4	Sep 6,7 1999
ANNUAL SEVEN-DAY MINIMUM	1.9	Sep 4	2.9	Nov 11	1.9	Sep 4 1999
INSTANTANEOUS PEAK FLOW			8.3	Nov 24	(a) 210	Jun 7 1999
INSTANTANEOUS PEAK STAGE			11.22	Nov 24	(b) 13.82	Jan 24 1999
INSTANTANEOUS LOW FLOW			2.4	Nov 30	1.1	Sep 6 1999
10 PERCENT EXCEEDS	38		4.2		37	
50 PERCENT EXCEEDS	7.3		3.2		6.0	
90 PERCENT EXCEEDS	2.5		3.0		2.6	

(a) Gage height, 13.36 ft

(b) Backwater from ice

STREAMS TRIBUTARY TO LAKE MICHIGAN

040854555 MEEME RIVER AT SOUTH CLEVELAND ROAD NEAR CLEVELAND, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1998 to December 1999 (discontinued).

REMARKS.--Chemical analyses are by the Wisconsin State Laboratory of Hygiene. Samples are equal-width increment samples (EWI) unless otherwise indicated.

WATER-QUALITY DATA, NOVEMBER 1998 TO DECEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
NOV 1998						
06...	0752	--	3.2	15	<.013	.067
DEC						
02...	0834	--	5.3	7	.021	.095
18...	0844	--	5.2	9	.035	.078
29...	0836	3.5	--	12	.087	.071
JAN 1999						
14...	0914	2.1	--	22	.176	.141
*22...	0800	30	--	5	.236	.289
*26...	1514	52	--	6	.119	.386
FEB						
09...	0858	--	36	8	.092	.180
23...	0736	--	6.5	6	.061	.089
MAR						
10...	1358	--	14	9	.030	.077
23...	0806	--	13	6	<.013	.062
APR						
05...	1408	--	65	14	.057	.237
20...	1544	--	9.4	<5	.023	.077
MAY						
03...	1434	--	6.6	<5	.014	.071
17...	1214	--	47	20	.094	.290
JUN						
03...	0706	--	35	34	.149	.374
07...	1438	--	209	131	.038	.762
15...	0902	--	46	18	.138	.451
29...	0836	--	21	34	.145	.303
JUL						
12...	1812	--	5.0	7	.041	.218
21...	1130	--	72	30	.034	.743
28...	1004	--	5.4	8	.031	.243
AUG						
09...	1656	--	3.5	<5	.019	.178
23...	1430	--	3.1	21	.048	.205
SEP						
08...	0926	--	1.7	18	.034	.167
23...	0934	--	2.3	21	.027	.111

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 1999					
06...	0722	3.3	17	<.013	.112
19...	0848	3.2	11	.017	.078
NOV					
02...	0738	3.1	15	.010	.059
16...	0704	2.9	7	<.013	.041
DEC					
02...	0708	3.4	11	.073	.064

* Point sample

STREAMS TRIBUTARY TO LAKE MICHIGAN
04085480 SHEBOYGAN RIVER NEAR FOND DU LAC, WI

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LOCATION.--Lat 43°48'33", long 88°15'04", in NE 1/4 SW 1/4 sec.32, T.16 N., R.19 E., Fond du Lac County, Hydrologic Unit 04030101, on left bank 100 ft downstream from County Trunk W bridge, 10.2 mi east of Fond du Lac.

DRAINAGE AREA.--27.4 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1998 to November 1999 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 980 ft above sea level, from topographic map.

REMARKS.--

DECEMBER 1998 TO SEPTEMBER 1999: Estimated daily discharges: Ice-affected periods, Dec. 11, 14, 17, Dec. 19 to Feb. 25, and Mar. 4-14. Records good except those for ice-affected periods, which are poor (see page 13).

OCTOBER 1999 TO NOVEMBER 1999: No estimated daily discharge. Records are fair (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	2.9	5.6	1.4	26	18	10	13	11	14	5.8	2.1
2	---	2.9	5.5	1.4	25	15	10	12	18	13	4.9	2.0
3	---	2.7	4.7	1.3	33	14	72	10	20	17	4.5	1.9
4	---	2.6	4.2	1.3	35	13	145	9.7	14	19	9.8	1.8
5	---	2.5	4.0	1.3	30	11	100	9.3	13	11	8.2	1.9
6	---	2.5	4.1	1.2	25	10	70	22	18	53	6.1	2.1
7	---	2.5	4.3	1.2	22	8.8	49	43	75	19	6.0	2.1
8	---	2.5	4.4	1.2	20	8.4	36	38	52	13	6.8	1.8
9	---	2.4	4.1	1.1	22	8.0	54	28	31	112	6.0	1.5
10	---	18	4.2	1.1	35	8.4	54	20	16	49	6.2	1.7
11	---	16	4.2	1.1	50	8.6	49	15	13	27	5.7	1.3
12	---	11	4.1	1.1	90	10	54	17	13	14	4.9	1.2
13	---	7.8	3.9	1.1	60	11	43	18	13	10	4.6	1.4
14	---	5.3	3.9	1.1	45	14	33	13	16	8.5	4.3	1.5
15	---	4.0	3.8	1.1	35	18	26	11	11	7.3	3.7	1.3
16	---	5.5	3.7	1.1	28	18	22	11	9.2	6.0	3.7	1.1
17	---	6.6	3.6	3.0	22	26	18	113	9.7	15	3.7	1.3
18	---	5.7	3.5	5.0	18	30	16	99	8.2	18	3.2	1.3
19	---	4.9	3.4	10	15	24	15	72	6.9	57	4.5	1.4
20	---	4.3	3.1	18	12	19	14	46	5.9	52	4.3	2.1
21	---	3.8	2.7	19	10	17	13	31	5.2	236	3.5	1.9
22	---	3.7	2.3	26	9.0	14	27	27	4.9	120	3.1	1.9
23	---	3.6	1.8	40	8.2	12	92	31	5.2	58	4.0	1.7
24	---	3.7	1.5	60	7.8	10	80	34	6.1	35	4.4	1.5
25	---	3.7	1.2	58	8.6	9.5	52	26	5.2	23	3.9	1.5
26	---	3.7	1.3	56	9.0	8.6	35	19	4.0	16	3.2	1.6
27	---	3.5	1.6	45	15	8.9	25	14	4.3	12	2.8	6.1
28	---	3.4	1.7	40	19	9.0	20	12	37	9.8	2.6	10
29	---	3.8	1.6	35	---	9.1	16	9.8	26	8.2	2.2	10
30	---	4.3	1.5	30	---	9.0	14	8.4	15	6.7	2.0	7.4
31	---	---	1.4	27	---	9.6	---	8.1	---	6.4	2.0	---
TOTAL	---	149.8	100.9	491.1	734.6	409.9	1264	840.3	486.8	1065.9	140.6	76.4
MEAN	---	4.99	3.25	15.8	26.2	13.2	42.1	27.1	16.2	34.4	4.54	2.55
MAX	---	18	5.6	60	90	30	145	113	75	236	9.8	10
MIN	---	2.4	1.2	1.1	7.8	8.0	10	8.1	4.0	6.0	2.0	1.1
CFSM	---	.18	.12	.58	.96	.48	1.54	.99	.59	1.25	.17	.09
IN.	---	.20	.14	.67	1.00	.56	1.72	1.14	.66	1.45	.19	.10

SUMMARY STATISTICS

FOR 1999 WATER YEAR
(NOVEMBER 1998-SEPTEMBER 1999)

HIGHEST DAILY MEAN	236	Jul 21
LOWEST DAILY MEAN	(a) 1.1	(b) Jan 9-16
ANNUAL SEVEN-DAY MINIMUM	(a) 1.1	Jan 9
INSTANTANEOUS PEAK FLOW	(c) 297	Jul 21
INSTANTANEOUS PEAK STAGE	(d) 13.91	Feb 12
10 PERCENT EXCEEDS	45	
50 PERCENT EXCEEDS	9.1	
90 PERCENT EXCEEDS	1.5	

(a) Ice affected
(b) Also occurred Sept. 16
(c) Gage height, 13.40 ft
(d) Backwater from ice

STREAMS TRIBUTARY TO LAKE MICHIGAN
04085480 SHEBOYGAN RIVER NEAR FOND DU LAC, WI--CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.4	3.3	---	---	---	---	---	---	---	---	---	---
2	6.0	3.1	---	---	---	---	---	---	---	---	---	---
3	5.9	3.0	---	---	---	---	---	---	---	---	---	---
4	5.7	3.0	---	---	---	---	---	---	---	---	---	---
5	5.0	3.0	---	---	---	---	---	---	---	---	---	---
6	4.2	2.9	---	---	---	---	---	---	---	---	---	---
7	4.0	2.9	---	---	---	---	---	---	---	---	---	---
8	3.9	3.1	---	---	---	---	---	---	---	---	---	---
9	3.9	3.5	---	---	---	---	---	---	---	---	---	---
10	3.8	3.5	---	---	---	---	---	---	---	---	---	---
11	3.6	3.3	---	---	---	---	---	---	---	---	---	---
12	3.5	3.4	---	---	---	---	---	---	---	---	---	---
13	3.7	3.5	---	---	---	---	---	---	---	---	---	---
14	4.2	3.4	---	---	---	---	---	---	---	---	---	---
15	4.3	3.2	---	---	---	---	---	---	---	---	---	---
16	4.2	3.2	---	---	---	---	---	---	---	---	---	---
17	3.9	3.2	---	---	---	---	---	---	---	---	---	---
18	3.7	3.4	---	---	---	---	---	---	---	---	---	---
19	3.6	3.7	---	---	---	---	---	---	---	---	---	---
20	3.4	3.7	---	---	---	---	---	---	---	---	---	---
21	3.2	3.9	---	---	---	---	---	---	---	---	---	---
22	3.0	4.0	---	---	---	---	---	---	---	---	---	---
23	2.8	5.7	---	---	---	---	---	---	---	---	---	---
24	2.7	8.1	---	---	---	---	---	---	---	---	---	---
25	2.9	6.6	---	---	---	---	---	---	---	---	---	---
26	3.1	5.2	---	---	---	---	---	---	---	---	---	---
27	3.2	4.8	---	---	---	---	---	---	---	---	---	---
28	3.2	4.3	---	---	---	---	---	---	---	---	---	---
29	3.3	4.2	---	---	---	---	---	---	---	---	---	---
30	3.5	3.8	---	---	---	---	---	---	---	---	---	---
31	3.4	---	---	---	---	---	---	---	---	---	---	---
TOTAL	120.2	115.9	---	---	---	---	---	---	---	---	---	---
MEAN	3.88	3.86	---	---	---	---	---	---	---	---	---	---
MAX	6.0	8.1	---	---	---	---	---	---	---	---	---	---
MIN	2.7	2.9	---	---	---	---	---	---	---	---	---	---
CFSM	.14	.14	---	---	---	---	---	---	---	---	---	---
IN.	.16	.16	---	---	---	---	---	---	---	---	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2000, BY WATER YEAR (WY)

MEAN	3.88	4.43	3.25	15.8	26.2	13.2	42.1	27.1	16.2	34.4	4.54	2.55
MAX	3.88	4.99	3.25	15.8	26.2	13.2	42.1	27.1	16.2	34.4	4.54	2.55
(WY)	2000	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999
MIN	3.88	3.86	3.25	15.8	26.2	13.2	42.1	27.1	16.2	34.4	4.54	2.55
(WY)	2000	2000	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999

SUMMARY STATISTICS

FOR 1999 CALENDAR YEAR
(JANUARY-NOVEMBER)

FOR 2000 WATER YEAR
(OCTOBER-NOVEMBER)

WATER YEARS 1999 - 2000
(DECEMBER 1998-NOVEMBER 1999)

HIGHEST DAILY MEAN	236	Jul 21	8.1	Nov 24	236	Jul 21 1999
LOWEST DAILY MEAN	(a) 1.1	(b) Jan 9	2.7	Oct 24	(a) 1.1	(b) Jan 9 1999
ANNUAL SEVEN-DAY MINIMUM	(a) 1.1	Jan 9	3.0	Oct 21	(a) 1.1	Jan 9 1999
INSTANTANEOUS PEAK FLOW			9.1	Nov 24	(c) 297	Jul 21 1999
INSTANTANEOUS PEAK STAGE			10.50	(b) Nov 24	(d) 13.91	Feb 12 1999
10 PERCENT EXCEEDS	45		5.6		37	
50 PERCENT EXCEEDS	9.0		3.5		6.4	
90 PERCENT EXCEEDS	1.8		3.0		1.8	

- (a) Ice affected
(b) Also occurred Sept. 16
(c) Gage height, 13.40 ft
(d) Backwater due to ice

STREAMS TRIBUTARY TO LAKE MICHIGAN
04085480 SHEBOYGAN RIVER NEAR FOND DU LAC, WI--CONTINUED

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WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1998 to December 1999 (discontinued).

REMARKS.--Chemical analyses are by the Wisconsin State Laboratory of Hygiene. Samples are equal-width increment samples (EWI) unless otherwise indicated.

WATER-QUALITY DATA, NOVEMBER 1998 TO DECEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
NOV 1998						
06...	1014	--	2.7	6	<.013	.064
17...	0945	--	6.8	8	.054	.122
DEC						
01...	1448	--	5.8	51	<.013	.121
18...	1226	--	3.0	<5	.023	.048
29...	1032	--	1.6	8	.061	.045
JAN 1999						
14...	1222	--	1.1	12	.225	.072
*27...	1008	45	--	6	.120	.279
FEB						
09...	1146	--	23	20	.158	.224
23...	1238	--	9.7	10	.054	.087
MAR						
11...	0828	8.6	--	6	.019	.046
23...	1012	--	13	7	<.013	.040
APR						
05...	1432	--	95	18	.040	.168
21...	0922	--	13	<5	.013	.041
MAY						
03...	1604	--	10	<5	.018	.061
17...	1532	--	121	68	.091	.400
18...	1645	--	120	61	.094	.362
JUN						
03...	1306	--	20	13	.031	.152
07...	1132	--	79	131	.084	.562
15...	1152	--	11	9	.026	.178
29...	1152	--	27	24	.068	.279
JUL						
13...	0826	--	11	12	.040	.223
21...	2030	--	253	40	.095	.477
28...	1548	--	9.7	10	.042	.225
AUG						
10...	0916	--	6.8	<5	<.013	.117
25...	0935	--	4.3	7	.030	.145
SEP						
08...	1334	--	2.3	6	.023	.139
23...	1148	--	1.7	<5	.018	.058

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 1999					
06...	0936	4.3	<5	.036	.086
19...	1108	3.7	<5	.013	.060
NOV					
02...	1012	3.2	8	.023	.061
16...	0952	3.2	<5	<.013	.044
DEC					
02...	0938	3.7	12	.065	.068

* Point sample

STREAMS TRIBUTARY TO LAKE MICHIGAN

434907087573000 OTTER CREEK RAIN GAGE #2 NEAR PLYMOUTH, WI

LOCATION.--Lat 43°49'07", long 87°57'30", in NE 1/4 NW 1/4 sec.35, T.16 N., R.21 E., Sheboygan County, Hydrologic Unit 04030101, on Garton Road, 0.5 mi east of junction with CTH E, near Plymouth.

PERIOD OF RECORD.--January 1991 to current year (non-frozen precipitation).

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established on Jan. 9, 1991. Rainfall estimated to be 0.00 for Jan. 15, 18, 27, and Feb. 1-5, 25 because recorded precipitation interpreted as collector snowmelt. Rainfall data missing for the period May 6 to June 21.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 4.61 in., Aug. 6, 1998.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 1.59 in., Apr. 3.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	---	.08	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	---	.00	.00	.00
3	.00	.04	.00	.00	.00	.00	1.59	.00	---	.20	.57	.00
4	.00	.00	.04	.00	.00	.00	.25	.00	---	.00	.24	.00
5	1.19	.00	.01	.00	.00	.00	.02	.08	---	.46	.01	.00
6	.45	.00	.14	.00	.00	.00	.03	---	---	.09	.00	.00
7	.01	.00	.10	.00	.00	.00	.00	---	---	.00	.26	.00
8	.00	.00	.00	.00	.00	.00	.10	---	---	1.49	.00	.00
9	.00	.41	.00	.00	.00	.00	.69	---	---	.07	.01	.02
10	.00	1.24	.00	.00	.00	.00	.00	---	---	.00	.75	.00
11	.00	.00	.00	.00	.51	.00	.20	---	---	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	---	---	.00	.00	.02
13	.00	.00	.00	.00	.00	.00	.00	---	---	.00	.00	.01
14	.00	.00	.00	.00	.00	.00	.00	---	---	.11	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	---	---	.00	.00	.00
16	.00	.56	.00	.00	.00	.00	.00	---	---	.30	.15	.00
17	.34	.00	.00	.58	.00	.00	.00	---	---	1.11	.00	.00
18	.35	.01	.00	.00	.00	.00	.00	---	---	.29	.01	.00
19	.00	.00	.00	.00	.00	.00	.00	---	---	.61	.06	.35
20	.00	.00	.00	.00	.00	.00	.03	---	---	.49	.00	.00
21	.01	.00	.00	.00	.00	.00	.00	---	---	1.00	.00	.00
22	.00	.00	.00	.86	.00	.00	.67	---	.04	.00	.00	.00
23	.00	.00	.00	.74	.00	.00	.30	---	.11	.26	.38	.00
24	.00	.00	.00	.00	.00	.00	.00	---	.00	.00	.07	.00
25	.00	.00	.00	.00	.00	.00	.00	---	.00	.00	.00	.00
26	.00	.00	.00	.00	.13	.00	.00	---	.00	.17	.00	.61
27	.13	.00	.00	.00	.11	.00	.00	---	.66	.00	.00	.95
28	.01	.00	.00	.00	.02	.00	.00	---	.13	.00	.00	.49
29	.00	.00	.00	.00	---	.00	.00	---	.00	.00	.00	.00
30	.06	.32	.00	.00	---	.00	.00	---	.00	.00	.00	.00
31	.01	---	.00	.00	---	.00	---	---	.13	.00	.00	---
TOTAL	2.56	2.58	0.29	2.18	0.77	0.00	3.88	---	---	6.86	2.51	2.45

STREAMS TRIBUTARY TO LAKE MICHIGAN

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434802087573000 OTTER CREEK RAIN GAGE #1 NEAR PLYMOUTH, WI

LOCATION.--Lat 43°48'02", long 87°57'30", in SE 1/4 NW 1/4 sec.2, T.15 N., R.21 E., Sheboygan County, Hydrologic Unit 04030101, on Green Tree Road, 0.45 mi east of junction with CTH E, near Plymouth.

PERIOD OF RECORD.--January 1991 to current year (non-frozen precipitation).

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established on Jan. 9, 1991. Rainfall estimated to be 0.00 for Jan. 15, 16, 18, 27, Feb. 1-5, 25, and Mar. 7, 8, 10 because recorded precipitation interpreted as collector snowmelt. Rainfall data missing for the period May 31 to June 2 and Aug. 22-24.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 4.84 in., Aug. 6, 1998.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 1.59 in., Apr. 3.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	---	.06	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	---	.00	.00	.00
3	.00	.03	.00	.00	.00	.00	1.59	.00	.00	.15	.61	.00
4	.00	.00	.05	.00	.00	.00	.24	.00	.64	.00	.19	.00
5	1.07	.00	.01	.00	.00	.00	.02	.07	.01	.41	.00	.00
6	.37	.00	.14	.00	.00	.00	.03	.93	.82	.06	.00	.00
7	.01	.00	.13	.00	.00	.00	.00	.03	.65	.00	.20	.00
8	.00	.00	.00	.00	.00	.00	.08	.03	.00	1.44	.00	.00
9	.00	.39	.00	.00	.00	.00	.80	.00	.00	.06	.01	.01
10	.00	1.14	.00	.00	.00	.00	.00	.00	.10	.00	.96	.00
11	.00	.00	.00	.00	.52	.00	.25	.01	1.61	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.88	.45	.00	.00	.01
13	.00	.00	.00	.00	.00	.00	.00	.00	.52	.00	.02	.01
14	.00	.00	.00	.00	.00	.00	.00	.00	.09	.14	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.56	.00	.00	.00	.00	.00	.22	.14	.27	.14	.00
17	.28	.00	.00	.54	.00	.00	.00	1.08	.01	1.06	.00	.00
18	.25	.01	.00	.00	.00	.00	.00	.67	.00	.29	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.65	.06	.44
20	.00	.00	.00	.00	.00	.00	.02	.00	.00	.41	.00	.00
21	.01	.00	.00	.00	.00	.00	.01	.01	.00	1.18	.00	.00
22	.00	.00	.00	.88	.00	.00	.75	.01	.04	.00	---	.00
23	.00	.00	.00	.74	.00	.00	.43	.36	.09	.50	---	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	---	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.14	.00	.00	.00	.00	.11	.00	.51
27	.15	.00	.00	.00	.07	.00	.00	.00	.37	.00	.00	1.06
28	.00	.00	.00	.00	.02	.00	.00	.00	.12	.01	.00	.56
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.10	.27	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.01	---	.00	.00	---	.00	---	---	---	.13	.00	---
TOTAL	2.25	2.40	0.33	2.16	0.75	0.00	4.22	---	---	6.93	---	2.60

STREAMS TRIBUTARY TO LAKE MICHIGAN

040857005 OTTER CREEK, AT WILLOW ROAD, NEAR PLYMOUTH, WI

LOCATION.--Lat 43°47'20", long 87°55'20", in NW 1/4 NW 1/4 sec.7, T.15 N., R.22 E., Sheboygan County, Hydrologic Unit 04030101, on left bank downstream from bridge on Willow Road, 900 ft upstream from the Sheboygan River, and 4.2 mi northeast of Plymouth.

DRAINAGE AREA.--9.5 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 760 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 21 to Jan. 30, Feb. 5, 13-14, 18-25, and Mar. 3-14. Records are good except those for estimated daily discharges, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	2.6	3.8	2.7	7.1	6.3	5.0	4.7	4.4	4.1	3.1	2.7
2	1.9	2.5	3.6	2.6	11	6.0	4.9	4.5	7.2	3.9	3.0	2.7
3	1.9	2.5	3.4	2.6	15	5.6	24	4.3	7.1	4.1	2.9	2.6
4	1.8	2.5	3.4	2.5	17	5.4	39	4.1	7.2	4.1	4.1	2.6
5	2.3	2.5	3.4	2.4	11	5.0	23	4.2	13	3.7	3.7	2.6
6	5.0	2.5	3.5	2.4	8.7	4.8	16	7.5	9.9	4.4	3.4	2.3
7	4.3	2.4	4.1	2.3	7.9	4.6	12	10	51	3.7	3.5	2.4
8	3.3	2.5	3.7	2.2	7.5	4.4	9.4	8.7	23	3.8	3.7	2.4
9	2.7	2.6	3.5	2.2	14	4.3	36	7.2	13	19	3.4	2.4
10	2.5	11	3.5	2.1	15	4.2	23	6.0	8.2	11	11	2.4
11	2.3	7.3	3.4	2.0	32	4.3	18	5.2	18	6.8	5.2	2.5
12	2.2	5.4	3.2	2.0	33	4.4	15	12	76	5.2	4.3	2.6
13	2.1	4.5	3.2	2.0	16	4.5	12	11	50	4.3	4.1	2.5
14	2.1	4.0	3.1	2.0	10	4.6	9.1	8.1	31	4.1	3.6	2.4
15	2.1	3.8	3.0	2.0	8.1	5.6	7.7	6.6	17	3.7	3.3	2.4
16	2.1	5.5	3.0	2.5	7.5	12	6.9	6.1	12	3.5	3.3	2.4
17	2.3	5.5	2.9	6.0	6.8	19	6.0	38	11	9.0	3.3	2.3
18	3.0	5.0	2.9	12	6.0	17	5.6	38	8.3	7.6	3.3	2.3
19	2.7	4.6	3.0	11	5.2	12	5.5	27	6.8	24	3.6	2.5
20	2.5	4.0	2.9	10	4.8	9.6	5.3	15	5.9	13	3.3	2.6
21	2.5	3.7	2.8	9.0	4.6	8.5	5.2	11	5.2	105	3.2	2.5
22	2.4	3.6	2.7	13	4.4	7.0	10	8.7	4.8	30	3.1	2.4
23	2.4	3.5	2.6	19	4.2	6.2	27	9.6	4.9	25	4.0	2.3
24	2.4	3.2	2.6	30	4.0	5.7	15	9.5	5.0	17	4.0	2.2
25	2.4	3.3	2.5	27	3.9	5.5	11	7.7	4.4	8.7	3.7	2.2
26	2.4	3.2	2.5	23	3.8	5.3	8.5	6.2	3.9	6.6	3.4	2.2
27	2.5	3.2	2.7	16	5.3	5.2	7.0	5.2	3.7	5.5	3.3	4.8
28	2.6	3.2	3.0	13	6.6	5.1	6.1	4.6	4.7	4.6	3.2	6.9
29	2.5	3.2	2.9	10	---	5.0	5.4	4.2	4.7	3.9	3.0	5.4
30	2.6	3.6	2.8	9.0	---	4.9	5.0	3.9	4.2	3.7	2.9	3.6
31	2.7	---	2.8	8.0	---	4.9	---	4.0	---	3.4	2.8	---
TOTAL	78.4	116.9	96.4	252.5	280.4	206.9	383.6	302.8	425.5	356.4	115.7	84.1
MEAN	2.53	3.90	3.11	8.15	10.0	6.67	12.8	9.77	14.2	11.5	3.73	2.80
MAX	5.0	11	4.1	30	33	19	39	38	76	105	11	6.9
MIN	1.8	2.4	2.5	2.0	3.8	4.2	4.9	3.9	3.7	3.4	2.8	2.2
CFSM	.27	.41	.33	.86	1.05	.70	1.35	1.03	1.49	1.21	.39	.30
IN.	.31	.46	.38	.99	1.10	.81	1.50	1.19	1.67	1.40	.45	.33

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1999, BY WATER YEAR (WY)

	MEAN	3.01	4.82	4.77	4.77	7.66	14.4	13.1	5.80	7.76	4.83	3.02	2.54
	MAX	4.82	8.67	11.5	8.15	13.9	25.4	35.6	9.77	17.3	12.9	6.59	5.59
	(WY)	1992	1993	1992	1999	1994	1993	1993	1999	1996	1993	1998	1993
	MIN	2.11	2.47	2.34	2.67	2.09	6.67	6.24	3.60	2.39	2.18	2.15	1.58
	(WY)	1995	1998	1998	1995	1995	1999	1997	1992	1994	1995	1996	1995

SUMMARY STATISTICS

	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1991 - 1999
ANNUAL TOTAL	2251.6	2699.6	
ANNUAL MEAN	6.17	7.40	6.36
HIGHEST ANNUAL MEAN			10.9
LOWEST ANNUAL MEAN			3.41
HIGHEST DAILY MEAN	186	105	186
LOWEST DAILY MEAN	1.5 (a) Sep 11	1.8	1.3
ANNUAL SEVEN-DAY MINIMUM	1.6 Sep 22	(b) 2.0	1.4
INSTANTANEOUS PEAK FLOW		247	255
INSTANTANEOUS PEAK STAGE		7.70	(c) 8.26
INSTANTANEOUS LOW FLOW		1.7	1.3
ANNUAL RUNOFF (CFSM)	.65	.78	(d) Oct 20 1996
ANNUAL RUNOFF (INCHES)	8.82	10.57	.67
10 PERCENT EXCEEDS	11	15	12
50 PERCENT EXCEEDS	3.0	4.3	3.5
90 PERCENT EXCEEDS	1.9	2.4	2.0

(a) Also occurred Sept. 22, 28

(b) Ice affected

(c) Backwater from ice

(d) Also occurred Sept. 15-18, Oct. 2, 1995, Oct. 20-21, 1996, and Sept. 11, 22, 1998

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1990 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1990 to current year.

DISSOLVED OXYGEN: October 1990 to October 1997, open-water periods.

SUSPENDED-SOLIDS DISCHARGE: October 1990 to September 1997.

TOTAL-PHOSPHORUS DISCHARGE: October 1990 to September 1997.

INSTRUMENTATION.--Continuous water-temperature recorder since October 1990. Dissolved-oxygen recorder during open-water periods from October 1990 to October 1997.

REMARKS.--Chemical analyses are by the Wisconsin State Laboratory of Hygiene. Samples are equal-width increment (EWI) samples unless otherwise indicated. Dissolved-oxygen concentrations greater than 30.0 mg/L are out of calibration range of meter. Records represent water temperature at sensor within 0.5°C.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum observed, 30.5°C, June 16, 18, 1994; minimum observed, 0.0°C, many days during winter period.

DISSOLVED OXYGEN: Maximum observed, 20.0 mg/L, May 25-28, 1996; minimum observed, 0.2 mg/L, Sept. 18, 1992.

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 132 tons, June 8, 1993; minimum daily, 0.01 ton, many days during 1992 and 1993 water years.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 455 lb, June 8, 1993; minimum daily, 0.19 lb, Oct. 9-10, 1996.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 29.0°C, July 5, 30; minimum observed, 0.0°C, many days during winter period

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 1998									
01...	1044	--	2.0	8.2	--	4200	<5	.040	.062
09...	1214	--	2.7	8.3	1.6	2500	5	.022	.065
16...	1100	--	2.1	8.2	1.5	21000	<5	.019	.105
22...	1032	--	2.4	8.1	2.1	3700	<5	.014	.058
28...	0942	--	2.6	8.3	1.6	2100	<5	.017	.051
NOV									
06...	0842	--	2.5	8.2	3.5	1400	<5	<.013	.039
17...	1025	--	5.5	7.8	1.8	900	5	.077	.102
DEC									
02...	1034	--	3.7	8.3	1.0	320	<5	.038	.058
19...	1002	--	3.0	7.9	2.2	470	6	--	--
29...	0942	2.9	--	7.8	1.5	--	8	.074	.037
JAN 1999									
14...	1008	2.0	--	7.9	2.0	40	10	.078	.060
27...	0748	16	--	7.8	1.6	190	<5	.129	.219
FEB									
09...	1046	--	11	8.1	.8	140	8	.068	.115
23...	1024	4.2	--	8.2	.5	70	9	.024	.050
MAR									
10...	1324	4.3	--	8.5	.9	10	22	.024	.054
23...	0932	--	6.4	8.4	.8	120	6	<.013	.038
APR									
06...	0926	--	17	8.1	1.9	660	11	.078	.121
21...	0832	--	5.2	8.3	.7	750	<5	.015	.037
MAY									
03...	1532	--	4.2	9.1	1.4	700	7	.019	.039
10...	1012	--	6.1	--	.9	3600	5	<.013	.053
18...	0802	--	21	8.1	<6.0	4000	28	.068	.176
24...	1232	--	9.5	8.3	1.0	2200	11	.044	.098
JUN									
03...	1114	--	7.3	8.4	1.0	600	11	.034	.124
07...	1208	--	52	7.9	3.5	12000	59	.046	.404
15...	1106	--	17	8.2	2.4	730	15	.048	.185
22...	1202	--	4.8	8.5	3.4	890	8	.020	.086
29...	1052	--	4.8	8.5	1.3	2600	6	<.013	.078
JUL									
07...	1540	--	3.6	8.5	1.9	900	28	.061	.118
13...	0728	--	4.6	8.1	.8	2600	7	.032	.075
19...	1802	--	20	8.1	2.6	66000	56	.069	.316
28...	1214	--	4.6	8.5	1.1	38000	7	.023	.144

STREAMS TRIBUTARY TO LAKE MICHIGAN

040857005 OTTER CREEK, AT WILLOW ROAD, NEAR PLYMOUTH, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
AUG 1999									
04...	1240	--	4.1	8.5	2.0	5500	22	.018	.138
*10...	0135	--	10	8.2	8.3	160000	136	.135	.706
*10...	0405	--	17	8.1	7.3	E300000	126	.100	.657
10...	0758	--	15	7.8	4.4	79000	95	.061	.523
*10...	1420	--	8.4	8.4	2.8	31000	33	.024	.242
11...	1202	--	5.2	8.4	1.9	25000	8	.019	.112
23...	1315	--	4.4	8.4	3.1	11000	5	.017	.078
31...	1054	--	2.9	8.3	5.1	3800	<5	.016	.052
SEP									
08...	1146	--	2.5	8.4	2.3	12000	<5	<.013	.052
15...	1736	--	2.4	8.5	2.3	2800	62	<.013	.061
23...	1106	--	2.2	8.4	.7	13000	<5	.021	.071
*27...	0950	--	5.0	8.2	--	--	10	.069	.297
*28...	0820	--	7.1	8.2	--	--	12	.157	.343
29...	1032	--	5.5	8.2	1.2	17000	<5	.048	.185

E Estimated

* Point sample

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	14.0	10.5	12.0	11.0	9.0	10.5	8.0	4.5	6.5	.0	.0	.0
2	11.5	9.0	10.5	9.0	6.5	8.0	10.0	7.0	8.0	.0	.0	.0
3	13.0	10.5	11.5	7.5	5.0	6.5	11.5	8.5	9.5	.0	.0	.0
4	14.5	11.5	13.0	7.0	4.0	5.0	9.0	8.0	8.5	.0	.0	.0
5	14.0	12.0	13.0	5.5	3.0	4.5	10.5	8.0	9.0	.0	.0	.0
6	15.5	13.5	14.5	6.0	3.0	4.5	9.5	5.5	8.0	.0	.0	.0
7	14.0	12.0	13.0	7.5	4.0	5.5	6.0	3.5	4.5	.0	.0	.0
8	15.0	11.5	13.0	6.5	5.0	5.5	4.0	2.0	3.0	.0	.0	.0
9	14.0	9.0	11.5	6.5	5.0	6.0	4.5	2.0	3.0	.0	.0	.0
10	14.5	9.0	11.5	10.0	5.5	7.5	4.0	1.5	2.5	.0	.0	.0
11	14.5	9.5	12.0	6.0	4.0	5.0	4.0	1.0	2.5	.0	.0	.0
12	14.0	10.5	12.0	6.0	3.0	4.5	5.5	2.5	3.5	.0	.0	.0
13	11.0	8.5	9.5	5.5	2.0	4.0	4.5	2.0	3.0	.0	.0	.0
14	9.5	8.0	9.0	8.0	4.5	6.5	4.0	.5	2.5	.0	.0	.0
15	10.5	7.5	9.0	6.5	4.5	5.5	5.0	2.5	3.5	.0	.0	.0
16	15.0	10.5	12.5	6.5	5.5	6.0	4.0	2.0	3.0	.0	.0	.0
17	16.5	13.5	15.0	6.5	4.0	5.5	2.0	.5	1.0	.0	.0	.0
18	15.5	10.5	13.5	8.0	5.0	6.5	3.5	.5	2.0	.0	.0	.0
19	12.5	8.5	10.5	7.5	3.5	6.0	3.0	.5	2.0	.0	.0	.0
20	11.0	7.5	9.0	4.0	2.5	3.5	1.5	.0	1.0	.0	.0	.0
21	10.0	7.5	9.0	4.0	1.5	2.5	1.0	.0	.0	.0	.0	.0
22	10.0	5.0	7.5	6.5	2.5	4.5	.0	.0	.0	.0	.0	.0
23	12.5	7.0	9.5	8.0	5.0	6.0	.0	.0	.0	.0	.0	.0
24	13.0	8.0	10.5	6.5	3.5	5.0	.0	.0	.0	.0	.0	.0
25	14.0	10.5	12.0	7.0	4.5	5.5	.0	.0	.0	.0	.0	.0
26	15.0	10.5	12.5	7.0	4.0	5.0	.0	.0	.0	.0	.0	.0
27	13.0	11.5	12.0	7.0	3.5	5.0	.0	.0	.0	.0	.0	.0
28	14.0	9.5	12.0	8.0	4.0	6.5	.0	.0	.0	.0	.0	.0
29	11.5	8.0	10.0	12.0	8.0	10.0	.0	.0	.0	.0	.0	.0
30	12.0	11.0	11.5	12.5	6.5	11.0	.0	.0	.0	1.5	.0	.5
31	12.0	11.0	11.5	---	---	---	.0	.0	.0	2.0	.0	1.0
MONTH	16.5	5.0	11.4	12.5	1.5	5.9	11.5	.0	2.8	2.0	.0	.0

STREAMS TRIBUTARY TO LAKE MICHIGAN

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040857005 OTTER CREEK, AT WILLOW ROAD, NEAR PLYMOUTH, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	2.0	.5	1.5	5.5	1.0	3.0	12.5	10.0	11.5	20.0	9.5	14.5
2	2.5	.5	1.5	4.0	1.5	3.0	17.5	9.0	12.5	20.0	10.0	15.0
3	2.5	.5	1.5	4.0	.5	2.0	12.5	8.0	10.0	20.0	11.0	15.0
4	1.5	.0	.5	3.0	.0	1.0	9.5	8.0	8.5	20.5	12.0	16.0
5	1.5	.0	.5	1.5	.0	.5	8.0	7.0	7.5	18.5	13.5	15.5
6	3.0	.5	1.5	1.0	.0	.0	8.5	6.5	7.5	15.0	12.0	13.5
7	2.0	1.0	1.5	.5	.0	.0	12.5	5.0	9.0	14.0	11.5	12.5
8	2.5	.5	1.5	.0	.0	.0	13.0	7.5	10.0	16.5	11.5	14.0
9	4.0	1.0	2.0	.0	.0	.0	10.5	5.5	7.5	18.0	10.5	14.0
10	4.0	.5	2.0	1.0	.0	.0	11.5	5.5	8.0	17.0	10.0	13.5
11	4.0	1.0	3.0	4.0	.0	1.0	8.0	5.5	6.5	17.0	11.5	14.0
12	1.0	.0	.5	5.0	.0	1.5	12.5	4.5	8.0	14.5	11.5	12.5
13	.5	.0	.0	5.0	.0	2.0	14.5	5.5	9.5	16.0	10.0	12.5
14	3.5	.0	1.5	6.0	.0	2.5	15.5	6.5	11.0	18.5	10.0	14.0
15	4.5	.5	2.0	6.5	.0	3.0	11.5	8.5	10.0	16.0	13.0	14.5
16	2.5	1.5	2.0	7.5	1.0	3.5	14.0	7.5	10.0	21.0	13.0	16.5
17	2.5	.0	1.5	8.0	1.0	4.0	10.0	6.5	8.0	18.0	14.5	16.5
18	2.0	.0	.5	5.0	1.5	3.0	10.5	5.0	8.0	16.5	14.5	15.5
19	3.5	.0	1.0	8.0	.5	4.0	10.5	6.5	8.5	20.0	13.5	16.5
20	1.5	.0	.5	8.0	1.0	4.5	12.0	5.5	8.5	18.5	14.0	16.0
21	1.0	.0	.0	4.5	1.5	3.0	12.5	8.0	10.0	17.5	15.0	16.0
22	1.5	.0	.5	7.5	.0	3.5	9.5	6.0	7.5	21.0	14.0	17.0
23	2.5	.0	1.0	9.0	1.0	5.0	11.5	5.5	8.0	16.0	13.5	14.5
24	.0	.0	.0	9.0	1.5	5.0	14.5	5.5	9.5	13.5	11.0	12.5
25	4.0	.0	1.5	4.5	2.0	3.0	16.5	6.5	11.0	15.0	10.0	12.5
26	5.5	1.0	3.0	9.5	.5	4.5	17.0	7.5	12.0	19.5	11.0	15.0
27	3.5	3.0	3.0	10.5	2.0	6.0	14.5	8.5	11.5	21.5	12.0	16.5
28	3.5	2.0	3.0	7.5	2.5	5.5	16.5	8.0	12.0	24.0	15.0	19.0
29	---	---	---	12.0	3.5	7.0	17.5	8.0	12.5	24.5	16.0	20.0
30	---	---	---	13.5	4.5	9.0	18.5	8.5	13.5	24.0	16.5	20.0
31	---	---	---	15.5	7.0	11.0	---	---	---	20.5	17.0	19.0
MONTH	5.5	.0	1.4	15.5	.0	3.3	18.5	4.5	9.6	24.5	9.5	15.3
JUNE			JULY			AUGUST			SEPTEMBER			
1	18.5	14.5	16.5	21.5	17.0	19.0	24.5	19.5	22.0	22.0	15.0	18.0
2	16.5	13.5	15.0	21.5	17.0	19.0	24.0	18.5	21.0	22.5	16.0	19.0
3	20.5	13.0	16.5	21.0	18.5	19.5	23.0	18.0	20.5	23.5	17.0	20.0
4	16.5	13.0	15.0	28.5	20.5	24.0	24.0	18.5	21.0	23.5	18.0	20.5
5	22.0	14.0	17.5	29.0	22.5	25.5	23.5	17.5	20.5	23.5	17.5	20.5
6	25.0	18.5	21.0	26.0	22.0	24.0	23.5	18.5	21.0	21.0	17.0	19.0
7	23.0	18.0	20.5	25.5	19.0	22.0	20.5	18.5	19.0	21.0	14.5	17.5
8	24.5	19.5	22.0	22.5	19.0	20.5	20.0	17.0	18.0	21.5	16.5	18.5
9	24.5	20.0	22.0	24.0	18.5	21.0	18.0	15.0	16.5	17.5	14.5	16.0
10	24.0	19.5	21.5	23.5	18.5	21.0	22.0	16.5	19.0	16.5	13.0	15.0
11	26.0	19.5	22.0	24.0	17.5	20.5	24.0	17.5	20.5	18.5	12.5	15.5
12	23.5	20.0	21.5	24.0	17.5	20.5	21.0	18.0	19.5	17.0	13.5	15.5
13	22.0	19.0	20.0	23.5	18.0	20.5	20.5	17.5	19.5	16.5	13.5	15.0
14	20.0	17.5	19.0	24.5	18.5	21.0	21.0	15.5	18.0	16.5	12.0	14.0
15	19.5	15.5	17.5	26.5	19.5	23.0	21.5	15.0	18.5	17.0	12.0	14.0
16	17.0	14.5	16.0	27.5	21.0	24.0	21.5	17.0	19.0	17.0	11.5	14.0
17	18.5	13.0	15.5	24.0	21.0	22.5	23.5	18.0	20.5	17.5	10.5	14.0
18	20.0	13.5	16.5	23.0	20.5	21.5	20.5	17.5	18.5	17.5	11.5	14.5
19	21.5	15.0	18.0	23.0	20.0	21.5	21.5	17.0	19.0	18.5	12.5	15.5
20	22.5	15.5	18.5	22.5	19.5	21.0	22.0	15.5	18.5	15.5	12.0	13.5
21	23.0	15.5	19.0	23.5	20.0	22.0	22.0	16.0	19.0	14.5	9.5	11.5
22	23.0	17.0	20.0	26.0	22.0	23.5	20.5	16.5	18.5	16.0	9.0	12.5
23	21.0	18.5	20.0	25.0	22.0	23.0	19.5	17.5	18.5	17.0	12.0	14.5
24	25.5	18.0	21.5	26.5	21.5	23.5	21.0	17.5	19.5	16.0	11.0	13.5
25	26.0	18.0	22.0	26.5	21.0	23.5	22.5	17.5	20.0	16.0	9.5	13.0
26	24.5	18.5	21.5	25.5	21.0	23.0	23.0	18.0	20.0	19.0	13.0	16.0
27	25.5	19.0	22.0	26.0	20.5	23.0	24.0	17.5	21.0	17.5	13.5	15.0
28	22.0	18.5	20.5	27.0	20.0	23.0	24.5	19.5	22.0	14.0	13.0	13.5
29	22.0	16.0	19.0	28.0	20.5	24.0	21.5	17.0	19.0	15.5	11.5	13.5
30	20.5	16.5	18.5	29.0	21.0	25.0	20.0	14.5	17.0	15.0	10.5	12.5
31	---	---	---	27.5	23.0	25.0	20.5	14.0	17.5	---	---	---
MONTH	26.0	13.0	19.2	29.0	17.0	22.3	24.5	14.0	19.4	23.5	9.0	15.5

STREAMS TRIBUTARY TO LAKE MICHIGAN
040857005 OTTER CREEK, AT WILLOW ROAD, NEAR PLYMOUTH, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--October 1990 to current year (non-frozen precipitation).

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established on Oct. 1, 1990. Rainfall estimated to be 0.00 for Dec. 20, 29, Jan. 24, 25, and Feb. 2, 4, 24 because recorded precipitation interpreted as collector snowmelt. Rainfall data missing for the period Feb. 27 to Apr. 21.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 5.41 in., Aug. 6, 1998.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 1.53 in., July 21.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	---	---	.00	.09	.09	.00	.00
2	.00	.00	.00	.00	.00	---	---	.00	.59	.00	.00	.00
3	.00	.03	.00	.00	.00	---	---	.00	.01	.16	.50	.00
4	.00	.00	.14	.00	.00	---	---	.00	.75	.00	.21	.00
5	1.10	.00	.00	.00	.00	---	---	.05	.00	.39	.01	.00
6	.29	.00	.35	.00	.00	---	---	.90	.59	.06	.00	.00
7	.01	.00	.00	.00	.00	---	---	.00	.40	.00	.19	.00
8	.00	.00	.00	.00	.00	---	---	.01	.00	1.37	.00	.00
9	.00	.41	.00	.00	.00	---	---	.00	.00	.07	.00	.00
10	.00	1.03	.00	.00	.00	---	---	.00	.20	.00	.87	.00
11	.00	.00	.00	.00	.40	---	---	.02	1.04	.00	.00	.00
12	.00	.00	.00	.00	.00	---	---	.81	.69	.00	.00	.04
13	.00	.00	.00	.00	.00	---	---	.00	.74	.00	.14	.00
14	.00	.00	.00	.00	.00	---	---	.00	.09	.17	.00	.00
15	.00	.00	.00	.00	.00	---	---	.00	.00	.00	.00	.00
16	.00	.48	.00	.00	.00	---	---	.18	.38	.20	.14	.00
17	.25	.00	.00	.48	.00	---	---	1.26	.00	.96	.00	.00
18	.18	.00	.00	.00	.00	---	---	.65	.00	.30	.00	.00
19	.00	.00	.00	.00	.00	---	---	.00	.00	.78	.35	.30
20	.00	.00	.00	.00	.00	---	---	.00	.00	.42	.00	.00
21	.00	.00	.00	.00	.00	---	---	.04	.00	1.53	.00	.00
22	.00	.00	.00	.76	.00	---	.82	.00	.21	.00	.01	.00
23	.00	.00	.00	.76	.00	---	.38	.43	.11	.44	.47	.00
24	.00	.00	.00	.00	.00	---	.00	.00	.00	.00	.09	.00
25	.00	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.08	---	.00	.00	.00	.08	.00	.49
27	.17	.00	.00	.00	---	---	.00	.00	.20	.00	.00	1.19
28	.00	.00	.00	.00	---	---	.00	.00	.12	.00	.00	.62
29	.00	.00	.00	.00	---	---	.00	.00	.00	.00	.00	.02
30	.06	.19	.00	.00	---	---	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	---	---	.44	---	.15	.00	---
TOTAL	2.06	2.14	0.49	2.00	---	---	---	4.79	6.21	7.17	2.98	2.66

(b) Also occurred Sept. 19, 25

STREAMS TRIBUTARY TO LAKE MICHIGAN

04086125 WEST BRANCH MILWAUKEE RIVER AT DRUMLIN DRIVE NEAR LOMIRA, WI

LOCATION.--Lat 43°36'58", long 88°23'37", in SE 1/4 SW 1/4 sec.6, T.13 N., R.18 E., Fond du Lac County, Hydrologic Unit 04040003, on right bank upstream from Drumlins Drive culvert 3.4 mi northeast of Lomira.

DRAINAGE AREA.--13.9 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1998 to November 1999 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 1000 ft above sea level, from topographic map.

REMARKS.--

DECEMBER 1998 TO SEPTEMBER 1999: Estimated daily discharges: Dec. 1 and ice-affected period, Dec. 21 to Jan. 24,. Records are fair from Dec. 2-20 and Jan. 25 to May 25, and poor for estimated daily discharges and May 26 to Sept. 30 (see page 13).

OCTOBER 1999 TO NOVEMBER 1999: No estimated daily discharge. Records are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	2.7	1.7	5.6	6.7	5.0	8.5	7.6	4.4	8.0	3.7
2	---	---	2.6	1.7	6.5	6.7	4.8	8.0	10	4.4	7.0	3.6
3	---	---	2.5	1.6	7.3	6.4	8.9	7.7	9.4	4.6	6.4	3.4
4	---	---	2.5	1.6	8.4	6.4	18	7.4	7.6	4.9	7.8	3.2
5	---	---	2.5	1.6	7.2	5.9	16	7.5	7.3	4.5	7.8	3.1
6	---	---	2.5	1.6	6.6	5.9	13	11	7.0	4.3	7.1	3.0
7	---	---	2.5	1.6	6.3	6.0	9.7	14	15	4.0	6.9	2.8
8	---	---	2.5	1.6	6.2	5.5	7.9	12	15	3.6	6.9	2.7
9	---	---	2.5	1.6	8.2	5.8	12	11	10	7.4	6.4	2.5
10	---	---	2.5	1.6	9.2	5.2	12	9.4	8.0	8.6	7.2	2.5
11	---	---	2.5	1.6	18	4.9	12	8.7	8.1	7.2	6.8	2.5
12	---	---	2.5	1.6	30	4.9	13	9.4	8.0	5.9	6.3	2.5
13	---	---	2.5	1.6	26	5.0	11	9.2	8.4	5.1	6.3	2.7
14	---	---	2.4	1.6	17	5.1	9.1	8.2	8.7	5.4	6.0	2.7
15	---	---	2.5	1.6	12	5.3	8.3	8.1	7.5	4.9	5.5	2.6
16	---	---	2.5	1.6	11	5.6	7.8	8.9	6.8	3.8	5.3	2.6
17	---	---	2.4	1.9	9.9	6.2	7.2	29	6.5	7.9	5.1	2.6
18	---	---	2.4	2.2	8.6	6.3	6.8	35	6.0	9.7	5.1	2.6
19	---	---	2.4	2.1	7.9	5.8	6.5	32	5.6	26	5.2	2.6
20	---	---	2.4	2.0	7.2	5.4	6.4	23	5.3	37	5.1	2.7
21	---	---	2.1	2.0	7.4	5.3	6.3	14	5.0	53	4.9	2.7
22	---	---	1.9	3.2	6.6	5.0	10	11	5.0	58	4.7	2.7
23	---	---	1.8	5.8	6.1	5.0	25	12	6.0	46	4.9	2.6
24	---	---	1.7	5.4	5.8	5.0	31	13	6.3	37	5.1	2.4
25	---	---	1.6	5.0	5.7	4.8	24	10	5.8	28	5.1	2.2
26	---	---	1.6	4.8	5.8	4.7	15	8.6	5.2	22	4.8	2.2
27	---	---	1.6	5.1	6.6	4.7	12	7.5	4.8	18	4.6	3.9
28	---	---	1.7	5.5	7.0	4.8	10	6.9	4.5	14	4.4	6.1
29	---	---	1.7	5.5	---	4.8	9.5	6.5	4.4	11	4.1	6.4
30	---	---	1.7	5.6	---	4.7	8.9	6.1	4.3	9.3	3.9	4.9
31	---	---	1.7	5.7	---	5.0	---	6.7	---	8.8	3.8	---
TOTAL	---	---	68.9	87.6	270.1	168.8	347.1	370.3	219.1	468.7	178.5	92.7
MEAN	---	---	2.22	2.83	9.65	5.45	11.6	11.9	7.30	15.1	5.76	3.09
MAX	---	---	2.7	5.8	30	6.7	31	35	15	58	8.0	6.4
MIN	---	---	1.6	1.6	5.6	4.7	4.8	6.1	4.3	3.6	3.8	2.2
CFSM	---	---	.16	.20	.69	.39	.83	.86	.53	1.09	.41	.22
IN.	---	---	.18	.23	.72	.45	.93	.99	.59	1.25	.48	.25

SUMMARY STATISTICS

FOR 1999 WATER YEAR
(DECEMBER 1998-SEPTEMBER 1999)

HIGHEST DAILY MEAN 58 Jul 22
 LOWEST DAILY MEAN (a)1.6 (b)Dec. 25-27
 ANNUAL SEVEN-DAY MINIMUM (a)1.6 Jan. 3
 INSTANTANEOUS PEAK FLOW 62 Jul 22
 INSTANTANEOUS PEAK STAGE 13.99 Jul 22
 INSTANTANEOUS LOW FLOW (c)1.3 Dec 21
 10 PERCENT EXCEEDS 13
 50 PERCENT EXCEEDS 5.8
 90 PERCENT EXCEEDS 2.1

(a) Ice affected
 (b) Also occurred Jan. 3-16
 (c) Result of freeze-up

04086125 WEST BRANCH MILWAUKEE RIVER AT DRUMLIN DRIVE NEAR LOMIRA, WI--CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	2.6	---	---	---	---	---	---	---	---	---	---
2	4.1	2.6	---	---	---	---	---	---	---	---	---	---
3	4.1	2.5	---	---	---	---	---	---	---	---	---	---
4	3.9	2.5	---	---	---	---	---	---	---	---	---	---
5	3.7	2.5	---	---	---	---	---	---	---	---	---	---
6	3.4	2.5	---	---	---	---	---	---	---	---	---	---
7	3.2	2.5	---	---	---	---	---	---	---	---	---	---
8	3.1	2.5	---	---	---	---	---	---	---	---	---	---
9	3.1	2.6	---	---	---	---	---	---	---	---	---	---
10	3.0	2.6	---	---	---	---	---	---	---	---	---	---
11	2.9	2.5	---	---	---	---	---	---	---	---	---	---
12	2.8	2.4	---	---	---	---	---	---	---	---	---	---
13	2.9	2.4	---	---	---	---	---	---	---	---	---	---
14	2.9	2.4	---	---	---	---	---	---	---	---	---	---
15	2.8	2.3	---	---	---	---	---	---	---	---	---	---
16	2.8	2.2	---	---	---	---	---	---	---	---	---	---
17	2.7	2.2	---	---	---	---	---	---	---	---	---	---
18	2.7	2.3	---	---	---	---	---	---	---	---	---	---
19	2.6	2.4	---	---	---	---	---	---	---	---	---	---
20	2.6	2.3	---	---	---	---	---	---	---	---	---	---
21	2.6	2.3	---	---	---	---	---	---	---	---	---	---
22	2.6	2.3	---	---	---	---	---	---	---	---	---	---
23	2.5	3.1	---	---	---	---	---	---	---	---	---	---
24	2.5	3.5	---	---	---	---	---	---	---	---	---	---
25	2.6	3.0	---	---	---	---	---	---	---	---	---	---
26	2.6	2.8	---	---	---	---	---	---	---	---	---	---
27	2.6	2.7	---	---	---	---	---	---	---	---	---	---
28	2.7	2.6	---	---	---	---	---	---	---	---	---	---
29	2.6	2.5	---	---	---	---	---	---	---	---	---	---
30	2.6	2.4	---	---	---	---	---	---	---	---	---	---
31	2.6	---	---	---	---	---	---	---	---	---	---	---
TOTAL	91.8	76.0	---	---	---	---	---	---	---	---	---	---
MEAN	2.96	2.53	---	---	---	---	---	---	---	---	---	---
MAX	4.1	3.5	---	---	---	---	---	---	---	---	---	---
MIN	2.5	2.2	---	---	---	---	---	---	---	---	---	---
CFSM	.21	.18	---	---	---	---	---	---	---	---	---	---
IN.	.25	.20	---	---	---	---	---	---	---	---	---	---

SUMMARY STATISTICS

FOR 1999 CALENDAR YEAR
(JANUARY-NOVEMBER)FOR 2000 WATER YEAR
(OCTOBER-NOVEMBER)WATER YEARS 1999 - 2000
(DECEMBER 1998-NOVEMBER 1999)

ANNUAL TOTAL	2370.7	167.8	6.68
ANNUAL MEAN	7.10	2.75	7.47
HIGHEST ANNUAL MEAN			2.75
LOWEST ANNUAL MEAN			58
HIGHEST DAILY MEAN	58	Jul 22	4.1
LOWEST DAILY MEAN	(a) 1.6 (b) Dec 25-27	2.2	Oct 2,3
ANNUAL SEVEN-DAY MINIMUM	(a) 1.6 Jan. 3	2.3	Nov 16,17
INSTANTANEOUS PEAK FLOW		4.5	Oct 1
INSTANTANEOUS PEAK STAGE		11.47	Oct 1
INSTANTANEOUS LOW FLOW		2.2	Nov 16-18
ANNUAL RUNOFF (CFSM)	.51	.20	.48
ANNUAL RUNOFF (INCHES)	6.34	.45	6.53
10 PERCENT EXCEEDS	12	3.5	12
50 PERCENT EXCEEDS	5.3	2.6	5.0
90 PERCENT EXCEEDS	2.4	2.3	2.3

(a) Ice affected

(b) Also occurred Jan. 3-16

(c) Result of freeze-up

STREAMS TRIBUTARY TO LAKE MICHIGAN
04086125 WEST BRANCH MILWAUKEE RIVER AT DRUMLIN DRIVE NEAR LOMIRA, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1998 to December 1999 (discontinued).

REMARKS.--Chemical analyses are by the Wisconsin State Laboratory of Hygiene. Samples are equal-width increment samples (EWI) unless otherwise indicated.

WATER-QUALITY DATA, NOVEMBER 1998 TO DECEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
NOV 1998					
06...	1234	2.2	<5	.020	.052
18...	1125	3.0	<5	.040	.037
DEC					
01...	1152	2.7	<5	.032	.042
18...	1546	2.5	<5	.032	.032
29...	1304	1.7	6	.034	.031
JAN 1999					
14...	1648	1.6	<5	.042	.036
27...	1244	5.1	<5	.153	.145
FEB					
09...	1444	7.8	<5	.035	.044
23...	1652	6.0	422	.047	.499
MAR					
11...	1034	4.8	80	.039	.117
23...	1206	5.1	20	.015	.044
APR					
05...	1044	17	67	.029	.148
21...	1228	6.3	<5	<.013	.020
*24...	0300	31	10	.050	.148
MAY					
03...	1708	7.6	17	.014	.047
17...	1834	32	21	.044	.267
18...	1530	36	7	.030	.153
JUN					
03...	1512	9.0	24	.027	.081
15...	1408	7.2	10	.019	.070
29...	1334	4.3	18	.036	.065
JUL					
13...	1114	5.0	12	.045	.078
*19...	1030	26	<5	.025	.177
22...	0800	61	<5	.038	.218
28...	1714	13	11	.035	.144
AUG					
10...	1122	7.5	5	.019	.060
25...	1115	5.1	<5	.019	.046
SEP					
08...	1606	2.7	<5	.015	.040
20...	1028	2.7	<5	.034	.037
OCT 1999					
06...	1102	3.4	<5	.032	.040
19...	1232	2.6	<5	.017	.030
NOV					
02...	1212	2.5	8	.021	.028
16...	1136	2.2	<5	<.013	.024
DEC					
02...	1304	2.5	<5	.029	.043

* Point sample

04086152 MILWAUKEE RIVER TRIBUTARY AT U.S. HIGHWAY 45 AT KEWASKUM, WI

LOCATION.--Lat 43°31'00", long 88°13'32", in SE 1/4 SE 1/4 sec.9, T.12 N., R.19 E., Washington County, Hydrologic Unit 04040003, on left bank downstream from U.S. Highway 45 bridge, at Kewaskum.

DRAINAGE AREA.--11.7 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1998 to November 1999 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 930 ft above sea level, from topographic map.

REMARKS.--

NOVEMBER 1998 TO SEPTEMBER 1999: Estimated daily discharges: Dec. 2-6 and ice-affected period, Dec. 20 to Feb. 10. Records good except those for estimated daily discharges, which are poor (see page 13).

OCTOBER 1999 TO NOVEMBER 1999: Estimated daily discharges: Oct 21, 23. Records are fair (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	2.5	3.1	1.4	6.6	5.5	4.6	6.4	12	4.3	3.2	1.3
2	---	2.4	2.7	1.4	9.0	5.6	4.6	5.8	17	4.0	2.8	1.2
3	---	2.3	2.7	1.4	13	5.4	10	5.4	12	3.7	3.1	1.1
4	---	2.2	2.6	1.4	12	4.9	25	5.0	8.3	3.3	4.2	1.0
5	---	2.2	2.6	1.3	10	4.5	15	5.4	7.9	3.1	3.5	.99
6	---	2.2	2.6	1.3	9.0	4.7	11	13	7.7	3.0	2.9	1.1
7	---	2.2	2.6	1.3	8.8	4.6	8.3	19	21	2.4	3.0	.97
8	---	2.1	2.6	1.3	8.4	4.2	7.2	11	11	3.0	3.4	.93
9	---	2.8	3.2	1.3	10	4.9	35	8.6	7.1	9.5	2.7	1.0
10	---	20	3.3	1.2	20	5.1	38	7.1	6.8	5.2	4.0	1.1
11	---	17	3.2	1.2	38	4.4	20	6.3	12	3.3	3.2	1.1
12	---	6.7	3.0	1.2	54	4.3	24	19	14	2.8	2.6	1.2
13	---	4.8	3.0	1.2	33	4.4	14	17	24	2.5	2.3	1.2
14	---	4.2	2.9	1.2	21	4.6	10	9.4	33	2.8	1.9	1.3
15	---	3.8	2.8	1.2	13	5.6	8.7	7.6	12	2.5	2.2	1.2
16	---	3.4	2.8	1.2	11	8.5	7.6	8.3	8.4	2.5	2.1	1.2
17	---	3.2	2.7	1.2	9.5	22	6.5	87	7.2	4.1	2.0	1.1
18	---	3.0	2.9	1.2	8.9	24	5.9	53	6.0	3.6	1.8	1.0
19	---	3.0	2.7	1.2	6.4	12	5.7	45	5.1	7.2	2.7	1.1
20	---	2.7	2.4	1.2	6.9	9.9	5.4	25	4.6	7.1	2.7	.98
21	---	2.5	2.1	1.9	7.1	9.1	5.4	18	4.1	141	2.1	1.1
22	---	2.5	1.8	3.5	5.8	7.5	14	12	3.8	112	1.9	1.2
23	---	2.5	1.6	6.0	4.4	6.7	119	14	4.1	61	2.5	1.1
24	---	2.3	1.4	12	4.7	6.2	57	14	4.2	45	2.8	1.0
25	---	2.4	1.2	24	4.2	5.4	27	10	3.5	27	2.5	1.1
26	---	2.3	1.2	20	4.3	5.0	18	8.1	3.1	13	2.1	1.5
27	---	2.2	1.3	13	5.1	4.9	12	6.9	3.1	5.9	1.8	4.6
28	---	2.2	1.4	10	5.8	5.0	9.2	6.1	3.7	4.4	1.6	8.6
29	---	2.2	1.5	9.0	---	5.1	7.8	5.6	3.3	3.9	1.4	7.9
30	---	3.0	1.4	8.0	---	4.7	7.1	5.1	2.9	3.3	1.3	3.8
31	---	---	1.4	7.4	---	4.6	---	8.0	---	3.7	1.3	---
TOTAL	---	116.8	72.7	140.1	349.9	213.3	543.0	472.1	272.9	500.1	77.6	53.97
MEAN	---	3.89	2.35	4.52	12.5	6.88	18.1	15.2	9.10	16.1	2.50	1.80
MAX	---	20	3.3	24	54	24	119	87	33	141	4.2	8.6
MIN	---	2.1	1.2	1.2	4.2	4.2	4.6	5.0	2.9	2.4	1.3	.93
CFSM	---	.33	.20	.39	1.07	.59	1.55	1.30	.78	1.38	.21	.15
IN.	---	.37	.23	.45	1.11	.68	1.73	1.50	.87	1.59	.25	.17

SUMMARY STATISTICS

FOR 1999 WATER YEAR
(NOVEMBER 1998-SEPTEMBER 1999)

HIGHEST DAILY MEAN
LOWEST DAILY MEAN
ANNUAL SEVEN-DAY MINIMUM
INSTANTANEOUS PEAK FLOW
INSTANTANEOUS PEAK STAGE
INSTANTANEOUS LOW FLOW
10 PERCENT EXCEEDS
50 PERCENT EXCEEDS
90 PERCENT EXCEEDS

141 Jul 21
.93 Sep 8
1.0 Sep 3
191 Jul 21
13.37 Jul 21
.38 Aug 13
18
4.2
1.2

STREAMS TRIBUTARY TO LAKE MICHIGAN

04086152 MILWAUKEE RIVER TRIBUTARY AT U.S. HIGHWAY 45 AT KEWASKUM, WI--CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	1.8	---	---	---	---	---	---	---	---	---	---
2	2.9	1.8	---	---	---	---	---	---	---	---	---	---
3	3.9	1.8	---	---	---	---	---	---	---	---	---	---
4	3.3	1.8	---	---	---	---	---	---	---	---	---	---
5	2.9	1.9	---	---	---	---	---	---	---	---	---	---
6	2.5	1.8	---	---	---	---	---	---	---	---	---	---
7	2.5	1.8	---	---	---	---	---	---	---	---	---	---
8	2.6	2.0	---	---	---	---	---	---	---	---	---	---
9	2.0	2.1	---	---	---	---	---	---	---	---	---	---
10	2.5	6.1	---	---	---	---	---	---	---	---	---	---
11	2.4	19	---	---	---	---	---	---	---	---	---	---
12	2.2	7.9	---	---	---	---	---	---	---	---	---	---
13	3.6	5.6	---	---	---	---	---	---	---	---	---	---
14	2.5	4.2	---	---	---	---	---	---	---	---	---	---
15	3.2	2.8	---	---	---	---	---	---	---	---	---	---
16	3.0	2.5	---	---	---	---	---	---	---	---	---	---
17	3.2	2.3	---	---	---	---	---	---	---	---	---	---
18	2.6	2.3	---	---	---	---	---	---	---	---	---	---
19	2.5	2.3	---	---	---	---	---	---	---	---	---	---
20	2.4	2.3	---	---	---	---	---	---	---	---	---	---
21	2.4	2.3	---	---	---	---	---	---	---	---	---	---
22	2.3	2.2	---	---	---	---	---	---	---	---	---	---
23	2.2	5.3	---	---	---	---	---	---	---	---	---	---
24	2.0	9.3	---	---	---	---	---	---	---	---	---	---
25	2.0	6.0	---	---	---	---	---	---	---	---	---	---
26	1.8	4.8	---	---	---	---	---	---	---	---	---	---
27	1.8	4.3	---	---	---	---	---	---	---	---	---	---
28	1.9	3.7	---	---	---	---	---	---	---	---	---	---
29	1.9	3.2	---	---	---	---	---	---	---	---	---	---
30	2.0	3.0	---	---	---	---	---	---	---	---	---	---
31	1.8	---	---	---	---	---	---	---	---	---	---	---
TOTAL	77.3	118.2	---	---	---	---	---	---	---	---	---	---
MEAN	2.49	3.94	---	---	---	---	---	---	---	---	---	---
MAX	3.9	19	---	---	---	---	---	---	---	---	---	---
MIN	1.8	1.8	---	---	---	---	---	---	---	---	---	---
CFSM	.21	.34	---	---	---	---	---	---	---	---	---	---
IN.	.25	.38	---	---	---	---	---	---	---	---	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2000, BY WATER YEAR (WY)

MEAN	2.49	3.92	2.35	4.52	12.5	6.88	18.1	15.2	9.10	16.1	2.50	1.80
MAX	2.49	3.94	2.35	4.52	12.5	6.88	18.1	15.2	9.10	16.1	2.50	1.80
(WY)	2000	2000	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999
MIN	2.49	3.89	2.35	4.52	12.5	6.88	18.1	15.2	9.10	16.1	2.50	1.80
(WY)	2000	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR (JANUARY-NOVEMBER)		FOR 2000 WATER YEAR (OCTOBER-NOVEMBER)		WATER YEARS 1999 - 2000 (NOVEMBER 1998-NOVEMBER 1999)	
HIGHEST DAILY MEAN	141	Jul 21	19	Nov 11	141	Jul 21 1999
LOWEST DAILY MEAN	.93	Sep 8	1.8	(a) Oct 26	.93	Sep 8 1999
ANNUAL SEVEN-DAY MINIMUM	1.0	Sep 3	1.8	Oct 31	1.0	Sep 3 1999
INSTANTANEOUS PEAK FLOW			25	Nov 11	191	Jul 21 1999
INSTANTANEOUS PEAK STAGE			11.22	Nov 11	13.37	Jul 21 1999
INSTANTANEOUS LOW FLOW			1.0	Nov 30	.38	Aug 13 1999
10 PERCENT EXCEEDS	18		5.5		14	
50 PERCENT EXCEEDS	4.4		2.5		3.6	
90 PERCENT EXCEEDS	1.2		1.8		1.3	

(a) Also occurred Oct. 27, 31, and Nov. 1-4, 6, 7

04086152 MILWAUKEE RIVER TRIBUTARY AT U.S. HIGHWAY 45 AT KEWASKUM, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1998 to December 1999 (discontinued).

REMARKS.--Chemical analyses are by the Wisconsin State Laboratory of Hygiene. Samples are equal-width increment samples (EWI) unless otherwise indicated.

WATER-QUALITY DATA, NOVEMBER 1998 TO DECEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
NOV 1998						
05...	1432	--	2.1	<5	<.013	.028
17...	1425	--	3.2	<5	.020	.035
DEC						
02...	1346	--	2.7	<5	.013	.040
17...	1404	--	3.0	<5	.016	.034
28...	1544	--	1.4	<5	.018	.028
JAN 1999						
13...	1134	1.2	--	15	.080	.046
26...	1158	--	22	5	.046	.251
FEB						
08...	1234	--	7.8	<5	.020	.055
22...	1302	--	5.0	<5	.014	.031
MAR						
10...	1126	--	5.2	<5	<.013	.022
22...	1502	--	7.3	5	<.013	.028
APR						
06...	1156	--	11	6	<.013	.044
09...	1605	--	43	56	.032	.202
20...	1224	--	5.5	<5	<.013	.021
*23...	0820	--	92	208	.032	.484
23...	1144	--	179	133	.055	.416
MAY						
03...	1156	--	5.7	5	.013	.032
18...	1504	--	47	30	.049	.179
JUN						
02...	1446	--	20	37	.047	.147
14...	1518	--	25	26	.076	.234
28...	1556	--	3.5	20	.053	.097
JUL						
12...	1432	--	2.8	9	.059	.079
21...	0710	--	98	258	.021	.509
21...	1620	--	187	42	.036	.378
27...	1654	--	5.3	14	.048	.110
AUG						
09...	1248	--	2.7	11	.047	.080
23...	1130	--	2.0	7	.034	.064
SEP						
07...	1544	--	1.0	5	<.013	.055
20...	1206	--	1.0	<5	<.013	.038

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)

OCT 1999					
05...	1222	2.8	<5	.018	.053
18...	1326	2.5	<5	.018	.037
NOV					
01...	1322	2.0	5	.011	.032
15...	1232	2.5	<5	.019	.033
DEC					
01...	1108	2.9	<5	.030	.030

* Point sample

LOCATION.--Lat 43°24'44", long 88°08'59", in NW 1/4 NE 1/4 sec.19, T.11 N., R.20 E., Washington County, Hydrologic Unit 04040003, on left bank 20 ft upstream from Decorah Road bridge, at West Bend.

DRAINAGE AREA.-8.62 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-November 1998 to November 1999 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 865 ft above sea level, from topographic map.

REMARKS.--

NOVEMBER 1998 TO SEPTEMBER 1999: Estimated daily discharges: Nov. 1-5, July 12-27, and ice-affected period, Dec. 29 to Jan.

27. Records good except those for estimated daily discharges, which are poor (see page 13).

OCTOBER 1999 TO NOVEMBER 1999: No estimated daily discharge. Records are good (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	3.0	4.0	1.9	8.4	6.3	5.3	5.7	7.0	11	4.6	2.4
2	---	3.0	3.4	1.8	12	6.5	5.3	5.4	14	6.2	4.3	2.3
3	---	2.9	3.4	1.8	14	6.3	14	5.1	8.8	4.6	4.5	2.2
4	---	2.9	3.3	1.8	16	5.6	19	4.9	7.2	4.0	7.5	2.2
5	---	2.8	3.3	1.8	12	5.5	11	5.3	6.9	3.3	5.5	2.2
6	---	2.7	3.9	1.8	9.5	5.5	9.4	16	6.7	4.1	4.6	2.1
7	---	2.6	6.2	1.8	9.0	5.7	7.8	14	8.9	3.0	5.8	2.1
8	---	2.6	5.2	1.8	8.5	5.2	6.9	9.2	6.3	2.9	5.4	2.1
9	---	3.0	4.7	1.7	15	5.3	66	7.5	5.6	18	4.5	2.1
10	---	39	4.5	1.7	15	5.5	24	6.5	9.4	5.5	6.5	2.2
11	---	12	4.1	1.7	43	5.7	17	6.0	24	3.9	4.4	2.3
12	---	7.6	4.1	1.7	48	5.8	14	64	32	3.5	4.0	2.5
13	---	6.3	3.9	1.7	18	5.9	10	18	65	3.3	4.0	2.4
14	---	5.8	3.6	1.7	9.7	5.9	8.2	10	27	3.2	3.7	2.3
15	---	5.0	3.7	1.6	8.7	6.2	7.3	8.0	13	3.1	3.3	2.5
16	---	4.6	3.6	1.6	8.9	9.9	6.6	8.1	9.5	3.0	3.3	2.2
17	---	4.2	3.3	1.8	8.3	26	6.0	97	8.0	5.0	3.1	2.1
18	---	4.0	3.4	2.5	6.8	21	5.8	36	6.9	4.0	3.0	2.1
19	---	4.1	3.5	2.2	6.2	12	5.8	19	6.2	10	5.1	2.1
20	---	3.8	3.3	2.0	5.2	9.5	5.7	12	5.6	7.0	3.7	2.3
21	---	3.6	3.0	1.9	5.1	8.6	5.7	9.5	5.1	220	3.2	2.2
22	---	3.6	2.5	5.0	4.8	7.4	22	10	4.8	20	3.0	2.2
23	---	3.5	1.9	19	4.8	6.8	163	13	5.1	8.0	3.3	2.1
24	---	3.3	1.9	20	4.4	6.5	39	11	5.7	6.4	4.1	2.3
25	---	3.4	1.9	16	4.8	6.0	14	8.8	4.5	5.8	3.4	2.5
26	---	3.3	1.9	13	5.1	5.7	10	7.7	3.9	5.6	3.0	2.6
27	---	3.2	2.0	10	5.8	5.7	8.2	6.9	3.7	5.4	2.8	8.3
28	---	3.2	2.0	13	6.4	5.6	7.2	6.4	3.6	5.2	2.6	21
29	---	3.3	2.0	11	---	5.5	6.4	6.0	3.5	4.8	2.4	12
30	---	4.1	1.9	11	---	5.4	6.0	5.5	3.2	4.5	2.4	5.7
31	---	---	1.9	9.0	---	5.4	---	6.2	---	5.4	2.4	---
TOTAL	---	156.4	101.3	165.3	323.4	233.9	536.6	448.7	321.1	399.7	123.4	105.6
MEAN	---	5.21	3.27	5.33	11.6	7.55	17.9	14.5	10.7	12.9	3.98	3.52
MAX	---	39	6.2	20	48	26	163	97	65	220	7.5	21
MIN	---	2.6	1.9	1.6	4.4	5.2	5.3	4.9	3.2	2.9	2.4	2.1
CFSM	---	.60	.38	.62	1.34	.88	2.08	1.68	1.24	1.50	.46	.41
IN.	---	.67	.44	.71	1.40	1.01	2.32	1.94	1.39	1.72	.53	.46

SUMMARY STATISTICS

FOR 1999 WATER YEAR
 (NOVEMBER 1998-SEPTEMBER 1999)

HIGHEST DAILY MEAN	220	Jul 21
LOWEST DAILY MEAN	(a) 1.6	Jan 15, 16
ANNUAL SEVEN-DAY MINIMUM	(a) 1.7	Jan 10
INSTANTANEOUS PEAK FLOW	500	Jul 21
INSTANTANEOUS PEAK STAGE	(b) 16.82	Jul 21
INSTANTANEOUS LOW FLOW	(c) 1.2	Feb 20
10 PERCENT EXCEEDS	14	
50 PERCENT EXCEEDS	5.3	
90 PERCENT EXCEEDS	2.1	

(a) Ice affected
 (b) From crest-stage gage
 (c) Result of freeze-up

04086250 MILWAUKEE RIVER TRIBUTARY AT DECORAH ROAD AT WEST BEND, WI--CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	3.4	---	---	---	---	---	---	---	---	---	---
2	8.0	3.3	---	---	---	---	---	---	---	---	---	---
3	5.8	3.2	---	---	---	---	---	---	---	---	---	---
4	5.9	3.3	---	---	---	---	---	---	---	---	---	---
5	4.7	3.3	---	---	---	---	---	---	---	---	---	---
6	4.1	3.2	---	---	---	---	---	---	---	---	---	---
7	3.9	3.2	---	---	---	---	---	---	---	---	---	---
8	3.8	3.4	---	---	---	---	---	---	---	---	---	---
9	3.6	3.4	---	---	---	---	---	---	---	---	---	---
10	3.5	5.4	---	---	---	---	---	---	---	---	---	---
11	3.4	10	---	---	---	---	---	---	---	---	---	---
12	3.3	5.9	---	---	---	---	---	---	---	---	---	---
13	3.5	4.9	---	---	---	---	---	---	---	---	---	---
14	3.5	4.2	---	---	---	---	---	---	---	---	---	---
15	3.4	3.8	---	---	---	---	---	---	---	---	---	---
16	4.5	3.7	---	---	---	---	---	---	---	---	---	---
17	4.1	3.7	---	---	---	---	---	---	---	---	---	---
18	3.7	3.6	---	---	---	---	---	---	---	---	---	---
19	3.6	3.6	---	---	---	---	---	---	---	---	---	---
20	3.5	3.6	---	---	---	---	---	---	---	---	---	---
21	3.5	3.5	---	---	---	---	---	---	---	---	---	---
22	3.4	3.5	---	---	---	---	---	---	---	---	---	---
23	3.3	6.5	---	---	---	---	---	---	---	---	---	---
24	3.3	7.5	---	---	---	---	---	---	---	---	---	---
25	3.4	5.3	---	---	---	---	---	---	---	---	---	---
26	3.4	4.7	---	---	---	---	---	---	---	---	---	---
27	3.3	4.3	---	---	---	---	---	---	---	---	---	---
28	3.4	3.8	---	---	---	---	---	---	---	---	---	---
29	3.4	3.6	---	---	---	---	---	---	---	---	---	---
30	3.5	3.3	---	---	---	---	---	---	---	---	---	---
31	3.5	---	---	---	---	---	---	---	---	---	---	---
TOTAL	121.7	128.1	---	---	---	---	---	---	---	---	---	---
MEAN	3.93	4.27	---	---	---	---	---	---	---	---	---	---
MAX	8.0	10	---	---	---	---	---	---	---	---	---	---
MIN	3.3	3.2	---	---	---	---	---	---	---	---	---	---
CFSM	.46	.50	---	---	---	---	---	---	---	---	---	---
IN.	.53	.55	---	---	---	---	---	---	---	---	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2000, BY WATER YEAR (WY)

MEAN	3.93	4.74	3.27	5.21	11.2	7.55	17.9	14.5	10.5	12.9	3.98	3.52
MAX	3.93	5.21	3.27	5.21	11.2	7.55	17.9	14.5	10.5	12.9	3.98	3.52
(WY)	2000	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999
MIN	3.93	4.27	3.27	5.21	11.2	7.55	17.9	14.5	10.5	12.9	3.98	3.52
(WY)	2000	2000	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999

SUMMARY STATISTICS

FOR 1999 CALENDAR YEAR
(JANUARY-NOVEMBER)FOR 2000 WATER YEAR
(OCTOBER-NOVEMBER)WATER YEARS 1999 - 2000
(NOVEMBER 1998-NOVEMBER 1999)

HIGHEST DAILY MEAN	220	Jul 21	10	Nov 11	220	Jul 21 1999
LOWEST DAILY MEAN	(a)1.6	Jan 15,16	3.2	(b)Nov 3	(a)1.6	Jan 15,16 1999
ANNUAL SEVEN-DAY MINIMUM	(a)1.7	Jan 10	3.3	Nov 1	(a)1.7	Jan 10 1999
INSTANTANEOUS PEAK FLOW			17	Nov 11	500	Jul 21 1999
INSTANTANEOUS PEAK STAGE			11.80	Nov 11	(c)16.82	Jul 21 1999
INSTANTANEOUS LOW FLOW			(d)1.8	Nov 30	(d)1.2	Feb 20 1999
10 PERCENT EXCEEDS	14		5.9		13	
50 PERCENT EXCEEDS	5.4		3.6		4.8	
90 PERCENT EXCEEDS	2.2		3.3		2.2	

(a) Ice affected

(b) From crest-stage gage

(c) Result of freeze-up

STREAMS TRIBUTARY TO LAKE MICHIGAN
04086250 MILWAUKEE RIVER TRIBUTARY AT DECORAH ROAD AT WEST BEND, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1998 to December 1999 (discontinued).

REMARKS.--Chemical analyses are by the Wisconsin State Laboratory of Hygiene. Samples are equal-width increment samples (EWI) unless otherwise indicated.

WATER-QUALITY DATA, NOVEMBER 1998 TO DECEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
NOV 1998						
05...	1252	--	2.8	<5	<.013	.019
17...	1528	--	4.2	<5	.025	.026
DEC						
02...	1616	--	3.4	<5	.018	.029
17...	1214	--	3.3	<5	.024	.023
28...	1352	--	2.0	<5	.034	.015
JAN 1999						
13...	1032	1.7	--	<5	.076	.026
*23...	1815	19	--	31	.072	.169
26...	0956	--	13	6	.052	.078
FEB						
08...	1102	--	7.8	<5	.039	.099
22...	1144	--	5.7	<5	.036	.022
MAR						
10...	1108	--	5.0	<5	.019	.013
22...	1346	--	7.1	<5	<.013	.017
APR						
06...	1238	--	9.6	<5	<.013	.031
*09...	0815	--	26	119	.042	.252
20...	0922	--	5.7	<5	.015	.014
*22...	2300	--	25	76	.034	.128
23...	1222	--	257	75	.027	.268
MAY						
03...	1112	--	5.3	<5	.025	.026
18...	1422	--	49	78	.039	.183
JUN						
02...	1326	--	14	30	.032	.090
14...	1236	--	24	24	.051	.102
28...	1348	--	3.6	8	.019	.060
JUL						
12...	1218	--	3.5	8	.021	.053
21...	1130	--	345	38	.016	.202
27...	1444	--	5.3	6	.033	.100
AUG						
09...	1136	--	4.9	<5	.017	.044
23...	1020	--	3.2	6	.013	.044
SEP						
07...	1402	--	2.2	<5	<.013	.034
20...	1456	--	2.3	<5	<.013	.028

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 1999					
05...	1104	4.8	<5	.014	.029
18...	1242	3.7	<5	.013	.019
NOV					
01...	1132	3.4	<5	.004	.019
15...	1134	3.9	<5	.014	.017
DEC					
01...	1018	3.1	<5	.036	.023

* Point sample

04086305 BATAVIA CREEK AT STATE HIGHWAY 28 AT BATAVIA, WI

LOCATION.--Lat 43°35'25", long 88°03'32", in NE 1/4 SW 1/4 sec.13, T.13 N., R.20 E., Sheboygan County, Hydrologic Unit 04040003, on left bank 100 ft upstream from State Highway 28 bridge at Batavia.

DRAINAGE AREA.--4.9 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1998 to November 1999 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 850 ft above sea level, from topographic map.

REMARKS.--

DECEMBER 1998 TO SEPTEMBER 1999: Estimated daily discharges: Dec. 1, 2 and ice-affected periods, Dec. 21 to Feb. 5, Feb. 13, 18, 20-24, and Mar. 4, 6-14. Records good except those for July 21, which is fair, and those for estimated daily discharges, which are poor (see page 13).

OCTOBER 1999 TO NOVEMBER 1999: No estimated daily discharge. Records are fair (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	1.6	.52	5.0	2.7	1.6	2.2	2.4	1.3	.77	.56
2	---	---	1.5	.50	7.0	2.7	1.5	2.0	4.8	1.1	.68	.53
3	---	---	1.4	.50	10	2.5	3.3	1.7	3.4	1.2	.63	.47
4	---	---	1.3	.48	12	2.2	8.5	1.4	2.3	1.1	.93	.44
5	---	---	1.3	.48	13	2.0	5.8	1.4	2.1	.90	.78	.44
6	---	---	1.4	.48	5.6	1.9	4.1	4.6	2.4	1.1	.66	.44
7	---	---	2.3	.48	4.8	1.8	3.0	9.4	16	.85	.81	.43
8	---	---	2.2	.46	4.1	1.7	2.5	5.4	6.8	.86	.88	.44
9	---	---	1.9	.46	7.2	1.6	19	3.3	3.7	8.7	.78	.46
10	---	---	1.9	.46	9.8	1.6	14	2.4	2.9	3.5	1.4	.50
11	---	---	1.7	.46	20	1.7	8.6	2.0	3.3	1.9	1.0	.50
12	---	---	1.6	.46	20	1.8	9.7	11	6.3	1.4	.87	.53
13	---	---	1.5	.46	13	1.9	6.1	10	14	1.4	.85	.53
14	---	---	1.4	.46	4.7	2.0	4.5	4.6	14	1.1	.72	.49
15	---	---	1.5	.46	3.7	2.5	3.6	2.9	6.4	.93	.63	.48
16	---	---	1.4	.46	3.7	5.2	3.0	3.2	4.1	.84	.63	.44
17	---	---	1.3	1.0	3.2	17	2.5	50	3.2	1.3	.60	.41
18	---	---	1.3	4.0	2.7	19	2.3	31	2.7	1.4	.60	.37
19	---	---	1.3	1.5	2.1	11	2.3	21	2.4	6.4	.76	.34
20	---	---	1.2	1.0	1.9	7.0	2.1	9.1	2.1	6.5	.69	.32
21	---	---	1.0	.60	1.7	4.3	2.3	4.8	1.8	20	.73	.32
22	---	---	.72	2.0	1.5	3.1	5.5	3.7	1.7	11	1.0	.31
23	---	---	.62	8.0	1.4	2.7	41	5.3	1.7	5.1	1.3	.31
24	---	---	.56	11	1.4	2.4	16	7.4	1.8	2.7	1.4	.31
25	---	---	.50	10	1.5	2.1	8.3	4.4	1.5	1.8	1.1	.31
26	---	---	.48	12	1.6	1.9	5.3	2.9	1.3	1.5	.83	.36
27	---	---	.50	8.0	2.2	2.0	3.7	2.2	1.2	1.3	.77	1.5
28	---	---	.52	7.4	2.7	1.9	2.9	1.8	1.2	1.2	.69	3.5
29	---	---	.54	6.6	---	1.7	2.5	1.6	1.2	1.0	.61	4.2
30	---	---	.54	7.0	---	1.6	2.3	1.3	1.1	.89	.60	1.8
31	---	---	.52	5.8	---	1.6	---	1.8	---	.88	.62	---
TOTAL	---	---	37.50	93.48	167.5	115.1	197.8	215.8	119.8	91.15	25.32	22.04
MEAN	---	---	1.21	3.02	5.98	3.71	6.59	6.96	3.99	2.94	.82	.73
MAX	---	---	2.3	12	20	19	41	50	16	20	1.4	4.2
MIN	---	---	.48	.46	1.4	1.6	1.5	1.3	1.1	.84	.60	.31
CFSM	---	---	.25	.62	1.22	.76	1.35	1.42	.81	.60	.17	.15
IN.	---	---	.28	.71	1.27	.87	1.50	1.64	.91	.69	.19	.17

SUMMARY STATISTICS

FOR 1999 WATER YEAR
(DECEMBER 1998-SEPTEMBER 1999)

HIGHEST DAILY MEAN	50	May 17
LOWEST DAILY MEAN	.31	Sep 22-25
ANNUAL SEVEN-DAY MINIMUM	.32	Sep 19
INSTANTANEOUS PEAK FLOW	95	May 17
INSTANTANEOUS PEAK STAGE	12.29	May 17
INSTANTANEOUS LOW FLOW	(a).00	Mar 6
10 PERCENT EXCEEDS	8.9	
50 PERCENT EXCEEDS	1.7	
90 PERCENT EXCEEDS	.48	

(a) Result of freeze-up

STREAMS TRIBUTARY TO LAKE MICHIGAN
04086305 BATAVIA CREEK AT STATE HIGHWAY 28 AT BATAVIA, WI--CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	.87	---	---	---	---	---	---	---	---	---	---
2	1.9	.84	---	---	---	---	---	---	---	---	---	---
3	1.7	.84	---	---	---	---	---	---	---	---	---	---
4	1.7	.84	---	---	---	---	---	---	---	---	---	---
5	1.4	.81	---	---	---	---	---	---	---	---	---	---
6	1.2	.76	---	---	---	---	---	---	---	---	---	---
7	1.1	.78	---	---	---	---	---	---	---	---	---	---
8	1.0	.83	---	---	---	---	---	---	---	---	---	---
9	.98	.85	---	---	---	---	---	---	---	---	---	---
10	.94	.84	---	---	---	---	---	---	---	---	---	---
11	.83	.82	---	---	---	---	---	---	---	---	---	---
12	.79	.80	---	---	---	---	---	---	---	---	---	---
13	.89	.82	---	---	---	---	---	---	---	---	---	---
14	.91	.80	---	---	---	---	---	---	---	---	---	---
15	.89	.78	---	---	---	---	---	---	---	---	---	---
16	.94	.80	---	---	---	---	---	---	---	---	---	---
17	.93	.81	---	---	---	---	---	---	---	---	---	---
18	.82	.83	---	---	---	---	---	---	---	---	---	---
19	.84	.83	---	---	---	---	---	---	---	---	---	---
20	.83	.79	---	---	---	---	---	---	---	---	---	---
21	.87	.78	---	---	---	---	---	---	---	---	---	---
22	.86	.80	---	---	---	---	---	---	---	---	---	---
23	.84	1.3	---	---	---	---	---	---	---	---	---	---
24	.83	1.6	---	---	---	---	---	---	---	---	---	---
25	.84	1.1	---	---	---	---	---	---	---	---	---	---
26	.83	1.1	---	---	---	---	---	---	---	---	---	---
27	.83	1.0	---	---	---	---	---	---	---	---	---	---
28	.94	.90	---	---	---	---	---	---	---	---	---	---
29	.95	.87	---	---	---	---	---	---	---	---	---	---
30	.96	.84	---	---	---	---	---	---	---	---	---	---
31	.91	---	---	---	---	---	---	---	---	---	---	---
TOTAL	31.65	26.63	---	---	---	---	---	---	---	---	---	---
MEAN	1.02	.89	---	---	---	---	---	---	---	---	---	---
MAX	1.9	1.6	---	---	---	---	---	---	---	---	---	---
MIN	.79	.76	---	---	---	---	---	---	---	---	---	---
CFSM	.21	.18	---	---	---	---	---	---	---	---	---	---
IN.	.24	.20	---	---	---	---	---	---	---	---	---	---

SUMMARY STATISTICS

FOR 1999 CALENDAR YEAR
(JANUARY-NOVEMBER)

FOR 2000 WATER YEAR
(OCTOBER-NOVEMBER)

WATER YEARS 1999 - 2000
(DECEMBER 1998-NOVEMBER 1999)

ANNUAL TOTAL	1106.27	58.28	3.13
ANNUAL MEAN	3.31	.96	3.57
HIGHEST ANNUAL MEAN			.96
LOWEST ANNUAL MEAN			50
HIGHEST DAILY MEAN	50	May 17	May 17 1999
LOWEST DAILY MEAN	.31	Sep 22-25	.31 Sep 22-25 1999
ANNUAL SEVEN-DAY MINIMUM	.32	Sep 19	.32 Sep 19 1999
INSTANTANEOUS PEAK FLOW			95
INSTANTANEOUS PEAK STAGE			12.29
INSTANTANEOUS LOW FLOW			(b) .00
ANNUAL RUNOFF (CFSM)	.68	.19	.64
ANNUAL RUNOFF (INCHES)	8.40	.44	8.69
10 PERCENT EXCEEDS	8.4	1.4	7.6
50 PERCENT EXCEEDS	1.5	.84	1.4
90 PERCENT EXCEEDS	.50	.79	.50

(a) Gage height, 10.47 ft

(b) Result of freeze-up

04086305 BATAVIA CREEK AT STATE HIGHWAY 28 AT BATAVIA, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1998 to December 1999 (discontinued).

REMARKS.--Chemical analyses are by the Wisconsin State Laboratory of Hygiene. Samples are equal-width increment samples (EWI) unless otherwise indicated.

WATER-QUALITY DATA, NOVEMBER 1998 TO DECEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
NOV 1998						
05...	1608	--	.84	<5	<.013	.031
18...	1030	--	1.6	<5	.019	.044
DEC						
02...	1222	--	1.5	<5	<.013	.044
17...	1508	--	1.2	<5	<.013	.034
29...	1438	--	.60	<5	.037	.033
JAN 1999						
13...	1252	.46	--	<5	.060	.038
26...	1332	--	12	8	.090	.245
FEB						
08...	1444	--	3.6	<5	.035	.064
22...	1436	--	1.4	<5	.014	.032
MAR						
10...	1232	1.6	--	<5	<.013	.023
22...	1656	--	3.1	<5	<.013	.033
APR						
05...	1234	--	5.5	<5	<.013	.063
09...	1630	--	33	60	.074	.277
20...	1326	--	2.1	<5	<.013	.027
23...	1332	--	60	41	.022	.251
MAY						
03...	1236	--	1.9	<5	.014	.054
18...	1548	--	31	36	.041	.280
JUN						
02...	1602	--	5.3	16	.025	.169
14...	1642	--	10	21	.041	.192
28...	1714	--	1.2	10	.016	.097
JUL						
12...	1546	--	1.2	9	.029	.106
21...	1835	--	23	26	.046	.268
27...	1834	--	1.2	9	.023	.121
AUG						
09...	1356	--	.79	6	<.013	.075
23...	1245	--	1.4	13	.024	.179
SEP						
07...	1714	--	.40	8	<.013	.081
20...	1318	--	.33	7	<.013	.075

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 1999					
05...	1334	1.3	<5	.035	.071
18...	1514	.80	<5	<.013	.041
NOV					
01...	1428	.85	<5	.008	.036
15...	1334	.77	<5	<.013	.031
DEC					
01...	1234	.78	<5	.033	.038

STREAMS TRIBUTARY TO LAKE MICHIGAN

04086443 CEDAR CREEK TRIBUTARY AT COUNTY HIGHWAY P AT JACKSON, WI

LOCATION.--Lat 43°18'28", long 88°10'53", in NW 1/4 NW 1/4 sec.30, T.10 N., R.20 E., Washington County, Hydrologic Unit 04040003, on left bank downstream from County Highway P, 0.9 mi southwest of city limits of Jackson.

DRAINAGE AREA.--3.4 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1998 to November 1999 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 855 ft above sea level, from topographic map.

REMARKS.--

DECEMBER 1998 TO SEPTEMBER 1999: Estimated daily discharges: Dec. 1, 2 and ice-affected period, Dec. 21 to Jan. 24. Records good except those for estimated daily discharges, which are poor (see page 13).

OCTOBER 1999 TO NOVEMBER 1999: Estimated daily discharges: Oct. 9-18. Records are fair (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	1.5	1.0	4.6	2.5	2.3	3.1	3.1	3.2	2.6	1.7
2	---	---	1.4	1.0	9.0	2.6	2.2	2.9	7.6	2.4	2.4	1.6
3	---	---	1.4	1.0	9.9	2.5	3.3	2.7	4.1	2.2	2.4	1.6
4	---	---	1.4	.98	11	2.4	4.2	2.6	3.5	2.0	2.8	1.5
5	---	---	1.5	.98	5.9	2.4	3.4	2.7	3.1	1.9	2.4	1.5
6	---	---	1.7	.98	4.8	2.0	3.2	4.5	3.9	2.6	2.2	1.4
7	---	---	2.0	.98	4.4	2.4	2.8	4.2	4.3	2.0	2.4	1.4
8	---	---	1.7	.96	4.3	2.2	2.7	3.5	3.0	1.9	2.3	1.3
9	---	---	1.7	.96	7.6	2.2	23	3.1	2.7	3.6	2.2	1.3
10	---	---	1.6	.96	7.1	2.3	11	2.8	3.8	2.2	2.5	1.3
11	---	---	1.5	.96	18	2.4	9.4	2.6	5.6	2.0	2.2	1.3
12	---	---	1.5	.94	11	2.4	7.9	18	25	1.9	2.2	1.4
13	---	---	1.5	.94	5.3	2.4	5.9	8.0	64	1.9	2.2	1.4
14	---	---	1.5	.94	4.3	2.4	4.8	5.2	18	1.8	2.0	1.4
15	---	---	1.5	.94	4.1	2.7	4.3	4.2	9.2	1.7	2.0	1.4
16	---	---	1.5	.94	4.1	4.8	3.8	4.0	6.6	1.8	2.0	1.5
17	---	---	1.5	1.5	3.8	12	3.3	48	5.5	4.7	2.0	1.4
18	---	---	1.5	3.5	3.3	7.5	3.1	29	4.8	2.7	2.0	1.4
19	---	---	1.5	3.0	3.0	5.0	3.1	13	4.3	8.9	3.1	1.4
20	---	---	1.5	2.5	2.7	4.3	2.9	7.7	3.6	5.6	2.3	1.5
21	---	---	1.3	2.2	2.5	3.8	2.9	6.0	3.2	246	2.2	1.4
22	---	---	1.2	8.0	2.4	3.3	7.7	6.0	2.9	20	2.1	1.4
23	---	---	1.1	20	2.3	3.0	97	9.6	2.8	9.3	2.4	1.3
24	---	---	1.0	14	2.3	2.8	15	7.4	2.7	6.7	2.8	1.3
25	---	---	1.0	9.8	2.2	2.6	9.3	5.4	2.4	5.4	2.3	1.3
26	---	---	1.0	6.4	2.3	2.5	7.0	4.3	2.2	4.8	2.2	1.3
27	---	---	1.0	6.7	2.4	2.5	5.5	3.6	2.1	4.4	2.0	2.3
28	---	---	1.1	8.5	2.6	2.4	4.6	3.2	2.1	4.0	1.9	8.0
29	---	---	1.1	6.2	---	2.3	3.9	3.0	2.1	3.5	1.8	5.1
30	---	---	1.1	5.4	---	2.3	3.4	2.7	2.0	3.1	1.8	2.5
31	---	---	1.0	5.0	---	2.3	---	2.6	---	2.9	1.7	---
TOTAL	---	---	42.8	118.16	147.2	99.2	262.9	225.6	210.2	367.1	69.4	54.6
MEAN	---	---	1.38	3.81	5.26	3.20	8.76	7.28	7.01	11.8	2.24	1.82
MAX	---	---	2.0	20	18	12	97	48	64	246	3.1	8.0
MIN	---	---	1.0	.94	2.2	2.0	2.2	2.6	2.0	1.7	1.7	1.3
CFSM	---	---	.41	1.12	1.55	.94	2.58	2.14	2.06	3.48	.66	.54
IN.	---	---	.47	1.29	1.61	1.09	2.88	2.47	2.30	4.02	.76	.60

SUMMARY STATISTICS

FOR 1999 WATER YEAR
(DECEMBER 1998-SEPTEMBER 1999)

HIGHEST DAILY MEAN	246	Jul 21
LOWEST DAILY MEAN	(a) .94	Jan 12-16
ANNUAL SEVEN-DAY MINIMUM	(a) .95	Jan 10
INSTANTANEOUS PEAK FLOW	622	Jul 21
INSTANTANEOUS PEAK STAGE	16.41	Jul 21
10 PERCENT EXCEEDS	8.0	
50 PERCENT EXCEEDS	2.5	
90 PERCENT EXCEEDS	1.3	

(a) Ice affected

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04086443 CEDAR CREEK TRIBUTARY AT COUNTY HIGHWAY P AT JACKSON, WI--CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	1.6	---	---	---	---	---	---	---	---	---	---
2	2.3	1.6	---	---	---	---	---	---	---	---	---	---
3	2.1	1.6	---	---	---	---	---	---	---	---	---	---
4	2.1	1.6	---	---	---	---	---	---	---	---	---	---
5	1.8	1.5	---	---	---	---	---	---	---	---	---	---
6	1.7	1.5	---	---	---	---	---	---	---	---	---	---
7	1.7	1.5	---	---	---	---	---	---	---	---	---	---
8	1.6	1.6	---	---	---	---	---	---	---	---	---	---
9	1.6	1.6	---	---	---	---	---	---	---	---	---	---
10	1.5	2.6	---	---	---	---	---	---	---	---	---	---
11	1.5	4.3	---	---	---	---	---	---	---	---	---	---
12	1.4	2.6	---	---	---	---	---	---	---	---	---	---
13	1.6	2.4	---	---	---	---	---	---	---	---	---	---
14	1.5	2.2	---	---	---	---	---	---	---	---	---	---
15	1.5	2.1	---	---	---	---	---	---	---	---	---	---
16	2.2	2.0	---	---	---	---	---	---	---	---	---	---
17	1.8	2.0	---	---	---	---	---	---	---	---	---	---
18	1.5	1.9	---	---	---	---	---	---	---	---	---	---
19	1.5	1.9	---	---	---	---	---	---	---	---	---	---
20	1.5	1.8	---	---	---	---	---	---	---	---	---	---
21	1.5	1.8	---	---	---	---	---	---	---	---	---	---
22	1.5	1.7	---	---	---	---	---	---	---	---	---	---
23	1.4	3.1	---	---	---	---	---	---	---	---	---	---
24	1.4	2.8	---	---	---	---	---	---	---	---	---	---
25	1.5	2.1	---	---	---	---	---	---	---	---	---	---
26	1.5	2.0	---	---	---	---	---	---	---	---	---	---
27	1.5	1.8	---	---	---	---	---	---	---	---	---	---
28	1.5	1.7	---	---	---	---	---	---	---	---	---	---
29	1.6	1.7	---	---	---	---	---	---	---	---	---	---
30	1.6	1.7	---	---	---	---	---	---	---	---	---	---
31	1.6	---	---	---	---	---	---	---	---	---	---	---
TOTAL	50.9	60.3	---	---	---	---	---	---	---	---	---	---
MEAN	1.64	2.01	---	---	---	---	---	---	---	---	---	---
MAX	2.3	4.3	---	---	---	---	---	---	---	---	---	---
MIN	1.4	1.5	---	---	---	---	---	---	---	---	---	---
CFSM	.48	.59	---	---	---	---	---	---	---	---	---	---
IN.	.56	.66	---	---	---	---	---	---	---	---	---	---

SUMMARY STATISTICS

FOR 1999 CALENDAR YEAR
(JANUARY-NOVEMBER)

FOR 2000 WATER YEAR
(OCTOBER-NOVEMBER)

WATER YEARS 1999 - 2000
(DECEMBER 1998-NOVEMBER 1999)

HIGHEST DAILY MEAN	246	Jul 21	4.3	Nov 11	246	Jul 21 1999
LOWEST DAILY MEAN	(a) .94	(b) Jan 12	1.4	(c) Oct 12	(a) .94	(b) Jan 12 1999
ANNUAL SEVEN-DAY MINIMUM	(a) .95	Jan 10	1.5	Oct 18	(a) .95	Jan 10 1999
INSTANTANEOUS PEAK FLOW			9.3	Nov 10	622	Jul 21 1999
INSTANTANEOUS PEAK STAGE			11.39	Nov 10	16.41	Jul 21 1999
10 PERCENT EXCEEDS	7.8		2.4		7.6	
50 PERCENT EXCEEDS	2.4		1.6		2.4	
90 PERCENT EXCEEDS	1.4		1.5		1.4	

(a) Ice affected

(b) Also occurred Jan. 13-16

(c) Also occurred Oct. 23, 24

STREAMS TRIBUTARY TO LAKE MICHIGAN
04086443 CEDAR CREEK TRIBUTARY AT COUNTY HIGHWAY P AT JACKSON, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1998 to December 1999 (discontinued).

REMARKS.--Chemical analyses are by the Wisconsin State Laboratory of Hygiene. Samples are equal-width increment samples (EWI) unless otherwise indicated.

WATER-QUALITY DATA, NOVEMBER 1998 TO DECEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
NOV 1998						
05...	1036	--	1.2	9	.016	.102
18...	0925	--	1.6	<5	.066	.083
DEC						
02...	1504	--	1.4	<5	.026	.099
17...	0836	--	1.5	10	.044	.082
28...	1148	--	1.0	8	.060	.061
JAN 1999						
13...	0852	.94	--	17	.109	.099
26...	0842	--	6.7	16	.191	.215
FEB						
08...	0942	--	3.8	6	.059	.060
22...	0956	--	3.2	<5	.038	.047
MAR						
10...	1028	--	2.3	<5	.035	.043
22...	1148	--	3.3	<5	<.013	.040
APR						
06...	1322	--	3.1	<5	.123	.087
09...	1015	--	43	560	.465	1.24
20...	1036	--	2.9	<5	<.013	.034
*23...	0400	--	99	740	.532	1.47
23...	1244	--	75	382	1.06	.800
MAY						
03...	1018	--	2.8	<5	.016	.047
18...	1154	--	62	376	.917	1.18
JUN						
02...	1202	--	6.5	11	.280	.168
14...	1108	--	17	38	.204	.248
28...	1256	--	2.0	35	.122	.160
JUL						
12...	1138	--	2.0	<5	.032	.155
21...	1400	--	117	219	.213	.746
27...	1144	--	4.3	20	.114	.185
AUG						
09...	1012	--	2.3	7	.016	.072
23...	0915	--	2.3	14	.031	.119
SEP						
07...	1224	--	1.4	13	.028	.074
20...	1638	--	1.5	11	.033	.092

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 1999					
05...	0922	1.8	18	.106	.114
18...	1034	1.4	12	.042	.084
NOV					
01...	0926	1.7	7	.036	.058
15...	1014	2.2	6	.024	.061
DEC					
01...	0822	1.7	10	.034	.065

* Point sample

STREAMS TRIBUTARY TO LAKE MICHIGAN
04086500 CEDAR CREEK NEAR CEDARBURG, WI

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LOCATION.--Lat 43°19'23", long 87°58'43", in SE 1/4 SW 1/4 sec.14, T.10 N., R.21 E., Ozaukee County, Hydrologic Unit 04040003, on left bank 40 ft upstream from bridge on State Highway 60, 1.9 mi north of Cedarburg, and 6.6 mi upstream from mouth.

DRAINAGE AREA.--120 mi².

PERIOD OF RECORD.--August 1930 to September 1970, July 1973 to September 1981, August 1983 to September 1987, October 1990 to current year.

REVISED RECORDS.--WSP 1307: 1932-34(M), 1937(M), 1939(M), 1945(M), 1948-49(M). WDR WI-77-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 795.33 ft above sea level (levels by Corps of Engineers). Nonrecording gage and crest-stage gage August 1930 to September 1970 at same site and datum.

REMARKS.--Estimated daily discharges: Oct. 20-23 and ice-affected period, Dec. 22 to Feb. 14. Records good except those for estimated daily discharges, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	27	29	27	160	80	63	144	77	43	93	30
2	18	26	29	28	170	81	62	120	125	58	78	29
3	17	27	28	27	190	80	61	105	144	49	69	27
4	16	25	28	26	210	72	86	94	106	44	78	26
5	21	24	28	26	200	70	97	86	93	39	74	25
6	46	23	28	25	190	67	91	126	83	36	61	24
7	56	23	35	26	170	70	84	241	100	41	58	23
8	40	22	40	27	150	86	75	214	94	35	65	23
9	31	22	37	26	140	51	289	160	79	44	58	22
10	29	73	36	26	130	111	432	124	75	60	62	21
11	27	129	34	27	170	105	438	103	170	47	66	21
12	25	78	32	26	290	101	388	223	224	39	51	20
13	26	57	30	27	280	93	335	348	350	35	47	21
14	25	47	29	26	260	64	271	332	641	34	44	21
15	24	41	29	26	219	65	202	252	721	32	40	20
16	24	38	29	27	176	77	160	172	582	30	37	20
17	25	35	28	30	156	164	133	293	411	50	35	19
18	33	34	28	36	128	296	117	461	301	81	33	19
19	39	33	27	37	112	287	106	544	216	96	39	18
20	50	30	26	36	95	223	98	475	141	132	49	17
21	36	29	27	35	96	166	92	366	101	614	41	18
22	30	29	25	60	92	131	123	293	85	1030	51	18
23	27	28	23	130	85	112	589	272	76	1070	45	18
24	26	27	22	210	73	99	799	285	72	844	54	18
25	24	27	23	200	78	91	765	270	65	626	57	18
26	24	27	24	180	66	85	591	214	55	451	48	18
27	25	25	25	170	70	80	430	153	48	341	42	21
28	27	25	25	170	78	77	330	120	45	263	37	58
29	26	25	26	180	---	73	252	100	45	194	34	108
30	28	28	26	170	---	69	186	85	43	131	32	78
31	28	---	27	170	---	66	---	76	---	104	31	---
TOTAL	894	1084	883	2237	4234	3292	7745	6851	5368	6693	1609	819
MEAN	28.8	36.1	28.5	72.2	151	106	258	221	179	216	51.9	27.3
MAX	56	129	40	210	290	296	799	544	721	1070	93	108
MIN	16	22	22	25	66	51	61	76	43	30	31	17
CFSM	.24	.30	.24	.60	1.26	.88	2.15	1.84	1.49	1.80	.43	.23
IN.	.28	.34	.27	.69	1.31	1.02	2.40	2.12	1.66	2.07	.50	.25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1999, BY WATER YEAR (WY)

	MEAN	44.3	58.2	50.3	51.0	67.2	194	166	84.8	74.4	44.9	25.4	45.5
MAX	306	376	268	273	253	575	586	291	454	298	106	485	
(WY)	1955	1986	1992	1975	1984	1976	1993	1933	1996	1952	1960	1986	
MIN	5.65	6.66	4.92	3.74	5.32	19.9	38.9	14.0	3.34	1.40	1.45	2.48	
(WY)	1935	1938	1964	1940	1959	1940	1958	1958	1934	1936	1934	1932	

SUMMARY STATISTICS FOR 1998 CALENDAR YEAR FOR 1999 WATER YEAR WATER YEARS 1930 - 1999

	ANNUAL TOTAL	33494	ANNUAL MEAN	91.8	41709	114	75.1	168	1986
HIGHEST ANNUAL MEAN							7.16		1930
LOWEST ANNUAL MEAN									
HIGHEST DAILY MEAN	925	Apr 2	1070	Jul 23	3320	Mar 20	1952		
LOWEST DAILY MEAN	15	Sep 28 ,29	16	Oct 4	.20	Aug 9	1936		
ANNUAL SEVEN-DAY MINIMUM	16	Sep 24	18	Sep 19	.24	Aug 6	1936		
INSTANTANEOUS PEAK FLOW			1170	Jul 22	3600	Mar 30	1960		
INSTANTANEOUS PEAK STAGE			9.59	Jul 22	(a)12.25	Mar 30	1960		
INSTANTANEOUS LOW FLOW					.20	Aug 9	1936		
ANNUAL RUNOFF (CFSM)	.76		.95		.63				
ANNUAL RUNOFF (INCHES)	10.38		12.93		8.50				
10 PERCENT EXCEEDS	229		282		170				
50 PERCENT EXCEEDS	40		60		32				
90 PERCENT EXCEEDS	19		24		7.1				

(a) From graph based on gage readings, backwater from ice

STREAMS TRIBUTARY TO LAKE MICHIGAN
04086600 MILWAUKEE RIVER NEAR CEDARBURG, WI

LOCATION.--Lat 43°16'49", long 87°56'34", in NW 1/4 NW 1/4 sec.6, T.9 N., R.22 E., Ozaukee County, Hydrologic Unit 04040003, on right bank 60 ft downstream from Pioneer Road bridge, 2.6 mi southeast of Cedarburg, 1.0 mi west of I-43, and 26.25 mi upstream from mouth.

DRAINAGE AREA.--607 mi².

PERIOD OF RECORD.--November 1981 to current year.

GAGE.--Water-stage recorder. Datum of gage is 653.558 ft above sea level (Southeastern Wisconsin Regional Planning Commission bench mark).

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 21 to Feb. 5, Feb. 13-15, 18-26, and Mar. 5-15. Records fair except those for ice-affected periods, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88	150	175	120	780	393	322	655	399	259	423	199
2	98	144	187	120	860	407	321	549	552	302	356	193
3	99	140	192	130	940	410	337	486	655	287	312	181
4	91	135	205	120	980	395	483	440	588	264	338	170
5	143	129	208	120	1000	370	648	394	545	254	364	156
6	174	125	218	130	908	320	692	510	529	240	317	139
7	293	124	231	120	781	280	691	799	515	242	296	130
8	283	124	241	120	722	260	646	843	696	223	297	125
9	242	132	229	110	678	240	1280	769	704	281	297	123
10	206	317	220	120	769	260	1630	695	674	417	311	120
11	179	540	214	120	978	350	1470	610	854	378	339	118
12	175	506	208	120	1390	330	1350	904	1010	347	306	125
13	168	452	191	130	1200	320	1220	1220	1320	314	287	129
14	148	402	186	130	1200	320	1060	1060	1780	298	269	121
15	130	357	182	130	1100	340	913	876	1820	279	250	121
16	126	317	177	140	1040	350	801	734	1550	265	240	118
17	133	291	172	150	929	527	710	1110	1270	313	232	118
18	150	263	168	190	740	941	625	1620	1030	366	225	119
19	177	242	165	210	640	980	549	1870	833	433	253	124
20	201	221	167	210	560	892	487	1740	671	538	265	116
21	183	210	160	190	500	794	450	1540	543	1930	279	106
22	154	201	150	920	450	708	526	1360	447	2970	269	98
23	138	201	150	1000	410	619	2120	1280	394	2770	301	91
24	131	185	140	1100	380	541	2640	1200	362	2170	306	79
25	138	181	130	980	360	486	2310	1060	350	1690	323	74
26	126	175	120	1000	360	446	1860	891	319	1340	301	71
27	126	168	110	860	355	411	1510	756	290	1070	277	99
28	128	163	120	880	371	382	1220	641	276	860	256	259
29	130	162	120	860	---	362	991	536	260	699	231	423
30	148	176	110	840	---	346	795	434	260	545	213	355
31	151	---	110	800	---	332	---	385	---	468	203	---
TOTAL	4857	6933	5356	12170	21381	14112	30657	27967	21496	22812	8936	4400
MEAN	157	231	173	393	764	455	1022	902	717	736	288	147
MAX	293	540	241	1100	1390	980	2640	1870	1820	2970	423	423
MIN	88	124	110	110	355	240	321	385	260	223	203	71
CFSM	.26	.38	.28	.65	1.26	.75	1.68	1.49	1.18	1.21	.47	.24
IN.	.30	.42	.33	.75	1.31	.86	1.88	1.71	1.32	1.40	.55	.27

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1999, BY WATER YEAR (WY)

	MEAN	310	477	381	266	449	930	976	488	494	280	219	291
MAX	1157	1565	757	406	997	1793	2501	902	1887	767	349	1593	
(WY)	1987	1986	1983	1985	1984	1986	1993	1999	1996	1993	1987	1986	
MIN	99.8	158	120	120	115	417	453	219	89.5	69.7	69.5	108	
(WY)	1998	1998	1990	1994	1995	1995	1994	1988	1988	1988	1988	1994	

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1982 - 1999
ANNUAL TOTAL	143085	181077	
ANNUAL MEAN	392	496	463
HIGHEST ANNUAL MEAN			720
LOWEST ANNUAL MEAN			247
HIGHEST DAILY MEAN	3280	Apr 2	4870
LOWEST DAILY MEAN	80	Sep 29	42
ANNUAL SEVEN-DAY MINIMUM	91	(a) Sep 7	88
INSTANTANEOUS PEAK FLOW			3110
INSTANTANEOUS PEAK STAGE			10.18
INSTANTANEOUS LOW FLOW			67
ANNUAL RUNOFF (CFSM)	.65	.82	.76
ANNUAL RUNOFF (INCHES)	8.77	11.10	10.37
10 PERCENT EXCEEDS	907	1080	1000
50 PERCENT EXCEEDS	220	317	283
90 PERCENT EXCEEDS	120	124	120

(a) Also occurred Sept. 27

STREAMS TRIBUTARY TO LAKE MICHIGAN
04087000 MILWAUKEE RIVER AT MILWAUKEE, WI
(NATIONAL WATER-QUALITY ASSESSMENT PROGRAM STATION)

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LOCATION.--Lat 43°06'00", long 87°54'32", in NE 1/4 sec.5, T.7 N., R.22 E., Milwaukee County, Hydrologic Unit 04040003, on left bank near northeast limits of Milwaukee in Estabrook Park, 2,000 ft downstream from Port Washington Road bridge and 6.6 mi upstream from mouth.

DRAINAGE AREA.--696 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1914 to current year. Published as "near Milwaukee" prior to 1936.

REVISED RECORDS.--WSP 564: 1918(M). WSP 924: 1940. WSP 1207: 1936(M). WSP 1337: 1915-17(M), 1918, 1919-21(M), 1922, 1923(M), 1924, 1925-33(M). WDR WI-79-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 607.23 ft above sea level (levels by U. S. Army Corps of Engineers). Prior to Apr. 6, 1929, nonrecording gage near present site at different datum. Apr. 6, 1929, to Jan. 8, 1934, nonrecording gage at bridge 0.5 mi upstream at different datum.

REMARKS.--Estimated daily discharges: Mar. 17-23, July 20, 21, and ice-affected periods, Dec. 22 to Jan. 23, Jan. 25, 26, Feb. 20-25, and Mar. 6-8. Records good except those for estimated daily discharges, which are poor (see page 13). Occasional regulation caused by recreation dam approximately 1,200 ft upstream. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89	172	197	140	791	371	345	711	455	258	384	172
2	75	169	195	140	869	378	335	612	569	247	345	172
3	156	163	193	140	957	387	351	474	600	292	300	167
4	89	160	196	130	1010	383	456	471	579	255	306	163
5	398	154	202	130	1040	382	565	453	525	240	312	154
6	163	150	244	140	914	340	638	572	684	273	300	141
7	213	144	289	140	798	300	649	834	463	215	308	135
8	267	142	234	130	717	270	627	946	600	215	267	131
9	233	155	235	140	678	229	3280	863	647	420	263	126
10	200	844	223	130	713	296	2580	771	792	301	356	121
11	173	473	213	140	1060	387	1930	691	953	335	280	119
12	152	490	209	140	1510	382	1640	1120	910	306	278	157
13	142	402	202	140	1340	357	1420	1470	2820	279	252	156
14	134	370	190	140	1280	336	1210	1310	2010	265	239	126
15	304	335	188	140	1200	349	1010	1050	2050	243	219	123
16	169	302	187	150	1090	376	887	1250	1780	231	212	120
17	143	283	181	160	957	530	734	1990	1420	436	206	119
18	217	266	180	200	804	950	636	2100	1130	290	199	117
19	148	248	176	210	674	1000	567	2230	902	397	297	156
20	183	240	170	210	540	910	510	2030	714	450	212	167
21	202	225	166	200	420	800	464	1740	555	2400	215	114
22	191	213	160	940	390	720	836	1540	685	2780	238	112
23	170	206	150	1000	360	630	3670	1410	354	2800	268	111
24	161	206	160	1120	360	553	3410	1340	332	2470	267	112
25	152	198	150	1000	350	491	2860	1190	331	1900	256	108
26	151	196	140	960	371	448	2290	930	259	1440	256	102
27	149	192	130	883	354	419	1810	800	301	1110	230	261
28	152	184	130	892	357	393	1440	672	402	859	214	736
29	153	184	130	878	---	374	1130	527	260	674	194	469
30	203	196	120	876	---	360	807	472	237	497	180	414
31	176	---	130	821	---	348	---	405	---	454	173	---
TOTAL	5508	7662	5670	12560	21904	14449	39087	32974	24319	23332	8026	5381
MEAN	178	255	183	405	782	466	1303	1064	811	753	259	179
MAX	398	844	289	1120	1510	1000	3670	2230	2820	2800	384	736
MIN	75	142	120	130	350	229	335	405	237	215	173	102
CFSM	.26	.37	.26	.58	1.12	.67	1.87	1.53	1.16	1.08	.37	.26
IN.	.29	.41	.30	.67	1.17	.77	2.09	1.76	1.30	1.25	.43	.29

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1999, BY WATER YEAR (WY)

MEAN	279	352	301	256	395	1049	977	507	403	229	210	265
MAX	1316	1956	981	864	2200	3545	3024	1720	2007	1200	2936	2304
(WY)	1987	1986	1929	1916	1938	1929	1993	1973	1996	1952	1924	1938
MIN	52.8	62.4	40.7	45.8	47.4	181	237	86.4	56.3	25.0	19.4	27.4
(WY)	1947	1950	1964	1959	1959	1940	1958	1958	1934	1936	1934	1932

STREAMS TRIBUTARY TO LAKE MICHIGAN
04087000 MILWAUKEE RIVER AT MILWAUKEE, WI--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1914 - 1999	
ANNUAL TOTAL	173491		200872			
ANNUAL MEAN	475		550		434	
HIGHEST ANNUAL MEAN					874 1986	
LOWEST ANNUAL MEAN					112 1958	
HIGHEST DAILY MEAN	3650	Apr 2	3670	Apr 23	14800	Mar 20 1918
LOWEST DAILY MEAN	53	Sep 13	75	Oct 2	(a).00	Sep 8 1943
ANNUAL SEVEN-DAY MINIMUM	58	Sep 7	118	Sep 20	8.3	Aug 3 1936
INSTANTANEOUS PEAK FLOW			5250	Apr 9	16500	Jun 21 1997
INSTANTANEOUS PEAK STAGE			6.03	Apr 9	10.00	Jun 21 1997
INSTANTANEOUS LOW FLOW					(a).00	Sep 8 1943
ANNUAL RUNOFF (CFSM)	.68		.79		.62	
ANNUAL RUNOFF (INCHES)	9.27		10.74		8.47	
10 PERCENT EXCEEDS	1160		1230		986	
50 PERCENT EXCEEDS	240		308		229	
90 PERCENT EXCEEDS	113		140		71	

(a) Result of regulation

STREAMS TRIBUTARY TO LAKE MICHIGAN
04087000 MILWAUKEE RIVER AT MILWAUKEE, WI--CONTINUED
(NATIONAL WATER-QUALITY ASSESSMENT PROGRAM STATION)

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WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964-65, 1967-69, 1971, 1973 to current year. National Stream-Quality Accounting Network data collection began in January 1973 and was discontinued September 1994. National Water-Quality Assessment Program sampling began in April 1993.

REMARKS.--Chemical analyses of some constituents for Wisconsin District program samples were done by the Wisconsin State Laboratory of Hygiene and National Water-Quality Laboratory.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)
OCT 1998											
15...	1425	424	774	8.3	12.7	10.4	750	60	36	40	3.6
NOV 19...	1535	244	805	8.3	6.2	11.7	742	69	38	33	3.9
DEC 09...	0920	253	825	8.1	3.9	--	753	69	38	41	3.4
JAN 1999											
15...	0830	140	1040	8.0	.2	--	745	80	44	101	4.5
FEB 18...	0940	840	640	8.4	.6	13.2	743	61	31	25	3.2
MAR 10...	1130	257	1440	8.4	.2	14.9	748	75	36	155	3.1
APR 06...	1200	645	732	8.3	9.8	11.1	733	66	34	38	2.7
MAY 11...	1130	694	687	8.3	15.1	9.3	744	64	33	26	2.5
JUN 08...	1015	878	699	8.3	24.7	8.8	744	68	34	29	2.4
JUL 07...	1045	215	788	8.3	26.8	7.4	746	65	33	39	3.1
AUG 10...	1100	304	655	8.3	21.2	8.5	732	56	26	35	2.9
SEP 07...	1130	134	800	8.2	23.6	8.6	739	56	41	49	4.1

DATE	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR-BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)
OCT 1998										
15...	305	2	254	41	77	.26	6.3	448	.904	.011
NOV 19...	306	16	264	47	66	.17	4.4	466	1.00	<.010
DEC 09...	327	5	276	39	79	.16	2.1	464	1.13	.010
JAN 1999										
15...	381	--	312	43	170	.20	9.6	675	3.05	.026
FEB 18...	251	--	206	42	52	<.10	9.1	392	2.06	.010
MAR 10...	239	36	256	48	290	.14	3.9	842	1.73	.011
APR 06...	302	1	249	35	74	.11	1.8	451	.873	.015
MAY 11...	314	--	257	25	54	.11	5.4	421	1.08	.010
JUN 08...	329	--	270	20	53	.15	8.2	406	1.16	<.010
JUL 07...	305	4	256	28	78	.15	10	493	1.04	.016
AUG 10...	241	--	198	23	65	.11	10	360	.887	.014
SEP 07...	313	--	257	32	89	.14	2.1	448	.239	<.010

STREAMS TRIBUTARY TO LAKE MICHIGAN
04087000 MILWAUKEE RIVER AT MILWAUKEE, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1998										
15...	.038	.84	.51	.086	.031	.038	20	10	21	84
NOV										
19...	.029	1.7	.57	.049	.034	.027	28	10	--	--
DEC										
09...	.041	.54	.50	.038	.022	.025	31	8.0	--	--
JAN 1999										
15...	.314	.77	.71	.062	.056	.044	21	7.3	--	--
FEB										
18...	.043	.83	.82	.087	.061	.043	45	8.2	--	--
MAR										
10...	.042	.65	.51	.089	.031	.027	34	14	--	--
APR										
06...	.052	1.1	.79	.099	.036	.028	74	17	--	--
MAY										
11...	<.020	1.0	.89	.093	.048	.031	50	8.6	15	--
JUN										
08...	<.020	.94	.67	.130	.078	.060	27	6.8	--	--
JUL										
07...	.020	.88	.54	.151	.103	.101	E6.2	4.1	--	--
AUG										
10...	<.020	.74	.58	.141	.072	.049	<10	<3.0	--	--
SEP										
07...	<.020	.78	.48	.085	.032	.016	E8.0	5.2	--	--

PESTICIDE ANALYSES

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD GF, REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD GF, REC (UG/L) (82674)
OCT 1998											
15...	1425	420	<.003	<.002	<.002	<.002	.0242	<.002	<.002	<.015	<.003
NOV											
19...	1535	244	<.003	<.002	<.002	<.002	.0194	<.002	<.002	<.003	<.003
DEC											
09...	0920	250	<.003	<.002	<.002	<.002	.0185	<.002	<.002	<.003	<.003
FEB 1999											
18...	0940	840	<.003	<.002	<.002	<.002	.0160	<.002	<.002	<.003	<.003
MAR											
10...	1130	257	<.003	<.002	<.002	<.002	.0167	<.002	<.002	<.003	<.003
APR											
06...	1200	645	<.003	<.002	<.002	<.002	.0182	<.002	<.002	<.003	<.003
MAY											
11...	1130	694	<.003	.0229	<.002	<.002	.0406	<.002	<.002	<.003	<.003
JUN											
08...	1015	878	<.003	.0186	.0044	<.002	.111	<.002	<.002	<.003	<.017
JUL											
07...	1045	215	<.003	<.002	<.002	<.002	.105	<.002	<.002	<.003	<.003
AUG											
10...	1100	304	<.003	<.002	<.002	<.002	.0352	<.002	<.002	E.0134	<.003
SEP											
07...	1130	134	<.003	<.002	<.002	<.002	.0310	<.002	<.002	<.003	<.003

E Estimated

STREAMS TRIBUTARY TO LAKE MICHIGAN
04087000 MILWAUKEE RIVER AT MILWAUKEE, WI--CONTINUED

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PESTICIDE ANALYSES

DATE	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DIAZ- INON D10 SRG WAT FLT 0.7 U GF, REC PERCENT (91063)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)
OCT 1998											
15...	<.004	<.004	<.002	E.0188	<.002	100	<.001	<.017	<.002	<.004	<.003
NOV											
19...	<.004	<.004	<.002	E.0143	<.002	114	<.001	<.017	<.002	<.004	<.003
DEC											
09...	<.004	<.004	<.002	E.0142	<.002	121	<.001	<.017	<.002	<.004	<.003
FEB 1999											
18...	<.004	<.004	<.002	E.0182	<.002	E249	<.001	<.017	<.002	<.004	<.003
MAR											
10...	<.004	E.0037	<.002	E.0221	<.002	111	<.001	<.017	<.002	<.004	<.003
APR											
06...	<.004	E.0039	<.002	E.0154	<.002	E205	<.001	<.017	<.002	<.004	<.003
MAY											
11...	<.004	.0126	<.002	E.0388	<.002	99.1	<.001	<.017	E.0010	<.004	<.003
JUN											
08...	<.004	.0593	<.002	E.0345	.0102	104	<.001	<.017	<.002	<.004	<.003
JUL											
07...	<.004	.0176	<.002	E.0352	<.002	85.2	<.001	<.017	<.002	<.004	<.003
AUG											
10...	<.004	.0127	<.002	E.0293	.0258	114	<.001	<.017	<.002	<.004	<.003
SEP											
07...	E.0020	.0078	<.002	E.0420	<.002	99.4	<.001	<.017	<.002	<.004	<.003

DATE	FONOFOS WATER DISS REC (UG/L) (04095)	HCH ALPHA D6 SRG WAT FLT 0.7 U GF, REC PERCENT (91065)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)
OCT 1998										
15...	<.003	101	<.004	<.002	<.005	<.001	<.006	<.002	<.004	<.004
NOV										
19...	<.003	96.2	<.004	<.002	<.0075	<.001	<.006	E.0025	<.004	<.004
DEC										
09...	<.003	92.6	<.004	<.002	<.005	<.001	<.006	E.0037	<.004	<.004
FEB 1999										
18...	<.003	E218	<.004	<.002	<.005	<.001	<.006	.0057	<.004	<.004
MAR										
10...	<.003	101	<.004	<.002	<.005	<.001	<.006	.0042	<.004	<.004
APR										
06...	<.003	E191	<.004	<.002	<.010	<.001	<.010	.0068	<.004	<.004
MAY										
11...	<.003	95.5	<.004	<.002	<.005	<.001	.0497	.0155	<.004	<.004
JUN										
08...	<.003	77.4	<.004	<.002	<.005	<.001	<.006	.0297	<.004	<.004
JUL										
07...	<.003	65.7	<.004	<.002	<.005	<.001	<.006	.0117	<.004	<.004
AUG										
10...	<.003	103	<.004	<.002	<.005	<.001	<.04	.0073	<.004	<.004
SEP										
07...	<.003	98.4	<.004	<.002	<.005	<.001	<.006	E.0025	<.004	<.004

E Estimated

STREAMS TRIBUTARY TO LAKE MICHIGAN
04087000 MILWAUKEE RIVER AT MILWAUKEE, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

PESTICIDE ANALYSES

DATE	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PARA- THION, DIS- SOLVED (UG/L) (39542)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	P, P' DDE DISSOLV (UG/L) (34653)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)
OCT 1998										
15...	<.003	<.004	<.004	<.004	<.005	<.002	<.006	<.003	E.0100	<.004
NOV										
19...	<.003	<.004	<.004	<.004	<.005	<.002	<.006	<.003	<.018	<.004
DEC										
09...	<.003	<.004	<.004	<.004	<.005	<.002	<.006	<.003	<.018	<.004
FEB 1999										
18...	<.003	<.004	<.004	<.004	<.005	<.002	<.006	<.003	<.018	<.004
MAR										
10...	<.003	<.004	<.004	<.004	<.005	<.002	<.006	<.003	E.0048	<.004
APR										
06...	<.003	<.004	<.004	<.004	<.005	<.002	<.006	<.003	E.0039	<.004
MAY										
11...	<.003	<.004	<.004	<.004	<.005	<.002	<.006	<.003	E.0052	<.004
JUN										
08...	<.003	<.004	<.004	<.004	<.005	<.002	<.006	<.003	<.018	<.004
JUL										
07...	<.003	<.004	<.004	<.004	<.005	<.002	<.006	<.003	<.018	<.004
AUG										
10...	<.003	<.004	<.004	<.004	<.005	<.002	<.006	<.003	E.0156	<.004
SEP										
07...	<.003	<.004	<.004	<.004	<.005	<.002	E.0034	<.003	E.0084	<.004
DATE	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PROP- CHLOR, WATER, DISS, REC (UG/L) (04024)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	TERBUTH YLAZINE SURROGT WAT FLT 0.7 U GF, REC PERCENT (91064)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)
OCT 1998										
15...	<.013	<.007	.0072	<.007	<.010	<.013	113	<.002	<.001	<.002
NOV										
19...	<.013	<.007	E.0049	<.007	<.010	<.013	107	<.002	<.001	<.002
DEC										
09...	<.013	<.007	<.005	<.007	<.010	<.013	109	<.002	<.001	<.002
FEB 1999										
18...	<.013	<.007	.0103	<.007	<.010	<.013	E294	<.002	<.001	<.002
MAR										
10...	<.013	<.007	.0056	<.007	E.0083	<.013	117	<.002	<.001	<.002
APR										
06...	<.013	<.007	E.0049	<.007	<.010	<.013	E234	<.002	<.001	<.002
MAY										
11...	<.013	<.007	.0146	<.007	E.0069	<.013	106	<.002	<.001	<.002
JUN										
08...	<.013	<.007	.0966	<.007	.0442	<.013	--	<.002	<.001	<.002
JUL										
07...	<.013	<.007	.0270	<.007	<.010	<.013	E.05	<.002	<.001	<.002
AUG										
10...	<.013	<.007	.0208	<.007	.0180	<.013	--	<.002	<.001	<.002
SEP										
07...	<.013	<.007	.0108	<.007	E.0037	<.013	--	<.002	<.001	E.0027

E Estimated

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04087030 MENOMONEE RIVER AT MENOMONEE FALLS, WI

LOCATION.--Lat 43°10'22", long 88°06'14", in SE 1/4 NE 1/4 sec.10, T.8 N., R.20 E., Waukesha County, Hydrologic Unit 04040003, on right bank, 150 ft upstream from Pilgrim Road (County Trunk Highway YY) bridge in Menomonee Falls, at mile 21.1.

DRAINAGE AREA.--34.7 mi².

PERIOD OF RECORD.--November 1974 to September 1977, July 1979 to current year.

REVISED RECORDS.--WDR WI-77-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 755.51 ft above sea level (Wisconsin Department of Transportation benchmark). Prior to Aug. 20, 1996, water-stage recorder at present site at datum 2.01 ft lower.

REMARKS.--Estimated daily discharges: Aug. 6-10 and ice-affected periods, Dec. 20 to Jan. 23, Jan. 26, 27, 29, 30, and Mar. 6-8, 11. Records fair except those for estimated daily discharges, which are poor (see page 13). Occasional regulation caused by dam in Menomonee Falls, about 1.0 mi upstream. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	8.3	7.8	5.0	50	27	18	30	23	11	16	4.4
2	2.4	6.9	7.0	4.9	65	25	18	26	41	11	13	4.4
3	3.7	6.2	6.6	5.0	83	24	23	24	31	9.9	11	4.1
4	2.9	5.5	6.9	4.8	95	21	24	21	24	9.2	12	4.5
5	28	5.7	6.8	4.9	76	21	23	20	21	7.9	9.8	4.7
6	20	6.3	12	4.8	61	19	23	59	28	16	8.6	4.4
7	12	6.7	18	4.8	54	20	20	66	36	8.8	21	4.2
8	7.2	6.7	15	4.6	47	19	21	49	24	6.8	15	3.2
9	5.2	9.1	13	5.0	57	18	234	39	17	46	8.4	3.0
10	5.1	84	12	4.8	71	21	293	32	27	18	26	2.7
11	5.9	51	10	5.0	142	23	239	27	46	10	13	2.8
12	6.2	23	10	5.0	203	19	194	110	75	7.9	9.3	4.0
13	7.0	15	9.8	4.7	163	19	138	109	177	6.7	8.9	4.2
14	7.7	13	9.2	4.9	99	20	85	68	230	6.3	7.6	3.5
15	7.6	11	9.2	4.8	74	22	55	48	204	5.7	6.6	3.4
16	7.2	9.7	9.1	4.8	64	33	43	50	151	5.4	6.5	3.4
17	13	8.7	8.5	4.7	55	87	35	171	89	17	6.4	2.9
18	20	7.6	8.0	4.7	44	128	30	213	43	12	6.2	2.8
19	12	7.0	7.8	4.5	37	98	28	208	30	24	21	6.9
20	10	6.7	7.4	4.7	31	76	25	160	25	18	12	5.9
21	9.1	6.4	6.6	28	27	62	24	95	21	345	9.3	4.3
22	8.2	6.3	6.2	140	23	47	90	64	18	383	8.0	3.5
23	7.4	6.2	5.6	190	21	39	393	66	16	370	16	3.0
24	6.9	6.3	5.4	174	19	32	419	70	16	284	19	2.9
25	7.7	5.9	5.4	172	19	29	343	50	13	167	14	3.1
26	7.1	5.9	5.2	170	19	25	229	37	11	62	11	3.2
27	7.2	5.7	5.4	110	23	23	121	29	9.9	36	9.7	17
28	7.9	5.8	5.4	84	26	21	61	24	9.9	27	8.5	58
29	7.7	5.9	5.2	74	---	20	42	20	11	22	7.1	40
30	8.8	10	5.0	70	---	19	34	17	9.9	18	6.2	17
31	9.2	---	4.8	59	---	18	---	16	---	20	5.2	---
TOTAL	273.0	362.5	254.3	1367.4	1748	1075	3325	2018	1477.7	1991.6	352.3	231.4
MEAN	8.81	12.1	8.20	44.1	62.4	34.7	111	65.1	49.3	64.2	11.4	7.71
MAX	28	84	18	190	203	128	419	213	230	383	26	58
MIN	2.4	5.5	4.8	4.5	19	18	18	16	9.9	5.4	5.2	2.7
CFSM	.25	.35	.24	1.27	1.80	1.00	3.19	1.88	1.42	1.85	.33	.22
IN.	.29	.39	.27	1.47	1.87	1.15	3.56	2.16	1.58	2.14	.38	.25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1999, BY WATER YEAR (WY)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	20.4	28.8	24.1	18.1	33.2	60.1	65.9	28.8	29.1	19.9	14.7	19.2													
MAX	94.3	137	70.4	72.8	87.4	124	193	71.4	142	86.1	34.9	151													
(WY)	1982	1986	1985	1988	1984	1976	1993	1990	1997	1994	1986	1986													
MIN	3.31	3.38	3.00	2.29	4.04	18.3	21.6	3.80	3.33	1.55	1.47	1.86													
(WY)	1977	1977	1977	1977	1995	1980	1994	1977	1988	1988	1988	1976													

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1975 - 1999
ANNUAL TOTAL	12574.0	14476.2	
ANNUAL MEAN	34.4	39.7	30.0
HIGHEST ANNUAL MEAN			53.4
LOWEST ANNUAL MEAN			7.32
HIGHEST DAILY MEAN	439	419	(a)960
LOWEST DAILY MEAN	1.4	2.4	.63
ANNUAL SEVEN-DAY MINIMUM	1.6	3.3	.82
INSTANTANEOUS PEAK FLOW		900	(b)1500
INSTANTANEOUS PEAK STAGE		6.97	(c)8.31
ANNUAL RUNOFF (CFSM)	.99	1.14	.86
ANNUAL RUNOFF (INCHES)	13.48	15.52	11.74
10 PERCENT EXCEEDS	87	98	65
50 PERCENT EXCEEDS	12	17	14
90 PERCENT EXCEEDS	3.4	4.8	4.3

(a) Estimated

(b) From rating curve extended above 717 ft³/s

(c) From floodmarks

STREAMS TRIBUTARY TO LAKE MICHIGAN
04087088 UNDERWOOD CREEK AT WAUWATOSA, WI

LOCATION.--Lat 43°03'17", long 88°02'46", in SW 1/4 NW 1/4 sec.20, T.7 N., R.21 E., Milwaukee County, Hydrologic Unit 04040003, at U.S. Highway 45, on right bank, just downstream of the Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, on Milwaukee County Park Commission property, at Wauwatosa, and 0.8 mi upstream from mouth.

DRAINAGE AREA.--18.2 mi².

PERIOD OF RECORD.--December 1974 to November 1979, July 1980 to current year.

REVISED RECORDS.--WDR WI-77-1: Drainage area. WRD WI-85-1: 1984. WRD WI-94-1: 1993(M). WRD WI-98-1: 1978(M, date).

GAGE.--Water-stage recorder, crest-stage gage, and steel plate weir. Elevation of gage is 690 ft above sea level, from topographic map. Prior to Sept. 10, 1993, the orifice was located 10 ft downstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge. The orifice was moved to 30 ft upstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge on Sept. 10, 1993, and is at same elevation.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 22 to Jan. 22, Feb. 4, and Mar. 5-7. Records good except those for ice-affected periods, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	4.8	4.9	3.7	18	8.5	6.9	13	26	8.7	9.6	5.1
2	6.3	4.8	4.7	3.6	40	8.4	6.9	12	29	7.7	8.2	5.1
3	33	4.6	4.5	3.5	35	7.8	14	11	11	7.6	8.0	5.2
4	8.3	4.4	4.3	3.4	30	7.2	15	10	11	6.6	7.4	4.7
5	56	4.8	4.1	3.4	25	7.2	8.4	11	8.5	6.4	6.6	4.3
6	28	4.7	19	3.3	20	7.2	9.9	62	30	7.2	6.0	4.3
7	12	4.7	16	3.3	18	7.4	7.2	25	23	5.8	14	4.1
8	7.5	4.6	7.7	3.3	16	7.6	9.7	16	10	5.3	7.1	4.2
9	6.3	11	6.2	3.3	23	9.1	254	12	8.9	191	6.1	4.4
10	5.1	163	5.6	3.3	24	11	61	11	49	18	13	4.3
11	4.7	30	5.3	3.3	135	10	55	9.6	48	10	5.9	4.6
12	4.5	15	5.3	3.4	69	11	32	73	57	8.0	6.8	17
13	4.2	11	5.1	3.4	31	10	24	24	420	7.5	6.1	8.4
14	4.1	9.1	4.9	3.5	21	10	19	16	181	7.0	5.3	5.1
15	4.5	7.9	4.8	5.0	19	12	16	14	45	6.0	5.0	4.6
16	3.8	7.7	4.7	9.0	17	22	27	42	27	6.0	5.2	4.4
17	21	7.0	4.5	15	15	44	15	172	20	67	5.1	4.5
18	29	6.2	4.5	8.0	13	34	13	97	15	16	5.3	3.9
19	8.3	5.7	4.3	7.0	12	21	11	51	13	30	63	17
20	6.1	5.3	4.5	6.4	10	17	11	28	12	12	11	7.6
21	5.4	5.0	4.0	5.6	9.4	14	11	23	10	520	7.4	4.4
22	4.6	5.0	4.0	110	8.7	12	112	22	9.9	80	6.1	4.3
23	4.3	5.2	3.9	147	8.1	12	568	35	13	27	12	3.7
24	4.4	4.6	3.8	68	8.5	10	99	20	11	18	9.2	4.5
25	4.5	4.7	3.8	37	11	9.0	43	15	8.8	14	6.8	4.4
26	4.4	4.6	4.0	25	8.7	8.5	30	12	7.8	14	6.0	4.3
27	5.4	4.5	4.4	31	9.0	8.1	23	11	7.5	11	5.5	50
28	5.2	4.5	4.5	30	9.6	8.0	19	9.6	53	10	5.2	157
29	5.1	4.6	4.6	22	---	7.4	16	8.8	19	9.2	4.8	34
30	6.1	6.5	4.2	20	---	7.0	15	8.1	9.9	8.8	4.7	13
31	5.1	---	3.9	18	---	7.0	---	12	---	17	5.2	---
TOTAL	314.1	365.5	170.0	611.7	664.0	375.4	1552.0	886.1	1194.3	1162.8	277.6	402.4
MEAN	10.1	12.2	5.48	19.7	23.7	12.1	51.7	28.6	39.8	37.5	8.95	13.4
MAX	56	163	19	147	135	44	568	172	420	520	63	157
MIN	3.8	4.4	3.8	3.3	8.1	7.0	6.9	8.1	7.5	5.3	4.7	3.7
CFSM	.56	.67	.30	1.08	1.30	.67	2.84	1.57	2.19	2.06	.49	.74
IN.	.64	.75	.35	1.25	1.36	.77	3.17	1.81	2.44	2.38	.57	.82

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1999, BY WATER YEAR (WY)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	8.94	11.5	10.9	9.07	13.7	24.2	28.2	15.6	16.7	12.8	16.2	12.1	8.94	11.5	10.9	9.07	13.7	24.2	28.2	15.6	16.7	12.8	16.2	12.1	8.94
MAX	26.9	42.2	27.2	39.1	26.3	73.4	73.6	46.9	68.8	37.5	98.1	56.0	26.9	42.2	27.2	39.1	26.3	73.4	73.6	46.9	68.8	37.5	98.1	56.0	26.9
(WY)	1987	1986	1983	1988	1985	1979	1993	1990	1997	1999	1998	1986	1987	1986	1983	1988	1985	1979	1993	1990	1997	1999	1998	1986	1987
MIN	2.43	1.81	1.57	.031	1.83	6.74	6.24	2.28	4.80	3.29	3.49	3.06	2.43	1.81	1.57	.031	1.83	6.74	6.24	2.28	4.80	3.29	3.49	3.06	2.43
(WY)	1976	1977	1977	1977	1977	1981	1977	1977	1976	1976	1976	1982	1976	1977	1977	1977	1977	1981	1977	1977	1976	1976	1976	1982	1976

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1975 - 1999
ANNUAL TOTAL	8161.9	7975.9	
ANNUAL MEAN	22.4	21.9	15.0
HIGHEST ANNUAL MEAN			23.2
LOWEST ANNUAL MEAN			4.21
HIGHEST DAILY MEAN	1420	568	1420
LOWEST DAILY MEAN	3.6 (a) Jul 14	(b) 3.3 Jan 6-11	.00 (c) Aug 6 1998
ANNUAL SEVEN-DAY MINIMUM	3.8 Jul 28	(b) 3.3 Jan 5	.00 Jan 11 1977
INSTANTANEOUS PEAK FLOW		3280 Jul 21	(d) 7500 Aug 6 1998
INSTANTANEOUS PEAK STAGE		9.41 Jul 21	13.10 Aug 6 1998
ANNUAL RUNOFF (CFSM)	1.23	1.20	.83
ANNUAL RUNOFF (INCHES)	16.68	16.30	11.21
10 PERCENT EXCEEDS	36	38	31
50 PERCENT EXCEEDS	8.2	8.7	7.0
90 PERCENT EXCEEDS	4.3	4.3	3.1

(a) Also occurred Aug. 3

(b) Ice affected

(c) No flow on all or part of many days during 1977 winter period

(d) From rating curve extended above 96 ft³/s based on slope-area measurement of peak flow

STREAMS TRIBUTARY TO LAKE MICHIGAN
04087120 MENOMONEE RIVER AT WAUWATOSA, WI

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LOCATION.--Lat 43°02'44", long 87°59'59", in NE 1/4 NW 1/4 sec.27, T.7 N., R.21 E., Milwaukee County, Hydrologic Unit 04040003, on left bank near upstream side of 70th Street bridge in Wauwatosa, 800 ft downstream from Honey Creek, and at mile 6.2.

DRAINAGE AREA.--123 mi².

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 628.86 ft above sea level. Prior to Nov. 1, 1974, nonrecording gage at present site and datum then in use. Prior to June 21, 1997 at 0320, datum was 2.00 ft higher.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 22 to Jan. 23, and Mar. 5, 6. Records good except those for ice-affected periods, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	17	33	15	117	65	53	95	128	31	47	14
2	18	16	23	14	202	64	51	87	201	29	36	14
3	104	15	20	14	204	61	73	81	92	26	41	14
4	29	15	19	14	217	56	99	76	80	22	41	12
5	240	15	20	14	159	56	65	78	67	20	31	10
6	126	14	64	14	126	54	69	332	136	49	26	9.5
7	66	14	90	14	113	52	59	187	150	24	64	8.8
8	40	14	47	14	103	53	60	129	82	17	39	8.9
9	29	29	38	14	118	50	1760	109	71	520	25	7.7
10	22	894	35	14	132	69	896	95	290	68	78	8.4
11	18	158	31	14	488	67	566	86	296	37	35	7.6
12	17	80	29	14	539	68	371	428	317	24	30	39
13	16	58	25	15	235	68	241	199	2040	19	25	36
14	16	47	24	17	159	69	167	144	1160	17	20	14
15	16	39	23	22	127	76	128	114	326	15	17	10
16	15	35	24	60	115	110	143	265	213	13	17	8.5
17	71	31	22	260	105	242	102	1090	156	243	17	8.0
18	126	27	21	150	93	270	90	712	110	58	16	5.6
19	38	25	21	47	83	177	82	609	89	128	190	46
20	28	24	21	45	76	138	78	281	75	54	44	52
21	23	22	20	30	67	118	76	191	65	2030	27	14
22	20	21	19	560	64	101	502	154	57	629	20	9.8
23	18	21	18	700	60	90	2690	181	61	401	47	7.1
24	17	21	18	537	57	82	939	138	57	345	55	6.4
25	17	20	18	267	64	75	561	116	46	196	35	5.3
26	16	19	17	174	60	69	368	100	37	124	26	4.8
27	20	18	17	193	62	65	225	89	32	89	21	165
28	23	18	17	191	67	62	152	79	180	75	19	691
29	18	18	16	156	---	58	119	69	63	61	15	163
30	34	35	15	140	---	57	105	62	35	53	13	76
31	20	---	15	125	---	55	---	69	---	82	14	---
TOTAL	1294	1780	820	3858	4012	2697	10890	6445	6712	5499	1131	1476.4
MEAN	41.7	59.3	26.5	124	143	87.0	363	208	224	177	36.5	49.2
MAX	240	894	90	700	539	270	2690	1090	2040	2030	190	691
MIN	15	14	15	14	57	50	51	62	32	13	13	4.8
CFSM	.34	.48	.22	1.01	1.16	.71	2.95	1.69	1.82	1.44	.30	.40
IN.	.39	.54	.25	1.17	1.21	.82	3.29	1.95	2.03	1.66	.34	.45

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1999, BY WATER YEAR (WY)

MEAN	65.5	81.4	78.5	59.8	96.8	206	209	106	107	78.1	75.5	81.0
MAX	232	422	222	191	239	582	715	326	566	257	278	562
(WY)	1982	1986	1988	1974	1971	1979	1993	1990	1997	1964	1998	1986
MIN	7.15	11.9	4.65	4.45	4.18	17.5	28.7	17.1	12.6	10.6	10.5	6.50
(WY)	1964	1963	1964	1963	1963	1968	1963	1977	1962	1963	1962	1963

SUMMARY STATISTICS FOR 1998 CALENDAR YEAR FOR 1999 WATER YEAR WATER YEARS 1962 - 1999

ANNUAL TOTAL	43571	46614.4	
ANNUAL MEAN	119	128	104
HIGHEST ANNUAL MEAN			195
LOWEST ANNUAL MEAN			24.0
HIGHEST DAILY MEAN	3250	2690	7520
LOWEST DAILY MEAN	11	4.8	(b) 2.8
ANNUAL SEVEN-DAY MINIMUM	13	8.7	(b) 3.1
INSTANTANEOUS PEAK FLOW		6280	(c) 13500
INSTANTANEOUS PEAK STAGE		13.00	(e) 18.63
ANNUAL RUNOFF (CFSM)	.97	1.04	.84
ANNUAL RUNOFF (INCHES)	13.18	14.10	11.45
10 PERCENT EXCEEDS	264	262	232
50 PERCENT EXCEEDS	54	57	44
90 PERCENT EXCEEDS	16	14	14

(a) Also occurred on Sept. 28

(b) Ice affected

(c) From rating curve extended above 6,000 ft³/s on basis of slope-area measurement of peak flow, gage height 13.92 ft, datum then in use

(d) Also occurred June 21, 1997, discharge determined from rating curve extended above 9,430 ft³/s on basis of slope-area measurement of peak flow

(e) High-water mark on gage-house door was 18.87 ft

STREAMS TRIBUTARY TO LAKE MICHIGAN

040871473 WILSON PARK CREEK AT GMIA INFALL AT MILWAUKEE, WI

LOCATION.--Lat 42°56'33", long 87°53'10", in SW 1/4 SW 1/4 sec.27, T.6 N., R.22 E., Milwaukee County, Hydrologic Unit 04040003, at Milwaukee.

DRAINAGE AREA.--0.89 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1996 to May 1997, November 1997 to current year.

REVISED RECORDS.--WDR WI-98-1: 1997 (M, February monthly).

GAGE.--Water-stage recorder. Elevation of gage is 670 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Ice-affected periods, Jan. 1, 18-24. Records good except those for ice-affected periods, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.08	.02	.04	.02	1.0	.29	.21	.38	2.0	.25	.12	.08
2	.08	.02	.02	.01	2.0	.41	.21	.36	3.8	.25	.07	.05
3	1.7	.02	.02	.02	1.6	.29	.24	.34	.53	.25	.10	.06
4	.18	.01	.02	.01	1.2	.21	1.0	.32	.58	.20	.11	.03
5	2.7	.01	.02	.01	.91	.34	.33	.38	.46	.17	.05	.02
6	.61	.02	2.0	.01	.82	.26	.46	2.2	1.0	.18	.04	.02
7	.29	.01	.55	.01	.69	.27	.26	.46	.53	.14	.58	.02
8	.15	.01	.14	.01	.69	.22	.41	.34	.33	.15	.05	.06
9	.12	.26	.10	.01	.87	.21	18	.28	.29	3.7	.05	.02
10	.09	18	.07	.01	.77	.33	1.8	.25	1.6	.14	.90	.02
11	.09	.62	.10	.01	4.8	.33	1.9	.24	.69	.10	.19	.05
12	.03	.32	.04	.01	1.2	.31	1.0	2.4	.45	.10	.28	.26
13	.07	.26	.04	.01	.62	.31	.75	.39	23	.09	.16	.19
14	.02	.24	.04	.01	.55	.34	.63	.30	11	.12	.18	.02
15	.02	.16	.03	.01	.54	.42	.59	.29	1.1	.10	.16	.02
16	.03	.15	.02	.01	.54	.86	.93	3.8	1.2	.13	.12	.02
17	2.0	.14	.02	.04	.46	1.3	.53	6.4	.78	6.1	.15	.04
18	1.2	.13	.02	.40	.41	.57	.45	3.8	.63	.34	.17	.02
19	.20	.11	.02	.30	.37	.42	.45	1.2	.47	.76	1.3	.52
20	.12	.09	.04	.25	.33	.40	.48	.80	.36	.26	.10	.37
21	.10	.11	.04	.35	.32	.33	.56	.72	.34	8.4	.04	.02
22	.05	.14	.02	9.0	.31	.24	6.1	.73	.32	.38	.03	.03
23	.04	.13	.01	11	.30	.30	29	2.6	1.3	.52	.17	.03
24	.04	.12	.01	2.5	.30	.26	5.9	.77	.89	.28	.34	.02
25	.03	.10	.02	1.3	.51	.26	1.7	.60	.29	.19	.09	.01
26	.03	.09	.01	.81	.33	.26	.98	.52	.26	.18	.17	.01
27	.06	.12	.02	2.7	.37	.27	.68	.49	.29	.14	.09	2.3
28	.05	.04	.01	1.7	.37	.26	.52	.45	1.2	.13	.09	13
29	.03	.09	.02	1.0	---	.24	.42	.40	.35	.12	.03	.85
30	.08	.14	.01	.99	---	.26	.39	.38	.25	.11	.02	.31
31	.06	---	.03	.96	---	.24	---	.65	---	.24	.06	---
TOTAL	10.35	21.68	3.55	33.48	23.18	11.01	76.88	33.24	56.29	24.22	6.01	18.47
MEAN	.33	.72	.11	1.08	.83	.36	2.56	1.07	1.88	.78	.19	.62
MAX	2.7	18	2.0	11	4.8	1.3	29	6.4	23	8.4	1.3	13
MIN	.02	.01	.01	.01	.30	.21	.21	.24	.25	.09	.02	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1999, BY WATER YEAR (WY)

	1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
MEAN	.33	.42	.19	.58	1.00	.87	1.74	.85	1.15	.48	.78	.41
MAX	.33	.72	.27	1.08	1.20	1.48	2.56	1.07	1.88	.78	1.36	.62
(WY)	1999	1999	1997	1999	1997	1998	1999	1999	1999	1999	1998	1999
MIN	.33	.12	.11	.27	.83	.36	.70	.63	.43	.17	.19	.20
(WY)	1999	1998	1999	1997	1999	1999	1997	1998	1998	1998	1999	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1997 - 1999

ANNUAL TOTAL	265.66	318.36	
ANNUAL MEAN	.73	.87	.87
HIGHEST ANNUAL MEAN			.87 1999
LOWEST ANNUAL MEAN			.87 1999
HIGHEST DAILY MEAN	18 (a)Aug 5	29 Apr 23	29 Apr 23 1999
LOWEST DAILY MEAN	.01 Many days	.01 Many days	.01 Many days
ANNUAL SEVEN-DAY MINIMUM	.01 Nov 2	.01 Many periods	.01 Many periods
INSTANTANEOUS PEAK FLOW		32 Apr 23	32 (c)Aug 5 1998
INSTANTANEOUS PEAK STAGE		15.91 Apr 23	(d)15.95 Aug 5 1998
INSTANTANEOUS LOW FLOW		.00 (e)Jan 1	.00 (e)Jan 1 1999
10 PERCENT EXCEEDS	1.3	1.4	1.5
50 PERCENT EXCEEDS	.19	.26	.27
90 PERCENT EXCEEDS	.02	.02	.02

(a) Also occurred Nov. 10

(b) Also occurred Dec. 22

(c) Also occurred Apr. 23, 1999

(d) Based on floodmark in gage house

(e) Also occurred Jan. 2, 4

STREAMS TRIBUTARY TO LAKE MICHIGAN

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040871473 WILSON PARK CREEK AT GMIA INFALL AT MILWAUKEE, WI-CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1996 to May 1997, November 1997 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1996 to May 1997, November 1997 to current year.

INSTRUMENTATION.--Stage-activated water-quality sampler since November 1996. Continuous water-temperature recorder since November 1996.

REMARKS.--Chemical analyses are by the Wisconsin State Laboratory of Hygiene. Samples are point samples unless otherwise indicated. Records represent water temperature at sensor within 0.5°C.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum observed, 25.5°C, Aug. 6, 1998; minimum observed, 0.0°C, many days during winter.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 24.0°C, July 30; minimum observed, 0.0°C, many days during winter.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	OXYGEN DEMAND, CHEMICAL (LOW LEVEL) (MG/L) (00335)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L) (00310)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM, TOTAL RECOVERABLE (MG/L) (00921)	RESIDUE TOTAL AT 105 DEG. C, PENDE (MG/L) (00530)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS TOTAL (MG/L AS P) (00665)
NOV 1998											
03...	1314	.01	--	--	--	--	--	--	--	--	--
DEC 01...	1025	.04	--	--	--	--	--	--	--	--	--
JAN 1999											
17...	1638	.03	--	--	--	--	--	--	--	--	--
FEB 08...	1200	.59	7.7	30	<6.0	120	45	<5	.378	1.2	.027
MAR 24...	1106	.26	7.8	12	<6.0	--	--	--	.073	.56	--
31...	1218	.25	8.1	15	<6.0	--	--	--	.035	.53	--
APR 14...	0940	.59	7.7	18	<12	--	--	<5	.049	.48	--
MAY 11...	1110	.26	7.7	18	<6.0	--	--	--	<.013	.51	--
JUN 09...	0844	.32	7.6	17	<6.0	--	--	--	.179	.79	--
SEP 08...	1230	.02	7.8	15	<2.0	110	48	<5	.031	.65	.043
27...	0642	1.3	--	--	--	--	--	--	--	--	--

DATE	CADMIUM TOTAL RECOVERABLE (UG/L) (01113)	COPPER, TOTAL RECOVERABLE (UG/L) (01119)	LEAD, TOTAL RECOVERABLE (UG/L) (01114)	ZINC, TOTAL RECOVERABLE (UG/L) (01094)	OIL AND GREASE, TOTAL RECOVERABLE METRIC (MG/L) (00556)	1,2 - ETHANE-DIOL, WATER TOTAL (MG/L) (91075)	1,2 - PROP-ANEDIOL, WATER TOTAL (MG/L) (91080)	GLYCOL HYDRO-LIZERS UNFIL-TERED, TOTAL RECOV (COLS./100ML) (99920)	PSEU-MONAS UNFIL-TERED, TOTAL RECOV (COLS./100ML) (99921)	PRESUMP. AERO-MONAS UNFIL-TERED, TOTAL RECOV (COLS./100ML) (99922)
NOV 1998										
03...	--	--	--	--	--	--	--	110.00	30.000	10.000
DEC 01...	--	--	--	--	--	--	--	7200.0	920.00	480.00
JAN 1999										
17...	--	--	--	--	7	--	--	--	--	--
FEB 08...	<1	2	<1	20	--	<18.0	<18.0	800.00	200.00	700.00
MAR 24...	--	--	--	--	--	<18.0	<18.0	500.00	570.00	70.000
31...	--	--	--	--	--	<18.0	<18.0	--	--	--
APR 14...	--	--	--	--	--	<18.0	<18.0	--	--	--
MAY 11...	--	--	--	--	--	<18.0	<18.0	--	--	--
JUN 09...	--	--	--	--	--	<18.0	<18.0	5100.0	590.00	1100.0
SEP 08...	<1	1	1	<20	5	<18.0	<18.0	1400.0	--	--
27...	--	--	--	--	<1	--	--	--	--	--

STREAMS TRIBUTARY TO LAKE MICHIGAN
040871473 WILSON PARK CREEK AT GMIA INFALL AT MILWAUKEE, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

COMPOSITE SAMPLES

BEGIN- NING DATE	BEGIN- NING TIME	ENDING DATE	ENDING TIME	RUNOFF VOLUME THOUSANDS OF CUBIC FEET (99904)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, CHEM- ICAL (LOW LEVEL) (MG/L) (00335)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOVER -ABLE (MG/L) (00921)
12-20-98	1755	12-20-98	2300	1.6	8.1	48	<6.0	100	49
12-29-98	0715	12-29-98	1051	.21	7.8	30	<6.0	140	62
01-11-99	0700	01-11-99	2130	.63	8.1	48	<6.0	140	59
01-17-99	1310	01-17-99	2135	1.5	7.7	110	8.0	69	24
03-13-99	1625	03-13-99	1845	3.2	7.9	11	2.7	--	--
03-15-99	1510	03-16-99	0950	33	8.0	29	<6.0	--	--
09-27-99	0500	09-27-99	1105	17	7.9	35	9.9	58	23

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS P) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	CADMIUM TOTAL RECOVER -ABLE (UG/L) (01113)	COPPER, TOTAL RECOVER -ABLE (UG/L) (01119)	LEAD, TOTAL RECOVER -ABLE (UG/L) (01114)	ZINC, TOTAL RECOVER -ABLE (UG/L) (01094)	METHY- LENE BLUE ACTIVE SUB- STANCE (38260)	1,2,- ETHANE- DIOL, UNFLTRD REC (MG/L) (91075)	1,2,- PROP- ANEDIOL WATER, UNFLTRD REC (MG/L) (91080)
12-20-98	<5	.177	.73	.029	<1	2	2	<20	--	<18.0	<18.0
12-29-98	12	.355	.89	.030	<1	2	1	<20	--	<18.0	<18.0
01-11-99	42	.670	1.5	.064	<1	3	3	<20	--	<18.0	<18.0
01-17-99	14	1.16	4.0	.065	<1	12	3	30	--	<18.0	<18.0
03-13-99	9	.175	<.14	.035	--	--	--	--	<.04	<18.0	<18.0
03-15-99	10	.111	.71	--	--	--	--	--	--	<18.0	<18.0
09-27-99	28	.239	1.5	.140	<1	7	3	30	--	<18.0	<18.0

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	17.5	14.5	15.5	12.5	11.5	12.0	9.0	7.5	8.0	.0	.0	.0
2	14.5	13.0	13.5	11.5	10.0	10.5	9.5	7.5	8.5	.0	.0	.0
3	14.0	13.5	14.0	10.0	8.0	9.0	10.5	9.0	9.5	.0	.0	.0
4	14.5	14.0	14.0	8.0	7.0	7.5	10.0	9.5	10.0	.0	.0	.0
5	15.0	14.0	14.5	7.0	6.0	6.5	10.5	9.0	9.5	.0	.0	.0
6	16.0	15.0	15.5	6.5	5.5	6.0	10.5	7.5	10.0	.0	.0	.0
7	15.5	14.5	15.0	6.5	5.0	6.0	8.0	7.0	7.5	.0	.0	.0
8	14.5	13.5	14.0	6.5	5.5	6.0	7.5	5.5	6.5	.0	.0	.0
9	13.5	12.5	13.0	7.0	6.0	6.5	6.0	5.0	5.5	.0	.0	.0
10	13.0	12.0	12.5	9.0	7.0	8.0	5.5	4.5	5.0	.0	.0	.0
11	13.5	12.0	12.5	8.0	6.5	7.0	4.5	4.0	4.0	.0	.0	.0
12	14.0	12.5	13.0	7.0	6.0	6.5	5.0	4.0	4.5	.0	.0	.0
13	13.5	11.5	12.0	6.5	5.5	6.0	4.5	3.5	4.0	.0	.0	.0
14	11.5	10.0	11.0	7.5	6.5	7.0	4.5	3.5	4.0	.0	.0	.0
15	12.0	10.5	11.0	7.5	6.5	7.0	5.0	3.5	4.5	.0	.0	.0
16	14.0	12.0	12.5	7.5	6.5	7.0	5.0	4.0	4.5	.0	.0	.0
17	15.5	13.5	14.5	7.5	6.5	7.0	4.0	3.0	3.0	.0	.0	.0
18	15.5	13.5	14.5	7.5	6.5	7.0	4.0	2.5	3.5	.0	.0	.0
19	13.5	12.5	13.0	7.5	6.0	7.0	4.0	3.0	3.5	.0	.0	.0
20	12.5	11.0	11.5	6.0	4.5	5.5	3.0	2.5	3.0	.0	.0	.0
21	11.0	10.0	11.0	5.0	4.0	4.5	3.0	1.5	2.5	.0	.0	.0
22	10.0	9.0	9.5	6.5	4.5	5.5	1.5	.5	1.0	.0	.0	.0
23	11.0	9.0	10.0	7.5	6.0	6.5	.5	.0	.0	.0	.0	.0
24	11.0	9.5	10.5	7.0	5.5	6.5	.0	.0	.0	.0	.0	.0
25	12.0	10.5	11.0	7.0	6.0	6.5	.0	.0	.0	.0	.0	.0
26	13.0	11.5	12.0	7.5	6.0	6.5	.0	.0	.0	.0	.0	.0
27	13.5	12.0	12.5	6.5	5.5	6.0	.0	.0	.0	.0	.0	.0
28	13.5	12.0	13.0	8.5	6.0	7.0	.0	.0	.0	.0	.0	.0
29	12.5	11.5	12.0	10.5	8.5	9.5	.0	.0	.0	.0	.0	.0
30	13.0	12.5	12.5	11.5	9.0	10.5	.0	.0	.0	.0	.0	.0
31	12.5	12.5	12.5	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	17.5	9.0	12.7	12.5	4.0	7.1	10.5	.0	3.9	.0	.0	.0

STREAMS TRIBUTARY TO LAKE MICHIGAN

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040871473 WILSON PARK CREEK AT GMIA INFALL AT MILWAUKEE, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	.5	.0	.0	3.5	2.0	3.0	9.5	8.5	9.0	12.5	9.0	10.5
2	.5	.0	.5	3.5	2.5	3.0	11.5	8.5	10.0	13.0	10.0	11.5
3	1.0	.0	.5	3.5	1.5	2.5	10.5	9.5	10.0	14.0	10.5	12.0
4	1.0	.5	1.0	2.5	1.0	1.5	9.5	8.0	9.0	14.5	11.5	13.0
5	1.0	.5	.5	2.0	.5	1.5	9.0	7.5	8.0	14.5	12.0	13.5
6	1.5	.5	1.0	1.0	.5	1.0	8.0	7.0	7.5	14.0	12.5	13.0
7	1.5	1.0	1.5	1.5	.5	1.0	10.0	6.5	8.0	12.5	11.5	12.0
8	2.0	1.0	1.5	1.5	.5	1.0	10.0	8.0	9.0	12.5	11.0	11.5
9	2.5	1.5	2.0	1.0	.5	.5	9.0	6.5	7.5	14.0	11.0	12.5
10	2.5	1.5	2.0	2.0	.5	1.0	8.5	5.5	7.0	14.0	11.0	12.5
11	6.0	2.0	3.5	2.0	.5	1.0	8.0	6.5	7.0	13.5	11.5	12.5
12	4.5	1.0	2.5	2.0	.5	1.0	8.5	5.5	7.0	13.0	11.5	12.5
13	1.5	1.0	1.0	2.0	.5	1.0	9.0	6.5	8.0	12.5	11.0	11.5
14	2.0	1.0	1.5	2.5	.5	1.5	9.5	7.0	8.5	12.5	10.0	11.0
15	3.0	1.5	2.0	2.5	1.0	1.5	9.0	7.5	8.0	12.5	11.0	11.5
16	3.0	2.5	2.5	3.0	1.0	2.0	7.5	6.5	7.0	15.5	12.0	13.5
17	2.5	1.5	2.0	4.0	1.5	2.5	7.0	6.0	6.5	15.5	14.5	15.0
18	2.0	1.0	1.5	4.0	2.0	3.0	7.5	6.0	6.5	15.5	14.0	14.5
19	2.0	1.0	1.5	4.0	2.0	3.0	7.5	6.5	7.0	15.5	12.5	14.0
20	1.5	.5	1.0	5.0	2.0	3.5	8.0	6.0	7.0	16.0	13.5	14.5
21	2.0	.5	1.0	4.5	3.0	3.5	8.0	7.0	7.5	15.5	14.0	15.0
22	2.0	1.0	1.5	4.5	2.0	3.0	8.0	6.5	7.0	15.5	14.0	15.0
23	2.0	1.0	1.5	5.0	2.5	3.5	11.0	4.0	7.0	15.0	13.5	14.0
24	2.0	1.0	1.5	5.0	3.0	4.0	11.5	5.5	7.5	14.5	12.0	13.0
25	2.0	1.0	1.5	4.0	2.5	3.5	10.0	6.0	8.5	13.0	11.0	12.0
26	2.5	1.0	2.0	4.5	2.0	3.5	10.5	7.5	9.0	14.5	11.5	13.0
27	3.5	2.0	2.5	5.5	3.0	4.0	10.5	8.5	9.5	16.0	12.5	14.0
28	3.5	2.5	3.0	5.5	3.5	4.5	10.5	8.0	9.0	17.5	14.5	16.0
29	---	---	---	7.0	4.0	5.5	11.0	8.0	9.5	18.5	15.5	17.0
30	---	---	---	8.5	4.5	6.5	11.5	8.5	10.0	19.0	16.0	17.5
31	---	---	---	10.0	6.0	8.0	---	---	---	18.5	16.5	17.5
MONTH	6.0	.0	1.6	10.0	.5	2.8	11.5	4.0	8.1	19.0	9.0	13.4
JUNE			JULY			AUGUST			SEPTEMBER			
1	18.0	14.5	16.5	19.5	17.5	18.5	22.5	20.5	21.5	19.0	17.0	18.0
2	15.0	14.0	14.5	19.5	18.0	18.5	21.0	19.5	20.5	19.5	17.0	18.0
3	15.5	14.0	14.5	20.0	18.5	19.0	21.0	19.0	20.0	19.5	18.0	19.0
4	15.0	14.0	14.5	23.0	20.0	21.0	21.0	19.5	20.5	20.0	18.5	19.0
5	18.5	14.5	16.0	23.5	21.0	22.0	20.5	19.0	20.0	20.5	18.5	19.5
6	20.5	18.0	19.0	23.0	20.5	22.0	20.5	18.5	19.5	20.0	18.5	19.0
7	20.5	18.5	19.5	22.0	19.0	20.5	20.0	19.0	19.5	18.5	17.0	17.5
8	20.5	18.5	19.5	20.5	19.0	20.0	20.0	18.0	19.0	19.0	17.0	18.0
9	21.0	18.5	20.0	21.5	19.5	20.5	18.5	17.0	18.0	18.5	16.5	17.0
10	21.5	19.0	20.0	20.5	18.5	19.5	19.0	17.5	18.0	16.5	15.5	16.0
11	21.5	19.5	20.5	20.0	17.5	19.0	18.5	17.0	17.5	17.0	15.0	16.0
12	21.0	19.5	20.0	20.0	17.5	19.0	17.5	16.0	17.0	17.5	16.0	16.5
13	20.0	19.0	19.5	20.0	18.0	19.0	17.5	17.0	17.0	17.5	16.0	16.5
14	19.5	18.0	19.0	20.5	18.0	19.5	17.0	15.5	16.5	16.0	15.0	15.5
15	18.5	15.5	17.0	22.0	19.0	20.0	16.5	15.0	16.0	15.0	14.0	14.5
16	17.5	15.5	16.0	22.5	19.5	21.0	16.5	15.5	16.0	15.0	13.5	14.0
17	16.5	14.5	15.5	21.5	21.0	21.5	18.0	16.0	17.0	15.0	13.5	14.5
18	17.0	15.0	16.0	21.0	20.0	20.5	17.5	16.0	16.5	15.5	14.0	14.5
19	17.5	15.5	16.5	21.0	19.5	20.5	18.0	16.0	17.0	17.0	14.5	15.5
20	18.5	16.0	17.0	20.5	19.5	20.0	18.0	17.0	17.5	17.0	14.5	15.5
21	18.5	16.5	17.5	21.5	20.0	21.0	18.0	17.0	17.5	14.5	13.0	13.5
22	19.5	17.0	18.0	22.0	20.5	21.0	18.5	17.5	18.0	13.5	12.5	13.0
23	19.5	18.0	19.0	22.5	21.0	21.5	18.5	17.5	18.0	15.0	13.0	13.5
24	20.5	18.5	19.5	23.0	21.5	22.0	19.0	18.5	18.5	14.5	13.5	14.0
25	21.0	18.5	19.5	22.5	21.5	22.0	19.5	18.5	19.0	14.5	12.5	13.5
26	20.5	18.5	19.5	22.0	21.0	21.5	20.0	18.5	19.0	16.0	14.0	15.0
27	21.0	19.0	20.0	22.0	20.5	21.5	20.5	19.0	19.5	16.0	15.0	15.5
28	21.0	19.5	20.0	22.5	20.5	21.0	21.5	20.0	20.5	15.5	14.5	15.0
29	20.5	18.5	19.0	23.0	21.0	22.0	21.0	18.5	19.5	15.0	14.0	14.5
30	19.0	17.5	18.0	24.0	22.0	23.0	19.0	17.5	18.0	14.5	13.5	14.0
31	---	---	---	23.5	22.5	23.0	19.0	17.0	18.0	---	---	---
MONTH	21.5	14.0	18.0	24.0	17.5	20.7	22.5	15.0	18.4	20.5	12.5	15.9

STREAMS TRIBUTARY TO LAKE MICHIGAN

040871475 WILSON PARK CREEK AT GMIA OUTFALL # 7 AT MILWAUKEE, WI

LOCATION.--Lat 42°57'24", long 87°54'25", in NW 1/4 NW 1/4 sec.28, T.6 N., R.22 E., Milwaukee County, Hydrologic Unit 04040003, at Milwaukee.

DRAINAGE AREA.--2.25 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1996 to May 1997, November 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 670 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Jan. 3-4 and May 22 to June 2. Records are good except for estimated daily discharges, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.32	.16	.16	.10	2.6	.52	.30	.56	4.0	.45	.25	.16
2	.94	.15	.15	.12	7.0	.95	.28	.49	14	.37	.21	.15
3	8.4	.14	.16	.11	4.2	.61	.26	.46	.89	.35	.21	.14
4	.54	.14	.16	.10	3.4	.42	3.7	.42	.88	.32	.22	.15
5	9.8	.13	.17	.10	2.2	1.0	.42	.62	.59	.30	.19	.14
6	2.1	.13	8.5	.11	1.7	.52	.96	7.3	3.8	.37	.18	.13
7	.84	.12	2.7	.10	1.2	.50	.37	.95	1.2	.26	2.4	.15
8	.34	.13	.46	.10	1.2	.42	2.0	.57	.49	.25	.25	.13
9	.30	1.4	.31	.10	2.0	.45	65	.41	.45	14	.21	.13
10	.27	56	.26	.10	1.5	.86	6.2	.35	8.1	.43	3.6	.12
11	.27	1.9	.26	.12	17	.73	6.7	.30	3.8	.30	.40	.12
12	.27	.82	.21	.10	3.9	.80	3.0	10	1.4	.29	.83	1.2
13	.29	.55	.20	.13	1.5	.96	1.6	.84	94	.29	.44	.42
14	.25	.47	.19	.10	1.1	1.3	1.1	.50	18	.27	.36	.13
15	.24	.36	.19	.12	1.0	2.0	.91	.41	2.9	.27	.32	.12
16	.22	.33	.18	.23	1.0	5.3	2.1	9.6	3.6	1.8	.28	.12
17	9.3	.28	.18	2.3	.88	5.6	.79	19	1.9	31	.29	.11
18	6.7	.25	.19	.66	.68	1.6	.61	12	1.2	2.4	.30	.13
19	.70	.24	.17	.39	.61	.90	.54	2.6	.93	4.5	6.6	2.5
20	.37	.20	.17	.28	.53	.75	.57	1.3	.81	.66	.28	.82
21	.29	.19	.19	.85	.41	.59	.88	1.3	.71	33	.20	.15
22	.23	.19	.16	45	.39	.41	21	1.6	.70	1.3	.19	.15
23	.19	.19	.15	46	.39	.36	96	10	5.3	1.3	.53	.14
24	.17	.17	.14	12	.38	.32	9.0	3.5	2.8	.76	1.1	.13
25	.17	.18	.14	3.8	.96	.30	2.3	.80	.67	.43	.25	.13
26	.16	.17	.14	1.6	.53	.29	1.6	.70	.54	.52	.24	.12
27	.19	.18	.14	9.3	.60	.29	1.2	.66	.47	.34	.20	16
28	.19	.17	.13	5.4	.69	.30	.93	.62	4.8	.31	.18	45
29	.18	.17	.15	2.2	---	.29	.74	.60	.96	.29	.16	3.5
30	.25	.28	.12	2.4	---	.30	.62	.58	.50	.38	.15	.83
31	.19	---	.11	2.4	---	.31	---	1.5	---	1.2	.15	---
TOTAL	44.67	65.79	16.54	136.42	59.55	29.95	231.68	90.54	180.39	98.71	21.17	73.22
MEAN	1.44	2.19	.53	4.40	2.13	.97	7.72	2.92	6.01	3.18	.68	2.44
MAX	9.8	56	8.5	46	17	5.6	96	19	94	33	6.6	45
MIN	.16	.12	.11	.10	.38	.29	.26	.30	.45	.25	.15	.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1999, BY WATER YEAR (WY)

	1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
MEAN	1.44	1.30	.67	2.54	3.52	2.45	4.95	2.24	3.74	1.98	2.71	1.65
MAX	1.44	2.19	1.00	4.40	4.28	4.37	7.72	2.92	6.01	3.18	4.74	2.44
(WY)	1999	1999	1997	1999	1998	1998	1999	1999	1999	1999	1998	1999
MIN	1.44	.41	.49	1.47	2.13	.97	1.74	1.55	1.47	.78	.68	.85
(WY)	1999	1998	1998	1997	1999	1999	1997	1998	1998	1998	1999	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1997 - 1999

ANNUAL TOTAL	887.45	1048.63	2.87
ANNUAL MEAN	2.43	2.87	2.87
HIGHEST ANNUAL MEAN			2.87
LOWEST ANNUAL MEAN			2.87
HIGHEST DAILY MEAN	93	Aug 5	96
LOWEST DAILY MEAN	.11	Dec 31	.10
ANNUAL SEVEN-DAY MINIMUM	.13	Dec 25	.10
INSTANTANEOUS PEAK FLOW			282
INSTANTANEOUS PEAK STAGE			14.35
INSTANTANEOUS LOW FLOW			.09
10 PERCENT EXCEEDS	5.0		5.3
50 PERCENT EXCEEDS	.44		.43
90 PERCENT EXCEEDS	.17		.14

(a) Also occurred Jan. 4-5, 7-10, 12, 14

(b) Also occurred Jan. 7-11, 14

040871475 WILSON PARK CREEK AT GMIA OUTFALL #7 AT MILWAUKEE, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1996 to May 1997, October 1997 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1996 to May 1997, October 1997 to current year.

DISSOLVED OXYGEN: October 1997 to November 1998.

INSTRUMENTATION.--Stage-activated water-quality sampler since November 1996. Continuous water-temperature recorder since November 1996. Continuous dissolved oxygen from October 1997 to November 1998.

REMARKS.--Chemical analyses are by the Wisconsin State Laboratory of Hygiene. Samples are point samples unless otherwise indicated. Records represent water temperature at sensor within 0.5°C. Dissolved-oxygen concentrations greater than 30 mg/L are out of calibration range of meter.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum observed, 26.5°C, July 15, 1998; minimum observed, 0.5°C, Feb. 18, 21, 1997, and Jan. 22-23, 1999.

DISSOLVED OXYGEN: Maximum observed, 14.1 mg/L, Feb. 27, 1998; minimum observed, 0.0 mg/L, June 27 and July 7, 1998.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 25.0°C, June 11; minimum observed, 0.5°C, Jan. 22-23.

DISSOLVED OXYGEN: Maximum observed, 11.5 mg/L, Nov. 10; minimum observed, 0.9 mg/L, Nov. 2.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE LAB (STANDARD UNITS) (00403)	OXYGEN DEMAND, CHEMICAL (LOW LEVEL) (MG/L) (00335)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L) (00310)	CALCIUM TOTAL RECOVERABLE (MG/L AS CA) (00916)	MAGNESIUM TOTAL RECOVERABLE (MG/L) (00921)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) (00530)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS TOTAL (MG/L AS P) (00665)
NOV 1998											
03...	1226	.14	--	--	--	--	--	--	--	--	--
DEC 01...	1315	.15	--	--	--	--	--	--	--	--	--
20...	2108	.18	--	--	--	--	--	--	--	--	--
JAN 1999											
17...	1604	14	--	--	--	--	--	--	--	--	--
FEB 08...	1338	.89	7.8	310	130	130	46	6	4.95	8.4	.033
MAR 24...	0958	.30	7.8	230	150	--	--	--	2.51	4.3	--
31...	1036	.33	8.0	220	140	--	--	--	3.68	4.8	--
APR 14...	1000	1.1	7.8	190	80	--	--	--	2.81	4.2	--
MAY 11...	1130	.30	7.9	140	91	--	--	--	1.97	3.8	--
JUN 09...	0818	.39	7.9	59	30	--	--	--	1.46	2.6	--
SEP 08...	1330	.13	8.1	22	<2.0	130	58	5	.312	1.0	.087
27...	0536	13	--	--	--	--	--	--	--	--	--

DATE	CADMIUM TOTAL RECOVERABLE (UG/L) (01113)	COPPER, TOTAL RECOVERABLE (UG/L) (01119)	LEAD, TOTAL RECOVERABLE (UG/L) (01114)	ZINC, TOTAL RECOVERABLE (UG/L) (01094)	OIL AND GREASE, TOTAL RECOVERABLE GRAVIMETRIC (MG/L) (00556)	1,2 - ETHANE-DIOL, WATER TOTAL (MG/L) (91075)	1,2 - PROPANEDIOL, WATER TOTAL (MG/L) (91080)	GLYCOL HYDRO-LIZERS UNFILTERED, TOTAL COLS./100ML (99920)	PSEU-MONAS UNFILTERED, TOTAL RECOVER (COLS./100ML) (99921)	PRESUMPT. AERO-MONAS UNFILTERED, TOTAL RECOVER (COLS./100ML) (99922)
NOV 1998										
03...	--	--	--	--	--	--	--	6200.0	630.00	110.00
DEC 01...	--	--	--	--	--	--	--	9300.0	2400.0	2000.0
20...	--	--	--	--	2	--	--	--	--	--
JAN 1999										
17...	--	--	--	--	9	--	--	--	--	--
FEB 08...	<1	2	<1	70	--	<18.0	69.0	2400.0	9000.0	44000
MAR 24...	--	--	--	--	--	<18.0	36.0	1000.0	170.00	570.00
31...	--	--	--	--	--	<18.0	<18.0	--	--	--
APR 14...	--	--	--	--	--	<18.0	<18.0	--	--	--
MAY 11...	--	--	--	--	--	<18.0	<18.0	--	--	--
JUN 09...	--	--	--	--	--	<18.0	<18.0	45000	1230.0	270.00
SEP 08...	<1	2	<1	20	4	<18.0	<18.0	2600.0	--	--
27...	--	--	--	--	5	--	--	--	--	--

STREAMS TRIBUTARY TO LAKE MICHIGAN

040871475 WILSON PARK CREEK AT GMIA OUTFALL #7 AT MILWAUKEE, WI-CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

COMPOSITE SAMPLES

BEGIN- NING DATE	BEGIN- NING TIME	ENDING DATE	ENDING TIME	RUNOFF VOLUME (THOUSANDS OF CUBIC FEET (99904)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, CHEM- ICAL (LOW LEVEL) (MG/L) (00335)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOVER -ABLE (MG/L) (00921)
12-20-98	2050	12-20-98	2300	1.3	8.3	300	<600	120	52
12-29-98	0602	12-29-98	1149	3.1	8.0	280	<60	150	62
01-11-99	0650	01-11-99	2255	7.0	8.0	240	72	110	41
01-17-99	1310	01-17-99	2135	180	7.3	4400	>1000	54	11
03-13-99	1505	03-13-99	2025	24	8.0	2400	2000	--	--
03-15-99	1440	03-16-99	2045	500	7.9	870	<600	--	--
09-27-99	0515	09-27-99	1005	71	7.9	32	16	36	11

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, AMMONIA + DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	CADMIUM TOTAL RECOVER -ABLE (UG/L) (01113)	COPPER, TOTAL RECOVER -ABLE (UG/L) (01119)	LEAD, TOTAL RECOVER -ABLE (UG/L) (01114)	ZINC, TOTAL RECOVER -ABLE (UG/L) (01094)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)	1,2,- ETHANE- DIOL, WATER, UNFLTRD REC (MG/L) (91075)	1,2,- PROP- ANEDIOL WATER, UNFLTRD REC (MG/L) (91080)
12-20-98	<5	.678	2.2	.029	<1	4	1	40	--	<18.0	24.0
12-29-98	<5	.726	1.8	.102	<1	1	<1	<20	--	<18.0	<18.0
01-11-99	12	.512	1.7	.059	<1	3	1	20	--	<18.0	34.0
01-17-99	134	3.01	38	.409	6	59	62	440	--	130	1400
03-13-99	9	10.6	19	.070	--	--	--	--	<.04	110	780
03-15-99	11	3.56	8.9	--	--	--	--	--	--	46.0	350
09-27-99	12	.504	1.2	.136	1	12	4	70	--	<18.0	<18.0

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	18.0	16.5	17.0	14.0	13.5	14.0	10.5	9.5	10.0	4.0	2.5	3.0
2	17.0	14.5	16.5	14.0	13.0	13.5	10.5	10.5	10.5	4.5	2.0	3.5
3	16.0	13.5	15.0	13.0	11.5	12.5	11.0	10.5	10.5	---	---	---
4	16.5	16.0	16.0	12.0	10.5	11.0	11.5	10.5	11.0	---	---	---
5	16.5	15.0	16.0	11.5	10.5	11.0	11.0	11.0	11.0	4.5	3.5	4.0
6	17.5	16.5	17.0	11.0	10.0	10.5	11.5	4.0	9.5	4.5	4.0	4.0
7	17.0	16.0	16.5	11.5	10.0	11.0	9.0	6.0	8.0	4.0	3.5	4.0
8	16.0	15.5	16.0	11.5	11.0	11.0	9.5	8.5	9.0	4.0	3.5	4.0
9	16.0	15.5	16.0	12.0	9.5	11.0	9.5	9.0	9.5	4.0	3.0	3.5
10	16.0	15.5	16.0	11.5	8.5	10.0	9.5	8.5	9.0	3.5	3.0	3.5
11	16.0	15.5	15.5	10.0	9.0	9.5	9.0	8.5	9.0	4.5	3.0	4.0
12	15.5	15.5	15.5	10.0	9.5	10.0	9.0	8.5	9.0	5.5	3.5	4.0
13	15.5	14.0	14.5	10.5	10.0	10.0	9.0	8.5	8.5	4.5	4.0	4.5
14	14.5	13.5	14.0	10.5	10.0	10.5	8.5	8.0	8.5	4.5	4.0	4.5
15	15.0	14.5	14.5	10.5	10.0	10.5	8.5	8.5	8.5	5.0	4.5	4.5
16	15.0	14.5	15.0	10.5	10.0	10.5	8.5	7.5	8.0	5.5	4.0	4.5
17	18.0	15.0	16.5	11.0	10.0	10.5	8.0	7.0	7.5	5.0	2.0	4.0
18	17.0	15.0	16.0	11.0	10.0	10.5	8.5	7.5	8.0	5.0	1.0	4.5
19	15.5	14.5	15.0	11.0	9.5	10.5	8.0	6.5	7.5	4.5	4.0	4.0
20	15.0	14.0	14.5	9.5	8.5	9.0	8.0	6.5	7.5	4.5	4.0	4.0
21	14.5	13.5	14.0	10.0	9.0	9.5	8.0	4.5	6.5	4.5	2.0	4.0
22	14.0	13.0	13.5	10.0	9.5	10.0	5.5	3.5	4.5	2.5	.5	1.0
23	14.0	13.5	14.0	10.0	9.5	10.0	6.5	5.5	6.0	1.5	.5	1.0
24	14.5	14.0	14.0	10.0	9.5	10.0	6.5	5.5	6.0	2.0	1.0	1.5
25	14.5	14.0	14.0	10.0	10.0	10.0	6.5	6.0	6.0	2.5	1.5	2.0
26	14.5	14.0	14.5	10.0	9.5	10.0	6.0	4.5	5.5	3.0	2.5	2.5
27	15.0	14.5	14.5	10.0	9.5	10.0	6.5	6.0	6.0	3.5	1.0	2.5
28	15.0	14.0	14.5	10.0	10.0	10.0	6.5	6.0	6.5	3.0	1.5	2.0
29	14.5	14.0	14.5	10.5	10.0	10.5	6.5	5.0	6.0	3.5	2.5	3.0
30	14.5	14.5	14.5	11.5	10.0	10.5	5.5	3.0	4.0	3.5	2.0	3.0
31	14.5	14.0	14.0	---	---	---	4.0	2.5	3.5	3.5	3.0	3.0
MONTH	18.0	13.0	15.1	14.0	8.5	10.6	11.5	2.5	7.8	---	---	---

040871475 WILSON PARK CREEK AT GMIA OUTFALL #7 AT MILWAUKEE, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	3.5	2.5	3.0	5.5	4.5	4.5	6.5	6.0	6.5	9.5	9.0	9.0
2	3.0	2.5	3.0	6.0	4.5	4.5	7.0	6.5	6.5	9.5	9.0	9.5
3	3.0	3.0	3.0	4.5	4.0	4.0	7.5	7.0	7.0	10.0	9.5	9.5
4	3.5	2.5	3.0	4.5	4.0	4.0	8.0	7.0	7.5	10.0	10.0	10.0
5	4.0	2.5	3.0	4.5	3.0	4.0	8.0	7.5	7.5	11.0	10.0	10.5
6	4.0	2.5	3.5	3.5	3.5	3.5	8.0	7.0	7.5	14.0	10.5	12.0
7	4.0	3.5	3.5	4.5	3.5	4.0	7.5	7.0	7.5	12.0	10.5	11.0
8	4.0	3.5	4.0	4.0	3.5	4.0	8.0	7.5	7.5	10.5	10.5	10.5
9	4.5	3.5	3.5	4.0	3.5	4.0	8.0	5.5	7.0	10.5	10.5	10.5
10	4.0	3.5	3.5	4.5	3.5	4.0	8.5	6.0	7.0	10.5	10.5	10.5
11	12.0	3.5	5.5	4.5	3.0	3.5	8.0	6.5	7.0	10.5	10.5	10.5
12	5.0	3.5	4.0	4.5	3.5	4.0	8.0	6.5	7.0	12.5	10.5	11.5
13	4.0	3.0	3.5	4.0	3.5	4.0	8.5	7.0	7.5	11.5	10.5	11.0
14	4.0	3.5	4.0	4.0	3.5	3.5	8.5	7.5	8.0	10.5	10.0	10.5
15	4.5	4.0	4.0	4.0	3.0	3.5	8.5	8.0	8.0	11.0	10.5	10.5
16	5.0	4.0	4.5	4.0	3.0	3.5	8.0	7.5	7.5	18.5	11.0	12.0
17	4.5	4.0	4.0	5.5	3.0	4.0	7.5	7.0	7.5	16.5	14.0	15.0
18	4.5	4.0	4.0	4.5	4.0	4.0	7.5	7.5	7.5	15.5	13.5	14.5
19	4.5	4.0	4.0	5.0	4.0	4.5	8.0	7.5	7.5	14.0	12.0	13.0
20	4.0	3.5	4.0	5.0	4.5	4.5	8.0	7.5	7.5	14.0	12.0	13.0
21	4.0	3.5	3.5	5.0	4.5	4.5	8.0	8.0	8.0	14.5	12.5	13.0
22	4.5	4.0	4.0	5.0	4.5	4.5	8.0	6.0	7.0	---	---	---
23	4.5	4.0	4.5	5.0	5.0	5.0	8.5	5.0	6.5	---	---	---
24	5.5	4.0	4.5	5.5	4.5	5.0	9.5	6.0	7.5	---	---	---
25	5.0	3.5	4.0	5.0	5.0	5.0	9.5	7.0	8.0	---	---	---
26	4.5	4.0	4.0	5.5	4.5	5.0	10.0	7.5	8.5	---	---	---
27	5.0	4.0	4.5	5.5	5.0	5.0	10.0	8.5	9.0	---	---	---
28	4.5	4.0	4.5	5.5	5.0	5.5	9.0	8.0	8.5	---	---	---
29	---	---	---	5.5	5.0	5.5	9.0	8.0	8.5	---	---	---
30	---	---	---	6.0	5.5	5.5	9.5	8.5	9.0	---	---	---
31	---	---	---	6.5	6.0	6.0	---	---	---	---	---	---
MONTH	12.0	2.5	3.9	6.5	3.0	4.4	10.0	5.0	7.6	---	---	---
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	16.5	16.5	16.5	20.0	19.0	19.5	17.5	17.5	17.5
2	---	---	---	16.5	16.0	16.5	19.0	18.5	19.0	17.5	17.5	17.5
3	13.5	13.0	13.5	16.5	16.0	16.5	19.0	18.5	18.5	17.5	17.5	17.5
4	14.0	13.0	13.5	16.5	16.0	16.5	18.5	18.5	18.5	18.0	17.5	17.5
5	14.0	13.5	13.5	16.5	16.0	16.5	18.5	18.0	18.0	17.5	17.5	17.5
6	22.5	13.5	15.5	17.5	16.5	17.0	18.0	18.0	18.0	17.5	17.0	17.5
7	19.0	15.5	16.5	16.5	16.5	16.5	21.5	18.0	19.0	18.0	17.5	17.5
8	15.5	15.0	15.0	16.5	16.5	16.5	19.5	18.5	18.5	17.5	17.5	17.5
9	16.0	14.0	15.0	22.0	16.5	19.5	18.5	18.0	18.0	17.5	17.0	17.0
10	23.0	15.0	17.0	18.5	17.5	18.0	20.0	18.0	18.5	17.0	17.0	17.0
11	25.0	16.5	18.5	17.5	17.0	17.5	19.0	18.0	18.5	17.0	16.5	17.0
12	19.0	16.5	17.0	17.0	17.0	17.0	19.5	17.5	18.0	19.5	17.0	17.0
13	20.0	17.0	18.5	17.0	16.5	17.0	18.0	17.5	18.0	18.0	17.5	17.5
14	18.0	16.5	17.5	17.0	16.5	16.5	18.5	17.0	17.5	17.5	17.0	17.0
15	16.5	14.0	15.5	17.0	16.5	16.5	17.5	17.0	17.0	17.0	16.5	16.5
16	16.5	15.0	15.5	24.0	16.5	17.0	17.5	17.0	17.0	16.5	16.0	16.0
17	15.5	14.0	15.0	23.5	20.5	22.0	17.5	17.0	17.0	16.5	16.0	16.0
18	15.5	14.5	15.0	20.5	19.0	19.5	17.5	17.0	17.5	16.5	16.0	16.5
19	15.5	15.0	15.0	21.5	19.0	20.0	19.5	17.0	18.5	21.0	16.0	17.0
20	15.5	15.0	15.0	19.5	18.5	19.0	18.5	18.0	18.0	18.0	16.0	17.0
21	15.5	15.0	15.5	22.0	18.5	21.0	18.0	17.5	17.5	16.0	15.0	15.5
22	16.0	15.5	15.5	20.0	19.0	19.5	17.5	17.5	17.5	16.5	15.5	16.0
23	22.0	15.5	16.5	22.0	19.0	19.5	19.5	17.5	18.0	16.5	16.0	16.0
24	20.0	17.0	18.0	21.0	19.5	19.5	19.5	18.0	18.5	16.0	15.0	15.5
25	17.0	16.5	17.0	19.5	19.0	19.5	18.5	18.0	18.0	15.5	15.5	15.5
26	16.5	16.5	16.5	19.5	19.0	19.0	18.5	17.5	18.0	16.0	15.5	15.5
27	16.5	16.5	16.5	19.0	18.5	19.0	18.0	18.0	18.0	17.5	14.5	16.5
28	24.5	16.5	18.0	19.0	18.5	18.5	18.0	18.0	18.0	16.0	14.5	15.0
29	20.0	17.0	18.0	19.0	18.5	18.5	18.0	17.5	18.0	15.5	14.5	15.5
30	17.0	16.5	16.5	23.0	18.5	20.0	17.5	17.5	17.5	15.5	15.0	15.5
31	---	---	---	23.5	20.0	21.5	17.5	17.5	17.5	---	---	---
MONTH	---	---	---	24.0	16.0	18.3	21.5	17.0	18.0	21.0	14.5	16.6

STREAMS TRIBUTARY TO LAKE MICHIGAN

040871475 WILSON PARK CREEK AT GMIA OUTFALL #7 AT MILWAUKEE, WI--CONTINUED

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	4.7	3.8	4.2	3.0	1.4	1.9	---	---	---	---	---	---
2	7.3	3.3	4.2	2.3	.9	1.3	---	---	---	---	---	---
3	8.0	4.2	6.3	3.0	1.1	2.0	---	---	---	---	---	---
4	4.2	3.4	3.8	3.7	1.2	2.6	---	---	---	---	---	---
5	8.1	3.3	5.3	3.1	1.0	2.4	---	---	---	---	---	---
6	8.1	4.1	5.7	2.8	1.5	2.0	---	---	---	---	---	---
7	7.8	5.1	6.4	3.1	1.9	2.5	---	---	---	---	---	---
8	6.6	1.6	4.7	3.8	1.6	2.8	---	---	---	---	---	---
9	3.8	3.1	3.6	11.3	1.0	2.6	---	---	---	---	---	---
10	3.7	3.2	3.5	11.5	6.6	8.1	---	---	---	---	---	---
11	4.0	3.1	3.7	7.0	6.2	6.7	---	---	---	---	---	---
12	4.0	2.7	3.3	6.7	6.0	6.3	---	---	---	---	---	---
13	5.2	2.3	3.9	6.0	5.6	5.8	---	---	---	---	---	---
14	4.7	2.2	3.7	5.7	5.2	5.5	---	---	---	---	---	---
15	3.4	2.2	2.7	5.7	5.5	5.6	---	---	---	---	---	---
16	3.0	1.6	2.3	5.7	5.2	5.5	---	---	---	---	---	---
17	5.4	2.3	4.0	6.0	5.4	5.7	---	---	---	---	---	---
18	5.4	3.3	4.5	6.1	5.0	5.6	---	---	---	---	---	---
19	3.7	2.5	3.1	5.6	5.2	5.4	---	---	---	---	---	---
20	3.5	2.9	3.3	5.9	5.3	5.6	---	---	---	---	---	---
21	4.5	3.1	3.6	5.7	4.3	5.4	---	---	---	---	---	---
22	4.6	3.1	3.8	5.8	4.2	5.2	---	---	---	---	---	---
23	4.0	2.2	3.2	6.1	5.0	5.8	---	---	---	---	---	---
24	3.3	2.3	2.8	6.4	4.9	6.1	---	---	---	---	---	---
25	3.4	1.9	2.9	6.0	4.6	5.3	---	---	---	---	---	---
26	4.4	2.1	3.1	6.2	4.3	5.4	---	---	---	---	---	---
27	3.8	1.5	2.7	6.8	3.4	5.3	---	---	---	---	---	---
28	3.3	1.5	2.2	5.4	2.5	3.9	---	---	---	---	---	---
29	3.0	1.6	2.4	6.7	5.2	6.1	---	---	---	---	---	---
30	4.0	1.1	2.1	6.7	2.5	4.2	---	---	---	---	---	---
31	2.8	1.3	1.7	---	---	---	---	---	---	---	---	---
MONTH	8.1	1.1	3.6	11.5	.9	4.6	---	---	---	---	---	---

040871476 HOLMES AVENUE CREEK TRIB AT GMIA OUTFALL #1 AT MILWAUKEE, WI

LOCATION.--Lat 42°56'30", long 87°54'37", in NE 1/4 NE 1/4 sec.32, T.6 N., R.22 E., Milwaukee County, Hydrologic Unit 04040003, at Milwaukee.

DRAINAGE AREA.--0.03 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1996 through May 1997, November 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 700 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Sept. 21-30. Records are fair except for estimated daily discharges, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.01	.00	.00	.00	.55	.00	.00	.00
2	.06	.00	.00	.00	.07	.01	.00	.00	.21	.00	.00	.00
3	.20	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.02	.00	.10	.00	.00	.00	.00	.00
5	.23	.00	.00	.00	.02	.01	.00	.00	.00	.00	.00	.00
6	.02	.00	.31	.00	.01	.00	.02	.18	.09	.00	.00	.00
7	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.08	.00
8	.00	.00	.00	.00	.01	.00	.10	.00	.00	.00	.00	.00
9	.00	.08	.00	.00	.02	.00	1.1	.00	.01	.41	.00	.00
10	.00	1.2	.00	.00	.01	.00	.01	.00	.31	.00	.14	.00
11	.00	.00	.00	.00	.43	.00	.06	.00	.15	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.26	.01	.00	.01	.02
13	.00	.00	.00	.00	.00	.01	.00	.00	1.9	.00	.00	.00
14	.00	.00	.00	.00	.00	.01	.00	.00	.02	.00	.00	.00
15	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.03	.02	.21	.05	.21	.00	.00
17	.27	.00	.00	.14	.00	.04	.00	.33	.00	.81	.00	.00
18	.10	.00	.00	.00	.00	.00	.00	.22	.00	.02	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.26	.12
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
21	.00	.00	.00	.06	.00	.00	.02	.02	.00	.78	.00	.00
22	.00	.00	.00	.81	.00	.00	.48	.00	.00	.06	.00	.00
23	.00	.00	.00	.61	.00	.00	1.2	.12	.22	.01	.01	.00
24	.00	.00	.00	.07	.00	.00	.00	.00	.02	.00	.00	.00
25	.00	.00	.00	.01	.01	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.04	.00	.00	.00	.00	.00	.00	.00	.65
28	.00	.00	.00	.01	.00	.00	.00	.00	.17	.00	.00	.60
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.01	.00	.01	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.06	---	.02	.00	---
TOTAL	0.88	1.29	0.32	1.76	0.63	0.13	3.11	1.40	3.71	2.42	0.50	1.40
MEAN	.028	.043	.010	.057	.022	.004	.10	.045	.12	.078	.016	.047
MAX	.27	1.2	.31	.81	.43	.04	1.2	.33	1.9	.81	.26	.65
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1999, BY WATER YEAR (WY)

	1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
MEAN	.028	.026	.020	.043	.056	.038	.076	.040	.083	.050	.067	.034
MAX	.028	.043	.041	.057	.10	.061	.10	.045	.12	.078	.12	.047
(WY)	1999	1999	1997	1999	1997	1998	1999	1999	1999	1999	1998	1999
MIN	.028	.008	.010	.023	.023	.004	.043	.035	.042	.023	.016	.021
(WY)	1999	1998	1998	1998	1999	1999	1997	1998	1998	1998	1999	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1997 - 1999

ANNUAL TOTAL	16.06	17.55	
ANNUAL MEAN	.044	.048	.048
HIGHEST ANNUAL MEAN			.048
LOWEST ANNUAL MEAN			.048
HIGHEST DAILY MEAN	2.6	Aug 5	2.6
LOWEST DAILY MEAN	.00	Many days	.00
ANNUAL SEVEN-DAY MINIMUM	.00	Many periods	.00
INSTANTANEOUS PEAK FLOW		27	34
INSTANTANEOUS PEAK STAGE		3.13	3.74
INSTANTANEOUS LOW FLOW		.00	.00
10 PERCENT EXCEEDS	.10	.10	.10
50 PERCENT EXCEEDS	.00	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00

STREAMS TRIBUTARY TO LAKE MICHIGAN

040871476 HOLMES AVENUE CREEK TRIB AT GMIA OUTFALL #1 AT MILWAUKEE, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1996 to May 1997, November 1997 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1996 to May 1997, November 1997 to current year.

INSTRUMENTATION.--Stage-activated water-quality sampler since November 1996. Continuous water-temperature recorder since November 1996.

REMARKS.--Chemical analyses are by the Wisconsin State Laboratory of Hygiene. Samples are point samples unless otherwise indicated. Records represent water temperature at sensor within 0.5°C.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum observed, 27.5°C, June 9, 11, 28, 1999; minimum observed, 0.0°C, many days during winter.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 27.5°C, June 9, 11, 28; minimum observed, 0.0°C, many days during winter.

WATER-QUALITY DATA, OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, CHEM- ICAL (LOW LEVEL) (MG/L) (00335)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOVER -ABLE (MG/L) (00921)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
NOV 1998											
03...	1052	<.01	--	--	--	--	--	--	--	--	--
DEC											
20...	2230	<.01	7.9	7500	4900	130	26	9	6.31	16	.086
JAN 1999											
17...	1532	.88	--	--	--	--	--	--	--	--	--
FEB											
08...	1230	<.01	7.4	3500	1600	130	26	20	16.2	27	.037
MAR											
24...	1032	<.01	--	--	--	--	--	--	--	--	--
JUN											
09...	0832	<.01	--	--	--	--	--	--	--	--	--

DATE	CADMIUM TOTAL RECOVER -ABLE (UG/L) (01113)	COPPER, TOTAL RECOVER -ABLE (UG/L) (01119)	LEAD, TOTAL RECOVER -ABLE (UG/L) (01114)	ZINC, TOTAL RECOVER -ABLE (UG/L) (01094)	OIL AND GREASE, TOTAL RECOV. GRAVI- METRIC (MG/L) (00556)	1,2 - ETHANE- DIOL, WATER TOTAL (MG/L) (91075)	1,2 - PROP- ANEDIOL WATER TOTAL (MG/L) (91080)	GLYCOL HYDRO- LIZERS UNFIL- TERED, TOTAL RECOV COLS./ 100ML) (99920)	PSEU- MONAS UNFIL- TERED, TOTAL RECOV COLS./ 100ML) (99921)	PRESUMP. AERO- MONAS UNFIL- TERED TOTAL RECOV COLS./ 100ML) (99922)
NOV 1998										
03...	--	--	--	--	--	--	--	9100.0	480.00	20.000
DEC										
20...	7	16	48	150	4	280	3500	--	--	--
JAN 1999										
17...	--	--	--	--	10	--	--	--	--	--
FEB										
08...	<1	3	2	40	--	860	1100	120000	21000	37000
MAR										
24...	--	--	--	--	--	--	--	12400	50.000	940.00
JUN										
09...	--	--	--	--	--	--	--	67000	1400.0	250.00

STREAMS TRIBUTARY TO LAKE MICHIGAN

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040871476 HOLMES AVENUE CREEK TRIB AT GMIA OUTFALL #1 AT MILWAUKEE, WI--CONTINUED

WATER-QUALITY DATA, OCTOBER 1998 TO SEPTEMBER 1999

COMPOSITE SAMPLES

				RUNOFF VOLUME THOUSANDS OF CUBIC FEET (99904)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, CHEM- ICAL (LOW LEVEL) (MG/L) (00335)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOVER -ABLE (MG/L) (00921)		
BEGIN- NING DATE	BEGIN- NING TIME	ENDING DATE	ENDING TIME								
12-29-98	0610	12-29-98	1219	<.01	8.0	6900	4000	260	83		
01-11-99	0708	01-11-99	2250	<.01	7.8	1800	840	270	65		
01-17-99	1330	01-17-99	1845	11	8.3	1300	780	23	8.5		
03-13-99	1503	03-13-99	1616	.13	7.3	9400	7400	--	--		
03-15-99	1447	03-17-99	0808	4.3	7.5	3500	2200	--	--		
DATE	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	CADMIUM TOTAL RECOVER -ABLE (UG/L) (01113)	COPPER, TOTAL RECOVER -ABLE (UG/L) (01119)	LEAD, TOTAL RECOVER -ABLE (UG/L) (01114)	ZINC, TOTAL RECOVER -ABLE (UG/L) (01094)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)	1,2,- ETHANE- DIOL, WATER, UNFLTRD REC (MG/L) (91075)	1,2,- PROP- ANEDIOL WATER, UNFLTRD REC (MG/L) (91080)
12-29-98	18	11.3	18	.094	<1	3	1	50	--	920	1600
01-11-99	34	3.81	6.4	.075	<1	5	2	80	--	<18.0	<18.0
01-17-99	320	2.34	19	.629	5	25	28	130	--	51.0	550
03-13-99	16	10.8	18	.266	--	--	--	--	<.04	340	2800
03-15-99	19	3.00	7.4	--	--	--	--	--	--	190	1300

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	15.5	13.5	14.5	12.5	10.5	11.5	11.5	8.5	10.5	8.5	4.0	7.0
2	15.5	12.5	14.0	10.5	8.0	9.5	11.5	10.5	11.0	8.5	.0	6.5
3	14.5	11.5	13.5	9.5	7.0	8.5	12.0	11.0	11.5	9.5	7.5	8.5
4	15.5	14.5	14.5	12.5	8.5	10.0	12.0	10.5	11.5	9.5	7.5	8.5
5	16.0	13.5	15.5	11.5	8.5	11.0	12.0	10.5	11.5	9.0	8.0	8.5
6	18.5	15.0	16.5	12.0	9.5	11.0	12.5	.5	9.0	9.0	8.0	8.5
7	15.0	14.0	15.0	12.0	9.5	11.5	10.0	4.0	8.0	9.0	7.5	8.5
8	15.0	13.5	14.0	12.5	10.0	11.5	10.5	7.5	9.5	9.0	6.5	8.0
9	15.0	13.0	14.5	13.5	7.5	10.5	10.5	7.5	9.5	8.5	.0	4.5
10	15.0	12.5	14.0	12.5	7.5	10.5	10.0	8.5	9.5	7.5	.5	5.5
11	15.0	12.5	14.0	11.0	9.5	10.0	10.0	8.5	9.5	8.5	2.0	6.5
12	15.0	13.5	14.5	11.5	10.0	10.5	10.0	8.5	9.5	7.0	.0	4.0
13	14.0	12.0	13.0	12.0	9.5	11.5	10.5	8.5	9.5	7.0	.0	3.0
14	14.0	12.0	13.0	12.0	9.5	11.0	10.5	8.0	10.0	8.0	7.0	7.5
15	14.5	12.0	14.0	11.5	9.0	10.5	10.5	9.0	9.5	8.0	4.0	7.5
16	15.0	14.5	14.5	11.5	9.5	11.0	10.5	9.5	10.0	9.0	3.5	5.0
17	18.5	14.5	16.5	11.5	8.5	10.5	10.0	8.5	9.5	8.5	.0	3.5
18	17.0	13.5	14.5	12.0	8.5	11.5	10.5	9.0	10.0	5.5	.5	3.5
19	14.5	12.0	13.5	12.0	9.0	10.0	10.0	9.0	10.0	5.0	3.0	4.0
20	13.5	12.0	13.0	10.0	8.0	9.0	10.5	9.5	10.0	6.5	4.5	5.5
21	13.5	11.5	12.5	11.0	9.0	10.5	10.0	7.5	9.0	7.0	.0	5.5
22	13.5	12.0	13.0	11.5	11.0	11.0	8.5	6.0	7.5	1.5	.0	.5
23	14.0	11.5	13.0	11.0	9.5	11.0	8.5	6.5	7.5	1.5	.0	.5
24	14.0	11.5	13.5	11.5	9.5	11.0	8.5	6.0	7.5	2.0	.0	.5
25	14.0	12.5	13.5	11.5	10.5	11.0	8.5	7.5	8.5	2.5	.5	2.0
26	14.0	12.5	13.5	11.0	9.0	10.5	9.0	6.5	8.0	3.5	1.0	2.0
27	16.0	14.0	14.5	11.0	8.5	10.5	9.0	7.5	8.5	3.5	.0	1.5
28	15.0	12.0	13.0	11.5	10.0	11.0	9.5	8.0	9.0	3.0	.5	2.0
29	14.5	12.5	14.0	12.0	11.0	11.5	9.5	6.0	8.5	3.5	2.5	3.0
30	14.5	14.0	14.5	13.5	11.0	12.0	8.5	5.0	7.0	4.0	1.5	3.0
31	14.0	12.0	13.5	---	---	---	7.5	5.0	6.5	3.5	1.5	2.5
MONTH	18.5	11.5	14.0	13.5	7.0	10.7	12.5	.5	9.2	9.5	.0	4.7

STREAMS TRIBUTARY TO LAKE MICHIGAN

040871476 HOLMES AVENUE CREEK TRIB AT GMIA OUTFALL #1 AT MILWAUKEE, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	4.0	2.0	3.0	6.0	5.0	5.5	6.0	6.0	6.0	8.0	7.5	7.5
2	2.5	.0	1.0	6.5	4.5	5.5	6.5	6.0	6.0	8.0	7.5	7.5
3	3.0	1.0	2.0	6.0	5.0	5.5	7.5	6.0	6.5	8.0	7.0	7.5
4	3.0	1.0	2.0	6.0	4.0	5.0	10.5	6.0	8.0	8.0	7.5	7.5
5	4.0	.5	2.5	6.5	.5	2.5	7.5	6.0	6.5	14.0	7.5	9.0
6	3.5	1.0	2.5	4.5	.5	3.0	8.5	6.5	7.5	15.5	8.0	11.5
7	4.0	2.5	3.0	5.0	2.5	3.5	7.0	6.5	6.5	10.0	8.5	9.0
8	4.5	2.0	3.5	4.5	3.0	4.0	8.5	6.0	7.0	9.0	8.0	9.0
9	4.0	1.5	2.5	6.0	4.0	5.0	8.5	4.5	6.5	9.0	7.5	8.5
10	5.0	2.5	3.5	6.0	4.0	5.0	8.5	5.5	6.5	9.0	7.5	8.5
11	13.0	3.5	6.5	5.0	3.0	4.0	7.5	5.0	6.5	9.0	8.5	8.5
12	4.5	4.0	4.5	4.5	1.0	3.0	7.0	6.0	6.5	14.0	8.5	11.0
13	5.0	4.0	4.5	4.0	.5	2.5	7.0	5.5	6.5	10.0	8.0	8.5
14	5.5	3.5	5.0	3.5	1.0	2.5	7.0	5.5	6.5	9.5	8.0	8.5
15	6.0	4.5	5.0	4.0	1.0	2.5	7.0	6.5	6.5	11.0	8.5	9.0
16	6.0	4.5	5.0	6.5	1.0	3.5	7.5	6.0	6.5	20.0	8.5	11.0
17	5.0	4.5	5.0	13.5	2.5	6.0	7.0	5.5	6.5	19.5	11.0	14.0
18	5.5	3.5	4.5	5.5	4.5	5.0	7.0	5.5	6.5	16.5	11.5	14.0
19	5.5	3.5	5.0	5.5	4.0	5.0	7.0	5.5	6.5	12.5	10.0	11.0
20	6.0	3.0	5.0	6.0	3.5	5.0	10.0	5.0	7.0	10.5	10.0	10.0
21	5.5	3.0	4.5	5.5	5.0	5.5	8.0	6.0	7.0	17.5	10.0	11.0
22	5.5	3.5	4.5	5.5	4.0	5.0	7.5	5.0	6.5	15.0	10.0	11.5
23	5.5	3.5	5.0	5.5	4.0	5.0	11.5	4.0	6.5	18.5	10.0	13.0
24	5.5	3.5	4.5	5.0	3.5	4.5	7.5	6.0	6.5	12.0	10.0	11.0
25	7.0	1.5	4.0	5.0	3.0	4.0	7.5	5.5	6.5	10.5	9.5	10.0
26	6.0	4.5	5.0	5.5	3.5	4.5	7.5	6.0	7.0	15.0	10.0	10.5
27	5.5	4.5	5.0	5.5	2.5	4.5	8.5	6.0	7.0	10.5	9.5	10.0
28	5.5	3.0	4.5	5.5	5.0	5.5	8.5	6.0	7.0	10.5	10.0	10.0
29	---	---	---	5.5	5.0	5.5	8.5	6.5	7.5	10.5	10.0	10.5
30	---	---	---	6.0	5.0	5.5	8.0	7.0	7.5	10.5	10.0	10.0
31	---	---	---	6.0	5.5	5.5	---	---	---	24.0	10.0	13.5
MONTH	13.0	.0	4.0	13.5	.5	4.5	11.5	4.0	6.7	24.0	7.0	10.1
JUNE			JULY			AUGUST			SEPTEMBER			
1	14.5	10.5	12.0	14.0	13.5	13.5	17.0	16.5	16.5	17.5	15.0	16.0
2	13.0	11.5	12.0	14.0	13.5	13.5	16.5	16.0	16.5	16.5	15.5	16.5
3	12.0	10.5	11.0	14.0	13.5	13.5	16.5	16.0	16.0	16.5	16.0	16.5
4	17.5	10.5	12.0	14.0	13.5	13.5	16.5	16.0	16.0	17.0	16.5	16.5
5	11.5	10.5	11.0	14.0	13.5	13.5	16.5	16.0	16.0	17.0	16.5	16.5
6	25.5	10.5	13.5	18.5	13.0	15.0	16.5	16.0	16.0	17.0	15.5	16.5
7	17.0	12.0	13.5	14.0	13.5	14.0	21.5	15.0	17.5	---	---	---
8	12.5	11.5	12.0	14.0	13.5	14.0	17.0	15.5	16.5	---	---	---
9	27.5	11.5	13.0	23.0	13.5	17.5	16.5	15.0	16.0	---	---	---
10	24.0	12.5	16.0	15.0	13.5	14.5	20.0	16.0	17.0	---	---	---
11	27.5	13.0	17.0	14.5	13.5	14.5	16.5	16.0	16.0	---	---	---
12	21.5	13.5	15.5	14.5	14.0	14.0	21.0	15.0	17.5	---	---	---
13	21.5	16.0	18.5	14.5	14.0	14.0	17.0	15.5	16.5	---	---	---
14	17.0	13.0	15.5	14.5	14.0	14.0	16.5	15.0	16.0	---	---	---
15	14.0	12.5	13.5	14.5	14.0	14.0	16.0	15.0	15.5	---	---	---
16	17.0	12.5	14.0	25.0	14.0	14.5	16.0	16.0	16.0	---	---	---
17	14.5	12.0	13.5	24.5	20.5	22.0	16.5	16.0	16.0	---	---	---
18	13.5	12.0	13.0	23.0	16.5	18.5	18.5	15.5	16.0	---	---	---
19	13.0	12.5	13.0	24.0	17.5	20.0	19.5	16.5	18.0	---	---	---
20	13.0	12.5	13.0	17.5	16.0	16.5	18.5	16.5	17.0	---	---	---
21	13.0	12.5	13.0	27.0	16.0	23.0	16.5	15.5	16.0	---	---	---
22	22.5	12.0	14.0	25.0	17.5	20.0	16.5	16.0	16.0	---	---	---
23	22.5	12.5	15.0	24.0	16.0	18.0	20.5	15.5	17.0	---	---	---
24	20.5	14.0	15.5	18.0	16.5	17.0	19.0	16.5	17.5	---	---	---
25	14.0	13.5	13.5	17.0	16.5	16.5	16.5	16.0	16.5	---	---	---
26	13.5	13.5	13.5	20.0	16.5	17.0	16.5	16.0	16.5	---	---	---
27	13.5	13.5	13.5	17.0	16.0	16.5	16.5	16.0	16.0	---	---	---
28	27.5	13.5	16.5	16.5	16.0	16.5	16.5	16.0	16.0	---	---	---
29	18.0	14.0	15.0	16.5	16.0	16.5	17.0	15.5	16.0	---	---	---
30	14.5	13.5	14.0	16.5	16.0	16.5	16.5	15.5	16.0	---	---	---
31	---	---	---	25.0	15.5	18.5	16.5	15.0	16.0	---	---	---
MONTH	27.5	10.5	13.9	27.0	13.0	16.1	21.5	15.0	16.4	---	---	---

040871488 WILSON PARK CREEK AT ST. LUKES HOSPITAL AT MILWAUKEE, WI

LOCATION.--Lat 42°59'16", long 87°57'07", in SE 1/4 SE 1/4 sec.12, T.6 N., R.21 E., Milwaukee County, Hydrologic Unit 04040003, at Milwaukee.

DRAINAGE AREA.--11.34 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1996 to May 1997, November 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 640 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: June 14-27. Records are fair except those for estimated daily discharges, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	2.9	4.7	1.6	13	4.2	4.8	8.2	65	5.8	3.4	2.9
2	6.2	2.7	7.7	1.3	36	5.6	4.3	8.2	57	5.0	3.2	9.5
3	49	2.6	3.4	1.6	21	4.4	5.7	7.6	10	4.9	3.0	14
4	5.8	3.5	3.9	2.0	19	3.4	27	6.4	10	4.6	2.8	7.3
5	55	2.7	3.1	2.1	14	6.9	5.8	7.8	7.5	4.5	3.4	2.5
6	17	2.5	41	2.4	12	5.5	8.7	45	33	4.6	2.7	2.3
7	8.4	2.6	18	2.4	10	4.8	5.2	9.7	12	4.2	16	2.6
8	5.1	2.9	5.5	2.2	10	3.8	10	7.0	6.2	3.7	3.1	2.9
9	3.5	10	4.3	2.3	15	4.3	334	6.1	6.5	110	2.5	2.7
10	3.3	236	3.6	2.3	11	7.5	35	5.9	104	5.3	22	2.8
11	3.2	15	3.3	2.2	88	6.8	37	6.1	54	4.1	3.3	2.6
12	3.3	8.1	3.1	2.3	21	8.4	17	69	27	4.5	5.8	9.7
13	2.9	6.6	3.1	2.9	9.7	7.8	12	9.1	508	4.8	3.4	6.5
14	2.8	5.9	3.0	3.0	8.0	8.0	9.6	7.1	40	5.4	3.0	2.9
15	2.9	5.4	3.0	3.0	7.4	10	9.0	6.3	15	5.7	2.7	2.6
16	2.7	5.2	3.1	4.5	7.5	20	16	41	16	4.7	2.8	2.4
17	48	4.5	3.0	24	6.9	30	8.4	89	9.0	133	2.6	2.3
18	35	4.2	3.3	18	5.7	13	7.0	61	7.0	11	2.7	2.1
19	6.2	4.0	3.7	6.6	5.1	8.6	6.8	17	5.6	31	41	17
20	4.1	3.5	3.2	5.1	5.1	6.9	7.6	11	5.0	6.1	3.6	8.5
21	3.8	3.5	3.0	6.1	4.4	6.5	8.9	11	5.2	185	2.5	2.4
22	3.3	3.2	2.2	210	3.8	6.1	114	11	6.8	13	2.4	2.8
23	3.1	3.5	2.2	193	3.7	6.0	387	35	11	12	6.3	2.7
24	2.6	3.2	2.5	50	4.7	5.8	36	11	12	7.3	6.9	2.8
25	2.7	2.8	2.6	20	7.6	5.6	18	7.9	5.0	5.2	3.0	2.4
26	2.7	2.8	3.2	11	4.8	5.3	14	7.0	4.6	7.4	2.9	2.1
27	4.2	2.8	3.2	35	4.8	5.1	12	6.9	4.2	4.7	2.8	75
28	3.3	2.6	2.6	22	4.8	4.9	9.9	6.3	47	4.4	2.6	224
29	3.6	2.6	2.6	13	---	4.9	8.6	5.7	11	4.6	2.6	22
30	8.3	6.9	3.1	14	---	4.7	8.7	5.2	6.6	4.5	2.5	8.7
31	4.8	---	2.2	12	---	4.6	---	37	---	9.9	2.3	---
TOTAL	311.2	364.7	156.4	677.9	364.0	229.4	1188.0	572.5	1111.2	620.9	169.8	451.0
MEAN	10.0	12.2	5.05	21.9	13.0	7.40	39.6	18.5	37.0	20.0	5.48	15.0
MAX	55	236	41	210	88	30	387	89	508	185	41	224
MIN	2.6	2.5	2.2	1.3	3.7	3.4	4.3	5.2	4.2	3.7	2.3	2.1
CFSM	.89	1.07	.44	1.93	1.15	.65	3.49	1.63	3.27	1.77	.48	1.33
IN.	1.02	1.20	.51	2.22	1.19	.75	3.90	1.88	3.65	2.04	.56	1.48

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1999, BY WATER YEAR (WY)

	1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
MEAN	10.0	8.19	5.45	14.1	18.6	13.4	25.2	15.5	24.1	13.7	13.6	11.8
MAX	10.0	12.2	6.09	21.9	23.0	22.3	39.6	18.5	37.0	20.0	21.7	15.0
(WY)	1999	1999	1997	1999	1998	1998	1999	1999	1999	1999	1998	1999
MIN	10.0	4.23	5.05	7.73	13.0	7.40	8.55	12.5	11.1	7.31	5.48	8.56
(WY)	1999	1998	1999	1997	1999	1999	1997	1998	1998	1998	1999	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1997 - 1999

ANNUAL TOTAL	5256.1	6217.0	
ANNUAL MEAN	14.4	17.0	17.0
HIGHEST ANNUAL MEAN			17.0
LOWEST ANNUAL MEAN			17.0
HIGHEST DAILY MEAN	(a)300	Aug 5	508 Jun 13
LOWEST DAILY MEAN	2.2	Dec 22,23,31	1.3 Jan 2
ANNUAL SEVEN-DAY MINIMUM	2.6	Dec 22	1.9 Dec 31
INSTANTANEOUS PEAK FLOW			1380 Jun 13
INSTANTANEOUS PEAK STAGE			18.23 Jun 13
INSTANTANEOUS LOW FLOW			1.0 Jan 2,3
ANNUAL RUNOFF (CFSM)	1.27	1.50	1.50
ANNUAL RUNOFF (INCHES)	17.24	20.39	20.41
10 PERCENT EXCEEDS	31	35	27
50 PERCENT EXCEEDS	6.2	5.6	5.7
90 PERCENT EXCEEDS	3.0	2.6	2.7

(a) Estimated

(b) From floodmark

(c) Also occurred Jan. 2, 3, 1999

STREAMS TRIBUTARY TO LAKE MICHIGAN

040871488 WILSON PARK CREEK AT ST. LUKES HOSPITAL AT MILWAUKEE, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1996 to April 1997, November 1997 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1996 to April 1997, November 1997 to current year.

DISSOLVED OXYGEN: November, 1996 to April 1997, November 1997 to current year.

INSTRUMENTATION.--Stage-activated water-quality sampler since November 1996. Continuous water-temperature recorder since November 1996. Dissolved-oxygen recorder since November 1996.

REMARKS.--Chemical analyses are by the Wisconsin State Laboratory of Hygiene. Samples are point samples unless otherwise indicated. Dissolved-oxygen concentrations greater than 30 mg/L are out of calibration range of meter. Records represent water temperature at sensor within 0.5°C.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum observed, 29.5°C, July 30, 1999; minimum observed, 0.0°C, many days during winter.

DISSOLVED OXYGEN: Maximum observed, 22.4 mg/L, May 22, 1999; minimum observed, 0.0 mg/L, Feb. 24, 1997.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 29.5°C, July 30; minimum observed, 0.0°C, many days during winter.

DISSOLVED OXYGEN: Maximum observed, 22.4 mg/L, May 22; minimum observed, 2.3 mg/L, July 31.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST- CUBIC FEET PER SECOND (00061)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, CHEM- ICAL (LOW LEVEL) (MG/L) (00335)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOVER- ABLE (MG/L) (00921)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
NOV 1998											
03...	1538	2.3	--	--	--	--	--	--	--	--	--
DEC											
01...	1355	6.4	--	--	--	--	--	--	--	--	--
21...	0114	3.5	--	--	--	--	--	--	--	--	--
JAN 1999											
17...	1802	77	--	--	--	--	--	--	--	--	--
FEB											
08...	1515	10	7.9	51	19	110	47	8	.720	1.9	.055
MAR											
24...	0842	5.9	7.9	30	14	--	--	--	.119	.71	--
31...	0912	4.4	8.2	<9	<6.0	--	--	--	<.013	.58	--
APR											
14...	1040	10	8.1	23	<12	--	--	--	.202	.75	--
MAY											
11...	1015	5.6	8.4	23	<6.0	--	--	--	.016	.81	--
JUN											
09...	0922	5.5	8.2	15	<6.0	--	--	--	.045	.45	--
SEP											
08...	1430	2.6	8.5	18	<2.0	62	35	7	.047	.88	.083
27...	0948	13	--	--	--	--	--	--	--	--	--

DATE	CADMIUM TOTAL RECOVER- ABLE (UG/L) (01113)	COPPER, TOTAL RECOVER- ABLE (UG/L) (01119)	LEAD, TOTAL RECOVER- ABLE (UG/L) (01114)	ZINC, TOTAL RECOVER- ABLE (UG/L) (01094)	OIL AND GREASE, TOTAL RECOV- ERABLE METRIC (MG/L) (00556)	1,2 - ETHANE- DIOL, WATER TOTAL (MG/L) (91075)	1,2 - PROP- ANEDIOL WATER TOTAL (MG/L) (91080)	GLYCOL HYDRO- LIZERS UNFIL- TERED, TOTAL RECOV COLS./ 100ML (99920)	PSEU- MONAS UNFIL- TERED, TOTAL RECOV (COLS./ 100ML) (99921)	PRESUMP. AERO- MONAS UNFIL- TERED TOTAL RECOV (COLS./ 100ML) (99922)
NOV 1998										
03...	--	--	--	--	--	--	--	550.00	1400.0	130.00
DEC										
01...	--	--	--	--	--	--	--	5000.0	1300.0	890.00
21...	--	--	--	--	3	--	--	--	--	--
JAN 1999										
17...	--	--	--	--	8	--	--	--	--	--
FEB										
08...	<1	3	3	30	--	<18.0	<18.0	9900.0	1200.0	1300.0
MAR										
24...	--	--	--	--	--	<18.0	<18.0	2500.0	650.00	330.00
31...	--	--	--	--	--	<18.0	<18.0	--	--	--
APR										
14...	--	--	--	--	--	<18.0	<18.0	--	--	--
MAY										
11...	--	--	--	--	--	<18.0	<18.0	--	--	--
JUN										
09...	--	--	--	--	--	<18.0	<18.0	10800	920.00	140.00
SEP										
08...	<1	5	2	<20	4	<18.0	<18.0	1900.0	--	--
27...	--	--	--	--	2	--	--	--	--	--

040871488 WILSON PARK CREEK AT ST. LUKES HOSPITAL AT MILWAUKEE, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

COMPOSITE SAMPLES

BEGIN- NING DATE	BEGIN- NING TIME	ENDING DATE	ENDING TIME	RUNOFF VOLUME THOUSANDS OF CUBIC FEET (99904)	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, CHEM- ICAL (LOW LEVEL) (MG/L) (00335)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOVER- ABLE (MG/L) (00921)
12-20-98	2115	12-21-98	0810	140	8.3	26	<200	85	40
12-29-98	1320	12-30-98	0925	190	7.7	92	<60	95	40
01-17-99	1435	01-18-99	1045	2600	7.3	450	120	58	12
03-13-99	1623	03-13-99	2222	200	7.8	310	280	--	--
03-15-99	1530	03-17-99	0250	2400	7.9	240	130	--	--
09-27-99	0440	09-27-99	1125	520	7.8	52	15	37	14

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	CADMIUM TOTAL RECOVER- ABLE (UG/L) (01113)	COPPER, TOTAL RECOVER- ABLE (UG/L) (01119)	LEAD, TOTAL RECOVER- ABLE (UG/L) (01114)	ZINC, TOTAL RECOVER- ABLE (UG/L) (01094)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) (38260)	1,2,- ETHANE- DIOL, WATER, UNFLTRD REC (MG/L) (91075)	1,2,- PROP- ANEDIOL, WATER, UNFLTRD REC (MG/L) (91080)
12-20-98	<5	.023	.41	.058	<1	4	1	20	--	<18.0	<18.0
12-29-98	8	.077	.64	.095	<1	6	1	<20	--	<18.0	<18.0
01-17-99	114	.867	4.6	.282	1	36	33	220	--	<18.0	70.0
03-13-99	31	.859	2.6	.073	--	--	--	--	<.04	<18.0	34.0
03-15-99	46	.604	2.4	--	--	--	--	--	--	<18.0	36.0
09-27-99	25	.276	1.6	.223	1	11	4	60	--	<18.0	<18.0

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	18.5	12.5	15.0	12.5	11.0	12.0	10.0	7.0	8.0	1.5	.5	1.0
2	16.0	12.0	14.0	11.0	7.5	10.0	11.0	7.5	9.0	2.0	.0	1.0
3	14.5	13.5	14.0	9.0	6.0	7.5	13.0	9.5	11.0	2.0	.0	.5
4	17.5	13.0	15.0	8.5	5.0	6.5	11.5	10.5	11.0	1.0	.0	.5
5	17.0	13.5	15.5	8.5	5.0	6.5	12.5	10.0	11.0	1.5	.0	.5
6	18.0	15.5	17.0	8.0	4.5	6.0	11.5	5.0	9.5	1.5	.0	.5
7	16.5	13.5	15.0	8.5	4.5	6.5	8.0	5.5	6.5	1.0	.0	.5
8	16.0	12.5	14.0	8.0	6.0	7.0	7.5	5.0	6.0	1.0	.5	1.0
9	16.5	11.5	13.5	9.5	6.5	7.5	7.0	4.0	5.5	1.0	.0	.5
10	17.0	11.5	14.0	12.0	7.0	10.0	6.0	3.5	4.5	1.0	.0	.5
11	16.5	12.0	14.5	8.5	6.0	7.0	6.5	3.0	4.5	3.0	.0	.5
12	17.0	13.0	14.5	9.5	5.5	7.0	6.5	3.5	5.0	1.5	.0	.5
13	14.0	10.5	12.0	9.0	4.5	7.0	6.5	3.5	4.5	1.0	.0	.5
14	14.5	9.5	11.5	10.5	7.0	8.5	6.0	3.0	4.5	.5	.0	.0
15	15.0	11.0	13.0	9.5	6.0	7.5	7.0	4.0	5.0	3.0	.0	.5
16	17.0	13.0	15.0	10.0	7.0	8.0	6.0	3.0	4.5	2.5	.0	.0
17	18.5	16.0	17.5	9.5	6.5	7.5	4.0	2.0	3.0	4.5	.0	.5
18	17.5	12.0	15.5	10.0	7.0	8.0	5.5	2.5	4.0	1.5	.0	.0
19	15.5	11.0	12.5	9.5	5.5	7.0	5.0	2.5	4.0	1.0	.0	.0
20	13.5	9.5	11.5	5.5	3.5	4.5	4.0	2.5	3.0	.5	.0	.0
21	12.0	9.5	10.5	6.0	3.0	4.5	4.0	.0	1.5	1.0	.0	.5
22	13.0	8.0	10.0	8.5	4.0	6.5	2.0	.0	.5	2.0	.0	1.0
23	14.5	9.0	11.5	10.0	6.5	8.0	1.5	.0	1.0	2.0	.5	1.5
24	13.5	9.0	11.5	9.0	5.5	7.0	1.5	.0	.5	3.0	1.0	1.5
25	15.5	11.0	13.0	8.5	6.0	7.5	1.5	.0	.5	3.5	.0	1.5
26	16.5	12.5	14.5	9.0	6.0	7.0	1.5	.0	1.0	3.0	.0	1.5
27	16.0	13.5	15.0	9.5	5.5	7.0	1.5	.0	.5	5.0	2.0	3.0
28	15.5	12.5	14.5	11.0	7.0	9.0	1.5	.5	1.0	3.0	2.0	2.5
29	14.0	11.0	13.0	13.5	10.5	12.0	1.5	.0	.5	5.0	1.0	2.5
30	14.5	13.5	14.0	14.0	8.5	12.0	2.0	.0	.5	5.0	.5	2.5
31	14.0	11.5	13.0	---	---	---	1.5	.0	.5	5.0	1.5	3.0
MONTH	18.5	8.0	13.7	14.0	3.0	7.7	13.0	.0	4.3	5.0	.0	1.0

STREAMS TRIBUTARY TO LAKE MICHIGAN

040871488 WILSON PARK CREEK AT ST. LUKES HOSPITAL AT MILWAUKEE, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	4.5	2.5	3.5	7.5	2.0	4.5	13.0	10.5	11.5	17.0	8.5	13.0
2	4.0	2.0	3.5	6.0	3.5	4.5	16.0	10.0	13.0	17.5	9.0	13.5
3	5.0	2.0	3.0	4.5	1.0	3.0	13.0	9.5	11.5	18.0	10.0	14.0
4	3.5	.5	2.5	5.0	.0	2.5	13.5	8.0	10.5	19.0	11.0	15.0
5	3.5	.0	2.0	3.5	.0	2.0	10.0	8.0	8.5	18.0	12.0	15.0
6	6.0	1.5	3.5	2.0	.0	.5	10.5	8.0	9.0	15.5	12.5	14.0
7	4.0	2.5	3.0	4.5	.0	1.0	15.5	6.5	11.0	13.5	11.5	12.5
8	5.5	1.5	3.5	2.5	.0	1.0	14.0	8.5	11.5	14.5	11.0	13.0
9	7.0	2.5	4.5	1.5	.0	.5	9.0	5.5	7.5	18.0	10.5	14.0
10	7.0	3.0	4.5	4.0	.0	1.5	12.0	5.5	8.0	18.0	10.5	14.0
11	12.0	4.5	7.5	6.5	.0	2.5	8.0	6.5	7.5	17.0	11.5	14.0
12	6.5	.0	3.0	7.0	.0	3.0	13.0	5.0	9.0	14.5	11.5	13.0
13	3.5	.0	1.5	6.5	.0	3.0	15.0	6.5	10.0	14.5	10.5	11.5
14	5.5	.5	3.0	7.5	.5	4.0	14.5	7.0	10.5	17.0	9.0	13.0
15	7.0	2.0	4.5	8.0	1.0	4.0	10.0	8.0	9.0	15.0	11.5	13.5
16	5.5	3.5	4.5	9.5	2.0	5.0	10.0	7.5	8.5	20.5	12.0	16.0
17	5.0	1.0	3.0	9.5	3.5	6.0	9.5	6.0	7.5	18.0	15.0	16.5
18	4.0	.5	2.5	8.5	3.5	5.5	---	---	---	16.5	14.0	15.5
19	3.5	1.0	2.0	9.0	2.5	5.5	---	---	---	20.0	12.0	15.5
20	2.5	.0	1.0	9.5	3.0	6.0	---	---	---	20.0	12.5	16.0
21	4.5	.0	1.5	6.5	3.5	4.5	15.0	6.0	9.5	18.0	13.5	16.0
22	5.0	.5	2.0	8.5	1.5	5.0	11.5	6.0	7.5	20.5	13.5	16.5
23	4.5	.5	2.0	9.5	3.0	6.0	9.5	5.5	7.5	17.0	12.5	14.5
24	3.5	.0	1.5	10.0	1.0	6.0	13.0	6.0	9.0	13.5	11.5	12.5
25	6.5	.0	3.0	6.0	2.5	4.0	15.0	6.5	10.5	16.0	10.0	13.0
26	6.5	2.0	4.0	9.5	2.0	5.5	15.5	7.5	11.0	19.5	11.0	15.0
27	6.5	4.0	5.0	10.5	2.5	6.5	12.5	8.5	10.5	21.0	12.0	16.5
28	6.0	.0	4.5	9.5	4.5	6.5	14.5	8.0	10.5	22.5	15.0	19.0
29	---	---	---	12.0	4.5	8.0	15.5	7.5	11.5	22.5	16.5	19.5
30	---	---	---	13.5	5.5	9.5	16.5	8.0	12.0	22.0	16.5	19.5
31	---	---	---	15.0	6.5	11.0	---	---	---	23.0	17.5	20.0
MONTH	12.0	.0	3.2	15.0	.0	4.5	---	---	---	23.0	8.5	15.0
JUNE				JULY			AUGUST			SEPTEMBER		
1	20.0	12.5	16.5	23.0	18.0	20.0	25.0	20.0	22.5	25.5	18.5	21.0
2	16.0	13.0	14.5	23.0	18.5	20.5	24.0	19.0	21.5	25.0	19.0	21.5
3	20.5	13.0	16.5	24.5	20.0	21.5	25.0	19.5	22.0	24.5	20.0	21.5
4	18.0	13.0	15.5	28.5	21.5	24.5	24.0	20.5	22.0	25.0	20.0	22.5
5	24.0	14.5	19.5	28.5	23.0	25.5	24.0	18.0	21.0	25.5	20.5	22.5
6	26.0	19.5	22.0	26.0	22.0	24.0	24.0	19.5	21.5	22.0	18.5	20.5
7	25.5	19.5	22.0	25.5	19.5	22.5	22.0	20.0	21.0	23.0	18.0	20.5
8	25.0	18.5	21.5	24.5	20.0	22.0	21.5	18.0	20.0	22.5	18.5	20.5
9	26.5	19.0	22.5	26.0	21.0	22.5	20.5	17.5	19.5	20.0	17.0	18.5
10	26.0	19.5	22.0	24.0	18.0	21.0	24.5	19.0	21.5	19.5	15.5	17.5
11	26.0	19.5	22.5	24.5	17.5	21.0	25.0	20.0	22.0	21.0	16.0	18.5
12	22.5	19.5	21.0	25.0	18.5	21.5	23.0	20.0	21.5	20.0	17.5	19.0
13	21.0	17.5	19.0	24.5	19.0	21.5	23.0	18.5	21.0	20.0	16.0	17.5
14	20.5	16.5	18.0	25.0	19.0	22.0	22.5	17.0	19.5	18.5	15.5	16.5
15	20.5	14.5	17.0	26.5	17.0	22.5	23.0	18.0	20.5	18.0	14.5	16.0
16	17.5	14.5	15.5	27.0	21.0	24.0	21.5	19.0	20.0	19.0	13.5	16.5
17	21.0	13.0	16.5	24.5	21.0	22.5	24.0	19.5	21.5	19.5	14.5	17.0
18	21.5	13.5	17.5	23.5	20.5	22.0	21.5	19.5	20.5	19.5	15.0	17.0
19	21.5	15.0	18.0	23.5	18.0	21.5	22.5	19.0	20.5	21.0	15.5	18.0
20	23.0	15.5	19.0	25.0	19.5	21.5	24.0	17.5	20.5	18.0	13.5	16.0
21	22.5	16.0	19.5	25.0	21.0	22.5	23.0	18.5	20.5	17.0	11.5	14.0
22	24.5	17.5	20.5	26.5	20.5	23.5	22.0	19.0	20.5	18.5	12.5	15.0
23	22.0	18.5	20.5	28.0	21.0	24.0	21.5	19.5	20.5	20.0	13.5	16.5
24	26.5	19.0	22.5	28.5	20.5	24.5	22.0	19.5	20.5	18.5	14.0	16.0
25	25.5	18.5	22.0	27.5	21.5	24.5	22.5	19.5	21.0	19.0	13.5	16.5
26	24.5	18.0	21.5	26.0	21.5	23.5	25.0	19.5	22.0	19.5	15.5	18.0
27	26.0	19.5	22.5	27.0	20.5	23.5	26.5	20.5	23.0	19.5	14.0	17.0
28	25.5	20.0	22.0	28.0	21.0	24.5	26.0	21.5	23.5	15.5	14.0	15.0
29	22.5	17.5	20.0	29.0	22.0	24.5	22.5	18.5	21.0	17.0	13.5	15.0
30	21.5	17.5	19.5	29.5	22.5	26.0	22.0	18.0	20.0	17.5	12.0	14.5
31	---	---	---	26.0	22.5	25.0	22.5	18.0	20.5	---	---	---
MONTH	26.5	12.5	19.6	29.5	17.0	22.9	26.5	17.0	21.1	25.5	11.5	17.9

STREAMS TRIBUTARY TO LAKE MICHIGAN

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040871488 WILSON PARK CREEK AT ST. LUKES HOSPITAL AT MILWAUKEE, WI--CONTINUED

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	12.4	7.3	9.7	13.3	8.4	9.9	18.4	7.6	11.4	---	---	---
2	13.0	8.6	10.3	14.1	9.2	10.9	17.4	9.1	12.0	---	---	---
3	---	---	---	14.7	9.9	11.3	19.6	8.1	11.5	---	---	---
4	---	---	---	15.2	9.2	11.8	12.9	7.1	9.2	---	---	---
5	---	---	---	13.7	10.6	11.7	15.8	7.1	9.8	---	---	---
6	---	---	---	13.6	10.2	11.8	11.6	7.9	9.7	---	---	---
7	---	---	---	14.5	10.8	12.1	14.3	9.8	11.5	---	---	---
8	14.3	8.4	11.0	14.7	9.7	11.8	18.4	9.8	12.7	---	---	---
9	14.1	8.4	10.5	14.8	7.3	11.4	19.0	10.7	13.1	---	---	---
10	15.1	8.3	10.8	11.6	---	---	19.9	10.8	13.7	---	---	---
11	15.7	8.3	11.1	13.6	7.0	11.5	19.9	11.5	13.9	---	---	---
12	16.4	8.3	11.2	14.4	6.7	9.1	20.5	10.6	13.8	---	---	---
13	16.7	8.6	11.4	13.8	4.2	9.8	20.6	11.3	14.2	---	---	---
14	17.8	8.8	11.8	---	---	---	20.6	11.9	14.6	---	---	---
15	17.5	8.1	11.1	---	---	---	21.0	11.3	14.2	---	---	---
16	18.7	7.5	11.3	---	---	---	21.9	10.5	14.2	---	---	---
17	8.7	6.8	7.4	---	---	---	21.3	11.5	14.7	---	---	---
18	13.2	7.3	9.4	---	---	---	22.0	10.6	13.9	---	---	---
19	14.2	8.7	10.5	---	---	---	18.8	9.6	13.1	---	---	---
20	14.7	8.8	10.9	---	---	---	14.3	10.3	11.7	---	---	---
21	15.6	8.7	11.2	21.0	9.8	14.1	18.1	10.0	13.0	---	---	---
22	16.1	9.5	11.6	19.2	11.4	14.1	20.0	10.4	13.1	---	---	---
23	16.7	8.8	11.5	17.3	10.9	12.8	16.1	9.8	12.1	---	---	---
24	16.0	8.7	11.3	19.8	10.9	13.8	17.1	9.5	12.4	13.6	12.5	12.9
25	16.5	8.2	11.0	18.0	10.0	12.5	16.8	10.1	12.7	13.8	12.1	12.7
26	16.9	8.2	11.0	18.9	10.5	13.0	17.0	10.8	13.1	14.3	10.7	12.7
27	13.9	6.0	8.9	19.0	9.9	12.9	15.2	11.5	13.1	12.2	10.1	11.0
28	15.8	5.8	9.7	19.0	8.9	12.5	16.0	12.2	13.3	12.3	10.5	11.5
29	15.4	7.2	10.3	16.7	8.5	10.6	14.5	10.6	12.4	12.8	9.8	11.0
30	9.5	6.1	7.4	11.1	7.4	8.6	---	---	---	12.2	8.6	10.3
31	11.4	5.1	9.2	---	---	---	---	---	---	10.8	7.6	9.1
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	---	---	---	16.0	7.5	11.3
2	---	---	---	---	---	---	---	---	---	17.6	7.9	12.4
3	---	---	---	---	---	---	---	---	---	18.0	7.8	12.1
4	---	---	---	---	---	---	---	---	---	20.4	7.1	13.1
5	---	---	---	---	---	---	---	---	---	18.3	4.3	10.5
6	---	---	---	---	---	---	---	---	---	9.0	4.4	6.6
7	---	---	---	---	---	---	---	---	---	13.6	7.0	9.9
8	---	---	---	---	---	---	---	---	---	16.7	6.5	11.2
9	---	---	---	---	---	---	---	---	---	14.9	6.7	10.9
10	---	---	---	---	---	---	---	---	---	14.8	6.6	10.4
11	---	---	---	---	---	---	---	---	---	14.8	6.6	10.2
12	---	---	---	---	---	---	---	---	---	8.4	6.0	6.9
13	---	---	---	---	---	---	---	---	---	12.0	6.6	9.0
14	---	---	---	---	---	---	---	---	---	14.8	6.4	10.3
15	---	---	---	---	---	---	---	---	---	15.1	5.8	10.4
16	---	---	---	---	---	---	---	---	---	16.6	5.1	10.1
17	---	---	---	---	---	---	---	---	---	8.9	5.6	7.0
18	---	---	---	---	---	---	---	---	---	7.9	4.9	6.8
19	---	---	---	---	---	---	---	---	---	13.6	7.0	10.0
20	---	---	---	13.2	9.4	11.5	---	---	---	16.5	6.7	11.4
21	---	---	---	12.7	10.1	11.5	---	---	---	19.4	4.4	11.9
22	---	---	---	13.2	10.0	11.5	---	---	---	22.4	3.3	12.7
23	---	---	---	11.7	8.6	10.5	---	---	---	10.9	6.1	7.4
24	---	---	---	11.5	8.7	9.7	---	---	---	17.7	7.0	11.7
25	---	---	---	11.9	8.6	10.2	---	---	---	17.6	7.7	12.6
26	---	---	---	---	---	---	10.9	6.6	8.3	18.2	7.1	12.4
27	---	---	---	---	---	---	11.4	7.9	9.4	18.7	6.4	12.4
28	---	---	---	---	---	---	10.6	7.9	9.3	18.1	6.2	11.9
29	---	---	---	---	---	---	10.8	7.8	9.3	17.8	6.1	11.4
30	---	---	---	---	---	---	13.1	7.5	9.7	17.3	6.5	11.4
31	---	---	---	---	---	---	---	---	---	16.1	5.1	8.3
MONTH	---	---	---	---	---	---	---	---	---	22.4	3.3	10.5

STREAMS TRIBUTARY TO LAKE MICHIGAN

040871488 WILSON PARK CREEK AT ST. LUKES HOSPITAL AT MILWAUKEE, WI--CONTINUED

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

	JUNE			JULY			AUGUST			SEPTEMBER		
1	13.7	5.4	9.8	---	---	---	18.9	7.5	12.1	10.6	6.2	7.9
2	10.9	7.6	9.3	---	---	---	19.1	9.2	12.9	11.7	5.5	7.2
3	14.4	8.3	11.4	---	---	---	18.6	7.3	12.1	7.9	6.7	7.4
4	14.5	5.8	10.0	---	---	---	11.0	7.1	8.8	8.9	6.6	7.7
5	16.1	5.4	11.1	---	---	---	10.7	6.3	8.8	9.8	6.8	8.0
6	14.7	5.1	9.6	---	---	---	10.8	7.4	9.0	11.0	6.8	8.6
7	14.5	5.2	9.6	---	---	---	8.4	5.1	6.8	13.0	6.9	8.7
8	13.6	6.6	9.9	---	---	---	10.9	6.6	9.0	11.4	6.7	8.7
9	13.3	5.0	9.1	---	---	---	11.8	8.3	9.9	11.7	6.6	9.0
10	---	---	---	---	---	---	10.9	5.3	8.3	11.6	7.1	8.9
11	---	---	---	---	---	---	11.7	6.8	9.2	11.5	7.3	8.9
12	---	---	---	---	---	---	11.6	6.5	8.8	11.4	5.9	8.7
13	---	---	---	---	---	---	12.2	6.4	9.0	10.4	6.0	8.3
14	---	---	---	---	---	---	14.8	8.2	10.9	10.2	7.7	8.7
15	---	---	---	---	---	---	13.6	8.4	10.4	10.6	8.2	9.0
16	---	---	---	11.7	7.3	9.4	12.2	8.3	9.9	11.3	7.7	9.5
17	---	---	---	7.3	5.0	5.8	12.3	6.1	9.2	11.9	8.3	9.6
18	---	---	---	11.0	6.2	8.8	10.0	5.0	7.2	12.3	8.0	9.6
19	---	---	---	9.9	6.6	8.1	11.2	5.0	8.0	11.0	6.0	8.6
20	---	---	---	12.5	8.5	10.1	12.7	7.4	9.8	10.8	6.2	8.6
21	---	---	---	9.7	6.9	7.9	12.8	7.6	9.9	11.3	7.7	9.0
22	---	---	---	12.4	5.9	9.4	12.7	7.6	9.8	---	---	---
23	---	---	---	13.5	4.5	8.2	14.3	4.9	9.1	---	---	---
24	---	---	---	15.1	4.1	9.6	15.6	4.8	9.6	---	---	---
25	---	---	---	15.4	5.2	10.1	15.2	6.8	10.6	---	---	---
26	---	---	---	16.2	6.0	10.1	14.5	7.2	10.2	---	---	---
27	---	---	---	18.1	6.0	11.8	14.8	6.9	9.9	---	---	---
28	---	---	---	18.5	6.7	12.1	12.7	7.0	9.4	---	---	---
29	---	---	---	19.0	6.5	11.9	12.6	7.5	9.8	---	---	---
30	---	---	---	21.5	7.3	13.3	13.0	8.4	10.3	---	---	---
31	---	---	---	16.0	2.3	9.0	11.6	6.7	8.7	---	---	---
MONTH	---	---	---	---	---	---	19.1	4.8	9.6	---	---	---

04087159 KINNICKINNIC RIVER AT SOUTH 11TH STREET AT MILWAUKEE, WI

LOCATION.--Lat 42°59'51", long 87°55'35", in SW 1/4 NW 1/4 sec.8, T.6 N., R.22 E., Milwaukee County, Hydrologic Unit 04040003, on left bank 150 ft upstream from footbridge on South 11th Street, 3.2 mi upstream from mouth, at Milwaukee.

DRAINAGE AREA.--18.8 mi².

PERIOD OF RECORD.--October 1982 to current year. Low-flow records equivalent to records for Kinnickinnic River at Milwaukee, WI (04087160) September 1976 to January 1983 (discontinued). Discontinued gage was located 0.3 mi downstream from present gage.

REVISED RECORDS.--WDR WI-97-1: Drainage area.

GAGE.--Water-stage recorder and steel plate weir. Elevation of gage is 590 ft above sea level, from river-profile map.

REMARKS.--Estimated daily discharges: Aug. 26 to Sept. 1, Sept. 5-9, 19-22, and ice-affected periods, Dec. 22 to Jan. 17, and Mar. 9, 10. Records good except those for estimated periods, which are poor, and those for discharges greater than 500 ft³/s and below 6 ft³/s from March through September, which are fair (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

AY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	5.2	6.8	3.5	24	10	10	12	150	9.4	7.6	8.0
2	9.5	5.3	10	3.0	63	14	11	12	104	8.3	7.7	14
3	86	6.0	6.2	3.7	38	10	15	12	16	7.9	7.6	19
4	8.7	6.6	6.5	3.8	35	8.5	45	11	16	8.3	7.3	11
5	105	5.4	5.5	3.9	27	16	9.7	13	11	7.8	8.1	5.4
6	30	5.2	67	4.1	22	14	16	96	56	9.7	7.2	5.4
7	12	5.2	30	4.1	17	12	8.6	18	31	7.1	34	5.8
8	8.0	5.6	8.6	4.1	18	9.8	14	13	12	7.3	7.8	5.8
9	6.6	18	7.3	4.1	26	10	724	11	11	378	7.2	5.4
10	6.2	523	6.7	4.1	21	17	49	11	251	11	41	5.4
11	5.9	22	6.2	4.1	190	17	56	11	107	8.3	8.0	5.4
12	6.3	12	5.9	4.2	42	18	25	139	48	8.1	12	20
13	6.3	9.9	5.6	4.4	20	16	19	17	1210	8.5	7.9	13
14	6.1	8.5	5.8	5.0	16	16	17	13	76	8.5	7.0	6.5
15	6.1	7.9	5.8	6.0	16	20	15	12	31	8.9	6.5	6.1
16	5.9	8.0	6.0	10	16	37	30	70	33	8.3	7.0	5.6
17	77	7.2	5.5	150	15	54	14	169	22	209	6.9	5.4
18	56	6.9	5.8	31	13	24	12	96	16	20	7.2	5.0
19	9.1	6.8	5.6	12	11	16	12	27	11	58	76	35
20	7.2	6.7	5.2	8.7	13	13	13	17	8.7	13	8.6	15
21	7.2	6.9	5.0	9.8	10	12	15	19	8.9	550	7.1	8.0
22	6.4	6.7	4.9	416	9.4	11	194	20	12	24	5.9	6.0
23	6.8	6.5	4.9	338	9.5	11	844	68	20	23	14	5.8
24	5.7	6.1	5.2	77	10	10	55	17	26	15	14	5.7
25	5.9	5.8	5.6	35	20	9.8	29	13	9.2	11	6.3	5.1
26	5.9	5.6	6.6	21	11	9.2	23	13	7.9	16	6.6	4.6
27	8.5	5.9	6.6	59	12	8.4	19	11	7.3	11	6.2	158
28	6.8	5.9	6.0	40	12	8.1	17	9.9	109	10	6.0	477
29	6.4	5.5	5.8	25	---	8.5	15	8.6	18	10	5.8	36
30	20	16	5.4	25	---	8.3	14	7.6	10	10	5.6	14
31	7.4	---	4.5	22	---	8.3	---	58	---	21	6.4	---
TOTAL	552.8	752.3	272.5	1341.6	736.9	456.9	2340.3	1025.1	2449.0	1506.4	366.5	922.4
MEAN	17.8	25.1	8.79	43.3	26.3	14.7	78.0	33.1	81.6	48.6	11.8	30.7
MAX	105	523	67	416	190	54	844	169	1210	550	76	477
MIN	5.7	5.2	4.5	3.0	9.4	8.1	8.6	7.6	7.3	7.1	5.6	4.6
CFSM	.95	1.33	.47	2.30	1.40	.78	4.15	1.76	4.34	2.58	.63	1.64
IN.	1.09	1.49	.54	2.65	1.46	.90	4.63	2.03	4.85	2.98	.73	1.83

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1999, BY WATER YEAR (WY)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	20.5	26.3	18.8	15.9	20.8	25.9	36.0	23.6	30.2	27.8	34.2	23.8					
MAX	60.5	67.8	48.9	43.7	41.9	44.9	104	72.9	81.6	49.9	82.3	68.4					
(WY)	1992	1986	1983	1988	1994	1993	1993	1990	1999	1986	1986	1986					
MIN	6.81	7.91	3.96	4.72	5.27	8.87	14.1	9.07	11.4	12.6	11.8	8.41					
(WY)	1995	1998	1990	1994	1995	1996	1989	1992	1985	1996	1999	1995					

STREAMS TRIBUTARY TO LAKE MICHIGAN
04087159 KINNICKINNIC RIVER AT SOUTH 11TH STREET AT MILWAUKEE, WI--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1983 - 1999	
ANNUAL TOTAL	9059.5		12722.7		25.3	
ANNUAL MEAN	24.8		34.9		39.8	
HIGHEST ANNUAL MEAN					18.9	
LOWEST ANNUAL MEAN					1630	
HIGHEST DAILY MEAN	564	Aug 5	1210	Jun 13	18.9	Aug 6 1986
LOWEST DAILY MEAN	(a) 4.5	Dec 31	(a) 3.0	Jan 2	(a) 2.9	Dec 26-28 1989
ANNUAL SEVEN-DAY MINIMUM	(a) 5.2	Dec 19	(a) 3.7	Jan 1	(a) 3.0	Dec 23 1989
INSTANTANEOUS PEAK FLOW			4980	Jul 21	(b) 10600	Aug 6 1986
INSTANTANEOUS PEAK STAGE			12.72	Jul 21	(c) 14.41	Aug 6 1986
ANNUAL RUNOFF (CFSM)	1.32		1.85		1.35	
ANNUAL RUNOFF (INCHES)	17.93		25.17		18.29	
10 PERCENT EXCEEDS	54		57		48	
50 PERCENT EXCEEDS	9.9		10		9.6	
90 PERCENT EXCEEDS	5.9		5.5		5.9	

(a) Ice affected

(b) From rating curve extended above 600 ft³/s on basis of step-backwater analysis at peak gage height

(c) From inside gage, 16.01 ft, from floodmarks

STREAMS TRIBUTARY TO LAKE MICHIGAN
04087204 OAK CREEK AT SOUTH MILWAUKEE, WI

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LOCATION.--Lat 42°55'30", long 87°52'12", in SW 1/4 NW 1/4 sec.2, T.5 N., R.22 E., Milwaukee County, Hydrologic Unit 04040002, on left bank 25 ft downstream from 15th Avenue bridge in South Milwaukee and 2.8 mi upstream from mouth.

DRAINAGE AREA.--25.0 mi².

PERIOD OF RECORD.--October 1963 to current year.

REVISED RECORDS.--WDR WI-80-1: 1979 (average discharge).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 631.40 ft above sea level.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 23-25, Dec. 30 to Jan. 4, Jan. 10-13, and 22. Records good except those for ice-affected periods and periods of flow less than 4.0 cfs, which are poor (see page 13). Low flows may occasionally be affected by construction and activity at gravel pit upstream. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	1.8	3.5	1.3	52	12	7.5	12	24	9.2	2.4	1.2
2	2.5	1.3	3.0	1.3	89	11	7.2	9.1	131	7.5	1.4	1.3
3	36	1.1	3.3	1.3	86	11	7.3	7.6	36	6.9	1.2	1.3
4	20	1.0	3.7	1.3	77	8.4	18	7.1	22	6.4	1.1	1.9
5	59	.99	3.3	1.3	47	8.6	12	7.2	18	5.0	1.1	1.2
6	32	1.0	15	1.6	41	8.0	9.5	29	19	4.3	1.1	.96
7	15	.95	48	1.6	37	7.6	9.5	27	27	4.3	4.7	.84
8	7.1	.90	16	1.7	30	7.7	11	9.9	14	4.4	6.5	.82
9	4.2	2.6	8.8	1.6	37	7.7	416	7.3	11	41	1.8	.76
10	2.8	308	6.8	1.5	40	9.0	278	6.0	16	14	32	.82
11	2.1	111	5.7	1.5	105	11	123	5.2	46	5.9	12	.77
12	2.0	38	5.1	1.6	157	13	77	55	48	4.4	4.0	2.9
13	1.5	23	4.2	1.8	53	14	48	26	370	4.2	4.2	6.6
14	1.4	17	3.8	2.0	36	14	35	11	397	3.8	2.0	2.4
15	1.4	11	3.8	2.5	30	17	28	7.4	138	3.4	1.4	1.2
16	1.6	8.4	4.0	3.7	28	36	31	40	64	3.2	1.2	1.2
17	17	7.7	3.4	14	24	89	27	245	63	69	1.1	.79
18	60	7.1	3.2	13	16	69	23	191	32	35	1.1	.69
19	16	5.1	3.4	9.9	14	36	17	137	24	18	22	2.6
20	6.4	4.2	3.0	11	11	26	16	57	19	15	7.9	9.6
21	3.6	4.3	2.6	9.7	10	19	18	36	16	78	2.6	3.3
22	2.2	3.4	1.7	200	9.9	14	140	32	16	21	1.8	1.3
23	2.1	3.5	1.6	317	8.9	12	778	61	19	15	2.2	1.1
24	1.8	3.2	1.6	255	8.5	9.9	468	61	35	11	7.3	1.1
25	1.8	3.0	1.5	131	9.8	8.6	145	29	17	5.3	3.7	.80
26	1.8	3.2	1.7	75	11	8.4	69	21	12	3.5	2.0	.73
27	1.6	3.1	2.1	89	11	8.5	43	15	9.5	2.9	1.6	22
28	1.6	3.6	2.4	115	12	7.9	30	13	16	2.2	1.5	215
29	1.5	3.8	2.7	71	---	7.9	22	12	29	1.8	1.3	85
30	1.8	4.3	1.4	56	---	7.6	16	9.5	13	1.5	1.2	15
31	2.0	---	1.4	54	---	7.2	---	7.7	---	1.9	1.2	---
TOTAL	322.8	587.54	171.7	1448.2	1091.1	527.0	2930.0	1194.0	1701.5	409.0	136.6	385.18
MEAN	10.4	19.6	5.54	46.7	39.0	17.0	97.7	38.5	56.7	13.2	4.41	12.8
MAX	60	308	48	317	157	89	778	245	397	78	32	215
MIN	1.4	.90	1.4	1.3	8.5	7.2	7.2	5.2	9.5	1.5	1.1	.69
CFSM	.42	.78	.22	1.87	1.56	.68	3.91	1.54	2.27	.53	.18	.51
IN.	.48	.87	.26	2.15	1.62	.78	4.36	1.78	2.53	.61	.20	.57

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1999, BY WATER YEAR (WY)

MEAN	11.6	18.1	19.6	15.2	24.7	49.1	50.0	24.1	22.8	14.5	13.8	16.6
MAX	48.4	85.3	65.3	77.3	84.4	149	151	96.1	85.8	95.8	52.7	110
(WY)	1992	1986	1983	1974	1971	1979	1993	1990	1968	1969	1986	1972
MIN	1.86	1.83	.79	.021	1.91	2.24	9.14	2.15	2.15	3.34	1.89	1.78
(WY)	1976	1977	1977	1977	1964	1968	1968	1977	1988	1988	1970	1982

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1964 - 1999

ANNUAL TOTAL	9665.93	10904.62	
ANNUAL MEAN	26.5	29.9	23.3
HIGHEST ANNUAL MEAN			41.7
LOWEST ANNUAL MEAN			6.67
HIGHEST DAILY MEAN	412	Apr 16	855
LOWEST DAILY MEAN	.74	Sep 23	.00
ANNUAL SEVEN-DAY MINIMUM	1.0	Nov 2	.00
INSTANTANEOUS PEAK FLOW			1140
INSTANTANEOUS PEAK STAGE			9.88
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (CFSM)	1.06		.93
ANNUAL RUNOFF (INCHES)	14.38		12.66
10 PERCENT EXCEEDS	65		50
50 PERCENT EXCEEDS	8.4		7.8
90 PERCENT EXCEEDS	1.6		1.9

(a) Several days during 1977

STREAMS TRIBUTARY TO LAKE MICHIGAN

04087220 ROOT RIVER NEAR FRANKLIN, WI

LOCATION.--Lat 42°52'25", long 87°59'45", in SE 1/4 sec.22, T.5 N., R.21 E., Milwaukee County, Hydrologic Unit 04040002, on right bank 400 ft upstream from State Highway 100, 2.1 mi upstream from Root River Canal, 2.4 mi southeast of Franklin, 5.5 mi southeast of Hales Corners, and about 24 mi upstream from mouth.

DRAINAGE AREA.--49.2 mi².

PERIOD OF RECORD.--October 1963 to current year.

REVISED RECORD.--WDR WI-81-1: Drainage area. WDR WI-83-1: 1981.

GAGE.--Water-stage recorder. Datum of gage is 674.5 ft above sea level.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 21 to Jan. 17, Feb. 21, 22, and Mar. 6-12. Records good except those for ice-affected periods, which are poor (see page 13). Flow affected by urbanization in the drainage basin. Gage-height telemeter at station.

EXTREMES OUTSIDE OF PERIOD OF RECORD.--Flood of Mar. 30, 1960, reached a stage of 9.57 ft, discharge, 5,130 ft³/s, from rating curve extended above 2,000 ft³/s on basis of contracted-opening measurement of peak flow.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	12	17	7.4	113	29	18	33	35	20	13	3.6
2	10	11	11	7.6	130	28	18	30	191	15	6.2	3.2
3	31	9.1	10	7.8	182	29	16	29	86	13	5.6	3.0
4	57	7.7	9.4	8.0	168	23	28	28	37	12	5.4	2.8
5	54	7.0	9.7	8.0	129	21	30	26	31	9.9	5.1	2.6
6	109	6.4	11	8.0	105	20	21	44	25	9.8	4.8	2.5
7	71	6.4	79	8.0	93	19	19	95	59	9.6	6.9	2.4
8	31	6.4	54	8.0	82	18	16	48	35	6.8	17	2.4
9	17	6.9	28	7.8	85	18	423	34	19	68	6.1	2.3
10	15	302	20	7.8	108	19	597	29	85	65	32	2.1
11	11	512	16	7.8	149	23	206	26	307	16	15	2.0
12	8.9	137	16	8.0	447	25	145	97	160	12	8.3	2.0
13	6.9	77	14	9.0	217	28	103	114	993	9.7	9.4	6.2
14	7.5	50	13	10	102	26	80	48	1540	8.6	5.7	3.4
15	7.3	36	12	15	84	30	63	35	475	7.6	5.2	2.3
16	7.7	30	12	21	76	54	71	49	148	6.3	5.0	1.8
17	17	25	12	27	65	135	81	439	124	43	5.2	1.8
18	106	20	10	67	52	168	53	434	86	92	4.5	1.9
19	82	17	9.8	84	42	104	42	326	59	42	35	1.8
20	31	16	8.8	67	36	73	35	126	43	35	18	20
21	17	14	8.4	57	31	56	34	70	32	125	6.9	5.5
22	15	12	7.6	230	28	45	160	63	33	113	5.4	2.7
23	13	13	6.6	655	23	36	1110	59	37	33	5.2	2.4
24	12	12	6.6	850	22	32	835	83	45	24	12	2.1
25	10	10	6.6	536	22	27	270	49	27	15	8.1	1.9
26	9.1	10	7.0	267	31	24	124	35	17	12	6.1	2.0
27	9.3	11	8.4	193	26	22	82	28	14	13	5.2	2.8
28	10	9.9	8.6	225	28	20	63	25	23	8.7	4.5	256
29	12	10	8.4	175	---	19	49	20	108	8.6	4.1	408
30	20	12	7.8	135	---	18	38	17	35	8.9	3.9	103
31	24	---	7.6	121	---	16	---	15	---	13	3.8	---
TOTAL	865.7	1408.8	456.3	3838.2	2676	1205	4830	2554	4909	875.5	278.6	856.5
MEAN	27.9	47.0	14.7	124	95.6	38.9	161	82.4	164	28.2	8.99	28.5
MAX	109	512	79	850	447	168	1110	439	1540	125	35	408
MIN	6.9	6.4	6.6	7.4	22	16	16	15	14	6.3	3.8	1.8
CFSM	.57	.95	.30	2.52	1.94	.79	3.27	1.67	3.33	.57	.18	.58
IN.	.65	1.07	.35	2.90	2.02	.91	3.65	1.93	3.71	.66	.21	.65

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1999, BY WATER YEAR (WY)

MEAN	23.6	32.0	36.7	32.8	47.7	95.3	90.6	43.7	44.1	26.1	24.8	29.9
MAX	95.5	151	118	190	161	315	316	138	164	142	72.3	214
(WY)	1992	1986	1983	1974	1971	1979	1973	1990	1999	1969	1987	1972
MIN	2.38	4.26	2.02	2.47	2.75	13.6	21.5	5.32	3.55	3.09	3.82	3.05
(WY)	1964	1964	1964	1977	1977	1968	1977	1977	1988	1988	1971	1971

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1964 - 1999

ANNUAL TOTAL	16861.0	24753.6	43.9
ANNUAL MEAN	46.2	67.8	84.0
HIGHEST ANNUAL MEAN			12.7
LOWEST ANNUAL MEAN			1977
HIGHEST DAILY MEAN	512	Nov 11	1540
LOWEST DAILY MEAN	3.0	Aug 1, 2	1.8
ANNUAL SEVEN-DAY MINIMUM	3.3	Jul 28	2.2
INSTANTANEOUS PEAK FLOW			2050
INSTANTANEOUS PEAK STAGE			9.16
INSTANTANEOUS LOW FLOW			1.7
ANNUAL RUNOFF (CFSM)	.94		1.38
ANNUAL RUNOFF (INCHES)	12.75		18.72
10 PERCENT EXCEEDS	107		140
50 PERCENT EXCEEDS	18		21
90 PERCENT EXCEEDS	5.4		5.3
			4.5

STREAMS TRIBUTARY TO LAKE MICHIGAN
04087233 ROOT RIVER CANAL NEAR FRANKLIN, WI

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LOCATION.--Lat 42°48'55", long 87°59'40", in SE 1/4 sec.10, T.4 N., R.21 E., Racine County, Hydrologic Unit 04040002, on right bank 10 ft downstream from highway bridge 3.5 mi upstream from mouth, 5.5 mi southeast of intersection U.S. 45 and State Highway 100 in Franklin, and 8.7 mi southeast of Hales Corners.

DRAINAGE AREA.--57.0 mi².

PERIOD OF RECORD.--October 1963 to current year.

REVISED RECORD.--WDR WI-80-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 670 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 24-25, Dec. 31 to Jan. 17, and Mar. 7, 9, 10. Records are fair except those for ice-affected periods, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	7.0	11	6.0	163	39	22	90	34	17	2.2	1.8
2	11	7.3	9.5	5.6	226	36	21	76	163	14	1.7	1.8
3	11	8.7	9.8	5.4	274	40	21	63	118	14	2.0	1.9
4	13	9.1	9.4	5.2	247	34	27	54	69	12	2.1	2.0
5	15	9.4	9.1	5.0	173	31	29	45	51	9.2	2.1	1.8
6	27	9.5	10	5.0	140	30	26	44	36	7.7	1.8	1.5
7	16	9.8	60	4.9	138	29	23	49	37	6.4	2.0	1.4
8	10	10	50	4.9	118	28	22	38	29	5.5	2.4	1.7
9	6.8	10	32	4.9	133	28	236	33	24	5.0	1.9	2.7
10	5.4	186	25	4.9	137	28	316	29	21	4.6	2.0	1.1
11	4.6	281	21	5.0	179	29	193	27	24	4.3	2.0	1.4
12	5.1	158	19	5.2	368	29	149	42	29	3.8	2.2	1.8
13	7.6	102	17	5.2	217	31	119	46	313	3.3	2.3	2.2
14	9.4	74	15	5.2	139	33	94	34	605	3.4	2.4	2.1
15	9.8	50	14	6.0	118	40	77	29	465	3.3	2.2	2.2
16	10	37	13	10	106	83	90	29	251	2.9	1.7	2.3
17	14	29	12	13	93	210	101	172	154	5.6	1.7	2.3
18	81	24	12	21	75	203	75	222	116	12	2.0	2.4
19	68	22	11	27	61	128	63	215	89	5.1	2.7	2.5
20	27	19	9.9	31	52	97	54	133	68	4.1	2.6	2.6
21	17	16	9.6	29	43	78	53	95	54	4.0	2.1	3.0
22	12	15	8.5	172	38	60	161	93	42	3.6	2.2	2.9
23	9.1	14	7.7	444	34	49	647	97	54	5.7	2.3	2.7
24	8.0	12	7.6	602	31	41	778	119	38	4.5	2.8	2.9
25	6.9	12	7.4	572	30	34	509	77	29	3.5	2.7	3.8
26	6.1	12	8.3	381	30	31	275	54	23	2.9	2.4	4.5
27	6.1	10	8.6	250	34	29	191	41	21	2.7	2.2	6.5
28	7.4	9.9	8.1	298	39	28	151	33	19	2.4	2.1	23
29	7.6	10	8.4	234	---	26	125	29	27	2.3	2.4	35
30	7.4	10	7.0	182	---	24	106	25	20	2.2	1.9	16
31	7.2	---	6.4	171	---	23	---	24	---	2.3	1.8	---
TOTAL	458.5	1183.7	457.3	3515.4	3436	1629	4754	2157	3023	179.3	66.9	139.8
MEAN	14.8	39.5	14.8	113	123	52.5	158	69.6	101	5.78	2.16	4.66
MAX	81	281	60	602	368	210	778	222	605	17	2.8	35
MIN	4.6	7.0	6.4	4.9	30	23	21	24	19	2.2	1.7	1.1
CFSM	.26	.69	.26	1.99	2.15	.92	2.78	1.22	1.77	.10	.04	.08
IN.	.30	.77	.30	2.29	2.24	1.06	3.10	1.41	1.97	.12	.04	.09

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1999, BY WATER YEAR (WY)												
MEAN	21.5	35.9	44.0	36.0	61.0	111	108	51.4	43.2	23.5	21.0	30.7
MAX	113	154	200	219	190	352	312	211	156	141	138	212
(WY)	1973	1993	1983	1974	1971	1979	1993	1990	1996	1978	1978	1972
MIN	1.05	1.27	.86	.56	.69	6.03	10.9	2.47	2.51	2.18	2.16	1.28
(WY)	1964	1964	1964	1977	1977	1968	1977	1977	1977	1991	1999	1971

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1964 - 1999
ANNUAL TOTAL	19179.3	20999.9	
ANNUAL MEAN	52.5	57.5	48.8
HIGHEST ANNUAL MEAN			98.4
LOWEST ANNUAL MEAN			4.57
HIGHEST DAILY MEAN	552	Apr 16	1410
LOWEST DAILY MEAN	2.1	Aug 13	(a) 40
ANNUAL SEVEN-DAY MINIMUM	2.5	Jul 28	(b) 45
INSTANTANEOUS PEAK FLOW			(c) 1440
INSTANTANEOUS PEAK STAGE			(d) 11.26
ANNUAL RUNOFF (CFSM)	.92		.86
ANNUAL RUNOFF (INCHES)	12.52		11.63
10 PERCENT EXCEEDS	139		122
50 PERCENT EXCEEDS	19		15
90 PERCENT EXCEEDS	3.9		2.3

- (a) Result of freezeup
(b) Ice affected
(c) Gage height, 9.88 ft
(d) Backwater from ice

STREAMS TRIBUTARY TO LAKE MICHIGAN

04087240 ROOT RIVER AT RACINE, WI

LOCATION.--Lat 42°45'05", long 87°49'25", in NE 1/4 sec.6, T.3 N., R.23 E., Racine County, Hydrologic Unit 04040002, on left bank 30 ft downstream from State Highway 38 bridge in Racine, 350 ft downstream from Horlick Dam, and 5.2 mi upstream from mouth.

DRAINAGE AREA.--190 mi², of which 1.24 mi² is probably noncontributing.

PERIOD OF RECORD.--August 1963 to current year.

REVISED RECORD.--WDR WI-80-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 610 ft above sea level, from topographic map. Prior to Feb. 5, 1964, nonrecording gage on bridge 30 ft upstream.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 22-24 and Jan. 5-14. Records good except those for ice-affected periods, which are fair (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	22	33	20	498	108	73	232	131	77	11	5.1
2	10	25	36	18	499	109	72	194	370	57	12	4.8
3	18	24	36	18	560	109	72	162	418	48	12	5.2
4	21	20	31	17	667	106	80	144	379	42	8.7	5.0
5	62	19	30	17	635	97	95	132	229	37	7.6	4.2
6	86	18	34	17	511	88	105	128	170	31	7.1	3.5
7	128	17	65	16	402	71	89	150	156	27	6.6	2.7
8	85	15	131	16	341	74	82	183	167	27	6.2	2.8
9	50	15	126	16	307	74	617	138	135	25	7.0	2.5
10	32	169	88	16	311	91	960	114	108	54	9.5	2.3
11	25	405	72	16	399	85	1230	100	154	68	11	1.9
12	22	606	62	16	740	96	901	107	313	32	18	1.9
13	18	619	56	16	825	92	544	176	641	23	15	2.2
14	15	316	49	17	806	93	377	196	1560	22	13	2.2
15	14	162	46	17	453	99	272	136	2130	21	14	2.4
16	13	120	44	16	314	134	229	115	1700	19	14	4.5
17	14	94	42	17	260	324	237	253	991	17	9.8	5.0
18	53	78	41	20	216	503	235	645	495	34	7.6	4.6
19	158	68	39	22	178	530	193	1010	296	89	13	4.9
20	140	60	37	33	152	377	171	888	197	50	13	4.2
21	70	54	35	44	132	244	154	534	156	47	21	1.6
22	42	48	26	198	116	183	262	336	129	99	19	6.8
23	32	44	25	624	105	149	1770	281	125	104	15	8.8
24	27	43	25	949	98	131	2480	294	128	48	12	7.2
25	23	41	24	1180	88	114	2510	293	121	34	10	4.5
26	22	38	23	1200	87	102	1730	212	89	24	11	3.8
27	20	36	22	1120	98	93	908	164	70	20	11	5.1
28	18	34	22	956	104	89	509	138	63	19	9.9	34
29	18	33	22	789	---	85	372	122	75	16	8.0	164
30	18	34	22	708	---	80	288	106	129	13	6.5	194
31	18	---	22	578	---	74	---	98	---	11	5.6	---
TOTAL	1277.3	3277	1366	8707	9902	4604	17617	7781	11825	1235	345.1	501.7
MEAN	41.2	109	44.1	281	354	149	587	251	394	39.8	11.1	16.7
MAX	158	619	131	1200	825	530	2510	1010	2130	104	21	194
MIN	5.3	15	22	16	87	71	72	98	63	11	5.6	1.6
CFSM	.22	.58	.23	1.49	1.87	.79	3.11	1.33	2.09	.21	.06	.09
IN.	.25	.65	.27	1.72	1.95	.91	3.47	1.53	2.33	.24	.07	.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1999, BY WATER YEAR (WY)

	MEAN	65.5	108	130	102	171	345	358	176	136	82.5	65.1	86.1
MAX	335	454	568	401	457	1149	1071	649	493	485	237	683	
(WY)	1987	1986	1983	1974	1971	1979	1993	1990	1996	1969	1987	1972	
MIN	2.79	8.90	3.08	2.21	3.98	30.6	61.8	8.73	7.75	5.18	6.60	2.58	
(WY)	1964	1964	1964	1977	1977	1968	1977	1977	1988	1988	1971	1963	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1963 - 1999

ANNUAL TOTAL	60177.8		68438.1										
ANNUAL MEAN	165		188										
HIGHEST ANNUAL MEAN										152			
LOWEST ANNUAL MEAN										268			1993
HIGHEST DAILY MEAN	1280									23.3			1977
LOWEST DAILY MEAN	5.3	(a) Aug 3								4010			Mar 5 1974
ANNUAL SEVEN-DAY MINIMUM	6.0	Sep 25								.00			Jul 9-15 1988
INSTANTANEOUS PEAK FLOW										.00			Jul 9 1988
INSTANTANEOUS PEAK STAGE										4500			Mar 5 1974
INSTANTANEOUS LOW FLOW										8.54			Mar 5 1974
ANNUAL RUNOFF (CFSM)	.87									.00			Jul 9-15 1988
ANNUAL RUNOFF (INCHES)	11.86									.80			
10 PERCENT EXCEEDS										10.93			
50 PERCENT EXCEEDS	69									397			
90 PERCENT EXCEEDS	14									54			
										9.3			

(a) Also occurred on Oct. 1

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04087257 PIKE RIVER NEAR RACINE, WI

LOCATION.--Lat 42°38'49", long 87°51'38", in SE 1/4 NE 1/4 sec.11, T.2 N., R.22 E., Kenosha County, Hydrologic Unit 04040002, on right bank just downstream from unnamed tributary, 1.7 mi downstream from Pike Creek, 6.8 mi southwest of Racine Post Office and 9.0 mi upstream from mouth.

DRAINAGE AREA.--38.5 mi².

PERIOD OF RECORD.--October 1971 to current year.

REVISED RECORDS.--WDR WI-76-1: 1975. WDR WI-80-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 620.09 ft above sea level (Southeastern Wisconsin Regional Planning Commission).

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 22-25, Dec. 30 to Jan. 18, and Mar. 5-10. Records good except those for ice-affected periods, which are fair (see page 13). Low flows considerably affected by effluent discharge in upper portion of basin, and by occasional regulation of small recreation dam 1.1 mi upstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

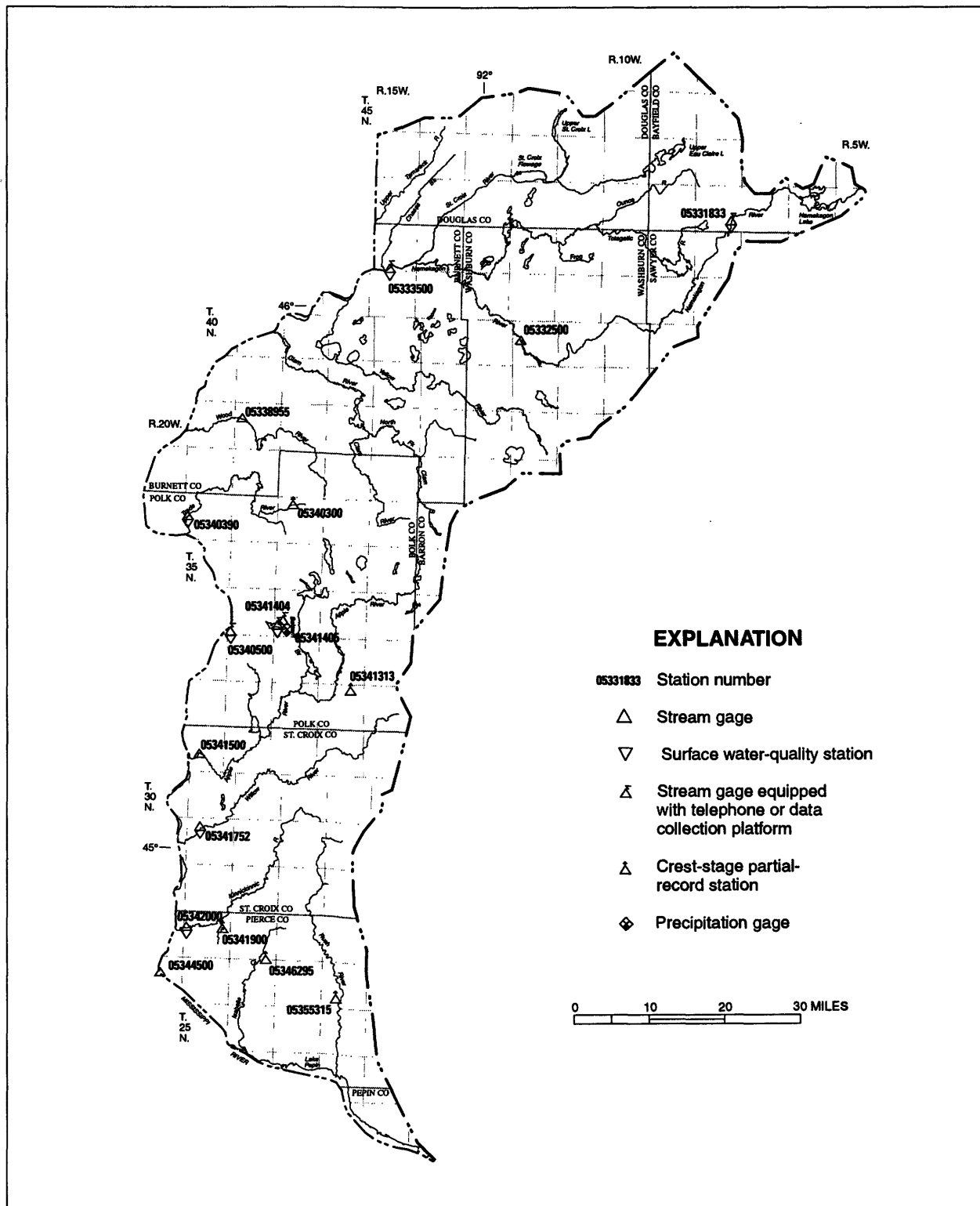
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	11	14	7.4	91	26	20	35	24	15	7.6	10
2	9.0	11	13	6.8	151	27	19	30	157	17	8.2	10
3	19	11	13	6.8	149	33	18	28	54	14	9.3	9.9
4	13	11	12	6.8	125	25	27	26	36	13	9.9	10
5	36	11	12	6.8	78	22	22	24	28	11	9.7	9.7
6	32	10	24	7.4	66	21	23	34	25	11	9.9	9.5
7	25	9.5	84	7.6	62	20	20	32	40	11	15	9.5
8	14	9.1	38	7.6	52	20	19	23	22	11	12	9.6
9	12	9.8	26	7.6	61	20	311	20	19	14	9.5	9.6
10	10	239	21	7.6	58	22	177	20	19	10	10	9.1
11	8.9	124	18	7.6	101	23	103	19	18	9.2	9.6	9.4
12	8.5	59	17	7.8	168	26	72	27	17	9.6	11	9.0
13	9.4	40	16	8.0	69	30	55	21	394	10	11	10
14	9.6	30	15	8.2	51	30	47	18	331	9.9	8.9	8.8
15	8.8	22	15	9.0	47	40	41	18	153	9.5	8.2	7.7
16	8.5	21	14	10	44	74	75	18	86	9.4	9.0	7.8
17	29	18	14	12	40	164	67	41	55	12	9.5	7.2
18	110	17	13	30	34	123	48	38	39	10	9.7	7.0
19	32	17	13	29	30	64	43	28	30	9.3	34	7.0
20	18	16	12	27	25	49	38	21	24	8.6	16	9.5
21	15	14	12	17	23	43	39	20	22	9.6	12	8.8
22	13	14	10	291	22	38	192	24	21	14	9.8	7.4
23	12	14	9.0	548	22	34	902	33	20	28	10	7.3
24	12	13	8.8	416	21	30	369	26	30	12	12	7.7
25	11	14	9.0	229	22	27	180	19	20	9.9	11	7.3
26	11	12	9.5	153	22	24	120	18	17	10	10	7.4
27	12	11	9.6	148	25	23	87	18	16	9.5	9.7	21
28	14	10	10	201	28	21	70	16	20	8.6	9.9	158
29	12	11	11	134	---	21	53	14	24	9.1	9.3	84
30	21	14	8.8	105	---	21	41	13	16	9.0	9.6	27
31	13	---	7.6	99	---	21	---	20	---	9.4	9.9	---
TOTAL	569.7	823.4	509.3	2562.0	1687	1162	3298	742	1777	353.6	341.2	516.2
MEAN	18.4	27.4	16.4	82.6	60.2	37.5	110	23.9	59.2	11.4	11.0	17.2
MAX	110	239	84	548	168	164	902	41	394	28	34	158
MIN	8.5	9.1	7.6	6.8	21	20	18	13	16	8.6	7.6	7.0
CFSM	.48	.71	.43	2.15	1.56	.97	2.86	.62	1.54	.30	.29	.45
IN.	.55	.80	.49	2.48	1.63	1.12	3.19	.72	1.72	.34	.33	.50

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1999, BY WATER YEAR (WY)												
MEAN	18.0	30.6	34.6	28.1	38.1	73.1	74.6	41.4	33.1	20.9	20.6	26.2
MAX	61.2	126	101	97.1	100	258	185	146	92.3	129	92.5	131
(WY)	1987	1986	1983	1974	1998	1979	1993	1990	1996	1978	1978	1986
MIN	4.40	3.62	2.35	2.05	3.74	14.3	12.1	4.57	8.32	4.93	4.35	3.25
(WY)	1972	1972	1977	1977	1977	1996	1977	1977	1988	1976	1976	1976

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1972 - 1999
ANNUAL TOTAL	15947.3	14341.4	
ANNUAL MEAN	43.7	39.3	36.5
HIGHEST ANNUAL MEAN			59.0
LOWEST ANNUAL MEAN			8.10
HIGHEST DAILY MEAN	655	902	1010
LOWEST DAILY MEAN	(a) 7.6	(a) 6.8	.35
ANNUAL SEVEN-DAY MINIMUM	9.1	(a) 7.1	1.7
INSTANTANEOUS PEAK FLOW		1230	(b) 1480
INSTANTANEOUS PEAK STAGE		7.69	(c) 9.14
ANNUAL RUNOFF (CFSM)	1.13	1.02	.95
ANNUAL RUNOFF (INCHES)	15.41	13.86	12.90
10 PERCENT EXCEEDS	100	85	82
50 PERCENT EXCEEDS	20	18	16
90 PERCENT EXCEEDS	10	8.8	5.6

(a) Ice affected
(b) Gage height, 8.15 ft
(c) Backwater from ice

UPPER MISSISSIPPI RIVER BASIN RECORDS



Base from U.S. Geological Survey 1:100,000 digital data;
modified by Wisconsin Department of Natural Resources.
Wisconsin Transverse Mercator projection.

ST. CROIX RIVER BASIN

ST. CROIX RIVER BASIN

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05331833 NAMEKAGON RIVER AT LEONARDS, WI
(NATIONAL WATER-QUALITY ASSESSMENT PROGRAM STATION)

LOCATION.--Lat 46°10'17", long 91°19'45", in SW 1/4 SE 1/4 sec.26, T.43 N., R.8 W., Bayfield County, Hydrologic Unit 07030002, on left bank 15 ft upstream from Squaw Bend Road, and 0.4 mi west of U.S. Highway 63 at Leonards.

DRAINAGE AREA.--126 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,275 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 22 to Jan. 19, Jan. 24-31, Feb. 5, 6, 13, 14, and 17-23. Records good except those for ice-affected periods, which are fair (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	96	113	92	106	115	202	124	122	141	185	139
2	58	97	114	92	108	112	191	121	119	137	173	136
3	53	97	115	96	108	110	188	118	115	191	192	135
4	53	96	113	98	103	109	209	114	113	228	197	142
5	56	91	140	100	100	111	222	125	126	201	184	174
6	71	90	155	100	100	108	272	142	194	208	180	191
7	70	91	144	100	101	112	278	198	190	177	175	174
8	65	89	137	96	103	110	263	217	168	173	171	181
9	66	89	133	100	104	109	243	194	155	384	163	174
10	69	107	131	100	102	108	229	176	147	355	159	166
11	70	124	126	98	115	108	230	175	175	300	153	158
12	70	110	124	100	119	108	226	223	221	274	170	185
13	70	112	122	100	120	108	215	212	195	261	264	192
14	73	111	121	100	120	107	206	190	174	255	241	186
15	78	108	120	100	122	106	203	176	158	242	208	179
16	94	108	115	100	120	108	200	174	151	238	199	170
17	113	109	114	110	110	110	192	177	144	228	185	163
18	126	116	113	110	110	108	185	198	139	222	182	158
19	120	150	117	100	110	110	181	184	134	223	187	155
20	104	139	112	106	110	111	178	181	134	209	177	155
21	99	124	110	104	110	111	175	179	130	199	171	152
22	98	133	110	104	110	111	170	171	145	190	168	146
23	98	135	100	105	110	112	164	166	173	195	172	143
24	93	132	100	100	112	113	157	165	200	197	176	139
25	95	130	98	100	113	113	151	155	162	189	171	138
26	98	122	96	100	111	114	146	149	145	261	168	142
27	101	120	96	100	113	123	141	143	140	245	159	145
28	98	119	94	100	115	169	137	138	129	212	153	139
29	97	119	96	100	---	174	132	138	133	192	147	137
30	100	117	92	100	---	171	128	135	126	185	145	135
31	98	---	92	100	---	193	---	128	---	204	142	---
TOTAL	2627	3381	3563	3111	3085	3692	5814	5086	4557	6916	5517	4729
MEAN	84.7	113	115	100	110	119	194	164	152	223	178	158
MAX	126	150	155	110	122	193	278	223	221	384	264	192
MIN	53	89	92	92	100	106	128	114	113	137	142	135
CFSM	.67	.89	.91	.80	.87	.95	1.54	1.30	1.21	1.77	1.41	1.25
IN.	.78	1.00	1.05	.92	.91	1.09	1.72	1.50	1.35	2.04	1.63	1.40

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 1999, BY WATER YEAR (WY)

	1996	1997	1998	1999	1996	1997	1998	1999	1996	1997	1998	1999
MEAN	116	142	122	110	115	131	242	177	145	166	121	116
MAX	158	210	158	141	128	174	281	265	161	226	178	158
(WY)	1997	1997	1997	1997	1997	1998	1997	1996	1998	1996	1999	1996
MIN	84.7	102	93.9	89.1	106	104	194	110	120	95.2	66.3	52.9
(WY)	1999	1998	1998	1998	1998	1996	1999	1998	1997	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1996 - 1999

ANNUAL TOTAL	42642	52078	
ANNUAL MEAN	117	143	
HIGHEST ANNUAL MEAN			137
LOWEST ANNUAL MEAN			152
HIGHEST DAILY MEAN	458	Mar 30	116
LOWEST DAILY MEAN	48	Sep 23	116
ANNUAL SEVEN-DAY MINIMUM	50	Sep 18	116
INSTANTANEOUS PEAK FLOW			502
INSTANTANEOUS PEAK STAGE			48
INSTANTANEOUS LOW FLOW			50
ANNUAL RUNOFF (CFSM)	.93		517
ANNUAL RUNOFF (INCHES)	12.59		3.46
10 PERCENT EXCEEDS	187		47
50 PERCENT EXCEEDS	99		1.09
90 PERCENT EXCEEDS	62		14.74

ST. CROIX RIVER BASIN

05331833 NAMEKAGON RIVER AT LEONARDS, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 1996 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1996 to current year.

SPECIFIC CONDUCTANCE: June 1996 to current year.

INSTRUMENTATION.--Water temperature and specific conductance recorder since June 1, 1996, provides hourly readings.

REMARKS.--Records represent water temperature and specific conductance at sensor located near the orifice.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum, 26.5°C, July 23, 1999; minimum, 0.0°C, on many days.

SPECIFIC CONDUCTANCE: Maximum , 173 µS/cm, Feb. 22, 1998; minimum, 55 µS/cm, Apr. 6, 7, 1997.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 26.5°C, July 23; minimum, 0.0°C, on many days.

SPECIFIC CONDUCTANCE: Maximum , 171 µS/cm, Oct. 2; minimum, 72 µS/cm, July 9.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	10.5	6.0	8.5	9.0	6.5	7.5	5.5	3.5	4.5	.0	.0	.0
2	9.5	5.5	7.5	7.0	4.5	5.5	5.5	3.5	4.5	.0	.0	.0
3	11.5	6.0	8.5	5.0	4.0	4.5	6.5	4.0	5.0	.0	.0	.0
4	11.0	6.5	8.5	4.5	3.0	3.5	4.5	3.0	3.5	.0	.0	.0
5	10.5	8.5	9.5	3.5	3.0	3.0	5.0	4.0	4.5	.0	.0	.0
6	10.5	9.5	10.0	3.5	2.5	3.0	5.0	2.5	4.0	.0	.0	.0
7	9.5	7.5	9.0	4.5	3.0	3.5	2.5	1.5	2.0	.0	.0	.0
8	11.0	5.5	8.0	5.0	3.5	4.0	2.0	.5	1.0	.0	.0	.0
9	12.0	6.5	9.0	5.0	4.0	4.5	2.0	.5	1.0	.0	.0	.0
10	12.5	8.0	10.0	4.5	3.0	3.5	2.0	1.0	1.5	.0	.0	.0
11	13.0	9.5	11.0	3.0	1.5	2.5	2.0	.5	1.0	.0	.0	.0
12	11.0	7.5	9.5	2.0	.5	1.0	2.0	.5	1.5	.0	.0	.0
13	7.5	6.0	7.0	3.0	1.0	2.0	2.0	.5	1.0	.0	.0	.0
14	9.0	6.5	7.5	3.5	2.5	3.0	2.5	.5	1.5	.5	.0	.0
15	10.5	7.0	8.5	3.0	2.0	2.5	3.0	1.5	2.0	.5	.0	.5
16	11.0	9.5	10.0	3.5	2.0	3.0	1.5	.5	1.0	.5	.5	.5
17	13.5	11.0	12.0	3.5	3.0	3.0	1.0	.0	.5	.5	.0	.5
18	12.0	7.5	9.5	4.5	3.5	3.5	1.0	.0	.5	1.0	.0	.5
19	8.5	6.5	7.5	4.5	2.0	3.0	1.0	.0	.5	.5	.0	.5
20	9.0	6.5	7.5	2.5	.5	1.5	.5	.0	.0	1.5	.5	.5
21	8.5	5.5	7.0	1.5	.0	1.0	.0	.0	.0	1.5	.5	1.0
22	8.5	4.0	6.5	3.5	1.5	2.5	.0	.0	.0	1.0	.5	.5
23	10.0	6.0	8.0	4.5	3.0	3.5	.0	.0	.0	1.0	.5	1.0
24	11.5	7.5	9.0	3.5	2.0	3.0	.0	.0	.0	1.5	.0	.5
25	11.0	9.0	9.5	4.5	3.0	3.5	.0	.0	.0	1.0	.0	.5
26	9.5	8.5	9.0	4.5	2.5	3.5	.0	.0	.0	.5	.0	.5
27	11.5	8.0	9.5	4.0	2.0	3.0	.0	.0	.0	1.0	.0	.5
28	9.5	6.5	8.0	4.0	2.0	3.0	.0	.0	.0	1.5	.0	1.0
29	8.5	6.0	7.5	7.0	4.0	5.5	.0	.0	.0	1.5	.0	.5
30	9.0	8.0	8.5	7.0	4.5	6.0	.0	.0	.0	1.5	.0	.5
31	8.0	7.0	8.0	---	---	---	.0	.0	.0	2.0	.0	.5
MONTH	13.5	4.0	8.7	9.0	.0	3.4	6.5	.0	1.3	2.0	.0	.3

ST. CROIX RIVER BASIN
05331833 NAMEKAGON RIVER AT LEONARDS, WI--CONTINUED

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WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	1.5	.5	1.0	3.5	1.5	2.5	6.0	4.5	5.0	18.5	10.5	14.5
2	2.5	1.0	1.5	2.5	1.0	1.5	7.0	4.0	5.5	19.0	12.0	15.5
3	3.0	1.0	2.0	3.5	.5	1.5	6.0	4.0	5.0	17.5	12.5	15.0
4	2.0	.0	.5	1.5	.0	1.0	6.0	3.5	4.5	19.5	13.0	16.0
5	1.5	.0	.5	3.0	.5	1.5	5.0	3.0	4.0	16.5	13.0	14.5
6	2.5	.0	1.0	2.0	.0	1.0	4.5	3.5	3.5	13.0	11.5	12.5
7	2.0	.0	1.0	2.5	.0	1.0	8.0	3.0	5.0	12.0	11.0	11.5
8	3.5	1.0	2.0	2.0	.5	1.0	9.0	5.0	7.0	14.0	10.5	12.0
9	3.5	1.5	2.0	2.5	.5	1.5	9.5	6.0	7.5	16.0	9.5	12.5
10	3.5	1.0	2.0	3.0	.0	1.5	7.5	5.5	6.5	14.5	11.5	13.0
11	3.5	.0	2.0	4.0	.0	1.5	7.0	4.5	5.5	12.5	11.5	12.0
12	.5	.0	.5	4.0	.0	2.0	10.0	5.0	7.5	14.5	11.5	13.0
13	1.0	.0	.5	5.5	1.0	3.0	12.0	6.0	9.0	16.0	11.5	13.5
14	2.0	.5	1.0	5.5	.5	3.0	11.5	8.0	9.5	17.0	10.0	13.5
15	2.5	.5	1.0	6.0	1.5	3.5	10.5	8.0	9.0	15.0	12.5	14.0
16	1.0	.0	.5	7.0	2.0	4.5	10.5	7.0	8.5	14.5	13.5	14.0
17	2.0	.0	.5	4.5	2.0	3.0	9.0	7.0	8.0	14.5	13.5	14.0
18	1.0	.0	.5	6.0	1.0	3.0	8.0	6.5	7.5	18.0	12.5	15.0
19	1.5	.0	.5	6.0	.5	3.5	8.5	6.5	7.5	15.5	12.0	14.0
20	1.5	.0	.5	4.0	2.0	3.5	9.5	6.0	7.5	15.0	14.0	14.5
21	1.5	.0	.5	6.0	1.0	3.5	10.5	7.5	9.0	17.0	13.5	15.0
22	1.5	.0	.5	6.0	.5	3.5	9.0	6.0	7.5	17.0	13.5	15.0
23	2.5	.0	1.0	7.0	1.5	4.0	11.0	4.5	7.5	14.5	11.5	13.0
24	1.5	.0	.5	6.5	1.0	3.5	13.0	5.5	9.0	14.5	10.0	12.0
25	2.0	.5	1.5	7.5	1.0	4.0	15.0	7.5	11.0	12.5	10.0	11.0
26	3.5	1.0	2.5	8.5	2.0	5.0	15.5	9.0	12.0	17.5	9.0	13.0
27	3.0	2.5	2.5	9.0	3.5	6.0	14.5	10.0	12.0	19.0	12.0	15.5
28	3.5	2.0	2.5	6.5	3.0	5.0	16.0	9.0	12.0	20.5	13.0	16.5
29	---	---	---	8.0	2.5	5.0	16.5	8.5	12.5	22.5	15.0	18.5
30	---	---	---	8.0	3.5	6.0	17.5	9.5	13.5	22.0	16.5	19.5
31	---	---	---	7.0	5.5	6.5	---	---	---	19.0	13.0	16.5
MONTH	3.5	.0	1.2	9.0	.0	3.1	17.5	3.0	8.0	22.5	9.0	14.2
JUNE			JULY			AUGUST			SEPTEMBER			
1	13.0	10.0	11.0	19.0	13.5	16.5	22.0	18.5	20.5	21.0	16.0	18.5
2	15.0	9.5	11.5	20.5	15.5	18.0	20.0	17.5	19.0	22.0	17.5	19.5
3	18.5	10.5	14.5	20.5	17.5	19.0	20.5	18.0	19.0	22.5	18.0	20.0
4	19.0	13.5	16.0	23.5	20.0	21.5	20.0	17.0	18.5	22.5	19.0	20.5
5	19.0	15.5	17.0	23.0	21.0	22.0	21.0	16.0	18.5	20.5	17.5	19.0
6	22.0	16.0	19.0	23.0	18.5	20.5	22.0	17.5	19.5	19.0	15.5	17.0
7	21.0	18.0	19.5	23.0	18.0	20.5	20.5	18.5	19.5	18.0	15.5	17.0
8	23.0	17.0	19.5	20.0	16.0	17.0	20.0	16.0	18.0	18.5	16.0	17.0
9	23.0	18.5	20.5	17.5	16.0	16.5	18.0	16.5	17.0	16.5	14.0	15.0
10	21.0	19.0	19.5	19.5	14.5	17.0	20.0	16.0	18.0	14.5	13.0	13.5
11	19.0	15.5	17.0	21.5	17.0	19.0	18.0	16.5	17.5	15.5	11.0	13.0
12	20.5	15.0	17.5	22.0	18.0	20.0	17.5	17.0	17.0	15.5	14.0	14.5
13	21.5	17.0	19.0	22.0	19.0	20.0	18.5	16.0	17.5	14.0	12.5	13.5
14	18.5	15.0	16.5	22.0	19.5	21.0	19.0	15.0	17.0	13.0	12.0	12.5
15	17.5	13.0	15.0	25.0	20.0	22.5	18.0	16.0	17.0	14.5	11.0	12.5
16	19.0	13.5	16.0	23.5	21.5	22.5	21.5	17.0	18.5	15.0	10.5	12.5
17	19.5	12.5	16.0	23.5	19.0	21.0	19.5	17.0	18.5	16.0	11.5	13.5
18	20.5	14.0	17.0	22.0	19.5	20.5	18.0	16.0	17.5	16.5	12.5	14.5
19	17.5	15.5	16.5	23.5	19.0	21.0	19.5	17.0	18.0	15.5	13.0	14.5
20	19.5	15.5	17.0	21.5	19.5	20.5	20.0	15.5	17.5	13.0	11.0	12.0
21	22.5	16.5	19.0	23.5	18.0	20.5	20.0	17.0	18.5	13.0	8.5	10.5
22	22.5	18.0	20.0	25.0	20.0	22.5	19.0	18.0	18.5	14.5	10.0	12.5
23	20.5	18.5	19.0	26.5	21.5	23.5	18.5	17.5	18.0	15.5	12.5	13.5
24	22.0	17.0	19.5	26.0	22.0	24.0	20.5	17.5	18.5	14.0	10.0	12.0
25	24.0	17.5	20.5	25.5	20.5	23.0	21.0	17.0	19.0	15.0	10.5	12.5
26	25.0	19.0	21.5	25.0	21.5	22.5	22.0	18.0	19.5	15.0	13.5	14.0
27	22.0	18.5	20.5	23.5	19.0	21.5	23.5	19.0	21.0	14.0	11.5	13.0
28	18.5	15.0	16.5	25.0	20.0	22.5	21.5	18.5	20.0	13.5	10.0	11.5
29	19.5	13.0	16.0	26.0	21.5	23.5	19.5	15.5	17.5	13.0	10.0	11.5
30	17.5	15.0	16.0	26.0	21.0	23.0	17.5	14.5	16.0	12.5	10.0	11.0
31	---	---	---	24.5	20.5	22.5	19.5	15.0	17.0	---	---	---
MONTH	25.0	9.5	17.5	26.5	13.5	20.8	23.5	14.5	18.3	22.5	8.5	14.4

ST. CROIX RIVER BASIN
05331833 NAMEKAGON RIVER AT LEONARDS, WI--CONTINUED

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	169	163	167	143	140	142	146	137	143	151	150	150
2	171	165	168	143	140	142	145	142	144	150	149	149
3	169	164	167	143	140	142	144	141	143	149	147	148
4	169	164	167	145	141	143	145	141	144	150	148	149
5	168	165	167	146	144	145	141	131	136	150	147	149
6	166	158	161	146	144	146	133	130	131	150	148	149
7	163	160	161	146	143	145	135	133	134	151	149	150
8	164	160	162	147	144	146	137	135	136	151	149	150
9	163	159	161	147	144	146	139	137	138	152	151	151
10	162	158	160	145	136	140	141	138	139	152	151	152
11	161	157	159	139	134	136	142	140	141	153	151	152
12	162	160	161	145	139	142	142	139	141	151	150	151
13	163	161	162	145	139	142	143	140	142	151	149	151
14	163	159	162	142	139	140	144	141	143	151	149	150
15	163	159	161	141	138	140	143	141	142	152	150	151
16	161	146	156	141	138	140	144	141	143	150	147	149
17	146	137	141	140	138	139	145	143	144	149	147	148
18	138	136	137	140	135	138	146	142	145	148	146	147
19	140	138	139	135	128	130	146	142	144	152	148	150
20	142	140	141	135	131	132	147	145	146	150	148	149
21	143	141	142	138	135	137	153	146	149	150	148	149
22	143	140	142	137	131	134	157	153	155	150	148	149
23	142	140	141	135	130	132	155	152	154	149	148	149
24	143	141	142	134	131	133	154	151	152	150	148	149
25	144	141	142	134	130	133	153	151	152	151	148	150
26	143	141	142	136	133	135	154	152	153	153	148	150
27	142	138	140	137	133	136	153	149	151	149	147	148
28	143	140	141	137	133	136	150	146	148	149	147	148
29	143	140	142	137	134	135	149	146	148	150	147	148
30	142	140	141	137	134	135	150	147	149	152	147	149
31	143	141	142	---	---	---	150	148	149	151	147	149
MONTH	171	136	152	147	128	139	157	130	144	153	146	149
	FEBRUARY			MARCH			APRIL			MAY		
1	149	148	148	147	145	146	108	106	107	142	140	141
2	149	148	148	148	146	147	112	108	109	143	141	142
3	150	147	149	150	147	149	114	111	112	144	142	143
4	157	143	152	155	149	152	114	104	109	144	142	143
5	153	149	151	152	148	150	106	104	105	144	136	140
6	152	150	151	154	127	151	105	93	98	136	128	133
7	153	151	152	161	127	151	98	93	96	128	109	118
8	151	149	150	153	150	151	104	98	101	112	109	110
9	150	148	149	151	149	150	107	104	106	117	112	115
10	151	149	150	155	148	151	111	107	110	120	117	119
11	149	141	145	157	135	151	111	109	110	123	116	120
12	148	145	147	156	147	151	111	110	111	116	106	109
13	149	144	147	151	147	149	115	111	113	112	107	110
14	147	143	145	152	147	149	119	115	118	118	112	115
15	147	144	145	151	147	149	120	119	119	121	118	120
16	146	145	145	150	146	148	120	119	120	124	121	123
17	148	145	147	148	147	147	124	120	122	123	119	122
18	151	143	147	150	147	148	128	124	127	119	115	116
19	150	144	147	151	145	148	129	127	128	120	117	119
20	151	143	148	149	146	147	129	128	129	122	119	121
21	156	146	151	149	145	147	129	128	129	128	118	122
22	156	146	151	149	144	147	131	129	130	127	118	126
23	151	147	149	148	144	146	131	129	131	128	126	127
24	151	148	149	147	143	145	132	131	131	127	126	126
25	149	148	148	147	144	146	134	132	133	129	126	128
26	150	147	148	147	143	145	136	134	135	132	129	130
27	148	146	147	144	138	141	138	135	136	136	132	134
28	146	145	146	139	119	131	139	138	138	139	136	137
29	---	---	---	129	119	126	140	138	139	143	139	141
30	---	---	---	122	117	119	141	139	140	146	142	144
31	---	---	---	117	108	112	---	---	---	146	145	145
MONTH	157	141	148	161	108	145	141	93	120	146	106	127

ST. CROIX RIVER BASIN
05331833 NAMEKAGON RIVER AT LEONARDS, WI--CONTINUED

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SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	146	144	145	133	128	131	116	112	114	128	125	127
2	147	143	145	134	128	130	118	116	117	131	127	129
3	147	143	145	133	101	115	118	108	113	133	129	131
4	148	145	147	112	99	104	110	106	108	134	127	130
5	148	124	140	115	108	112	112	110	111	129	114	121
6	124	111	116	116	107	110	114	112	113	116	112	114
7	116	111	114	121	111	115	116	113	115	120	116	118
8	121	116	119	124	109	117	117	115	116	119	115	117
9	126	121	123	109	72	82	119	117	117	120	117	118
10	128	125	127	91	80	85	120	118	119	121	120	120
11	128	111	120	103	91	97	121	119	120	122	119	121
12	111	106	107	106	101	104	121	105	116	119	112	116
13	113	108	111	107	106	107	105	89	93	114	112	113
14	118	113	116	108	106	107	103	90	97	116	114	115
15	121	118	120	112	108	111	109	103	106	117	116	117
16	124	121	123	113	111	112	110	108	109	120	117	119
17	127	124	126	113	112	113	114	110	112	122	120	121
18	131	127	128	113	110	112	115	110	114	124	122	123
19	133	131	131	112	111	111	114	111	113	125	123	124
20	133	131	132	113	111	112	116	114	115	126	123	125
21	134	131	132	115	113	114	118	116	117	129	125	127
22	135	129	131	117	115	116	118	117	118	130	128	129
23	133	115	124	123	113	120	118	116	117	132	129	130
24	119	114	115	123	114	121	118	115	116	133	130	132
25	127	119	123	123	111	117	119	117	118	134	131	132
26	133	126	129	116	99	107	121	118	119	135	131	133
27	136	131	134	116	99	108	123	120	121	133	130	132
28	136	132	134	133	108	112	123	121	122	134	132	133
29	135	131	132	116	113	115	124	122	123	135	133	134
30	136	132	134	117	112	115	125	123	124	137	135	136
31	---	---	---	113	111	112	127	123	125	---	---	---
MONTH	148	106	127	134	72	111	127	89	115	137	112	125

ST. CROIX RIVER BASIN
05332500 NAMEKAGON RIVER NEAR TREGO, WI

LOCATION.--Lat 45°56'53", long 91°53'17", in SW 1/4 sec.17, T.40 N., R.12 W., Washburn County, Hydrologic Unit 07030002, at power-plant of Northern States Power Co., 4.0 mi downstream from Potato Creek, and 4.4 mi northwest of Trego.

DRAINAGE AREA.--488 mi².

PERIOD OF RECORD.--October 1927 to September 1970. October 1987 to current year.

REVISED RECORD.--WDR WI-88-1: Drainage area.

GAGE.--Headwater and tailwater read hourly.

REMARKS.--No estimated daily discharges. Diurnal fluctuation caused by Trego powerplant.

COOPERATION.--Records of daily discharge furnished by Northern States Power Company and reviewed by Geological Survey.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	323	356	464	323	323	356	612	431	472	437	612	566
2	323	356	464	323	323	356	612	431	472	437	612	472
3	323	356	464	323	323	356	612	259	400	573	821	472
4	323	323	464	323	323	356	612	259	400	573	612	472
5	323	323	464	323	323	356	612	259	400	573	821	583
6	323	323	464	323	323	356	1010	359	922	573	821	583
7	323	323	464	323	323	356	1010	612	400	573	821	583
8	323	323	464	323	356	356	1010	612	612	583	821	583
9	323	323	464	323	356	356	810	1120	400	583	612	583
10	323	323	464	323	356	356	810	821	612	583	573	512
11	323	356	464	323	356	356	810	821	612	583	573	512
12	323	356	464	323	356	356	612	821	612	821	513	573
13	323	356	464	323	356	356	612	821	612	816	808	853
14	323	356	356	323	356	356	612	612	545	821	808	853
15	323	356	356	323	356	356	612	612	545	821	808	583
16	323	356	356	323	356	356	612	612	437	782	808	489
17	323	356	356	323	346	356	612	612	437	782	808	583
18	323	356	356	323	356	356	612	612	437	782	806	583
19	356	356	356	323	356	356	612	1020	437	698	806	583
20	356	356	356	323	356	356	612	773	437	489	695	472
21	356	356	356	323	356	356	612	922	437	472	695	472
22	356	545	323	323	356	356	612	922	437	472	695	472
23	356	356	323	323	356	356	512	922	489	472	704	472
24	356	356	323	323	356	356	512	922	437	472	808	472
25	356	321	323	323	356	356	512	922	489	472	808	472
26	356	321	323	323	356	356	431	612	489	612	808	472
27	356	321	323	323	356	356	431	505	489	1020	707	472
28	356	321	323	323	356	572	431	472	489	1020	779	472
29	356	321	323	323	---	464	431	472	689	1020	707	472
30	356	464	600	323	---	572	431	472	437	612	707	435
31	356	---	323	323	---	572	---	472	---	612	599	---
TOTAL	10442	10571	12387	10013	9727	11792	18943	20094	15083	20139	22576	16176
MEAN	337	352	400	323	347	380	631	648	503	650	728	539
MAX	356	545	600	323	356	572	1010	1120	922	1020	821	853
MIN	323	321	323	323	323	356	431	259	400	437	513	435
CFSM	.69	.72	.82	.66	.71	.78	1.29	1.33	1.03	1.33	1.49	1.10
IN.	.80	.81	.94	.76	.74	.90	1.44	1.53	1.15	1.54	1.72	1.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1999, BY WATER YEAR (WY)

MEAN	443	441	386	352	347	444	708	635	556	487	413	477
MAX	893	814	580	531	512	778	1118	1156	1093	1026	728	1834
(WY)	1969	1997	1992	1969	1969	1945	1997	1950	1944	1958	1999	1941
MIN	252	288	251	245	241	282	408	389	276	235	195	214
(WY)	1949	1934	1933	1933	1933	1934	1931	1934	1934	1934	1933	1933

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR			FOR 1999 WATER YEAR			WATER YEARS 1928 - 1999		
ANNUAL TOTAL	161832			177943					
ANNUAL MEAN	443			488			474		
HIGHEST ANNUAL MEAN							607		
LOWEST ANNUAL MEAN							300		
HIGHEST DAILY MEAN	1830			1120			5200		
LOWEST DAILY MEAN	249			259			113		
ANNUAL SEVEN-DAY MINIMUM	251			323			159		
ANNUAL RUNOFF (CFSM)	.91			1.00			.97		
ANNUAL RUNOFF (INCHES)	12.34			13.56			13.20		
10 PERCENT EXCEEDS	591			808			718		
50 PERCENT EXCEEDS	382			437			416		
90 PERCENT EXCEEDS	323			323			287		

(a) Also occurred Sept. 7, 1930

(b) Also occurred Nov. 4 and Dec. 22, 31

LOCATION.--Lat 46°04'28", long 92°14'50", in SW 1/4 sec.33, T.42 N., R.15 W., Burnett County, Hydrologic Unit 07030001, St. Croix National Scenic Waterway, on left bank at downstream side of bridge on State Highway 35, 3.5 mi downstream from Namekagon River, 10 mi northeast of Danbury, and at mile 129.2.

WATER-DISCHARGE RECORDS

REVISED RECORDS.--WSP 1438: 1915(M), 1919-20, 1923-24(M), 1927(M), 1931(M), 1934, 1935-37(M). WSP 1628: 1918. WDR WI-85-1: Drainage area.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 19 to Mar. 20. Records good except those for ice-affected period, which is fair (see page 13). Gage-height telemeter at station.

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	677	825	963	860	960	880	2060	996	982	1300	3530	1350
2	793	812	1140	860	1000	940	2070	894	1140	1400	2940	1270
3	822	916	1130	820	1000	920	1830	959	1040	1480	2660	1250
4	679	924	1060	820	1000	920	2040	1020	914	1600	3090	1240
5	691	887	1170	880	1000	920	2320	925	1050	1690	2870	1070
6	844	813	1270	880	1000	920	2670	1110	1010	1760	2590	1190
7	787	885	1150	880	940	860	3390	1590	1500	1710	2400	1250
8	769	764	1220	880	940	860	3440	1830	1640	1650	2180	1800
9	756	774	1200	920	980	900	3020	1720	1450	1800	2000	1880
10	754	1000	1160	900	980	900	2740	1800	1220	1980	1870	1620
11	708	1170	1130	900	980	900	2570	1870	1460	1970	1770	1510
12	755	1130	1100	920	960	900	2420	1920	2110	1810	1820	1350
13	768	991	1040	940	960	900	2320	1890	2110	1750	2580	1440
14	731	1070	1040	940	920	860	2110	1830	1830	1680	2850	1610
15	696	1030	1040	920	920	860	1950	1700	1540	1600	2450	1580
16	782	1080	1030	940	960	900	2180	1610	1340	1480	2330	1540
17	1030	1020	1020	940	960	900	2230	1560	1320	1390	2240	1490
18	1280	1080	927	940	960	860	1900	1610	1240	1300	2260	1380
19	1210	1230	900	960	960	880	1670	1640	1200	1310	2180	1200
20	1050	1270	800	920	960	880	1520	1720	962	1440	1940	1290
21	1000	1260	800	940	900	891	1520	1680	975	1330	1850	1340
22	994	1070	780	1000	900	894	1580	1590	1300	1170	1770	1330
23	1040	1310	820	1000	940	1040	1470	1550	1720	1240	1800	1280
24	847	1290	840	960	940	1050	1380	1690	2270	1270	2060	1240
25	887	1240	840	960	940	1050	1120	1480	2110	1090	2020	1240
26	911	1140	860	1000	940	1070	1180	1420	1820	2520	1930	1110
27	943	1160	880	1000	940	1090	1280	1310	1640	6340	1840	1210
28	862	1180	880	1000	880	1380	1180	1140	1280	5140	1740	1370
29	903	1020	880	1000	---	1690	1130	1070	1370	3830	1630	1330
30	890	1070	880	1000	---	1850	954	974	1250	2870	1580	1250
31	962	---	860	960	---	1910	---	872	---	2680	1330	---
TOTAL	26821	31411	30810	28840	26720	31775	59244	44970	42793	61580	68100	41010
MEAN	865	1047	994	930	954	1025	1975	1451	1426	1986	2197	1367
MAX	1280	1310	1270	1000	1000	1910	3440	1920	2270	6340	3530	1880
MIN	677	764	780	820	880	860	954	872	914	1090	1330	1070
CF5M	.55	.66	.63	.59	.60	.65	1.25	.92	.90	1.26	1.39	.87
IN.	.63	.74	.73	.68	.63	.75	1.39	1.06	1.01	1.45	1.60	.97

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1999, BY WATER YEAR (WY)

MEAN	1190	1212	1022	908	902	1341	2351	1832	1516	1301	1074	1214
MAX	2489	2216	1910	1555	1518	2930	4614	4023	3797	3230	2223	4759
(WY)	1969	1997	1992	1997	1997	1973	1916	1950	1944	1958	1955	1941
MIN	590	631	551	600	535	703	939	889	626	514	432	564
(WY)	1933	1926	1933	1924	1936	1934	1931	1931	1934	1934	1934	1933

ST. CROIX RIVER BASIN
05333500 ST. CROIX RIVER NEAR DANBURY, WI--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1914 - 1999	
ANNUAL TOTAL	423733		494074		1321	
ANNUAL MEAN	1161		1354		1982	1986
HIGHEST ANNUAL MEAN					795	1934
LOWEST ANNUAL MEAN					8740	May 2 1954
HIGHEST DAILY MEAN	5460	Apr 3	6340	Jul 27	405	(a) Aug 6 1934
LOWEST DAILY MEAN	559	Sep 8	677	Oct 1	417	Aug 12 1934
ANNUAL SEVEN-DAY MINIMUM	597	Sep 7	738	Oct 9	10200	May 6 1950
INSTANTANEOUS PEAK FLOW			6870	Jul 27	8.22	May 6 1950
INSTANTANEOUS PEAK STAGE			6.40	Jul 27	393	Aug 6, 13 1934
INSTANTANEOUS LOW FLOW			616	Oct 4	.84	
ANNUAL RUNOFF (CFSM)	.73		.86		11.36	
ANNUAL RUNOFF (INCHES)	9.98		11.63		2200	
10 PERCENT EXCEEDS	1670		2110		1090	
50 PERCENT EXCEEDS	962		1140		725	
90 PERCENT EXCEEDS	678		860			

(a) Also occurred Aug. 13, 16, 17, 1934

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 1995 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: April to September 1997 (discontinued).

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)
OCT 1998												
28...	1440	--	889	131	7.9	11.0	10.7	67	18	5.0	2.7	.68
NOV												
17...	1130	--	1010	130	7.9	2.4	--	65	18	5.1	2.6	.67
DEC												
10...	0900	--	1280	135	7.4	.4	4.8	61	17	4.7	2.4	.74
JAN 1999												
26...	1130	1050	--	156	6.6	-.1	--	71	20	5.5	2.8	.79
FEB												
24...	1410	940	--	147	7.3	-.1	--	70	20	5.4	2.8	.80
MAR												
17...	1150	900	--	130	7.3	.2	12.2	--	18	5.0	2.3	.60
30...	1100	--	1700	92	7.2	4.1	12.7	--	15	4.4	2.4	.72
APR												
07...	1500	--	3530	66	6.9	5.5	12.1	--	8.7	2.8	1.8	.74
MAY												
11...	1120	--	1930	101	7.6	13.9	9.5	--	15	4.2	2.5	.57
JUN												
11...	1500	--	1430	104	7.4	19.2	8.1	--	15	4.2	2.2	.42
24...	1200	--	2310	72	7.1	21.1	7.3	--	13	3.7	2.0	.57
JUL												
20...	0940	--	1410	103	7.6	23.0	7.3	--	--	--	--	--
26...	1450	--	2660	71	7.0	25.3	6.5	--	12	3.3	1.7	.47
27...	1330	--	6860	48	6.6	22.1	4.9	--	8.5	2.4	1.2	.65
AUG												
31...	1010	--	1350	114	7.6	19.0	8.4	--	17	4.8	2.4	.52
SEP												
27...	1150	--	1220	115	7.6	14.4	9.5	--	17	5.0	2.6	.77

DATE	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)
OCT 1998											
28...	--	77	63	4.2	2.6	<.10	11	90	<.050	<.010	.037
NOV											
17...	--	--	--	4.2	2.9	<.10	12	92	.101	<.010	.024
DEC											
10...	--	90	74	5.6	3.9	<.10	12	100	.110	<.010	<.020
JAN 1999											
26...	81	81	66	4.8	3.4	<.10	16	100	.162	<.010	.065
FEB											
24...	--	73	60	4.4	2.9	<.10	15	96	.214	<.010	.030
MAR											
17...	--	68	56	4.1	3.0	<.10	13	98	.165	<.010	<.020
30...	--	51	42	5.6	2.3	<.10	11	86	--	--	--
APR											
07...	--	29	24	5.7	1.8	<.10	8.6	75	.127	<.010	.028
MAY											
11...	--	--	--	3.3	2.3	<.10	8.5	88	.054	<.010	.037
JUN											
11...	--	37	31	2.8	2.1	<.10	8.0	87	.079	<.010	<.020
24...	--	44	36	2.2	2.2	<.10	9.0	94	.158	<.010	.021
JUL											
20...	--	55	45	1.9	2.0	<.10	--	90	<.050	<.010	<.020
26...	--	42	34	2.1	.53	<.10	9.9	81	.096	<.010	<.020
27...	--	25	20	1.5	<.10	<.10	8.5	71	<.050	<.010	<.020
AUG											
31...	--	62	50	2.2	2.3	<.10	14	104	.128	<.010	<.020
SEP											
27...	--	71	58	3.2	3.0	<.10	12	94	<.050	<.010	<.020

ST. CROIX RIVER BASIN
05333500 ST. CROIX RIVER NEAR DANBURY, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDEDED TOTAL (MG/L AS C) (00689)	SEDI- MENT, SUS- PENDEDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1998											
28...	.21	.19	<.050	<.050	<.010	88	10	3.2	.30	1	40
NOV											
17...	.24	.17	.015	<.050	<.010	96	9.1	3.7	.30	3	77
DEC											
10...	.24	.18	<.050	<.050	.013	110	7.9	5.9	.30	1	100
JAN 1999											
26...	.27	.19	.018	.006	.025	120	14	3.0	.40	3	79
FEB											
24...	.25	.19	.018	.007	<.010	220	9.5	3.2	.50	3	71
MAR											
17...	.22	.15	.021	.006	<.010	220	14	2.9	.30	7	52
30...	.55	--	.039	--	--	270	24	8.8	.80	14	64
APR											
07...	.47	.47	.040	.012	<.010	290	37	12	.60	13	74
MAY											
11...	.53	.46	.034	.011	.014	150	12	11	.50	9	83
JUN											
11...	.60	.43	.037	.012	.010	210	18	10	.50	13	86
24...	.79	.59	.045	.020	<.010	400	26	20	2.2	14	88
JUL											
20...	.54	.49	.037	.013	.013	--	--	16	.60	7	77
26...	.95	.62	.081	.018	<.010	390	52	14	2.2	26	89
27...	.90	1.5	.062	.018	<.010	580	85	19	1.6	13	63
AUG											
31...	.62	.59	.031	.021	<.010	790	21	15	.30	3	94
SEP											
27...	.30	.26	<.008	.007	<.010	220	12	9.3	.20	3	86

05338955 WOOD RIVER AT NORTH WILLIAMS ROAD NEAR GRANTSBURG, WI

LOCATION.--Lat 45°47'07", long 92°37'52", in NE 1/4 NE 1/4 sec.18, T.38 N., R.18 W., Burnett County, Hydrologic Unit 07030005, on left bank just downstream from bridge on North Williams Road, 2.5 mi northeast of Grantsburg, and approximately 0.8 mi downstream from the confluence with the North Fork Wood River.

DRAINAGE AREA.--140 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1998 to September 1999.

GAGE.--Water-stage recorder. Elevation of gage is 902 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 1 to Dec. 3 and ice-affected periods, Dec. 17 to Feb. 9, Feb. 12-14, and 17-22. Records good except those for estimated daily discharges, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	52	80	18	27	27	112	89	92	94	58	41
2	48	50	78	19	27	27	106	84	89	92	49	42
3	47	50	72	20	26	28	100	79	84	96	51	40
4	47	50	66	19	25	23	113	72	79	98	52	31
5	50	49	83	18	26	24	125	71	79	93	45	30
6	62	48	90	17	27	21	156	70	78	91	39	33
7	58	49	86	18	28	21	173	95	75	86	37	41
8	58	49	81	18	28	20	180	108	71	86	40	78
9	50	56	77	18	28	22	173	109	73	90	41	82
10	50	94	74	18	29	22	161	104	71	86	43	75
11	50	92	68	18	36	22	161	97	86	77	37	78
12	50	88	66	19	31	20	159	101	94	70	41	87
13	49	86	64	18	31	20	155	107	82	71	74	88
14	48	84	61	18	32	20	151	106	66	65	69	81
15	49	84	59	19	34	25	149	102	53	60	53	73
16	52	82	56	20	32	35	155	99	46	60	43	66
17	60	98	50	21	30	47	153	115	40	59	36	58
18	90	92	40	22	27	47	149	126	34	54	40	47
19	82	92	37	21	26	50	145	126	31	49	53	47
20	72	92	35	22	25	54	141	129	30	44	51	47
21	60	90	33	23	24	58	139	131	28	41	50	47
22	50	90	28	24	23	60	136	128	65	36	46	43
23	52	90	25	25	23	61	130	124	124	35	52	37
24	52	88	24	25	23	60	124	118	151	31	54	30
25	54	86	25	24	23	58	119	112	146	28	50	27
26	54	86	25	25	23	57	113	110	128	65	44	32
27	54	82	26	26	25	59	108	109	112	60	41	37
28	54	80	24	28	26	87	103	108	105	47	38	38
29	52	84	23	27	---	107	97	104	102	39	35	35
30	54	84	21	26	---	114	93	100	97	38	34	30
31	54	---	20	26	---	117	---	97	---	69	38	---
TOTAL	1710	2297	1597	660	765	1413	4079	3230	2411	2010	1434	1521
MEAN	55.2	76.6	51.5	21.3	27.3	45.6	136	104	80.4	64.8	46.3	50.7
MAX	90	98	90	28	36	117	180	131	151	98	74	88
MIN	47	48	20	17	23	20	93	70	28	28	34	27
CFSM	.39	.55	.37	.15	.20	.33	.97	.74	.57	.46	.33	.36
IN.	.45	.61	.42	.18	.20	.38	1.08	.86	.64	.53	.38	.40

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 1999, BY WATER YEAR (WY)

	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999
MEAN	55.2	76.6	51.5	21.3	27.3	45.6	136	104	80.4	64.8	46.3	50.7
MAX	55.2	76.6	51.5	21.3	27.3	45.6	136	104	80.4	64.8	46.3	50.7
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999
MIN	55.2	76.6	51.5	21.3	27.3	45.6	136	104	80.4	64.8	46.3	50.7
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999

SUMMARY STATISTICS

FOR 1999 WATER YEAR

ANNUAL TOTAL	23127
ANNUAL MEAN	63.4
HIGHEST DAILY MEAN	180
LOWEST DAILY MEAN	(a) 17
ANNUAL SEVEN-DAY MINIMUM	(a) 18
INSTANTANEOUS PEAK FLOW	181
INSTANTANEOUS PEAK STAGE	6.41
INSTANTANEOUS LOW FLOW	8.0
ANNUAL RUNOFF (CFSM)	.45
ANNUAL RUNOFF (INCHES)	6.15
10 PERCENT EXCEEDS	113
50 PERCENT EXCEEDS	54
90 PERCENT EXCEEDS	23

(a) Ice affected

ST. CROIX RIVER BASIN

05338955 WOOD RIVER AT NORTH WILLIAMS ROAD NEAR GRANTSBURG, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1998 to September 1999 (discontinued). Published as North Fork Wood River near Grantsburg, February to September 1998.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	CHLO- RIDE, DIS- SOLVED (MG/L) AS CL (00940)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L) AS N (00613)
OCT 1998									
28...	1230	55	211	7.5	10.4	10.5	--	.141	<.010
NOV									
23...	1310	90	192	7.7	3.8	11.0	4.9	.148	<.010
DEC									
09...	1420	76	200	7.8	2.1	5.4	4.3	.160	<.010
JAN 1999									
14...	1200	18	230	--	.0	13.8	6.4	.245	.016
FEB									
23...	1550	22	267	7.6	2.1	--	5.7	.311	<.010
MAR									
12...	1015	13	258	7.3	1.6	13.0	6.6	.291	.010
24...	1220	60	207	7.3	3.3	12.3	4.6	.167	.010
30...	1520	116	164	7.3	6.7	7.3	--	.123	<.010
APR									
06...	1820	165	152	7.3	6.0	11.3	5.8	.119	<.010
28...	1400	102	203	7.7	13.4	10.2	4.8	.092	<.010
MAY									
13...	1010	106	197	7.7	11.7	9.1	5.2	<.050	<.010
JUN									
10...	1150	74	192	7.6	21.8	7.6	4.3	.134	<.010
24...	1440	152	131	7.3	22.0	7.1	3.3	.090	.011
JUL									
09...	1420	89	192	7.7	21.2	8.0	5.8	.179	.015
AUG									
11...	1410	37	234	7.9	21.8	9.4	5.6	.274	<.010
SEP									
08...	1840	78	184	7.6	19.2	8.4	5.7	.154	<.010

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) AS N (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L) AS N (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L) AS N (00623)	PHOS- PHORUS TOTAL (MG/L) AS P (00665)	PHOS- PHORUS DIS- SOLVED (MG/L) AS P (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L) AS P (00671)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1998								
28...	.060	.60	.52	.018	<.050	<.010	6	78
NOV								
23...	.071	.86	.51	.059	.014	.013	18	53
DEC								
09...	.058	.50	.58	.035	<.050	.017	9	74
JAN 1999								
14...	.124	.69	.50	.058	.013	.016	4	93
FEB								
23...	.148	.64	.54	.050	.009	<.010	10	89
MAR								
12...	.124	.68	.49	.055	.007	<.010	10	80
24...	.070	.70	.45	.053	.017	<.010	18	60
30...	.122	1.0	.78	.098	.037	.018	18	58
APR								
06...	.074	1.4	.73	.085	.030	.016	53	22
28...	.060	.80	.45	.042	.013	.020	12	55
MAY								
13...	.048	1.6	.66	.057	.016	.010	15	72
JUN								
10...	.070	.28	.65	.085	.012	.017	20	87
24...	.034	.82	.68	.086	.028	.022	22	57
JUL								
09...	.076	1.0	.77	.079	.026	<.010	--	--
AUG								
11...	.021	.71	.29	.039	.011	<.010	5	87
SEP								
08...	<.020	.69	.57	.074	.030	.020	10	87

05340390 TRADE RIVER NEAR TRADE RIVER, WI

LOCATION.--Lat 45°35'54", long 92°46'02", in NE 1/4 NW 1/4 sec.19, T.36 N., R.19 W., Polk County, Hydrologic Unit 07030005, on left bank, 600 ft downstream from Evergreen Road, 5.9 mi southwest of Trade River, and 500 ft downstream of confluence with Cowan Creek.

DRAINAGE AREA.--158 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1998 to September 1999.

GAGE.--Water-stage recorder. Elevation of gage is 800 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 1 to Dec. 3, May 24 to June 3, and ice-affected periods, Dec. 20 to Jan. 15, Jan. 19, Feb. 4-6 and 12-23. Records good except those for estimated daily discharges, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	62	66	64	43	51	61	124	86	78	69	76	68
2	66	64	68	44	54	60	123	83	74	68	68	64
3	64	64	66	45	56	58	121	80	66	69	69	61
4	60	66	65	44	46	59	144	77	65	68	76	58
5	56	68	86	44	46	59	140	81	80	65	75	58
6	66	70	85	45	49	56	169	85	81	64	74	57
7	64	70	74	43	53	57	164	129	70	59	74	57
8	64	70	71	44	55	59	155	138	66	65	71	117
9	64	72	69	42	58	58	151	119	64	77	74	100
10	64	78	68	42	58	61	149	111	65	80	74	83
11	66	90	66	43	64	59	162	123	99	66	66	78
12	66	86	65	43	45	59	158	154	110	60	70	88
13	66	84	64	42	50	59	148	188	85	58	93	87
14	64	82	63	43	58	58	141	169	77	56	77	82
15	62	76	63	45	62	60	145	149	73	53	68	80
16	62	72	62	47	60	65	159	143	75	57	66	77
17	70	76	60	47	52	68	149	165	70	56	63	76
18	78	84	63	48	48	66	140	166	66	51	81	75
19	82	100	48	48	50	67	137	148	64	49	95	80
20	88	90	29	47	52	71	134	141	64	45	81	82
21	90	80	45	50	54	74	132	141	62	45	76	76
22	72	70	54	51	54	74	127	131	59	42	94	73
23	70	64	54	51	56	75	121	124	117	48	98	71
24	70	90	52	52	59	77	115	110	136	46	95	70
25	68	80	50	50	58	78	110	100	97	45	92	68
26	68	74	48	47	57	79	106	94	81	113	89	77
27	70	72	49	49	60	82	102	92	77	84	87	78
28	68	68	50	51	61	120	98	92	78	62	83	73
29	68	68	50	52	---	123	93	88	80	58	78	70
30	68	68	52	51	---	113	89	84	72	61	75	69
31	70	---	46	49	---	118	---	80	---	93	73	---
TOTAL	2116	2262	1849	1442	1526	2233	4006	3671	2351	1932	2431	2253
MEAN	68.3	75.4	59.6	46.5	54.5	72.0	134	118	78.4	62.3	78.4	75.1
MAX	90	100	86	52	64	123	169	188	136	113	98	117
MIN	56	64	29	42	45	56	89	77	59	42	63	57
CFSM	1.18	1.30	1.03	.80	.94	1.24	2.30	2.04	1.35	1.07	1.35	1.29
IN.	1.36	1.45	1.19	.92	.98	1.43	2.57	2.35	1.51	1.24	1.56	1.45

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 1999, BY WATER YEAR (WY)

MEAN	68.3	75.4	59.6	46.5	54.5	72.0	134	118	78.4	62.3	78.4	75.1
MAX	68.3	75.4	59.6	46.5	54.5	72.0	134	118	78.4	62.3	78.4	75.1
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999
MIN	68.3	75.4	59.6	46.5	54.5	72.0	134	118	78.4	62.3	78.4	75.1
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999

SUMMARY STATISTICS

FOR 1999 WATER YEAR

ANNUAL TOTAL	28072
ANNUAL MEAN	76.9
HIGHEST DAILY MEAN	188
LOWEST DAILY MEAN	(a) 29
ANNUAL SEVEN-DAY MINIMUM	43
INSTANTANEOUS PEAK FLOW	(b) 193
INSTANTANEOUS PEAK STAGE	(c) 5.41
INSTANTANEOUS LOW FLOW	(a) 22
ANNUAL RUNOFF (CFSM)	1.33
ANNUAL RUNOFF (INCHES)	18.00
10 PERCENT EXCEEDS	123
50 PERCENT EXCEEDS	69
90 PERCENT EXCEEDS	49

(a) Result of freeze-up
(b) Gage height, 5.02 ft
(c) Backwater from ice

ST. CROIX RIVER BASIN
05340390 TRADE RIVER NEAR TRADE RIVER, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1997, February 1998 to September 1999 (discontinued).

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	CHLO- RIDE, DIS- SOLVED (MG/L) AS CL (00940)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L) AS N (00613)
OCT 1998									
22...	1520	72	188	7.8	8.5	11.9	--	.300	.022
NOV									
23...	1140	88	213	7.8	4.6	14.0	4.1	.318	.010
DEC									
09...	1220	79	208	7.3	1.2	5.1	4.2	.363	.018
JAN 1999									
14...	1020	43	203	7.6	.8	13.3	4.5	.423	.014
FEB									
23...	1400	59	242	7.8	1.7	--	5.0	.490	<.010
MAR									
11...	1730	59	228	7.9	3.8	12.3	5.3	.488	<.010
24...	1030	76	219	7.8	3.1	12.6	5.3	.426	.013
APR									
06...	1620	172	148	7.6	6.6	11.7	4.9	.275	<.010
28...	1130	97	200	8.0	11.8	10.6	4.8	.198	<.010
MAY									
13...	1230	191	144	7.6	10.6	9.9	4.1	.140	.012
JUN									
10...	0920	66	144	7.6	18.9	9.9	4.7	.258	.011
24...	1550	129	140	7.6	21.4	8.3	3.6	.121	<.010
JUL									
09...	1640	82	180	7.9	18.3	8.5	3.9	.263	<.010
AUG									
11...	1705	64	202	8.0	20.1	8.7	4.5	.185	<.010
SEP									
17...	1000	75	212	8.0	11.9	10.4	13	.179	<.010

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1998								
22...	.024	.41	.35	.017	.016	.013	6	67
NOV								
23...	.075	.50	.40	.039	.016	.010	5	78
DEC								
09...	.077	.44	.37	.019	.010	.011	4	95
JAN 1999								
14...	.144	.49	.41	.024	.012	.020	4	91
FEB								
23...	.144	.47	.46	.034	.012	.010	3	75
MAR								
11...	.111	.46	.41	.036	.012	.013	8	96
24...	.045	.48	.36	.038	.009	<.010	5	87
APR								
06...	.102	1.5	.55	.087	.016	.012	45	71
28...	.037	.99	.38	.042	.013	.019	53	76
MAY								
13...	.036	1.5	.52	.079	.010	<.010	53	53
JUN								
10...	.076	<.10	.52	.065	.020	.026	20	81
24...	.022	.80	.54	.092	.021	.017	36	47
JUL								
09...	.020	.65	.51	.064	.025	.013	--	--
AUG								
11...	.020	.39	.29	.044	.019	.011	8	73
SEP								
17...	<.020	.34	.31	.025	.012	<.010	3	83

LOCATION.--Lat 45°24'25", long 92°38'49", in SW 1/4 NW 1/4 sec.30, T.34 N., R.18 W., Polk County, Hydrologic Unit 07030005, St. Croix National Scenic Riverway, on left bank, 1,500 ft downstream from powerplant of Northern States Power Co., in St. Croix Falls, and at mile 52.2.

WATER-DISCHARGE RECORDS

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 689.94 ft above sea level. Prior to July 1905, gage heights and discharge measurements were used by Loweth and Wolff, consulting engineers of St. Paul, Minn., to determine the flow. July 1905 to February 1940, records were computed from power generation at the St. Croix Falls Powerplant. February 1940 to Sept. 30, 1979, water-stage recorder at site 300 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Ice-affected periods, Jan. 1, 2, 4-12, and Feb. 11-13. Records good except those for ice-affected periods, which are fair (see page 13). Diurnal fluctuation caused by St. Croix Falls Powerplant 1,500 ft upstream. Gage-height telemeter and data-collection platform at station.

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2140	2430	3840	2100	2340	2510	8360	4190	3620	4300	7500	4930
2	2030	2570	3520	2100	2260	2320	8500	3680	3600	4070	8150	4430
3	1980	2450	3420	2170	2310	2360	8550	3520	3460	4250	8840	4210
4	2060	2520	3560	2100	2330	2530	8170	3430	3530	4850	8530	3760
5	2010	2560	3750	2100	2430	2490	8880	3640	3380	4660	8580	3870
6	2050	2540	3660	2100	2410	2390	11400	3870	3790	4870	8810	3730
7	2150	2550	4490	2100	2420	2460	12700	4450	4450	5050	8060	3640
8	2320	2420	4690	2300	2510	2340	13200	5730	4750	5150	7080	4100
9	2120	2420	4220	2300	2360	2130	14300	6380	5610	5310	6320	4520
10	2110	2490	4320	2000	2310	2110	14000	6960	5430	5240	6180	5020
11	2050	3490	3870	1900	2500	2400	13000	7120	5450	5450	5680	4970
12	2050	3850	4040	2000	2400	2320	11800	8070	5550	5510	5120	4710
13	2020	4300	3890	2020	2400	2450	11100	9750	5720	5470	5370	4290
14	2040	3880	3630	2280	2640	2370	10600	10500	5700	5080	7130	4080
15	1940	3720	3360	2070	2510	2480	9830	11000	5280	4480	8490	4560
16	2170	3720	3380	2110	2460	2200	9590	11200	4700	4380	8510	4480
17	2500	3780	3090	2180	2440	2930	9470	11600	3900	4030	7530	4210
18	2750	3620	2990	2180	2580	3020	9440	11200	3870	4180	7240	4010
19	3450	3980	2290	2180	2690	3560	8830	10700	3530	3940	7070	3820
20	3360	4400	1670	2150	2680	3430	8040	10100	3380	3840	6950	3390
21	3210	4110	1290	2150	2250	3730	7460	9170	2970	3820	6900	3280
22	3050	4230	1440	2320	2550	3610	7010	8170	2770	3610	6470	3590
23	2870	4200	1680	2190	2200	3610	6810	7790	4800	3300	6610	3370
24	3040	4330	2070	2310	2190	3790	6450	7180	5860	3270	6240	3230
25	2920	4440	2240	2270	2260	3720	6170	6670	6500	3160	7240	3190
26	2680	4320	2520	2380	2300	3480	5390	6390	6260	3940	8170	2940
27	2630	4190	2510	2170	2180	3540	5040	6060	5710	4870	7670	3080
28	2620	4030	2440	2320	2240	4360	4700	5270	5390	6670	7060	3810
29	2680	3900	2560	2230	---	5640	4570	4700	5110	9320	6490	4320
30	2670	3950	2390	2410	---	7370	4470	4070	4410	9700	6080	4030
31	2620	---	2230	2340	---	8460	---	3990	---	8080	5320	---
TOTAL	76290	105390	95050	67530	67150	102110	267830	216550	138480	153850	221390	119570
MEAN	2461	3513	3066	2178	2398	3294	8928	6985	4616	4963	7142	3986
MAX	3450	4440	4690	2410	2690	8460	14300	11600	6500	9700	8840	5020
MIN	1940	2420	1290	1900	2180	2110	4470	3430	2770	3160	5120	2940
CFSM	.39	.56	.49	.35	.38	.53	1.43	1.12	.74	.80	1.14	.64
IN.	.45	.63	.57	.40	.40	.61	1.60	1.29	.83	.92	1.32	.71

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1902 - 1999, BY WATER YEAR (WY)

MEAN	3772	3485	2592	2193	2161	4249	10164	7468	5722	4152	2921	3516
MAX	14270	11910	5821	4279	6021	14420	22320	21840	19510	17260	9777	14590
(WY)	1969	1972	1984	1984	1984	1945	1952	1950	1944	1952	1955	1941
MIN	1380	1342	1288	1157	1257	1538	2212	2430	1481	1014	839	1152
(WY)	1933	1911	1911	1911	1913	1912	1902	1934	1934	1934	1934	1933

ST. CROIX RIVER BASIN
05340500 ST. CROIX RIVER AT ST. CROIX FALLS, WI--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1902 - 1999	
ANNUAL TOTAL	1367540		1631190		4379	
ANNUAL MEAN	3747		4469		8569	1986
HIGHEST ANNUAL MEAN					1754	1934
LOWEST ANNUAL MEAN					53900	May 8 1950
HIGHEST DAILY MEAN	17600	Apr 4,5	14300	Apr 9	75	Jul 17 1910
LOWEST DAILY MEAN	1290	Dec 21	1290	Dec 21	754	Jul 29 1934
ANNUAL SEVEN-DAY MINIMUM	1550	Sep 13	1810	Dec 19	54900	May 8 1950
INSTANTANEOUS PEAK FLOW			14800	Apr 9	25.19	May 8 1950
INSTANTANEOUS PEAK STAGE			7.99	Apr 9	.70	
ANNUAL RUNOFF (CFSM)	.60		.72		9.53	
ANNUAL RUNOFF (INCHES)	8.15		9.72		9070	
10 PERCENT EXCEEDS	6310		8250		2790	
50 PERCENT EXCEEDS	2840		3790		1570	
90 PERCENT EXCEEDS	1780		2170			

05340500 ST. CROIX RIVER AT ST. CROIX FALLS, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1996 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
OCT 1998										
28...	0730	--	2690	188	7.8	12.0	9.5	--	--	--
NOV										
17...	1500	--	4860	174	8.4	2.8	26.0	--	--	--
DEC										
09...	0840	--	4830	166	7.5	1.2	6.3	--	--	--
JAN 1999										
14...	1220	--	1780	208	7.2	.1	8.5	753	58	--
FEB										
12...	0940	2400	--	199	7.1	.0	10.3	748	72	--
MAR										
02...	1230	--	1610	195	7.7	.4	11.8	743	83	--
APR										
06...	1200	--	12500	114	7.5	5.0	14.1	743	113	--
MAY										
13...	1015	--	9510	134	7.6	13.0	9.9	749	95	K38
27...	1200	--	6120	143	7.5	17.4	8.6	746	92	--
JUN										
24...	1125	--	5270	159	7.5	24.0	6.5	742	80	K95
JUL										
14...	1230	--	6220	142	7.6	24.9	6.9	739	86	K10
AUG										
16...	1125	--	8780	--	7.6	19.5	7.9	745	89	--
SEP										
07...	1215	--	4800	162	7.6	20.9	6.8	739	79	--

DATE	E. COLI WATER WHOLE TOTAL UREASE (COL / 100 ML) (31633)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
OCT 1998										
28...	--	92	24	7.9	4.1	.98	107	87	4.6	5.5
NOV										
17...	--	85	22	7.4	3.7	1.1	--	--	4.9	5.4
DEC										
09...	--	72	19	6.5	3.6	.94	78	64	6.3	4.3
JAN 1999										
14...	--	100	27	8.7	3.9	.95	110	90	5.0	4.6
FEB										
12...	--	98	27	8.8	4.2	1.0	117	96	5.5	4.8
MAR										
02...	--	--	25	7.9	4.0	1.0	103	86	4.6	5.2
APR										
06...	--	--	13	4.8	2.9	1.4	60	49	4.8	3.7
MAY										
13...	K44	--	17	5.6	3.3	1.1	71	58	4.1	3.8
27...	--	--	18	5.9	3.3	1.0	73	60	3.0	3.6
JUN										
24...	K86	--	19	6.5	3.2	.91	83	68	3.5	4.1
JUL										
14...	K10	--	19	6.3	2.8	.71	83	68	2.5	3.9
AUG										
16...	--	--	16	5.2	2.5	.81	68	56	.95	2.4
SEP										
07...	--	--	20	6.6	3.2	.91	94	77	2.6	3.5

K Non-ideal colony count

ST. CROIX RIVER BASIN
05340500 ST. CROIX RIVER AT ST. CROIX FALLS, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	FLUO- RIDE, DIS- SOLVED (MG/L AS P) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 1998									
28...	<.10	11	119	.096	<.010	.043	.40	.29	.012
NOV									
17...	<.10	12	121	.212	<.010	.028	.45	.29	.023
DEC									
09...	<.10	12	118	.177	<.010	.029	.36	.32	<.050
JAN 1999									
14...	<.10	17	140	.357	.010	.082	.34	.29	.023
FEB									
12...	<.10	17	136	.428	<.010	.094	.29	.26	.029
MAR									
02...	<.10	15	135	.445	.018	.055	.29	.22	.025
APR									
06...	<.10	9.2	96	.150	<.010	.031	.88	.52	.081
MAY									
13...	<.10	8.4	105	.098	<.010	<.020	.89	.62	.054
27...	<.10	8.1	109	.096	.013	.028	.83	.62	.062
JUN									
24...	<.10	9.1	120	.209	<.010	<.020	.63	.50	.054
JUL									
14...	<.10	11	119	.103	<.010	.022	.95	.65	.065
AUG									
16...	<.10	13	115	.140	<.010	.025	.92	.78	.076
SEP									
07...	<.10	14	126	.193	<.010	<.020	.77	.58	.053

DATE	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS HYDRO. + ORTHO TOTAL (MG/L AS P) (00678)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C) (00689)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1998									
28...	<.050	--	<.010	88	24	4.6	.40	5	92
NOV									
17...	<.050	.02	.010	140	17	6.0	.50	3	100
DEC									
09...	<.050	.03	.017	190	18	7.7	.40	3	73
JAN 1999									
14...	.009	--	.014	160	28	4.4	<.20	2	50
FEB									
12...	<.004	--	<.010	110	30	3.2	<.20	4	100
MAR									
02...	.008	--	<.010	140	24	3.4	<.20	4	100
APR									
06...	.022	--	<.010	280	44	10	2.1	18	91
MAY									
13...	.021	--	.012	220	31	14	.80	12	81
27...	.022	--	.013	290	35	13	2.6	7	95
JUN									
24...	.022	--	.019	250	27	9.8	.90	9	99
JUL									
14...	.028	--	.014	590	30	16	.80	8	95
AUG									
16...	.037	--	.014	940	36	20	1.3	12	88
SEP									
07...	.032	--	.013	740	57	16	<.20	--	--

05340500 ST. CROIX RIVER AT ST. CROIX FALLS, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS	2,6-DI-					BEN-		CAR-	CARBO-
		CHARGE,	ETHYL	ACETO-	ALA-	ALPHA	ATRA-	FLUR-	BUTYL-	BARYL-	FURAN
		INST.	ANILINE	CHLOR,	CHLOR,	BHC	ZINE,	ALIN	ATE,	WATER	WATER
		CUBIC	WAT FLT	WATER	WATER,	DIS-	WATER,	WAT FLD	WATER,	FLTRD	FLTRD
		FEET	0.7 U	FLTRD	DISS,	DIS-	DISS,	0.7 U	DISS,	0.7 U	0.7 U
		PER	GF, REC	REC	REC,	SOLVED	REC	GF, REC	REC	GF, REC	GF, REC
		SECOND	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)
		(00061)	(82660)	(49260)	(46342)	(34253)	(39632)	(82673)	(04028)	(82680)	(82674)
JAN 1999											
14...	1220	1780	<.0030	.0056	<.002	<.0020	E.008	<.0020	<.0020	<.0030	<.0030

E Estimated

05341404 DEER LAKE TRIBUTARY #1, UPSTREAM SITE, NEAR CENTURIA, WI

LOCATION.--Lat 45°24'38", long 92°30'21", in NW 1/4 NW 1/4 sec.29, T.34 N., R.17 W., Polk County, Hydrologic Unit 07030005, in ditch on south side of 170th Street, 150 ft south of the intersection of 170th Street and 138th Avenue, 3.5 mi southeast of Centuria.

DRAINAGE AREA.--0.04 mi².

PERIOD OF RECORD.--August to December 1998, April to September 1999.

GAGE.--Water-stage recorder. Elevation of gage is 1,140 ft above sea level, from topographic map.

REMARKS.--

AUGUST - SEPTEMBER 1998: No estimated daily discharges. Records are good (see page 13).

1999 WATER YEAR: Gage operated from Oct. 1 through Dec. 31, 1998, and Apr. 1 through Sept. 30, 1999. Estimated daily discharges: Oct. 28 to Nov. 8, Apr. 1 to May 13, and May 30 to Aug. 30. Records good except those for estimated daily discharges, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

[illegible]

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1998, BY WATER YEAR (WY)

[illegible]

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(AUGUST-SEPTEMBER)

HIGHEST DAILY MEAN	.103	Aug 22
LOWEST DAILY MEAN	.000	Many days
ANNUAL SEVEN-DAY MINIMUM	.00	Many periods
INSTANTANEOUS PEAK FLOW	2.0	Sep 26
INSTANTANEOUS PEAK STAGE	2.08	Sep 26
INSTANTANEOUS LOW FLOW	.00	Many days
10 PERCENT EXCEEDS	.00	
50 PERCENT EXCEEDS	.00	
90 PERCENT EXCEEDS	.00	

05341404 DEER LAKE TRIBUTARY #1, UPSTREAM SITE, NEAR CENTURIA, WI--CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.000	.000	.000	---	---	---	.000	.000	.000	.000	.000	.000
2	.000	.000	.000	---	---	---	.004	.000	.000	.001	.000	.000
3	.000	.000	.000	---	---	---	.000	.000	.000	.000	.002	.000
4	.000	.000	.016	---	---	---	.011	.000	.000	.000	.000	.001
5	.000	.000	.013	---	---	---	.038	.004	.000	.025	.000	.004
6	.000	.000	.001	---	---	---	.007	.002	.021	.001	.000	.000
7	.000	.000	.000	---	---	---	.003	.060	.001	.000	.000	.000
8	.000	.000	.000	---	---	---	.000	.001	.000	.001	.000	.000
9	.000	.000	.000	---	---	---	.000	.000	.000	.000	.003	.000
10	.000	.087	.000	---	---	---	.002	.000	.000	.000	.000	.000
11	.000	.003	.000	---	---	---	.011	.012	.062	.000	.000	.004
12	.000	.000	.000	---	---	---	.000	.014	.000	.000	.002	.002
13	.000	.000	.000	---	---	---	.000	.007	.000	.000	.000	.000
14	.000	.000	.000	---	---	---	.000	.000	.000	.000	.000	.000
15	.000	.000	.000	---	---	---	.007	.000	.000	.000	.000	.000
16	.072	.000	.000	---	---	---	.001	.003	.000	.000	.000	.000
17	.099	.000	.000	---	---	---	.000	.022	.000	.000	.000	.000
18	.005	.020	.000	---	---	---	.000	.000	.000	.000	.008	.000
19	.000	.001	.000	---	---	---	.001	.000	.000	.000	.000	.001
20	.000	.000	.000	---	---	---	.000	.018	.000	.000	.000	.000
21	.000	.000	.000	---	---	---	.000	.001	.000	.000	.000	.000
22	.000	.001	.000	---	---	---	.000	.000	.000	.000	.003	.000
23	.000	.000	.000	---	---	---	.000	.000	.000	.000	.006	.000
24	.000	.000	.000	---	---	---	.000	.000	.000	.000	.000	.000
25	.000	.000	.000	---	---	---	.000	.000	.000	.017	.000	.000
26	.000	.000	.000	---	---	---	.000	.000	.000	.061	.000	.000
27	.000	.000	.000	---	---	---	.000	.000	.000	.000	.000	.000
28	.000	.000	.000	---	---	---	.000	.000	.000	.000	.000	.000
29	.000	.000	.000	---	---	---	.000	.000	.000	.000	.000	.000
30	.000	.000	.000	---	---	---	.000	.000	.000	.073	.000	.000
31	.000	---	.000	---	---	---	---	.000	---	.003	.000	---
TOTAL	0.176	0.112	0.030	---	---	---	0.085	0.144	0.084	0.182	0.024	0.012
MEAN	.006	.004	.001	---	---	---	.003	.005	.003	.006	.001	.000
MAX	.099	.087	.016	---	---	---	.038	.060	.062	.073	.008	.004
MIN	.000	.000	.000	---	---	---	.000	.000	.000	.000	.000	.000
CFSM	.14	.09	.02	---	---	---	.07	.12	.07	.15	.02	.01
IN.	.16	.10	.03	---	---	---	.08	.13	.08	.17	.02	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
MEAN	.005	.004	.001	---	---	---	.003	.004	.003	.006	.005	.002
MAX	.005	.004	.001	---	---	---	.003	.004	.003	.006	.009	.003
(WY)	1999	1999	1999	---	---	---	1999	1999	1999	1999	1998	1998
MIN	.005	.004	.001	---	---	---	.003	.004	.003	.006	.001	.000
(WY)	1999	1999	1999	---	---	---	1999	1999	1999	1999	1999	1999

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR
(AUGUST-DECEMBER)FOR 1999 WATER YEAR
(OCTOBER-DECEMBER,
APRIL-SEPTEMBER)

WATER YEARS 1998 - 1999

HIGHEST DAILY MEAN	.103	Aug 22	.099	Oct 17	.103	Aug 22 1998
LOWEST DAILY MEAN	.000	Many days	.000	Many days	.000	Many days
ANNUAL SEVEN-DAY MINIMUM	.00	Many periods	.00	periods	.00	Many periods
INSTANTANEOUS PEAK FLOW			1.8	Oct 17	2.0	Sep 26 1998
INSTANTANEOUS PEAK STAGE			2.04	Oct 17	2.08	Sep 26 1998
INSTANTANEOUS LOW FLOW					.00	Many days
10 PERCENT EXCEEDS	.00		.00		.00	
50 PERCENT EXCEEDS	.00		.00		.00	
90 PERCENT EXCEEDS	.00		.00		.00	

ST. CROIX RIVER BASIN

05341405 DEER LAKE TRIBUTARY #2, DOWNSTREAM SITE, NEAR CENTURIA, WI

LOCATION.--Lat 45°24'36", long 92°30'27", in NW 1/4 NW 1/4 sec.29, T.34 N., R.17 W., Polk County, Hydrologic Unit 07030005, at downstream side of culvert passing under private drive. Private drive is 500 ft east of the centerline of 170th Street and 140th Avenue, 3.5 mi southeast of Centuria.

DRAINAGE AREA.--0.38 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August to December 1998, April to September 1999.

GAGE.--Water-stage recorder. Elevation of gage is 1,120 ft above sea level, from topographic map.

REMARKS.--

AUGUST - SEPTEMBER 1998: No estimated daily discharges. Records are good (see page 13).

1999 WATER YEAR: Gage operated from Oct. 1 through Dec. 31, 1998, and Apr. 1 through Sept. 30, 1999. Estimated daily discharges: Sept. 21-30. Records good except those for estimated daily discharges, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	.000	.002
2	---	---	---	---	---	---	---	---	---	---	.000	.001
3	---	---	---	---	---	---	---	---	---	---	.000	.001
4	---	---	---	---	---	---	---	---	---	---	.000	.000
5	---	---	---	---	---	---	---	---	---	---	.000	.000
6	---	---	---	---	---	---	---	---	---	---	.000	.000
7	---	---	---	---	---	---	---	---	---	---	.141	.000
8	---	---	---	---	---	---	---	---	---	---	.003	.000
9	---	---	---	---	---	---	---	---	---	---	.000	.000
10	---	---	---	---	---	---	---	---	---	---	.000	.000
11	---	---	---	---	---	---	---	---	---	---	.000	.000
12	---	---	---	---	---	---	---	---	---	---	.000	.000
13	---	---	---	---	---	---	---	---	---	---	.000	.000
14	---	---	---	---	---	---	---	---	---	---	.000	.000
15	---	---	---	---	---	---	---	---	---	---	.000	.000
16	---	---	---	---	---	---	---	---	---	---	.000	.000
17	---	---	---	---	---	---	---	---	---	---	.000	.000
18	---	---	---	---	---	---	---	---	---	---	.000	.000
19	---	---	---	---	---	---	---	---	---	---	.032	.000
20	---	---	---	---	---	---	---	---	---	---	.071	.000
21	---	---	---	---	---	---	---	---	---	---	.001	.000
22	---	---	---	---	---	---	---	---	---	---	.224	.000
23	---	---	---	---	---	---	---	---	---	---	.101	.000
24	---	---	---	---	---	---	---	---	---	---	.053	.000
25	---	---	---	---	---	---	---	---	---	---	.031	.000
26	---	---	---	---	---	---	---	---	---	---	.018	.166
27	---	---	---	---	---	---	---	---	---	---	.010	.002
28	---	---	---	---	---	---	---	---	---	---	.007	.001
29	---	---	---	---	---	---	---	---	---	---	.004	.001
30	---	---	---	---	---	---	---	---	---	---	.001	.001
31	---	---	---	---	---	---	---	---	---	---	.001	---
TOTAL	---	---	---	---	---	---	---	---	---	---	0.698	0.175
MEAN	---	---	---	---	---	---	---	---	---	---	.023	.006
MAX	---	---	---	---	---	---	---	---	---	---	.224	.166
MIN	---	---	---	---	---	---	---	---	---	---	.000	.000
CFSM	---	---	---	---	---	---	---	---	---	---	.06	.02
IN.	---	---	---	---	---	---	---	---	---	---	.07	.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1998, BY WATER YEAR (WY)

MEAN	---	---	---	---	---	---	---	---	---	---	.022	.006
MAX	---	---	---	---	---	---	---	---	---	---	.022	.006
(WY)	---	---	---	---	---	---	---	---	---	---	1998	1998
MIN	---	---	---	---	---	---	---	---	---	---	.022	.006
(WY)	---	---	---	---	---	---	---	---	---	---	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(AUGUST-SEPTEMBER)

HIGHEST DAILY MEAN	.224	Aug 22
LOWEST DAILY MEAN	.000	Many days
ANNUAL SEVEN-DAY MINIMUM	.00	Many periods
INSTANTANEOUS PEAK FLOW	3.2	Sep 26
INSTANTANEOUS PEAK STAGE	1.97	Sep 26
INSTANTANEOUS LOW FLOW	.00	Many days
10 PERCENT EXCEEDS	.03	
50 PERCENT EXCEEDS	.00	
90 PERCENT EXCEEDS	.00	

05341405 DEER LAKE TRIBUTARY #2, DOWNSTREAM SITE, NEAR CENTURIA, WI--CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.001	.003	.004	---	---	---	.081	.007	.006	.001	.002	.002
2	.001	.003	.004	---	---	---	.087	.006	.004	.004	.001	.002
3	.000	.003	.004	---	---	---	.060	.005	.003	.003	.014	.002
4	.000	.002	.012	---	---	---	.209	.005	.005	.003	.005	.008
5	.000	.002	.044	---	---	---	.260	.012	.018	.041	.002	.017
6	.002	.002	.007	---	---	---	.476	.012	.043	.009	.002	.009
7	.001	.002	.004	---	---	---	.329	.118	.012	.002	.003	.009
8	.001	.002	.003	---	---	---	.187	.094	.008	.008	.003	.010
9	.001	.003	.003	---	---	---	.105	.060	.009	.005	.017	.010
10	.001	.167	.003	---	---	---	.069	.040	.008	.003	.005	.003
11	.000	.079	.002	---	---	---	.109	.041	.255	.001	.002	.004
12	.000	.047	.002	---	---	---	.085	.054	.114	.000	.011	.013
13	.000	.032	.002	---	---	---	.062	.065	.070	.000	.005	.006
14	.000	.027	.002	---	---	---	.048	.048	.047	.001	.001	.005
15	.000	.020	.002	---	---	---	.063	.035	.041	.001	.001	.004
16	.146	.017	.002	---	---	---	.082	.047	.034	.001	.001	.003
17	.375	.013	.002	---	---	---	.057	.145	.027	.000	.000	.001
18	.210	.053	.001	---	---	---	.042	.093	.024	.000	.029	.001
19	.115	.061	.001	---	---	---	.036	.063	.022	.000	.105	.003
20	.072	.041	.001	---	---	---	.031	.097	.019	.000	.077	.002
21	.042	.028	.000	---	---	---	.027	.111	.013	.000	.036	.002
22	.023	.025	.000	---	---	---	.022	.072	.012	.000	.045	.001
23	.013	.025	.000	---	---	---	.015	.058	.022	.000	.091	.001
24	.009	.019	.000	---	---	---	.013	.046	.008	.000	.050	.001
25	.006	.015	.000	---	---	---	.010	.035	.007	.000	.040	.000
26	.005	.011	.000	---	---	---	.009	.029	.006	.108	.033	.002
27	.006	.008	.000	---	---	---	.014	.025	.004	.001	.022	.001
28	.005	.007	.000	---	---	---	.011	.020	.006	.000	.012	.001
29	.007	.007	.000	---	---	---	.011	.015	.004	.000	.007	.000
30	.006	.006	.000	---	---	---	.009	.010	.002	.182	.004	.000
31	.004	---	.000	---	---	---	---	.008	---	.016	.002	---
TOTAL	1.052	0.730	0.105	---	---	---	2.619	1.476	0.853	0.390	0.628	0.123
MEAN	.034	.024	.003	---	---	---	.087	.048	.028	.013	.020	.004
MAX	.375	.167	.044	---	---	---	.476	.145	.255	.182	.105	.017
MIN	.000	.002	.000	---	---	---	.009	.005	.002	.000	.000	.000
CFSM	.09	.06	.01	---	---	---	.23	.13	.07	.03	.05	.01
IN.	.10	.07	.01	---	---	---	.26	.14	.08	.04	.06	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1998	.034	.034	1999	.034	1999
1999	.024	.024	1999	.024	1999
2000	.002	.002	1999	.002	1999
2001	---	---	---	---	---
2002	---	---	---	---	---
2003	---	---	---	---	---
2004	---	---	---	---	---
2005	---	---	---	---	---
2006	---	---	---	---	---
2007	---	---	---	---	---
2008	---	---	---	---	---
2009	---	---	---	---	---
2010	---	---	---	---	---
2011	---	---	---	---	---
2012	---	---	---	---	---
2013	---	---	---	---	---
2014	---	---	---	---	---
2015	---	---	---	---	---
2016	---	---	---	---	---
2017	---	---	---	---	---
2018	---	---	---	---	---
2019	---	---	---	---	---
2020	---	---	---	---	---
2021	---	---	---	---	---
2022	---	---	---	---	---
2023	---	---	---	---	---
2024	---	---	---	---	---
2025	---	---	---	---	---
2026	---	---	---	---	---
2027	---	---	---	---	---
2028	---	---	---	---	---
2029	---	---	---	---	---
2030	---	---	---	---	---
2031	---	---	---	---	---

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR
(AUGUST-DECEMBER)FOR 1999 WATER YEAR
(OCTOBER-DECEMBER,
APRIL-SEPTEMBER)

WATER YEARS 1998 - 1999

HIGHEST DAILY MEAN	.375 Oct 17	.476 Apr 6	.476 Apr 6 1999
LOWEST DAILY MEAN	.000 Many days	.000 Many days	.000 Many days
ANNUAL SEVEN-DAY MINIMUM	.00 Many periods	.00 Many periods	.00 Many periods
INSTANTANEOUS PEAK FLOW		3.0 Oct 17	3.2 Sep 26 1998
INSTANTANEOUS PEAK STAGE		1.95 Oct 17	1.97 Sep 26 1998
INSTANTANEOUS LOW FLOW			.00 Many days
10 PERCENT EXCEEDS	.05	.08	.08
50 PERCENT EXCEEDS	.00	.01	.00
90 PERCENT EXCEEDS	.00	.00	.00

ST. CROIX RIVER BASIN

05341405 DEER LAKE TRIBUTARY #2, DOWNSTREAM SITE, NEAR CENTURIA, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--August 1998 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1998 to current year.

INSTRUMENTATION.--Continuous water-temperature recorder since August 1998.

REMARKS.--Records represent water temperature at sensor within 0.5°C. Missing record indicates low-flow periods when the water-temperature probe was exposed to the air.

EXTREMES FOR CURRENT PERIOD.--

WATER TEMPERATURE:

AUGUST-SEPTEMBER 1998.--Maximum observed, 21.0°C, Aug. 23; minimum observed, 10.5°C, Sept. 30.

1999 WATER YEAR.--Maximum observed, 24.5 °C, July 5; minimum observed, 0°, many days.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	---	---	---	16.5	14.5	15.9
2	---	---	---	---	---	---	---	---	---	15.0	13.0	14.3
3	---	---	---	---	---	---	---	---	---	16.0	13.0	14.5
4	---	---	---	---	---	---	---	---	---	19.5	13.0	15.3
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	20.5	18.5	19.8	---	---	---
21	---	---	---	---	---	---	18.5	17.0	17.7	---	---	---
22	---	---	---	---	---	---	20.0	16.5	18.2	---	---	---
23	---	---	---	---	---	---	21.0	19.0	20.0	---	---	---
24	---	---	---	---	---	---	20.5	19.0	19.8	---	---	---
25	---	---	---	---	---	---	19.5	18.0	18.9	---	---	---
26	---	---	---	---	---	---	19.0	16.5	17.9	17.5	15.0	16.5
27	---	---	---	---	---	---	18.0	17.0	17.6	16.0	13.5	15.0
28	---	---	---	---	---	---	19.0	18.0	18.5	14.0	12.0	13.5
29	---	---	---	---	---	---	18.5	16.5	17.6	14.5	12.5	13.5
30	---	---	---	---	---	---	16.5	15.0	15.9	12.5	10.5	11.5
31	---	---	---	---	---	---	16.0	14.0	15.4	---	---	---
MONTH	---	---	---	---	---	---	21.0	14.0	18.1	19.5	10.5	14.4

ST. CROIX RIVER BASIN

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05341405 DEER LAKE TRIBUTARY #2, DOWNSTREAM SITE, NEAR CENTURIA, WI--CONTINUED

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	11.0	8.5	10.0	8.5	6.5	7.5	4.5	2.5	3.5	---	---	---
2	9.5	7.5	8.5	6.5	4.5	5.5	4.5	3.0	3.5	---	---	---
3	10.0	7.5	9.0	5.0	4.0	4.5	4.5	3.0	3.5	---	---	---
4	10.5	7.5	9.0	5.0	4.0	4.5	4.5	2.5	3.5	---	---	---
5	14.0	9.5	11.5	4.0	3.5	4.0	5.5	3.5	4.5	---	---	---
6	12.0	11.0	11.5	4.0	3.5	4.0	4.0	2.0	2.5	---	---	---
7	11.5	9.5	10.5	4.5	4.0	4.0	2.5	1.5	2.0	---	---	---
8	10.5	8.0	9.0	4.5	4.0	4.5	2.5	1.5	2.0	---	---	---
9	11.5	8.5	10.0	5.0	3.0	4.5	3.0	1.5	2.0	---	---	---
10	12.0	9.5	10.5	4.0	1.5	3.0	2.5	2.0	2.0	---	---	---
11	12.0	8.5	10.5	2.5	1.5	1.5	2.0	.5	1.0	---	---	---
12	11.5	6.5	9.0	1.5	.5	1.0	1.0	.5	.5	---	---	---
13	8.0	5.0	6.5	2.0	.5	1.0	2.0	.5	1.0	---	---	---
14	8.5	6.0	7.0	2.5	1.5	2.0	1.5	.5	1.0	---	---	---
15	10.5	8.0	9.0	2.5	1.5	2.0	1.5	.5	1.0	---	---	---
16	13.0	10.5	12.0	3.5	2.0	2.5	.5	.5	.5	---	---	---
17	15.5	12.5	14.5	3.5	2.5	3.0	.5	.0	.5	---	---	---
18	12.5	9.5	10.5	4.5	3.0	3.5	.5	.0	.5	---	---	---
19	9.5	8.0	9.0	4.5	1.0	2.5	.0	.0	.0	---	---	---
20	8.5	6.0	7.5	2.0	.5	1.0	.0	.0	.0	---	---	---
21	7.5	5.0	6.5	1.0	.5	1.0	.0	.0	.0	---	---	---
22	7.0	4.0	5.5	2.0	1.0	1.5	.0	.0	.0	---	---	---
23	7.5	5.0	6.0	2.0	1.5	2.0	.0	.0	.0	---	---	---
24	8.5	6.0	7.5	2.5	1.0	1.5	.0	.0	.0	---	---	---
25	10.5	8.5	9.5	2.5	1.5	2.0	.0	.0	.0	---	---	---
26	10.0	8.5	9.0	2.5	1.5	1.5	.0	.0	.0	---	---	---
27	11.5	9.0	10.0	2.5	1.0	1.5	.0	.0	.0	---	---	---
28	9.5	7.5	8.5	3.0	1.5	2.0	.0	.0	.0	---	---	---
29	9.0	7.0	8.0	4.5	3.0	4.0	.0	.0	.0	---	---	---
30	9.5	8.5	9.0	5.0	3.5	4.5	.0	.0	.0	---	---	---
31	8.5	7.5	8.0	---	---	---	.0	.0	.0	---	---	---
MONTH	15.5	4.0	9.1	8.5	.5	2.9	5.5	.0	1.1	---	---	---
FEBRUARY			MARCH			APRIL			MAY			
1	---	---	---	---	---	---	7.5	5.0	5.5	15.0	9.0	12.0
2	---	---	---	---	---	---	7.5	5.5	6.0	15.0	9.5	12.5
3	---	---	---	---	---	---	6.5	5.5	6.0	15.0	11.0	13.0
4	---	---	---	---	---	---	9.5	5.0	7.0	15.0	12.0	14.0
5	---	---	---	---	---	---	7.5	4.5	6.0	16.0	14.0	14.5
6	---	---	---	---	---	---	9.0	5.0	7.0	14.0	11.5	13.5
7	---	---	---	---	---	---	12.0	6.5	9.0	13.5	11.5	12.0
8	---	---	---	---	---	---	10.5	7.5	9.0	14.5	10.5	12.0
9	---	---	---	---	---	---	11.5	7.0	9.0	16.0	8.5	12.5
10	---	---	---	---	---	---	9.5	5.5	7.0	16.0	11.5	13.5
11	---	---	---	---	---	---	6.0	4.0	5.5	14.0	12.0	13.5
12	---	---	---	---	---	---	10.5	4.5	7.0	13.5	12.0	13.0
13	---	---	---	---	---	---	12.0	5.0	8.5	13.5	11.0	12.0
14	---	---	---	---	---	---	13.0	6.5	9.5	16.5	10.5	13.5
15	---	---	---	---	---	---	9.0	6.0	7.5	16.0	12.0	14.0
16	---	---	---	---	---	---	10.0	5.5	7.0	16.5	13.5	15.0
17	---	---	---	---	---	---	11.0	5.5	7.5	15.5	14.5	15.0
18	---	---	---	---	---	---	9.5	5.5	7.5	17.0	12.5	15.0
19	---	---	---	---	---	---	11.0	6.0	8.0	18.0	12.0	14.5
20	---	---	---	---	---	---	8.0	5.0	6.5	15.5	14.5	15.0
21	---	---	---	---	---	---	10.5	6.5	8.5	17.5	14.5	15.5
22	---	---	---	---	---	---	8.0	5.0	6.5	18.5	13.5	16.0
23	---	---	---	---	---	---	10.0	3.5	6.5	16.0	12.5	14.5
24	---	---	---	---	---	---	11.5	4.0	7.5	15.5	11.0	13.5
25	---	---	---	---	---	---	12.0	5.0	9.0	15.5	10.0	13.0
26	---	---	---	---	---	---	12.0	6.5	9.5	17.0	10.0	14.0
27	---	---	---	---	---	---	11.5	8.0	10.0	17.0	11.0	14.0
28	---	---	---	---	---	---	13.5	7.5	10.5	18.5	12.0	15.5
29	---	---	---	---	---	---	13.5	7.0	10.5	19.0	14.5	17.0
30	---	---	---	---	---	---	14.5	7.5	11.0	18.0	15.5	17.0
31	---	---	---	---	---	---	---	---	---	17.5	13.5	16.0
MONTH	---	---	---	---	---	---	14.5	3.5	7.8	19.0	8.5	14.1

ST. CROIX RIVER BASIN

05341405 DEER LAKE TRIBUTARY #2, DOWNSTREAM SITE, NEAR CENTURIA, WI--CONTINUED

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	13.5	10.5	11.5	15.0	14.0	14.5	18.5	17.0	17.5	17.5	16.0	16.5
2	11.5	10.0	10.5	16.0	14.5	15.5	17.0	15.5	16.5	18.0	16.5	17.5
3	13.0	10.5	12.0	18.0	16.0	17.0	19.5	16.5	17.5	19.5	17.0	18.0
4	15.0	13.0	13.5	19.5	17.5	18.0	18.0	16.5	17.5	19.5	18.0	19.0
5	18.5	14.5	16.5	24.5	18.0	20.5	17.5	15.5	16.5	19.0	16.0	18.0
6	19.5	16.5	18.0	20.5	18.0	19.0	18.0	17.0	17.5	16.5	14.5	15.5
7	20.5	17.5	18.5	18.0	16.5	17.0	19.0	17.0	17.5	16.5	15.5	16.0
8	20.5	16.0	18.0	18.5	16.0	17.5	17.0	15.5	16.5	16.5	14.5	15.5
9	21.5	17.0	19.0	18.5	16.5	17.5	17.0	15.5	16.5	14.5	13.0	13.5
10	19.5	18.0	19.0	17.0	15.0	16.0	18.0	16.5	17.0	14.5	13.0	13.5
11	19.0	16.0	17.0	16.5	15.0	15.5	17.5	16.0	17.0	14.5	10.5	12.5
12	20.5	16.5	18.5	17.0	14.5	15.5	18.5	17.0	17.5	14.5	13.5	14.0
13	21.0	17.5	19.0	18.0	16.0	16.5	17.0	15.5	16.0	13.5	13.0	13.0
14	17.5	14.0	16.0	19.0	16.0	17.5	16.0	14.5	15.5	13.0	12.0	12.5
15	15.5	13.0	14.0	20.5	17.5	19.0	16.5	15.0	16.0	13.0	11.0	12.0
16	17.0	13.0	15.0	20.0	18.5	19.5	17.5	16.0	16.5	13.0	9.5	11.5
17	16.5	12.0	14.5	19.0	16.0	17.5	17.5	15.5	16.5	14.0	11.0	12.0
18	16.0	12.5	14.5	18.0	16.5	17.5	18.0	16.0	17.0	14.5	10.5	12.5
19	15.0	14.5	14.5	19.5	17.0	18.0	19.0	16.5	18.0	14.0	11.5	13.0
20	16.0	14.5	15.0	18.5	17.0	17.5	19.5	17.0	18.5	11.5	9.0	10.5
21	16.5	15.5	16.0	---	---	---	20.0	17.5	18.5	11.0	7.5	9.0
22	18.5	16.0	17.0	---	---	---	19.0	18.5	18.5	13.5	9.0	11.0
23	19.0	17.5	18.0	---	---	---	18.5	18.0	18.5	13.5	10.5	11.5
24	18.5	17.0	17.5	---	---	---	19.5	18.0	18.5	12.0	8.5	10.0
25	18.5	16.5	17.5	---	---	---	19.5	17.0	18.5	14.0	9.5	12.0
26	18.0	17.0	17.5	22.0	19.0	21.0	20.0	17.5	19.0	14.5	12.5	13.5
27	17.5	15.5	16.5	19.5	17.5	18.5	20.5	18.5	19.5	12.5	10.0	11.5
28	16.0	14.5	15.0	19.5	18.0	18.5	19.5	18.0	18.5	12.5	9.5	10.5
29	15.0	13.5	14.5	22.0	18.5	20.5	18.0	15.5	16.5	10.5	7.5	9.5
30	15.0	14.0	14.5	23.5	19.0	21.0	16.0	14.5	15.5	11.0	8.5	9.5
31	---	---	---	21.5	18.5	20.5	17.0	15.5	16.0	---	---	---
MONTH	21.5	10.0	15.9	24.5	14.0	17.9	20.5	14.5	17.3	19.5	7.5	13.1

05341405 DEER LAKE TRIBUTARY #2, DOWNSTREAM SITE, NEAR CENTURIA, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--July 1998 to current year.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established July 23, 1998. Rainfall estimated to be 0.00 for Jan. 16-17, 23, 30, Feb. 3, 5, 7-10, 14-15, 24-26, 28, and Mar. 9-13, 1999, because recorded precipitation interpreted as snowmelt. Rainfall estimated due to apparent malfunction on Nov. 9-10, 1998, based on upstream gage.

EXTREMES FOR CURRENT PERIOD.--

JULY-SEPTEMBER 1998: Maximum daily rainfall, 2.10 in., Aug. 7.

1999 WATER YEAR: Maximum daily rainfall, 2.14 in., July 30.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	.00	.00
2	---	---	---	---	---	---	---	---	---	---	.00	.00
3	---	---	---	---	---	---	---	---	---	---	1.01	.00
4	---	---	---	---	---	---	---	---	---	---	.00	.00
5	---	---	---	---	---	---	---	---	---	---	.00	.00
6	---	---	---	---	---	---	---	---	---	---	.00	.00
7	---	---	---	---	---	---	---	---	---	---	2.10	.00
8	---	---	---	---	---	---	---	---	---	---	.00	.00
9	---	---	---	---	---	---	---	---	---	---	.00	.00
10	---	---	---	---	---	---	---	---	---	---	.00	.00
11	---	---	---	---	---	---	---	---	---	---	.00	.00
12	---	---	---	---	---	---	---	---	---	---	.00	.00
13	---	---	---	---	---	---	---	---	---	---	.00	.00
14	---	---	---	---	---	---	---	---	---	---	.00	.00
15	---	---	---	---	---	---	---	---	---	---	.00	.00
16	---	---	---	---	---	---	---	---	---	---	.25	.00
17	---	---	---	---	---	---	---	---	---	---	.40	.00
18	---	---	---	---	---	---	---	---	---	---	.00	.00
19	---	---	---	---	---	---	---	---	---	---	1.11	.17
20	---	---	---	---	---	---	---	---	---	---	.07	.00
21	---	---	---	---	---	---	---	---	---	---	.00	.00
22	---	---	---	---	---	---	---	---	---	---	1.44	.00
23	---	---	---	---	---	---	---	---	---	---	.15	.08
24	---	---	---	---	---	---	---	---	---	.00	.09	.01
25	---	---	---	---	---	---	---	---	---	.00	.00	.08
26	---	---	---	---	---	---	---	---	---	.00	.00	1.40
27	---	---	---	---	---	---	---	---	---	.00	.00	.00
28	---	---	---	---	---	---	---	---	---	.00	.00	.00
29	---	---	---	---	---	---	---	---	---	.03	.00	.00
30	---	---	---	---	---	---	---	---	---	.00	.00	.26
31	---	---	---	---	---	---	---	---	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	---	---	0.03	6.62	2.00

ST. CROIX RIVER BASIN

05341405 DEER LAKE TRIBUTARY #2, DOWNSTREAM SITE, NEAR CENTURIA, WI--CONTINUED

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.03	.02	.00	.00
2	.00	.00	.00	.00	.00	.00	.31	.00	.00	.55	.00	.03
3	.00	.00	.00	.00	.00	.00	.05	.00	.00	.17	.87	.01
4	.00	.00	.56	.00	.00	.00	.51	.03	.32	.00	.04	.56
5	.36	.00	.17	.00	.00	.00	.78	.36	.71	1.46	.00	.60
6	.01	.00	.00	.00	.00	.00	.06	.40	.60	.00	.00	.00
7	.01	.00	.00	.00	.00	.00	.14	.92	.00	.00	.40	.19
8	.00	.01	.00	.00	.00	.00	.00	.00	.00	.77	.00	.01
9	.00	.04	.00	.00	.00	.00	.00	.00	.09	.31	.67	.03
10	.00	1.11	.00	.00	.00	.00	.20	.00	.04	.00	.00	.00
11	.00	.00	.00	.00	.34	.00	.36	.52	1.74	.00	.00	.81
12	.00	.00	.00	.00	.00	.00	.00	.32	.00	.00	.78	.09
13	.00	.00	.00	.00	.00	.00	.00	.12	.00	.00	.00	.12
14	.03	.00	.00	.00	.00	.00	.00	.00	.00	.19	.00	.02
15	.13	.00	.00	.00	.00	.00	.45	.02	.17	.00	.00	.00
16	1.62	.01	.00	.00	.00	.00	.00	.56	.01	.03	.00	.00
17	1.10	.00	.00	.00	.00	.00	.00	.58	.00	.00	.00	.00
18	.05	.58	.00	.00	.00	.00	.00	.01	.00	.00	1.37	.00
19	.00	.00	.00	.00	.00	.00	.08	.00	.04	.00	.00	.53
20	.00	.00	.00	.00	.00	.00	.00	.72	.00	.03	.00	.00
21	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00
22	.00	.00	.00	.00	.00	.00	.00	.11	.24	.01	.62	.00
23	.00	.00	.00	.00	.00	.00	.00	.01	.65	.12	.75	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	1.74	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.04	1.00	.00	.30
27	.15	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.61	.00	.00	.54	.00	.00	.00
29	.14	.00	.00	.00	---	.00	.00	.00	.00	.05	.00	.00
30	.01	.00	.00	.00	---	.00	.00	.00	.11	2.14	.00	.00
31	.00	---	.00	.00	---	.01	---	.06	---	.01	.00	---
TOTAL	3.61	1.76	0.73	0.00	0.34	0.63	2.94	4.74	5.33	8.60	5.51	3.30

ST. CROIX RIVER BASIN

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05341500 APPLE RIVER NEAR SOMERSET, WI

LOCATION.--Lat 45°09'27", long 92°42'59", in sec.21, T.31 N., R.19 W., St. Croix County, Hydrologic Unit 07030005, at powerplant of Northern States Power Co., 3.5 mi downstream from Somerset.

DRAINAGE AREA.--579 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1901 to September 1914 (monthly discharge only), October 1914 to September 1970, October 1986 to current year.

REVISED RECORDS.--WSP 1388: 1929, 1933. WDR-87-1: Drainage area.

GAGE.--Headwater and tailwater gages read hourly.

REMARKS.--No estimated daily discharges. Records of daily discharge computed on the basis of gate openings, head, and plant efficiency. Flow regulated by many powerplants upstream, but service ponds are small and monthly flows are only slightly affected.

COOPERATION.--Records of daily discharge furnished by Northern States Power Company and reviewed by Geological Survey.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	362	381	382	330	401	366	769	456	510	370	494	469
2	377	366	449	356	435	369	672	467	385	356	534	385
3	363	395	404	354	383	358	751	441	445	389	525	365
4	295	392	409	369	449	361	694	493	397	370	609	327
5	278	395	423	324	393	369	703	481	481	320	604	298
6	384	395	425	324	397	365	768	421	634	356	466	375
7	363	401	412	312	430	346	703	475	617	350	392	425
8	368	393	401	311	380	372	728	587	646	444	388	518
9	376	413	411	293	515	372	749	641	688	479	411	323
10	367	438	395	287	438	368	839	663	663	579	369	359
11	384	447	410	305	457	339	856	726	665	571	453	374
12	392	441	434	313	356	336	783	781	811	491	358	384
13	387	414	412	316	295	375	722	749	635	358	334	439
14	376	437	394	352	467	338	725	782	661	332	335	484
15	349	471	388	345	551	343	692	688	646	256	361	447
16	288	502	398	337	464	352	737	691	596	297	368	472
17	402	507	394	351	444	378	763	886	561	296	387	490
18	461	488	379	362	437	388	683	626	486	379	397	388
19	555	459	373	342	438	389	669	811	449	380	448	357
20	688	464	308	363	395	520	693	865	395	387	384	367
21	771	434	284	374	482	542	587	781	278	387	229	355
22	550	436	277	375	381	526	593	776	278	329	515	346
23	620	426	276	381	386	557	512	861	399	308	492	357
24	453	395	357	474	388	684	613	734	463	278	511	372
25	432	386	371	431	381	637	541	764	564	272	544	355
26	374	382	400	358	356	550	531	703	516	326	557	367
27	383	399	410	486	357	626	475	663	405	373	555	364
28	389	365	442	438	369	688	381	615	502	423	546	359
29	396	383	359	389	---	576	369	550	416	499	501	344
30	394	370	322	384	---	716	438	558	433	494	547	301
31	400	---	328	359	---	745	---	517	---	637	545	---
TOTAL	12977	12575	11827	11095	11625	14251	19739	20252	15625	12086	14159	11566
MEAN	419	419	382	358	415	460	658	653	521	390	457	386
MAX	771	507	449	486	551	745	856	886	811	637	609	518
MIN	278	365	276	287	295	336	369	421	278	256	229	298
CFSM	.72	.72	.66	.62	.72	.79	1.14	1.13	.90	.67	.79	.67
IN.	.83	.81	.76	.71	.75	.92	1.27	1.30	1.00	.78	.91	.74

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1901 - 1999, BY WATER YEAR (WY)

	MEAN	288	286	251	235	240	385	554	421	382	284	242	292
MAX	713	727	616	519	450	730	1335	1000	1030	576	704	808	
(WY)	1996	1997	1997	1997	1998	1998	1946	1965	1906	1993	1995	1962	
MIN	104	135	123	124	120	151	197	140	81.7	69.9	74.2	89.8	
(WY)	1933	1934	1934	1938	1934	1934	1930	1934	1934	1934	1934	1933	

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1901 - 1999
ANNUAL TOTAL	165034	167777	
ANNUAL MEAN	452	460	321
HIGHEST ANNUAL MEAN			563
LOWEST ANNUAL MEAN			144
HIGHEST DAILY MEAN	1590	Apr 4	2510
LOWEST DAILY MEAN	231	Jan 11	7.0
ANNUAL SEVEN-DAY MINIMUM	260	Jul 27	49
ANNUAL RUNOFF (CFSM)	.78	.79	.55
ANNUAL RUNOFF (INCHES)	10.60	10.78	7.53
10 PERCENT EXCEEDS	656	688	535
50 PERCENT EXCEEDS	395	404	254
90 PERCENT EXCEEDS	302	331	145

(a) Also occurred Sept. 30, 1929, July 19, 1932, and Aug. 2, 3, 1933

ST. CROIX RIVER BASIN
05341500 APPLE RIVER NEAR SOMERSET, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 1975 to August 1983 and March 1997 to September 1999 (discontinued).

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	CHLO- RIDE, DIS- SOLVED (MG/L) AS CL (00940)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L) AS N (00613)
OCT 1998										
23...	0940	--	540	--	7.7	9.0	11.2	--	.584	.015
NOV										
18...	1640	488	--	265	7.8	4.4	16.7	7.3	.760	<.010
DEC										
08...	1600	--	350	265	7.8	2.1	6.8	7.1	.858	<.010
JAN 1999										
13...	1600	--	263	292	8.1	.0	12.7	8.0	1.16	.017
FEB										
23...	1130	--	340	302	7.8	.5	--	7.8	1.31	<.010
MAR										
11...	1440	--	312	288	7.7	1.5	13.2	8.2	1.25	.011
23...	1030	--	408	270	8.1	5.4	13.5	7.3	1.02	.015
APR										
06...	1310	--	679	213	8.5	7.2	11.6	7.4	.619	<.010
28...	1500	381	--	245	8.2	13.8	10.4	7.0	.586	<.010
MAY										
12...	1030	781	--	--	--	--	--	--	--	--
18...	1400	--	632	237	8.1	15.2	9.6	6.9	.525	.014
JUN										
09...	1450	688	--	--	--	--	--	--	--	--
22...	0850	--	278	281	8.0	20.1	8.5	7.3	.818	.017
JUL										
03...	1930	--	396	266	8.3	22.3	8.1	7.2	.588	.011
07...	0955	350	--	--	--	--	--	--	--	--
22...	1530	329	--	273	8.1	23.0	7.1	13	1.43	.052
AUG										
02...	0720	534	--	--	--	--	--	--	--	--
19...	1215	--	357	430	8.3	16.4	11.9	6.8	.643	.014
SEP										
01...	1410	469	--	--	--	--	--	--	--	--
16...	1600	--	75	279	8.1	14.1	10.0	7.4	.579	<.010

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS HYDRO. + ORTHO TOTAL (MG/L AS P) (00678)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1998									
23...	.026	.49	.32	.492	.017	--	.014	8	56
NOV									
18...	.028	.39	.24	.024	.017	.03	.010	3	94
DEC									
08...	.049	.33	.38	.077	.047	.03	.020	2	91
JAN 1999									
13...	.126	.45	.35	.043	.023	.05	.019	2	86
FEB									
23...	.083	.36	.34	.039	.021	.04	.021	2	44
MAR									
11...	.045	.31	.26	.035	.018	.04	.019	2	75
23...	.032	.44	.28	.053	.019	.05	.012	4	87
APR									
06...	.031	.21	.33	.053	.015	.06	.011	5	88
28...	.035	.57	.32	.050	.016	.05	.022	7	77
MAY									
12...	--	--	--	.079	--	--	--	--	--
18...	.072	.74	.69	.057	.023	.06	<.010	5	100
JUN									
09...	--	--	--	.053	--	--	--	--	--
22...	.035	.56	.38	.052	.023	.02	.021	4	95
JUL									
03...	.032	.53	.32	.058	.034	.04	.034	8	68
07...	--	--	--	<.050	--	--	--	--	--
22...	<.020	.58	.42	.054	.016	.04	<.010	2	83
AUG									
02...	--	--	--	.065	--	--	--	--	--
19...	.068	.55	.41	.067	.046	.06	.027	4	67
SEP									
01...	--	--	--	<.050	--	--	--	--	--
16...	<.020	.45	.25	.052	.031	.04	.016	4	89

ST. CROIX RIVER BASIN

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05341752 WILLOW RIVER AT WILLOW RIVER STATE PARK NEAR BURKHARDT, WI

LOCATION.--Lat 45°00'42", long 92°42'30", in NW 1/4 SE 1/4 sec.8, T.29 N., R.19 W., St. Croix County, Hydrologic Unit 07030005, on left bank, 0.4 mi below outlet of Little Falls Lake and 2.1 mi southeast of Burkhardt.

DRAINAGE AREA.--292 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1998 to September 1999.

GAGE.--Water-stage recorder. Elevation of gage is 710 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records are good (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	117	123	126	104	115	116	176	121	125	120	176	116
2	122	124	124	108	119	115	169	114	129	118	166	114
3	107	122	123	110	116	113	158	117	127	119	134	111
4	117	124	123	105	109	112	164	121	116	116	128	106
5	118	123	140	105	111	106	170	130	124	112	120	113
6	122	120	140	106	121	105	198	131	176	123	116	118
7	118	125	137	105	116	106	246	152	200	118	117	110
8	121	124	131	107	117	112	325	165	228	123	114	115
9	116	129	127	106	120	115	262	179	203	125	120	111
10	115	161	123	105	121	111	163	170	156	114	121	115
11	115	157	123	107	132	109	178	155	184	114	119	116
12	116	156	121	108	126	108	173	183	241	112	116	128
13	116	150	119	107	119	109	180	184	277	108	117	118
14	117	147	120	108	140	108	182	167	264	108	108	115
15	119	136	120	108	130	112	151	150	188	103	111	108
16	130	135	121	110	128	132	175	145	156	106	107	105
17	167	149	120	113	123	184	172	174	140	106	106	102
18	155	136	118	117	119	197	167	198	132	105	125	103
19	150	138	117	111	115	225	155	237	124	112	158	107
20	122	139	106	114	117	260	146	280	126	107	149	106
21	127	139	93	114	114	271	141	263	125	111	127	103
22	125	132	92	118	113	286	136	249	123	111	146	107
23	123	131	106	117	116	267	125	305	148	104	164	102
24	122	130	104	117	114	206	127	255	143	103	281	100
25	121	129	108	108	111	188	127	194	127	100	276	100
26	121	128	111	106	110	177	126	165	125	133	282	100
27	126	126	115	120	110	162	118	150	116	129	212	100
28	124	125	113	119	114	187	115	143	119	123	142	100
29	127	135	110	117	---	208	123	127	125	118	130	100
30	128	131	96	113	---	289	115	114	125	116	119	100
31	123	---	108	109	---	250	---	123	---	191	118	---
TOTAL	3847	4024	3635	3422	3316	5146	4963	5361	4692	3608	4525	3249
MEAN	124	134	117	110	118	166	165	173	156	116	146	108
MAX	167	161	140	120	140	289	325	305	277	191	282	128
MIN	107	120	92	104	109	105	115	114	116	100	106	100
CFSM	.42	.46	.40	.38	.41	.57	.57	.59	.54	.40	.50	.37
IN.	.49	.51	.46	.44	.42	.66	.63	.68	.60	.46	.58	.41

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 1999, BY WATER YEAR (WY)

	MEAN	124	134	117	110	118	166	165	173	156	116	146	108
MAX	124	134	117	110	118	166	165	173	156	116	146	108	
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999
MIN	124	134	117	110	118	166	165	173	156	116	146	108	
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999

SUMMARY STATISTICS

FOR 1999 WATER YEAR

ANNUAL TOTAL	49788	
ANNUAL MEAN	136	
HIGHEST DAILY MEAN	325	Apr 8
LOWEST DAILY MEAN	92	Dec 22
ANNUAL SEVEN-DAY MINIMUM	100	Sep 24
INSTANTANEOUS PEAK FLOW	595	Apr 9
INSTANTANEOUS PEAK STAGE	5.29	Apr 9
INSTANTANEOUS LOW FLOW	83	Oct 20
ANNUAL RUNOFF (CFSM)	.47	
ANNUAL RUNOFF (INCHES)	6.34	
10 PERCENT EXCEEDS	185	
50 PERCENT EXCEEDS	121	
90 PERCENT EXCEEDS	106	

ST. CROIX RIVER BASIN
05341752 WILLOW RIVER NEAR BURKHARDT, WI--CONTINUED
WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1998 to September 1999 (discontinued).

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
OCT 1998									
23...	1600	121	357	7.8	10.3	10.1	--	2.56	.023
NOV									
18...	1440	134	391	7.8	4.4	13.5	13	3.00	.010
DEC									
08...	1220	134	385	7.8	5.1	8.2	13	3.17	.015
JAN 1999									
13...	1400	106	427	8.0	1.1	15.2	14	4.20	.027
FEB									
23...	0940	115	420	7.8	2.1	--	15	3.83	.015
MAR									
11...	1120	110	400	7.8	2.9	14.0	13	3.69	.014
22...	1120	289	285	7.8	4.1	12.8	12	2.09	.023
APR									
06...	1210	202	302	8.0	9.1	10.9	12	2.16	.021
28...	1300	115	331	9.0	14.0	11.5	12	1.56	.017
28...	1350	117	--	--	--	--	--	--	--
MAY									
13...	1843	185	--	--	--	--	--	--	--
18...	1220	188	363	8.1	14.4	10.3	12	1.76	.037
22...	1257	242	--	--	--	--	--	--	--
JUN									
07...	1450	207	--	--	--	--	--	--	--
14...	1803	260	--	--	--	--	--	--	--
22...	1000	122	327	8.2	19.2	8.2	11	1.18	.037
JUL									
03...	1810	121	335	8.9	22.5	8.4	12	1.26	.030
22...	1000	106	364	8.6	22.2	8.0	7.9	.731	.017
AUG									
19...	1045	145	342	8.5	20.2	8.9	12	1.45	.035
SEP									
16...	1440	108	396	8.5	15.6	10.2	91	2.17	.025

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS HYDRO. + ORTHO TOTAL (MG/L AS P) (00678)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1998									
23...	.041	.43	.18	.073	.038	--	.042	5	96
NOV									
18...	.042	.30	.20	.057	.036	.06	.036	5	87
DEC									
08...	.064	.35	.32	.013	.031	.06	.042	6	67
JAN 1999									
13...	.100	.30	.24	.064	.041	.07	.037	5	87
FEB									
23...	.075	.38	.33	.075	.036	.07	.032	4	77
MAR									
11...	.028	.28	.18	.054	.026	.05	.023	4	92
22...	.206	1.6	.97	.264	.120	.22	.073	14	75
APR									
06...	.051	.74	.48	.121	.057	.12	.043	17	93
28...	.042	1.0	.45	.072	.013	.05	.020	20	94
28...	--	--	--	.111	--	--	--	--	--
MAY									
13...	--	--	--	.085	--	--	--	--	--
18...	.220	.46	.52	.091	.041	.08	.032	10	83
22...	--	--	--	.100	--	--	--	--	--
JUN									
07...	--	--	--	.096	--	--	--	--	--
14...	--	--	--	.158	--	--	--	--	--
22...	<.020	1.3	.53	.088	.011	.01	.020	15	98
JUL									
03...	.051	.98	.41	.071	.016	.02	.018	9	88
22...	<.020	.65	.27	.076	.049	.07	<.010	--	--
AUG									
19...	.056	.85	.30	.089	.013	.04	<.010	9	98
SEP									
16...	<.020	.40	.25	.061	.040	.05	.018	3	93

05342000 KINNICKINNICK RIVER NEAR RIVER FALLS, WI

LOCATION.--Lat 44°49'51", long 92°43'59" (revised), in NE 1/4 NW 1/4 sec.18, T.27 N., R.19 W., Pierce County, Hydrologic Unit 07030005, on left bank, 50 ft upstream from County Trunk Highway F, 1.9 mi upstream from mouth, 4.8 mi downstream from Lake Louise Dam, and 5.5 mi west of River Falls.

DRAINAGE AREA.--165 mi² (revised).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1916 to September 1921 (monthly discharge for some periods published in WSP 1308), October 1998 to September 1999.

REVISED RECORDS.--WSP 1308.

GAGE.--Water-stage recorder. Elevation of gage is 690 ft above sea level, from topographic map. Prior to Oct. 1, 1921, recording gage near present site at different datum.

REMARKS.--Estimated daily discharges: Oct. 1 to Dec. 4 and ice-affected period, Dec. 21 to Jan. 18. Records good except those for estimated daily discharges, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	130	130	120	98	104	115	111	91	101	98	93	89
2	130	130	120	100	110	124	110	92	101	88	92	91
3	130	130	130	100	108	110	107	91	97	156	91	89
4	120	130	120	98	105	104	114	93	97	132	90	92
5	130	130	122	94	106	99	121	105	94	114	90	100
6	170	120	118	98	103	95	182	103	103	112	89	96
7	150	120	116	98	105	94	148	111	104	101	92	94
8	140	130	117	100	107	100	114	109	90	112	91	88
9	130	130	117	98	110	99	108	98	93	110	105	93
10	130	210	116	96	110	93	106	98	93	104	100	104
11	130	180	116	100	207	96	126	106	128	102	92	94
12	130	150	115	100	175	93	116	165	126	105	97	128
13	120	130	116	94	129	94	103	145	95	97	156	104
14	130	120	116	100	115	94	99	120	86	99	132	92
15	130	120	116	100	118	103	104	109	89	97	122	106
16	200	120	116	100	130	226	113	108	89	99	124	98
17	180	120	115	100	124	283	106	118	84	97	126	97
18	150	120	116	110	111	152	97	145	85	99	171	95
19	130	130	114	107	109	121	100	115	82	94	137	99
20	120	130	112	106	104	118	102	119	84	102	105	95
21	120	120	94	108	100	121	102	147	82	104	103	92
22	120	120	86	107	102	109	110	120	80	90	110	102
23	120	120	96	106	102	107	109	119	90	95	114	93
24	120	130	98	103	102	103	99	109	85	93	110	97
25	120	140	100	104	101	100	96	106	79	91	102	95
26	130	130	100	109	100	98	99	101	77	120	98	94
27	140	130	110	107	106	99	97	98	74	97	96	94
28	150	120	100	105	123	152	92	101	81	91	95	94
29	140	120	100	105	---	139	91	94	75	96	94	95
30	150	120	90	102	---	115	91	99	96	99	94	95
31	140	---	100	100	---	110	---	94	---	117	95	---
TOTAL	4230	3930	3422	3153	3226	3666	3273	3429	2740	3211	3306	2895
MEAN	136	131	110	102	115	118	109	111	91.3	104	107	96.5
MAX	200	210	130	110	207	283	182	165	128	156	171	128
MIN	120	120	86	94	100	93	91	91	74	88	89	88
CFSM	.83	.79	.67	.62	.70	.72	.66	.67	.55	.63	.65	.58
IN.	.95	.89	.77	.71	.73	.83	.74	.77	.62	.72	.75	.65

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1917 - 1999, BY WATER YEAR (WY)

	MEAN	84.9	93.4	85.6	74.6	75.5	233	96.4	88.3	114	74.9	76.7	74.4
MAX	136	131	110	102	115	469	122	111	167	104	121	96.5	
(WY)	1999	1999	1999	1999	1999	1919	1919	1999	1920	1999	1918	1999	
MIN	65.2	62.5	72.9	60.0	55.0	87.9	78.8	69.1	74.3	43.5	27.4	41.9	
(WY)	1918	1917	1917	1918	1918	1921	1918	1917	1921	1920	1920	1920	

ST. CROIX RIVER BASIN
05342000 KINNICKINNICK RIVER NEAR RIVER FALLS, WI--CONTINUED

SUMMARY STATISTICS	FOR 1999 WATER YEAR		WATER YEARS 1917 - 1999	
ANNUAL TOTAL	40481		97.8	
ANNUAL MEAN	111		120	1919
HIGHEST ANNUAL MEAN			74.3	1921
LOWEST ANNUAL MEAN			2870	Mar 15 1920
HIGHEST DAILY MEAN	283	Mar 17	13	Aug 30 1920
LOWEST DAILY MEAN	74	Jun 27	19	Aug 5 1920
ANNUAL SEVEN-DAY MINIMUM	80	Jun 23	(a) 4760	Mar 15 1920
INSTANTANEOUS PEAK FLOW	467	Mar 16	(b) 7.98	Mar 15 1920
INSTANTANEOUS PEAK STAGE	11.43	Mar 16	11	Aug 30 1920
INSTANTANEOUS LOW FLOW	41	Jun 25	.59	
ANNUAL RUNOFF (CFSM)	.67		8.06	
ANNUAL RUNOFF (INCHES)	9.13		120	
10 PERCENT EXCEEDS	130		80	
50 PERCENT EXCEEDS	105		56	
90 PERCENT EXCEEDS	92			

(a) From rating curve extended above 358 ft³/s

(b) Datum then in use

ST. CROIX RIVER BASIN

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05342000 KINNICKINNICK RIVER NEAR RIVER FALLS, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1997 to September 1999 (discontinued).

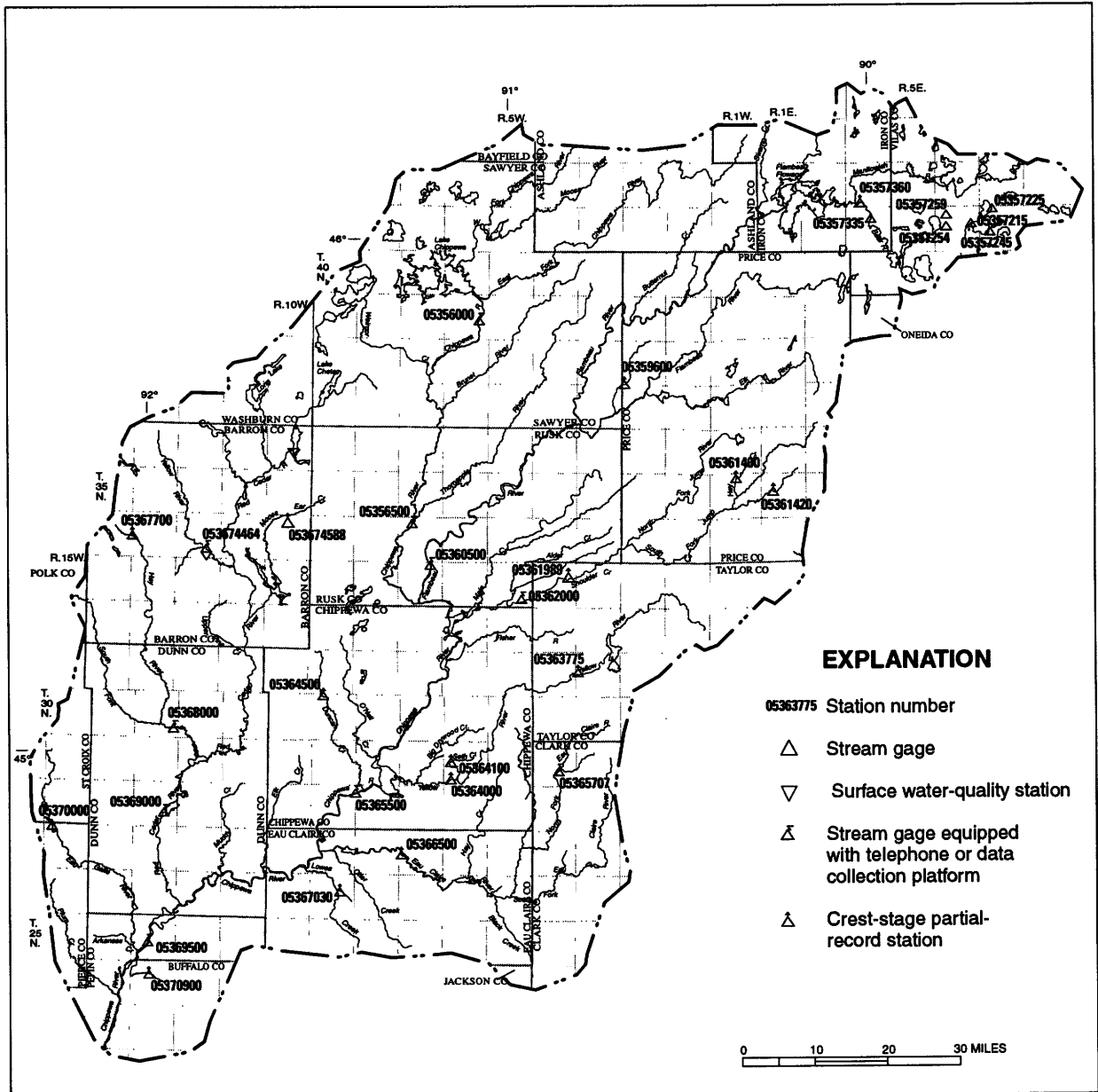
WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	CHLO- RIDE, DIS- SOLVED (MG/L) AS CL (00940)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L) AS N (00613)
OCT 1998										
23...	1340	--	117	433	8.0	9.8	13.8	--	5.14	.018
NOV										
18...	1300	--	123	474	7.8	6.6	17.8	17	5.43	<.010
DEC										
08...	1005	--	118	471	7.5	2.9	7.4	16	5.43	<.010
JAN 1999										
13...	1045	94	--	474	7.9	.5	14.6	17	5.74	.025
FEB										
22...	1440	--	100	485	8.2	3.3	--	17	5.53	<.010
MAR										
10...	1315	--	91	467	8.1	3.5	15.8	17	5.41	.017
22...	1315	--	108	441	8.4	8.2	13.4	16	4.62	.021
APR										
06...	1030	--	193	400	7.9	6.4	11.8	16	3.89	.016
28...	1100	--	87	470	8.2	11.7	11.4	17	4.94	.018
MAY										
13...	1719	--	157	--	--	--	--	--	--	--
18...	1050	--	150	461	8.2	12.7	11.6	16	4.25	.026
22...	1537	--	112	--	--	--	--	--	--	--
JUN										
14...	1943	--	83	--	--	--	--	--	--	--
22...	1110	--	60	496	8.4	18.6	11.6	17	5.05	.023
JUL										
03...	1640	--	136	367	8.2	21.3	9.3	13	3.48	.020
22...	1330	--	96	467	8.8	19.7	13.1	17	4.94	.019
AUG										
19...	1215	--	128	430	8.3	16.4	11.9	15	4.08	.027
SEP										
16...	1740	--	95	485	8.8	14.4	12.3	17	4.78	.012

DATE	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS HYDRO. + ORTHO TOTAL (MG/L AS P) (00678)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1998									
23...	.023	.14	<.10	.060	.062	--	.064	10	65
NOV									
18...	<.020	.15	<.10	.060	.062	.07	.057	8	61
DEC									
08...	.026	<.10	<.10	.072	.067	.09	.074	4	91
JAN 1999									
13...	.025	.31	.15	.078	.065	.08	.051	16	48
FEB									
22...	<.020	.17	.14	.062	.052	.06	.047	4	68
MAR									
10...	<.020	.21	.15	.061	.049	.06	.048	3	71
22...	<.020	.31	.23	.083	.054	.08	.039	13	36
APR									
06...	.045	.24	.29	.115	.063	.11	.051	40	74
28...	.049	.39	.24	.087	.072	.09	.072	7	89
MAY									
13...	--	--	--	.130	--	--	--	--	--
18...	.020	.36	.27	.102	.058	.11	.048	20	72
22...	--	--	--	.095	--	--	--	--	--
JUN									
14...	--	--	--	.106	--	--	--	--	--
22...	.020	.31	.21	.077	.063	.06	.060	5	77
JUL									
03...	.030	.51	.25	.143	.066	.07	.061	56	93
22...	<.020	.25	.22	.077	.064	.07	.055	--	--
AUG									
19...	<.020	.31	.26	.094	.078	.09	.059	6	88
SEP									
16...	<.020	.28	<.10	.076	.066	.06	.056	7	97

REMARKS.--Estimated daily discharges: Dec. 23 to Mar. 10, Mar. 13-16, 18-20, and Aug. 19. Records fair except those for estimated daily discharges, which are fair to poor (see page 13). Some regulation by reservoirs, navigation dams, and powerplants at low and medium stages. Discharges below a stage of 26.7 ft may be computed by routing flows from Mississippi River at St. Paul (05331000) and St. Croix River at St. Croix Falls (05340500).

ANNUAL TOTAL	7440120		8563600				
ANNUAL MEAN	20380		23460			18180	
HIGHEST ANNUAL MEAN						38540	1986
LOWEST ANNUAL MEAN						4367	1934
HIGHEST DAILY MEAN	70000	Apr 7	72100	May 21		226000	Apr 18 1965
LOWEST DAILY MEAN	6220	Sep 20	6530	Oct 5		1380	Jul 13 1940
ANNUAL SEVEN-DAY MINIMUM	6660	Sep 19	6740	Oct 1		2190	Aug 11 1936
INSTANTANEOUS PEAK FLOW			72500	May 21		228000	Apr 18 1965
INSTANTANEOUS PEAK STAGE			33.57	May 21		43.11	Apr 18 1965
ANNUAL RUNOFF (AC-FT)	14760000		16990000			13170000	
ANNUAL RUNOFF (CFSM)		.45		.52			.41
ANNUAL RUNOFF (INCHES)		6.18		7.11			5.51
10 PERCENT EXCEEDS	39700		41300			39400	
50 PERCENT EXCEEDS	19100		19800			11900	
90 PERCENT EXCEEDS	8020		10500			5120	



Base from U.S. Geological Survey 1:100,000 digital data; modified by Wisconsin Department of Natural Resources. Wisconsin Transverse Mercator projection.

CHIPPEWA RIVER BASIN

CHIPPEWA RIVER BASIN

05356000 CHIPPEWA RIVER AT BISHOPS BRIDGE, NEAR WINTER, WI

LOCATION.--Lat 45°50'57", long 91°04'44", in SW 1/4 NE 1/4 sec.23, T.39 N., R.6 W., Sawyer County, Hydrologic Unit 07050001, on right bank 15 ft upstream from highway bridge on County Trunk Highway G, 3.2 mi downstream from Lake Chippewa Dam, and 3.7 mi north-west of Winter.

DRAINAGE AREA.--790 mi².

PERIOD OF RECORD.--February 1912 to current year. March, April, 1912, and December to April 1913, monthly discharge only published in WSP 1308.

REVISED RECORDS.--WSP 1438: 1913(M), 1915-18(M), 1919, 1920-23(M), 1924, 1925(M), 1927(M), 1928, 1929-30(M), 1939(M). WDR WI-81-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,256.78 ft above sea level (levels by Wilhelm Engineering Co.). See WSP 1708 or 1728 for history of changes prior to July 23, 1930.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 21 to Jan. 16. Records good except those for ice-affected period, which is fair (see page 13). Flow regulated by Moose Lake and Lake Chippewa. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	293	303	261	250	634	681	261	432	782	763	767	823
2	293	300	261	260	550	680	259	433	782	772	767	823
3	293	302	261	270	572	679	253	434	748	780	794	820
4	293	300	263	270	694	706	269	433	754	736	782	817
5	295	300	273	260	694	750	266	438	446	622	766	822
6	299	300	263	260	694	748	316	444	449	783	807	789
7	296	300	261	250	695	748	294	1100	650	773	819	774
8	293	300	261	250	701	749	277	1630	777	797	815	783
9	293	300	261	250	701	749	270	1590	777	825	821	774
10	293	310	261	250	701	753	266	1570	773	795	812	773
11	293	307	261	250	704	758	269	1990	783	789	802	774
12	293	301	261	250	702	771	1400	2740	778	787	816	798
13	293	300	261	250	701	816	2400	2970	771	1000	827	786
14	292	300	261	250	701	851	2380	2830	770	874	814	781
15	293	300	261	250	701	854	1850	2730	771	1270	814	775
16	300	300	261	250	701	850	1040	2720	771	1780	814	773
17	312	299	261	257	701	706	771	2020	770	1770	807	772
18	304	299	261	250	701	549	770	1590	776	1770	803	772
19	298	306	261	249	707	530	632	1480	778	1490	822	773
20	295	300	261	249	706	420	472	1530	779	1000	820	771
21	294	298	260	252	705	417	431	1700	775	799	820	770
22	294	293	260	249	697	421	430	1890	778	801	820	767
23	301	295	250	249	690	423	426	1890	779	777	831	747
24	303	276	260	249	697	333	427	1690	775	449	837	517
25	304	261	260	249	696	258	428	1560	775	447	832	517
26	306	261	260	515	697	251	429	1080	775	1220	831	518
27	306	261	260	534	693	257	431	790	772	1600	827	514
28	306	261	260	606	682	270	431	789	773	1190	826	511
29	307	261	270	631	---	273	431	790	771	1070	825	510
30	306	261	260	631	---	275	431	789	770	1010	825	511
31	306	---	250	634	---	268	---	783	---	773	825	---
TOTAL	9247	8755	8086	9874	19218	17794	19010	44855	22428	30312	25188	21655
MEAN	298	292	261	319	686	574	634	1447	748	978	813	722
MAX	312	310	273	634	707	854	2400	2970	783	1780	837	823
MIN	292	261	250	249	550	251	253	432	446	447	766	510
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1912 - 1999, BY WATER YEAR (WY)												
MEAN	675	847	983	909	772	443	530	768	796	677	621	704
MAX	2896	1884	1910	1770	1550	1097	3453	2823	2950	2122	2235	3769
(WY)	1986	1992	1992	1983	1928	1920	1922	1954	1939	1996	1972	1941
MIN	43.6	143	261	201	194	117	20.0	24.2	39.8	40.3	146	140
(WY)	1925	1925	1999	1922	1918	1923	1925	1923	1925	1925	1970	1970

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1912 - 1999
ANNUAL TOTAL	191897	236422	
ANNUAL MEAN	526	648	726
HIGHEST ANNUAL MEAN			1174
LOWEST ANNUAL MEAN			258
HIGHEST DAILY MEAN	5250	2970	7520
LOWEST DAILY MEAN	238	249	14
ANNUAL SEVEN-DAY MINIMUM	242	249	15
INSTANTANEOUS PEAK FLOW		3010	7520
INSTANTANEOUS PEAK STAGE		7.53	11.05
INSTANTANEOUS LOW FLOW		196	14
10 PERCENT EXCEEDS	872	1000	1400
50 PERCENT EXCEEDS	306	679	584
90 PERCENT EXCEEDS	261	260	173

(a) Also occurred Jan. 20, 22-25

(b) Also occurred May 1-5, 1925

05356500 CHIPPEWA RIVER NEAR BRUCE, WI

LOCATION.--Lat 45°27'08", long 91°15'39", in SE 1/4 sec.5, T.34 N., R.7 W., Rusk County, Hydrologic Unit 07050001, on right bank 1.0 mi east of Bruce and 1.0 mi downstream from Thornapple River.

DRAINAGE AREA.--1,650 mi².

PERIOD OF RECORD.--December 1913 to current year.

REVISED RECORDS.--WSP 875: 1936-38. WSP 1308: 1922, 1937(M). WSP 1508: 1914-26(M), 1927, 1928-31(M), 1932, 1933(M), 1934-36, 1938. WDR WI-81-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,059.62 ft above sea level. Prior to May 28, 1935, nonrecording gage at railroad bridge 0.8 mi upstream at datum 2.30 ft higher.

REMARKS.--Estimated daily discharges: Ice-affected periods, Nov. 21, 22, and Dec. 8 to Mar. 16. Records good except those for ice-affected periods, which are poor (see page 13). Flow from 48 percent of the drainage area regulated by Moose Lake and Lake Chippewa. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	480	538	550	500	1100	1200	2300	759	1360	1140	2020	1360
2	474	540	541	520	1100	1200	2240	665	1320	1160	1680	1320
3	476	530	533	540	1000	1200	2090	707	1290	1160	1740	1240
4	460	521	536	520	960	1100	2350	702	1240	1200	2410	1240
5	452	513	631	500	1100	1100	3070	752	1200	1080	2120	1380
6	506	505	798	490	1100	1100	3930	983	1100	1280	1910	1420
7	564	507	814	490	1100	1000	5210	2350	1450	1280	1940	1290
8	543	508	660	490	1100	1100	4210	6770	1610	1300	1790	1300
9	518	511	620	490	1100	1200	3140	6640	1580	1830	1640	1330
10	498	616	600	490	1100	1100	2370	4940	1440	2020	1570	1240
11	485	911	600	500	1200	1100	1750	3910	1420	1760	1480	1230
12	473	920	620	520	1200	1200	1750	5820	1900	1550	1370	1340
13	451	673	620	520	1200	1300	3140	6540	1860	1720	1990	1510
14	458	642	600	540	1300	1700	3390	5290	1640	2560	2350	1440
15	461	630	560	560	1300	2200	3200	4340	1500	1990	1900	1370
16	491	621	520	580	1300	2400	2350	3900	1380	2150	1730	1310
17	686	610	520	600	1200	1900	1620	3910	1300	2310	1470	1260
18	923	619	520	620	1100	1150	1470	4380	1210	2230	1510	1220
19	902	765	520	640	1100	831	1420	4490	1210	2170	1740	1240
20	726	846	500	640	1000	944	1210	3480	1200	1760	1620	1280
21	632	720	500	640	1000	934	1090	4010	1190	1320	1470	1270
22	589	700	500	640	1000	971	1010	4340	1170	1190	1410	1200
23	571	694	500	660	1000	1030	970	3860	1200	1180	1750	1200
24	550	683	500	660	1000	1130	932	3670	1220	1130	4600	1080
25	545	672	500	640	1000	1110	895	3080	1140	804	4490	923
26	537	632	520	640	1000	939	847	2750	1150	5590	3110	897
27	518	597	520	700	1100	1150	850	1940	1130	7990	2220	893
28	518	587	540	1000	1200	1690	822	1710	1120	4410	1830	868
29	518	570	540	1000	---	2260	763	1540	1140	2470	1630	846
30	513	560	500	1100	---	2470	733	1440	1130	2010	1510	836
31	521	---	500	1100	---	2470	---	1380	---	2340	1420	---
TOTAL	17039	18941	17483	19530	30960	42179	61122	101048	39800	64084	61420	36333
MEAN	550	631	564	630	1106	1361	2037	3260	1327	2067	1981	1211
MAX	923	920	814	1100	1300	2470	5210	6770	1900	7990	4600	1510
MIN	451	505	500	490	960	831	733	665	1100	804	1370	836

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1999, BY WATER YEAR (WY)

	MEAN	1277	1431	1387	1198	1063	1454	2683	1942	1732	1260	1049	1365
MAX	5666	3662	2842	2200	2100	3964	8007	5971	7483	3990	2915	7423	
(WY)	1986	1992	1992	1942	1971	1973	1916	1954	1943	1968	1972	1941	
MIN	296	459	442	356	338	404	590	390	411	317	364	338	
(WY)	1934	1990	1990	1922	1918	1923	1987	1925	1949	1925	1964	1976	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1914 - 1999

ANNUAL TOTAL	422003	509939	
ANNUAL MEAN	1156	1397	1484
HIGHEST ANNUAL MEAN			2290
LOWEST ANNUAL MEAN			666
HIGHEST DAILY MEAN	11500	Feb 28	7990 Jul 27
LOWEST DAILY MEAN	411	Aug 2	451 Oct 13
ANNUAL SEVEN-DAY MINIMUM	436	Sep 13	474 Oct 10
INSTANTANEOUS PEAK FLOW			9260 Jul 27
INSTANTANEOUS PEAK STAGE			9.99 Jul 27
INSTANTANEOUS LOW FLOW			445 Oct 5, 13
10 PERCENT EXCEEDS	1890	2470	2710
50 PERCENT EXCEEDS	672	1110	1110
90 PERCENT EXCEEDS	458	518	500

(a) From rating curve extended above 25,100 ft³/s, gage height, 18.12 ft

(b) From floodmarks

CHIPPEWA RIVER BASIN

05357215 ALLEQUASH CREEK AT CTH M, NEAR BOULDER JUNCTION, WI

LOCATION.--Lat 46°01'25", long 89°39'10", in NW 1/4 NW 1/4 sec.20, T.41 N., R.7 E., Vilas County, Hydrologic Unit 07050002, on right bank approximately 400 ft downstream from County Trunk Highway M, 6.1 mi south of Boulder Junction.

DRAINAGE AREA.--8.43 mi².

PERIOD OF RECORD.--May 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,620 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 18 to Feb. 13, Feb. 18, 19, 21, 22, Mar. 3, 4, 6, 7, and 10-12. Records good except those for ice-affected periods, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.0	8.4	9.3	9.2	9.0	9.8	9.9	6.1	11	10	10	8.0
2	7.9	8.4	9.8	9.2	9.4	9.8	11	6.0	10	10	10	7.9
3	7.9	7.9	9.8	9.4	9.6	9.4	11	5.7	9.8	12	11	7.7
4	8.7	7.6	9.7	9.6	9.8	9.2	12	5.5	9.2	13	11	7.3
5	9.4	7.6	10	9.8	9.0	9.1	12	5.9	9.4	13	12	7.2
6	9.8	7.4	9.8	9.8	9.4	8.8	14	7.9	11	14	11	6.9
7	9.5	7.3	9.2	9.6	10	8.6	14	13	12	13	11	6.7
8	9.1	7.6	9.4	9.4	9.6	8.6	14	15	12	15	10	6.4
9	8.7	7.7	9.2	9.4	9.6	8.2	13	15	12	18	10	6.0
10	8.3	9.0	9.0	9.6	9.4	8.0	12	14	13	17	10	5.7
11	8.3	8.5	8.5	9.8	10	8.2	11	12	13	17	9.7	5.3
12	8.1	9.2	8.4	10	11	8.2	9.9	11	13	16	11	5.3
13	8.1	9.4	8.2	10	10	7.9	9.8	10	12	16	13	5.1
14	7.9	8.5	7.9	9.8	11	7.6	9.6	9.6	12	15	12	4.5
15	7.6	8.4	7.9	9.8	12	7.6	9.4	9.3	11	14	12	4.5
16	7.4	9.0	7.9	9.6	12	8.0	9.5	9.8	11	13	12	4.1
17	7.1	8.8	8.0	9.6	12	8.3	8.0	10	9.3	13	12	5.6
18	7.1	8.9	8.4	9.6	11	8.5	7.8	13	8.6	13	12	3.7
19	7.2	9.2	9.0	9.4	11	8.5	7.8	12	8.6	12	11	3.6
20	7.0	9.1	8.8	9.2	11	8.4	7.7	13	8.3	11	11	3.7
21	7.6	8.7	9.0	9.0	11	8.5	8.0	17	8.2	11	11	3.2
22	8.2	8.6	9.0	9.8	10	8.5	8.4	16	7.7	10	11	2.3
23	8.2	8.5	8.8	9.6	10	8.3	7.8	16	7.7	10	11	2.0
24	7.8	9.0	8.6	9.6	10	8.1	7.0	16	8.1	9.4	12	2.0
25	8.2	9.4	8.6	9.4	11	7.9	7.0	15	7.8	8.8	11	1.8
26	8.5	9.0	8.6	9.2	10	7.9	7.1	14	8.6	10	11	1.7
27	8.4	8.5	8.6	9.6	9.9	8.1	6.9	14	8.3	10	11	2.1
28	8.8	8.6	8.6	9.6	10	8.6	6.7	13	8.3	9.6	10	2.0
29	8.6	9.0	9.0	9.4	---	9.0	6.5	12	8.1	10	9.7	1.8
30	8.5	9.2	9.0	9.4	---	9.3	6.3	12	8.0	10	9.0	1.7
31	8.4	---	9.2	9.0	---	9.6	---	11	---	11	8.3	---
TOTAL	254.3	256.4	275.2	295.4	287.7	264.5	285.1	359.8	297.0	384.8	336.7	135.8
MEAN	8.20	8.55	8.88	9.53	10.3	8.53	9.50	11.6	9.90	12.4	10.9	4.53
MAX	9.8	9.4	10	10	12	9.8	14	17	13	18	13	8.0
MIN	7.0	7.3	7.9	9.0	9.0	7.6	6.3	5.5	7.7	8.8	8.3	1.7

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1999, BY WATER YEAR (WY)

	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	12.8	13.2	11.8	10.7	10.2	11.1	14.3	13.3	11.6
MAX	22.7	20.2	14.5	14.9	12.8	15.8	18.3	19.3	14.9
(WY)	1992	1992	1998	1998	1998	1997	1992	1996	1993
MIN	7.75	8.55	8.88	9.02	8.80	8.53	9.50	7.09	8.88
(WY)	1993	1999	1999	1995	1992	1999	1999	1998	1992

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1991 - 1999

ANNUAL TOTAL	3584.9	3432.7	
ANNUAL MEAN	9.82	9.40	11.7
HIGHEST ANNUAL MEAN			14.4
LOWEST ANNUAL MEAN			9.40
HIGHEST DAILY MEAN	21	18	56
LOWEST DAILY MEAN	5.4	1.7	.93
ANNUAL SEVEN-DAY MINIMUM	5.7	1.9	1.1
INSTANTANEOUS PEAK FLOW		(a) 20	(b) 79
INSTANTANEOUS PEAK STAGE		(c) 1.82	(d) 2.77
INSTANTANEOUS LOW FLOW		1.6	.69
10 PERCENT EXCEEDS	14	13	16
50 PERCENT EXCEEDS	8.8	9.3	11
90 PERCENT EXCEEDS	6.3	7.0	7.6

(a) Gage height, 1.57 ft

(b) Gage height, 2.36 ft

(c) Ice jam

(d) Also occurred Mar. 4, ice-affected

05357225 STEVENSON CREEK, AT COUNTY HIGHWAY M, NEAR BOULDER JUNCTION, WI

LOCATION.--Lat 46°03'41", long 89°38'47", in NW 1/4 SE 1/4 sec.5, T.41 N., R.7 E., Vilas County, Hydrologic Unit 07050002, at County Highway M, 3.6 mi south of Boulder Junction.

DRAINAGE AREA.--7.96 mi².

PERIOD OF RECORD.--May 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,620 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 5-22, Oct. 26 to Nov. 30, ice-affected period, Dec. 14 to Mar. 17, and periods of beaver activity, July 19-24, Aug. 6-13, and Sept. 22-30. Records fair except those for estimated daily discharges, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	2.8	3.2	1.9	2.0	2.2	4.4	2.1	2.6	3.7	1.8	1.3
2	3.7	2.8	3.0	1.9	2.1	2.1	4.4	2.1	2.6	1.7	1.7	2.5
3	3.5	2.8	3.0	2.0	2.1	2.1	4.3	2.0	2.6	3.7	2.1	13
4	3.3	2.7	3.2	2.0	2.1	2.1	4.5	2.0	2.5	2.5	1.6	9.5
5	3.6	2.6	3.1	2.0	2.0	2.1	4.1	2.2	3.3	2.1	1.4	7.0
6	3.8	2.5	3.0	2.0	2.1	2.1	5.6	3.6	3.8	1.9	2.2	6.5
7	4.0	2.5	2.9	2.0	2.2	2.1	4.5	8.5	4.5	1.3	2.1	6.5
8	3.7	2.6	2.8	2.0	2.3	2.1	4.1	6.7	3.9	4.5	2.6	5.7
9	3.5	2.9	2.8	1.9	2.4	2.1	3.8	4.9	3.7	6.2	3.1	5.2
10	3.3	3.3	2.8	1.8	2.5	2.1	3.5	4.1	3.8	3.1	2.8	5.0
11	3.2	4.0	2.7	1.7	2.6	2.2	3.3	3.6	3.8	2.9	3.7	4.8
12	3.1	4.5	2.6	1.8	2.4	2.4	3.1	3.4	3.7	2.5	4.9	4.9
13	3.0	3.8	2.6	1.8	2.5	2.3	2.9	3.0	3.5	2.3	5.2	4.5
14	2.9	3.5	2.5	1.9	2.6	2.3	2.8	2.7	3.3	2.1	2.1	4.2
15	2.7	3.2	2.4	1.9	2.7	2.3	2.8	2.5	3.2	1.8	1.5	3.8
16	2.6	3.0	2.4	1.9	2.6	2.3	2.7	2.6	3.3	1.3	1.5	3.1
17	2.7	3.0	2.4	2.0	2.5	2.4	2.6	3.0	3.1	1.3	1.4	2.1
18	2.9	2.9	2.4	2.0	2.4	2.6	2.6	4.1	3.1	1.3	1.4	1.8
19	3.1	3.0	2.3	2.0	2.4	2.5	2.6	3.1	2.0	1.4	1.3	1.9
20	2.8	3.0	2.3	2.0	2.4	2.5	2.7	2.9	2.2	1.8	1.3	1.9
21	2.6	3.1	2.2	2.0	2.4	2.5	2.8	3.2	1.8	2.7	1.3	2.6
22	2.6	3.2	2.1	1.9	2.3	2.5	2.7	3.0	1.4	2.5	1.3	4.0
23	2.5	3.2	2.1	2.0	2.3	2.5	2.6	4.2	1.5	2.6	1.4	3.3
24	2.4	3.4	2.2	1.9	2.3	2.5	2.5	3.6	1.6	3.0	1.3	2.7
25	2.5	3.5	2.3	1.9	2.3	2.4	2.4	3.2	1.2	3.8	1.3	2.3
26	2.7	3.4	2.3	1.9	2.2	2.5	2.4	3.1	1.1	5.1	1.3	2.1
27	2.9	3.1	2.4	1.9	2.2	2.8	2.3	2.9	1.1	4.0	1.3	2.8
28	3.1	3.2	2.3	2.0	2.2	3.2	2.2	2.8	1.2	3.5	1.2	2.4
29	3.1	3.3	1.9	2.0	---	3.6	2.2	2.6	1.2	3.2	1.2	2.1
30	2.9	3.4	1.9	1.9	---	3.6	2.1	2.4	1.3	3.1	1.2	2.0
31	3.0	---	1.9	2.0	---	4.5	---	2.6	---	3.3	1.3	---
TOTAL	95.6	94.2	78.0	59.9	65.1	77.5	95.5	102.7	77.9	86.2	59.8	121.5
MEAN	3.08	3.14	2.52	1.93	2.33	2.50	3.18	3.31	2.60	2.78	1.93	4.05
MAX	4.0	4.5	3.2	2.0	2.7	4.5	5.6	8.5	4.5	6.2	5.2	13
MIN	2.4	2.5	1.9	1.7	2.0	2.1	2.1	2.0	1.1	1.3	1.2	1.3

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1999, BY WATER YEAR (WY)

	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	3.37	3.84	2.96	2.64	2.74	2.86	3.15	3.54	3.26
MAX	4.02	6.28	3.54	3.53	3.87	4.34	4.85	6.18	6.73
(WY)	1996	1994	1998	1998	1998	1992	1996	1997	1991
MIN	2.78	2.44	2.46	1.93	1.70	1.58	1.29	1.55	1.47
(WY)	1998	1998	1996	1999	1997	1995	1995	1994	1992

SUMMARY STATISTICS FOR 1998 CALENDAR YEAR FOR 1999 WATER YEAR WATER YEARS 1991 - 1999

	1998 CALENDAR YEAR	1999 WATER YEAR	WATER YEARS 1991 - 1999
ANNUAL TOTAL	1039.1	1013.9	
ANNUAL MEAN	2.85	2.78	3.16
HIGHEST ANNUAL MEAN			3.68
LOWEST ANNUAL MEAN			2.61
HIGHEST DAILY MEAN	7.2 Sep 19	13 Sep 3	36 Jun 29 1991
LOWEST DAILY MEAN	(a) 1.3 May 24	1.1 Jun 26, 27	.54 Aug 19 1994
ANNUAL SEVEN-DAY MINIMUM	1.4 Jul 17	1.2 Jun 24	.90 Aug 13 1994
INSTANTANEOUS PEAK FLOW		(b) 15 Sep 3	(c) 39 Jun 29 1991
INSTANTANEOUS PEAK STAGE		(d) 9.33 Aug 13	(d) 10.19 Sep 18 1995
INSTANTANEOUS LOW FLOW		1.0 Jun 27	.33 Oct 19 1991
10 PERCENT EXCEEDS	4.0	4.0	4.8
50 PERCENT EXCEEDS	2.8	2.6	2.9
90 PERCENT EXCEEDS	1.6	1.7	1.6

(a) Also occurred May 25 and July 21-23

(b) Gage height, 8.92 ft

(c) Gage height, 9.62 ft

(d) Beaver dam

CHIPPEWA RIVER BASIN

05357245 TROUT RIVER AT TROUT LAKE NEAR BOULDER JUNCTION, WI

LOCATION.--Lat 46°02'08", long 89°42'20", in NE 1/4 NE 1/4 sec.14, T.41 N., R.6 E., Vilas County, Hydrologic Unit 07050002, on right bank 20 ft upstream from U.S. Highway 51 bridge, approximately 500 ft downstream from outlet of Trout Lake, 6.0 mi southwest of Boulder Junction.

DRAINAGE AREA.--46.2 mi².

PERIOD OF RECORD.--May 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,620 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records good (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	20	24	22	28	26	25	28	44	33	48	28
2	14	19	25	22	28	25	25	28	43	38	45	28
3	13	18	24	23	28	25	27	28	41	42	46	28
4	13	17	24	25	28	25	29	28	40	44	46	28
5	14	16	25	25	28	25	30	29	42	46	44	28
6	15	16	26	25	26	24	35	34	46	47	43	27
7	15	16	25	25	27	23	36	43	47	44	41	27
8	15	16	25	25	26	23	36	48	47	45	40	26
9	15	16	24	25	26	23	35	48	46	58	38	25
10	15	22	23	25	25	23	35	48	48	57	38	25
11	15	22	23	25	27	23	34	48	48	56	37	24
12	14	21	23	25	30	23	34	47	48	54	39	25
13	14	21	23	25	30	23	34	47	46	54	44	25
14	14	21	22	25	29	23	34	45	43	49	42	24
15	14	21	22	25	29	23	34	44	41	52	41	23
16	14	23	22	26	30	23	33	45	41	51	42	22
17	15	23	21	25	31	23	33	48	41	50	41	22
18	16	24	23	26	31	24	32	51	36	48	40	21
19	16	26	23	25	30	24	32	50	38	50	40	22
20	15	25	22	25	29	24	33	50	38	49	39	22
21	15	25	23	25	29	24	33	52	36	49	39	21
22	15	25	23	26	28	24	33	51	35	49	38	20
23	15	26	22	28	28	24	32	55	32	50	38	19
24	15	26	21	28	27	24	31	55	36	49	37	19
25	17	25	21	28	27	23	31	53	35	47	36	18
26	18	24	21	28	27	23	31	51	34	50	32	18
27	19	24	21	29	27	23	30	50	33	48	35	19
28	19	24	22	29	27	24	30	48	32	47	34	18
29	19	25	23	29	---	24	30	47	30	48	32	18
30	20	25	23	29	---	24	29	46	30	49	30	16
31	20	---	23	28	---	25	---	45	---	52	29	---
TOTAL	482	652	712	801	786	737	956	1390	1197	1505	1214	686
MEAN	15.5	21.7	23.0	25.8	28.1	23.8	31.9	44.8	39.9	48.5	39.2	22.9
MAX	20	26	26	29	31	26	36	55	48	58	48	28
MIN	13	16	21	22	25	23	25	28	30	33	29	16

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1999, BY WATER YEAR (WY)

	35.2	40.1	41.8	41.8	39.1	37.6	44.4	50.8	45.8	45.6	34.3	30.7
MEAN	35.2	40.1	41.8	41.8	39.1	37.6	44.4	50.8	45.8	45.6	34.3	30.7
MAX	45.2	55.4	58.1	60.1	47.9	44.9	53.5	70.5	59.6	57.0	49.7	44.4
(WY)	1996	1997	1992	1997	1997	1992	1996	1996	1996	1996	1996	1997
MIN	15.5	21.7	23.0	25.8	28.1	23.8	31.9	32.5	34.9	32.9	20.3	14.4
(WY)	1999	1999	1999	1999	1999	1999	1999	1998	1994	1994	1998	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1991 - 1999

ANNUAL TOTAL	11150	11118	
ANNUAL MEAN	30.5	30.5	40.3
HIGHEST ANNUAL MEAN			49.8
LOWEST ANNUAL MEAN			30.5
HIGHEST DAILY MEAN	54	Apr 1-3	85
LOWEST DAILY MEAN	13	(a) Sep 8	13
ANNUAL SEVEN-DAY MINIMUM	13	Sep 7	13
INSTANTANEOUS PEAK FLOW			89
INSTANTANEOUS PEAK STAGE			1.99
INSTANTANEOUS LOW FLOW			12
10 PERCENT EXCEEDS	44		56
50 PERCENT EXCEEDS	31		40
90 PERCENT EXCEEDS	15		25

(a) Also occurred Sept. 9-13, 22-25, Oct. 3, 4

(b) Also occurred Oct. 15, 16

05357254 TROUT RIVER AT CT HIGWAY H NEAR BOULDER JUNCTION, WI

LOCATION.--Lat 46°02'02", long 89°46'21", in SE 1/4 NW 1/4 sec.17, T.41 N., R.6 E., Vilas County, Hydrologic Unit 07050002, on left bank 18 ft upstream from County Trunk Highway H, 8.3 mi southwest of Boulder Junction.

DRAINAGE AREA.--58.9 mi².

PERIOD OF RECORD.--October 1998 to September 1999.

GAGE.--Water-stage recorder. Elevation of gage is 1,610 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 1-23, Nov. 15-18, July 20 to Aug. 23, and ice-affected periods, Dec. 8, 9, 11, 13, 14, 16, and Dec. 18 to Apr. 1. Records good except those for estimated daily discharges and period of variable backwater, June 1 to Sept. 30, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	24	33	27	45	44	44	37	54	53	70	44
2	25	23	32	28	45	44	46	40	53	52	64	43
3	22	23	30	30	43	45	48	36	51	56	62	43
4	18	23	30	29	40	45	51	33	48	60	64	44
5	16	22	31	29	40	44	52	34	50	58	64	45
6	16	20	32	28	37	42	64	41	55	59	62	43
7	17	19	31	27	39	41	65	78	54	56	60	42
8	18	19	30	27	42	40	63	85	52	59	58	42
9	20	18	29	26	43	39	60	74	51	73	54	40
10	22	21	27	26	45	38	57	67	54	72	52	39
11	30	24	27	27	43	38	54	63	55	69	50	39
12	24	47	27	27	42	38	53	60	54	66	50	39
13	20	50	26	28	45	38	49	57	52	65	60	38
14	18	28	26	30	48	38	46	54	51	64	64	37
15	17	26	25	31	47	39	46	52	49	62	62	36
16	17	29	25	32	48	39	48	52	47	62	60	34
17	19	29	25	32	48	39	47	56	46	62	56	34
18	23	28	25	33	48	39	47	66	45	62	54	32
19	32	32	26	34	47	41	47	62	44	62	54	33
20	28	33	25	35	46	41	48	59	45	62	54	34
21	24	53	24	36	45	39	48	64	46	60	52	32
22	20	30	21	38	44	39	48	61	47	58	52	32
23	18	29	23	39	44	39	46	71	48	60	52	31
24	17	31	24	40	44	39	45	71	47	60	52	29
25	19	30	25	38	45	40	44	67	48	58	52	28
26	19	30	26	36	48	40	44	63	48	62	51	28
27	21	31	27	42	48	41	43	60	48	62	49	27
28	19	31	28	43	46	40	41	58	48	60	48	26
29	20	31	28	40	---	41	40	56	46	60	48	26
30	22	32	28	40	---	42	39	56	45	62	47	26
31	23	---	27	43	---	43	---	55	---	70	45	---
TOTAL	644	866	843	1021	1245	1255	1473	1788	1481	1906	1722	1066
MEAN	20.8	28.9	27.2	32.9	44.5	40.5	49.1	57.7	49.4	61.5	55.5	35.5
MAX	32	53	33	43	48	45	65	85	55	73	70	45
MIN	16	18	21	26	37	38	39	33	44	52	45	26
CFSM	.35	.49	.46	.56	.75	.69	.83	.98	.84	1.04	.94	.60
IN.	.41	.55	.53	.64	.79	.79	.93	1.13	.94	1.20	1.09	.67

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 1999, BY WATER YEAR (WY)

	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999
MEAN	20.8	28.9	27.2	32.9	44.5	40.5	49.1	57.7	49.4	61.5	55.5	35.5
MAX	20.8	28.9	27.2	32.9	44.5	40.5	49.1	57.7	49.4	61.5	55.5	35.5
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999
MIN	20.8	28.9	27.2	32.9	44.5	40.5	49.1	57.7	49.4	61.5	55.5	35.5
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999

SUMMARY STATISTICS

FOR 1999 WATER YEAR

ANNUAL TOTAL	15310
ANNUAL MEAN	41.9
HIGHEST DAILY MEAN	85 May 8
LOWEST DAILY MEAN	(a) 16 Oct 5.6
ANNUAL SEVEN-DAY MINIMUM	(a) 18 Oct 3
INSTANTANEOUS PEAK FLOW	(b) 91 May 7
INSTANTANEOUS PEAK STAGE	(c) 6.46 Jul 9
INSTANTANEOUS LOW FLOW	(d) 15 Oct 23.24
ANNUAL RUNOFF (CFSM)	.71
ANNUAL RUNOFF (INCHES)	9.67
10 PERCENT EXCEEDS	62
50 PERCENT EXCEEDS	43
90 PERCENT EXCEEDS	24

(a) Estimated

(b) Gage height, 5.40 ft

(c) Backwater affects from Wild Rice Lake

(d) May have been less during estimated period from Oct. 1-23

CHIPPEWA RIVER BASIN
05357259 TROUT RIVER NEAR BOULDER JUNCTION, WI

LOCATION.--Lat 46°03'24", long 89°46'20", in SW 1/4 SE 1/4 sec.5, T.41 N., R.6 E., Vilas County, Hydrologic Unit 07050002, on left bank about 1.1 mi downstream from Gresham Creek, 1.2 mi upstream from Wild Rice Lake, and 7.3 mi southwest of Boulder Junction.

DRAINAGE AREA.--70.8 mi².

PERIOD OF RECORD.--October 1998 to September 1999 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 1,610 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 1-22, Dec. 15-17, Apr. 2, 3, Sept. 28-30, and ice-affected periods, Dec. 8, 9, 11-14, and Dec. 18 to Apr. 1. Records are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	32	45	32	52	56	46	47	71	63	93	49
2	38	30	44	33	54	54	47	49	70	64	88	48
3	33	27	42	36	50	52	48	43	69	65	88	48
4	30	25	38	35	48	52	54	36	68	67	90	48
5	26	24	41	34	47	50	58	35	67	68	90	48
6	24	27	42	34	46	49	82	55	67	69	85	47
7	24	23	40	33	47	49	85	100	66	69	80	46
8	25	21	38	32	49	48	85	103	64	70	74	45
9	29	22	35	32	50	48	78	91	64	89	66	44
10	37	30	33	32	52	48	78	82	63	95	63	44
11	45	35	32	32	52	47	75	76	62	89	62	44
12	35	55	31	33	52	47	67	71	62	84	61	43
13	30	75	31	33	54	47	72	69	61	82	72	43
14	27	53	30	34	56	47	67	67	59	81	82	42
15	25	45	30	35	56	47	70	66	58	79	79	41
16	26	48	30	37	56	48	72	67	56	76	74	40
17	30	47	29	39	54	49	71	69	55	77	68	40
18	37	46	29	40	54	52	68	74	54	75	63	40
19	50	55	29	41	52	50	64	74	54	78	60	40
20	45	54	29	42	54	48	70	73	55	76	59	39
21	40	70	28	43	56	47	72	75	57	75	57	38
22	34	51	26	45	54	46	71	74	57	72	56	38
23	29	50	27	45	54	46	54	77	58	75	56	37
24	22	49	29	46	54	47	50	77	59	76	55	36
25	29	47	30	46	56	49	54	76	59	75	54	35
26	27	45	31	45	58	47	57	75	59	85	54	34
27	27	44	33	49	58	43	55	74	60	87	53	34
28	27	43	34	50	58	42	54	73	60	85	53	32
29	25	43	34	50	---	43	52	73	61	84	52	31
30	30	46	33	48	---	44	51	72	61	84	51	31
31	31	---	32	50	---	45	---	72	---	93	49	---
TOTAL	967	1262	1035	1216	1483	1487	1927	2165	1836	2407	2087	1225
MEAN	31.2	42.1	33.4	39.2	53.0	48.0	64.2	69.8	61.2	77.6	67.3	40.8
MAX	50	75	45	50	58	56	85	103	71	95	93	49
MIN	22	21	26	32	46	42	46	35	54	63	49	31
CFSM	.44	.59	.47	.55	.75	.68	.91	.99	.86	1.10	.95	.58
IN.	.51	.66	.54	.64	.78	.78	1.01	1.14	.96	1.26	1.10	.64

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 1999, BY WATER YEAR (WY)

	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999
MEAN	31.2	42.1	33.4	39.2	53.0	48.0	64.2	69.8	61.2	77.6	67.3	40.8
MAX	31.2	42.1	33.4	39.2	53.0	48.0	64.2	69.8	61.2	77.6	67.3	40.8
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999
MIN	31.2	42.1	33.4	39.2	53.0	48.0	64.2	69.8	61.2	77.6	67.3	40.8
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999

SUMMARY STATISTICS

FOR 1999 WATER YEAR

ANNUAL TOTAL	19097
ANNUAL MEAN	52.3
HIGHEST DAILY MEAN	103 May 8
LOWEST DAILY MEAN	21 Nov 8
ANNUAL SEVEN-DAY MINIMUM	24 Nov 3
INSTANTANEOUS PEAK FLOW	(a) 110 May 7
INSTANTANEOUS PEAK STAGE	(b) 7.26 Jul 31
ANNUAL RUNOFF (CFSM)	.74
ANNUAL RUNOFF (INCHES)	10.03
10 PERCENT EXCEEDS	76
50 PERCENT EXCEEDS	50
90 PERCENT EXCEEDS	30

(a) Gage height, 5.36 ft

(b) Backwater from vegetation and Wild Rice Lake

05357335 BEAR RIVER NEAR MANITOWISH WATERS, WI

LOCATION.--Lat 46°02'56", long 89°59'04", in SE 1/4 NW 1/4 sec.10, T.41 N., R.4 E., Iron County, Hydrologic Unit 07050002, on right bank 10 ft upstream from East River Trail bridge, 2.3 mi upstream from Little Bear Creek, 7.7 mi southwest of Manitowish Waters, and 5.3 mi upstream from mouth.

DRAINAGE AREA.--81.3 mi².

PERIOD OF RECORD.--May 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,580 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Oct. 2-7, Oct. 9 to Nov. 14, June 13-16, June 29 to July 20, and ice-affected period, Dec. 8 to Apr. 4. Records are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.7	7.2	8.6	7.6	9.0	15	56	18	76	36	55	43
2	5.4	7.2	8.4	7.4	8.8	15	52	17	73	40	53	41
3	5.2	6.8	8.5	7.4	8.8	16	50	16	70	46	56	40
4	5.2	6.8	7.8	7.4	8.8	16	54	14	66	52	56	38
5	5.0	6.6	8.6	7.4	9.2	16	59	12	63	58	56	38
6	5.4	6.4	9.0	7.4	9.4	16	86	15	69	64	57	37
7	5.8	6.4	10	7.4	9.4	15	96	46	73	70	56	37
8	6.4	6.6	9.6	7.4	9.8	15	89	109	73	68	56	36
9	6.2	6.4	9.2	7.4	11	15	83	121	70	96	54	35
10	5.8	8.0	9.0	7.4	11	16	71	109	73	160	52	34
11	5.6	10	8.6	7.4	12	16	57	95	74	140	50	33
12	5.4	13	8.2	7.2	13	17	51	84	77	120	51	35
13	5.2	10	8.4	7.2	15	19	48	74	72	100	69	35
14	5.0	8.6	8.4	7.4	14	20	43	67	68	84	71	35
15	4.8	7.8	8.6	7.6	15	22	37	61	66	96	69	34
16	5.6	7.8	8.6	7.8	17	23	33	55	62	86	67	32
17	6.8	8.6	8.4	8.2	16	25	31	54	59	78	63	30
18	7.8	12	8.0	8.4	15	26	30	69	57	72	62	27
19	7.6	11	8.0	8.2	14	25	29	82	52	68	62	27
20	7.4	9.9	7.6	8.2	13	25	29	87	50	66	59	29
21	7.0	9.1	7.6	8.0	13	26	30	96	48	63	57	30
22	7.0	9.0	7.4	8.2	12	26	29	101	46	60	56	30
23	6.8	9.3	7.4	8.4	12	29	28	122	46	60	55	28
24	6.6	9.5	7.4	8.4	12	31	26	137	46	57	54	26
25	6.4	9.5	7.4	8.2	13	34	24	133	44	55	53	24
26	6.4	9.0	7.6	8.2	13	38	23	127	42	64	53	23
27	6.2	8.6	7.6	8.4	13	42	21	112	39	61	52	23
28	6.2	8.3	7.6	9.0	14	47	20	101	37	56	50	23
29	6.4	8.2	7.6	9.0	---	52	19	97	37	55	48	22
30	6.8	8.1	7.6	8.8	---	60	18	89	36	53	47	22
31	7.0	---	7.6	9.0	---	66	---	80	---	56	45	---
TOTAL	190.1	255.7	254.3	245.4	341.2	824	1322	2400	1764	2240	1744	947
MEAN	6.13	8.52	8.20	7.92	12.2	26.6	44.1	77.4	58.8	72.3	56.3	31.6
MAX	7.8	13	10	9.0	17	66	96	137	77	160	71	43
MIN	4.8	6.4	7.4	7.2	8.8	15	18	12	36	36	45	22
CFSM	.08	.10	.10	.10	.15	.33	.54	.95	.72	.89	.69	.39
IN.	.09	.12	.12	.11	.16	.38	.60	1.10	.81	1.02	.80	.43

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1999, BY WATER YEAR (WY)

	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	61.8	69.3	59.7	53.8	60.3	82.3	125	107
MAX	130	151	117	105	110	187	234	184
(WY)	1995	1992	1992	1992	1992	1992	1996	1996
MIN	6.13	8.52	8.20	7.92	12.2	26.6	44.1	36.9
(WY)	1999	1999	1999	1999	1999	1999	1999	1998

SUMMARY STATISTICS

	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1992 - 1999
ANNUAL TOTAL	13464.4	12527.7	
ANNUAL MEAN	36.9	34.3	73.2
HIGHEST ANNUAL MEAN			104
LOWEST ANNUAL MEAN			34.3
HIGHEST DAILY MEAN	249	(a)160	570
LOWEST DAILY MEAN	4.0	(a)4.8	4.0
ANNUAL SEVEN-DAY MINIMUM	4.0	(a)5.3	4.0
INSTANTANEOUS PEAK FLOW		(c)	589
INSTANTANEOUS PEAK STAGE		(c)	3.47
INSTANTANEOUS LOW FLOW		(d)4.7	(e)3.9
ANNUAL RUNOFF (CFSM)	.45	.42	.90
ANNUAL RUNOFF (INCHES)	6.16	5.73	12.23
10 PERCENT EXCEEDS	72	73	130
50 PERCENT EXCEEDS	35	23	62
90 PERCENT EXCEEDS	5.4	7.2	25

(a) Estimated

(b) Also occurred Sept. 19-23

(c) Unknown

(d) May have been less during period of beaver dam Oct. 1-31

(e) May have been less during period Sept. 20-23, 25, 1998

CHIPPEWA RIVER BASIN
05360500 FLAMBEAU RIVER NEAR BRUCE, WI

LOCATION.--Lat 45°22'21", long 91°12'34", in Lot 7 of NW 1/4 sec.2, T.33 N., R.7 W., Rusk County, Hydrologic Unit 07050002, on right bank 2.5 mi downstream from Thornapple Powerplant, 6.0 mi upstream from mouth, and 7.0 mi southeast of Bruce.

DRAINAGE AREA.--1,860 mi².

PERIOD OF RECORD.--August 1951 to current year.

REVISED RECORDS.--WDR WI-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,056.34 ft above sea level.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 21 to Mar. 1. Records good except those for ice-affected period, which is fair (see page 13). Flow regulated by several powerplants above station and by Rest Lake and Flambeau Flowage Reservoirs. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	458	582	727	520	600	880	3040	761	1830	749	2150	1030
2	478	603	697	520	640	826	2680	622	1710	850	1840	1060
3	521	611	673	520	700	950	2760	597	1520	1270	2070	962
4	444	725	778	500	540	851	3370	733	1500	1050	1980	921
5	438	536	728	500	490	997	3360	611	1390	1240	2030	742
6	557	435	800	520	560	975	4260	656	1510	1520	2020	1020
7	514	501	865	520	600	939	4610	2280	2320	1620	2340	828
8	568	530	888	520	640	990	4600	4980	2330	1420	1810	822
9	506	531	737	500	640	812	4060	6050	2030	2300	1680	682
10	565	851	746	490	600	980	3270	5040	2260	3870	1440	1100
11	529	740	766	470	640	1010	2450	4440	2090	3830	1390	847
12	482	714	678	470	740	760	2440	3270	2250	3510	1260	810
13	449	777	598	470	800	825	1670	2930	2130	2810	1670	980
14	493	742	599	500	860	775	1490	2550	2030	2620	2540	1020
15	447	742	632	560	860	591	1370	2200	1880	2040	2540	948
16	571	706	613	560	860	831	1520	1800	1520	2050	2380	1190
17	496	663	720	540	820	1320	1420	2020	1380	2070	1940	684
18	711	699	488	500	800	908	1300	3660	1270	1740	1550	993
19	747	835	476	580	860	796	1160	3760	1040	1800	1800	1120
20	695	857	634	500	800	916	1040	3330	943	1590	1530	1060
21	565	754	520	430	800	927	1150	3930	838	1200	1280	842
22	612	701	200	440	800	710	1120	4180	906	1610	1500	994
23	550	754	190	500	840	933	1140	4800	836	1210	1370	879
24	550	908	220	520	800	1020	1170	4160	921	1340	1940	982
25	627	872	250	470	780	958	900	4680	972	1170	1330	736
26	621	785	400	420	800	765	975	3980	1010	3870	1130	1020
27	615	675	470	540	1000	898	823	3470	735	2370	1260	912
28	612	717	500	500	900	1200	751	2950	1140	2320	1330	767
29	597	767	450	460	---	1420	755	2260	878	2090	927	709
30	609	755	420	460	---	1820	780	2020	768	1770	1100	689
31	583	---	470	470	---	2300	---	1730	---	1780	1010	---
TOTAL	17210	21068	17933	15470	20770	30883	61434	90450	43937	60679	52137	27349
MEAN	555	702	578	499	742	996	2048	2918	1465	1957	1682	912
MAX	747	908	888	580	1000	2300	4610	6050	2330	3870	2540	1190
MIN	438	435	190	420	490	591	751	597	735	749	927	682

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1999, BY WATER YEAR (WY)

	MEAN	1775	1674	1296	1145	1155	1709	3587	2599	2041	1644	1467	1824
MAX	5616	4404	2542	2006	2411	5490	6782	6082	6066	4339	3765	5089	
(WY)	1986	1992	1992	1973	1969	1973	1967	1954	1968	1968	1972	1994	
MIN	363	430	382	451	474	971	1013	758	572	596	553	420	
(WY)	1977	1977	1977	1977	1977	1959	1990	1987	1988	1988	1998	1998	

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1951 - 1999
ANNUAL TOTAL	427831	459320	
ANNUAL MEAN	1172	1258	1823
HIGHEST ANNUAL MEAN			2900
LOWEST ANNUAL MEAN			993
HIGHEST DAILY MEAN	11200	6050	23200
LOWEST DAILY MEAN	(a) 190	(a) 190	(a) 190
ANNUAL SEVEN-DAY MINIMUM	309	319	309
INSTANTANEOUS PEAK FLOW		7110	24100
INSTANTANEOUS PEAK STAGE		6.82	12.44
10 PERCENT EXCEEDS	1930	2490	3390
50 PERCENT EXCEEDS	777	860	1360
90 PERCENT EXCEEDS	448	500	760

(a) Ice affected

CHIPPEWA RIVER BASIN
05362000 JUMP RIVER AT SHELDON, WI

245

LOCATION.--Lat 45°18'29", long 90°57'23", in sec.26, T.33 N., R.5 W., Rusk County, Hydrologic Unit 07050004, on right bank just downstream from highway bridge in Sheldon, 1,500 ft upstream from Shoulder Creek and 11 mi upstream from mouth.

DRAINAGE AREA.--576 mi².

PERIOD OF RECORD.--July 1915 to current year.

REVISED RECORDS.--WSP 975: 1938. WSP 1438: 1916-17(M), 1919(M), 1920, 1921(M), 1922, 1923-26(M), 1927, 1928-31(M), 1932, 1933-37(M), 1945-46(M), 1948-50(M). WDR WI-81-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,092.75 ft above sea level. Prior to Feb. 9, 1939, Sept. 1, 1941, to Apr. 1, 1953, and Feb. 18, 1954, to Sept. 27, 1964, nonrecording gage at same site and datum. Apr. 2, 1953, to Feb. 18, 1954, nonrecording gage in creamery wellhouse 400 ft upstream at same datum. Feb. 9, 1939, to Aug. 31, 1941, and from Sept. 27, 1964, water-stage recorder at present site and datum.

REMARKS.--Estimated daily discharges: Ice-affected periods, Nov. 20-22 and Dec. 7 to Mar. 30. Records good except those for ice-affected periods, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	98	126	50	96	170	1560	117	316	86	1420	126
2	71	100	123	52	98	180	1540	101	326	85	1060	113
3	67	94	122	54	100	170	1480	93	279	89	825	104
4	63	89	116	52	100	160	1580	87	234	94	1130	97
5	61	85	112	50	98	150	1960	86	204	112	1250	94
6	64	83	112	50	96	160	2430	131	432	108	1220	91
7	70	81	110	50	98	150	2830	1560	1920	108	1280	90
8	88	80	100	50	96	140	2470	4690	2050	148	1060	90
9	95	79	90	52	98	130	1900	4190	1450	568	809	88
10	90	102	100	52	100	120	1400	2830	963	1440	657	85
11	84	161	110	54	120	120	1070	1910	713	1170	561	80
12	81	249	100	56	140	120	876	1340	540	793	477	86
13	74	216	96	58	150	120	727	1000	434	549	495	89
14	70	192	110	60	170	130	610	722	340	554	638	109
15	66	172	100	60	210	160	519	529	265	647	584	113
16	64	163	96	62	250	190	456	444	215	497	495	107
17	67	163	90	70	230	220	402	540	174	397	466	98
18	80	160	80	74	220	260	335	2220	149	342	420	91
19	99	164	76	76	210	300	278	2490	131	290	410	93
20	118	190	70	76	200	350	253	1820	118	248	379	96
21	117	180	66	76	190	390	236	2280	111	217	324	111
22	109	190	60	78	180	450	219	2590	104	193	290	118
23	98	186	64	80	170	520	201	2430	106	192	284	109
24	90	172	64	80	160	600	189	3030	124	178	319	99
25	87	169	62	82	160	680	182	2530	177	167	296	93
26	84	161	60	84	160	680	187	1780	163	2570	258	92
27	84	151	58	88	170	740	169	1190	131	3840	229	91
28	83	142	56	90	170	900	191	834	110	2460	206	87
29	85	136	50	92	---	1100	167	601	99	1430	177	87
30	85	133	49	94	---	1300	136	457	92	884	156	86
31	87	---	50	96	---	1500	---	366	---	1080	139	---
TOTAL	2561	4341	2678	2098	4240	12360	26553	44988	12470	21536	18314	2913
MEAN	82.6	145	86.4	67.7	151	399	885	1451	416	695	591	97.1
MAX	118	249	126	96	250	1500	2830	4690	2050	3840	1420	126
MIN	61	79	49	50	96	120	136	86	92	85	139	80
CFSM	.14	.25	.15	.12	.26	.69	1.54	2.52	.72	1.21	1.03	.17
IN.	.17	.28	.17	.14	.27	.80	1.71	2.91	.81	1.39	1.18	.19

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1915 - 1999, BY WATER YEAR (WY)

	MEAN	419	438	180	103	101	737	1815	857	648	268	449
MAX	1881	2022	1092	392	620	3184	4126	2514	3442	1293	1916	4145
(WY)	1986	1992	1992	1946	1984	1973	1982	1973	1943	1968	1941	1941
MIN	27.5	35.3	34.7	25.6	21.4	61.2	360	134	54.6	17.5	21.9	25.4
(WY)	1949	1977	1934	1917	1924	1940	1946	1987	1934	1936	1933	1976

CHIPPEWA RIVER BASIN
05362000 JUMP RIVER AT SHELDON, WI

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1915 - 1999	
ANNUAL TOTAL	122002		155052		520	
ANNUAL MEAN	334		425		923	1942
HIGHEST ANNUAL MEAN					214	1948
LOWEST ANNUAL MEAN					40800	Aug 31 1941
HIGHEST DAILY MEAN	8240	Mar 30	4690	May 8	(b) 11	Dec 18 1943
LOWEST DAILY MEAN	30	Aug 15	(a) 49	Dec 30	14	(c) Jan 25 1924
ANNUAL SEVEN-DAY MINIMUM	32	Sep 16	(a) 51	Jan 4	(d) 46000	Aug 31 1941
INSTANTANEOUS PEAK FLOW			4950	May 8	(e) 18.80	Aug 31 1941
INSTANTANEOUS PEAK STAGE			8.81	May 8	(b) 11	Dec 18 1943
INSTANTANEOUS LOW FLOW			(a)		.90	
ANNUAL RUNOFF (CFSM)	.58		.74		12.26	
ANNUAL RUNOFF (INCHES)	7.88		10.01		1300	
10 PERCENT EXCEEDS	465		1290		156	
50 PERCENT EXCEEDS	116		150		46	
90 PERCENT EXCEEDS	39		70			

(a) Ice affected

(b) Result of freezeup

(c) Jan. 25, 1924, ice-affected, also occurred July 11, 1936

(d) From rating curve extended above 13,000 ft³/s on basis of contracted-opening measurement of peak flow

(e) From floodmark

LOCATION.--Lat 44°55'37", long 91°24'33", in Lot 1, sec.12, T.28 N., R.9 W., Chippewa County, Hydrologic Unit 07050005, on right bank at Chippewa Falls, 1.0 mi downstream from Duncan Creek.

PERIOD OF RECORD.--June 1888 to September 1983, October 1986 to current year. Monthly discharge for some periods published in WSP

GAGE.--Water-stage recorder. Datum of gage is 798.46 ft above sea level. Prior to January 1914, nonrecording gage, and January 1914 to June 19, 1932, water-stage recorder at site 1 mi upstream at different datum. June 19, 1932, to current year, water-stage recorder at present site and datum.

REMARKS.--Estimated daily discharges: Ice affected periods, Dec. 22 and Dec. 26 to Jan. 20. Records good except those for ice-affected periods, which are fair (see page 13). Considerable regulation by Moose Lake, Lake Chippewa, Rest Lake, Flambeau Flowage, and Lake Wissota Reservoirs. Diurnal fluctuation caused by hydroelectric plant 1.1 mi upstream. Gage-height telemeter at station.

EXTREMES OUTSIDE OF PERIOD OF RECORD.--A stage of 26.94 ft occurred Sept. 10, 1884, site and datum in use June 1932.

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1160	1070	2070	1400	2610	3200	7540	1690	3930	2020	6960	3470
2	1140	2020	2240	1300	2820	3440	9600	1700	5370	2450	7240	3520
3	1510	2110	2010	1600	3090	3490	9450	2620	4370	3940	5810	2830
4	1140	2150	2020	1800	2960	3410	7840	2430	3880	3560	7630	1330
5	1140	2620	2120	1700	1360	1690	9970	2950	4360	1880	8450	2110
6	1770	1690	1930	1900	1090	1170	13900	2000	3870	3100	6400	3170
7	1420	989	2310	1300	1030	1630	18300	5390	7210	3010	6590	2850
8	1520	996	2350	1000	2320	2290	19600	14400	8580	4190	5820	2530
9	1300	2600	2000	1200	2320	3380	16600	24100	6610	6900	5680	3090
10	1020	1710	1840	1200	3330	3930	11300	21700	5380	6740	4360	2530
11	1350	1790	1320	1000	3250	3840	8920	14300	5550	8090	5270	2720
12	2220	2710	2400	1200	2750	2990	8200	14200	5370	8580	3560	2070
13	1920	2570	1480	1400	1040	1100	9600	14100	5050	7190	4840	2710
14	1840	1910	1960	1700	1050	1040	7650	12500	5970	6760	5380	3130
15	1030	1940	1690	1900	2780	3730	7470	9630	4640	6130	6640	3630
16	1170	3060	1810	1700	4420	5850	7770	9700	3620	5990	5740	2650
17	1170	2770	1850	1500	3890	7600	5920	8380	2770	4090	5510	2510
18	2060	2200	1510	1800	3470	7970	3400	13100	3270	6160	4470	2130
19	1960	2360	1130	2000	2490	7310	4540	20100	3050	4630	3860	2130
20	2180	3150	1140	2200	1330	4860	4320	17300	2520	4730	5390	3550
21	2210	2200	1280	2480	1030	5390	4030	14100	3450	5240	3520	2790
22	1360	2120	1300	1520	2360	7340	2960	15400	2000	3220	2970	3460
23	2460	2550	1040	983	3520	7480	4710	17200	2710	3440	6010	2330
24	1060	3170	1030	979	3560	7540	2290	16500	2970	2450	6560	1670
25	1640	2760	982	1020	3470	6160	3070	15800	3370	2300	8750	1660
26	1290	1120	980	1050	2100	1050	3380	12600	2950	7270	7890	1450
27	1260	2300	980	1370	1030	1000	3300	8510	2320	13300	5440	3810
28	2090	1960	1300	3030	1050	1050	2440	8170	2930	16600	3200	2000
29	1910	2440	1900	3210	---	1080	1900	7040	2540	11800	3000	1670
30	2090	2080	2000	1340	---	1110	2030	4770	1970	5870	3490	2110
31	987	---	1600	1440	---	5980	---	4460	---	6210	3360	---
TOTAL	48377	65115	51572	49222	67520	119100	222000	336840	122580	177840	169790	77610
MEAN	1561	2170	1664	1588	2411	3842	7400	10870	4086	5737	5477	2587
MAX	2460	3170	2400	3210	4420	7970	19600	24100	8580	16600	8750	3810
MIN	987	989	980	979	1030	1000	1900	1690	1970	1880	2970	1330
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1888 - 1999, BY WATER YEAR (WY)												
MEAN	4245	4221	2998	2590	2643	5364	11640	8553	6838	4317	3394	4440
MAX	15570	15990	7897	5305	6569	17630	28900	22700	30570	13620	9805	23030
(WY)	1901	1992	1992	1973	1969	1973	1916	1903	1943	1968	1900	1941
MIN	798	800	950	831	800	1210	2210	1688	1162	1172	1124	929
(WY)	1977	1890	1893	1917	1895	1890	1895	1987	1988	1988	1894	1976
SUMMARY STATISTICS FOR 1998 CALENDAR YEAR FOR 1999 WATER YEAR WATER YEARS 1888 - 1999												
ANNUAL TOTAL	1402061			1507566			5100					
ANNUAL MEAN	3841			4130			8833					
HIGHEST ANNUAL MEAN							1903					
LOWEST ANNUAL MEAN							2453					
HIGHEST DAILY MEAN	44200			Mar 31			24100			May 9		
LOWEST DAILY MEAN	941			Aug 2			979			Jan 24		
ANNUAL SEVEN-DAY MINIMUM	1020			Jul 30			(a)1080			Dec 21		
INSTANTANEOUS PEAK FLOW							26400			May 9		
INSTANTANEOUS PEAK STAGE							12.59			May 9		
10 PERCENT EXCEEDS	6600						8410			11100		
50 PERCENT EXCEEDS	2140						2770			3550		
90 PERCENT EXCEEDS	1070						1140			1300		

(a) Partially ice affected

CHIPPEWA RIVER BASIN

05365707 NORTH FORK EAU CLAIRE RIVER NEAR THORP, WI

LOCATION.--Lat 44°58'25", long 90°50'57", in NW 1/4 NE 1/4 sec.27, T.29 N., R.4 W., Clark County, Hydrologic Unit 07050006, on left bank 15 ft downstream from town road, 0.3 mi downstream from Goggle-Eye Creek, and 2.6 mi northwest of Thorp.

DRAINAGE AREA.--51.0 mi².

PERIOD OF RECORD.--April 1986 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,115 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 7-11 and Dec. 21 to Mar. 25. Records good except those for ice-affected periods, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	12	7.1	1.4	1.8	3.2	72	12	10	5.1	13	4.3
2	3.8	10	7.0	1.5	1.9	3.2	64	12	10	4.5	9.8	3.9
3	3.3	8.9	7.0	1.5	2.0	3.1	109	9.5	9.3	24	9.8	3.4
4	3.0	8.2	7.4	1.4	2.1	2.9	211	10	8.6	20	53	3.0
5	2.7	7.8	7.7	1.2	2.0	2.8	171	11	8.4	12	31	2.7
6	2.7	7.8	7.3	1.4	2.1	2.9	356	16	11	17	20	2.7
7	3.5	7.6	6.0	1.4	2.2	2.8	250	75	14	17	14	2.6
8	3.8	7.2	5.2	1.5	2.2	2.7	164	168	14	35	11	2.4
9	3.9	7.0	4.8	1.5	2.3	2.7	102	125	11	193	8.5	2.0
10	3.5	21	4.7	1.5	2.4	2.7	72	76	13	86	7.6	2.0
11	3.2	50	4.4	1.6	2.9	2.6	212	46	10	45	6.5	1.8
12	2.7	36	4.3	1.6	3.3	2.6	269	36	10	24	5.7	3.0
13	2.5	26	4.1	1.5	3.5	2.6	169	32	8.6	15	6.3	3.2
14	2.4	21	4.2	1.4	3.8	3.4	107	26	7.0	11	5.9	3.0
15	2.4	18	4.1	1.3	4.3	5.0	74	20	5.8	9.5	5.6	2.9
16	2.4	16	4.0	1.4	5.2	7.4	56	18	5.3	8.1	5.4	2.6
17	3.2	15	3.8	1.5	4.6	10	50	74	4.3	9.7	5.3	2.6
18	7.4	14	3.7	1.5	4.3	14	38	457	3.9	9.7	5.6	2.2
19	6.3	15	3.4	1.4	4.0	22	32	292	3.1	8.9	9.4	2.1
20	6.1	17	3.2	1.4	3.7	20	29	142	3.0	8.0	11	2.3
21	5.1	14	2.8	1.5	3.5	25	28	191	2.7	8.1	9.6	2.3
22	4.4	12	2.4	1.7	3.3	35	30	126	2.6	8.2	14	2.2
23	4.3	11	2.1	1.7	3.1	54	42	137	2.6	7.5	30	2.2
24	4.0	11	2.3	1.8	3.0	68	35	119	3.1	6.1	42	2.0
25	3.8	11	2.1	1.6	2.9	80	29	76	3.1	5.2	24	2.0
26	4.8	9.8	1.8	1.5	2.9	86	25	46	2.9	26	16	1.8
27	6.0	8.9	1.6	1.7	3.2	79	22	31	2.5	25	11	1.6
28	7.1	8.3	1.6	1.9	3.3	89	19	23	2.2	15	8.7	1.9
29	7.9	8.2	1.5	1.9	---	89	17	17	2.3	10	7.0	2.0
30	11	7.8	1.4	1.8	---	79	14	14	2.4	9.2	5.7	1.8
31	12	---	1.3	1.7	---	75	---	11	---	12	5.0	---
TOTAL	143.2	427.5	124.3	47.7	85.8	877.6	2868	2448.5	196.7	694.8	417.4	74.5
MEAN	4.62	14.2	4.01	1.54	3.06	28.3	95.6	79.0	6.56	22.4	13.5	2.48
MAX	12	50	7.7	1.9	5.2	89	356	457	14	193	53	4.3
MIN	2.4	7.0	1.3	1.2	1.8	2.6	14	9.5	2.2	4.5	5.0	1.6
CFSM	.09	.28	.08	.03	.06	.56	1.87	1.55	.13	.44	.26	.05
IN.	.10	.31	.09	.03	.06	.64	2.09	1.79	.14	.51	.30	.05

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1999, BY WATER YEAR (WY)

	MEAN	26.8	47.6	14.4	5.51	11.3	110	117	53.5	62.0	19.5	32.3	45.1
MAX	123	262	79.7	31.4	86.6	181	267	184	338	49.4	143	420	
(WY)	1987	1992	1992	1997	1998	1989	1996	1993	1993	1986	1986	1986	
MIN	2.17	3.57	.56	.28	.45	9.95	25.9	5.29	1.34	.31	.37	.81	
(WY)	1990	1990	1990	1990	1990	1996	1987	1987	1988	1988	1988	1988	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1986 - 1999

ANNUAL TOTAL	10103.37	8406.0	
ANNUAL MEAN	27.7	23.0	42.9
HIGHEST ANNUAL MEAN			93.0
LOWEST ANNUAL MEAN			23.0
HIGHEST DAILY MEAN	1040	457	3670
LOWEST DAILY MEAN	.47	(a) Jul 31	.03
ANNUAL SEVEN-DAY MINIMUM	.48	Jul 28	.07
INSTANTANEOUS PEAK FLOW		560	(c) 9050
INSTANTANEOUS PEAK STAGE		4.77	10.13
INSTANTANEOUS LOW FLOW		(b)	.02
ANNUAL RUNOFF (CFSM)	.54	.45	.84
ANNUAL RUNOFF (INCHES)	7.37	6.13	11.44
10 PERCENT EXCEEDS	42	70	92
50 PERCENT EXCEEDS	5.6	6.3	9.0
90 PERCENT EXCEEDS	.78	1.8	1.5

(a) Also occurred Aug. 1,2

(b) Ice affected

(c) From rating curve extended above 2,500 ft³/s on basis of step-backwater measurement of peak flow

053674464 YELLOW RIVER AT BARRON, WI

LOCATION.--Lat 45°23'43", long 91°49'48", in SE 1/4 SE 1/4 sec.27, T.34 N., R.12 W., Barron County, Hydrologic Unit 07050007, on left bank 1.0 mi southeast of intersection of U.S. Highway 8 and State Highway 25 in Barron, 0.5 mi downstream from Quaderer Creek, in Becker Park, and 7.3 mi upstream from mouth.

DRAINAGE AREA.--153 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,090 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: May 17, 18, and ice-affected periods, Dec. 21 to Jan. 15, Feb. 11-13, and 17-21. Records good except those for estimated daily discharges, which are fair (see page 13). Flow is regulated occasionally at small dam upstream. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	83	81	66	73	78	200	86	83	83	203	96
2	79	81	81	66	77	78	177	84	82	80	160	92
3	77	81	80	68	78	75	161	83	80	92	147	88
4	76	81	81	68	80	74	190	83	79	105	148	92
5	80	78	98	70	72	75	235	101	95	103	148	134
6	102	78	113	70	76	74	357	116	121	99	121	118
7	93	78	107	70	75	72	365	166	120	89	103	103
8	94	79	86	70	76	74	305	196	102	94	99	112
9	81	79	84	72	80	75	227	177	90	120	105	110
10	81	111	84	72	79	62	185	150	87	226	109	101
11	80	127	83	72	84	72	178	138	113	212	107	91
12	81	112	81	72	88	73	173	139	112	124	101	98
13	79	97	81	72	88	74	156	135	99	142	104	99
14	78	79	80	72	89	73	141	121	89	125	104	94
15	79	93	80	72	86	77	132	110	84	119	97	91
16	85	105	80	72	84	80	133	107	83	106	91	89
17	115	90	78	73	78	94	126	110	81	94	86	84
18	149	91	78	76	72	104	118	150	78	88	100	83
19	137	107	78	75	70	130	117	132	78	86	107	86
20	107	100	68	74	70	156	120	130	78	83	112	85
21	96	87	66	74	70	208	112	162	78	83	97	85
22	81	87	66	76	72	214	116	174	76	83	89	84
23	85	88	66	76	77	186	110	147	83	90	186	83
24	85	86	66	77	81	172	128	129	91	79	277	85
25	86	91	66	75	81	155	124	117	83	79	377	87
26	87	88	66	70	63	140	99	108	76	163	222	86
27	86	74	68	72	79	138	97	101	73	190	166	86
28	87	79	70	78	79	194	90	95	75	156	135	85
29	84	81	72	77	---	288	87	90	81	113	117	84
30	88	82	70	73	---	294	86	85	82	118	104	79
31	85	---	66	71	---	236	---	84	---	190	100	---
TOTAL	2780	2673	2424	2241	2177	3895	4845	3806	2632	3614	4222	2790
MEAN	89.7	89.1	78.2	72.3	77.8	126	162	123	87.7	117	136	93.0
MAX	149	127	113	78	89	294	365	196	121	226	377	134
MIN	76	74	66	66	63	62	86	83	73	79	86	79
CFSM	.59	.58	.51	.47	.51	.82	1.06	.80	.57	.76	.89	.61
IN.	.68	.65	.59	.54	.53	.95	1.18	.93	.64	.88	1.03	.68

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1999, BY WATER YEAR (WY)

	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	101	111	82.9	76.3	84.0	149	212	113	118
MAX	204	178	101	88.2	124	226	342	184	222
(WY)	1996	1997	1992	1997	1998	1995	1996	1993	1997
MIN	74.4	74.2	73.1	63.2	64.0	117	162	85.7	73.9
(WY)	1992	1995	1995	1995	1995	1997	1999	1998	1994

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1991 - 1999
ANNUAL TOTAL	38321	38099	
ANNUAL MEAN	105	104	111
HIGHEST ANNUAL MEAN			137
LOWEST ANNUAL MEAN			93.5
HIGHEST DAILY MEAN	765	377	1210
LOWEST DAILY MEAN	(a) 62	62	23
ANNUAL SEVEN-DAY MINIMUM	(a) 66	(a) 66	55
INSTANTANEOUS PEAK FLOW		525	1320
INSTANTANEOUS PEAK STAGE		4.40	6.19
INSTANTANEOUS LOW FLOW		(c) 23	(c) 7.3
ANNUAL RUNOFF (CFSM)	.69	.68	.73
ANNUAL RUNOFF (INCHES)	9.32	9.26	9.89
10 PERCENT EXCEEDS	145	160	164
50 PERCENT EXCEEDS	81	86	86
90 PERCENT EXCEEDS	68	72	68

(a) Ice affected

(b) Also occurred Dec. 20, 1998

(c) Result of regulation

CHIPPEWA RIVER BASIN
053674464 YELLOW RIVER AT BARRON, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1991 to current year.

INSTRUMENTATION.--Continuous water temperature recorder since Aug. 30, 1991.

REMARKS.--Records represent water temperature at sensor within 0.5°C.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum temperature, 29.0°C, July 25, 30, 1999; minimum, 0.0°C, for many days.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum temperature, 29.0°C, July 25, 30; minimum, 0.0°C, on many days.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	15.0	13.5	14.0	10.0	8.5	9.0	5.5	4.5	5.5	.5	.0	.5
2	13.5	12.5	13.0	9.0	7.5	8.5	6.5	5.5	6.0	.5	.5	.5
3	12.5	11.5	12.0	7.5	6.5	7.0	6.5	5.5	6.0	.5	.0	.5
4	11.5	10.5	11.0	6.5	5.0	6.0	6.0	5.0	5.5	.5	.0	.5
5	11.0	10.5	10.5	5.0	4.0	4.5	6.0	5.5	5.5	.5	.0	.5
6	11.0	11.0	11.0	4.0	3.5	3.5	5.5	4.0	5.0	.5	.0	.5
7	11.0	10.5	11.0	4.0	3.5	3.5	4.0	3.5	3.5	.5	.0	.5
8	11.0	10.0	10.5	4.0	3.5	3.5	3.5	2.5	3.0	.5	.0	.5
9	12.0	10.5	11.0	4.0	3.5	3.5	3.0	2.5	3.0	.5	.0	.5
10	12.5	11.0	11.5	4.0	3.5	3.5	2.5	2.0	2.5	.5	.0	.5
11	12.5	11.5	12.0	3.5	2.5	3.0	2.5	2.0	2.0	.5	.0	.5
12	12.5	11.0	12.0	2.5	2.0	2.0	2.5	2.0	2.0	.5	.0	.5
13	11.0	9.5	10.0	2.5	2.0	2.5	3.0	2.0	2.5	.5	.0	.5
14	10.0	9.0	9.5	3.5	2.5	3.0	3.0	2.0	2.5	1.0	.0	.5
15	10.0	9.5	9.5	3.0	2.5	2.5	3.0	2.0	2.5	.5	.0	.5
16	11.0	10.0	10.5	3.0	2.5	2.5	2.5	2.0	2.5	1.0	.5	.5
17	12.5	11.0	11.5	3.5	3.0	3.0	2.5	2.0	2.0	1.0	.5	1.0
18	12.0	10.5	11.0	4.0	3.0	3.5	2.0	1.5	2.0	1.0	.0	.5
19	11.0	10.0	10.5	4.0	3.0	3.5	1.5	1.0	1.0	1.0	.0	.5
20	10.0	9.5	10.0	3.0	2.0	2.5	1.5	.5	1.0	1.0	.0	.5
21	10.0	9.0	9.5	2.5	2.0	2.0	1.0	.0	.5	1.0	.5	.5
22	10.0	8.0	9.0	3.0	2.5	2.5	1.0	.0	.5	1.0	.5	.5
23	10.0	9.0	9.5	4.0	3.0	3.0	.5	.5	.5	1.0	.5	.5
24	10.5	9.5	10.0	3.5	3.0	3.0	1.0	.5	.5	1.0	.5	.5
25	11.5	10.5	11.0	4.0	3.0	3.5	1.0	.5	.5	1.0	.0	.5
26	11.5	10.5	11.0	4.5	4.0	4.0	1.0	.0	.5	1.0	.0	.5
27	12.0	11.0	11.0	5.0	3.5	4.0	1.0	.5	.5	1.0	.5	.5
28	11.5	10.5	11.0	5.0	4.0	4.5	1.0	.5	.5	1.0	.5	.5
29	10.5	10.0	10.5	6.0	5.0	5.5	1.0	.0	.5	1.0	.0	.5
30	10.5	10.0	10.0	6.0	5.0	6.0	.5	.0	.5	1.0	.0	.5
31	10.0	9.0	9.5	---	---	---	.5	.0	.5	1.5	.0	.5
MONTH	15.0	8.0	10.8	10.0	2.0	4.0	6.5	.0	2.3	1.5	.0	.5

CHIPPEWA RIVER BASIN
053674464 YELLOW RIVER AT BARRON, WI--CONTINUED

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WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	1.0	.5	1.0	2.0	.5	1.0	8.0	7.5	7.5	19.5	14.0	16.5
2	1.5	.5	1.0	2.0	1.0	1.5	9.0	8.0	8.5	19.5	15.0	16.5
3	1.5	.5	1.0	2.0	1.0	1.0	8.5	8.0	8.0	19.5	15.5	17.0
4	1.0	.0	.5	2.0	1.0	1.0	9.0	7.5	8.5	19.0	15.5	17.0
5	1.5	.5	.5	2.0	.5	1.0	8.5	7.0	8.0	17.0	16.0	16.5
6	1.0	.0	.5	2.0	.5	1.0	7.0	6.0	6.5	16.0	14.5	15.0
7	1.0	.5	.5	2.0	.5	1.0	9.0	6.0	7.5	14.5	12.5	13.5
8	1.5	.5	1.0	1.5	.5	1.0	10.0	8.0	9.0	13.5	11.5	12.5
9	1.5	.5	1.0	2.0	.5	1.0	10.5	8.5	9.5	16.0	11.5	13.5
10	1.5	.5	1.0	3.5	.5	1.5	10.0	8.5	9.0	16.0	13.5	15.0
11	1.0	.0	.5	2.5	.5	1.0	8.5	7.0	7.5	15.5	14.0	15.0
12	.5	.0	.5	2.5	.5	1.5	8.5	6.5	7.5	15.0	13.5	14.5
13	1.0	.0	.5	2.5	1.0	1.5	10.5	7.5	9.0	15.0	13.0	14.0
14	1.5	.0	.5	3.0	1.0	2.0	12.5	10.0	11.0	17.0	12.5	14.5
15	1.5	.5	.5	3.5	1.0	2.0	12.0	10.5	11.0	16.0	14.5	15.0
16	1.0	.0	.5	3.5	1.5	2.5	11.0	9.5	10.5	16.5	15.0	16.0
17	1.0	.0	.5	3.0	2.0	2.5	10.5	9.5	10.0	16.5	15.0	16.0
18	1.5	.0	.5	3.5	2.0	2.5	10.0	9.0	9.5	18.0	14.0	16.0
19	1.5	.0	.5	3.5	2.0	2.5	10.0	9.0	9.5	17.5	14.0	15.5
20	1.5	.0	.5	3.5	2.5	3.0	10.0	9.0	9.5	16.5	15.5	16.0
21	1.5	.0	.5	3.5	2.0	2.5	10.5	9.5	10.0	18.0	15.5	16.5
22	1.5	.0	.5	3.0	2.0	2.5	10.5	8.5	9.5	18.0	15.5	16.5
23	1.5	.5	.5	3.5	2.0	3.0	10.5	7.5	9.0	17.5	14.5	16.0
24	1.0	.5	.5	3.5	2.5	3.0	12.0	9.0	10.5	16.0	13.5	14.5
25	1.0	.5	.5	4.5	3.0	3.5	15.0	10.0	12.5	15.0	12.5	14.0
26	2.5	.5	1.0	5.0	3.5	4.5	16.0	11.5	13.5	18.5	12.5	15.0
27	1.0	1.0	1.0	5.5	4.0	5.0	15.0	12.5	13.5	19.0	14.5	16.5
28	1.5	.5	1.0	5.0	4.0	4.5	17.0	12.0	14.0	21.5	16.5	18.5
29	---	---	---	5.5	4.0	4.5	17.5	12.0	14.5	23.0	18.5	20.0
30	---	---	---	6.5	4.0	5.0	19.0	13.0	15.5	23.0	19.5	21.0
31	---	---	---	7.5	6.0	6.5	---	---	---	21.0	18.0	20.0
MONTH	2.5	.0	.7	7.5	.5	2.5	19.0	6.0	10.0	23.0	11.5	15.9
	JUNE			JULY			AUGUST			SEPTEMBER		
1	18.0	15.5	17.0	21.5	17.5	19.0	24.5	22.5	23.5	22.0	18.5	19.5
2	18.5	14.5	16.0	22.5	18.0	20.0	24.0	21.0	22.0	23.0	19.5	21.0
3	19.0	14.0	16.0	22.5	19.5	20.5	22.0	20.5	21.0	24.0	20.5	22.0
4	19.5	15.0	16.5	25.5	21.0	23.0	22.5	19.5	21.0	24.0	21.5	22.5
5	21.5	17.0	18.5	26.5	23.5	24.5	22.5	19.0	20.5	22.0	20.0	21.5
6	22.5	19.5	21.0	26.0	22.5	24.0	23.5	19.5	21.0	21.0	18.5	19.5
7	23.5	20.5	21.5	26.0	21.5	23.5	22.0	20.5	21.0	20.0	18.0	19.0
8	24.5	20.5	22.0	23.0	21.0	21.5	23.0	19.5	21.0	20.0	17.5	18.5
9	25.0	21.0	22.0	23.0	19.5	21.0	20.0	19.0	19.5	17.5	16.0	17.0
10	24.0	21.5	22.5	21.0	18.5	19.5	21.5	18.5	19.5	16.5	15.0	15.5
11	22.5	20.0	21.0	22.0	19.0	20.0	22.5	18.0	20.0	17.5	13.5	15.0
12	23.0	19.0	20.5	23.0	19.5	21.0	20.0	19.5	20.0	17.5	15.0	16.0
13	23.5	19.0	21.0	23.0	19.5	21.0	21.0	18.5	19.5	16.0	14.5	15.5
14	21.0	17.5	19.0	24.5	21.0	22.5	21.5	18.0	19.0	15.0	14.0	14.5
15	19.0	17.0	17.5	26.5	22.5	24.0	21.0	18.0	19.0	16.0	13.0	14.5
16	20.0	16.0	17.5	24.5	23.0	24.0	22.5	18.5	20.0	16.0	12.5	14.0
17	20.0	15.5	17.5	26.0	22.0	23.5	22.5	19.0	20.5	17.0	13.0	14.5
18	20.0	16.0	17.5	24.0	21.5	22.5	20.0	19.0	19.5	17.5	14.0	15.5
19	19.0	17.0	17.5	25.0	21.5	22.5	21.0	18.5	19.5	16.5	14.5	15.5
20	20.0	17.0	18.5	22.0	21.5	21.5	21.5	18.5	19.5	15.0	12.5	14.0
21	22.5	17.5	19.5	25.0	21.0	22.5	22.0	19.0	20.0	15.0	11.5	13.0
22	24.0	19.0	21.0	26.0	21.0	23.0	19.5	19.5	19.5	16.0	12.0	13.5
23	23.5	20.5	21.5	27.5	22.5	24.5	19.5	18.5	19.0	16.0	13.0	14.0
24	25.0	20.0	22.5	28.0	23.5	25.5	20.0	18.0	19.0	15.5	12.5	13.5
25	25.5	20.5	22.5	29.0	23.5	25.5	21.5	18.5	20.0	16.0	13.0	14.0
26	26.0	21.5	23.0	27.0	23.5	25.0	22.5	20.0	21.0	16.0	14.5	15.0
27	23.5	21.0	22.5	25.5	23.0	24.0	24.0	20.5	22.0	15.5	13.5	14.5
28	21.5	19.0	20.5	26.5	23.0	24.0	23.5	21.0	22.0	16.0	13.0	14.0
29	23.0	18.0	20.0	28.0	23.0	25.0	22.0	20.0	21.0	15.0	12.0	13.5
30	19.5	18.0	18.5	29.0	23.5	25.5	20.5	18.5	19.5	15.0	12.0	13.0
31	---	---	---	27.0	24.0	25.5	21.0	18.0	19.0	---	---	---
MONTH	26.0	14.0	19.7	29.0	17.5	22.9	24.5	18.0	20.3	24.0	11.5	16.1

CHIPPEWA RIVER BASIN
05368000 HAY RIVER AT WHEELER, WI

LOCATION.--Lat 45°02'52", long 91°54'39", in SW 1/4 sec.25, T.30 N., R.13 W., Dunn County, Hydrologic Unit 07050007, on right bank 25 ft downstream from highway bridge in Wheeler, 1.8 mi upstream from Otter Creek, and 2.4 mi downstream from South Fork Hay River.

DRAINAGE AREA.--418 mi².

PERIOD OF RECORD.--October 1950 to current year.

REVISED RECORDS.--WDR WI-81-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 889.30 ft above sea level. Prior to Mar. 25, 1951, nonrecording gage.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 22 to Feb. 7, Feb. 17-23, and Mar. 3-13. Records good except those for ice-affected periods, which are poor (see page 13). Gage-height telemeter at station.

EXTREMES OUTSIDE OF PERIOD OF RECORD.--Maximum stage since 1915, 16.6 ft April 1934, from floodmarks.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	222	239	242	200	230	254	469	318	312	252	333	304
2	218	237	242	200	230	253	437	303	307	249	288	295
3	214	235	240	210	230	240	417	297	302	292	276	283
4	213	233	241	210	230	230	447	291	295	339	269	278
5	216	232	258	210	240	230	541	296	306	286	280	339
6	249	232	284	210	250	230	739	330	444	300	268	356
7	270	231	279	210	250	220	1120	375	496	290	263	302
8	246	233	266	210	247	230	798	511	383	270	255	290
9	234	232	254	210	248	230	592	466	347	283	253	289
10	227	274	250	200	247	220	491	401	334	286	258	276
11	224	379	246	200	271	220	506	367	357	322	249	269
12	230	333	243	200	281	230	627	375	437	312	237	277
13	232	297	241	190	288	230	588	380	386	285	239	282
14	231	294	239	200	337	230	502	377	349	274	234	270
15	223	289	238	200	319	231	468	355	322	261	233	264
16	224	283	238	200	298	240	481	337	304	250	232	260
17	276	279	236	210	270	288	484	357	291	240	219	255
18	392	279	237	220	260	370	445	617	281	230	222	250
19	368	300	232	220	250	422	427	644	275	228	255	255
20	298	298	208	220	260	493	420	479	274	226	243	262
21	276	279	209	220	250	692	410	720	271	225	225	251
22	264	271	210	210	240	650	400	794	267	222	223	242
23	254	269	210	210	250	522	388	582	278	227	255	241
24	250	263	210	210	263	509	377	498	286	228	919	234
25	247	259	210	200	258	463	368	445	273	218	1280	230
26	247	255	210	200	253	417	361	411	272	299	541	228
27	247	250	210	210	258	405	353	383	257	404	420	226
28	248	247	220	210	259	475	345	359	248	354	374	224
29	244	245	220	210	---	887	337	344	250	306	345	221
30	243	245	210	210	---	689	330	330	252	284	325	217
31	241	---	200	220	---	524	---	319	---	316	312	---
TOTAL	7768	7992	7233	6440	7267	11524	14668	13061	9456	8558	10325	7970
MEAN	251	266	233	208	260	372	489	421	315	276	333	266
MAX	392	379	284	220	337	887	1120	794	496	404	1280	356
MIN	213	231	200	190	230	220	330	291	248	218	219	217
CFSM	.60	.64	.56	.50	.62	.89	1.17	1.01	.75	.66	.80	.64
IN.	.69	.71	.64	.57	.65	1.03	1.31	1.16	.84	.76	.92	.71

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1999, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1951	264	579	1986	139	1959
1952	262	704	1971	138	1959
1953	227	470	1966	122	1959
1954	202	412	1981	97.2	1959
1955	225	657	1981	85.2	1959
1956	488	1021	1983	155	1956
1957	632	2054	1965	166	1959
1958	360	767	1954	153	1958
1959	342	778	1993	153	1959
1960	272	667	1979	135	1964
1961	263	513	1980	126	1964
1962	282	762	1986	141	1958

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1951 - 1999
ANNUAL TOTAL	121402	112262	
ANNUAL MEAN	333	308	318
HIGHEST ANNUAL MEAN			424
LOWEST ANNUAL MEAN			152
HIGHEST DAILY MEAN	2720	1280	13000
LOWEST DAILY MEAN	(a) 170	(a) 190	(a) 80
ANNUAL SEVEN-DAY MINIMUM	(a) 180	(a) 199	(a) 82
INSTANTANEOUS PEAK FLOW		1730	(b) 13600
INSTANTANEOUS PEAK STAGE		8.41	15.04
INSTANTANEOUS LOW FLOW		(a)	(c) 55
ANNUAL RUNOFF (CFSM)	.80	.74	.76
ANNUAL RUNOFF (INCHES)	10.80	9.99	10.34
10 PERCENT EXCEEDS	493	464	488
50 PERCENT EXCEEDS	266	263	240
90 PERCENT EXCEEDS	200	212	150

(a) Ice affected

(b) From rating curve extended above 9,000 ft³/s

(c) Result of freezeup

CHIPPEWA RIVER BASIN

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05369000 RED CEDAR RIVER AT MENOMONIE, WI

LOCATION.--Lat 44°53'02", long 91°55'57", in NW 1/4 NW 1/4 sec.26, T.28 N., R.13 W., Dunn County, Hydrologic Unit 07050007, on right bank at Menomonie, 900 ft downstream from powerplant of Northern States Power Co., and 1,000 ft downstream from Wilson Creek.

DRAINAGE AREA.--1,770 mi².

PERIOD OF RECORD.--June 1907 to September 1908, May 1913 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WDR WI-81-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 780 ft above sea level (Northern States Power Co. bench mark). Prior to Sept. 3, 1908, non-recording gage at site 1 mi downstream at different datum. May 9, 1913, to Sept. 30, 1923, water-stage recorder at same site at datum 0.42 ft lower than present datum.

REMARKS.--No estimated daily discharges. Records good (see page 13). Flow regulated by powerplants at Menomonie and Cedar Falls. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1020	1180	981	857	966	1090	2330	1180	1190	1010	1790	1340
2	948	1010	1100	857	1080	1190	1770	972	1140	967	2110	1080
3	971	1140	1110	905	1080	1050	1980	1030	1250	1470	1430	1000
4	981	1030	1040	943	1040	994	2180	996	1090	1150	1380	941
5	1040	1180	1220	883	939	1070	2540	1120	1230	1520	1780	1250
6	1050	1150	1180	862	996	1080	2810	1170	1510	1380	1510	1410
7	1030	1180	1210	877	1050	893	3300	1720	1630	1220	1680	1830
8	1050	1140	1150	896	1120	1070	3290	2010	1470	1270	1340	1100
9	966	1170	1000	868	1140	855	2960	2470	1450	1090	1290	1190
10	1040	1460	1040	867	1120	1200	2430	2410	1420	1400	1270	1190
11	891	1650	1090	945	1230	1000	2530	2140	1410	1800	1150	1310
12	881	1630	962	953	1110	952	2460	2210	1390	1380	1080	1380
13	987	1350	1030	855	1060	983	2430	2480	1540	1380	1070	1240
14	936	1320	947	948	1160	981	2070	2300	1450	1170	1020	1140
15	1070	1190	1180	881	1440	1050	1800	2110	1300	1230	994	1370
16	974	1310	976	896	1420	1050	1710	1890	1310	1510	1110	1210
17	1220	1370	1110	874	1030	1310	1700	2060	1050	1150	1330	1250
18	1280	1320	1040	1020	1080	1510	1640	2270	1220	1230	1510	932
19	1480	1360	934	1040	1000	1610	1590	2530	999	1150	1080	1160
20	1370	1450	728	860	1090	1790	1500	2310	896	1080	1090	1030
21	1250	1300	828	1000	1100	2030	1690	2880	1190	1010	990	1110
22	1240	1190	511	1080	1050	2080	1560	3270	1050	1030	1050	1070
23	1150	1310	480	946	1090	1940	1510	2660	1060	977	1550	1080
24	1160	1200	795	946	1220	1830	1550	2390	884	946	1860	925
25	1100	1100	985	952	1080	1790	1500	2370	1030	844	3330	898
26	1120	1170	832	1010	1070	1530	1340	1930	965	1290	2940	990
27	1370	1080	951	1010	1080	1520	1320	1550	894	1770	2520	1200
28	1270	1110	948	905	1080	1790	1220	1230	1120	2120	2010	1130
29	1100	1090	996	847	---	2010	1110	1190	862	1700	1720	1080
30	1200	1080	960	991	---	2360	1110	1190	938	2300	1490	938
31	1060	---	929	951	---	2410	---	1100	---	1860	1300	---
TOTAL	34205	37220	30243	28725	30921	44018	58930	59138	35938	41404	47774	34774
MEAN	1103	1241	976	927	1104	1420	1964	1908	1198	1336	1541	1159
MAX	1480	1650	1220	1080	1440	2410	3300	3270	1630	2300	3330	1830
MIN	881	1010	480	847	939	855	1110	972	862	844	990	898

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1907 - 1999, BY WATER YEAR (WY)												
MEAN	1142	1160	980	898	960	1927	2307	1487	1464	1121	974	1192
MAX	2806	2521	2316	1317	2047	4142	6819	2947	3702	2926	2237	3091
(WY)	1969	1992	1966	1973	1966	1973	1965	1938	1943	1968	1995	1938
MIN	528	566	541	532	536	921	664	612	425	421	383	493
(WY)	1933	1937	1933	1959	1959	1956	1930	1934	1934	1934	1934	1933

SUMMARY STATISTICS				FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1907 - 1999	
ANNUAL TOTAL				510315		483290			
ANNUAL MEAN				1398		1324		1300	
HIGHEST ANNUAL MEAN								1842	(a) 1973
LOWEST ANNUAL MEAN								711	1931
HIGHEST DAILY MEAN				7140	Apr 3	3330	Aug 25	29000	Apr 4 1934
LOWEST DAILY MEAN				475	Jan 12	480	Dec 23	100	Nov 8 1907
ANNUAL SEVEN-DAY MINIMUM				737	Dec 20	737	Dec 20	310	Sep 8 1934
INSTANTANEOUS PEAK FLOW						4180	Apr 13	(b) 40000	Apr 4 1934
INSTANTANEOUS PEAK STAGE						4.55	Apr 13	(c) 16.00	Apr 4 1934
10 PERCENT EXCEEDS				2090		2060		2170	
50 PERCENT EXCEEDS				1160		1150		1060	
90 PERCENT EXCEEDS				828		935		636	

(a) Also occurred in 1983

(b) From rating curve extended above 27,000 ft³/s on basis of computed flow over Cedar Falls Dam, 6 mi upstream

(c) From floodmarks

CHIPPEWA RIVER BASIN
05369500 CHIPPEWA RIVER AT DURAND, WI

LOCATION.--Lat 44°37'40", long 91°58'10", in SW 1/4 sec.21, T.25 N., R.13 W., Pepin County, Hydrologic Unit 07050005, on left bank in Durand, 75 ft downstream from bridge on U.S. Highway 10, and 9.5 mi downstream from Red Cedar River.

DRAINAGE AREA.--9,010 mi².

PERIOD OF RECORD.--July 1928 to current year.

REVISED RECORDS.--WSP 785: 1930, 1934(M). WSP 875: 1930 (monthly and yearly runoff). WSP 925: 1938. WSP 1508: 1929(M), 1932. WDR WI-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 694.59 ft above sea level. Prior to Dec. 9, 1930, nonrecording gage at bridge 400 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 20 to Feb. 27. Records good except those for ice-affected period, which is fair (see page 13). Flow regulated by powerplants, Moose Lake, Lake Chippewa, Rest Lake, Flambeau Flowage, and Lake Wissota on Chippewa and Flambeau Rivers. Gage-height telemeter and data-collection platform at station.

EXTREMES OUTSIDE OF PERIOD OF RECORD.--A stage of 18.4 ft, from flood marks (levels by U.S. Army Corps of Engineers) occurred Sept. 12, 1884, and has not been exceeded since.

REVISIONS.--The minimum discharge during the open-water period for the water year 1995 has been revised to 2,740 ft³/s, June 22, 1995. The minimum discharge occurred during the ice-affected period and was 2,700 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3360	3470	4150	3500	3500	3130	10100	4500	7450	3940	9310	5930
2	3190	3260	4020	3100	5000	5210	11200	3770	6830	3580	9770	5740
3	3160	4320	4290	3000	5400	5210	12200	4130	7810	4830	9310	5720
4	3180	3950	3960	3600	5600	5270	11900	5120	6990	6240	8480	4150
5	3120	4440	4320	3700	5400	5230	13000	4970	5900	6200	10500	3610
6	3250	4950	4480	3700	3100	3690	15900	5360	8110	5100	10200	4080
7	3600	3940	4030	3700	2800	3320	19100	4950	7190	5580	8910	5680
8	3350	3440	4400	2700	2800	3230	22900	10100	10900	5460	9070	5390
9	3440	3410	4530	2600	4700	4450	22700	19300	10100	7360	8300	4540
10	3150	4890	3880	2800	5200	5150	19000	24000	8860	7890	7860	5300
11	3130	4480	4050	2800	6000	5590	15900	21400	7740	10600	6800	4540
12	3090	4790	3510	2700	6200	5550	13800	17800	7800	11100	6630	4980
13	3890	5600	4100	3000	5200	4160	15000	18200	7970	10200	6050	4410
14	3490	5200	3550	3200	2900	3300	14300	18200	8140	8960	6950	4410
15	3720	4320	4110	3600	3700	3250	12700	15700	7380	8790	7530	5140
16	3110	4790	3640	3700	6400	5790	11500	13700	7000	8190	7500	5710
17	3340	5470	3670	3500	8000	7830	11400	13700	5360	8660	7720	4940
18	3350	5490	3750	3300	6600	10000	9380	14200	5300	7110	7750	4130
19	4420	4910	3600	4000	5600	10300	7530	19800	5100	7790	7070	4330
20	4150	5070	2900	4200	4500	9510	7850	23900	4390	7740	6020	3550
21	4370	5470	2600	4200	3300	9120	7430	21300	4720	7220	6730	5750
22	4400	4600	2900	4700	3000	9810	7400	20200	5040	7390	5470	4620
23	3700	4950	2400	3500	5400	10900	6670	20500	4390	5530	5280	5070
24	4180	4990	2100	2700	6400	10600	8230	21100	4040	5940	9070	4290
25	3560	5170	2600	2600	6600	10400	7010	20100	4630	4780	11300	3590
26	3620	5040	2700	2700	6200	7350	7520	19200	4970	5630	12700	3280
27	3430	3720	2500	3000	3800	4400	6190	14000	4510	10000	11100	3400
28	3590	4340	2700	3700	3360	4190	6440	12200	4160	16200	9050	5580
29	4200	4060	3000	5400	---	4610	5340	11400	4450	16600	6570	4230
30	4240	4610	3800	5600	---	4400	4740	9010	4130	11700	6100	3700
31	4160	---	4000	3200	---	5010	---	8260	---	9850	5750	---
TOTAL	111940	137140	110240	107700	136660	189960	344330	440070	191360	246160	250850	139790
MEAN	3611	4571	3556	3474	4881	6128	11480	14200	6379	7941	8092	4660
MAX	4420	5600	4530	5600	8000	10900	22900	24000	10900	16600	12700	5930
MIN	3090	3260	2100	2600	2800	3130	4740	3770	4040	3580	5280	3280

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1999, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1928	6554	20360	1986	2103	1977
1929	6884	20190	1992	2209	1977
1930	5389	11600	1966	2335	1934
1931	4807	8181	1984	2289	1934
1932	5087	11160	1984	2404	1990
1933	9694	25120	1973	3645	1931
1934	15830	34170	1967	4718	1931
1935	10470	28220	1954	3336	1931
1936	9290	37730	1943	2699	1934
1937	6321	19070	1968	2271	1934
1938	5120	12180	1995	2026	1934
1939	7022	27950	1941	1954	1948

CHIPPEWA RIVER BASIN
05369500 CHIPPEWA RIVER AT DURAND, WI--CONTINUED

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SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1928 - 1999	
ANNUAL TOTAL	2275680		2406200		7697	
ANNUAL MEAN	6235		6592		11550	1942
HIGHEST ANNUAL MEAN					3992	1931
LOWEST ANNUAL MEAN					117000	Apr 2 1967
HIGHEST DAILY MEAN	56200	Apr 2	24000	May 10	1100	Nov 24 1950
LOWEST DAILY MEAN	(a)2100	Dec 24	(a)2100	Dec 24	1580	Oct 28 1948
ANNUAL SEVEN-DAY MINIMUM	2390	Jul 30	(a)2540	Dec 21	123000	Apr 2 1967
INSTANTANEOUS PEAK FLOW			24300	May 10	16.93	Apr 2 1967
INSTANTANEOUS PEAK STAGE			8.33	May 10	1020	Nov 24 1950
INSTANTANEOUS LOW FLOW					14200	
10 PERCENT EXCEEDS	10600		11800		5600	
50 PERCENT EXCEEDS	4180		5100		2990	
90 PERCENT EXCEEDS	2700		3200			

(a) Ice affected

CHIPPEWA RIVER BASIN

05370000 EAU GALLE RIVER AT SPRING VALLEY, WI

LOCATION.--Lat 44°51'10", long 92°14'17", in SE 1/4 NE 1/4 sec.6, T.27 N., R.15 W., Pierce County, Hydrologic Unit 07050005, on right bank 770 ft downstream from flood control dam, 1,500 ft upstream from Mines Creek, at Spring Valley.

DRAINAGE AREA.--64.1 mi².

PERIOD OF RECORD.--March 1944 to current year.

REVISED RECORDS.--WDR WI-67-1: 1966. WDR WI-81-1: Drainage area. WDR WI-92-1: 1975-79(M), 1977, 1978.

GAGE.--Water-stage recorder, crest-stage gage, and v-notch sharp-crested weir. Datum of gage is 900.00 ft above sea level (levels by U.S. Army Corps of Engineers). Prior to July 31, 1957, nonrecording gage at site 850 ft downstream at datum of 912.45 ft above sea level. Aug. 1, 1957, to June 6, 1966, nonrecording gage at downstream site at datum of 910.45 ft above sea level. June 7, 1966, to Oct. 31, 1968, nonrecording gage at downstream site at datum of 909.45 ft above sea level.

REMARKS.--No estimated daily discharges. Records are good (see page 13). Low flow slightly regulated and high flow completely regulated by flood-control dam 770 ft upstream. Data-collection platform at station.

EXTREMES OUTSIDE OF PERIOD OF RECORD.--Maximum stage since at least 1894, that of Sept. 18, 1942, 19.98 ft, with datum at 909.45 ft above sea level, from floodmarks, discharge, 33,000 ft³/s estimated by U.S. Army Corps of Engineers on basis of slope-area measurement by Geological Survey of peak discharge of 39,000 ft³/s at Elmwood, drainage area, 91.9 mi².

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	18	18	17	17	18	35	19	22	21	10	19
2	18	17	18	18	17	17	31	18	22	21	13	20
3	18	17	18	18	17	17	30	19	22	31	15	20
4	17	17	18	17	16	17	38	20	22	31	16	19
5	20	17	20	17	17	17	52	23	22	25	15	22
6	22	17	18	17	17	17	232	23	26	24	16	19
7	19	18	18	17	17	17	149	24	25	21	17	17
8	18	18	17	17	17	18	62	29	23	21	17	18
9	18	18	17	17	17	20	40	30	22	22	17	18
10	18	23	17	17	17	18	33	26	23	20	16	17
11	18	23	17	17	20	17	47	24	24	18	14	16
12	18	23	18	17	20	17	77	24	27	19	33	23
13	17	21	18	17	18	17	48	27	26	19	33	19
14	17	20	18	17	18	17	36	31	22	20	20	17
15	18	19	17	16	20	17	28	28	21	19	17	16
16	19	19	17	17	21	18	30	26	21	19	16	16
17	27	18	17	17	21	25	33	32	21	20	16	16
18	26	19	18	18	19	61	29	163	21	19	21	16
19	24	19	17	17	18	73	27	79	21	20	24	16
20	22	18	17	17	18	95	26	47	21	20	19	16
21	42	19	16	17	17	135	25	308	21	20	17	16
22	21	19	16	18	17	84	27	115	21	18	19	16
23	2.8	19	17	18	17	63	30	49	22	18	18	16
24	4.9	18	16	17	18	60	30	39	22	17	19	16
25	14	18	16	17	17	48	26	30	20	16	21	16
26	17	18	17	17	17	38	23	27	19	21	20	16
27	18	19	17	17	17	35	22	26	19	18	19	15
28	18	19	17	17	17	106	21	25	20	17	20	15
29	19	19	17	17	---	142	21	23	20	17	20	15
30	19	18	17	17	---	60	20	23	20	17	19	16
31	18	---	17	17	---	40	---	22	---	17	19	---
TOTAL	586.7	565	536	531	499	1344	1328	1399	658	626	576	517
MEAN	18.9	18.8	17.3	17.1	17.8	43.4	44.3	45.1	21.9	20.2	18.6	17.2
MAX	42	23	20	18	21	142	232	308	27	31	33	23
MIN	2.8	17	16	16	16	17	20	18	19	16	10	15

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1999, BY WATER YEAR (WY)

	MEAN	26.0	27.5	18.6	15.5	21.5	77.1	64.9	36.8	40.7	27.3	28.8	30.8
MAX	81.3	86.2	39.7	23.0	71.6	164	128	94.9	148	94.1	90.1	153	
(WY)	1971	1971	1978	1997	1981	1989	1969	1973	1980	1978	1995	1986	
MIN	10.4	7.24	4.22	5.21	5.77	10.1	19.5	12.4	11.6	12.5	5.95	9.81	
(WY)	1970	1969	1969	1969	1969	1970	1987	1977	1969	1988	1969	1969	

CHIPPEWA RIVER BASIN
05370000 EAU GALLE RIVER AT SPRING VALLEY, WI--CONTINUED

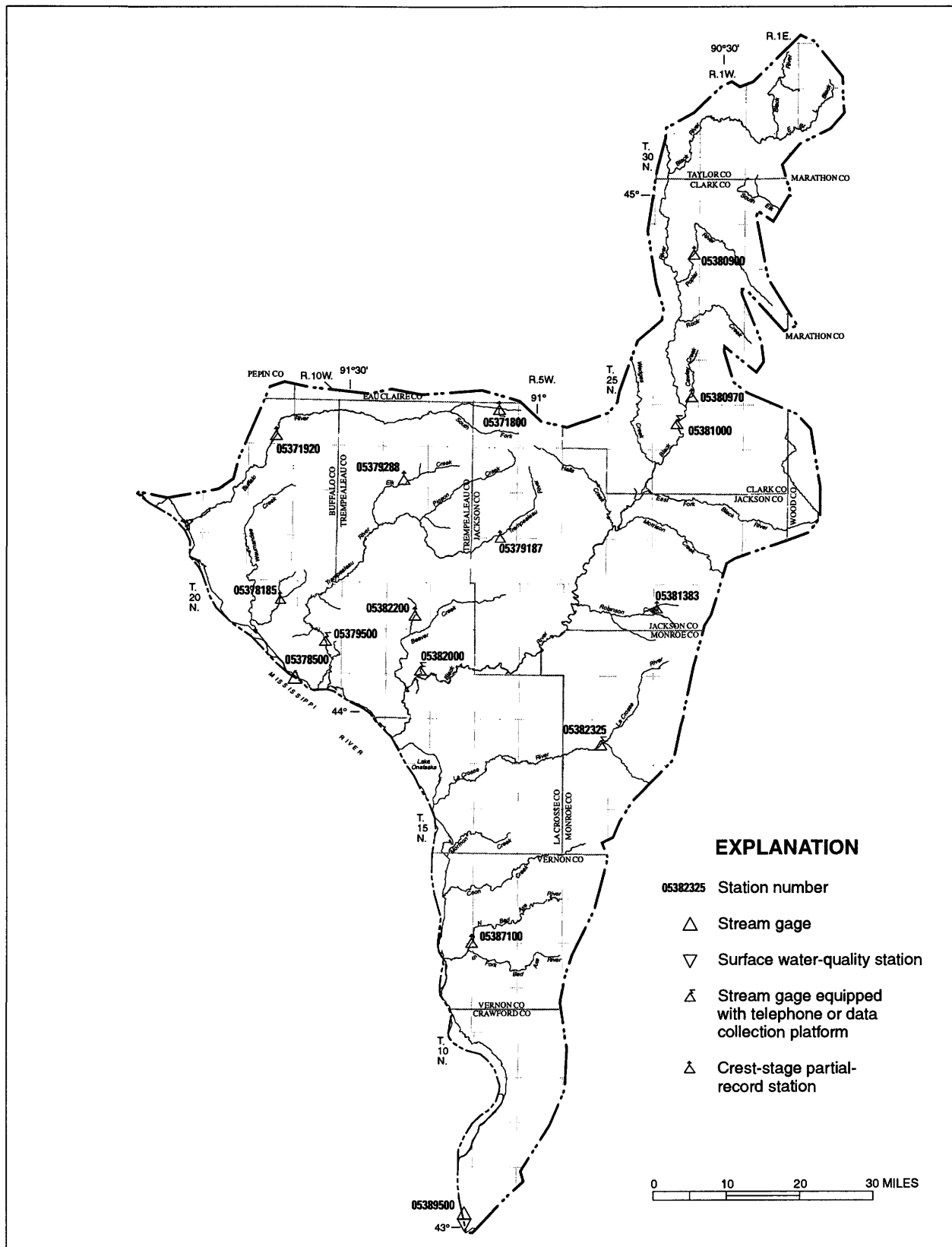
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SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1969 - 1999	
ANNUAL TOTAL	14899.7		9165.7			
ANNUAL MEAN	40.8		25.1		34.6	
HIGHEST ANNUAL MEAN					55.8	1980
LOWEST ANNUAL MEAN					21.2	1988
HIGHEST DAILY MEAN	1290	Mar 28	308	May 21	2190	Mar 28 1989
LOWEST DAILY MEAN	(a)2.8	Oct 23	(a)2.8	Oct 23	(b).00	Aug 12-16 1971
ANNUAL SEVEN-DAY MINIMUM	13	Oct 23	13	Oct 23	.91	Sep 15 1969
INSTANTANEOUS PEAK FLOW			464	May 21	(c)3030	Jun 7 1980
INSTANTANEOUS PEAK STAGE	\		15.49	May 21	(c)19.90	Jun 7 1980
INSTANTANEOUS LOW FLOW			(a)2.7	Oct 23,24	(b).00	Aug 11-16 1971
10 PERCENT EXCEEDS	47		33		48	
50 PERCENT EXCEEDS	21		19		18	
90 PERCENT EXCEEDS	17		16		12	

(a) Result of work at dam

(b) Flow shut off at flood-control dam upstream due to request by Wisconsin Department of Natural Resources for eradication of rough fish to improve sport fishing

(c) Peak discharge and stage prior to construction of flood-control reservoir occurred Apr. 15, 1954, and was 7,000 ft³/s and 12.50 ft (datum then in use), respectively



Base from U.S. Geological Survey 1:100,000 digital data;
modified by Wisconsin Department of Natural Resources.
Wisconsin Transverse Mercator projection.

TREMPEALEAU-BLACK RIVER BASIN

MISSISSIPPI RIVER MAIN STEM

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05378500 MISSISSIPPI RIVER AT WINONA, MN

LOCATION.--Lat 44°03'21", long 91°38'16", in sec.23, T.107 N., R.7 W., Winona County, Hydrologic Unit 07040003, on right bank at Winona pumping station in Winona, 9.5 mi upstream from Trempealeau River, and at mile 725.7 upstream from the Ohio River.

DRAINAGE AREA.--59,200 mi², approximately.

PERIOD OF RECORD.--June 1928 to current year. Gage-height records collected in this vicinity since 1878 are contained in reports of Mississippi River Commission.

GAGE.--Water-stage recorder. Datum of gage is 639.64 ft above sea level. June 10, 1928, to Apr. 15, 1931, non-recording gage at site 800 ft upstream. Prior to Oct. 1, 1929, at datum 0.20 ft higher and Oct. 1, 1929, to Apr. 15, 1931, at datum 0.12 ft lower. Apr. 16, 1931, to Nov. 12, 1934, nonrecording gage at present site and datum. Since Mar. 31, 1937, auxiliary water-stage recorder 2.7 mi upstream at tailwater of navigation dam 5A.

REMARKS.--Estimated daily discharges: Oct. 3-17, Dec. 21 to Feb. 10, July 21, 24-26, and Aug. 11, 26. Records good except those for estimated daily discharges, which are fair to poor (see page 13). Some regulation by reservoirs, navigation dams, and powerplants at low and medium stages. Daily discharges for some days provided by the U.S. Army Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Minimum gage height, -3.38 ft, Aug. 31, 1934 (prior to dam construction in 1936); minimum gage height since 1938, after completion of dam, 1.95 ft, Jan. 27, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 18, 1880, reached an elevation of 657.14 ft, discharge, 172,000 ft³/s, from information by U.S. Army Corps of Engineers.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16000	27900	27900	14300	14800	24000	33000	57600	75500	38900	49100	30800
2	15100	27300	28800	15000	15200	22400	36100	55100	72100	37700	45500	32100
3	12900	27100	27400	16000	15700	21000	41400	51600	68200	37800	43500	30800
4	12000	27300	26000	17000	16200	21100	42800	46400	63700	38700	43900	30200
5	10900	27100	26200	17000	16500	20700	45200	47500	60200	39300	41700	29700
6	9900	27100	25900	17000	16600	20700	49600	46800	60700	41700	39700	27800
7	12800	26400	26200	17000	16700	21200	50900	42000	58200	41200	38600	24400
8	16400	22400	26300	17000	16800	21400	55500	42900	55900	39000	37700	26100
9	16500	21200	26500	17000	17000	20600	62300	41400	52700	43900	38000	28100
10	14600	22500	26400	17000	17400	22600	66300	43000	52600	43700	38100	28400
11	14700	24000	26500	17000	17800	23500	69800	51300	52200	40600	35000	27600
12	15500	26100	26000	17000	19400	23200	73700	55400	51500	41700	33900	27400
13	16200	27500	25700	16700	21400	22200	74600	59600	51600	43500	32600	27700
14	16000	29300	25600	16600	22700	22100	74700	61000	52100	43300	32000	28000
15	12600	29800	25300	16500	23800	21200	75400	64900	52400	40200	31500	28300
16	12700	29500	25400	16400	23100	20600	76200	69300	52500	38400	30300	28600
17	14700	28400	25100	16500	23100	22500	75300	74600	52700	41100	30600	28200
18	22000	28400	23800	16700	23400	26800	74100	78700	52600	40200	33700	27800
19	23500	28100	23400	17000	23500	30900	73600	83800	52000	38500	35000	27100
20	23300	28600	23100	17400	23600	33300	72700	91300	50100	35800	34700	26400
21	21700	28500	17000	17900	23400	33400	72300	99100	49600	36000	34500	25600
22	24900	27500	15000	18000	22800	32900	73300	104000	48700	40900	35400	24200
23	28000	27700	12000	18100	21100	32900	73300	108000	48100	39600	36000	23600
24	27800	28300	10300	18000	20500	34700	72000	109000	48100	40000	37700	23900
25	26700	27900	10000	17000	20700	36200	71600	107000	47100	40000	39700	23300
26	26500	27500	10300	15000	21000	36400	70200	104000	43600	40000	40000	21900
27	26600	27000	11400	14300	21500	36000	67900	101000	43000	42600	41000	21200
28	26700	27300	13000	14400	23400	33700	66600	97100	42800	43800	41600	21200
29	27200	27600	13600	14400	---	32000	64500	90500	41500	46600	40200	21200
30	26800	27300	14000	14500	---	32400	61500	85500	40100	49600	35800	21000
31	27600	---	14300	14600	---	31800	---	80400	---	51100	32200	---
TOTAL	598800	812600	658400	508300	559100	834400	1916400	2249800	1592100	1275400	1159200	792600
MEAN	19320	27090	21240	16400	19970	26920	63880	72570	53070	41140	37390	26420
MAX	28000	29800	28800	18100	23800	36400	76200	109000	75500	51100	49100	32100
MIN	9900	21200	10000	14300	14800	20600	33000	41400	40100	35800	30300	21000
AC-FT	1188000	1612000	1306000	1008000	1109000	1655000	3801000	4462000	3158000	2530000	2299000	1572000
CFSM	.33	.46	.36	.28	.34	.45	1.08	1.23	.90	.69	.63	.45

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1999, BY WATER YEAR (WY)

MEAN	22600	23020	17800	15300	15600	30610	61780	48840	39310	31870	21650	22490
MAX	85950	50040	40440	30480	35900	86420	152600	111500	100200	118800	67560	69490
(WY)	1987	1972	1992	1983	1984	1983	1965	1986	1993	1993	1993	1986
MIN	6774	7367	6286	6742	7874	9023	12810	11930	8450	7063	5391	6790
(WY)	1934	1934	1934	1940	1977	1934	1931	1931	1934	1934	1934	1933

MISSISSIPPI RIVER MAIN STEM
05378500 MISSISSIPPI RIVER AT WINONA, MN--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1928 - 1999	
ANNUAL TOTAL	11722100		12957100		29270	
ANNUAL MEAN	32120		35500		56850	1986
HIGHEST ANNUAL MEAN					9742	1934
LOWEST ANNUAL MEAN					264000	Apr 20 1965
HIGHEST DAILY MEAN	117000	Apr 5, 6	109000	May 24	2250	Dec 29 1933
LOWEST DAILY MEAN	9900	Oct 6	9900	Oct 6	3210	Dec 27 1933
ANNUAL SEVEN-DAY MINIMUM	(a) 11500	Dec 23	(a) 11500	Dec 23	268000	Apr 19 1965
INSTANTANEOUS PEAK FLOW			110000	May 24	(b) 20.77	Apr 19 1965
INSTANTANEOUS PEAK STAGE			12.35	May 24	(c) 1940	Dec 12 1980
INSTANTANEOUS LOW FLOW					21200000	
ANNUAL RUNOFF (AC-FT)	23250000		25700000			
ANNUAL RUNOFF (CFSM)		.54		.60		.49
10 PERCENT EXCEEDS	64400		67100		60500	
50 PERCENT EXCEEDS	26800		28300		21200	
90 PERCENT EXCEEDS	15000		16100		10000	

(a) Estimated

(b) From highwater mark

(c) Result of ice jam upstream

TREMPEALEAU RIVER BASIN
05379500 TREMPEALEAU RIVER AT DODGE, WI

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LOCATION.--Lat 44°07'55", long 91°33'14", in SE 1/4 sec.10, T.19 N., R.10 W., Trempealeau County, Hydrologic Unit 07040005, near left bank on downstream side of highway bridge in Dodge, 9.0 mi upstream from mouth.

DRAINAGE AREA.--643 mi².

PERIOD OF RECORD.--December 1913 to September 1919, April 1934 to current year.

REVISED RECORDS.--WSP 1238: Drainage area. WSP 1388: 1919(M). WSP 1438: 1914, 1915-18(M), 1934-44(M), 1946-49(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 661.42 ft above sea level. Prior to July 14, 1977, nonrecording gage at same site and datum. Prior to Oct. 1, 1966, datum 2.00 ft higher.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 23 to Feb. 20 and Mar. 9, 10. Records fair except those for ice-affected periods, which are fair to poor (see page 13). Gage-height telemeter and data-collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	402	484	433	310	340	505	474	553	589	478	901	452
2	411	467	430	300	350	497	477	539	584	511	779	447
3	407	453	428	300	360	478	569	526	569	567	682	440
4	401	445	425	300	360	461	803	516	559	715	659	432
5	410	442	423	300	370	448	951	553	556	634	666	449
6	421	439	423	300	380	434	1070	598	622	553	615	455
7	426	436	420	290	380	422	1140	653	718	511	589	443
8	424	436	416	290	390	421	890	614	695	499	583	475
9	416	438	411	290	390	410	1150	568	605	606	582	446
10	408	505	408	290	400	410	1420	542	556	647	608	429
11	402	661	406	280	460	419	1570	525	543	557	583	422
12	401	653	406	280	740	413	1520	776	531	478	561	454
13	401	582	406	280	640	415	1220	1070	519	448	558	478
14	399	533	406	290	620	424	877	1130	502	439	551	456
15	401	506	405	300	660	446	760	1000	490	425	536	432
16	405	494	405	300	640	518	706	799	483	421	535	415
17	415	484	405	300	560	626	662	1130	489	488	554	402
18	435	478	404	300	540	666	621	1490	475	587	534	395
19	442	478	405	300	520	614	594	1630	466	860	537	397
20	443	476	396	300	500	573	585	1720	460	1370	529	392
21	435	471	358	310	492	563	627	1660	456	1780	511	388
22	421	465	282	330	473	549	770	1470	453	1830	512	387
23	414	462	290	340	461	518	1160	1240	479	1850	517	383
24	410	459	330	350	458	499	1280	1090	479	1470	590	380
25	408	455	400	350	451	482	1110	939	463	929	614	372
26	409	450	360	330	445	465	854	822	445	1010	557	366
27	459	446	340	330	454	446	703	741	434	1190	519	369
28	496	443	340	340	485	462	644	693	441	1120	498	372
29	491	441	330	340	---	495	597	656	458	1030	484	365
30	494	438	330	340	---	491	571	623	454	846	470	360
31	496	---	320	340	---	472	---	598	---	856	458	---
TOTAL	13203	14420	11941	9600	13319	15042	26375	27464	15573	25705	17872	12453
MEAN	426	481	385	310	476	485	879	886	519	829	577	415
MAX	496	661	433	350	740	666	1570	1720	718	1850	901	478
MIN	399	436	282	280	340	410	474	516	434	421	458	360
CFSM	.66	.75	.60	.48	.74	.75	1.37	1.38	.81	1.29	.90	.65
IN.	.76	.83	.69	.56	.77	.87	1.53	1.59	.90	1.49	1.03	.72

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1999, BY WATER YEAR (WY)

MEAN	378	391	325	282	336	817	685	489	497	423	369	411
MAX	1314	856	953	679	878	2325	2146	1320	1516	1332	1050	1239
(WY)	1955	1992	1983	1973	1981	1936	1965	1973	1993	1993	1975	1992
MIN	169	180	139	117	119	289	301	195	183	163	138	153
(WY)	1951	1950	1959	1959	1959	1968	1964	1934	1964	1964	1964	1948

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1914 - 1999
ANNUAL TOTAL	218369	202967	
ANNUAL MEAN	598	556	451
HIGHEST ANNUAL MEAN			813
LOWEST ANNUAL MEAN			237
HIGHEST DAILY MEAN	6490	1850	12900
LOWEST DAILY MEAN	(a) 280	Jan 11-13	(a) 98
ANNUAL SEVEN-DAY MINIMUM	(a) 296	Jan 7	(a) 106
INSTANTANEOUS PEAK FLOW		1860	17400
INSTANTANEOUS PEAK STAGE		8.47	(b) 10.35
ANNUAL RUNOFF (CFSM)	.93	.86	.70
ANNUAL RUNOFF (INCHES)	12.63	11.74	9.54
10 PERCENT EXCEEDS	903	867	737
50 PERCENT EXCEEDS	460	472	344
90 PERCENT EXCEEDS	340	340	198

(a) Ice affected
(b) Datum then in use

BLACK RIVER BASIN
05381000 BLACK RIVER AT NEILLSVILLE, WI

LOCATION.--Lat 44°33'34", long 90°36'52", in sec.15, T.24 N., R.2 W., Clark County, Hydrologic Unit 07040007, on right bank at downstream side of bridge on U.S. Highway 10 in Neillsville, 1.0 mi downstream from O'Neill Creek, and 2.6 mi upstream from Cunningham Creek.

DRAINAGE AREA.--749 mi².

PERIOD OF RECORD.--April 1905 to March 1909, October 1913 to current year. Monthly discharge for some periods published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1914. WSP 1438: 1905, 1906-8(M), 1914-17(M), 1918-19, 1920-25(M), 1926-27, 1928-29(M), 1930, 1931(M), 1932, 1933(M), 1934, 1935(M), 1936. WSP 1508: 1950. WDR WI-81-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 962.34 ft above sea level. Prior to Oct. 24, 1934, nonrecording gage; Oct. 24, 1934, to June 16, 1977, water-stage recorder; June 17, 1977, to Nov. 19, 1977, nonrecording gage at site 150 ft downstream at datum 1.58 ft lower.

REMARKS.--Estimated daily discharges: Apr. 7, 8, 19, 20, Aug. 24, and ice-affected periods, Dec. 8, 9, and Dec. 15 to Mar. 23. Records good except those for estimated daily discharges, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	167	154	145	43	60	160	1110	177	229	108	468	116
2	126	152	138	43	62	160	1060	159	201	92	616	107
3	104	144	135	44	64	150	1320	151	183	123	582	99
4	91	131	135	43	64	150	2500	149	167	379	789	93
5	87	119	129	42	64	150	3090	155	161	331	603	89
6	86	109	124	41	66	150	4360	220	209	239	545	86
7	86	103	122	40	70	140	8600	634	176	192	452	84
8	83	100	110	40	80	140	3400	2410	502	189	421	78
9	84	99	100	40	90	130	3380	2600	651	1330	351	75
10	87	145	103	40	110	130	1890	2200	442	1180	289	74
11	91	261	96	40	150	130	2120	1530	289	1090	246	71
12	91	378	97	40	200	130	2730	1050	222	1020	215	88
13	84	401	109	40	350	140	2040	743	189	762	195	90
14	78	344	102	40	350	160	1430	535	163	491	178	92
15	74	278	90	40	340	200	991	409	147	358	169	91
16	71	243	84	46	320	300	765	333	131	389	185	103
17	75	222	76	46	300	400	614	761	116	938	196	95
18	108	207	76	46	290	500	501	2180	103	1010	179	90
19	108	199	76	46	270	600	410	2260	94	1550	216	84
20	111	195	74	46	260	800	370	1410	88	911	224	79
21	115	211	68	50	240	1000	355	1290	84	881	207	76
22	122	226	60	54	220	1100	836	1370	79	595	203	76
23	120	223	56	56	210	1300	1740	1690	87	457	219	75
24	106	202	52	60	190	1430	976	1940	91	374	320	72
25	98	189	46	60	180	1330	636	1630	87	335	292	70
26	93	180	48	60	170	1200	456	1190	86	394	253	68
27	100	171	46	60	160	1120	360	832	88	762	229	72
28	111	160	45	60	160	1150	289	570	90	1030	195	70
29	124	155	45	60	---	1250	238	422	86	848	164	71
30	139	152	45	60	---	1280	202	328	81	550	141	73
31	158	---	45	60	---	1180	---	267	---	757	126	---
TOTAL	3178	5853	2677	1486	5090	18160	48769	31595	5322	19665	9468	2507
MEAN	103	195	86.4	47.9	182	586	1626	1019	177	634	305	83.6
MAX	167	401	145	60	350	1430	8600	2600	651	1550	789	116
MIN	71	99	45	40	60	130	202	149	79	92	126	68
CFSM	.14	.26	.12	.06	.24	.78	2.17	1.36	.24	.85	.41	.11
IN.	.16	.29	.13	.07	.25	.90	2.42	1.57	.26	.98	.47	.12

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 1999, BY WATER YEAR (WY)

	MEAN	391	458	189	109	133	1251	1958	861	816	312	245	527
MAX	2101	2345	1133	615	1348	3960	5025	3538	4689	1538	1293	4304	
(WY)	1983	1992	1966	1973	1984	1973	1951	1973	1905	1978	1928	1938	
MIN	20.7	27.1	35.9	10.0	5.00	56.7	270	77.4	43.0	14.9	10.5	5.77	
(WY)	1934	1977	1934	1918	1918	1940	1946	1934	1964	1933	1933	1933	

BLACK RIVER BASIN
05381000 BLACK RIVER AT NEILLSVILLE, WI--CONTINUED

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SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1905 - 1999	
ANNUAL TOTAL	154893		153770		601	
ANNUAL MEAN	424		421		1213	1942
HIGHEST ANNUAL MEAN					160	1931
LOWEST ANNUAL MEAN					38200	Sep 10 1938
HIGHEST DAILY MEAN	10100	Apr 1	(a) 8600	Apr 7	.70	(c) Aug 10 1936
LOWEST DAILY MEAN	26	Sep 19,21-23	(b) 40	Jan 7-15	1.0	Aug 10 1936
ANNUAL SEVEN-DAY MINIMUM	26	Sep 17	(b) 40	Jan 7	48800	Sep 10 1938
INSTANTANEOUS PEAK FLOW					23.80	Sep 10 1938
INSTANTANEOUS LOW FLOW			(b)		.60	Aug 15 1936
ANNUAL RUNOFF (CFSM)	.57		.56		.80	
ANNUAL RUNOFF (INCHES)	7.69		7.64		10.90	
10 PERCENT EXCEEDS	735		1160		1500	
50 PERCENT EXCEEDS	120		160		150	
90 PERCENT EXCEEDS	45		60		36	

(a) Estimated
(b) Ice affected
(c) Also occurred Aug. 11,14-16, 1936

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 20 to Feb. 25 and Mar. 4-10. Records good except those for ice-affected periods, which are fair (see page 13). Flow partly regulated by Hatfield Dam Powerplant where drainage area is 1,290 mi² and storage capacity is 272,000,000 ft³. Water diverted periodically from basin into Lemonweir River basin for cranberry culture. Gage-height tele-meter and data-collection platform at station.

(c) Gage height, 14.63 ft, at location 1,000 ft downstream

LA CROSSE RIVER BASIN
05382325 LA CROSSE RIVER AT SPARTA, WI

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LOCATION.--Lat 43°56'15", long 90½°48'38", in SE 1/4 NE 1/4 sec.23, T.17 N., R.4 W., Monroe County, Hydrologic Unit 07040006, on left bank, 800 ft downstream from bridge on South Water Street, in Sparta, 0.35 mi downstream from Beaver Creek.

DRAINAGE AREA.--167 mi².

PERIOD OF RECORD.--July 1992 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 760.73 ft above sea level.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 23 to Jan. 10, and Mar. 8-11. Records good except those for ice-affected periods, which are fair (see page 13). Gage-height telemeter at station. Occasional regulation from two dams upstream from gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	156	153	138	110	133	158	149	172	149	173	220	136
2	150	151	138	120	138	156	150	172	145	169	177	135
3	152	150	137	120	139	148	160	170	142	201	176	133
4	150	148	137	120	140	144	178	169	145	196	192	132
5	164	147	137	120	136	142	181	192	149	175	175	141
6	166	147	137	120	136	139	206	206	147	180	163	139
7	161	147	134	120	134	137	186	197	155	167	161	137
8	155	149	132	120	136	130	171	189	151	165	162	158
9	150	151	131	120	141	130	286	181	145	196	169	141
10	148	201	132	120	143	130	252	174	155	163	177	138
11	147	218	134	127	216	130	215	175	164	151	163	136
12	147	181	135	129	231	140	205	192	175	149	160	141
13	145	162	133	129	177	141	193	188	170	150	164	143
14	144	156	133	131	167	142	186	174	166	157	158	139
15	146	152	134	130	167	145	184	170	161	151	154	137
16	146	154	133	135	174	152	183	187	162	150	157	135
17	153	151	133	138	164	163	178	253	155	166	148	134
18	180	149	136	142	156	164	178	242	149	172	151	133
19	161	148	134	136	150	156	177	193	146	230	152	134
20	153	145	133	132	146	152	179	172	145	244	148	135
21	150	143	131	133	142	152	185	172	142	526	142	134
22	148	143	104	138	141	148	262	174	143	420	148	133
23	150	144	130	139	141	137	309	192	151	263	152	132
24	148	141	120	136	141	138	230	177	152	198	178	131
25	149	140	120	135	141	129	201	158	149	181	160	129
26	148	138	120	130	145	124	192	151	146	301	149	128
27	171	137	120	136	166	136	186	144	146	303	145	153
28	175	138	120	134	164	131	181	142	163	232	144	147
29	167	139	120	133	---	126	176	138	182	188	140	137
30	163	143	100	132	---	130	174	135	167	178	139	134
31	158	---	110	133	---	140	---	145	---	260	137	---
TOTAL	4801	4566	3986	3998	4305	4390	5893	5496	4617	6555	4961	4115
MEAN	155	152	129	129	154	142	196	177	154	211	160	137
MAX	180	218	138	142	231	164	309	253	182	526	220	158
MIN	144	137	100	110	133	124	149	135	142	149	137	128
CFSM	.93	.91	.77	.77	.92	.85	1.18	1.06	.92	1.27	.96	.82
IN.	1.07	1.02	.89	.89	.96	.98	1.31	1.22	1.03	1.46	1.11	.92

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1999, BY WATER YEAR (WY)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	156	155	140	132	147	180	210	187	199	180	162
MAX	184	179	160	142	168	213	324	279	323	288	205
(WY)	1996	1996	1995	1995	1994	1996	1993	1993	1993	1993	1998
MIN	123	124	118	113	133	142	168	160	140	130	111
(WY)	1997	1998	1998	1998	1993	1999	1997	1997	1997	1997	1996

SUMMARY STATISTICS

	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1992 - 1999
ANNUAL TOTAL	60574	57683	
ANNUAL MEAN	166	158	168
HIGHEST ANNUAL MEAN			211
LOWEST ANNUAL MEAN			142
HIGHEST DAILY MEAN	1050	526	1050
LOWEST DAILY MEAN	(a) 80	(a) 100	(a) 80
ANNUAL SEVEN-DAY MINIMUM	(a) 96	(a) 114	(a) 96
INSTANTANEOUS PEAK FLOW		653	1270
INSTANTANEOUS PEAK STAGE		6.15	8.94
ANNUAL RUNOFF (CFSM)	.99	.95	1.01
ANNUAL RUNOFF (INCHES)	13.49	12.85	13.69
10 PERCENT EXCEEDS	211	192	220
50 PERCENT EXCEEDS	150	149	153
90 PERCENT EXCEEDS	118	131	120

(a) Ice affected

MISSISSIPPI RIVER MAIN STEM
05389500 MISSISSIPPI RIVER AT MCGREGOR, IA

LOCATION.--Lat 43°01'29" long 91°10'21", in SE 1/4 SE 1/4 sec.22, T.95 N., R.3 W., Clayton County, Hydrologic Unit 07060001, on right bank in city park at east end of Main Street in McGregor, 2.6 mi upstream from Wisconsin River, 4.3 mi downstream from Yellow River, and at mile 633.4 upstream from Ohio River.

DRAINAGE AREA.--67,500 mi², approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1936 to current year.

REVISED RECORDS.--WDR IA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 604.84 ft above sea level. Prior to June 1, 1937, and since June 2, 1939, auxiliary water-stage recorder; June 1, 1937 to June 1, 1939, auxiliary nonrecording gage 14.1 mi upstream in tailwater of dam 9, at datum 5.30 ft lower.

REMARKS.--Estimated daily discharges: Oct. 3-7 and Dec. 20 to Feb. 10. Records good except those for estimated daily discharges, which are poor (see page 13). Minor flow regulation caused by navigation dams. U.S. Geological Survey satellite and telephone modem data collection platform at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1828, that of Apr. 24, 1965.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23200	33600	34600	21500	21000	34300	41900	78300	96400	46500	65900	43300
2	19400	33400	34500	21500	22000	33200	41800	74900	91800	46500	66700	39700
3	17500	34100	34900	21500	23500	31800	44300	71300	87200	46400	66100	38500
4	15500	34700	35100	21500	21500	29900	48400	65700	83300	47100	62900	38400
5	13000	34800	34100	21500	21500	26900	54000	61300	79900	47200	58700	38200
6	13000	34600	33100	22500	22500	26200	58500	58700	76200	49400	55000	37400
7	15000	34100	31500	23500	23500	25900	61500	56000	72900	49700	53800	33800
8	14400	32200	30800	23000	23000	22200	65300	55500	70200	49200	52300	30500
9	16900	28000	31000	23000	23000	24000	68300	53200	67700	49800	48900	30400
10	17600	27700	31200	23000	23000	29100	71000	50600	65800	50100	47300	32600
11	18100	27500	31500	23000	23900	33100	76500	51200	64400	50100	47100	34900
12	18700	32400	31400	22500	25000	31000	81900	58500	63200	49900	46400	35500
13	19100	35600	31500	22500	26700	30200	86300	65500	61400	49500	47500	35400
14	19400	38100	31800	22500	28600	29800	88900	68500	60400	51000	44800	35200
15	18200	39600	31700	22500	31200	28800	90700	70400	58500	52800	41900	35100
16	14200	40600	31500	22500	35200	27400	90800	72400	58500	53100	37900	35000
17	13700	39900	31100	22500	36200	27500	89300	75700	58400	52700	37300	35100
18	21600	36400	29500	22500	35600	30200	88600	79700	58300	50800	38400	35300
19	29500	34300	29500	23000	35400	37000	87800	82800	58200	51100	40200	35200
20	33000	34500	27500	23500	35000	42000	86000	86300	58300	52300	43000	34500
21	32200	35100	25000	24500	34300	44900	84100	91200	57500	55000	44700	32500
22	27700	35100	24500	24500	31900	45500	84000	95800	55500	58000	45500	30500
23	28400	35400	18000	24000	28900	44900	84700	101000	53500	63800	45900	29100
24	31300	37700	14000	24000	26800	43900	84300	105000	53400	66100	47500	28600
25	34600	37700	13500	24000	26200	43500	84700	108000	53200	65900	47800	28800
26	35300	36500	13500	22000	27900	44300	85500	110000	53000	66400	48500	28900
27	33800	34500	13500	20500	31300	44900	85800	110000	52900	64300	50000	28900
28	32800	33300	14500	20500	33800	45100	85900	110000	51400	63400	51100	28900
29	33200	33500	14500	20500	---	45100	83900	108000	48800	61600	51500	28100
30	33700	34100	17500	21000	---	44700	81300	105000	47100	60000	50700	26600
31	33600	---	19500	21000	---	42800	---	101000	---	62300	47700	---
TOTAL	727600	1039000	825800	696000	778400	1090100	2266000	2481500	1917300	1682000	1533000	1004900
MEAN	23470	34630	26640	22450	27800	35160	75530	80050	63910	54260	49450	33500
MAX	35300	40600	35100	24500	36200	45500	90800	110000	96400	66400	66700	43300
MIN	13000	27500	13500	20500	21000	22200	41800	50600	47100	46400	37300	26600
AC-FT	1443000	2061000	1638000	1381000	1544000	2162000	4495000	4922000	3803000	3336000	3041000	1993000
CFSM	.35	.51	.39	.33	.41	.52	1.12	1.19	.95	.80	.73	.50
IN.	.40	.57	.46	.38	.43	.60	1.25	1.37	1.06	.93	.84	.55

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1936 - 1999, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1936	28840	114600	1987	9874	1937
1937	29430	64840	1983	10870	1938
1938	22370	59200	1992	9506	1937
1939	19270	35700	1983	7665	1940
1940	20030	48540	1984	9934	1940
1941	39570	103800	1983	13190	1940
1942	75660	164800	1965	27780	1990
1943	61390	119200	1975	18240	1977
1944	49120	112600	1993	13420	1988
1945	41030	142200	1993	11220	1988
1946	28260	84430	1993	10330	1964
1947	28900	72890	1986	10650	1940

SUMMARY STATISTICS

	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1936 - 1999
ANNUAL TOTAL	14465600	16041600	
ANNUAL MEAN	39630	43950	37040
HIGHEST ANNUAL MEAN			64720
LOWEST ANNUAL MEAN			17400
HIGHEST DAILY MEAN	125000	110000	276000
LOWEST DAILY MEAN	12500	13000	6200
ANNUAL SEVEN-DAY MINIMUM	14400	14400	6490
INSTANTANEOUS PEAK FLOW		111000	
INSTANTANEOUS PEAK STAGE		15.02	25.38
ANNUAL RUNOFF (AC-FT)	28690000	31820000	26830000
ANNUAL RUNOFF (CFSM)	.59	.65	.55
ANNUAL RUNOFF (INCHES)	7.97	8.84	7.46
10 PERCENT EXCEEDS	77700	80500	75700
50 PERCENT EXCEEDS	34100	35600	27600
90 PERCENT EXCEEDS	16000	21500	13200

MISSISSIPPI RIVER MAIN STEM
05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--CONTINUED

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WATER-QUALITY RECORDS

LOCATION.--Samples collected from right bank dock 0.3 mi downstream from discharge station. Prior to April 1981 and Mar. 7 to Sept. 30, 1997, samples collected at bridge on U.S. Highway 18, 1.2 mi upstream from gage.

PERIOD OF RECORD.--July 1975 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1975 to current year.

WATER TEMPERATURE: July 1975 to current year.

SUSPENDED-SEDIMENT DISCHARGE: July 1975 to current year.

REMARKS.--Records of specific conductance are obtained from suspended-sediment samples at times of analysis.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 633 microsiemens, Nov. 3, 1996; minimum daily, 190 microsiemens, Sept. 29, 1980.

WATER TEMPERATURE: Maximum daily, 30.0°C, July 7, 1977; minimum daily, 0.0°C on many days during winter periods.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,350 mg/L, Mar. 19, 1986; minimum daily mean, 1 mg/L, on many days in 1977-92.

SEDIMENT LOADS: Maximum daily, 363,000 tons, Mar. 19, 1986; minimum daily, 31 tons, Dec. 25, 1976.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 608 microsiemens, Dec. 11; minimum daily, 238 microsiemens, July 12.

WATER TEMPERATURE: Maximum daily, 21.0°C, July 5; minimum daily, 4.0°C, Jan. 15, Feb. 8, and Mar. 3, 8.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 58 mg/L, May 19; minimum daily mean, 1 mg/L, Jan. 13, 14, and 25.

SEDIMENT LOADS: Maximum daily, 13,000 tons, May 19; minimum daily, 61 tons, Jan. 13, 14.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	TEMPER- ATURE WATER (DEG C) (00010)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, SUS- PENDE D (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE D (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 1998						
03...	1345	--	47500	31	3980	99
MAR 1999						
17...	1120	7.9	37700	49	4990	97
APR						
20...	1440	10.0	98400	37	9830	97
JUN						
02...	1320	20.7	111000	37	11100	96
JUL						
13...	1240	25.5	51600	16	2230	99
AUG						
24...	1335	--	52900	44	6280	98

MISSISSIPPI RIVER MAIN STEM
05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--CONTINUED

SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY INSTANTANOUES VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	564	467	443	---	---	---	---	---	---
2	415	464	497	---	---	---	426	---	374	372	---	297
3	---	460	---	---	466	436	---	---	---	---	---	---
4	---	465	496	605	---	---	---	---	366	---	---	---
5	464	---	---	---	466	446	424	477	---	374	---	---
6	---	466	---	562	---	---	---	---	---	---	---	321
7	469	---	494	---	---	---	---	427	472	369	---	---
8	---	---	---	560	466	442	---	---	---	---	---	390
9	467	466	493	---	---	---	371	---	476	370	---	---
10	---	---	---	---	468	441	---	416	---	---	---	300
11	---	466	608	503	---	---	---	---	---	---	---	---
12	470	---	---	---	468	442	370	446	---	238	---	---
13	---	462	---	500	---	---	---	---	---	---	---	384
14	472	---	602	---	---	---	450	428	---	373	---	---
15	---	---	---	500	464	423	---	---	---	---	---	380
16	467	465	600	---	---	---	399	---	---	370	---	---
17	---	---	---	---	467	423	---	---	---	---	---	306
18	---	469	561	504	---	---	---	364	474	---	---	---
19	467	---	---	---	437	423	361	382	---	372	---	---
20	---	469	---	505	---	---	376	---	---	---	---	390
21	466	---	564	---	---	---	---	409	473	---	---	---
22	---	---	---	502	442	422	---	---	---	---	---	380
23	466	486	568	---	---	---	376	---	473	---	---	---
24	---	---	---	---	446	420	---	420	---	---	350	380
25	---	486	562	504	---	---	---	---	470	---	---	---
26	466	---	---	---	446	422	370	404	---	---	---	---
27	---	487	---	470	---	---	---	---	---	---	---	392
28	465	---	564	---	---	---	386	364	273	---	---	---
29	---	---	---	468	---	427	---	---	---	---	---	392
30	463	494	560	---	---	---	370	---	376	---	---	---
31	---	---	---	---	---	426	---	376	---	---	---	---

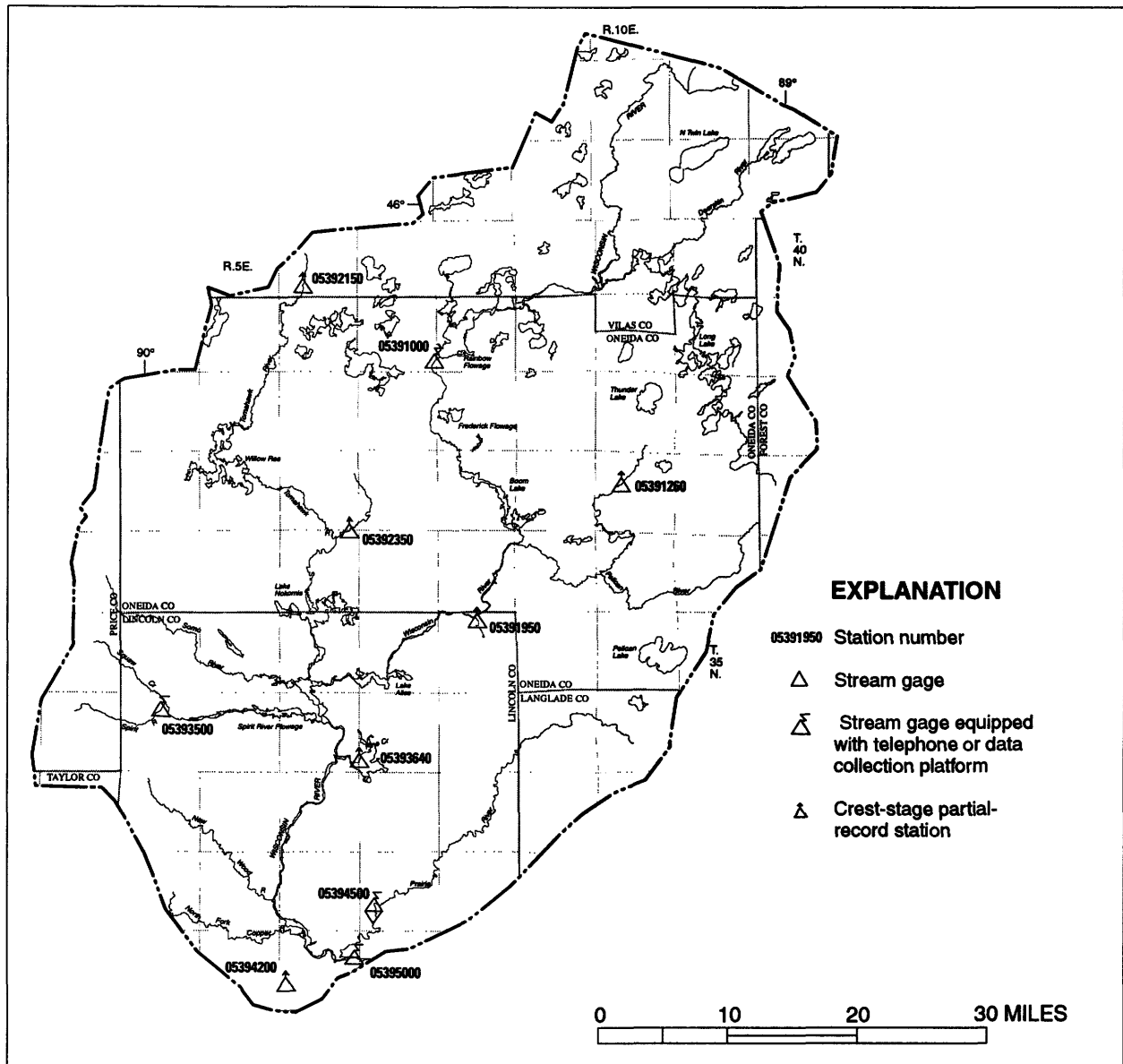
TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	8.0	5.0	5.0	---	---	---	---	---	---
2	20	13	12	---	---	---	6.0	---	19.0	20.0	---	15.0
3	---	---	---	---	6.0	4.0	---	---	---	---	---	---
4	---	15	10	5.0	---	---	---	---	17.0	---	---	---
5	18	---	---	---	5.0	5.0	7.0	13.0	---	21.0	---	---
6	---	13	---	6.0	---	---	---	---	---	---	---	16.0
7	17	---	9	---	---	---	---	14.0	19.0	20.0	---	---
8	---	---	---	7.0	4.0	4.0	---	---	---	---	---	15.0
9	16	14	10	---	---	---	14.0	---	20.0	19.0	---	---
10	---	---	---	---	5.0	5.0	---	15.0	---	---	---	14.0
11	---	12	10.0	5.0	---	---	---	---	---	---	---	---
12	17	---	---	---	6.0	6.0	15.0	14.0	---	20.0	---	---
13	---	13	---	6.0	---	---	---	---	---	---	---	15.0
14	15	---	9.0	---	---	---	14.0	15.0	---	19.0	---	---
15	---	---	---	4.0	7.0	6.0	---	---	---	---	---	16.0
16	17	16	9.0	---	---	---	13.0	---	---	18.0	---	---
17	---	---	---	---	6.0	7.0	---	---	---	---	---	14.0
18	---	13	8.0	5.0	---	---	---	16.0	18.0	---	---	---
19	---	---	---	---	7.0	6.0	14.0	14.0	---	20.0	---	---
20	---	12	---	5.0	---	---	15.0	---	---	---	---	14.0
21	15	---	6.0	---	---	---	---	16.0	19.0	---	---	---
22	---	---	---	5.0	6.0	7.0	---	---	---	---	---	15.0
23	12	13	6.0	---	---	---	15.0	---	20.0	---	---	---
24	---	---	---	---	5.0	8.0	---	17.0	---	---	---	14.0
25	---	15	5.0	5.0	---	---	---	---	19.0	---	---	---
26	16	---	---	---	6.0	7.0	14.0	16.0	---	---	---	---
27	---	12	---	5.0	---	---	---	---	---	---	---	---
28	15	---	8.0	---	---	---	15.0	16.0	19.0	---	---	---
29	---	---	---	6.0	---	8.0	---	---	---	---	---	---
30	16	11	7.0	---	---	---	13.0	---	18.0	---	---	---
31	---	---	---	---	---	7.0	---	17.0	---	---	---	---

SUSPENDED-SEDIMENT WATER YEAR OCTOBER 1998 TO SEPTMEBER 1999

DAY	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)	MEAN CONCEN- TRATION (MG/L)	LOAD (TONS/ DAY)
OCTOBER			NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	20	1250	12	1060	4	337	13	755	11	624	26	2430
2	20	904	12	1060	3	292	13	755	13	772	27	2450
3	18	850	11	990	3	272	11	639	16	1020	29	2520
4	15	628	10	928	3	257	9	522	15	871	30	2390
5	13	456	9	882	3	236	9	522	13	755	29	2110
6	13	456	9	844	2	216	9	547	12	729	29	2060
7	14	567	9	828	2	194	9	571	11	698	29	2020
8	14	545	9	782	2	179	8	497	11	683	29	1730
9	14	640	9	678	2	174	6	373	11	683	29	1860
10	13	640	9	673	4	320	4	248	10	621	28	2230
11	13	624	9	689	9	725	2	124	10	667	28	2500
12	12	612	10	896	11	964	2	122	11	729	28	2340
13	11	579	11	1060	13	1130	1	61	10	709	25	2040
14	10	540	11	1130	15	1310	1	61	8	654	21	1700
15	11	540	11	1180	15	1300	2	122	7	617	18	1400
16	13	477	11	1200	14	1210	2	122	7	699	23	1700
17	13	489	10	1130	10	874	3	182	8	774	24	1780
18	16	953	10	971	7	548	4	243	13	1220	16	1290
19	20	1640	9	878	6	512	4	248	23	2240	17	1680
20	20	1820	9	842	7	520	3	190	28	2620	17	1960
21	18	1600	7	659	8	540	4	265	27	2540	18	2130
22	17	1280	5	457	9	595	5	331	27	2330	18	2200
23	16	1250	3	322	10	486	4	259	27	2100	18	2180
24	17	1400	3	265	9	340	2	130	27	1960	18	2140
25	17	1600	2	218	8	292	1	65	27	1930	18	2110
26	18	1670	3	255	8	292	2	119	28	2100	18	2160
27	13	1180	4	335	9	328	8	443	27	2320	19	2270
28	10	903	4	360	9	352	10	554	27	2450	20	2400
29	11	950	4	362	8	313	11	609	---	---	21	2520
30	11	1010	4	367	7	331	11	624	---	---	21	2530
31	11	1030	---	---	9	474	11	624	---	---	21	2430
TOTAL	---	29083	---	22301	---	15913	---	10927	---	36115	---	65260
APRIL			MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	21	2380	29	6040	35	9100	15	1880	21	3730	21	2400
2	21	2360	29	5810	33	8150	15	1880	22	3900	20	2150
3	19	2330	29	5560	26	6210	15	1850	21	3740	20	2040
4	17	2280	29	5140	22	4840	14	1830	20	3440	19	1990
5	16	2280	29	4830	18	3790	14	1800	20	3110	19	1



Base from U.S. Geological Survey 1:100,000 digital data;
modified by Wisconsin Department of Natural Resources.
Wisconsin Transverse Mercator projection.

UPPER WISCONSIN RIVER BASIN

05391000 WISCONSIN RIVER AT RAINBOW LAKE, NEAR LAKE TOMAHAWK, WI

LOCATION.--Lat 45°49'50", long 89°33'08", in NE 1/4 NE 1/4 sec.36, T.39 N., R.7 E., Oneida County, Hydrologic Unit 07070001, on right bank 500 ft downstream from Gilmore Creek, 0.4 mi downstream from Rainbow Lake, and 2.3 mi northeast of Lake Tomahawk.

DRAINAGE AREA.--757 mi².

PERIOD OF RECORD.--July 1936 to current year. Prior to October 1955, published as "at Rainbow Reservoir, near Lake Tomahawk."

REVISED RECORDS.--WSP 895: 1937(M). WSP 1508: 1944. WDR WI-83-1: Drainage area. WDR WI-80-1: Datum.

GAGE.--Water-stage recorder. Datum of gage is 1,569.05 ft above sea level (levels by Wisconsin Valley Improvement Co.).

REMARKS.--No estimated daily discharges. Record good (see page 13). Flow regulated by Rainbow Lake and 12 smaller reservoirs upstream from station. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	299	339	401	545	590	658	265	377	527	488	558	580
2	297	385	457	543	589	650	269	286	569	506	561	599
3	289	419	542	541	584	639	245	291	572	521	556	599
4	280	420	569	541	574	636	253	297	576	521	547	622
5	280	421	569	541	573	629	256	299	583	557	543	618
6	284	424	567	521	571	621	262	293	749	537	539	644
7	288	426	566	504	570	616	265	294	774	495	539	640
8	292	431	566	505	570	609	267	277	759	511	539	619
9	292	434	566	508	565	603	256	270	726	439	543	604
10	290	394	563	514	561	595	257	284	783	386	542	600
11	291	361	563	521	563	588	265	298	839	396	532	597
12	289	362	564	520	564	579	264	312	863	614	512	606
13	284	365	563	530	562	569	261	320	881	835	547	609
14	284	366	563	536	560	557	255	319	885	871	588	609
15	285	364	554	533	557	547	255	316	802	897	573	600
16	285	361	546	531	554	536	250	321	736	918	515	584
17	284	367	546	526	554	526	247	327	724	896	496	580
18	283	424	548	568	555	514	247	347	706	872	502	575
19	281	461	548	626	554	509	255	351	653	742	489	573
20	281	461	547	626	550	501	261	346	621	836	476	573
21	280	464	547	625	547	491	290	362	617	837	480	573
22	280	467	552	621	546	417	307	361	625	737	484	577
23	318	413	559	616	543	341	307	387	630	668	484	577
24	341	382	565	613	541	322	308	387	626	674	484	569
25	339	387	561	608	540	316	308	384	622	679	468	562
26	353	388	556	607	607	315	304	384	621	714	558	557
27	337	390	555	604	674	314	315	381	606	565	616	554
28	320	392	551	604	662	317	320	456	595	466	622	547
29	326	393	546	599	---	318	311	484	530	466	628	533
30	331	394	545	595	---	275	385	469	488	515	607	519
31	335	---	546	591	---	252	---	466	---	556	568	---
TOTAL	9298	12055	16991	17463	15980	15360	8310	10746	20288	19715	16696	17599
MEAN	300	402	548	563	571	495	277	347	676	636	539	587
MAX	353	467	569	626	674	658	385	484	885	918	628	644
MIN	280	339	401	504	540	252	245	270	488	386	468	519

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1936 - 1999, BY WATER YEAR (WY)

	MEAN	657	698	780	832	825	652	410	710	736	671	590	602
MAX	1445	1250	1178	1108	1161	1044	1330	1798	1863	1387	1472	1282	
(WY)	1952	1939	1955	1943	1952	1939	1973	1973	1939	1968	1938	1980	
MIN	263	170	330	371	417	322	138	173	228	237	243	268	
(WY)	1988	1949	1949	1990	1977	1990	1949	1949	1987	1988	1988	1948	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1936 - 1999

ANNUAL TOTAL	177729	180501	
ANNUAL MEAN	487	495	681
HIGHEST ANNUAL MEAN			1062
LOWEST ANNUAL MEAN			359
HIGHEST DAILY MEAN	1040	918	2820
LOWEST DAILY MEAN	234	245	35
ANNUAL SEVEN-DAY MINIMUM	252	253	107
INSTANTANEOUS PEAK FLOW		937	3570
INSTANTANEOUS PEAK STAGE		3.08	7.59
10 PERCENT EXCEEDS	921	632	1040
50 PERCENT EXCEEDS	413	539	656
90 PERCENT EXCEEDS	297	285	309

WISCONSIN RIVER BASIN
05393500 SPIRIT RIVER AT SPIRIT FALLS, WI

LOCATION.--Lat 45°26'58", long 89°58'47", in NW 1/4 sec.10, T.34 N., R.4 E., Lincoln County, Hydrologic Unit 07070001, on right bank 40 ft downstream of bridge 0.2 mi south of Spirit Falls, 0.6 mi upstream from Squaw Creek, and 2.0 mi downstream from Richie Creek.

DRAINAGE AREA.--81.6 mi².

PERIOD OF RECORD.--April 1942 to current year.

REVISED RECORDS.--WSP 1308: 1943(M), 1948-50(M). WDR WI-77-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,461.63 ft above sea level. Prior to Oct. 4, 1982, nonrecording gage 40 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Oct. 1-17 and ice-affected periods, Nov. 12, 13, 21, 22, and Dec. 7 to Mar. 31. Records good except those for estimated daily discharges, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	21	21	12	14	30	423	20	53	15	148	17
2	20	22	21	12	14	31	360	19	50	14	89	15
3	17	20	21	12	15	29	333	18	43	15	96	14
4	17	19	21	12	14	28	420	16	37	24	145	13
5	16	18	22	12	14	27	483	17	39	21	151	12
6	17	19	26	12	14	27	635	52	112	34	287	13
7	18	19	23	11	14	26	641	535	134	32	275	12
8	18	19	19	11	15	25	440	991	92	37	159	11
9	17	18	19	11	15	25	304	646	65	504	104	11
10	16	32	19	11	16	25	216	346	53	463	100	10
11	16	57	17	11	20	25	168	199	44	212	83	9.5
12	15	38	17	11	25	25	139	139	40	102	69	15
13	15	25	16	11	28	26	115	108	36	68	116	21
14	15	25	15	11	35	28	96	82	30	90	119	19
15	15	26	15	12	39	30	84	64	26	84	83	17
16	15	26	14	12	37	37	74	57	23	60	97	15
17	16	25	14	12	36	41	64	115	21	56	96	14
18	19	24	13	13	34	47	57	465	19	43	74	12
19	22	39	13	12	33	56	51	390	17	36	73	11
20	18	42	13	13	32	70	47	209	17	31	69	14
21	16	28	12	13	31	74	45	299	15	30	52	15
22	15	29	12	13	30	78	43	314	17	29	43	14
23	14	30	12	13	30	98	41	404	18	29	47	13
24	14	29	12	13	29	120	35	558	23	30	48	11
25	18	27	12	13	28	120	32	351	19	24	43	10
26	14	26	12	13	28	130	30	200	16	211	37	9.6
27	14	23	12	13	28	160	29	136	14	269	33	10
28	14	22	12	13	29	200	25	101	14	135	29	13
29	14	21	12	13	---	250	23	76	15	86	25	11
30	17	21	12	14	---	330	21	59	13	64	22	10
31	20	---	12	14	---	370	---	48	---	165	19	---
TOTAL	514	790	491	379	697	2588	5474	7034	1115	3013	2831	392.1
MEAN	16.6	26.3	15.8	12.2	24.9	83.5	182	227	37.2	97.2	91.3	13.1
MAX	22	57	26	14	39	370	641	991	134	504	287	21
MIN	14	18	12	11	14	25	21	16	13	14	19	9.5
CFSM	.20	.32	.19	.15	.31	1.02	2.24	2.78	.46	1.19	1.12	.16
IN.	.23	.36	.22	.17	.32	1.18	2.50	3.21	.51	1.37	1.29	.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1999, BY WATER YEAR (WY)

	MEAN	74.3	75.9	38.3	20.6	19.5	110	322	150	95.5	47.8	36.5	76.2
MAX	306	338	293	71.8	69.8	467	697	408	398	209	359	396	396
(WY)	1986	1992	1976	1960	1984	1946	1951	1973	1943	1968	1995	1942	1942
MIN	4.05	5.31	4.07	3.00	3.61	14.6	55.6	23.0	6.01	4.09	3.13	3.05	3.05
(WY)	1977	1977	1977	1977	1977	1956	1946	1987	1988	1964	1944	1976	1976

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1942 - 1999

ANNUAL TOTAL	20242.6	25318.1	
ANNUAL MEAN	55.5	69.4	88.2
HIGHEST ANNUAL MEAN			140
LOWEST ANNUAL MEAN			36.3
HIGHEST DAILY MEAN	1330	Mar 30	3290
LOWEST DAILY MEAN	3.2	Aug 1-3	1.0
ANNUAL SEVEN-DAY MINIMUM	3.4	Jul 29	1.4
INSTANTANEOUS PEAK FLOW		11	(a) 4180
INSTANTANEOUS PEAK STAGE		1060	May 8
INSTANTANEOUS LOW FLOW		5.15	May 8
ANNUAL RUNOFF (CFSM)	.68	9.1	Sep 26,27
ANNUAL RUNOFF (INCHES)	9.23	.85	1.08
10 PERCENT EXCEEDS	82	11.54	14.69
50 PERCENT EXCEEDS	21	166	216
90 PERCENT EXCEEDS	5.9	25	28
		12	8.2

(a) From rating curve extended above 2,500 ft³/s

LOCATION.--Lat 45°14'09", long 89°38'59", in SW 1/4 SW 1/4 sec. 20, T.32 N., R.7 E., Lincoln County, Hydrologic Unit 07070002, on left bank 40 ft upstream from bridge on County Trunk Highway C, 1.5 mi upstream from Meadow Creek, 4.5 mi northeast of Merrill, and 8.0 mi upstream from mouth.

WATER-DISCHARGE RECORDS

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 8-16, Dec. 18 to Feb. 25, Mar. 2-15, and 19-30. Records good except those for ice-affected periods, which are poor (see page 13). Gage-height telemeter at station.

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	106	103	74	78	99	535	88	146	129	161	89
2	96	101	101	74	78	96	550	87	141	138	127	88
3	91	98	100	74	78	92	507	87	128	174	130	90
4	88	94	98	76	78	90	516	86	115	185	165	86
5	89	94	98	74	76	92	545	105	111	150	162	87
6	98	96	98	74	78	86	633	290	221	131	162	87
7	105	95	97	72	78	84	638	744	366	114	157	85
8	101	93	84	72	80	84	554	964	315	162	144	85
9	94	93	86	72	84	86	436	867	228	877	128	84
10	91	134	88	72	86	86	329	613	170	761	134	84
11	88	193	80	72	98	84	253	411	151	486	130	83
12	87	168	86	72	96	84	214	273	131	291	127	89
13	88	132	80	74	96	84	186	210	120	196	186	89
14	86	128	80	74	100	84	167	172	111	210	205	88
15	86	122	86	74	110	88	154	153	109	248	196	87
16	86	122	84	76	110	93	144	139	108	232	189	85
17	91	118	70	76	98	102	132	177	100	385	180	84
18	139	118	74	76	92	107	126	484	95	411	158	83
19	143	142	80	76	92	100	122	501	92	289	147	87
20	120	168	78	74	94	110	117	394	91	205	135	96
21	108	138	74	76	92	110	118	312	90	185	124	92
22	101	131	74	76	92	120	118	262	87	176	119	90
23	97	124	74	76	90	130	114	353	93	157	126	88
24	96	120	74	76	90	140	110	438	110	143	123	87
25	95	116	76	74	98	156	104	369	112	126	116	86
26	94	112	76	74	99	160	101	298	99	156	112	85
27	94	107	76	72	100	190	99	220	95	161	107	97
28	93	104	76	72	100	250	96	181	107	139	101	102
29	97	104	76	74	---	280	92	154	121	121	97	99
30	114	105	76	74	---	350	89	136	108	115	93	94
31	114	---	76	74	---	461	---	132	---	190	91	---
TOTAL	3072	3576	2579	2296	2541	4178	7899	9700	4071	7443	4332	2656
MEAN	99.1	119	83.2	74.1	90.8	135	263	313	136	240	140	88.5
MAX	143	193	103	76	110	461	638	964	366	877	205	102
MIN	86	93	70	72	76	84	89	86	87	114	91	83
CFSM	.54	.65	.45	.40	.49	.73	1.43	1.70	.74	1.30	.76	.48
IN.	.62	.72	.52	.46	.51	.84	1.60	1.96	.82	1.50	.88	.58

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1999, BY WATER YEAR (WY)

MEAN	168	170	113	92.7	90.4	189	434	258	210	138	133	172
MAX	527	388	199	169	158	676	899	723	598	401	494	656
(WY)	1942	1920	1992	1960	1930	1973	1916	1960	1993	1978	1926	1941
MIN	70.8	76.7	66.1	60.5	65.6	68.2	106	98.8	70.6	68.3	68.1	65.1
(WY)	1990	1951	1990	1925	1959	1956	1990	1931	1988	1989	1957	1989

WISCONSIN RIVER BASIN
05394500 PRAIRIE RIVER NEAR MERRILL, WI--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1914 - 1999
ANNUAL TOTAL	50581	54343	180
ANNUAL MEAN	139	149	272
HIGHEST ANNUAL MEAN			108
LOWEST ANNUAL MEAN			1942
HIGHEST DAILY MEAN	1470 (a) Mar 31	964 May 8	4200 Aug 31 1941
LOWEST DAILY MEAN	68 (b) Jul 31	70 Dec 17	35 Oct 26 1947
ANNUAL SEVEN-DAY MINIMUM	69 Sep 7	(c) 72 Jan 6	52 Dec 28 1948
INSTANTANEOUS PEAK FLOW		986 May 8	(d) 5800 Aug 31 1941
INSTANTANEOUS PEAK STAGE		4.89 May 8	(e) 9.45 Aug 31 1941
INSTANTANEOUS LOW FLOW		(f) 56 Dec 17	34 Oct 26 1947
ANNUAL RUNOFF (CFSM)	.75	.81	.98
ANNUAL RUNOFF (INCHES)	10.23	10.99	13.32
10 PERCENT EXCEEDS	227	276	348
50 PERCENT EXCEEDS	96	101	117
90 PERCENT EXCEEDS	72	76	76

(a) Also occurred Apr. 1

(b) Also occurred Aug. 1 and Sept. 8-10

(c) Ice affected

(d) Based on rating curve extended above 2,200 ft³/s

(e) From floodmarks

(f) Result of freezeup

WATER-QUALITY RECORDS

PERIOD OF RECORD.--

WATER TEMPERATURE: October 1998 to September 1999.

GAGE.--Tipping bucket rain gage with electronic datalogger.

INSTRUMENTATION.--Continuous water temperature recorder since October 1998. Sensor located near midstream.

REMARKS.--Records represent water temperature at sensor within 0.5°C. Record was faulty Dec. 8-14, Dec. 17 to Mar. 1, and Mar. 3-12.

EXTREMES FOR CURRENT PERIOD.--

WATER TEMPERATURE: Maximum 27.0°C, June 26, 1999; minimum, 0.0°C, Mar. 13-15, 19, 20, 22-24, and probably many days in winter when record was faulty.

TEMPERATURE, WATER (DEG C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	11.0	8.0	9.5	10.0	7.5	8.5	6.0	4.0	5.5	---	---	---
2	9.5	6.5	8.0	7.5	4.5	6.5	6.5	4.5	5.5	---	---	---
3	11.0	7.5	9.0	6.0	4.0	4.5	8.0	6.0	7.0	---	---	---
4	11.5	7.5	9.5	4.0	3.5	3.5	6.0	4.5	5.5	---	---	---
5	10.5	9.5	10.0	3.5	3.0	3.5	7.5	6.0	6.5	---	---	---
6	12.0	10.5	11.5	4.5	2.5	3.5	7.5	4.5	6.5	---	---	---
7	11.5	10.0	11.0	4.5	3.5	4.0	4.5	1.0	2.5	---	---	---
8	12.0	8.0	10.0	5.5	4.0	4.5	---	---	---	---	---	---
9	11.5	7.0	9.5	5.5	4.0	4.5	---	---	---	---	---	---
10	12.5	8.0	10.0	6.0	3.5	5.0	---	---	---	---	---	---
11	12.5	8.5	10.5	3.5	2.0	3.0	---	---	---	---	---	---
12	11.5	9.5	11.0	2.0	.5	1.5	---	---	---	---	---	---
13	9.5	7.5	8.5	2.5	.5	1.5	---	---	---	---	---	---
14	10.0	7.0	8.0	3.5	2.0	3.0	---	---	---	---	---	---
15	10.0	7.0	8.5	3.5	2.5	3.0	2.5	1.0	1.5	---	---	---
16	12.5	8.5	11.0	3.5	2.5	3.0	2.0	1.0	1.5	---	---	---
17	15.0	12.5	14.0	4.0	3.0	3.5	---	---	---	---	---	---
18	14.0	9.0	11.5	5.0	3.5	4.0	---	---	---	---	---	---
19	10.0	7.0	8.5	5.5	2.5	4.0	---	---	---	---	---	---
20	9.0	7.0	8.0	2.5	1.5	2.0	---	---	---	---	---	---
21	8.0	5.5	7.0	1.5	.5	1.0	---	---	---	---	---	---
22	7.5	3.5	5.5	3.0	1.0	2.0	---	---	---	---	---	---
23	9.5	5.0	7.0	5.0	3.0	4.0	---	---	---	---	---	---
24	10.5	6.0	8.5	4.0	2.5	3.5	---	---	---	---	---	---
25	10.0	8.5	9.5	5.5	4.0	4.5	---	---	---	---	---	---
26	12.5	9.0	10.5	4.5	3.0	4.0	---	---	---	---	---	---
27	10.5	9.5	10.0	4.0	2.0	3.0	---	---	---	---	---	---
28	10.5	7.5	9.0	5.0	2.0	3.5	---	---	---	---	---	---
29	8.5	6.5	7.5	8.5	5.0	6.5	---	---	---	---	---	---
30	9.5	8.5	9.0	9.0	6.0	8.0	---	---	---	---	---	---
31	10.0	9.0	9.5	---	---	---	---	---	---	---	---	---
MONTH	15.0	3.5	9.4	10.0	.5	3.9	---	---	---	---	---	---

WISCONSIN RIVER BASIN
05394500 PRAIRIE RIVER NEAR MERRILL, WI--CONTINUED

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	---	---	---	7.0	5.0	6.0	20.0	11.5	16.0
2	---	---	---	1.0	.5	.5	9.0	5.5	7.0	20.0	12.0	16.0
3	---	---	---	---	---	---	8.5	6.5	7.5	18.5	12.5	16.0
4	---	---	---	---	---	---	6.5	5.5	6.0	20.0	13.0	16.5
5	---	---	---	---	---	---	6.0	4.5	5.0	17.0	13.0	15.0
6	---	---	---	---	---	---	5.0	4.0	4.5	13.0	12.0	12.5
7	---	---	---	---	---	---	6.0	3.0	4.5	12.0	10.5	11.0
8	---	---	---	---	---	---	8.0	4.5	6.5	11.5	10.0	11.0
9	---	---	---	---	---	---	9.5	6.0	8.0	14.0	9.0	11.5
10	---	---	---	---	---	---	8.5	5.5	7.0	15.0	11.5	13.5
11	---	---	---	---	---	---	6.5	5.5	6.0	15.5	12.5	14.0
12	---	---	---	---	---	---	10.0	4.5	7.0	14.5	12.5	13.5
13	---	---	---	3.5	.0	1.5	12.0	6.0	9.0	17.0	11.5	14.0
14	---	---	---	4.0	.0	2.0	13.0	7.5	10.5	18.0	11.5	15.0
15	---	---	---	5.5	.0	3.0	11.0	9.5	10.5	16.0	13.5	15.0
16	---	---	---	6.5	1.0	3.5	13.5	8.5	10.5	16.5	14.0	15.0
17	---	---	---	4.0	1.5	3.0	10.5	8.0	9.0	16.5	15.0	15.5
18	---	---	---	3.5	.5	2.0	8.0	6.0	7.5	16.5	14.0	15.0
19	---	---	---	5.5	.0	2.5	8.5	5.5	7.0	16.5	13.0	15.0
20	---	---	---	5.0	.0	3.0	8.5	5.5	7.0	16.0	15.0	15.5
21	---	---	---	5.0	1.0	3.0	9.0	7.0	8.0	17.5	14.5	15.5
22	---	---	---	4.5	.0	2.5	8.0	5.5	6.5	19.0	14.5	16.5
23	---	---	---	6.0	.0	3.0	12.0	4.5	7.5	17.0	13.0	15.0
24	---	---	---	5.0	.0	2.5	14.0	6.0	10.0	13.0	11.0	12.0
25	---	---	---	5.5	.5	3.0	16.0	8.0	12.0	11.5	10.0	11.0
26	---	---	---	6.5	1.0	4.0	17.0	9.0	13.0	15.5	9.0	12.5
27	---	---	---	6.5	1.5	4.0	16.0	10.5	13.0	18.5	12.0	15.5
28	---	---	---	4.0	1.5	2.5	17.0	9.5	13.0	21.5	14.5	18.0
29	---	---	---	5.5	1.0	3.0	18.0	9.5	13.5	23.0	16.5	19.5
30	---	---	---	5.5	1.5	3.5	19.0	10.5	15.0	23.0	17.0	20.0
31	---	---	---	7.5	3.0	5.0	---	---	---	20.0	17.0	18.5
MONTH	---	---	---	---	---	---	19.0	3.0	8.6	23.0	9.0	14.9
	JUNE			JULY			AUGUST			SEPTEMBER		
1	17.0	14.0	15.0	20.0	15.5	18.0	22.5	19.0	21.0	21.0	15.0	18.0
2	19.0	13.5	16.0	22.0	16.0	19.0	22.0	17.0	19.5	21.5	16.5	19.0
3	20.0	13.0	16.5	20.5	18.5	19.5	19.5	17.5	18.5	23.0	18.0	20.5
4	18.0	14.5	16.5	25.0	19.0	22.0	19.5	16.0	17.5	23.5	19.0	21.0
5	21.0	15.5	18.0	24.5	21.5	23.0	20.5	15.5	18.0	21.0	17.0	19.0
6	22.5	18.0	20.0	24.5	19.5	22.0	19.5	15.5	17.0	19.5	14.0	16.5
7	21.5	19.0	20.5	24.0	18.0	21.0	17.5	15.5	16.5	20.0	14.0	17.0
8	22.5	18.0	20.5	23.5	17.5	19.0	18.5	14.0	16.0	20.0	16.5	18.0
9	23.5	19.5	21.5	20.5	17.0	18.5	16.0	14.0	15.0	17.0	13.5	15.0
10	23.5	19.5	21.5	18.5	16.0	17.5	18.0	15.0	16.0	14.5	12.5	13.5
11	23.5	20.0	21.5	18.5	15.0	16.5	19.5	14.5	17.0	16.0	10.5	13.5
12	21.5	19.0	20.0	20.5	15.5	18.0	17.5	16.0	16.5	15.0	13.0	14.0
13	21.5	17.0	19.0	18.5	16.5	17.5	18.0	15.0	17.0	14.0	11.0	12.5
14	19.5	15.0	17.5	19.0	16.0	17.5	19.5	13.5	16.0	13.0	10.5	12.0
15	16.5	11.5	14.0	23.0	17.0	20.0	20.0	14.0	16.5	14.0	10.0	12.0
16	17.5	13.5	15.5	23.0	20.0	21.5	21.0	16.5	18.5	15.0	9.5	12.0
17	19.0	11.5	15.5	22.5	19.0	20.5	19.5	17.5	18.5	15.5	9.5	12.5
18	19.5	13.0	16.5	21.0	19.0	20.0	18.0	16.0	17.0	16.0	10.5	13.0
19	19.0	15.0	17.0	21.5	19.0	20.0	18.5	15.5	17.0	13.5	11.5	12.5
20	20.0	15.5	17.5	20.0	18.0	19.0	19.5	15.0	17.5	13.0	10.5	11.5
21	23.0	15.5	19.0	20.0	17.5	18.5	20.5	15.5	18.0	12.5	7.5	10.0
22	24.0	18.0	21.0	22.5	17.0	20.0	18.5	16.5	17.0	14.0	8.0	11.0
23	21.5	18.5	20.0	24.0	19.0	21.5	16.5	16.0	16.5	14.5	11.0	12.5
24	24.5	17.5	21.0	25.0	19.5	22.0	20.5	15.5	18.0	14.0	9.0	11.5
25	25.0	18.5	22.0	24.5	18.5	22.0	22.0	16.5	19.0	13.5	8.5	11.0
26	27.0	19.0	23.0	24.5	20.5	22.0	22.5	17.0	20.0	14.0	11.5	13.0
27	26.0	20.5	23.0	23.5	18.5	21.0	23.0	18.0	20.5	13.5	12.0	13.0
28	21.0	16.5	19.0	24.5	19.0	22.0	22.0	18.0	19.5	12.5	10.0	11.5
29	20.5	14.5	17.5	25.5	20.0	22.5	20.0	15.0	17.5	12.0	8.0	10.0
30	17.5	15.0	16.5	26.5	19.5	23.0	17.5	13.5	15.5	13.0	8.5	10.5
31	---	---	---	26.0	21.5	23.5	19.5	14.0	16.5	---	---	---
MONTH	27.0	11.5	18.7	26.5	15.0	20.3	23.0	13.5	17.6	23.5	7.5	13.9

WISCONSIN RIVER BASIN
05395000 WISCONSIN RIVER AT MERRILL, WI

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LOCATION.--Lat 45°10'41", long 89°40'52", on line between secs.12 and 13, T.31 N., R.6 E., Lincoln County, Hydrologic Unit 07070002, on left bank 300 ft downstream from U.S. Highway 51 bridge at east end of Merrill, and 0.5 mi downstream from Prairie River.

DRAINAGE AREA.--2,760 mi².

PERIOD OF RECORD.--November 1902 to current year.

REVISED RECORDS.--WSP 1308: 1904-7, 1909-11, 1913. WSP 1508: 1908, 1915-16(M), 1917, 1920-21(M), 1925(M), 1930, 1935-36. WDR WI-77-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,228.85 ft above sea level. Prior to June 18, 1903, nonrecording gage at different datum. June 18, 1903, to Sept. 10, 1914, non recording gage at present datum.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 20 to Mar. 15 and Mar. 17. Records good except for ice-affected periods, which are fair (see page 13). Flow regulated by 20 reservoirs and 9 powerplants upstream from station. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1010	988	1030	1300	1600	2000	4060	1360	1980	1650	2270	1770
2	801	1110	955	1200	1900	1800	4250	1210	1940	1590	2080	1800
3	850	999	1020	1100	1800	1700	4020	1190	1820	2100	2310	2030
4	1030	841	1020	1400	1700	1900	4260	1090	1650	1960	2470	1730
5	791	848	1280	1200	1500	1900	4690	1250	1910	1870	2480	1900
6	873	829	1250	1300	1400	1800	5750	2910	2820	2010	2490	1900
7	1020	820	1170	1300	1500	1700	6450	5910	3490	1760	2520	2070
8	1050	810	1260	1300	1400	1600	6310	8470	2920	2070	2290	1920
9	890	850	1420	1200	1400	1600	4460	8280	2590	5540	1700	1910
10	802	1800	983	1100	1600	1600	3150	6030	2630	5120	2180	1920
11	781	1530	788	1200	1800	1600	3000	3890	2570	4450	2200	1940
12	723	1590	1210	1400	1500	1700	2810	2850	2090	2910	2310	1960
13	912	1040	1140	1500	1400	1800	2510	2230	2250	2690	2450	1950
14	978	1010	1040	1300	1300	1800	2180	2340	2250	2740	2190	1910
15	950	940	1080	1200	1600	1700	1680	2020	1430	2860	2110	1920
16	769	1130	1140	1200	1900	1630	1440	1370	2090	2400	2310	1940
17	1070	1250	1190	1400	1900	1700	1580	1800	2110	3050	2170	2130
18	1100	1060	1140	1500	1900	1630	1690	3990	1950	3310	1950	1950
19	983	1230	1010	1500	1700	1620	1440	4420	1550	2500	2040	2010
20	825	1560	960	1600	1700	1570	1400	3750	1710	1830	2250	2000
21	795	1260	900	1700	1700	1750	1400	2990	1980	2670	2040	1800
22	775	955	1100	1700	1700	2130	1610	3170	1910	2390	1990	1880
23	772	1010	1200	1600	1600	2230	1610	4410	1790	1710	1980	1910
24	719	1420	1100	1500	1600	1800	1270	5280	1820	2040	2070	1830
25	808	1410	1100	1300	1400	1450	1200	5110	1830	2060	1990	1760
26	882	1240	1300	1400	1600	1630	1260	3700	1690	3310	1850	1630
27	959	982	1200	1500	2000	2140	1670	3280	1790	3130	1880	1830
28	953	1020	1300	1400	2000	2310	1170	2330	2080	2230	1960	2270
29	836	1250	1400	1500	---	2540	1170	2300	2060	1820	1820	1890
30	1250	1010	1400	1400	---	2950	1330	2180	1710	2210	2170	1810
31	1160	---	1400	1400	---	3450	---	2090	---	2690	1940	---
TOTAL	28117	33792	35486	42600	46100	58730	80820	103200	62410	80670	66460	57270
MEAN	907	1126	1145	1374	1646	1895	2694	3329	2080	2602	2144	1909
MAX	1250	1800	1420	1700	2000	3450	6450	8470	3490	5540	2520	2270
MIN	719	810	788	1100	1300	1450	1170	1090	1430	1590	1700	1630

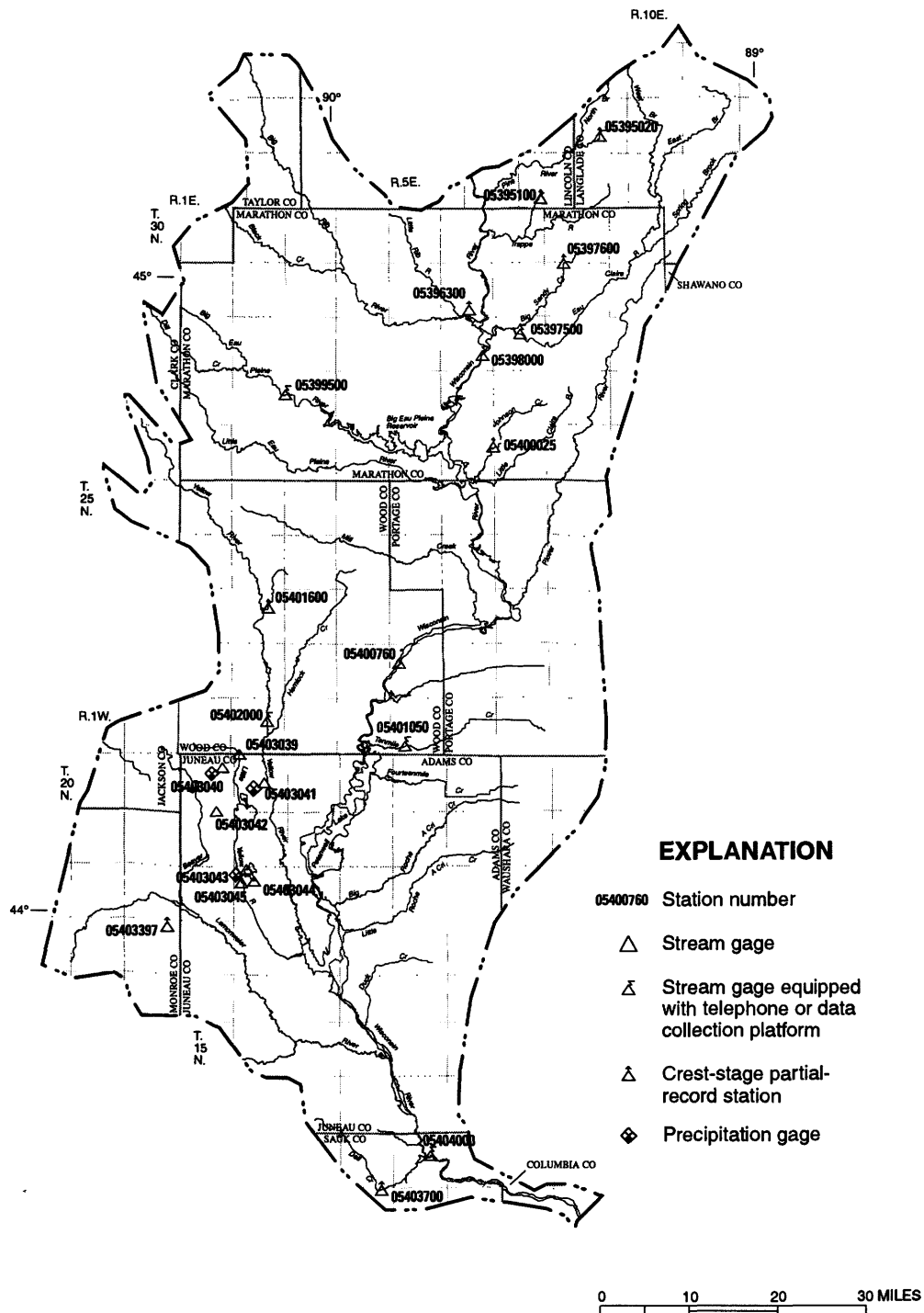
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1903 - 1999, BY WATER YEAR (WY)

	MEAN	2551	2409	2090	1991	1937	2602	4727	3673	3105	2347	2087	2545
MAX	8654	4632	3887	3138	3063	6275	11500	8931	9923	5862	5451	9069	
(WY)	1912	1939	1992	1939	1932	1935	1916	1904	1905	1968	1912	1903	
MIN	760	775	830	820	820	980	1348	1082	810	724	719	873	
(WY)	1977	1977	1911	1911	1911	1909	1990	1987	1988	1988	1934	1987	

SUMMARY STATISTICS FOR 1998 CALENDAR YEAR FOR 1999 WATER YEAR WATER YEARS 1903 - 1999

	ANNUAL TOTAL	665555	695655	
ANNUAL MEAN	1823		1906	2658
HIGHEST ANNUAL MEAN				4558
LOWEST ANNUAL MEAN				1348
HIGHEST DAILY MEAN	12400	Apr 1	8470	May 8
LOWEST DAILY MEAN	631	Sep 16	719	Oct 24
ANNUAL SEVEN-DAY MINIMUM	794	Sep 19	797	Oct 20
INSTANTANEOUS PEAK FLOW			9440	May 9
INSTANTANEOUS PEAK STAGE			8.72	May 9
10 PERCENT EXCEEDS	2600		2930	
50 PERCENT EXCEEDS	1530		1700	
90 PERCENT EXCEEDS	856		983	

(a) From rating curve extended above 20,000 ft³/s



Base from U.S. Geological Survey 1:100,000 digital data;
modified by Wisconsin Department of Natural Resources.
Wisconsin Transverse Mercator projection.

CENTRAL WISCONSIN RIVER BASIN

WISCONSIN RIVER BASIN
05397500 EAU CLAIRE RIVER AT KELLY, WI

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LOCATION.--Lat 44°55'06", long 89°33'00", on line between secs.9 and 10, T.28 N., R.8 E., Marathon County, Hydrologic Unit 07070002, on right bank 50 ft downstream from County Highway SS bridge, 0.7 mi northeast of Kelly, 1.3 mi upstream from Big Sandy Creek, 4.5 mi upstream from mouth, and 5.0 mi southeast of Wausau.

DRAINAGE AREA.--375 mi².

PERIOD OF RECORD.--January 1914 to November 1926, August 1939 to current year.

REVISED RECORDS.--WSP 1508: 1915, 1916-17(M), 1919-26(M), 1940(M), 1945(M), 1950(M). WDR WI-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,177.88 ft above sea level. Prior to Sept. 17, 1953, nonrecording gage at site 50 ft upstream at datum 1.00 ft higher.

REMARKS.--Estimated daily discharges: Ice-affected periods, Nov. 19-23 and Dec. 8 to Mar. 29. Records good except those for ice-affected periods, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	111	118	112	58	62	120	880	99	134	115	261	90
2	100	106	112	56	64	120	815	96	130	132	298	85
3	87	97	109	54	66	110	798	91	124	167	220	83
4	81	91	110	56	66	110	867	89	115	197	204	81
5	77	88	107	54	64	110	907	93	109	186	234	79
6	82	86	105	52	66	100	1050	147	126	162	250	78
7	87	84	102	50	66	100	1050	878	212	145	224	76
8	90	83	94	50	68	100	945	1400	255	126	216	75
9	86	83	88	50	70	100	760	1190	192	661	175	73
10	81	115	98	50	74	100	557	981	153	1300	155	73
11	77	229	100	50	84	110	435	609	139	1500	152	72
12	75	254	98	52	96	120	363	407	132	796	149	75
13	72	192	100	52	120	120	310	311	130	379	199	76
14	71	166	110	52	140	130	269	254	118	270	281	79
15	71	157	96	52	170	140	241	213	109	252	271	77
16	71	152	90	54	160	150	217	189	105	281	212	74
17	73	147	82	54	150	170	195	224	101	556	195	72
18	114	142	88	54	160	180	173	326	99	641	182	70
19	142	150	82	54	150	200	158	379	95	870	163	70
20	130	170	78	54	140	230	152	362	91	537	150	70
21	106	170	66	54	140	300	147	314	87	355	138	81
22	94	160	62	56	130	290	165	315	83	313	129	75
23	88	150	62	56	130	280	262	343	84	290	136	71
24	86	146	62	56	120	350	198	408	93	257	146	70
25	83	139	62	54	120	350	159	397	121	220	142	68
26	81	132	62	54	120	420	143	318	112	196	130	67
27	84	125	62	54	120	480	133	258	92	186	120	74
28	95	120	64	56	110	580	124	203	87	188	112	78
29	100	114	66	56	---	700	112	175	97	162	103	85
30	109	113	62	58	---	786	104	155	103	144	97	81
31	122	---	60	60	---	842	---	141	---	178	94	---
TOTAL	2826	4079	2651	1672	3026	7998	12689	11365	3628	11762	5538	2278
MEAN	91.2	136	85.5	53.9	108	258	423	367	121	379	179	75.9
MAX	142	254	112	60	170	842	1050	1400	255	1500	298	90
MIN	71	83	60	50	62	100	104	89	83	115	94	67
CFM	.24	.36	.23	.14	.29	.69	1.13	.98	.32	1.01	.48	.20
IN.	.28	.40	.26	.17	.30	.79	1.26	1.13	.36	1.17	.55	.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1999, BY WATER YEAR (WY)

	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925
MEAN	208	235	139	91.0	88.3	352	745	364	298	162	153	207
MAX	900	784	650	217	227	1456	1672	1146	1119	691	789	1095
(WY)	1942	1920	1966	1946	1981	1973	1922	1960	1943	1978	1926	1941
MIN	46.9	68.6	48.2	31.5	41.0	51.1	149	94.4	52.8	64.6	51.9	48.5
(WY)	1949	1977	1926	1926	1957	1956	1990	1977	1988	1989	1948	1989

WISCONSIN RIVER BASIN
05397500 EAU CLAIRE RIVER AT KELLY, WI--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1914 - 1999	
ANNUAL TOTAL	65507		69512		253	
ANNUAL MEAN	179		190		440	1942
HIGHEST ANNUAL MEAN					131	1925
LOWEST ANNUAL MEAN					7180	Aug 21 1926
HIGHEST DAILY MEAN	2090	Apr 1	1500	Jul 11	(a) 25	(b) Jan 6 1926
LOWEST DAILY MEAN	56	Aug 2,3	(a) 50	Jan 7-11	(a) 26	Jan 10 1926
ANNUAL SEVEN-DAY MINIMUM	57	Jul 28	(a) 51	Jan 6	(c) 8300	Aug 21 1926
INSTANTANEOUS PEAK FLOW			1610	Jul 11	(d) 10.14	Mar 24 1991
INSTANTANEOUS PEAK STAGE			4.22	Jul 11	(e) 8.0	Jul 17 1944
INSTANTANEOUS LOW FLOW					.67	
ANNUAL RUNOFF (CFSM)	.48		.51		9.16	
ANNUAL RUNOFF (INCHES)	6.50		6.90		536	
10 PERCENT EXCEEDS	342		362		130	
50 PERCENT EXCEEDS	99		118		60	
90 PERCENT EXCEEDS	60		62			

(a) Ice affected

(b) Also occurred Jan. 10-15, 17, 18, 1926, ice affected, and Oct. 3, 1948

(c) From rating curve extended above 6,000 ft³/s, gage height, 8.4 ft, from graph based on gage readings

(d) Ice jam

(e) Probably result of temporary regulation

05398000 WISCONSIN RIVER AT ROTHSCILD, WI

LOCATION.--Lat 44°53'09", long 89°38'05", in sec.26, T.28 N., R.7 E., Marathon County, Hydrologic Unit 07070002, on left bank at Rothschild, 0.5 mi downstream from Rothschild Dam, 1.7 mi north of bridge on U.S. Highway 51, 2.0 mi downstream from Eau Claire River, and 5.0 mi upstream from Black Creek.

DRAINAGE AREA.--4,020 mi².

PERIOD OF RECORD.--October 1944 to current year.

REVISED RECORDS.--WDR WI-77-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,125.86 ft above sea level. Prior to Oct. 1, 1975, at datum 10.00 ft higher. Auxiliary water-stage recorder in Mosinee Pond 8 mi downstream. Prior to July 23, 1964, nonrecording auxiliary gage at same site and datum, read hourly.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 23 to Mar. 1. Records good except those for ice-affected period, which is fair (see page 13). Flow regulated by 20 reservoirs and 12 powerplants upstream from station. Gage-height telemeter at station.

EXTREMES OUTSIDE THE PERIOD OF RECORD.--Flood of Sept. 1, 1941, reached stage of 22.3 ft, datum then in use, from tailwater data at Rothschild dam, discharge, 75,000 ft³/s from rating curve extended above 45,000 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1320	1280	1210	1400	1400	2100	7330	1470	2080	1640	4550	2020
2	1190	1170	1240	1400	1700	2190	7350	1290	2040	1730	3300	2020
3	1100	1310	1260	1300	1900	1970	6610	1170	2000	3130	3250	2060
4	1180	1060	1200	1300	1600	2000	7740	1180	1620	3560	3620	2190
5	1130	1010	1370	1400	1600	2140	9170	1560	1890	2650	3720	2020
6	1120	1050	1520	1300	1400	2070	10600	3890	2790	2420	3830	2070
7	1380	1070	1330	1400	1600	1950	12600	10600	3890	1990	3560	2140
8	1560	1070	1360	1300	1600	1570	10800	16400	3470	2140	3290	2250
9	1480	1120	1640	1300	1500	1850	8080	14700	2990	9600	2590	1980
10	1170	2210	1290	1400	1500	1890	5790	10300	2920	11200	2610	2120
11	1030	2930	1050	1300	1700	1760	4650	6490	2770	8590	2820	2120
12	993	2490	1240	1300	2200	1780	4550	4640	2390	5550	2890	2200
13	1040	1820	1170	1600	2000	1800	3970	3550	2310	4050	3730	2200
14	1210	1460	1350	1500	1900	1870	3420	2830	2100	3660	3790	2140
15	1050	1460	1150	1400	1900	1860	2910	2840	1620	4050	3100	2100
16	1120	1300	1450	1200	2000	1810	1820	1790	1780	3890	3160	2060
17	1200	1830	1140	1000	2300	2280	2020	2140	2130	7380	3170	2310
18	1550	1320	1340	1400	2200	2660	2400	4450	2020	6610	2690	2210
19	1530	1470	1150	1200	2200	2950	1850	6300	1420	4980	2620	2260
20	1240	2140	1150	1300	2000	3170	1980	5210	1720	3460	2840	2210
21	1070	1840	987	1500	1900	3990	1670	3950	1630	3740	2730	2070
22	1110	1480	1030	1500	1700	4250	2130	4110	1920	3670	2460	1970
23	1040	1440	1300	1700	1800	4420	2640	5320	2040	3220	2630	2040
24	963	1560	1300	1600	1900	4470	2140	6960	1870	2760	2940	2010
25	993	1790	1200	1500	1700	4020	1700	6750	1730	2620	2830	1910
26	1050	1430	1300	1400	1600	3880	1540	4950	1790	3660	2530	1850
27	1200	1230	1300	1400	1800	4630	1690	4210	1520	4610	2340	1790
28	1320	1200	1300	1400	2000	5450	1480	2930	1990	3710	2320	2470
29	1170	1560	1200	1400	---	5900	1450	2680	2120	2630	2100	2270
30	1290	1290	1400	1500	---	6180	1420	2630	1870	2640	2270	1940
31	1580	---	1500	1400	---	6770	---	2280	---	4100	2360	---
TOTAL	37379	45390	39427	43000	50600	95630	133500	149570	64430	129640	92640	63000
MEAN	1206	1513	1272	1387	1807	3085	4450	4825	2148	4182	2988	2100
MAX	1580	2930	1640	1700	2300	6770	12600	16400	3890	11200	4550	2470
MIN	963	1010	987	1000	1400	1570	1420	1170	1420	1640	2100	1790

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1999, BY WATER YEAR (WY)

	MEAN	3263	3311	2729	2468	2392	4210	7478	4628	3805	2817	2461	3154
MAX	10020	7262	5484	3787	4051	13300	14640	13930	11920	7219	6973	9079	
(WY)	1986	1986	1992	1973	1984	1973	1967	1960	1993	1978	1995	1980	
MIN	837	863	973	1025	1024	1613	2081	1515	924	933	932	1000	
(WY)	1949	1977	1977	1990	1977	1956	1990	1987	1988	1988	1988	1989	

WISCONSIN RIVER BASIN
05398000 WISCONSIN RIVER AT ROTHSCHILD, WI--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1945 - 1999	
ANNUAL TOTAL	948325		944206		3559	
ANNUAL MEAN	2598		2587		5953	
HIGHEST ANNUAL MEAN					1686	
LOWEST ANNUAL MEAN					44500	
HIGHEST DAILY MEAN	23400	Apr 1	16400	May 8	Mar 31 1967	
LOWEST DAILY MEAN	916	Sep 11	963	Oct 24	Jun 16 1988	
ANNUAL SEVEN-DAY MINIMUM	993	Sep 19	1060	Oct 21	Nov 28 1976	
INSTANTANEOUS PEAK FLOW			18400	May 8	49200 (a) Apr 12 1965	
INSTANTANEOUS PEAK STAGE			21.04	May 8	(b) 18.46 (a) Apr 12 1965	
INSTANTANEOUS LOW FLOW					575 Jun 16 1988	
10 PERCENT EXCEEDS	4300		4570		6550	
50 PERCENT EXCEEDS	1790		1950		2600	
90 PERCENT EXCEEDS	1070		1200		1490	

(a) Also occurred Mar. 31, 1967

(b) Datum then in use

MEAN	110	131	47.2	20.0	31.9	416	591	232	208	78.1	71.9	160
MAX	728	695	446	138	372	1202	1551	1016	1203	642	371	1572
(WY)	1942	1992	1966	1973	1984	1976	1951	1973	1980	1978	1978	1938
MIN	2.26	4.34	2.50	.40	.51	8.77	51.7	15.8	5.16	2.71	2.58	1.50
(WY)	1954	1954	1990	1977	1977	1956	1946	1977	1988	1988	1937	1953

WISCONSIN RIVER BASIN
05399500 BIG EAU PLEINE RIVER NEAR STRATFORD, WI--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1914 - 1999	
ANNUAL TOTAL	43882.7		38932.6		176	
ANNUAL MEAN	120		107		355	1980
HIGHEST ANNUAL MEAN					47.6	1977
LOWEST ANNUAL MEAN					26100	Sep 9 1938
HIGHEST DAILY MEAN	3300	Apr 1	2220	Apr 6	(a) .00	(b) Jan 22 1961
LOWEST DAILY MEAN	2.4	Sep 19	5.9	Sep 25	(a) .00	Jan 22 1961
ANNUAL SEVEN-DAY MINIMUM	2.8	Sep 13	6.8	Sep 19	(c) 41000	Sep 9 1938
INSTANTANEOUS PEAK FLOW			4030	Jul 16	(d) 24.50	Sep 9 1938
INSTANTANEOUS PEAK STAGE			11.17	Jul 16	(e) Aug 17 1947	
INSTANTANEOUS LOW FLOW			5.7	Sep 24,25		
ANNUAL RUNOFF (CFSM)	.54		.48		10.65	
ANNUAL RUNOFF (INCHES)	7.29		6.47		370	
10 PERCENT EXCEEDS	191		264		25	
50 PERCENT EXCEEDS	23		35		4.7	
90 PERCENT EXCEEDS	7.0		14			

(a) Occurred during ice-affected period

(b) Also occurred Jan. 23 to Feb. 5, 1961

(c) Based on rating curve extended above 24,000 ft³/s

(d) From floodmarks

(e) Also occurred Jan. 22 to Feb. 5, 1961, ice-affected period

LOCATION.--Lat 44°23'41", long 89°49'31", in SW 1/4 sec.8, T.22 N., R.6 E., Wood County, Hydrologic Unit 07070003, at Consolidated Water Power Company, 0.2 mi upstream from U.S. Highway 13 bridge in Wisconsin Rapids.

PERIOD OF RECORD.--May 1914 to March 1950 published as Wisconsin River near Nekoosa (05400980), October 1957 to current year.
October 1957 to September 1981, published under station number 05400800 with same name.

GAGE.--Water-stage recorders on headwater and tailwater. Elevation of powerplant pond is 1,010 ft and datum of powerplant gages is 0.00 ft above sea level (levels by Wisconsin Valley Improvement Co.). May 1914 to March 1950, at site 9.6 mi downstream at different datum. March 1950 to Sept. 30, 1981, at Centralia Powerplant at Nekoosa Papers, Inc., 2.6 mi downstream. March 1950 to Dec. 31, 1973, datum was 887.83 ft above sea level. Jan. 1, 1974, changed to present datum.

REMARKS.--No estimated daily discharges. Discharge computed from powerplant records on basis of load-discharge rating of hydroelectric units as developed by manufacturer and tainter-gate ratings based on theoretical formulas. Flow regulated by 22 reservoirs and many powerplants upstream from station. Water diverted periodically from pond of Wisconsin Rapids powerplant into Cranberry Creek, a tributary of Yellow River, for cranberry culture. Mean monthly diversions, in cubic feet per second, for water year October 1998 to September 1999 were as follows: October, 23.7; December, 6.8; January, 71.8; and September, 26.2.

COOPERATION.--Figures of daily discharges were provided by Consolidated Water Power Company and Wisconsin Valley Improvement Company. Records were reviewed by the Geological Survey.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	961	2040	1770	2210	1960	2620	7780	2220	3220	3320	4610	3280
2	917	1400	1340	2160	1970	2530	7990	2230	2870	2450	2620	2270
3	899	1350	1480	1870	2210	2840	8220	2470	2340	4290	4070	2160
4	1070	1480	1580	1230	2510	2810	8170	2180	2110	5380	3890	2440
5	1230	1380	1430	1190	2480	2430	10200	2200	2480	3470	3440	2840
6	1090	1120	1690	1130	2430	3190	14400	6200	3020	3600	3610	2900
7	1390	1280	1390	1690	2070	2520	13700	12700	3620	3000	3150	2920
8	1010	1060	1480	1900	2020	2500	14400	19000	4360	3340	3770	3160
9	1290	1290	1490	1610	2180	2300	11600	21300	4230	10100	3230	2600
10	1970	1930	1950	1380	2240	2440	7520	15200	3100	12500	2880	2150
11	905	3250	1220	1170	2580	2890	8180	9410	3160	10900	2980	2620
12	1100	3220	1340	1150	2830	2420	6950	7700	3020	6810	2670	2770
13	1310	2860	1410	1320	2760	2310	6810	4810	2640	5020	3410	2910
14	953	2650	1190	1380	2560	2420	6840	4520	2630	4460	3080	2660
15	988	1440	1390	1730	2340	2480	5700	4270	2640	4300	2790	2430
16	1020	1590	1460	1460	2490	2720	2710	3720	2330	5160	3860	2500
17	1220	1620	1250	1310	2920	2690	2910	3780	2140	9020	3690	2600
18	2060	1500	1150	1300	3200	3340	3320	5980	2300	8820	3560	2640
19	1610	1380	1530	2050	3340	3130	3430	7870	2460	6740	3020	2710
20	1890	1330	1380	2130	2730	3640	2980	6430	2390	6820	2900	2830
21	1210	2380	1570	1460	2670	4390	2970	6430	2720	5290	2860	2760
22	1010	2230	1470	1550	2560	4800	3480	4000	2500	5280	2690	2550
23	1330	1430	976	2710	2280	5530	4520	6870	2590	4870	2750	2580
24	1650	1620	1020	2660	2520	5340	4460	8280	3110	3940	3410	2180
25	1820	1740	1400	2000	2960	4550	4460	9030	3230	3870	3000	2220
26	1620	2390	1400	1610	2200	4400	3280	6210	2450	4890	2980	2580
27	1570	1350	1550	2180	2090	4930	3030	4160	2400	5080	2890	2780
28	2190	1210	1660	2120	2510	4720	3460	4630	2880	3690	2940	2870
29	1510	1380	1760	2370	---	6380	2440	2890	3550	3970	2950	2890
30	1330	2190	1760	2260	---	6430	2260	3220	1820	3380	2500	2480
31	1790	---	2190	1950	---	7530	---	3220	---	3300	2760	---
TOTAL	41913	53090	45676	54240	69610	113220	188170	203130	84310	167060	98960	79280
MEAN	1352	1770	1473	1750	2486	3652	6272	6553	2810	5389	3192	2643
MAX	2190	3250	2190	2710	3340	7530	14400	21300	4360	12500	4610	3280
MIN	899	1060	976	1130	1960	2300	2260	2180	1820	2450	2500	2150

MEAN	4134	4402	3319	3052	3163	6406	11020	6912	6044	3559	3141	4329
MAX	13070	10270	7928	5589	6368	19180	25940	19730	19560	10820	9199	17670
(WY)	1987	1920	1966	1973	1984	1973	1922	1960	1943	1978	1926	1938
MIN	1075	1072	1141	1272	1333	1547	2579	1669	1308	1123	1173	1227
(WY)	1977	1977	1990	1990	1977	1924	1990	1987	1988	1988	1934	1976

WISCONSIN RIVER BASIN
05400760 WISCONSIN RIVER AT WISCONSIN RAPIDS, WI--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1914 - 1999	
ANNUAL TOTAL	1225967		1198659		4949	
ANNUAL MEAN	3359		3284		8499	1973
HIGHEST ANNUAL MEAN					2107	1977
LOWEST ANNUAL MEAN					63600	Jun 21 1993
HIGHEST DAILY MEAN	32800	Apr 2	21300	May 9	165	Aug 12 1934
LOWEST DAILY MEAN	899	Oct 3	899	Oct 3	790	Jun 18 1988
ANNUAL SEVEN-DAY MINIMUM	944	Sep 14	1070	Oct 11	(a) 70400	Sep 12 1938
INSTANTANEOUS PEAK FLOW			21400	May 8	9610	
10 PERCENT EXCEEDS	5570		6400		3370	
50 PERCENT EXCEEDS	2480		2600		1780	
90 PERCENT EXCEEDS	1210		1330			

(a) From rating curve extended above 58,000 ft³/s

05401050 TENMILE CREEK NEAR NEKOOSA, WI

LOCATION.--Lat 44°15'44", long 89°48'38", in NE 1/4 sec.32, T.21 N., R.6 E., Wood County, Hydrologic Unit 07070003, on left bank upstream from bridge on State Highway 13, 5.8 mi southeast of Nekoosa.

DRAINAGE AREA.--73.3 mi².

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1962-63. October 1963 to September 1979, October 1987 to September 1994, February 1998 to current year.

REVISED RECORDS.--WDR WI-77-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 967.39 ft above sea level. Prior to May 13, 1964, and June 2, 1988 to May 2, 1989, non-recording gage at present site and datum.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 19, Dec. 22 to Jan. 16, Feb. 1-12, 18-25, and Mar. 6-10. Records good except those for ice-affected periods, which are poor (see page 13). Approximately 40 mi of drainage ditches and 22 check dams are used to control the water table in the basin. Sprinkler irrigation from ground-water sources affects natural flow of creek.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	36	37	21	21	65	53	65	64	45	96	58
2	37	39	36	21	21	66	51	63	63	44	90	55
3	35	37	37	20	21	65	52	63	60	48	85	54
4	36	36	37	20	21	61	56	62	60	48	87	53
5	36	36	39	20	21	57	58	63	60	45	86	52
6	36	36	38	20	22	47	63	68	62	45	82	50
7	36	36	37	20	23	45	66	73	59	45	80	50
8	33	36	36	20	24	49	68	79	56	45	77	51
9	31	36	35	20	25	50	72	79	55	56	75	49
10	31	41	33	20	27	52	72	78	55	62	74	48
11	30	41	35	20	30	53	80	74	55	60	72	47
12	30	42	34	20	34	52	97	73	53	57	70	46
13	34	42	32	20	44	52	104	71	51	54	71	45
14	33	43	34	20	56	52	99	65	48	54	70	45
15	35	42	35	20	57	52	95	66	45	52	68	44
16	38	42	31	21	57	53	91	66	47	51	68	43
17	38	41	30	21	56	55	87	76	46	55	66	42
18	37	41	29	21	54	55	81	86	44	63	65	41
19	35	41	27	20	52	54	77	89	44	110	72	41
20	34	40	26	20	50	54	75	88	44	141	72	41
21	34	40	25	20	49	51	75	86	43	151	71	41
22	34	40	25	20	48	47	81	83	42	147	72	39
23	33	40	22	20	46	47	89	82	42	136	75	40
24	33	40	21	20	45	37	85	81	41	124	75	40
25	33	39	21	20	47	37	79	75	39	113	73	39
26	34	39	21	20	51	50	78	72	37	112	71	39
27	37	38	22	21	57	53	78	69	36	110	68	42
28	37	38	22	21	64	53	74	69	41	103	68	41
29	36	38	22	21	---	52	68	67	43	97	66	39
30	36	38	21	21	---	53	66	64	42	91	62	35
31	36	---	20	21	---	52	---	64	---	98	62	---
TOTAL	1077	1174	920	630	1123	1621	2270	2259	1477	2462	2289	1350
MEAN	34.7	39.1	29.7	20.3	40.1	52.3	75.7	72.9	49.2	79.4	73.8	45.0
MAX	39	43	39	21	64	66	104	89	64	151	96	58
MIN	30	36	20	20	21	37	51	62	36	44	62	35

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1999, BY WATER YEAR (WY)

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	
MEAN	52.4	53.5	49.3	36.1	35.0	67.2	104	89.7	76.0	61.4	48.2	52.4																									
MAX	129	100	107	79.8	90.5	192	170	205	156	139	98.1	100																									
(WY)	1973	1973	1966	1973	1966	1973	1979	1973	1993	1993	1990	1965																									
MIN	21.5	19.5	14.6	12.6	11.2	16.1	47.3	44.7	37.4	23.6	17.4	23.0																									
(WY)	1977	1977	1965	1965	1965	1964	1964	1977	1964	1988	1964	1976																									

SUMMARY STATISTICS

	FOR 1999 WATER YEAR	WATER YEARS 1964 - 1999
ANNUAL TOTAL	18652	
ANNUAL MEAN	51.1	60.6
HIGHEST ANNUAL MEAN		113
LOWEST ANNUAL MEAN		30.2
HIGHEST DAILY MEAN	151	427
LOWEST DAILY MEAN	20	10
ANNUAL SEVEN-DAY MINIMUM	(c) 20	10
INSTANTANEOUS PEAK FLOW	154	456
INSTANTANEOUS PEAK STAGE	5.68	6.62
INSTANTANEOUS LOW FLOW	19	9.5
10 PERCENT EXCEEDS	80	107
50 PERCENT EXCEEDS	47	53
90 PERCENT EXCEEDS	21	23

(a) Also occurred Jan. 3-15 and 19-26; ice affected Dec. 31 and Jan. 3-15

(b) Also occurred Feb. 14,15, Feb. 22 to Mar. 2, 1964, and Feb. 2-4,11,12, 1965

(c) Ice affected

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 9 to Feb. 26 and Mar. 3-11. Records good except those for ice-affected periods, which are poor (see page 13). There is a large recreation dam about 5.0 mi upstream. Gage-height telemeter at station.

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	26	32	12	13	54	103	97	44	34	124	37
2	12	34	30	12	13	62	97	81	38	49	134	32
3	8.8	45	31	12	14	64	99	69	33	50	103	27
4	8.5	43	33	11	14	66	157	60	28	144	91	24
5	9.1	39	33	11	14	66	414	55	27	179	137	21
6	8.8	39	34	11	15	64	594	57	34	101	119	21
7	8.6	38	36	11	15	56	944	80	47	61	98	18
8	7.4	36	32	11	15	45	756	235	50	44	88	17
9	6.7	36	30	10	15	42	599	412	48	177	78	17
10	8.5	48	28	10	16	40	1180	325	44	631	69	15
11	10	59	30	10	30	33	966	261	46	315	60	14
12	13	69	28	10	48	32	1680	184	39	197	52	14
13	15	73	26	10	66	30	1470	99	32	101	48	15
14	16	63	23	10	76	29	883	91	28	76	42	14
15	16	51	26	10	90	31	532	78	24	61	35	13
16	17	39	24	12	110	38	367	68	20	50	32	12
17	17	33	21	13	110	65	235	73	19	47	32	11
18	20	29	19	14	100	210	183	95	17	78	32	10
19	21	29	18	14	90	414	144	201	16	973	44	11
20	19	29	16	13	80	462	108	240	15	1550	59	14
21	22	28	15	13	66	442	109	230	14	1080	63	14
22	24	27	14	13	64	421	125	178	14	747	52	11
23	25	28	13	12	60	351	1010	139	13	395	45	10
24	27	30	13	12	56	300	1270	180	13	227	109	10
25	25	29	12	12	52	246	911	243	13	149	357	9.6
26	24	29	13	12	50	183	473	201	12	170	144	9.6
27	25	28	14	12	48	154	299	165	12	227	105	12
28	32	28	14	12	49	130	171	114	14	158	84	15
29	28	28	14	12	---	119	147	74	24	125	67	15
30	26	30	13	12	---	115	118	62	31	102	54	17
31	25	---	13	12	---	110	---	50	---	92	43	---
TOTAL	539.4	1143	698	361	1389	4474	16144	4497	809	8390	2600	480.2
MEAN	17.4	38.1	22.5	11.6	49.6	144	538	145	27.0	271	83.9	16.0
MAX	32	73	36	14	110	462	1680	412	50	1550	357	37
MIN	6.7	26	12	10	13	29	97	50	12	34	32	9.6
CFSM	.08	.18	.10	.05	.23	.67	2.50	.67	.13	1.26	.39	.07
IN.	.09	.20	.12	.06	.24	.77	2.79	.78	.14	1.45	.45	.08

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1999, BY WATER YEAR (WY)

MEAN	109	117	63.8	26.9	44.2	389	550	236	171	69.4	51.9	126
MAX	561	508	374	132	373	1353	1319	1183	1516	453	371	1169
(WY)	1987	1983	1966	1973	1966	1973	1952	1973	1993	1978	1980	1986
MIN	3.68	4.62	7.35	5.03	4.79	8.13	85.9	28.0	8.56	4.68	4.01	2.23
(WY)	1949	1977	1951	1945	1945	1956	1946	1977	1988	1988	1988	1948

WISCONSIN RIVER BASIN
05402000 YELLOW RIVER AT BABCOCK, WI--CONTINUED

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SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1944 - 1999	
ANNUAL TOTAL	52571.5		41524.6		163	
ANNUAL MEAN	144		114		376	1973
HIGHEST ANNUAL MEAN					37.4	1977
LOWEST ANNUAL MEAN					10300	Apr 2 1952
HIGHEST DAILY MEAN	3980	Jun 28	1680	Apr 12	1.4	(a) Sep 14 1948
LOWEST DAILY MEAN	6.7	Oct 9	6.7	Oct 9	1.4	Sep 13 1948
ANNUAL SEVEN-DAY MINIMUM	8.2	Oct 4	8.2	Oct 4	11600	Apr 2 1952
INSTANTANEOUS PEAK FLOW			(b) 2340	Jul 20	17.38	Apr 2 1952
INSTANTANEOUS PEAK STAGE			10.65	Jul 20	.94	Aug 11 1985
INSTANTANEOUS LOW FLOW			6.4	Oct 9	.76	
ANNUAL RUNOFF (CFSM)	.67		.53		10.27	
ANNUAL RUNOFF (INCHES)	9.10		7.18		367	
10 PERCENT EXCEEDS	283		241		32	
50 PERCENT EXCEEDS	27		36		8.0	
90 PERCENT EXCEEDS	12		12			

(a) Also occurred Sept. 15-19,25,26, 1948

(b) Gage height, 10.61 ft

WISCONSIN RIVER BASIN
05403039 REMINGTON DITCH NEAR FINLEY, WI

LOCATION (REVISED).--Lat 44°14'57", long 90°10'50", in SW 1/4 SE 1/4 sec 31, T.21 N., R.3 E., Juneau County, Hydrologic Unit 07070003, on right bank at the upstream side of bridge on County Line Road, 3.5 mi northwest of Finley.

DRAINAGE AREA.--50.6 mi².

PERIOD OF RECORD.--April 1998 to May 1999 (discontinued).

GAGE.--Water-stage recorder and broad-crested weir. Elevation of gage is 948.80 ft above sea level (U.S. Fish and Wildlife Service benchmark).

REMARKS.--Estimated daily discharges: Oct. 1-4, 9, 11, 13-24, 26, Nov. 3-6, and ice-affected periods, Dec. 14-15 and Dec. 17 to Feb. 6. Records good except those for estimated daily discharges, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, OCTOBER 1998 TO MAY 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	6.0	11	.28	.32	9.8	12	32	---	---	---	---
2	.00	2.9	9.6	.28	.42	13	12	20	---	---	---	---
3	.00	3.8	8.5	.28	.36	13	19	17	---	---	---	---
4	.00	.00	8.0	.28	.38	14	33	14	---	---	---	---
5	3.4	.00	7.4	.28	.40	14	37	---	---	---	---	---
6	7.0	3.3	7.3	.28	.45	14	48	---	---	---	---	---
7	6.3	2.5	6.4	.28	.54	13	43	---	---	---	---	---
8	3.6	2.9	5.6	.28	.59	14	41	---	---	---	---	---
9	.54	3.7	5.0	.28	.61	13	54	---	---	---	---	---
10	1.9	15	4.8	.28	.71	13	51	---	---	---	---	---
11	.69	27	3.7	.28	2.2	13	66	---	---	---	---	---
12	3.1	29	3.6	.29	6.8	13	64	---	---	---	---	---
13	.10	32	3.4	.32	6.4	13	48	---	---	---	---	---
14	.00	35	4.9	.30	6.3	12	47	---	---	---	---	---
15	.00	36	.54	.30	6.4	12	43	---	---	---	---	---
16	.00	36	3.8	.29	6.5	12	35	---	---	---	---	---
17	.00	32	3.3	.29	7.8	22	33	---	---	---	---	---
18	1.2	29	2.1	.29	7.9	26	32	---	---	---	---	---
19	.84	30	.00	.30	7.9	26	30	---	---	---	---	---
20	.00	27	.00	.29	7.5	29	28	---	---	---	---	---
21	.00	26	.00	.29	7.4	28	29	---	---	---	---	---
22	.00	26	.00	.28	7.5	24	49	---	---	---	---	---
23	.00	26	.00	.27	7.2	21	57	---	---	---	---	---
24	6.9	24	.00	.27	6.9	19	41	---	---	---	---	---
25	4.1	23	.00	.26	6.9	16	50	---	---	---	---	---
26	3.8	21	.00	.26	6.8	13	45	---	---	---	---	---
27	13	18	.00	.26	6.5	12	43	---	---	---	---	---
28	6.7	15	.29	.27	6.8	11	55	---	---	---	---	---
29	6.0	13	.29	.27	---	12	46	---	---	---	---	---
30	6.5	12	.28	.29	---	11	36	---	---	---	---	---
31	7.4	---	.28	.30	---	11	---	---	---	---	---	---
TOTAL	84.27	557.10	100.08	8.77	126.48	486.8	1227	83	---	---	---	---
MEAN	2.72	18.6	3.23	.28	4.52	15.7	40.9	20.8	---	---	---	---
MAX	13	36	11	.32	7.9	29	66	32	---	---	---	---
MIN	.00	.00	.00	.26	.32	9.8	12	14	---	---	---	---
CFSM	.05	.37	.06	.01	.09	.31	.81	.41	---	---	---	---
IN.	.06	.41	.07	.01	.09	.36	.90	.06	---	---	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
MEAN	2.72	18.6	3.23	.28	4.52	15.7	36.0	12.3	43.0	40.9	11.6	3.97
MAX	2.72	18.6	3.23	.28	4.52	15.7	40.9	20.8	43.0	40.9	11.6	3.97
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1998	1998	1998	1998
MIN	2.72	18.6	3.23	.28	4.52	15.7	19.6	11.2	43.0	40.9	11.6	3.97
(WY)	1999	1999	1999	1999	1999	1999	1998	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR
(APRIL - DECEMBER)

FOR 1999 WATER YEAR
(OCTOBER - MAY)

WATER YEARS 1998 - 1999

ANNUAL TOTAL	4303.37	2673.50		
ANNUAL MEAN	16.9	12.4		
HIGHEST DAILY MEAN	228	66	16.5	228
LOWEST DAILY MEAN	.00	Many days	.00	Many days
ANNUAL SEVEN-DAY MINIMUM	.00	Dec 19	.00	Dec 19 1998
ANNUAL RUNOFF (CFSM)	.33	.24	.33	
ANNUAL RUNOFF (INCHES)	3.16	1.97	4.43	
10 PERCENT EXCEEDS	30	36	36	
50 PERCENT EXCEEDS	6.9	6.8	7.4	
90 PERCENT EXCEEDS	.00	.00	.27	

WISCONSIN RIVER BASIN

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05403040 WEST BRANCH LITTLE YELLOW RIVER NEAR FINLEY, WI

LOCATION.--Lat 44°13'35", long 90°13'22", in NE 1/4 NW 1/4 sec 11, T.20 N., R.2 E., Juneau County, Hydrologic Unit 07070003, 25 ft upstream of a U.S. Fish and Wildlife control structure and 4.5 mi northwest of Finley.

DRAINAGE AREA.--3.88 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1998 to May 1999 (discontinued).

GAGE.--Water-stage recorder and broad-crested weir. Elevation of gage is 956 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records are good (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO MAY 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	1.6	5.7	4.6	2.8	---	---	---	---
2	.00	.00	.00	.00	1.6	5.6	4.5	5.3	---	---	---	---
3	.00	.00	.00	.00	1.6	5.5	4.8	6.8	---	---	---	---
4	.00	.00	.00	.00	1.6	5.2	5.6	6.0	---	---	---	---
5	.00	.00	.00	.00	1.6	4.9	5.9	---	---	---	---	---
6	.00	.00	.00	.00	1.6	4.8	6.7	---	---	---	---	---
7	.00	.00	.00	.00	1.6	4.6	6.8	---	---	---	---	---
8	.00	.00	.00	.00	1.6	4.5	7.0	---	---	---	---	---
9	.00	.00	.00	.00	1.6	4.4	8.2	---	---	---	---	---
10	.00	.00	.00	.00	1.7	4.5	8.3	---	---	---	---	---
11	.00	.00	.00	.00	3.5	4.4	9.1	---	---	---	---	---
12	.00	.00	.00	.00	4.7	4.2	9.4	---	---	---	---	---
13	.00	.00	.00	.00	4.7	4.0	9.5	---	---	---	---	---
14	.00	.00	.00	.00	4.7	3.9	9.6	---	---	---	---	---
15	.00	.00	.00	.00	4.7	3.9	9.7	---	---	---	---	---
16	.00	.00	.00	.83	4.9	3.9	9.6	---	---	---	---	---
17	.00	.00	.00	1.3	5.1	4.3	9.2	---	---	---	---	---
18	.00	.00	.00	1.5	5.1	4.6	8.8	---	---	---	---	---
19	.00	.00	.00	1.5	5.1	4.6	8.4	---	---	---	---	---
20	.00	.00	.00	1.5	5.1	4.7	8.1	---	---	---	---	---
21	.00	.00	.00	1.5	5.1	4.9	8.0	---	---	---	---	---
22	.00	.00	.00	1.5	5.1	4.9	9.0	---	---	---	---	---
23	.00	.00	.00	1.5	5.0	4.9	8.9	---	---	---	---	---
24	.00	.00	.00	1.5	4.6	4.9	8.2	---	---	---	---	---
25	.00	.00	.00	1.6	4.6	4.9	7.5	---	---	---	---	---
26	.00	.00	.00	1.6	4.6	4.9	6.8	---	---	---	---	---
27	.00	.00	.00	1.6	5.1	4.8	5.9	---	---	---	---	---
28	.00	.00	.00	1.6	5.6	4.8	5.2	---	---	---	---	---
29	.00	.00	.00	1.6	---	5.0	4.3	---	---	---	---	---
30	.00	.00	.00	1.6	---	4.7	3.6	---	---	---	---	---
31	.00	---	.00	1.6	---	4.6	---	---	---	---	---	---
TOTAL	0.00	0.00	0.00	23.83	103.4	145.5	221.2	20.9	---	---	---	---
MEAN	.0000	.0000	.0000	.77	3.69	4.69	7.37	5.22	---	---	---	---
MAX	.00	.00	.00	1.6	5.6	5.7	9.7	6.8	---	---	---	---
MIN	.00	.00	.00	.00	1.6	3.9	3.6	2.8	---	---	---	---
CFSM	.00	.00	.00	.20	.95	1.21	1.90	1.35	---	---	---	---
IN.	.00	.00	.00	.23	.99	1.39	2.12	.20	---	---	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
MEAN	.0000	.0000	.0000	.77	3.69	4.69	6.11	.65	1.01	3.23	.34	.004
MAX	.0000	.0000	.0000	.77	3.69	4.69	7.37	5.22	1.01	3.23	.34	.004
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1998	1998	1998	1998
MIN	.0000	.0000	.0000	.77	3.69	4.69	.72	.055	1.01	3.23	.34	.004
(WY)	1999	1999	1999	1999	1999	1999	1998	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR
(APRIL-DECEMBER)FOR 1999 WATER YEAR
(OCTOBER-MAY)

WATER YEARS 1998 - 1999

ANNUAL TOTAL	147.97	514.83		
ANNUAL MEAN	.59	2.38		
HIGHEST DAILY MEAN	8.7	Jul 8	9.7	Apr 15
LOWEST DAILY MEAN	.00	Many days	.00	Many days
ANNUAL SEVEN-DAY MINIMUM	.00	Many periods	.00	Many periods
ANNUAL RUNOFF (CFSM)	.15	.61		
ANNUAL RUNOFF (INCHES)	1.42	4.94		
10 PERCENT EXCEEDS	.99	6.7		
50 PERCENT EXCEEDS	.00	1.1		
90 PERCENT EXCEEDS	.00	.00		

WISCONSIN RIVER BASIN
05403040 WEST BRANCH LITTLE YELLOW RIVER NEAR FINLEY, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--April 1998 to May 1999 (discontinued).

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established April 24, 1998. Rainfall estimated to be 0.00 for Dec. 18, 29, Jan. 20, and 22 because recorded precipitation interpreted as collector snowmelt.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 2.59 in., June 24, 1998.

EXTREMES FOR CURRENT PERIOD.--Maximum daily rainfall, 1.46 in., Apr. 22.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1998 TO MAY 1999

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.21	.00	.00	.00	---	---	---	---
2	.00	.00	.00	.00	.05	.00	.00	.00	---	---	---	---
3	.00	.00	.00	.00	.03	.00	.60	.00	---	---	---	---
4	.00	.00	.00	.00	.00	.00	.44	.01	---	---	---	---
5	.34	.00	.00	.00	.00	.00	.59	---	---	---	---	---
6	.19	.00	.01	.00	.00	.00	.05	---	---	---	---	---
7	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
8	.00	.05	.00	.00	.00	.00	.48	---	---	---	---	---
9	.00	.35	.00	.00	.00	.01	.36	---	---	---	---	---
10	.00	1.10	.00	.00	.04	.02	.01	---	---	---	---	---
11	.00	.00	.00	.00	.56	.00	.55	---	---	---	---	---
12	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
13	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
14	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
15	.01	.00	.00	.00	.00	.00	.00	---	---	---	---	---
16	.00	.03	.00	.34	.02	.00	.00	---	---	---	---	---
17	.61	.00	.00	.01	.00	.00	.00	---	---	---	---	---
18	.01	.09	.00	.05	.00	.00	.00	---	---	---	---	---
19	.00	.02	.00	.00	.00	.00	.00	---	---	---	---	---
20	.00	.00	.00	.00	.01	.00	.16	---	---	---	---	---
21	.00	.00	.00	.00	.00	.00	.01	---	---	---	---	---
22	.00	.00	.00	.00	.00	.00	1.46	---	---	---	---	---
23	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
24	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
25	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
26	.00	.00	.00	.01	.19	.00	.00	---	---	---	---	---
27	1.05	.00	.00	.03	.00	.00	.00	---	---	---	---	---
28	.00	.00	.00	.00	.00	.13	.00	---	---	---	---	---
29	.19	.00	.00	.08	---	.00	.00	---	---	---	---	---
30	.04	.07	.00	.16	---	.00	.00	---	---	---	---	---
31	.00	---	.00	.02	---	.00	---	---	---	---	---	---
TOTAL	2.44	1.71	0.01	0.70	1.11	0.16	4.71	0.01	---	---	---	---

05403041 EAST BRANCH SPENCER-ROBINSON DITCH NEAR FINLEY, WI

LOCATION.--Lat 44°11'54", long 90°08'36", in NE 1/4 NW 1/4 sec 21, T.20 N., R.3 E., Juneau County, Hydrologic Unit 07070003, on left bank 100 ft downstream of a culvert on 5th Street on U.S. Fish and Wildlife Service control structure No. 16, and 1.5 mi southwest of Finley.

DRAINAGE AREA.--4.01 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1998 to May 1999 (discontinued).

GAGE.--Water-stage recorder and broad-crested weir. Elevation of gage is 928.60 ft above sea level (U.S. Fish and Wildlife Service benchmark).

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 21 to Jan. 18 and Jan. 27 to Feb. 2. Records good except those for ice-affected periods, which are fair (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO MAY 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.1	1.1	4.3	.88	.84	2.0	2.2	3.7	---	---	---	---
2	1.6	1.0	4.1	.88	.90	2.0	2.2	3.2	---	---	---	---
3	.89	1.0	3.8	.88	.94	2.0	3.0	3.0	---	---	---	---
4	.81	1.0	3.1	.88	1.3	1.9	4.7	2.9	---	---	---	---
5	1.8	2.0	2.2	.88	1.0	1.8	5.4	---	---	---	---	---
6	1.7	2.2	1.3	.88	.95	1.6	7.7	---	---	---	---	---
7	1.0	1.6	2.0	.88	.90	1.6	8.5	---	---	---	---	---
8	.97	1.2	1.5	.88	.95	1.5	6.4	---	---	---	---	---
9	.86	1.9	1.2	.88	1.0	1.5	9.6	---	---	---	---	---
10	.81	2.6	1.1	.88	1.1	1.5	9.1	---	---	---	---	---
11	.81	1.8	1.1	.88	1.6	1.5	10	---	---	---	---	---
12	.78	1.8	1.1	.88	2.0	1.5	11	---	---	---	---	---
13	.76	1.6	1.0	.90	2.0	1.5	9.2	---	---	---	---	---
14	.76	1.5	1.0	.90	2.0	1.5	8.1	---	---	---	---	---
15	.75	1.5	1.0	.98	1.9	1.5	7.3	---	---	---	---	---
16	.75	1.4	1.0	.96	1.9	1.7	6.6	---	---	---	---	---
17	.76	1.4	.99	.96	2.0	2.1	5.7	---	---	---	---	---
18	.80	1.3	1.0	1.0	2.0	2.3	5.2	---	---	---	---	---
19	.79	1.4	1.0	1.1	1.8	2.3	7.0	---	---	---	---	---
20	.72	1.5	1.0	1.1	1.7	2.5	8.1	---	---	---	---	---
21	.73	1.5	.96	.98	1.7	2.6	6.6	---	---	---	---	---
22	.73	1.3	.92	.91	1.6	2.5	8.9	---	---	---	---	---
23	.73	1.2	.92	.90	1.5	2.3	12	---	---	---	---	---
24	.87	1.2	.92	.89	1.4	2.3	10	---	---	---	---	---
25	.84	1.2	.90	.87	1.4	2.1	8.3	---	---	---	---	---
26	.81	1.2	.90	.86	1.5	2.0	7.2	---	---	---	---	---
27	1.0	1.2	.90	.84	1.7	2.0	6.3	---	---	---	---	---
28	1.0	1.2	.88	.82	1.9	2.0	5.5	---	---	---	---	---
29	1.1	1.2	.88	.82	---	2.1	4.9	---	---	---	---	---
30	1.1	3.2	.88	.82	---	2.0	4.0	---	---	---	---	---
31	1.1	---	.88	.82	---	2.1	---	---	---	---	---	---
TOTAL	30.23	45.2	44.73	27.99	41.48	59.8	210.7	12.8	---	---	---	---
MEAN	.98	1.51	1.44	.90	1.48	1.93	7.02	3.20	---	---	---	---
MAX	2.1	3.2	4.3	1.1	2.0	2.6	12	3.7	---	---	---	---
MIN	.72	1.0	.88	.82	.84	1.5	2.2	2.9	---	---	---	---
CFSM	.24	.38	.36	.23	.37	.48	1.75	.80	---	---	---	---
IN.	.28	.42	.41	.26	.38	.55	1.95	.12	---	---	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
MEAN	.98	1.51	1.44	.90	1.48	1.93	6.41	2.62	9.32	4.36	2.22	1.06
MAX	.98	1.51	1.44	.90	1.48	1.93	7.02	3.20	9.32	4.36	2.22	1.06
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1998	1998	1998	1998
MIN	.98	1.51	1.44	.90	1.48	1.93	4.56	2.54	9.32	4.36	2.22	1.06
(WY)	1999	1999	1999	1999	1999	1999	1998	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR
(APRIL - DECEMBER)FOR 1999 WATER YEAR
(OCTOBER - MAY)

WATER YEARS 1998 - 1999

ANNUAL TOTAL	760.21	472.93		
ANNUAL MEAN	2.98	2.19		
HIGHEST DAILY MEAN	50	12	2.94	50
LOWEST DAILY MEAN	.72	.72		.72
ANNUAL SEVEN-DAY MINIMUM	.73	.75		.73
ANNUAL RUNOFF (CFSM)	.74	.55		.73
ANNUAL RUNOFF (INCHES)	7.05	4.39		9.95
10 PERCENT EXCEEDS	4.6	5.6		5.8
50 PERCENT EXCEEDS	1.7	1.4		1.7
90 PERCENT EXCEEDS	.81	.84		.84

WISCONSIN RIVER BASIN

05403041 EAST BRANCH SPENCER-ROBINSON DITCH NEAR FINLEY, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--April 1998 to May 1999 (discontinued).

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established April 21, 1998. Rainfall estimated to be 0.00 for Dec. 18, Jan. 20, 22, and 25 because recorded precipitation interpreted as collector snowmelt.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 1.47 in., June 24, 1998.

EXTREMES FOR CURRENT PERIOD.--Maximum daily rainfall, 0.88 in., Apr. 22.

REVISIONS.--Daily precipitation value for June 2, 1998, should be 0.00.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1998 TO MAY 1999

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.12	.00	.00	.00	---	---	---	---
2	.00	.00	.00	.00	.08	.00	.00	.00	---	---	---	---
3	.00	.00	.00	.00	.03	.00	.43	.00	---	---	---	---
4	.00	.00	.01	.00	.00	.00	.28	.00	---	---	---	---
5	.28	.00	.01	.00	.00	.00	.39	---	---	---	---	---
6	.07	.00	.01	.00	.00	.00	.03	---	---	---	---	---
7	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
8	.00	.04	.00	.00	.00	.00	.37	---	---	---	---	---
9	.00	.26	.00	.00	.00	.00	.22	---	---	---	---	---
10	.00	.76	.00	.00	.02	.00	.01	---	---	---	---	---
11	.00	.01	.00	.00	.37	.00	.43	---	---	---	---	---
12	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
13	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
14	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
15	.02	.00	.00	.00	.00	.00	.00	---	---	---	---	---
16	.00	.04	.00	.24	.03	.00	.00	---	---	---	---	---
17	.25	.00	.00	.03	.00	.00	.00	---	---	---	---	---
18	.01	.04	.00	.05	.00	.00	.00	---	---	---	---	---
19	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
20	.00	.00	.00	.00	.00	.00	.09	---	---	---	---	---
21	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
22	.00	.00	.00	.00	.00	.00	.88	---	---	---	---	---
23	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
24	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
25	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
26	.00	.00	.00	.00	.17	.00	.00	---	---	---	---	---
27	.59	.00	.00	.01	.00	.00	.00	---	---	---	---	---
28	.00	.00	.00	.00	.01	.06	.00	---	---	---	---	---
29	.29	.00	.00	.00	---	.00	.00	---	---	---	---	---
30	.02	.04	.00	.15	---	.00	.00	---	---	---	---	---
31	.00	---	.00	.00	---	.00	---	---	---	---	---	---
TOTAL	1.53	1.19	0.03	0.48	0.83	0.06	3.13	0.00	---	---	---	---

WISCONSIN RIVER BASIN

295

05403042 NEAL LATERAL NEAR FINLEY, WI

LOCATION.--Lat 44°09'29", long 90°13'53", in SW 1/4 NW 1/4 sec 35, T.20 N., R.2 E., Juneau County, Hydrologic Unit 07070003, 100 ft downstream of the West Boundary Road and on the right upstream side of a U.S. Fish and Wildlife control structure, 6 mi southwest of Finley.

DRAINAGE AREA.--5.01 mi².

PERIOD OF RECORD.--April 1998 to May 1999 (discontinued).

GAGE.--Water-stage recorder and broad-crested weir. Elevation of gage is 925.47 ft above sea level (U.S. Fish and Wildlife Service benchmark).

REMARKS.--Estimated daily discharges: Oct. 1-18, Apr. 3 to May 4, and ice-affected period, Jan. 6-15. Records good except those for estimated daily discharges, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO MAY 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.76	1.8	1.9	.46	.83	6.1	4.7	3.8	---	---	---	---
2	.72	1.7	1.8	.41	.99	5.9	4.7	3.5	---	---	---	---
3	.70	1.7	1.8	.38	1.2	5.2	6.7	3.4	---	---	---	---
4	.60	1.6	1.7	.29	1.4	4.5	5.9	3.3	---	---	---	---
5	.00	1.5	1.7	.25	1.4	3.9	5.6	---	---	---	---	---
6	.00	1.4	1.6	.23	1.4	3.5	5.6	---	---	---	---	---
7	.00	1.3	1.4	.22	1.4	3.2	6.0	---	---	---	---	---
8	.00	1.3	1.2	.22	1.4	3.0	5.2	---	---	---	---	---
9	.00	1.4	1.1	.22	1.6	2.9	5.0	---	---	---	---	---
10	.00	3.9	1.1	.22	2.0	2.8	6.8	---	---	---	---	---
11	.00	5.7	1.0	.22	4.1	2.8	7.6	---	---	---	---	---
12	.00	4.9	1.0	.22	6.2	2.9	6.4	---	---	---	---	---
13	.00	4.2	.94	.23	6.2	3.0	8.6	---	---	---	---	---
14	.00	3.7	.92	.23	6.3	3.1	9.0	---	---	---	---	---
15	.00	3.5	.92	.24	6.2	3.5	8.0	---	---	---	---	---
16	.00	3.1	1.0	.25	6.6	4.7	7.0	---	---	---	---	---
17	.00	2.9	.90	.27	6.9	7.6	6.0	---	---	---	---	---
18	.32	2.8	.99	.32	6.9	8.9	5.2	---	---	---	---	---
19	.50	2.8	1.1	.36	6.7	8.0	5.0	---	---	---	---	---
20	.46	2.5	.92	.34	6.6	7.6	6.8	---	---	---	---	---
21	.44	2.3	.84	.42	6.6	7.5	7.6	---	---	---	---	---
22	.36	2.3	.81	.50	6.7	6.8	6.4	---	---	---	---	---
23	.26	2.2	.81	.52	6.4	6.1	8.6	---	---	---	---	---
24	.25	2.0	.81	.60	5.2	5.6	11	---	---	---	---	---
25	.25	2.0	.72	.60	5.0	4.9	8.4	---	---	---	---	---
26	.27	1.9	.50	.60	3.6	4.4	7.0	---	---	---	---	---
27	.89	1.7	.45	.62	4.1	4.2	6.2	---	---	---	---	---
28	1.8	1.7	.42	.70	5.4	4.4	5.4	---	---	---	---	---
29	1.9	1.8	.50	.73	---	4.5	4.6	---	---	---	---	---
30	2.2	2.0	.50	.79	---	4.4	4.4	---	---	---	---	---
31	2.0	---	.50	.81	---	4.5	---	---	---	---	---	---
TOTAL	14.68	73.6	31.85	12.47	119.32	150.4	195.4	14.0	---	---	---	---
MEAN	.47	2.45	1.03	.40	4.26	4.85	6.51	3.50	---	---	---	---
MAX	2.2	5.7	1.9	.81	6.9	8.9	11	3.8	---	---	---	---
MIN	.00	1.3	.42	.22	.83	2.8	4.4	3.3	---	---	---	---
CFSM	.09	.49	.21	.08	.85	.97	1.30	.70	---	---	---	---
IN.	.11	.55	.24	.09	.89	1.12	1.45	.10	---	---	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

MEAN	.47	2.45	1.03	.40	4.26	4.85	5.83	2.33	17.1	7.11	3.18	.55
MAX	.47	2.45	1.03	.40	4.26	4.85	6.51	3.50	17.1	7.11	3.18	.55
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1998	1998	1998	1998
MIN	.47	2.45	1.03	.40	4.26	4.85	3.54	2.18	17.1	7.11	3.18	.55
(WY)	1999	1999	1999	1999	1999	1999	1998	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR
(APRIL - DECEMBER)FOR 1999 WATER YEAR
(OCTOBER - MAY)

WATER YEARS 1998 - 1999

ANNUAL TOTAL	1068.08	611.72	
ANNUAL MEAN	4.21	2.83	4.13
HIGHEST DAILY MEAN	92	11	92
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
ANNUAL RUNOFF (CFSM)	.84	.57	.82
ANNUAL RUNOFF (INCHES)	7.93	4.54	11.19
10 PERCENT EXCEEDS	5.8	6.7	6.8
50 PERCENT EXCEEDS	1.8	1.8	2.0
90 PERCENT EXCEEDS	.42	.23	.40

WISCONSIN RIVER BASIN
05403043 LITTLE YELLOW RIVER NEAR NECEDAH, WI

LOCATION.--Lat 44°03'27", long 90°10'35", in NE 1/4 SE 1/4 sec 6, T.18 N., R.3 E., Juneau County, Hydrologic Unit 07070003, on upstream side of U.S. Fish and Wildlife Service control structure forming Rynearson Flowage Pool No. 2, and 7.0 mi northwest of Necedah.

DRAINAGE AREA.--102 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1998 to May 1999 (discontinued).

GAGE.--Water-stage recorder and broad-crested weir with radial gate. Elevation of gage is 922.34 ft above sea level (U.S. Fish and Wildlife Service benchmark).

REMARKS.--Estimated daily discharges: Mar. 16-22 and ice-affected period, Dec. 10 to Feb. 8. Records good except for estimated daily discharges, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO MAY 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	15	21	.45	.32	36	17	76	---	---	---	---
2	5.6	16	22	.45	.30	47	20	71	---	---	---	---
3	5.8	16	22	.45	.00	52	24	66	---	---	---	---
4	5.0	29	22	.45	.00	50	29	63	---	---	---	---
5	6.4	32	22	.45	.00	59	32	---	---	---	---	---
6	8.3	17	22	.45	.00	58	39	---	---	---	---	---
7	9.4	7.8	20	.44	.00	52	41	---	---	---	---	---
8	31	8.0	19	.45	.00	48	45	---	---	---	---	---
9	38	7.9	18	.45	.15	46	67	---	---	---	---	---
10	29	10	12	.45	.54	43	85	---	---	---	---	---
11	22	19	.00	.45	2.7	40	84	---	---	---	---	---
12	19	18	.00	.45	6.0	38	80	---	---	---	---	---
13	21	16	.50	.45	7.8	37	78	---	---	---	---	---
14	20	17	.52	.47	9.2	35	77	---	---	---	---	---
15	15	15	.50	.50	11	34	78	---	---	---	---	---
16	12	16	.50	.50	13	34	81	---	---	---	---	---
17	10	16	.50	.50	15	38	78	---	---	---	---	---
18	12	16	.50	.52	18	42	75	---	---	---	---	---
19	10	19	.50	.56	25	48	73	---	---	---	---	---
20	9.2	20	.50	.54	33	50	72	---	---	---	---	---
21	8.7	19	.49	.50	32	52	71	---	---	---	---	---
22	7.2	20	.48	.48	31	45	78	---	---	---	---	---
23	6.8	22	.48	.47	30	40	82	---	---	---	---	---
24	6.6	20	.47	.45	30	40	85	---	---	---	---	---
25	6.7	21	.47	.45	29	40	86	---	---	---	---	---
26	4.8	21	.47	.44	29	39	87	---	---	---	---	---
27	4.4	20	.46	.44	34	38	87	---	---	---	---	---
28	6.0	21	.45	.42	35	37	86	---	---	---	---	---
29	7.3	21	.45	.40	---	21	82	---	---	---	---	---
30	12	24	.45	.37	---	10	79	---	---	---	---	---
31	14	---	.45	.35	---	13	---	---	---	---	---	---
TOTAL	379.4	539.7	209.14	14.20	392.01	1262	1998	276	---	---	---	---
MEAN	12.2	18.0	6.75	.46	14.0	40.7	66.6	69.0	---	---	---	---
MAX	38	32	22	.56	35	59	87	76	---	---	---	---
MIN	4.4	7.8	.00	.35	.00	10	17	63	---	---	---	---
CFSM	.12	.18	.07	.00	.14	.40	.65	.68	---	---	---	---
IN.	.14	.20	.08	.01	.14	.46	.73	.10	---	---	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
MEAN	12.2	18.0	6.75	.46	14.0	40.7	63.3	39.9	75.9	138	55.9	26.8
MAX	12.2	18.0	6.75	.46	14.0	40.7	66.6	69.0	75.9	138	55.9	26.8
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1998	1998	1998
MIN	12.2	18.0	6.75	.46	14.0	40.7	52.3	36.2	75.9	138	55.9	26.8
(WY)	1999	1999	1999	1999	1999	1999	1998	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR
(APRIL - DECEMBER)

FOR 1999 WATER YEAR
(OCTOBER - MAY)

WATER YEARS 1998 - 1999

ANNUAL TOTAL	11810.44	5070.45	
ANNUAL MEAN	46.5	23.5	41.7
HIGHEST DAILY MEAN	406	87	406
LOWEST DAILY MEAN	.00	.00 (a)	.00 (a)
ANNUAL SEVEN-DAY MINIMUM	.36	.02	.02
ANNUAL RUNOFF (CFSM)	.46	.23	.41
ANNUAL RUNOFF (INCHES)	4.31	1.85	5.55
10 PERCENT EXCEEDS	70	71	77
50 PERCENT EXCEEDS	28	16	30
90 PERCENT EXCEEDS	4.7	.45	.47

(a) Also occurred Feb. 3-8

05403043 LITTLE YELLOW RIVER NEAR NECEDAH, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--May 1998 to May 1999 (discontinued).

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established May 6, 1998. Rainfall estimated to be 0.00 for Dec. 18, Jan. 2, 22, Feb. 17, and 24 because recorded precipitation interpreted as collector snowmelt.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 2.42 in., Aug. 4, 1998.

EXTREMES FOR CURRENT PERIOD.--Maximum daily rainfall, 1.06 in., Apr. 22.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1998 TO MAY 1999

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	---	---	---	---
2	.00	.00	.00	.00	.05	.00	.00	.00	---	---	---	---
3	.01	.00	.00	.00	.04	.00	.47	.00	---	---	---	---
4	.00	.00	.01	.00	.00	.00	.33	.04	---	---	---	---
5	.42	.00	.01	.00	.00	.00	.52	---	---	---	---	---
6	.13	.00	.00	.00	.00	.00	.07	---	---	---	---	---
7	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
8	.00	.06	.01	.00	.00	.00	.71	---	---	---	---	---
9	.00	.35	.00	.00	.00	.00	.19	---	---	---	---	---
10	.00	.79	.00	.00	.01	.09	.01	---	---	---	---	---
11	.00	.00	.00	.00	.56	.00	.63	---	---	---	---	---
12	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
13	.00	.00	.00	.00	.00	.00	.01	---	---	---	---	---
14	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
15	.02	.00	.00	.00	.00	.00	.00	---	---	---	---	---
16	.00	.10	.00	.14	.02	---	.00	---	---	---	---	---
17	.22	.00	.00	.09	.00	---	.00	---	---	---	---	---
18	.00	.10	.00	.05	.00	---	.00	---	---	---	---	---
19	.00	.00	.00	.00	.00	---	.00	---	---	---	---	---
20	.00	.01	.00	.00	.00	---	.16	---	---	---	---	---
21	.00	.00	.00	.00	.00	---	.00	---	---	---	---	---
22	.00	.00	.00	.00	.00	---	1.06	---	---	---	---	---
23	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
24	.00	.00	.00	.00	.00	.00	.00	---	---	---	---	---
25	.00	.00	.00	.00	.15	.00	.00	---	---	---	---	---
26	.00	.00	.00	.05	.70	.00	.00	---	---	---	---	---
27	.54	.00	.00	.12	.00	.00	.00	---	---	---	---	---
28	.00	.00	.00	.00	.01	.05	.00	---	---	---	---	---
29	.50	.02	.00	.03	---	.00	.00	---	---	---	---	---
30	.03	.08	.00	.09	---	.00	.00	---	---	---	---	---
31	.00	---	.00	.00	---	.00	---	---	---	---	---	---
TOTAL	1.87	1.51	0.03	0.57	1.54	0.14	4.16	0.04	---	---	---	---

WISCONSIN RIVER BASIN

05403044 SOUTH BRANCH YELLOW RIVER NEAR NECEDAH, WI

LOCATION.--Lat 44°02'49", long 90°08'52", in SE 1/4 NW 1/4 sec 9, T.18 N., R.3 E., Juneau County, Hydrologic Unit 07070003, on upstream side of U.S. Fish and Wildlife Service control structure forming Ryneanson Flowage Pool No. 1, and 4.5 mi northwest of Necedah.

DRAINAGE AREA.--15.8 mi².

PERIOD OF RECORD.--April 1998 to May 1999 (discontinued).

GAGE.--Water-stage recorder and broad-crested weir. Elevation of gage is 923.25 ft above sea level (U.S. Fish and Wildlife Service benchmark).

REMARKS.--

APRIL-SEPTEMBER 1998: Daily mean discharge estimated from once-daily gage-height readings May 29 to July 8 and Sept. 21-30. Records are fair (see page 13).

OCTOBER 1998 TO MAY 1999: Estimated daily discharges: Oct. 1-8, 19-30, Nov. 2, 3, Mar. 30 to Apr. 4. Records good except those for estimated daily discharges, which are fair (see page 13).

REVISIONS.--Mean daily discharge data for water year 1998 were revised and are published below.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	36	25	77	5.8	17
2	---	---	---	---	---	---	---	36	20	70	6.0	17
3	---	---	---	---	---	---	---	38	17	81	7.3	17
4	---	---	---	---	---	---	---	36	15	101	27	15
5	---	---	---	---	---	---	---	32	12	86	37	15
6	---	---	---	---	---	---	---	26	11	80	47	14
7	---	---	---	---	---	---	---	26	9.4	77	52	13
8	---	---	---	---	---	---	---	27	9.0	70	45	11
9	---	---	---	---	---	---	---	25	15	59	40	11
10	---	---	---	---	---	---	---	23	18	47	35	11
11	---	---	---	---	---	---	---	114	22	38	31	11
12	---	---	---	---	---	---	---	122	34	34	26	11
13	---	---	---	---	---	---	---	117	30	34	23	12
14	---	---	---	---	---	---	---	80	24	31	28	14
15	---	---	---	---	---	---	---	52	24	29	32	12
16	---	---	---	---	---	---	---	45	21	25	27	11
17	---	---	---	---	---	---	---	33	21	23	35	11
18	---	---	---	---	---	---	---	60	18	21	32	10
19	---	---	---	---	---	---	---	59	24	22	29	9.0
20	---	---	---	---	---	---	---	37	22	20	28	8.4
21	---	---	---	---	---	---	---	27	21	19	26	8.0
22	---	---	---	---	---	---	---	54	22	19	33	7.8
23	---	---	---	---	---	---	---	51	19	17	41	7.8
24	---	---	---	---	---	---	---	49	22	26	34	7.6
25	---	---	---	---	---	---	---	47	23	84	29	7.6
26	---	---	---	---	---	---	---	51	20	97	14	8.0
27	---	---	---	---	---	---	---	48	24	145	14	7.0
28	---	---	---	---	---	---	---	44	67	180	12	6.5
29	---	---	---	---	---	---	---	42	50	160	10	8.2
30	---	---	---	---	---	---	---	39	40	127	9.5	7.7
31	---	---	---	---	---	---	---	35	---	7.1	18	---
TOTAL	---	---	---	---	---	---	---	425	1373	1267.4	1175.6	326.6
MEAN	---	---	---	---	---	---	---	47.2	44.3	42.2	37.9	10.9
MAX	---	---	---	---	---	---	---	54	122	180	101	17
MIN	---	---	---	---	---	---	---	39	19	9.0	7.1	6.5
CFSM	---	---	---	---	---	---	---	2.99	2.80	2.67	2.40	.69
IN.	---	---	---	---	---	---	---	1.00	3.23	2.98	2.77	.77

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1998, BY WATER YEAR (WY)

	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998
MEAN	---	---	---	---	---	---	---	44.3	42.2	37.9	28.6	10.9
MAX	---	---	---	---	---	---	---	44.3	42.2	37.9	28.6	10.9
(WY)	---	---	---	---	---	---	---	1998	1998	1998	1998	1998
MIN	---	---	---	---	---	---	---	44.3	42.2	37.9	28.6	10.9
(WY)	---	---	---	---	---	---	---	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(APRIL-SEPTEMBER)

HIGHEST DAILY MEAN
 LOWEST DAILY MEAN
 ANNUAL SEVEN-DAY MINIMUM
 10 PERCENT EXCEEDS
 50 PERCENT EXCEEDS
 90 PERCENT EXCEEDS

180 Jun 28
 5.8 Aug 1
 7.5 Sep 22
 75
 24
 9.0

05403044 SOUTH BRANCH YELLOW RIVER NEAR NECEDAH, WI--CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	1.2	12	3.8	3.6	26	.00	32	---	---	---	---
2	.00	1.8	13	3.4	3.8	26	.00	29	---	---	---	---
3	.00	.00	13	3.8	4.0	24	.00	26	---	---	---	---
4	.00	.25	13	3.7	5.0	23	.10	23	---	---	---	---
5	.00	.66	13	3.5	5.0	22	.42	---	---	---	---	---
6	.00	1.5	15	3.5	5.0	21	3.4	---	---	---	---	---
7	.00	2.3	13	3.4	5.0	21	4.1	---	---	---	---	---
8	.00	3.6	12	3.3	5.0	20	5.6	---	---	---	---	---
9	1.5	4.8	12	3.3	5.6	21	13	---	---	---	---	---
10	4.2	4.1	12	3.2	6.4	21	16	---	---	---	---	---
11	6.2	2.5	10	3.2	11	20	26	---	---	---	---	---
12	7.9	3.0	9.9	3.1	17	19	28	---	---	---	---	---
13	8.7	3.7	9.9	3.1	18	19	29	---	---	---	---	---
14	7.9	5.6	9.8	3.1	18	18	29	---	---	---	---	---
15	7.1	5.6	10	3.2	17	18	29	---	---	---	---	---
16	4.0	6.4	10	3.1	18	18	29	---	---	---	---	---
17	.68	6.8	9.1	2.9	19	19	26	---	---	---	---	---
18	2.1	6.6	7.9	2.9	19	19	23	---	---	---	---	---
19	3.5	9.6	8.7	2.8	19	18	22	---	---	---	---	---
20	.00	10	7.4	2.8	19	18	21	---	---	---	---	---
21	.00	9.0	7.4	2.8	19	19	22	---	---	---	---	---
22	.00	9.6	7.3	3.3	19	18	28	---	---	---	---	---
23	.00	12	7.7	3.7	19	18	31	---	---	---	---	---
24	.00	10	7.8	3.8	19	18	34	---	---	---	---	---
25	.00	11	7.8	3.9	20	17	38	---	---	---	---	---
26	.00	12	7.8	3.8	20	17	38	---	---	---	---	---
27	.00	11	5.9	4.0	25	16	36	---	---	---	---	---
28	.00	11	4.7	4.1	27	17	35	---	---	---	---	---
29	.00	11	4.8	3.9	---	18	34	---	---	---	---	---
30	.38	14	4.4	3.8	---	17	33	---	---	---	---	---
31	.67	---	4.2	3.7	---	.00	---	---	---	---	---	---
TOTAL	54.83	190.61	290.5	105.9	391.4	586.00	633.62	110	---	---	---	---
MEAN	1.77	6.35	9.37	3.42	14.0	18.9	21.1	27.5	---	---	---	---
MAX	8.7	14	15	4.1	27	26	38	32	---	---	---	---
MIN	.00	.00	4.2	2.8	3.6	.00	.00	23	---	---	---	---
CFSM	.11	.40	.59	.22	.88	1.20	1.34	1.74	---	---	---	---
IN.	.13	.45	.68	.25	.92	1.38	1.49	.26	---	---	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

	MEAN	1.77	6.35	9.37	3.42	14.0	18.9	21.1	44.3	42.2	37.9	28.6	10.9
MAX	1.77	6.35	9.37	3.42	14.0	18.9	21.1	44.3	42.2	37.9	28.6	10.9	10.9
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1998	1998	1998	1998	1998
MIN	1.77	6.35	9.37	3.42	14.0	18.9	21.1	44.3	42.2	37.9	28.6	10.9	10.9
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1998	1998	1998	1998	1998

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR (APRIL-DECEMBER)	FOR 1999 WATER YEAR (OCTOBER-MAY)	WATER YEARS 1998 - 1999
HIGHEST DAILY MEAN	180 Jun 28	38 Apr 25,26	180 Jun 28 1998
LOWEST DAILY MEAN	.00 (a)Oct 1-8	.00 (b)Oct 1	.00 (b)Oct 1 1998
ANNUAL SEVEN-DAY MINIMUM	.00 (c)Oct 1	.00 (c)Oct 1	.00 (c)Oct 1 1998
10 PERCENT EXCEEDS	52	26	41
50 PERCENT EXCEEDS	14	7.9	16
90 PERCENT EXCEEDS	1.4	.00	2.8

(a) Also occurred Oct. 20-29, Nov. 3

(b) Also occurred Oct. 2-8, 20-29, Nov. 3, Mar. 31, Apr. 1-3

(c) Also occurred Oct. 20

WISCONSIN RIVER BASIN

05403045 SUK-CERNEY FLOWAGE OUTLET NEAR NECEDAH, WI

LOCATION.--Lat 44°02'39", long 90°10'32", in NW 1/4 SE 1/4 sec 7, T.18 N., R.3 E., Juneau County, Hydrologic Unit 07070003, on right bank 50 ft upstream of a U.S. Fish and Wildlife Service control structure, 5 mi northwest of Necedah.

DRAINAGE AREA.--7.19 mi².

PERIOD OF RECORD.--April 1998 to May 1999 (discontinued).

GAGE.--Water-stage recorder and broad-crested weir. Elevation of gage is 913.46 ft above sea level (U.S. Fish and Wildlife Service benchmark).

REMARKS.--Estimated daily discharges: Oct. 1-12, Oct. 21 to Nov. 19 and ice-affected periods, Dec. 25 to Feb. 9. Records good except for estimated daily discharges, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.00	2.3	.42	.40	7.6	6.1	12	---	---	---	---
2	.00	.00	3.4	.42	.42	8.3	6.1	11	---	---	---	---
3	.00	.00	2.8	.42	.50	9.0	6.1	9.8	---	---	---	---
4	.00	.00	2.0	.42	.60	9.0	6.6	8.5	---	---	---	---
5	.00	.00	1.9	.42	.50	9.0	7.1	---	---	---	---	---
6	.00	.00	1.7	.42	.46	9.0	5.8	---	---	---	---	---
7	.00	.00	1.6	.42	.45	9.0	4.8	---	---	---	---	---
8	.00	.00	1.4	.42	.45	9.0	4.7	---	---	---	---	---
9	.00	.00	1.2	.42	.50	9.0	7.2	---	---	---	---	---
10	.00	.00	1.1	.42	.97	9.0	6.6	---	---	---	---	---
11	.00	.00	.84	.42	2.4	9.0	7.4	---	---	---	---	---
12	1.2	.00	.80	.42	3.9	9.0	7.6	---	---	---	---	---
13	.68	.00	.77	.42	4.1	9.0	7.8	---	---	---	---	---
14	.57	.00	.65	.42	4.2	9.0	7.9	---	---	---	---	---
15	.58	.00	.59	.46	4.8	8.9	8.3	---	---	---	---	---
16	.55	.00	.58	.44	5.6	8.4	8.9	---	---	---	---	---
17	.61	.00	.57	.44	6.6	8.3	9.1	---	---	---	---	---
18	.38	.16	.57	.44	6.9	8.2	9.2	---	---	---	---	---
19	.23	.32	.57	.52	6.9	8.2	9.0	---	---	---	---	---
20	.13	.54	.50	.49	6.9	7.9	9.0	---	---	---	---	---
21	.00	.43	.50	.44	6.9	7.5	8.8	---	---	---	---	---
22	.00	.37	.50	.44	6.9	7.4	11	---	---	---	---	---
23	.00	.42	.50	.42	6.9	7.2	13	---	---	---	---	---
24	.00	.40	.50	.41	6.9	7.0	13	---	---	---	---	---
25	.00	.37	.42	.40	6.9	6.7	13	---	---	---	---	---
26	.00	.39	.42	.40	6.9	6.7	13	---	---	---	---	---
27	.00	.43	.42	.40	7.2	6.4	12	---	---	---	---	---
28	.00	.39	.42	.40	7.5	6.0	12	---	---	---	---	---
29	.00	.37	.42	.40	---	6.1	12	---	---	---	---	---
30	.00	.37	.42	.40	---	6.1	12	---	---	---	---	---
31	.00	---	.42	.40	---	6.1	---	---	---	---	---	---
TOTAL	5.03	4.96	30.78	13.18	113.65	247.0	265.1	41.3	---	---	---	---
MEAN	.16	.17	.99	.43	4.06	7.97	8.84	10.3	---	---	---	---
MAX	1.2	.54	3.4	.52	7.5	9.0	13	12	---	---	---	---
MIN	.00	.00	.42	.40	.40	6.0	4.7	8.5	---	---	---	---
CFSM	.02	.02	.14	.06	.56	1.11	1.23	1.44	---	---	---	---
IN.	.03	.03	.16	.07	.59	1.28	1.37	.21	---	---	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
MEAN	.16	.17	.99	.43	4.06	7.97	7.79	12.2	19.9	16.9	14.2	1.92
MAX	.16	.17	.99	.43	4.06	7.97	8.84	12.5	19.9	16.9	14.2	1.92
(WY)	1999	1999	1999	1999	1999	1999	1999	1998	1998	1998	1998	1998
MIN	.16	.17	.99	.43	4.06	7.97	3.88	10.3	19.9	16.9	14.2	1.92
(WY)	1999	1999	1999	1999	1999	1999	1998	1999	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR
(APRIL-DECEMBER)FOR 1999 WATER YEAR
(OCTOBER-MAY)

WATER YEARS 1998 - 1999

ANNUAL TOTAL	2077.59	721.00		
ANNUAL MEAN	8.21	3.34		
HIGHEST DAILY MEAN	41	13	7.32	
LOWEST DAILY MEAN	.00	.00	.00	Jun 28 1998
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00	Many days
ANNUAL RUNOFF (CFSM)	1.14	.46	1.02	Oct 2,21 1998
ANNUAL RUNOFF (INCHES)	10.75	3.73	13.82	
10 PERCENT EXCEEDS	20	9.0	16	
50 PERCENT EXCEEDS	5.0	.57	6.1	
90 PERCENT EXCEEDS	.00	.00	.00	

05404000 WISCONSIN RIVER NEAR WISCONSIN DELLS, WI

LOCATION.--Lat 43°36'22", long 89°45'25" in NW 1/4 sec.14, T.13 N., R.6 E., Sauk County, Hydrologic Unit 07070003, on right bank 0.5 mi downstream from Dell Creek and 1.8 mi southeast of Wisconsin Dells.

DRAINAGE AREA.--8,090 mi².

PERIOD OF RECORD.--October 1934 to current year.

REVISED RECORDS.--WSP 1728: 1936(M). WSP 1914: 1951, 1953-55. WDR WI-77-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 801.48 ft above sea level (levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1963, water-stage recorder at same site at datum 5.00 ft higher.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 21 to Feb. 14. Records good except for ice-affected period, which is fair (see page 13). Flow regulated by 24 reservoirs above station. In 1938, when the maximum of record occurred, there were 21 reservoirs above station, the two large reservoirs, Petenwell and Castle Rock, were not in existence. Diurnal fluctuation is caused by powerplant of Wisconsin Power and Light Company at Wisconsin Dells. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2470	3550	3570	4200	4500	4910	4820	5870	5340	3560	7860	4570
2	2470	3590	3640	4400	4300	5070	4560	4990	5450	3710	6400	4360
3	2320	3600	3310	4200	4300	5140	4650	5030	5220	4010	8210	4350
4	2360	3700	3320	4200	4600	5580	4610	5210	4840	6750	6440	3880
5	2350	3650	3230	4200	4200	5470	5880	5010	3920	6720	7520	3870
6	2540	3450	3260	4200	4300	4920	10400	4950	4020	6690	7310	3820
7	2450	2990	3250	4200	4100	4780	16400	6580	4060	5010	6150	3770
8	2440	2720	3250	4200	3500	4890	17100	19800	4210	4510	6150	3490
9	3980	2750	3190	4200	2800	4630	19100	23100	4560	6790	6200	3420
10	4030	3110	3230	4200	3000	4460	18700	22000	4920	14400	6670	3370
11	3440	4100	3240	4200	3500	4090	12400	21600	6080	13600	5210	3410
12	2580	4460	3190	4300	3900	4450	9960	15900	5990	10900	5090	3470
13	2480	4150	3180	4200	4200	4040	9700	9890	5480	9140	5150	3580
14	2420	4200	3140	4200	4400	4080	9490	7920	5490	6560	5560	3880
15	2670	4080	3150	4500	4620	4120	9370	6180	5130	7010	4880	3920
16	2490	4340	2900	4700	4870	4160	9220	5580	4260	7170	4500	4070
17	2480	3900	2840	4400	4850	4200	6160	5970	3950	7500	4680	3940
18	2570	3900	2870	4700	4840	4220	5960	5960	3650	10700	4910	3920
19	2550	3710	2840	5000	5040	4310	5690	7910	3450	11800	5650	3920
20	2770	3450	2830	4800	4900	4160	4450	7580	3010	14600	6680	3850
21	3330	3370	2700	4700	4930	4170	4690	7780	3220	12800	5470	3990
22	3180	3410	1900	4700	4870	4230	5000	7880	3400	12400	4700	3720
23	3270	3510	3600	4600	4930	5180	5710	7840	2930	12200	4820	3720
24	3090	3520	3800	4400	4780	5360	7980	6280	3130	11900	4890	3880
25	2880	3380	3100	4500	4900	6860	6660	7640	3580	8510	5280	3730
26	2860	3570	3800	4700	4940	7260	6440	7680	3690	10500	5200	3360
27	3020	3610	3800	4700	4980	6880	7150	7690	3760	14800	5020	3370
28	3860	3600	3700	4100	4980	6440	7190	7610	4000	14800	4940	3520
29	3670	3600	3500	4100	---	5970	7850	6190	5510	8760	4950	3640
30	3490	3610	3100	4500	---	5600	7100	6300	3880	8480	4980	3790
31	3570	---	3500	4200	---	4800	---	5530	---	8150	4600	---
TOTAL	90080	108580	99930	136400	124030	154430	254390	275450	130130	284430	176070	113580
MEAN	2906	3619	3224	4400	4430	4982	8480	8885	4338	9175	5680	3786
MAX	4030	4460	3800	5000	5040	7260	19100	23100	6080	14800	8210	4570
MIN	2320	2720	1900	4100	2800	4040	4450	4950	2930	3560	4500	3360

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 1999, BY WATER YEAR (WY)

	MEAN	5921	6304	5114	4791	5061	8225	13000	9468	8501	5411	4362	5913
MAX	19120	13900	10740	7831	9614	25620	25050	26990	27090	13350	10700	25900	
(WY)	1987	1983	1966	1992	1984	1973	1951	1960	1993	1978	1995	1938	
MIN	1683	1688	1746	2434	2432	2945	2939	3361	1826	1713	1634	1754	
(WY)	1977	1977	1990	1945	1945	1940	1964	1977	1988	1988	1988	1976	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

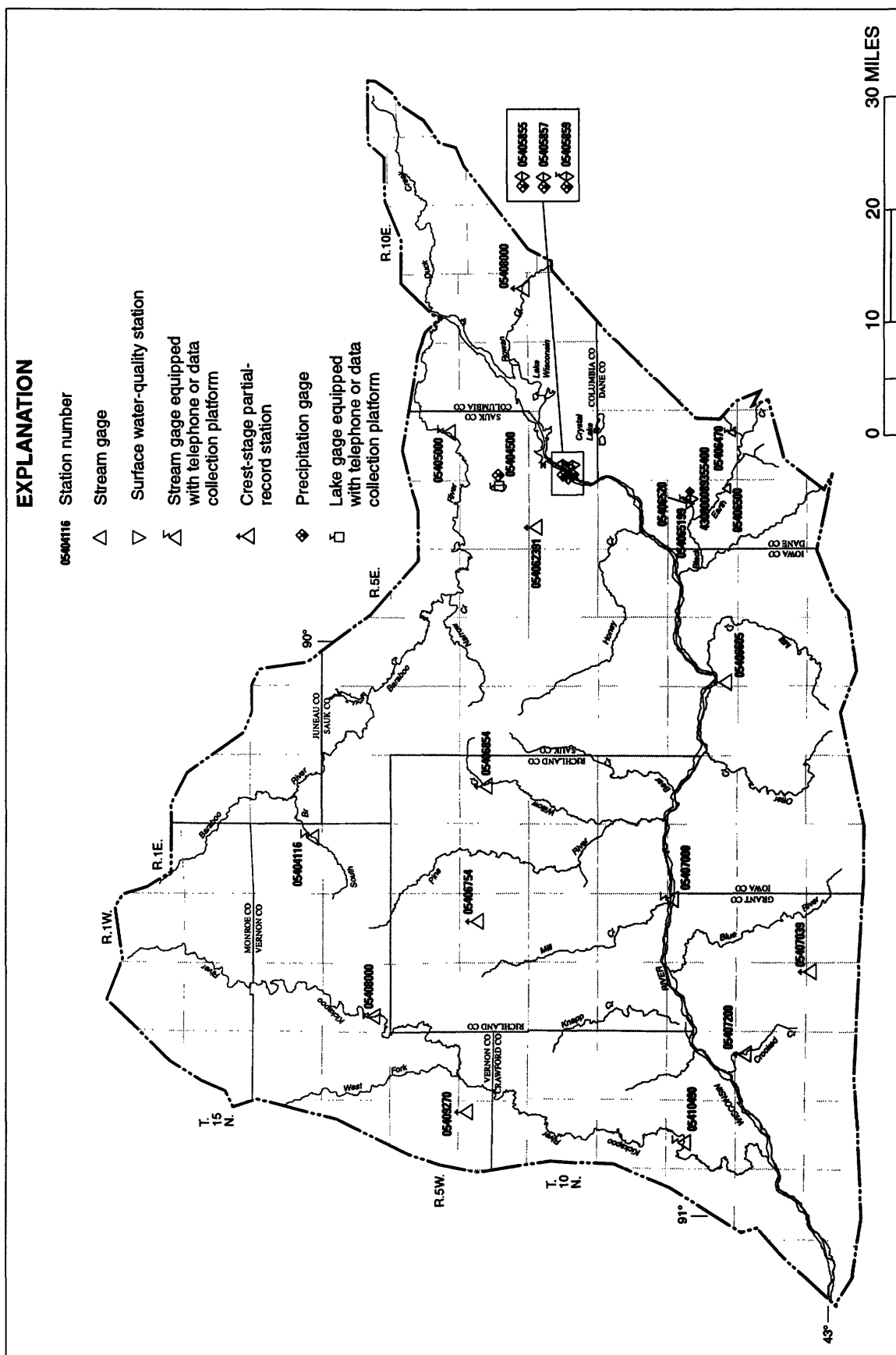
FOR 1999 WATER YEAR

WATER YEARS 1935 - 1999

ANNUAL TOTAL	2074010	1947500	
ANNUAL MEAN	5682	5336	6836
HIGHEST ANNUAL MEAN			12420
LOWEST ANNUAL MEAN			2993
HIGHEST DAILY MEAN	33100	Apr 2	71200
LOWEST DAILY MEAN	1890	Sep 24	1060
ANNUAL SEVEN-DAY MINIMUM	2000	Sep 22	1210
INSTANTANEOUS PEAK FLOW			72200
INSTANTANEOUS PEAK STAGE			(b)23.83
10 PERCENT EXCEEDS	8890	8050	12100
50 PERCENT EXCEEDS	4610	4400	5200
90 PERCENT EXCEEDS	2540	3100	2890

(a) Ice affected

(b) Present datum



LOWER WISCONSIN RIVER BASIN

Base from U.S. Geological Survey 1:100,000 digital data;
modified by Wisconsin Department of Natural Resources.
Wisconsin Transverse Mercator projection.

05404116 SOUTH BRANCH BARABOO RIVER AT HILLSBORO, WI

LOCATION.--Lat 43°39'10", long 90°20'09", in NE 1/4 NE 1/4 sec.35, T.14 N., R.1 E., Vernon County, Hydrologic Unit 07070004, on left bank 220 ft upstream from County Highway FF at Hillsboro, and 6.3 mi upstream from mouth.

DRAINAGE AREA.--39.1 mi².

PERIOD OF RECORD.--July 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 927.28 ft above sea level (levels by Mid-State Associates, Baraboo, WI).

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 23 to Jan.16. Records good except those for ice-affected period, which is fair (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	17	14	10	14	25	16	20	23	33	17	11
2	13	16	14	11	16	24	16	19	22	24	14	11
3	14	15	14	11	17	20	39	19	20	48	13	11
4	15	15	14	11	17	19	82	15	21	25	15	11
5	22	15	14	11	15	18	38	25	22	22	13	10
6	19	15	14	12	15	16	65	30	21	24	12	11
7	16	14	13	12	14	16	33	34	21	20	14	10
8	15	15	13	12	15	16	34	36	19	22	14	11
9	13	17	13	12	19	17	391	23	20	56	15	10
10	13	84	13	12	20	17	69	20	20	16	17	10
11	12	38	13	12	213	17	68	20	27	14	14	9.8
12	13	20	13	12	107	17	42	23	22	13	15	9.8
13	12	19	13	12	34	17	35	20	20	13	15	10
14	12	20	13	12	28	18	29	18	19	12	14	10
15	12	18	13	12	33	19	26	17	18	12	13	10
16	12	19	13	13	37	24	25	19	19	12	15	9.8
17	16	19	13	14	26	32	22	90	20	24	14	9.6
18	36	18	13	15	23	27	25	65	19	29	13	9.5
19	18	18	13	14	20	20	25	34	19	63	36	10
20	16	16	13	13	19	19	24	25	19	43	18	11
21	15	16	12	13	17	20	28	33	19	102	14	10
22	15	16	9.8	17	17	18	218	30	20	27	14	10
23	15	16	9.6	19	17	17	132	29	20	23	16	9.9
24	15	15	9.6	16	17	17	55	26	20	19	16	9.6
25	15	15	9.6	14	17	15	40	24	19	16	14	9.6
26	15	15	10	13	22	15	34	22	18	19	13	9.6
27	31	15	11	14	41	15	29	21	19	17	13	16
28	20	15	11	14	31	16	29	21	22	14	12	15
29	20	15	11	14	---	16	24	20	22	17	11	12
30	23	16	10	13	---	16	22	19	17	17	11	11
31	18	---	10	13	---	16	---	23	---	30	11	---
TOTAL	517	582	379.6	403	881	579	1715	840	609	826	456	318.2
MEAN	16.7	19.4	12.2	13.0	31.5	18.7	57.2	27.1	20.3	26.6	14.7	10.6
MAX	36	84	14	19	213	32	391	90	27	102	36	16
MIN	12	14	9.6	10	14	15	16	15	18	12	11	9.5
CFSM	.43	.50	.31	.33	.80	.48	1.46	.69	.52	.68	.38	.27
IN.	.49	.55	.36	.38	.84	.55	1.63	.80	.58	.79	.43	.30

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1999, BY WATER YEAR (WY)

	MEAN	15.1	17.5	14.0	14.1	19.2	37.2	35.0	24.4	32.5	19.2	15.2	21.9
MAX	26.1	28.6	22.9	26.8	31.5	50.8	70.9	52.5	75.3	52.3	28.2	95.3	
(WY)	1994	1993	1993	1996	1999	1989	1993	1993	1990	1993	1993	1992	
MIN	6.79	8.14	4.42	8.95	6.91	18.7	8.47	13.2	8.38	5.83	6.69	6.12	
(WY)	1990	1991	1990	1991	1989	1999	1990	1989	1989	1989	1988	1990	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1988 - 1999

ANNUAL TOTAL	8545.2	8105.8	
ANNUAL MEAN	23.4	22.2	22.3
HIGHEST ANNUAL MEAN			35.1
LOWEST ANNUAL MEAN			13.0
HIGHEST DAILY MEAN	437	391	1190
LOWEST DAILY MEAN	(a) 8.0	9.5	(b) 1.2
ANNUAL SEVEN-DAY MINIMUM	(a) 8.2	9.8	(b) 1.4
INSTANTANEOUS PEAK FLOW		885	(c) 4010
INSTANTANEOUS PEAK STAGE		11.94	(d) 15.60
ANNUAL RUNOFF (CFSM)	.60	.57	.57
ANNUAL RUNOFF (INCHES)	8.13	7.71	7.75
10 PERCENT EXCEEDS	35	33	34
50 PERCENT EXCEEDS	16	16	15
90 PERCENT EXCEEDS	10	11	7.2

(a) Ice affected

(b) Result of closing dam gates to fill lake 0.35 mi upstream

(c) From rating curve extended above 1,100 ft³/s, on basis of contracted-area measurement

(d) From floodmark on gage house

WISCONSIN RIVER BASIN
05404500 DEVILS LAKE NEAR BARABOO, WI

LOCATION.--Lat 43°25'35", long 89°43'40", in SW 1/4 SE 1/4 sec.13, T.11 N., R.6 E., Sauk County, Hydrologic Unit 07070004, in Devils Lake State Park, 3.5 mi south of Baraboo; prior to Nov. 19, 1996, at lat 43°25'18", long 89°43'38".

DRAINAGE AREA.--4.79 mi². Area of Devils Lake, 361 acres.

GAGE-HEIGHT RECORD

PERIOD OF RECORD.--June 1922 to August 1930, June to August 1932, June 1934 to September 1981 (fragmentary). October 1981 to September 1984, data unpublished in district files. October 1984 to current year.

REVISED RECORDS.--WDR WI-78-1: Drainage area.

GAGE.--Water-stage recorder installed July 17, 1991. Datum of gage is 955.00 ft, above sea level.

REMARKS.--No estimated daily gage heights. Records good (see page 13). Lake has no surface outlet.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 14.13 ft, July 18, 1993; minimum observed, 1.49 ft Feb. 8, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum recorded gage height, 11.06 ft, June 11 and 13; minimum recorded, 8.76 ft, Jan. 1.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.53	9.24	9.09	8.77	8.88	9.16	9.12	10.75	10.85	10.68	10.38	9.97
2	9.50	9.21	9.08	8.81	8.89	9.16	9.12	10.74	10.89	10.67	10.34	9.95
3	9.49	9.19	9.07	8.85	8.89	9.15	9.28	10.73	10.87	10.66	10.31	9.93
4	9.48	9.17	9.07	8.84	8.88	9.15	9.48	10.72	10.87	10.66	10.29	9.91
5	9.51	9.15	9.06	8.84	8.88	9.15	9.55	10.72	10.87	10.64	10.26	9.88
6	9.55	9.13	9.06	8.85	8.87	9.15	9.62	10.75	10.87	10.62	10.23	9.86
7	9.53	9.11	9.05	8.84	8.87	9.15	9.65	10.80	10.85	10.59	10.23	9.83
8	9.51	9.10	9.04	8.84	8.87	9.15	9.68	10.81	10.87	10.56	10.21	9.80
9	9.50	9.11	9.02	8.84	8.87	9.18	9.94	10.81	11.02	10.56	10.19	9.77
10	9.48	9.26	9.01	8.84	8.87	9.18	10.07	10.80	11.02	10.52	10.17	9.74
11	9.46	9.26	9.00	8.84	8.94	9.17	10.12	10.79	11.03	10.49	10.15	9.71
12	9.44	9.25	8.99	8.85	9.09	9.17	10.15	10.78	11.04	10.47	10.14	9.69
13	9.41	9.24	8.98	8.86	9.11	9.16	10.17	10.76	11.04	10.44	10.11	9.67
14	9.39	9.23	8.97	8.86	9.13	9.15	10.19	10.75	11.02	10.41	10.09	9.64
15	9.37	9.21	8.95	8.85	9.14	9.15	10.19	10.74	10.99	10.37	10.06	9.61
16	9.36	9.20	8.94	8.85	9.15	9.14	10.20	10.74	10.96	10.36	10.03	9.59
17	9.39	9.20	8.93	8.86	9.16	9.15	10.20	10.89	10.94	10.39	10.00	9.57
18	9.42	9.19	8.92	8.87	9.15	9.16	10.20	10.94	10.91	10.38	9.99	9.54
19	9.40	9.19	8.91	8.87	9.15	9.16	10.20	10.95	10.89	10.43	10.13	9.52
20	9.37	9.16	8.89	8.86	9.15	9.16	10.21	10.95	10.86	10.43	10.13	9.50
21	9.35	9.15	8.89	8.85	9.14	9.16	10.21	10.94	10.84	10.52	10.12	9.48
22	9.33	9.14	8.87	8.89	9.14	9.16	10.30	10.94	10.82	10.51	10.10	9.45
23	9.31	9.12	8.86	8.90	9.13	9.16	10.59	10.95	10.82	10.51	10.11	9.43
24	9.29	9.12	8.85	8.91	9.13	9.15	10.69	10.94	10.82	10.53	10.14	9.41
25	9.28	9.10	8.84	8.92	9.14	9.15	10.73	10.92	10.80	10.51	10.13	9.39
26	9.27	9.09	8.83	8.91	9.14	9.14	10.75	10.90	10.77	10.50	10.11	9.37
27	9.28	9.09	8.82	8.91	9.15	9.14	10.76	10.88	10.75	10.48	10.10	9.45
28	9.29	9.09	8.80	8.90	9.16	9.14	10.76	10.86	10.72	10.45	10.08	9.46
29	9.28	9.09	8.81	8.90	---	9.13	10.76	10.85	10.69	10.43	10.06	9.45
30	9.27	9.09	8.80	8.89	---	9.13	10.76	10.83	10.67	10.41	10.03	9.42
31	9.25	---	8.79	8.89	---	9.13	---	10.84	---	10.41	10.00	---
MEAN	9.40	9.16	8.94	8.86	9.04	9.15	10.12	10.83	10.88	10.50	10.14	9.63
MAX	9.55	9.26	9.09	8.92	9.16	9.18	10.76	10.95	11.04	10.68	10.38	9.97
MIN	9.25	9.09	8.79	8.77	8.87	9.13	9.12	10.72	10.67	10.36	9.99	9.37

WISCONSIN RIVER BASIN
05404500 DEVILS LAKE NEAR BARABOO, WI--CONTINUED

305

PRECIPITATION QUANTITY

PERIOD OF RECORD.--October 1996 to current year (non-frozen precipitation).

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established on July 17, 1991. Prior to Oct. 1, 1996, record was not published. Missing record Nov. 13 to Mar. 3 and May 21 to June 10.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.49 in., Aug. 19.

RAINFALL ACCUMULATED (INCHES), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	---	---	---	---	.00	.00	---	.53	.00	.00
2	.07	.00	---	---	---	---	.00	.00	---	.01	.00	.00
3	.18	.00	---	---	---	---	2.14	.00	---	.31	.33	.00
4	.01	.00	---	---	---	.00	.14	.01	---	.00	.00	.00
5	1.17	.00	---	---	---	.00	.39	.05	---	.08	.00	.00
6	.06	.00	---	---	---	.00	.00	.67	---	.01	.00	.00
7	.00	.00	---	---	---	.00	.00	.08	---	.00	.53	.00
8	.00	.03	---	---	---	.00	1.08	.00	---	.30	.00	.01
9	.00	.74	---	---	---	.03	.85	.06	---	.08	.56	.00
10	.00	.99	---	---	---	.16	.02	.00	---	.00	.00	.00
11	.00	.00	---	---	---	.00	.17	.03	.61	.00	.00	.00
12	.00	.00	---	---	---	.00	.00	.00	.01	.00	.07	.02
13	.00	---	---	---	---	.00	.00	.00	.41	.00	.00	.03
14	.00	---	---	---	---	.00	.00	.00	.00	.03	.00	.00
15	.00	---	---	---	---	.00	.02	.02	.00	.00	.00	.00
16	.00	---	---	---	---	.00	.06	.98	.09	.75	.01	.00
17	.87	---	---	---	---	.00	.00	.45	.00	.13	.00	.00
18	.00	---	---	---	---	.00	.06	.03	.00	.52	.15	.00
19	.00	---	---	---	---	.00	.00	.01	.00	.38	2.49	.07
20	.00	---	---	---	---	.00	.19	.01	.00	1.44	.00	.00
21	.00	---	---	---	---	.00	.13	---	.00	.23	.00	.00
22	.00	---	---	---	---	.00	1.40	---	.01	.00	.05	.00
23	.00	---	---	---	---	.00	1.02	---	.41	.57	1.04	.00
24	.00	---	---	---	---	.00	.00	---	.00	.00	.01	.00
25	.00	---	---	---	---	.00	.00	---	.00	.00	.00	.00
26	.00	---	---	---	---	.00	.00	---	.00	.23	.00	.26
27	.39	---	---	---	---	.00	.03	---	.00	.00	.00	1.16
28	.00	---	---	---	---	.03	.00	---	.12	.00	.00	.30
29	.08	---	---	---	---	.00	.00	---	.00	.01	.00	.01
30	.01	---	---	---	---	.00	.00	---	.02	.00	.00	.00
31	.00	---	---	---	---	.00	---	---	---	.67	.00	---
TOTAL	2.84	---	---	---	---	---	7.70	---	---	6.28	5.24	1.86

EXTREMES OUTSIDE THE PERIOD OF RECORD.--Flood of Aug. 6, 1935, reached a stage of 15.8 ft from floodmarks, site and datum in use in 1922. discharge, 5,100 ft³/s.

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	250	402	289	210	281	590	312	587	449	270	311	209
2	258	380	292	210	292	612	313	531	680	263	329	207
3	269	332	287	210	312	561	714	492	584	294	340	204
4	264	302	284	210	344	478	1440	485	488	361	306	203
5	300	285	282	210	364	416	1380	459	425	381	261	195
6	345	276	283	230	342	363	1200	483	436	371	250	201
7	352	269	278	240	342	328	1120	542	423	315	261	195
8	341	267	274	240	329	309	950	597	446	278	256	191
9	315	273	268	240	345	286	1450	594	607	266	262	186
10	281	511	259	240	386	294	1930	564	446	281	266	190
11	265	742	252	240	720	293	1780	504	447	317	257	190
12	252	789	251	240	1410	306	1580	445	553	306	262	195
13	241	768	250	240	1350	301	1510	418	437	247	261	194
14	235	679	250	240	1170	296	1440	410	402	221	248	201
15	241	506	251	250	1210	304	1250	397	340	211	240	199
16	247	408	252	270	1100	332	959	391	294	215	235	198
17	294	375	251	280	867	399	738	774	275	285	224	194
18	357	365	254	293	659	473	620	1270	267	398	221	195
19	429	366	252	287	541	512	564	1290	258	513	318	190
20	407	352	251	288	453	523	530	1120	251	593	283	192
21	374	339	241	284	387	481	530	937	245	1020	365	194
22	321	326	186	300	345	431	702	708	237	1190	342	198
23	287	312	230	304	321	411	1720	619	241	1140	314	198
24	273	302	220	320	312	387	2230	584	240	1040	313	196
25	265	301	220	329	313	358	2020	526	238	829	295	195
26	271	294	216	325	308	337	1610	465	236	569	282	191
27	319	288	216	300	347	322	1440	408	226	393	272	231
28	317	284	214	299	487	312	1210	374	217	373	256	249
29	351	284	220	303	---	309	909	347	218	445	233	273
30	398	288	210	308	---	314	685	305	237	408	222	276
31	388	---	210	282	---	316	---	321	---	338	215	---
TOTAL	9507	11665	7693	8222	15637	11954	34836	17947	10843	14131	8500	6130
MEAN	307	389	248	265	558	386	1161	579	361	456	274	204
MAX	429	789	292	329	1410	612	2230	1290	680	1190	365	276
MIN	235	267	186	210	281	286	312	305	217	211	215	186
CFSM	.50	.64	.41	.44	.92	.63	1.91	.95	.59	.75	.45	.34
IN.	.58	.71	.47	.50	.96	.73	2.13	1.10	.66	.86	.52	.33

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1999, BY WATER YEAR (WY)

MEAN	282	329	245	248	335	812	717	436	424	322	258	314
MAX	842	942	519	945	1135	1759	2588	1518	1332	1495	1018	1285
(WY)	1973	1986	1993	1946	1966	1948	1993	1973	1920	1993	1980	1965
MIN	117	116	76.2	78.3	89.3	170	253	138	112	112	95.8	100
(WY)	1959	1959	1959	1959	1959	1964	1946	1958	1958	1965	1958	1958

05405000 BARABOO RIVER NEAR BARABOO, WI--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1914 - 1999	
ANNUAL TOTAL	180411		157065		393	
ANNUAL MEAN	494		430		824	1993
HIGHEST ANNUAL MEAN					158	1958
LOWEST ANNUAL MEAN					7540	Mar 26 1917
HIGHEST DAILY MEAN	3700	Apr 1	2230	Apr 24	26	Oct 6 1950
LOWEST DAILY MEAN	(a) 170	Jan 2	(b) 186	(c) Dec 22	(a) 72	Dec 8 1958
ANNUAL SEVEN-DAY MINIMUM	(a) 203	Jan 12	192	Sep 7	(d) 7900	Mar 26 1917
INSTANTANEOUS PEAK FLOW			2270	Apr 24	22.78	Jul 18 1993
INSTANTANEOUS PEAK STAGE			15.04	Apr 24	.65	
ANNUAL RUNOFF (CFSM)	.81		.71		8.77	
ANNUAL RUNOFF (INCHES)	11.02		9.59		780	
10 PERCENT EXCEEDS	919		780		244	
50 PERCENT EXCEEDS	326		311		140	
90 PERCENT EXCEEDS	221		215			

(a) Ice affected

(b) Result of freezeup

(c) Also occurred Sept. 9, not result of freezeup

(d) Gage height, 17.50 ft, estimated, site and datum then in use, from rating curve extended above 6,000 ft³/s

WISCONSIN RIVER BASIN

05405855 LAKE WISCONSIN TRIBUTARY #3 NEAR PRAIRIE DU SAC, WI

LOCATION.--Lat 43°20'10", long 89°42'23", in NW 1/4 NE 1/4 sec.19, T.10 N., R.7 E., Sauk County, Hydrologic Unit 07070005, on USDA Dairy Forage Research station, 2.7 mi northeast of Prairie du Sac.

DRAINAGE AREA.--0.0028 mi² (1.78 acres).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1997 to current year.

GAGE.--Water-stage recorder and a 3-inch Parshall flume. Elevation of gage is 835 ft above sea level, from topographic map.

REMARKS.--Records are good (see page 13). Periods of flow are reported; for all other periods, there was no flow.

START DATE	START TIME	END DATE	END TIME	VOLUME (cubic feet)	PEAK DISCHARGE (ft ³ /s)
02/08/99	1515	02/08/99	2030	276	0.020
02/09/99	1400	02/09/99	1700	173	0.028
02/10/99	1345	02/10/99	2030	77.8	0.010
02/11/99	0145	02/11/99	0345	86.4	0.016
02/11/99	1315	02/11/99	1315	294	0.154

05405855 LAKE WISCONSIN TRIBUTARY #3 NEAR PRAIRIE DU SAC, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1997 to current year.

INSTRUMENTATION.--Water-quality sampler November 1997 to current year.

REMARKS.-- Chemical analyses by the Wisconsin State Laboratory of Hygiene. Samples are storm-composite samples collected by an automatic point sampler.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

BEGIN- NING DATE	BEGIN- NING TIME	ENDING DATE	ENDING TIME	RUNOFF VOLUME MILLIONS OF CUBIC FEET (99905)	RESIDENT TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)
02-08-99	1555	02-08-99	1936	0.216X10 ⁻³	10
02-09-99	1435	02-09-99	1552	0.104X10 ⁻³	8
02-11-99	0222	02-11-99	0322	0.052X10 ⁻³	<5
02-11-99	1330	02-11-99	1435	0.285X10 ⁻³	374

DATE	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L) AS N) (00625)	PHOS- PHORUS TOTAL (MG/L) AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L) AS P) (00671)
02-08-99	8	.598	.855	2.1	.214	--
02-09-99	8	.297	.823	2.9	.290	--
02-11-99	<5	.121	.355	.90	.142	--
02-11-99	70	.145	.316	4.0	.828	.081

WISCONSIN RIVER BASIN
05405855 LAKE WISCONSIN TRIBUTARY #3 NEAR PRAIRIE DU SAC, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--November 1997 to current year.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established Nov. 1, 1997. Rainfall estimated to be 0.00 for Dec. 29, Jan. 6, 14, 18, 23-25, Feb. 2, 24, 25, and Mar. 5, 6, 9 because recorded precipitation interpreted as collector snowmelt. Missing record Oct. 2, 3, 5, Nov. 9, July 6-10, and Aug. 9-16.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 3.46 in., Apr. 3, 1999.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 3.46 in., Apr. 3.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.01	.00	.03	.00	.00	.00	.35	1.22	.00	.00
2	---	.00	.00	.00	.00	.00	.00	.00	.27	.01	.00	.00
3	---	.00	.00	.00	.03	.00	3.46	.00	.01	.23	.18	.00
4	.00	.00	.00	.00	.00	.00	.20	.03	.33	.00	.05	.00
5	---	.00	.00	.00	.03	.00	.42	.08	.00	.14	.00	.00
6	.08	.00	.00	.00	.00	.00	.01	.66	.13	---	.00	.00
7	.00	.00	.03	.00	.00	.00	.00	.08	.00	---	.45	.00
8	.00	.00	.00	.00	.00	.00	1.10	.00	.37	---	.00	.10
9	.01	---	.01	.00	.00	.00	.76	.00	.01	---	---	.00
10	.00	.00	.00	.00	.00	.03	.03	.00	.14	---	---	.00
11	.01	.00	.00	.00	1.15	.00	.13	.03	.01	.00	---	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	---	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.53	.01	---	.10
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	---	.00
15	.00	.00	.00	.00	.00	.00	.04	.03	.00	.00	---	.00
16	.00	.02	.00	.31	.00	.00	.02	1.00	.15	.70	---	.00
17	.85	.00	.00	.36	.00	.00	.00	.38	.00	.04	.00	.00
18	.00	.02	.00	.00	.00	.00	.00	.09	.00	.56	.20	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.39	.10	.00
20	.00	.00	.00	.00	.00	.00	.22	.00	.00	.55	.00	.00
21	.00	.00	.00	.11	.00	.00	.23	.09	.00	.35	.00	.00
22	.00	.00	.00	.51	.00	.00	1.50	.01	.15	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	1.03	.75	.31	.26	1.30	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.18	.00	.00	.00	.00	.40	.00	.20
27	.37	.00	.00	.01	.00	.00	.11	.00	.00	.01	.00	1.00
28	.01	.00	.00	.00	.00	.05	.00	.00	.57	.00	.00	.30
29	.02	.00	.00	.00	---	.00	.00	.00	.00	.01	.00	.00
30	.00	.07	.00	.00	---	.00	.00	.00	.06	.00	.00	.00
31	.00	---	.00	.01	---	.00	---	.55	---	1.02	.00	---
TOTAL	---	---	0.05	1.31	1.42	0.08	9.26	3.78	3.40	---	---	1.70

05405857 LAKE WISCONSIN TRIBUTARY #2 NEAR PRAIRIE DU SAC, WI

LOCATION.--Lat 43°20'06", long 89°42'20", in NW 1/4 NE 1/4 sec.19, T.10 N., R.7 E., Sauk County, Hydrologic Unit 07070005, on USDA Dairy Forage Research station, 2.6 mi northeast of Prairie du Sac.

DRAINAGE AREA.--0.0089 mi² (5.71 acres).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1997 to current year.

GAGE.--Water-stage recorder and a 3-inch Parshall flume. Elevation of gage is 840 ft above sea level, from topographic map.

REMARKS.--Records are good (see page 13). Periods of flow are reported; for all other periods, there was no flow.

START DATE	START TIME	END DATE	END TIME	VOLUME (cubic feet)	PEAK DISCHARGE (ft ³ /s)
11/10/98	1045	11/10/98	2115	25.9	0.003
01/17/99	1900	01/18/99	0200	130	0.007
01/22/99	0115	01/23/99	0615	1909	0.037
01/23/99	1000	01/24/99	0400	890	0.024
01/27/99	2245	01/28/99	1545	207	0.007
01/30/99	1500	01/30/99	1645	8.64	0.004
01/31/99	1330	01/31/99	1800	43.2	0.007
02/02/99	1000	02/03/99	0900	570	0.013
02/03/99	1130	02/04/99	0800	1547	0.033
02/08/99	1200	02/09/99	1030	1598	0.064
02/09/99	1145	02/09/99	2315	1486	0.131
02/10/99	1115	02/10/99	2300	708	0.028
02/11/99	0100	02/11/99	0500	743	0.076
02/11/99	1300	02/11/99	1600	3033	1.21
02/14/99	1400	02/14/99	1815	43.2	0.004
02/15/99	1200	02/15/99	1900	77.8	0.004
02/26/99	1330	02/27/99	0030	242	0.016
02/28/99	0900	02/28/99	1445	77.8	0.007
03/11/99	1515	03/11/99	1900	34.6	0.004
03/14/99	1115	03/14/99	2345	302	0.020
03/15/99	1045	03/15/99	2145	337	0.020
03/16/99	1000	03/16/99	1345	69.1	0.010
04/03/99	0915	04/03/99	0950	60.5	0.076

WISCONSIN RIVER BASIN

05405857 LAKE WISCONSIN TRIBUTARY #2 NEAR PRAIRIE DU SAC, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1997 to current year.

INSTRUMENTATION.--Water-quality sampler November 1997 to current year.

REMARKS.-- Chemical analyses by the Wisconsin State Laboratory of Hygiene. Samples are storm-composite samples collected by an automatic point sampler.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	BEGIN- NING DATE	BEGIN- NING TIME	ENDING DATE	ENDING TIME	RUNOFF VOLUME MILLIONS OF CUBIC FEET (99905)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	
	02-03-99	1200	02-04-99	0830	1.56X10 ⁻³	102	
	02-08-99	1345	02-08-99	2105	1.11X10 ⁻³	86	
	02-11-99	1320	02-11-99	1515	3.00X10 ⁻³	616	
	04-03-99	0918	04-03-99	0937	0.052X10 ⁻³	1440	

DATE	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
02-03-99	13	1.24	1.10	4.2	.604	--
02-08-99	24	.523	.886	2.5	.334	--
02-11-99	102	.216	.576	6.7	.978	.129
04-03-99	176	.368	.306	8.7	1.48	.175

DATE	TIME	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
JAN 1999 22...	1235	17	10	4.70	1.13	4.0	1.34	.953

05405857 LAKE WISCONSIN TRIBUTARY #2 NEAR PRAIRIE DU SAC, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--November 1997 to current year.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established Nov. 6, 1997. Rainfall estimated to be 0.00 for Nov. 8, Dec. 29, Jan. 18, 23-25, Feb. 2, 24, 25, 28, and Mar. 5, 6, 9 because recorded precipitation interpreted as collector snowmelt.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 3.30 in., Apr. 3, 1999.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 3.30 in., Apr. 3.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.01	.00	.02	.00	.00	.00	.35	1.23	.00	.00
2	.08	.00	.00	.00	.00	.00	.00	.00	.28	.01	.00	.00
3	.22	.00	.00	.00	.02	.00	3.30	.00	.00	.24	.18	.00
4	.00	.00	.00	.00	.00	.00	.18	.03	.33	.00	.04	.00
5	.94	.00	.00	.00	.03	.00	.36	.05	.00	.14	.00	.00
6	.09	.00	.00	.00	.00	.00	.01	.69	.15	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.10	.00	.00	.46	.00
8	.00	.00	.00	.00	.00	.00	.91	.00	.36	.26	.00	.06
9	.01	.63	.00	.00	.00	.00	.60	.00	.00	.05	.47	.00
10	.00	1.01	.00	.00	.00	.00	.02	.00	.13	.00	.00	.00
11	.01	.01	.00	.00	1.18	.00	.11	.03	.00	.00	.00	.00
12	.01	.00	.00	.00	.00	.00	.01	.00	.00	.00	.11	.03
13	.00	.00	.00	.00	.00	.00	.00	.00	.60	.01	.00	.05
14	.00	.00	.01	.00	.00	.00	.00	.00	.00	.01	.00	.00
15	.00	.00	.00	.00	.00	.00	.04	.03	.00	.00	.00	.00
16	.00	.01	.00	.22	.00	.00	.02	.64	.19	.64	.02	.00
17	.90	.00	.00	.34	.00	.00	.00	.72	.00	.04	.01	.00
18	.00	.02	.00	.00	.00	.00	.00	.08	.00	.63	.19	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.34	.05	.01
20	.00	.00	.00	.00	.00	.00	.24	.00	.00	.55	.01	.00
21	.00	.00	.00	.09	.00	.00	.22	.05	.00	.36	.00	.00
22	.00	.00	.00	.41	.00	.00	1.34	.04	.18	.00	.05	.00
23	.00	.00	.00	.00	.00	.00	1.03	.39	.33	.25	1.35	.00
24	.00	.00	.00	.00	.00	.00	.00	.02	.01	.00	.00	.00
25	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.07	.18	.00	.00	.01	.00	.40	.00	.19
27	.39	.00	.00	.01	.00	.00	.08	.00	.00	.00	.00	1.03
28	.00	.00	.00	.00	.00	.06	.00	.00	.59	.00	.00	.26
29	.02	.00	.00	.00	---	.00	.00	.00	.00	.01	.00	.01
30	.00	.07	.00	.00	---	.00	.00	.00	.07	.00	.00	.00
31	.00	---	.00	.01	---	.00	---	.57	---	1.09	.00	---
TOTAL	2.68	1.75	0.02	1.15	1.43	0.06	8.47	3.45	3.57	6.26	2.94	1.64

WISCONSIN RIVER BASIN

05405859 LAKE WISCONSIN TRIBUTARY #1 NEAR PRAIRIE DU SAC, WI

LOCATION.--Lat 43°19'59", long 89°42'23", in SW 1/4 NE 1/4 sec.19, T.10 N., R.7 E., Sauk County, Hydrologic Unit 07070005, on USDA Dairy Forage Research station, 2.5 mi northeast of Prairie du Sac.

DRAINAGE AREA.--0.0037 mi² (2.38 acres).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1997 to current year.

GAGE.--Water-stage recorder and a 3-inch Parshall flume. Elevation of gage is 830 ft above sea level, from topographic map.

REMARKS.--Records are good (see page 13). Periods of flow are reported; for all other periods, there was no flow. Gage-height telemeter at station.

START DATE	START TIME	END DATE	END TIME	VOLUME (cubic feet)	PEAK DISCHARGE (ft ³ /s)
01/22/99	0415	01/22/99	1415	311	0.016
02/09/99	1400	02/09/99	1715	60.5	0.007
02/11/99	1300	02/11/99	1630	1990	0.946
02/15/99	1230	02/15/99	1700	43.2	0.004
02/26/99	1445	02/26/99	1615	8.64	0.003
02/26/99	1745	02/26/99	2200	60.5	0.012
02/28/99	1115	02/28/99	1215	8.64	0.007
03/17/99	1200	03/17/99	1915	17.3	0.003

05405859 LAKE WISCONSIN TRIBUTARY #1 NEAR PRAIRIE DU SAC, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1997 to current year.

INSTRUMENTATION.--Water-quality sampler November 1997 to current year.

REMARKS.-- Chemical analyses by the Wisconsin State Laboratory of Hygiene. Samples are storm-composite samples collected by an automatic point sampler.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

BEGIN- NING DATE	BEGIN- NING TIME	ENDING DATE	ENDING TIME	RUNOFF VOLUME MILLIONS OF CUBIC FEET (99905)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)
02-04-99	0430	02-04-99	0520	0.069X10 ⁻³	80
02-11-99	1320	02-11-99	1630	1.97X10 ⁻³	160

DATE	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
02-04-99	15	1.02	.953	4.0	.621	--
02-11-99	26	.224	.452	2.4	.487	.120

WISCONSIN RIVER BASIN

05405859 LAKE WISCONSIN TRIBUTARY #1 NEAR PRAIRIE DU SAC, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--November 1997 to current year.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established Nov. 1, 1997. Rainfall estimated to be 0.00 for Nov. 8, Dec. 29, Jan. 15, 16, 18, 23-25, Feb. 2, 24, 25, 28, and Mar. 6, 9 because recorded precipitation interpreted as collector snowmelt. Rain gage was plugged with debris from July 16 to Aug. 18.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 3.37 in., Apr. 3, 1999.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 3.37 in., Apr. 3.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.01	.00	.03	.00	.00	.00	.34	1.30	---	.00
2	.08	.00	.00	.00	.00	.00	.00	.00	.27	.01	---	.00
3	.22	.00	.00	.00	.02	.00	3.37	.00	.00	.24	---	.00
4	.00	.00	.00	.00	.01	.00	.18	.05	.34	.00	---	.00
5	.93	.00	.00	.00	.03	.00	.38	.06	.00	.06	---	.00
6	.10	.00	.00	.00	.00	.00	.02	.68	.15	.04	---	.00
7	.00	.00	.00	.00	.00	.00	.00	.11	.00	.00	---	.00
8	.00	.00	.00	.00	.00	.00	.86	.00	.38	.22	---	.06
9	.00	---	.01	.00	.00	.00	.53	.00	.01	.09	---	.00
10	.01	---	.00	.00	.00	.00	.02	.00	.13	.00	---	.00
11	.01	---	.00	.00	1.18	.00	.11	.03	.01	.00	---	.00
12	.00	---	.00	.00	.00	.00	.00	.00	.00	.00	---	.02
13	.00	---	.00	.00	.00	.00	.01	.00	.67	.01	---	.06
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	---	.00
15	.00	.00	.00	.00	.00	.00	.03	.03	.01	.00	---	.00
16	.00	.02	.00	.00	.00	.00	.02	1.03	.31	.56	---	.00
17	.92	.00	.00	.34	.00	.00	.00	.40	.00	---	---	.00
18	.00	.02	.00	.00	.00	.00	.00	.08	.00	---	---	.01
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	---	.06	.01
20	.00	.00	.00	.00	.00	.00	.24	.00	.00	---	.00	.00
21	.00	.00	.00	.14	.00	.00	.23	.10	.00	---	.00	.00
22	.00	.00	.00	.33	.00	.00	1.26	.00	.21	---	.06	.00
23	.00	.00	.00	.00	.00	.00	1.02	.69	.32	---	1.27	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.01	---	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	---	.00	.00
26	.00	.00	.00	.03	.18	.00	.00	.00	.00	---	.00	.18
27	.41	.00	.00	.01	.00	.00	.10	.00	.00	---	.00	1.03
28	.00	.00	.00	.01	.00	.07	.00	.00	.61	---	.01	.26
29	.02	.01	.00	.00	---	.00	.00	.00	.00	---	.00	.00
30	.00	.08	.00	.00	---	.00	.00	.00	.06	---	.00	.00
31	.00	---	.00	.00	---	.00	---	.65	---	---	.00	---
TOTAL	2.70	---	0.02	0.86	1.45	0.07	8.38	3.91	3.83	---	---	1.63

WISCONSIN RIVER BASIN
05406470 BREWERY CREEK AT CROSS PLAINS, WI

317

LOCATION.--Lat 43°07'09", long 89°38'25", in SW 1/4 SW 1/4 sec.35, T.8 N., R.7 E., Dane County, Hydrologic Unit 07070005, on right bank 60 ft upstream of culvert on Brewery Road, 0.75 mi upstream from Black Earth Creek.

DRAINAGE AREA.--10.5 mi², of which 2.80 mi² is noncontributing.

PERIOD OF RECORD.--October 1984 to September 1986, October 1989 to September 1998, May to September 1999.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 900 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records fair (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, MAY TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	2.7	2.5	4.0	2.5	2.1
2	---	---	---	---	---	---	---	2.6	3.0	2.6	2.2	1.9
3	---	---	---	---	---	---	---	2.5	2.5	2.4	2.1	1.9
4	---	---	---	---	---	---	---	2.4	2.6	2.3	2.2	1.9
5	---	---	---	---	---	---	---	2.5	2.5	2.2	2.1	1.9
6	---	---	---	---	---	---	---	3.1	26	2.1	2.1	1.8
7	---	---	---	---	---	---	---	2.9	11	2.0	2.4	1.9
8	---	---	---	---	---	---	---	2.7	3.4	2.0	2.4	1.9
9	---	---	---	---	---	---	---	2.5	3.0	2.0	2.2	1.8
10	---	---	---	---	---	---	---	2.4	3.2	1.8	2.4	1.9
11	---	---	---	---	---	---	---	2.4	3.4	1.7	2.2	1.8
12	---	---	---	---	---	---	---	2.4	2.6	1.8	2.4	1.8
13	---	---	---	---	---	---	---	2.4	3.0	1.8	2.4	1.9
14	---	---	---	---	---	---	---	2.4	2.7	1.8	2.3	1.9
15	---	---	---	---	---	---	---	2.8	2.4	1.8	2.3	1.8
16	---	---	---	---	---	---	---	3.4	2.4	1.8	2.4	1.9
17	---	---	---	---	---	---	---	18	2.4	15	2.4	1.8
18	---	4.73	3.82	3.22	5.43	---	---	6.1	2.3	3.8	2.3	1.9
19	---	---	---	---	---	---	---	4.0	2.2	3.3	2.5	1.9
20	---	---	---	---	---	---	---	3.5	2.2	21	2.4	1.9
21	---	---	---	---	---	---	---	3.3	2.2	13	2.3	1.9
22	---	---	---	---	---	---	---	3.0	2.3	4.7	2.3	2.0
23	---	---	---	---	---	---	---	3.4	2.6	3.0	2.8	2.0
24	---	---	---	---	---	---	---	3.0	2.4	2.7	3.5	1.9
25	---	---	---	---	---	---	---	2.8	2.2	2.5	2.5	2.0
26	---	---	---	---	---	---	---	2.7	2.1	2.5	2.3	2.1
27	---	---	---	---	---	---	---	2.6	2.1	2.3	2.3	2.4
28	---	---	---	---	---	---	---	2.5	2.2	2.2	2.2	2.7
29	---	---	---	---	---	---	---	2.4	2.3	2.1	2.1	2.5
30	---	---	---	---	---	---	---	2.3	2.1	2.1	2.1	2.4
31	---	---	---	---	---	---	---	2.4	---	3.8	2.1	---
TOTAL	---	---	---	---	---	---	---	104.1	107.8	118.1	72.7	59.5
MEAN	---	---	---	---	---	---	---	3.36	3.59	3.81	2.35	1.98
MAX	---	---	---	---	---	---	---	18	26	21	3.5	2.7
MIN	---	---	---	---	---	---	---	2.3	2.1	1.7	2.1	1.8
CFSM	---	---	---	---	---	---	---	.44	.47	.49	.30	.26
IN.	---	---	---	---	---	---	---	.50	.52	.57	.35	.29

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1999, BY WATER YEAR (WY)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	1.91	2.15	1.60	1.69	2.78	4.06	2.46	2.13	2.74	3.58	2.11	2.16			
MAX	4.10	4.73	3.82	3.22	5.43	10.5	3.66	3.36	4.76	13.4	6.83	5.15			
(WY)	1994	1986	1994	1994	1985	1993	1993	1999	1996	1993	1993	1993			
MIN	.25	.16	.12	.011	.15	1.08	.64	.47	.40	.22	.22	.11			
(WY)	1991	1991	1991	1991	1991	1992	1990	1992	1991	1990	1990	1990			

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR
(JANUARY - SEPTEMBER)

FOR 1999 WATER YEAR
(MAY - SEPTEMBER)

WATER YEARS 1985 - 1999
(PARTIAL YEAR, 1999)

ANNUAL MEAN										2.43		
HIGHEST ANNUAL MEAN										4.30		1993
LOWEST ANNUAL MEAN										.58		1991
HIGHEST DAILY MEAN				39	Mar 31		26	Jun 6		142		Jul 25 1985
LOWEST DAILY MEAN				(a)1.1	Jan 1		1.7	Jul 11		.00	(b)	Jul 18 1991
ANNUAL SEVEN-DAY MINIMUM				(a)1.22	(c)Jan 12		1.8	(d)Jul 10		.00		Jul 31 1991
INSTANTANEOUS PEAK FLOW							99	Jun 6		420		Jul 6 1993
INSTANTANEOUS PEAK STAGE							11.63	Jun 6		15.05		Jul 6 1993
INSTANTANEOUS LOW FLOW										.00	(e)	Aug 9 1990
ANNUAL RUNOFF (CFSM)										.32		
ANNUAL RUNOFF (INCHES)										4.29		
10 PERCENT EXCEEDS				3.0			3.4			3.9		
50 PERCENT EXCEEDS				1.8			2.4			1.9		
90 PERCENT EXCEEDS				1.3			1.9			.30		

(a) Ice affected

(b) Occurred on many days July to September 1991

(c) Also occurred Mar. 10

(d) Also occurred Sept. 9

(e) Also occurred many days during 1991 water year

WISCONSIN RIVER BASIN

05406500 BLACK EARTH CREEK AT BLACK EARTH, WI

LOCATION.--Lat 43°08'03", long 89°43'56" in SW 1/4 sec.25, T.8 N., R.6 E., Dane County, Hydrologic Unit 07070005, on right bank, 0.8 mi east of Black Earth and 2.1 mi upstream from Vermont Creek.

DRAINAGE AREA.--45.6 mi², of which 2.8 mi² probably is noncontributing.

PERIOD OF RECORD.--February 1954 to current year.

REVISED RECORDS.--WDR WI-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 812.95 ft above sea level.

REMARKS.--Estimated daily discharges: Ice-affected period, Jan. 3-13. Records fair (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	45	40	38	37	38	37	61	45	72	52	42
2	44	44	40	38	52	37	37	59	53	56	47	41
3	47	43	39	37	60	36	51	57	47	53	45	41
4	50	43	39	36	61	36	63	56	48	50	47	40
5	77	41	39	34	48	36	48	56	47	48	46	40
6	128	41	39	33	44	35	47	64	57	47	45	40
7	70	40	39	33	44	35	43	63	99	45	50	40
8	58	41	38	33	44	35	41	59	58	43	49	38
9	52	42	37	33	53	35	120	55	54	46	47	38
10	49	99	37	33	53	35	79	52	51	43	48	39
11	46	67	37	34	99	35	67	50	50	42	46	38
12	44	56	38	35	87	35	59	50	47	41	49	38
13	43	52	37	35	56	35	54	49	51	40	49	38
14	42	51	37	36	51	36	51	48	52	40	48	39
15	41	47	37	37	49	37	50	47	49	40	46	38
16	41	45	37	35	49	41	48	48	47	41	44	38
17	53	43	38	34	46	45	47	180	45	100	43	37
18	70	42	38	36	43	43	46	87	44	69	44	37
19	54	42	38	33	41	40	46	70	43	62	46	36
20	50	41	39	32	40	39	47	62	43	98	43	37
21	47	41	39	33	37	40	49	59	42	136	43	37
22	45	41	37	43	37	38	107	56	43	75	43	36
23	42	41	37	52	37	38	356	58	48	64	51	36
24	43	41	36	51	36	37	124	57	46	58	61	36
25	43	41	36	45	37	38	94	53	43	54	50	36
26	43	40	37	40	37	37	83	50	42	55	46	34
27	44	39	37	40	38	37	78	47	41	53	44	37
28	49	40	38	41	38	37	81	46	45	51	43	40
29	46	40	38	39	---	38	70	45	49	50	42	39
30	46	41	38	38	---	38	65	44	45	48	42	36
31	46	---	38	37	---	38	---	44	---	63	41	---
TOTAL	1598	1370	1174	1154	1354	1160	2188	1832	1474	1783	1440	1142
MEAN	51.5	45.7	37.9	37.2	48.4	37.4	72.9	59.1	49.1	57.5	46.5	38.1
MAX	128	99	40	52	99	45	356	180	99	136	61	42
MIN	41	39	36	32	36	35	37	44	41	40	41	34
CFSM	1.20	1.07	.88	.87	1.13	.87	1.70	1.38	1.15	1.34	1.09	.89
IN.	1.39	1.19	1.02	1.00	1.18	1.01	1.90	1.59	1.28	1.55	1.25	.99

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1999, BY WATER YEAR (WY)

	MEAN	31.3	32.5	29.8	29.0	33.2	48.2	42.8	37.7	36.7	36.7	31.4	32.4
MAX	51.5	70.2	48.0	51.6	64.9	85.3	86.5	91.2	79.4	140	73.2	66.0	
(WY)	1999	1986	1988	1974	1994	1961	1993	1973	1996	1993	1993	1980	
MIN	15.9	16.1	14.8	15.1	16.0	16.9	22.5	18.7	14.4	14.0	15.5	15.3	
(WY)	1967	1967	1965	1959	1959	1968	1957	1965	1965	1965	1958	1958	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1954 - 1999

ANNUAL TOTAL	17390	17669	35.2	
ANNUAL MEAN	47.6	48.4	61.0	1993
HIGHEST ANNUAL MEAN			19.8	1964
LOWEST ANNUAL MEAN			733	Jul 6 1993
HIGHEST DAILY MEAN	455	Mar 31	12	(a) Feb 16-18 1958
LOWEST DAILY MEAN	21	Jun 17	13	Jul 24 1965
ANNUAL SEVEN-DAY MINIMUM	23	Feb 4	1750	Jul 3 1954
INSTANTANEOUS PEAK FLOW			4.56	Jul 3 1954
INSTANTANEOUS PEAK STAGE			31	(c) 4.8 Nov 29 1958
INSTANTANEOUS LOW FLOW			1.13	.82
ANNUAL RUNOFF (CFSM)	1.11		15.36	11.17
ANNUAL RUNOFF (INCHES)	15.11		62	51
10 PERCENT EXCEEDS	67		43	30
50 PERCENT EXCEEDS	43		36	19
90 PERCENT EXCEEDS	25			

(a) Also occurred July 26, 29, 1965

(b) Ice affected

(c) Result of freezeup

REMARKS.--Estimated daily discharges: July 8, 9 and ice-affected periods, Dec. 23 to Feb. 11, Feb. 20-23, and Mar. 7-11. Records good except those for ice-affected periods, which are poor (see page 13). Gage-height telemeter at station.

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	153	147	147	120	130	253	172	199	179	190	293	135
2	139	145	144	120	130	227	170	195	168	183	191	133
3	136	143	143	120	130	198	187	193	162	170	174	131
4	139	141	143	120	130	186	322	188	160	185	183	130
5	151	140	142	120	120	176	273	224	164	151	177	128
6	163	139	142	120	130	164	388	256	161	147	166	130
7	151	139	140	120	130	160	297	227	156	135	164	130
8	140	139	137	120	130	150	242	220	151	140	167	134
9	134	139	137	120	130	150	1040	200	152	340	161	134
10	132	239	136	120	140	150	681	185	155	212	177	131
11	131	333	136	120	250	150	401	177	201	166	165	128
12	130	210	136	120	742	155	342	183	166	157	160	127
13	128	179	136	120	291	155	282	182	156	154	163	130
14	129	173	136	120	247	158	256	172	149	155	160	130
15	130	167	136	120	247	163	241	166	144	149	154	128
16	131	163	136	120	235	178	234	165	144	147	158	126
17	138	163	136	130	205	225	216	260	148	182	155	125
18	169	161	136	140	189	256	210	299	144	178	151	125
19	150	162	136	130	173	197	209	230	141	366	217	124
20	136	161	135	130	160	191	204	194	139	249	180	126
21	134	156	123	130	160	200	225	211	138	621	160	125
22	133	155	81	130	160	184	419	213	136	305	156	123
23	132	154	100	130	160	178	858	199	139	227	166	121
24	132	152	150	130	158	176	396	196	147	203	174	121
25	132	150	140	130	158	168	310	184	138	186	163	119
26	134	151	130	120	158	165	277	174	132	191	153	119
27	159	149	130	130	725	165	254	166	131	236	149	130
28	191	149	130	130	363	168	248	164	136	176	146	147
29	156	149	130	130	---	173	221	161	133	183	142	128
30	173	148	120	120	---	167	207	157	133	182	138	125
31	156	---	120	120	---	170	---	165	---	396	138	---
TOTAL	4442	4896	4124	3850	6081	5556	9782	6105	4503	6662	5201	3843
MEAN	143	163	133	124	217	179	326	197	150	215	168	128
MAX	191	333	150	140	742	256	1040	299	201	621	293	147
MIN	128	139	81	120	120	150	170	157	131	135	138	119
CFSM	.54	.61	.50	.47	.82	.67	1.23	.74	.56	.81	.63	.48
IN.	.62	.68	.58	.54	.85	.78	1.37	.85	.63	.93	.73	.55

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1999, BY WATER YEAR (WY)

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 1999, BY WATER YEAR (WY)												
MEAN	146	154	133	128	160	304	277	194	193	164	143	159
MAX	317	337	336	421	499	761	723	580	445	838	446	539
(WY)	1960	1983	1985	1946	1966	1961	1965	1973	1947	1978	1980	1965
MIN	73.4	78.5	62.0	61.3	62.2	114	126	80.4	80.9	77.8	60.4	72.7
(WY)	1959	1940	1959	1959	1959	1957	1942	1958	1958	1958	1958	1940

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1939 - 1999	
ANNUAL TOTAL	71569		65045			
ANNUAL MEAN	196		178		179	
HIGHEST ANNUAL MEAN					282	
LOWEST ANNUAL MEAN					97.1	
HIGHEST DAILY MEAN	2010	Jun 28	1040	Apr 9	7730	Feb 9 1966
LOWEST DAILY MEAN	(a) 81	Dec 22	(a) 81	Dec 22	36	Nov 3 1939
ANNUAL SEVEN-DAY MINIMUM	(b) 109	Jan 9	(b) 120	Dec 30	(b) 49	Jan 3 1968
INSTANTANEOUS PEAK FLOW			1390		14300	
INSTANTANEOUS PEAK STAGE			8.73		14.92	
INSTANTANEOUS LOW FLOW			(a) 63		Dec 22	
ANNUAL RUNOFF (CFSM)	.74		.67		.67	
ANNUAL RUNOFF (INCHES)	10.01		9.10		9.17	
10 PERCENT EXCEEDS	280		247		261	
50 PERCENT EXCEEDS	157		155		134	
90 PERCENT EXCEEDS	120		126		87	

(a) Result of freezeup
(b) Ice affected

LOCATION.--Lat 43°10'58", long 90°51'30", in NE 1/4 SW 1/4 sec.9, T.8 N., R.4 W., Crawford County, Hydrologic Unit 07070006, on right bank at upstream corner of town road bridge at Steuben and 18.6 mi upstream from mouth.

DRAINAGE AREA.--687 mi².

PERIOD OF RECORD.--May 1933 to current year. Prior to October 1982, all records published under station number 05410500.

REVISED RECORDS.--WSP 855: Drainage area. WSP 1438: 1933-38. WDR WI-79-1: 1978(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 657.00 ft above sea level. May 1933 to Oct. 19, 1938, nonrecording gage at same site at datum 1.7 ft higher. Oct. 20, 1938 to September 1982, recording gage at site 1.2 mi downstream at datum 0.36 ft higher.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 22 to Feb. 11, Feb. 22-25, and Mar. 8-12. Records good except those for ice-affected periods, which are poor (see page 13). Data-collection platform and gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	449	509	466	410	380	902	484	681	591	520	1030	486
2	458	483	466	410	400	695	488	655	624	543	897	485
3	466	470	462	410	410	609	518	637	586	589	691	483
4	467	462	461	400	410	575	572	626	566	652	620	482
5	503	455	463	400	410	540	663	631	561	630	603	482
6	516	452	462	400	410	523	768	669	561	574	591	479
7	519	450	458	400	410	504	780	720	549	526	578	476
8	505	451	453	390	410	470	801	702	534	502	569	478
9	482	455	448	390	420	460	899	675	602	499	561	483
10	468	516	445	390	430	460	1180	644	571	664	586	479
11	460	623	443	390	470	470	1270	615	614	688	575	473
12	456	747	443	390	731	470	1300	629	598	529	574	468
13	452	680	443	390	998	474	1030	633	588	492	565	464
14	451	587	442	390	856	471	833	617	540	481	552	461
15	450	549	442	390	679	473	755	595	517	476	537	459
16	451	533	442	400	648	480	723	589	504	467	525	451
17	464	519	440	400	630	498	687	750	500	492	521	444
18	516	512	439	400	611	537	662	921	498	517	523	439
19	523	508	438	410	568	586	637	907	494	613	546	436
20	517	499	435	410	540	570	633	801	487	755	608	437
21	486	497	431	410	512	533	646	717	482	1190	611	436
22	469	490	380	410	470	530	720	718	480	1140	554	433
23	459	484	430	420	460	527	1110	718	488	1050	548	428
24	456	479	460	420	460	509	1290	686	493	778	585	423
25	455	476	440	410	460	500	1340	663	490	673	569	419
26	457	471	430	410	478	493	1100	637	479	664	552	415
27	468	467	430	410	502	484	872	613	468	671	529	425
28	505	466	420	410	693	484	833	594	485	649	516	441
29	554	465	420	400	---	489	794	578	491	615	508	447
30	534	467	420	400	---	490	725	563	493	581	497	437
31	507	---	410	390	---	486	---	577	---	855	489	---
TOTAL	14923	15222	13662	12460	14856	16292	25113	20761	15934	20075	18210	13649
MEAN	481	507	441	402	531	526	837	670	531	648	587	455
MAX	554	747	466	420	998	902	1340	921	624	1190	1030	486
MIN	449	450	380	390	380	460	484	563	468	467	489	415
CFSM	.70	.74	.64	.59	.77	.76	1.22	.97	.77	.94	.86	.66
IN.	.81	.82	.74	.67	.80	.88	1.36	1.12	.86	1.09	.99	.76

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 1999, BY WATER YEAR (WY)

MEAN	419	435	381	361	426	777	706	523	507	487	425	451
MAX	798	858	781	846	1276	1856	1748	1415	981	1901	1180	1331
(WY)	1973	1983	1985	1946	1966	1946	1959	1973	1947	1978	1935	1938
MIN	206	222	172	172	184	252	351	228	223	189	188	199
(WY)	1959	1938	1959	1959	1959	1934	1942	1934	1934	1936	1936	1937

WISCONSIN RIVER BASIN
05410490 KICKAPOO RIVER AT STEUBEN, WI--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1933 - 1999	
ANNUAL TOTAL	206983		201157		492	
ANNUAL MEAN	567		551		792	
HIGHEST ANNUAL MEAN					273	1993
LOWEST ANNUAL MEAN					12600	Jul 3 1978
HIGHEST DAILY MEAN	2000	Jul 2	1340	Apr 25	(c) 165	(d) Dec 10-20 1958
LOWEST DAILY MEAN	(a) 320	Jan 13	(a) 380	(b) Dec 22	(c) 165	Dec 10 1958
ANNUAL SEVEN-DAY MINIMUM	(c) 336	Jan 26	(c) 390	Jan 8	16500	Jul 3 1978
INSTANTANEOUS PEAK FLOW			1360	Apr 25	(e) 14.81	Jul 3 1978
INSTANTANEOUS PEAK STAGE			11.19	Apr 25	(e) 161	Aug 9 1936
INSTANTANEOUS LOW FLOW			(c)		.72	
ANNUAL RUNOFF (CFSM)	.83		.80		9.74	
ANNUAL RUNOFF (INCHES)	11.21		10.89			
10 PERCENT EXCEEDS	749		721		746	
50 PERCENT EXCEEDS	494		498		404	
90 PERCENT EXCEEDS	400		410		260	

(a) Result of freezeup

(b) Also occurred Feb. 1, ice affected

(c) Ice affected

(d) Also occurred Jan. 4-9, Feb. 5-7, 1959, ice affected

(e) Site and datum then in use

The 24 reservoirs listed below are used to stabilize the flow of the Wisconsin and Tomahawk Rivers for power generation and are also used for recreational purposes. The first 21 reservoirs are owned and operated by the Wisconsin Valley Improvement Co., which furnishes the gage heights and capacity tables. Revised capacity tables for all 21 reservoirs were received from the Company in April 1957 and were used to compute month-end usable contents beginning Sept. 30, 1955. Another revised capacity table for Burnt Rollways Reservoir was used to compute month-end usable contents beginning Sept. 30, 1964. Lake Dubay is owned by the Consolidated Water Power Co. Petenwell and Castle Rock are owned and operated by the Wisconsin River Power Co., which furnished the gage heights and capacity tables for those two reservoirs. Month-end contents are computed by the U.S. Geological Survey. The usable capacity of these reservoirs is usually less in summer than in winter because the allowable summer drawdown is limited by the Department of Natural Resources in the interest of riparian property owners. There are occasionally formal or informal changes in capacity and in minimum drawdown levels. Usable capacity figures listed below are for winter regulation.

- 05390100 Lac Vieux Desert on Wisconsin River, lat 46°07'18", long 89°09'07", in SE 1/4 NW 1/4 sec.17, T.42 N., R.11 E., Vilas County, 4.8 mi northwest of Phelps, used as a reservoir since 1908, has a usable capacity of 652,000,000 ft³. Drainage area, 34.4 mi².
- 05390150 Twin Lakes on Twin River, lat 46°01'20", long 89°10'05", in SW 1/4 NE 1/4 sec.19, T.41 N., R.11 E., Vilas County, 5.0 mi southwest of Phelps, used as a reservoir since 1908, has a usable capacity of 313,000,000 ft³. Drainage area, 26 mi².
- 05390200 Buckatabon Lakes on Buckatabon Creek, lat 46°01'18", long 89°18'40", in SE 1/4 NE 1/4 sec.24, T.41 N., R.9 E., Vilas County, 3.3 mi southwest of Conover, used as a reservoir since 1908, has a usable capacity of 130,000,000 ft³. Drainage area, 16.9 mi².
- 05390250 Sevenmile Lake on Sevenmile Creek, lat 45°52'30", long 89°04'07", in SE 1/4 NE 1/4 sec.11, T.39 N., R.11 E., Oneida County, 9.1 mi southeast of town of Eagle River, used as a reservoir since 1908, has a usable capacity of 93,000,000 ft³. Drainage area, 12.1 mi².
- 05390300 Lower Ninemile Lake on Ninemile Creek, lat 45°53'37", long 89°07'15", in NE 1/4 NW 1/4 sec.4, T.39 N., R.11 E., Oneida County, 6.6 mi southeast of town of Eagle River, used as a reservoir since 1908, has a usable capacity of 121,000,000 ft³. Drainage area, 28.8 mi².
- 05390350 Burnt Rollways Reservoir on Eagle River, lat 45°53'40", long 89°08'28", in NE 1/4 NW 1/4 sec.5, T.39 N., R.11 E., Oneida County, 5.3 mi southeast of town of Eagle River, used as a reservoir since 1908, has a usable capacity of 779,000,000 ft³. This reservoir includes 18 lakes controlled by the same dam. Drainage area, 142 mi².
- 05390400 Long Lake on Deerskin River, lat 46°02'37", long 89°02'44", in NW 1/4 SE 1/4 sec.7, T.41 N., R.12 E., Vilas County, 2.5 mi southeast of Phelps, used as a reservoir since 1908, has a usable capacity of 400,000,000 ft³. Drainage area, 22.9 mi².
- 05390600 Deerskin Lake on Little Deerskin River, lat 45°59'07", long 89°09'40", in SE 1/4 sec.31, T.41 N., R.11 E., Vilas County, 6.3 mi northeast of town of Eagle River, used as a reservoir since 1908, has a usable capacity of 22,000,000 ft³. Drainage area, 2.47 mi².
- 05390650 Sugar Camp Reservoir on Sugar Camp Creek, lat 45°52'19", long 89°23'40", in NE 1/4 sec.17, T.39 N., R.9 E., Oneida County, 7.6 mi southwest of town of Eagle River, used as a reservoir since 1908, has a usable capacity of 471,000,000 ft³. Drainage area, 48.4 mi².
- 05390700 Little St. Germain Lake on Little St. Germain Creek, lat 45°53'55", long 89°27'10", in SE 1/4 sec.35, T.40 N., R.8 E., Vilas County, 9.6 mi west of town of Eagle River, used as a reservoir since 1908, has a usable capacity of 79,000,000 ft³. Drainage area, 19 mi².
- 05390750 Big St. Germain Lake on St. Germain River, lat 45°55'06", long 89°31'55", in SE 1/4 sec.30, T.40 N., R.8 E., Vilas County, 5.0 mi south of Sayner, used as a reservoir since 1908, has a usable capacity of 202,000,000 ft³. Drainage area, 73.1 mi².
- 05390800 Pickerel Lake on St. Germain River, lat 45°52'22", long 89°31'47", in NE 1/4 sec.18, T.39 N., R.8 E., Oneida County, 5.0 mi northeast of town of Lake Tomahawk, used as a reservoir since 1935, has a usable capacity of 338,000,000 ft³. Drainage area, 86.2 mi².
- 05390900 Rainbow Lake on Wisconsin River, lat 45°50'02", long 89°32'42", in SW 1/4 sec.30, T.39 N., R.8 E., Oneida County, 800 ft upstream from U.S. Geological Survey river gaging station, 2.7 mi northeast of town of Lake Tomahawk, used as a reservoir since 1935, has a usable capacity of 2,181,000,000 ft³. Drainage area, 744 mi².
- 05391100 South Pelican Lake on Pelican River, lat 45°31'37", long 89°12'24", in S 1/2 sec.11, T.35 N., R.10 E., Oneida County, 2.8 mi northwest of town of Pelican Lake, used as a reservoir since 1909, has a usable capacity of 305,000,000 ft³. Drainage area, 19.8 mi².
- 05391300 North Pelican Lake (includes Moen Lakes) on North Branch Pelican River, lat 45°38'05", long 89°14'38", in SE 1/4 sec.4, T.36 N., R.10 E., Oneida County, 0.2 mi below Twin Lakes Creek and 8.0 mi east of Rhinelander city limits, used as a reservoir since 1908, has a usable capacity of 218,000,000 ft³. Drainage area, 95 mi².
- 05392100 Minocqua Lake on Tomahawk River, lat 45°52'35", long 89°43'38", on line between secs.10 and 15, T.39 N., R.6 E., Oneida County, 1.0 mi west of Minocqua, used as a reservoir since 1910, has a usable capacity of 628,000,000 ft³. Drainage area, 72.5 mi².
- 05392200 Squirrel Lake on Squirrel River, lat 45°50'37", long 89°54'13", in NE 1/4 sec.30, T.39 N., R.5 E., Oneida County, 9.4 mi west of Minocqua, used as a reservoir since 1908, has a usable capacity of 182,000,000 ft³. Drainage area, 15.2 mi².
- 05392300 Willow Reservoir on Tomahawk River, lat 45°42'45", long 89°50'38", in NE 1/4 sec.10, T.37 N., R.5 E., Oneida County, 8.8 mi southwest of Hazelhurst, used as a reservoir since 1927, has a usable capacity of 3,302,000,000 ft³. Drainage area, 310 mi².

WISCONSIN RIVER BASIN

RESERVOIRS IN WISCONSIN RIVER BASIN--CONTINUED

- 05392500 Lake Nokomis on Tomahawk River, lat 45°32'20", long 89°44'48", in NW 1/4 sec.9, T.35 N., R.6 E., Lincoln County, at U.S. Geological Survey river gaging station, 0.5 mi east of Bradley, used as a reservoir since 1912, has a usable capacity of 1,808,000,000 ft³. Drainage area, 544 mi².
- 05393600 Spirit River Flowage on Spirit River, lat 45°26'18", long 89°44'30", in NE 1/4 sec.16, T.34 N., R.6 E., Lincoln County, 2.0 mi south of Tomahawk, used as a reservoir since 1923, has a usable capacity of 756,000,000 ft³. Drainage area, 158 mi².
- 05399600 Big Eau Pleine Reservoir on Big Eau Pleine River, lat 44°43'52", long 89°45'35", in SW 1/4 sec.14, T.26 N., R.6 E., Marathon County, 3.0 mi northeast of Dancy, used as a reservoir since 1937, has a capacity of 4,457,000,000 ft³. Drainage area, 363 mi².
- 05400295 Lake Dubay on Wisconsin River, lat 44°39'54", long 89°39'03", in sec.10, T.25 N., R.7 E., Wood County, 1.5 mi downstream of Little Eau Pleine River and 10.5 mi northwest of Stevens Point, has a usable capacity of 2,117,000,000 ft³. Drainage area, 4,900 mi².
- 05401400 Petenwell Flowage on Wisconsin River, lat 44°03'26", long 90°01'18", in SE 1/4 sec.4, T.18 N., R.4 E., Adams County, 5.2 mi upstream from Roche a Cri Creek, 2.4 mi west of Strongs Prairie, and 3.5 mi northeast of Necedah, used as a reservoir since 1950, has a total capacity of 19,880,000,000 ft³. Drainage area, 5,970 mi².
- 05403200 Castle Rock Flowage on Wisconsin River, lat 43°51'48", long 89°57'38", in sec.13, T.16 N., R.4 E., Adams County, 4.5 mi upstream from Duck Creek, and 2.0 mi south of Germantown, and 7.0 mi northeast of Mauston, used as a reservoir since 1950, has a total capacity of 7,630,000,000 ft³. Drainage area, 7,056 mi².

MONTH-END CONTENTS, IN MILLIONS OF CUBIC FEET, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

	LAC VIEUX DESERT	TWIN LAKES	BUCKATABON LAKE	SEVENMILE LAKE	LOWER NINEMILE LAKE	BURNT ROLLWAYS RESERVOIR	LONG LAKE	DEERSKIN LAKE
Sept. 30	123	151	115	22	98	411	101	12
Oct. 31	365	262	115	63	100	581	185	17
Nov. 30	250	179	85	32	77	320	---	15
Dec. 31	23	126	52	0	17	10	108	10
Jan. 31	23	125	56	2	37	0	105	9
Feb. 28	8	125	62	0	62	0	112	7
Mar. 31	44	117	78	9	55	0	108	9
Apr. 30	108	161	110	31	100	326	134	11
May 31	232	264	116	56	100	542	220	19
June 30	240	291	115	56	98	565	206	19
July 31	326	296	116	61	99	562	235	17
Aug.31	303	278	113	57	101	536	208	17
Sept. 30	268	245	112	45	101	517	168	17

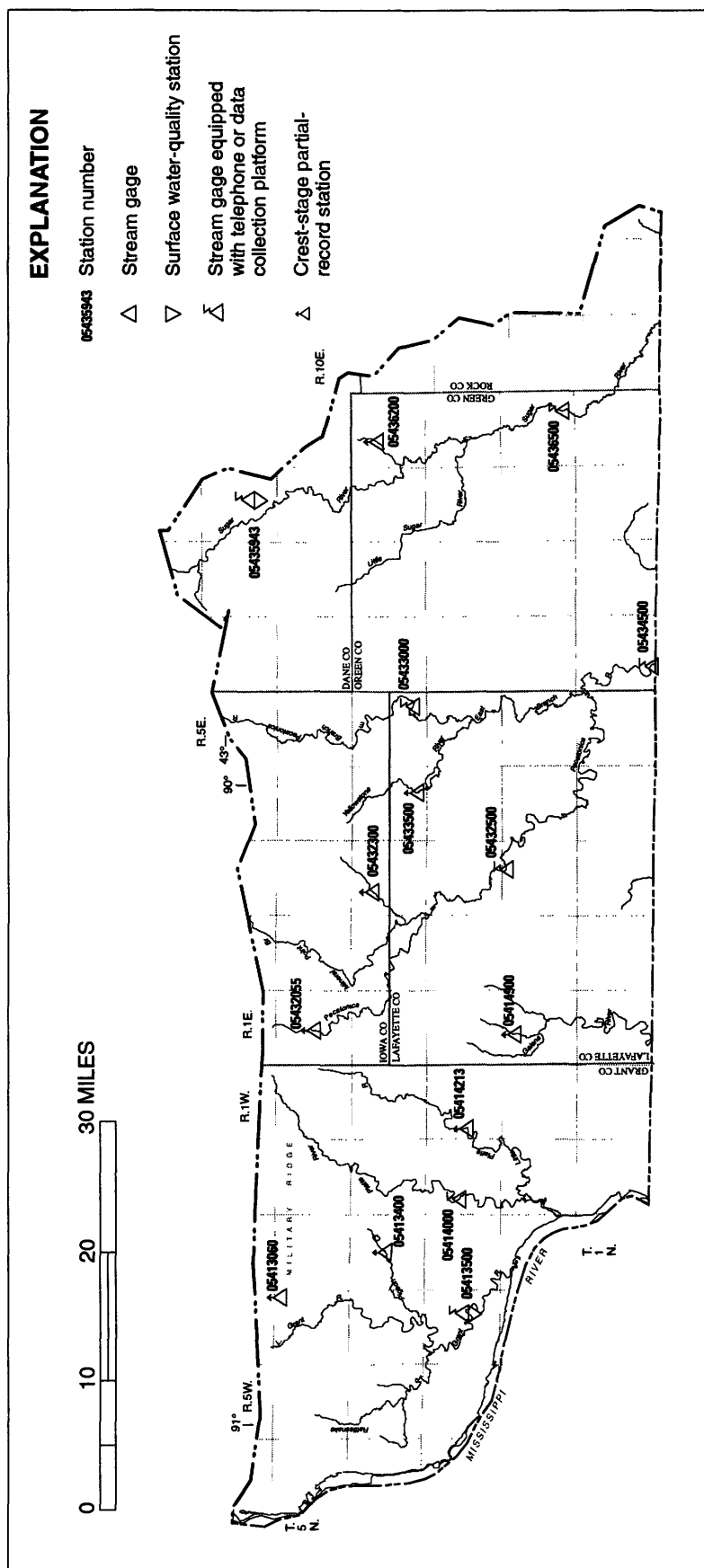
	SUGAR CAMP RESERVOIR	LITTLE ST. GERMAIN LAKE	BIG ST. GERMAIN LAKE	PICKEREL LAKE	RAINBOW LAKE	SOUTH PELICAN LAKE	NORTH PELICAN LAKE	MINOCQUA LAKE
Sept. 30	354	42	163	259	573	160	102	392
Oct. 31	406	42	156	265	643	284	138	505
Nov. 30	381	27	88	229	1,366	197	58	485
Dec. 31	2	11	57	---	1,324	74	0	60
Jan. 31	9	2	56	189	1,007	80	0	0
Feb. 28	102	14	63	188	734	82	4	30
Mar. 31	249	20	52	216	450	94	46	45
Apr. 30	352	34	158	253	934	152	139	146
May 31	420	72	158	276	2,071	234	138	384
June 30	399	65	164	273	1,719	243	137	482
July 31	422	75	158	274	2,039	294	138	505
Aug. 31	401	68	157	272	1,846	277	129	491
Sept. 30	399	65	163	274	1,086	401	123	471

WISCONSIN RIVER BASIN
RESERVOIRS IN WISCONSIN RIVER BASIN--CONTINUED

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MONTH-END CONTENTS, IN MILLIONS OF CUBIC FEET, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

	SQUIRREL LAKE	WILLOW RESERVOIR	LAKE NOKOMIS	SPIRIT RIVER FLOWAGE	BIG EAU PLEINE RESERVOIR	LAKE DUBAY	PETENWELL FLOWAGE	CASTLE ROCK FLOWAGE
Sept. 30	113	696	399	129	1,457	4,101	17,729	5,741
Oct. 31	169	727	378	138	1,515	4,150	17,703	5,824
Nov. 30	111	1,199	810	206	1,694	4,163	17,597	5,812
Dec. 31	74	1,498	999	240	1,634	3,816	16,730	5,773
Jan. 31	8	1,616	816	255	1,402	3,417	14,258	5,418
Feb. 28	19	1,381	734	196	1,113	3,346	13,994	5,480
Mar. 31	5	1,177	696	360	2,020	4,194	15,377	5,536
Apr. 30	88	1,811	1,144	563	3,957	4,271	17,668	6,377
May 31	168	2,576	1,733	709	4,367	4,163	17,720	5,929
June 30	164	2,705	1,477	596	3,916	4,175	17,720	5,850
July 31	172	3,050	1,589	736	4,385	4,169	17,650	5,969
Aug. 31	164	2,882	1,376	601	4,187	4,156	17,562	5,857
Sept. 30	164	1,770	1,016	274	2,702	4,163	17,509	5,812



PECATONICA-SUGAR BASIN

GRANT RIVER BASIN
05413500 GRANT RIVER AT BURTON, WI--CO NTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1935 - 1999	
ANNUAL TOTAL	71457		90034		169	
ANNUAL MEAN	196		247		351	1993
HIGHEST ANNUAL MEAN					59.3	1958
LOWEST ANNUAL MEAN					10700	Jun 13 1947
HIGHEST DAILY MEAN	2480	Mar 31	2860	May 17	30	(c) Aug 5 1936
LOWEST DAILY MEAN	(a) 70	Jan 10	(a) 140	(b) Dec 21, 22	31	(d) Aug 3 1936
ANNUAL SEVEN-DAY MINIMUM	(a) 83	Jan 10	(a) 141	Jan 15	(e) 25000	Jul 16 1950
INSTANTANEOUS PEAK FLOW			4980	May 17	24.82	Jul 16 1950
INSTANTANEOUS PEAK STAGE			19.96	May 17	(f) 21	Mar 4 1954
INSTANTANEOUS LOW FLOW			(f) 124	Dec 21	.63	
ANNUAL RUNOFF (CFSM)	.73		.92		8.56	
ANNUAL RUNOFF (INCHES)	9.88		12.45		257	
10 PERCENT EXCEEDS	271		366		115	
50 PERCENT EXCEEDS	180		207		60	
90 PERCENT EXCEEDS	105		160			

(a) Ice affected

(b) Also occurred Jan. 16-21

(c) Also occurred Aug. 8, 9, 1936, Sept. 22, 1937, and Feb. 19, 20, 1959, ice affected

(d) Also occurred Jan. 4, 1959, ice affected

(e) From rating curve extended above 18,000 ft³/s on basis of slope-area measurement of peak flow

(f) Result of freezeup

GRANT RIVER BASIN
05413500 GRANT RIVER AT BURTON, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964-67, 1978 to current year. National Stream-Quality Accounting Network data collection October 1986 to September 1994.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: Water years 1978 to current year, April-September monthly totals only published for 1983 water year, but daily load estimates are available for the entire year.

REMARKS.--Sediment records for periods of no ice cover are fair to good. Records for high-flow periods during ice cover are poor. Monthly and annual load values are fair. Before June 21 most sediment samples were taken in a single vertical; after June 21 most samples were taken by an automatic sampler. Concentrations identified by an asterisk are from samples collected by the equal-width increment method.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 13,600 mg/L, July 13, 1979; minimum observed, 6 mg/L, Dec. 8, 1997.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 95,300 tons, June 17, 1978; minimum daily, 1.5 tons, Mar. 1, 2, 1978.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 7,280 mg/L, May. 17; minimum observed, 17 mg/L, Oct. 26.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 31,800 tons, May 17; minimum daily, 7.2 tons, Jan. 16-21.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, SUS- PENDE (MG/L) (80154)		TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT 1998					APR 1999				
16...	0845	--	172	50	23...	0835	--	752	1160
21...	0750	--	201	34	26...	0930	--	380	192
26...	1425	--	183	34	29...	0835	--	337	128
26...	1445	--	183	17	MAY				
28...	1650	--	216	47	03...	0905	--	275	112
31...	0935	--	199	46	06...	0805	--	295	128
NOV					10...	0945	--	240	92
02...	0855	--	187	72	13...	1010	--	257	105
05...	0810	--	180	42	17...	0745	--	4830	7280
09...	0810	--	179	55	17...	1205	--	4010	4950
12...	0845	--	221	30	17...	1212	--	3900	4930
16...	0800	--	201	36	17...	1220	--	3790	5130
20...	0835	--	188	28	17...	1350	--	2780	4530
23...	1000	--	187	33	18...	0920	--	926	1160
25...	1320	--	181	22	20...	0725	--	525	351
30...	0830	--	180	26	24...	0845	--	402	241
DEC					JUN				
03...	0845	--	175	38	03...	0850	--	305	200
07...	1125	--	169	40	07...	0835	--	283	197
10...	1100	--	165	20	08...	0500	--	267	472
16...	0800	--	162	23	09...	0825	--	651	3210
16...	1330	--	162	24	11...	0750	--	683	2060
16...	1335	--	162	20	15...	0700	--	297	243
18...	0845	--	161	39	17...	0725	--	312	205
FEB 1999					21...	0925	--	259	132
27...	0845	--	187	42	21...	1410	--	261	133
MAR					21...	1419	--	261	102
01...	0850	--	182	52	24...	0745	--	270	164
03...	1430	--	172	18	28...	0810	--	244	135
03...	1445	--	172	29	JUL				
13...	1000	--	165	49	01...	0745	--	246	178
16...	0905	--	180	54	05...	0800	--	237	156
19...	0820	--	177	40	08...	0750	262	--	150
22...	0745	--	166	24	12...	0720	214	--	116
25...	0840	--	158	31	19...	1130	--	346	281
29...	0755	--	164	21	20...	1012	--	306	380
APR					20...	1015	--	305	344
01...	0745	--	155	22	26...	0500	--	236	135
05...	0920	--	378	438	27...	0500	--	536	462
08...	0745	--	295	186	28...	0500	--	285	225
09...	1335	--	914	1440	31...	0500	--	249	288
13...	0820	--	323	257	AUG				
15...	0835	--	287	165	01...	0500	--	313	402
19...	1500	--	244	76	23...	2400	--	281	582
21...	1420	--	239	86	SEP				
21...	1430	--	239	101	01...	2400	--	192	181
22...	1100	--	277	121	13...	2400	--	181	308
					28...	2400	--	196	92

GRANT RIVER BASIN
05413500 GRANT RIVER AT BURTON, WI--CONTINUED

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SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23	30	14	8.4	12	23	9.2	95	171	115	228	95
2	21	34	16	8.4	14	15	9.2	89	346	107	104	96
3	23	29	18	8.4	20	9.2	1040	84	173	172	94	100
4	24	24	18	8.4	20	8.9	1850	86	204	164	89	104
5	174	21	18	7.9	12	10	434	100	327	102	82	107
6	95	22	18	7.9	10	11	470	97	166	196	75	112
7	34	23	18	7.8	9.4	11	227	88	190	103	92	116
8	31	25	14	7.8	9.6	13	155	80	459	154	114	124
9	29	27	11	7.8	17	14	2170	67	2490	94	86	126
10	28	108	9.1	7.8	14	16	829	61	808	72	81	131
11	27	82	9.0	7.8	21	17	514	62	2430	69	73	135
12	26	20	9.3	7.8	28	20	323	67	283	67	101	141
13	25	18	9.6	7.8	14	21	217	73	1540	67	123	149
14	24	19	9.6	7.8	13	22	161	70	300	67	93	148
15	24	19	9.8	7.8	12	24	125	65	194	66	81	139
16	23	19	9.8	7.2	12	26	108	94	171	66	76	132
17	56	18	12	7.2	11	26	84	31800	161	3150	72	125
18	252	16	16	7.2	10	23	64	3250	136	356	70	120
19	41	15	13	7.2	9.8	18	52	1020	120	995	111	116
20	26	14	9.4	7.2	9.4	15	52	494	105	404	98	112
21	19	15	7.5	7.2	8.9	13	60	395	86	149	80	106
22	18	16	7.5	11	8.2	11	172	341	87	131	74	101
23	17	16	8.0	17	8.2	12	2220	303	165	110	113	98
24	17	13	8.0	18	8.2	13	647	263	120	100	456	94
25	17	11	8.0	15	8.8	13	313	233	106	88	122	89
26	17	11	8.5	12	8.9	12	200	214	98	1570	113	86
27	18	11	8.5	14	20	11	198	199	93	507	108	171
28	26	12	8.5	16	25	9.8	273	189	90	171	105	129
29	25	12	8.5	14	---	9.2	121	179	88	126	101	46
30	26	13	7.9	12	---	8.9	102	170	87	99	97	44
31	26	---	8.5	12	---	9.0	---	169	---	241	97	---
TOTAL	1232	713	351.0	303.8	374.4	465.0	13199.4	40497	11794	9878	3409	3392

PLATTE RIVER BASIN

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05414000 PLATTE RIVER NEAR ROCKVILLE, WI

LOCATION.--Lat 42°43'52", long 90°38'25", in SW 1/4 sec.17, T.3 N., R.2 W., Grant County, Hydrologic Unit 07060003, on right bank just downstream from bridge on County Trunk Highway B, 0.8 mi upstream from Blakely Branch, 2.2 mi east of Rockville, 4.5 mi northeast of Potosi, and 15.2 mi upstream from mouth.

DRAINAGE AREA.--142 mi².

PERIOD OF RECORD.--October 1934 to current year. Monthly discharge for October and November 1934 published in WSP 1308.

REVISED RECORDS.--WSP 1438: 1935-36, 1937(M), 1939(M), 1941-43(M), 1946(M). WDR WI-76-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 642.50 ft above sea level. Prior to Oct. 1, 1941, nonrecording gage at site 1.3 mi upstream at datum 12.55 ft higher. Oct. 1, 1941, to June 29, 1949, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 23 to Jan. 22, Feb. 21-25, and Mar. 8-11. Records good except those for ice-affected periods, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	90	83	80	80	91	74	193	154	153	121	86
2	87	88	83	76	108	89	74	183	182	125	107	85
3	93	87	83	74	160	84	150	177	154	138	104	85
4	96	86	82	74	194	82	287	172	163	129	103	84
5	135	85	82	74	121	84	189	189	184	116	100	83
6	120	85	82	72	101	80	184	176	152	119	99	83
7	106	84	80	72	97	77	152	179	145	111	106	82
8	100	85	78	70	104	76	144	166	344	109	109	89
9	96	87	77	70	187	76	222	154	403	127	99	83
10	94	150	77	70	163	76	191	146	225	107	103	82
11	93	135	76	70	343	76	181	140	223	104	98	81
12	91	115	77	70	298	75	161	141	198	104	106	82
13	89	110	76	70	164	76	147	148	187	103	108	83
14	89	109	75	70	146	78	138	137	183	103	99	82
15	89	103	76	68	134	82	133	133	166	101	95	80
16	88	102	76	68	128	91	144	142	162	100	95	79
17	102	98	75	68	116	112	130	445	155	155	94	78
18	134	96	76	68	108	103	123	332	149	120	93	79
19	102	95	76	68	104	88	120	274	145	192	104	79
20	96	92	73	68	98	85	117	242	142	130	95	79
21	94	91	66	68	88	84	120	229	138	129	92	78
22	92	92	56	100	88	81	175	222	137	119	94	78
23	91	91	72	198	86	80	557	227	145	121	111	78
24	91	87	68	139	86	78	374	205	140	112	122	78
25	91	88	68	103	86	76	282	190	132	107	100	78
26	89	87	68	85	89	75	239	178	128	153	95	78
27	93	85	72	96	96	75	230	169	127	146	92	102
28	98	85	72	108	96	77	290	164	127	117	90	99
29	94	86	70	91	---	76	224	158	125	115	88	86
30	99	87	62	79	---	73	206	153	118	110	86	81
31	92	---	84	80	---	73	---	152	---	148	86	---
TOTAL	3011	2861	2321	2567	3669	2529	5758	5916	5133	3823	3094	2480
MEAN	97.1	95.4	74.9	82.8	131	81.6	192	191	171	123	99.8	82.7
MAX	135	150	84	198	343	112	557	445	403	192	122	102
MIN	87	84	56	68	80	73	74	133	118	100	86	78
CFSM	.68	.67	.53	.58	.92	.57	1.35	1.34	1.20	.87	.70	.58
IN.	.79	.75	.61	.67	.96	.66	1.51	1.55	1.34	1.00	.81	.65

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 1999, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1935	70.0	146	1962	25.3	1951
1936	76.6	372	1962	29.2	1938
1937	63.7	155	1973	23.7	1959
1938	77.3	315	1946	22.1	1959
1939	107	379	1938	24.3	1959
1940	178	483	1959	33.4	1957
1941	115	291	1993	42.0	1990
1942	105	328	1960	36.1	1958
1943	130	586	1947	34.3	1936
1944	107	660	1993	24.0	1936
1945	89.1	348	1943	30.3	1937
1946	78.3	202	1942	33.7	1989

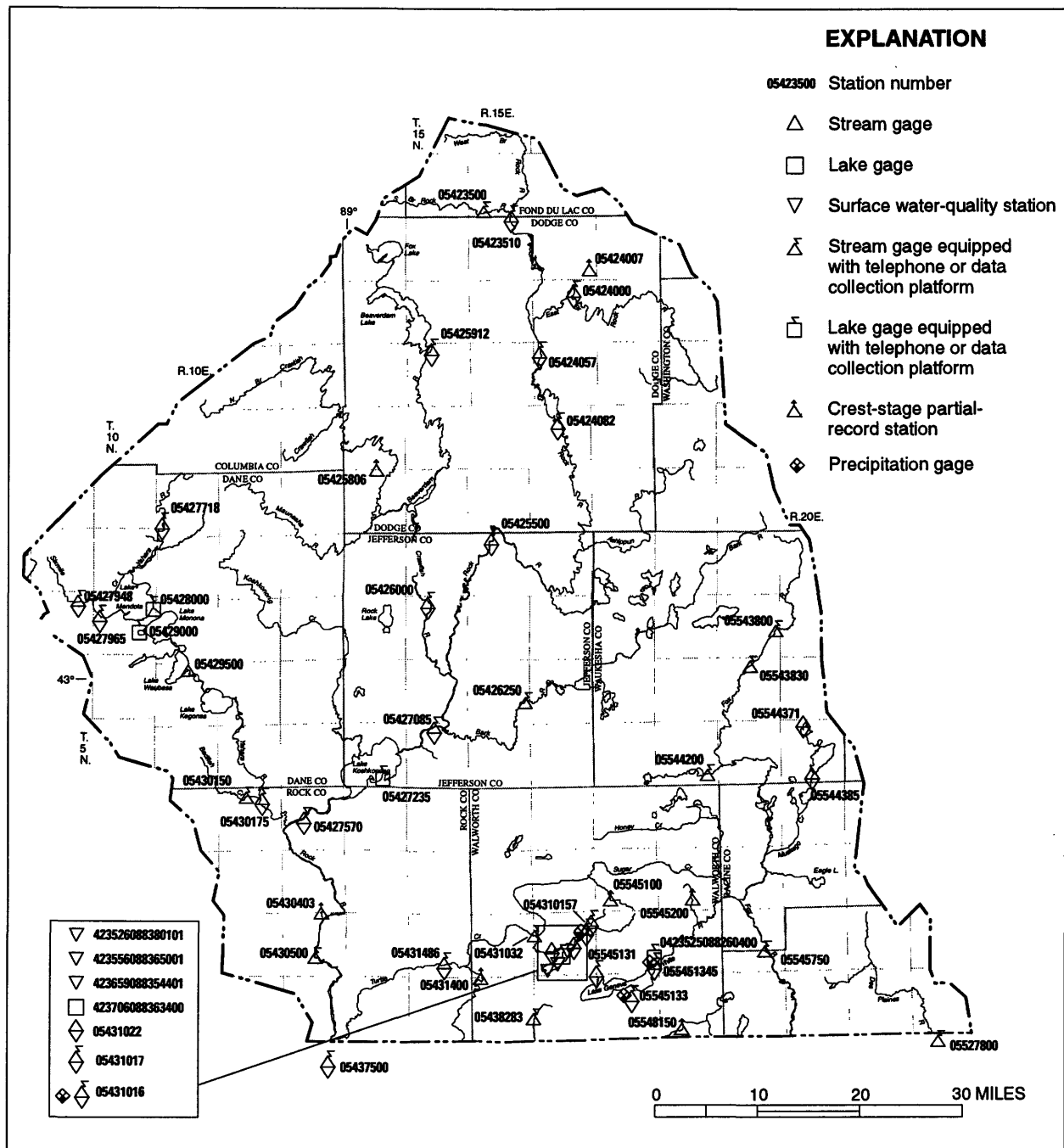
SUMMARY STATISTICS

	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1935 - 1999
ANNUAL TOTAL	44681	43162	
ANNUAL MEAN	122	118	99.6
HIGHEST ANNUAL MEAN			234
LOWEST ANNUAL MEAN			40.8
HIGHEST DAILY MEAN	1870	557	7830
LOWEST DAILY MEAN	(a) 31	(b) 56	(b) 7.0
ANNUAL SEVEN-DAY MINIMUM	(a) 40	67	18
INSTANTANEOUS PEAK FLOW		1420	(c) 43500
INSTANTANEOUS PEAK STAGE		7.64	17.26
INSTANTANEOUS LOW FLOW		(b) 24	(b) .00
ANNUAL RUNOFF (CFSM)	.86	.83	.70
ANNUAL RUNOFF (INCHES)	11.71	11.31	9.53
10 PERCENT EXCEEDS	190	184	156
50 PERCENT EXCEEDS	103	97	67
90 PERCENT EXCEEDS	53	75	35

(a) Ice affected

(b) Result of freezeup

(c) From rating curve extended above 7,000 ft³/s on basis of slope-area measurement of peak flow



ROCK-FOX RIVER BASIN

05423500 SOUTH BRANCH ROCK RIVER AT WAUPUN, WI

LOCATION.--Lat 43°38'30", long 88°43'14", in SW 1/4 NW 1/4 sec.33, T.14 N., R.15 E., Fond du Lac County, Hydrologic Unit 07090001, on left bank 260 ft upstream from U.S. Business Route 151 at Waupun, and 2.8 mi upstream from mouth.

DRAINAGE AREA.--63.6 mi².

PERIOD OF RECORD.--October 1948 to September 1969. March 1987 to current year. Monthly discharge for October 1948 published in WSP 1308.

REVISED RECORDS.--WDR WI-88-1: Drainage area.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 863.46 ft above sea level. October 1948 to September 1969, recording gage at site 150 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good except those for Dec. 25 to Jan. 14, which are fair (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	6.0	7.4	5.6	18	34	22	64	44	39	92	23
2	4.5	5.7	6.8	4.6	21	33	24	60	64	36	82	21
3	4.2	5.6	6.9	4.5	27	30	92	58	64	53	74	20
4	3.8	5.2	7.1	5.2	32	28	175	55	58	59	82	19
5	12	4.9	7.1	5.7	28	28	180	54	56	49	72	18
6	10	4.9	7.0	5.3	24	20	177	67	56	45	65	17
7	8.8	4.9	7.2	5.8	22	23	134	78	63	36	63	17
8	7.9	4.9	7.2	5.9	22	21	105	76	48	32	65	16
9	7.2	5.6	7.1	5.3	29	20	127	67	43	146	60	15
10	6.0	37	7.0	5.2	44	20	120	59	76	91	103	15
11	5.8	24	6.9	6.0	90	20	149	54	222	67	80	14
12	5.6	18	6.4	5.7	116	19	164	50	120	53	66	13
13	4.4	14	6.2	5.9	92	19	135	49	101	43	61	13
14	5.0	12	6.7	5.9	81	19	109	45	90	44	55	13
15	5.5	11	7.8	5.4	63	20	94	42	73	37	49	13
16	5.6	12	6.9	5.3	61	22	84	45	63	32	47	12
17	9.3	12	6.3	9.0	51	27	75	218	56	41	45	11
18	6.5	11	6.1	7.4	42	29	70	204	49	49	41	11
19	5.6	11	6.1	6.3	38	30	65	180	44	168	42	11
20	5.5	10	5.9	6.5	32	29	61	134	40	167	41	11
21	5.3	8.7	5.7	6.7	28	28	60	102	35	720	40	10
22	5.0	8.2	4.9	14	25	26	79	85	33	535	39	10
23	4.9	8.5	4.4	18	24	25	222	85	33	403	39	10
24	4.8	8.3	3.7	15	21	24	201	85	33	343	39	9.8
25	4.5	8.3	3.7	14	23	22	153	76	31	268	38	9.6
26	4.6	8.1	3.9	14	22	21	116	66	28	216	35	11
27	9.4	7.5	4.2	16	31	20	96	56	27	187	34	20
28	6.7	7.3	4.3	16	35	20	84	49	26	164	31	22
29	6.5	7.4	4.6	15	---	20	75	42	25	139	28	20
30	6.9	8.0	4.1	15	---	20	69	37	23	113	26	18
31	6.5	---	5.9	15	---	21	---	43	---	108	25	---
TOTAL	192.4	300.0	185.5	275.2	1142	738	3317	2385	1724	4483	1659	443.4
MEAN	6.21	10.0	5.98	8.88	40.8	23.8	111	76.9	57.5	145	53.5	14.8
MAX	12	37	7.8	18	116	34	222	218	222	720	103	23
MIN	3.8	4.9	3.7	4.5	18	19	22	37	23	32	25	9.6
CFSM	.10	.16	.09	.14	.64	.37	1.74	1.21	.90	2.27	.84	.23
IN.	.11	.18	.11	.16	.67	.43	1.94	1.39	1.01	2.62	.97	.26

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1999, BY WATER YEAR (WY)

MEAN	18.0	21.5	16.5	12.0	17.6	67.2	74.1	34.1	27.7	29.4	16.9	14.3
MAX	90.9	106	80.0	64.6	105	176	266	107	132	246	115	76.2
(WY)	1996	1962	1966	1996	1966	1952	1993	1960	1996	1993	1960	1960
MIN	.63	.53	.16	.094	.079	5.40	7.80	3.54	1.36	.95	.56	.55
(WY)	1965	1965	1959	1959	1959	1964	1964	1958	1964	1964	1964	1963

ROCK RIVER BASIN
05423500 SOUTH BRANCH ROCK RIVER AT WAUPUN, WI--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1949 - 1999	
ANNUAL TOTAL	10129.8		6844.5		29.3	
ANNUAL MEAN	27.8		46.1		94.1	
HIGHEST ANNUAL MEAN					2.47	
LOWEST ANNUAL MEAN					1280	
HIGHEST DAILY MEAN	360	Mar 31	720	Jul 21	.00	Apr 4 1959
LOWEST DAILY MEAN	3.0	Jan 1	3.7	Dec 24,25	.00	(a)
ANNUAL SEVEN-DAY MINIMUM	3.8	Sep 7	4.1	Dec 24	.00	(b) Sep 7 1958
INSTANTANEOUS PEAK FLOW			809	Jul 21	(c) 1500	Apr 3 1959
INSTANTANEOUS PEAK STAGE			7.18	Jul 21	7.97	Apr 3 1959
INSTANTANEOUS LOW FLOW			3.4	Dec 24	.00	(d)
ANNUAL RUNOFF (CFSM)	.44		.73		.46	
ANNUAL RUNOFF (INCHES)	5.92		9.85		6.26	
10 PERCENT EXCEEDS	69		104		69	
50 PERCENT EXCEEDS	11		24		10	
90 PERCENT EXCEEDS	4.7		5.6		1.0	

(a) Many days in 1958-59, 1963-64

(b) Also occurred in 1959

(c) From rating curve extended above 650 ft³/s

(d) No flow at times in 1949, 1953-54, 1958-59, 1963-64

05423510 WEST BRANCH ROCK RIVER AT STATE HIGHWAY 49 NEAR WAUPUN, WI

LOCATION.--Lat 43°38'04", long 88°41'08", in SW 1/4 NW 1/4 sec.35, T.14 N., R.15 E., Fond du Lac County, Hydrologic Unit 07090001, on right bank 250 ft upstream of Highway 49 bridge, 2.3 mi east of Waupun.

DRAINAGE AREA.--113 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 800 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: May 10-13, and ice-affected period, Dec. 26 to Jan. 15. Records good except for estimated daily discharges, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.6	10	15	5.6	30	59	37	117	93	58	132	32
2	7.0	9.8	15	5.2	36	58	37	108	122	63	114	29
3	6.6	10	14	4.9	46	54	128	100	131	73	100	28
4	6.5	9.5	14	4.5	56	49	356	95	111	91	124	26
5	11	9.2	14	4.9	50	50	352	91	105	73	114	25
6	17	9.2	14	4.5	44	37	339	106	102	66	99	24
7	14	9.1	14	4.5	41	45	279	134	117	56	93	23
8	12	9.2	14	4.5	39	39	221	131	95	47	97	23
9	11	9.3	13	4.3	48	37	257	118	82	180	90	21
10	9.4	45	13	4.5	71	35	249	110	91	136	138	21
11	8.5	40	13	4.3	143	36	272	100	348	94	114	20
12	8.1	30	13	4.1	238	37	315	90	304	73	95	20
13	7.1	24	12	4.0	178	37	269	82	241	61	87	21
14	7.1	21	12	7.0	147	36	224	78	200	59	80	20
15	7.6	19	13	9.0	116	37	193	72	153	54	71	21
16	7.7	20	13	13	106	37	168	74	125	45	67	20
17	11	21	12	18	93	43	147	368	111	53	65	19
18	12	21	12	31	75	49	133	430	98	64	59	18
19	9.3	21	12	17	67	50	121	403	87	227	60	19
20	8.6	20	11	16	58	47	114	300	78	241	59	20
21	8.2	18	11	15	55	46	108	220	69	912	56	19
22	7.8	17	12	29	48	43	138	180	65	899	55	19
23	8.0	17	8.2	39	45	41	375	174	67	628	56	18
24	7.9	16	7.5	42	40	39	390	184	64	484	56	18
25	7.4	16	7.3	36	41	36	297	161	58	367	55	17
26	7.4	16	7.0	31	40	34	232	135	52	293	51	16
27	12	15	6.8	32	50	33	192	116	48	261	48	28
28	12	15	6.4	32	59	35	164	101	46	220	44	35
29	11	15	5.8	31	---	35	143	89	45	186	39	35
30	11	16	5.4	30	---	34	129	77	41	158	35	33
31	11	---	5.2	29	---	35	---	79	---	152	33	---
TOTAL	293.8	528.3	345.6	516.8	2060	1283	6379	4623	3349	6374	2386	688
MEAN	9.48	17.6	11.1	16.7	73.6	41.4	213	149	112	206	77.0	22.9
MAX	17	45	15	42	238	59	390	430	348	912	138	35
MIN	6.5	9.1	5.2	4.0	30	33	37	72	41	45	33	16
CFSM	.08	.16	.10	.15	.65	.37	1.88	1.32	.99	1.82	.68	.20
IN.	.10	.17	.11	.17	.68	.42	2.10	1.52	1.10	2.10	.79	.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

	MEAN	9.48	13.1	9.39	15.4	59.4	71.0	251	112	78.8	117	45.8	15.4
MAX	9.48	17.6	11.1	16.7	73.6	101	289	149	112	206	77.0	22.9	
(WY)	1999	1999	1999	1999	1999	1998	1998	1999	1999	1999	1999	1999	
MIN	9.48	8.60	7.63	14.1	45.1	41.4	213	75.3	45.9	27.8	14.7	7.84	
(WY)	1999	1998	1998	1998	1998	1999	1999	1998	1998	1998	1998	1998	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1998 - 1999

ANNUAL TOTAL	19921.9	28826.5	
ANNUAL MEAN	54.6	79.0	68.8
HIGHEST ANNUAL MEAN			79.0
LOWEST ANNUAL MEAN			57.6
HIGHEST DAILY MEAN	708	Apr 1	912 Jul 21
LOWEST DAILY MEAN	3.9	Sep 13	3.9 Sep 13
ANNUAL SEVEN-DAY MINIMUM	4.6	Sep 7	(a) 4.3 Jan 7
INSTANTANEOUS PEAK FLOW			1010 Jul 21
INSTANTANEOUS PEAK STAGE			10.63 Jul 21
ANNUAL RUNOFF (CFSM)	.48	.70	.61
ANNUAL RUNOFF (INCHES)	6.56	9.49	8.27
10 PERCENT EXCEEDS	134	192	165
50 PERCENT EXCEEDS	19	41	34
90 PERCENT EXCEEDS	7.5	8.2	7.6

(a) Ice affected

ROCK RIVER BASIN
05423510 WEST BRANCH ROCK RIVER AT STATE HIGHWAY 49 NEAR WAUPUN, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1997 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SOLIDS DISCHARGE: December 1997 to current year.

TOTAL-PHOSPHORUS DISCHARGE: December 1997 to current year.

INSTRUMENTATION.--Water-quality sampler December 1997 to current year.

REMARKS.--Chemical analyses by the Wisconsin State Laboratory of Hygiene. Samples are point samples unless otherwise indicated.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 471 tons, Mar. 31, 1998; minimum daily, 0.054 ton, Jan. 13, 1999.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 4,690 lb, July 21, 1999; minimum daily, 43.2 lb, Sept. 13, 1998.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 434 tons, July 21; minimum daily, 0.054 ton, Jan. 13.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 4,690 lb, July 21; minimum daily, 46.3 lb, Jan. 11.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 1998						
*13...	0945	--	6.7	22	3.31	2.72
*27...	0925	--	8.3	35	3.24	2.96
NOV						
*12...	0950	--	29	7	1.63	1.50
*24...	0930	--	16	<5	1.66	1.59
DEC						
*10...	0935	--	13	<5	1.83	1.77
*21...	0950	--	11	<5	1.97	1.81
JAN 1999						
*13...	1115	4.0	--	<5	13.3	4.76
23...	2045	--	55	47	3.98	--
27...	0935	--	30	10	1.50	--
FEB						
03...	1845	--	48	8	1.08	--
04...	1845	--	58	8	1.22	--
*08...	1345	--	38	<5	.763	.680
11...	0045	--	80	11	.823	--
11...	1700	--	175	16	.685	--
11...	2045	--	241	56	.853	--
12...	0115	--	279	102	.973	--
12...	1130	--	228	72	.873	--
14...	0345	--	160	38	.650	--
15...	0345	--	126	19	.572	--
*15...	1600	--	111	5	.436	.379
*22...	1350	--	43	<5	.448	.408
MAR						
*11...	1025	--	38	7	.428	.395
*29...	1240	--	35	144	.629	.074
APR						
03...	1245	--	82	44	1.17	--
03...	1445	--	151	58	1.26	--
03...	1800	--	219	89	.916	--
03...	2100	--	294	115	.829	--
04...	0345	--	335	107	.779	--
04...	1545	--	360	81	.725	--
05...	0345	--	368	59	.671	--
*05...	1300	--	349	37	.575	.345
06...	0445	--	253	79	.563	--
06...	1027	--	347	41	.462	.298
06...	1700	--	335	45	.433	--
07...	0500	--	292	46	.442	--
08...	0500	--	237	45	.451	--
09...	1100	--	259	62	.463	--
09...	2300	--	271	72	.503	--
10...	1100	--	248	102	.507	--
10...	2315	--	234	96	.511	--
11...	0845	--	228	44	.389	--
11...	1045	--	269	38	.393	--
11...	1545	--	302	33	.391	--

* Equal-width increment (EWI) sample

05423510 WEST BRANCH ROCK RIVER AT STATE HIGHWAY 49 NEAR WAUPUN, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (000060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (000061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
APR 1999						
12...	0345	--	332	40	.461	--
13...	0345	--	286	48	.427	--
14...	0345	--	237	53	.402	--
*18...	1324	--	131	133	.380	.300
22...	1645	--	164	74	.597	--
23...	0400	--	235	46	.500	--
23...	0615	--	320	81	.542	--
23...	2015	--	450	95	.639	--
24...	0912	--	396	42	.470	--
25...	2015	--	275	27	.325	--
*26...	1305	--	228	21	.338	.247
MAY						
*01...	0900	--	120	30	.373	.267
*10...	1015	--	106	86	.372	.028
17...	0230	--	178	312	1.05	.499
17...	0415	--	318	584	1.73	.635
17...	0545	--	358	380	1.13	.439
17...	1230	--	405	278	.895	--
18...	0030	--	443	138	.808	--
19...	0030	--	432	68	.548	--
*21...	1040	--	217	67	.545	.312
JUN						
*08...	1025	--	94	70	.500	.344
10...	2200	--	188	494	1.46	.714
11...	0045	--	259	129	.879	.564
11...	0345	--	294	244	.962	.454
11...	0645	--	335	288	.530	.452
11...	2245	--	360	120	.700	--
12...	2230	--	273	93	.596	--
*14...	0955	--	205	78	.607	.400
*29...	1000	--	43	37	.821	.663
JUL						
*13...	0938	--	61	54	.801	.600
19...	0415	--	137	105	.917	--
19...	0500	--	178	115	.937	--
19...	0545	--	212	129	.951	--
19...	1245	--	248	89	.739	--
19...	1900	--	284	83	.751	--
20...	0800	--	239	88	.754	.470
20...	1945	--	190	86	.739	--
20...	2245	--	360	142	.746	--
21...	0015	--	573	466	1.38	--
21...	0245	--	750	318	1.10	--
21...	0830	--	905	242	.897	--
21...	1230	--	983	127	.697	--
22...	1100	--	926	46	.622	--
22...	2345	--	761	34	.574	--
23...	1230	--	601	43	.591	--
23...	1535	--	588	32	.495	.436
24...	0030	--	546	46	.643	--
25...	1200	--	368	39	.631	--
AUG						
*09...	1240	--	90	17	.505	.408
*25...	1220	--	54	15	.737	.612
SEP						
*08...	1045	--	22	15	1.37	1.19
*22...	0945	--	18	20	1.62	1.39

* Equal-width increment (EWI) sample

ROCK RIVER BASIN

05423510 WEST BRANCH ROCK RIVER AT STATE HIGHWAY 49 NEAR WAUPUN, WI--CONTINUED

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED(TONS PER DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.48	.45	.20	.076	.70	.91	4.04	9.67	17.3	6.09	9.48	1.28
2	.39	.39	.20	.070	.82	.91	2.69	9.93	22.6	6.84	7.71	1.19
3	.37	.37	.19	.066	1.00	.87	28.9	10.4	24.4	8.17	6.39	1.13
4	.37	.33	.19	.061	1.21	.81	84.7	11.1	20.8	10.4	23.0	1.07
5	.63	.29	.19	.066	.99	.84	47.7	11.9	19.8	8.57	21.1	1.01
6	.99	.27	.19	.061	.76	.63	48.4	15.7	19.2	7.94	5.36	.97
7	.80	.25	.19	.061	.62	.78	34.4	22.2	22.0	6.92	4.79	.95
8	.69	.23	.18	.061	.55	.69	29.1	24.3	18.0	6.01	4.71	.92
9	.65	.22	.18	.058	.89	.68	44.1	24.5	15.3	34.2	4.16	.89
10	.56	.97	.18	.061	1.78	.65	62.6	25.0	42.2	25.4	25.8	.88
11	.51	.80	.17	.058	12.3	.67	32.7	21.9	182	13.0	21.1	.86
12	.49	.57	.17	.055	49.9	.66	36.2	18.7	86.1	10.4	4.26	.89
13	.43	.44	.17	.054	23.3	.62	36.0	16.1	56.7	8.81	3.89	.93
14	.41	.38	.16	.093	12.2	.58	34.4	14.5	42.2	8.60	3.53	.93
15	.42	.33	.17	.12	3.31	.56	36.5	12.7	30.5	7.70	3.09	.96
16	.42	.34	.18	.16	1.44	.56	39.3	28.7	23.8	6.41	2.91	.94
17	.57	.34	.16	.78	1.25	.68	42.3	268	20.1	7.54	2.79	.92
18	.65	.34	.16	2.35	1.01	.91	44.7	117	16.9	10.2	2.54	.91
19	.51	.33	.16	.30	.90	.95	32.3	73.8	14.3	57.7	2.57	.96
20	.47	.29	.15	.21	.78	.83	21.9	54.5	12.1	69.3	2.50	1.04
21	.45	.26	.15	.24	.75	.79	17.1	39.8	10.3	434	2.35	1.03
22	.42	.24	.17	1.41	.65	.81	24.9	32.7	9.14	121	2.28	1.01
23	.44	.23	.11	4.12	.62	1.08	83.3	31.6	8.97	64.5	2.30	.94
24	.43	.22	.10	4.02	.56	1.63	48.7	33.5	8.20	57.2	2.29	.89
25	.40	.22	.098	2.26	.59	2.36	24.3	29.5	7.06	39.0	2.22	.80
26	.42	.21	.094	1.26	.58	3.49	14.1	24.8	6.00	29.2	2.07	.75
27	.98	.20	.092	.89	.75	5.26	11.7	21.4	5.28	24.7	1.94	1.25
28	.75	.20	.086	.83	.89	8.61	10.8	18.6	4.83	19.6	1.76	6.00
29	.59	.20	.078	.79	---	12.2	10.1	16.4	4.52	15.7	1.57	6.00
30	.57	.21	.073	.74	---	8.86	9.83	14.2	4.20	12.6	1.43	5.60
31	.53	---	.070	.69	---	5.82	---	14.7	---	11.5	1.34	---
TOTAL	16.79	10.12	4.661	22.071	121.10	65.70	997.76	1067.80	774.80	1149.20	183.23	43.90

WTR YR 1999 TOTAL 4457.132

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	155	138	139	59.2	194	139	124	236	260	254	407	172
2	126	122	137	54.9	224	137	126	217	427	278	344	167
3	118	118	137	51.7	272	127	633	202	458	322	297	165
4	116	107	133	47.5	355	115	1420	192	305	399	499	164
5	196	97.6	137	51.7	301	117	1160	183	289	319	459	162
6	307	93.1	133	47.4	233	86.3	885	221	278	287	282	162
7	248	87.4	134	47.4	191	104	670	310	410	243	262	166
8	211	82.9	133	47.4	163	89.9	542	300	259	205	269	166
9	197	81.9	131	45.2	205	86.8	658	236	228	722	247	161
10	168	391	132	47.3	309	80.7	681	222	431	547	555	158
11	152	348	127	46.3	609	83.1	612	204	1250	409	459	153
12	144	264	129	112	1140	86.7	762	186	1050	318	278	156
13	128	213	124	225	698	88.2	609	172	781	261	262	163
14	127	188	121	188	495	88.2	484	166	657	249	246	162
15	136	169	131	200	311	92.2	411	156	511	218	222	165
16	137	176	135	278	251	96.5	355	182	428	178	215	160
17	189	187	124	386	220	167	306	1910	388	204	213	155
18	212	187	121	685	179	190	274	1570	350	272	200	153
19	165	191	123	365	160	194	259	1190	317	974	209	160
20	151	174	117	344	139	182	252	884	289	1010	210	172
21	145	159	118	329	133	179	251	647	262	4690	204	168
22	137	148	133	622	116	126	333	528	250	3450	203	161
23	142	151	87.2	843	108	122	1180	506	263	1930	212	137
24	139	148	79.8	753	96.3	120	998	534	258	1670	218	117
25	129	147	77.3	494	99.4	113	576	465	238	1250	219	94.6
26	130	142	74.2	325	95.1	110	421	388	217	983	212	79.9
27	206	137	72.1	263	120	108	358	333	205	865	208	121
28	201	138	67.8	245	140	115	312	288	201	717	198	142
29	173	137	61.4	229	---	119	278	252	198	596	184	142
30	169	145	57.1	211	---	116	256	217	181	501	176	134
31	159	---	55.0	196	---	117	---	223	---	473	172	---
TOTAL	5113	4867.9	3480.9	7839.0	7556.8	3695.6	16186	13320	11639	24794	8341	4538.5

WTR YR 1999 TOTAL 111371.7

05424000 EAST BRANCH ROCK RIVER NEAR MAYVILLE, WI

LOCATION.--Lat 43°31'46", long 88°34'00", in NW 1/4 NE 1/4 sec.10, T.12 N., R.16 E., Dodge County, Hydrologic Unit 07090001, on left bank 500 ft downstream from Kekoskee dam, 0.5 mi upstream from Gill Creek, and 2.0 mi northwest of railroad bridge in Mayville.

DRAINAGE AREA.--179 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1949 to September 1970, December 1997 to current year.

GAGE.--Water-stage recorder. Datum of gage is 857.20 ft above sea level.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 28 to Jan. 16. Records good except those for ice-affected period, which is poor (see page 13). Minor regulation by recreation dams. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	35	45	18	120	114	78	312	154	81	264	59
2	15	34	44	19	134	112	78	293	167	77	66	29
3	27	32	45	17	160	112	92	224	121	73	113	25
4	22	31	45	15	180	107	155	126	73	69	70	24
5	15	30	44	14	188	109	128	36	110	66	53	24
6	40	30	44	13	169	92	126	87	143	63	73	25
7	39	30	45	14	156	76	133	97	212	49	68	25
8	26	30	44	15	145	79	113	95	144	47	60	25
9	26	31	44	16	153	75	193	90	94	85	46	24
10	25	53	44	17	174	78	223	86	91	82	45	24
11	25	71	43	17	296	78	207	152	90	74	61	23
12	24	63	42	18	485	80	212	214	94	63	63	22
13	24	57	43	19	308	78	183	199	109	55	54	23
14	24	54	43	21	337	78	162	173	233	67	47	22
15	13	54	42	24	287	70	165	133	97	56	50	22
16	7.6	55	42	26	242	71	146	51	87	52	47	22
17	9.9	56	41	29	224	86	127	233	98	68	45	21
18	30	60	41	48	221	92	133	242	95	81	45	20
19	40	61	41	41	234	87	129	316	91	86	47	20
20	41	59	39	40	204	85	124	189	89	114	46	20
21	28	55	38	39	177	85	112	105	90	2790	45	17
22	27	53	32	52	140	85	154	68	87	1440	43	5.4
23	27	52	36	74	138	84	659	28	121	892	47	6.0
24	28	50	32	96	126	84	551	70	149	805	49	9.2
25	29	47	29	106	122	76	457	89	116	789	60	21
26	29	46	28	124	119	79	410	126	103	754	62	23
27	30	44	28	106	116	81	353	186	100	616	56	25
28	30	43	25	110	116	80	345	176	97	573	48	37
29	30	43	21	114	---	79	374	169	94	509	44	39
30	34	45	19	119	---	79	344	161	86	410	41	35
31	34	---	17	117	---	78	---	157	---	327	59	---
TOTAL	807.4	1404	1166	1498	5471	2649	6666	4683	3435	11313	1917	716.6
MEAN	26.0	46.8	37.6	48.3	195	85.5	222	151	114	365	61.8	23.9
MAX	41	71	45	124	485	114	659	316	233	2790	264	59
MIN	7.6	30	17	13	116	70	78	28	73	47	41	5.4
CFSM	.15	.26	.21	.27	1.09	.48	1.24	.84	.64	2.04	.35	.13
IN.	.17	.29	.24	.31	1.14	.55	1.39	.97	.71	2.35	.40	.15

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1999, BY WATER YEAR (WY)

	MEAN	49.5	57.4	39.0	32.9	57.5	202	254	98.9	61.5	81.1	32.1	43.4
MAX	290	199	187	125	239	567	907	442	210	365	166	391	
(WY)	1955	1962	1966	1960	1966	1952	1959	1960	1969	1999	1960	1965	
MIN	4.69	9.94	4.98	3.85	4.57	38.9	51.4	15.3	7.89	4.93	2.22	4.08	
(WY)	1964	1950	1959	1959	1959	1954	1970	1958	1964	1970	1970	1958	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1949 - 1999

ANNUAL TOTAL	34545.0	41726.0	
ANNUAL MEAN	94.6	114	83.7
HIGHEST ANNUAL MEAN			167
LOWEST ANNUAL MEAN			18.4
HIGHEST DAILY MEAN	1400	Mar 31	2790 Jul 21
LOWEST DAILY MEAN	7.6 (b) Sep 29		5.4 Sep 22
ANNUAL SEVEN-DAY MINIMUM	14	Sep 19	14 Sep 18
INSTANTANEOUS PEAK FLOW			3600 Jul 21
INSTANTANEOUS PEAK STAGE			11.49 Jul 21
ANNUAL RUNOFF (CFSM)	.53		.64
ANNUAL RUNOFF (INCHES)	7.18		8.67
10 PERCENT EXCEEDS	219		222
50 PERCENT EXCEEDS	44		68
90 PERCENT EXCEEDS	25		22

(a) Ice affected

(b) Also occurred Oct. 16

ROCK RIVER BASIN
05424000 EAST BRANCH ROCK RIVER NEAR MAYVILLE, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1997 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SOLIDS DISCHARGE: December 1997 to current year.

TOTAL-PHOSPHORUS DISCHARGE: December 1997 to current year.

INSTRUMENTATION.--Water-quality sampler December 1997 to current year.

REMARKS.--Chemical analyses by the Wisconsin State Laboratory of Hygiene. Samples are point samples unless otherwise indicated.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 2,340 tons, July 21, 1999; minimum daily, 0.18 ton, Jan. 6, 1999.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 14,400 lb, July 21, 1999; minimum daily, 13.5 lb, Sept. 22, 1999.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 2,340 tons, July 21; minimum daily, 0.18 ton, Jan. 6.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 14,400 lb, July 21; minimum daily, 13.5 lb, Sept. 22.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 1998						
03...	1345	--	27	49	.698	--
04...	1345	--	27	43	.762	--
06...	1330	--	42	53	.710	.420
*27...	1005	--	31	30	.444	.192
NOV						
10...	0400	--	47	15	.578	--
10...	0845	--	76	33	.608	--
10...	1515	--	52	82	.705	--
11...	0315	--	47	66	.639	--
11...	1215	--	91	38	.610	--
12...	0015	--	70	17	.530	--
*12...	1045	--	63	13	.532	.410
*24...	1005	--	49	3	.491	.385
DEC						
*10...	1005	--	43	<5	.376	.292
*21...	1020	--	38	<5	.455	.406
JAN 1999						
*13...	1240	19	--	<5	.771	.678
23...	1415	--	87	8	.743	--
24...	1415	--	97	6	.660	--
25...	0215	--	103	8	.630	--
27...	1035	--	105	8	.585	--
FEB						
03...	0630	--	156	5	.371	--
04...	0630	--	178	6	.344	--
*08...	1415	--	141	<5	.225	.181
11...	0930	--	240	6	.216	--
11...	1545	--	320	14	.214	--
11...	1730	--	425	12	.205	--
12...	1300	--	474	80	.506	--
13...	0930	--	386	22	.363	--
13...	1430	--	262	19	.346	--
14...	1345	--	300	14	.240	--
14...	1900	--	432	13	.235	--
*15...	1500	--	269	6	.205	.148
*22...	1420	--	147	<5	.158	.122
MAR						
*11...	1135	--	72	5	.292	.234
*29...	1310	--	80	10	.252	.162

* Equal-width increment (EWI) samples

05424000 EAST BRANCH ROCK RIVER NEAR MAYVILLE, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDEED (MG/L) (00530)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
APR 1999					
04...	0915	128	35	.332	--
04...	1030	183	32	.319	--
04...	1130	211	32	.298	--
04...	1900	170	28	.282	--
05...	1345	140	22	.276	.138
06...	1058	147	29	.336	.177
06...	1145	152	17	.260	--
09...	0600	138	30	.324	--
09...	0915	193	37	.322	--
09...	0945	226	37	.316	--
09...	1030	264	35	.313	--
10...	0500	211	29	.277	--
10...	0945	245	32	.284	--
11...	0100	166	24	.274	--
11...	0915	192	22	.270	--
11...	1500	226	26	.272	--
12...	0300	243	18	.234	--
12...	1745	174	8	.210	--
13...	0545	178	10	.209	--
13...	1000	206	14	.214	--
13...	1900	163	13	.208	--
14...	0700	154	12	.211	--
14...	1845	146	29	.247	--
15...	1015	173	34	.245	--
*18...	1402	138	25	.227	.120
23...	0300	237	42	.262	--
23...	0500	339	39	.257	--
23...	0630	548	50	.280	--
23...	0845	726	190	.522	--
23...	1145	854	116	.440	--
23...	2345	672	96	.512	--
24...	0943	553	60	.431	--
25...	0715	467	35	.247	--
*26...	1345	410	30	.202	.084
MAY					
*01...	0930	315	39	.194	.075
*10...	1045	87	32	.311	.167
12...	0900	251	38	.279	--
19...	0930	351	58	.423	--
20...	1100	259	46	.374	--
*21...	1115	141	46	.401	.197
JUN					
07...	0515	174	42	.355	--
07...	1100	288	60	.371	--
*08...	1115	143	30	.362	.220
14...	0100	181	46	.442	--
*14...	1043	304	50	.458	.236
*29...	1025	95	45	.417	.219
JUL					
13...	1019	55	30	.455	.251
21...	1205	3150	384	1.06	--
21...	1545	2700	266	.803	--
21...	1830	2420	206	.706	--
22...	0100	1960	126	.607	--
22...	0830	1560	80	.542	--
22...	1545	1260	58	.480	--
22...	2400	1030	44	.440	--
*23...	1500	860	15	.332	.265
24...	0815	801	32	.377	--
25...	0130	807	25	.366	--
26...	0130	766	27	.402	--
27...	0130	716	26	.447	--
28...	0645	585	31	.503	--
AUG					
*09...	1310	43	39	.415	.173
*25...	1245	63	34	.374	.222
SEP					
*08...	1350	25	40	.508	.294
*22...	1030	5.5	27	.467	.289

* Equal-width increment (EWI) sample

ROCK RIVER BASIN
05424000 EAST BRANCH ROCK RIVER NEAR MAYVILLE, WI--CONTINUED

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED(TONS PER DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.97	1.42	.46	.24	1.63	1.53	1.91	31.1	16.0	9.31	29.6	5.87
2	1.86	1.20	.46	.26	1.82	1.52	1.84	23.9	18.1	8.54	6.11	2.96
3	3.46	.99	.48	.23	2.27	1.51	3.43	14.4	11.2	7.89	9.20	2.53
4	2.58	.82	.50	.20	2.86	1.45	12.2	6.71	7.10	7.29	6.73	2.44
5	1.68	.70	.51	.19	2.89	1.47	8.22	1.67	11.4	6.75	5.16	2.52
6	5.29	.61	.52	.18	2.49	1.24	7.41	4.57	15.6	6.27	7.26	2.58
7	4.63	.53	.56	.19	2.20	1.03	7.53	5.78	28.3	4.71	6.89	2.65
8	2.82	.46	.56	.20	1.95	1.07	7.80	6.40	12.9	4.39	6.17	2.71
9	2.74	.61	.58	.22	1.93	1.01	17.0	6.91	7.28	6.20	4.78	2.56
10	2.67	6.99	.59	.23	2.15	1.06	17.4	7.40	6.80	7.25	4.75	2.42
11	2.59	7.22	.58	.23	9.35	1.06	12.9	14.5	6.44	6.31	6.28	2.28
12	2.50	2.34	.57	.24	66.8	1.12	7.24	20.9	6.54	5.21	6.43	2.16
13	2.42	1.75	.58	.26	21.1	1.14	6.02	15.8	10.5	4.44	5.54	2.14
14	2.36	1.47	.58	.28	12.8	1.18	8.42	11.1	30.2	4.50	4.73	2.01
15	1.32	1.30	.57	.32	5.81	1.10	14.6	6.77	11.5	4.50	5.01	1.92
16	.73	1.17	.57	.35	3.94	1.16	12.1	2.34	9.55	4.20	4.70	1.86
17	.94	1.06	.56	.40	3.66	1.46	9.48	15.8	10.9	5.42	4.42	1.75
18	2.84	1.01	.55	2.23	3.50	1.63	8.96	25.2	10.6	6.50	4.39	1.67
19	3.68	.90	.55	1.47	3.56	1.60	6.95	46.2	10.3	6.87	4.52	1.60
20	3.69	.77	.53	.54	2.99	1.62	5.20	24.3	10.1	25.8	4.44	1.54
21	2.53	.64	.51	.53	2.49	1.68	3.66	12.7	10.3	2340	4.29	1.29
22	2.38	.54	.44	.86	1.91	1.76	8.77	7.28	9.99	313	4.08	.39
23	2.35	.47	.49	1.50	1.86	1.81	187	2.49	11.2	58.4	4.39	.43
24	2.36	.41	.43	1.71	1.70	1.88	92.3	5.25	15.3	60.8	4.57	.66
25	2.39	.40	.40	2.27	1.64	1.75	43.4	5.72	10.5	55.1	5.48	1.46
26	2.39	.40	.38	2.67	1.61	1.89	33.4	11.9	12.3	54.0	5.73	1.62
27	2.40	.39	.38	2.25	1.57	2.02	24.4	21.3	12.0	46.0	5.22	1.77
28	2.07	.40	.34	2.10	1.57	2.08	21.9	19.6	11.8	47.9	4.58	2.54
29	1.83	.41	.28	1.94	---	2.12	28.0	12.0	11.4	43.6	4.21	2.66
30	1.80	.44	.26	1.79	---	2.07	30.8	12.1	10.1	35.8	3.97	2.40
31	1.58	---	.23	1.60	---	1.98	---	12.4	---	29.1	5.86	---
TOTAL	75.85	37.82	15.00	27.68	170.05	47.00	650.24	414.49	366.20	3226.05	189.49	63.39

WTR YR 1999 TOTAL 5283.26

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.0	82.8	106	44.1	271	125	106	327	327	185	608	139
2	54.3	80.2	102	48.0	283	128	106	307	356	176	148	70.5
3	101	75.5	102	44.9	314	132	135	235	147	169	434	61.0
4	86.5	72.2	100	41.5	326	131	249	132	90.5	162	157	59.3
5	47.5	70.3	97.9	40.5	310	138	194	42.2	183	155	118	61.9
6	148	70.0	95.3	39.3	252	121	195	136	265	149	163	64.2
7	135	71.0	96.7	44.3	211	104	188	168	418	116	152	66.5
8	80.8	72.3	93.0	49.7	178	112	164	162	280	112	134	68.8
9	71.6	81.4	90.9	55.5	175	110	319	153	170	338	102	66.3
10	64.0	183	88.7	61.7	189	119	337	143	154	328	101	64.2
11	61.3	229	89.3	64.6	357	122	297	239	162	179	253	61.8
12	60.0	180	88.6	71.5	1090	125	255	318	190	153	260	59.8
13	59.0	155	92.5	77.7	612	121	208	271	247	134	119	60.6
14	58.4	144	93.0	78.5	458	120	199	216	569	274	102	58.2
15	33.0	143	93.2	80.2	329	107	217	152	232	135	108	56.9
16	18.5	146	94.7	77.7	256	107	189	60.3	196	126	102	56.4
17	24.2	149	94.5	78.6	225	129	159	406	214	162	95.7	54.4
18	74.9	161	95.3	170	299	137	164	513	205	193	95.1	52.9
19	109	162	96.9	148	326	129	156	703	199	204	98.3	52.0
20	112	156	94.8	110	267	125	148	379	194	440	96.8	50.9
21	68.9	147	92.0	126	156	123	133	210	198	14400	93.7	43.5
22	65.8	141	79.3	189	121	123	204	115	191	4120	89.1	13.5
23	65.9	137	88.3	289	154	121	1580	36.2	254	1780	96.2	14.8
24	67.2	131	78.5	345	136	120	1220	88.1	316	1610	100	22.4
25	68.9	123	71.8	354	115	106	608	111	258	1630	249	49.2
26	69.9	117	69.4	402	117	110	459	157	230	1710	256	54.0
27	72.4	111	68.0	332	119	112	382	398	225	1550	117	58.3
28	70.9	107	61.3	324	123	110	371	376	219	1540	104	83.2
29	71.6	104	51.5	314	---	108	398	208	212	1320	96.5	86.3
30	80.4	108	46.5	306	---	107	363	198	194	1020	91.8	77.2
31	80.8	---	41.6	282	---	106	---	192	---	784	137	---
TOTAL	2210.7	3709.7	2653.5	4689.3	7769	3688	9703	7151.8	7095.5	35354	4877.2	1788.0

WTR YR 1999 TOTAL 90689.7

05424057 ROCK RIVER AT HORICON, WI

LOCATION.--Lat 43°27'01", long 88°37'56", in NW 1/4 SE 1/4 sec.6, T.11 N., R.16 E., Dodge County, Hydrologic Unit 07090001, on left bank downstream side of State Highway 33, 1,700 ft upstream of dam, at Horicon.

DRAINAGE AREA.--456 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1997 to current year.

GAGE.--Acoustical Velocity Meter (AVM) system. Single-path transducer installation. Elevation of gage is 860 ft, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 25-29 and Jan. 6-11. Records are fair (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	39	133	28	252	375	257	807	430	237	1250	235
2	44	78	125	24	266	391	174	763	476	190	1180	181
3	42	111	153	33	290	343	267	680	466	111	1100	163
4	42	107	176	42	318	288	482	593	401	139	1060	174
5	39	96	158	35	336	336	516	499	278	124	966	218
6	44	92	176	31	345	191	556	479	324	350	856	180
7	299	86	178	29	342	382	493	352	400	225	768	159
8	379	84	170	29	335	201	593	537	480	82	741	259
9	325	91	170	30	333	180	691	493	416	298	644	214
10	303	-27	183	33	343	222	631	467	389	318	686	223
11	288	153	177	36	419	226	719	467	395	261	665	201
12	217	333	178	40	513	236	749	529	462	241	592	199
13	195	311	189	44	519	244	739	579	460	171	621	192
14	201	324	237	50	564	245	716	545	542	66	350	213
15	152	317	221	45	628	216	713	471	520	190	228	215
16	74	351	211	50	656	228	760	391	458	194	197	213
17	38	346	175	54	636	261	658	472	454	238	179	166
18	46	191	136	61	591	353	616	641	384	183	113	134
19	47	175	140	73	572	313	595	657	321	235	137	142
20	49	245	71	79	522	274	535	663	311	290	117	143
21	52	204	64	79	510	390	552	609	230	644	117	109
22	48	113	52	97	484	284	589	578	153	1040	103	87
23	39	206	38	127	430	227	778	528	123	1220	84	91
24	34	206	35	161	373	281	851	559	310	1250	185	71
25	37	190	32	181	392	234	865	579	223	1270	148	29
26	39	209	30	193	419	175	869	516	153	1330	143	36
27	37	199	29	213	429	133	852	511	203	1410	148	188
28	37	184	27	227	414	111	871	505	262	1420	174	201
29	41	88	29	235	---	220	864	457	246	1370	117	190
30	38	160	30	239	---	83	833	394	98	1360	100	151
31	34	---	33	248	---	-8.2	---	370	---	1300	128	---
TOTAL	3293	5262	3756	2846	12231	7634.8	19384	16691	10368	17757	13897	4977
MEAN	106	175	121	91.8	437	246	646	538	346	573	448	166
MAX	379	351	237	248	656	391	871	807	542	1420	1250	259
MIN	33	-27	27	24	252	-8.2	174	352	98	66	84	29
CFSM	.23	.38	.27	.20	.96	.54	1.42	1.18	.76	1.26	.98	.36
IN.	.27	.43	.31	.23	1.00	.62	1.58	1.36	.85	1.45	1.13	.41

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
MEAN	106	175	94.1	88.9	331	382	920	424	228	331	248	101
MAX	106	175	121	91.8	437	517	1194	538	346	573	448	166
(WY)	1999	1999	1999	1999	1999	1998	1998	1999	1999	1999	1999	1999
MIN	106	175	67.0	86.1	226	246	646	310	110	89.3	48.6	35.4
(WY)	1999	1999	1998	1998	1998	1999	1999	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1998 - 1999

ANNUAL TOTAL	91422	118096.8	324
ANNUAL MEAN	250	324	1999
HIGHEST ANNUAL MEAN			324
LOWEST ANNUAL MEAN			324
HIGHEST DAILY MEAN	1470	1420	1470
LOWEST DAILY MEAN	-27	-27	-27
ANNUAL SEVEN-DAY MINIMUM	30	29	29
ANNUAL RUNOFF (CFSM)	.55	.71	.71
ANNUAL RUNOFF (INCHES)	7.46	9.63	9.64
10 PERCENT EXCEEDS	633	682	715
50 PERCENT EXCEEDS	100	228	174
90 PERCENT EXCEEDS	37	41	40

(a) Also occurred Dec. 25

ROCK RIVER BASIN
05424057 ROCK RIVER AT HORICON, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1997 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SOLIDS DISCHARGE: December 1997 to current year.

TOTAL-PHOSPHORUS DISCHARGE: December 1997 to current year.

REMARKS.--Chemical analyses by the Madison Metropolitan Sewage District and the Wisconsin State Laboratory of Hygiene. Samples are equal-width increment samples collected by U.S. Geological Survey personnel, cooperative and local observers.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 459 tons, Apr. 13, 1998; minimum daily, 0.00 ton, Nov. 10, 1998 and Mar. 31, 1999, result of reverse streamflow from wind setup.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 4,600 lb, July 31, 1999; minimum daily, 0.00 lb, Nov. 10, 1998, result of reverse streamflow from wind setup.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 374 tons, Apr. 9; minimum daily, 0.00 ton, Nov. 10 and Mar. 31, result of reverse streamflow from wind setup.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 4,600 lb, July 31; minimum daily, 0.00 lb, Nov. 10, result of reverse streamflow from wind setup.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
AUG 1998									
31...	1045	46	--	24.5	3.5	12	93	81	460
SEP									
15...	1030	47	8.0	20.3	1.5	6.5	280	79	465

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS P) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHOPHOS- PHATE (MG/L AS P) (00671)	CHLORO- PHYLL A FLUORO- METRIC METHOD (UG/L) (32209)
AUG 1998								
31...	33	20	.120	.050	3.5	.440	.040	145
SEP								
15...	23	11	.140	.310	2.9	.370	.100	51.1

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1998									
06...	1040	32	7.9	17.7	8.0	9.5	>180	79	530
09...	1030	346	8.2	12.4	13.3	14	15	82	488
20...	1035	26	8.5	11.8	8.7	16	22	82	486
NOV									
03...	1040	119	8.4	6.1	--	13	11	78	475
10...	1240	-144	8.1	14.0	--	12	340	71	469
17...	1041	354	8.4	3.7	--	11	800	75	452
DEC									
01...	1030	165	7.3	7.6	7.7	5.4	15	76	490
15...	1040	222	8.8	11.0	15.1	11	19	80	560
JAN 1999									
05...	1050	34	9.2	1.3	9.8	2.0	58	130	838
19...	1045	56	7.9	.4	6.2	<2.0	70	95	628
FEB									
02...	1030	265	7.8	.3	10.0	2.7	39	75	508
12...	1500	490	7.7	.3	10.9	5.6	>1200	56	380
16...	1030	654	6.9	1.4	8.5	3.0	60	53	321

ROCK RIVER BASIN
05424057 ROCK RIVER AT HORICON, WI--CONTINUED

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
MAR 1999									
02...	1040	382	7.1	2.9	7.6	3.1	8	61	466
16...	1035	240	7.1	6.9	8.7	4.8	2	70	490
APR									
05...	1030	521	7.1	9.6	6.7	12	840	55	408
06...	1030	456	7.2	9.1	7.4	11	340	54	402
20...	1013	533	7.0	11.4	12.4	14	2	48	362
23...	1020	752	6.9	6.4	11.3	11	240	41	344
29...	1030	888	7.0	12.6	9.1	9.0	15	39	326
MAY									
04...	1025	591	7.1	18.1	5.4	9.3	10	43	392
17...	0900	470	7.3	19.1	5.0	>24	120	45	379
19...	1015	661	7.7	18.2	6.5	17	2300	41	346
24...	1030	625	7.6	11.6	8.8	>43	140	38	330
JUN									
01...	1030	410	6.4	18.5	3.9	23	160	46	426
15...	1030	547	5.3	18.3	6.7	12	350	42	388
JUL									
06...	1010	295	--	--	--	18	120	54	360
20...	1015	235	--	--	--	12	92	58	378
21...	1000	622	7.4	22.0	3.9	7.9	1000	32	270
26...	1300	1270	7.4	21.0	4.2	5.1	210	18	243
AUG									
03...	1024	1100	7.7	24.4	2.5	7.7	80	25	332
17...	1045	258	7.8	22.5	7.0	12	20	44	406
SEP									
21...	1030	236	8.4	13.8	5.5	>10	--	--	--
29...	1030	245	8.3	13.2	7.1	7.2	--	--	--

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS P) (00625)	PHOS- PHORUS ORTHOS- SOLVED (MG/L AS P) (00665)	PHOS- PHORUS ORTHOS- SOLVED (MG/L AS P) (00671)	CHLORO- PHYLL A FLUORO- METRIC METHOD CORR. (UG/L) (32209)
OCT 1998								
06...	33	16	.280	.710	3.9	.390	.090	80.9
09...	63	30	.350	1.24	6.6	.490	<.020	192
20...	67	32	.230	<.040	4.4	.380	<.020	352
NOV								
03...	74	32	.060	<.040	4.4	.420	<.040	268
10...	54	29	.090	<.040	3.5	.340	<.040	348
17...	106	45	.680	.750	6.7	.790	<.020	353
DEC								
01...	101	36	.800	.230	4.9	.600	<.020	430
15...	60	26	1.10	.070	3.9	.530	<.020	300
JAN 1999								
05...	19	7	3.90	.400	1.8	.460	.290	16.9
19...	9	4	3.84	.680	1.6	.660	.430	<1.50
FEB								
02...	11	4	3.47	1.00	2.0	.450	.350	3.20
12...	66	17	2.54	1.11	2.9	.410	.230	16.0
16...	16	5	2.92	.860	2.1	.470	.180	5.55
MAR								
02...	9	3	2.62	1.44	2.7	.340	.240	9.80
16...	32	10	2.71	1.05	2.8	.370	.210	35.6
APR								
05...	144	43	1.14	.710	5.0	.710	.130	272
06...	217	70	1.12	.740	5.2	.770	.120	284
20...	112	41	.520	<.040	4.6	.440	<.030	301
23...	174	62	.870	.070	5.0	.650	<.030	189
29...	110	38	.840	.050	3.8	.370	<.030	198
MAY								
04...	97	34	.400	<.040	3.6	.390	<.030	126
17...	115	42	.130	.050	4.4	.450	.110	291
19...	102	36	1.41	.070	3.8	.380	<.030	205
24...	112	44	.620	.040	4.7	.560	.030	246
JUN								
01...	94	34	.820	.350	4.2	.480	<.030	186
15...	121	43	1.15	.060	4.7	.620	.040	303
JUL								
06...	151	60	.190	.050	5.8	.760	<.030	599
20...	121	46	.460	.320	5.3	.630	<.030	380
21...	69	28	.180	.150	2.9	.300	<.030	189
26...	85	32	.200	.120	3.0	.480	.110	64.4
AUG								
03...	73	29	.080	.040	3.3	.530	.200	124
17...	57	25	.950	<.040	3.4	.370	<.030	187
SEP								
21...	94	39	.012	--	--	.563	.024	--
29...	93	39	.566	--	--	.499	.025	--

ROCK RIVER BASIN
05424057 ROCK RIVER AT HORICON, WI--CONTINU

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDEED (MG/L) (00530)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
OCT 1998						
06...	1750	--	49	39	.425	.158
08...	1710	--	371	68	.442	.075
13...	1020	--	207	52	.555	.248
13...	1115	--	196	62	.465	.008
27...	1045	--	46	39	.362	.012
NOV						
11...	1705	--	305	184	.638	.006
12...	1145	--	346	134	.575	.013
13...	0930	--	302	122	.645	.006
16...	1030	--	304	128	.716	.072
18...	1705	--	113	86	.586	.043
20...	0945	--	252	98	.587	.070
24...	1040	--	225	76	.571	.078
DEC						
10...	1045	--	185	66	.465	.006
15...	0920	--	222	67	.532	.043
21...	1110	--	48	45	.527	.071
29...	1025	29	--	10	.475	.846
JAN 1999						
13...	1525	--	58	10	.623	.574
FEB						
12...	1435	--	531	66	.453	.240
14...	0830	--	572	22	.377	.238
15...	1400	--	619	20	.299	.190
22...	1455	--	501	27	.303	.213
MAR						
11...	1245	--	263	19	.324	.230
29...	1335	--	312	<5	.871	.812
APR						
05...	1415	--	561	136	.638	.125
06...	1130	--	503	152	.662	.143
09...	1545	--	675	228	.771	--
10...	1105	--	518	114	.569	--
11...	0920	--	741	186	.490	.077
12...	0955	--	750	90	.459	.104
14...	0910	--	709	182	.495	.028
18...	1440	--	615	174	.604	.015
24...	1026	--	869	118	.450	--
25...	1100	--	860	102	.349	.078
26...	1029	--	870	106	.354	.006
28...	1242	--	861	118	.365	.006
MAY						
01...	1005	--	811	120	.352	.013
10...	1115	--	448	44	.445	.352
21...	1200	--	606	82	.391	.035
JUN						
08...	1205	--	469	108	.486	.050
11...	1435	--	326	120	.612	.022
14...	1112	--	549	150	.702	.043
29...	1105	--	329	140	.659	.015
JUL						
13...	1055	--	162	138	.727	.007
21...	1625	--	774	100	.424	.056
23...	1420	--	1250	52	.344	.203
28...	1105	--	1420	61	.579	.285
30...	1010	--	1360	43	.575	.286
AUG						
04...	1010	--	1070	86	.573	.212
09...	1340	--	628	68	.483	.144
25...	1320	--	184	59	.467	.040
SEP						
08...	1420	--	335	99	.761	.247
22...	1115	--	121	72	.516	.028

WATER-QUALITY DATA, SEPTEMBER 1998 TO SEPTEMBER 1999

[illegible]

DAILY MEAN VALUES

WTR YR 1999 TOTAL 25888.700

DAILY MEAN VALUES

WTR YR 1999	TOTAL	318144.38

ROCK RIVER BASIN
05424082 ROCK RIVER AT HUSTISFORD, WI

LOCATION.--Lat 43°20'44", long 88°35'52", in NE 1/4 sec.9, T.10 N., R.16 E., Dodge County, Hydrologic Unit 07090001, on left bank 600 ft downstream from bridge on State Highway 109 and 150 ft downstream of the Hustisford dam, at Hustisford.

DRAINAGE AREA.--511 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1978 to September 1985, and December 1998 to September 1999.

GAGE.--Water-stage recorder. Datum of gage is 845.67 ft above sea level.

REMARKS.--Estimated daily discharges: Dec. 1-10, Mar. 11-12, June 21, Aug. 16, Sept. 4-8, 26, and ice-affected period, Dec. 22 to Jan. 12. Records are good except those for estimated daily discharges, which are fair (see page 13). Flow partly regulated by dam at Hustisford. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	220	48	211	397	60	896	418	179	1260	58
2	---	---	230	46	277	357	69	782	602	176	1250	80
3	---	---	230	52	306	336	357	704	634	163	1110	114
4	---	---	250	48	303	336	784	661	502	138	1060	110
5	---	---	260	44	353	259	790	558	264	123	839	110
6	---	---	260	40	379	214	570	520	159	182	568	140
7	---	---	250	38	378	213	426	378	288	200	521	205
8	---	---	250	38	410	214	501	400	462	193	551	200
9	---	---	250	42	428	194	772	495	492	258	629	183
10	---	---	260	46	427	169	807	571	509	283	673	179
11	---	---	269	50	429	200	763	565	482	274	661	174
12	---	---	266	58	507	210	897	566	429	267	635	169
13	---	---	261	63	666	238	943	567	432	247	550	174
14	---	---	178	57	790	234	880	571	502	181	492	172
15	---	---	158	74	721	179	787	571	536	137	416	172
16	---	---	241	101	715	143	730	496	499	101	40	172
17	---	---	272	89	723	140	714	592	467	129	22	165
18	---	---	224	40	720	217	697	742	344	216	23	157
19	---	---	197	10	631	279	551	863	207	379	39	120
20	---	---	193	60	589	279	482	796	169	421	47	110
21	---	---	112	122	587	276	480	617	36	1240	52	103
22	---	---	110	90	467	275	559	582	12	1810	53	53
23	---	---	100	68	398	266	918	583	26	1850	52	30
24	---	---	98	68	398	260	1050	638	65	1810	110	36
25	---	---	90	167	398	242	1120	658	112	1760	133	28
26	---	---	86	253	397	165	1170	608	131	1710	127	18
27	---	---	80	214	398	79	1150	497	136	1670	124	126
28	---	---	78	194	401	55	1130	403	171	1550	126	271
29	---	---	74	194	---	53	1040	382	233	1350	116	305
30	---	---	60	194	---	54	949	381	204	1260	69	234
31	---	---	52	189	---	55	---	376	---	1280	43	---
TOTAL	---	---	5659	2797	13407	6588	22146	18019	9523	21537	12391	4168
MEAN	---	---	183	90.2	479	213	738	581	317	695	400	139
MAX	---	---	272	253	790	397	1170	896	634	1850	1260	305
MIN	---	---	52	10	211	53	60	376	12	101	22	18
CFSM	---	---	.36	.18	.94	.42	1.44	1.14	.62	1.36	.78	.27
IN.	---	---	.41	.20	.98	.48	1.61	1.31	.69	1.57	.90	.30

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1999, BY WATER YEAR (WY)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	357	391	289	178	315	669	1048	491	332	262	178	272	272	272	272	272	272	272	272	272	272	272
MAX	752	824	642	375	500	1439	2377	1100	1101	716	446	667	667	667	667	667	667	667	667	667	667	667
(WY)	1981	1985	1983	1985	1984	1985	1979	1979	1984	1984	1979	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978	1978
MIN	14.5	139	164	81.6	132	110	546	123	20.5	14.8	27.1	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
(WY)	1983	1980	1981	1982	1980	1980	1981	1981	1985	1985	1985	1982	1982	1982	1982	1982	1982	1982	1982	1982	1982	1982

SUMMARY STATISTICS

**FOR 1999 WATER YEAR
(DECEMBER-SEPTEMBER)**

WATER YEARS 1978 - 1999

ANNUAL MEAN		392
HIGHEST ANNUAL MEAN		590
LOWEST ANNUAL MEAN		257
HIGHEST DAILY MEAN	1850	Jul 23
LOWEST DAILY MEAN	10	Jan 19
ANNUAL SEVEN-DAY MINIMUM	39	Aug 16
INSTANTANEOUS PEAK FLOW	1940	Jul 23
INSTANTANEOUS PEAK STAGE	5.98	Jul 23
ANNUAL RUNOFF (CFSM)		6.80
ANNUAL RUNOFF (INCHES)		.77
10 PERCENT EXCEEDS	802	1010
50 PERCENT EXCEEDS	260	234
90 PERCENT EXCEEDS	53	20

(a) Also occurred June 21 to July 11, 1985

ROCK RIVER BASIN
05424082 ROCK RIVER AT HUSTISFORD, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1998 to September 1999.

PERIOD OF DAILY RECORD.--

SUSPENDED-SOLIDS DISCHARGE: December 1998 to September 1999.

TOTAL-PHOSPHORUS DISCHARGE: December 1998 to September 1999.

REMARKS.--Chemical analyses by the Wisconsin State Laboratory of Hygiene. Samples are equal-width increment samples collected by U.S. Geological Survey personnel.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 447 tons, Apr. 28; minimum daily, 0.38 ton, Jan. 19.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 6,430 lb, Apr. 6; minimum daily, 20.3 lb, Jan. 19.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDEDED (MG/L) (00530)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
DEC 1998						
15...	1350	--	157	26	.192	.010
21...	1205	--	98	52	.321	.057
29...	1125	74	--	30	.388	.040
JAN 1999						
14...	1120	--	56	13	--	.197
27...	1125	--	195	14	.390	--
FEB						
12...	1520	--	545	17	.399	.236
14...	0925	--	790	20	.370	.195
15...	1320	--	685	27	.358	.174
22...	1550	--	394	24	.312	.156
MAR						
11...	1340	200	--	35	.267	.011
29...	1430	--	52	92	.435	.007
APR						
05...	1500	--	783	158	.671	.027
06...	1205	--	499	178	3.28	.032
07...	1025	--	429	124	.585	.031
09...	1610	--	875	232	.752	--
10...	1045	--	776	156	.611	--
11...	0950	--	760	133	.504	.029
12...	1045	--	954	92	.484	.031
14...	0955	--	885	80	.372	.006
18...	1510	--	700	106	.458	.009
23...	1920	--	1040	146	.540	--
24...	1045	--	1050	98	.498	--
25...	1015	--	1160	74	.404	.008
26...	1106	--	1180	84	.384	.004
28...	1318	--	1130	156	.513	.006
MAY						
01...	1040	--	893	88	.352	.013
10...	1200	--	564	99	.370	.005
21...	1237	--	570	101	.410	.025
JUN						
08...	1300	--	491	110	.561	.029
11...	1505	--	508	118	.542	.027
14...	1200	--	444	100	.480	.037
29...	1155	--	258	94	.536	.036
JUL						
13...	1055	--	254	75	.524	--
21...	1650	--	1450	60	.484	.103
23...	1350	--	1840	63	.445	.042
28...	1140	--	1530	47	.428	.125
30...	1040	--	1260	53	.427	.154
AUG						
04...	1050	--	1060	77	.472	.134
09...	1420	--	660	82	.437	.124
25...	1350	--	133	64	.601	.275
SEP						
08...	1620	--	195	52	.486	.140

ROCK RIVER BASIN

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05424082 ROCK RIVER AT HUSTISFORD, WI--CONTINUED

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED(TONS PER DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	14.9	3.32	8.64	30.0	14.7	218	120	44.1	211	9.05
2	---	---	15.6	3.02	11.5	27.5	16.9	188	174	42.6	224	12.3
3	---	---	15.6	3.24	12.8	26.5	113	172	184	38.8	214	17.3
4	---	---	17.0	2.84	12.8	27.1	322	163	146	32.3	220	16.4
5	---	---	17.8	2.47	15.1	21.4	340	140	77.2	28.3	177	16.2
6	---	---	17.8	2.13	16.3	18.1	258	132	46.7	41.2	121	20.3
7	---	---	17.2	1.92	16.5	18.4	155	97.2	85.1	44.5	112	29.3
8	---	---	17.2	1.82	18.1	18.8	229	104	138	42.2	120	28.2
9	---	---	17.3	1.91	19.0	17.5	445	131	149	55.6	139	25.7
10	---	---	18.0	1.99	19.2	15.6	352	152	158	60.1	145	25.0
11	---	---	18.7	2.05	19.5	18.9	262	151	152	57.3	139	24.4
12	---	---	18.5	2.26	23.4	20.1	227	152	130	54.8	130	23.5
13	---	---	18.2	2.33	33.2	23.0	218	152	124	49.7	109	24.2
14	---	---	12.5	2.02	52.5	23.0	193	154	136	34.7	95.3	23.9
15	---	---	11.7	2.62	54.0	17.8	183	154	144	24.9	78.5	23.9
16	---	---	27.8	3.59	51.3	14.4	181	134	134	17.5	7.33	23.8
17	---	---	43.1	3.17	51.1	14.4	189	166	125	21.0	4.03	22.9
18	---	---	34.8	1.44	50.0	22.5	197	221	91.3	33.4	4.04	21.7
19	---	---	29.5	.38	43.1	29.3	157	271	54.7	58.8	7.03	16.5
20	---	---	28.0	2.19	39.6	29.6	137	241	44.6	66.6	8.41	15.1
21	---	---	15.8	4.47	38.8	29.8	135	171	9.44	201	9.18	14.2
22	---	---	14.4	3.30	30.4	31.2	158	159	3.20	299	9.29	7.22
23	---	---	12.2	2.53	26.3	33.6	326	161	6.88	311	9.13	4.09
24	---	---	11.2	2.53	26.9	36.6	286	176	16.8	292	19.1	4.95
25	---	---	9.60	6.24	27.5	38.1	235	183	29.0	267	23.0	3.79
26	---	---	8.56	9.53	28.0	28.9	274	170	33.7	244	21.7	2.45
27	---	---	7.43	8.10	28.7	15.3	355	139	34.8	225	20.8	17.1
28	---	---	6.76	7.46	29.6	12.1	447	114	43.5	200	20.8	36.7
29	---	---	6.00	7.58	---	12.9	366	108	59.1	182	19.0	41.3
30	---	---	4.61	7.70	---	13.4	273	108	51.1	182	11.1	31.6
31	---	---	3.79	7.64	---	13.5	---	108	---	198	6.79	---
TOTAL	---	---	511.55	113.79	803.84	699.3	7044.6	4890.2	2701.12	3449.4	2435.53	583.05

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	180	99.6	447	628	145	1730	1120	518	3040	170
2	---	---	191	95.1	589	559	170	1500	1640	507	3060	230
3	---	---	194	107	651	522	997	1350	1760	469	2770	324
4	---	---	215	98.6	646	517	2440	1280	1420	396	2700	307
5	---	---	227	90.1	753	395	3250	1080	756	353	2110	303
6	---	---	231	81.6	809	324	6430	1020	464	520	1400	380
7	---	---	226	77.3	809	320	1680	743	857	571	1270	548
8	---	---	230	77.0	879	317	1790	792	1400	549	1320	527
9	---	---	234	84.8	918	285	3020	983	1470	734	1490	482
10	---	---	247	92.6	917	246	2670	1140	1510	805	1620	470
11	---	---	260	100	924	290	2100	1130	1410	778	1620	459
12	---	---	262	116	1090	311	2300	1130	1210	756	1590	445
13	---	---	261	125	1380	361	2150	1130	1170	696	1400	458
14	---	---	181	114	1570	365	1800	1140	1310	496	1280	454
15	---	---	170	147	1400	286	1670	1140	1400	364	1100	456
16	---	---	375	199	1360	236	1630	991	1310	262	108	456
17	---	---	567	175	1350	238	1670	1270	1240	321	61.9	439
18	---	---	455	78.8	1310	378	1710	1780	917	535	63.6	418
19	---	---	379	20.3	1130	499	1370	2300	555	954	113	319
20	---	---	353	117	1040	512	1210	2010	459	1080	139	292
21	---	---	196	237	1010	521	1220	1400	98.2	3280	156	275
22	---	---	195	174	791	534	1460	1310	33.7	5510	162	141
23	---	---	182	132	665	530	2600	1340	73.2	4680	163	80.1
24	---	---	182	135	660	531	2780	1490	180	4320	350	97.1
25	---	---	172	372	653	509	2480	1560	316	4160	430	74.5
26	---	---	168	597	646	356	2490	1470	372	4020	407	48.3
27	---	---	160	459	641	174	2750	1220	388	3900	390	338
28	---	---	160	409	640	125	3030	1010	490	3590	390	729
29	---	---	155	409	---	124	2560	971	674	3110	356	822
30	---	---	125	410	---	128	2050	987	591	2920	207	630
31	---	---	108	401	---	132	---	992	---	3000	127	---
TOTAL	---	---	7241	5830.8	25678	11253	63622	39389	26594.1	54154	31393.5	11172.0

ROCK RIVER BASIN
05425500 ROCK RIVER AT WATERTOWN, WI

LOCATION.--Lat 43°11'17", long 88°43'34", in SW 1/4 sec.4, T.8 N., R.15 E., Jefferson County, Hydrologic Unit 07090001, on left bank, 700 ft downstream from Milwaukee Street bridge, 1.1 mi downstream from Silver Creek, at Watertown.

DRAINAGE AREA.--969 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1931 to September 1970, October 1976 to current year.

REVISED RECORDS.--WSP 1438: 1933,1935(M), 1937(M), 1938-39, 1945(M); WDR WI-79-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 792.58 ft above sea level. Prior to Sept. 26, 1933, nonrecording gage at site 700 ft upstream at different datum.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 23-25 and Dec. 31 to Jan. 26. Records good except those for ice-affected periods, which are poor (see page 13). Flow partly regulated by powerplant at Watertown. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	181	345	86	738	874	252	1700	1070	413	2100	245
2	81	187	340	100	774	844	252	1700	1050	414	2090	205
3	89	184	378	90	839	814	297	1670	1040	409	2070	192
4	89	182	388	82	871	787	348	1620	973	395	2010	177
5	135	181	387	80	884	749	590	1580	960	361	1980	190
6	230	189	374	80	842	702	713	1550	963	310	1950	203
7	269	186	367	84	841	629	776	1730	1100	286	1900	211
8	335	173	367	90	865	571	823	1900	1010	310	1800	233
9	313	176	378	100	916	505	1050	1830	933	367	1710	260
10	361	246	391	110	977	474	1210	1740	890	402	1620	285
11	409	356	397	110	1060	454	1190	1630	939	420	1490	313
12	453	414	393	120	1180	421	1210	1560	997	460	1380	302
13	450	480	392	130	1070	394	1200	1210	1330	449	1300	308
14	439	532	387	120	1040	431	1200	1170	1620	434	1240	286
15	436	561	389	150	1010	450	1200	1130	1490	428	1180	253
16	366	564	340	140	1020	444	1200	1080	1370	389	1110	252
17	313	577	333	170	1050	411	1200	1610	1280	359	1060	258
18	278	549	371	160	1060	396	1190	1630	1220	318	966	258
19	260	508	389	190	1050	400	1170	1600	1160	424	850	255
20	243	469	395	220	1050	415	1170	1470	1090	616	619	244
21	247	447	343	210	1050	457	1160	1380	984	955	400	223
22	217	389	214	220	1030	490	1260	1360	873	1210	298	200
23	200	389	190	300	1010	487	2210	1400	700	1220	271	182
24	191	390	170	400	1000	481	2210	1420	548	1380	298	156
25	170	344	160	500	976	479	1850	1410	480	1460	326	112
26	149	355	155	580	946	472	1700	1380	398	1550	347	116
27	164	357	144	622	921	459	1650	1320	389	1680	348	173
28	165	350	140	678	898	399	1630	1280	392	1800	338	223
29	157	336	138	701	---	300	1630	1230	347	1930	321	382
30	162	322	103	727	---	263	1640	1170	369	2020	301	494
31	177	---	90	737	---	251	---	1110	---	2100	284	---
TOTAL	7626	10574	9348	8087	26968	15703	35181	45570	27965	25269	33957	7191
MEAN	246	352	302	261	963	507	1173	1470	932	815	1095	240
MAX	453	577	397	737	1180	874	2210	1900	1620	2100	2100	494
MIN	78	173	90	80	738	251	252	1080	347	286	271	112
CFSM	.25	.36	.31	.27	.99	.52	1.21	1.52	.96	.84	1.13	.25
IN.	.29	.41	.36	.31	1.04	.60	1.35	1.75	1.07	.97	1.30	.28

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1999, BY WATER YEAR (WY)

	MEAN	342	415	335	288	363	958	1303	714	433	352	258	255
MAX	2981	2034	1148	1055	1627	2448	3875	2634	1785	1625	1540	1552	
(WY)	1987	1986	1986	1946	1938	1985	1979	1993	1996	1993	1960	1986	
MIN	11.6	27.2	22.3	20.4	29.8	114	192	58.2	23.6	19.4	8.42	3.60	
(WY)	1964	1964	1938	1940	1936	1964	1964	1958	1931	1936	1934	1932	

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1931 - 1999
ANNUAL TOTAL	205959	253439	
ANNUAL MEAN	564	694	503
HIGHEST ANNUAL MEAN			1186
LOWEST ANNUAL MEAN			64.5
HIGHEST DAILY MEAN	2640	2210	4970
LOWEST DAILY MEAN	49	78	.90
ANNUAL SEVEN-DAY MINIMUM	55	(b) 86	1.1
INSTANTANEOUS PEAK FLOW		2680	(c) 5080
INSTANTANEOUS PEAK STAGE		4.72	(d) 6.96
ANNUAL RUNOFF (CFSM)	.58	.72	.52
ANNUAL RUNOFF (INCHES)	7.91	9.73	7.06
10 PERCENT EXCEEDS	1580	1590	1330
50 PERCENT EXCEEDS	343	444	262
90 PERCENT EXCEEDS	97	165	39

(a) Also occurred Sept. 9, 1944

(b) Ice affected

(c) Gage height, 6.19 ft

(d) Backwater from ice

ROCK RIVER BASIN

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05425500 ROCK RIVER AT WATERTOWN, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 1998 to September 1999.

REMARKS.--Chemical analyses by the Madison Metropolitan Sewage District from September 1998 to August 1999, and by the Wisconsin State Laboratory of Hygiene in September 1999. Samples are composites of 3-5 verticals, collected by cooperative observers.

WATER-QUALITY DATA, SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CHLO- RIDE, DIS- SOLVED (MG/L) AS CL) (00940)
SEP 1998									
01...	0930	113	--	--	--	--	9.2	210	69
15...	0725	85	658	8.2	22.0	3.6	6.2	440	73
DATE		SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLATILE, TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L) AS P) (00625)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L) AS P) (00671)	CHLORO- PHYLL A FLUORO- METRIC METHOD CORR. (UG/L) (32209)
SEP 1998									
01...	394	45	21	.140	<.040	2.4	.230	<.020	99.3
15...	397	35	14	.140	.060	2.2	.240	<.020	46.5

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CHLO- RIDE, DIS- SOLVED (MG/L) AS CL) (00940)
OCT 1998										
06...	0920	--	191	647	8.0	14.9	10.6	3.9	>2200	68
14...	0730	--	436	677	8.1	11.7	11.9	5.4	490	71
20...	0900	--	242	682	8.1	11.4	10.3	4.7	1500	67
NOV										
04...	0900	--	185	661	8.2	6.7	15.7	5.1	140	64
12...	0900	--	450	650	8.3	4.5	13.4	4.2	2100	50
17...	0740	--	579	665	8.5	5.0	13.1	5.4	120	68
DEC										
01...	0835	--	368	698	8.6	8.1	11.0	7.0	120	66
15...	0730	--	397	620	8.9	2.2	18.5	8.0	52	70
JAN 1999										
05...	0730	80	--	509	8.6	.0	19.0	2.9	8	66
19...	0745	190	--	793	7.7	.0	10.8	<2.0	33	78
FEB										
02...	0900	--	757	695	7.8	.0	11.8	3.2	80	66
15...	0815	--	1020	603	8.0	1.0	15.1	3.0	90	54
16...	0930	--	1040	642	7.5	2.7	17.8	4.0	28	56
MAR										
02...	0740	--	831	535	8.1	3.2	15.0	4.2	6	56
16...	0825	--	455	686	8.6	4.7	>20.0	9.4	2	62
APR										
05...	0830	--	551	647	8.1	12.8	10.7	8.2	700	61
06...	0845	--	699	646	7.9	10.4	11.7	7.6	310	57
20...	0730	--	1160	590	8.2	9.7	12.1	9.3	12	50
23...	1105	--	2270	415	7.9	7.9	11.9	7.8	9	38
28...	1010	--	1630	387	8.7	12.2	12.8	9.4	16	38
MAY										
18...	0800	--	1560	423	7.5	17.2	7.8	18	3000	33
24...	0950	--	1430	502	7.5	16.2	8.8	15	440	42
JUN										
01...	0755	--	1070	543	7.6	22.3	6.5	9.7	94	43
15...	0720	--	1570	467	7.3	20.0	6.4	5.8	570	36

ROCK RIVER BASIN
05425500 ROCK RIVER AT WATERTOWN, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
JUL 1999										
06...	0835	--	322	530	7.9	27.6	4.9	8.1	620	50
20...	0800	--	562	521	7.5	24.0	5.7	6.0	3200	50
22...	1000	--	1200	485	7.6	24.6	8.1	7.4	2900	38
26...	0945	--	1550	394	7.4	26.7	7.4	7.2	420	29
AUG										
03...	0745	--	2060	402	7.0	24.5	5.8	5.7	69	25
17...	0730	--	1070	446	7.1	21.1	4.9	5.3	110	35
SEP										
21...	0730	--	227	--	9.0	15.1	9.7	4.5	--	--
29...	0900	--	368	--	8.3	14.0	8.2	3.6	--	--
DATE		SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CHLORO-PHYLL A FLUORO-METRIC CORR. (UG/L) (32209)
OCT 1998										
06...	257	30	10	.340	.060	1.4	.190	<.020	74.1	
14...	458	46	15	.640	.290	2.8	.300	<.020	101	
20...	458	64	14	.950	<.040	2.3	.200	<.020	128	
NOV										
04...	456	26	11	.530	<.040	1.6	.180	<.040	113	
12...	432	28	12	1.18	<.040	1.7	.210	<.020	71.6	
17...	415	38	16	.840	.220	2.7	.260	<.020	119	
DEC										
01...	436	58	21	.680	<.040	2.8	.300	<.020	220	
15...	460	37	19	.330	<.040	2.8	.260	<.020	265	
JAN 1999										
05...	478	11	7	1.63	.080	1.3	.130	<.020	70.4	
19...	541	7	6	1.89	.490	1.7	.160	.030	8.55	
FEB										
02...	480	12	6	2.34	.490	1.7	.210	.170	22.4	
15...	384	17	6	3.10	.230	1.6	.330	.120	38.1	
16...	398	23	8	3.10	.210	1.7	.350	.120	54.6	
MAR										
02...	424	11	4	2.15	.190	1.6	.190	.050	86.8	
16...	428	54	20	.900	<.040	2.5	.210	.030	259	
APR										
05...	400	67	19	.470	<.040	2.6	.360	<.030	265	
06...	402	85	23	.780	<.040	2.6	.390	<.030	245	
20...	394	74	23	.370	<.040	2.9	.290	<.030	240	
23...	354	117	25	1.30	.090	2.4	.520	<.030	128	
28...	308	87	22	.560	<.040	2.7	.300	<.030	194	
MAY										
18...	300	74	16	1.41	.130	2.1	.280	.040	72.4	
24...	362	56	13	.830	.090	1.9	.270	.030	46.2	
JUN										
01...	386	58	17	.300	.050	2.2	.310	<.030	125	
15...	356	68	16	1.41	.160	2.3	.330	.060	78.0	
JUL										
06...	364	59	23	.520	.040	3.1	.340	<.030	190	
20...	378	56	18	.690	.140	2.5	.310	.050	103	
22...	390	50	16	1.53	.050	2.2	.280	.110	65.6	
26...	282	66	21	.260	.040	2.4	.370	<.030	108	
AUG										
03...	312	53	15	.060	.200	2.4	.540	.370	47.6	
17...	354	42	11	.390	.350	2.4	.340	.150	53.3	
SEP										
21...	--	49	21	.162	--	--	.302	.057	--	
29...	--	39	14	.475	--	--	.247	.072	--	

ROCK RIVER BASIN
05425500 ROCK RIVER AT WATERTOWN, WI--CONTINUED

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WATER-QUALITY DATA, SEPTEMBER 1998 TO SEPTEMBER 1999

PHOSPHORUS, ORTHO, WATER, FILTERED, POUNDS PER DAY
MONTHLY TOTALS

1998	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	---	---	---	---	---	---	---	---	---	---	---	190.08
1999	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	451.34	638.6	503.98	2989.22	16658	2918.2	2904.1	6673.4	5660.1	6629.7	41984	2801.7
WTR YR 1999 TOTAL 90812.34												

PHOSPHORUS TOTAL, POUNDS PER DAY
MONTHLY TOTALS

1998	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	---	---	---	---	---	---	---	---	---	---	---	2890.4
1999	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	9443.2	14150	12703.0	7695.4	39363	18880	64128	70370	49168	49950	79198	11562
WTR YR 1999 TOTAL 426610.6												

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED(TONS PER DAY)
MONTHLY TOTALS

1998	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	---	---	---	---	---	---	---	---	---	---	---	232.59
1999	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	913.10	1104.1	964.94	207.19	1146.9	1584.8	8051.1	8849	4838.3	4015.4	4396.3	884.5
WTR YR 1999 TOTAL 36955.63												

ROCK RIVER BASIN

05425912 BEAVERDAM RIVER AT BEAVER DAM, WI

LOCATION.--Lat 43°26'57", long 88°50'21", in NE 1/4 SW 1/4 sec.4, T.11 N., R.14 E., Dodge County, Hydrologic Unit 07090002, on left bank 5 ft upstream from bridge on Davis Street, 0.8 mi downstream from outlet of Beaverdam Lake, at Beaver Dam.

DRAINAGE AREA.--157 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1985 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 839.42 ft above sea level.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 21-22. Records good except those for ice-affected period, which is fair (see page 13). Flow regulated by dam 0.8 mi upstream. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	13	51	22	64	32	18	271	123	41	482	54
2	13	13	53	88	60	12	19	257	178	37	492	53
3	13	12	32	173	59	14	35	240	184	39	495	52
4	11	13	12	164	59	13	42	219	210	43	476	50
5	17	12	26	157	35	15	39	216	239	44	443	54
6	15	12	31	151	22	16	65	233	244	56	409	53
7	16	11	27	146	22	15	63	214	249	46	388	30
8	15	11	26	140	22	14	77	236	239	40	374	20
9	14	12	24	135	23	51	142	220	231	101	341	12
10	14	43	26	130	24	55	166	204	249	106	349	11
11	14	92	23	126	30	54	203	142	315	98	338	7.4
12	15	77	23	94	35	53	259	83	343	93	314	6.8
13	16	76	23	127	37	53	280	86	338	86	321	8.4
14	13	91	22	130	40	53	276	69	348	96	304	7.9
15	11	83	23	125	43	52	275	48	317	115	287	7.1
16	11	81	24	120	46	51	278	51	308	111	278	7.1
17	14	76	24	120	48	68	269	98	297	120	279	6.7
18	18	66	21	119	49	53	254	111	151	116	255	6.4
19	15	83	26	113	50	18	247	105	187	147	251	7.4
20	15	81	25	109	51	21	266	104	184	170	239	7.4
21	14	61	25	106	51	35	281	111	177	355	227	6.4
22	12	57	25	116	50	23	292	113	173	431	214	5.5
23	12	71	25	117	51	22	339	129	170	450	204	5.3
24	12	58	24	115	50	22	327	139	180	477	206	4.9
25	11	60	24	114	52	20	324	136	174	493	201	4.1
26	12	60	23	110	51	19	317	119	163	510	194	8.7
27	13	56	23	108	53	18	301	120	162	508	154	9.8
28	13	56	23	105	55	18	297	118	172	510	127	23
29	12	52	23	102	---	23	289	119	76	505	120	37
30	14	67	23	99	---	18	282	116	26	489	75	13
31	14	---	23	97	---	15	---	117	---	497	54	---
TOTAL	424	1556	803	3678	1232	946	6322	4544	6407	6930	8891	579.3
MEAN	13.7	51.9	25.9	119	44.0	30.5	211	147	214	224	287	19.3
MAX	18	92	53	173	64	68	339	271	348	510	495	54
MIN	11	11	12	22	22	12	18	48	26	37	54	4.1
CFSM	.09	.33	.16	.76	.28	.19	1.34	.93	1.36	1.42	1.83	.12
IN.	.10	.37	.19	.87	.29	.22	1.50	1.08	1.52	1.64	2.11	.14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1999, BY WATER YEAR (WY)

MEAN	81.7	109	87.4	85.2	73.0	165	199	104	96.1	106	75.9	60.2
MAX	446	350	289	281	182	312	527	449	369	561	287	282
(WY)	1987	1986	1986	1986	1986	1994	1993	1993	1993	1993	1999	1986
MIN	2.89	6.66	14.2	21.3	20.8	10.9	44.2	4.55	4.86	2.86	3.05	5.13
(WY)	1989	1989	1995	1995	1988	1988	1994	1989	1985	1988	1988	1988

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1985 - 1999

ANNUAL TOTAL	28656.3	42312.3	
ANNUAL MEAN	78.5	116	104
HIGHEST ANNUAL MEAN			244
LOWEST ANNUAL MEAN			39.0
HIGHEST DAILY MEAN	379	510	657
LOWEST DAILY MEAN	4.5	4.1	.64
ANNUAL SEVEN-DAY MINIMUM	5.1	5.9	.77
INSTANTANEOUS PEAK FLOW		567	(a) 758
INSTANTANEOUS PEAK STAGE		8.72	9.35
ANNUAL RUNOFF (CFSM)	.50	.74	.66
ANNUAL RUNOFF (INCHES)	6.79	10.03	9.02
10 PERCENT EXCEEDS	227	299	281
50 PERCENT EXCEEDS	29	60	53
90 PERCENT EXCEEDS	8.8	13	7.1

(a) Gage height, 9.32 ft

ROCK RIVER BASIN

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05425912 BEAVERDAM RIVER AT BEAVER DAM, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--August 1998 to September 1999.

REMARKS.--Chemical analyses by the Madison Metropolitan Sewage District from August 1998 to August 1999, and by the Wisconsin State Laboratory of Hygiene in September 1999. Samples are composites of 3-5 verticals, collected by cooperative observers.

WATER-QUALITY DATA, AUGUST AND SEPTEMBER 1998

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	CHLO-RIDE, DIS-SOLVED (MG/L) AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
AUG 1998									
31...	0915	7.0	4.6	23.0	--	11	110	41	336
SEP 15...	0800	7.0	8.1	21.0	6.8	3.8	>1400	40	329

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L) AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L) AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L) AS N) (00625)	PHOS-PHORUS TOTAL (MG/L) AS P) (00665)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L) AS P) (00671)	CHLORO-PHYLL A FLUORO-METRIC CORR. (UG/L) (32209)
AUG 1998								
31...	19	17	.330	.780	4.2	.530	.260	175
SEP 15...	12	5	.420	.530	2.2	.390	.240	6.80

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	CHLO-RIDE, DIS-SOLVED (MG/L) AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
OCT 1998									
06...	1215	16	8.1	16.0	9.4	6.6	>7500	34	291
20...	0915	15	8.1	16.0	10.8	>8.4	88	42	345
NOV									
03...	1145	13	8.2	9.0	12.3	<2.0	180	40	320
10...	1200	34	8.2	7.0	11.8	7.0	720	36	321
17...	1100	75	8.1	5.0	13.4	<2.0	100	36	328
DEC									
01...	1100	53	8.2	8.0	12.4	2.4	140	36	330
15...	1030	24	8.2	3.0	14.2	<2.0	2	35	350
JAN 1999									
05...	1130	157	8.1	1.0	15.5	<2.0	1	42	396
19...	1030	113	8.0	2.0	14.2	<2.0	2	45	400
FEB									
02...	1045	62	8.0	3.0	12.3	<2.0	100	51	423
12...	1330	33	8.0	3.0	12.9	<2.0	20	50	320
16...	1115	47	8.0	5.0	11.8	2.2	9	44	308
MAR									
02...	1045	12	8.3	5.0	13.9	2.6	140	43	336
16...	1045	53	8.7	6.0	15.2	4.0	2	40	324
APR									
05...	1115	36	8.5	11.0	11.0	2.9	21	38	278
06...	1115	64	8.5	10.0	11.4	4.9	200	38	352
20...	1015	288	8.2	11.0	11.4	<2.2	4	36	302
23...	0930	353	8.3	9.0	12.1	3.2	52	36	306
29...	1030	288	8.3	13.0	10.6	2.3	13	35	278
MAY									
04...	1130	218	8.3	13.0	9.7	2.6	9	35	336
17...	1015	89	8.4	18.0	9.8	2.6	170	34	324
19...	1030	105	8.3	18.0	9.7	<2.0	140	34	308
24...	1030	150	8.4	16.0	10.0	2.8	88	35	312
JUN									
01...	1115	114	9.0	20.0	9.4	5.6	96	35	362
15...	0900	315	9.3	20.0	9.3	27	13	33	287

ROCK RIVER BASIN
05425912 BEAVERDAM RIVER AT BEAVER DAM, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
JUL 1999									
06...	0930	55	8.1	26.0	7.0	5.3	720	35	294
20...	0900	151	8.6	24.0	8.4	3.3	120	34	330
21...	0900	321	8.4	25.0	8.0	4.6	460	32	308
26...	1100	505	8.4	27.0	7.4	3.5	70	32	318
AUG									
03...	0830	495	8.6	26.0	7.9	9.4	38	30	332
17...	0900	280	8.2	21.0	8.0	5.1	530	32	310
SEP									
21...	0915	7.3	8.2	15.0	9.3	4.7	--	--	--
29...	1000	37	8.1	14.0	9.9	10	--	--	--

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS ORTHOS, DIS- SOLVED (MG/L AS P) (00671)	CHLORO- PHYLL A FLUORO- METRIC METHOD CORR. (UG/L) (32209)
OCT 1998							
06...	21	8	.510	.530	2.0	.330	17.9
20...	23	11	.610	.160	2.7	.260	98.3
NOV							
03...	10	4	.600	.240	1.6	.190	7.60
10...	174	43	.550	.310	3.5	.310	32.5
17...	33	9	.530	.450	2.0	.190	3.60
DEC							
01...	18	6	.620	.580	2.0	.150	2.90
15...	4	2	.660	.550	1.9	.140	.800
JAN 1999							
05...	5	3	.920	.630	1.9	.080	<1.50
19...	4	3	.990	.600	2.0	.150	<1.50
FEB							
02...	10	3	1.03	.700	1.9	.120	1.95
12...	5	3	.890	.610	1.9	.100	5.30
16...	6	2	.820	.620	1.9	.260	7.70
MAR							
02...	2	2	.800	.340	1.5	.100	17.3
16...	6	4	.660	.080	1.5	.070	30.8
APR							
05...	16	6	.210	.120	1.4	.140	18.5
06...	40	11	.220	.170	1.7	.210	30.4
20...	13	5	.360	.490	1.6	.140	<.030
23...	29	8	.440	.500	1.8	.250	.100
29...	28	6	.530	.430	1.8	.150	.050
MAY							
04...	18	6	.390	.200	1.4	.150	.050
17...	12	4	.700	.190	1.5	.170	<.030
19...	21	6	.690	.190	1.6	.150	.090
24...	32	10	.690	.100	1.6	.220	.040
JUN							
01...	25	10	.080	.050	1.8	.190	<.030
15...	56	40	.010	<.040	4.8	.350	<.030
JUL							
06...	16	4	.400	1.19	2.6	.480	.210
20...	35	19	.090	.040	2.4	.290	.140
21...	39	17	.420	.190	2.1	.310	.240
26...	33	12	.030	.080	1.6	.330	.180
AUG							
03...	24	15	.020	.070	2.9	.400	.270
17...	28	10	.110	.490	2.2	.340	.230
SEP							
21...	17	8	.180	--	--	.275	.136
29...	37	19	.100	--	--	.368	.136

[illegible]

05426000 CRAWFISH RIVER AT MILFORD, WI

LOCATION.--Lat 43°06'00", long 88°50'58", in SW 1/4 sec.4, T.7 N., R.14 E., Jefferson County, Hydrologic Unit 07090002, on left bank near upstream side of highway bridge in Milford, 1.4 mi downstream from Rock Creek and 9.8 mi upstream from mouth.

DRAINAGE AREA.--762 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1931 to current year.

REVISED RECORDS.--WSP 975: 1937-38. WSP 1438: 1932-33(M), 1935(M), 1937, 1938-41(M), 1943-44(M), 1947-48(M). WDR Wf-79-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 779.40 ft above sea level. Prior to July 28, 1966, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 22-25, Dec. 29 to Feb. 14, and Mar. 3, 5, 8. Records good except those for ice-affected periods, which are poor (see page 13). Some diurnal fluctuation at lower flows, due to manipulation of gates on small dams upstream. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151	218	229	130	700	442	252	1990	595	565	982	285
2	136	223	243	130	700	439	264	1850	606	519	940	251
3	142	208	259	130	720	420	300	1710	559	455	894	222
4	139	199	269	130	740	392	408	1570	538	426	873	201
5	150	182	250	130	740	350	531	1450	516	395	838	187
6	205	174	257	130	720	330	659	1380	543	400	798	178
7	260	166	244	130	700	304	739	1250	652	359	787	150
8	309	165	228	130	680	280	824	1250	660	311	791	151
9	316	162	222	130	680	275	1020	1200	689	309	750	138
10	311	89	230	130	660	285	1060	1120	737	304	741	124
11	292	285	212	130	700	311	1150	1050	736	287	716	120
12	278	460	217	130	800	313	1220	1010	864	281	674	108
13	269	493	226	140	900	317	1260	958	1170	257	665	101
14	240	519	205	140	1000	319	1270	888	1280	221	632	98
15	205	510	210	140	1130	294	1250	808	1260	236	581	104
16	181	503	224	140	1140	301	1250	749	1240	229	543	102
17	167	469	221	140	1100	311	1180	993	1200	272	544	93
18	232	414	185	140	1030	362	1100	1030	1150	276	508	88
19	273	383	223	140	968	351	1050	1100	1100	300	509	86
20	283	394	181	150	874	339	980	1140	1050	339	485	100
21	297	338	165	160	771	387	932	1150	975	436	462	91
22	278	277	150	190	687	342	960	1150	896	555	439	82
23	257	329	140	250	644	306	1490	1110	845	700	418	77
24	235	315	140	300	565	321	1730	1090	841	845	432	89
25	233	302	140	400	526	305	2050	1030	793	934	430	74
26	224	293	141	480	471	283	2250	970	741	1010	427	55
27	211	279	138	520	466	261	2320	899	693	1060	414	117
28	222	266	141	560	466	244	2310	838	653	1070	404	176
29	200	231	140	600	---	270	2230	772	646	1050	387	203
30	213	251	140	660	---	228	2110	708	584	1020	348	196
31	218	---	130	660	---	175	---	634	---	1010	315	---
TOTAL	7127	9097	6100	7470	21278	9857	36149	34847	24812	16431	18727	4047
MEAN	230	303	197	241	760	318	1205	1124	827	530	604	135
MAX	316	519	269	660	1140	442	2320	1990	1280	1070	982	285
MIN	136	89	130	130	466	175	252	634	516	221	315	55
CFSM	.30	.40	.26	.32	1.00	.42	1.58	1.48	1.09	.70	.79	.18
IN.	.35	.44	.30	.36	1.04	.48	1.76	1.70	1.21	.80	.91	.28

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1999, BY WATER YEAR (WY)

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
MEAN	271	304	252	242	312	1032	995	505	345	293	204	242
MAX	2565	1958	1065	1278	1576	2473	3206	2337	1734	2189	899	1881
(WY)	1987	1986	1983	1946	1938	1948	1959	1973	1996	1993	1993	1986
MIN	16.8	25.9	18.0	15.2	16.2	56.2	193	73.8	34.4	17.9	18.0	8.11
(WY)	1964	1950	1959	1940	1959	1940	1964	1958	1934	1965	1964	1958

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1931 - 1999

HYDROLOGIC DATA	FOR 1980 CALENDAR YEAR		FOR 1959 WATER YEAR		FOR 1951 WATER YEAR		FOR 1959 WATER YEAR	
ANNUAL TOTAL	204311		195942					
ANNUAL MEAN	560		537			418		
HIGHEST ANNUAL MEAN						1117		1993
LOWEST ANNUAL MEAN						61.8		1964
HIGHEST DAILY MEAN	2400	Apr 5	2320	Apr 27	6130		Apr 6	1959
LOWEST DAILY MEAN	89	Nov 10	55	Sep 26		.30	Sep 15	1958
ANNUAL SEVEN-DAY MINIMUM	97	Sep 8	81	Sep 20		1.5	Sep 11	1958
INSTANTANEOUS PEAK FLOW			2320	Apr 27	6140		Apr 6	1959
INSTANTANEOUS PEAK STAGE			6.41	Apr 27		11.15	Apr 6	1959
ANNUAL RUNOFF (CFSM)	.73		.70			.55		
ANNUAL RUNOFF (INCHES)	9.97		9.57			7.45		
10 PERCENT EXCEEDS	1210		1110		1090			
50 PERCENT EXCEEDS	320		383		194			
90 PERCENT EXCEEDS	151		140		39			

ROCK RIVER BASIN

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05426000 CRAWFISH RIVER AT MILFORD, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 1998 to September 1999.

REMARKS.--Chemical analyses by the Madison Metropolitan Sewage District from September 1998 to August 1999, and by the Wisconsin State Laboratory of Hygiene in September 1999. Samples are composites of 3-5 verticals, collected by cooperative observers.

WATER-QUALITY DATA, SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
SEP 1998									
01...	1115	141	--	24.0	17.3	11	32	46	366
15...	1045	157	7.9	20.9	5.2	8.0	>1000	43	297
DATE	TIME	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLATILE, TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS ORTHOPHOS- PHORUS TOTAL (MG/L AS P) (00665)	CHLORO- PHYLL A FLUORO- METHOD CORR. (UG/L) (32209)	
SEP 1998									
01...	63	24	.170	<.040	2.6	.380	<.020	165	
15...	42	16	.320	<.040	2.1	.360	.040	133	

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
OCT 1998									
06...	1115	--	209	7.7	15.3	8.7	8.2	>1800	43
20...	0845	--	279	7.9	10.5	10.9	5.4	1100	42
NOV									
03...	0920	--	206	8.1	6.9	11.6	3.9	200	41
12...	1015	--	470	7.8	4.2	12.9	3.8	3700	34
17...	1015	--	470	7.7	5.3	12.3	2.9	640	37
DEC									
01...	1100	--	251	7.7	9.0	10.2	3.8	30	36
15...	0900	--	201	8.2	2.0	15.3	3.2	46	36
JAN 1999									
19...	1000	140	--	6.9	.3	11.3	<2.0	230	42
FEB									
02...	1030	700	--	6.7	.5	10.8	2.2	24	40
15...	1030	--	1130	7.0	.3	12.6	2.8	300	28
16...	1200	--	1130	6.8	1.6	12.2	2.4	230	29
MAR									
02...	0900	--	427	7.7	3.6	15.9	<2.0	5	38
16...	0700	--	291	7.5	7.7	17.1	3.0	2	47
APR									
05...	1300	--	480	7.4	11.8	8.8	6.4	1000	33
06...	1030	--	630	7.2	10.0	8.9	4.6	>2200	30
20...	1200	--	969	7.2	10.6	10.5	4.4	110	34
23...	1030	--	1580	6.9	7.2	10.6	3.6	>4200	24
28...	1400	--	2320	7.0	13.6	9.2	3.8	50	20
MAY									
04...	0830	--	1600	7.9	17.2	9.5	5.9	24	27
18...	1330	--	994	7.2	17.3	8.6	14	2200	27
24...	1300	--	1100	7.3	15.7	8.0	16	270	28
JUN									
01...	1045	--	603	7.2	22.1	8.2	>44	36	34
07...	1030	--	652	7.9	25.0	7.5	8.2	7400	29
15...	1030	--	1270	7.0	20.6	7.0	3.2	430	20

ROCK RIVER BASIN
05426000 CRAWFISH RIVER AT MILFORD, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
JUL 1999									
06...	1115	--	413	8.4	28.5	10.0	10	72	35
20...	0800	--	332	7.8	23.0	4.8	6.8	860	43
22...	1100	--	551	7.2	26.1	12.4	9.9	890	35
26...	1415	--	979	8.1	23.7	10.5	5.6	110	23
AUG									
03...	1100	--	898	7.1	26.0	5.5	4.2	40	30
17...	0830	--	540	7.3	21.6	7.6	8.8	110	36
SEP									
21...	0900	--	91	8.3	13.6	6.4	6.6	--	--
29...	0915	--	201	7.1	13.3	9.6	5.9	--	--
DATE		SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLATILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS P) (00625)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00665)	CHLORO- PHYLL A FLUORO- METRIC METHOD CORR. (UG/L) (32209)
OCT 1998									
06...		351	59	16	.970	.080	2.1	.360	186
20...		443	76	15	2.13	<.040	1.3	.210	138
NOV									
03...		432	41	10	1.88	.140	1.5	.230	95.8
12...		435	55	15	3.60	<.040	1.5	.280	88.6
17...		397	25	7	2.85	.040	1.4	.310	43.3
DEC									
01...		418	91	15	2.09	.130	2.2	.380	68.1
15...		470	17	7	1.70	<.040	1.3	.250	67.0
JAN 1999									
19...		420	4	3	3.07	.400	1.3	.180	<1.50
FEB									
02...		426	6	3	3.66	.410	1.5	.250	2.10
15...		294	23	5	3.84	.190	1.4	.310	7.30
16...		298	19	5	3.71	.140	1.3	.320	7.00
MAR									
02...		408	6	2	2.73	.050	1.0	.130	12.5
16...		408	25	6	2.51	<.040	1.1	.140	29.2
APR									
05...		374	142	22	2.43	.100	2.0	.360	110
06...		356	82	13	3.32	.230	1.9	.320	58.3
20...		370	93	16	1.31	<.040	1.8	.240	61.5
23...		322	96	17	2.18	.160	1.9	.450	33.1
28...		242	46	8	2.55	<.040	1.4	.220	34.3
MAY									
04...		326	86	17	.450	<.040	1.8	.250	84.0
18...		338	91	17	3.11	.050	2.0	.260	109
24...		334	81	13	2.16	.070	1.7	.290	44.5
JUN									
01...		408	84	20	.870	.050	2.1	.350	144
07...		400	92	20	2.00	.070	.78	.230	151
15...		320	70	11	4.00	.080	1.8	.300	46.9
JUL									
06...		306	85	25	.680	.040	2.9	.350	<.030
20...		338	124	35	.840	.210	3.6	.600	176
22...		358	68	23	1.19	.050	2.3	.350	.090
26...		284	90	13	.640	<.040	2.0	.460	.170
AUG									
03...		370	65	13	.080	<.040	1.9	.610	.350
17...		352	59	13	.540	.050	2.1	.400	.170
SEP									
21...		--	88	20	.293	--	--	.439	.169
29...		--	80	21	.374	--	--	.434	.122

PHOSPHORUS, ORTHO, WATER, FILTERED, POUNDS PER DAY
MONTHLY TOTALS

PHOSPHORUS TOTAL, POUNDS PER DAY
MONTHLY TOTALS

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (TONS PER DAY)
MONTHLY TOTALS

1998 TOTAL	OCT ---	NOV ---	DEC ---	JAN ---	FEB ---	MAR ---	APR ---	MAY ---	JUN ---	JUL ---	AUG ---	SEP 597.2
1999 TOTAL	1219.4	1091.0	518.72	108.02	757.00	811.31	7616.0	7891	5207	3834.3	3210.2	851.0
WTR YR 1999	TOTAL 33114.95											

ROCK RIVER BASIN
05426250 BARK RIVER NEAR ROME, WI

LOCATION.--Lat 42°57'37" long 88°40'14" (revised), in SE 1/4 SW 1/4 sec.24, T.6 N., R.15 E., Jefferson County, Hydrologic Unit 07090001, on left bank just upstream from bridge on Cushman Road, 2.8 mi southwest of Rome.

DRAINAGE AREA.--122 mi².

PERIOD OF RECORD.--November 1979 to September 1982. October 1982 to September 1983 (fragmentary). October 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 810 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 22, 23, Dec. 29 to Jan. 21, Feb. 21, and Mar. 6-10. Records good except those for ice-affected periods, which are fair (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	63	62	40	127	116	44	198	106	112	91	42
2	25	60	63	40	138	114	53	186	83	96	91	38
3	29	58	64	39	154	100	62	162	91	83	87	22
4	33	50	64	39	177	99	78	140	105	82	90	26
5	61	49	65	38	162	98	82	139	106	78	82	28
6	119	48	63	38	153	84	91	136	97	73	66	28
7	131	50	71	38	143	80	109	138	92	62	72	30
8	106	53	74	38	134	78	136	130	63	52	73	34
9	74	59	74	38	129	76	147	128	62	32	72	42
10	65	93	73	38	127	74	150	125	69	62	72	39
11	72	88	73	38	139	73	157	116	104	64	69	37
12	76	129	72	38	152	73	157	118	135	64	70	37
13	83	127	70	38	175	73	171	118	173	59	70	33
14	98	118	68	39	183	73	174	108	215	46	68	26
15	96	106	66	42	169	72	181	88	228	46	65	27
16	89	104	66	48	157	73	168	96	215	46	63	27
17	88	99	65	50	144	74	149	201	202	60	58	27
18	91	99	67	52	139	78	136	290	183	65	41	27
19	78	85	63	54	130	97	111	313	132	75	41	28
20	57	77	62	56	121	94	78	289	126	104	40	28
21	64	79	59	56	120	83	73	281	126	100	40	24
22	69	76	56	71	115	85	125	277	130	94	40	23
23	95	68	49	96	112	86	281	252	121	97	47	22
24	134	70	48	108	109	82	314	240	113	111	66	22
25	97	71	47	104	108	82	291	226	83	107	65	22
26	78	66	47	104	107	81	299	201	72	107	65	22
27	55	65	47	105	107	82	316	150	71	121	63	25
28	20	64	46	106	107	82	297	158	78	128	61	47
29	20	64	45	108	---	82	267	154	99	122	58	79
30	35	63	44	114	---	85	234	144	114	106	57	90
31	63	---	42	119	---	69	---	135	---	89	46	---
TOTAL	2226	2301	1875	1932	3838	2598	4931	5437	3594	2543	1989	1002
MEAN	71.8	76.7	60.5	62.3	137	83.8	164	175	120	82.0	64.2	33.4
MAX	134	129	74	119	183	116	316	313	228	128	91	90
MIN	20	48	42	38	107	69	44	88	62	32	40	22
CFSM	.59	.63	.50	.51	1.12	.69	1.35	1.44	.98	.67	.53	.27
IN.	.68	.70	.57	.59	1.17	.79	1.50	1.66	1.10	.78	.61	.31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1999, BY WATER YEAR (WY)

	MEAN	71.6	93.9	82.3	69.0	84.1	128	151	106	74.5	65.7	66.2	67.8
MAX	214	214	138	105	137	248	327	180	200	176	127	212	
(WY)	1987	1986	1986	1985	1999	1986	1993	1993	1996	1993	1995	1986	
MIN	23.6	48.6	34.2	40.4	34.5	59.8	85.7	48.1	13.3	7.66	6.04	15.4	
(WY)	1989	1990	1990	1989	1989	1980	1989	1989	1988	1988	1988	1988	

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1980 - 1999
ANNUAL TOTAL	33615	34266	
ANNUAL MEAN	92.1	93.9	88.9
HIGHEST ANNUAL MEAN			139
LOWEST ANNUAL MEAN			52.9
HIGHEST DAILY MEAN	276	316	459
LOWEST DAILY MEAN	20	20	3.6
ANNUAL SEVEN-DAY MINIMUM	27	23	3.8
INSTANTANEOUS PEAK FLOW		321	476
INSTANTANEOUS PEAK STAGE		2.00	2.56
ANNUAL RUNOFF (CFSM)	.75	.77	.73
ANNUAL RUNOFF (INCHES)	10.25	10.45	9.91
10 PERCENT EXCEEDS	159	160	158
50 PERCENT EXCEEDS	80	78	76
90 PERCENT EXCEEDS	42	38	32

(a) Also occurred Oct. 28, 29

(b) Also occurred May 18, 19

05427085 ROCK RIVER AT ROBERT STREET AT FORT ATKINSON, WI

LOCATION.--Lat 42°55'39", long 88°50'34", in SW 1/4 NE 1/4 sec.4, T.5 N., R.14 E., Jefferson County, Hydrologic Unit 07090001, on upstream center of Robert Street bridge at Fort Atkinson.

DRAINAGE AREA.--2,240 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1998 to September 1999.

GAGE.--Acoustical Velocity Meter (AVM) system. Single-path transducer installation. Datum of gage is 775.09 ft above sea level (levels by the City of Fort Atkinson).

REMARKS.--Estimated daily discharges: Oct. 1-21, Nov. 3-19, Dec. 2-5, Dec. 18-31, and ice-affected period, Jan. 1-31. Records good except those for estimated periods, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	400	710	946	460	2480	1820	808	4690	2310	1330	3220	743
2	390	726	940	430	2510	1770	814	4460	2340	1330	3160	662
3	420	700	960	420	2390	1780	884	4230	2220	1220	3080	591
4	430	640	1000	410	2500	1680	1110	4030	2080	1150	3060	535
5	560	620	1000	390	2520	1640	1390	3800	1980	1090	2990	506
6	900	600	1010	420	2510	1530	1530	3650	1960	1060	2910	487
7	1000	600	1030	440	2440	1300	1860	3480	2120	951	2870	464
8	1100	580	979	460	2380	1300	2120	3490	2210	833	2860	448
9	1100	560	998	470	2390	1180	2600	3400	2100	865	2730	466
10	1000	600	1020	480	2450	1210	3030	3250	2030	904	2650	502
11	1100	700	1010	500	2540	1150	3140	3070	2100	891	2550	528
12	1100	1100	1030	520	2910	1130	3200	3000	2260	915	2420	518
13	1100	1300	1030	540	2760	1110	3230	2830	3060	895	2330	507
14	1100	1400	970	560	2930	1100	3200	2680	3930	857	2230	534
15	1000	1500	985	560	3030	1080	3140	2480	4120	853	2080	522
16	1000	1500	991	600	2960	1100	3100	2300	3950	832	1970	501
17	940	1400	948	660	2910	1060	2970	3650	3700	928	1910	479
18	960	1400	900	760	2810	1250	2850	3940	3440	956	1830	482
19	980	1400	840	780	2700	1110	2760	4170	3180	975	1740	475
20	940	1420	900	820	2570	1120	2660	4170	3010	1080	1460	500
21	1000	1290	820	900	2320	1230	2620	4010	2770	1340	1180	473
22	1030	1140	760	1000	2260	1240	2790	3850	2480	1690	1060	421
23	920	1120	700	1300	2190	1180	4450	3630	2110	2100	975	393
24	864	1150	620	1700	2070	1210	5780	3550	2050	2420	996	363
25	851	1080	580	2000	1990	1160	6420	3390	1920	2600	983	333
26	802	1040	560	2100	1910	1120	6330	3270	1770	2730	983	281
27	748	1010	520	2200	1890	1100	5940	3090	1580	2880	974	400
28	746	989	500	2300	1820	1030	5610	2950	1490	2930	965	629
29	688	938	480	2600	---	996	5250	2790	1470	2980	944	820
30	651	935	480	2600	---	878	4950	2590	1330	3120	854	882
31	675	---	470	2600	---	804	---	2370	---	3250	795	---
TOTAL	26495	30148	25977	31980	69140	38368	96536	106260	73070	47955	60759	15445
MEAN	855	1005	838	1032	2469	1238	3218	3428	2436	1547	1960	515
MAX	1100	1500	1030	2600	3030	1820	6420	4690	4120	3250	3220	882
MIN	390	560	470	390	1820	804	808	2300	1330	832	795	281
CFSM	.38	.45	.37	.46	1.10	.55	1.44	1.53	1.09	.69	.87	.23
IN.	.44	.50	.43	.53	1.15	.64	1.60	1.76	1.21	.80	1.01	.26

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 1999, BY WATER YEAR (WY)

MEAN	855	1005	838	1032	2469	1238	3218	3428	2436	1547	1960	515
MAX	855	1005	838	1032	2469	1238	3218	3428	2436	1547	1960	515
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999
MIN	855	1005	838	1032	2469	1238	3218	3428	2436	1547	1960	515
(WY)	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999	1999

SUMMARY STATISTICS

FOR 1999 WATER YEAR

ANNUAL TOTAL	622133
ANNUAL MEAN	1704
HIGHEST DAILY MEAN	6420
LOWEST DAILY MEAN	281
ANNUAL SEVEN-DAY MINIMUM	381
ANNUAL RUNOFF (CFSM)	.76
ANNUAL RUNOFF (INCHES)	10.33
10 PERCENT EXCEEDS	3210
50 PERCENT EXCEEDS	1180
90 PERCENT EXCEEDS	504

ROCK RIVER BASIN

05427085 ROCK RIVER AT ROBERT STREET AT FORT ATKINSON, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--August 1998 to September 1999.

REMARKS.--Chemical analyses by the Madison Metropolitan Sewage District from August 1998 to August 1999, and by the Wisconsin State Laboratory of Hygiene in September 1999. Samples are composites of 3-5 verticals, collected by cooperative observers.

WATER-QUALITY DATA, AUGUST AND SEPTEMBER 1998

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
AUG 1998									
31...	1320	525	--	25.0	--	7.7	58	54	388
SEP 15...	1011	427	8.5	22.0	6.4	6.6	5800	54	358

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CHLORO-PHYLL A FLUORO-METRIC METHOD CORR. (UG/L) (32209)
AUG 1998								
31...	60	20	.360	.040	2.1	.300	<.020	176
SEP 15...	54	17	.440	<.040	2.0	.360	.040	137

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT 1998									
06...	0825	900	--	8.3	15.0	7.5	5.5	10000	48
20...	0800	940	--	8.5	12.0	9.9	4.8	1200	50
NOV 03...	0800	700	--	8.5	8.5	9.7	4.0	22	52
12...	1140	1100	--	8.1	4.8	11.6	4.5	7200	45
17...	0740	1400	--	8.2	5.6	12.3	3.4	170	46
DEC 01...	0745	--	1020	8.7	8.7	10.1	4.8	290	53
15...	0930	--	893	8.7	2.2	11.0	5.2	92	49
JAN 1999 05...	0730	390	--	8.2	.1	13.4	3.0	160	58
19...	0730	780	--	8.1	.1	9.5	<2.0	310	62
FEB 02...	0720	--	2600	8.0	.5	7.2	2.9	170	46
12...	1310	--	2660	7.8	2.6	12.3	3.2	120	46
16...	0730	--	2990	8.2	2.1	9.7	3.0	110	38
MAR 02...	0730	--	1740	8.3	3.9	10.6	3.9	50	48
16...	1005	--	1030	8.3	5.0	17.4	6.9	53	55
APR 05...	1030	--	1400	8.3	13.2	6.9	7.8	390	46
06...	0730	--	1070	8.4	11.5	7.6	6.8	170	48
20...	0715	--	2680	8.6	10.3	11.6	6.8	58	42
23...	1000	--	4470	8.1	8.6	8.8	6.8	>1500	34
28...	1115	--	5530	8.1	12.5	8.7	5.1	75	26
MAY 04...	1000	--	4040	8.5	17.8	11.1	6.8	98	33
18...	1015	--	3900	8.2	17.5	5.4	11	2500	26
24...	0930	--	3560	8.3	17.0	5.0	19	210	34

05427085 ROCK RIVER AT ROBERT STREET AT FORT ATKINSON, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

		DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER FIELD (STANDARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	
JUN 1999										
01...	0925	--	2220	8.6	22.9	6.5	20	44	40	
14...	0930	--	3870	8.0	21.5	5.6	5.2	5800	27	
15...	0745	--	4130	8.0	20.4	4.3	3.7	1000	27	
JUL										
06...	0800	--	1120	8.3	27.1	5.8	7.4	46	43	
20...	0715	--	1060	8.3	25.0	2.3	6.6	260	48	
22...	0830	--	1620	8.2	26.0	5.8	7.4	210	45	
26...	1000	--	2700	8.3	28.4	6.1	7.0	190	30	
AUG										
03...	0800	--	3080	8.1	25.7	4.7	5.2	46	29	
17...	0730	--	1970	7.9	22.0	9.0	4.9	50	38	
SEP										
21...	0745	--	474	9.1	16.6	8.6	6.7	--	--	
29...	1000	--	834	8.5	14.7	7.2	4.0	--	--	
DATE		SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CHLORO-PHYLL A FLUORO-METRIC METHOD CORR. (UG/L) (32209)
OCT 1998										
06...	459	63	13	.900	.140	1.8	.320	.090	98.7	
20...	443	54	13	1.80	<.040	1.4	.140	.050	136	
NOV										
03...	443	43	11	1.28	<.040	1.4	.210	.060	128	
12...	427	45	15	3.05	<.040	1.6	.270	.050	113	
17...	403	23	7	2.19	<.040	1.5	.230	.090	54.9	
DEC										
01...	444	67	16	1.42	<.040	2.0	.300	.040	134	
15...	481	25	12	1.15	<.040	1.8	.220	<.020	155	
JAN 1999										
05...	374	10	7	2.72	.110	1.3	.250	.090	69.2	
19...	460	4	4	2.75	.450	1.3	.200	.120	<1.50	
FEB										
02...	424	16	4	3.82	.380	1.5	.200	.160	9.10	
12...	370	31	8	3.01	.110	1.5	.260	.140	39.3	
16...	338	23	5	3.51	.090	1.4	.310	.110	31.2	
MAR										
02...	412	10	4	2.36	<.040	1.4	.180	.060	83.1	
16...	406	40	14	1.51	<.040	1.9	.180	.030	189	
APR										
05...	344	82	18	.900	<.040	2.2	.350	<.030	185	
06...	414	85	19	1.27	.080	2.1	.340	<.030	174	
20...	334	82	18	1.00	<.040	2.2	.260	<.030	170	
23...	344	151	23	1.69	.120	2.3	.480	.040	114	
28...	282	55	12	2.79	<.040	1.8	.220	<.030	88.8	
MAY										
04...	336	82	19	.580	<.040	2.1	.250	<.030	102	
18...	282	168	28	2.44	.150	2.5	.580	<.030	91.5	
24...	334	76	13	1.84	.050	1.8	.260	.050	57.1	
JUN										
01...	404	69	17	.400	<.040	2.2	.300	<.030	167	
14...	310	111	18	3.11	.120	2.1	.410	.150	49.6	
15...	344	93	15	3.27	.070	2.0	.370	.100	58.8	
JUL										
06...	364	69	18	.680	.130	2.5	.370	<.030	129	
20...	344	86	21	.710	.330	2.8	.450	.120	106	
22...	397	107	27	.880	.090	2.7	.390	.150	134	
26...	322	114	25	.590	<.040	2.6	.430	.050	135	
AUG										
03...	334	101	19	.160	<.040	2.2	.520	.240	73.3	
17...	370	52	12	.480	.110	1.9	.360	.110	74.5	
SEP										
21...	--	61	18	.132	--	--	.336	.075	--	
29...	--	55	14	1.02	--	--	.342	.132	--	

ROCK RIVER BASIN
05427085 ROCK RIVER AT ROBERT STREET AT FORT ATKINSON, WI--CONTINUED

WATER-QUALITY DATA, SEPTEMBER 1998 TO SEPTEMBER 1999

PHOSPHORUS, ORTHO, WATER, FILTERED, POUNDS PER DAY
MONTHLY TOTALS

1998	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	---	---	---	---	---	---	---	---	---	---	---	2805.5
1999	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	9228	10278	3186.6	22239	44322	7519.7	10546.2	12274	19407	18942.2	50766	7662
WTR YR 1999 TOTAL 216370.7												

PHOSPHORUS TOTAL, POUNDS PER DAY
MONTHLY TOTALS

1998	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	---	---	---	---	---	---	---	---	---	---	---	21801
1999	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	29908	40736	34433	35884	92060	42240	164060	171140	143610	109500	139460	28454
WTR YR 1999 TOTAL 1031485												

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED(TONS PER DAY)
MONTHLY TOTALS

1998	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	---	---	---	---	---	---	---	---	---	---	---	1834.8
1999	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	3977.6	3150.4	2248.1	733.98	3827.3	3540.6	23824	25487	17268	12342	11939	2405.8
WTR YR 1999 TOTAL 110743.78												

05427235 LAKE KOSHKONONG NEAR NEWVILLE, WI

LOCATION.--Lat 42°51'27", long 88°56'27", in NW 1/4 NE 1/4 sec.34, T.5 N., R.13 E., Jefferson County, Hydrologic Unit 07090001, 80 ft east of Pottawatom Trail Bridge at Bingham Point Estates, and 4.5 mi northeast of Newville.

DRAINAGE AREA.--2,560 mi², at lake outlet. Area of Lake Koshkonong, 16.3 mi².

PERIOD OF RECORD.--July 1987 to current year.

GAGE.--Water-stage recorder. Datum of gage is 770.00 ft above sea level.

REMARKS.--No estimated daily gage heights. Records good except those for July 14 to Aug. 3, which are fair (see page 13). Lake level regulated by dam at Indianford. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded gage height, 12.23 ft, Apr. 25, 1993; minimum recorded, 5.40 ft, Dec. 26, 27, 1989.

EXTREMES FOR CURRENT YEAR.--Maximum recorded gage height, 9.73 ft, Apr. 28; minimum recorded, 5.48 ft, Jan. 5.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.28	5.99	6.28	5.52	6.93	7.24	6.30	9.61	8.13	7.16	7.80	6.30
2	6.25	5.93	6.28	5.52	7.02	7.19	6.28	9.54	8.10	7.07	7.84	6.24
3	6.27	5.86	6.28	5.53	7.11	7.15	6.29	9.44	7.99	6.99	7.86	6.18
4	6.27	5.84	6.26	5.51	7.20	7.10	6.39	9.33	7.89	6.95	7.89	6.11
5	6.37	5.80	6.24	5.49	7.29	7.06	6.39	9.22	7.80	6.88	7.90	6.05
6	6.45	5.77	6.25	5.52	7.35	7.05	6.58	9.16	7.73	6.83	7.90	5.97
7	6.46	5.74	6.24	5.55	7.39	6.97	6.68	9.07	7.71	6.72	7.90	5.89
8	6.46	5.72	6.22	5.61	7.42	6.90	6.80	9.01	7.68	6.60	7.91	5.94
9	6.45	5.69	6.20	5.65	7.43	6.85	6.96	8.91	7.64	6.55	7.87	6.00
10	6.45	5.80	6.20	5.69	7.45	6.77	7.14	8.79	7.59	6.45	7.89	6.03
11	6.43	5.97	6.16	5.75	7.50	6.71	7.35	8.67	7.55	6.39	7.85	6.07
12	6.43	6.01	6.14	5.78	7.59	6.66	7.54	8.56	7.54	6.34	7.81	6.13
13	6.41	6.12	6.11	5.82	7.66	6.62	7.70	8.43	7.64	6.29	7.79	6.18
14	6.35	6.27	6.08	5.85	7.71	6.57	7.82	8.31	7.86	6.27	7.72	6.22
15	6.31	6.36	6.07	5.86	7.77	6.53	7.90	8.19	8.05	6.24	7.64	6.23
16	6.28	6.44	6.05	5.86	7.81	6.51	7.98	8.09	8.24	6.22	7.56	6.21
17	6.32	6.49	6.03	5.87	7.85	6.56	7.98	8.31	8.36	6.32	7.51	6.17
18	6.46	6.50	5.97	5.89	7.84	6.55	7.97	8.53	8.39	6.39	7.43	6.13
19	6.47	6.59	5.98	5.85	7.83	6.50	7.96	8.71	8.38	6.40	7.37	6.12
20	6.48	6.60	5.95	5.81	7.78	6.48	7.93	8.84	8.33	6.45	7.28	6.12
21	6.47	6.55	5.94	5.78	7.71	6.52	7.93	8.92	8.26	6.50	7.16	6.07
22	6.42	6.53	5.87	5.80	7.64	6.48	7.97	8.98	8.17	6.52	7.04	6.05
23	6.39	6.55	5.83	5.86	7.58	6.48	8.34	8.97	8.08	6.71	6.94	6.09
24	6.34	6.49	5.79	5.97	7.51	6.48	8.68	8.93	8.03	6.85	6.88	6.10
25	6.30	6.46	5.76	6.10	7.46	6.45	9.06	8.86	7.90	7.02	6.79	6.11
26	6.25	6.43	5.72	6.22	7.39	6.43	9.36	8.77	7.76	7.11	6.71	6.12
27	6.21	6.39	5.68	6.36	7.33	6.41	9.54	8.69	7.62	7.27	6.65	6.26
28	6.18	6.36	5.63	6.49	7.29	6.39	9.67	8.60	7.50	7.37	6.59	6.38
29	6.12	6.31	5.60	6.62	---	6.40	9.69	8.49	7.36	7.49	6.51	6.41
30	6.09	6.33	5.56	6.75	---	6.37	9.67	8.36	7.23	7.59	6.41	6.39
31	6.04	---	5.54	6.85	---	6.32	---	8.24	---	7.72	6.35	---
MEAN	6.34	6.20	6.00	5.89	7.49	6.67	7.80	8.79	7.88	6.76	7.38	6.14
MAX	6.48	6.60	6.28	6.85	7.85	7.24	9.69	9.61	8.39	7.72	7.91	6.41
MIN	6.04	5.69	5.54	5.49	6.93	6.32	6.28	8.09	7.23	6.22	6.35	5.89

STREAMS TRIBUTARY TO LAKE MICHIGAN

05427570 ROCK RIVER AT INDIANFORD, WI

LOCATION.--Lat 42°48'15", long 89°05'25", in SW 1/4 SW 1/4 sec.16, T.4 N., R.12 E., Rock County, Hydrologic Unit 07090001, on right bank 50 ft upstream from bridge on County Trunk Highways F and M, 250 ft upstream from dam in Indianford, and 1.8 mi upstream from Yahara River.

DRAINAGE AREA.--2,630 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1975 to current year.

REVISED RECORDS.--WDR WI-79-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 763.84 ft above sea level (Rock County Surveyor bench mark). Prior to Oct. 1, 1990, at datum 0.10 ft lower.

REMARKS.--No estimated daily discharges. Records fair (see page 13). Natural flow of stream affected by dam in Indianford. Discharge is adjusted for flow through wicket gates. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	489	968	1090	593	2090	2440	1300	5650	3440	2060	2860	1180
2	488	1060	1140	646	2150	2380	1250	5560	3360	1990	2900	1130
3	560	949	1140	532	2250	2360	1340	5380	3270	1760	2870	1060
4	555	814	1200	540	2380	2270	1380	5240	3090	1740	2950	1010
5	606	768	1140	449	2510	2390	1550	5000	2880	1670	2980	945
6	1080	736	1180	286	2590	2260	1310	4830	2770	1700	2930	904
7	1360	722	1200	313	2660	2000	1570	4600	2650	1580	2970	638
8	1410	718	1120	349	2640	2060	1980	4610	2700	1430	3040	158
9	1390	728	1110	379	2670	2020	2450	4550	2650	1320	2930	155
10	1390	431	1100	411	2730	1880	2410	4420	2580	1410	2910	176
11	1370	636	977	452	2660	1810	2560	4240	2520	1280	2920	275
12	1280	906	984	487	2790	1750	2720	4170	2530	1250	2860	278
13	1300	989	997	521	2970	1700	2920	4000	2740	1140	2830	265
14	1300	1070	928	633	3020	1650	3060	3750	2930	1030	2780	301
15	1270	1180	900	751	3110	1560	3200	3530	3200	1060	2650	522
16	1180	1310	934	748	3130	1530	3340	3400	3450	871	2520	797
17	1160	1350	915	788	3180	1240	3270	3640	3580	824	2500	753
18	1180	1360	876	815	3220	1570	3250	3960	3610	852	2430	702
19	1320	1180	920	882	3200	1580	3230	4270	3560	890	2390	665
20	1270	1420	912	867	3160	1460	3200	4400	3520	1100	2260	710
21	1320	1410	849	894	3050	1560	3300	4520	3410	1350	2090	686
22	1260	1250	728	919	2960	1540	3570	4640	3260	1400	1950	382
23	1200	1300	752	926	2900	1440	4110	4510	3150	1480	1850	234
24	1160	1390	715	1020	2760	1560	4360	4430	3130	1680	1850	313
25	1150	1330	688	1140	2690	1550	4860	4320	2980	1870	1730	296
26	1120	1290	669	1290	2600	1480	5310	4250	2770	2050	1620	227
27	1070	1310	656	1380	2520	1430	5610	4110	2620	2240	1520	555
28	1070	1270	652	1550	2430	1340	5870	3990	2480	2320	1470	975
29	1030	1160	649	1700	---	1350	5830	3850	2330	2380	1470	1140
30	970	1160	602	1870	---	1250	5740	3700	2170	2570	1330	1120
31	934	---	588	2030	---	1140	---	3490	---	2710	1230	---
TOTAL	34242	32165	28311	26161	77020	53550	95850	135010	89330	49007	73590	18552
MEAN	1105	1072	913	844	2751	1727	3195	4355	2978	1581	2374	618
MAX	1410	1420	1200	2030	3220	2440	5870	5650	3610	2710	3040	1180
MIN	488	431	588	286	2090	1140	1250	3400	2170	824	1230	155
CFSM	.42	.41	.35	.32	1.05	.66	1.21	1.66	1.13	.60	.90	.24
IN.	.48	.45	.40	.37	1.09	.76	1.36	1.91	1.26	.69	1.04	.26
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1999, BY WATER YEAR (WY)												
MEAN	1421	1661	1602	1141	1360	2938	3828	2495	1586	1426	1100	1099
MAX	7729	5047	3745	2622	2751	6113	9466	6028	4866	4549	3377	3911
(WY)	1987	1986	1986	1985	1999	1985	1979	1993	1996	1993	1993	1986
MIN	216	297	262	254	283	795	1538	317	185	158	130	182
(WY)	1977	1977	1977	1977	1977	1977	1977	1977	1988	1988	1988	1988
SUMMARY STATISTICS FOR 1998 CALENDAR YEAR FOR 1999 WATER YEAR WATER YEARS 1975 - 1999												
ANNUAL TOTAL	644711			712788			1807					
ANNUAL MEAN	1766			1953			3252			1993		
HIGHEST ANNUAL MEAN							509			1977		
LOWEST ANNUAL MEAN												
HIGHEST DAILY MEAN	5760			Apr 26			5870			Apr 7 1979		
LOWEST DAILY MEAN	275			Jul 29			155			Sep 9		
ANNUAL SEVEN-DAY MINIMUM	317			Jul 28			230			Sep 8		
INSTANTANEOUS PEAK FLOW							6050			Apr 28		
INSTANTANEOUS PEAK STAGE							14.29			Apr 28		
ANNUAL RUNOFF (CFSM)	.67						.74			(a)16.23		
ANNUAL RUNOFF (INCHES)	9.12						10.08			9.34		
10 PERCENT EXCEEDS	4010						3620			3820		
50 PERCENT EXCEEDS	1290						1480			1320		
90 PERCENT EXCEEDS	521						637			369		

(a) Datum then in use

WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 1998 to September 1999.

REMARKS.--Chemical analyses by the Madison Metropolitan Sewage District from September 1998 to August 1999, and by the Wisconsin State Laboratory of Hygiene in September 1999. Samples are composites of 3-5 verticals, collected by cooperative observers.

WATER-QUALITY DATA, SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
SEP 1998								
02...	0945	342	--	--	12	13	38	276
15...	0820	487	7.3	8.0	11	280	42	307

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS ORTHOPHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHOPHOS- PHORUS TOTAL (MG/L AS P) (00671)	CHLORO- PHYLL A FLUORO- METRIC METHOD CORR. (UG/L) (32209)
SEP 1998								
02...	63	32	.320	<.040	3.6	.380	<.020	173
15...	49	29	.180	<.040	3.5	.350	<.020	165

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1998									
06...	0845	493	8.0	17.0	8.7	9.6	>120	47	330
20...	0830	1250	7.8	14.6	12.6	12	92	47	362
NOV									
03...	0900	1010	7.3	12.5	8.0	7.6	140	48	365
17...	0900	1330	7.3	10.3	12.0	7.2	100	47	357
DEC									
01...	0830	1180	7.8	11.6	8.0	5.3	120	46	402
15...	0845	875	--	10.1	10.6	7.0	12	44	428
JAN 1999									
05...	0830	523	7.4	1.0	16.6	4.6	240	56	434
19...	0830	894	7.0	5.1	11.6	3.2	23	58	458
FEB									
02...	0830	2140	7.3	9.6	11.4	4.7	44	56	444
16...	0830	3130	7.4	10.0	14.6	5.8	15	46	350
MAR									
02...	0900	2370	7.3	8.7	16.8	6.6	82	42	370
16...	0830	1500	7.4	9.4	19.0	9.4	40	47	276
APR									
05...	1315	1500	7.1	14.1	8.5	11	100	46	275
06...	0930	1230	7.0	14.4	8.2	10	320	45	294
20...	0900	3170	7.1	16.0	16.1	8.8	4	41	338
MAY									
04...	0800	5260	7.2	22.0	12.9	7.2	92	28	328
18...	1030	3970	7.3	19.8	11.2	11	1000	31	334
25...	0830	4280	7.0	20.0	9.3	>45	28	29	254
JUN									
15...	0915	3170	7.0	22.3	8.4	4.6	54	36	370
JUL									
06...	0830	1750	--	27.8	8.6	10	88	35	350
26...	1010	2010	7.3	28.0	7.6	16	160	42	342
AUG									
03...	1030	2850	7.3	26.6	8.7	12	230	38	340
17...	0930	2500	7.1	23.8	15.0	7.9	14	35	331
SEP									
21...	0830	697	7.2	17.4	9.4	9.3	--	--	--
29...	1015	936	7.3	16.3	10.0	6.1	--	--	--

DATE	RESIDUE TOTAL AT 105 DEG. C. SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE- SUS- PENDE (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	CHLORO- PHYLL A FLUORO- METRIC METHOD CORR. (UG/L) (32209)
1998								
6...	42	28	.150	<.040	3.7	.380	.060	116
0...	44	24	.120	<.040	2.6	.220	<.020	98.2
3...	59	20	.060	<.040	2.5	.250	<.040	164
7...	75	24	.100	<.040	2.5	.340	<.020	233
1...	38	11	1.00	.150	1.9	.160	<.020	40.1
5...	25	12	.390	<.040	1.8	.130	<.020	118
1999								
5...	11	8	.370	.040	1.5	.120	<.020	23.8
9...	13	6	.710	.330	1.5	.080	<.020	<1.50
2...	22	9	2.97	.290	1.6	.270	.120	57.6
6...	33	11	2.45	<.040	1.8	.300	<.030	135
2...	11	6	1.94	<.040	1.8	.140	<.030	165
6...	27	10	1.02	<.040	1.4	.060	<.030	70.5
5...	94	29	.160	<.040	2.6	.310	<.030	160
6...	80	22	.210	<.040	2.6	.360	<.030	148
0...	64	17	1.56	<.040	2.4	.210	<.030	103
4...	65	17	1.41	<.040	2.2	.200	<.030	112
8...	57	16	.160	.060	2.2	.190	<.030	152
5...	51	15	.760	.050	2.3	.340	.070	128
5...	58	12	.390	.500	2.2	.270	.040	42.2
6...	51	23	.070	.040	3.0	.270	<.030	211
6...	64	27	.050	.170	3.8	.360	<.030	226
3...	99	33	<.004	.040	3.3	.400	.060	246
7...	69	21	<.004	<.040	2.7	.290	<.030	168
1...	42	25	<.004	--	--	.281	.008	--
9...	33	17	.167	--	--	.244	.044	--

PHOSPHORUS TOTAL, POUNDS PER DAY
MONTHLY TOTALS

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (TONS PER DAY)
MONTHLY TOTALS

1998	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	---	---	---	---	---	---	---	---	---	---	---	1896.7
1999	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	4203.4	5211.4	1974.9	1082.55	5066.5	4149.2	17710	21236	13381	8098	15292	2265.2
WTR YR 1999	TOTAL 99670.15											

05427718 YAHARA RIVER AT WINDSOR, WI

LOCATION.--Lat 43°12'32", long 89°21'09", in NW 1/4 NE 1/4 sec.31, T.9 N., R.10 E., Dane County, Hydrologic Unit 07090001, at bridge on road to Lake Windsor Country Club.

DRAINAGE AREA.--73.6 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1976 to December 1981, October 1989 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 870 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 21 to Jan. 20, Feb. 21, and Mar. 7-11. Records fair except those for ice-affected periods, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	20	20	15	20	22	19	23	20	28	18	17
2	18	19	19	15	30	21	19	22	24	22	16	17
3	19	19	19	15	38	21	33	22	21	20	16	17
4	19	18	19	15	39	20	43	22	21	19	19	17
5	34	18	19	15	27	20	28	22	21	18	17	17
6	47	18	19	15	24	19	28	30	38	18	16	17
7	30	18	18	15	25	19	24	28	64	17	19	17
8	24	18	18	15	24	18	23	24	28	17	19	17
9	22	18	18	15	35	18	102	23	29	18	18	16
10	21	91	18	15	41	18	50	22	35	16	20	16
11	20	47	18	15	86	18	36	21	40	16	18	16
12	20	32	18	15	74	19	31	21	23	16	18	16
13	19	29	18	15	46	20	27	21	26	16	18	17
14	19	27	18	16	28	20	25	20	24	15	18	16
15	19	24	18	16	26	20	24	20	21	16	17	17
16	19	22	18	17	26	21	22	21	20	15	17	17
17	25	21	18	17	24	22	21	99	20	19	17	16
18	39	21	18	18	22	22	22	40	19	17	17	16
19	28	21	17	17	21	21	20	31	19	19	24	16
20	24	20	17	18	20	20	20	26	18	19	20	16
21	22	20	17	19	20	20	21	24	18	27	18	16
22	21	20	17	29	20	20	55	23	19	21	18	16
23	20	20	17	36	20	19	203	23	24	25	24	16
24	20	19	16	35	20	19	70	23	21	25	31	16
25	20	19	16	30	19	19	44	22	19	19	22	16
26	20	19	16	25	20	19	36	21	18	18	20	16
27	22	19	16	23	21	19	31	20	18	17	19	18
28	22	19	16	23	22	19	28	20	18	17	18	20
29	21	20	16	22	---	19	26	19	19	16	18	19
30	20	20	15	21	---	19	24	19	18	16	17	18
31	20	---	15	20	---	19	---	19	---	23	17	---
TOTAL	713	716	542	597	838	610	1155	791	723	585	584	502
MEAN	23.0	23.9	17.5	19.3	29.9	19.7	38.5	25.5	24.1	18.9	18.8	16.7
MAX	47	91	20	36	86	22	203	99	64	28	31	20
MIN	18	18	15	15	19	18	19	19	18	15	16	16
CFSM	.31	.32	.24	.26	.41	.27	.52	.35	.33	.26	.26	.23
IN.	.36	.36	.27	.30	.42	.31	.58	.40	.37	.30	.30	.25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1999, BY WATER YEAR (WY)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	16.3	17.6	15.2	16.8	26.6	41.6	25.3	19.7	23.0	22.5	18.2	18.5												
MAX	29.2	30.4	27.0	32.5	74.2	135	47.8	35.3	47.1	95.3	40.3	50.1												
(WY)	1994	1994	1994	1996	1994	1976	1993	1995	1996	1993	1993	1980												
MIN	7.75	8.78	8.54	6.50	4.76	11.8	14.1	7.71	7.48	7.12	7.29	7.12												
(WY)	1978	1978	1978	1978	1978	1978	1978	1977	1977	1977	1991	1977												

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1976 - 1999
ANNUAL TOTAL	8986	8356	
ANNUAL MEAN	24.6	22.9	21.4
HIGHEST ANNUAL MEAN			39.1
LOWEST ANNUAL MEAN			10.9
HIGHEST DAILY MEAN	286	203	519
LOWEST DAILY MEAN	(a)12	(a)15	(a)4.6
ANNUAL SEVEN-DAY MINIMUM	(a)12	(c)Dec 30	(a)4.6
INSTANTANEOUS PEAK FLOW		308	2050
INSTANTANEOUS PEAK STAGE		4.96	6.58
INSTANTANEOUS LOW FLOW		(d)12	(d)2.9
ANNUAL RUNOFF (CFSM)	.33	.31	.29
ANNUAL RUNOFF (INCHES)	4.54	4.22	3.95
10 PERCENT EXCEEDS	34	30	32
50 PERCENT EXCEEDS	20	20	16
90 PERCENT EXCEEDS	14	16	8.6

(a) Ice affected

(b) Also occurred Feb. 7-10 and ice-affected days, Jan. 12, 13, Feb. 6, Mar. 10-14

(c) Also occurred July 14, 16, and ice-affected days, Dec. 31 to Jan. 13

(d) Also occurred Mar. 9

(e) Result of freezeup

ROCK RIVER BASIN
05427718 YAHARA RIVER AT WINDSOR, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1975 to September 1980, October 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: March 1990 to current year.

TOTAL-PHOSPHORUS DISCHARGE: March 1990 to current year.

TOTAL ORTHO-PHOSPHORUS DISCHARGE: October 1990 to September 1992.

INSTRUMENTATION.--Water-quality sampler since March 1990.

REMARKS.--Records good. Samples are point samples unless otherwise indicated.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 7,070 mg/L, June 29, 1990; minimum observed, 4.0 mg/L, Aug. 24, 1994, and Mar. 1, 1999.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 1,280 tons, July 5, 1993; minimum daily, 0.16 ton, Jan. 6-7, 1991.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 5.10 mg/L, June 7, 1993; minimum observed, 0.01 mg/L, Jan. 31, 1991, and Oct. 29, 1997.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 3,240 lb, Feb. 20, 1994; minimum daily, 0.70 lb, Nov. 13-15, 1997.

TOTAL ORTHO-PHOSPHORUS CONCENTRATIONS: Maximum observed, 1.10 mg/L, Mar. 2, 3, 1991; minimum observed, <0.01 mg/L, Nov. 13, 1990 and June 26, 1994.

TOTAL ORTHO-PHOSPHORUS DISCHARGE: Maximum daily, 1,260 lb, Mar. 2, 1991; minimum daily, 0.49 lb, Nov. 26, 1990.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 2,240 mg/L, June 6; minimum observed, 4 mg/L, Mar. 1.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 158 tons, May 17; minimum daily, 0.23 ton, Mar. 4.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 2.04 mg/L, May 17; minimum observed, <0.05 mg/L, Mar. 1 and Apr. 22, 23, 26.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 365 lb, May 17; minimum daily, 4.45 lb, Oct. 4.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
OCT 1998						
*01...	1515	--	19	.057	--	7
05...	0900	--	33	.198	--	129
05...	1700	--	30	.166	--	36
05...	1900	--	38	.232	--	48
05...	2145	--	56	.449	--	144
05...	2330	--	67	.454	--	167
06...	0415	--	53	.354	--	113
06...	1215	--	44	.460	--	115
07...	0415	--	33	.271	--	96
07...	2030	--	29	.165	--	28
17...	1330	--	22	.145	--	32
17...	1915	--	37	.244	--	57
18...	0315	--	41	.288	--	50
18...	1115	--	41	.253	--	30
18...	1915	--	36	.263	--	38
19...	1115	--	27	.212	--	17
20...	1449	--	23	.099	--	12
27...	1400	--	26	.065	--	40
NOV						
*04...	1428	--	18	.056	--	15
10...	0215	--	36	.429	--	86
10...	0430	--	55	.439	--	175
10...	0600	--	97	.750	--	223
10...	0800	--	123	.806	--	248
10...	0915	--	137	.752	--	246
10...	1330	--	115	.587	--	160
11...	0030	--	68	.683	--	70
11...	1400	--	42	.374	--	28
12...	0600	--	33	.244	--	20
*16...	1420	--	22	.063	.037	9
DEC						
03...	1523	--	19	.050	--	12
*09...	0840	--	18	.092	.036	60

* Equal-width increment (EWI) sample

ROCK RIVER BASIN
05427718 YAHARA RIVER AT WINDSOR, WI--CONTINUED

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
JAN 1999						
14...	1630	16	--	.154	--	20
25...	1057	--	29	.717	--	19
27...	0600	--	23	.252	--	10
*29...	1430	--	22	.235	--	12
FEB						
02...	1500	--	28	.388	--	44
02...	1800	--	41	.613	--	135
02...	2000	--	48	.960	--	62
03...	0400	--	44	.699	--	49
03...	1200	--	35	.854	--	34
04...	0145	--	42	.546	--	34
04...	0945	--	41	.671	--	38
05...	0145	--	30	.737	--	14
08...	2145	--	28	.221	--	30
09...	1345	--	29	.294	--	14
09...	1930	--	48	.488	--	72
10...	1130	--	36	.421	--	20
11...	0230	--	50	.339	.214	40
11...	1400	--	72	.482	--	86
11...	1500	--	95	1.02	--	264
11...	1615	--	116	.768	.318	253
11...	1730	--	137	.843	--	350
11...	1915	--	149	.924	.367	259
11...	2300	--	127	.698	.322	178
12...	0545	--	95	.700	--	111
12...	1815	--	51	.434	.259	35
13...	1015	--	42	.271	--	55
14...	0400	--	30	.141	--	18
16...	2000	--	25	.079	--	12
MAR						
*01...	1425	--	22	<.050	--	4
APR						
03...	1345	--	23	.244	--	118
03...	1530	--	36	.535	--	307
03...	1730	--	49	.479	--	295
03...	1945	--	66	.581	--	374
04...	0115	--	52	.376	--	185
04...	1830	--	36	.101	--	85
06...	0230	--	27	.190	--	83
07...	1830	--	24	.266	--	26
08...	2015	--	24	.186	--	85
09...	0015	--	45	.424	--	173
09...	0245	--	77	.427	--	206
09...	0800	--	109	.404	--	134
09...	1035	--	122	.501	--	172
09...	1037	--	122	.530	--	186
09...	2115	--	93	.531	--	122
10...	1015	--	49	.266	--	52
12...	0215	--	33	.141	--	34
22...	0415	--	32	<.050	--	48
22...	0800	--	52	<.050	--	72
22...	1430	--	58	.187	.096	44
22...	1700	--	76	<.050	--	87
23...	0015	--	83	<.050	--	72
23...	0145	--	112	.464	.222	131
23...	0315	--	165	<.050	--	187
23...	0445	--	229	.596	.263	245
23...	0615	--	285	.690	.289	280
23...	1330	--	232	<.050	--	235
23...	1830	--	165	--	--	178
23...	2330	--	120	.461	.266	105
26...	0845	--	36	<.050	--	26
*30...	1232	--	24	.070	--	19
MAY						
06...	1145	--	32	.195	--	55
06...	1315	--	41	.249	--	157
06...	2115	--	34	.191	--	54
16...	2330	--	26	.351	--	233
16...	2400	--	47	.364	--	252
17...	0045	--	73	.975	--	403
17...	0200	--	102	1.07	.184	628
17...	0300	--	144	2.04	--	1380
17...	0400	--	179	.699	.365	1630
17...	0730	--	149	.269	.237	510
17...	0945	--	107	.975	.244	280
17...	1445	--	76	.594	--	226
18...	1605	--	39	.316	--	149
19...	1602	--	30	.181	--	121

* Equal-width increment (EWI) sample

ROCK RIVER BASIN
05427718 YAHARA RIVER AT WINDSOR, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDEED (MG/L) (80154)
JUN 1999						
06...	1845	--	38	.636	--	443
06...	2000	--	71	.515	--	1480
06...	2100	--	102	--	--	2240
06...	2145	--	114	.641	--	1570
07...	0400	--	99	1.06	--	474
07...	1345	--	52	.363	--	211
08...	0345	--	30	.614	--	170
10...	1915	--	39	.356	--	98
10...	2045	--	55	.498	--	38
10...	2115	--	80	.603	--	1700
10...	2145	--	96	.563	--	1830
11...	0200	--	78	.644	--	279
11...	0445	--	48	.515	--	188
11...	0945	--	36	.364	--	162
JUL						
01...	0200	--	23	.199	--	63
01...	0600	--	32	.279	--	114
01...	0700	--	40	.337	--	200
01...	1300	--	28	.171	--	53
02...	0515	--	23	.223	--	65
*12...	1345	--	16	.089	--	107
21...	0530	--	30	.274	--	103
21...	1330	--	28	.199	--	--
21...	2130	--	26	--	--	79
23...	1915	--	38	.337	--	171
23...	1945	--	50	--	--	349
23...	2030	--	59	.446	--	313
23...	2300	--	45	.310	--	104
24...	0045	--	32	.258	--	86
24...	0845	--	27	--	--	67
24...	1645	--	23	.223	--	38
31...	0845	--	32	.300	--	102
AUG						
07...	1730	--	26	.170	--	54
19...	0515	--	26	.243	--	67
23...	1800	--	30	.164	--	40
23...	2200	--	40	--	--	104
23...	2315	--	48	.304	--	195
24...	1045	--	32	.249	--	35
25...	0245	--	24	.310	--	84
26...	0925	--	20	.106	--	23

* Equal-width increment (EWI) sample

05427718 YAHARA RIVER AT WINDSOR, WI--CONTINUED

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.54	.90	.61	1.2	.56	.24	.48	1.2	1.9	6.4	2.9	.98
2	.35	.85	.62	1.2	4.1	.24	.49	1.1	2.2	3.8	2.0	.97
3	.36	.79	.63	1.1	4.1	.24	18	1.1	1.9	3.4	1.8	.95
4	.37	.75	.78	1.1	3.2	.23	15	1.1	1.9	3.2	2.2	.94
5	7.6	.71	1.0	1.1	1.1	.24	6.3	1.1	1.8	3.0	1.7	.92
6	15	.68	1.4	1.0	1.2	.24	4.8	5.4	83	2.9	1.6	.91
7	4.9	.64	1.8	1.0	1.5	.24	2.2	2.4	71	2.7	2.3	.89
8	1.8	.61	2.3	.98	1.8	.24	4.3	1.6	10	2.6	2.5	.87
9	1.6	.65	2.8	.95	3.3	.24	42	1.5	5.5	2.8	2.1	.84
10	1.5	40	2.8	.92	3.4	.25	8.5	1.4	43	2.5	2.7	.83
11	1.4	5.2	2.7	.89	40	.26	3.9	1.3	24	2.4	2.3	.81
12	1.3	1.7	2.6	.87	18	.28	2.8	1.3	6.8	2.3	2.2	.81
13	1.3	1.2	2.6	.84	5.2	.29	2.3	1.2	7.0	2.2	2.2	.81
14	1.2	.96	2.5	.87	1.3	.31	2.0	1.2	5.6	2.2	2.1	.79
15	1.2	.70	2.4	.86	1.0	.32	1.8	1.1	3.9	2.2	2.0	.79
16	1.1	.56	2.3	.91	.88	.34	1.6	1.7	3.6	2.1	2.0	.77
17	2.6	.53	2.2	.91	.74	.37	1.5	158	3.3	3.2	1.9	.76
18	4.0	.52	2.2	.95	.63	.38	1.4	18	3.1	2.4	1.8	.75
19	1.5	.54	2.1	.90	.55	.37	1.3	10	2.9	3.1	4.5	.73
20	.81	.52	2.0	.94	.48	.37	1.2	7.0	2.7	2.8	3.0	.73
21	.69	.52	1.9	.97	.43	.38	1.1	4.9	2.5	6.3	2.3	.72
22	.64	.53	1.9	1.5	.39	.38	9.7	3.7	2.7	4.2	2.2	.70
23	.60	.53	1.8	1.8	.36	.39	119	3.2	5.8	8.6	4.3	.69
24	.59	.53	1.6	1.8	.33	.39	16	3.0	4.1	3.9	6.0	.68
25	.57	.54	1.6	1.5	.30	.40	5.3	2.7	2.8	1.9	3.6	.67
26	.56	.56	1.5	.88	.28	.41	2.6	2.5	2.4	1.8	1.4	.65
27	1.2	.56	1.5	.63	.28	.42	2.0	2.3	2.3	1.7	1.1	.88
28	1.4	.58	1.5	.69	.26	.43	1.7	2.2	2.3	1.6	1.1	1.8
29	1.1	.60	1.4	.71	---	.45	1.5	2.1	2.3	1.6	1.0	1.5
30	1.0	.61	1.3	.65	---	.45	1.2	2.0	2.2	1.5	1.0	.98
31	.95	---	1.2	.59	---	.46	---	1.9	---	4.8	1.0	---
TOTAL	59.73	64.57	55.54	31.21	95.67	10.25	281.97	249.2	314.5	96.1	70.8	26.12

WTR YR 1999 TOTAL 1355.66

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.82	6.92	5.43	10.4	25.3	5.65	5.01	8.69	11.3	33.5	17.1	9.30
2	5.21	6.45	5.31	10.5	88.2	5.53	5.01	8.43	13.4	24.4	10.8	9.26
3	4.87	5.97	5.25	10.6	152	5.37	63.0	8.24	11.6	18.0	7.93	9.07
4	4.45	5.60	5.60	10.8	138	5.20	48.9	8.25	11.8	15.0	10.6	9.02
5	43.3	5.41	6.21	10.9	95.5	5.18	21.6	8.26	11.7	13.3	8.50	8.90
6	101	5.28	6.84	11.1	62.3	5.06	31.0	27.8	86.3	12.4	7.57	8.80
7	36.3	5.09	7.49	11.3	45.9	4.95	32.7	18.7	236	11.1	13.0	8.65
8	21.2	4.97	8.07	11.4	32.8	4.70	28.7	12.9	81.2	10.2	13.7	8.46
9	18.7	5.39	8.87	11.6	66.5	4.70	266	12.1	60.5	10.4	9.97	8.30
10	17.0	315	9.09	11.8	91.3	4.71	81.7	11.1	76.4	8.98	12.1	8.16
11	15.9	117	9.19	11.9	304	4.71	34.6	10.4	97.7	8.15	9.57	8.04
12	15.0	40.0	9.31	12.1	236	5.02	22.5	10.1	32.7	7.60	9.15	8.03
13	14.2	25.6	9.44	12.3	64.5	5.14	17.8	9.80	27.8	7.30	8.94	8.06
14	13.7	17.7	9.49	13.3	20.3	5.20	14.8	9.28	25.2	7.07	8.59	7.93
15	13.1	11.4	9.57	13.3	15.0	5.30	12.6	8.88	21.9	6.96	8.09	7.94
16	12.4	8.01	9.71	14.1	11.9	5.50	10.9	10.4	20.6	6.79	7.93	7.85
17	24.5	7.18	9.86	14.0	9.98	5.83	9.38	365	19.9	12.1	7.64	7.73
18	55.6	6.93	9.99	14.8	8.95	5.82	8.51	78.8	19.0	7.81	7.32	7.64
19	30.9	6.85	10.0	13.9	8.17	5.44	7.27	34.5	18.3	12.7	25.0	7.56
20	14.4	6.52	10.1	14.7	7.55	5.37	6.49	23.2	17.3	11.7	13.5	7.50
21	10.5	6.27	10.0	15.0	7.11	5.36	6.02	18.7	16.8	29.8	9.58	7.49
22	8.65	6.16	10.2	28.5	6.78	5.22	21.0	16.1	17.3	17.2	9.11	7.35
23	7.34	6.05	10.3	56.1	6.50	5.15	274	15.2	21.8	30.6	21.0	7.26
24	6.43	5.84	9.85	86.2	6.17	5.09	119	14.9	19.3	31.7	46.0	7.12
25	5.62	5.73	9.99	101	5.92	5.05	28.2	13.7	16.7	18.6	28.0	7.05
26	5.03	5.77	10.1	53.3	5.83	5.00	10.5	12.9	15.8	14.1	12.2	6.91
27	5.84	5.59	10.3	31.3	6.03	4.98	9.13	12.2	15.3	12.3	10.6	8.26
28	8.05	5.62	10.4	30.3	5.94	5.04	9.10	11.9	15.3	10.8	10.2	12.1
29	8.41	5.65	10.6	28.4	---	5.08	9.07	11.5	15.6	9.84	9.79	9.95
30	7.87	5.58	10.1	26.5	---	5.00	8.99	11.2	14.6	9.07	9.51	6.85
31	7.35	---	10.2	25.5	---	4.96	---	11.1	---	28.5	9.44	---
TOTAL	549.64	671.53	276.86	726.9	1534.43	160.31	1223.48	834.23	1069.1	457.97	392.43	246.54

WATER YR 1999 TOTAL 8143.42

ROCK RIVER BASIN
05427948 PHEASANT BRANCH AT MIDDLETON, WI

LOCATION.--Lat 43°06'12", long 89°30'42", in NE 1/4 NW 1/4 sec.11, T.7 N., R.8 E., Dane County, Hydrologic Unit 07090001, on left bank at bridge on U.S. Highway 12, 2.5 mi upstream from Lake Mendota, at Middleton.

DRAINAGE AREA.--18.3 mi², of which 1.22 mi² is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1974 to current year.

GAGE.--Water-stage recorder, crest-stage gage, parshall flume, and concrete control. Datum of gage is 901.5 ft above sea level.

REMARKS.--No estimated daily discharges. Records good (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	2.5	2.2	1.4	3.7	2.8	2.5	3.4	6.3	32	7.1	2.9
2	2.1	2.4	2.2	1.2	18	2.9	2.5	3.2	10	6.4	3.7	2.1
3	3.9	2.3	2.3	.85	21	2.7	16	3.0	4.1	3.7	3.2	1.9
4	3.7	2.4	2.3	1.0	20	2.7	17	3.0	5.2	3.2	4.7	1.8
5	27	2.4	2.3	1.2	6.3	2.8	4.8	3.1	3.9	2.9	3.7	1.7
6	25	2.5	2.4	1.6	5.0	2.6	5.7	11	49	3.1	3.9	1.7
7	6.4	2.3	2.4	1.7	5.2	2.3	3.6	5.7	55	2.7	5.8	1.7
8	3.8	2.4	2.2	1.7	6.0	2.4	6.9	3.5	12	2.5	3.8	1.9
9	3.5	3.3	2.1	1.7	18	2.8	60	3.2	7.3	3.3	3.3	1.7
10	3.1	54	2.2	1.7	11	2.8	13	3.1	5.9	2.5	5.2	1.7
11	2.6	13	2.1	1.7	32	2.7	5.2	3.0	4.5	2.3	3.8	1.7
12	2.7	4.5	2.1	1.7	19	2.8	4.1	3.2	3.6	2.3	5.4	1.7
13	2.6	3.7	2.1	1.7	4.4	3.0	3.6	3.0	13	2.3	3.8	1.7
14	2.3	3.4	2.1	1.7	3.5	3.1	3.3	2.9	6.5	2.6	3.0	1.7
15	2.3	3.1	2.1	1.7	3.5	3.3	3.1	2.9	3.4	2.5	2.6	1.7
16	2.3	3.0	2.0	1.8	3.5	3.8	3.0	6.9	3.0	4.9	2.9	1.8
17	17	2.9	2.2	2.0	3.2	4.3	3.0	125	2.9	25	2.6	1.7
18	22	2.9	1.9	2.7	2.9	3.5	2.9	23	2.9	7.2	2.6	1.7
19	4.9	2.8	1.9	2.3	2.8	3.1	2.8	10	2.8	4.1	2.7	1.8
20	3.4	2.7	1.8	2.1	2.5	3.0	3.5	5.1	2.7	32	2.4	1.7
21	3.2	2.6	1.7	2.0	2.4	3.0	3.3	4.2	2.6	32	2.3	1.8
22	2.8	2.5	1.7	14	2.2	2.9	56	3.8	8.0	6.9	2.2	1.7
23	2.7	2.5	1.6	18	2.2	3.0	193	8.8	7.9	4.1	6.7	1.7
24	2.7	2.4	1.6	13	2.3	2.6	32	5.0	4.4	3.2	10	1.7
25	2.7	2.4	1.6	6.9	2.4	2.3	13	3.7	3.2	2.6	3.7	1.8
26	2.6	2.3	1.6	4.5	2.6	2.3	14	3.1	2.8	3.6	3.3	1.7
27	3.6	2.3	1.7	4.4	2.9	2.5	11	3.4	2.7	3.2	3.5	3.5
28	3.2	2.3	1.7	5.1	3.0	2.7	8.5	3.4	7.8	2.8	3.0	6.0
29	3.0	2.3	1.7	4.8	---	2.7	4.3	2.9	12	3.0	2.0	3.9
30	2.8	2.5	1.5	4.0	---	2.8	3.6	2.7	3.3	3.0	2.7	2.3
31	2.6	---	1.5	3.7	---	2.7	---	2.8	---	22	3.3	---
TOTAL	175.1	142.6	60.8	113.85	211.5	88.9	505.2	271.0	258.7	233.9	118.9	62.4
MEAN	5.65	4.75	1.96	3.67	7.55	2.87	16.8	8.74	8.62	7.55	3.84	2.08
MAX	27	54	2.4	18	32	4.3	193	125	55	32	10	6.0
MIN	2.1	2.3	1.5	.85	2.2	2.3	2.5	2.7	2.6	2.3	2.0	1.7
CFSM	.33	.28	.11	.22	.44	.17	.99	.51	.50	.44	.22	.12
IN.	.38	.31	.13	.25	.46	.19	1.10	.59	.56	.51	.26	.14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1999, BY WATER YEAR (WY)

	MEAN	2.57	3.20	2.33	2.64	6.48	10.9	5.70	3.42	5.51	5.69	3.21	3.60
MAX	6.42	12.3	6.11	7.75	20.4	34.6	16.8	8.74	20.8	32.5	8.78	13.0	
(WY)	1987	1986	1985	1997	1994	1993	1999	1999	1996	1993	1993	1980	
MIN	.86	.67	.34	.36	.46	1.63	.95	.96	.92	.94	1.07	.74	
(WY)	1977	1991	1990	1991	1978	1981	1990	1977	1989	1976	1976	1976	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1974 - 1999

ANNUAL TOTAL	2405.48	2242.85	
ANNUAL MEAN	6.59	6.14	4.62
HIGHEST ANNUAL MEAN			11.0
LOWEST ANNUAL MEAN			2.78
HIGHEST DAILY MEAN	224	Mar 31	349
LOWEST DAILY MEAN	.98	Jan 1	(a) .85
ANNUAL SEVEN-DAY MINIMUM	1.2	Jan 13	1.2
INSTANTANEOUS PEAK FLOW			391
INSTANTANEOUS PEAK STAGE			7.45
INSTANTANEOUS LOW FLOW			(a) .76
ANNUAL RUNOFF (CFSM)	.39		.36
ANNUAL RUNOFF (INCHES)	5.24		4.88
10 PERCENT EXCEEDS	14		11
50 PERCENT EXCEEDS	2.7		2.9
90 PERCENT EXCEEDS	1.6		1.7

(a) Result of freezeup

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1977 to current year.

TOTAL-PHOSPHORUS DISCHARGE: January 1992 to December 1993, and October 1994 to current year.

TOTAL ORTHO-PHOSPHORUS DISCHARGE: January to September 1992.

INSTRUMENTATION.--Automatic pumping sampler since December 1977.

REMARKS.--Records good. Samples are point samples unless otherwise indicated.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 15,400 mg/L, Apr. 30, 1984; minimum observed, 4 mg/L, Mar. 12, 1979, and May 11, 1995.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 2,870 tons, June 10, 1984; minimum daily, 0.01 ton, on many days in 1990 and 1991 water years.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 15.1 mg/L, July 4, 1994; minimum observed, 0.03 mg/L, Jan. 28, 1998.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 2,630 lb, Feb. 18, 1997; minimum daily, 0.19 lb, Jan. 14, 31, 1998.

TOTAL ORTHO-PHOSPHORUS CONCENTRATIONS: Maximum observed, 2.40 mg/L, Feb. 29, 1992; minimum observed, 0.03 mg/L, May 22, 1992.

TOTAL ORTHO-PHOSPHORUS DISCHARGE: Maximum daily, 966 lb, Feb. 28, 1992; minimum daily, 0.13 lb, Sept. 13, 1992.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 2,830 mg/L, Apr. 23; minimum observed, 8 mg/L, June 21.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 752 tons, Apr. 23; minimum daily, 0.03 ton, Jan. 3.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 4.35 mg/L, June 6; minimum observed, 0.05 mg/L, Apr. 1.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 1,680 lb, Apr. 23; minimum daily, 0.57 lb, Jan. 3.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT 1998					
*02...	1700	2.1	.720	--	16
03...	1015	9.8	.346	--	152
05...	0350	13	.861	--	164
05...	0430	44	.997	--	330
05...	1220	26	.394	--	125
05...	1820	23	.649	--	122
05...	1930	59	.642	--	280
06...	0930	27	.768	--	110
07...	0930	6.1	1.03	--	124
17...	1250	12	.296	--	62
17...	1415	39	.427	--	182
17...	1540	24	.322	--	68
17...	1940	37	.327	--	98
17...	2340	39	.446	--	169
18...	0940	26	1.00	--	113
19...	0340	5.9	1.05	--	30
NOV					
*09...	1430	2.4	--	--	38
09...	2320	10	.278	--	86
10...	0510	35	.415	.158	97
10...	0625	75	.818	--	432
10...	1025	91	.954	.139	--
10...	1720	51	1.06	.468	253
11...	0320	22	1.01	--	93
11...	2120	6.1	.753	--	38
DEC					
*07...	1540	2.3	.164	--	17
JAN 1999					
*08...	1510	1.7	.117	--	12
22...	1150	7.1	.200	--	21
*22...	1409	21	.383	--	65
22...	1915	25	.304	--	43
25...	1740	6.7	1.50	--	16

* Equal-width increment (EWI) sample

ROCK RIVER BASIN
05427948 PHEASANT BRANCH AT MIDDLETON, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
FEB 1999					
02...	1130	8.4	1.08	--	17
02...	1705	32	2.24	--	99
02...	2105	44	2.45	--	128
03...	1505	16	1.68	--	30
04...	0305	25	2.19	--	33
04...	1505	19	1.65	--	25
05...	0905	6.0	1.21	--	17
06...	2200	7.4	.665	--	11
08...	2055	10	.543	--	12
08...	2250	21	.925	--	36
09...	1050	10	1.50	--	25
09...	1920	24	1.02	--	23
10...	1320	7.9	.851	--	20
11...	1320	17	.706	--	23
11...	1430	35	1.48	--	987
11...	1445	55	1.25	--	738
11...	1845	59	1.42	--	659
12...	0225	38	1.47	--	428
12...	1945	8.4	.686	--	83
MAR					
*12...	1300	2.7	.068	--	22
APR					
*01...	0855	2.5	.053	--	14
03...	1050	14	.162	--	54
03...	1445	32	.525	--	399
03...	1500	49	.563	--	390
03...	1655	31	.452	--	192
04...	0600	23	.614	--	186
04...	2400	6.0	.511	--	49
05...	2315	12	.349	--	140
06...	0515	5.3	.245	--	32
08...	2025	10	.262	--	78
08...	2310	38	.657	.228	216
09...	0335	76	1.30	--	1060
09...	0735	78	1.90	.214	685
09...	1535	53	1.06	.492	321
10...	0720	15	.630	.389	69
11...	0120	6.2	.357	--	27
20...	1910	6.8	.161	--	29
21...	2400	11	.134	--	20
22...	0050	42	.439	--	307
22...	0240	26	.531	--	133
22...	0420	61	.680	--	320
22...	1405	66	.637	--	286
*22...	1406	66	.607	--	254
22...	2020	53	.839	--	228
22...	2355	97	.765	.200	398
23...	0125	151	1.18	.200	892
23...	0350	340	2.35	.146	2830
23...	0845	334	1.71	.624	1130
23...	0925	313	1.61	--	1180
*23...	0926	313	1.50	--	731
23...	1100	226	1.45	.601	799
23...	1600	108	1.04	.481	342
24...	1035	35	.753	--	150
26...	0730	9.4	.242	--	13
26...	1330	19	.215	--	28
28...	1500	8.2	.319	--	28
MAY					
06...	0740	7.0	.184	--	15
06...	0915	29	.313	--	117
06...	1115	16	.414	--	53
07...	0515	7.2	.306	--	31
16...	1815	12	.259	--	110
16...	2335	56	1.71	--	1800
17...	1030	95	1.70	--	562
*17...	1031	94	1.52	--	565
17...	1740	57	.876	--	257
18...	0340	28	.565	--	184
20...	0340	5.7	.160	--	102
23...	0730	13	.218	--	131
23...	0800	25	.268	--	134
24...	0355	6.1	.269	--	83
JUN					
*01...	1310	2.8	.277	--	--
01...	2130	12	.229	--	193
01...	2155	44	.305	--	251
02...	1830	8.4	.259	--	18

* Equal-width increment (EWI) sample

ROCK RIVER BASIN

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05427948 PHEASANT BRANCH AT MIDDLETON, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
JUN 1999					
04...	1240	12	.232	--	56
06...	1505	10	.207	--	13
06...	1545	57	.547	.079	421
06...	1635	137	1.24	.131	1060
06...	1745	107	.512	--	260
06...	1920	134	4.35	--	2150
06...	2320	148	.349	.836	1230
07...	0335	95	2.30	1.02	630
07...	0615	73	2.01	.922	457
*07...	1156	46	1.26	--	303
07...	1157	46	1.22	--	319
07...	1955	26	1.18	.639	258
09...	0755	5.6	.395	--	25
10...	1900	10	.384	--	196
13...	0735	11	.239	--	30
13...	1935	18	.253	--	46
14...	0735	7.1	.255	--	28
*21...	0820	2.6	.157	--	8
22...	1805	15	.185	--	53
22...	2005	35	.508	--	292
23...	1015	8.0	.214	--	40
28...	1525	15	.149	--	35
29...	0325	23	.464	--	229
29...	1525	6.8	.363	--	148
JUL					
01...	0055	13	.141	--	15
01...	0205	60	.397	--	220
01...	1115	40	.669	--	136
02...	0515	8.3	.521	--	48
*16...	1045	3.1	.110	--	14
16...	2200	27	.270	--	241
17...	0455	10	.195	--	36
17...	0605	39	.273	--	85
18...	0610	9.1	.276	--	45
20...	1500	15	.227	--	21
20...	1525	66	.796	.068	655
20...	1935	95	.828	.123	570
21...	0855	37	.980	.668	86
22...	0815	7.3	.533	--	17
31...	0355	15	.257	--	34
31...	0500	65	.572	--	354
AUG					
01...	0640	8.8	.469	--	45
07...	1050	22	.546	--	116
23...	1110	10	.211	--	183
23...	1800	24	.238	--	149
*31...	1210	3.4	.109	--	34
SEP					
*13...	1445	1.7	.110	--	--
27...	1335	9.3	.257	--	41
28...	1130	11	.209	--	41

* Equal-width increment (EWI) sample

DAILY MEAN VALUES

WTR YR 1999 TOTAL 1853.66

DAILY MEAN VALUES

WTR YR 1999 TOTAL 8525.23

ROCK RIVER BASIN

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05427965 SPRING HARBOR STORM SEWER AT MADISON, WI

LOCATION.--Lat 43°04'45", long 89°28'15", in NW 1/4 SE 1/4 sec.18, T.7 N., R.9 E., Dane County, Hydrologic Unit 07090001, in city park near the junction of Spring Harbor Drive and University Avenue in Madison.

DRAINAGE AREA.--3.29 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1976 to current year.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Datum of gage is 855.3 ft above sea level.

REMARKS.--No estimated daily discharges. Records are good except those for periods of flow between 0.00 ft³/s and 0.3 ft³/s and flow greater than 100 ft³/s, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.61	.00	.03	.00	.36	.10	.09	.14	4.8	15	1.3	.00
2	.44	.00	.00	.00	2.2	.07	.04	.05	5.6	1.0	.31	.00
3	4.0	.29	.00	.00	.97	.07	15	.00	.61	.95	.13	.00
4	2.6	.25	.00	.00	.50	.02	6.3	.13	4.1	.39	2.6	.00
5	24	.11	.00	.00	.43	.10	2.2	.23	1.1	.20	.20	.00
6	8.1	.01	.44	.00	.49	.15	2.9	12	8.3	.82	.10	.00
7	.95	.00	.22	.00	.28	.11	.37	1.7	4.4	.35	4.7	.00
8	.23	.00	.09	.00	.58	.10	9.4	.55	.98	.59	1.0	.39
9	.11	2.1	.06	.00	.92	.09	27	.21	1.8	1.2	4.5	.04
10	.03	36	.03	.00	.96	.19	2.3	.09	.65	.33	3.4	.00
11	.00	3.3	.01	.00	16	.26	.41	.00	.27	.16	.46	.00
12	.00	.40	.01	.00	4.6	.28	.20	.37	.39	.05	3.4	.00
13	.00	.22	.02	.00	.41	.25	.13	.10	16	.08	.64	.02
14	.00	.14	.02	.01	.21	.29	.00	.00	1.3	.16	.29	.07
15	.00	.04	.04	.02	.17	.42	.31	.04	.27	.03	.18	.04
16	.00	.00	.05	.05	.13	.90	2.1	18	.16	.13	.27	.01
17	16	.00	.05	.97	.07	.76	.16	39	.11	14	.12	.01
18	7.0	.00	.06	1.5	.07	.30	.19	6.3	.00	1.1	.38	.01
19	.50	.00	.06	.43	.11	.34	.20	.68	.00	1.1	.32	.05
20	.18	.00	.00	.20	.04	.19	3.1	.24	.00	12	.20	.00
21	.08	.00	.00	.28	.00	.10	3.1	.25	.00	5.6	.16	.00
22	.00	.00	.00	18	.00	.06	41	.35	.52	.61	.12	.00
23	.00	.00	.00	9.1	.00	.08	60	6.5	3.9	.24	9.3	.22
24	.00	.00	.01	2.0	.04	.20	4.1	.66	1.6	.12	3.7	.54
25	.00	.00	.00	.50	.15	.07	.37	.15	.63	2.9	.53	.02
26	.00	.00	.00	.22	.40	.00	.16	.07	.19	6.5	.24	.07
27	1.9	.00	.00	.85	.29	.00	2.9	.00	.04	.84	.15	4.2
28	1.1	.00	.00	.82	.31	.15	3.1	.00	6.3	.44	.08	10
29	.33	.00	.00	.24	---	.11	.42	.00	2.4	.28	.00	1.6
30	.24	.22	.00	.21	---	.09	.18	.00	.39	.20	.00	.30
31	.08	---	.00	.37	---	.09	---	.08	---	16	.00	---
TOTAL	68.48	43.08	1.20	35.77	30.69	5.94	187.73	87.89	66.81	83.37	38.78	17.59
MEAN	2.21	1.44	.039	1.15	1.10	.19	6.26	2.84	2.23	2.69	1.25	.59
MAX	24	36	.44	18	16	.90	60	39	16	16	9.3	10
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00
CFSM	.67	.44	.01	.35	.33	.06	1.90	.86	.68	.82	.38	.18
IN.	.77	.49	.01	.40	.35	.07	2.12	.99	.76	.94	.44	.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1999, BY WATER YEAR (WY)

	MEAN	1.13	1.25	.54	.56	1.31	2.20	1.95	1.41	2.39	2.24	1.87	1.66
MAX	3.19	3.64	1.99	1.73	3.60	6.97	6.26	3.03	6.99	6.51	4.24	4.97	
(WY)	1985	1993	1985	1990	1994	1993	1999	1998	1996	1993	1981	1980	
MIN	.11	.027	.000	.000	.050	.19	.54	.25	.33	.30	.36	.11	
(WY)	1995	1977	1990	1977	1978	1999	1985	1994	1987	1976	1988	1976	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1976 - 1999

ANNUAL TOTAL	824.03	667.33	
ANNUAL MEAN	2.26	1.83	1.55
HIGHEST ANNUAL MEAN			3.09
LOWEST ANNUAL MEAN			.97
HIGHEST DAILY MEAN	48	60	77
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		568	754
INSTANTANEOUS PEAK STAGE		3.69	4.16
ANNUAL RUNOFF (CFSM)	.69	.56	.47
ANNUAL RUNOFF (INCHES)	9.32	7.55	6.41
10 PERCENT EXCEEDS	6.0	4.3	3.5
50 PERCENT EXCEEDS	.17	.18	.14
90 PERCENT EXCEEDS	.00	.00	.00

(a) Also occurred Dec. 25

(b) Also occurred Dec. 25 and Aug. 29

(c) Annual seven-day minimum flows are 0.00 for most years

ROCK RIVER BASIN
05427965 SPRING HARBOR STORM SEWER AT MADISON, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1976 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1991 to current year.

INSTRUMENTATION.--Automatic pumping sampler.

REMARKS.--Records good. Samples are point samples unless otherwise indicated.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 3,870 mg/L, July 4, 1994; minimum observed, 1 mg/L, Aug. 6, 1993, Sept. 15, 1998, and July 26, 1999.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 137 tons, June 17, 1996; minimum daily, 0.00 ton, on many days.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 2,740 mg/L, Feb. 11; minimum observed, 1 mg/L, July 26.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 37 tons, May 16; minimum daily, 0.00 ton, on many days.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT 1998				APR 1999			
03...	0850	6.7	27	08...	2300	89	236
03...	2345	6.8	16	09...	0445	29	30
04...	0545	3.9	2	09...	0654	39	51
05...	0255	20	176	09...	0655	40	36
05...	0325	56	170	09...	1100	27	20
05...	1245	14	7	10...	0230	5.4	13
05...	1840	88	137	16...	0030	14	49
05...	2145	21	16	16...	0330	4.6	50
06...	0700	11	6	20...	1700	25	146
06...	1615	5.5	10	20...	2000	6.5	25
17...	0510	5.0	87	21...	0215	3.7	11
17...	1140	24	236	21...	2345	24	125
17...	1330	53	59	22...	0315	72	117
17...	2130	22	15	22...	0500	36	67
18...	1245	4.6	5	22...	0800	24	24
27...	1515	4.1	51	22...	1300	55	86
NOV				22...	1815	27	17
09...	2245	18	90	22...	2130	43	46
09...	2345	29	520	23...	0045	150	279
10...	0600	133	123	23...	0400	117	258
10...	0645	80	87	23...	1015	46	50
10...	0845	44	31	23...	1315	40	29
10...	1445	22	16	23...	1930	17	20
11...	0615	4.6	11	24...	0745	4.6	16
JAN 1999				27...	2000	8.3	28
22...	1251	20	32	27...	2315	9.6	18
22...	1730	15	26	28...	0515	4.7	12
23...	0845	5.1	26	MAY			
23...	1150	18	75	06...	0715	22	104
24...	0015	4.8	13	06...	0830	46	75
FEB				06...	1000	22	36
02...	1500	4.6	68	06...	2230	5.8	6
11...	1115	4.2	96	16...	1700	59	446
11...	1400	101	2740	16...	1730	101	94
11...	1415	159	1490	16...	2245	13	15
11...	1530	44	597	16...	2315	193	212
11...	2400	14	65	16...	2330	419	1260
APR				16...	2345	299	1800
03...	1000	28	843	17...	0030	109	387
03...	1145	6.6	347	17...	0100	167	330
03...	1400	53	1020	17...	0315	65	193
03...	1430	113	1520	17...	0930	35	57
03...	1545	54	510	17...	1845	13	39
03...	1845	19	218	18...	0400	4.8	30
04...	1100	5.3	17	18...	1015	15	46
05...	2245	30	291	18...	1630	3.9	18
05...	2400	9.2	117	23...	0645	26	111
06...	0615	4.3	16	23...	0745	38	150
08...	2000	29	123	23...	1745	4.4	7

ROCK RIVER BASIN

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05427965 SPRING HARBOR STORM SEWER AT MADISON, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
JUN 1999				JUL 1999			
07...	0640	6.1	8	25...	2025	12	181
08...	2135	5.9	65	25...	2330	5.3	12
13...	0255	26	143	26...	0710	20	47
13...	0900	40	29	26...	1015	11	3
13...	2120	6.3	6	26...	1625	4.9	1
22...	2055	5.1	39	31...	0300	4.7	96
23...	1600	45	435	31...	0450	108	302
23...	1840	8.5	23	31...	0640	27	39
24...	0050	4.0	4	31...	0945	17	4
28...	1435	62	364	31...	2205	3.9	3
28...	1440	85	372	AUG			
28...	1655	4.5	60	04...	0135	60	235
28...	1705	30	139	04...	0240	17	157
28...	2315	7.2	5	07...	1005	18	4
JUL				07...	1615	4.3	46
01...	0025	54	168	09...	1910	24	66
01...	0040	103	255	09...	1930	68	579
01...	0220	36	66	09...	1955	33	359
01...	0525	16	8	10...	0425	5.7	6
01...	2050	4.1	2	12...	0655	5.5	38
08...	2355	25	184	12...	0805	23	66
09...	0055	6.4	73	12...	0940	5.4	19
17...	0505	32	324	23...	0950	25	138
17...	0555	67	144	23...	1120	7.7	102
17...	0800	36	87	23...	1715	32	91
17...	1100	13	9	23...	2020	16	15
17...	2015	5.8	2	24...	0535	5.8	5
19...	0705	4.1	33	SEP			
20...	1450	94	385	24...	0045	3.0	65
20...	1455	155	430	27...	1220	15	68
20...	1630	31	106	27...	1525	4.4	9
20...	1935	13	8	28...	0835	8.8	7
21...	1100	5.1	3	28...	1045	30	39
25...	1920	23	335	28...	1350	13	13
25...	1940	69	1270	28...	2305	5.5	5

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.00	.00	.00	.00	.00	.00	.00	1.9	2.9	.01	.00
2	.00	.00	.00	.00	.16	.00	.00	.00	.30	.01	.00	.00
3	.21	.00	.00	.00	.03	.00	25	.00	.01	.02	.00	.00
4	.03	.00	.00	.00	.01	.00	.67	.00	.45	.00	.98	.00
5	3.5	.00	.00	.00	.01	.00	.76	.00	.03	.00	.00	.00
6	.19	.00	.01	.00	.01	.00	.27	1.1	2.8	.02	.00	.00
7	.01	.00	.00	.00	.01	.00	.01	.03	.12	.00	.12	.00
8	.00	.00	.00	.00	.01	.00	4.3	.01	.07	.12	.01	.01
9	.00	1.1	.00	.00	.02	.00	3.2	.00	.18	.21	2.0	.00
10	.00	11	.00	.00	.03	.00	.08	.00	.02	.00	.06	.00
11	.00	.10	.00	.00	31	.00	.01	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.49	.00	.00	.01	.01	.00	.25	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.99	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00
15	.00	.00	.00	.00	.00	.01	.02	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.02	.24	37	.00	.00	.00	.00
17	2.1	.00	.00	.02	.00	.02	.00	21	.00	2.9	.00	.00
18	.16	.00	.00	.02	.00	.00	.00	.56	.00	.01	.01	.00
19	.01	.00	.00	.01	.00	.01	.00	.02	.00	.06	.00	.00
20	.00	.00	.00	.00	.00	.00	.55	.00	.00	4.3	.00	.00
21	.00	.00	.00	.01	.00	.00	.34	.00	.00	.05	.00	.00
22	.00	.00	.00	2.5	.00	.00	8.3	.00	.04	.00	.00	.00
23	.00	.00	.00	.98	.00	.00	26	1.1	1.2	.00	1.9	.01
24	.00	.00	.00	.04	.00	.00	.18	.01	.02	.00	.05	.05
25	.00	.00	.00	.01	.00	.00	.01	.00	.01	3.4	.00	.00
26	.00	.00	.00	.00	.01	.00	.00	.00	.00	.22	.00	.00
27	.22	.00	.00	.02	.00	.00	.16	.00	.00	.00	.00	.18
28	.08	.00	.00	.01	.00	.00	.10	.00	2.4	.00	.00	.42
29	.00	.00	.00	.00	---	.00	.01	.00	.03	.00	.00	.02
30	.00	.00	.00	.00	---	.00	.00	.00	.01	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	4.0	.00	---
TOTAL	6.52	12.20	0.01	3.62	31.79	0.06	70.21	60.84	10.61	18.22	5.39	0.69

WTR YR 1999 TOTAL 220.16

ROCK RIVER BASIN
05428000 LAKE MENDOTA AT MADISON, WI

LOCATION.--Lat 43°05'42", long 89°22'12", in SE 1/4 sec.12, T.7 N., R.9 E., Dane County, Hydrologic Unit 07090001, in city boat house at dam at outlet, in Madison.

DRAINAGE AREA.--233 mi². Area of Lake Mendota, 15.2 mi².

PERIOD OF RECORD.--December 1902 to May 1903, January 1916 to current year (incomplete).

REVISED RECORDS.--WDR WI-73-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 840.00 ft above sea level, or 5.60 ft below City of Madison datum. Prior to Oct. 1, 1979, at datum 7.82 ft higher; prior to Nov. 15, 1971, nonrecording gage at same site.

REMARKS.--No estimated daily gage heights. Records are good (see page 13). Lake level regulated by concrete dam with two 12-foot gates and 20-foot lock at outlet. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 12.20 ft, July 14-15, 1993; minimum observed, 8.02 ft, Feb. 24 to Mar. 10, 1920, current datum.

EXTREMES FOR CURRENT YEAR.--Maximum recorded gage height, 10.83 ft, May 18; minimum recorded, 9.10 ft, Mar. 2.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.14	9.73	9.43	9.29	9.45	9.16	9.43	10.52	10.26	10.41	10.37	9.99
2	10.12	9.68	9.44	9.33	9.44	9.15	9.43	10.51	10.31	10.40	10.33	9.97
3	10.14	9.62	9.44	9.36	9.44	9.16	9.46	10.49	10.28	10.39	10.30	9.96
4	10.14	9.57	9.44	9.37	9.43	9.17	9.55	10.48	10.27	10.40	10.29	9.94
5	10.20	9.52	9.44	9.37	9.43	9.19	9.56	10.48	10.28	10.40	10.26	9.94
6	10.31	9.47	9.46	9.37	9.42	9.21	9.61	10.56	10.30	10.41	10.23	9.92
7	10.33	9.42	9.45	9.37	9.40	9.22	9.60	10.59	10.38	10.38	10.23	9.89
8	10.30	9.38	9.44	9.38	9.38	9.23	9.61	10.61	10.40	10.34	10.23	9.88
9	10.27	9.34	9.43	9.39	9.37	9.28	9.77	10.60	10.42	10.35	10.20	9.85
10	10.25	9.47	9.43	9.39	9.36	9.29	9.82	10.59	10.43	10.31	10.22	9.81
11	10.22	9.51	9.41	9.41	9.39	9.30	9.85	10.57	10.45	10.28	10.20	9.78
12	10.20	9.51	9.40	9.41	9.47	9.31	9.87	10.56	10.46	10.26	10.19	9.77
13	10.16	9.51	9.40	9.43	9.48	9.33	9.87	10.53	10.51	10.23	10.20	9.76
14	10.11	9.53	9.39	9.43	9.47	9.34	9.87	10.48	10.53	10.19	10.16	9.74
15	10.07	9.52	9.38	9.44	9.46	9.35	9.86	10.43	10.49	10.17	10.13	9.72
16	10.04	9.52	9.39	9.44	9.44	9.36	9.86	10.40	10.48	10.16	10.11	9.70
17	10.06	9.51	9.38	9.46	9.43	9.38	9.85	10.62	10.45	10.26	10.11	9.69
18	10.14	9.50	9.37	9.49	9.41	9.40	9.83	10.67	10.44	10.28	10.09	9.67
19	10.11	9.52	9.38	9.49	9.39	9.42	9.83	10.64	10.41	10.29	10.09	9.67
20	10.08	9.50	9.37	9.48	9.36	9.43	9.82	10.60	10.40	10.31	10.08	9.66
21	10.04	9.46	9.39	9.47	9.33	9.46	9.83	10.56	10.38	10.38	10.07	9.64
22	10.00	9.45	9.36	9.52	9.30	9.46	9.96	10.55	10.37	10.39	10.05	9.63
23	9.97	9.47	9.34	9.56	9.28	9.47	10.27	10.55	10.39	10.38	10.06	9.62
24	9.94	9.45	9.34	9.59	9.26	9.48	10.41	10.54	10.42	10.38	10.12	9.62
25	9.91	9.44	9.32	9.60	9.24	9.49	10.47	10.50	10.41	10.36	10.11	9.61
26	9.89	9.44	9.32	9.58	9.21	9.49	10.50	10.44	10.38	10.39	10.10	9.60
27	9.88	9.43	9.32	9.56	9.20	9.48	10.51	10.41	10.37	10.38	10.10	9.66
28	9.88	9.43	9.31	9.54	9.18	9.47	10.54	10.38	10.38	10.36	10.09	9.72
29	9.84	9.43	9.32	9.52	---	9.47	10.53	10.35	10.39	10.35	10.06	9.75
30	9.82	9.46	9.30	9.50	---	9.45	10.53	10.31	10.35	10.33	10.02	9.74
31	9.78	---	9.29	9.48	---	9.42	---	10.28	---	10.38	10.00	---
MEAN	10.08	9.49	9.38	9.45	9.37	9.35	9.93	10.51	10.39	10.33	10.15	9.76
MAX	10.33	9.73	9.46	9.60	9.48	9.49	10.54	10.67	10.53	10.41	10.37	9.99
MIN	9.78	9.34	9.29	9.29	9.18	9.15	9.43	10.28	10.26	10.16	10.00	9.60

ROCK RIVER BASIN

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05429000 LAKE MONONA AT MADISON, WI

LOCATION.--Lat 43°03'48", long 89°23'49', in SW 1/4 sec.23, T.7 N., R.9 E., Dane County, Hydrologic Unit 07090001, in Brittingham Park, in Madison.

DRAINAGE AREA.--279 mi². Area of Lake Monona, 5.3 mi².

PERIOD OF RECORD.--September 1915 to current year (fragmentary) in reports of the Geological Survey. For 1856 to March 1917 in reports of Wisconsin Railroad Commission, volume 19.

REVISED RECORDS.--WSP 1338: Lake area. WDR WI-73-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 840.00 ft above sea level, or 5.60 ft below City of Madison datum. Prior to Oct. 1, 1979, datum 3.61 ft higher; prior to Nov. 15, 1971, nonrecording gage at same site.

REMARKS.--No estimated daily gage heights. Records good (see page 13). Lake level regulated by concrete dam with four 12-foot stop-log sections and 12-foot lock at outlet of Lake Waubesa. Gage-height telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 7.28 ft, June 19, 1996; minimum observed, 3.22 ft, Jan. 20, 1965, current datum.

EXTREMES FOR CURRENT YEAR.--Maximum recorded gage height, 5.99 ft, June 13, 14, July 25-27, and 31; minimum recorded, 3.79 ft, Mar. 26.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.93	5.20	4.46	4.00	4.65	4.88	4.07	5.47	5.56	5.83	5.94	5.76
2	4.90	5.20	4.44	4.03	4.68	4.85	4.10	5.41	5.62	5.82	5.89	5.75
3	4.90	5.18	4.42	4.07	4.71	4.74	4.20	5.35	5.61	5.81	5.86	5.74
4	4.89	5.15	4.41	4.07	4.73	4.66	4.31	5.31	5.60	5.79	5.86	5.73
5	4.97	5.14	4.39	4.07	4.75	4.61	4.38	5.26	5.58	5.77	5.84	5.71
6	5.06	5.12	4.38	4.07	4.76	4.54	4.43	5.27	5.60	5.75	5.81	5.68
7	5.06	5.12	4.38	4.07	4.77	4.47	4.48	5.27	5.64	5.71	5.83	5.67
8	5.11	5.12	4.36	4.07	4.78	4.43	4.57	5.21	5.65	5.69	5.82	5.64
9	5.14	5.14	4.34	4.07	4.79	4.40	4.86	5.15	5.68	5.68	5.80	5.60
10	5.17	5.33	4.31	4.07	4.80	4.34	5.00	5.11	5.72	5.64	5.82	5.55
11	5.19	5.35	4.29	4.07	4.87	4.30	5.03	5.09	5.83	5.61	5.81	5.52
12	5.20	5.28	4.28	4.07	4.99	4.25	5.05	5.11	5.86	5.59	5.83	5.49
13	5.19	5.20	4.27	4.07	5.00	4.21	5.08	5.10	5.95	5.56	5.83	5.44
14	5.19	5.13	4.26	4.06	5.02	4.18	5.12	5.10	5.97	5.54	5.81	5.39
15	5.20	5.07	4.24	4.06	5.02	4.14	5.14	5.14	5.95	5.52	5.80	5.36
16	5.20	5.02	4.20	4.06	5.01	4.11	5.13	5.21	5.93	5.50	5.79	5.33
17	5.26	4.96	4.17	4.07	4.99	4.05	5.12	5.62	5.90	5.76	5.78	5.31
18	5.33	4.92	4.16	4.09	4.98	4.01	5.12	5.73	5.90	5.84	5.78	5.28
19	5.31	4.84	4.12	4.09	4.97	3.99	5.13	5.78	5.89	5.85	5.80	5.25
20	5.28	4.79	4.10	4.12	4.95	3.96	5.14	5.80	5.86	5.87	5.80	5.22
21	5.25	4.75	4.06	4.14	4.94	3.91	5.18	5.81	5.84	5.91	5.79	5.17
22	5.23	4.72	4.04	4.23	4.93	3.88	5.37	5.79	5.83	5.89	5.78	5.12
23	5.21	4.67	4.05	4.31	4.92	3.86	5.82	5.76	5.89	5.88	5.81	5.08
24	5.19	4.64	4.05	4.37	4.91	3.83	5.92	5.70	5.90	5.88	5.88	5.04
25	5.18	4.60	4.05	4.40	4.91	3.81	5.89	5.65	5.87	5.89	5.88	5.01
26	5.16	4.56	4.04	4.45	4.91	3.80	5.83	5.62	5.85	5.98	5.87	4.98
27	5.18	4.53	4.04	4.50	4.90	3.85	5.78	5.59	5.83	5.99	5.86	5.04
28	5.20	4.51	4.04	4.54	4.89	3.89	5.73	5.57	5.82	5.97	5.86	5.10
29	5.20	4.49	4.03	4.58	---	3.92	5.64	5.56	5.82	5.94	5.85	5.09
30	5.18	4.48	4.01	4.60	---	3.96	5.55	5.56	5.79	5.93	5.81	5.03
31	5.19	---	4.01	4.63	---	4.02	---	5.55	---	5.97	5.78	---
MEAN	5.15	4.94	4.21	4.20	4.88	4.19	5.07	5.44	5.79	5.79	5.83	5.37
MAX	5.33	5.35	4.46	4.63	5.02	4.88	5.92	5.81	5.97	5.99	5.94	5.76
MIN	4.89	4.48	4.01	4.00	4.65	3.80	4.07	5.09	5.56	5.50	5.78	4.98

ROCK RIVER BASIN

05429500 YAHARA RIVER NEAR MCFARLAND, WI

LOCATION.--Lat 43°00'32", long 89°18'18", in SW 1/4 sec.3, T.6 N., R.10 E., Dane County, Hydrologic Unit 07090001, on left bank just upstream from bridge on U.S. Highway 51, at dam at outlet of Lake Waubesa and 1.0 mi southwest of McFarland.

DRAINAGE AREA.--327 mi².

PERIOD OF RECORD.--September 1930 to current year.

REVISED RECORDS.--WSP 805, WDR WI-73-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 840.00 ft above sea level (levels by Wisconsin Department of Natural Resources). September 1930 to Dec. 22, 1934, nonrecording gage at same site at datum 0.40 ft higher. Dec. 23, 1934 to Sept. 30, 1982, recording gage at same site at datum 0.40 ft higher.

REMARKS.--No estimated daily discharges. Records fair (see page 13). Flow regulated by dams at outlets of Lake Mendota and Lake Waubesa. The Madison Metropolitan Sewerage District diverted an average of 64 ft³/s of effluent into the Badfish Creek basin during 1999 water year. The data were provided by the Madison Metropolitan Sewerage District. Prior to 1958 the effluent was discharged into the Yahara River above McFarland. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	158	272	212	126	215	300	65	415	253	204	201	181
2	154	272	208	131	223	298	70	395	267	204	194	180
3	156	273	206	138	231	292	85	375	264	198	186	179
4	156	274	203	135	237	278	106	351	257	196	182	177
5	167	275	199	132	242	263	80	331	252	194	177	177
6	190	276	200	131	244	254	56	330	249	193	171	176
7	198	276	201	130	249	241	58	325	266	188	169	171
8	202	278	196	130	250	227	59	313	263	181	168	170
9	208	280	189	128	254	220	96	294	258	178	164	167
10	215	308	185	127	256	214	120	274	256	172	168	160
11	223	329	181	126	275	206	127	257	267	167	165	155
12	230	331	177	126	305	198	136	251	281	164	165	150
13	237	324	174	126	318	190	146	243	302	157	166	146
14	238	317	170	123	314	183	153	237	314	147	164	141
15	237	308	167	123	313	177	177	233	301	141	161	139
16	237	296	166	122	313	170	196	237	289	136	160	138
17	247	286	163	124	313	169	194	332	276	179	164	137
18	271	275	152	129	310	170	195	367	260	201	165	135
19	275	270	150	128	308	162	195	369	244	202	168	136
20	275	263	147	128	304	154	196	364	234	200	168	138
21	273	252	137	130	302	152	202	358	223	203	169	135
22	269	239	84	141	299	146	259	354	213	202	169	132
23	266	237	125	157	296	140	457	349	217	202	176	131
24	262	232	134	169	295	135	545	341	216	207	189	129
25	259	226	136	175	297	125	530	323	213	203	192	126
26	258	224	136	179	295	71	512	305	207	219	193	123
27	262	219	133	184	296	51	494	291	204	219	194	140
28	266	216	133	191	300	53	481	279	203	213	194	158
29	266	214	133	197	---	58	459	270	204	206	193	165
30	268	215	133	203	---	63	437	261	199	201	188	159
31	270	---	129	209	---	65	---	254	---	204	184	---
TOTAL	7193	8057	5059	4498	7854	5425	6886	9678	7452	5881	5467	4551
MEAN	232	269	163	145	280	175	230	312	248	190	176	152
MAX	275	331	212	209	318	300	545	415	314	219	201	181
MIN	154	214	84	122	215	51	56	233	199	136	160	123
CFSM	.71	.82	.50	.44	.86	.54	.70	.95	.76	.58	.54	.46
IN.	.82	.92	.58	.51	.89	.62	.78	1.10	.85	.67	.62	.52

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1999, BY WATER YEAR (WY)

MEAN	125	158	148	140	158	248	264	184	147	145	118	115
MAX	401	355	375	376	363	599	719	520	446	511	478	422
(WY)	1981	1986	1986	1986	1938	1937	1959	1933	1996	1993	1993	1993
MIN	4.09	27.4	36.5	34.0	31.6	67.4	25.5	42.1	15.6	16.0	15.9	13.8
(WY)	1965	1940	1940	1977	1991	1934	1966	1958	1936	1965	1988	1964

ROCK RIVER BASIN

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05429500 YAHARA RIVER NEAR MCFARLAND, WI--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1930 - 1999	
ANNUAL TOTAL	82010		78001		162	
ANNUAL MEAN	225		214		336	1993
HIGHEST ANNUAL MEAN					63.8	1964
LOWEST ANNUAL MEAN					853	Apr 11 1959
HIGHEST DAILY MEAN	529	Apr 17	545	Apr 24	1.2	Jun 27 1979
LOWEST DAILY MEAN	82	Jan 2	51	Mar 27	2.0	Jun 22 1979
ANNUAL SEVEN-DAY MINIMUM	89	Jan 1	61	Mar 27	(b) 867	Apr 10 1959
INSTANTANEOUS PEAK FLOW			(a) 552	Apr 23	(d) 6.33	Jul 23, 24 1950
INSTANTANEOUS PEAK STAGE			(c) 5.86	Jun 14	.50	
ANNUAL RUNOFF (CFSM)	.69		.65		6.75	
ANNUAL RUNOFF (INCHES)	9.33		8.87		324	
10 PERCENT EXCEEDS	409		309		137	
50 PERCENT EXCEEDS	195		201		39	
90 PERCENT EXCEEDS	96		129			

(a) Gage height, 5.55 ft

(b) Gage height, 5.82 ft, datum then in use

(c) Backwater from vegetation and channel slope

(d) Datum then in use, backwater from aquatic vegetation

ROCK RIVER BASIN

05430150 BADFISH CREEK NEAR COOKSVILLE, WI

LOCATION.--Lat 42°50'00", long 89°11'48", in SW 1/4 SE 1/4 sec.4, T.4 N., R.11 E., Rock County, Hydrologic Unit 07090001, on right bank, 20 ft upstream from bridge on State Highway 59, 2.2 mi east of Cooksville, and 2.2 mi above the mouth.

DRAINAGE AREA.--82.6 mi².

PERIOD OF RECORD.--July 1977 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 807.06 ft above sea level.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 30 to Jan. 13. Records good except those for ice-affected period, which is fair (see page 13). Approximately 50 percent of flow is effluent from Nine Springs treatment plant (data provided by Madison Metropolitan Sewerage District). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	108	100	102	88	122	111	101	145	135	152	109	103
2	105	102	100	90	160	112	101	137	158	127	107	105
3	112	102	100	92	166	110	156	138	140	124	108	105
4	114	100	99	94	153	107	187	138	138	119	110	102
5	156	100	98	94	131	109	132	139	138	111	108	99
6	167	99	98	92	123	104	142	163	160	119	107	96
7	140	98	107	92	122	100	125	166	177	116	113	99
8	126	98	103	92	122	103	123	152	143	116	108	99
9	119	102	102	90	133	104	299	141	139	118	103	96
10	115	191	102	90	139	101	205	136	141	111	110	95
11	110	145	101	92	191	102	158	134	158	107	108	93
12	111	124	100	94	213	103	144	139	156	107	101	92
13	111	117	99	96	139	101	135	134	555	111	115	95
14	108	112	100	96	127	101	131	129	392	111	109	94
15	107	108	102	95	126	107	127	123	211	112	103	94
16	107	109	102	94	124	113	129	128	184	114	103	94
17	122	108	102	98	123	121	121	1110	173	159	109	94
18	199	107	102	105	118	115	118	807	158	126	113	91
19	138	106	100	102	116	111	118	292	150	120	117	91
20	123	104	97	98	110	106	121	223	145	126	109	93
21	117	101	97	98	108	106	130	196	146	145	104	95
22	114	101	95	135	107	106	247	182	148	127	102	95
23	113	103	95	168	108	108	682	168	177	126	123	96
24	106	100	93	164	108	104	358	162	168	144	140	94
25	103	101	88	142	107	101	227	157	153	118	118	93
26	107	98	82	129	108	100	194	149	148	132	114	92
27	109	92	88	129	111	97	178	145	146	125	112	117
28	113	93	90	134	111	98	198	141	154	117	108	149
29	106	95	94	125	---	98	169	135	149	115	105	127
30	107	101	90	118	---	99	157	127	142	117	102	110
31	104	---	88	120	---	98	---	126	---	120	102	---
TOTAL	3697	3217	3016	3346	3626	3256	5413	6362	5282	3792	3400	2998
MEAN	119	107	97.3	108	130	105	180	205	176	122	110	99.9
MAX	199	191	107	168	213	121	682	1110	555	159	140	149
MIN	103	92	82	88	107	97	101	123	135	107	101	91

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1999, BY WATER YEAR (WY)

	MEAN	95.6	101	95.5	90.9	106	125	124	109	117	104	95.9	96.2
MAX	139	162	129	122	163	190	193	205	252	171	133	139	139
(WY)	1987	1986	1983	1988	1994	1993	1993	1999	1996	1993	1996	1993	1993
MIN	66.9	69.5	69.7	65.3	73.1	80.4	88.7	78.3	76.4	70.4	59.2	67.6	67.6
(WY)	1978	1978	1979	1991	1979	1981	1990	1981	1991	1977	1977	1991	1991

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1977 - 1999

ANNUAL TOTAL	44763	47405	
ANNUAL MEAN	123	130	105
HIGHEST ANNUAL MEAN			136
LOWEST ANNUAL MEAN			80.4
HIGHEST DAILY MEAN	568	Jun 28	1450
LOWEST DAILY MEAN	82	Dec 26	35
ANNUAL SEVEN-DAY MINIMUM	87	Jan 22	48
INSTANTANEOUS PEAK FLOW			2210
INSTANTANEOUS PEAK STAGE			10.18
10 PERCENT EXCEEDS	155	162	138
50 PERCENT EXCEEDS	111	111	96
90 PERCENT EXCEEDS	93	95	74

ROCK RIVER BASIN

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05430175 YAHARA RIVER NEAR FULTON, WI

LOCATION.--Lat 42°49'35", long 89°10'19", in SE 1/4 NE 1/4 sec.10, T.4 N., R.11 E., Rock County, Hydrologic Unit 07090001, on left bank, 20 ft upstream from bridge on State Highway 59, 0.5 mi downstream from Badfish Creek, and 2.6 mi northwest of Fulton.

DRAINAGE AREA.--518 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1977 to current year.

REVISED RECORDS.--WDR WI-96-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 789.85 ft above sea level. July 1977 to April 1996, recording gage at site about 2,000 ft upstream at datum 2.85 ft higher.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 22 to Jan. 20. Records good except for ice-affected period, which is fair (see page 13). Diurnal fluctuation caused by powerplant at Stebbensville 1.5 mi upstream, and additional regulation from other dams and powerplants upstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	316	509	432	240	421	470	151	826	544	415	509	321
2	312	479	413	240	462	490	149	792	554	450	393	284
3	329	507	421	240	484	503	229	704	534	418	203	298
4	327	480	420	240	542	503	291	723	521	432	200	298
5	393	474	475	240	511	497	234	716	485	469	219	292
6	381	469	384	240	465	470	308	774	478	479	363	316
7	387	466	307	240	478	455	296	728	566	421	297	322
8	392	477	406	240	467	460	215	656	439	389	292	318
9	371	481	398	240	465	465	401	661	493	410	286	315
10	334	600	317	240	516	458	404	631	455	407	292	304
11	350	482	356	250	578	427	313	637	416	409	294	305
12	348	585	371	250	629	411	226	615	436	415	374	308
13	351	543	368	250	585	430	272	523	986	358	359	302
14	337	612	368	250	545	430	237	583	920	252	362	288
15	366	494	369	250	521	418	327	533	527	210	319	283
16	380	566	385	250	542	412	367	561	513	207	334	288
17	367	526	373	260	562	379	412	1810	470	268	340	298
18	534	529	361	270	536	363	369	1940	490	248	319	281
19	476	534	361	280	523	417	360	1010	401	234	350	271
20	537	522	360	300	523	390	381	984	462	449	340	280
21	493	508	354	317	511	347	373	900	425	563	324	285
22	465	457	330	370	515	369	563	805	451	585	325	279
23	522	459	320	416	511	372	1500	826	489	531	356	278
24	515	451	310	437	491	321	1200	778	520	571	387	282
25	621	448	280	388	490	294	996	733	477	554	377	276
26	590	460	250	371	513	290	946	694	423	591	364	259
27	583	445	250	368	499	195	931	699	445	592	376	290
28	583	409	260	399	464	149	987	655	419	558	359	369
29	520	418	260	418	---	291	887	606	460	546	358	430
30	549	420	250	414	---	244	846	529	462	509	336	373
31	460	---	250	417	---	162	---	608	---	506	310	---
TOTAL	13489	14810	10759	9325	14349	11882	15171	24240	15261	13446	10317	9093
MEAN	435	494	347	301	512	383	506	782	509	434	333	303
MAX	621	612	475	437	629	503	1500	1940	986	592	509	430
MIN	312	409	250	240	421	149	149	523	401	207	200	259
CFSM	.84	.95	.67	.58	.99	.74	.98	1.51	.98	.84	.64	.59
IN.	.97	1.06	.77	.67	1.03	.85	1.09	1.74	1.10	.97	.74	.65

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1999, BY WATER YEAR (WY)

	MEAN	352	411	389	337	371	464	480	403	355	329	298	320
MAX	596	711	558	542	585	760	1043	858	991	862	760	696	
(WY)	1987	1986	1983	1986	1986	1994	1993	1993	1996	1993	1993	1993	
MIN	171	181	167	192	168	229	204	155	136	121	117	109	
(WY)	1991	1990	1990	1978	1991	1978	1978	1981	1988	1988	1988	1988	

SUMMARY STATISTICS

	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1977 - 1999
ANNUAL TOTAL	163527	162142	
ANNUAL MEAN	448	444	377
HIGHEST ANNUAL MEAN			629
LOWEST ANNUAL MEAN			262
HIGHEST DAILY MEAN	1070	1940	2880
LOWEST DAILY MEAN	193	149	60
ANNUAL SEVEN-DAY MINIMUM	256	192	104
INSTANTANEOUS PEAK FLOW		2490	3230
INSTANTANEOUS PEAK STAGE		9.62	11.16
ANNUAL RUNOFF (CFSM)	.86	.86	.73
ANNUAL RUNOFF (INCHES)	11.74	11.64	9.89
10 PERCENT EXCEEDS	768	613	604
50 PERCENT EXCEEDS	384	416	343
90 PERCENT EXCEEDS	262	250	156

(a) Also occurred Apr. 2

ROCK RIVER BASIN
05430175 YAHARA RIVER NEAR FULTON, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 1998 to September 1999.

REMARKS.--Chemical analyses by the Madison Metropolitan Sewage District from September 1998 to August 1999, and by the Wisconsin State Laboratory of Hygiene in September 1999. Samples are composites of 3-5 verticals, collected by cooperative observers.

WATER-QUALITY DATA, SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CHLO- RIDE, DIS- SOLVED (MG/L) AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)
SEP 1998								
02...	0910	256	--	9.1	240	120	495	49
15...	0945	460	7.5	4.8	>13000	69	370	117

DATE	TIME	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L) AS N) (00625)	PHOS- PHORUS DIS- SOLVED (MG/L) AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L) AS P) (00671)	CHLORO- PHYLL A FLUORO- METRIC METHOD CORR. (UG/L) (32209)
SEP 1998								
02...	15	4.37	<.040	1.8	.280	<.020	10.4	
15...	26	2.55	.100	2.2	.380	.040	37.4	

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, CUBIC FEET PER SECOND (00061)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CHLO- RIDE, DIS- SOLVED (MG/L) AS CL) (00940)
OCT 1998									
06...	0945	--	426	--	16.6	5.3	3.8	6400	84
19...	0900	--	525	--	14.0	6.2	3.6	1600	74
20...	0930	--	503	--	16.3	11.1	3.2	860	79
NOV									
03...	0945	--	506	--	12.3	9.7	3.0	1400	78
17...	0930	--	572	--	15.1	5.6	3.0	2000	72
DEC									
01...	1000	--	423	--	16.8	7.5	3.2	730	76
15...	0930	--	366	--	10.6	10.7	2.1	800	52
JAN 1999									
05...	0930	240	--	--	1.2	12.2	4.0	680	69
19...	0945	280	--	6.1	8.5	--	2.8	1200	140
FEB									
02...	0930	--	450	7.2	9.9	--	3.2	3000	74
12...	1300	--	722	--	7.7	10.2	3.6	860	74
16...	1000	--	543	--	7.5	7.4	2.9	1100	72
MAR									
02...	1015	--	494	--	11.5	6.7	4.8	1500	79
16...	1000	--	426	--	9.7	11.6	4.4	290	87
APR									
05...	1130	--	242	7.0	13.5	10.8	4.7	1000	100
06...	1015	--	287	7.0	16.7	10.0	4.1	1600	100
20...	0830	--	387	7.0	17.9	11.2	3.7	50	94
MAY									
04...	0845	--	756	7.1	20.3	9.2	3.6	6	63
18...	0945	--	2100	7.2	20.4	9.0	<2.0	>7100	29
25...	0900	--	800	7.0	18.2	9.6	3.6	320	61
JUN									
07...	0900	--	565	--	25.1	5.3	4.7	5000	59
15...	0845	--	568	7.0	20.6	9.6	3.2	610	60
JUL									
06...	0930	--	500	--	26.8	6.9	4.2	300	65
26...	1030	--	610	7.2	27.0	8.5	4.3	>4000	75

ROCK RIVER BASIN

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05430175 YAHARA RIVER NEAR FULTON, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

		DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)
DATE	TIME								
AUG 1999									
03...	0945	--	210	7.1	24.3	11.2	3.0	400	140
17...	0900	--	357	7.2	25.0	13.7	4.3	510	98
SEP									
21...	0800	--	287	7.3	18.4	9.3	1.9	--	--
29...	0915	--	405	7.3	15.8	11.2	2.3	--	--
DATE	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	CHLORO- PHYLL A FLUORO- METRIC METHOD CORR. (UG/L) (32209)
OCT 1998									
06...	417	65	14	3.59	.130	1.7	.260	<.020	16.7
19...	381	43	12	2.63	.050	1.4	.140	.080	16.5
20...	416	28	8	2.84	<.040	.98	.090	<.020	19.9
NOV									
03...	379	20	8	2.76	.180	1.5	.130	.030	22.1
17...	362	14	6	2.47	.210	1.5	.130	.040	21.3
DEC									
01...	404	16	7	3.24	.100	1.3	.150	<.020	40.1
15...	452	9	4	2.22	.070	1.0	.130	<.020	14.7
JAN 1999									
05...	384	6	3	2.99	.290	1.8	.100	.030	13.7
19...	536	25	8	5.17	.310	1.5	.130	.020	<1.50
FEB									
02...	422	29	7	3.53	.320	1.3	.130	.040	17.7
12...	362	43	9	3.24	.260	1.8	.170	.040	14.1
16...	346	19	5	2.95	.180	1.2	.170	<.030	17.0
MAR									
02...	386	6	3	3.00	.150	1.2	.110	<.030	49.7
16...	408	18	7	3.35	.100	1.4	.110	.040	32.6
APR									
05...	494	53	13	5.71	.180	1.7	.430	.140	51.4
06...	554	65	13	6.19	.230	1.7	.500	.220	47.9
20...	433	32	9	4.13	.080	1.2	.130	<.060	18.6
MAY									
04...	376	62	16	2.29	.140	1.7	.180	<.030	22.0
18...	250	200	32	2.26	.270	2.2	.540	<.030	31.1
25...	310	36	8	2.31	.230	1.3	.200	.040	13.3
JUN									
07...	390	105	18	2.16	.220	.74	.180	.040	13.6
15...	382	67	13	2.94	.120	1.6	.230	.060	15.2
JUL									
06...	344	90	24	2.25	.050	2.4	.370	<.030	53.2
26...	380	68	20	2.60	<.040	1.9	.220	<.030	56.4
AUG									
03...	620	51	12	6.81	.090	1.2	.240	<.030	24.6
17...	486	49	13	4.45	.040	1.4	.160	<.030	17.5
SEP									
21...	--	36	13	4.43	--	--	.173	.019	--
29...	--	70	17	3.29	--	--	.213	.053	--

ROCK RIVER BASIN
05430175 YAHARA RIVER NEAR FULTON, WI--CONTINUED

WATER-QUALITY DATA, SEPTEMBER 1998 TO SEPTEMBER 1999

PHOSPHORUS, ORTHO, WATER, FILTERED, POUNDS PER DAY
MONTHLY TOTALS

1998	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	---	---	---	---	---	---	---	---	---	---	---	1379.1
1999	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	1712.2	2323.9	730.2	1343.0	2033.6	2564.5	4286.8	2882.1	3478.0	1127.0	856.9	1199.9
WTR YR 1999	TOTAL 24538.1											

PHOSPHORUS TOTAL, POUNDS PER DAY
MONTHLY TOTALS

1998	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	---	---	---	---	---	---	---	---	---	---	---	16872
1999	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	11674	10681	7549	6103	11508	8935	20577	29060	20228	20513	10183	8728
WTR YR 1999	TOTAL 165739											

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (TONS PER DAY)
MONTHLY TOTALS

1998	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	---	---	---	---	---	---	---	---	---	---	---	2311.1
1999	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL	1513.4	649.7	296.56	491.81	918.82	542.49	2642.8	4496.7	3607.6	2752.0	1346.4	1093.1
WTR YR 1999	TOTAL 20351.38											

ROCK RIVER BASIN
05430500 ROCK RIVER AT AFTON, WI

393

LOCATION.--Lat 42°36'33", long 89°04'14", in NE 1/4 sec.28, T.2 N., R.12 E., Rock County, Hydrologic Unit 07090001, on right bank in Afton, 0.3 mi downstream from highway bridge and 1.1 mi upstream from Bass Creek.

DRAINAGE AREA.--3,340 mi².

PERIOD OF RECORD.--January 1914 to current year. Monthly discharge for January 1914 published in WSP 1308.

REVISED RECORDS.--WSP 1238: 1916(M), 1919(M), 1933, 1937-38, 1943. WDR WI-79-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 742.36 ft above sea level. Prior to Aug. 23, 1932, a nonrecording gage 20 ft upstream, and Aug. 23, 1932, to Sept. 30, 1933, water-stage recorder, at same site at datum 1 ft higher.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 22 to Jan. 27. Records good except those for ice-affected period, which is fair, and periods of discharge below 800 ft³/s, which are poor (see page 13). Diurnal fluctuation caused by powerplants above station. Data-collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1040	1700	1810	1100	2640	2890	1440	6600	4000	2670	3290	1680
2	1000	1830	1720	1100	2710	2880	1350	6450	3980	2500	3360	1620
3	1100	1850	1800	1000	2840	2860	1570	6220	3830	2420	3130	1550
4	1130	1740	1860	940	2930	2780	1900	6010	3670	2310	3090	1520
5	1340	1610	1870	840	3070	2790	1760	5850	3470	2230	3130	1470
6	1590	1580	1890	680	3170	2550	1810	5720	3280	2240	3180	1420
7	1880	1530	1830	720	3160	2450	1870	5520	3280	2190	3320	1400
8	2020	1530	1720	740	3190	2490	2010	5300	3230	2010	3290	875
9	1990	1580	1820	760	3160	2480	2800	5240	3140	1890	3250	568
10	1930	1730	1720	800	3220	2380	2850	5090	3150	1920	3180	593
11	1910	1440	1740	840	3380	2300	2900	4920	3020	1860	3210	762
12	1880	1660	1860	860	3420	2210	2890	4830	2950	1820	3250	842
13	1830	1940	1880	900	3530	2160	3030	4600	3440	1800	3220	840
14	1840	1910	1840	980	3590	2140	3270	4260	4100	1580	3180	818
15	1810	2110	1760	1100	3590	2020	3390	4100	3790	1410	3050	915
16	1820	2060	1800	1100	3680	1990	3700	3890	3900	1450	2890	1220
17	1800	2220	1800	1200	3710	1930	3670	4540	4090	1400	2860	1300
18	1960	2180	1730	1200	3770	1800	3670	6030	4100	1450	2760	1250
19	2060	2090	1690	1300	3730	2000	3560	5620	4110	1430	2810	1200
20	2030	2130	1690	1300	3690	1990	3520	5360	3990	1600	2670	1170
21	2110	2200	1670	1400	3580	1900	3620	5460	3960	2050	2530	1180
22	2060	2060	1600	1400	3480	1920	3940	5560	3790	2100	2350	1060
23	2000	2020	1400	1500	3440	1910	5610	5440	3760	2250	2350	744
24	2020	2060	1400	1600	3320	1900	5990	5300	3800	2330	2370	779
25	1950	2060	1300	1700	3210	1860	5870	5160	3620	2440	2190	818
26	2030	1990	1200	1800	3140	1860	6200	4970	3370	2700	2120	794
27	1950	2000	1200	1900	3110	1690	6600	4870	3180	2810	2030	938
28	1990	1940	1200	2120	2950	1660	6980	4700	3160	2910	1970	1600
29	1940	1850	1200	2260	---	1660	6950	4470	2900	3010	1930	1660
30	1800	1810	1200	2390	---	1650	6740	4270	2780	3030	1880	1750
31	1830	---	1100	2500	---	1570	---	4070	---	3160	1680	---
TOTAL	55640	56410	50300	40030	92410	66670	111460	160420	106840	66970	85520	34336
MEAN	1795	1880	1623	1291	3300	2151	3715	5175	3561	2160	2759	1145
MAX	2110	2220	1890	2500	3770	2890	6980	6600	4110	3160	3360	1750
MIN	1000	1440	1100	680	2640	1570	1350	3890	2780	1400	1680	568
CFSM	.54	.56	.49	.39	.99	.64	1.11	1.55	1.07	.65	.83	.34
IN.	.62	.63	.56	.45	1.03	.74	1.24	1.79	1.19	.75	.95	.38

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1999, BY WATER YEAR (WY)

	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925
MEAN	1384	1573	1469	1312	1560	3343	4133	2573	1753	1422	1135	1185
MAX	8219	5884	4395	3558	5647	8958	10010	7911	5731	5443	5376	5088
(WY)	1987	1986	1986	1960	1938	1918	1979	1973	1996	1993	1924	1938
MIN	254	397	383	275	327	610	1002	389	314	247	183	212
(WY)	1940	1964	1940	1959	1959	1940	1931	1958	1934	1934	1934	1939

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1914 - 1999
ANNUAL TOTAL	885244	927006	
ANNUAL MEAN	2425	2540	1907
HIGHEST ANNUAL MEAN			3925
LOWEST ANNUAL MEAN			557
HIGHEST DAILY MEAN	7120	6980	13000
LOWEST DAILY MEAN	525	568	42
ANNUAL SEVEN-DAY MINIMUM	786	757	115
INSTANTANEOUS PEAK FLOW		7120	(a) 13000
INSTANTANEOUS PEAK STAGE		9.17	(b) 13.05
ANNUAL RUNOFF (CFSM)	.73	.76	.57
ANNUAL RUNOFF (INCHES)	9.86	10.32	7.76
10 PERCENT EXCEEDS	5140	4170	4050
50 PERCENT EXCEEDS	1950	2060	1330
90 PERCENT EXCEEDS	1100	1180	478

(a) Gage height, 11.81 ft, present datum
(b) Present datum, backwater from ice

ROCK RIVER BASIN

054310157 JACKSON CREEK TRIBUTARY NEAR ELKHORN, WI

LOCATION.--Lat 42°39'03", long 88°33'03", in NW 1/4 NE 1/4 sec.12, T.2 N., R.16 E., Walworth County, Hydrologic Unit 07090001, on left bank 20 ft downstream from Interstate Highway 43, 1.1 mi upstream from Delavan Lake inlet at Mound Road, and 1.5 mi south of Elkhorn.

DRAINAGE AREA.--4.34 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1983 to current year.

REVISED RECORDS.--WDR WI-89-1: 1988.

GAGE.--Water-stage recorder. Datum of gage is 924.70 ft above sea level (Wisconsin Department of Transportation bench mark). Prior to Dec. 4, 1992, at site 180 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Oct. 1-2, 8-17, 22-24, Oct. 28 to Nov. 3, Nov. 10, Jan. 23, Apr. 9, 23, June 13, 14, July 30 to Aug. 1, Aug. 4-6, 14-17, 28, 29, Sept. 27-29, and ice-affected periods, Dec. 23-26, and Dec. 30 to Jan. 15. Records good except those for estimated daily discharges, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.95	1.10	1.2	.64	4.8	2.1	1.1	2.2	4.9	1.4	.48	.52
2	1.0	1.0	1.3	.60	14	2.6	1.1	1.8	5.5	1.3	.44	.45
3	4.6	1.0	1.3	.56	11	2.1	1.7	1.7	1.9	1.3	.43	.48
4	1.1	1.2	1.2	.54	7.7	1.8	1.1	1.6	1.5	1.2	.42	.31
5	11	1.3	1.2	.50	4.8	2.0	.83	1.6	1.3	1.2	.41	.26
6	9.5	1.3	4.3	.45	4.5	1.8	1.0	7.7	2.3	1.2	.40	.25
7	4.3	1.1	4.6	.47	4.0	1.6	.66	3.8	1.7	1.2	.61	.38
8	1.4	1.2	2.3	.47	3.7	1.7	1.9	2.3	1.1	1.1	.36	.43
9	1.0	1.5	2.0	.46	4.5	1.9	26	1.8	1.0	1.3	.40	.42
10	.86	51	1.7	.45	4.0	2.0	4.4	1.7	8.8	1.0	.45	.44
11	.80	11	1.6	.45	14	1.9	2.0	1.7	7.4	.93	.34	.43
12	.74	5.3	1.4	.45	10	2.0	1.5	20	2.4	.95	1.3	1.4
13	.72	3.0	1.3	.50	3.7	2.0	1.3	4.4	102	.93	.59	.60
14	.70	2.5	1.3	.60	3.0	2.1	1.2	2.7	19	.93	.54	.37
15	.70	2.1	1.4	.52	3.0	2.6	1.2	2.1	4.6	.89	.50	.36
16	.80	2.0	1.3	.92	3.1	4.2	2.7	4.6	3.0	.89	.46	.36
17	13	1.9	1.3	2.5	2.7	5.2	1.2	13	2.4	3.1	.50	.39
18	19	1.8	1.3	2.0	2.5	2.7	1.0	15	2.1	.97	.57	.32
19	4.9	1.6	1.2	1.4	2.4	2.0	1.0	6.3	1.8	.94	1.4	1.3
20	2.5	1.5	1.0	1.3	2.2	1.7	2.2	3.1	1.5	.76	.57	.49
21	1.9	1.4	1.0	1.9	2.0	1.5	2.0	4.5	1.4	.85	.42	.33
22	1.6	1.3	.96	24	1.9	1.5	9.8	7.3	1.4	.71	.34	.39
23	1.4	1.2	.92	38	1.8	1.4	43	3.4	1.4	3.1	2.6	.40
24	1.3	1.1	.84	21	1.8	1.3	12	2.5	1.3	1.9	1.5	.40
25	1.2	1.2	.80	8.9	2.1	1.2	6.8	2.0	1.3	.78	.66	.34
26	1.2	1.1	.84	4.2	2.1	1.2	4.0	1.7	1.3	.97	.59	.37
27	1.6	1.0	.87	6.2	2.4	1.3	5.7	1.6	1.3	.67	.59	4.7
28	1.3	1.1	.93	9.0	2.5	1.3	9.6	1.5	1.9	.63	.50	52
29	1.2	1.2	.97	5.2	---	1.4	3.4	1.3	1.4	.62	.45	4.8
30	1.2	1.7	.80	4.4	---	1.1	2.5	1.2	1.4	.60	.43	1.0
31	1.10	---	.74	4.5	---	1.1	---	1.2	---	.52	.46	---
TOTAL	94.57	106.70	43.87	143.08	126.2	60.3	153.89	127.3	190.3	34.84	19.71	74.69
MEAN	3.05	3.56	1.42	4.62	4.51	1.95	5.13	4.11	6.34	1.12	.64	2.49
MAX	19	51	4.6	38	14	5.2	43	20	102	3.1	2.6	52
MIN	.70	1.0	.74	.45	1.8	1.1	.66	1.2	1.0	.52	.34	.25
CFSM	.70	.82	.33	1.06	1.04	.45	1.18	.95	1.46	.26	.15	.57
IN.	.81	.91	.38	1.23	1.08	.52	1.32	1.09	1.63	.30	.17	.64
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1999, BY WATER YEAR (WY)												
MEAN	2.24	3.89	2.63	2.05	3.69	4.90	5.03	3.36	3.08	2.13	1.62	2.36
MAX	7.23	13.3	6.55	4.62	8.81	10.7	14.4	7.11	9.42	5.39	5.59	10.8
(WY)	1986	1986	1985	1999	1985	1986	1993	1990	1996	1992	1995	1986
MIN	.30	.58	.49	.45	.33	1.13	1.28	.79	.54	.44	.30	.27
(WY)	1995	1990	1990	1994	1989	1996	1989	1989	1988	1988	1988	1987

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1984 - 1999
ANNUAL TOTAL	1109.25	1175.45	
ANNUAL MEAN	3.04	3.22	3.07
HIGHEST ANNUAL MEAN			5.74
LOWEST ANNUAL MEAN			1.70
HIGHEST DAILY MEAN	(a) 51	(a) 102	113
LOWEST DAILY MEAN	.31	.25	.03
ANNUAL SEVEN-DAY MINIMUM	.37	.36	.07
INSTANTANEOUS PEAK FLOW		(b) 170	210
INSTANTANEOUS PEAK STAGE		(b) 9.79	10.00
ANNUAL RUNOFF (CFSM)	.70	.74	.71
ANNUAL RUNOFF (INCHES)	9.51	10.08	9.62
10 PERCENT EXCEEDS	7.0	5.4	6.6
50 PERCENT EXCEEDS	1.6	1.3	1.3
90 PERCENT EXCEEDS	.55	.45	.40

(a) Estimated

(b) From floodmarks; maximum instantaneous peak flow and stage may have been higher during period of missing record on June 13.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1983 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1983 to current year.

DISSOLVED AMMONIA NITROGEN DISCHARGE: February 1993 to September 1995.

TOTAL AMMONIA PLUS ORGANIC NITROGEN DISCHARGE: Water years 1984-85 and February 1993 to September 1995.

DISSOLVED NITRITE PLUS NITRATE DISCHARGE: February 1993 to September 1995.

TOTAL NITRITE PLUS NITRATE DISCHARGE: Water years 1984-85.

TOTAL-PHOSPHORUS DISCHARGE: October 1983 to current year.

DISSOLVED ORTHO-PHOSPHORUS DISCHARGE: February 1993 to September 1995.

INSTRUMENTATION.--Automatic pumping sampler since October 1983.

REMARKS.--Records good.

COOPERATION.--Observer furnished by Delavan Lake Sanitary District.

EXTREMES FOR PERIOD OF RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 5,520 mg/L, Aug. 7, 1984; minimum observed, 1 mg/L, on several days during 1984, May 12, 1990, and May 11, 1995.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 136 tons, June 17, 1996; minimum daily, 0.00 ton, on several days in 1994, 1995, and 1997 water years.

DISSOLVED AMMONIA NITROGEN CONCENTRATIONS: Maximum observed, 1.00 mg/L, Jan. 24, 1994; minimum observed, <0.015 mg/L, on many days in 1995 water year.

DISSOLVED AMMONIA NITROGEN DISCHARGE: Maximum daily, 298 lb, Mar. 23, 1993; minimum daily, 0.02 lb, Jan. 8-11 and July 1-2, 1995.

TOTAL AMMONIA PLUS ORGANIC NITROGEN CONCENTRATIONS: Maximum observed, 16 mg/L, Nov. 19, 1983; minimum observed, 0.10 mg/L, Oct. 12, 1984.

TOTAL AMMONIA PLUS ORGANIC NITROGEN DISCHARGE: Maximum daily, 1,710 lb, Feb. 19, 1994; minimum daily, 0.09 lb, Jan. 9-11, 1995.

DISSOLVED NITRITE PLUS NITRATE CONCENTRATIONS: Maximum observed, 7.6 mg/L, Apr. 28, 1995; minimum observed, 0.30 mg/L, Aug. 7, 1995.

DISSOLVED NITRITE PLUS NITRATE DISCHARGE: Maximum daily, 1,080 lb, June 8, 1993; minimum daily, 0.43 lb, Aug. 6, 1995.

TOTAL NITRITE PLUS NITRATE CONCENTRATIONS: Maximum observed, 6.10 mg/L, Oct. 19, 1984; minimum observed, <0.10 mg/L, Oct. 12 and July 23, 1985.

TOTAL NITRITE PLUS NITRATE DISCHARGE: Maximum daily, 1,489 lb, May 28, 1984; minimum daily, 0.17 lb, July 23, 1985.

TOTAL PHOSPHORUS CONCENTRATIONS: Maximum observed, 8.20 mg/L, Aug. 7, 1984; minimum observed, 0.01 mg/L, Jan. 16, Mar. 14, 1990, and Dec. 27, 1994.

TOTAL PHOSPHORUS DISCHARGE: Maximum daily, 584 lb, Feb. 19, 1994; minimum daily, 0.01 lb, Aug. 2, 1994.

DISSOLVED ORTHO-PHOSPHORUS CONCENTRATIONS: Maximum observed, 0.81 mg/L, Mar. 4, 1993; minimum observed, <0.01 mg/L, on many days during 1995.

DISSOLVED ORTHO-PHOSPHORUS DISCHARGE: Maximum daily, 126 lb, Mar. 23, 1993; minimum daily, 0.00 lb, Aug. 2, 1994, and Jan. 8-11, Aug. 6, 1995.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 2,290 mg/L, Feb. 11; minimum observed, 5 mg/L, May 19.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 73 tons, June 13; minimum daily, 0.01 ton, on many days.

TOTAL PHOSPHORUS CONCENTRATIONS: Maximum observed, 6.41 mg/L, Sept. 19; minimum observed, 0.022 mg/L, Dec. 21.

TOTAL PHOSPHORUS DISCHARGE: Maximum daily, 322 lb, June 13; minimum daily, 0.05 lb, on Jan. 6-13.

ROCK RIVER BASIN

054310157 JACKSON CREEK TRIBUTARY NEAR ELKHORN, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
OCT 1998					
*01...	1125	.95	--	.113	35
03...	1000	--	10	.453	194
03...	1200	--	11	.229	44
05...	0700	--	21	.927	580
05...	0900	--	27	.336	126
05...	1100	--	22	.309	62
05...	1500	--	14	.265	40
05...	2100	--	7.5	.210	39
*06...	0740	--	6.4	.157	--
06...	0845	--	10	.240	67
06...	1245	--	14	.207	31
06...	1645	--	12	.178	22
06...	1845	--	14	.196	29
06...	2245	--	10	.225	46
07...	0245	--	7.6	.210	47
*07...	0945	--	4.1	.146	46
17...	0600	13	--	.405	233
17...	1415	13	--	.374	146
17...	1615	13	--	.249	42
17...	1915	13	--	.512	200
17...	2000	13	--	.512	202
17...	2045	13	--	1.28	1020
17...	2245	13	--	.431	126
18...	0245	--	31	.415	129
18...	0445	--	26	.383	96
18...	0845	--	21	.340	32
18...	1645	--	14	.196	24
18...	2045	--	10	.158	38
*19...	0740	--	5.3	.110	50
NOV					
*02...	0825	1.0	--	.069	97
10...	0030	51	--	.869	408
10...	0230	51	--	.783	408
10...	0315	51	--	1.50	1230
10...	0515	51	--	.641	252
11...	0315	--	16	.170	24
11...	2115	--	7.7	.152	57
*18...	1245	--	2.0	.084	60
DEC					
06...	1730	--	7.9	.525	253
06...	1930	--	9.1	.247	76
06...	2130	--	13	.239	88
06...	2330	--	12	.165	39
07...	0330	--	7.8	.149	25
*07...	0820	--	4.4	.105	19
*21...	1030	--	1.1	.022	7
JAN 1999					
21...	2330	--	10	.844	560
22...	0130	--	13	.408	213
22...	1010	--	28	.251	38
23...	1045	38	--	.416	163
23...	1445	38	--	.608	361
23...	1845	38	--	.340	72
24...	0245	--	28	.266	31
24...	1045	--	21	.221	20
24...	1845	--	16	.187	23
25...	0245	--	12	.173	22
25...	1045	--	8.8	--	24
25...	1046	--	8.8	--	29
25...	1047	--	8.8	.165	--
25...	1048	--	8.8	.168	--
27...	2200	--	11	.150	21
28...	0200	--	11	.128	8
FEB					
*01...	0945	--	4.2	.078	14
02...	1000	--	14	.363	149
02...	1200	--	17	.289	94
02...	1448	--	19	.240	45
*02...	1449	--	19	.225	24
02...	1800	--	20	.230	32
02...	2200	--	17	.160	15
03...	0400	--	13	.122	12
11...	1545	--	17	.482	1640
11...	1615	--	27	.533	2290
11...	1700	--	35	1.43	1040
11...	2100	--	31	.670	324
12...	0100	--	21	.292	61
*12...	0815	--	11	.128	17

* Equal-width increment (EWI) sample

** Grab sample

054310157 JACKSON CREEK TRIBUTARY NEAR ELKHORN, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
MAR 1999					
*01...	1200	--	2.1	<.050	12
16...	1845	--	6.8	.110	76
16...	2045	--	6.9	.094	30
17...	0045	--	6.1	.089	14
APR					
03...	1645	--	5.8	.453	212
*07...	1105	--	.74	.151	68
*08...	0825	--	.54	.051	33
*08...	1600	--	--	.075	--
08...	2230	--	9.9	.807	491
09...	0130	26	--	.556	330
09...	0730	26	--	.248	55
*09...	0745	26	--	.215	48
09...	1215	26	--	.285	102
*09...	1216	26	--	.264	86
09...	1430	26	--	.293	80
09...	2030	26	--	.181	28
10...	0430	--	6.4	.127	16
*10...	1005	--	4.0	.089	12
20...	1930	--	7.2	.214	84
22...	0115	--	9.9	.292	114
22...	0315	--	11	.182	66
22...	1115	--	9.3	.091	17
22...	1715	--	8.3	.151	45
22...	2115	--	7.2	.087	16
22...	2230	--	13	.433	190
23...	0145	43	--	.828	549
23...	0345	43	--	1.40	1060
23...	0545	43	--	1.08	684
23...	0745	43	--	.615	256
*23...	0850	43	--	.431	139
23...	1145	43	--	.339	125
23...	1745	43	--	.218	40
23...	2345	43	--	.170	29
*24...	0935	--	12	.136	14
24...	0945	--	12	.113	12
24...	2345	--	8.8	.110	13
25...	1545	--	6.9	.215	27
27...	1915	--	8.2	.218	86
27...	2245	--	19	.211	67
28...	0645	--	11	.141	12
28...	1645	--	6.7	.096	8
*29...	1010	--	3.5	<.050	7
MAY					
*03...	0740	--	1.7	<.050	15
06...	0745	--	7.8	.225	57
06...	0945	--	12	.219	31
06...	1145	--	11	.362	134
06...	1345	--	11	.198	39
06...	1945	--	7.8	.129	13
*11...	1135	--	1.6	.067	10
11...	2400	--	8.0	.431	170
12...	0100	--	33	.858	618
12...	0130	--	44	.706	422
12...	0530	--	33	.303	44
12...	1130	--	17	.252	40
12...	2330	--	7.0	.112	10
*13...	0740	--	4.7	.101	6
16...	1930	--	10	.807	425
16...	2000	--	16	.754	390
16...	2200	--	15	.312	112
17...	0200	--	12	.303	86
17...	0300	--	19	.453	174
17...	0700	--	16	.276	41
17...	1900	--	8.4	.177	46
17...	2100	--	12	.195	61
18...	0700	--	8.6	.118	14
18...	1030	--	20	.267	90
18...	1230	--	26	.288	58
18...	1630	--	21	.193	29
19...	0030	--	10	.131	13
*19...	0810	--	7.0	.109	5
21...	1915	--	9.2	.394	147
21...	2315	--	13	.183	38
22...	0315	--	12	.180	18
22...	1315	--	6.2	.118	7
*23...	0930	--	3.2	.076	15

* Equal-width increment (EWI) sample

ROCK RIVER BASIN

054310157 JACKSON CREEK TRIBUTARY NEAR ELKHORN, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
JUN 1999					
01...	1945	--	9.1	1.39	966
01...	2100	--	28	1.61	1170
01...	2145	--	36	.807	418
02...	0045	--	13	.306	84
*02...	0800	--	6.1	.160	12
06...	1930	--	7.6	.384	151
06...	2130	--	5.6	.261	54
*07...	0815	--	1.7	.115	9
10...	1500	--	18	1.24	1050
10...	1700	--	13	.384	104
10...	1930	--	24	.483	199
10...	2030	--	32	.404	144
11...	0030	--	19	.378	139
11...	0630	--	9.3	.224	28
*11...	0945	--	6.9	.188	18
11...	0947	--	6.9	.179	18
11...	1600	--	4.4	.135	10
*12...	0835	--	2.4	.108	10
13...	0215	102	--	2.03	1290
13...	0615	102	--	.464	133
13...	1015	102	--	.421	155
13...	1215	102	--	.858	491
13...	1615	102	--	.484	164
13...	2015	102	--	.262	36
14...	1815	19	--	.176	8
15...	1215	--	4.6	.084	10
28...	0415	--	4.4	.119	36
*28...	1120	--	1.8	.132	10
JUL					
*06...	0800	--	1.2	.107	20
**15...	0845	--	.85	<.050	24
17...	0845	--	6.4	.272	31
17...	1045	--	5.4	.189	17
*18...	0915	--	.95	.168	8
23...	1715	--	13	2.00	1240
23...	1915	--	10	.322	107
23...	2315	--	5.9	.238	43
*24...	0635	--	2.1	.214	12
AUG					
*02...	1105	--	.57	.150	25
12...	0945	--	5.6	.794	310
*16...	1035	.46	--	.097	25
*18...	0740	--	.64	4.22	--
*18...	1320	--	.53	2.02	--
19...	0545	--	3.2	.412	99
*19...	0730	--	2.6	.175	47
*20...	0730	--	.59	.101	14
*23...	0800	--	.65	.084	26
23...	1900	--	4.6	.805	472
23...	1915	--	10	2.60	1740
23...	2115	--	10	.329	118
24...	0115	--	3.9	.217	29
*24...	0750	--	1.2	.159	12
*30...	0905	--	.46	<.050	53
SEP					
07...	0730	--	.37	.079	39
12...	1930	--	7.3	2.41	1620
12...	2130	--	6.5	.482	126
*13...	0805	--	.51	.205	--
**14...	1245	--	.48	.123	22
19...	1900	--	6.2	6.41	1810
19...	1915	--	11	1.51	783
19...	2115	--	4.6	.356	75
*20...	0900	--	.40	.163	48
26...	2345	--	2.2	.317	64
27...	0730	4.7	--	.181	50
*27...	1100	4.7	--	--	15
27...	1630	4.7	--	.301	150
27...	2030	4.7	--	.247	62
27...	2200	4.7	--	.517	351
27...	2400	4.7	--	.553	282
28...	0400	52	--	.257	28
28...	0600	52	--	.291	68
28...	1200	52	--	.298	17
28...	1400	52	--	.246	49
*28...	1610	52	--	.260	21
28...	1845	52	--	.254	42
28...	2245	52	--	.262	14
29...	0445	4.8	--	.222	11
29...	0845	4.8	--	.200	9
*29...	1100	4.8	--	.132	--
29...	1445	4.8	--	.192	12
*29...	1610	4.8	--	--	21
*30...	0835	--	1.1	.124	17

* Equal-width increment (EWI) sample

** Grab sample

054310157 JACKSON CREEK TRIBUTARY NEAR ELKHORN, WI--CONTINUED

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.28	.17	.01	.20	.07	.03	.06	5.6	.05	.03	.07
2	.11	.26	.18	.01	2.1	.08	.03	.06	.50	.05	.03	.06
3	.85	.24	.19	.01	.36	.07	.42	.06	.06	.06	.03	.06
4	.11	.26	.17	.01	.24	.06	.22	.04	.05	.05	.03	.04
5	3.5	.25	.16	.01	.15	.06	.17	.03	.04	.06	.03	.03
6	1.0	.24	1.0	.01	.13	.06	.19	.78	.31	.07	.03	.03
7	.54	.19	.29	.01	.12	.05	.11	.13	.06	.06	.04	.04
8	.17	.18	.11	.01	.11	.05	1.5	.07	.03	.06	.02	.04
9	.11	.38	.09	.01	.13	.06	7.4	.05	.03	.07	.02	.03
10	.09	33	.07	.01	.11	.06	.17	.05	4.8	.06	.03	.03
11	.08	1.1	.06	.01	19	.05	.06	.10	.97	.06	.02	.03
12	.07	.82	.05	.01	.86	.06	.05	6.2	.07	.06	.56	1.5
13	.07	.47	.04	.01	.17	.05	.04	.08	73	.06	.05	.09
14	.06	.39	.04	.02	.13	.06	.03	.04	.80	.06	.04	.02
15	.06	.33	.04	.01	.13	.15	.03	.03	.12	.06	.04	.02
16	.07	.32	.04	.02	.13	.40	.22	1.6	.08	.05	.03	.02
17	6.4	.31	.03	.47	.11	.21	.06	2.1	.06	.17	.03	.02
18	3.2	.29	.03	.19	.10	.08	.04	1.5	.05	.02	.03	.01
19	.64	.25	.03	.09	.09	.05	.03	.12	.04	.02	.15	1.0
20	.36	.23	.02	.06	.08	.05	.24	.04	.03	.01	.02	.07
21	.29	.22	.02	.66	.08	.04	.16	.52	.03	.01	.01	.04
22	.25	.21	.02	4.1	.07	.04	1.8	.27	.03	.01	.01	.04
23	.23	.19	.02	12	.07	.04	31	.14	.02	2.0	2.3	.03
24	.22	.17	.02	1.5	.07	.04	.51	.06	.02	.09	.08	.03
25	.22	.19	.02	.57	.07	.03	.39	.05	.02	.02	.03	.02
26	.22	.17	.02	.19	.07	.03	.23	.04	.02	.04	.03	.03
27	.31	.15	.02	.25	.08	.03	.78	.03	.02	.03	.04	1.1
28	.27	.16	.02	.21	.08	.03	.46	.03	.08	.02	.05	7.7
29	.26	.17	.02	.13	---	.04	.07	.02	.04	.02	.05	.18
30	.28	.25	.02	.13	---	.03	.06	.02	.05	.02	.06	.05
31	.26	---	.02	.15	---	.03	---	.02	---	.03	.06	---
TOTAL	20.39	41.67	3.03	20.88	25.04	2.16	46.50	14.34	87.03	3.45	3.98	12.43

WTR YR 1999 TOTAL 280.90

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.58	.42	.38	.07	2.31	.57	.29	.47	19.5	.95	.23	.16
2	.68	.38	.40	.07	18.1	.68	.28	.35	6.15	.84	.33	.14
3	5.89	.40	.39	.06	7.14	.55	1.93	.29	1.19	.83	.31	.16
4	.88	.50	.36	.06	4.42	.48	.85	.22	.75	.73	.27	.11
5	21.0	.56	.33	.06	2.46	.54	.68	.19	.50	.68	.24	.10
6	10.3	.61	5.13	.05	2.07	.49	.82	7.90	2.36	.70	.21	.10
7	4.04	.55	3.09	.05	1.65	.44	.47	2.41	1.19	.58	.28	.16
8	1.08	.60	1.16	.05	1.38	.44	4.97	1.28	.52	.49	.15	.17
9	.73	1.52	.92	.05	1.50	.51	39.8	.88	.36	.48	.15	.15
10	.60	149	.68	.05	1.21	.52	2.60	.69	21.8	.33	.15	.14
11	.54	10.3	.56	.05	48.1	.51	.88	.88	9.45	.26	.10	.13
12	.48	4.14	.46	.05	10.0	.53	.59	38.3	1.24	.23	2.80	6.32
13	.45	2.14	.38	.05	2.41	.54	.47	2.37	322	.20	.32	.78
14	.42	1.60	.34	.07	1.82	.56	.38	1.15	20.3	.17	.29	.26
15	.40	1.25	.33	.06	1.72	1.01	.35	.75	2.46	.15	.26	.20
16	.44	1.10	.27	.10	1.68	2.03	1.88	7.85	1.24	.15	.23	.17
17	26.1	.95	.24	2.00	1.39	2.18	.41	17.0	.93	2.30	.21	.15
18	31.9	.83	.22	1.01	1.20	.83	.17	16.3	.74	.77	4.33	.11
19	3.08	.70	.18	.58	1.09	.53	.09	3.75	.60	.66	1.29	6.05
20	1.45	.63	.14	.46	.94	.46	1.12	1.25	.45	.43	.30	.52
21	1.07	.57	.12	2.48	.82	.41	1.20	4.15	.39	.38	.17	.23
22	.86	.54	.11	32.4	.74	.39	10.1	5.77	.35	.25	.11	.23
23	.72	.48	.11	64.3	.67	.39	118	1.72	.32	8.80	9.12	.20
24	.65	.43	.10	25.9	.64	.36	8.20	.68	.29	2.05	1.48	.17
25	.59	.46	.09	7.92	.70	.32	6.23	.55	.26	.40	.45	.12
26	.54	.41	.10	2.91	.65	.34	3.41	.46	.24	.33	.33	.22
27	.71	.36	.10	4.19	.70	.34	5.42	.44	.22	.18	.27	5.93
28	.57	.37	.11	5.99	.71	.34	6.97	.41	1.20	.17	.19	82.4
29	.51	.39	.11	3.04	---	.37	1.02	.36	.94	.17	.14	4.91
30	.49	.55	.09	2.29	---	.29	.60	.31	.94	.16	.11	.69
31	.44	---	.09	2.10	---	.29	---	.31	---	.17	.13	---
TOTAL	118.19	182.74	17.09	158.52	118.22	18.24	220.18	119.44	418.88	24.99	24.95	111.18

WTR YR 1999 TOTAL 1532.62

ROCK RIVER BASIN

05431016 JACKSON CREEK AT MOUND ROAD NEAR ELKHORN, WI

LOCATION.--Lat 42°38'27", long 88°33'39", in SE 1/4 SE 1/4 sec.11, T.2 N., R.16 E., Walworth County, Hydrologic Unit 07090001, on left bank at bridge on Mound Road, 2.3 mi south of Elkhorn.

DRAINAGE AREA.--16.8 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1993 to current year.

GAGE.--Water-stage recorder. Datum of gage is 920.00 ft above sea level (Wisconsin Department of Transportation benchmark).

REMARKS.--Estimated daily discharges: Feb. 12, June 13-14, and ice-affected periods, Dec. 22 to Jan. 21 and Mar. 5-14. Records fair except those for estimated daily discharges, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	4.6	4.8	1.0	25	9.6	2.6	9.9	5.9	4.7	.79	.50
2	1.3	4.1	4.5	.90	48	9.5	2.4	8.0	22	4.3	.65	.49
3	6.5	3.7	4.7	.88	52	9.6	3.2	7.0	11	4.0	.63	.45
4	4.3	3.4	4.4	.86	40	7.5	3.2	6.2	8.1	3.6	.60	.45
5	18	3.5	4.3	.84	25	6.6	2.5	5.7	6.6	3.0	.58	.39
6	22	3.3	6.3	.80	22	5.0	2.4	12	5.9	2.8	.58	.38
7	20	3.2	16	.80	21	4.0	2.1	13	7.5	2.5	.60	.32
8	9.5	3.1	12	.78	18	3.7	2.2	9.9	4.6	2.4	.70	.34
9	6.6	3.3	9.4	.78	21	3.5	32	7.6	3.8	2.5	.65	.34
10	4.9	142	8.1	.76	22	3.3	20	6.3	8.9	2.2	.64	.39
11	3.8	78	6.8	.76	37	3.4	11	5.6	78	1.8	.56	.39
12	3.3	33	6.4	.78	59	3.5	7.5	41	29	1.4	.94	.45
13	3.0	22	5.9	.82	27	3.5	6.3	22	460	1.3	1.1	1.4
14	2.7	17	5.2	.84	18	3.8	5.4	13	270	1.2	.67	.63
15	2.7	14	5.4	.86	16	5.6	4.9	9.6	67	1.1	.54	.52
16	2.5	11	5.2	.86	16	10	7.2	9.2	38	1.0	.47	.48
17	9.6	9.4	4.8	1.2	15	21	5.5	38	26	3.0	.50	.45
18	83	8.7	4.6	4.0	12	16	4.4	49	19	2.8	.51	.44
19	34	8.1	4.8	2.5	11	8.9	4.0	36	16	1.8	1.3	.45
20	18	7.2	4.1	2.2	9.2	7.0	4.3	19	12	1.5	.99	1.2
21	12	6.4	3.4	1.8	8.1	5.9	6.2	15	10	1.4	.63	.52
22	8.7	6.1	2.8	52	7.4	4.7	18	31	9.0	1.3	.56	.38
23	7.3	6.1	2.6	126	7.4	4.1	270	25	8.6	2.2	.83	.35
24	6.6	5.2	2.4	147	6.9	3.9	63	24	8.2	5.4	4.2	.37
25	5.9	5.1	2.2	85	7.2	3.3	32	14	7.1	2.1	1.6	.38
26	5.5	5.4	2.1	45	7.3	3.0	22	11	6.2	1.7	.86	.28
27	5.6	4.4	2.0	41	9.0	2.9	17	8.3	6.0	1.4	.69	2.1
28	6.4	4.2	1.9	58	10	2.8	31	7.0	6.6	1.0	.63	.44
29	6.6	4.5	1.8	36	---	2.7	18	6.3	6.3	.94	.56	.25
30	5.7	5.6	1.6	28	---	2.3	12	5.3	5.1	.93	.48	5.8
31	4.5	---	1.3	27	---	2.2	---	5.1	---	.89	.46	---
TOTAL	331.9	435.6	151.8	670.02	577.5	182.8	622.3	480.0	1172.4	68.16	25.50	89.64
MEAN	10.7	14.5	4.90	21.6	20.6	5.90	20.7	15.5	39.1	2.20	.82	2.99
MAX	83	142	16	147	59	21	270	49	460	5.4	4.2	.44
MIN	1.3	3.1	1.3	.76	6.9	2.2	2.1	5.1	3.8	.89	.46	.28
CFSM	.64	.86	.29	1.29	1.23	.35	1.23	.92	2.33	.13	.05	.18
IN.	.73	.96	.34	1.48	1.28	.40	1.38	1.06	2.60	.15	.06	.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1999, BY WATER YEAR (WY)

	1993	1994	1995	1996	1997	1998	1999
MEAN	5.35	8.57	5.40	9.88	17.0	17.0	26.5
MAX	10.8	22.4	10.5	21.6	33.9	48.2	77.4
(WY)	1996	1996	1996	1999	1994	1993	1996
MIN	1.45	1.83	2.53	1.18	3.83	4.16	8.32
(WY)	1998	1998	1998	1994	1995	1996	1994

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1993 - 1999
ANNUAL TOTAL	4353.07	4807.62	
ANNUAL MEAN	11.9	13.2	10.8
HIGHEST ANNUAL MEAN			15.8
LOWEST ANNUAL MEAN			7.87
HIGHEST DAILY MEAN	142	(a) 460	578
LOWEST DAILY MEAN	.55	.28	.28
ANNUAL SEVEN-DAY MINIMUM	.70	.36	.35
INSTANTANEOUS PEAK FLOW		(b) 1080	1190
INSTANTANEOUS PEAK STAGE		(b) 11.50	11.60
ANNUAL RUNOFF (CFSM)	.71	.78	.64
ANNUAL RUNOFF (INCHES)	9.64	10.65	8.72
10 PERCENT EXCEEDS	27	27	26
50 PERCENT EXCEEDS	6.6	4.9	4.8
90 PERCENT EXCEEDS	1.3	.62	.98

(a) Estimated

(b) From floodmarks; maximum instantaneous peak flow and stage may have been higher during period of missing record on June 13-14

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1983 to September 1985, February 1993 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: February 1993 to current year.

DISSOLVED AMMONIA NITROGEN DISCHARGE: February 1993 to September 1995.

TOTAL AMMONIA PLUS ORGANIC NITROGEN DISCHARGE: February 1993 to September 1995.

DISSOLVED NITRITE PLUS NITRATE DISCHARGE: February 1993 to September 1995.

TOTAL PHOSPHORUS DISCHARGE: February 1993 to current year.

DISSOLVED ORTHO-PHOSPHORUS DISCHARGE: February 1993 to current year.

INSTRUMENTATION.--Automatic pumping sampler since February 1993.

REMARKS.--Records good.

COOPERATION.--Observer furnished by Delavan Lake Sanitary District.

EXTREMES OUTSIDE PERIOD OF DAILY RECORD.--

TOTAL AMMONIA PLUS ORGANIC NITROGEN CONCENTRATIONS: Maximum observed, 2.1 mg/L, July 10, 1985; minimum observed, 0.30 mg/L, Jan. 24, 1985.

TOTAL PHOSPHORUS CONCENTRATIONS: Maximum observed, 0.55 mg/L, July 10, 1985; minimum observed, 0.03 mg/L, Apr. 2, 1985.

DISSOLVED ORTHO-PHOSPHORUS CONCENTRATIONS: Maximum observed, 0.20 mg/L, Nov. 20, 1984 and May 22, 1985; minimum observed, <0.01 mg/L, July 10, 23, 1985.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 1,420 mg/L, June 17, 1996; minimum observed, 2 mg/L, Sept. 16, 1993, July 25, 1995, and July 18, 1996.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 1,030 tons, June 17, 1996; minimum daily, 0.01 ton, Aug. 25-28 and Sept. 11, 1993, July 19, 22, 1995, and many days in 1994, 1996, 1997, 1998, and 1999 water years.

DISSOLVED AMMONIA NITROGEN CONCENTRATIONS: Maximum observed, 1.70 mg/L, Mar. 5, 1993; minimum observed, 0.01 mg/L, Aug. 1, 29, and Sept. 25, 1994.

DISSOLVED AMMONIA NITROGEN DISCHARGE: Maximum daily, 1,410 lb, Feb. 20, 1994; minimum daily, 0.07 lb, July 31, 1995.

TOTAL AMMONIA PLUS ORGANIC NITROGEN CONCENTRATIONS: Maximum observed, 4.6 mg/L, Mar. 5, 1993; minimum observed, 0.40 mg/L, Oct. 6 and Dec. 15, 1993, and Jan. 14, Mar. 28-29, 1995.

TOTAL AMMONIA PLUS ORGANIC NITROGEN DISCHARGE: Maximum daily, 4,900 lb, Apr. 20, 1993; minimum daily, 1.5 lb, June 19, 1994.

DISSOLVED NITRITE PLUS NITRATE CONCENTRATIONS: Maximum observed, 13.0 mg/L, Apr. 30, 1995; minimum observed, <0.05 mg/L, Sept. 2, 1993, and many days in 1994 and 1995 water years.

DISSOLVED NITRITE PLUS NITRATE DISCHARGE: Maximum daily, 5,310 lb, Apr. 20, 1993; minimum daily, 0.16 lb, July 19, 1995.

TOTAL PHOSPHORUS CONCENTRATIONS: Maximum observed, 1.6 mg/L, June 17, 1996; minimum observed, <0.01 mg/L, Mar. 19, 1997.

TOTAL PHOSPHORUS DISCHARGE: Maximum daily, 2,630 lb, Apr. 20, 1993; minimum daily, 0.14 lb, Aug. 3, 1998, and Jan. 2-10, 1999.

DISSOLVED ORTHO-PHOSPHORUS CONCENTRATIONS: Maximum observed, 0.63 mg/L, Feb. 19, 1997; minimum observed, <0.01 mg/L, May 13, 1993 and Mar. 21, Apr. 14, 18, 1994, many days during 1995-96 water years, May 22, 1997, and several days during 1998 and 1999 water years.

DISSOLVED ORTHO-PHOSPHORUS DISCHARGE: Maximum daily, 614 lb, Feb. 21, 1997; minimum daily, 0.03 lb, Sept. 15-19, 23, 26, 1999.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 481 mg/L, June 13; minimum observed, 4 mg/L, July 15.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 216 tons, June 13; minimum daily, 0.01 ton, on several days.

TOTAL PHOSPHORUS CONCENTRATIONS: Maximum observed, 1.01 mg/L, June 13; minimum observed, 0.022 mg/L, Dec. 21.

TOTAL PHOSPHORUS DISCHARGE: Maximum daily, 1,050 lb, June 13; minimum daily, 0.14 lb, Jan. 2-10.

DISSOLVED ORTHO-PHOSPHORUS CONCENTRATIONS: Maximum observed, 0.38 mg/L, Jan. 24; minimum observed, <0.01 mg/L, on several days.

DISSOLVED ORTHO-PHOSPHORUS DISCHARGE: Maximum daily, 363 lb, June 13; minimum daily, 0.03 lb, Sept. 15-19, 23, 26.

ROCK RIVER BASIN

05431016 JACKSON CREEK AT MOUND ROAD NEAR ELKHORN, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
OCT 1998					
**01...	1220	1.2	.189	.040	18
05...	0945	13	.284	.070	70
05...	1245	24	.207	.042	33
05...	1545	30	.216	.082	34
05...	1845	31	.170	.047	20
06...	0045	24	.193	.030	34
*06...	0645	18	.187	.060	24
06...	1245	20	.175	--	70
06...	1845	25	.182	--	18
06...	2145	27	--	--	32
07...	0045	27	.224	--	26
07...	0645	24	.204	--	18
07...	1545	16	.179	--	14
*08...	0740	9.9	.131	--	--
17...	2000	17	.121	.024	25
17...	2300	35	.277	.059	93
18...	0200	62	.239	.105	50
18...	0800	109	.364	.156	65
18...	1400	95	.387	.218	25
18...	2000	66	.342	.220	10
19...	0800	36	.271	.177	12
*19...	0801	36	--	--	12
19...	2000	26	.191	.134	12
20...	0850	18	.146	.101	15
*21...	0940	12	.089	.016	10
*22...	0840	8.4	.054	.016	86
NOV					
*02...	0855	3.9	.085	--	70
10...	0245	15	.153	.016	96
10...	0615	62	.618	.085	374
10...	0900	158	.590	.137	304
10...	1345	234	.427	.197	61
10...	1945	183	.486	.287	81
11...	0445	107	.479	.210	53
11...	2245	45	.364	.178	66
12...	1045	33	.263	--	24
*13...	0910	22	.206	<.010	81
14...	1045	17	.147	--	18
15...	1045	13	.108	--	20
**18...	1315	8.9	.057	.031	41
DEC					
07...	0100	16	.166	--	45
07...	0400	18	.178	--	53
07...	0700	18	.077	--	21
07...	1300	15	.061	--	14
07...	1900	13	.048	--	16
08...	0400	13	.080	--	33
**21...	1010	3.6	.022	.019	19
JAN 1999					
22...	0245	16	.190	.018	33
22...	0845	45	.113	.035	33
22...	2100	79	.389	.215	40
23...	0900	89	.450	.309	33
23...	1500	142	.474	.314	46
23...	2100	193	.531	.355	33
24...	0300	178	.542	.381	22
24...	1200	140	.486	.359	19
24...	2100	127	.455	.333	19
25...	1125	85	.423	.319	17
*25...	1126	85	.367	.288	23
25...	2100	64	.362	.285	19
26...	0900	39	.331	.252	8
*26...	0905	39	.355	.251	8
27...	0300	36	.262	.183	24
27...	1845	48	.171	.118	8
28...	0345	66	.343	.222	30
28...	0645	66	.322	.226	15
28...	1845	51	.226	.180	11
*29...	0915	36	.222	.128	29

* Equal-width increment (EWI) sample
 ** Grab sample

05431016 JACKSON CREEK AT MOUND ROAD NEAR ELKHORN, WI-CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDEED (MG/L) (80154)
FEB 1999						
*01...	1030	--	24	.121	.057	49
02...	0645	--	36	.203	.125	18
02...	0945	--	40	.103	.064	11
11...	2200	--	79	.388	.088	145
12...	0100	59	--	.393	.111	112
12...	0400	59	--	.354	.130	88
*12...	0835	59	--	.297	.139	74
MAR						
**01...	1100	--	9.4	.066	<.010	64
17...	1115	--	18	.201	.031	31
17...	1715	--	23	.120	<.010	59
17...	2015	--	25	.101	<.010	52
18...	0215	--	22	.059	<.010	14
18...	1115	--	15	.061	<.010	18
19...	0215	--	11	<.050	<.010	9
APR						
**07...	1200	--	1.6	.081	.014	44
*08...	0840	--	1.9	.065	.026	30
*08...	1610	--	1.8	.098	.022	52
09...	0145	--	10	.221	<.010	59
09...	0445	--	25	.321	.044	121
09...	0745	--	33	.185	.031	70
*09...	0810	--	34	.186	.081	--
09...	1045	--	36	.142	.033	41
09...	1345	--	39	.152	.048	35
09...	1645	--	41	.187	.056	50
10...	0145	--	29	.173	.084	18
10...	1045	--	20	.129	.062	14
*10...	1046	--	20	.139	.074	14
*11...	0905	--	12	.076	.028	16
*12...	0845	--	7.9	<.050	.018	11
22...	0745	--	15	.076	.013	15
22...	2245	--	24	.082	.011	26
23...	0300	--	75	.183	.041	53
23...	0415	--	188	.756	.072	392
23...	0515	--	344	.374	.023	193
23...	0615	--	531	.198	.036	64
*23...	0916	--	595	--	--	406
23...	1015	--	531	.830	.022	304
23...	1335	--	298	.806	.013	199
*23...	1336	--	298	.627	.013	231
23...	1945	--	142	.499	.252	102
24...	0445	--	79	.350	.199	63
24...	1345	--	54	.263	.160	36
*25...	0945	--	33	.167	.114	22
27...	2345	--	24	.093	--	16
28...	0545	--	36	.124	--	24
28...	1445	--	30	.106	--	11
29...	0245	--	22	.084	--	10
MAY						
*03...	0805	--	7.5	--	--	33
*07...	0800	--	13	.066	.029	16
*11...	1200	--	5.5	<.050	.023	18
12...	0430	--	33	.091	.011	31
12...	0730	--	53	.115	.014	43
12...	1030	--	59	.175	.035	62
12...	1630	--	45	.179	.036	49
13...	0430	--	27	.155	.022	51
*13...	0810	--	24	.090	.034	9
17...	0430	--	29	.059	.010	28
*17...	1005	--	43	.188	.057	58
17...	1630	--	43	.159	.099	21
*18...	0840	--	41	.148	.087	22
18...	1630	--	56	.152	.055	34
19...	0730	--	41	.125	.070	14
*19...	0835	--	40	.124	.083	15
*20...	0825	--	20	.086	.037	8
22...	0300	--	28	.118	.022	32
22...	0900	--	36	.113	.034	15
22...	1800	--	29	.156	.060	20
23...	0300	--	23	.102	.046	17
23...	1815	--	28	.132	.049	33
24...	0015	--	34	.166	.067	25
*24...	0820	--	26	.122	.053	15

* Equal-width increment (EWI) sample

** Grab sample

ROCK RIVER BASIN

05431016 JACKSON CREEK AT MOUND ROAD NEAR ELKHORN, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
JUN 1999						
02...	0130	--	18	.145	--	77
02...	0730	--	28	.156	--	83
*02...	0815	--	28	--	--	48
02...	1330	--	24	.124	--	71
02...	1930	--	18	.169	--	79
03...	1400	--	9.9	.078	--	21
07...	0850	--	8.4	.105	.034	20
10...	2245	--	39	.137	.035	35
11...	0330	--	107	.268	.109	81
*11...	0925	--	97	.405	.168	77
11...	0930	--	97	.185	.138	67
11...	1830	--	53	.200	.141	29
12...	0930	--	29	.318	.126	38
*12...	0945	--	29	.179	.109	25
13...	0030	460	--	.111	.104	17
13...	0500	460	--	.172	.087	20
13...	0930	460	--	.162	.080	21
*13...	0931	460	--	.156	.083	19
13...	1200	460	--	.259	.097	71
13...	1800	460	--	1.01	.237	481
13...	2400	460	--	.647	.237	220
14...	0600	270	--	.465	.204	93
14...	1200	270	--	.378	.185	60
14...	2345	270	--	.281	.165	18
*15...	0915	--	69	.253	.143	24
*16...	0805	--	43	.178	.081	14
*28...	1130	--	7.0	.054	<.010	8
JUL						
*06...	0820	--	3.1	.237	.025	20
**15...	0820	--	1.2	.233	.146	4
*18...	0935	--	2.9	.333	.117	10
AUG						
*02...	1120	--	.65	.167	--	91
*16...	1145	--	.45	.190	.030	23
*18...	0810	--	.51	.497	--	--
*18...	1340	--	.51	.131	--	--
*18...	1515	--	.51	.153	.013	10
*19...	0800	--	1.1	.153	.024	8
*20...	0750	--	1.1	.169	<.010	12
*23...	0815	--	.58	.146	.033	10
*24...	0800	--	5.5	.112	.017	14
*30...	0920	--	.51	.160	--	8
SEP						
*07...	0755	--	.34	.201	--	8
**14...	1330	--	.58	.116	<.010	16
*20...	0910	--	1.4	.127	--	23
*27...	1115	--	1.4	.200	.023	--
27...	2245	--	7.5	.191	<.010	38
28...	0445	--	36	.178	.056	34
28...	1045	--	53	.296	.153	28
*28...	1630	--	48	.330	.171	26
28...	1945	--	50	.315	.210	27
29...	0145	--	50	.343	.230	18
*29...	0845	--	27	.394	.172	17
29...	1645	--	15	.358	.204	19
29...	2245	--	9.9	.337	.199	22
*30...	0905	--	6.2	.306	.071	47

* Equal-width increment (EWI) sample

** Grab sample

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999												
DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.35	2.03	.88	.15	18.5	3.22	.89	3.53	1.85	2.43	.75	.46
2	1.16	1.83	.79	.14	48.2	3.13	.84	2.65	16.6	2.69	.59	.46
3	5.48	1.55	.80	.14	64.7	3.10	1.16	2.16	5.88	3.01	.57	.44
4	3.44	1.32	.72	.14	33.0	2.39	1.20	1.76	2.96	3.23	.55	.45
5	18.2	1.25	.69	.14	18.1	2.05	.97	1.50	2.06	3.30	.53	.40
6	21.5	1.08	2.05	.14	14.9	1.53	.96	4.91	1.94	3.54	.54	.40
7	19.5	.97	7.04	.14	13.5	1.20	.85	4.68	4.17	3.21	.57	.34
8	6.74	.89	4.47	.14	10.8	1.09	1.20	3.09	2.01	3.00	.67	.33
9	4.12	.88	3.36	.14	12.1	1.01	30.3	2.09	1.31	3.08	.62	.31
10	2.74	347	2.62	.14	11.7	.94	14.4	1.53	4.70	2.75	.63	.32
11	1.86	175	2.00	.15	39.7	.95	4.48	1.13	82.9	2.17	.54	.30
12	1.46	46.5	1.69	.16	82.2	.96	2.07	31.2	34.4	1.75	.94	.31
13	1.20	23.2	1.43	.17	14.1	.94	1.59	12.5	1050	1.62	1.10	.92
14	.96	13.0	1.14	.18	8.83	1.00	1.27	4.27	560	1.47	.68	.38
15	.84	7.55	1.07	.19	7.75	1.44	1.09	2.25	87.6	1.29	.55	.31
16	.71	5.04	.94	.19	7.54	3.14	1.51	1.66	37.2	1.18	.47	.30
17	7.28	3.40	.78	.27	6.73	13.5	1.10	27.5	22.4	4.15	.43	.29
18	144	2.59	.69	.93	5.34	4.67	.83	38.5	14.9	4.77	.57	.28
19	44.2	2.27	.65	.60	4.57	1.94	.71	23.5	11.0	2.83	1.14	.30
20	12.9	1.95	.50	.54	3.89	1.57	.71	8.33	7.99	2.18	.89	.84
21	5.59	1.67	.38	.49	3.34	1.36	.97	4.64	5.92	1.79	.55	.38
22	2.67	1.53	.32	66.2	2.98	1.13	6.66	19.9	4.72	1.49	.46	.30
23	2.22	1.48	.31	308	2.88	1.02	752	14.0	4.11	2.73	.60	.29
24	2.10	1.23	.29	370	2.63	1.00	97.7	16.0	3.56	7.61	2.53	.34
25	1.95	1.15	.27	178	2.69	.87	28.8	7.02	2.79	2.62	.86	.36
26	1.91	1.17	.27	72.1	2.63	.82	12.9	4.70	2.19	2.00	.49	.28
27	2.02	.93	.26	41.5	3.16	.82	7.03	3.38	1.92	1.62	.44	2.08
28	2.38	.85	.25	81.9	3.44	.81	16.8	2.62	2.01	1.15	.44	62.8
29	2.58	.89	.25	41.9	---	.83	7.48	2.13	2.23	.99	.44	47.4
30	2.31	1.05	.23	26.8	---	.72	4.78	1.65	2.18	.94	.41	9.10
31	1.91	---	.19	21.4	---	.71	---	1.45	---	.87	.41	---
TOTAL	327.28	651.25	37.33	1213.08	449.90	59.86	1003.25	256.23	1983.50	77.46	20.96	131.47
WTR YR 1999	TOTAL 6211.57											

05431016 JACKSON CREEK AT MOUND ROAD NEAR ELKHORN, WI--CONTINUED

PHOSPHORUS ORTHO WATER, WHOLE, DISSOLVED, LBS/DAY, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

[illegible]

05431016 JACKSON CREEK AT MOUND ROAD NEAR ELKHORN, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--June to September 1999.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established June 1, 1999.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.65 in., June 13.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	.58	.06	.00	.00
2	---	---	---	---	---	---	---	---	.01	.00	.00	.00
3	---	---	---	---	---	---	---	---	.00	.05	.00	.00
4	---	---	---	---	---	---	---	---	.02	.00	.00	.00
5	---	---	---	---	---	---	---	---	.00	.00	.00	.00
6	---	---	---	---	---	---	---	---	.47	.00	.00	.00
7	---	---	---	---	---	---	---	---	.01	.00	.09	.00
8	---	---	---	---	---	---	---	---	.00	.00	.03	.00
9	---	---	---	---	---	---	---	---	.00	.12	.05	.00
10	---	---	---	---	---	---	---	---	1.04	.00	.00	.00
11	---	---	---	---	---	---	---	---	.13	.00	.00	.00
12	---	---	---	---	---	---	---	---	.03	.00	.44	.45
13	---	---	---	---	---	---	---	---	2.65	.00	.01	.00
14	---	---	---	---	---	---	---	---	.02	.00	.00	.00
15	---	---	---	---	---	---	---	---	.00	.00	.00	.00
16	---	---	---	---	---	---	---	---	.01	.00	.00	.00
17	---	---	---	---	---	---	---	---	.00	.51	.00	.00
18	---	---	---	---	---	---	---	---	.00	.00	.14	.00
19	---	---	---	---	---	---	---	---	.00	.08	.33	.03
20	---	---	---	---	---	---	---	---	.00	.05	.00	.00
21	---	---	---	---	---	---	---	---	.00	.08	.00	.00
22	---	---	---	---	---	---	---	---	.00	.00	.00	.00
23	---	---	---	---	---	---	---	---	.01	.70	.85	.00
24	---	---	---	---	---	---	---	---	.00	.00	.05	.00
25	---	---	---	---	---	---	---	---	.00	.00	.00	.00
26	---	---	---	---	---	---	---	---	.00	.17	.00	.25
27	---	---	---	---	---	---	---	---	.00	.00	.00	1.99
28	---	---	---	---	---	---	---	---	.15	.00	.00	1.86
29	---	---	---	---	---	---	---	---	.00	.01	.00	.00
30	---	---	---	---	---	---	---	---	.00	.00	.00	.00
31	---	---	---	---	---	---	---	---	---	.12	.00	---
TOTAL	---	---	---	---	---	---	---	---	5.13	1.95	1.99	4.58

LOCATION.--Lat 42°37'16", long 88°34'57", in NE 1/4 sec.22, T.2 N., R.16 E., Walworth County, Hydrologic Unit 07090001, on downstream headwall of State Highway 50 bridge, and 1.0 mi east of Lake Lawn.

DRAINAGE AREA.--21.8 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1984 and 1985 water years (unpublished) to current year. Published as "at U.S. Highway 50" prior to October 1988.

GAGE.--Nonrecording gage. Datum of gage is 922.94 ft above sea level (Wisconsin Department of Transportation bench mark). Previously published datum of 914.48 ft in 1989-91 annual data reports was in error.

REMARKS.--Daily mean discharges were estimated based on discharges upstream at Jackson Creek near Elkhorn (05431014) and Jackson Creek Tributary near Elkhorn (054310157) for Oct. 1, 1992 to Jan. 31, 1993, and on discharges upstream at Jackson Creek at Mound Road near Elkhorn (05431016) for subsequent periods. Records poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	6.0	6.2	1.3	32	12	3.4	13	7.7	6.1	1.0	.65
2	1.7	5.3	5.8	1.2	62	12	3.1	10	29	5.6	.84	.64
3	8.4	4.8	6.1	1.1	68	12	4.2	9.1	14	5.2	.82	.58
4	5.6	4.4	5.7	1.1	52	9.8	4.2	8.1	11	4.7	.78	.58
5	23	4.5	5.6	1.1	32	8.6	3.2	7.4	8.6	3.9	.75	.51
6	29	4.3	8.2	1.0	29	6.5	3.1	16	7.7	3.6	.75	.49
7	26	4.2	21	1.0	27	5.2	2.7	17	9.8	3.2	.78	.42
8	12	4.0	16	1.0	23	4.8	2.9	13	6.0	3.1	.91	.44
9	8.6	4.3	12	1.0	27	4.5	42	9.9	4.9	3.2	.84	.44
10	6.4	185	11	.99	29	4.3	26	8.2	12	2.9	.83	.51
11	4.9	101	8.8	.99	48	4.4	14	7.3	101	2.3	.73	.51
12	4.3	43	8.3	1.0	77	4.5	9.8	53	38	1.8	1.2	.58
13	3.9	29	7.7	1.1	35	4.5	8.2	29	598	1.7	1.4	1.8
14	3.5	22	6.8	1.1	23	4.9	7.0	17	351	1.6	.87	.82
15	3.5	18	7.0	1.1	21	7.3	6.4	12	87	1.4	.70	.68
16	3.2	14	6.8	1.1	21	13	9.4	12	49	1.3	.61	.62
17	12	12	6.2	1.6	20	27	7.1	49	34	3.9	.65	.58
18	108	11	6.0	5.2	16	21	5.7	64	25	3.6	.66	.57
19	44	11	6.2	3.2	14	12	5.2	47	21	2.3	1.7	.58
20	23	9.4	5.3	2.9	12	9.1	5.6	25	16	1.9	1.3	1.6
21	16	8.3	4.4	2.3	11	7.7	8.1	20	13	1.8	.82	.68
22	11	7.9	3.6	68	9.6	6.1	23	40	12	1.7	.73	.49
23	9.5	7.9	3.4	164	9.6	5.3	351	32	11	2.9	1.1	.45
24	8.6	6.8	3.1	191	9.0	5.1	82	31	11	7.0	5.5	.48
25	7.7	6.6	2.9	110	9.4	4.3	42	18	9.2	2.7	2.1	.49
26	7.1	7.0	2.7	58	9.5	3.9	29	14	8.1	2.2	1.1	.36
27	7.3	5.7	2.6	53	12	3.8	22	11	7.8	1.8	.90	2.7
28	8.3	5.5	2.5	75	13	3.6	40	9.1	8.6	1.3	.82	.57
29	8.6	5.8	2.3	47	---	3.5	23	8.2	8.2	1.2	.73	32
30	7.4	7.3	2.1	36	---	3.0	16	6.9	6.6	1.2	.62	7.5
31	5.8	---	1.7	35	---	2.9	---	6.6	---	1.2	.60	---
TOTAL	430.1	566.0	198.0	869.38	751.1	236.6	809.3	623.8	1526.2	88.3	33.14	115.75
MEAN	13.9	18.9	6.39	28.0	26.8	7.63	27.0	20.1	50.9	2.85	1.07	3.86
MAX	108	185	21	191	77	27	351	64	598	7.0	5.5	57
MIN	1.7	4.0	1.7	.99	9.0	2.9	2.7	6.6	4.9	1.2	.60	.36
CFSM	.64	.87	.29	1.29	1.23	.35	1.24	.92	2.33	.13	.05	.18
IN.	.73	.97	.34	1.48	1.28	.40	1.38	1.06	2.60	.15	.06	.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1999, BY WATER YEAR (WY)

	MEAN	7.49	14.6	11.2	9.29	18.2	24.5	24.8	15.0	18.2	7.82	5.15	7.06
MAX	25.9	54.5	30.3	28.0	44.1	68.3	100	35.4	86.0	29.3	30.5	37.4	
(WY)	1987	1986	1992	1999	1994	1986	1993	1996	1996	1993	1995	1986	
MIN	.67	1.14	1.12	1.11	1.31	5.41	3.28	1.44	.76	.61	.50	.61	
(WY)	1989	1990	1990	1991	1989	1996	1989	1989	1988	1988	1988	1988	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1984 - 1999

ANNUAL TOTAL	5659.39	6247.67	
ANNUAL MEAN	15.5	17.1	13.5
HIGHEST ANNUAL MEAN			30.3
LOWEST ANNUAL MEAN			5.38
HIGHEST DAILY MEAN	185	Nov 10	751
LOWEST DAILY MEAN	.71	Aug 3	.22
ANNUAL SEVEN-DAY MINIMUM	.91	Jul 28	.25
ANNUAL RUNOFF (CFSM)	.71		.62
ANNUAL RUNOFF (INCHES)	9.66		8.44
10 PERCENT EXCEEDS	35		31
50 PERCENT EXCEEDS	8.6		4.9
90 PERCENT EXCEEDS	1.7		.86

05431017 DELAVAN LAKE INLET AT STATE HIGHWAY 50 AT LAKE LAWN, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: 1984 and 1985 water years (unpublished), October 1989 to September 1995.

TOTAL-PHOSPHORUS DISCHARGE: 1984 and 1985 water years (unpublished) to current year.

DISSOLVED ORTHO-PHOSPHORUS DISCHARGE: April 1994 to current year.

REMARKS.--Records poor. Daily mean discharges are estimated based on discharges from upstream stations 05431014 and 054310157 from Oct. 1, 1992 to Jan. 31, 1993, and from station 05431016 from Feb. 1, 1993 to Sept. 30, 1994. Samples are equal-width increment unless otherwise indicated.

COOPERATION.--Observer furnished by Delavan Lake Sanitary District.

EXTREMES FOR PERIOD OF RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 345 mg/L, Apr. 16, 1984; minimum observed, 0 mg/L, Sept. 23, 1991, July 17, Sept. 26, 1992, and Nov. 16, 1994.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 468 tons, Apr. 20, 1993; minimum daily, 0.00 ton, Sept. 26, 1990, many days during 1992 to 1994 water years, and July 14, 15, 18, 19, 1995.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 3.8 mg/L, May 27, 1985; minimum observed, 0.01 mg/L, Mar. 7, 1990, Dec. 15, 1994, Apr. 17, 1995, Oct. 6, 1995, Feb. 5, 1997, and Mar. 19, 1998.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 1,910 lb, Apr. 20, 1993; minimum daily, 0.10 lb, Dec. 28, 1989.

DISSOLVED ORTHO-PHOSPHORUS CONCENTRATIONS: Maximum observed, 0.809 mg/L, June 26, 1998; minimum observed, <0.01 mg/L, Apr. 14, 1994, many days during 1995 water year, Nov. 22, 1995, and several days in 1997-1999 water years.

DISSOLVED ORTHO-PHOSPHORUS DISCHARGE: Maximum daily, 503 lb, June 26, 1998; minimum daily, 0.02 lb, Sept. 26, 1999.

DISSOLVED CHLORIDE CONCENTRATIONS: Maximum observed, 130 mg/L, Aug. 8, 1995; minimum observed, 18 mg/L, June 1, 1995.

EXTREMES FOR CURRENT YEAR.--

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 0.697 mg/L, Apr. 23; minimum observed, 0.017 mg/L, Dec. 8.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 942 lb, June 13; minimum daily, 0.13 lb, Jan. 6.

DISSOLVED ORTHO-PHOSPHORUS CONCENTRATIONS: Maximum observed, 0.340 mg/L, July 20; minimum observed, <0.010 mg/L, on several days.

DISSOLVED ORTHO-PHOSPHORUS DISCHARGE: Maximum daily, 490 lb, June 13; minimum daily, 0.02 lb, Sept. 26.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHOSOLVED (MG/L AS P) (00671)	DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHOSOLVED (MG/L AS P) (00671)
OCT 1998					NOV				
01...	1300	1.8	.405	.126	02...	0940	5.3	.064	--
03...	0940	8.4	.211	.151	10...	0940	185	.131	.021
04...	0840	5.6	.185	.138	10...	1400	185	.153	.015
05...	0850	23	.197	.139	11...	0945	101	.222	.063
05...	1445	23	.185	.124	11...	1430	101	.245	.086
06...	0850	29	.159	.107	12...	0935	43	.195	.082
07...	0855	26	.156	--	12...	1415	43	.180	.085
07...	1450	26	.152	--	13...	0845	29	.086	.099
08...	0840	12	.129	--	18...	1400	11	.031	.014
08...	1435	12	.125	--	DEC				
09...	0915	8.6	.121	--	07...	0910	21	.023	--
10...	0735	6.4	.119	.068	07...	1430	21	.028	--
11...	0955	4.9	.091	.052	08...	0850	16	.017	--
18...	0950	108	.079	.036	08...	1430	16	.026	--
18...	1450	108	.068	.038	09...	0830	12	.020	--
19...	1025	44	.100	.069	10...	0850	11	.064	--
19...	1455	44	.111	.062	11...	0830	8.8	.059	.012
20...	0950	23	.107	.066	21...	1600	4.4	.020	.011
20...	1450	23	.124	.017	JAN 1999				
21...	1015	16	.087	.053	*22...	1440	68	.082	.028
21...	1405	16	.076	.049	*23...	1050	164	.073	.024
22...	0925	11	.067	.016	*23...	1515	164	.081	.033
23...	0915	9.5	.018	.032	*24...	1040	191	.179	.137
					*24...	1345	191	.199	.142

* Single vertical sample

ROCK RIVER BASIN

05431017 DELAVAN LAKE INLET AT STATE HIGHWAY 50 AT LAKE LAWN, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
JAN 1999					MAY 1999				
*25...	0945	110	.186	.138	19...	1455	47	.102	.041
*25...	1210	110	.152	.141	20...	0925	25	.074	.032
25...	1400	110	.182	.114	21...	0925	20	.080	.047
*26...	1045	58	.178	.120	22...	1150	40	.092	.054
FEB					22...	1540	40	.085	.040
*01...	1130	32	<.050	.025	23...	1210	32	.078	.028
12...	0950	77	.079	.018	23...	1550	32	.065	.025
12...	1425	77	.106	.021	24...	0910	31	.056	.045
14...	0940	23	.101	.030	JUN				
14...	1205	23	.087	.033	02...	0905	29	.211	.054
15...	0845	21	.057	.016	03...	0900	14	.168	.074
16...	0805	21	<.050	--	04...	0830	11	.155	--
MAR					04...	1445	11	.153	.078
01...	1230	12	<.050	<.010	05...	0635	8.6	.156	.082
APR					06...	0740	7.7	.164	.080
05...	1105	3.2	.133	<.010	07...	0935	9.8	.168	.084
07...	1230	2.7	.089	<.010	08...	0830	6.0	.195	.130
08...	0915	2.9	.147	.013	09...	0840	4.9	.246	.163
08...	1630	2.9	.146	.016	11...	1020	101	.386	.252
09...	0915	42	.199	.012	12...	1050	38	.293	.200
09...	1455	42	.234	.010	12...	1440	38	.342	.197
10...	1255	26	.174	<.010	13...	1035	598	.238	.151
10...	1420	26	.155	<.010	13...	1530	598	.322	.131
11...	0835	14	.120	<.010	14...	1140	351	.380	.207
11...	1630	14	.154	<.010	14...	1440	351	.403	.208
12...	0925	9.8	.073	<.010	15...	0950	87	.327	.080
13...	0900	8.2	.086	<.010	16...	0850	49	.254	.187
22...	1025	23	.088	.014	16...	1415	49	.251	--
22...	1425	23	.100	.014	19...	1450	21	.250	.160
23...	1020	351	.431	.016	21...	1115	13	.072	--
23...	1500	351	.697	.098	28...	1210	8.6	.235	.110
24...	1100	82	.368	.131	JUL				
24...	1520	82	.357	.100	06...	0955	3.6	.394	.269
25...	1035	42	.218	.114	15...	1435	1.4	.377	.279
25...	1435	42	.206	.088	18...	1005	3.6	.386	.295
26...	0915	29	.146	.094	20...	0900	1.9	.419	.340
27...	0825	22	.121	.047	25...	0900	2.7	.484	--
28...	0940	40	.084	.027	AUG				
28...	1500	40	.092	.021	02...	1145	.84	.383	--
29...	1045	23	.092	.020	16...	1010	.61	.196	.098
30...	0825	16	.061	--	18...	1000	.66	.161	--
MAY					18...	1445	.66	.147	--
03...	0850	9.1	<.050	--	19...	1425	1.7	.163	.022
06...	0810	16	.126	--	20...	0830	1.3	.357	--
07...	0910	17	.111	--	21...	0655	.82	.196	.088
07...	1445	17	.108	--	22...	0720	.73	.168	.088
08...	1020	13	.076	.025	23...	0855	1.1	.374	.089
08...	1315	13	.075	.022	24...	0900	5.5	.150	.077
09...	1235	9.9	.090	.019	24...	1455	5.5	.173	.073
11...	1245	7.3	.062	.029	25...	0835	2.1	.122	.073
12...	0900	53	.058	<.010	28...	0720	.82	.165	--
12...	1500	53	.104	.011	30...	1010	.62	.140	--
13...	0900	29	.096	.014	SEP				
13...	1410	29	.056	.016	07...	0845	.42	.151	--
14...	0910	17	.061	.011	14...	1350	.82	.090	.032
14...	1440	17	.062	.015	20...	1000	1.6	.099	--
15...	0900	12	.050	.013	28...	0940	57	.220	.018
16...	0900	12	<.050	.010	29...	0930	32	.255	.116
17...	1045	49	<.050	.013	29...	1155	32	.104	<.010
17...	1455	49	.079	.014	29...	1420	32	.053	.084
18...	0935	64	.101	<.010	30...	1010	7.5	.240	.137
18...	1500	64	.097	.024	30...	1420	7.5	.222	.086
19...	0915	47	.084	.029					

* Single vertical sample

ROCK RIVER BASIN

2423556088365001 DELAVAN LAKE AT CENTER NEAR DELAVAN LAKE, WI

LOCATION.--Lat 42°35'56", long 88°36'50", in SE 1/4 SW 1/4, sec.28, T.2 N., R.16 E., Walworth County, Hydrologic Unit 07090001, 2.6 mi southeast of Delavan.

DRAINAGE AREA.--41.4 mi², of which 2.3 mi² is non-contributing.

PERIOD OF RECORD.--October 1983 to current year.

REMARKS.--Lake ice-covered during February measurements. Water-quality analyses done by the U.S. Geological Survey National Water Quality Laboratory. Samples for determination of chlorophyll-a concentration are collected from the top 1.5 ft of the lake.

WATER-QUALITY DATA, NOVEMBER 17, 1998 TO APRIL 13, 1999
(Milligrams per liter unless otherwise indicated)

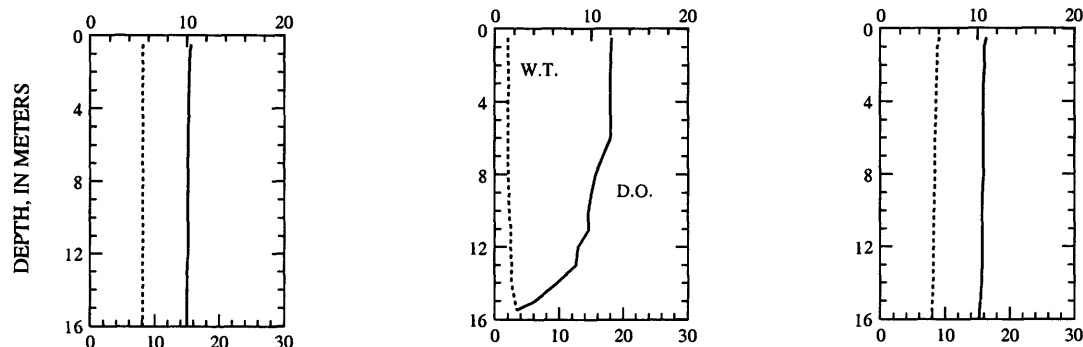
	Nov-17		Feb-9		Apr-13	
Lake stage (ft)	4.95		4.92		4.98	
Secchi-depth (m)	4.6		6.7		7.6	
Chlorophyll a, phytoplankton (µg/L)	3.7		0.7		0.2	
Depth of sample (m)	0.5	16.0	0.5	15.5	0.5	15.5
Water temperature (°C)	8.1	8.1	2.0	3.4	9.1	8.0
Specific conductance (µS/cm)	556	558	552	704	580	582
pH (units)	8.1	8.2	7.7	7.4	8.2	8.3
Dissolved oxygen (mg/L)	10.4	10.0	12.1	2.2	10.9	10.2
Phosphorus, total (as P)	0.110	0.110	0.140	0.110	0.065	0.073
Phosphorus, ortho, dissolved (as P)	0.076	0.083	0.12	0.095	0.037	0.035
Nitrogen, NO ₂ + NO ₃ , diss. (as N)	0.13	---	0.58	---	0.33	0.33
Nitrogen, ammonia, dissolved (as N)	0.118	---	0.186	---	0.061	0.05
Nitrogen, amm. + org., total (as N)	0.8	---	0.7	---	0.7	0.8
Nitrogen, total (as N)	0.93	---	1.3	---	1.0	1.2
Color (Pt-Co. scale)	---	---	---	---	5	5
Turbidity (NTU)	---	---	---	---	2.0	2.4
Hardness, (as CaCO ₃)	---	---	---	---	230	240
Calcium, dissolved (Ca)	---	---	---	---	42	42
Magnesium, dissolved (Mg)	---	---	---	---	32	32
Sodium, dissolved (Na)	---	---	---	---	24	25
Potassium, dissolved (K)	---	---	---	---	3	3
Alkalinity, (as CaCO ₃)	---	---	---	---	185	186
Sulfate, dissolved (SO ₄)	---	---	---	---	27	27
Chloride, dissolved (Cl)	---	---	---	---	56	57
Silica, dissolved (SiO ₂)	---	---	---	---	0.8	0.8
Solids, dissolved, at 180°C	---	---	---	---	336	344
Iron, dissolved (Fe) µg/L	---	---	---	---	<10E	<10E
Manganese, dissolved (Mn) µg/L	---	---	---	---	2.6	2.9
Fluoride, dissolved	---	---	---	---	0.140	0.149

11-17-98

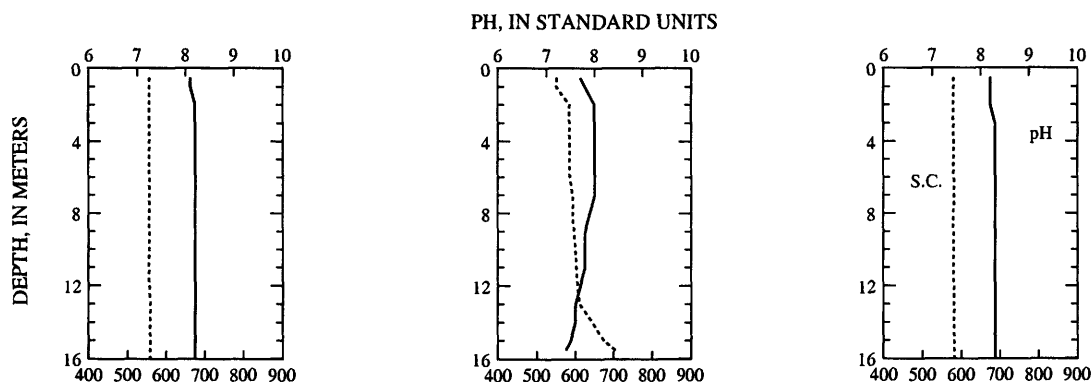
2-09-99

4-13-99

DISSOLVED OXYGEN (D.O.), IN MILLIGRAMS PER LITER



WATER TEMPERATURE (W.T.), IN DEGREES CELSIUS



SPECIFIC CONDUCTANCE (S.C.), IN MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS

423556088365001 DELAVAN LAKE AT CENTER NEAR DELAVAN LAKE, WI--CONTINUED

WATER-QUALITY DATA, MAY 19 TO JULY 13, 1999
(Milligrams per liter unless otherwise indicated)

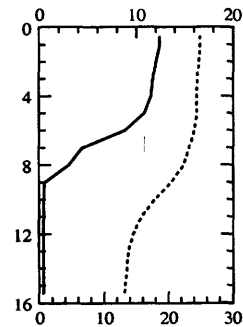
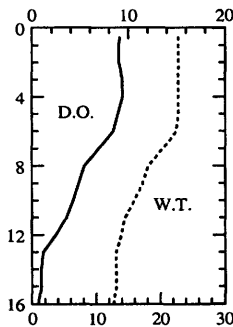
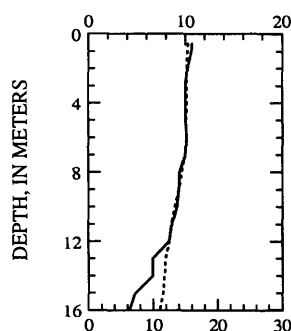
	May-19				Jun-14				Jul-13			
Lake stage (ft)	5.21				5.74				4.85			
Secchi-depth (m)	8.2				3.5				1.4			
Chlorophyll a, phytoplankton ($\mu\text{g/L}$)	0.8				6.4				37.6			
Depth of sample (m)	0.5	7.0	13.0	16.0	0.5	6.0	13.0	16.0	0.5	6.0	12.0	15.5
Water temperature ($^{\circ}\text{C}$)	15.4	15.0	11.9	11.0	22.8	22.4	13.1	12.7	24.9	24.0	14.5	13.1
Specific conductance ($\mu\text{S/cm}$)	560	562	578	585	527	532	581	583	489	500	590	620
pH (units)	8.5	8.4	8.1	7.8	8.6	8.5	7.6	7.6	8.6	8.5	7.5	7.3
Dissolved oxygen (mg/L)	10.7	10.0	6.6	4.2	9.1	8.4	1.1	0.6	12.4	8.8	0.4	0.4
Phosphorus, total (as P)	0.050	---	---	---	0.038	---	---	---	0.051	0.035	0.310	0.490
Phosphorus, ortho, dissolved (as P)	0.002	---	---	---	0.001	---	---	---	<0.001	<0.001	0.16	0.4
Nitrogen, $\text{NO}_2 + \text{NO}_3$, diss. (as N)	0.19	0.26	0.31	0.26	0.055	0.068	0.22	0.093	0.011	---	---	---
Nitrogen, ammonia, dissolved (as N)	0.011	0.009	0.174	0.48	0.009	0.042	0.236	0.318	0.017	---	---	---
Nitrogen, amm. + org., total (as N)	0.7	---	---	---	0.7	---	---	---	1.1	---	---	---
Nitrogen, total (as N)	0.86	---	---	---	0.77	---	---	---	1.1	---	---	---

5-19-99

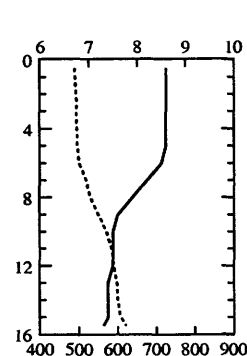
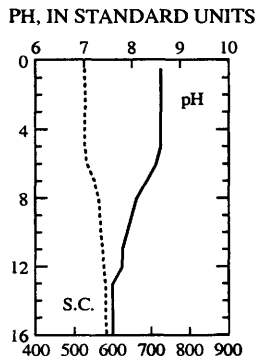
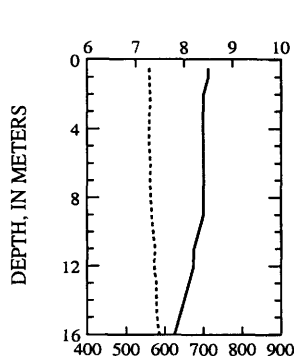
6-14-99

7-13-99

DISSOLVED OXYGEN (D.O.), IN MILLIGRAMS PER LITER



WATER TEMPERATURE (W.T.), IN DEGREES CELSIUS



SPECIFIC CONDUCTANCE (S.C.), IN MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS

ROCK RIVER BASIN

423556088365001 DELAVAN LAKE AT CENTER NEAR DELAVAN LAKE, WI--CONTINUED

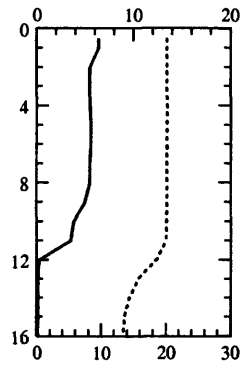
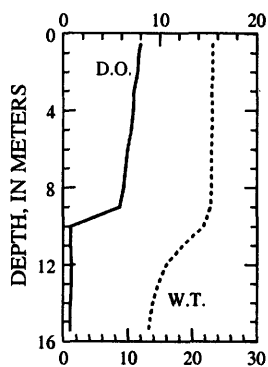
WATER-QUALITY DATA, AUGUST 17 TO SEPTEMBER 14, 1999
(Milligrams per liter unless otherwise indicated)

	Aug-17								Sep-14			
Lake stage (ft)	4.76								4.71			
Secchi-depth (m)	1.5								1.7			
Chlorophyll a, phytoplankton ($\mu\text{g/L}$)	18.9								14.1			
Depth of sample (m)	0.5	2.0	5.0	9.0	11.0	13.0	14.0	15.5	0.5	11.0	14.0	15.5
Water temperature ($^{\circ}\text{C}$)	23.2	23.2	23.1	22.9	18.5	14.7	13.9	13.3	20.2	20.0	14.3	13.5
Specific conductance ($\mu\text{S/cm}$)	500	500	501	506	574	616	628	645	515	522	632	653
pH (units)	8.1	8.2	8.2	8.1	7.4	7.4	7.3	7.3	8.1	7.8	7.1	7.0
Dissolved oxygen (mg/L)	7.8	7.7	7.0	5.8	0.7	0.8	0.7	0.7	6.4	3.5	0.1	0.1
Phosphorus, total (as P)	0.045	0.041	0.037	0.043	0.150	0.440	0.540	0.670	0.055	0.057	0.670	0.870
Phosphorus, ortho, dissolved (as P)	0.001	---	---	<0.001	---	---	0.37	0.58	<0.001	0.004	0.64	0.74
Nitrogen, NO ₂ + NO ₃ , diss. (as N)	<0.005	---	---	---	---	---	---	---	0.019	---	---	---
Nitrogen, ammonia, dissolved (as N)	0.02	---	---	---	---	---	---	---	<0.002	---	---	---
Nitrogen, amm. + org., total (as N)	0.8	---	---	---	---	---	---	---	0.8	---	---	---
Nitrogen, total (as N)	---	---	---	---	---	---	---	---	0.87	---	---	---

8-17-99

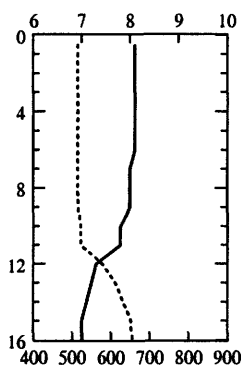
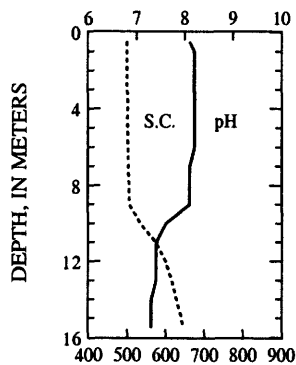
9-14-99

DISSOLVED OXYGEN (D.O.), IN MILLIGRAMS PER LITER



WATER TEMPERATURE (W.T.), IN DEGREES CELSIUS

PH, IN STANDARD UNITS



SPECIFIC CONDUCTANCE (S.C.), IN MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS

ADDITIONAL WATER-QUALITY DATA, OCTOBER 9, 1998 TO SEPTEMBER 24, 1999
(Milligrams per liter unless otherwise indicated)

	Oct. 9	Oct. 18	Oct. 26	May 27	June 3	June 8
	-----	-----	-----	-----	-----	-----
Lake stage (ft)	5.04	5.17	4.94	4.95	5.06	5.02
Secchi-depth (meters)	3.8	2.8	3.1	4.9	4.9	4.9
Depth of sample (meters)	0.5	0.5	0.5	0.5	0.5	0.5
Water temperature (°c)	17.8	15.5	14.0	16.1	19.4	22.5
Phosphorus, total (as P)	0.084	0.115	0.059	0.047	0.043	0.043

	June 24	July 7	July 22	July 28	Aug. 5	Aug. 11
	-----	-----	-----	-----	-----	-----
Lake stage (ft)	4.97	4.94	4.90	4.94	4.82	4.76
Secchi-depth (meters)	2.9	1.4	1.4	1.5	1.7	2.3
Depth of sample (meters)	0.5	0.5	0.5	0.5	0.5	0.5
Water temperature (°c)	23.5	25.0	26.5	29.0	26.5	25.0
Phosphorus, total (as P)	0.046	0.054	0.046	0.035	0.031	0.046

	Aug. 26	Sept. 1	Sept. 7	Sept. 14	Sept. 24
	-----	-----	-----	-----	-----
Lake stage (ft)	4.87	4.83	4.78	4.71	4.63
Secchi-depth (meters)	1.5	1.4	1.5	1.7	1.7
Depth of sample (meters)	0.5	0.5	0.5	0.5	0.5
Water temperature (°c)	22.0	25.0	23.0	20.2	21.1
Phosphorus, total (as P)	0.022	0.033	0.035	0.055	0.082

ROCK RIVER BASIN

423526088380101 DELAVAN LAKE, AT SW END, NEAR DELAVAN LAKE, WI

LOCATION.--Lat 42°35'26", long 88°38'01", in SE 1/4 NW 1/4, sec.32, T.2 N., R.16 E., Walworth County, Hydrologic Unit 07090001, 2.6 mi southeast of Delavan.

DRAINAGE AREA.--41.4 mi², of which 2.3 mi² is non-contributing.

PERIOD OF RECORD.--October 1983 to current year.

WATER-QUALITY DATA, APRIL 13 TO AUGUST 17, 1999

	Apr. 13 -----	May 19 -----	June 14 -----	July 13 -----	Aug. 17 -----
Secchi-depth (meters)	7.0	7.6	3.4	1.2	1.8

423659088354401 DELAVAN LAKE, AT NORTH END, NEAR LAKE LAWN, WI

LOCATION.--Lat 42°36'59", long 88°35'44", in NW 1/4 SW 1/4, sec.22, T.2 N., R.16 E., Walworth County, Hydrologic Unit 07090001, 2.6 mi southeast of Delavan.

DRAINAGE AREA.--41.4 mi², of which 2.3 mi² is non-contributing.

PERIOD OF RECORD.--October 1983 to current year.

WATER-QUALITY DATA, APRIL 13 TO AUGUST 17, 1999

	Apr. 13 -----	May 19 -----	June 14 -----	July 13 -----	Aug. 17 -----
Secchi-depth (meters)	8.2	7.3	3.0	1.2	1.4

ROCK RIVER BASIN

417

423706088363400 DELAVAN LAKE NEAR DELAVAN, WI

LOCATION.--Lat 42°36'27", long 88°36'19", in SW 1/4 NE 1/4 sec.28, T.2 N., R.16 E., Walworth County, Hydrologic Unit 07090001, at Delavan Lake Sanitary District Lift Station No. 2 at Delavan Lake Yacht Club, 1.0 mi southeast of outlet, and 2.7 mi southeast of Delavan.

DRAINAGE AREA.--41.4 mi², of which 2.3 mi² is non-contributing. Area of Delavan Lake, 2,072 acres.

PERIOD OF RECORD.--October 1983 to current year. October 1983 to September 1985 data published in Water Resources Investigation series report "Water Quality and Hydrology of Delavan Lake in Southeastern Wisconsin" by Stephen J. Field and Marvin D. Duerk.

GAGE.--Water-stage recorder. Datum of gage is 922.92 ft above sea level. Prior to Sept. 5, 1989, staff gage at bridge on North Shore Drive at same datum.

REMARKS.--No estimated daily gage heights. Records good (see page 13). Lake was ice covered from Jan. 11 to Feb. 26. Lake levels controlled by Delavan Lake Sanitary District.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 6.19 ft, Feb. 21, 1994; minimum daily, -4.44 ft Nov. 6, 1989 (lake drawn down for lake rehabilitation program).

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.77 ft, June 14; minimum, 4.58 ft, Sept. 26.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.96	4.97	5.03	4.92	4.97	4.92	4.94	4.98	4.99	4.97	4.90	4.83
2	4.95	4.96	5.02	4.96	4.99	4.93	4.95	4.98	5.06	4.94	4.88	4.82
3	5.00	4.94	5.02	5.01	5.04	4.94	4.96	4.98	5.06	4.95	4.86	4.82
4	5.01	4.92	5.01	5.01	5.07	4.93	4.98	4.97	5.05	4.96	4.84	4.81
5	5.06	4.91	5.00	5.02	5.06	4.94	4.98	4.97	5.03	4.96	4.82	4.80
6	5.12	4.91	5.01	5.02	5.03	4.96	4.95	5.00	5.03	4.96	4.80	4.79
7	5.12	4.90	5.06	5.02	4.99	4.96	4.93	5.01	5.04	4.94	4.79	4.78
8	5.09	4.91	5.05	5.02	4.95	4.95	4.94	5.00	5.02	4.92	4.79	4.75
9	5.04	4.91	5.04	5.02	4.92	4.97	5.04	5.00	4.99	4.91	4.78	4.74
10	5.00	5.09	5.03	5.02	4.93	4.98	5.03	5.00	5.01	4.89	4.77	4.71
11	4.96	5.17	5.02	5.03	4.97	4.97	5.02	5.00	5.11	4.87	4.76	4.70
12	4.95	5.12	5.01	5.03	5.06	4.97	5.00	5.09	5.10	4.86	4.78	4.70
13	4.94	5.04	5.00	5.03	5.03	4.96	4.98	5.11	5.33	4.85	4.79	4.72
14	4.93	4.97	4.99	5.02	4.99	4.96	4.97	5.09	5.74	4.83	4.78	4.71
15	4.92	4.95	4.98	5.00	4.95	4.96	4.95	5.06	5.61	4.81	4.77	4.70
16	4.92	4.95	4.98	4.97	4.91	4.96	4.96	5.05	5.41	4.80	4.76	4.70
17	4.98	4.95	4.98	4.96	4.90	4.97	4.94	5.13	5.23	4.84	4.76	4.69
18	5.16	4.95	4.97	4.97	4.88	4.98	4.92	5.19	5.08	4.87	4.75	4.69
19	5.17	4.94	4.97	4.95	4.86	4.97	4.91	5.21	4.99	4.88	4.79	4.68
20	5.12	4.95	4.97	4.93	4.86	4.95	4.91	5.18	4.96	4.89	4.80	4.68
21	5.06	4.95	4.98	4.91	4.87	4.94	4.93	5.13	4.94	4.90	4.79	4.67
22	4.99	4.94	4.97	4.97	4.88	4.94	4.98	5.16	4.94	4.90	4.79	4.66
23	4.93	4.95	4.96	5.07	4.89	4.94	5.34	5.13	4.96	4.92	4.81	4.64
24	4.93	4.96	4.95	5.21	4.89	4.94	5.38	5.09	4.97	4.96	4.87	4.63
25	4.93	4.96	4.94	5.27	4.89	4.94	5.25	5.02	4.97	4.96	4.87	4.62
26	4.94	4.97	4.94	5.24	4.89	4.94	5.15	4.95	4.97	4.96	4.87	4.60
27	4.96	4.97	4.93	5.19	4.90	4.94	5.10	4.95	4.97	4.96	4.87	4.66
28	4.98	4.98	4.93	5.15	4.92	4.94	5.14	4.96	5.05	4.94	4.87	4.93
29	4.97	4.99	4.94	5.12	---	4.94	5.06	4.96	5.03	4.93	4.87	5.04
30	4.98	5.02	4.94	5.07	---	4.94	4.99	4.97	5.00	4.92	4.85	5.00
31	4.98	---	4.94	5.02	---	4.93	---	4.97	---	4.92	4.84	---
MEAN	5.00	4.97	4.99	5.04	4.95	4.95	5.02	5.04	5.09	4.91	4.82	4.74
MAX	5.17	5.17	5.06	5.27	5.07	4.98	5.38	5.21	5.74	4.97	4.90	5.04
MIN	4.92	4.90	4.93	4.91	4.86	4.92	4.91	4.95	4.94	4.80	4.75	4.60

ROCK RIVER BASIN

05431022 DELAVAN LAKE OUTLET AT BORG ROAD NEAR DELAVAN, WI

LOCATION.--Lat 42°36'53", long 88°37'29", in SW 1/4 SE 1/4 sec.20, T.2 N., R.16 E., Walworth County, Hydrologic Unit 07090001, on right bank 50 ft upstream from bridge on Borg Road, 1.4 mi southeast of Delavan, and 0.2 mi downstream from Delavan Lake dam outlet.

DRAINAGE AREA.--42.1 mi², of which 2.3 mi² is non-contributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 914.50 ft above sea level (Public Service Commission bench mark).

REMARKS.--Estimated daily discharges: Jan. 25 to Feb. 1 and ice-affected period, Dec. 21-23. Records good except those for estimated daily discharges, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	11	9.4	2.4	60	18	8.1	29	4.1	28	4.9	.96
2	1.7	11	17	2.6	42	19	7.4	29	18	15	5.1	2.5
3	2.2	10	21	2.7	39	19	9.5	29	24	2.3	3.6	2.7
4	2.2	5.7	25	2.7	55	19	15	28	29	2.0	2.1	2.1
5	13	3.1	27	2.6	70	20	29	28	33	1.7	2.1	2.2
6	44	2.9	27	4.9	70	20	36	44	33	1.9	2.3	2.1
7	70	3.7	29	6.3	69	19	19	51	34	7.1	2.1	1.8
8	72	3.5	28	6.5	68	19	7.9	32	33	8.0	1.6	1.3
9	69	3.7	25	6.4	44	19	45	9.2	32	6.2	1.5	1.0
10	67	81	22	6.4	31	19	58	16	32	5.4	2.2	1.0
11	27	146	19	6.4	31	19	46	19	110	5.4	1.5	.84
12	1.7	148	18	6.1	72	19	43	33	116	5.3	1.7	.74
13	1.5	143	18	6.4	87	19	38	44	158	4.6	1.2	.73
14	1.5	71	17	19	63	19	37	45	227	4.5	1.6	1.3
15	1.5	23	17	26	68	19	40	43	248	4.3	1.6	1.4
16	1.6	17	11	25	53	19	42	41	220	3.9	.88	1.3
17	1.6	16	7.1	25	44	27	40	50	198	4.4	1.9	1.2
18	65	16	6.8	25	44	39	30	63	157	4.2	2.4	1.2
19	108	8.3	6.7	25	30	45	25	68	68	4.1	1.9	1.1
20	107	3.7	6.9	25	13	36	27	82	38	4.8	1.5	1.0
21	104	3.8	6.6	24	5.0	19	32	90	22	5.0	1.5	.97
22	100	3.8	6.6	25	4.8	11	37	103	2.7	6.2	1.4	.94
23	39	3.7	6.6	33	13	11	146	104	2.5	6.5	1.5	1.3
24	3.7	3.3	6.6	74	17	11	222	107	4.9	6.6	1.1	1.3
25	3.0	3.0	6.8	120	18	11	169	102	4.9	6.7	.94	6.4
26	2.5	2.9	6.6	140	19	11	138	39	2.6	6.8	1.2	14
27	2.3	3.3	6.0	140	18	11	70	6.5	3.3	6.7	1.4	1.1
28	8.2	4.1	4.7	120	19	11	109	6.8	16	6.6	1.4	5.7
29	12	5.0	4.3	96	---	10	133	6.5	28	6.6	1.4	50
30	11	5.0	3.0	94	---	10	60	5.9	28	5.7	1.3	51
31	11	---	2.5	92	---	9.2	---	5.7	---	5.0	1.3	---
TOTAL	955.8	765.5	418.2	1190.4	1166.8	577.2	1718.9	1359.6	1927.0	191.5	58.12	161.18
MEAN	30.8	25.5	13.5	38.4	41.7	18.6	57.3	43.9	64.2	6.18	1.87	5.37
MAX	108	148	29	140	87	45	222	107	248	28	5.1	51
MIN	1.5	2.9	2.5	2.4	4.8	9.2	7.4	5.7	2.5	1.7	.88	.73
AC-FT	1900	1520	829	2360	2310	1140	3410	2700	3820	380	115	320
CFSM	.77	.64	.34	.96	1.05	.47	1.44	1.10	1.61	.16	.05	.13
IN.	.89	.72	.39	1.11	1.09	.54	1.61	1.27	1.80	.18	.05	.15

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1999, BY WATER YEAR (WY)

	MEAN	23.3	20.7	20.0	20.0	30.1	29.7	37.6	19.9	24.8	11.0	5.67	15.3
MAX	127	93.1	51.1	44.7	97.8	71.2	145	56.0	105	53.7	32.6	110	
(WY)	1990	1986	1986	1993	1994	1986	1993	1996	1996	1993	1995	1989	
MIN	.000	.003	.000	.31	.71	.41	.000	.006	.014	.025	.011	.020	
(WY)	1991	1991	1990	1990	1990	1990	1990	1990	1990	1990	1991	1990	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1984 - 1999

ANNUAL TOTAL	9150.20	10490.20	
ANNUAL MEAN	25.1	28.7	21.4
HIGHEST ANNUAL MEAN			42.6
LOWEST ANNUAL MEAN			11.0
HIGHEST DAILY MEAN	250	248	406
LOWEST DAILY MEAN	.59	.73	.00
ANNUAL SEVEN-DAY MINIMUM	.73	.99	.00
INSTANTANEOUS PEAK FLOW		258	473
INSTANTANEOUS PEAK STAGE		8.13	8.35
ANNUAL RUNOFF (AC-FT)	18150	20810	15510
ANNUAL RUNOFF (CFSM)	.63	.72	.54
ANNUAL RUNOFF (INCHES)	8.55	9.80	7.31
10 PERCENT EXCEEDS	67	77	58
50 PERCENT EXCEEDS	14	11	7.6
90 PERCENT EXCEEDS	1.8	1.5	.05

(a) Also occurred many days during 1990 and 1991 water years (lake drawn down for lake rehabilitation program)

(b) Also occurred in 1991 water year

05431022 DELAVAN LAKE OUTLET AT BORG ROAD NEAR DELAVAN, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1983 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: Water years 1984-85, 1990-91.

TOTAL-PHOSPHORUS DISCHARGE: October 1983 to current year.

INSTRUMENTATION.--Automatic pumping sampler from October to December 1983. Manual samples from January 1984 to present.

REMARKS.--Records good. Samples collected using equal-width increment method.

COOPERATION.--Observer furnished by Delavan Lake Sanitary District.

EXTREMES FOR PERIOD OF RECORD.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 238 mg/L, Feb. 22, 1985; minimum observed, 1 mg/L, on many days.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 29 tons, Feb. 25, 1985; minimum daily, 0.00 ton, on many days during 1990 and 1991 water years.

DISSOLVED CHLORIDE CONCENTRATIONS: Maximum observed, 71 mg/L, June 5, 1995; minimum observed, 40 mg/L, July 5, 1995.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 6.00 mg/L, Jan. 5, 1990; minimum observed, <0.01 mg/L, Mar. 9-10, 1990, several days during 1992, 1994, and 1995 water years, and Oct. 2, 1995.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 585 lb, Feb. 22, 1994; minimum daily, 0.00 lb, Aug. 9, 13, 1987, and many days during 1990, 1991, and 1994 water years, Dec. 4, 1994, July 10-11, 1995, Oct. 1-5, 1995, and Sept. 27, 1996.

EXTREMES FOR CURRENT YEAR.--

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 0.566 mg/L, Oct. 22; minimum observed, 0.021 mg/L, Oct. 7.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 108 lb, Apr. 24; minimum daily, 0.14 lb, Sept. 12, 13.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 1998					JAN 1999				
**01...	1030	--	2.0	<.050	05...	0905	--	2.6	.084
03...	0925	--	2.7	.037	22...	1100	--	25	.081
04...	0915	--	2.3	.024	22...	1415	--	25	.078
05...	0820	--	2.2	.053	23...	0925	--	25	.080
06...	0830	--	18	.028	23...	1505	--	39	.084
06...	1430	--	39	.035					
07...	0830	--	71	.021	24...	1015	--	39	.095
07...	1435	--	36	.024	24...	1400	--	103	.081
08...	0820	--	72	.026	25...	0915	120	--	.082
08...	1420	--	72	.028	25...	1415	120	--	.095
09...	0900	--	70	.026	26...	1020	140	--	.135
10...	0930	--	67	.035	FEB				
11...	0945	--	5.1	.031	01...	1100	60	--	.084
18...	0730	--	36	.064	12...	0905	--	32	.063
18...	1430	--	73	.022	12...	1405	--	100	.095
19...	1000	--	108	.031	13...	0745	--	100	.096
20...	0940	--	106	.043	14...	0925	--	63	.062
21...	0955	--	106	.055	14...	1655	--	63	.071
22...	0845	--	103	.566	15...	0825	--	63	.058
23...	0845	--	94	.118	16...	0745	--	73	.065
NOV					MAR				
02...	0925	--	11	.056	01...	1020	--	18	<.050
10...	0915	--	4.7	.209	APR				
10...	1410	--	133	.106	*07...	1030	--	9.2	.071
11...	0925	--	145	.078	09...	0840	--	4.5	.057
11...	1405	--	147	.076	10...	1130	--	67	<.050
12...	0910	--	148	.090	11...	1010	--	46	.052
12...	1350	--	148	.084	11...	1615	--	46	<.050
18...	1510	--	16	.083	12...	0910	--	44	.089
DEC					13...	0825	--	37	<.050
07...	0910	--	29	.084	22...	1010	--	36	.134
08...	0840	--	28	.072	22...	1410	--	41	<.050
09...	0815	--	26	.078	23...	1000	--	88	.054
11...	0815	--	22	.073	23...	1435	--	230	<.050
21...	0935	6.6	--	.051	24...	1030	--	223	.093

** Grab sample

ROCK RIVER BASIN

05431022 DELAVAN LAKE OUTLET AT BORG ROAD NEAR DELAVAN, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
APR 1999				JUN 1999			
24...	1500	220	.103	06...	0845	33	.097
25...	1000	119	.106	08...	0805	33	.101
25...	1405	116	.103	09...	1420	31	.058
26...	0835	163	.089	11...	1010	120	.085
27...	0750	94	.104	12...	1430	116	.070
28...	0915	54	<.050	13...	1005	137	.097
28...	1445	148	.050	13...	1500	175	.072
29...	0900	140	<.050	14...	1125	254	.056
MAY				14...	1420	251	.096
03...	0840	29	<.050	15...	0930	253	.068
07...	0850	52	.052	16...	0825	225	.067
08...	1000	49	<.050	17...	0810	201	.059
09...	1220	8.9	<.050	JUL			
11...	0955	21	.058	06...	0850	1.5	<.050
12...	0840	15	.052	**15...	1400	4.1	<.050
12...	1440	44	.098	25...	0745	6.6	<.050
13...	0840	41	<.050	AUG			
13...	1400	48	<.050	02...	1140	4.8	<.050
14...	1415	49	<.050	16...	0915	1.4	<.050
16...	0840	42	<.050	18...	1435	2.3	<.050
17...	0840	41	<.050	19...	0825	2.5	<.050
17...	1420	58	.055	20...	0815	1.5	<.050
18...	0910	58	.058	21...	0805	1.5	<.050
18...	1440	70	.051	22...	0910	1.5	<.050
19...	0855	66	<.050	23...	0840	1.3	<.050
20...	0855	74	<.050	24...	0840	1.3	<.050
21...	0905	89	.063	25...	0820	.83	<.050
22...	1010	94	.066	30...	1000	1.3	<.050
23...	1005	101	.075	SEP			
24...	0850	105	.081	07...	0830		
25...	0750	97	.073	14...	1435	1.7	<.050
JUN				20...	0940	1.0	<.050
02...	0850	27	.420	28...	0925	1.2	.086
03...	0845	25	.180	29...	1155	76	<.050
04...	0810	21	.152	29...	1400	75	<.050
04...	1430	34	.125	30...	1355	67	.053

** Grab sample

DAILY MEAN VALUES

[illegible]

ROCK RIVER BASIN

05431032 TURTLE CREEK AT DELAVAN, WI

LOCATION.--Lat 42°38'13", long 88°39'27", in NW 1/4 NW 1/4 sec.18, T.2 N., R.16 E., Walworth County, Hydrologic Unit 07090001, on left bank 0.1 mi downstream from bridge on County Highway P, 0.7 mi northwest of Post Office at Delavan.

DRAINAGE AREA.--83.3 mi², of which 2.33 mi² is noncontributing.

PERIOD OF RECORD.--June 1996 to current year.

GAGE.--Water-stage recorder, crest-stage gage, and concrete control. Elevation of gage is 873.00 ft above sea level (levels by U.S. Geological Survey).

REMARKS.--No estimated daily discharges. Records are good (see page 13). Some seasonal regulation caused by dams used to maintain levels of Comus and Delavan Lakes and Delavan Millpond. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	37	30	24	138	49	32	97	37	55	26	18
2	22	32	38	24	116	49	31	80	44	45	26	18
3	30	30	42	24	104	49	36	55	52	27	25	19
4	26	28	42	24	103	47	43	43	53	27	23	18
5	63	24	46	24	117	47	56	44	57	26	22	17
6	81	24	54	25	117	47	66	61	62	26	18	18
7	91	25	57	28	116	44	55	78	62	25	16	18
8	94	25	58	29	101	44	60	78	61	29	17	17
9	75	26	56	29	89	45	113	48	60	27	16	17
10	67	120	51	29	74	44	114	50	81	25	17	16
11	65	159	49	30	85	44	93	57	118	24	17	16
12	35	146	45	30	125	44	87	71	146	25	21	20
13	26	141	44	30	135	44	73	79	268	23	20	19
14	25	137	42	31	117	44	66	80	348	22	19	18
15	24	99	41	45	109	44	65	81	404	22	20	18
16	26	63	37	49	107	50	69	83	303	22	19	17
17	44	51	30	55	89	57	66	84	239	33	19	17
18	86	46	29	56	83	73	58	98	214	26	20	16
19	140	40	29	56	74	78	51	107	170	26	26	16
20	118	30	29	56	54	72	53	110	111	27	21	16
21	104	29	28	58	39	55	53	124	77	26	20	16
22	104	28	26	96	31	40	71	131	46	24	20	17
23	97	28	27	133	33	37	224	134	40	34	30	16
24	58	28	25	152	41	37	334	135	40	30	28	17
25	34	26	25	166	43	36	342	133	41	30	25	16
26	30	26	25	161	44	35	233	118	36	32	23	31
27	31	26	25	166	47	34	165	57	35	30	22	33
28	32	26	25	165	49	33	146	38	56	34	22	120
29	39	27	25	156	---	33	171	34	62	31	22	114
30	38	29	24	149	---	33	162	34	61	27	21	125
31	38	---	24	145	---	31	---	34	---	27	19	---
TOTAL	1763	1556	1128	2245	2380	1419	3188	2456	3384	887	660	854
MEAN	56.9	51.9	36.4	72.4	85.0	45.8	106	79.2	113	28.6	21.3	28.5
MAX	140	159	58	166	138	78	342	135	404	55	30	125
MIN	20	24	24	24	31	31	31	34	35	22	16	16
CFSM	.68	.62	.44	.87	1.02	.55	1.28	.95	1.35	.34	.26	.34
IN.	.79	.69	.50	1.00	1.06	.63	1.42	1.10	1.51	.40	.29	.38

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 1999, BY WATER YEAR (WY)

	MEAN	32.1	30.3	31.4	54.6	85.8	59.8	80.0	59.3	99.2	30.9	31.5	25.1
MAX	56.9	51.9	36.4	72.4	83.2	104	83.2	106	79.2	171	43.8	68.3	29.7
(WY)	1999	1999	1999	1999	1997	1997	1997	1999	1999	1996	1998	1998	1997
MIN	16.2	17.2	21.9	40.8	69.0	45.8	51.1	42.4	38.5	20.2	16.6	17.0	17.0
(WY)	1998	1998	1998	1997	1998	1999	1997	1997	1997	1997	1997	1997	1996

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1996 - 1999

ANNUAL TOTAL	20194	21920	
ANNUAL MEAN	55.3	60.1	49.9
HIGHEST ANNUAL MEAN			60.1
LOWEST ANNUAL MEAN			41.8
HIGHEST DAILY MEAN	363	Aug 7	404
LOWEST DAILY MEAN	19	(a) May 19	16
ANNUAL SEVEN-DAY MINIMUM	20	Jul 28	16
INSTANTANEOUS PEAK FLOW			457
INSTANTANEOUS PEAK STAGE			3.68
INSTANTANEOUS LOW FLOW			15
ANNUAL RUNOFF (CFSM)	.66	.72	6.6
ANNUAL RUNOFF (INCHES)	9.02	9.79	8.14
10 PERCENT EXCEEDS	108	127	108
50 PERCENT EXCEEDS	39	41	32
90 PERCENT EXCEEDS	22	20	16

(a) Also occurred May 20, 21, 23, Aug. 1-3, and Sept. 4, 5, 24, 25

(b) Also occurred Sept. 10, 11, 18-21, 23, 25

05431486 TURTLE CREEK AT CARVERS ROCK ROAD NEAR CLINTON, WI

LOCATION.--Lat 42°35'50", long 88°49'45", in SW 1/4 sec.27, T.2 N., R.14 E., Rock County, Hydrologic Unit 07090001, on left bank 25 ft downstream from bridge on Carvers Rock Road, 3.3 mi northeast of Clinton, 13 mi northeast of Beloit, and 17.8 mi upstream from mouth.

DRAINAGE AREA.--199 mi², of which 2.33 mi² is noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1939 to current year. Prior to January 1980, all records published as "Turtle Creek near Clinton" (05431500).

REVISED RECORDS.--WSP 955: 1940. WSP 1308: 1950(M). WDR WI-71-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 823 ft above sea level, from topographic map. Prior to January 17, 1940, non-recording gage, and January 17, 1940 to December 31, 1979, water-stage recorder at site 1.8 mi downstream at a different datum.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 23 to Jan. 23, Feb. 13, and Mar. 5, 7, 8. Records good except those for ice-affected periods, which are fair (see page 13). Some seasonal regulation caused by dams used to maintain levels of Comus and Delavan Lakes and Delavan Millpond. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	117	113	82	279	143	102	278	145	145	93	79
2	81	113	113	82	367	143	103	219	282	138	89	77
3	105	106	119	82	359	142	108	197	197	131	87	74
4	114	104	121	82	282	138	120	168	176	119	87	75
5	172	100	121	80	248	130	114	162	174	113	84	73
6	227	98	127	80	244	133	125	181	170	110	80	72
7	230	98	164	80	238	120	130	208	209	106	78	72
8	199	97	159	80	227	120	118	207	175	104	78	71
9	180	98	152	80	213	126	227	187	159	107	75	71
10	147	425	145	80	204	124	234	161	205	101	77	71
11	142	391	138	80	240	123	195	163	741	98	75	70
12	128	315	133	80	321	123	175	193	585	97	83	71
13	103	261	129	80	260	123	163	192	1020	97	86	81
14	96	258	125	82	249	123	142	188	1350	94	81	76
15	97	231	124	90	232	123	139	182	605	91	78	73
16	95	186	123	130	225	128	151	184	566	90	78	72
17	124	152	115	160	210	139	150	296	470	108	78	71
18	541	141	110	170	188	146	141	282	384	115	78	70
19	364	136	110	180	180	149	131	275	338	104	96	69
20	294	126	107	180	162	151	128	243	266	104	93	69
21	222	119	104	180	139	142	142	240	206	119	83	69
22	205	118	96	350	128	125	196	330	173	107	81	69
23	198	115	96	700	121	114	1340	288	148	106	89	69
24	175	113	90	745	123	112	739	274	143	140	133	68
25	137	111	86	501	126	109	572	260	136	113	106	69
26	120	111	84	363	127	108	529	245	131	114	93	70
27	117	109	84	338	138	108	379	202	130	111	88	94
28	121	108	84	423	143	106	446	151	148	104	85	319
29	117	109	84	327	---	106	352	137	145	106	82	389
30	120	114	82	291	---	104	328	133	146	101	80	243
31	119	---	82	288	---	103	---	134	---	95	80	---
TOTAL	5173	4680	3520	6546	5973	3884	7919	6560	9723	3388	2654	2916
MEAN	167	156	114	211	213	125	264	212	324	109	85.6	97.2
MAX	541	425	164	745	367	151	1340	330	1350	145	133	389
MIN	81	97	82	80	121	103	102	133	130	90	75	68
CFSM	.85	.79	.58	1.07	1.08	.64	1.34	1.08	1.65	.56	.44	.49
IN.	.98	.89	.67	1.24	1.13	.73	1.50	1.24	1.84	.64	.50	.55

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1999, BY WATER YEAR (WY)

	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
MEAN	101	109	105	108	143	227	177	129	120	97.4	87.2	95.2
MAX	312	388	343	315	518	664	758	486	407	458	278	482
(WY)	1974	1986	1983	1946	1949	1959	1973	1973	1993	1978	1972	1972
MIN	30.1	37.9	34.5	24.5	30.4	55.4	52.7	31.6	35.2	24.8	21.5	19.6
(WY)	1958	1950	1965	1959	1959	1954	1958	1958	1965	1958	1958	1958

ROCK RIVER BASIN

05431486 TURTLE CREEK AT CARVERS ROCK ROAD NEAR CLINTON, WI--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1939 - 1999	
ANNUAL TOTAL	58283		62936			
ANNUAL MEAN	160		172		125	
HIGHEST ANNUAL MEAN					289	
LOWEST ANNUAL MEAN					43.0	
HIGHEST DAILY MEAN	1960	Aug 6	1350	Jun 14	6400	Apr 21 1973
LOWEST DAILY MEAN	(a) 70	Jan 1	68	Sep 24	16	Sep 13 1958
ANNUAL SEVEN-DAY MINIMUM	82	Sep 23	69	Sep 19	17	Sep 9 1958
INSTANTANEOUS PEAK FLOW			1760	(b) Apr 23	(c) 16500	Apr 21 1973
INSTANTANEOUS PEAK STAGE			8.12	(b) Apr 23	(d) 12.85	Apr 21 1973
INSTANTANEOUS LOW FLOW			(e) 22	Dec 22	(e) 8.0	Dec 29 1956
ANNUAL RUNOFF (CFSM)	.81		.88		.63	
ANNUAL RUNOFF (INCHES)	11.02		11.90		8.62	
10 PERCENT EXCEEDS	253		304		230	
50 PERCENT EXCEEDS	123		125		84	
90 PERCENT EXCEEDS	85		80		43	

(a) Ice affected

(b) Also occurred June 14

(c) From rating curve extended above 6,500 ft³/s on basis of slope-area measurement of peak flow

(d) Site and datum then in use

(e) Result of freezeup

05431486 TURTLE CREEK AT CARVERS ROCK ROAD NR CLINTON, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 1998 to September 1999.

REMARKS.--Chemical analyses by the Madison Metropolitan Sewage District from September 1998 to August 1999, and by the Wisconsin State Laboratory of Hygiene in September 1999. Samples are composites of 3-5 verticals, collected by cooperative observers.

WATER-QUALITY DATA, SEPTEMBER 1998

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, UM-MF (COLS./100 ML) (31625)	CHLO-RIDE, DIS-SOLVED (MG/L) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
SEP 1998									
02...	1240	87	5.6	20.4	8.1	2.2	260	48	497
15...	1345	171	8.1	19.5	5.8	3.1	5800	48	443

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L) AS N (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L) AS N (00608)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L) AS N (00625)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L) AS P (00665)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L) AS P (00671)	CHLORO-PHYLL A FLUORO-METRIC METHOD CORR. (UG/L) (32209)
SEP 1998								
02...	11	5	8.28	<.040	.62	.240	.050	<1.50
15...	53	13	5.35	.050	1.4	.270	.100	23.4

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO-CHEMICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, UM-MF (COLS./100 ML) (31625)	CHLO-RIDE, DIS-SOLVED (MG/L) AS CL (00940)
OCT 1998									
06...	1400	--	246	8.0	15.0	6.5	3.6	6200	41
19...	1230	--	344	7.8	13.2	7.5	2.9	6200	32
20...	1240	--	299	8.0	11.7	8.3	2.7	2600	45
NOV									
03...	1400	--	108	7.7	7.8	12.0	<2.0	94	48
10...	1200	--	518	7.7	8.9	9.0	6.4	20000	27
17...	1220	--	154	8.1	7.3	12.5	<2.0	500	43
DEC									
01...	1218	--	114	8.4	8.5	13.5	<2.0	84	42
15...	1155	--	125	8.3	4.6	13.5	<2.0	42	42
JAN 1999									
19...	1210	180	--	7.8	.1	11.8	3.0	26	53
FEB									
02...	1250	--	368	7.7	3.8	10.7	2.3	170	36
16...	1145	--	225	8.1	4.3	10.5	<2.0	36	45
MAR									
02...	1145	--	143	8.4	5.3	12.3	<2.0	25	44
16...	1207	--	132	8.8	8.0	13.5	2.0	2	52
APR									
05...	1220	--	116	8.3	10.8	7.9	3.6	75	47
06...	1325	--	116	8.3	9.3	9.9	6.6	230	50
20...	1300	--	126	8.5	10.6	11.9	4.3	4	51
28...	1140	--	484	8.1	9.9	7.9	2.5	>1300	33
MAY									
04...	1245	--	168	8.2	19.7	7.9	<2.0	50	44
17...	1230	--	336	7.8	17.4	5.2	12	>7400	33
18...	1300	--	278	7.4	16.2	6.4	<2.0	3300	38
24...	1220	--	272	8.3	13.3	7.0	10	310	46
JUN									
01...	1245	--	135	7.7	19.6	6.9	<2.0	230	46
02...	1240	--	300	7.7	17.0	5.9	3.4	11000	34
11...	1215	--	881	7.9	22.5	4.2	4.0	11000	18
14...	1240	--	1350	7.7	20.1	4.4	2.8	5200	20
15...	1230	--	587	7.9	15.5	4.8	2.6	880	34

ROCK RIVER BASIN

05431486 TURTLE CREEK AT CARVERS ROCK ROAD NR CLINTON, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO-CHEM-ICAL, 5 DAY (MG/L) (00310)	COLI-FORM, FECAL, UM-MF (COLS./100 ML) (31625)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
JUL 1999									
06...	1100	--	113	8.8	27.0	7.8	2.2	240	49
20...	0945	--	103	8.2	21.4	5.1	2.8	420	50
26...	1230	--	115	8.1	25.1	4.9	2.0	680	49
AUG									
03...	1200	--	89	8.4	23.6	6.3	<2.0	650	51
18...	1020	--	77	8.3	19.0	5.5	2.0	270	54
SEP									
07...	1220	--	72	--	--	--	<2.0	--	--
21...	1200	--	70	8.3	--	7.2	1.1	--	--
29...	1300	--	390	8.0	14.6	5.9	4.0	--	--
DATE		SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	RESIDUE VOLA-TILE, SUS-PENDED (MG/L) (00535)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	CHLORO-PHYLL A FLUORO-METRIC METHOD CORR. (UG/L) (32209)
OCT 1998									
06...	415	70	14	5.46	.060	1.5	.270	.040	28.1
19...	365	41	8	5.20	<.040	.96	.230	.160	2.10
20...	395	31	7	4.69	<.040	.85	.130	.120	19.1
NOV									
03...	465	5	3	9.28	<.040	.43	.110	.030	4.90
10...	295	216	34	3.76	.110	.91	.560	.310	29.4
17...	413	5	3	5.15	<.040	.59	.110	<.020	6.20
DEC									
01...	464	6	4	8.01	<.040	.52	.040	<.020	22.1
15...	430	5	3	7.29	<.040	.54	.050	<.020	24.9
JAN 1999									
19...	436	11	5	8.17	.170	.81	.100	.030	<1.50
FEB									
02...	344	32	6	5.37	.180	1.1	.190	.130	9.20
16...	358	19	5	6.12	<.040	.74	.200	.070	12.9
MAR									
02...	408	3	2	7.03	<.040	.51	.100	<.030	30.6
16...	415	5	3	7.10	<.040	.52	.030	<.030	31.7
APR									
05...	404	17	7	6.55	<.040	.87	.120	<.030	49.5
06...	454	91	20	6.41	<.040	1.9	.340	.030	118
20...	386	67	14	6.26	<.040	1.3	.190	<.030	53.1
28...	304	65	10	6.12	.120	1.3	.210	.040	14.7
MAY									
04...	484	20	5	7.74	<.040	.73	.110	<.030	9.50
17...	362	616	72	5.86	.330	3.3	.890	<.030	171
18...	374	110	17	6.38	.130	1.5	.260	.120	33.9
24...	386	45	9	5.57	.060	.99	.170	.070	15.7
JUN									
01...	512	21	6	8.21	.040	.70	.110	<.030	11.2
02...	356	243	23	9.76	.200	.76	.270	.110	21.9
11...	242	339	41	4.96	.190	1.0	.510	.330	<1.50
14...	258	55	9	3.77	.060	1.3	.350	.150	14.2
15...	344	63	11	4.45	.060	1.4	.240	.100	24.0
JUL									
06...	424	18	6	9.21	.090	.73	.130	<.030	30.3
20...	424	30	8	8.79	<.040	.85	.200	<.030	30.0
26...	428	27	6	8.29	.040	.90	.190	.130	13.5
AUG									
03...	518	9	3	9.07	<.040	.43	.170	.130	5.75
18...	490	6	3	10.0	<.040	.50	.140	.060	4.70
SEP									
07...	--	5	--	9.51	--	--	.135	.101	--
21...	--	--	<5	9.01	--	--	.095	.066	--
29...	--	56	15	4.04	--	--	.350	.163	--

WATER-QUALITY DATA, SEPTEMBER 1998 TO SEPTEMBER 1999

1998 TOTAL	OCT ---	NOV ---	DEC ---	JAN ---	FEB ---	MAR ---	APR ---	MAY ---	JUN ---	JUL ---	AUG ---	SEP 1145.8
1999 TOTAL	2237.1	1166.39	214.56	4100.26	2673.6	316.07	3328.33	1499.8	5995.1	795.31	1221.6	1562.3
WTR YR 1999	TOTAL 25110.42											

[illegible][illegible]

LOCATION.--Lat 42°40'40", long 90°07'07", in NE 1/4 sec.3, T.2 N., R.3 E., Lafayette County, Hydrologic Unit 07090003, on right bank in Darlington, 0.3 mi downstream from Vinegar Branch, and 3.6 mi upstream from Otter Creek.

DRAINAGE AREA.--273 mi².

PERIOD OF RECORD.--September 1939 to current year.

REVISED RECORDS.--WDR WI-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 802.42 ft above sea level. Prior to Dec. 19, 1939, nonrecording gage at same site and datum.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 22, 23, Dec. 30 to Jan. 22, and Mar. 7-11. Records good except those for ice-affected periods, which are fair (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	180	174	166	130	184	184	150	502	400	385	480	180
2	174	171	160	140	299	177	151	475	601	399	314	177
3	182	167	162	140	463	171	202	454	493	328	276	175
4	196	164	161	140	414	165	433	438	440	335	261	174
5	224	162	160	140	287	166	334	441	574	295	249	171
6	276	162	161	140	228	158	301	452	462	282	239	169
7	229	161	161	140	211	140	273	448	704	273	241	167
8	208	161	154	140	208	130	250	433	501	259	256	171
9	194	164	152	130	328	120	582	394	733	307	235	172
10	187	321	152	130	334	170	582	366	705	264	237	165
11	182	409	150	130	389	160	460	349	579	247	231	162
12	178	261	150	130	774	156	397	350	519	242	235	160
13	176	229	150	130	361	155	345	363	501	238	251	163
14	174	220	148	130	322	155	316	346	558	236	228	162
15	175	213	148	130	289	162	297	321	466	233	215	159
16	174	203	150	130	264	184	299	342	433	227	210	156
17	196	198	148	130	240	251	292	1620	425	314	209	154
18	304	190	148	130	223	248	262	1620	402	352	204	152
19	248	188	148	130	212	194	254	928	382	443	231	152
20	208	181	144	130	201	180	245	642	369	378	226	152
21	197	176	118	140	180	178	254	584	357	440	205	151
22	189	175	130	180	181	171	414	563	353	366	202	148
23	184	177	150	490	185	167	1100	543	359	317	234	148
24	182	172	155	416	180	164	1220	567	364	303	308	149
25	180	169	146	266	181	160	758	498	339	266	240	147
26	178	169	149	215	176	156	591	467	320	283	215	145
27	182	165	151	201	194	155	587	442	312	377	203	171
28	198	164	150	280	197	155	820	428	310	279	197	219
29	189	167	149	234	---	157	639	416	306	262	190	187
30	185	171	130	185	---	151	543	397	295	250	184	165
31	178	---	120	177	---	149	---	386	---	544	182	---
TOTAL	6107	5804	4621	5454	7705	5189	13351	16575	13562	9724	7388	4923
MEAN	197	193	149	176	275	167	445	535	452	314	238	164
MAX	304	409	166	490	774	251	1220	1620	733	544	480	219
MIN	174	161	118	130	176	120	150	321	295	227	182	145
CFSM	.72	.71	.55	.64	1.01	.61	1.63	1.96	1.66	1.15	.87	.60
IN.	.83	.79	.63	.74	1.05	.71	1.82	2.26	1.85	1.33	1.01	.67

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1999, BY WATER YEAR (WY)

MEAN	130	141	123	157	218	375	248	203	236	204	152	141
MAX	302	674	338	546	738	951	731	780	773	1796	610	487
(WY)	1985	1962	1983	1960	1953	1959	1959	1960	1969	1993	1993	1942
MIN	39.9	43.8	34.6	31.6	38.3	60.9	69.8	51.1	42.2	32.7	42.1	38.3
(WY)	1965	1965	1959	1959	1959	1957	1957	1958	1965	1965	1958	1958

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1939 - 1999

ANNUAL TOTAL	97872		100403						
ANNUAL MEAN	268		275			194			
HIGHEST ANNUAL MEAN						534			1993
LOWEST ANNUAL MEAN						66.5			1958
HIGHEST DAILY MEAN	2120	Apr 1	1620	May 17, 18	11200			Jul 16	1950
LOWEST DAILY MEAN	(a) 76	Jan 1	(b) 118	Dec 21	24		(c)	Jul 25	1965
ANNUAL SEVEN-DAY MINIMUM	(a) 83	Jan 12	(a) 130	Jan 9	25			Jul 24	1965
INSTANTANEOUS PEAK FLOW			1910	May 17	(d) 22000			Jul 16	1950
INSTANTANEOUS PEAK STAGE			12.56	May 17	20.71			Jul 16	1950
INSTANTANEOUS LOW FLOW			(b) 76	Dec 21	(b) 17			Nov 29	1966
ANNUAL RUNOFF (CFSM)	.98		1.01			.71			
ANNUAL RUNOFF (INCHES)	13.34		13.68			9.64			
10 PERCENT EXCEEDS	461		470			336			
50 PERCENT EXCEEDS	208		205			125			
90 PERCENT EXCEEDS	116		148			57			

(a) Ice affected

(b) Result of freezeup

(c) Also occurred July 26, 27, 30, 1965

(d) From rating curve extended above 11,000 ft³/s on basis of slope-area determination of peak flow

LOCATION.--Lat 42°47'08" long 89°51'40", in SE 1/4 SE 1/4 sec. 26, T.4 N., R.5 E., Lafayette County, Hydrologic Unit 07090003, on left bank at downstream side of bridge on State Highway 78, 1.8 mi south of Blanchardville and 4.5 mi upstream from Sawmill Creek.

PERIOD OF RECORD.--September 1939 to September 1986, October 1987 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 796.8 ft above sea level. Prior to Dec. 20, 1939, nonrecording gage at bridge 50 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 21 to Jan. 22 and Mar. 8-11. Records good except those for periods of discharge over 500 ft³/s, which are fair, and ice-affected periods, which are poor (see page 13). Gage-height telemeter at station.

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	171	149	143	120	139	152	134	354	255	238	259	146
2	153	147	142	130	166	148	134	337	576	228	192	145
3	160	145	142	130	231	144	149	324	368	198	182	143
4	172	144	140	130	205	139	265	314	293	201	177	142
5	193	143	139	130	165	139	206	312	330	187	173	140
6	264	143	141	130	155	138	211	326	285	186	170	140
7	199	141	141	130	157	127	193	340	335	179	173	139
8	176	142	137	130	151	120	176	316	273	174	183	142
9	166	143	136	130	188	120	438	287	300	177	170	142
10	161	265	135	130	201	130	394	268	274	170	174	139
11	159	324	134	130	265	130	294	256	255	167	171	137
12	156	197	134	130	502	132	259	254	247	166	175	136
13	154	179	134	130	218	133	232	251	281	163	182	137
14	152	175	133	130	211	134	216	242	295	163	169	136
15	152	169	133	130	188	140	208	232	245	161	163	135
16	151	164	133	130	186	152	211	237	234	159	160	134
17	168	161	133	130	174	186	203	1010	230	191	161	132
18	290	157	132	130	165	190	188	1150	222	200	158	132
19	194	158	133	130	160	153	185	552	216	179	174	132
20	171	154	129	130	154	148	182	394	212	271	164	132
21	164	151	120	140	143	147	204	365	207	677	157	131
22	159	151	120	220	148	142	390	359	206	269	155	131
23	157	151	140	356	149	140	1230	348	242	225	170	130
24	157	147	130	333	144	139	1580	351	221	204	207	130
25	155	147	130	255	145	135	814	326	206	189	174	129
26	154	147	130	191	143	134	577	309	199	220	160	128
27	155	144	130	201	158	134	500	290	196	281	155	137
28	167	144	130	170	161	135	638	278	195	198	152	161
29	157	145	130	147	---	136	452	267	200	187	149	153
30	156	147	120	133	---	132	380	256	190	184	146	137
31	152	---	120	137	---	133	---	252	---	295	147	---
TOTAL	5295	4874	4124	4873	5172	4362	11243	11157	7788	6687	5302	4128
MEAN	171	162	133	157	185	141	375	360	260	216	171	138
MAX	290	324	143	356	502	190	1580	1150	576	677	259	161
MIN	151	141	120	120	139	120	134	232	190	159	146	128
CFSM	.77	.74	.60	.71	.84	.64	1.70	1.63	1.17	.98	.77	.62
IN.	.89	.82	.69	.82	.87	.73	1.89	1.88	1.31	1.13	.89	.69

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1999, BY WATER YEAR (WY)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
MEAN	113	119	110	128	168	263	200	166	170	154	121	119
MAX	252	311	278	354	597	574	547	584	403	885	303	332
(WY)	1985	1962	1983	1960	1948	1950	1959	1973	1993	1993	1993	1981
MIN	54.9	55.8	47.6	46.4	52.1	62.7	71.5	54.5	59.6	48.2	43.7	44.6
(WY)	1965	1965	1959	1959	1959	1957	1957	1958	1958	1958	1958	1958

SUMMARY STATISTICS	FOR 1998	CALENDAR YEAR	FOR 1999	WATER YEAR	WATER YEARS	1939 - 1999
ANNUAL TOTAL	76555		75005			
ANNUAL MEAN	210		205		152	
HIGHEST ANNUAL MEAN					338	1993
LOWEST ANNUAL MEAN					70.4	1958
HIGHEST DAILY MEAN	1360	Apr 1	1580	Apr 24	7560	Feb 28 1948
LOWEST DAILY MEAN	(a) 94	Jan 13-15	(a) 120	(b) Dec 21	41	(c) Aug 18, 19 1958
ANNUAL SEVEN-DAY MINIMUM	(a) 95	Jan 11	(a) 126	Dec 26	42	Oct 1 1958
INSTANTANEOUS PEAK FLOW			2090	Apr 24	(d) 11700	Feb 28 1948
INSTANTANEOUS PEAK STAGE			12.67	Apr 24	16.54	Jul 6 1993
INSTANTANEOUS LOW FLOW					(e) 18	Nov 29 1966
ANNUAL RUNOFF (CFSM)	.95		.93		.69	
ANNUAL RUNOFF (INCHES)	12.89		12.63		9.36	
10 PERCENT EXCEEDS	335		313		240	
50 PERCENT EXCEEDS	171		161		111	
90 PERCENT EXCEEDS	110		130		66	

(a) Ice affected

(b) Also occurred on Dec. 22, 30, 31, Jan. 1, and Mar. 8, 9

(c) Also occurred on Sept. 1, 22, 23, 29, Oct. 2, 6, 1958, and Dec. 19, 20, 1964

(d) Gage height, 15.74 ft

(e) Result of freezeup

ROCK RIVER BASIN
05434500 PECATONICA RIVER AT MARTINTOWN, WI

LOCATION.--Lat 42°30'34", long 89°47'58", in SE 1/4 sec.32, T.1 N., R.6 E., Green County, Hydrologic Unit 07090003, on right bank about 400 ft downstream from highway bridge in Martintown, 0.3 mi upstream from Wisconsin-Illinois State line and 8.8 mi downstream from Skinner Creek.

DRAINAGE AREA.--1,034 mi².

PERIOD OF RECORD.--October 1939 to current year.

REVISED RECORDS.--WSP 1308: 1949-50(M). WDR WI-71-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 757.83 ft above sea level. Prior to Jan. 6, 1940, nonrecording gage at same site and datum. Auxiliary wire-weight gage 1.2 mi downstream, at same datum.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 22 to Jan. 24 and Mar. 10-16. Records good except those for periods of discharge above 2,000 ft³/s, which are fair, and ice-affected periods, which are poor (see page 13). Diurnal fluctuation at low flow caused by powerplant in Argyle, 28.2 mi upstream. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	674	745	668	560	898	779	640	2600	1350	1110	1230	720
2	682	725	662	580	950	758	645	2250	1480	1190	1370	715
3	700	708	651	580	1220	728	668	1970	1680	1250	1150	708
4	707	694	645	580	1360	704	835	1760	1760	1170	994	700
5	792	689	642	580	1250	686	1090	1640	1770	1120	932	694
6	1150	679	642	580	1070	679	1110	1570	1730	1080	900	685
7	1190	670	656	580	929	659	1030	1560	1720	1020	883	678
8	1050	665	651	580	867	645	991	1540	1650	995	880	673
9	913	663	635	580	868	595	1410	1500	1640	976	884	684
10	830	817	624	560	960	600	1730	1420	1610	1000	873	687
11	782	1020	617	560	1120	640	1810	1340	1770	986	859	676
12	752	1210	612	560	1390	620	1750	1300	1810	937	865	667
13	728	1090	607	560	1580	620	1570	1300	1880	919	880	661
14	715	945	604	560	1460	620	1390	1270	1980	900	886	658
15	702	875	601	560	1190	620	1260	1230	1900	886	855	657
16	697	839	600	560	1070	640	1230	1190	1740	874	819	650
17	732	807	598	560	1000	782	1190	1910	1550	996	799	641
18	1120	783	599	560	933	918	1140	3430	1440	1030	788	632
19	1260	764	602	560	876	940	1070	5290	1360	1120	801	625
20	1140	747	618	560	833	841	1030	5530	1300	1180	815	621
21	973	732	616	560	790	771	1020	4960	1260	1310	821	617
22	883	716	470	600	742	745	1120	4160	1240	1390	788	614
23	837	708	500	900	736	722	1840	3370	1390	1440	787	609
24	802	701	660	1400	735	702	2180	2810	1380	1430	916	606
25	778	693	620	1530	725	686	2560	2360	1300	1190	1020	603
26	760	682	600	1310	721	670	3150	2040	1220	1070	939	598
27	759	675	600	1090	750	657	3430	1810	1170	1080	844	610
28	768	668	600	1100	770	653	3390	1640	1140	1120	796	710
29	785	662	600	1140	---	654	3080	1520	1110	1070	767	806
30	785	666	600	1070	---	649	2850	1440	1090	980	739	769
31	764	---	580	944	---	644	---	1380	---	970	732	---
TOTAL	26210	23038	18980	23004	27793	21627	48209	69090	45420	33789	27612	19974
MEAN	845	768	612	742	993	698	1607	2229	1514	1090	891	666
MAX	1260	1210	668	1530	1580	940	3430	5530	1980	1440	1370	806
MIN	674	662	470	560	721	595	640	1190	1090	874	732	598
CFSM	.82	.74	.59	.72	.96	.67	1.55	2.16	1.46	1.05	.86	.64
IN.	.94	.83	.68	.83	1.00	.78	1.73	2.49	1.63	1.22	.99	.72

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1999, BY WATER YEAR (WY)												
MEAN	533	587	515	589	814	1392	979	818	823	795	584	572
MAX	1226	2429	1492	2049	2512	3155	2943	3200	2075	5190	1752	1920
(WY)	1987	1962	1983	1960	1953	1950	1960	1973	1993	1993	1993	1965
MIN	187	211	162	147	182	259	328	234	233	181	167	166
(WY)	1957	1965	1959	1959	1959	1957	1957	1958	1965	1965	1958	1958

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1940 - 1999
ANNUAL TOTAL	355504	384746	
ANNUAL MEAN	974	1054	750
HIGHEST ANNUAL MEAN			1720
LOWEST ANNUAL MEAN			292
HIGHEST DAILY MEAN	3670	5530	14600
LOWEST DAILY MEAN	(a) 390	(b) 470	132
ANNUAL SEVEN-DAY MINIMUM	(a) 406	(a) 560	(a) 140
INSTANTANEOUS PEAK FLOW		5610	15100
INSTANTANEOUS PEAK STAGE		16.49	21.46
INSTANTANEOUS LOW FLOW			(c) .00
ANNUAL RUNOFF (CFSM)	.94	1.02	.73
ANNUAL RUNOFF (INCHES)	12.79	13.84	9.85
10 PERCENT EXCEEDS	1650	1700	1350
50 PERCENT EXCEEDS	805	839	524
90 PERCENT EXCEEDS	480	601	255

(a) Ice affected
(b) Result of freezeup
(c) Result of regulation

05435943 BADGER MILL CREEK AT VERONA, WI

LOCATION.--Lat 42°58'37", long 89°32'22", in NW 1/4 SW 1/4 sec.22, T.6 N., R.8 E., Dane County, Hydrologic Unit 07090004, on left bank 60 ft downstream of Bruce Street, 0.8 mi southwest of intersection of State Highway 69 and County Trunk Highway M, at Verona.

DRAINAGE AREA.--20.3 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1996 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 930 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records good October to March and fair April to September (see page 13). Gage-height and water-quality telemeter at station. Effluent discharged into creek continuously at an average rate of 3.4 ft³/s (data provided by Madison Metropolitan Sewerage District).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	9.3	9.7	7.2	9.4	9.2	8.2	11	8.6	16	14	9.0
2	9.8	9.1	9.6	7.5	12	9.4	8.2	10	11	8.8	10	8.7
3	11	9.0	9.4	7.6	14	9.2	14	10	7.9	9.1	10	8.7
4	11	8.8	9.2	7.5	12	9.1	12	10	9.4	9.7	10	8.6
5	28	8.6	9.3	7.6	10	9.0	9.4	11	8.4	9.2	10	8.6
6	28	8.5	9.5	7.6	9.7	8.9	11	16	11	9.1	10	8.6
7	13	8.6	9.5	7.3	9.7	8.8	9.0	12	11	8.9	13	8.5
8	11	9.0	9.3	7.2	9.6	9.0	10	11	7.8	9.0	12	8.7
9	9.9	9.3	9.1	7.1	11	9.3	55	10	7.7	9.4	11	8.4
10	9.4	68	9.0	7.3	12	8.9	14	10	7.5	9.1	12	8.2
11	9.0	18	8.8	7.4	28	8.7	9.8	10	7.5	9.3	11	8.1
12	9.0	12	8.7	7.4	17	8.6	9.6	10	7.6	9.6	15	8.1
13	8.9	11	8.7	7.4	11	8.6	9.6	10	59	9.7	12	8.2
14	9.0	11	8.7	7.6	10	8.6	9.4	9.9	11	9.9	11	8.1
15	8.9	10	8.6	7.8	10	8.5	9.5	9.7	8.3	10	10	8.0
16	8.9	10	8.6	8.0	9.9	9.0	9.5	15	7.9	11	11	8.0
17	19	10	8.5	8.4	9.7	9.6	9.1	146	7.7	45	10	7.9
18	24	10	8.5	8.7	9.6	8.7	9.2	17	7.7	14	8.2	7.9
19	11	10	8.4	8.4	9.3	8.4	9.4	9.9	7.6	11	11	7.9
20	9.6	10	8.3	8.5	9.1	8.3	11	8.8	7.5	13	10	7.9
21	9.1	9.9	8.5	8.9	9.0	8.2	11	8.6	7.5	17	10	7.7
22	8.9	10	8.2	20	9.0	8.2	49	8.5	8.5	12	10	7.7
23	8.8	10	8.1	19	8.9	8.3	176	10	9.4	26	24	7.6
24	8.7	10	7.7	14	8.8	8.2	24	8.4	9.7	13	21	7.5
25	8.8	10	7.7	11	8.9	8.2	13	8.1	8.1	10	11	7.6
26	8.8	9.8	7.7	10	9.1	8.1	12	8.0	8.0	17	9.9	8.2
27	10	9.6	7.7	9.8	9.2	8.0	12	7.9	8.0	12	9.6	10
28	12	9.6	7.7	9.8	9.3	8.1	14	7.7	8.2	11	9.7	16
29	9.8	9.9	7.6	9.3	---	8.2	11	7.5	9.3	11	9.5	10
30	9.6	10	7.4	9.0	---	8.0	11	7.4	8.3	11	9.2	7.9
31	9.4	---	7.2	9.0	---	8.2	---	7.5	---	53	9.1	---
TOTAL	363.3	359.0	264.9	283.3	305.2	267.5	579.9	446.9	307.1	433.8	354.2	256.3
MEAN	11.7	12.0	8.55	9.14	10.9	8.63	19.3	14.4	10.2	14.0	11.4	8.54
MAX	28	68	9.7	20	28	9.6	176	146	59	53	24	16
MIN	8.7	8.5	7.2	7.1	8.8	8.0	8.2	7.4	7.5	8.8	8.2	7.5
CFSM	.58	.59	.42	.45	.54	.43	.95	.71	.50	.69	.56	.42
IN.	.67	.66	.49	.52	.56	.49	1.06	.82	.56	.79	.65	.47

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1999, BY WATER YEAR (WY)

	1997	1998	1999	1997	1998	1999	1997	1998	1999	1997	1998	1999
MEAN	7.46	6.87	5.61	6.90	11.1	10.6	12.3	10.2	10.7	10.1	8.37	8.09
MAX	11.7	12.0	8.55	9.14	17.7	13.6	19.3	14.4	15.0	14.0	11.4	12.0
(WY)	1999	1999	1999	1999	1997	1997	1999	1999	1998	1999	1999	1998
MIN	3.55	3.28	3.25	3.67	4.74	8.63	6.34	6.39	6.93	7.94	4.53	3.76
(WY)	1998	1998	1998	1998	1998	1999	1997	1997	1997	1997	1997	1997

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1997 - 1999

ANNUAL TOTAL	3523.8	4221.4	
ANNUAL MEAN	9.65	11.6	9.01
HIGHEST ANNUAL MEAN			11.6
LOWEST ANNUAL MEAN			7.66
HIGHEST DAILY MEAN	133	Mar 31	176
LOWEST DAILY MEAN	3.1	Jan 1	7.1
ANNUAL SEVEN-DAY MINIMUM	3.3	Jan 24	7.3
INSTANTANEOUS PEAK FLOW			296
INSTANTANEOUS PEAK STAGE			7.68
ANNUAL RUNOFF (CFSM)	.48		.57
ANNUAL RUNOFF (INCHES)	6.46		7.74
10 PERCENT EXCEEDS	12		13
50 PERCENT EXCEEDS	7.8		9.3
90 PERCENT EXCEEDS	3.8		7.7

(a) Orifice was relocated Apr. 29, 1998, because of bridge construction

ROCK RIVER BASIN
05435943 BADGER MILL CREEK AT VERONA, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1996 to current year.

DISSOLVED OXYGEN: May 1998 to current year.

INSTRUMENTATION.--Continuous water temperature recorder since November 1996. Dissolved-oxygen recorder since May 1998.

REMARKS.--Records represent water temperature at sensor within 0.5°C. Effluent discharged continuously into creek after Aug. 28, 1998.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum, 25.5°C, June 28, 1998 and July 23, 1999; minimum 0.0°C on many days during winter periods of 1996-98 water years.

DISSOLVED OXYGEN: Maximum, 24.9 mg/L, Mar. 29, 1999; minimum, 1.3 mg/L, Oct. 5, 1998.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 25.5°C, July 23; minimum 1.0°C, Jan. 5.

DISSOLVED OXYGEN: Maximum, 24.9 mg/L, Mar. 29; minimum, 1.3 mg/L, Oct. 5.

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	14.5	12.5	13.5	12.5	12.0	12.5	10.5	8.5	9.5	5.0	3.5	4.0
2	13.5	12.0	12.5	12.0	9.5	11.0	12.0	10.0	11.0	4.5	2.0	3.0
3	13.0	12.5	13.0	10.5	9.5	10.0	13.0	11.5	12.0	5.0	2.5	3.5
4	14.0	13.0	13.5	10.5	8.5	9.5	12.5	11.5	12.0	4.0	2.5	3.0
5	14.5	13.0	13.5	9.5	8.0	9.0	13.0	12.5	12.5	3.5	1.0	2.0
6	15.0	13.5	14.5	10.0	9.0	9.5	12.5	8.0	10.5	5.0	3.0	4.0
7	13.5	13.0	13.5	10.0	8.0	9.0	9.0	7.5	8.0	4.0	1.5	3.0
8	14.5	12.5	13.0	10.5	9.5	10.0	8.5	7.0	8.0	5.0	3.5	4.5
9	14.0	11.5	12.5	10.0	9.5	10.0	9.0	7.0	8.0	4.0	2.5	3.5
10	14.5	11.5	13.0	9.5	6.5	8.0	9.0	7.5	8.0	4.0	2.5	3.0
11	14.5	11.5	13.0	8.0	6.5	7.5	9.0	7.0	8.0	4.5	2.0	3.5
12	14.5	12.5	13.5	9.5	7.5	8.5	9.0	7.5	8.5	5.0	3.5	4.0
13	13.0	11.0	12.0	10.0	7.5	9.0	9.0	7.0	8.0	5.0	2.5	4.0
14	12.5	10.5	11.5	11.0	9.5	10.0	9.0	7.0	8.0	6.0	4.0	5.0
15	14.5	12.0	13.0	10.0	9.0	9.5	9.5	8.0	8.5	6.5	5.5	6.0
16	15.5	13.0	14.0	10.5	9.5	10.0	9.0	8.0	8.5	8.0	6.0	7.0
17	17.0	15.0	15.5	10.5	9.0	9.5	8.5	7.0	7.5	7.5	5.0	6.5
18	16.0	12.5	14.5	11.0	9.0	10.0	9.0	7.5	8.0	7.5	5.0	6.5
19	13.5	11.5	12.0	11.0	8.0	9.0	8.5	7.0	8.0	7.5	4.5	6.0
20	12.5	10.5	11.5	8.5	7.5	8.0	8.0	7.0	7.5	8.5	5.0	7.0
21	13.0	11.0	11.5	9.0	8.0	8.5	7.5	4.0	6.0	8.0	6.5	7.0
22	12.5	9.5	11.0	10.5	8.5	9.5	4.0	2.5	3.5	6.5	3.0	4.5
23	13.0	10.0	11.5	10.5	9.0	10.0	5.5	3.5	4.5	4.5	3.5	4.0
24	13.0	10.5	12.0	10.0	8.0	9.0	5.0	4.0	4.5	6.0	3.5	5.0
25	14.0	11.5	13.0	11.0	9.5	10.0	6.0	4.5	5.5	7.0	4.0	5.5
26	14.5	12.0	13.0	10.5	8.5	9.5	6.0	5.0	5.5	7.5	4.0	6.0
27	14.5	13.0	13.5	10.5	8.5	9.5	7.5	6.0	6.5	8.0	6.5	7.5
28	14.5	12.5	13.5	12.0	9.0	10.5	7.5	5.0	6.0	7.5	6.5	7.0
29	13.5	11.5	12.5	13.0	12.0	12.5	7.5	3.5	6.5	8.0	5.5	6.5
30	14.0	13.0	13.5	13.0	9.5	12.0	5.0	2.5	3.5	8.5	5.0	6.5
31	13.0	12.5	12.5	---	---	---	5.0	4.0	4.5	8.5	6.0	7.0
MONTH	17.0	9.5	12.9	13.0	6.5	9.7	13.0	2.5	7.6	8.5	1.0	5.0

05435943 BADGER MILL CREEK AT VERONA, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	8.5	7.5	8.0	11.0	6.5	8.0	14.0	11.0	12.0	18.5	9.0	13.0
2	8.5	4.5	7.0	9.0	6.5	8.0	17.5	10.0	13.0	18.0	9.5	13.5
3	7.0	4.0	5.5	9.5	5.0	6.5	14.5	10.5	12.0	18.0	10.5	14.0
4	6.0	4.0	5.0	9.0	5.0	6.5	14.5	10.5	12.5	18.0	11.5	14.5
5	7.0	4.5	6.0	7.0	5.0	6.0	10.5	9.5	10.0	17.0	13.0	14.5
6	9.0	6.0	7.0	9.0	4.5	6.0	11.5	9.0	10.0	13.5	12.0	12.5
7	8.0	6.0	7.0	10.5	3.5	6.0	16.5	8.0	11.5	12.5	11.5	12.0
8	8.5	6.5	7.5	7.0	4.0	5.5	14.0	8.5	11.0	13.0	11.0	12.0
9	9.5	6.0	7.5	8.0	4.0	6.0	9.0	7.0	8.0	17.0	10.5	13.5
10	9.0	6.0	7.5	11.0	4.5	7.0	12.0	7.0	9.0	18.0	10.5	14.0
11	9.5	4.0	7.5	11.5	5.0	7.5	9.5	8.5	9.0	17.0	11.5	14.0
12	5.5	3.0	4.0	12.0	4.5	7.5	12.0	8.0	9.5	14.5	12.5	13.0
13	7.5	3.5	5.5	11.5	5.0	7.5	16.5	7.5	11.0	14.0	11.0	12.5
14	9.0	5.0	7.0	12.5	5.0	8.0	16.0	8.5	11.5	17.5	10.0	13.5
15	10.5	6.5	8.0	12.5	5.5	8.0	12.0	9.5	10.5	14.5	11.5	13.0
16	8.0	6.5	7.5	13.5	6.5	9.0	15.0	9.5	11.5	17.0	12.5	14.0
17	9.0	6.0	7.0	13.0	6.5	9.0	12.5	9.0	10.5	17.5	15.5	16.5
18	9.0	5.5	6.5	12.0	6.0	8.5	12.5	9.0	10.5	17.5	14.0	16.0
19	8.0	5.5	6.5	13.0	6.0	9.0	14.0	8.0	10.5	17.5	12.0	14.5
20	7.5	5.0	6.0	13.5	6.5	9.0	11.0	8.0	9.5	16.5	12.5	14.5
21	9.0	4.5	6.5	13.0	6.5	9.0	13.0	9.0	11.0	14.0	13.0	13.5
22	9.0	4.5	6.5	13.0	6.0	8.5	10.0	7.5	8.5	17.5	12.5	15.0
23	10.0	6.0	7.0	13.5	6.0	9.0	11.5	5.5	8.5	15.5	12.5	14.0
24	7.0	5.0	6.0	13.5	6.0	9.0	14.5	8.0	11.0	13.5	11.5	12.0
25	9.0	7.0	8.0	10.5	6.0	8.0	16.0	8.5	11.5	15.5	10.5	13.0
26	10.5	7.0	8.5	14.0	5.5	9.0	16.0	9.0	12.0	17.5	11.5	14.0
27	10.0	8.0	8.5	14.5	6.5	9.5	11.0	9.5	10.5	18.0	11.5	14.5
28	8.5	7.0	7.5	10.5	7.5	8.5	16.0	9.5	12.0	19.0	13.0	16.0
29	---	---	---	15.0	7.0	10.0	17.0	9.0	12.5	19.0	13.5	16.0
30	---	---	---	16.0	7.0	11.0	17.5	9.0	12.5	18.0	13.5	16.0
31	---	---	---	16.5	8.5	12.0	---	---	---	17.5	14.5	15.5
MONTH	10.5	3.0	6.9	16.5	3.5	8.1	17.5	5.5	10.8	19.0	9.0	14.0
	JUNE			JULY			AUGUST			SEPTEMBER		
1	17.5	14.0	15.0	20.0	16.0	18.0	21.5	18.0	19.5	18.0	13.5	16.0
2	18.5	14.0	16.5	18.0	15.5	16.5	19.5	15.5	17.5	19.0	14.5	17.0
3	17.0	13.5	15.5	18.5	16.0	17.0	19.0	15.5	17.5	19.0	15.5	17.5
4	15.5	13.0	14.0	22.0	17.5	19.5	19.5	16.0	18.0	19.0	15.5	17.5
5	19.5	14.5	17.0	21.5	18.0	20.0	19.0	15.5	17.5	18.0	15.5	16.5
6	22.0	16.0	18.0	20.5	17.5	19.0	19.0	15.5	17.5	17.5	14.5	16.0
7	20.5	17.0	19.0	19.5	15.5	17.5	18.5	16.0	17.0	18.0	13.5	16.0
8	19.5	15.0	17.5	18.0	16.0	17.0	18.5	16.0	17.0	18.5	15.0	16.5
9	19.0	15.5	17.5	20.5	17.0	18.5	17.0	14.5	15.5	16.0	13.5	14.5
10	19.5	16.0	17.5	18.5	15.5	17.0	19.5	15.0	17.5	16.5	13.0	15.0
11	19.5	15.5	17.5	18.0	14.5	16.5	18.5	15.5	17.0	17.0	12.5	15.0
12	19.0	16.5	18.0	18.5	15.0	17.0	18.5	16.0	17.0	15.5	14.0	15.0
13	20.5	17.5	19.0	17.5	15.0	16.5	18.0	16.0	17.0	15.5	12.5	14.0
14	19.0	16.0	17.5	19.5	15.5	17.5	18.0	14.0	16.0	15.5	12.5	14.0
15	16.0	13.5	14.5	20.0	16.5	18.5	18.0	14.0	16.5	15.5	12.0	14.0
16	16.0	13.0	14.5	20.5	17.0	19.0	17.5	15.5	16.5	16.0	12.0	14.0
17	16.5	12.5	14.5	23.0	19.0	21.0	19.0	15.0	17.5	16.5	11.5	14.0
18	17.5	13.0	15.0	21.5	17.5	18.5	18.0	14.5	15.5	16.5	12.0	14.5
19	18.0	14.0	16.0	18.0	16.5	17.5	17.5	14.5	16.0	17.0	13.0	15.0
20	18.0	14.5	16.5	19.5	16.0	17.5	18.0	14.5	16.5	15.0	12.5	13.5
21	18.0	14.5	16.5	20.0	17.0	19.0	18.0	15.0	16.5	15.0	11.5	13.0
22	21.0	15.0	17.0	20.5	17.0	19.0	17.5	15.0	16.0	16.0	11.0	13.5
23	20.5	16.0	17.0	25.5	17.0	20.0	18.5	15.0	16.5	17.0	12.5	14.5
24	20.5	16.0	18.0	21.5	18.0	20.0	18.0	17.0	17.5	16.0	13.0	14.5
25	19.5	15.5	17.5	20.5	17.0	19.0	19.0	15.5	17.0	16.5	12.0	14.0
26	19.0	16.0	17.5	21.0	17.0	19.5	19.0	15.0	17.0	17.0	14.0	15.5
27	19.0	16.0	17.5	20.5	17.5	19.5	19.5	15.0	17.5	16.0	14.0	14.5
28	18.0	16.0	17.0	20.0	16.5	18.5	19.5	16.0	18.0	14.0	13.5	14.0
29	18.5	14.5	16.5	21.0	16.5	19.0	18.5	15.5	17.0	15.0	12.0	13.5
30	17.0	15.0	16.0	21.5	17.5	19.5	17.0	14.0	15.5	15.5	12.0	13.5
31	---	---	---	23.5	19.5	22.0	18.0	13.5	16.0	---	---	---
MONTH	22.0	12.5	16.7	25.5	14.5	18.5	21.5	13.5	16.9	19.0	11.0	14.9

ROCK RIVER BASIN
05435943 BADGER MILL CREEK AT VERONA, WI--CONTINUED

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	12.5	6.0	8.4	12.3	6.7	8.7	13.0	8.3	9.9	13.4	9.7	11.0
2	11.8	6.3	8.4	12.4	7.1	9.2	13.0	7.6	9.6	12.3	9.6	10.8
3	9.4	6.1	7.4	12.5	7.9	9.5	11.8	7.1	8.8	13.4	10.1	11.2
4	11.0	6.2	7.9	13.1	7.8	9.7	9.3	6.9	7.6	13.0	10.0	11.0
5	7.7	1.3	6.9	13.0	8.0	9.8	10.4	6.8	7.9	12.8	9.8	11.1
6	7.1	6.0	6.5	12.9	7.9	9.6	8.8	6.7	7.7	12.9	9.5	10.6
7	10.3	6.4	8.0	13.9	8.0	10.2	12.2	8.0	9.4	13.0	10.0	11.2
8	12.6	6.8	9.0	12.1	7.8	9.4	12.0	8.2	9.5	12.5	9.8	10.7
9	12.8	7.1	9.2	10.1	7.5	8.5	12.3	8.1	9.5	12.5	9.9	10.8
10	12.6	6.9	9.0	9.6	7.6	9.1	12.4	8.0	9.6	12.1	10.1	10.8
11	13.1	6.7	9.0	11.2	9.0	9.7	12.0	8.2	9.5	12.0	9.6	10.7
12	12.7	6.7	8.9	12.6	8.7	10.0	12.2	8.1	9.5	11.3	9.6	10.3
13	13.3	6.9	9.4	12.8	8.1	9.9	12.3	8.2	9.6	12.1	10.1	10.8
14	13.5	7.2	9.6	12.4	8.0	9.4	12.2	8.2	9.6	11.0	8.6	10.0
15	13.7	6.6	9.2	13.1	8.0	9.8	12.1	8.1	9.5	10.5	9.1	9.6
16	13.6	5.9	8.7	11.2	8.1	9.0	12.3	8.0	9.5	11.2	8.8	9.6
17	6.9	4.9	5.7	12.8	8.2	9.8	12.7	8.3	9.8	11.3	8.7	9.6
18	8.6	4.7	6.2	13.1	7.9	9.7	11.9	8.1	9.5	11.4	8.5	9.6
19	12.4	6.6	8.7	12.4	7.8	9.5	11.8	8.0	9.4	12.2	9.4	10.3
20	12.5	7.0	9.0	13.0	8.6	10.0	11.0	8.6	9.4	12.6	8.3	10.1
21	12.8	6.9	9.1	13.6	8.7	10.4	12.7	8.6	10.2	12.1	8.9	9.9
22	13.0	7.4	9.4	13.7	8.3	10.2	13.2	9.9	11.1	12.0	9.4	10.9
23	12.9	7.1	9.1	13.0	8.2	9.9	12.9	9.8	10.8	11.7	10.6	11.1
24	13.0	6.8	9.1	13.7	8.1	10.1	12.5	9.6	10.6	11.7	9.8	10.7
25	13.1	6.6	8.8	12.5	8.0	9.4	12.7	9.2	10.4	12.2	9.5	10.5
26	13.3	6.6	9.0	13.2	8.2	9.9	12.6	9.0	10.4	12.0	9.1	10.3
27	8.2	5.1	6.7	13.3	8.1	9.8	12.4	9.1	10.2	11.3	8.9	9.7
28	10.5	5.1	7.3	13.3	7.6	9.7	12.6	8.8	10.3	11.2	8.4	9.5
29	10.6	6.4	7.9	9.6	7.4	8.1	12.6	8.6	10.2	12.1	8.3	9.4
30	10.0	6.3	7.7	11.4	7.2	8.7	13.2	9.6	11.0	12.1	8.2	9.5
31	9.8	6.7	7.8	---	---	---	13.1	9.5	10.7	13.0	8.1	9.8
MONTH	13.7	1.3	8.3	13.9	6.7	9.6	13.2	6.7	9.7	13.4	8.1	10.4
FEBRUARY			MARCH			APRIL			MAY			
1	11.3	7.9	8.8	20.8	8.3	12.4	21.3	4.6	11.9	17.2	7.4	11.1
2	12.9	7.8	9.5	16.2	8.0	10.7	23.9	7.4	13.7	17.6	7.4	11.2
3	12.2	8.6	9.8	20.7	8.6	12.8	12.4	7.4	8.8	17.3	7.3	11.1
4	12.8	8.5	9.8	19.7	8.6	12.2	19.1	7.5	11.2	17.0	6.8	10.5
5	11.9	8.0	9.5	17.7	8.5	11.5	16.7	8.3	11.1	15.3	6.4	9.6
6	14.3	8.0	10.0	21.5	9.3	13.4	19.0	8.6	11.8	9.8	6.8	7.5
7	13.8	7.7	9.9	20.5	9.2	12.9	21.3	8.1	13.3	13.6	6.9	9.4
8	12.4	8.0	9.4	17.2	9.1	11.8	21.8	8.1	12.4	15.2	7.4	10.4
9	15.5	8.0	10.4	19.4	9.0	12.9	11.3	8.4	10.7	17.3	7.3	11.0
10	15.3	8.2	10.5	19.2	8.7	12.2	16.0	9.6	11.8	17.6	7.0	11.1
11	9.7	7.9	8.8	19.0	8.5	12.0	15.1	8.0	11.2	17.2	6.9	11.0
12	11.4	9.6	10.4	19.5	8.8	12.2	18.2	9.4	13.0	15.5	5.8	10.0
13	13.4	9.4	10.7	19.8	8.6	12.5	20.1	8.3	13.2	18.0	7.2	11.3
14	14.3	8.7	10.6	19.3	8.5	12.1	21.4	7.9	13.1	17.8	7.2	11.3
15	15.0	7.8	10.5	19.9	8.6	12.5	19.9	7.7	12.0	16.3	7.0	10.2
16	11.9	8.2	9.6	20.9	8.5	12.7	22.7	7.7	13.4	16.8	6.5	9.7
17	17.2	9.0	11.5	21.0	8.5	12.7	21.4	7.4	13.0	7.7	5.8	6.3
18	17.9	9.0	11.8	22.1	8.9	13.6	22.8	7.4	12.4	10.9	6.3	8.0
19	17.1	8.9	11.6	22.6	8.8	13.6	23.4	7.4	13.7	13.7	7.1	9.7
20	18.0	9.0	12.0	23.1	8.5	13.7	16.2	6.7	10.1	14.0	7.2	9.9
21	19.0	9.0	12.1	23.1	7.2	13.9	17.2	6.8	10.9	12.5	6.7	8.9
22	19.8	8.8	12.2	23.5	9.1	14.1	9.0	7.1	8.3	15.1	6.4	10.1
23	19.5	8.6	12.2	23.4	8.6	14.1	10.0	7.7	9.1	13.4	6.9	8.8
24	16.1	8.3	11.4	23.6	8.6	14.1	10.6	6.5	8.6	14.0	6.9	10.1
25	19.3	8.1	11.7	24.0	9.0	14.7	---	---	---	15.2	7.9	10.7
26	21.6	7.7	12.3	24.3	8.9	14.6	---	---	---	15.4	7.5	10.5
27	17.9	7.5	10.4	24.6	8.5	14.5	---	---	---	15.4	7.3	10.4
28	18.4	7.8	11.2	20.5	8.0	12.7	15.6	8.0	10.7	13.9	6.7	9.4
29	---	---	---	24.9	8.8	14.7	16.1	7.9	11.0	13.5	6.3	9.1
30	---	---	---	24.0	8.2	14.4	16.8	7.7	11.1	13.0	6.3	9.1
31	---	---	---	23.7	7.2	13.7	---	---	---	11.8	6.2	8.4
MONTH	21.6	7.5	10.7	24.9	7.2	13.1	---	---	---	18.0	5.8	9.9

05435943 BADGER MILL CREEK AT VERONA, WI--CONTINUED

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	12.0	6.0	8.6	10.5	5.1	7.6	11.7	4.3	7.7	12.5	6.4	8.9
2	12.0	5.3	8.0	12.1	5.6	8.6	12.0	6.1	8.6	12.8	6.2	8.8
3	13.1	6.2	9.2	11.3	5.7	7.7	10.2	6.2	8.0	12.9	5.8	8.8
4	9.5	6.2	8.1	12.6	5.8	8.4	10.7	5.5	7.7	13.1	5.9	8.8
5	12.9	5.5	8.8	12.6	5.3	8.4	11.2	5.7	7.9	12.3	6.0	8.6
6	13.0	5.4	7.9	11.7	5.2	8.1	11.3	5.6	8.0	12.5	6.2	8.8
7	12.3	4.4	7.5	12.4	5.7	8.4	7.9	5.5	6.5	12.5	6.5	8.8
8	11.6	5.3	8.2	12.4	5.7	8.6	11.3	5.3	8.0	11.9	5.8	8.1
9	12.2	4.5	8.0	12.4	5.6	8.4	10.3	6.0	7.9	10.8	6.0	8.1
10	12.4	5.1	8.1	12.8	5.7	8.7	11.0	5.7	8.0	11.6	6.4	8.4
11	12.6	4.9	8.3	13.3	6.2	9.1	11.5	5.6	8.3	12.0	6.3	8.3
12	12.6	4.4	8.3	13.1	6.2	9.0	10.5	5.8	7.4	9.2	6.1	7.3
13	6.5	4.7	5.3	13.3	6.2	9.1	9.1	5.0	7.0	11.5	6.5	8.4
14	11.6	5.0	7.9	13.3	6.0	8.9	11.9	6.1	8.5	11.9	6.7	8.5
15	12.4	6.5	9.2	13.3	5.7	8.9	11.9	6.2	8.6	12.0	6.8	8.6
16	12.0	6.5	9.0	13.4	5.3	8.7	11.4	5.9	8.0	12.0	6.2	8.6
17	13.0	7.0	9.5	7.3	3.9	5.1	12.0	6.0	8.5	12.1	6.6	8.6
18	13.3	6.6	9.5	9.3	4.0	6.9	11.0	5.9	7.9	12.1	6.6	8.6
19	13.6	6.3	9.5	10.3	5.7	7.6	11.9	5.8	8.3	12.3	5.8	8.3
20	13.7	6.4	9.6	9.8	5.4	7.0	12.4	6.3	8.9	12.2	5.9	8.7
21	13.3	6.6	9.6	10.0	4.7	6.7	12.5	6.3	9.0	12.6	7.2	9.2
22	13.0	4.4	9.0	11.3	4.9	7.5	11.4	6.2	8.5	12.1	6.5	8.9
23	10.1	4.7	7.3	11.2	4.1	6.7	7.8	5.4	6.7	11.5	6.4	8.2
24	12.8	5.5	8.4	10.9	3.9	6.9	8.8	5.3	6.7	11.9	6.3	8.4
25	13.0	5.6	8.7	11.4	5.0	7.6	11.4	5.9	8.1	11.9	6.5	8.5
26	13.5	6.0	9.2	10.8	4.5	6.9	11.5	6.0	8.2	11.6	5.9	7.8
27	13.2	5.9	9.1	11.7	4.3	7.5	11.6	6.0	8.3	7.5	5.3	6.4
28	11.7	6.0	8.4	11.6	5.4	7.9	11.7	5.9	8.2	8.1	2.9	6.7
29	13.0	6.2	9.0	11.9	5.6	7.9	12.2	5.9	8.5	10.7	6.7	8.2
30	13.1	6.2	9.2	12.0	5.4	8.1	12.5	6.4	9.0	11.3	7.3	8.6
31	---	---	---	5.9	4.3	5.0	12.3	6.5	8.9	---	---	---
MONTH	13.7	4.4	8.5	13.4	3.9	7.8	12.5	4.3	8.1	13.1	2.9	8.4

ROCK RIVER BASIN
05436500 SUGAR RIVER NEAR BRODHEAD, WI

LOCATION.--Lat 42°36'42", long 89°23'53", in SW 1/4 sec.26, T.2 N., R.9 E., Green County, Hydrologic Unit 07090004, on left bank at downstream side of highway bridge, 1.2 mi southwest of Brodhead, and 1.9 mi upstream from Sylvester Creek.

DRAINAGE AREA.--523 mi².

PERIOD OF RECORD.--January 1914 to current year. Monthly discharge for January and February 1914 published in WSP 1308.

REVISED RECORDS.--WSP 1238: 1914-16, 1918, 1922, 1927, 1933. WSP 1508: 1916-17(M), 1919(M), 1920, 1921(M), 1927-28(M), 1930(M), 1931, 1936(M), 1943(M). WDR WI-73-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 768.14 ft above sea level. Prior to Oct. 17, 1938, nonrecording gage 20 ft upstream at same datum.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 22 to Jan. 27. Records good except those for ice-affected period, which is fair (see page 13). Some regulation from dam and non-operationl powerplant upstream. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	317	377	354	300	472	398	331	810	524	506	424	346
2	324	369	350	300	515	393	324	701	564	514	443	343
3	340	363	348	300	674	382	353	631	599	526	424	338
4	353	357	347	300	740	369	525	594	617	514	395	334
5	399	353	345	300	700	360	602	575	590	491	380	331
6	483	350	351	300	589	358	604	593	594	467	372	327
7	621	349	364	300	499	341	537	654	690	447	371	323
8	714	347	365	300	479	347	490	682	695	431	376	325
9	697	347	356	300	471	342	637	669	684	432	381	323
10	518	427	352	300	498	356	794	615	623	435	379	321
11	433	548	351	290	573	353	908	566	693	413	373	319
12	403	678	348	290	711	342	849	565	780	401	377	317
13	378	715	347	290	765	339	656	565	1120	389	391	315
14	380	567	344	290	741	341	546	550	2200	375	392	314
15	368	466	342	290	638	347	487	523	2830	379	376	310
16	383	435	341	290	523	365	470	507	1890	374	363	307
17	373	413	338	290	486	407	482	923	1030	393	358	304
18	524	402	337	300	458	460	461	3140	752	425	354	302
19	653	397	333	310	432	469	439	3940	654	464	387	298
20	689	387	330	320	410	424	430	2470	599	500	415	298
21	593	377	318	330	387	394	445	1540	568	941	391	295
22	469	372	330	330	375	377	531	1110	546	850	369	295
23	421	371	330	500	367	365	1140	865	554	1040	368	293
24	405	366	330	660	363	356	1930	776	698	822	441	291
25	394	362	330	800	361	348	2650	725	724	624	537	287
26	385	358	320	820	360	342	1910	676	626	518	522	285
27	380	356	310	620	374	339	1370	630	540	507	434	298
28	383	353	310	588	394	340	1180	593	514	516	392	379
29	394	352	310	621	---	341	987	566	496	472	372	453
30	396	357	310	608	---	338	921	547	485	434	359	461
31	390	---	300	485	---	332	---	530	---	425	351	---
TOTAL	13960	12271	10441	12322	14355	11365	23989	28831	24479	16025	12267	9732
MEAN	450	409	337	397	513	367	800	930	816	517	396	324
MAX	714	715	365	820	765	469	2650	3940	2830	1040	537	461
MIN	317	347	300	290	360	332	324	507	485	374	351	285
CFSM	.86	.78	.64	.76	.98	.70	1.53	1.78	1.56	.99	.76	.62
IN.	.99	.87	.74	.88	1.02	.81	1.71	2.05	1.74	1.14	.87	.69

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1999, BY WATER YEAR (WY)

	MEAN	284	307	271	295	429	663	464	371	361	303	259	296
MAX	788	836	597	1168	1690	1698	1159	1368	1244	1248	694	1579	
(WY)	1928	1962	1929	1916	1938	1929	1993	1973	1996	1993	1924	1938	
MIN	126	127	120	89.4	127	181	198	140	113	117	105	106	
(WY)	1965	1965	1956	1956	1959	1934	1938	1934	1934	1958	1934	1958	

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1914 - 1999
ANNUAL TOTAL	172309	190037	
ANNUAL MEAN	472	521	358
HIGHEST ANNUAL MEAN			694
LOWEST ANNUAL MEAN			172
HIGHEST DAILY MEAN	2120	3940	10800
LOWEST DAILY MEAN	(a)180	285	51
ANNUAL SEVEN-DAY MINIMUM	(a)251	Jan 20	71
INSTANTANEOUS PEAK FLOW		4510	14800
INSTANTANEOUS PEAK STAGE		8.13	(c)11.40
INSTANTANEOUS LOW FLOW			35
ANNUAL RUNOFF (CFSM)	.90	1.00	.69
ANNUAL RUNOFF (INCHES)	12.26	13.52	9.31
10 PERCENT EXCEEDS	737	731	584
50 PERCENT EXCEEDS	385	397	261
90 PERCENT EXCEEDS	294	310	150

(a) Ice affected

(b) From rating curve extended above 7,500 ft³/s

(c) From floodmarks

05437500 ROCK RIVER AT ROCKTON, IL

LOCATION.--Lat 42°26'55", long 89°04'11", in SW 1/4 NE 1/4 sec.24, T.46 N., R.1 E., Winnebago County, Hydrologic Unit 07090005, on right bank 750 ft downstream from State Highway 75 in Rockton, 1.0 mi downstream from Pecatonica River, and at mile 156.1.

DRAINAGE AREA.--6,363 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1903 to July 1906, October 1906 to March 1909, July 1914 to September 1919, October 1939 to current year. Published as "below mouth of Pecatonica River at Rockton" 1903-9; as "at Rockford" 1914-19. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORD.--WSP 325: 1903-9. WSP 895: 1904(M). WSP 1508: 1915, 1916-17(M). WDR IL-75-1: Drainage area. WDR IL-97-1: 1996 (Dec. 10-23).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 707.94 ft above sea level (levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1906, nonrecording gage at site 800 ft upstream at datum about 1 ft higher. Oct. 1, 1906, to Mar. 31, 1909, nonrecording gage at site 800 ft upstream at datum about 2 ft higher. July 30, 1914, to Apr. 30, 1919, nonrecording gage at site at Rockford about 21 mi downstream, at different datum. Oct. 1, 1939, to Aug. 10, 1973, at site 800 ft upstream at same datum.

REMARKS.--Estimated daily discharges: May 6, 7, 10-13, 15-17 and ice-affected period, Dec. 31 to Jan. 26. Records fair except those for estimated daily discharges, which are poor (see page 13). Low flow regulated by powerplant upstream from station. Gage-height tele-meter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,500 ft³/s, Mar. 30, 1916, gage height, 13.06 ft, site and datum then in use; minimum daily, 501 ft³/s, Sept. 14, 1958.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in February 1937 reached a stage of 14.6 ft (backwater from ice), from floodmark.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3150	4580	4330	2650	6930	5940	3900	14600	9240	6380	6420	3910
2	3100	4590	4270	2450	7120	5960	3750	14200	9110	6100	6430	3810
3	3250	4590	4290	2250	7930	5900	3700	13800	8740	6020	6290	3700
4	3410	4370	4350	2100	8060	5790	4500	13300	8620	5890	6280	3600
5	4060	4230	4360	2300	7950	5670	4420	12800	8480	5790	6260	3550
6	4890	4100	4420	2500	7950	5500	4870	12200	8220	5690	6110	3430
7	5270	4120	4470	2450	7810	5130	4990	12000	8190	5540	6190	3390
8	5640	3870	4390	2400	7450	5180	5280	11600	8270	5230	6040	3130
9	5650	4020	4420	2300	7190	5190	6360	11200	8220	5030	5940	2450
10	5510	4750	4300	2230	6990	5030	7140	11000	8190	4910	5970	2350
11	5230	5330	4240	2170	7130	4970	7470	10700	8380	4820	5920	2390
12	4900	5590	4240	2100	7850	4810	7600	10200	8290	4740	6030	2570
13	4610	6000	4340	2100	7960	4770	7770	9700	9800	4640	5980	2550
14	4490	5970	4230	2000	8280	4770	8000	9320	11200	4370	5900	2520
15	4380	6090	4120	2000	8340	4700	7940	8800	10400	4010	5750	2560
16	4360	5780	4120	2000	8370	4570	8210	8400	10400	4080	5550	2810
17	4460	5660	4120	1900	8190	4680	8180	9600	11100	4160	5460	3050
18	5820	5390	4080	1900	7880	4630	8090	10700	11300	4240	5380	2950
19	6780	5280	3900	1900	7590	5050	7850	11000	10900	4440	5480	2830
20	6830	5090	3920	2100	7330	5180	7550	11300	10000	5060	5230	3010
21	6860	5110	3890	2500	7020	5050	7580	12600	9320	6470	5150	2900
22	6560	4930	3170	3000	6730	4900	8070	13300	8670	6240	4880	2810
23	6060	4820	3060	3700	6560	4770	12000	12900	8250	6280	4940	2400
24	5650	4770	3130	4500	6340	4630	13700	12600	8320	6530	5400	2420
25	5250	4770	3190	5200	6270	4540	12900	12400	8240	6640	5520	2440
26	5150	4660	3360	6100	6090	4450	13600	12100	7960	6980	5230	2410
27	4920	4600	3540	6770	6090	4330	14500	12000	7570	6810	5060	2690
28	4950	4550	3560	7110	6010	4130	15500	11500	7360	6580	4790	4190
29	4940	4540	3530	7120	---	4010	15600	11100	6820	6540	4600	5040
30	4830	4290	3190	7020	---	4080	15000	10400	6530	6360	4310	4860
31	4690	---	2900	6890	---	3930	---	9720	---	6400	4000	---
TOTAL	155650	146440	121430	103710	205410	152240	256020	357040	266090	172970	172490	92720
MEAN	5021	4881	3917	3345	7336	4911	8534	11520	8870	5580	5564	3091
MAX	6860	6090	4470	7120	8370	5960	15600	14600	11300	6980	6430	5040
MIN	3100	3870	2900	1900	6010	3930	3700	8400	6530	4010	4000	2350
CFSM	.79	.77	.62	.53	1.15	.77	1.34	1.81	1.39	.88	.87	.49
IN.	.91	.86	.71	.61	1.20	.89	1.50	2.09	1.56	1.01	1.01	.54

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1999, BY WATER YEAR (WY)

	3075	3502	3264	3217	3850	7285	7395	5307	4261	3648	2863	2843
MEAN	3075	3502	3264	3217	3850	7285	7395	5307	4261	3648	2863	2843
MAX	13340	11320	9049	9432	8365	13920	18530	17770	13700	17000	9039	7753
(WY)	1987	1986	1983	1960	1997	1974	1993	1973	1996	1993	1993	1972
MIN	857	1100	1004	800	1000	1692	2476	1103	1248	1056	793	780
(WY)	1965	1940	1959	1940	1940	1954	1958	1958	1977	1965	1958	1958

ROCK RIVER BASIN
05437500 ROCK RIVER AT ROCKTON, IL--CONTINUED

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1940 - 1999	
ANNUAL TOTAL	2112070		2202210		4209	
ANNUAL MEAN	5786		6033		9484	1993
HIGHEST ANNUAL MEAN					1568	1958
LOWEST ANNUAL MEAN					29700	Mar 25 1975
HIGHEST DAILY MEAN	14100	Apr 22	15600	Apr 29	501	Sep 14 1958
LOWEST DAILY MEAN	(a)2200	Jan 14	(a)1900	Jan 17-19	622	Oct 2 1958
ANNUAL SEVEN-DAY MINIMUM	(a)2350	Jan 24	(a)1970	Jan 13	30000	Mar 25 1975
INSTANTANEOUS PEAK FLOW			15800	Apr 28	15.54	Mar 25 1975
INSTANTANEOUS PEAK STAGE			9.91	Apr 28		
INSTANTANEOUS LOW FLOW			1700	Sep 20		
ANNUAL RUNOFF (CFSM)	.91		.95		.66	
ANNUAL RUNOFF (INCHES)	12.35		12.87		8.99	
10 PERCENT EXCEEDS	10400		10400		8390	
50 PERCENT EXCEEDS	5020		5270		3170	
90 PERCENT EXCEEDS	3020		2870		1300	

(a) Ice-affected

ROCK RIVER BASIN
05437500 ROCK RIVER AT ROCKTON, IL--CONTINUED

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WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 1998 to September 1999.

REMARKS.--Chemical analyses by the Madison Metropolitan Sewage District from September 1998 to August 1999, and by the Wisconsin State Laboratory of Hygiene in September 1999. Samples are composites of 3-5 verticals, collected by cooperative observers.

WATER-QUALITY DATA, SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 DIS- SOLVED (COLS./ 100 ML) (31625)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
SEP 1998									
02...	1345	3150	7.1	22.3	6.5	5.0	420	36	405
15...	1445	3740	8.6	21.6	6.7	6.3	>1300	47	408

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	RESIDUE VOLLA- TILE, SUS- PENDED (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	CHLORO- PHYLL A FLUORO- METRIC CORR. (UG/L) (32209)
SEP 1998								
02...	86	15	4.74	<.040	1.2	.400	.050	33.4
15...	72	17	4.11	.090	1.7	.280	.050	69.4

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 DIS- SOLVED (COLS./ 100 ML) (31625)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
OCT 1998									
06...	1300	4890	8.3	14.5	6.6	4.2	4300	39	370
20...	1346	6830	7.9	13.0	7.8	5.6	4800	38	371
NOV									
03...	1245	4590	7.7	10.0	8.3	3.8	250	42	383
12...	1120	5590	8.0	6.3	11.5	3.6	15000	36	367
17...	1330	5660	8.4	7.3	12.1	3.6	530	42	352
DEC									
01...	1311	4330	8.2	9.8	10.2	2.8	440	39	414
15...	1258	4120	8.2	3.5	12.4	3.9	88	38	352
JAN 1999									
05...	1315	2300	8.2	3.2	10.9	<2.0	210	53	448
19...	1250	1900	7.9	.7	12.0	<2.0	380	76	466
FEB									
02...	1204	7120	7.8	1.7	11.1	3.0	92	40	400
16...	1248	8370	8.0	3.3	10.6	4.0	110	38	330
MAR									
02...	1238	5960	8.7	4.5	11.1	4.3	990	40	356
16...	1300	4570	8.4	6.3	11.0	2.9	30	38	372
APR									
05...	1120	4420	8.4	13.1	7.5	6.4	760	36	342
06...	1225	4870	8.5	12.0	7.0	5.3	480	38	362
20...	1200	7550	8.0	11.2	7.3	5.3	140	36	366
28...	1235	15500	8.2	11.9	7.8	5.9	440	32	294
MAY									
04...	1145	13300	8.5	18.0	6.4	4.3	23	26	340
18...	1155	10700	8.2	17.0	5.8	17	>7300	29	328
24...	1120	12600	8.9	17.3	6.0	9.2	230	29	282
JUN									
01...	1140	9240	7.4	21.0	5.2	8.5	140	32	394
15...	1130	10400	8.0	21.2	4.6	4.9	880	29	502
JUL									
06...	1200	5690	8.4	27.4	5.4	5.2	230	36	358
20...	0850	5060	8.5	24.1	4.5	12	490	47	363
26...	1130	6980	8.1	26.6	4.3	6.4	580	34	354

ROCK RIVER BASIN
05437500 ROCK RIVER AT ROCKTON, IL--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)
AUG 1999									
03...	1300	6290	--	--	--	7.1	270	35	406
18...	0925	5380	8.4	22.4	4.9	13	68	44	346
SEP									
07...	1130	3390	--	--	--	<2.0	--	--	--
21...	1100	2900	8.8	--	6.1	4.0	--	--	--
29...	1200	5040	7.8	14.6	5.5	3.3	--	--	--
DATE		RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDED (MG/L) (00535)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS- PHORUS ORTHOPHOS- PHATE TOTAL (MG/L AS P) (00665)	CHLORO- PHYLL A FLUORO- METHRIC CORR. (UG/L) (32209)	
OCT 1998									
06...		76	15	4.04	<.040	1.5	.290	.070	40.7
20...		87	15	4.00	<.040	1.8	.390	.160	39.4
NOV									
03...		31	9	4.57	<.040	1.2	.180	.060	67.0
12...		43	12	5.33	.050	1.4	.270	.080	66.7
17...		36	11	3.70	<.040	1.6	.260	.040	94.9
DEC									
01...		29	7	4.43	.070	1.0	.110	<.020	19.5
15...		15	6	4.18	<.040	.97	.120	<.020	55.9
JAN 1999									
05...		4	3	5.29	.070	.82	.090	.040	5.90
19...		5	5	3.88	.220	1.1	.100	.020	<1.50
FEB									
02...		17	8	4.79	.290	1.0	.210	.160	28.2
16...		50	10	4.37	.100	1.5	.340	.070	76.7
MAR									
02...		12	4	4.15	.050	1.3	.170	<.030	91.2
16...		18	5	4.88	<.040	.88	.070	<.030	36.5
APR									
05...		78	15	4.03	<.040	1.6	.210	.030	121
06...		70	13	3.95	.060	1.6	.320	<.030	92.3
20...		58	11	4.28	<.040	1.4	.190	<.030	48.4
28...		82	14	2.85	.110	1.8	.260	<.030	50.9
MAY									
04...		71	14	3.74	<.040	1.6	.230	<.030	63.4
18...		235	32	3.18	.230	2.3	.470	.030	68.1
24...		78	15	2.45	.090	1.7	.260	<.030	76.5
JUN									
01...		81	17	3.21	<.040	1.8	.250	<.030	97.6
15...		121	17	3.62	.150	1.7	.380	.100	23.5
JUL									
06...		112	20	3.86	<.040	1.8	.310	.040	82.7
20...		69	16	3.25	.040	1.9	.280	.140	107
26...		81	17	2.97	.040	1.9	.300	<.030	98.3
AUG									
03...		102	23	3.20	<.040	2.0	.340	.110	167
18...		44	15	1.22	<.040	2.3	.270	.060	122
SEP									
07...		61	--	3.61	--	--	.262	.088	--
21...		--	13	4.35	--	--	.212	.068	--
29...		92	17	4.02	--	--	.276	.113	--

ROCK RIVER BASIN
05437500 ROCK RIVER AT ROCKTON, IL--CONTINUED

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WATER-QUALITY DATA, SEPTEMBER 1998 TO SEPTEMBER 1999

PHOSPHORUS, ORTHO, WATER, FILTERED, POUNDS PER DAY
MONTHLY TOTALS

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1998 TOTAL	---	---	---	---	---	---	---	---	---	---	---	29272
1999 TOTAL	94170	38146	10084	39550	97711	14563	22176	37353	98777	64231	71710	37919
WTR YR 1999	TOTAL 626390											

PHOSPHORUS TOTAL, POUNDS PER DAY
MONTHLY TOTALS

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1998 TOTAL	---	---	---	---	---	---	---	---	---	---	---	169060
1999 TOTAL	270200	170520	73280	74880	298090	102980	330640	598700	482100	282260	269750	118740
WTR YR 1999	TOTAL 3072140											

SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (TONS PER DAY)
MONTHLY TOTALS

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1998 TOTAL	---	---	---	---	---	---	---	---	---	---	---	20695
1999 TOTAL	31219	14044	5490.3	2462.1	18243	10925	48110	117650	78670	42586	30086	14039
WTR YR 1999	TOTAL 413524.4											

ROCK RIVER BASIN

05438283 PISCASAW CREEK NEAR WALWORTH, WI

LOCATION.--Lat 42°31'18", long 88°39'39", in NE 1/4 NE 1/4 sec.25, T.1 N., R.15 E., Walworth County, Hydrologic Unit 07090006, on right bank 0.9 mi upstream from County Trunk Highway B bridge, 3.2 mi southwest of Walworth.

DRAINAGE AREA.--9.58 mi².

PERIOD OF RECORD.--September 1992 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 935 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records are fair (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	1.5	1.8	1.4	3.7	2.3	2.3	3.4	3.8	4.1	2.4	1.8
2	1.5	1.5	1.8	1.3	10	2.3	2.3	3.1	5.1	3.9	2.3	1.8
3	1.5	1.5	1.7	1.5	6.6	2.3	2.3	2.9	5.3	3.9	2.3	1.8
4	1.5	1.5	1.7	1.4	5.1	2.2	2.3	2.9	6.0	3.8	2.5	1.8
5	2.1	1.5	1.7	1.3	3.7	2.2	2.4	2.8	5.7	3.7	2.5	1.7
6	2.2	1.5	1.8	1.6	3.1	2.0	2.5	2.9	7.6	3.7	2.5	1.7
7	2.2	1.5	2.0	1.4	3.0	2.0	2.4	3.0	6.3	3.7	2.9	1.7
8	1.9	1.5	2.0	1.3	2.9	2.1	2.5	3.0	4.3	3.5	3.0	1.8
9	1.8	1.5	1.8	1.4	2.9	2.1	2.7	2.9	4.1	3.3	3.2	1.8
10	1.7	6.9	1.7	1.4	2.9	2.0	2.7	2.9	103	3.2	2.7	1.7
11	1.6	4.4	1.7	1.3	6.6	2.0	2.5	2.9	53	3.2	2.5	1.7
12	1.5	3.1	1.7	1.1	8.2	1.9	2.4	3.6	19	3.2	2.8	1.7
13	1.5	2.6	1.7	1.2	4.0	1.9	2.4	3.3	196	3.1	2.6	1.7
14	1.5	2.3	1.7	1.2	3.5	2.0	2.5	3.0	14	3.6	2.4	1.7
15	1.5	2.1	1.7	1.2	3.2	2.0	2.5	2.8	8.0	4.0	2.4	1.7
16	1.5	2.0	1.7	1.3	3.1	2.1	2.3	10	6.9	3.9	2.3	1.7
17	2.9	1.9	1.7	1.6	2.9	2.4	2.3	17	6.1	4.2	2.3	1.7
18	6.5	1.8	1.8	1.6	2.7	2.3	2.3	8.0	5.6	3.8	2.3	1.7
19	3.8	1.8	1.6	1.5	2.5	2.2	2.3	6.3	5.5	3.8	3.0	1.7
20	2.7	1.8	1.7	1.4	2.5	2.1	2.2	4.7	5.2	3.7	2.3	1.7
21	2.3	1.8	1.7	1.4	2.4	2.1	2.2	4.5	5.0	4.1	2.3	1.7
22	2.1	1.7	1.5	10	2.3	2.1	2.7	12	4.8	3.9	2.3	1.7
23	2.0	1.7	1.5	42	2.3	2.2	29	5.8	4.8	9.3	3.2	1.7
24	1.9	1.7	1.5	19	2.3	2.1	7.5	4.9	4.7	6.2	3.3	1.7
25	1.7	1.7	1.3	11	2.3	2.0	5.2	4.1	4.3	3.9	2.5	1.7
26	1.7	1.8	1.4	5.8	2.3	2.0	4.2	3.8	4.2	3.6	2.2	1.7
27	1.7	1.8	1.3	7.8	2.3	2.2	3.9	3.7	4.3	3.2	2.0	2.1
28	1.7	1.8	1.4	9.7	2.3	2.3	5.4	3.5	4.2	2.8	2.0	7.6
29	1.7	1.8	1.5	4.8	---	2.2	4.2	3.3	4.2	2.8	1.8	5.5
30	1.7	1.8	1.4	3.9	---	2.1	3.6	2.9	4.1	2.7	1.8	3.9
31	1.5	---	1.4	4.3	---	2.3	---	3.0	---	2.6	1.8	---
TOTAL	62.9	61.8	50.9	147.1	101.6	66.0	116.0	142.9	515.1	118.4	76.4	63.9
MEAN	2.03	2.06	1.64	4.75	3.63	2.13	3.87	4.61	17.2	3.82	2.46	2.13
MAX	6.5	6.9	2.0	42	10	2.4	29	17	196	9.3	3.3	7.6
MIN	1.5	1.5	1.3	1.1	2.3	1.9	2.2	2.8	3.8	2.6	1.8	1.7
CFSM	.21	.22	.17	.50	.38	.22	.40	.48	1.79	.40	.26	.22
IN.	.24	.24	.20	.57	.39	.26	.45	.55	2.00	.46	.30	.25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1999, BY WATER YEAR (WY)

	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	1.84	1.83	1.83	2.55	5.13	4.17	3.67	2.93
MAX	3.68	3.29	4.54	5.85	13.1	12.0	12.4	4.61
(WY)	1994	1993	1993	1993	1997	1993	1993	1999
MIN	1.24	1.08	.99	1.16	1.23	.69	1.00	1.95
(WY)	1996	1997	1998	1996	1995	1996	1996	1995

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1992 - 1999

ANNUAL TOTAL	953.52	1523.0	
ANNUAL MEAN	2.61	4.17	
HIGHEST ANNUAL MEAN			6.41
LOWEST ANNUAL MEAN			1.32
HIGHEST DAILY MEAN	98	Jun 26	251
LOWEST DAILY MEAN	.89	Jan 1	.58
ANNUAL SEVEN-DAY MINIMUM	.98	Jan 25	.62
INSTANTANEOUS PEAK FLOW			571
INSTANTANEOUS PEAK STAGE			10.05
INSTANTANEOUS LOW FLOW			.58
ANNUAL RUNOFF (CFSM)	.27	.44	.34
ANNUAL RUNOFF (INCHES)	3.70	5.91	4.64
10 PERCENT EXCEEDS	3.1	5.6	4.5
50 PERCENT EXCEEDS	1.8	2.3	1.8
90 PERCENT EXCEEDS	1.2	1.5	.99

(a) Also occurred Mar. 10-12, 1996

ILLINOIS RIVER BASIN

443

05527800 DES PLAINES RIVER AT RUSSELL, IL

LOCATION.--Lat 42°29'22", long 87°55'32", in SE 1/4 sec.3, T.46 N., R.11 E., Lake County, Hydrologic Unit 07120004, on right bank at upstream side of Russell Road bridge, 0.3 mi west of Russell, 7.2 mi upstream from Mill Creek, and at mile 109.3.

DRAINAGE AREA.--123 mi².

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1961-63, and annual maximum, water years 1962-66. June 1967 to current year.

REVISED RECORDS.--WDR IL-75-1: Drainage area. WDR IL-76-1: 1960-68(M), 1973(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 662.00 ft above sea level. Oct. 17, 1961, to June 29, 1967, crest-stage gage at left downstream side of bridge at datum 4.29 ft higher.

REMARKS.--Estimated daily discharges: Jan. 3-17. Records good except those for estimated daily discharges and July 30 to Sept. 30, which are poor (see page 13). Recording rain gage and gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	38	31	17	701	82	45	391	38	66	.00	.12
2	1.5	32	33	19	607	82	43	339	79	60	.00	.12
3	2.4	26	31	22	554	87	43	297	128	51	.00	.09
4	8.2	23	29	21	502	88	48	255	152	43	.00	.04
5	17	21	27	21	451	84	54	215	153	34	.00	.01
6	43	19	30	21	424	78	61	174	130	24	.00	.00
7	50	18	71	21	395	72	67	145	102	17	.00	.00
8	46	17	104	21	365	67	69	124	83	12	.00	.00
9	38	16	111	21	342	78	118	105	73	9.7	.00	.00
10	24	60	103	21	319	106	193	88	61	9.0	.00	.00
11	12	142	84	21	304	76	225	75	52	8.6	.00	.00
12	14	166	69	21	316	70	241	74	43	7.9	.01	.00
13	6.8	175	60	22	309	67	244	75	126	7.0	.02	.00
14	6.4	177	54	22	299	66	235	72	336	7.4	.02	.00
15	7.4	171	50	22	293	68	217	66	411	7.3	.06	.00
16	7.9	158	46	23	286	81	231	62	464	5.9	.07	.00
17	10	132	52	25	277	137	259	107	501	6.8	.04	.00
18	67	97	56	35	258	204	255	143	505	7.2	.01	.00
19	83	70	52	39	239	229	245	145	467	8.5	.83	.00
20	79	57	46	42	212	238	229	139	415	7.1	2.1	.00
21	71	49	39	44	177	236	210	130	357	6.3	1.2	.00
22	57	45	40	111	136	219	246	119	301	5.6	.44	.00
23	45	41	30	279	105	191	612	106	240	4.5	.31	.00
24	34	36	25	455	88	153	1020	99	181	3.5	.36	.00
25	25	32	22	600	78	118	1210	91	129	2.8	.54	.00
26	21	30	20	733	75	93	1170	82	96	2.4	.40	.00
27	19	28	19	856	77	78	977	70	73	1.4	.20	.00
28	18	26	19	1000	80	68	786	62	74	.85	.18	.17
29	19	27	19	1030	---	63	607	57	67	.43	.16	65
30	36	28	19	951	---	57	470	43	64	.14	.14	67
31	43	---	18	831	---	52	---	35	---	.03	.12	---
TOTAL	913.3	1957	1409	7367	8269	3388	10430	3985	5901	427.35	7.21	149.38
MEAN	29.5	65.2	45.5	238	295	109	348	129	197	13.8	.23	4.98
MAX	83	177	111	1030	701	238	1210	391	505	66	2.1	67
MIN	1.5	16	18	17	75	52	43	35	38	.03	.00	.00
CFSM	.24	.53	.37	1.93	2.40	.89	2.83	1.05	1.60	.11	.00	.04
IN.	.28	.59	.43	2.23	2.50	1.02	3.15	1.21	1.78	.13	.00	.05

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1999, BY WATER YEAR (WY)

	MEAN	41.3	70.0	92.3	73.4	111	218	229	120	83.6	55.2	42.4	54.1
MAX	364	390	382	279	327	673	718	410	356	363	417	410	
(WY)	1987	1986	1983	1993	1974	1979	1993	1996	1996	1978	1978	1972	
MIN	.056	2.75	3.06	1.46	2.35	14.9	33.4	6.15	1.90	.78	.23	.060	
(WY)	1995	1972	1977	1977	1977	1968	1977	1977	1988	1988	1999	1994	

SUMMARY STATISTICS

	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1967 - 1999
ANNUAL TOTAL	42164.17	44203.24	
ANNUAL MEAN	116	121	99.2
HIGHEST ANNUAL MEAN			206
LOWEST ANNUAL MEAN			9.24
HIGHEST DAILY MEAN	782	1210	2100
LOWEST DAILY MEAN	.48	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.67	.00	.00
INSTANTANEOUS PEAK FLOW		1250	(c) 2120
INSTANTANEOUS PEAK STAGE		8.38	10.75
ANNUAL RUNOFF (CFSM)	.94	.98	.81
ANNUAL RUNOFF (INCHES)	12.75	13.37	10.95
10 PERCENT EXCEEDS	320	317	276
50 PERCENT EXCEEDS	53	52	33
90 PERCENT EXCEEDS	1.7	.02	2.8

(a) At times in most years

(b) Also occurred Sept. 6

(c) Gage height, 9.69 ft

(d) Mar. 6, 1976 and Sept. 27, 1986

ILLINOIS RIVER BASIN

05543800 FOX RIVER, AT WATERTOWN ROAD, NEAR WAUKESHA, WI

LOCATION.--Lat 43°03'12", long 88°11'41", in NW 1/4 SE 1/4 sec.24, T.7 N., R.19 E., Waukesha County, Hydrologic Unit 07120006, on left bank at upstream side of Watertown Road bridge, 3.5 mi northeast of Waukesha.

DRAINAGE AREA.--77.4 mi².

PERIOD OF RECORD.--December 1992 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 820 ft above sea level, from topographic map.

REMARKS.--No estimated daily discharges. Records are good (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	34	43	23	165	76	56	162	60	49	46	28
2	29	31	43	38	175	76	54	123	99	46	41	28
3	39	30	42	25	207	75	55	96	89	44	38	26
4	44	28	41	24	222	70	60	87	75	42	35	26
5	60	29	40	24	214	67	61	83	71	38	35	25
6	89	28	41	24	190	61	59	118	66	36	37	24
7	74	29	63	24	166	61	57	159	100	36	34	24
8	57	29	61	24	139	59	54	133	78	33	35	27
9	46	29	55	24	132	53	153	111	61	159	35	28
10	39	160	52	24	147	61	271	93	79	126	34	28
11	34	257	49	24	180	61	257	81	158	61	35	28
12	32	207	47	25	307	61	254	143	219	48	32	28
13	31	129	45	24	299	63	240	160	379	42	32	34
14	31	85	43	24	261	64	215	139	682	37	30	33
15	29	70	41	25	237	67	186	123	652	36	28	31
16	30	62	41	26	221	80	164	114	505	33	27	31
17	34	57	39	28	200	128	140	265	368	66	26	31
18	75	52	39	38	174	182	108	330	281	67	27	31
19	62	50	39	38	145	184	89	319	218	72	69	31
20	46	47	37	36	117	169	82	290	167	74	47	39
21	40	45	35	34	92	154	79	274	118	376	35	36
22	38	43	31	88	86	135	148	262	86	329	31	34
23	34	43	30	171	75	113	471	235	73	227	31	36
24	33	41	28	229	69	97	703	216	69	194	40	35
25	32	40	26	212	65	87	636	178	63	167	38	33
26	32	39	26	182	66	75	491	138	58	141	29	36
27	31	38	26	172	71	66	376	111	53	101	29	46
28	32	38	27	186	74	61	300	87	53	69	28	139
29	33	38	27	188	---	58	246	73	69	56	26	182
30	33	41	25	182	---	58	203	64	55	47	27	100
31	34	---	24	175	---	57	---	60	---	48	30	---
TOTAL	1288	1849	1206	2361	4496	2679	6268	4827	5104	2900	1067	1258
MEAN	41.5	61.6	38.9	76.2	161	86.4	209	156	170	93.5	34.4	41.9
MAX	89	257	63	229	307	184	703	330	682	376	69	182
MIN	29	28	24	23	65	53	54	60	53	33	26	24

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1999, BY WATER YEAR (WY)

	1993	1994	1995	1996	1997	1998	1999
MEAN	44.2	52.1	48.3	61.9	99.5	110	174
MAX	57.4	77.6	84.6	86.0	161	163	418
(WY)	1994	1996	1993	1993	1999	1994	1993
MIN	30.2	29.6	31.4	23.4	29.7	62.5	72.3
(WY)	1998	1998	1998	1994	1995	1996	1994

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1993 - 1999

ANNUAL TOTAL	33821	35303	79.7
ANNUAL MEAN	92.7	96.7	96.7
HIGHEST ANNUAL MEAN			53.5
LOWEST ANNUAL MEAN			1999
HIGHEST DAILY MEAN	1320	703	1320
LOWEST DAILY MEAN	21	23	16
ANNUAL SEVEN-DAY MINIMUM	23	24	18
INSTANTANEOUS PEAK FLOW		720	1430
INSTANTANEOUS PEAK STAGE		10.22	12.07
INSTANTANEOUS LOW FLOW		20	13
10 PERCENT EXCEEDS	198	218	186
50 PERCENT EXCEEDS	54	58	52
90 PERCENT EXCEEDS	28	28	25

(a) Also occurred June 14

(b) Also occurred Sept. 7

ILLINOIS RIVER BASIN

445

05543830 FOX RIVER AT WAUKESHA, WI

LOCATION.--Lat 43°00'17", long 88°14'37", in SW 1/4 sec.3, T.6 N., R.18 E., Waukesha County, Hydrologic Unit 07120006, on left bank 20 ft downstream from Prairie Street bridge in Waukesha, 1.0 mi downstream from dam and 3.2 mi downstream from Pewaukee River.

DRAINAGE AREA.--126 mi².

PERIOD OF RECORD.--January 1963 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 793.04 ft above sea level (levels by City of Waukesha).

REMARKS.--No estimated daily discharges. Records are good (see page 13). There is occasional regulation from mill dam 1.0 mi upstream. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	58	57	25	216	127	93	233	95	59	90	36
2	44	55	58	31	229	126	89	182	136	54	77	35
3	83	46	56	43	263	124	89	153	130	49	63	33
4	90	40	53	28	301	117	90	140	111	49	57	30
5	151	38	57	31	301	114	95	132	105	45	52	29
6	167	38	78	33	272	103	92	166	109	42	54	28
7	145	35	102	32	242	102	91	206	136	38	55	29
8	120	36	103	32	214	100	91	192	116	36	54	28
9	102	39	93	31	205	93	231	176	91	291	48	30
10	89	254	89	31	220	101	354	155	130	183	49	30
11	79	312	85	35	298	104	352	140	201	93	48	29
12	73	261	82	34	407	102	329	219	252	68	45	33
13	71	171	76	34	408	103	307	230	553	56	43	32
14	67	117	72	36	355	103	276	201	742	50	42	30
15	58	94	75	35	319	107	243	183	736	44	37	28
16	58	83	73	35	296	126	225	191	589	47	36	28
17	77	74	71	48	271	178	195	371	440	127	36	28
18	125	67	69	55	241	234	162	443	350	105	36	27
19	112	63	67	52	211	236	144	415	270	118	114	28
20	83	65	63	50	182	213	134	379	191	113	74	37
21	70	58	58	50	152	196	132	363	146	542	49	34
22	63	56	55	152	146	177	245	347	112	485	43	28
23	62	59	37	264	130	159	770	326	96	344	46	28
24	62	56	31	297	120	141	970	299	90	273	60	25
25	58	52	29	290	115	125	807	256	81	227	61	25
26	56	48	30	256	114	116	607	216	70	208	48	28
27	54	45	30	244	119	107	474	187	61	164	48	65
28	53	45	30	249	125	100	393	158	76	124	44	239
29	54	45	31	248	---	98	333	123	89	105	41	247
30	58	53	28	239	---	96	285	92	70	91	38	158
31	59	---	27	228	---	93	---	82	---	100	39	---
TOTAL	2491	2463	1865	3248	6472	4021	8698	6956	6374	4330	1627	1485
MEAN	80.4	82.1	60.2	105	231	130	290	224	212	140	52.5	49.5
MAX	167	312	103	297	408	236	970	443	742	542	114	247
MIN	44	35	27	25	114	93	89	82	61	36	36	25
CFSM	.64	.65	.48	.83	1.83	1.03	2.30	1.78	1.69	1.11	.42	.39
IN.	.74	.73	.55	.96	1.91	1.19	2.57	2.05	1.88	1.28	.48	.44

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1999, BY WATER YEAR (WY)

	MEAN	75.2	83.1	82.8	66.7	94.8	192	212	125	97.1	78.8	63.2	73.5
MAX	346	303	207	188	231	451	598	371	370	271	217	385	
(WY)	1987	1986	1992	1973	1999	1974	1993	1990	1996	1993	1998	1986	
MIN	6.44	8.14	4.80	6.35	6.26	22.5	53.4	26.6	19.0	9.33	8.23	6.44	
(WY)	1964	1964	1964	1964	1964	1968	1963	1977	1964	1963	1963	1963	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1963 - 1999

ANNUAL TOTAL	45637	50030	
ANNUAL MEAN	125	137	105
HIGHEST ANNUAL MEAN			193
LOWEST ANNUAL MEAN			31.6
HIGHEST DAILY MEAN	1380	970	2160
LOWEST DAILY MEAN	21	25	(b) 3.2
ANNUAL SEVEN-DAY MINIMUM	24	29	(b) 3.3
INSTANTANEOUS PEAK FLOW		1010	2260
INSTANTANEOUS PEAK STAGE		6.15	7.42
ANNUAL RUNOFF (CFSM)	.99	1.09	.84
ANNUAL RUNOFF (INCHES)	13.47	14.77	11.36
10 PERCENT EXCEEDS	266	297	230
50 PERCENT EXCEEDS	81	92	64
90 PERCENT EXCEEDS	34	33	19

(a) Also occurred Sept. 24, 25

(b) Ice affected

(c) Also occurred Jan. 1, 1964

ILLINOIS RIVER BASIN

05544200 MUKWONAGO RIVER AT MUKWONAGO, WI

LOCATION.--Lat 42°51'24", long 88°19'40", in NE 1/4 NE 1/4 sec.35, T.5 N., R.18 E., Waukesha County, Hydrologic Unit 07120006, on left bank 100 ft upstream from bridge on State Highway 83 in Mukwonago, 100 ft downstream from railroad bridge, and 800 ft downstream from dam.

DRAINAGE AREA.--74.1 mi².

PERIOD OF RECORD.--July 1973 to current year.

REVISED RECORDS.--WDR WI-79-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 779.23 ft above sea level (Southeastern Wisconsin Regional Planning Commission bench mark). Prior to Oct. 19, 1981, at datum 0.85 ft higher.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 21-25 and Jan. 5-8. Records good except those for ice-affected periods, which are fair (see page 13). Discharge affected by manipulation of gates at dams 800 ft and 11.4 mi upstream. Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	41	40	35	47	42	55	65	94	45	27	21
2	32	41	41	36	55	64	35	72	118	43	26	20
3	39	54	41	38	73	66	29	70	107	42	25	22
4	42	56	41	36	80	58	36	67	99	41	29	22
5	99	50	41	35	88	53	44	66	94	40	26	21
6	117	38	42	35	85	51	73	68	71	33	23	21
7	115	25	46	34	82	48	54	78	21	20	24	21
8	102	28	65	34	64	46	44	83	56	15	29	24
9	92	30	64	34	58	48	86	63	71	19	29	22
10	84	126	51	34	56	48	100	53	72	19	28	18
11	78	150	52	34	73	39	110	45	98	19	25	20
12	54	148	55	34	99	38	109	46	116	17	25	20
13	43	133	55	35	93	39	82	49	152	15	25	20
14	41	98	52	34	73	41	70	49	182	14	24	19
15	40	80	49	33	59	42	56	50	143	12	27	16
16	41	50	46	33	60	55	46	56	125	16	28	16
17	45	37	44	36	61	67	46	149	96	51	27	21
18	71	38	37	41	60	63	45	176	81	58	23	21
19	80	44	22	41	58	61	45	169	78	77	30	21
20	90	42	19	41	55	60	47	103	76	83	33	24
21	97	42	24	43	53	60	50	75	39	77	31	33
22	87	44	35	69	51	60	91	76	25	41	28	37
23	64	45	31	91	49	58	205	77	32	27	28	35
24	42	42	31	104	48	54	229	91	50	32	33	36
25	37	44	33	139	35	28	223	96	54	33	34	36
26	28	42	37	121	30	20	212	40	50	46	34	34
27	27	40	38	97	33	23	168	21	49	51	57	40
28	30	39	44	82	37	26	118	27	46	34	51	130
29	32	39	45	75	---	32	49	29	49	15	43	147
30	39	41	40	73	---	55	38	37	47	15	28	126
31	40	---	38	69	---	60	---	45	---	24	21	---
TOTAL	1852	1727	1299	1676	1715	1505	2595	2191	2391	1074	921	1064
MEAN	59.7	57.6	41.9	54.1	61.2	48.5	86.5	70.7	79.7	34.6	29.7	35.5
MAX	117	150	65	139	99	67	229	176	182	83	57	147
MIN	24	25	19	33	30	20	29	21	21	12	21	16
CFSM	.81	.78	.57	.73	.83	.66	1.17	.95	1.08	.47	.40	.48
IN.	.93	.87	.65	.84	.86	.76	1.30	1.10	1.20	.54	.46	.53

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1999, BY WATER YEAR (WY)

	MEAN	48.1	56.5	54.3	47.2	54.5	75.9	78.1	62.7	52.3	43.1	45.0	46.5
MAX	98.7	110	83.7	77.8	83.8	151	150	155	138	80.8	83.5	88.7	
(WY)	1987	1986	1983	1974	1974	1974	1993	1975	1975	1993	1979	1986	
MIN	19.0	29.2	26.2	22.8	31.1	43.9	43.3	16.9	14.4	13.3	18.5	23.4	
(WY)	1998	1977	1990	1977	1978	1981	1977	1977	1988	1988	1991	1995	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1973 - 1999

ANNUAL TOTAL	19146.4	20010	
ANNUAL MEAN	52.5	54.8	55.2
HIGHEST ANNUAL MEAN			90.3
LOWEST ANNUAL MEAN			30.8
HIGHEST DAILY MEAN	150	229	275
LOWEST DAILY MEAN	9.6	12	1.8
ANNUAL SEVEN-DAY MINIMUM	12	16	6.8
INSTANTANEOUS PEAK FLOW		236	(a)300
INSTANTANEOUS PEAK STAGE		3.29	3.55
ANNUAL RUNOFF (CFSM)	.71	.74	.74
ANNUAL RUNOFF (INCHES)	9.61	10.05	10.12
10 PERCENT EXCEEDS	85	98	100
50 PERCENT EXCEEDS	46	44	47
90 PERCENT EXCEEDS	24	23	21

(a) Gage height, 2.50 ft, datum then in use

ILLINOIS RIVER BASIN

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05544371 JEWEL CREEK AT MUSKEGO, WI

LOCATION.--Lat 42°55'37", long 88°08'45", in NW 1/4 NW 1/4 sec.4, T.5 N., R.20 E., Waukesha County, Hydrologic Unit 07120006, on right bank 0.4 mi downstream from County Trunk Highway HH, and 0.3 mi upstream from Little Muskego Lake.

DRAINAGE AREA.--8.16 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June to September 1999.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 800 ft, from topographic map.

REMARKS.--No estimated daily discharges. Records are fair (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	6.2	6.4	3.5	2.3
2	---	---	---	---	---	---	---	---	24	5.7	2.2	1.5
3	---	---	---	---	---	---	---	---	8.2	5.6	2.3	1.5
4	---	---	---	---	---	---	---	---	5.7	5.0	2.9	1.7
5	---	---	---	---	---	---	---	---	5.5	3.9	1.9	1.4
6	---	---	---	---	---	---	---	---	5.4	3.6	1.5	1.3
7	---	---	---	---	---	---	---	---	7.4	3.4	2.6	1.4
8	---	---	---	---	---	---	---	---	5.2	1.7	2.6	1.2
9	---	---	---	---	---	---	---	---	4.6	5.1	2.1	1.3
10	---	---	---	---	---	---	---	---	29	6.1	7.8	1.4
11	---	---	---	---	---	---	---	---	35	8.7	5.0	1.5
12	---	---	---	---	---	---	---	---	27	5.9	3.5	1.9
13	---	---	---	---	---	---	---	---	175	2.5	4.2	2.6
14	---	---	---	---	---	---	---	---	86	1.9	3.4	2.0
15	---	---	---	---	---	---	---	---	23	2.4	2.6	1.6
16	---	---	---	---	---	---	---	---	15	1.5	2.6	1.4
17	---	---	---	---	---	---	---	---	14	9.1	3.5	1.1
18	---	---	---	---	---	---	---	---	11	10	2.1	1.4
19	---	---	---	---	---	---	---	---	9.7	9.1	7.9	3.2
20	---	---	---	---	---	---	---	---	9.0	7.6	5.6	4.9
21	---	---	---	---	---	---	---	---	8.9	22	3.9	2.9
22	---	---	---	---	---	---	---	---	8.4	10	2.9	3.1
23	---	---	---	---	---	---	---	---	8.8	7.2	3.7	2.2
24	---	---	---	---	---	---	---	---	9.4	6.2	5.8	2.3
25	---	---	---	---	---	---	---	---	7.7	4.1	4.3	2.5
26	---	---	---	---	---	---	---	---	6.6	4.4	3.2	2.7
27	---	---	---	---	---	---	---	---	6.2	5.0	2.3	4.9
28	---	---	---	---	---	---	---	---	8.1	3.1	2.1	41
29	---	---	---	---	---	---	---	---	13	2.4	1.9	24
30	---	---	---	---	---	---	---	---	7.7	2.0	1.7	7.9
31	---	---	---	---	---	---	---	---	---	4.1	1.9	---
TOTAL	---	---	---	---	---	---	---	---	590.7	175.7	103.5	130.1
MEAN	---	---	---	---	---	---	---	---	19.7	5.67	3.34	4.34
MAX	---	---	---	---	---	---	---	---	175	22	7.9	41
MIN	---	---	---	---	---	---	---	---	4.6	1.5	1.5	1.1

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 1999, BY WATER YEAR (WY)

MEAN	---	---	---	---	---	---	---	---	19.7	5.67	3.34	4.34
MAX	---	---	---	---	---	---	---	---	19.7	5.67	3.34	4.34
(WY)	---	---	---	---	---	---	---	---	1999	1999	1999	1999
MIN	---	---	---	---	---	---	---	---	19.7	5.67	3.34	4.34
(WY)	---	---	---	---	---	---	---	---	1999	1999	1999	1999

SUMMARY STATISTICS

FOR 1999 WATER YEAR
(JUNE-SEPTEMBER)

HIGHEST DAILY MEAN	175	Jun 13
LOWEST DAILY MEAN	1.1	Sep 17
ANNUAL SEVEN-DAY MINIMUM	1.4	Sep 5
INSTANTANEOUS PEAK FLOW	294	Jun 13
INSTANTANEOUS PEAK STAGE	5.50	Jun 13
INSTANTANEOUS LOW FLOW	.43	Sep 7, 8, 16
10 PERCENT EXCEEDS	14	
50 PERCENT EXCEEDS	4.1	
90 PERCENT EXCEEDS	1.5	

ILLINOIS RIVER BASIN
05544371 JEWEL CREEK AT MUSKEGO, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June to September 1999.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: June to September 1999.

TOTAL-PHOSPHORUS DISCHARGE: June to September 1999.

INSTRUMENTATION.--Stage-activated water-quality sampler.

REMARKS.--Chemical analyses are done by the Wisconsin State Laboratory of Hygiene. Samples are point samples unless otherwise indicated.

EXTREMES FOR CURRENT YEAR (JUNE-SEPTEMBER).--

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 171 tons, June 13; minimum daily, 0.9 ton, Aug. 6.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 377 lb, June 13; minimum daily, 0.43 lb, Aug. 6.

WATER-QUALITY DATA, WATER YEAR JUNE TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
JUN 1999				
04...	1150	5.4	.067	--
09...	1200	4.9	.100	88
10...	1600	21	.478	575
10...	1630	48	1.05	1430
10...	1715	71	1.43	2360
10...	1815	93	1.10	1680
10...	2030	84	.456	453
10...	2245	75	.405	--
11...	0100	59	.350	--
11...	1040	30	.217	108
*11...	1105	30	.212	172
11...	1110	30	.211	--
11...	1745	19	.162	80
11...	2330	43	.298	321
12...	0830	30	.173	96
12...	1730	20	.153	67
12...	2215	21	.152	81
12...	2345	34	.204	127
13...	0200	39	.251	188
13...	0415	50	.224	135
13...	0530	72	.307	222
13...	0700	91	.387	334
13...	0915	93	.305	181
13...	1030	124	.291	183
13...	1115	155	.431	--
13...	1145	199	.575	--
13...	1215	233	.545	598
*14...	1045	74	.176	103
14...	1050	74	.200	62
14...	1715	45	.155	58
15...	0530	27	.133	51
17...	1115	14	.088	46
23...	1330	7.8	.050	69
JUL				
07...	1135	3.9	.053	45
21...	0300	19	.204	270
21...	0715	27	.350	508
21...	1130	34	.215	212
21...	1545	24	.155	118
*30...	1110	2.3	.047	22
AUG				
13...	1115	4.3	--	93
19...	1600	9.5	--	94
26...	1000	3.6	--	91
SEP				
27...	2130	10	.090	104
27...	2345	18	.206	238
28...	0100	27	.587	884
28...	0515	34	.276	306
28...	0930	44	.282	246
28...	1345	42	.221	142
28...	1800	47	.178	123
29...	0230	40	.210	80
29...	1100	24	.154	55
29...	1930	13	.135	58
30...	0400	9.5	.102	51
30...	1155	7.8	.078	36

* Grab sample

ILLINOIS RIVER BASIN
05544371 JEWEL CREEK AT MUSKEGO, WI--CONTINUED

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SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR JUNE TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	2.3	1.4	.21	.57
2	---	---	---	---	---	---	---	---	15	1.1	.13	.37
3	---	---	---	---	---	---	---	---	2.7	1.0	.13	.39
4	---	---	---	---	---	---	---	---	1.4	.83	.17	.44
5	---	---	---	---	---	---	---	---	1.3	.58	.11	.36
6	---	---	---	---	---	---	---	---	1.3	.48	.09	.34
7	---	---	---	---	---	---	---	---	1.8	.42	.15	.35
8	---	---	---	---	---	---	---	---	1.2	.22	.15	.32
9	---	---	---	---	---	---	---	---	1.1	.65	.13	.34
10	---	---	---	---	---	---	---	---	66	1.4	1.9	.37
11	---	---	---	---	---	---	---	---	18	1.6	1.3	.40
12	---	---	---	---	---	---	---	---	9.2	.74	.90	.51
13	---	---	---	---	---	---	---	---	171	.31	1.0	.69
14	---	---	---	---	---	---	---	---	33	.24	.76	.54
15	---	---	---	---	---	---	---	---	3.2	.28	.52	.43
16	---	---	---	---	---	---	---	---	1.9	.18	.44	.36
17	---	---	---	---	---	---	---	---	1.8	2.7	.53	.31
18	---	---	---	---	---	---	---	---	1.5	3.4	.29	.37
19	---	---	---	---	---	---	---	---	1.4	1.9	1.7	.87
20	---	---	---	---	---	---	---	---	1.4	1.7	1.3	1.3
21	---	---	---	---	---	---	---	---	1.5	14	.80	.81
22	---	---	---	---	---	---	---	---	1.5	2.8	.52	.86
23	---	---	---	---	---	---	---	---	1.6	1.6	.72	.60
24	---	---	---	---	---	---	---	---	1.7	1.1	1.5	.64
25	---	---	---	---	---	---	---	---	1.4	.64	1.1	.70
26	---	---	---	---	---	---	---	---	1.2	.56	.78	.75
27	---	---	---	---	---	---	---	---	1.1	.53	.57	1.7
28	---	---	---	---	---	---	---	---	3.0	.27	.53	25
29	---	---	---	---	---	---	---	---	4.2	.17	.47	4.4
30	---	---	---	---	---	---	---	---	1.9	.12	.42	.83
31	---	---	---	---	---	---	---	---	---	.24	.47	---
TOTAL	---	---	---	---	---	---	---	---	355.6	43.16	19.79	45.92

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR JUNE TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	3.04	2.49	.93	1.11
2	---	---	---	---	---	---	---	---	17.8	2.11	.58	.73
3	---	---	---	---	---	---	---	---	3.84	1.98	.62	.75
4	---	---	---	---	---	---	---	---	2.16	1.68	.80	.86
5	---	---	---	---	---	---	---	---	2.14	1.24	.52	.70
6	---	---	---	---	---	---	---	---	2.32	1.08	.43	.65
7	---	---	---	---	---	---	---	---	3.40	.97	.76	.67
8	---	---	---	---	---	---	---	---	2.59	.48	.78	.61
9	---	---	---	---	---	---	---	---	2.44	2.21	.63	.64
10	---	---	---	---	---	---	---	---	102	3.27	4.08	.70
11	---	---	---	---	---	---	---	---	49.7	4.83	1.60	.75
12	---	---	---	---	---	---	---	---	27.6	3.14	1.12	.94
13	---	---	---	---	---	---	---	---	377	1.32	1.35	1.28
14	---	---	---	---	---	---	---	---	102	1.04	1.11	1.00
15	---	---	---	---	---	---	---	---	16.2	1.26	.87	.80
16	---	---	---	---	---	---	---	---	8.41	.81	.86	.67
17	---	---	---	---	---	---	---	---	6.77	4.88	1.16	.56
18	---	---	---	---	---	---	---	---	4.79	5.41	.73	.66
19	---	---	---	---	---	---	---	---	3.83	4.87	4.64	1.82
20	---	---	---	---	---	---	---	---	3.25	4.07	2.79	3.23
21	---	---	---	---	---	---	---	---	2.92	25.3	1.94	1.58
22	---	---	---	---	---	---	---	---	2.50	5.78	1.43	1.65
23	---	---	---	---	---	---	---	---	2.41	3.49	1.82	1.13
24	---	---	---	---	---	---	---	---	2.54	2.72	2.87	1.18
25	---	---	---	---	---	---	---	---	2.09	1.67	2.10	1.28
26	---	---	---	---	---	---	---	---	1.80	1.62	1.56	1.34
27	---	---	---	---	---	---	---	---	1.70	1.68	1.14	2.90
28	---	---	---	---	---	---	---	---	3.87	.95	1.04	56.4
29	---	---	---	---	---	---	---	---	6.38	.66	.93	22.5
30	---	---	---	---	---	---	---	---	3.15	.50	.82	3.57
31	---	---	---	---	---	---	---	---	---	1.06	.92	---
TOTAL	---	---	---	---	---	---	---	---	770.64	94.57	42.93	112.66

ILLINOIS RIVER BASIN

05544385 MUSKEGO LAKE OUTLET NEAR WIND LAKE, WI

LOCATION.--Lat 42°51'09", long 88°07'50", in SE 1/4 NE 1/4 sec.33, T.5 N., R.20 E., Waukesha County, Hydrologic Unit 07120006, on right bank at dam outlet of Muskego Lake, 700 ft north of Muskego Dam Drive, 2 mi northeast of Wind Lake.

DRAINAGE AREA.--28.3 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1987 to September 1989, October 1995 to current year.

GAGE.--Water-stage recorder. Datum of gage is 760.00 ft above National Geodetic Vertical Datum of 1929. Prior to Dec. 18, 1987, nonrecording gage at same site and datum, October 1989 to September 1995, nonrecording gage at same datum.

REMARKS.--Flows for the water year, except for days when discharge was estimated, were based on upstream-stage/downstream-stage-discharge ratings for flow through the variably-opened gate or upstream-stage-discharge rating for the dam crest or combination of gate and crest overflow. Estimated daily discharges: Dec. 18-20, May 21-26, and June 5. Records good except those for estimated daily discharges, which are poor (see page 13).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	5.6	4.4	4.8	88	16	11	85	33	26	.14	.00
2	.90	7.9	5.0	8.7	89	17	11	76	23	24	.01	.00
3	3.1	5.2	5.8	12	88	19	14	41	24	7.7	.00	.00
4	3.6	3.0	8.1	10	91	17	14	27	21	5.6	.00	.00
5	5.2	2.3	7.0	9.3	90	20	14	24	19	5.7	.00	.00
6	7.9	1.8	10	8.7	87	24	5.3	31	17	6.3	.00	.00
7	9.6	1.5	15	7.9	82	17	6.7	29	22	5.7	.00	.00
8	11	1.6	12	8.0	76	17	15	41	24	3.3	.00	.00
9	8.7	2.1	11	7.8	73	20	74	42	19	3.3	.00	.00
10	7.9	28	11	7.6	72	21	69	41	19	3.3	.00	.00
11	7.2	61	8.6	7.6	74	21	67	38	28	1.3	.00	.00
12	5.9	71	9.4	8.1	87	21	62	56	41	.78	.00	.00
13	5.8	68	11	8.8	90	21	58	80	113	.32	.00	.00
14	5.1	66	9.2	8.6	86	21	54	80	181	.08	.00	.00
15	24	63	7.4	8.6	83	20	52	72	198	.01	.00	.00
16	43	61	9.3	8.2	79	21	58	68	190	.00	.00	.00
17	45	56	9.5	9.7	74	18	45	76	171	.69	.00	.00
18	55	50	9.0	13	70	32	42	91	154	.86	.00	.00
19	59	44	8.2	12	64	33	16	97	138	1.5	.00	.00
20	61	29	7.8	11	59	29	2.4	70	124	1.3	.00	.00
21	61	5.4	7.4	10	53	33	5.6	60	103	1.3	.00	.00
22	54	2.2	6.8	28	49	27	24	40	86	1.4	.00	.00
23	48	4.1	6.8	58	29	21	106	30	77	1.6	.00	.00
24	44	5.9	6.5	94	6.0	25	123	24	72	1.5	.00	.00
25	42	5.6	6.3	98	8.4	22	130	22	50	1.4	.00	.00
26	15	5.2	5.8	100	10	17	130	20	32	1.0	.00	.00
27	2.8	5.5	5.4	100	13	15	128	20	30	.90	.00	.00
28	4.0	5.2	5.2	100	15	10	125	19	26	.42	.00	.00
29	3.3	3.5	5.3	98	---	12	110	16	28	.19	.00	.02
30	4.1	5.5	5.1	95	---	8.2	95	13	28	.11	.00	.00
31	4.3	---	4.9	91	---	5.5	---	10	---	.14	.00	---
TOTAL	652.90	676.1	244.2	1052.4	1785.4	620.7	1667.0	1439	2091	107.70	0.15	0.02
MEAN	21.1	22.5	7.88	33.9	63.8	20.0	55.6	46.4	69.7	3.47	.005	.001
MAX	61	71	15	100	91	33	130	97	198	26	.14	.02
MIN	.90	1.5	4.4	4.8	6.0	5.5	2.4	10	17	.00	.00	.00
CFSM	.74	.80	.28	1.20	2.25	.71	1.96	1.64	2.46	.12	.00	.00
IN.	.86	.89	.32	1.38	2.35	.82	2.19	1.89	2.75	.14	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1999, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	14.4	14.5	18.7	24.8	42.0	25.0	31.1	16.6	23.5	5.48	4.99	5.98
MAX	44.2	45.6	44.2	43.9	63.8	33.1	55.6	46.4	69.7	20.5	14.8	30.6
(WY)	1996	1996	1988	1988	1999	1999	1999	1999	1999	1996	1998	1989
MIN	.000	.25	3.11	10.9	13.3	9.83	.000	.008	.003	.000	.000	.000
(WY)	1989	1998	1998	1989	1989	1997	1997	1997	1989	1988	1988	1988

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1988 - 1999

ANNUAL TOTAL	7293.15	10336.57	18.9
ANNUAL MEAN	20.0	28.3	28.3
HIGHEST ANNUAL MEAN			1999
LOWEST ANNUAL MEAN			1989
HIGHEST DAILY MEAN	90	198	198
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
ANNUAL RUNOFF (CFSM)	.71	1.00	.67
ANNUAL RUNOFF (INCHES)	9.59	13.59	9.07
10 PERCENT EXCEEDS	57	86	54
50 PERCENT EXCEEDS	8.6	11	8.9
90 PERCENT EXCEEDS	.17	.00	.00

ILLINOIS RIVER BASIN
05544385 MUSKEGO LAKE OUTLET NEAR WIND LAKE, WI--CONTINUED

451

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1987 to September 1989, October 1995 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1995 to current year.

TOTAL-PHOSPHORUS DISCHARGE: October 1987 to September 1989, October 1995 to current year.

REMARKS.--Total-phosphorus discharge records are fair. Suspended-sediment discharge records are fair to poor. Samples to define the temporal fluctuation in total-phosphorus and suspended-sediment concentrations were collected by a local observer and U.S. Geological Survey personnel. Phosphorus analyses by the Wisconsin State Laboratory of Hygiene. Grab samples were collected unless otherwise indicated.

EXTREMES FOR PERIOD OF RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 44 tons, June 14, 1996; minimum daily, 0 ton, many days.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 359 lb, Sept. 10, 1989; minimum daily, 0.00 lb, many days.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 7.4 tons, June 15; minimum daily, 0 ton, many days.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 56.1 lb, June 18; minimum daily, 0.00 lb, many days.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
OCT 1998				
01...	1105	1.5	.039	1
03...	1730	3.1	.031	--
05...	1800	5.2	.042	10
12...	1800	5.9	.026	4
14...	2015	5.1	.022	--
15...	2030	24	.230	6
17...	1230	45	.031	--
18...	0920	55	.027	6
19...	1945	59	.030	--
20...	2045	61	.035	4
22...	1930	54	.028	--
24...	0945	44	.033	--
26...	1715	15	.040	1
28...	2145	4.0	.029	--
30...	1800	4.1	.069	2
31...	1050	4.3	.047	--
NOV				
01...	1100	5.6	.044	22
03...	2030	5.2	.112	--
04...	1025	3.0	.028	2
DEC				
08...	1045	12	.032	2
19...	1030	8.2	.019	3
21...	1500	7.4	.019	--
23...	1617	6.8	.033	3
25...	1750	6.3	.017	--
27...	0930	5.4	.019	--
JAN 1999				
15...	1120	8.6	.030	10
25...	1930	98	.039	--
27...	1900	100	.035	--
29...	0600	98	.077	--
FEB				
08...	1700	76	.047	7
10...	1830	72	.074	--
12...	1900	87	.045	6
14...	1000	86	.036	6
15...	1135	83	.025	--
16...	1135	79	--	3
16...	1800	79	.032	16
18...	1810	70	.026	5
21...	1700	53	.029	5
23...	1530	29	.031	5
25...	1750	8.4	.032	--
27...	1040	13	.029	--

ILLINOIS RIVER BASIN
05544385 MUSKEGO LAKE OUTLET NEAR WIND LAKE, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
MAR 1999				
01...	1930	16	.036	16
02...	1915	17	.029	--
04...	1800	17	.031	4
06...	1200	24	.024	10
08...	1930	17	.028	--
10...	1815	21	.027	9
12...	1900	21	.028	--
16...	1025	21	.024	4
16...	1920	21	.036	2
18...	2030	32	.027	--
20...	1914	29	.028	--
22...	1200	27	.028	6
24...	1515	25	.027	--
26...	1350	17	.055	--
28...	1200	10	.063	12
30...	1930	8.2	.062	6
APR				
01...	2015	11	.082	--
03...	2020	14	.053	4
05...	1845	14	.056	--
07...	1950	6.7	.057	7
09...	2015	74	.049	21
11...	1130	67	.048	--
13...	1930	58	.043	9
15...	1815	52	.040	11
16...	1100	58	.029	4
17...	2230	45	.043	--
19...	1030	16	.043	32
21...	0830	5.6	.041	--
23...	1200	106	.087	7
25...	2300	130	.043	15
27...	1100	128	.034	4
30...	1931	95	.058	6
MAY				
02...	1030	76	.060	--
04...	2030	27	.040	11
06...	1915	31	.045	--
08...	0900	41	.060	8
10...	2100	41	.071	--
11...	1015	38	.042	6
12...	1030	56	.040	4
14...	1315	80	.043	--
16...	1921	68	.082	4
18...	2045	91	.109	--
20...	2200	70	.033	8
22...	1515	40	.045	--
24...	2230	24	.077	8
26...	1515	20	.048	22
28...	2015	19	.039	--
30...	1030	13	.039	4
JUN				
01...	2100	33	.040	--
03...	1730	24	.037	--
04...	1045	21	--	5
04...	1500	21	.046	--
05...	2230	19	.140	11
07...	2300	22	.038	--
09...	1045	19	.034	--
13...	1100	113	.034	3
14...	1250	181	.047	15
15...	2030	198	.036	--
17...	1035	171	.038	12
17...	2245	171	.083	15
19...	2300	138	.036	--
21...	1915	103	.043	10
23...	1225	77	.028	2
JUL				
07...	1045	5.7	.039	2

05544385 MUSKEGO LAKE OUTLET NEAR WIND LAKE, WI--CONTINUED

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.26	.03	.06	2.8	.65	.15	1.5	.39	.14	.00	.00
2	.00	.22	.03	.12	2.6	.55	.14	1.6	.28	.13	.00	.00
3	.03	.06	.03	.17	2.4	.38	.16	1.0	.31	.04	.00	.00
4	.05	.02	.05	.15	2.3	.22	.17	.76	.31	.03	.00	.00
5	.12	.02	.04	.15	2.2	.33	.19	.67	.46	.03	.00	.00
6	.19	.01	.06	.15	1.9	.61	.08	.79	.46	.03	.00	.00
7	.21	.01	.08	.14	1.7	.45	.12	.68	.50	.03	.00	.00
8	.21	.02	.06	.15	1.5	.44	.42	.88	.46	.02	.00	.00
9	.14	.03	.06	.15	1.3	.50	3.5	.82	.31	.02	.00	.00
10	.12	.53	.06	.16	1.3	.51	3.4	.73	.26	.02	.00	.00
11	.09	1.4	.05	.17	1.3	.46	2.7	.58	.32	.01	.00	.00
12	.07	2.0	.06	.19	1.4	.40	2.0	.63	.39	.00	.00	.00
13	.07	1.7	.07	.21	1.5	.35	1.5	.86	1.2	.00	.00	.00
14	.07	1.4	.06	.22	1.3	.30	1.4	.86	6.2	.00	.00	.00
15	.37	1.2	.05	.23	.95	.25	1.5	.78	7.4	.00	.00	.00
16	.70	.96	.07	.24	1.7	.19	.84	.74	6.6	.00	.00	.00
17	.73	.76	.07	.31	2.2	.11	1.1	.93	6.0	.00	.00	.00
18	.87	.58	.07	.44	1.1	.24	2.0	1.3	5.9	.00	.00	.00
19	.80	.44	.07	.44	.86	.30	1.2	1.7	4.8	.01	.00	.00
20	.70	.25	.06	.43	.80	.32	.14	1.4	3.8	.01	.00	.00
21	.57	.04	.06	.43	.71	.44	.23	1.3	2.8	.01	.00	.00
22	.40	.02	.05	1.3	.66	.43	.67	.86	1.3	.01	.00	.00
23	.28	.03	.05	2.9	.40	.38	2.2	.65	.48	.01	.00	.00
24	.20	.04	.05	5.0	.10	.51	3.2	.52	.39	.01	.00	.00
25	.15	.04	.06	5.2	.16	.50	4.6	.69	.27	.01	.00	.00
26	.04	.04	.05	4.9	.23	.44	3.6	1.0	.17	.00	.00	.00
27	.01	.04	.05	4.6	.37	.43	1.6	.83	.16	.00	.00	.00
28	.01	.03	.05	4.2	.51	.31	1.5	.50	.14	.00	.00	.00
29	.01	.02	.06	3.9	---	.29	1.5	.27	.15	.00	.00	.00
30	.02	.03	.06	3.5	---	.15	1.5	.15	.15	.00	.00	.00
31	.08	---	.06	3.1	---	.08	---	.11	---	.00	.00	---
TOTAL	7.31	12.20	1.73	43.31	36.25	11.52	43.31	26.09	52.36	0.57	0.00	0.00

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.31	1.42	.74	.56	31.4	3.01	4.63	27.0	7.10	4.75	.03	.00
2	.17	2.87	.85	1.03	30.3	2.87	4.25	24.0	4.84	4.49	.00	.00
3	.54	2.70	.99	1.46	28.6	3.05	4.35	11.1	4.89	1.48	.00	.00
4	.68	.64	1.38	1.25	28.2	2.81	4.08	6.22	4.97	1.10	.00	.00
5	1.13	.38	1.20	1.19	26.6	3.01	4.20	5.39	4.49	1.15	.00	.00
6	1.70	.33	1.72	1.14	24.5	3.20	1.61	7.42	3.79	1.30	.00	.00
7	1.93	.30	2.58	1.06	22.0	2.36	2.05	8.04	4.64	1.20	.00	.00
8	2.07	.35	2.06	1.10	19.7	2.51	4.39	13.3	4.73	.69	.00	.00
9	1.53	.50	1.81	1.10	22.2	2.99	20.1	14.7	3.51	.69	.00	.00
10	1.29	7.25	1.72	1.09	26.9	3.08	18.1	15.2	3.49	.68	.00	.00
11	1.10	17.3	1.29	1.12	24.9	3.10	17.3	9.47	5.14	.27	.00	.00
12	.84	21.9	1.34	1.22	22.9	3.15	15.3	12.2	7.53	.16	.00	.00
13	.77	21.0	1.50	1.36	19.9	3.08	13.7	17.9	21.7	.06	.00	.00
14	.62	19.0	1.19	1.36	16.0	2.95	12.2	19.0	43.2	.02	.00	.00
15	3.11	17.0	.92	1.39	12.0	2.70	11.2	22.2	41.6	.00	.00	.00
16	6.33	15.4	1.10	1.36	12.9	3.24	9.95	27.7	37.8	.00	.00	.00
17	7.27	13.3	1.07	1.65	11.9	3.18	9.37	37.1	47.6	.14	.00	.00
18	8.23	11.1	.97	2.27	10.1	4.92	9.75	50.7	56.1	.17	.00	.00
19	9.35	9.13	.85	2.15	9.24	4.87	3.70	41.1	33.1	.30	.00	.00
20	10.9	5.63	.80	2.02	8.84	4.36	.54	16.5	25.4	.26	.00	.00
21	10.7	.98	.77	1.89	8.24	4.99	1.34	11.9	23.1	.25	.00	.00
22	8.50	.38	.89	5.42	7.89	4.07	8.06	9.54	16.9	.27	.00	.00
23	7.80	.68	1.12	11.5	4.82	3.12	46.1	8.98	12.1	.31	.00	.00
24	7.89	.98	.90	19.1	1.02	3.75	43.8	9.05	11.1	.29	.00	.00
25	8.20	.93	.64	20.5	1.44	4.48	34.8	7.90	7.93	.27	.00	.00
26	3.15	.87	.56	20.3	1.65	4.80	27.8	5.47	5.19	.19	.00	.00
27	.54	.92	.55	19.5	2.08	4.76	24.5	4.78	4.99	.17	.00	.00
28	.67	.87	.55	28.7	2.59	3.37	27.2	4.14	4.43	.08	.00	.00
29	.70	.59	.57	39.6	---	4.05	28.0	3.37	4.88	.04	.00	.00
30	1.33	.93	.56	37.2	---	2.76	28.3	2.74	5.00	.02	.00	.00
31	1.15	---	.56	34.0	---	2.03	---	2.13	---	.03	.00	---
TOTAL	110.50	175.63	33.75	264.59	438.81	106.62	440.67	456.24	461.24	20.83	0.03	0.00

ILLINOIS RIVER BASIN
05545131 SOUTHWICK CREEK AT WILLIAMS BAY, WI

LOCATION.--Lat 42°34'45", long 88°32'19", in SW 1/4 NW 1/4 sec.6, T.1 N., R.17 E., Walworth County, Hydrologic Unit 07120006, on left bank about 400 ft upstream from Geneva Street, at Williams Bay.

DRAINAGE AREA.--0.87 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1997 to September 1999 (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 870 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: May 27-28, 1998. Records good except estimated daily discharges, which are poor (see page 13).
Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.83	1.0	1.0	.97	1.3	1.4	2.3	1.3	1.1	1.8	.94	.86
2	.77	1.1	.98	1.1	1.4	1.3	1.9	1.2	1.1	1.6	.91	.85
3	.79	1.1	1.2	1.6	1.3	1.3	1.7	1.2	.96	2.2	.93	.87
4	.80	1.1	1.1	2.2	1.3	1.3	1.5	1.1	.89	1.8	1.2	.86
5	.85	1.3	1.0	2.3	1.2	1.3	1.4	1.1	.88	1.6	1.7	.85
6	.89	1.1	.98	2.5	1.1	1.3	1.3	2.3	.88	1.7	1.3	.92
7	.89	1.0	.95	2.0	1.1	1.3	1.7	6.0	.89	1.7	1.7	1.5
8	.90	.97	.95	1.7	1.1	2.0	2.3	3.1	.89	1.5	1.1	.86
9	1.0	.95	1.0	1.6	1.1	1.6	2.3	2.1	1.1	1.4	.95	.85
10	.95	1.0	1.1	1.3	1.1	1.3	1.8	1.8	.97	1.3	.91	.85
11	.98	1.1	1.0	1.2	2.3	1.3	2.0	1.5	2.0	1.2	.86	.83
12	.99	1.1	1.0	1.1	1.9	1.2	1.5	1.7	1.8	1.2	.84	.83
13	1.5	1.1	1.0	1.0	1.6	1.3	1.8	1.9	2.0	1.1	.82	.84
14	.94	1.1	1.0	1.0	1.5	1.2	1.7	1.5	1.6	1.0	.89	2.1
15	1.0	1.2	1.0	1.0	1.5	1.2	1.9	1.6	1.4	.97	.86	1.5
16	.99	1.1	1.0	1.0	1.7	1.1	2.5	1.4	1.2	.95	.85	1.2
17	.99	1.2	1.0	1.0	1.9	1.4	1.9	1.3	1.2	.96	.88	1.1
18	.95	1.2	1.0	.98	1.8	1.8	1.8	1.2	1.8	1.0	.85	1.0
19	.97	1.2	1.0	.95	1.7	1.5	1.6	1.2	1.6	1.2	.84	1.0
20	1.1	1.2	1.0	.95	1.6	1.4	1.9	1.1	1.4	1.5	.83	.99
21	.96	1.1	1.1	.99	1.5	1.3	2.1	1.0	1.3	1.5	.83	.99
22	.97	1.0	1.1	1.0	1.5	1.2	1.8	1.2	1.2	1.3	.91	1.0
23	.99	.95	1.1	1.0	1.5	1.1	1.7	1.1	1.2	1.2	.85	.98
24	.98	.89	1.1	.94	1.6	1.1	1.5	2.5	1.1	1.2	.89	1.0
25	.88	.98	1.0	.94	1.4	1.1	1.5	1.5	4.2	1.2	1.0	1.0
26	1.3	.98	.99	.96	1.4	1.0	2.1	1.4	2.9	1.2	.82	1.0
27	.98	1.2	.94	.96	1.6	1.0	1.5	1.3	2.0	1.1	.82	.96
28	.96	1.1	.95	1.0	1.4	1.1	1.4	2.6	9.1	1.0	1.1	.96
29	.94	1.3	.98	1.0	---	.92	1.4	1.9	3.0	.97	.89	1.0
30	.97	1.1	.93	1.0	---	.94	1.3	1.5	2.2	.97	.84	1.1
31	1.0	---	.88	1.0	---	3.3	---	1.5	---	.96	.83	---
TOTAL	30.01	32.72	31.33	38.24	41.4	41.56	53.1	53.1	53.86	40.28	29.94	30.65
MEAN	.97	1.09	1.01	1.23	1.48	1.34	1.77	1.71	1.80	1.30	.97	1.02
MAX	1.5	1.3	1.2	2.5	2.3	3.3	2.5	6.0	9.1	2.2	1.7	2.1
MIN	.77	.89	.88	.94	1.1	.92	1.3	1.0	.88	.95	.82	.83
CFSM	1.11	1.25	1.16	1.42	1.70	1.54	2.03	1.97	2.06	1.49	1.11	1.17
IN.	1.28	1.40	1.34	1.64	1.77	1.78	2.27	2.27	2.30	1.72	1.28	1.31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEAR 1998, BY WATER YEAR (WY)

MEAN	.97	1.09	1.01	1.23	1.48	1.34	1.77	1.71	1.80	1.30	.97	1.02
MAX	.97	1.09	1.01	1.23	1.48	1.34	1.77	1.71	1.80	1.30	.97	1.02
(WY)	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998
MIN	.97	1.09	1.01	1.23	1.48	1.34	1.77	1.71	1.80	1.30	.97	1.02
(WY)	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR

ANNUAL TOTAL	476.19
ANNUAL MEAN	1.30
HIGHEST ANNUAL MEAN	
LOWEST ANNUAL MEAN	
HIGHEST DAILY MEAN	9.1
LOWEST DAILY MEAN	.77
ANNUAL SEVEN-DAY MINIMUM	.83
INSTANTANEOUS PEAK FLOW	51.0
INSTANTANEOUS PEAK STAGE	5.58
ANNUAL RUNOFF (CFSM)	1.50
ANNUAL RUNOFF (INCHES)	20.36
10 PERCENT EXCEEDS	1.9
50 PERCENT EXCEEDS	1.1
90 PERCENT EXCEEDS	.89

ILLINOIS RIVER BASIN
05545131 SOUTHWICK CREEK AT WILLIAMS BAY, WI--CONTINUED

455

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	1.3	.96	1.0	1.5	1.3	.94	1.5	2.7	1.6	1.0	.98
2	1.3	1.3	1.0	1.1	2.0	1.4	.92	1.4	2.5	1.5	1.0	.96
3	1.7	1.3	1.0	1.2	1.9	1.3	.95	1.4	2.0	1.7	.97	.97
4	1.3	1.3	.99	1.1	1.7	1.3	1.0	1.1	2.2	1.6	.93	.95
5	2.6	1.3	1.1	1.1	1.7	1.3	1.1	1.1	2.2	1.5	.88	.94
6	2.3	1.3	1.8	1.1	1.7	1.3	1.1	2.4	2.2	1.4	.92	.92
7	1.8	1.3	1.5	1.1	1.6	1.2	1.1	1.9	1.9	1.3	.99	.93
8	1.6	1.3	1.3	1.1	1.5	1.2	2.0	1.7	1.6	1.3	.96	.99
9	1.5	1.6	1.2	1.1	1.7	1.2	2.9	1.5	1.5	1.5	.99	1.0
10	1.4	9.0	1.1	1.1	1.7	1.1	1.8	1.4	3.1	1.4	.97	1.0
11	1.4	2.8	1.0	1.2	3.9	1.1	1.7	1.7	2.7	1.4	.96	1.0
12	1.4	1.8	1.1	1.2	2.7	1.1	1.5	3.3	2.7	1.3	1.2	1.3
13	1.4	1.6	1.0	1.2	2.0	1.1	1.5	2.1	16	1.4	.97	1.1
14	1.4	1.6	1.0	1.2	1.8	1.1	1.4	1.7	5.8	1.5	.92	1.1
15	1.4	1.4	1.0	1.2	1.8	1.2	1.7	1.6	3.8	1.5	.89	1.1
16	1.4	1.4	1.0	1.2	1.7	1.4	2.1	3.1	2.5	1.4	1.0	1.0
17	3.8	1.2	.97	1.5	1.6	1.5	1.5	3.9	1.9	1.8	.90	1.0
18	3.8	1.2	1.0	1.3	1.5	1.3	1.5	3.1	1.6	1.5	.95	.99
19	2.1	1.1	.95	1.2	1.4	1.2	1.5	2.8	1.4	1.6	1.4	1.1
20	1.7	1.1	.95	1.1	1.3	1.1	2.1	2.5	1.3	1.7	.96	1.1
21	1.6	1.1	.94	1.5	1.2	1.1	2.2	4.0	1.3	1.6	.92	1.0
22	1.5	1.1	.87	3.3	1.2	1.0	4.1	4.4	1.2	1.5	.91	1.1
23	1.5	1.0	.88	4.1	1.2	.99	11	4.8	1.4	2.0	1.9	1.0
24	1.5	1.0	.87	2.5	1.2	.96	3.3	3.6	1.5	1.6	1.4	1.1
25	1.5	1.0	.89	2.0	1.2	.94	2.6	3.1	1.5	1.4	1.2	1.1
26	1.5	.97	.93	1.8	1.3	.95	2.1	2.6	1.4	1.5	1.1	1.1
27	1.7	.96	.94	1.7	1.4	.94	3.0	2.2	1.4	1.3	1.1	3.6
28	1.6	.98	.94	1.6	1.4	.96	2.9	1.9	3.7	1.2	1.0	8.9
29	1.5	.98	.97	1.5	---	.94	2.1	1.7	1.9	1.2	.98	2.9
30	1.5	1.1	.93	1.5	---	.94	1.7	1.6	1.7	1.2	.97	2.0
31	1.4	---	1.0	1.4	---	.93	---	2.0	---	1.1	.97	---
TOTAL	53.2	46.39	32.08	46.2	46.8	35.35	65.31	73.1	78.6	45.5	32.21	44.23
MEAN	1.72	1.55	1.03	1.49	1.67	1.14	2.18	2.36	2.62	1.47	1.04	1.47
MAX	3.8	9.0	1.8	4.1	3.9	1.5	11	4.8	16	2.0	1.9	8.9
MIN	1.1	.96	.87	1.0	1.2	.93	.92	1.1	1.2	1.1	.88	.92
CFSM	1.97	1.78	1.19	1.71	1.92	1.31	2.50	2.71	3.01	1.69	1.19	1.69
IN.	2.27	1.98	1.37	1.98	2.00	1.51	2.79	3.13	3.36	1.95	1.38	1.89

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
MEAN	1.34	1.32	1.02	1.36	1.58	1.24	1.97	2.04	2.21	1.38	1.00	1.25
MAX	1.72	1.55	1.03	1.49	1.67	1.34	2.18	2.36	2.62	1.47	1.04	1.47
(WY)	1999	1999	1999	1999	1999	1998	1999	1999	1999	1999	1999	1999
MIN	.97	1.09	1.01	1.23	1.48	1.14	1.77	1.71	1.80	1.30	.97	1.02
(WY)	1998	1998	1998	1998	1998	1999	1998	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1998 - 1999

ANNUAL TOTAL	513.80	598.97	
ANNUAL MEAN	1.41	1.64	1.47
HIGHEST ANNUAL MEAN			1.64
LOWEST ANNUAL MEAN			1.30
HIGHEST DAILY MEAN	9.1 Jun 28	16 Jun 13	16 Jun 13 1999
LOWEST DAILY MEAN	.82 Aug 13, 26, 27	.87 Dec 22, 24	.77 Oct 2 1997
ANNUAL SEVEN-DAY MINIMUM	.85 Aug 15	.90 Dec 21	.83 Oct 1 1997
INSTANTANEOUS PEAK FLOW		81 Jun 13	81 Jun 13 1999
INSTANTANEOUS PEAK STAGE		6.16 Jun 13	6.16 Jun 13 1999
ANNUAL RUNOFF (CFSM)	1.62	1.89	1.69
ANNUAL RUNOFF (INCHES)	21.97	25.61	23.00
10 PERCENT EXCEEDS	2.0	2.6	2.4
50 PERCENT EXCEEDS	1.2	1.4	1.2
90 PERCENT EXCEEDS	.89	.96	.94

ILLINOIS RIVER BASIN
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WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1997 to September 1999 (discontinued).

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1998 to September 1999 (discontinued).

SUSPENDED-SEDIMENT DISCHARGE: October 1997 to September 1999 (discontinued).

TOTAL-PHOSPHORUS DISCHARGE: October 1997 to September 1999 (discontinued).

INSTRUMENTATION.--Automatic pumping sampler since October 1997. Continuous water temperature recorder since June 1998.

REMARKS.--Chemical analyses by Wisconsin State Laboratory of Hygiene. Suspended-sediment analyses by U.S. Geological Survey laboratory. Samples are point samples unless otherwise indicated.

EXTREMES FOR CURRENT PERIOD.--

WATER YEAR 1998:

WATER TEMPERATURE: Maximum observed, 24.0°C, July 21; minimum observed, 10.0°C, June 4, 6-8.

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 5,020 mg/L, May 6; minimum observed, 16 mg/L, Apr. 1.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 9.9 ton, June 28; minimum daily, 0.04 ton, on several days.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 2.38 mg/L, May 28; minimum observed, 0.018 mg/L, Nov. 14.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 21.1 lb, June 28; minimum daily, 0.11 lb, Nov. 14.

WATER YEAR 1999:

WATER TEMPERATURE: Maximum observed, 25.0°C, July 23; minimum observed, 0.5°C, Dec. 30 and Jan. 2, 5, 7.

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 5,660 mg/L, Feb. 11; minimum observed, 9 mg/L, May 6 and Sept. 15.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 32 ton, June 13; minimum daily, 0.03 ton, on many days.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 3.66 mg/L, Feb. 11; minimum observed, 0.028 mg/L, Dec. 21.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 47.1 lb, June 13; minimum daily, 0.13 lb, Dec. 22.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
OCT 1997						
*01...	1345	--	.88	--	.040	--
**28...	0900	--	.94	--	.049	53
NOV						
*14...	1200	--	1.1	--	.018	--
DEC						
**04...	0950	--	1.2	--	.057	39
JAN 1998						
03...	2230	--	3.0	--	.112	746
03...	2300	--	2.5	--	--	264
04...	1515	--	4.3	--	.172	310
04...	1815	--	3.4	--	.132	59
04...	2045	--	2.8	--	.101	44
05...	0015	--	2.4	--	.072	21
05...	1245	--	3.9	--	.127	95
05...	1345	--	3.1	--	.112	55
06...	1005	--	1.9	--	.041	52
06...	1500	--	3.5	--	.137	86
06...	1600	--	4.3	--	.192	113
06...	2000	--	3.0	--	.079	39
07...	0300	--	2.3	--	.053	28
FEB						
01...	1645	--	2.4	--	.293	276
11...	1000	--	3.6	--	.476	499
11...	1100	--	3.1	--	.256	242
11...	1200	--	2.6	--	.187	197
11...	1300	--	3.4	--	.178	183
11...	1500	--	3.1	--	.135	159
11...	1900	--	2.9	--	.100	60
11...	2400	--	2.3	--	.059	60
**12...	1015	--	1.9	--	.035	27
16...	1915	--	4.1	--	.311	285
16...	2015	--	3.1	--	--	95
16...	2330	--	2.6	--	.069	54
24...	0130	--	5.2	--	.604	673
27...	0245	--	2.6	--	.141	140

* Equal-width increment (EWI) sample
** Grab sample

05545131 SOUTHWICK CREEK AT WILLIAMS BAY, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) AS P (00310)	PHOS- PHORUS TOTAL (MG/L) AS P (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
MAR 1998						
08...	0945	--	3.0	--	.154	157
08...	1045	--	3.1	--	.086	148
08...	1245	--	2.6	--	.063	109
08...	1345	--	3.1	--	.094	102
08...	1445	--	2.6	--	.063	107
18...	0345	--	2.4	--	.092	52
18...	0445	--	3.3	--	.219	206
18...	0545	--	2.2	--	.135	70
*19...	0955	--	1.5	--	.042	29
28...	0700	--	2.3	--	.317	329
30...	2400	--	6.0	--	1.53	2270
31...	0100	--	3.1	--	.276	201
31...	0545	--	2.6	--	.124	41
31...	0745	--	4.3	--	.156	137
31...	0945	--	6.7	--	.235	218
*31...	0946	--	--	--	.230	157
31...	1010	--	5.2	--	.206	175
*31...	1011	--	--	--	.209	106
31...	1245	--	3.1	--	.099	41
31...	1645	--	3.1	--	.083	31
31...	2045	--	3.0	--	.088	113
APR						
01...	0045	--	2.5	--	--	44
01...	0145	--	2.5	--	.072	--
01...	0845	--	2.3	--	.048	16
01...	1445	--	2.2	--	.055	24
07...	1630	--	2.8	--	.319	117
07...	1800	--	2.6	--	.175	60
07...	2300	--	4.9	--	.299	239
08...	0200	--	2.3	--	.116	41
08...	1715	--	2.3	--	.080	23
08...	2015	--	3.0	--	.106	34
08...	2215	--	2.4	--	.073	20
09...	0115	--	2.3	--	.074	22
*09...	1015	--	3.0	--	.093	76
15...	2045	--	2.9	--	.179	106
15...	2330	--	6.9	--	.344	365
16...	0130	--	4.5	--	.153	115
16...	0945	--	2.5	--	.081	76
20...	1700	--	2.5	--	.173	69
20...	1745	--	4.2	--	.246	145
20...	2030	--	2.5	--	.085	29
21...	0715	--	4.8	--	.139	108
21...	0945	--	3.4	--	.077	32
26...	0145	--	6.9	--	.692	513
26...	0345	--	2.4	--	.156	71
MAY						
**05...	0930	--	.94	1.0	.053	20
06...	1445	--	8.6	--	1.58	2230
06...	1500	--	14	--	.808	5020
06...	1615	--	2.3	--	.446	374
06...	1645	--	16	--	.842	867
06...	1800	--	4.8	--	--	223
06...	2100	--	2.4	--	.137	126
07...	1045	--	6.3	--	.307	310
07...	1245	--	14	--	.393	399
07...	1445	--	7.3	--	.202	178
*07...	1545	--	15	--	.261	301
08...	0935	--	3.4	--	.060	22
08...	2045	--	2.3	--	.075	454
09...	0900	--	2.2	--	.053	218
12...	2045	--	3.6	--	.295	149
12...	2315	--	9.0	--	.676	119
13...	0030	--	2.5	--	.317	220
15...	2230	--	7.5	--	.471	494
19...	0445	--	3.1	--	.740	189
24...	0130	--	4.2	--	.508	285
24...	0145	--	13	--	.515	675
24...	0200	--	21	--	.566	660
24...	0215	--	7.9	--	.534	404
24...	0315	--	5.4	--	.935	1030
24...	0515	--	2.9	--	.309	245
28...	0900	2.6	--	--	.049	30
28...	0930	2.6	--	--	.748	947
28...	0945	2.6	--	--	.606	492
28...	1000	2.6	--	--	1.42	1560
28...	1100	2.6	--	--	2.38	3510

* Equal-width increment (EWI) sample

** Grab sample

ILLINOIS RIVER BASIN

05545131 SOUTHWICK CREEK AT WILLIAMS BAY, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
MAY 1998						
28...	1200	2.6	--	--	.782	801
28...	1300	2.6	--	--	.302	311
28...	2200	2.6	--	--	.072	55
28...	2300	2.6	--	--	.194	85
28...	2400	2.6	--	--	.167	84
JUN						
**03...	1015	--	1.0	--	.053	37
09...	1645	--	3.5	--	.444	462
11...	1530	--	8.6	--	.511	508
11...	1600	--	3.8	--	.289	193
11...	1725	--	11	--	.433	453
11...	1740	--	4.6	--	.264	187
12...	2040	--	9.0	--	.370	290
12...	2100	--	3.9	--	.214	140
12...	2340	--	10	--	.463	409
12...	2355	--	4.8	--	.262	202
18...	1950	--	14	--	.605	490
18...	2015	--	6.0	--	.263	231
25...	2055	--	10	--	.832	702
25...	2105	--	36	--	.755	1540
25...	2115	--	46	--	.800	834
25...	2145	--	34	--	.964	1030
25...	2310	--	14	--	.921	888
26...	0300	--	4.3	--	.231	110
28...	0040	--	28	--	.641	729
28...	0045	--	36	--	.584	547
28...	0115	--	16	--	.961	1070
28...	0315	--	6.0	--	.333	244
28...	0415	--	51	--	.775	871
28...	0445	--	37	--	.674	663
28...	0535	--	27	--	.752	745
28...	0715	--	12	--	.293	--
28...	0915	--	8.2	--	.192	144
28...	1115	--	6.2	--	.150	66
28...	1715	--	4.3	--	.107	44
JUL						
03...	1045	--	13	--	.561	630
03...	1100	--	5.4	--	.877	220
03...	1835	--	11	--	.212	140
03...	1900	--	4.8	--	.186	94
*15...	1010	--	1.0	--	.063	--
*15...	1415	--	.94	.7	.042	37
20...	1940	--	13	--	.525	579
20...	2015	--	5.8	--	.281	162
AUG						
05...	1845	--	12	--	.409	650
05...	1850	--	14	--	.666	741
05...	1915	--	3.5	--	.243	138
07...	1650	--	12	--	.283	447
07...	1655	--	20	--	.494	505
07...	1715	--	9.0	--	.281	184
07...	1745	--	4.2	--	.476	412
11...	1440	--	.88	--	.043	18
SEP						
06...	2400	--	12	--	.709	732
07...	0005	--	16	--	.822	831
07...	0040	--	6.9	--	.304	171
**08...	1230	--	.82	<.3	.053	38
14...	1750	--	4.9	--	.187	144
14...	1850	--	4.5	--	.170	76
14...	1950	--	3.8	--	.288	195

* Equal-width increment (EWI) sample
 ** Grab sample

05545131 SOUTHWICK CREEK AT WILLIAMS BAY, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
OCT 1998						
03...	0855	--	3.6	--	.165	64
05...	0515	--	8.6	--	.379	644
05...	0630	--	13	--	.278	226
05...	0800	--	4.1	--	.496	401
06...	0945	--	2.4	--	.117	76
*06...	0946	--	2.4	1.6	.116	157
06...	1110	--	4.1	--	.101	48
17...	0535	--	4.8	--	.255	56
17...	1255	--	4.6	--	.193	44
17...	1355	--	3.6	--	.141	30
17...	1730	--	4.5	--	.137	30
17...	1825	--	8.8	--	.219	130
17...	1925	--	7.7	--	.238	132
17...	2025	--	9.9	--	.257	118
17...	2225	--	5.4	--	.209	60
18...	0025	--	4.3	--	.149	58
18...	0220	--	8.6	--	.203	89
18...	0320	--	7.9	--	.166	53
18...	0520	--	5.2	--	.159	38
18...	0720	--	4.3	--	.131	46
18...	1020	--	3.5	--	.105	15
NOV						
09...	2330	--	7.1	--	.569	193
10...	0145	--	12	--	.369	186
10...	0510	--	14	--	.263	89
10...	0810	--	10	--	.250	77
10...	1210	--	5.5	--	.192	55
10...	1910	--	4.2	--	.156	73
*18...	1140	--	1.2	--	.031	17
DEC						
06...	1635	--	3.3	--	.146	67
06...	1830	--	3.5	--	.131	77
*21...	1120	--	.94	--	.028	20
JAN 1999						
**15...	1430	--	1.3	--	.036	72
21...	2050	--	3.9	--	.354	395
22...	0240	--	4.5	--	.150	72
22...	0340	--	3.9	--	.143	56
22...	0540	--	4.8	--	.161	82
22...	0930	--	3.9	--	.134	46
23...	0635	--	4.1	--	.130	67
23...	0835	--	6.7	--	.159	97
23...	1135	--	4.6	--	.135	43
23...	1335	--	5.8	--	.157	65
23...	1435	--	6.0	--	.162	76
23...	1835	--	3.9	--	.112	32
FEB						
05...	1440	--	3.5	--	.237	179
11...	1500	--	31	--	3.66	5660
11...	1520	--	19	--	1.07	1030
11...	1555	--	11	--	.827	976
11...	1755	--	6.2	--	.317	230
11...	2055	--	4.5	--	.162	115
12...	0055	--	3.5	--	.079	127
MAR						
**02...	0945	--	1.3	1.1	.029	71
APR						
**07...	1415	--	1.1	.9	.040	34
08...	2055	--	3.6	--	.264	133
08...	2215	--	7.5	--	.418	485
08...	2315	--	10	--	.362	358
09...	0110	--	3.9	--	.145	102
09...	0210	--	6.3	--	.161	46
09...	0925	--	4.9	--	.122	46
*09...	0926	--	4.9	3.2	.120	46
09...	1000	--	5.7	--	.122	49
*09...	1001	--	5.6	--	.118	48
09...	1025	--	5.4	--	.102	42
09...	1225	--	3.0	--	.063	17
20...	1610	--	3.6	--	.569	70
20...	1710	--	6.2	--	.301	172
20...	1810	--	4.3	--	.162	61
21...	2120	--	5.5	--	.357	243
21...	2220	--	3.1	--	.110	50
22...	0005	--	6.5	--	.209	168

* Equal-width increment (EWI) sample

** Grab sample

ILLINOIS RIVER BASIN
05545131 SOUTHWICK CREEK AT WILLIAMS BAY, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
APR 1999						
22...	0105	--	5.7	--	.133	61
22...	0205	--	4.2	--	.091	36
22...	0405	--	3.6	--	.051	21
22...	0505	--	4.2	--	.083	26
22...	0705	--	3.5	--	.045	15
22...	1805	--	3.3	--	.049	34
23...	1145	--	7.3	--	.121	52
*23...	1146	--	7.3	--	.117	67
23...	1255	--	6.7	--	.111	44
23...	2100	--	4.5	--	.070	28
24...	0505	--	3.8	--	.050	21
27...	1655	--	4.2	--	.120	57
27...	1755	--	3.8	--	.086	33
27...	1955	--	6.9	--	.124	73
27...	2255	--	6.9	--	.091	44
28...	0310	--	3.6	--	.052	19
MAY						
06...	0010	--	8.4	--	.551	648
06...	0040	--	3.1	--	.258	153
06...	0525	--	6.7	--	.259	216
06...	0705	--	4.3	--	.133	57
06...	1105	--	2.2	--	.058	13
06...	1305	--	2.8	--	.076	19
06...	1505	--	2.2	--	.048	9
06...	2110	--	1.9	--	.039	14
06...	2210	--	2.8	--	.057	20
07...	0210	--	2.0	--	.041	12
**10...	1200	--	1.5	.1	.033	16
11...	2205	--	3.8	--	.430	326
11...	2345	--	9.2	--	.472	344
12...	0045	--	7.1	--	.249	146
12...	0245	--	3.9	--	.144	58
12...	0845	--	2.6	--	.050	14
12...	0940	--	7.9	--	.285	354
12...	1020	--	3.8	--	.121	54
12...	1420	--	2.8	--	.048	13
12...	2020	--	2.3	--	.042	16
16...	1845	--	20	--	1.24	2400
16...	1850	--	38	--	1.45	2520
16...	1920	--	16	--	.717	714
17...	0200	--	7.1	--	.322	178
17...	0515	--	4.1	--	.098	44
21...	1755	--	5.5	--	.216	76
21...	2105	--	9.7	--	.268	189
21...	2135	--	19	--	.387	522
21...	2335	--	8.6	--	.269	210
22...	0520	--	4.8	--	.093	35
23...	0900	--	23	--	.601	892
23...	1020	--	8.8	--	.414	372
23...	1220	--	5.4	--	.232	212
31...	1555	--	12	--	.576	585
JUN						
01...	1855	--	4.2	--	.265	158
01...	2025	--	14	--	.366	530
01...	2030	--	19	--	.488	694
01...	2050	--	11	--	.276	154
01...	2125	--	5.4	--	.279	210
**09...	1025	--	1.6	1.0	.039	19
10...	1735	--	17	--	.720	851
10...	1750	--	6.3	--	.386	275
10...	1820	--	12	--	.365	290
10...	1845	--	22	--	.496	484
10...	1945	--	6.5	--	.327	236
10...	2045	--	5.2	--	.297	194
13...	0110	--	5.1	--	.756	77
13...	0755	--	7.1	--	.148	55
13...	1015	--	29	--	.511	632
13...	1040	--	52	--	.934	1670
13...	1110	--	80	--	.959	1510
13...	1255	--	53	--	.660	927
13...	1410	--	28	--	.466	557
13...	1800	--	11	--	.217	165
13...	2400	--	7.7	--	--	53
14...	1400	--	5.4	--	.085	64
14...	2400	--	4.6	--	.129	35
15...	1205	--	3.9	--	.062	31
28...	0015	--	15	--	.702	889
28...	0035	--	23	--	.464	475
28...	0055	--	13	--	.424	268

* Equal-width increment (EWI) sample
** Grab sample

05545131 SOUTHWICK CREEK AT WILLIAMS BAY, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
JUL 1999						
**15...	0935	--	1.4	.8	.044	34
20...	1735	--	8.4	--	.501	442
20...	1743	--	5.7	--	.279	174
20...	1744	--	5.4	--	.275	148
23...	1700	--	18	--	.545	460
23...	1710	--	9.0	--	.295	171
23...	1855	--	2.3	--	.247	148
AUG						
**16...	1305	--	1.1	.1	.050	13
23...	1825	--	21	--	.683	835
23...	1845	--	10	--	.368	308
SEP						
**15...	1440	--	1.0	1.5	.035	9
27...	2100	--	9.2	--	.405	498
27...	2110	--	15	--	.695	1090
27...	2135	--	32	--	1.05	2300
27...	2155	--	17	--	.770	1040
27...	2325	--	11	--	.738	716
27...	2400	--	16	--	.461	461
28...	0100	--	12	--	.533	482
28...	0300	--	7.3	--	.392	300
28...	0435	--	17	--	.251	249
28...	0635	--	12	--	.485	407
28...	0835	--	6.5	--	.300	147
28...	1210	--	7.7	--	.197	79
28...	1410	--	9.5	--	.250	140
28...	1610	--	8.2	--	.198	85
28...	1810	--	13	--	.199	113
28...	2010	--	7.3	--	.192	83
29...	1500	--	2.5	--	.033	244

* Equal-width increment (EWI) sample

** Grab sample

ILLINOIS RIVER BASIN
05545131 SOUTHWICK CREEK AT WILLIAMS BAY, WI--CONTINUED

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	15.0	11.5	13.0	16.5	13.5	15.0	16.5	12.5	14.5	16.5	13.5	15.0
2	15.5	12.0	13.5	16.5	13.5	15.0	16.0	13.5	14.5	15.5	13.5	14.5
3	13.5	11.0	12.0	22.5	14.0	16.0	16.5	14.0	15.0	15.5	13.0	14.0
4	13.5	10.0	12.0	15.5	13.5	14.5	18.0	14.5	15.5	16.0	13.0	14.5
5	12.5	10.5	11.5	16.0	13.0	14.5	22.5	14.5	16.0	16.5	13.0	14.5
6	13.0	10.0	11.5	17.5	14.0	15.0	17.0	15.0	16.0	22.0	14.5	16.0
7	14.0	10.0	12.0	17.0	14.0	14.5	23.5	15.0	16.0	23.0	14.0	16.0
8	13.5	10.0	12.0	15.5	13.5	14.5	17.0	15.0	16.0	15.0	12.5	13.5
9	14.5	12.0	12.5	16.0	13.5	14.5	17.0	14.5	15.5	15.0	12.0	13.5
10	14.5	12.0	13.0	16.0	14.0	15.0	17.5	15.0	16.0	16.0	12.5	14.0
11	19.0	12.0	14.5	16.0	13.0	14.5	16.5	14.0	15.0	16.5	13.5	14.5
12	19.0	13.0	15.0	16.0	13.0	14.5	16.5	14.0	15.0	16.5	13.5	15.0
13	16.0	13.0	14.5	16.5	13.0	14.5	16.0	13.5	15.0	17.0	13.5	15.0
14	15.0	12.5	13.5	17.0	14.0	15.5	20.0	13.5	15.5	19.5	15.0	17.0
15	16.0	12.5	14.0	17.5	14.5	16.0	16.5	14.5	15.5	18.0	14.5	15.5
16	15.5	12.5	14.0	17.0	14.5	15.5	16.5	13.5	15.0	16.5	13.5	15.0
17	16.5	13.0	14.5	17.0	14.0	15.0	16.5	14.5	15.5	16.0	13.5	14.5
18	20.0	13.5	15.0	17.0	14.0	15.5	15.5	14.0	15.0	16.0	13.0	14.5
19	16.5	14.0	15.0	20.5	14.5	16.5	16.0	13.5	14.5	16.5	14.0	15.0
20	17.0	13.5	15.0	23.5	14.5	16.5	17.0	14.0	15.0	17.0	14.0	15.5
21	17.0	14.5	15.5	24.0	16.0	17.5	17.0	14.5	15.5	14.5	13.0	14.0
22	16.5	13.5	14.5	16.5	15.0	15.5	22.5	14.5	16.0	14.5	11.5	13.5
23	17.0	13.5	15.0	16.5	14.0	15.0	18.5	15.5	16.5	14.0	10.5	12.5
24	18.5	14.0	16.0	16.0	13.5	14.5	17.5	15.0	16.0	14.0	12.5	13.0
25	23.5	15.5	17.5	16.0	13.5	14.5	20.5	15.0	16.0	16.0	12.0	14.0
26	19.5	16.0	17.5	16.5	13.0	14.5	17.0	14.0	15.5	18.0	14.0	16.0
27	19.5	15.0	16.5	17.0	14.0	15.0	16.0	14.0	15.0	17.0	14.0	16.0
28	21.5	15.5	18.5	18.0	13.5	15.5	18.0	15.0	15.5	15.5	12.5	14.0
29	17.0	15.0	16.0	16.5	14.0	15.0	17.0	14.5	15.5	16.0	13.5	14.0
30	16.5	14.5	15.0	16.0	14.0	15.0	16.5	14.0	15.0	16.5	13.0	14.0
31	---	---	---	16.0	13.5	14.5	16.0	13.0	14.5	---	---	---
MONTH	23.5	10.0	14.3	24.0	13.0	15.1	23.5	12.5	15.4	23.0	10.5	14.6

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13.0	11.0	12.0	12.0	10.5	11.5	10.0	7.5	8.5	3.5	1.5	2.5
2	13.0	10.0	11.5	10.5	8.5	10.0	11.0	8.5	9.5	2.5	.5	1.5
3	12.5	11.5	12.0	10.0	8.0	9.0	12.5	10.5	11.0	3.5	1.5	2.0
4	13.5	12.0	12.5	9.5	7.0	8.0	12.0	10.5	11.0	2.5	1.0	1.5
5	14.0	12.5	13.5	9.0	7.0	7.5	12.0	10.5	11.0	2.0	.5	1.0
6	16.0	13.0	14.0	9.0	6.5	7.0	11.5	4.0	9.5	3.0	1.5	2.5
7	13.0	12.0	12.5	9.0	6.0	7.5	8.5	6.5	7.5	2.0	.5	1.5
8	13.5	11.0	12.0	8.5	7.0	8.0	8.0	6.5	7.0	4.0	2.0	3.0
9	13.5	10.0	11.5	9.0	7.5	8.5	8.5	6.0	7.0	2.5	1.0	2.0
10	13.5	10.0	11.5	10.0	7.5	8.5	7.5	6.0	6.5	2.0	1.0	1.5
11	14.0	10.5	12.0	8.5	7.0	7.5	8.0	5.5	6.5	2.5	1.0	1.5
12	13.5	11.0	12.0	9.5	7.0	8.0	8.0	6.0	6.5	3.5	2.5	3.0
13	11.5	10.0	10.5	9.5	6.5	8.0	8.0	5.0	6.5	4.0	2.5	3.0
14	12.0	9.0	10.5	10.5	8.5	9.0	8.0	5.5	6.5	4.5	2.5	3.5
15	13.5	10.5	12.0	9.0	8.0	8.5	8.5	6.0	7.0	5.0	3.5	4.0
16	15.0	11.5	13.0	10.0	8.0	9.0	7.5	5.5	6.5	6.0	4.5	5.0
17	16.5	14.0	15.0	9.5	7.5	8.5	6.5	4.5	5.5	5.5	3.0	4.0
18	15.5	11.0	13.0	10.5	7.5	9.0	8.0	5.5	6.5	5.5	3.0	4.5
19	13.0	10.5	11.5	9.5	6.5	8.0	7.0	5.5	6.5	5.5	2.5	3.5
20	12.0	9.5	10.5	6.5	6.0	6.5	6.5	5.5	6.0	6.0	3.0	4.5
21	11.5	9.0	10.5	8.0	6.5	7.0	6.0	1.5	4.5	6.0	2.5	5.0
22	11.5	8.0	9.5	9.5	7.0	8.0	2.0	.5	1.5	4.5	2.5	3.5
23	12.5	9.0	10.5	10.0	7.5	8.5	3.5	1.5	2.5	5.0	2.0	3.5
24	13.0	9.5	11.0	10.0	6.5	8.0	3.5	2.0	2.5	5.0	3.5	4.5
25	13.5	10.5	12.0	10.0	8.0	8.5	4.5	2.5	3.5	5.0	2.5	4.0
26	14.5	11.0	12.5	10.0	7.0	8.0	4.5	3.0	4.0	5.5	2.5	4.0
27	14.5	12.0	13.0	10.5	7.0	8.5	6.0	4.0	5.0	6.0	5.0	5.5
28	13.5	10.5	12.5	11.5	8.0	10.0	6.0	3.0	4.5	5.5	4.5	5.0
29	12.5	10.0	11.0	12.5	11.0	11.5	5.5	1.0	4.0	6.0	4.0	5.0
30	13.0	11.5	12.5	12.5	8.0	11.0	2.5	.5	1.5	6.5	3.5	4.5
31	12.5	11.5	12.0	---	---	---	3.0	1.5	2.0	6.0	4.5	5.0
MONTH	16.5	8.0	11.9	12.5	6.0	8.6	12.5	.5	6.1	6.5	.5	3.4

05545131 SOUTHWICK CREEK AT WILLIAMS BAY, WI--CONTINUED

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY				MARCH			APRIL			MAY		
1	6.5	5.5	6.0	8.0	5.0	6.0	11.5	9.5	10.5	15.5	8.0	11.0
2	6.0	4.5	5.5	6.5	5.0	6.0	14.0	9.0	11.0	15.5	8.5	11.5
3	6.0	4.5	5.5	6.5	3.5	4.5	13.5	9.0	11.0	15.0	9.5	12.0
4	5.5	3.5	4.5	7.0	3.5	4.5	14.5	9.0	11.0	15.5	10.0	12.5
5	5.5	3.0	4.5	5.5	3.5	4.5	9.5	8.5	9.0	15.0	12.0	13.0
6	7.0	4.5	5.5	5.5	2.0	3.5	10.0	8.0	9.0	15.0	11.0	12.0
7	6.0	4.5	5.0	6.0	1.5	3.5	14.5	6.5	10.0	11.0	10.0	10.5
8	6.0	4.5	5.5	5.5	2.5	3.5	13.5	8.0	10.0	12.0	10.0	11.0
9	8.0	4.0	6.0	5.0	2.5	4.0	9.5	7.0	8.5	14.0	9.5	11.5
10	8.0	5.0	6.5	7.5	2.5	4.5	12.5	6.5	8.5	15.0	9.0	11.5
11	12.0	4.5	7.5	8.0	3.5	5.0	9.0	7.5	8.0	15.0	10.5	12.5
12	4.5	2.5	3.5	8.5	3.0	5.0	13.5	6.0	9.0	15.0	11.0	12.5
13	5.5	2.5	4.0	8.0	3.0	5.0	14.5	6.5	10.0	11.5	10.0	10.5
14	7.0	4.0	5.0	8.5	3.5	5.5	14.0	7.0	10.0	14.0	9.0	11.0
15	8.0	5.0	6.0	9.0	3.5	5.5	10.0	8.5	9.0	12.5	10.5	11.5
16	6.5	5.0	6.0	9.5	4.5	6.5	12.0	7.5	9.0	18.5	11.0	13.0
17	6.5	4.0	5.0	11.0	5.0	7.5	10.5	7.5	9.0	15.5	12.5	13.0
18	6.5	3.5	5.0	9.5	5.0	6.0	10.0	8.0	8.5	13.5	11.0	12.5
19	6.0	4.0	5.0	10.0	4.0	6.5	11.0	6.5	8.5	14.0	10.0	12.0
20	5.5	3.0	4.0	10.5	4.5	7.0	10.5	6.5	8.5	14.5	11.0	12.5
21	6.0	2.5	4.0	9.5	5.0	6.5	12.5	8.5	9.5	16.5	11.5	13.0
22	6.5	3.0	4.0	10.0	4.0	6.0	9.0	7.5	8.5	14.5	12.0	13.0
23	7.0	3.5	4.5	10.5	4.0	7.0	11.5	6.5	8.5	14.0	11.5	12.5
24	5.5	3.5	4.0	10.0	4.5	6.5	13.0	7.0	9.0	11.5	10.5	11.0
25	7.0	4.5	5.5	7.5	4.5	5.5	13.5	7.0	9.5	13.0	9.5	11.0
26	8.0	4.5	6.0	10.5	4.0	6.5	14.0	7.5	10.0	14.0	10.5	12.0
27	7.0	6.0	6.5	11.5	4.5	7.5	10.5	8.5	9.5	14.5	10.5	12.5
28	6.0	5.0	5.5	8.5	5.5	7.0	13.5	8.0	10.0	15.5	12.0	13.5
29	---	---	---	12.0	5.5	8.0	14.0	8.0	10.5	15.5	12.0	13.5
30	---	---	---	13.5	6.0	9.0	14.5	8.0	10.5	15.5	12.0	13.5
31	---	---	---	14.5	7.5	10.5	---	---	---	21.5	13.0	14.0
MONTH	12.0	2.5	5.2	14.5	1.5	5.9	14.5	6.0	9.4	21.5	8.0	12.2
JUNE				JULY			AUGUST			SEPTEMBER		
1	16.0	12.5	13.0	16.0	13.5	14.5	17.0	15.0	15.5	16.0	13.0	14.5
2	14.0	12.5	13.0	16.0	13.5	14.5	16.5	14.0	15.0	16.5	13.5	14.5
3	14.5	11.5	13.0	17.5	14.5	16.0	17.0	14.0	15.0	16.5	14.0	15.0
4	14.5	11.0	12.5	19.0	15.5	17.0	17.0	14.5	15.5	16.5	14.0	15.0
5	17.0	12.0	14.5	19.0	15.5	17.0	16.5	14.0	15.0	17.0	14.0	15.5
6	21.5	14.0	15.5	17.5	14.5	16.5	17.0	14.0	15.5	15.5	13.5	14.5
7	17.5	14.0	15.5	17.0	14.0	15.0	18.0	14.5	15.0	16.0	12.5	14.0
8	16.5	13.5	15.0	16.5	13.5	15.0	16.0	13.5	15.0	16.0	14.0	14.5
9	16.5	13.5	15.0	17.5	15.0	16.5	15.0	13.0	14.0	14.0	12.5	13.0
10	22.5	14.0	16.5	16.0	13.5	14.5	17.5	14.0	15.5	14.5	12.0	13.0
11	20.5	14.5	16.0	16.0	12.5	14.0	16.0	14.0	15.0	15.0	11.5	13.5
12	15.5	14.5	15.0	16.0	13.0	14.5	18.0	14.0	15.5	18.5	13.5	14.0
13	19.0	14.5	16.5	16.5	13.5	14.5	16.0	14.0	15.5	14.0	12.5	13.0
14	15.5	13.5	15.0	17.5	14.0	15.5	15.5	13.0	14.0	14.0	12.0	13.0
15	14.0	12.5	13.0	18.0	14.5	16.0	16.0	12.5	14.5	13.5	11.0	12.0
16	13.5	12.0	12.5	18.5	15.0	16.5	16.0	14.0	14.5	14.0	11.0	12.5
17	13.5	11.5	12.5	19.5	15.0	16.5	17.0	14.5	15.5	14.5	11.0	12.5
18	14.5	11.0	12.5	16.0	14.0	15.0	16.0	14.0	14.5	14.5	11.5	13.0
19	14.5	12.5	13.0	17.5	15.0	15.5	18.0	14.0	15.0	15.5	12.0	13.5
20	15.0	12.0	13.5	22.5	14.5	15.5	16.0	13.0	14.5	13.5	12.0	13.0
21	15.0	12.5	14.0	17.0	15.0	16.0	15.5	13.0	14.0	13.0	10.5	11.5
22	16.5	13.0	14.0	18.0	15.0	16.0	15.5	13.0	14.0	14.0	10.0	12.0
23	18.5	13.5	14.5	25.0	15.0	17.0	18.5	14.0	15.0	15.5	11.5	13.0
24	16.5	14.0	15.0	19.0	15.0	16.5	16.0	14.5	15.0	14.0	11.5	12.5
25	16.5	13.5	15.0	18.0	15.0	16.5	16.0	14.5	15.0	14.5	11.0	12.5
26	15.5	13.5	14.5	19.0	15.5	16.5	16.0	14.0	15.0	16.0	13.0	14.5
27	16.0	13.5	15.0	17.5	15.0	16.0	17.0	14.0	15.0	15.0	13.0	14.0
28	23.0	14.5	16.5	18.0	15.0	16.5	17.0	14.5	15.5	13.5	13.0	13.0
29	15.0	13.0	14.0	20.0	15.0	17.0	16.0	13.5	15.0	13.5	11.5	12.5
30	15.0	13.0	14.0	19.5	15.5	17.5	15.0	13.0	14.0	14.0	11.0	12.0
31	---	---	---	18.0	16.0	17.0	15.5	12.5	14.0	---	---	---
MONTH	23.0	11.0	14.3	25.0	12.5	15.9	18.5	12.5	14.9	18.5	10.0	13.4
YEAR	25.0	.5	10.1									

ILLINOIS RIVER BASIN
05545131 SOUTHWICK CREEK AT WILLIAMS BAY, WI--CONTINUED

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.14	.11	.05	.20	.09	.16	.08	.11	.17	.09	.05
2	.09	.15	.10	.06	.09	.08	.12	.07	.11	.14	.08	.05
3	.09	.15	.24	.29	.09	.08	.10	.07	.10	.43	.08	.05
4	.09	.15	.11	.49	.08	.08	.09	.06	.09	.15	.10	.05
5	.10	.28	.10	.24	.07	.07	.08	.06	.08	.13	.52	.05
6	.10	.14	.10	.40	.07	.07	.07	4.1	.08	.85	.15	.12
7	.10	.13	.09	.16	.07	.07	.27	3.6	.08	.35	.59	.65
8	.10	.13	.09	.13	.06	.40	.21	.94	.08	.13	.10	.09
9	.15	.12	.09	.12	.06	.17	.23	1.0	.19	.12	.07	.08
10	.11	.13	.10	.09	.06	.13	.14	.20	.09	.12	.06	.08
11	.12	.14	.09	.08	.77	.11	.45	.13	.57	.12	.04	.08
12	.12	.14	.09	.08	.17	.10	.10	.26	.42	.11	.04	.07
13	.36	.14	.09	.07	.11	.10	.36	.22	.40	.11	.04	.07
14	.12	.14	.08	.07	.09	.09	.30	.10	.22	.10	.04	.49
15	.13	.14	.08	.07	.09	.08	.28	.26	.17	.10	.04	.25
16	.12	.14	.08	.07	.23	.07	.50	.14	.13	.09	.04	.12
17	.13	.14	.08	.07	.13	.20	.21	.10	.11	.08	.04	.11
18	.12	.14	.08	.06	.12	.25	.16	.07	.49	.07	.04	.10
19	.13	.14	.08	.06	.10	.12	.11	.12	.16	.08	.04	.10
20	.20	.14	.07	.06	.10	.10	.18	.08	.13	.42	.04	.10
21	.13	.13	.08	.06	.09	.09	.14	.07	.11	.25	.04	.10
22	.13	.12	.08	.06	.09	.08	.07	.08	.09	.17	.05	.10
23	.13	.11	.08	.06	.08	.08	.30	.06	.08	.15	.04	.09
24	.14	.10	.08	.06	.32	.07	.05	1.8	.07	.14	.05	.09
25	.12	.11	.07	.06	.09	.06	.04	.12	8.2	.13	.06	.09
26	.28	.11	.06	.06	.08	.06	.43	.11	1.1	.13	.04	.09
27	.14	.19	.06	.06	.18	.06	.12	.10	.45	.12	.04	.08
28	.14	.12	.06	.06	.09	.17	.20	2.3	9.9	.11	.08	.08
29	.13	.28	.06	.06	---	.06	.09	.21	1.0	.10	.05	.09
30	.14	.12	.05	.06	---	.23	.09	.16	.23	.09	.04	.10
31	.14	---	.05	.06	---	1.1	---	.16	---	.09	.04	---
TOTAL	4.19	4.31	2.68	3.38	3.78	4.52	5.65	16.83	25.04	5.35	2.77	3.67

WTR YR 1998 TOTAL 82.17

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	.07	.04	.05	.07	.07	.04	.06	.77	.17	.08	.04
2	.05	.06	.04	.05	.09	.10	.04	.05	.22	.16	.07	.04
3	.20	.06	.04	.06	.08	.07	.04	.05	.15	.17	.06	.04
4	.06	.06	.04	.05	.07	.07	.05	.03	.20	.16	.06	.03
5	.98	.06	.05	.05	.13	.07	.07	.13	.18	.15	.05	.03
6	.30	.06	.17	.05	.12	.07	.09	.39	.15	.14	.05	.03
7	.08	.06	.08	.05	.10	.06	.10	.07	.11	.13	.07	.03
8	.06	.05	.07	.05	.08	.06	.93	.06	.09	.13	.05	.03
9	.06	.19	.07	.05	.08	.06	.29	.06	.08	.14	.05	.03
10	.05	2.4	.06	.05	.07	.06	.08	.06	1.5	.13	.05	.03
11	.05	.16	.06	.05	6.1	.05	.08	.44	1.3	.13	.04	.03
12	.05	.10	.06	.05	.55	.05	.07	.55	.16	.13	.10	.10
13	.04	.09	.05	.05	.26	.05	.06	.09	32	.13	.04	.03
14	.04	.18	.05	.05	.22	.05	.06	.07	.86	.14	.04	.03
15	.04	.07	.05	.07	.21	.06	.20	.06	.32	.14	.03	.03
16	.04	.06	.05	.06	.19	.14	.26	4.2	.14	.12	.04	.03
17	.64	.06	.05	.15	.17	.15	.06	.47	.10	.16	.03	.03
18	.42	.05	.05	.07	.15	.13	.06	.16	.08	.13	.03	.03
19	.16	.05	.05	.06	.13	.06	.06	.13	.07	.13	.10	.03
20	.13	.05	.05	.06	.12	.05	.22	.11	.06	.32	.03	.03
21	.12	.05	.05	.39	.10	.05	.20	1.6	.06	.16	.03	.03
22	.11	.05	.05	.51	.10	.05	.67	.42	.06	.14	.03	.03
23	.10	.05	.05	.58	.09	.04	20	2.5	.10	.45	.73	.03
24	.10	.05	.05	.14	.09	.04	.19	.37	.07	.17	.08	.03
25	.09	.05	.05	.10	.09	.04	.13	.28	.06	.14	.06	.03
26	.09	.04	.05	.09	.09	.04	.10	.20	.06	.14	.05	.03
27	.20	.04	.05	.09	.09	.04	.30	.15	.06	.12	.05	3.3
28	.10	.04	.05	.08	.08	.04	.16	.12	1.7	.10	.05	4.9
29	.09	.08	.05	.07	---	.04	.10	.09	.21	.10	.04	.12
30	.08	.05	.05	.07	---	.04	.07	.07	.18	.09	.04	.07
31	.08	---	.05	.07	---	.04	---	.36	---	.09	.04	---
TOTAL	4.65	4.44	1.73	3.37	9.72	1.94	24.78	13.40	41.10	4.71	2.27	9.27

WTR YR 1999 TOTAL 121.38

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

DAILY MEAN VALUES

[illegible]

LOCATION.--Lat 42°33'36", long 88°29'15", in NW 1/4 SE 1/4 sec.9, T.1 N., R.17 E., Walworth County, Hydrologic Unit 07120006, on left bank at bridge on Lackey Lane, about 700 ft upstream from Lake Geneva, 2 mi northeast of Linton, and about 3.5 mi southwest of Lake Geneva.

DRAINAGE AREA.--2.07 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1997 to September 1999.

GAGE.--Water-stage recorder. Elevation of gage is 870 ft above sea level, from topographic map.

REMARKS.--

1998 WATER YEAR.--Estimated daily discharges: Apr. 13-15, May 2, 3, 10, 11, 14-16, 21-27, June 18-26, Aug. 23-31, Sept. 1, 8, and ice-affected periods, Jan. 10-17 and Mar. 10-14. Records fair except those for estimated daily discharges, which are poor (see page 13).

1999 WATER YEAR.--Estimated daily discharges: Oct. 5, 6, May 9, 10, June 2-9, July 21, 24-31, Aug. 1-12, 16-31, Sept. 1-8, 15-26, and ice-affected periods, Dec. 25-31, Jan. 1-14, 30, 31, and Mar. 6-8. Records fair except those for estimated daily discharges, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.18	.28	.55	.60	1.5	2.0	3.9	1.9	1.3	2.0	.39	.18
2	.16	.32	.47	.96	2.9	1.9	2.6	1.7	1.4	1.6	.39	.16
3	.19	.32	.53	2.4	2.3	1.9	2.1	1.6	1.3	1.8	.34	.16
4	.15	.29	.50	3.2	2.0	1.8	1.9	1.6	1.2	7.4	.36	.17
5	.12	.30	.40	4.6	1.7	1.7	1.7	1.6	1.3	3.1	.49	.17
6	.13	.50	.41	4.5	1.5	1.7	1.6	1.9	1.2	2.3	.62	.15
7	.13	.49	.36	4.4	1.5	1.6	1.6	1.8	1.1	2.1	.54	.17
8	.14	.47	.38	3.1	1.4	3.2	3.5	9.0	.77	1.9	.42	.15
9	.15	.43	.49	2.3	1.4	3.5	5.4	4.8	.99	1.6	.31	.12
10	.16	.39	.52	1.8	1.4	2.5	3.6	3.5	1.1	1.4	.30	.12
11	.15	.34	.44	1.6	5.7	2.1	2.8	2.8	1.5	1.2	.25	.10
12	.15	.30	.49	1.5	6.2	2.1	2.5	2.5	1.6	1.0	.21	.08
13	.21	.29	.48	1.4	3.6	2.0	2.3	3.9	2.5	.92	.23	.07
14	.18	.31	.43	1.3	2.9	2.0	2.2	2.8	1.6	.79	.22	.11
15	.16	.31	.52	1.2	2.6	1.9	2.2	2.3	1.3	.71	.25	.26
16	.15	.24	.57	1.1	2.6	1.9	6.3	2.0	1.2	.62	.22	.19
17	.12	.23	.54	1.0	4.2	2.2	3.5	1.8	1.0	.68	.25	.17
18	.10	.25	.64	.94	3.6	3.8	2.7	1.7	1.3	.64	.26	.15
19	.09	.25	.60	.91	2.9	3.2	2.2	1.6	1.2	.71	.24	.15
20	.09	.24	.71	.84	2.5	2.5	2.4	1.5	1.1	.77	.27	.17
21	.09	.26	.74	.85	2.3	2.3	6.3	1.4	1.0	1.2	.34	.18
22	.09	.27	.76	.85	2.2	2.0	4.1	1.3	.96	1.1	.30	.15
23	.10	.27	.68	.89	2.1	1.8	2.9	1.2	.90	.90	.25	.14
24	.12	.24	.80	.86	2.2	1.6	2.3	1.6	.90	.65	.21	.11
25	.15	.30	.80	.84	2.0	1.6	2.0	1.3	8.0	.43	.24	.07
26	.20	.36	.73	.87	2.0	1.7	2.9	1.1	5.6	.37	.21	.08
27	.47	.35	.72	.93	2.3	1.6	2.1	1.2	3.9	.40	.19	.07
28	.37	.46	.72	.98	2.1	1.7	1.8	1.5	33	.39	.26	.07
29	.31	.46	.78	1.1	---	1.6	1.8	1.7	5.1	.37	.22	.07
30	.29	.68	.81	1.0	---	1.5	1.8	1.4	3.0	.40	.19	.12
31	.31	---	.62	1.0	---	4.8	---	1.5	---	.31	.18	---
TOTAL	5.41	10.20	18.19	49.82	71.6	67.7	85.0	83.7	88.32	55.96	9.15	4.06
MEAN	.17	.34	.59	1.61	2.56	2.18	2.83	2.70	2.94	1.81	.30	.14
MAX	.47	.68	.81	4.6	6.2	4.8	6.3	18	33	18	.62	.26
MIN	.09	.23	.36	.60	1.4	1.5	1.6	1.1	.77	.31	.18	.07
CFSM	.08	.16	.28	.78	1.24	1.06	1.37	1.30	1.42	.87	.14	.07
IN.	.10	.18	.33	.90	1.29	1.22	1.53	1.50	1.59	1.01	.16	.07

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998, BY WATER YEAR (WY)

	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998
MEAN	.17	.34	.59	1.61	2.56	2.18	2.83	2.70	2.94	1.81	.30	.14
MAX	.17	.34	.59	1.61	2.56	2.18	2.83	2.70	2.94	1.81	.30	.14
(WY)	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998
MIN	.17	.34	.59	1.61	2.56	2.18	2.83	2.70	2.94	1.81	.30	.14
(WY)	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR

ANNUAL TOTAL	549.11
ANNUAL MEAN	1.50
HIGHEST ANNUAL MEAN	
LOWEST ANNUAL MEAN	
HIGHEST DAILY MEAN	33 Jun 28
LOWEST DAILY MEAN	.07 Sep 13, 25, 27-29
ANNUAL SEVEN-DAY MINIMUM	.08 Sep 24
INSTANTANEOUS PEAK FLOW	243 Jun 28
INSTANTANEOUS PEAK STAGE	6.39 Jun 28
ANNUAL RUNOFF (CFSM)	.73
ANNUAL RUNOFF (INCHES)	9.87
10 PERCENT EXCEEDS	3.0
50 PERCENT EXCEEDS	.93
90 PERCENT EXCEEDS	.15

05545133 BIRCHES CREEK AT LACKEY LANE NEAR LAKE GENEVA, WI--CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	.15	.35	.24	1.5	1.0	.81	2.6	4.3	.90	.11	.08
2	.12	.16	.41	.24	3.7	1.3	.81	2.2	2.0	.71	.14	.08
3	.15	.18	.35	.24	3.0	1.5	.80	2.0	1.4	.77	.14	.08
4	.14	.17	.32	.23	2.5	1.3	.78	1.9	1.3	.62	.14	.08
5	.46	.17	.34	.21	1.7	1.3	.78	1.9	1.3	.56	.14	.08
6	.38	.17	.67	.20	1.6	1.0	.85	3.5	1.1	.53	.14	.08
7	.48	.16	1.4	.22	1.6	.96	.79	3.3	1.1	.45	.17	.09
8	.29	.17	1.0	.22	1.6	1.0	.90	3.0	1.0	.43	.15	.09
9	.23	.17	.82	.24	1.8	1.2	3.3	2.3	1.4	.46	.14	.09
10	.20	7.3	.71	.25	1.8	1.0	2.1	2.2	11	.41	.13	.09
11	.19	2.7	.65	.27	5.1	.97	1.7	2.2	39	.41	.13	.10
12	.20	1.7	.63	.25	3.6	.90	1.4	8.2	11	.44	.19	.14
13	.22	1.4	.52	.25	1.9	.90	1.3	4.3	155	.44	.14	.14
14	.22	1.3	.46	.26	1.6	.90	1.2	3.3	15	.42	.13	.14
15	.24	1.0	.47	.34	1.6	1.1	1.3	2.7	9.0	.37	.13	.14
16	.26	.97	.48	.39	1.5	1.6	1.7	14	9.1	.29	.12	.15
17	.60	.82	.45	.42	1.3	2.4	1.4	22	8.3	.32	.09	.15
18	1.9	.77	.49	.72	1.2	1.9	1.4	8.3	6.3	.30	.11	.15
19	.64	.73	.41	.47	1.1	1.5	1.3	6.4	5.0	.30	.21	.15
20	.33	.61	.44	.43	.98	1.4	1.5	5.3	4.0	.28	.11	.16
21	.22	.55	.50	.47	.88	1.2	1.7	6.5	3.4	.23	.07	.16
22	.16	.59	.44	4.9	.84	1.1	3.5	16	3.0	.19	.07	.16
23	.16	.55	.36	11	.93	1.0	41	8.9	3.0	.26	.08	.16
24	.18	.49	.32	6.6	.89	.96	6.3	7.5	3.0	.20	.26	.16
25	.20	.53	.31	3.2	.88	.91	4.4	6.1	2.4	.16	.22	.16
26	.18	.45	.30	2.1	.93	.93	3.6	4.9	2.2	.16	.11	.16
27	.18	.42	.28	2.6	1.1	.91	4.1	3.7	2.1	.14	.08	.26
28	.20	.43	.27	3.0	1.2	.89	7.2	2.8	2.4	.14	.07	.89
29	.16	.44	.30	1.9	---	.84	4.0	2.1	1.5	.13	.07	.84
30	.17	.44	.26	1.4	---	.80	3.0	1.8	1.2	.13	.07	.42
31	.15	---	.25	1.5	---	.82	---	2.1	---	.11	.08	---
TOTAL	9.34	25.69	14.96	44.76	48.33	35.49	104.92	164.0	311.8	11.26	3.94	5.63
MEAN	.30	.86	.48	1.44	1.73	1.14	3.50	5.29	10.4	.36	.13	.19
MAX	1.9	7.3	1.4	11	5.1	2.4	41	22	155	.90	.26	.89
MIN	.12	.15	.25	.20	.84	.80	.78	1.8	1.0	.11	.07	.08
CFSM	.15	.41	.23	.70	.83	.55	1.69	2.56	5.02	.18	.06	.09
IN.	.17	.46	.27	.80	.87	.64	1.89	2.95	5.60	.20	.07	.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998- 1999, BY WATER YEAR (WY)

	MEAN	.24	.60	.53	1.53	2.14	1.66	3.17	4.00	6.67	1.08	.21	.16
MAX	.30	.86	.59	1.61	2.56	2.18	3.50	5.29	10.4	1.81	.30	.19	
(WY)	1999	1999	1998	1998	1998	1998	1999	1999	1999	1998	1998	1999	
MIN	.17	.34	.48	1.44	1.73	1.14	2.83	2.70	2.94	.36	.13	.14	
(WY)	1998	1998	1999	1999	1999	1999	1998	1998	1998	1999	1999	1998	

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1998- 1999

ANNUAL TOTAL	565.30	780.12	
ANNUAL MEAN	1.55	2.14	1.82
HIGHEST ANNUAL MEAN			2.14
LOWEST ANNUAL MEAN			1.50
HIGHEST DAILY MEAN	33	155	155
LOWEST DAILY MEAN	.07	.07	.07
ANNUAL SEVEN-DAY MINIMUM	.08	.08	.08
INSTANTANEOUS PEAK FLOW		816	816
INSTANTANEOUS PEAK STAGE		9.26	9.26
ANNUAL RUNOFF (CFSM)	.75	1.03	.88
ANNUAL RUNOFF (INCHES)	10.16	14.02	11.95
10 PERCENT EXCEEDS	3.1	3.8	4.1
50 PERCENT EXCEEDS	1.0	.65	.65
90 PERCENT EXCEEDS	.17	.14	.15

(a) Also occurred Sept. 25, 27-29, 1998

(b) Also occurred Sept. 25, 27-29, 1998, Aug. 21-22, 28-30, 1999

(c) Also occurred Aug. 27, 1999

ILLINOIS RIVER BASIN

05545133 BIRCHES CREEK AT LACKEY LANE NEAR LAKE GENEVA, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1997 to September 1999.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: May 1998 to September 1999.

SUSPENDED-SEDIMENT DISCHARGE: October 1997 to September 1999 (discontinued).

TOTAL-PHOSPHORUS DISCHARGE: October 1997 to September 1999 (discontinued).

INSTRUMENTATION.--Automatic pumping sampler since October 1997. Continuous water temperature recorder since June 1998.

REMARKS.--Chemical analyses by Wisconsin State Laboratory of Hygiene. Suspended-sediment analyses by U.S. Geological Survey laboratory. Concentrations are of point samples unless otherwise indicated.

EXTREMES FOR CURRENT PERIOD.--

WATER YEAR 1998:

WATER TEMPERATURE: Maximum observed, 21.0°C, July 3, 21; minimum observed, 9.5°C, June 6.

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 2,410 mg/L, June 28; minimum observed, 2 mg/L, Sept. 5.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 98 tons, June 28; minimum daily, 0.0 ton, on many days.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 2.29 mg/L, June 28; minimum observed, <0.005 mg/L, Nov. 14.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 220 lb, June 28; minimum daily, 0.01 lb, Nov. 11-21 and Sept. 12, 13.

WATER YEAR 1999:

WATER TEMPERATURE: Maximum observed, 22.0°C, July 30; minimum observed, 0.0°C, on many days.

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 17,700 mg/L, June 11; minimum observed, 1 mg/L, Sept. 25.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 600 tons, June 13; minimum daily, 0.00 ton, on many days.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 9.34 mg/L, June 11; minimum observed, 0.014 mg/L, Mar. 2.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 912 lb, June 13; minimum daily, 0.01 lb, on many days.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
OCT 1997					
**01...	1225	.16	--	.032	--
**28...	1000	.36	--	.050	23
NOV					
**14...	1200	.31	--	<.005	--
DEC					
**04...	1215	.49	--	.042	17
JAN 1998					
06...	1145	3.5	--	.079	13
*06...	1146	3.5	--	.083	14
06...	1830	5.8	--	.110	27
06...	2130	6.7	--	.185	56
06...	2330	6.4	--	.259	48
07...	0330	5.5	--	.201	22
FEB					
11...	1330	6.1	--	.134	79
11...	1530	9.2	--	.375	267
11...	1730	12	--	.770	412
11...	1930	12	--	.709	253
11...	2130	11	--	.532	183
12...	0030	9.6	--	.374	68
12...	0430	7.7	--	.273	50
12...	1150	5.5	--	.134	14
*12...	1151	5.5	--	.133	14
MAR					
*19...	1135	3.1	--	.032	4
31...	1130	7.7	--	.132	77
*31...	1131	7.7	--	.229	123
*31...	1330	6.7	--	.274	120
31...	1500	6.4	--	.222	70
31...	1800	6.4	--	.187	62
31...	2100	6.1	--	.173	54
31...	2400	5.2	--	.161	44
APR					
01...	0300	4.5	--	.130	32
08...	2345	5.0	--	.117	39
09...	0500	5.0	--	.140	36
09...	0745	5.0	--	--	28
09...	0945	5.5	--	.111	22

* Equal-width increment (EWI) sample

** Grab sample

05545133 BIRCHES CREEK AT LACKEY LANE NEAR LAKE GENEVA, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
APR 1998						
09...	1245	--	6.4	--	.155	38
09...	1445	--	6.7	--	.171	36
09...	1745	--	5.5	--	.166	25
09...	2330	--	5.0	--	.124	25
16...	0315	--	9.2	--	.370	256
16...	0915	--	6.4	--	.224	53
16...	1515	--	5.8	--	.131	24
21...	0945	--	8.8	--	.053	19
21...	1245	--	10	--	.259	151
21...	1845	--	6.7	--	.448	97
22...	0045	--	5.2	--	.197	50
MAY						
*05...	1050	--	1.6	1.0	.037	11
07...	1315	--	35	--	.582	262
07...	2215	--	21	--	.244	139
08...	0715	--	10	--	.149	50
08...	1035	--	8.8	--	.202	46
*08...	1036	--	8.8	--	.204	47
08...	2215	--	6.1	--	.151	58
30...	1405	--	1.3	--	.076	27
JUN						
*03...	1135	--	1.4	--	.047	28
*26...	1230	--	5.6	--	--	86
27...	0830	--	7.4	--	.410	236
27...	1205	--	4.5	--	.598	338
28...	0230	--	10	--	.745	542
28...	0315	--	25	--	.990	1100
28...	0530	--	60	--	1.08	965
28...	0545	--	103	--	1.51	1650
28...	0615	--	179	--	1.95	2200
28...	0630	--	243	--	2.29	2410
28...	0800	--	103	--	1.02	692
28...	1030	--	28	--	.670	445
28...	1630	--	8.8	--	.261	91
29...	0130	--	6.1	--	.195	53
29...	1415	--	4.7	--	.136	33
JUL						
03...	1930	--	22	--	1.03	1070
03...	2005	--	80	--	1.51	1480
03...	2030	--	169	--	1.79	1790
03...	2135	--	120	--	1.12	777
03...	2255	--	45	--	.836	524
04...	0315	--	10	--	.351	181
04...	1215	--	5.8	--	.195	51
*15...	1230	--	.91	.8	.047	15
*15...	1420	--	.85	--	.046	27
AUG						
02...	1200	--	.42	--	.029	13
**06...	1315	--	.57	--	.061	64
**11...	1300	--	.19	--	.033	16
SEP						
01...	1425	.18	--	<.3	.028	6
05...	1000	--	.19	--	.030	2
07...	1135	--	.16	--	.049	23
**08...	1340	.15	--	--	.032	8

* Equal-width increment (EWI) sample
 ** Grab sample

ILLINOIS RIVER BASIN

05545133 BIRCHES CREEK AT LACKEY LANE NEAR LAKE GENEVA, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
OCT 1998						
**06...	1150	.38	--	1.2	.083	26
NOV						
**18...	0945	--	.74	--	.030	9
DEC						
**21...	1255	--	.54	--	.018	3
JAN 1999						
**15...	1205	--	.31	--	.052	61
28...	1100	--	3.1	--	.103	9
FEB						
02...	1300	--	4.7	--	.131	36
11...	1625	--	6.7	--	.211	153
11...	1740	--	15	--	.776	756
11...	2040	--	9.6	--	.611	453
11...	2340	--	6.7	--	.299	96
15...	1205	--	1.4	--	.030	3
MAR						
**02...	1115	--	1.4	.9	.014	8
APR						
**07...	1505	--	.82	.8	.017	32
09...	0830	--	2.9	--	.072	15
*09...	0831	--	2.9	1.2	.069	21
09...	1100	--	3.3	--	.057	10
*09...	1101	--	3.3	--	.055	22
09...	1410	--	3.8	--	.048	9
09...	2010	--	2.7	--	.037	6
10...	0410	--	2.2	--	.029	7
10...	1210	--	2.1	--	.025	10
11...	0050	--	1.8	--	.024	4
16...	0715	--	1.8	--	.021	9
16...	1150	--	1.9	--	.020	4
20...	2005	--	2.1	--	.025	19
21...	0005	--	1.9	--	.021	10
22...	0400	--	4.5	--	.126	67
22...	1000	--	3.8	--	.047	24
22...	2330	--	3.5	--	.046	25
23...	0225	--	17	--	.736	727
23...	0315	--	61	--	1.79	2180
23...	0345	--	162	--	2.06	2270
23...	0415	--	254	--	1.64	1670
23...	0515	--	198	--	1.42	1130
23...	0630	--	95	--	.929	674
23...	0900	--	31	--	.552	365
23...	1035	--	23	--	.419	257
*23...	1036	--	23	--	.428	242
23...	1305	--	17	--	.319	114
24...	0105	--	7.4	--	.170	41
24...	1305	--	6.1	--	.101	21
25...	1105	--	4.2	--	.063	10
27...	2255	--	10	--	.198	122
28...	0055	--	13	--	.231	133
28...	0655	--	7.7	--	.116	33
MAY						
**10...	1025	--	2.4	<.3	.022	4
12...	0125	--	9.6	--	.379	283
12...	0240	--	19	--	.567	457
12...	0440	--	12	--	.424	119
12...	1040	--	8.1	--	.116	21
12...	1645	--	6.4	--	.074	10
16...	1945	--	16	--	.528	428
16...	2015	--	66	--	3.09	3250
16...	2030	--	96	--	6.00	5830
16...	2225	--	53	--	3.23	2390
17...	0110	--	16	--	.889	542
17...	0255	--	36	--	1.15	986
17...	0405	--	88	--	2.57	2050
17...	0650	--	31	--	1.15	744
17...	1225	--	14	--	.366	204
*17...	1226	--	14	--	.371	141
17...	2250	--	9.6	--	.289	91
18...	0900	--	8.5	--	.207	43
18...	2255	--	6.7	--	.182	49
21...	2225	--	15	--	.329	291
22...	0030	--	48	--	.744	684
22...	0430	--	19	--	.330	130

* Equal-width increment (EWI) sample

** Grab sample

05545133 BIRCHES CREEK AT LACKEY LANE NEAR LAKE GENEVA, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDEDED (MG/L) (80154)
JUN 1999						
01...	2115	--	14	--	.562	626
01...	2315	--	16	--	1.58	1700
**09...	1200	1.4	--	1.0	.052	17
10...	1915	--	53	--	3.08	5250
10...	1920	--	72	--	4.56	15900
10...	2320	--	23	--	1.42	1110
11...	1910	--	17	--	.623	666
11...	1920	--	76	--	7.78	8530
11...	1930	--	142	--	9.34	17700
11...	1945	--	260	--	8.36	14400
11...	2055	--	322	--	3.13	3640
11...	2150	--	196	--	2.39	2100
11...	2305	--	64	--	1.64	1240
12...	0400	--	14	--	.436	350
13...	0905	--	29	--	.747	770
13...	0950	--	79	--	1.18	1350
13...	1020	--	175	--	1.13	1270
13...	1030	--	248	--	1.17	1430
14...	1200	--	10	--	.171	58
*14...	1205	--	10	--	.170	57
14...	1730	--	9.2	--	.153	46
14...	2330	--	8.5	--	.148	47
15...	1130	--	9.2	--	.115	26
16...	0135	--	9.2	--	.118	33
JUL						
**15...	1055	--	.57	.7	.035	22
23...	1355	--	.19	--	.058	10
25...	1425	.16	--	--	.035	29
AUG						
10...	1605	.13	--	--	.030	12
**16...	1430	.12	--	.1	.025	11
20...	1455	.11	--	--	.025	44
26...	1250	.11	--	--	.019	38
SEP						
01...	1520	.08	--	--	.020	8
04...	1455	.08	--	--	.017	16
11...	1510	--	.13	--	.032	8
**15...	1210	.14	--	1.3	.019	11
16...	1450	.15	--	--	.017	21
19...	1200	.15	--	--	.021	10
22...	1415	.16	--	--	.017	6
25...	1255	.16	--	--	.021	1
*28...	1340	--	1.3	--	.105	11
30...	1415	--	.49	--	.059	9

* Equal-width increment (EWI) sample
 ** Grab sample

ILLINOIS RIVER BASIN

05545133 BIRCHES CREEK AT LACKEY LANE NEAR LAKE GENEVA, WI--CONTINUED

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	16.0	12.5	14.5	---	---	---	17.0	12.5	15.0	---	---	---
2	16.5	13.0	14.5	19.5	15.5	17.5	17.5	14.0	15.5	16.0	13.5	14.5
3	14.0	12.0	13.0	21.0	16.5	18.5	17.0	14.5	15.5	15.0	13.0	14.0
4	13.5	10.0	12.0	20.0	16.0	17.5	16.0	15.0	15.5	16.5	13.0	14.5
5	12.5	10.5	11.5	18.5	15.0	17.0	17.5	15.5	16.0	17.0	12.5	14.5
6	12.5	9.5	11.0	19.0	16.5	17.5	19.0	17.0	17.5	17.5	14.5	16.0
7	14.5	10.0	12.0	18.0	16.5	17.0	18.0	16.5	17.0	17.0	14.5	15.5
8	13.0	10.0	11.5	18.5	16.0	17.0	18.0	16.5	17.0	---	---	---
9	12.5	12.0	12.5	19.0	16.0	17.5	19.0	16.0	17.0	15.0	11.5	13.0
10	15.0	12.5	13.5	19.0	16.0	17.5	19.0	16.0	17.5	15.5	12.0	13.5
11	16.0	13.0	14.5	19.0	14.5	16.5	17.5	15.0	16.0	15.5	13.0	14.0
12	18.0	14.5	16.0	19.0	14.5	16.5	16.5	14.0	15.5	15.5	13.5	14.5
13	17.0	14.0	15.5	19.0	15.0	17.0	17.0	13.5	15.0	15.5	13.0	14.5
14	16.0	13.5	14.5	20.5	16.5	18.0	17.5	13.5	15.5	15.5	14.5	14.5
15	18.0	13.5	15.5	20.5	17.5	19.0	17.5	14.5	15.5	16.5	15.0	16.0
16	18.0	14.0	16.0	20.0	17.0	18.5	17.5	14.0	15.5	17.0	14.0	15.5
17	18.0	14.5	16.5	19.5	16.5	18.0	17.0	15.0	15.5	17.0	13.5	15.0
18	---	---	---	19.5	16.5	18.0	16.0	14.5	15.0	16.5	13.0	14.5
19	---	---	---	20.5	17.0	18.5	16.5	13.5	14.5	17.0	14.0	15.0
20	---	---	---	20.5	17.0	18.5	17.0	13.5	15.0	17.5	14.5	16.0
21	---	---	---	21.0	18.5	20.0	17.5	15.0	16.0	16.0	13.5	14.5
22	---	---	---	19.5	18.0	18.5	17.0	14.5	16.0	15.0	12.0	13.5
23	---	---	---	19.0	16.5	17.5	---	---	---	14.0	10.0	12.0
24	---	---	---	18.0	15.0	16.5	---	---	---	13.0	12.0	12.5
25	---	---	---	17.5	14.5	16.0	---	---	---	14.0	11.5	12.5
26	---	---	---	18.0	14.0	15.5	---	---	---	16.5	14.0	15.0
27	---	---	---	18.0	15.0	16.0	---	---	---	17.0	14.5	16.0
28	---	---	---	19.0	14.5	16.5	---	---	---	15.0	12.0	13.5
29	---	---	---	19.0	15.0	16.5	---	---	---	14.0	12.5	13.0
30	---	---	---	17.5	15.0	16.0	---	---	---	15.5	13.0	14.0
31	---	---	---	18.0	14.0	15.5	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	13.5	10.5	12.0	11.5	10.0	11.0	8.0	6.0	7.0	.5	.0	.0
2	11.0	9.5	10.5	10.0	8.0	9.0	9.5	7.0	8.5	.5	.0	.0
3	11.5	10.5	11.0	8.5	6.5	7.5	11.5	9.0	10.0	.5	.0	.0
4	13.0	11.0	12.0	8.0	5.0	6.5	11.0	10.0	10.5	.5	.0	.0
5	---	---	---	7.0	5.0	6.0	11.5	10.0	10.5	.0	.0	.0
6	---	---	---	6.5	4.5	5.0	11.0	6.0	9.5	.5	.0	.0
7	13.0	11.5	12.5	6.5	4.0	5.0	6.5	5.5	6.0	.0	.0	.0
8	13.0	10.5	12.0	6.5	5.0	5.5	5.5	4.0	5.0	.5	.0	.5
9	12.0	9.0	10.5	7.0	6.0	6.5	5.0	3.0	4.5	.0	.0	.0
10	12.5	9.0	10.5	10.5	6.5	8.5	4.5	3.0	4.0	.5	.0	.0
11	13.0	9.5	11.0	7.0	5.5	6.5	4.5	2.5	3.5	.0	.0	.0
12	13.0	10.5	11.5	7.5	5.0	6.0	4.5	2.5	3.5	.5	.0	.5
13	11.0	9.0	10.0	7.0	3.5	5.5	4.5	2.0	3.0	1.0	.0	.5
14	10.5	8.0	9.5	8.5	6.0	7.5	4.0	2.0	3.0	1.5	.5	1.0
15	12.5	9.5	11.0	7.5	6.0	6.5	5.0	3.0	4.0	2.0	.5	1.0
16	14.5	11.0	12.5	8.0	6.0	7.0	4.5	3.5	4.0	3.0	1.0	2.0
17	15.0	13.5	14.0	7.5	5.5	6.5	3.5	2.0	2.5	2.5	.0	1.5
18	15.0	11.0	13.0	8.0	5.0	6.5	5.0	2.5	3.5	1.5	.0	1.0
19	12.5	10.0	11.0	8.0	4.5	6.5	4.5	3.0	4.0	2.0	.0	.5
20	11.0	9.0	10.0	4.5	3.0	3.5	3.5	2.5	3.0	2.5	.0	1.0
21	10.5	8.5	9.5	5.0	3.5	4.0	3.0	.0	1.5	2.5	1.0	2.0
22	9.5	6.5	8.0	7.0	4.0	5.5	.0	.0	.0	1.5	.0	.0
23	11.0	7.5	9.0	8.0	6.0	7.0	.5	.0	.0	.0	.0	.0
24	11.5	8.0	9.5	7.0	4.5	6.0	.5	.0	.5	1.5	.0	1.0
25	12.5	9.5	11.0	7.5	5.5	6.5	1.5	.0	.5	2.0	.0	1.0
26	13.5	10.5	12.0	7.5	5.5	6.0	1.5	.5	1.0	2.0	.0	.5
27	13.0	11.5	12.5	7.0	4.0	6.0	2.5	1.0	1.5	4.0	1.5	2.5
28	13.5	10.5	12.5	10.0	6.0	8.0	2.5	.0	1.5	2.5	1.5	2.0
29	11.5	9.5	10.5	12.0	9.5	11.0	2.0	.0	1.0	3.0	1.0	2.0
30	12.5	11.5	12.0	12.0	7.5	11.0	.0	.0	.0	2.5	.0	1.0
31	12.0	11.0	11.5	---	---	---	.5	.0	.0	3.0	1.5	2.0
MONTH	---	---	---	12.0	3.0	6.8	11.5	.0	3.8	4.0	.0	.8

05545133 BIRCHES CREEK AT LACKEY LANE NEAR LAKE GENEVA, WI--CONTINUED

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	3.5	2.5	3.0	5.5	2.0	3.5	11.5	9.5	10.5	15.5	6.5	11.0
2	3.5	2.0	3.0	4.0	2.5	3.5	14.0	8.5	11.0	15.5	7.5	11.5
3	4.0	2.0	3.0	3.0	1.0	2.0	13.0	9.5	11.0	15.0	8.5	12.0
4	3.0	.0	2.0	3.0	.0	1.5	14.5	9.5	11.5	16.0	9.5	13.0
5	2.5	.0	1.0	2.0	.5	1.5	10.5	8.0	8.5	16.0	12.5	14.0
6	4.5	1.5	3.0	1.5	.0	.5	9.0	7.5	8.5	13.5	10.5	11.5
7	3.0	2.0	2.5	1.5	.0	.5	14.0	5.5	9.5	10.5	9.5	10.0
8	4.0	1.5	2.5	2.0	.0	.5	12.5	8.0	10.0	11.5	9.5	10.5
9	5.5	2.5	3.5	1.0	.0	.5	9.0	6.0	7.5	13.5	9.0	11.0
10	6.0	2.5	4.0	2.5	.0	1.0	11.5	4.5	7.5	15.5	8.5	12.0
11	9.5	3.5	7.0	3.5	.0	1.5	8.0	6.0	7.0	15.5	10.0	12.5
12	3.5	.0	1.5	3.5	.0	1.5	12.5	4.5	8.0	14.5	11.0	12.5
13	1.5	.0	.5	3.0	.0	1.5	13.5	5.0	9.0	11.5	9.5	10.5
14	4.0	.0	2.0	5.0	.5	2.0	13.0	5.5	9.5	14.5	8.0	11.0
15	5.5	1.5	3.5	5.5	.0	2.5	9.5	7.5	8.0	12.5	10.0	11.5
16	4.0	2.5	3.5	7.5	1.5	4.0	11.0	6.5	8.5	16.0	10.5	13.5
17	3.0	.5	2.0	9.5	3.5	6.0	9.5	6.5	8.0	14.5	13.0	14.0
18	3.0	.0	1.5	7.5	2.5	4.5	8.5	6.0	7.5	14.0	11.5	12.5
19	3.0	1.0	2.0	7.5	1.0	4.0	9.5	4.5	7.0	15.5	10.0	12.5
20	1.5	.0	.5	8.0	1.0	4.5	9.0	5.0	7.5	16.0	10.5	13.0
21	2.0	.0	.5	7.5	2.5	4.5	11.0	7.0	9.0	14.0	12.0	13.0
22	1.5	.0	.5	7.0	1.0	4.0	9.0	7.0	8.0	15.5	12.5	14.0
23	3.0	.0	1.5	8.0	1.0	4.5	11.5	6.0	8.0	14.5	11.5	12.5
24	1.0	.0	.5	8.0	2.0	5.0	12.5	5.5	8.5	11.5	10.5	10.5
25	3.5	1.0	2.0	4.5	2.0	3.0	13.5	5.0	9.0	13.0	9.0	11.0
26	4.5	1.0	3.0	7.5	.5	4.0	13.5	6.0	9.5	15.0	10.0	12.5
27	4.5	3.5	4.0	9.0	1.0	5.0	9.5	7.5	8.5	16.0	10.5	13.0
28	4.0	3.0	3.5	6.5	3.0	5.0	12.5	7.0	9.0	17.5	12.5	14.5
29	---	---	---	10.5	3.5	6.5	14.0	6.5	10.0	17.5	12.5	15.0
30	---	---	---	12.0	4.5	8.0	14.5	6.5	10.0	17.0	13.0	15.0
31	---	---	---	14.0	6.5	10.0	---	---	---	16.5	14.0	15.0
MONTH	9.5	.0	2.4	14.0	.0	3.4	14.5	4.5	8.8	17.5	6.5	12.5
	JUNE			JULY			AUGUST			SEPTEMBER		
1	15.0	13.0	14.0	17.5	15.0	16.0	19.5	17.0	18.0	14.0	12.0	13.0
2	14.5	13.0	13.5	17.5	15.0	16.5	19.0	16.0	17.5	14.5	12.5	13.0
3	15.5	12.0	13.5	19.0	16.5	18.0	18.0	15.5	16.5	15.0	13.0	14.0
4	14.5	11.0	13.0	21.0	17.5	19.0	19.0	16.0	17.5	18.0	13.5	16.0
5	18.5	12.5	15.5	21.5	18.0	19.5	18.5	15.5	17.0	18.0	15.5	17.0
6	20.0	16.0	17.5	20.0	16.5	18.5	18.0	15.5	16.5	17.5	15.0	16.0
7	19.5	16.0	17.5	18.5	15.0	16.5	16.5	15.5	16.0	16.5	13.0	14.5
8	19.5	15.0	17.0	17.5	15.0	16.0	17.5	15.5	16.5	16.0	14.0	15.0
9	19.0	15.5	17.0	19.0	16.5	17.5	16.0	14.0	15.0	14.0	12.0	13.0
10	19.5	16.0	17.5	17.0	14.5	16.0	18.5	15.0	16.5	13.5	11.0	12.0
11	20.5	16.0	18.0	16.0	13.0	14.5	17.5	15.5	16.5	15.5	10.5	13.0
12	19.0	16.5	17.0	17.0	13.5	15.0	16.5	14.5	15.5	15.0	14.0	14.5
13	18.5	16.0	17.0	16.5	14.0	15.0	17.0	15.5	16.0	14.5	13.0	14.0
14	17.5	15.0	16.0	17.5	14.0	15.5	17.0	14.0	15.5	14.5	12.5	13.5
15	16.0	13.5	14.5	18.5	14.5	16.0	17.0	13.0	15.0	14.0	12.0	13.0
16	15.5	13.0	14.0	19.0	15.0	16.5	16.0	14.5	15.0	14.5	11.5	12.5
17	15.0	12.0	13.5	17.0	15.0	16.0	18.0	14.5	16.0	14.5	11.5	13.0
18	16.0	12.0	14.0	16.5	15.0	16.0	16.5	14.5	15.0	15.0	12.0	13.5
19	16.5	13.0	14.5	17.0	15.5	16.5	15.5	13.5	14.5	15.5	12.5	14.0
20	17.0	13.0	15.0	17.5	15.5	16.0	15.5	13.0	14.0	15.0	13.0	13.5
21	17.0	13.5	15.5	18.0	16.0	16.5	14.5	12.5	13.5	13.0	11.0	12.0
22	17.5	14.5	16.0	18.5	15.5	17.0	14.0	12.5	13.0	13.5	10.0	11.5
23	17.0	15.5	16.5	19.5	16.0	17.5	15.0	13.0	13.5	15.0	12.0	13.0
24	19.0	15.5	17.0	21.0	17.5	19.0	15.5	14.5	15.0	14.5	12.5	13.5
25	18.5	15.0	17.0	21.0	18.0	19.0	16.0	14.0	15.0	14.5	11.0	12.5
26	18.0	15.0	16.5	20.0	17.5	18.5	15.5	13.5	14.5	16.5	13.0	14.5
27	19.0	16.0	17.5	20.0	17.0	18.5	15.5	13.5	14.5	16.0	12.5	14.0
28	18.0	16.5	17.5	20.0	17.0	18.5	16.0	14.0	15.0	12.5	12.0	12.0
29	16.5	14.5	15.5	21.0	17.0	19.0	16.0	13.5	14.5	13.0	11.5	12.5
30	16.5	14.5	15.5	22.0	18.0	20.0	14.5	12.5	13.5	13.0	10.5	12.0
31	---	---	---	20.5	19.0	19.5	14.0	11.5	12.5	---	---	---
MONTH	20.5	11.0	15.8	22.0	13.0	17.2	19.5	11.5	15.3	18.0	10.0	13.5

ILLINOIS RIVER BASIN

05545133 BIRCHES CREEK AT LACKEY LANE NEAR LAKE GENEVA, WI--CONTINUED

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.02	.03	.02	.05	.04	.32	.07	.10	.10	.01	.00
2	.01	.02	.02	.04	.14	.04	.16	.06	.10	.06	.01	.00
3	.01	.02	.02	.09	.08	.04	.10	.05	.10	52	.02	.00
4	.01	.02	.02	.16	.05	.03	.08	.05	.09	2.8	.03	.00
5	.01	.02	.02	.31	.05	.03	.06	.05	.09	.19	.06	.00
6	.01	.03	.02	.31	.04	.03	.05	.05	.09	.12	.10	.00
7	.01	.03	.02	.24	.04	.02	.05	11	.08	.11	.07	.01
8	.01	.03	.02	.12	.04	.19	.25	1.5	.05	.09	.04	.00
9	.01	.02	.02	.09	.04	.17	.44	.46	.07	.08	.02	.00
10	.01	.02	.02	.07	.04	.06	.23	.17	.07	.06	.02	.00
11	.01	.02	.02	.06	3.0	.05	.16	.11	.10	.05	.01	.00
12	.01	.02	.02	.06	.53	.05	.14	.09	.11	.05	.01	.00
13	.01	.02	.02	.05	.13	.04	.11	.34	.16	.04	.01	.00
14	.01	.02	.02	.05	.09	.04	.10	.15	.10	.03	.01	.00
15	.01	.02	.02	.04	.08	.03	.12	.13	.08	.03	.01	.01
16	.01	.01	.03	.04	.09	.03	1.4	.11	.08	.03	.01	.01
17	.01	.01	.02	.04	.33	.04	.19	.10	.06	.03	.01	.00
18	.01	.01	.03	.03	.19	.15	.12	.10	.08	.03	.01	.00
19	.01	.01	.03	.03	.14	.05	.08	.10	.07	.03	.01	.00
20	.01	.01	.03	.03	.11	.03	.10	.09	.06	.03	.01	.01
21	.01	.01	.03	.03	.09	.03	1.3	.09	.06	.05	.01	.01
22	.01	.01	.03	.03	.08	.02	.31	.08	.05	.04	.01	.01
23	.01	.01	.03	.03	.07	.02	.13	.08	.05	.03	.01	.01
24	.01	.01	.03	.03	.07	.02	.09	.10	.05	.02	.00	.00
25	.01	.01	.03	.03	.06	.02	.06	.09	3.7	.02	.00	.00
26	.01	.02	.03	.03	.06	.02	.21	.08	1.3	.01	.00	.00
27	.03	.02	.03	.03	.06	.02	.11	.08	2.3	.01	.00	.00
28	.02	.02	.03	.03	.05	.02	.09	.11	98	.01	.00	.00
29	.02	.02	.03	.03	---	.02	.08	.12	.54	.01	.00	.00
30	.02	.03	.03	.03	---	.02	.08	.10	.21	.01	.00	.01
31	.02	---	.03	.03	---	.76	---	.11	---	.01	.00	---
TOTAL	0.37	0.54	0.78	2.21	5.80	2.13	6.72	15.82	108.00	56.18	0.51	0.08

WTR YR 1998 TOTAL 199.14

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.00	.00	.01	.02	.02	.06	.05	5.4	.06	.01	.00
2	.01	.00	.01	.01	.31	.03	.06	.04	.45	.05	.01	.00
3	.01	.01	.00	.01	.09	.03	.06	.03	.13	.05	.01	.00
4	.01	.00	.00	.01	.07	.03	.06	.03	.11	.04	.01	.00
5	.03	.00	.00	.01	.05	.03	.06	.03	.10	.04	.01	.00
6	.03	.00	.01	.01	.04	.03	.07	.32	.07	.04	.01	.00
7	.03	.00	.02	.01	.04	.03	.07	.24	.06	.03	.01	.00
8	.02	.00	.01	.02	.04	.03	.08	.11	.05	.03	.00	.00
9	.01	.00	.01	.02	.05	.03	.16	.05	.06	.03	.00	.00
10	.01	8.9	.01	.02	.05	.03	.04	.03	96	.03	.00	.00
11	.01	.11	.01	.03	4.2	.03	.02	.03	500	.03	.00	.00
12	.01	.04	.01	.03	.28	.03	.01	2.3	10	.03	.01	.00
13	.01	.04	.01	.03	.04	.03	.01	.10	600	.03	.00	.00
14	.01	.03	.00	.04	.02	.03	.01	.06	5.2	.03	.00	.00
15	.01	.03	.00	.05	.01	.04	.01	.05	.77	.02	.00	.00
16	.01	.02	.00	.04	.01	.06	.02	107	.81	.02	.00	.01
17	.02	.02	.00	.03	.01	.09	.02	52	.72	.02	.00	.01
18	.15	.02	.00	.04	.01	.08	.02	1.2	.54	.01	.01	.00
19	.03	.02	.00	.02	.01	.06	.02	.72	.43	.01	.02	.00
20	.01	.01	.00	.01	.01	.06	.03	.44	.34	.01	.01	.00
21	.01	.01	.00	.01	.01	.05	.03	2.3	.28	.01	.01	.00
22	.01	.01	.00	1.2	.01	.05	.30	9.3	.25	.01	.01	.00
23	.01	.01	.00	12	.01	.05	111	.93	.24	.01	.01	.00
24	.01	.01	.00	3.1	.01	.05	.44	.73	.24	.01	.03	.00
25	.01	.01	.00	.13	.01	.05	.12	.55	.19	.01	.02	.00
26	.01	.01	.00	.04	.02	.05	.07	.41	.17	.01	.01	.00
27	.01	.01	.00	.15	.02	.05	.38	.29	.16	.01	.01	.00
28	.01	.01	.00	.11	.02	.05	.91	.20	.18	.01	.00	.03
29	.00	.01	.01	.04	---	.05	.10	.14	.11	.01	.00	.04
30	.00	.01	.01	.03	---	.05	.07	.12	.09	.01	.00	.01
31	.00	---	.01	.02	---	.05	---	.12	---	.01	.00	---
TOTAL	0.52	9.35	0.13	17.28	5.47	1.35	114.31	179.92	1223.15	0.72	0.22	0.10

WTR YR 1999 TOTAL 1552.52

ILLINOIS RIVER BASIN

475

05545133 BIRCHES CREEK AT LACKEY LANE NEAR LAKE GENEVA, WI--CONTINUED

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.04	.09	.10	.52	.60	2.65	.51	.43	1.28	.06	.03
2	.03	.04	.09	.17	1.41	.57	1.53	.43	.39	.93	.06	.03
3	.03	.04	.11	.69	.83	.55	1.05	.37	.33	116	.06	.02
4	.03	.03	.11	1.35	.55	.51	.81	.34	.31	12.4	.08	.03
5	.02	.03	.09	2.40	.42	.47	.63	.32	.31	1.84	.13	.03
6	.02	.04	.09	2.93	.35	.47	.51	.33	.29	1.17	.20	.03
7	.03	.03	.08	3.63	.32	.45	.50	50.5	.27	.97	.16	.04
8	.03	.03	.08	1.62	.28	1.31	1.67	8.68	.18	.82	.11	.03
9	.03	.02	.10	1.20	.25	1.23	4.09	3.22	.22	.64	.07	.02
10	.03	.02	.11	.90	.23	.65	2.35	1.68	.23	.51	.06	.02
11	.03	.01	.09	.78	13.6	.51	1.75	1.06	.32	.42	.05	.02
12	.03	.01	.10	.71	6.88	.48	1.53	.83	.34	.33	.04	.01
13	.04	.01	.10	.64	2.08	.43	1.35	2.57	.52	.27	.04	.01
14	.04	.01	.09	.58	1.31	.40	1.25	1.49	.32	.22	.04	.02
15	.04	.01	.10	.52	.94	.36	1.32	1.21	.26	.18	.04	.05
16	.03	.01	.11	.47	.85	.34	7.27	1.03	.24	.15	.04	.04
17	.03	.01	.11	.41	1.92	.39	2.06	.92	.20	.16	.04	.03
18	.02	.01	.12	.38	1.36	1.32	1.22	.83	.25	.15	.04	.03
19	.02	.01	.11	.35	1.05	.63	.80	.80	.22	.16	.04	.03
20	.02	.01	.13	.32	.92	.44	.85	.73	.20	.17	.05	.04
21	.02	.01	.14	.31	.81	.39	7.54	.67	.18	.26	.06	.04
22	.02	.02	.14	.30	.76	.34	2.78	.61	.17	.22	.05	.03
23	.02	.02	.12	.31	.70	.30	1.30	.55	.15	.18	.04	.03
24	.03	.02	.14	.29	.73	.27	.85	.73	.15	.13	.03	.03
25	.04	.03	.14	.28	.64	.27	.61	.58	10.0	.08	.04	.02
26	.05	.04	.13	.28	.64	.28	1.28	.48	3.61	.07	.03	.02
27	.12	.04	.13	.29	.72	.27	.77	.52	8.66	.07	.03	.02
28	.10	.05	.12	.30	.64	.28	.62	.64	220	.07	.04	.02
29	.07	.06	.13	.32	---	.26	.56	.72	4.28	.06	.03	.02
30	.06	.10	.14	.30	---	.25	.51	.56	2.10	.07	.03	.03
31	.06	---	.10	.29	---	4.15	---	.56	---	.05	.03	---
TOTAL	1.17	0.81	3.44	23.42	41.71	19.17	52.01	84.47	255.13	140.03	1.82	0.82

WTR YR 1998 TOTAL 624.00

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	.04	.05	.04	.46	.08	.07	.58	10.7	.30	.02	.01
2	.04	.04	.05	.04	2.07	.10	.07	.47	1.66	.23	.03	.01
3	.05	.05	.05	.04	1.17	.11	.07	.38	.69	.24	.02	.01
4	.05	.05	.04	.04	.90	.10	.07	.34	.58	.18	.02	.01
5	.19	.05	.04	.04	.60	.10	.07	.31	.53	.16	.02	.01
6	.17	.05	.08	.04	.54	.08	.08	1.49	.41	.14	.02	.01
7	.21	.04	.17	.04	.51	.08	.07	1.24	.37	.12	.03	.01
8	.12	.05	.12	.05	.47	.08	.09	.75	.31	.11	.03	.01
9	.09	.05	.10	.05	.52	.09	1.05	.40	.38	.11	.02	.01
10	.08	26.4	.08	.06	.50	.08	.30	.27	150	.09	.02	.01
11	.07	1.77	.07	.06	11.1	.08	.21	.26	752	.09	.02	.02
12	.07	.76	.07	.06	1.97	.07	.17	10.6	29.6	.09	.03	.02
13	.07	.52	.06	.06	.38	.07	.16	1.60	912	.09	.02	.02
14	.07	.40	.05	.07	.28	.07	.15	1.09	29.7	.08	.02	.02
15	.07	.28	.05	.09	.25	.09	.15	.83	5.98	.07	.02	.01
16	.08	.22	.05	.11	.23	.13	.18	249	5.71	.06	.02	.01
17	.17	.16	.05	.12	.20	.20	.16	145	4.98	.07	.01	.01
18	.64	.13	.05	.20	.17	.16	.17	9.49	3.62	.07	.01	.02
19	.17	.12	.04	.13	.14	.12	.17	5.61	2.77	.07	.03	.02
20	.09	.10	.04	.12	.12	.11	.19	3.80	2.14	.07	.01	.02
21	.06	.09	.05	.13	.11	.10	.16	7.38	1.73	.06	.01	.02
22	.04	.09	.05	5.15	.10	.09	1.16	31.6	1.47	.05	.01	.01
23	.04	.08	.04	27.8	.10	.09	249	6.81	1.40	.08	.01	.02
24	.05	.07	.04	6.29	.09	.08	4.04	5.15	1.35	.05	.03	.02
25	.05	.08	.04	1.84	.09	.08	1.56	3.72	1.05	.03	.02	.02
26	.05	.06	.04	.82	.09	.08	1.10	2.67	.90	.03	.01	.02
27	.05	.06	.04	1.35	.10	.08	2.11	1.80	.82	.03	.01	.03
28	.05	.06	.04	1.80	.10	.08	4.75	1.23	.91	.03	.01	.52
29	.04	.06	.04	.89	---	.07	1.03	.82	.55	.02	.01	.50
30	.05	.06	.04	.55	---	.07	.74	.65	.41	.02	.01	.14
31	.04	---	.04	.50	---	.07	---	.66	---	.02	.01	---
TOTAL	3.06	31.99	1.77	48.58	23.36	2.89	269.30	496.00	1924.72	2.86	0.56	1.57

WTR YR 1999 TOTAL 2806.66

ILLINOIS RIVER BASIN

05545133 BIRCHES CREEK AT LACKEY LANE NEAR LAKE GENEVA, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--June 1998 to September 1999 (non-frozen precipitation).

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Rainfall estimated to be 0.00 for Jan. 16-18, 20-24, 26, 27, Feb. 5, 25-28, Mar. 5, 10-14 because recorded precipitation interpreted as collector snowmelt.

EXTREMES FOR CURRENT PERIOD.--

WATER YEAR 1998: Maximum daily rainfall, 1.49 in., Sept. 14

WATER YEAR 1999: Maximum daily rainfall, 2.81 in., June 13.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	.01	.00	.00	.00
2	---	---	---	---	---	---	---	---	.00	.00	.00	.00
3	---	---	---	---	---	---	---	---	.00	.66	.01	.08
4	---	---	---	---	---	---	---	---	.00	.00	.22	.00
5	---	---	---	---	---	---	---	---	.06	.00	.72	.00
6	---	---	---	---	---	---	---	---	.00	.23	.16	.20
7	---	---	---	---	---	---	---	---	.00	.09	.00	.61
8	---	---	---	---	---	---	---	---	.01	.00	.02	.00
9	---	---	---	---	---	---	---	---	.28	.00	.00	.00
10	---	---	---	---	---	---	---	---	.01	.00	.00	.00
11	---	---	---	---	---	---	---	---	.65	.00	.00	.00
12	---	---	---	---	---	---	---	---	.60	.00	.00	.00
13	---	---	---	---	---	---	---	---	.00	.00	.00	.00
14	---	---	---	---	---	---	---	---	.00	.00	.15	1.49
15	---	---	---	---	---	---	---	---	.00	.00	.00	.19
16	---	---	---	---	---	---	---	---	.00	.00	.00	.00
17	---	---	---	---	---	---	---	---	.03	.00	.00	.00
18	---	---	---	---	---	---	---	---	---	.00	.00	.00
19	---	---	---	---	---	---	---	---	.00	.17	.00	.00
20	---	---	---	---	---	---	---	---	.00	.61	.00	.00
21	---	---	---	---	---	---	---	---	.00	.19	.02	.01
22	---	---	---	---	---	---	---	---	.00	.03	.08	.00
23	---	---	---	---	---	---	---	---	.00	.00	.00	.00
24	---	---	---	---	---	---	---	---	.00	.00	---	.02
25	---	---	---	---	---	---	---	---	---	.00	---	.00
26	---	---	---	---	---	---	---	---	.00	.00	.00	.00
27	---	---	---	---	---	---	---	---	.23	.00	.00	.00
28	---	---	---	---	---	---	---	---	1.35	.00	---	.00
29	---	---	---	---	---	---	---	---	.08	.00	.00	.06
30	---	---	---	---	---	---	---	---	.00	.00	.00	.19
31	---	---	---	---	---	---	---	---	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	---	---	1.98	---	2.85

ILLINOIS RIVER BASIN

477

05545133 BIRCHES CREEK AT LACKEY LANE NEAR LAKE GENEVA, WI--CONTINUED

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.04	.00	.00	.00	.84	.04	.00	.00
2	.45	.00	.00	.00	.15	.17	.00	.00	.01	.00	.00	.00
3	.45	.00	.00	.00	.00	.00	.01	.00	.00	.13	.00	.00
4	.00	.00	.00	.00	.00	.00	.05	.00	.08	.00	.00	.00
5	.92	.00	.00	.00	.00	.00	.01	.43	.00	.00	.00	.00
6	.22	.00	.78	.00	.00	.00	.00	.68	.14	.00	.00	.00
7	.00	.00	.03	.00	.00	.00	.00	.03	.07	.00	.23	.00
8	.00	.04	.00	.00	.00	.00	.87	.00	.00	.00	.04	.00
9	.00	.34	.00	.00	.00	.00	.37	.00	.00	.12	.02	.00
10	.00	1.66	.00	.00	.00	.00	.00	.00	1.50	.00	.00	.00
11	.00	.00	.00	.00	.65	.00	.01	.74	1.23	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.51	.12	.00	.47	.18
13	.00	.00	.00	.00	.00	.00	.00	.01	2.81	.00	.06	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.23	.03	.00	.00	.00	.00
16	.00	.00	.00	.00	.03	.00	.26	1.13	.00	.03	.00	.00
17	1.43	.00	.00	.00	.00	.00	.00	.53	.00	.29	.00	.00
18	.35	.00	.00	.00	.00	.00	.00	.13	.00	.01	.10	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.68	.15
20	.00	.00	.00	.00	.00	.00	.38	.00	.00	.14	.00	.00
21	.00	.00	.00	.00	.00	.00	.26	1.12	.00	.06	.00	.00
22	.00	.00	.00	.00	.00	.00	.66	.00	.00	.21	.00	.00
23	.00	.00	.00	.00	.00	.00	1.34	.27	.46	.60	1.16	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.11	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.16	.00	.03
27	.24	.00	.00	.00	.00	.00	.86	.00	.00	.00	.00	1.65
28	.00	.00	.00	.00	.00	.00	.00	.00	.56	.00	.00	2.06
29	.00	.00	.04	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.01	.15	.00	.00	---	.00	.00	.32	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.54	---	.08	.00	---
TOTAL	4.07	2.19	0.85	0.00	0.87	0.17	5.31	6.47	7.87	1.97	2.87	4.07

ILLINOIS RIVER BASIN

423525088260400 LAKE GENEVA AT LAKE GENEVA, WI

LOCATION.--Lat 42°35'25", long 88°26'04" in SE 1/4 NW 1/4 sec.36, T.2 N., R.17 E., Walworth County, Hydrologic Unit 07120006, at Lake Geneva dam at Center Street at Lake Geneva.

DRAINAGE AREA.--28.7 mi². Area of Lake Geneva, 5,262 acres.

GAGE-HEIGHT RECORD

PERIOD OF RECORD.--October 1997 to September 1999.

GAGE.--Water-stage recorder. Datum of gage is 862.08 ft above sea level.

REMARKS.--Estimated daily gage heights: Jan. 10-11, Apr. 9, and May 27, 1998. Records good (see page 13). Recording rain gage and gage-height telemeter at station.

EXTREMES FOR CURRENT PERIOD.--

WATER YEAR 1998: Maximum gage height observed, 3.02 ft, June 28; minimum gage height observed, 1.86 ft, Jan. 2.

WATER YEAR 1999: Maximum gage height observed, 3.23 ft, May 17; minimum gage height observed, 1.84 ft, Sept. 27.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.40	2.31	2.26	2.02	2.06	2.03	2.49	2.65	2.67	2.77	2.35	2.35
2	2.40	2.30	2.26	2.02	2.08	2.04	2.50	2.65	2.65	2.75	2.34	2.32
3	2.39	2.28	2.29	2.03	2.07	2.05	2.49	2.64	2.62	2.73	2.33	2.30
4	2.40	2.28	2.31	2.05	2.06	2.05	2.49	2.63	2.60	2.74	2.34	2.29
5	2.40	2.27	2.30	2.10	2.06	2.06	2.49	2.63	2.57	2.71	2.36	2.29
6	2.38	2.29	2.29	2.12	2.05	2.07	2.49	2.64	2.56	2.71	2.40	2.29
7	2.38	2.30	2.28	2.14	2.05	2.06	2.49	2.73	2.54	2.69	2.41	2.34
8	2.39	2.30	2.28	2.16	2.04	2.08	2.55	2.79	2.52	2.68	2.43	2.31
9	2.41	2.30	2.28	2.24	2.03	2.13	2.59	2.77	2.52	2.66	2.43	2.29
10	2.38	2.29	2.31	2.21	2.03	2.13	2.60	2.75	2.54	2.64	2.42	2.29
11	2.37	2.29	2.31	2.17	2.06	2.13	2.60	2.74	2.57	2.63	2.40	2.28
12	2.37	2.27	2.31	2.14	2.10	2.14	2.60	2.72	2.62	2.61	2.38	2.25
13	2.42	2.25	2.28	2.15	2.09	2.14	2.60	2.76	2.64	2.59	2.37	2.25
14	2.39	2.25	2.26	2.14	2.07	2.12	2.62	2.74	2.62	2.58	2.38	2.30
15	2.36	2.27	2.26	2.14	2.06	2.11	2.60	2.73	2.61	2.57	2.37	2.38
16	2.35	2.28	2.23	2.13	2.05	2.11	2.67	2.77	2.61	2.53	2.36	2.37
17	2.34	2.27	2.21	2.14	2.07	2.12	2.67	2.73	2.61	2.52	2.36	2.37
18	2.34	2.25	2.20	2.13	2.07	2.18	2.66	2.71	2.61	2.51	2.34	2.37
19	2.33	2.24	2.18	2.12	2.06	2.21	2.65	2.69	2.66	2.51	2.33	2.37
20	2.31	2.23	2.17	2.11	2.05	2.21	2.65	2.68	2.63	2.51	2.33	2.37
21	2.30	2.22	2.15	2.11	2.04	2.22	2.68	2.65	2.63	2.55	2.32	2.35
22	2.28	2.24	2.14	2.11	2.02	2.23	2.69	2.61	2.61	2.53	2.32	2.33
23	2.28	2.22	2.13	2.12	2.02	2.24	2.68	2.60	2.60	2.51	2.34	2.32
24	2.29	2.21	2.12	2.11	2.03	2.24	2.67	2.66	2.59	2.48	2.33	2.31
25	2.29	2.22	2.14	2.10	2.01	2.25	2.65	2.67	2.62	2.46	2.36	2.31
26	2.28	2.22	2.13	2.09	2.01	2.29	2.67	2.66	2.75	2.44	2.35	2.33
27	2.31	2.22	2.10	2.08	2.05	2.30	2.67	2.64	2.73	2.44	2.35	2.31
28	2.31	2.23	2.09	2.08	2.04	2.32	2.65	2.68	2.84	2.43	2.37	2.30
29	2.30	2.24	2.08	2.08	---	2.34	2.65	2.71	2.84	2.40	2.38	2.30
30	2.30	2.26	2.07	2.07	---	2.35	2.64	2.68	2.82	2.38	2.36	2.29
31	2.30	---	2.05	2.06	---	2.44	---	2.70	---	2.36	2.35	---
MEAN	2.35	2.26	2.21	2.11	2.05	2.17	2.61	2.69	2.63	2.57	2.36	2.32
MAX	2.42	2.31	2.31	2.24	2.10	2.44	2.69	2.79	2.84	2.77	2.43	2.38
MIN	2.28	2.21	2.05	2.02	2.01	2.03	2.49	2.60	2.52	2.36	2.32	2.25

ILLINOIS RIVER BASIN

479

423525088260400 LAKE GENEVA AT LAKE GENEVA, WI--CONTINUED

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.27	2.40	2.46	2.37	2.57	2.40	2.35	2.74	2.85	2.69	2.44	2.32
2	2.26	2.36	2.45	2.38	2.57	2.40	2.36	2.73	2.89	2.67	2.41	2.31
3	2.28	2.35	2.45	2.45	2.57	2.40	2.36	2.71	2.86	2.69	2.40	2.32
4	2.27	2.34	2.44	2.43	2.56	2.38	2.38	2.69	2.83	2.68	2.37	2.31
5	2.32	2.34	2.45	2.43	2.55	2.37	2.37	2.70	2.83	2.67	2.35	2.31
6	2.38	2.33	2.47	2.43	2.55	2.39	2.43	2.76	2.82	2.63	2.33	2.30
7	2.39	2.32	2.50	2.44	2.54	2.38	2.41	2.77	2.83	2.61	2.32	2.28
8	2.37	2.32	2.50	2.44	2.54	2.36	2.40	2.75	2.79	2.59	2.31	2.27
9	2.37	2.32	2.49	2.45	2.53	2.39	2.48	2.72	2.77	2.58	2.30	2.25
10	2.36	2.58	2.48	2.45	2.52	2.39	2.50	2.70	2.77	2.53	2.29	2.22
11	2.36	2.53	2.48	2.45	2.56	2.37	2.52	2.69	2.85	2.52	2.28	2.19
12	2.36	2.47	2.46	2.45	2.60	2.35	2.52	2.76	2.90	2.51	2.29	2.19
13	2.34	2.46	2.45	2.45	2.58	2.34	2.52	2.75	3.04	2.51	2.31	2.19
14	2.32	2.47	2.45	2.45	2.56	2.33	2.52	2.76	3.15	2.50	2.28	2.17
15	2.31	2.46	2.45	2.45	2.55	2.32	2.52	2.76	3.08	2.47	2.27	2.14
16	2.32	2.45	2.43	2.45	2.55	2.31	2.55	2.79	3.03	2.46	2.27	2.12
17	2.39	2.44	2.42	2.48	2.53	2.33	2.56	2.92	2.97	2.47	2.25	2.12
18	2.50	2.44	2.42	2.53	2.52	2.29	2.57	2.94	2.92	2.48	2.24	2.11
19	2.47	2.47	2.41	2.52	2.51	2.29	2.56	2.93	2.87	2.48	2.29	2.12
20	2.45	2.42	2.40	2.51	2.50	2.30	2.57	2.92	2.84	2.48	2.29	2.10
21	2.43	2.41	2.43	2.51	2.49	2.30	2.58	2.92	2.81	2.48	2.29	2.08
22	2.41	2.43	2.45	2.58	2.47	2.30	2.61	2.99	2.79	2.46	2.29	2.07
23	2.41	2.41	2.41	2.64	2.45	2.31	2.77	3.00	2.77	2.50	2.30	2.06
24	2.40	2.40	2.42	2.66	2.44	2.31	2.80	2.98	2.77	2.53	2.36	2.03
25	2.39	2.40	2.42	2.66	2.43	2.31	2.78	2.96	2.76	2.51	2.36	2.02
26	2.39	2.40	2.41	2.64	2.42	2.31	2.77	2.92	2.74	2.51	2.36	2.03
27	2.40	2.39	2.39	2.63	2.42	2.32	2.75	2.89	2.72	2.50	2.37	2.04
28	2.41	2.40	2.39	2.62	2.42	2.34	2.78	2.86	2.77	2.50	2.37	2.27
29	2.40	2.42	2.39	2.61	---	2.34	2.77	2.84	2.74	2.50	2.35	2.34
30	2.41	2.45	2.39	2.59	---	2.35	2.76	2.82	2.71	2.48	2.32	2.34
31	2.41	---	2.39	2.57	---	2.36	---	2.83	---	2.48	2.32	---
MEAN	2.37	2.41	2.44	2.51	2.52	2.34	2.56	2.82	2.85	2.54	2.32	2.19
MAX	2.50	2.58	2.50	2.66	2.60	2.40	2.80	3.00	3.15	2.69	2.44	2.34
MIN	2.26	2.32	2.39	2.37	2.42	2.29	2.35	2.69	2.71	2.46	2.24	2.02

ILLINOIS RIVER BASIN
423525088260400 LAKE GENEVA AT LAKE GENEVA, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--October 1997 to September 1999 (non-frozen precipitation).

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Rainfall estimated to be 0.00 for Nov. 15, 17, Dec. 3, 4, 9-11, 13, 14, 22, 26, 1997, Jan. 1, 3-7, 9, 15, 26-29, 31, Feb. 1, Mar. 2, 3, 6, 8, 9, 1998, and Jan. 16, 17, 21-23, 26, 27, Feb. 5, 16, 25, 26, 28, Mar. 5, 7, 10, 11, 1999, because recorded precipitation interpreted as collector snowmelt.

EXTREMES FOR CURRENT PERIOD.--

WATER YEAR 1998: Maximum daily rainfall, 1.78 in., June 25.

WATER YEAR 1999: Maximum daily rainfall, 2.78 in., June 13.

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.10	.05	.00	.00	.00	.00
2	.00	.01	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00
3	.00	.10	.00	.00	.00	.00	.00	.00	.00	.47	.01	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.37	.00
5	.00	.29	.00	.00	.00	.00	.00	.04	.03	.00	.79	.00
6	.00	.03	.00	.00	.00	.00	.00	.21	.00	.19	.28	.32
7	.00	.00	.00	.00	.00	.00	.57	1.34	.00	.06	.02	.36
8	.00	.00	.00	.00	.00	.00	.37	.02	.02	.00	.00	.00
9	.01	.01	.00	.00	.00	.00	.31	.00	.35	.00	.01	.00
10	.00	.01	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00
11	.00	.00	.00	.00	.67	.00	.00	.00	.66	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.76	.49	.00	.00	.00
13	.43	.00	.00	.00	.00	.00	.31	.01	.18	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.17	1.48
15	.00	.00	.00	.00	.00	.00	.63	.17	.00	.00	.00	.20
16	.00	.00	.00	.00	.32	.00	.17	.00	.32	.00	.00	.01
17	.00	.00	.00	.00	.07	.45	.01	.00	.03	.00	.00	.00
18	.00	.00	.00	.00	.01	.32	.00	.00	.92	.00	.00	.00
19	.00	.00	.00	.00	.01	.07	.00	.09	.00	.16	.00	.00
20	.00	.00	.00	.00	.02	.00	.36	.00	.00	.48	.00	.00
21	.00	.00	.00	.00	.02	.00	.20	.00	.00	.20	.03	.03
22	.00	.00	.00	.00	.00	.00	.00	.30	.00	.02	.02	.00
23	.19	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00
24	.25	.00	.00	.00	.10	.00	.00	.64	.00	.00	.21	.00
25	.00	.00	.00	.00	.00	.00	.04	.00	1.78	.00	.11	.04
26	.48	.00	.00	.00	.05	.00	.72	.00	.00	.00	.00	.01
27	.01	.19	.00	.00	.19	.00	.00	.00	.33	.00	.00	.00
28	.00	.00	.00	.00	.00	.23	.00	.80	1.37	.00	.40	.00
29	.00	.27	.00	.00	---	.00	.09	.04	.05	.00	.00	.04
30	.00	.01	.00	.00	---	.17	.02	.00	.00	.00	.00	.13
31	.00	---	.00	.00	---	.94	---	.25	---	.00	.00	---
TOTAL	1.37	0.92	0.00	0.00	1.48	2.18	3.92	4.73	6.54	1.60	2.42	2.62

423525088260400 LAKE GENEVA AT LAKE GENEVA, WI--CONTINUED

PRECIPITATION, TOTAL, INCHES, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY SUM VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.03	.00	.00	.00	1.44	.04	.00	.00
2	.43	.00	.00	.00	.14	.18	.00	.00	.00	.00	.00	.00
3	.46	.00	.00	.00	.00	.00	.05	.00	.00	.08	.00	.00
4	.00	.00	.00	.00	.00	.00	.06	.00	.07	.00	.00	.00
5	1.23	.00	.00	.00	.00	.00	.01	.25	.00	.00	.00	.00
6	.26	.00	.73	.00	.00	.00	.01	.56	.31	.00	.00	.00
7	.00	.00	.09	.00	.00	.00	.00	.01	.05	.00	.24	.00
8	.00	.03	.00	.00	.00	.00	.92	.00	.00	.00	.05	.00
9	.00	.37	.00	.00	.00	.00	.40	.00	.00	.09	.00	.00
10	.00	1.43	.00	.00	.00	.00	.02	.00	.90	.00	.00	.00
11	.00	.00	.00	.00	.62	.00	.01	.59	1.71	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.52	.14	.00	.41	.20
13	.00	.00	.00	.00	.00	.00	.00	.01	2.78	.00	.02	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00	.00
15	.01	.00	.00	.00	.00	.00	.20	.03	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.25	.89	.00	.01	.00	.00
17	1.26	.00	.00	.00	.00	.00	.00	.48	.00	.28	.00	.00
18	.28	.00	.00	.00	.00	.00	.00	.12	.00	.00	.09	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.57	.00
20	.00	.00	.00	.00	.00	.00	.31	.00	.00	.06	.00	.00
21	.01	.00	.00	.00	.00	.00	.25	1.01	.00	.05	.00	.00
22	.00	.00	.00	.00	.00	.00	.76	.01	.04	.07	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	1.46	.26	.38	.96	.00
24	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.12	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.15	.00	.01
27	.22	.00	.00	.00	.00	.00	.74	.00	.00	.00	.00	1.80
28	.00	.00	.00	.00	.00	.00	.00	.00	.83	.00	.00	2.11
29	.01	.00	.01	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.01	.11	.00	.00	---	.00	.00	.06	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.51	---	.05	.00	---
TOTAL	4.18	1.94	0.83	0.00	0.79	0.18	5.45	5.32	8.68	1.20	2.46	4.12

ILLINOIS RIVER BASIN

055451345 WHITE RIVER AT CENTER STREET AT LAKE GENEVA, WI

LOCATION.--Lat 42°35'26", long 88°26'01", in SE 1/4 NW 1/4 sec.36, T.2 N., R.17 E., Walworth County, Hydrologic Unit 07120006, on left bank at Lake Geneva dam at Center Street at Lake Geneva.

DRAINAGE AREA.--28.7 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1997 to September 1999.

GAGE.--Water-stage recorder. Elevation of gage is 848.22 ft above sea level.

REMARKS.--

1998 WATER YEAR: Estimated daily discharges: Apr. 9, May 27, Aug. 3-4, 19-22, and ice-affected periods, Jan. 10-11 and Mar. 10.

Records fair except those for estimated daily discharges, which are poor (see page 13).

1999 WATER YEAR: Estimated daily discharges: Nov. 5-7, 12, 13, 20, 27, and Dec. 21. Records fair except those for estimated daily discharges, which are poor (see page 13). Gage-height telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	.17	.25	31	37	34	18	48	65	82	.13	.11
2	4.0	.18	.39	32	37	11	16	48	56	77	.10	.09
3	3.6	.10	.25	32	37	.50	15	46	40	75	.02	.09
4	4.3	.10	.21	32	38	.42	15	45	31	78	.08	.09
5	4.4	.16	.18	32	37	.41	15	46	25	72	.16	.10
6	2.5	.12	.14	32	37	.30	15	50	23	72	.62	.12
7	2.1	.13	.11	32	36	.27	15	72	19	67	1.1	.48
8	2.7	.13	.14	32	36	.36	28	83	16	64	1.8	.14
9	6.2	.14	.09	34	36	.22	38	79	17	54	1.8	.13
10	2.3	.15	.21	34	37	.20	42	75	19	40	1.6	.13
11	1.3	.15	.27	34	39	.19	41	72	30	34	.70	.13
12	1.2	.15	.39	34	37	.20	42	71	44	32	.32	.13
13	9.2	.14	.36	34	50	.22	41	77	52	29	.28	.14
14	3.7	.15	.35	33	66	.23	47	73	42	26	.31	.75
15	.95	.17	.36	35	62	.21	42	73	37	26	.31	2.3
16	.42	.27	.36	37	52	.21	62	76	37	20	.13	1.7
17	.24	.28	.36	36	59	.25	57	68	37	18	.15	1.6
18	.17	.20	.36	36	67	.22	52	67	37	17	.05	1.5
19	.18	.15	.39	36	63	.19	48	61	55	19	.02	1.4
20	.08	.38	.39	35	63	.20	50	56	43	19	.03	2.3
21	.06	.09	.39	35	61	.18	64	45	41	32	.02	1.6
22	.05	.12	.38	35	55	.18	65	34	34	23	.03	.63
23	.06	.09	.38	36	43	.17	62	32	29	19	.13	.24
24	.08	.09	.39	39	39	.15	56	54	28	11	.17	.21
25	.06	.10	.38	39	35	.18	49	53	37	7.5	.45	.21
26	.16	.09	.35	39	33	.76	57	48	78	5.1	.18	.78
27	.12	.28	.34	38	34	1.2	54	e42	75	4.7	.15	.25
28	.36	.18	.34	39	34	1.1	50	58	95	3.7	.64	.20
29	.09	.38	.33	40	---	2.6	48	70	96	1.5	.64	.64
30	.29	.23	.33	38	---	1.8	46	65	90	.74	.25	.44
31	.14	---	.32	38	---	11	---	70	---	.22	.13	---
TOTAL	55.21	5.07	753.97	1089	1260	69.12	1250	1857	1328	1029.46	12.50	18.63
MEAN	1.78	.17	24.3	35.1	45.0	2.23	41.7	59.9	44.3	33.2	.40	.62
MAX	9.2	.38	.39	40	67	.34	65	83	96	82	1.8	2.3
MIN	.05	.09	.09	31	33	.15	15	32	16	.22	.02	.09
CFSM	.06	.01	.85	1.22	1.57	.08	1.45	2.09	1.54	1.16	.01	.02
IN.	.07	.01	.98	1.41	1.63	.09	1.62	2.41	1.72	1.33	.02	.02
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEAR 1998, BY WATER YEAR (WY)												
MEAN	1.78	.17	24.3	35.1	45.0	2.23	41.7	59.9	44.3	33.2	.40	.62
MAX	1.78	.17	24.3	35.1	45.0	2.23	41.7	59.9	44.3	33.2	.40	.62
(WY)	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998
MIN	1.78	.17	24.3	35.1	45.0	2.23	41.7	59.9	44.3	33.2	.40	.62
(WY)	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR

ANNUAL TOTAL
ANNUAL MEAN
HIGHEST ANNUAL MEAN
LOWEST ANNUAL MEAN
HIGHEST DAILY MEAN
LOWEST DAILY MEAN
ANNUAL SEVEN-DAY MINIMUM
INSTANTANEOUS PEAK FLOW
INSTANTANEOUS PEAK STAGE
ANNUAL RUNOFF (CFSM)
ANNUAL RUNOFF (INCHES)
10 PERCENT EXCEEDS
50 PERCENT EXCEEDS
90 PERCENT EXCEEDS

8727.96
23.9
96 Jun 29
(a) .02 (b) Aug 3
(a) .06 Aug 16
(c) 131 (d) Apr 16
10.07 Jun 28
.83
11.31
62
19
.13

(a) Estimated
(b) Also occurred Aug. 19, 21
(c) Gage height, 9.47 ft
(d) Also occurred June 28

055451345 WHITE RIVER AT CENTER STREET AT LAKE GENEVA, WI--CONTINUED

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.25	6.0	8.0	8.5	75	56	.07	68	136	37	3.9	.10
2	.35	3.9	9.6	8.5	82	48	.27	62	145	34	2.3	.11
3	.43	2.8	10	8.8	76	44	1.6	59	123	46	1.7	.10
4	.36	2.4	24	8.5	75	42	3.5	57	107	43	.82	.09
5	3.4	2.1	31	8.4	70	41	3.7	61	107	41	.44	.09
6	5.8	1.3	37	8.4	71	42	6.7	87	114	33	.22	.09
7	6.4	1.1	40	8.4	66	41	5.4	103	122	27	.24	.09
8	4.8	.99	30	8.3	62	35	5.3	87	98	25	.14	.12
9	4.0	1.4	29	7.5	61	33	12	72	80	25	.19	.07
10	3.1	37	27	7.4	50	45	14	62	90	15	.17	.08
11	2.5	18	25	7.5	68	53	16	56	151	13	.12	.08
12	3.7	15	22	7.6	92	51	17	80	197	11	.17	.09
13	2.4	16	19	7.6	82	47	17	57	310	9.7	.15	.09
14	1.1	17	19	7.6	71	47	15	30	342	8.6	.14	.09
15	.83	17	17	7.6	66	45	18	29	302	6.4	.15	.09
16	.89	18	14	7.4	63	44	25	35	244	5.5	.15	.09
17	8.2	15	12	7.8	55	44	27	70	203	6.8	.16	.10
18	13	12	12	7.9	49	43	26	75	168	7.3	.16	.11
19	10	16	8.2	20	45	27	23	73	119	7.5	.20	.11
20	9.0	10	7.7	29	45	.48	20	70	92	6.2	.14	.13
21	7.6	6.9	18	27	41	.32	26	73	73	8.4	.13	.14
22	5.6	9.1	20	46	38	.16	33	94	68	6.7	.13	.14
23	6.3	5.0	12	70	58	.16	85	96	64	7.9	.41	.15
24	5.9	3.6	12	118	73	.09	91	91	61	9.8	.59	.17
25	4.9	5.4	11	122	70	.06	87	81	56	8.7	.51	.22
26	4.6	6.4	11	133	62	.04	78	123	50	8.8	.44	.23
27	6.0	6.0	10	132	63	.05	75	150	46	7.7	.51	.45
28	6.9	7.1	10	114	70	.23	87	131	63	7.4	.62	1.1
29	6.4	9.7	9.8	98	---	.31	82	118	49	7.3	.27	1.1
30	6.7	9.0	9.6	88	---	.31	75	104	39	6.1	.13	1.3
31	6.4	---	9.2	80	---	1.3	---	119	---	6.1	.11	---
TOTAL	147.81	281.19	534.1	1220.7	1799	831.51	975.54	2473	3819	492.9	15.51	6.92
MEAN	4.77	9.37	17.2	39.4	64.2	26.8	32.5	79.8	127	15.9	.50	.23
MAX	13	37	40	133	92	56	91	150	342	46	3.9	1.3
MIN	.25	.99	7.7	7.4	38	.04	.07	29	39	5.5	.11	.07
CFSM	.17	.33	.60	1.37	2.24	.93	1.13	2.78	4.44	.55	.02	.01
IN.	.19	.36	.69	1.58	2.33	1.08	1.26	3.21	4.95	.64	.02	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 1999, BY WATER YEAR (WY)

	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
MEAN	3.27	4.77	20.8	37.3	54.6	14.5	37.1	69.8	85.8	24.6	.45	.43
MAX	4.77	9.37	24.3	39.4	64.2	26.8	41.7	79.8	127	33.2	.50	.62
(WY)	1999	1999	1998	1999	1999	1999	1998	1999	1999	1998	1999	1998
MIN	1.78	.17	17.2	35.1	45.0	2.23	32.5	59.9	44.3	15.9	.40	.23
(WY)	1998	1998	1999	1998	1998	1998	1999	1998	1998	1999	1998	1999

SUMMARY STATISTICS

FOR 1998 CALENDAR YEAR

FOR 1999 WATER YEAR

WATER YEARS 1998- 1999

ANNUAL TOTAL	8876.81	12597.18	
ANNUAL MEAN	24.3	34.5	29.2
HIGHEST ANNUAL MEAN			34.5
LOWEST ANNUAL MEAN			23.9
HIGHEST DAILY MEAN	96	Jun 29	342
LOWEST DAILY MEAN	(a).02	Aug 3	.04
ANNUAL SEVEN-DAY MINIMUM	(a).06	Aug 16	.08
INSTANTANEOUS PEAK FLOW			561
INSTANTANEOUS PEAK STAGE			11.13
ANNUAL RUNOFF (CFSM)	.85		1.20
ANNUAL RUNOFF (INCHES)	11.51		16.33
10 PERCENT EXCEEDS	62		90
50 PERCENT EXCEEDS	17		12
90 PERCENT EXCEEDS	.20		.15

(a) Estimated

(b) Also occurred Aug. 12, 21, 1998

(c) Also occurred June 28, 1998

ILLINOIS RIVER BASIN
055451345 WHITE RIVER AT CENTER STREET AT LAKE GENEVA, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1997 to September 1999.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1997 to September 1999.

TOTAL-PHOSPHORUS DISCHARGE: October 1997 to September 1999.

REMARKS.--Records fair. Samples collected using equal-width increment (EWI) method.

EXTREMES FOR CURRENT PERIOD.--

WATER YEAR 1998:

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 10 mg/L, Oct. 28; minimum observed, 1 mg/L, on several days.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 0.69 ton, May 16; minimum daily, 0.0 ton, on many days.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 0.40 mg/L, Sept. 8; minimum observed, <0.005 mg/L, Jan. 6 and Feb. 12.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 5.82 lb, May 8; minimum daily, 0.00 lb, on several days.

WATER YEAR 1999:

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 16 mg/L, Apr. 26; minimum observed, 0 mg/L, Mar. 2.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 3.0 ton, Apr. 26; minimum daily, 0.0 ton, on many days.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 0.275 mg/L, Sept. 28; minimum observed, <0.005 mg/L, Feb. 15.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 12.4 lb, June 14; minimum daily, 0.00 lb, Mar. 24-27 and Apr. 1.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
OCT 1997					
01...	0955	--	4.7	.006	4
28...	1110	--	.87	.019	10
DEC					
*04...	1400	--	.23	.020	2
12...	1420	--	40	.007	1
JAN 1998					
06...	1325	--	31	<.005	2
FEB					
12...	1330	--	38	<.005	1
MAR					
*19...	1240	--	.18	.017	2
31...	1250	--	1.5	.007	2
APR					
01...	1040	--	9.6	.008	2
09...	1125	38	--	.011	2
17...	1115	--	64	.011	1
MAY					
05...	1225	--	45	.013	2
08...	1155	--	81	.013	1
11...	1315	--	73	.013	1
14...	1315	--	73	.014	3
JUN					
03...	1310	--	32	.007	3
23...	1400	--	34	.005	1
26...	1145	--	81	--	2
30...	1155	--	91	.010	2
JUL					
15...	1100	--	30	.009	1
AUG					
06...	1410	--	.75	.017	3
SEP					
*08...	1500	--	.14	.040	4
16...	1330	--	1.4	.014	4

* Grab sample

ILLINOIS RIVER BASIN

485

055451345 WHITE RIVER AT CENTER STREET AT LAKE GENEVA, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDEED (MG/L) (80154)
OCT 1998					
06...	1310	--	5.8	.013	1
NOV					
18...	1040	--	12	.008	2
DEC					
21...	1410	18	--	.006	2
JAN 1999					
15...	1330	--	7.4	.007	5
28...	1230	--	112	.007	1
FEB					
15...	1240	--	69	<.005	1
MAR					
02...	1245	--	48	.007	<1
APR					
07...	1610	--	11	.019	9
09...	1135	--	16	.011	2
23...	1430	--	91	.007	1
26...	1125	--	79	.010	16
MAY					
10...	1335	--	61	.007	1
JUN					
09...	1350	--	77	.006	3
16...	1300	--	220	.007	2
JUL					
06...	1315	--	30	.013	2
15...	1240	--	7.7	.012	4
AUG					
*16...	1600	--	.13	--	7
SEP					
*15...	1310	--	.09	.050	4
*28...	1425	--	.70	.275	6

*Grab sample

ILLINOIS RIVER BASIN

055451345 WHITE RIVER AT CENTER STREET AT LAKE GENEVA, WI--CONTINUED

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	.00	.00	.12	.13	.13	.08	.19	.53	.33	.00	.00
2	.04	.00	.00	.13	.12	.04	.07	.19	.46	.31	.00	.00
3	.04	.00	.00	.13	.12	.00	.06	.19	.32	.30	.00	.00
4	.05	.00	.00	.14	.12	.00	.07	.19	.24	.31	.00	.00
5	.05	.00	.00	.14	.12	.00	.07	.19	.18	.28	.00	.00
6	.03	.00	.00	.15	.12	.00	.07	.16	.16	.28	.00	.00
7	.02	.00	.00	.14	.11	.00	.07	.16	.13	.26	.01	.00
8	.03	.00	.00	.14	.11	.00	.13	.14	.10	.25	.01	.00
9	.07	.00	.00	.15	.11	.00	.17	.15	.11	.21	.01	.00
10	.02	.00	.00	.15	.11	.00	.18	.16	.11	.16	.01	.00
11	.01	.00	.06	.15	.12	.00	.16	.18	.17	.13	.01	.00
12	.01	.00	.08	.15	.11	.00	.16	.27	.24	.12	.00	.00
13	.10	.00	.07	.14	.15	.00	.14	.45	.27	.11	.00	.00
14	.04	.00	.07	.14	.20	.00	.15	.63	.20	.10	.00	.01
15	.01	.00	.08	.14	.19	.00	.13	.66	.18	.10	.00	.02
16	.01	.00	.08	.15	.16	.00	.18	.69	.17	.08	.00	.02
17	.00	.00	.08	.15	.19	.00	.16	.61	.16	.07	.00	.02
18	.00	.00	.08	.14	.22	.00	.15	.60	.15	.07	.00	.01
19	.00	.00	.09	.14	.21	.00	.14	.55	.21	.08	.00	.01
20	.00	.00	.10	.14	.21	.00	.15	.50	.16	.08	.00	.02
21	.00	.00	.10	.13	.21	.00	.19	.40	.15	.14	.00	.01
22	.00	.00	.10	.13	.19	.00	.20	.30	.12	.11	.00	.00
23	.00	.00	.11	.14	.15	.00	.19	.28	.10	.09	.00	.00
24	.00	.00	.11	.14	.14	.00	.18	.46	.10	.05	.00	.00
25	.00	.00	.11	.14	.13	.00	.16	.46	.15	.04	.00	.00
26	.00	.00	.11	.14	.12	.00	.20	.41	.35	.03	.00	.01
27	.00	.00	.11	.14	.13	.01	.19	.36	.34	.02	.00	.00
28	.01	.00	.11	.14	.13	.01	.18	.49	.41	.02	.01	.00
29	.00	.00	.11	.14	---	.01	.18	.58	.40	.01	.01	.00
30	.01	.00	.12	.13	---	.01	.18	.54	.37	.00	.00	.00
31	.00	---	.12	.13	---	.05	---	.58	---	.00	.00	---
TOTAL	0.59	0.00	2.00	4.33	4.13	0.26	4.34	11.72	6.74	4.14	0.07	0.13

WTR YR 1998 TOTAL 38.45

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.02	.04	.07	.20	.06	.00	1.1	.82	.20	.06	.00
2	.00	.02	.05	.07	.22	.05	.00	.82	.91	.18	.03	.00
3	.00	.01	.05	.08	.20	.05	.01	.64	.80	.25	.03	.00
4	.00	.01	.13	.08	.20	.05	.02	.51	.72	.23	.01	.00
5	.01	.01	.17	.08	.19	.05	.04	.44	.75	.22	.01	.00
6	.02	.01	.20	.08	.19	.05	.10	.52	.82	.18	.00	.00
7	.02	.00	.21	.08	.18	.05	.12	.51	.91	.16	.00	.00
8	.01	.00	.16	.09	.17	.05	.06	.36	.76	.15	.00	.00
9	.01	.01	.16	.08	.17	.04	.07	.24	.64	.17	.00	.00
10	.01	.18	.15	.08	.14	.06	.07	.17	.69	.11	.00	.00
11	.01	.09	.13	.09	.18	.08	.08	.16	1.1	.10	.00	.00
12	.01	.07	.12	.09	.25	.07	.08	.23	1.4	.09	.00	.00
13	.01	.08	.10	.10	.22	.07	.07	.17	2.0	.09	.00	.00
14	.00	.09	.10	.10	.19	.07	.06	.09	2.1	.09	.00	.00
15	.00	.09	.09	.10	.18	.07	.07	.09	1.7	.07	.00	.00
16	.00	.09	.08	.09	.16	.07	.09	.12	1.3	.06	.00	.00
17	.03	.08	.07	.08	.13	.07	.10	.24	1.1	.08	.00	.00
18	.04	.07	.06	.07	.11	.08	.09	.27	.91	.08	.00	.00
19	.03	.09	.04	.17	.09	.05	.08	.28	.64	.09	.00	.00
20	.03	.05	.04	.22	.09	.00	.06	.27	.50	.07	.00	.00
21	.03	.04	.10	.18	.08	.00	.08	.30	.39	.10	.00	.00
22	.02	.05	.11	.26	.07	.00	.09	.39	.37	.08	.00	.00
23	.02	.03	.07	.35	.10	.00	.25	.42	.34	.10	.01	.00
24	.02	.02	.07	.53	.12	.00	.60	.41	.33	.12	.01	.00
25	.02	.03	.07	.48	.10	.00	1.5	.38	.30	.11	.01	.00
26	.02	.04	.07	.46	.09	.00	3.0	.60	.27	.11	.01	.00
27	.02	.03	.07	.40	.08	.00	2.6	.75	.25	.10	.01	.01
28	.03	.04	.07	.31	.09	.00	2.5	.68	.34	.10	.01	.02
29	.03	.05	.07	.26	---	.00	2.0	.64	.26	.10	.00	.02
30	.03	.05	.07	.24	---	.00	1.5	.58	.21	.09	.00	.02
31	.03	---	.07	.22	---	.00	---	.69	---	.09	.00	---
TOTAL	0.51	1.45	2.99	5.59	4.19	1.14	15.39	13.07	23.63	3.77	0.20	0.07

WTR YR 1999 TOTAL 72.00

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

DAILY MEAN VALUES

[illegible]

ILLINOIS RIVER BASIN
05545750 FOX RIVER NEAR NEW MUNSTER, WI

LOCATION.--Lat 42°36'39", long 88°13'33", in NW 1/4 NW 1/4 sec.26, T.2 N., R.19 E., Kenosha County, Hydrologic Unit 07120006, on right bank 40 ft downstream from bridge on County Trunk Highway JB, 2.2 mi north of New Munster, and 17.0 mi upstream from Fox Chain of Lakes.

DRAINAGE AREA.--811 mi².

PERIOD OF RECORD.--October 1939 to current year. Prior to October 1993, published as "at Wilmot" under station number 05546500.

REVISED RECORDS.--WSP 1308: 1943(M), 1945(M). WDR WI-67-1: Drainage area. WDR WI-92-1: 1991.

GAGE.--Water-stage recorder. Datum of gage is 735.72 ft above sea level (Racine County Surveyor bench mark). Prior to Sept. 1, 1965, nonrecording gage at bridge in Wilmot 11 mi downstream at datum 0.50 ft lower, and recording gage Sept. 1, 1965 to Sept. 30, 1993.

REMARKS.--Estimated daily discharges: Ice-affected periods, Dec. 22 to Feb. 8, Feb. 17-26, and Mar. 5-10. Records good except those for ice-affected periods, which are fair (see page 13). Gage-height telemeter and data-collection platform at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	197	376	389	300	1500	708	421	1890	654	521	384	221
2	198	425	431	300	1500	723	457	1690	1190	558	345	222
3	249	352	413	300	1500	677	453	1480	1290	532	317	214
4	308	267	443	290	1400	631	440	1370	1030	496	222	207
5	325	314	474	290	1300	620	452	1180	766	471	263	198
6	503	326	466	290	1300	600	471	1030	733	440	285	176
7	626	326	579	290	1300	560	437	1040	735	411	281	188
8	600	316	666	290	1300	500	416	939	692	392	285	184
9	599	296	617	290	1280	440	684	945	599	386	285	181
10	546	648	614	290	1300	440	1250	891	549	391	286	179
11	489	1370	527	280	1370	487	1290	798	928	378	281	176
12	452	1620	497	280	1640	686	1230	871	1580	379	285	176
13	382	1430	475	280	1750	734	1150	972	2160	374	288	199
14	333	1110	458	280	1600	633	1030	984	3970	363	282	195
15	307	998	443	280	1440	532	924	863	4510	347	272	194
16	268	960	396	280	1370	505	936	789	3870	310	261	194
17	319	813	400	330	1300	768	1020	1360	3350	263	225	190
18	649	703	434	360	1200	1060	857	1820	2910	390	243	186
19	888	550	375	370	1100	1050	683	1960	2540	458	282	183
20	788	420	380	370	1000	788	645	1850	2250	488	280	205
21	697	432	380	370	900	677	666	1700	1980	428	283	212
22	540	425	370	500	820	714	845	1640	1740	452	290	205
23	446	400	360	1000	740	748	1700	1620	1520	460	291	197
24	441	405	350	1400	680	709	2880	1540	1350	560	326	193
25	440	456	340	1800	660	645	2980	1430	1270	603	321	192
26	431	398	330	1700	660	595	2780	1290	929	630	300	186
27	408	361	320	1700	619	521	2620	1210	705	585	283	213
28	360	372	310	1700	605	395	2530	998	681	541	258	666
29	404	380	300	1700	---	376	2380	859	812	399	256	1070
30	372	388	300	1700	---	452	2120	691	659	297	251	825
31	317	---	300	1600	---	460	---	664	---	343	225	---
TOTAL	13882	17637	13137	21210	33134	19434	36747	38364	47952	13646	8736	7827
MEAN	448	588	424	684	1183	627	1225	1238	1598	440	282	261
MAX	888	1620	666	1800	1750	1060	2980	1960	4510	630	384	1070
MIN	197	267	300	280	605	376	416	664	549	263	222	176
CFSM	.55	.72	.52	.84	1.46	.77	1.51	1.53	1.97	.54	.35	.32
IN.	.64	.81	.60	.97	1.52	.89	1.69	1.76	2.20	.63	.40	.36

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1999, BY WATER YEAR (WY)

	MEAN	384	481	454	428	536	1118	1081	701	532	388	332	337
MAX	1931	1536	1755	1818	1354	2434	3591	2078	1711	1382	902	1763	
(WY)	1987	1986	1983	1960	1974	1979	1993	1973	1996	1969	1952	1972	
MIN	79.5	113	91.4	87.7	105	252	256	108	124	69.2	57.2	62.7	
(WY)	1957	1950	1964	1940	1940	1968	1958	1958	1988	1958	1958	1946	

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR	FOR 1999 WATER YEAR	WATER YEARS 1940 - 1999
ANNUAL TOTAL	228226	271706	
ANNUAL MEAN	625	744	564
HIGHEST ANNUAL MEAN			1240
LOWEST ANNUAL MEAN			174
HIGHEST DAILY MEAN	1790	4510	7100
LOWEST DAILY MEAN	151	176	35
ANNUAL SEVEN-DAY MINIMUM	167	180	41
INSTANTANEOUS PEAK FLOW		4670	(a) 7520
INSTANTANEOUS PEAK STAGE		13.68	(b) 14.10
INSTANTANEOUS LOW FLOW		171	.00
ANNUAL RUNOFF (CFSM)	.77	.92	.70
ANNUAL RUNOFF (INCHES)	10.47	12.46	9.45
10 PERCENT EXCEEDS	1260	1600	1270
50 PERCENT EXCEEDS	485	496	365
90 PERCENT EXCEEDS	261	257	125

(a) Gage height, 9.25 ft, from graph based on gage readings, site and datum then in use

(b) Backwater from ice

(c) Also occurred Aug. 10, 1990

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or flood-flow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at crest-stage partial-record stations are presented in the following table. Discharge measurements made at miscellaneous sites for both low flows and high flows are given in separate tables.

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Maximum discharge at crest-stage partial-record stations

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Dis- charge (ft ³ /s)	Date	Gage height (feet)	Dis- charge (ft ³ /s)
STREAMS TRIBUTARY TO LAKE SUPERIOR								
04024400 Stony Brook near Superior	Lat 46°35'01", long 92°07'10" in SE 1/4 sec. 4, T.47 N., R.14 W., Douglas County, Hydrologic Unit 04010301, at box culvert on State Highway 35, 12.5 mi south of toll bridge on U.S. Highways 2 and 35 at St. Louis River at Superior; drainage ares, 1.86 mi ² .	1959-99	07-26-99	28.67	480	09-02-85	35.23	595
04025200 Pearson Creek near Maple	Lat 46°38'51", long 91°42'55" on com- mon boundary of secs. 11 and 14, T.48 N., R.11 W., Douglas County, Hydrologic Unit 04010301, at box culvert on State Highway 13, 4.0 mi north of Maple; drainage area, 4.07 mi ²	1957-99	07-26-99	19.06	878	09-02-85	31.83	1,440
04026200 Sand River Tributary near Red Cliff	Lat 46°53'53", long 90°56'47" in NE 1/4 section 14, T.51 N., R.5 W., Bay- field County, Hydrologic Unit 04010301, at box culvert on State Highway 13, 8.0 mi northwest of Red Cliff; drainage area, 1.09 mi ² .	1959-99	07-05-99 1999	12.03 G12.09	107	05-23-64	16.86	624
04026300 Sioux River near Washburn	Lat 46°41'20", long 90°57'02" in NE 1/4 sec. 35, T.49 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, on County Trunk Highway C, 2.5 mi west of Washburn; drainage area, 33.9 mi ²	1959-65 1966# 1967-99	07-05-99	H29.96	730	09-02-85	29.45	2,200
04026450 Bad River near Mellen	Lat 46°16'14", long 90°42'26" in NE 1/4 NW 1/4 sec.26, T.44 N., R.3 W., Ashland County, Hydrologic Unit 04010302, on left bank 150 ft down- stream from bridge on U.S. Forest Service Road, 4.4 mi southwest of Mellen; drainage area, 82.0 mi ² .	1971-75# 1976-99	04-06-99	5.54	976	07-02-92	8.65	2,450

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Dis- charge (ft ³ /s)	Date	Gage height (feet)	Dis- charge (ft ³ /s)
STREAMS TRIBUTARY TO LAKE SUPERIOR--CONTINUED								
04027200 Pearl Creek at Grandview	Lat 46°22'05", long 91°05'27" in NE 1/4 sec.22, T.45 N., R.6 W., Bayfield County, Hydrologic Unit 04010302, at bbox culvert on U.S. Highway 63, 0.8 mi east of Grandview; drainage area, 16.9 mi ² .	1960-99	07-08-99	14.55	406	07-02-92	28.47	1,920
STREAMS TRIBUTARY TO LAKE MICHIGAN								
04059900 Allen Creek Tributary near Alvin	Lat 45°58'05", long 88°47'24" on north boundary sec. 7, T.40 N., R.14 E., Forest County, Hydrologic Unit 04030106, at culvert on State High- way 70, 2.2 mi southeast of Alvin; drainage area, 1.22 mi	1960-99	07-09-99 04-06-99 04-01-98 10-29-96 04-25-96	9.32 9.32 9.40 9.29 9.41	7.9 7.9 F8.3 F7.7 F8.3	05-22-83	11.38	40
04063640 North Branch Pine River at Windsor Dam near Alvin	Lat 45°55'43", long 88°51'38" in SE 1/4 sec.21,T.40 Nl, R.13 E., Forest County, Hydrologic Unit 04030108, at bridge on country road, at Windsor Dam, 3.8 mi upstream from conflu- ence of North and South Forks, 4.0 mi southwest of Alvin; drainage area, 27.8 mi ² .	1967-68# 1970-99	07-09-99 04-06-99	2.52 D2.74	85	04-09-80	3.89	165
04067760 Peshtigo River near Cavour	Lat 45°39'20", long 88°38'52" in SW 1/4 sec.29, T.37 N., R.15 E., Forest County, Hydrologic Unit 04040105, at bridge on U.S. Highway 8, 0.7 mi northwest of Cavour; drainage area, 150 mi ² .	1970-99	07-11-99	11.85	460	04-21-96	15.78	1,600
04069700 North Branch Oconto River near Wabeno	Lat 45°26'19", long 88°37'40" in SW 1/4 sec.9, T.34 N., R.15 E., Forest County, Hydrologic Unit 04030104, at pipe arch culvert on County Trunk Highway C, 0.6 mi east of intersec- tion with State Highway 32 at Wabeno; drainage area, 34.1 mi ² .	1970-99	05-08-99	10.97	72	04-20-96	14.21	621
04071700 North Branch Little River near Coleman	Lat 45°00'37", long 88°02'43" on com- mon boundary of secs. 2 and 3, T.29 N., R.20 E., Oconto County, Hydro- logic Unit 04030104, at bridge on U.S. Highway 141, 3.8 mi south of Coleman; drainage area, 21.4 mi ² .	1958-99	04-05-99	10.37	24	03-30-67	14.50	640
04071800 Pensaukee River near Pulaski	Lat 44°45'48" long 88°15'07" in NE 1/4 sec.1, T.26 N., R.18 E., Shawano County, Hydrologic Unit 04030103, at bridge on State Highway 32, 6.1 mi north of Pulaski; drainage area, 48.80 mi ² .	1961-99	1999	C	<419	06-18-96	16.96	1,810
04072792 Tagatz Creek near Westfield	Lat 43°57'22" long 89°29'38" in SE 1/4 sec.12, T.17 N., R.8 E., Marquette County, Hydrologic Unit 04030201, at culvert on County Trunk Highway H, 5.2 mi north of Westfield.	1996-99	05-08-99 1998 1997 1996	C 16.05 15.52 15.80	<25 43 29 36	1998	16.05	43

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Dis-charge (ft ³ /s)	Date	Gage height (feet)	Dis-charge (ft ³ /s)
STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED								
04073400 Bird Creek at Wautoma	Lat 44°04'06", long 89°18'08" in S 1/2 section 34, T.19 N., R.10 E., Waushara County, Hydrologic Unit 04030201, at concrete culvert on State Highway 21, 0.2 mi west of Wautoma; drainage area, 4.14 mi ² .	1959-99	04-05-99	12.10	76	03-07-73	13.07	190
04074850 Lily River near Lily	Lat 45°20'59", long 88°49'52" in SE 1/4 sec.11, T.33 N., R.13 E., Langlade County, Hydrologic Unit 04030202, at culvert on County Trunk Highway A, 3.2 mi north from junction of State Highways 55 and 52 at Lily; drainage area, 45.6 mi ² .	1970-99	07-09-99	C	<89	04-20-96	10.25	167
*04075200 Evergreen Creek near Langlade	Lat 45°10'11", long 88°48'12" in NW 1/4 sec.18, T.31 N., R.14 E., Langlade County, Hydrologic Unit 04030202, on culvert on State Highway 64, 3.5 mi southeast of Langlade; drainage area, 8.09 mi ² .	1959-65 1966-72# 1973-99	05-07-99	10.40	28	07-11-82	11.66	80
04078891 Maple Creek near Sugar Bush	Lat 44°27'54", long 88°43'20" in NW 1/4 SE 1/4 sec.18, T.23 N., R.15 E., Outagamie County, Hydrologic Unit 04030202, at bridge on County Trunk Highway D, 1.3 mi southeast of Sugar Bush; drainage area, 22.1 mi ² .	1996-99	03-17-99 04-01-98 1997 1996	12.18 13.62 13.11 13.65	93 355 235 360	1996	13.65	360
04079700 Spaulding Creek near Big Falls	Lat 44°38'13", long 89°01'20" on common boundary of secs. 14 and 15, T.25 N., R.12 E., Waupaca County, Hydrologic Unit 04030202, at culvert on County Trunk Highway E, 1.5 mi north of Big Falls; drainage area, 5.57 mi ² .	1959-65 1966# 1967-99	1999	C	<55	05-07-60	11.64	101
04081900 Sawyer Creek at Oshkosh	Lat 44°02'00", long 88°35'00" in SW 1/4 sec.15, T.18 N., R.16 E., Winnebago County, Hydrologic Unit 04030201, at bridge on U.S. Highway 41, 1.0 mi southwest of bridge on Algoma Street at Fox River, at Oshkosh; drainage area, 12.10 mi ² .	1961-99	No record this year--road construction			09-11-86	17.47	2,350
04085145 Red River near Dykesville	Lt 44°38'59", long 87°42'47" in SW 1/4 SE 1/4 sec.9, T.25 N., R.23 E., Kewaunee County, Hydrologic Unit 04030102, at upstream crossing of County Highway A, 2.5 mi east of Dykesville; drainage area, 11.8 mi ² .	1996-99	02-12-99	11.50	94	04-01-98	12.49	215
04085400 Killsnake River near Chilton	Lat 44°03'33", long 88°08'36" in E 1/2 sec.6, T.18 N., R.20 E., Calumet County, Hydrologic Unit 04030101, at bridge on country road, 2.4 mi northeast of Cilton; drainage area, 29.4 mi ² .	1961-99	1999	C	<100	03-30-79	14.37	1,840

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Dis-charge (ft ³ /s)	Date	Gage height (feet)	Dis-charge (ft ³ /s)
STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED								
040854105 Mud Creek near Valders	Lat 44°02'20", long 87°54'07" in SW 1/4 SW 1/4 sec.8, T.18 N., R.22 E., Manitowoc County, Hydrologic Unit 04030101, at culvert on Marken Road, 0.8 mi south of intersection with State Highway 151, and 1.7 mi southeast of Valders.	1996-99	06-25-99	12.12	30	06-17-96	13.94	145
04086310 Mink Creek near Beechwood	Lat 43°36'15", long 88°06'01" in SE 1/4 SE 1/4 sec.9, T.13 N., R.20 E., Sheboygan County, Hydrologic Unit 04040003, at bridge on County Trunk Highway S, 1.2 mi northeast of Beechwood; drainage area, 9.84 mi ² .	1996-99	05-17-99	16.70	38	06-17-96	18.33	61
04087100 Honey Creek at Milwaukee	Lat 42°58'41", long 87°59'52" in SE 1/4 sec.15, T.6 N., R.21 E., Milwaukee County, Hydrologic Unit 04040003, 400 ft upstream from bridge on S. 68th Street, 6.0 mi northwest of mouth of Milwaukee River, at Milwaukee; drainage area, 3.26 mi ² .	1959-99	06-13-99	22.54	1,040	06-21-97	22.70	1,100
04087200 Oak Creek near South Milwaukee	Lat 42°52'58", long 87°53'31" on common boundary of sec. 21 and 22, T.5 N., R.22 E., Milwaukee County, Hydrologic Unit 04040002, at bridge on West Nicholson Road, 3.0 mi southeast of South Milwaukee; drainage area, 13.8 mi ² .	1958-99	04-23-99	16.91	910	03-30-60	17.49	1,100
04087250 Pike Creek near Kenosha	Lat 42°36'12", long 87°53'41" in W 1/2 sec.27, T.2 N., R.22 E., Kenosha County, Hydrologic Unit 04040002, at box culvert on State Highway 43, 3.0 mi northeast of Kenosha; drainage area, 7.25 mi ² .	1960-99	04-23-99	16.39	174	09-17-78	17.6	220
ST. CROIX RIVER BASIN								
05340300 Trade River near Frederic	Lat 45°37'41", long 92°29'19" in SW 1/4 sec.4, T.36 N., R.17 W., Polk County, Hydrologic Unit 07030005, at box culvert on State Highways 35 and 48, 2.5 mi southwest of Frederic; drainage area, 6.34 mi ² .	1958-99	08-18-99	9.88	56.3	06-12-84	18.89	1,050
05341313 Bull Brook near Amery	Lat 45°17'03", long 92°19'00" in SW 1/4 SE 1/4, sec.2, T.32 N., R.16 W., Polk County, Hydrologic Unit 07030005, on right bank just upstream from 32-ft concrete box culvert on County Trunk Highway F, 1.8 mi south of junction of County Trunk Highway J, and about 2.5 mi southeast of Amery; drainage area, 9.62 mi ² .	1996-99	1999	C	<42.7	11-17-96	12.76	228

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Dis-charge (ft ³ /s)	Date	Gage height (feet)	Dis-charge (ft ³ /s)
ST. CROIX RIVER BASIN--CONTINUED								
05341900 Kinnickinnic River Tributary at River Falls	Lat 44°49'57", long 92°38'23" in NE 1/4 sec.14, T.27 N., R.19 W., Pierce County, Hydrologic Unit 07030005, at bridge on County Trunk Highway FF, 1.6 mi southwest of River Falls; drainage area, 7.26 mi ² .	1959-99	03-16-99	13.01	444	08-09-88	15.99	5,200
CHIPPEWA RIVER BASIN								
05357360 Bear River near Powell	Lat 46°04'40", long 90°00'52" in NE 1/4 sec.32, T.42 N., R.4 E., Iron County, Hydrologic Unit 07050002, at bridge on State Highway 182, 3.0 mi west of Powell; drainage area, 120 mi ² .	1970-99	07-10-99	C	<205	04-26-96 04-21-96	13.06 G13.18	730
05359600 Price Creek near Phillips	Lat 45°43'33", long 90°40'12" in SW 1/4 sec.31, T.38 N., R.2 W., Price County, Hydrologic Unit 07050002, at culvert on County Trunk Highway W, 13.0 mi west of Phillips; drainage area, 16.9 mi ² .	1958-65 1966# 1967-99	07-09-99	11.26	100	09-15-94	17.43	552
05361400 Hay Creek near Prentice	Lat 45°32'32", long 90°21'37" in SE 1/4 sec.4, T.35 N., R.1 E., Price County, Hydrologic Unit 07050004, at culvert on U.S. Highway 8, 3.5 mi west of Prentice; drainage area, 22.6 mi ² .	1961-99	07-09-99	11.83	295	09-16-94	15.39	1,650
05361420 Douglas Creek near Prentice	Lat 45°31'06", long 90°15'28" in NE 1/4 sec.17, T.35 N., R.2 E., Price County, Hydrologic Unit 07050004, at culvert on County Trunk Highway C, 2.3 mi southeast of intersection with State Highway 13 at Prentice; drainage area, 25.2 mi ² .	1970-99	05-08-99	12.28	331	09-15-94	17.66	1,620
05361989 Jump River Tributary near Jump River	Lat 45°21'08", long 90°49'23" in SW 1/4 SW 1/4 sec.12, T.33 N., R.4 W., Taylor County, Hydrologic Unit 07050004, on left bank just upstream from a 23-ft concrete box culvert at a cut-off road at Junction of Hwys 73 and I-94, 1 mi west of Jump River and 7.5 mi northeast of Sheldon; drainage area, 6.77 mi ² .	1996-99	07-08-99	10.82	81.1	03-29-97	11.35	139
05363775 Babit Creek at Gilman	Lat 45°10'00", long 90°47'49" in NW 1/4 SW 1/4 sec.18, T.31 N., R.3 W., Taylor County, Hydrologic Unit 07050005, on right bank just upstream from a 30 ft concrete culvert on State Highway 64 at east side of Gilman; drainage area, 8.49 mi ² .	1996-99	05-18-99	10.68	50.8	03-28-98	12.87	367
05364000 Yellow River at Cadott	Lat 44°57'21", long 91°08'48" in NE 1/4 sec.31, T.29 N., R.6 W., Chippewa County, Hydrologic Unit 07050005, at bridge on State Highway 27, at Cadott; drainage area, 364 mi ² .	1943-61# 1962-99	1999	C	<2,300	09-22-86	15.82	16,600

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Dis- charge (ft ³ /s)	Date	Gage height (feet)	Dis- charge (ft ³ /s)
CHIPPEWA RIVER BASIN--CONTINUED								
05364100 Seth Creek near Cadott	Lat 44°59'24", long 91°08'48" in SW 1/4 sec.17, T.29 N., R.6 W., Chippewa County, Hydrologic Unit 07050005, at culvert on State High- way 27, 3.1 mi north of Cadott; drainage area, 3.25 mi ² .	1962-99	07-09-99	12.22	119	09-22-86	18.00	785
05364500 Duncan Creek at Bloomer	Lat 45°07'00", long 91°30'00" in sec.8, T.30 N., R.9 W., Chippewa County, Hydrologic Unit 07070005, 0.2 mi below Bloomer dam, at Bloomer; drainage area, 50.3 mi ² .	1945-51# 1958-99	05-18-99	4.44	297	06-29-79	11.81	5,400
05366500 Eau Claire River near Fall Creek	Lat 44°48'35", long 91°16'50" in NW 1/4 sec.19, T.27 N., R.7 W., Eau Claire County, Hydrologic Unit 07050006, 500 ft east of County Trunk Highway K, 3.2 mi north of Fall Creek; drainage area, 760 mi ² .	1943-55# 1958-99	05-20-99	7.29	3,710	06-20-93	19.38	24,500
05367030 Willow Creek near Eau Claire	Lat 44°44'11", long 91°26'48" on com- mon boundary of secs. 14 and 15, T.26 N., R.9 W., Eau Claire County, Hydrologic Unit 07050005, at box culvert on State Highway 93, 4.0 mi south of Eau Claire; drainage area, 3.83 mi ² .	1958-99	1999	C	<47	07-08-59	14.12	400
053674588 Rock Creek Tributary near Canton	Lat 45°27'06", long 90°36'08" in SW 1/4 SW 1/4 sec.3, T.34 N., R.10 W., Barron County, Hydrologic Unit 07050007, 3 mi north of U.S. Hwy 8 on 27th Street, about 40 ft north of intersection of 27th Street and 17th Avenue, and 2.5 mi east and 1.7 mi north of Canton; drainage area, 6.34 mi ² .	1996-99	05-07-99	11.16	119	03-28-98	12.12	249
05367700 Lightning Creek at Almena	Lat 45°25'17", long 92°01'57" in NW 1/4 sec.19, T.34 N., R.13 W., Barron County, Hydrologic Unit 07050007, at bridge on County Trunk Highway P, at Almena; drainage area, 19.0 mi ² .	1958-99	07-26-99	10.09	146	03-30-67	12.39	1,550
05370900 Spring Creek near Durand	Lat 44°34'13", long 91°57'48" in S 1/2 sec.9, T.24 N., R.13 W., Buffalo County, Hydrologic Unit 07050005, at bridge on country road, 4.0 mi south of bridge on Chippewa River at Durand; drainage area, 6.45 mi ² .	1962-99	1999	C	<200	08-23-75	15.71	860
BUFFALO RIVER BASIN								
05371800 Buffalo River Tributary near Osseo	Lat 44°35'01" long 91°05'40" in S 1/2 sec.3, T.24 N., R.6 W., Jackson County, Hydrologic Unit 07040003, at culvert on U.S. Highway 10, 6.5 mi east of Osseo; drainage area, 1.44 mi ² .	1960-99	07-18-99	10.40	24	09-12-78	12.85	188

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Dis- charge (ft ³ /s)	Date	Gage height (feet)	Dis- charge (ft ³ /s)
BUFFALO RIVER BASIN--CONTINUED								
05371920 Buffalo River near Mondovi	Lat 44°31'36" long 91°41'46" in SW 1/4 SE 1/4 sec.27, T.24 N., R.11 W., Buffalo County, Hydrologic Unit 07040003, at bridge on State High- way 88, 4.0 mi south of Mondovi; drainage area, 279 mi ² .	1974-99	07-19-99	11.87	740	09-10-75	15.39	5,180
WAUMANDEE CREEK BASIN								
05378185 Eagle Creek near Fountain City	Lat 44°12'34" long 91°40'42" in SW 1/4 NE 1/4 sec.15, T.20 N., R.11 W., Buffalo County, Hydrologic Unit 07040003, on right bank, at CTH "G" and 5.7 mi north of Fountain City; drainage area, 14.3 mi ² .	1997-99	07-18-99	8.50	482	06-27-98	9.78	623
TREMPEALEAU RIVER BASIN								
05379187 Pine Creek near Taylor	Lat 44°20'07", long 91°05'17" in NE 1/4 NE 1/4 sec.3, T.21 N., R.6 W., Jackson County, Hydrologic Unit 07040005, at bridge on Taylor Road, about 2 mi northeast of Taylor; drain- age area, 10.9 mi ² .	1996-99	04-04-99	10.27	100	06-27-98	13.69	405
05379288 Bruce Valley Creek near Pleasantville	Lat 44°26'45", long 91°21'40" in SE 1/4 NW 1/4 sec.28, T.23 N., R.8 W., Trempealeau County, Hydrologic Unit 07040005, on left bank, 100 ft upstream from bridge on CTH D, 0.9 mi upstream from Elk Creek, and 2.9 mi west of Pleasantville; drainage area, 10.1 mi ² .	1996-99	07-18-99	7.47	155	06-27-98	8.18	225
BLACK RIVER BASIN								
05380900 Poplar River near Owen	Lat 44°53'10", long 90°34'17" in NW 1/4 sec.25, T.28 N., R.2 W., Clark County, Hydrologic Unit 07040007, at bridge on County Trunk Highway N, 4.2 mi south of Owen; drainage area, 157 mi ² .	1958-65 1966# 1967-99	1999	C<13.01	<1,500	06-06-80	20.12	12,500
05380970 Cawley Creek near Neillsville	Lat 44°35'42", long 90°34'31" in SW 1/4 sec.25, T.25 N., R.2 W., Clark County, Hydrologic Unit 07040007, at bridge on State Highway 73, 3.7 mi north of Neillsville; drainage area, 38.6 mi ² .	1961-99	07-26-99	13.41	500	09-22-86	20.62	7,880
05382200 French Creek near Ettrick	Lat 44°11'04", long 91°18'49" in NE 1/4 sec.27, T.20 N., R.8 W., Trempea- leau County, Hydrologic Unit 07040007, at bridge on County Trunk Highways D and T, 2.5 mi west of Ettrick; drainage area, 14.3 mi ² .	1960-99	07-18-99	10.94	1,410	06-27-98	12.14	2,450

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Dis- charge (ft ³ /s)	Date	Gage height (feet)	Dis- charge (ft ³ /s)
BAD AXE RIVER BASIN								
05387100 North Fork Bad Axe River near Genoa	Lat 43°33'10", long 91°08'58" in SW 1/4 sec.36, T.13 N., R.7 W., Vernon County, Hydrologic Unit 07060001, at bridge on State Highway 56, 4.1 mi southeast of Genoa; drainage area, 80.8 mi ² .	1959-65 1966# 1967-99	1999	C	<75	08-27-59	19.59	10,000
WISCONSIN RIVER BASIN								
05391260 Gudegast Creek near Starks	Lat 45°41'41", long 89°15'42" in NW 1/4 sec.16, T.37 N., R.10 E., Oneida County, Hydrologic Unit 07070001, at corrugated culvert on country road, 3.0 mi northwest of Starks; drainage area, 14.0 mi ² .	1970-99	05-08-99 04-01-98 04-05-97	10.91 11.46 12.32	54 F79 F119	05-09-90	13.33	130
05391950 Squaw Creek near Harrison	Lat 45°32'47" long 89°29'16" in SW 1/4 sec.3, T.35 N., R.8 E., Lincoln County, Hydrologic Unit 07070001, at culvert on County Trunk Highway A, 5.0 mi northeast of Harrison.; drainage area, 3.23 mi ² .	1970-99	05-08-99	10.47	19	03-03-87	11.35	F51
05392150 Mishonagon Creek near Woodruff	Lat 45°54'41", long 89°45'30" in NE 1/4 sec.32, T.40 N., R.6 E., Vilas County, Hydrologic Unit 07070001, at Twin culverts on Stte Highway 47, 3.0 mi northwest of Woodruff; drain- age area, 17.6 mi ² .	1958-99	05-07-99	10.07	65.4	08-17-72	11.33	117
05392350 Bearskin Creek near Harshaw	Lat 45°38'43", long 89°41'12" in SW 1/4 sec.36, T.37 N., R.6 E., Oneida County, Hydrologic Unit 07070001, at culvert on County Trunk Highway K, 2.1 mi southwest of Harshaw; drainage area, 31.1 mi ² .	1958-65 1966# 1967-99	07-09-99	9.84	89	06-14-81	10.97	180
05393640 Little Pine Creek near Irma	Lat 45°23'37", long 89°40'20" in NW 1/4 sec.31, T.34 N., R.7 E., Lincoln County, Hydrologic Unit 07070002, at box culvert on U.S. Highway 51, 3.0 mi north of Irma; drainage area, 22.0 mi ² .	1970-99	05-08-99	12.60	92	06-14-81	14.38	310
05394200 Devil Creek near Merrill	Lat 45°08'56", long 89°47'13" in N 1/2 sec.30, T.31 N., R.6 E., Lincoln County, Hydrologic Unit 07070002, at culvert on County Trunk Highway F, 5.8 mi southwest of Merrill; drain- age area, 9.58 mi ² .	1961-99	1999	C	<125	06-13-90	17.98	1,600
05395020 Lloyd Creek near Doering	Lat 45°13'57", long 89°22'04" in SE 1/4, T.32 N., R.9 E., Langlade County, Hydrologic Unit 07070002, at bridge on County Trunk Highway C, 4.5 mi east of Doering; drainage area, 7.80 mi ² .	1970-99	07-09-99	13.35	437	06-13-90	>16.00	>1,000

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Dis-charge (ft ³ /s)	Date	Gage height (feet)	Dis-charge (ft ³ /s)
WISCONSIN RIVER BASIN--CONTINUED								
05395100 Trappe River Tributary near Merrill	Lat 45°08'07" long 89°30'08" in SW 1/4 sec.28, T.31 N., R.8 E., Lincoln County, Hydrologic Unit 07070002, at culvert on County Trunk Highway P, 9.5 mi southeast of Merrill; drainage area, 1.58 mi ² .	1959-99	07-09-99	13.01	143	08-15-95	F17.79	F396
05396300 Wisconsin River Tributary at Wausua	Lat 44°57'28", long 89°39'52" in NE 1/4 NW 1/4 sec.34, T.29 N., R.7 E., Marathon County, Hydrologic Unit 07070002, on road right-of-way of 24th Avenue opposite the Ace Motel, 300 ft east of U.S. Highway 51, at Wausau; drainage area, 1.10 mi ² .	1982-99	07-17-99	7.09	317	06-12 or 13-90	9.11	740
05397600 Big Sandy Creek near Wausau	Lat 45°01'55", long 89°27'00" in SE 1/4 sec.31, T.30 N., R.9 E., Marathon County, Hydrologic Unit 07070002, at bridge on State Highway 52, 10.0 mi northeast of Wausau; drainage area, 11.5 mi ² .	1959-99	07-09-99	12.17	390	09-27-59	15.18	2,120
05400025 Johnson Creek near Knowlton	Lat 44°44'19", long 89°36'39" in SE 1/4 NE 1/4 sec.13, T.26 N., R.7 E., Marathon County, Hydrologic Unit 07070002, at bridge on County Trunk Highway X, 2.7 mi east of Knowlton; drainage area, 25.1 mi ² .	1973-99	1999	C	<323	06-06-80	21.78	3,700
05401800 Yellow River Tributary near Pittsville	Lat 44°28'58", long 90°07'05" on common boundary of secs.11 and 14, T.23 N., R.3 E., Wood County, Hydrologic Unit 07070003, at bridge on County Trunk Highway C, 2.0 mi north of Pittsville; drainage area, 7.23 mi ² .	1959-99	07-16-99	11.89	191	05-02-73	13.82	810
05403700 Dell Creek near Lake Delton	Lat 43°33'05" long 89°51'55" in NW 1/4 sec.2, T.12 N., R.5 E., Sauk County, Hydrologic Unit 07070003, on right bank 50 ft upstream from highway bridge, 6.0 mi southwest of Lake Delton, and 7.0 mi upstream from mouth; drainage area, 44.9 mi ² .	1957-65# 1966-70 1971-80# 1983-99	04-09-99	5.78	192	09-14-92	9.80	1,200
05405600 Rowan Creek at Poynette	Lat 43°23'13", long 89°23'25" in S 1/2 sec.35, T.11 N., R.9 E., Columbia County, Hydrologic Unit 07070005, at bridge on U.S. Highway 51, at Poynette; drainage area, 10.4 mi ² .	1961-99	02-11-99	11.06	48	09-09-65	17.90	2,260
05407200 Crooked Creek near Boscobel	Lat 43°06'27", long 90°42'18" in SE 1/4 sec.2, T.7 N., R.3 W., Grant County, Hydrologic Unit 07070005, at bridge on U.S. Highway 61, 1.6 mi south of Boscobel; drainage area, 12.9 mi ² .	1959-99	05-17-99	E9.70	80	07-27-64	18.21	2,460

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Dis- charge (ft ³ /s)	Date	Gage height (feet)	Dis- charge (ft ³ /s)
GRANT RIVER BASIN								
05413400 Pigeon Creek near Lancaster	Lat 42°49'00", long 90°43'20" in SW 1/4 sec.15, T.4 N., R.3 W., Grant County, Hydrologic Unit 07060003, at culvert on country road, 2.0 mi south of Lancaster; drainage area, 6.93 mi ² .	1960-65 1966# 1967-99	06-08-99	10.07	E150	01-24-67	20.85	2,800
PLATTE RIVER BASIN								
05414213 Little Platte River near Platteville	Lat 42°43'23", long 90°31'41" in NE 1/4 NE 1/4 sec.19, T.3 N., R.1 W., Grant County, Hydrologic Unit 07060003, on left bank 150 ft upstream from Stumptown Road, 2.6 mi southwest of Post Office in Plat- teville; drainage area, 79.7 mi ² .	1987-90# 1991-99	06-08-99	13.05	2,460	06-29-90	15.35	3,800
GALENA RIVER BASIN								
05414900 Pats Creek near Elk Grove	Lat 42°40'03", long 90°22'40" in SW 1/4 sec.4, T.2 N., R.1 E., Lafayette County, Hydrologic Unit 07060005, at bridge on State Highway 81, 7.0 mi southeast of Platteville; drainage area, 8.50 mi ² .	1960-99	06-08-99	14.34	980	06-29-69	17.32	7,040
ROCK RIVER BASIN								
05430403 Fisher Creek Tributary at Janesville	Lat 42°40'18", long 89°03'31" in SW 1/4 SE 1/4 sec.34, T.3 N., R.12 E., Rock County, Hydrologic Unit 07090001, at culvert on Rockport Road, 0.4 mi west of South Crosby Avenue and 0.6 mi upstream from County Trunk Highway D, at Janes- ville; drainage area, 1.42 mi ² .	1982-99	06-13-99	6.68	250	06-25-98	8.23	419
05431400 Little Turtle Creek at Allens Grove	Lat 42°34'46", long 88°45'33" in NE 1/4 sec.6, T.1 N., R.15 E., Walworth County, Hydrologic Unit 07090001, at bridge on country road, 0.2 mi south of Allens Grove; drainage area, 42.4 mi ² .	1962-99	06-13-99	12.78	1,550	04-21-73	18.28	8,400
05432055 Livingston Branch Pecatonica River near Livingston	Lat 42°54'01", long 90°22'23", in SW 1/4 SE 1/4 sec.16, T.5 N., R.1 E., Iowa County, Hydrologic Unit 07090003, on the left bank 75 ft upstream from Enloe Road and 2.7 mi east of Livingston; drainage area, 16.4 mi ² .	1987-91# 1996-99	06-08-99	7.19	563	06-29-90	13.49	6,260
05432300 Rock Branch near Mineral Point	Lat 42°50'02", long 90°09'15" in SE 1/4 sec.8, T.4 N., R.3 E., Iowa County, Hydrologic Unit 07090003, at box culvert on State Highway 23, 2.5 mi south of Mineral Point; drainage area, 4.83 mi ² .	1959-99	05-17-99	12.92	400	07-05-93	22.63	3,100

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1999 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Dis-charge (ft ³ /s)	Date	Gage height (feet)	Dis-charge (ft ³ /s)
ROCK RIVER BASIN--CONTINUED								
05433500 Yellowstone River near Blanchardville	Lat 42°46'55", long 89°59'50" in NE 1/4 sec.34, T.4 N., R.4 E., Lafayette County, Hydrologic Unit 07090003, 0.6 mi upstream from bridge on County Trunk Highway F, 7.0 mi west-southwest of Blanchardville; drainage area, 28.5 mi ² .	1954-65# 1966-99	05-17-99	7.73	836	06-29-90	11.40	8,500
05436200 Gill Creek near Brooklyn	Lat 42°49'38", long 89°26'43" in NW 1/4 sec.16, T.4 N., R.9 E., Green County, Hydrologic Unit 07090004, at culvert on State Highway 92, 4.3 mi west of Brooklyn; drainage area, 3.33 mi ² .	1961-99	05-17-99	17.85	960	05-17-99	17.85	960
ILLINOIS RIVER BASIN								
05545100 Sugar Creek at Elkhorn	Lat 42°41'05", long 88°30'50" in SW 1/4 sec.29, T.3 N., R.17 E., Walworth County, Hydrologic Unit 07120006, at culvert on State Highway 11, 2.0 mi northeast of Elkhorn; drainage area, 6.63 mi ² .	1962-99	06-13-99	13.05	235	04-21-73	17.47	900
05545200 White River Tributary near Burlington	Lat 42°41'03", long 88°22'37" on common boundry of secs.27 and 34, T.3 N., R.18 E., Walworth County, Hydrologic Unit 07120006, at box culvert on State Highway 11, 4.5 mi west of Burlington; drainage area, 2.42 mi ² .	1958-99	06-13-99	14.77	354	06-13-99	14.77	354
05548150 North Branch Nippersink Creek near Genoa City	Lat 42°30'15", long 88°23'01" in SW 1/4 NW 1/4 sec.33, T.1 N., R.18 E., Walworth County, Hydrologic Unit 07120006, at bridge on County Trunk Highway B, 3.0 mi west of Genoa City; drainage area, 13.6 mi ² .	1962-99	06-13-99	13.90	517	06-13-99	13.90	517

Operated as a continuous-record station

B Discharge not determined

C Peak not recorded

D Backwater

E Estimated

F Revised

G Backwater from ice

H Backwater from debris

Discharge at Miscellaneous sites

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table.

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Dis-charge (ft ³ /s)
STREAMS TRIBUTARY TO LAKE SUPERIOR						
Souix River	Lake Superior	Lat 46°39'16", long 91°00'36", in SE 1/4 NE 1/4 sec.8, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, at Paulson Road, 5.2 mi west of Washburn.	--	--	08/31/99	0.0377
Boyd Creek	Lake Superior	Lat 46°29'14", long 90°58'09", in NE 1/4 SE 1/4 sec.22, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, at town road 4.5 mi northwest of Courthouse in Ashland.	--	1975-77	08/31/99	0.00248
Boyd Creek	Lake Superior	Lat 46°36'51", long 90°56'24", in NE 1/4 NW 1/4 sec.25, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, at Hwy 13, 3.0 mi northwest of Ashland.	--	--	08/31/99	0.289
Whittlesey Creek	Lake Superior	Lat 46°36'18", long 91°02'40", in SE 1/4 SW 1/4 sec.30, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, 2.95 mi northeast of Moquah.	--	--	08/31/99	0.101
Whittlesey Creek	Lake Superior	Lat 46°36'22", long 91°02'07", in NE 1/4 SE 1/4 sec.30, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, 3.3 mi northeast of Moquah.	--	--	08/31/99	0.0
Whittlesey Creek	Lake Superior	Lat 46°36'07", long 91°00'03", in SE 1/4 SW 1/4 sec.28, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, 4.45 mi northeast of Moquah.	--	--	08/31/99	0.0261
Whittlesey Creek	Lake Superior	Lat 46°35'55", long 90°59'43", in NE 1/4 NE 1/4 sec.33, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, 5.3 mi west of Ashland.	--	--	08/31/99	1.18
Whittlesey Creek Tributary	Whittlesey Creek	Lat 46°35'54", long 90°59'39", in NE 1/4 NE 1/4 sec.33, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, 5.25 mi west of Ashland.	--	--	08/31/99	0.104
Whittlesey Creek	Lake Superior	Lat 46°35'52", long 90°59'20", in NW 1/4 NW 1/4 sec.34, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, 5.0 mi west of Ashland.	--	--	08/30/99	4.67

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Dis-charge (ft ³ /s)
STREAMS TRIBUTARY TO LAKE SUPERIOR--CONTINUED						
North Fork Whittlesey Creek	Whittlesey Creek	Lat 46°36'59", long 91°01'07", in SW 1/4 SE 1/4 sec.20, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, at Cozy Corner Road and 4.4 mi northeast of Moquah.	--	--	08/31/99	0.24
North Fork Whittlesey Creek	Whittlesey Creek	Lat 46°36'17", long 91°00'00", in NW 1/4 SE 1/4 sec.28, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, 4.6 mi west of Moquah.	--	--	08/31/99	0.243
North Fork Whittlesey Creek	Whittlesey Creek	Lat 46°35'53", long 90°59'21", in NW 1/4 NW 1/4 sec.34, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, 5.0 mi west of Ashland.	--	--	08/30/99	3.47
Whittlesey Creek	Lake Superior	Lat 46°35'50", long 90°59'12", in SE 1/4 NW 1/4 sec.34, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, 4.6 mi west of Ashland.	--	--	08/30/99	10.11
Whittlesey Creek	Lake Superior	Lat 46°35'44", long 90°58'49", in SW 1/4 NE 1/4 sec.34, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, 4.3 mi west of Ashland.	--	--	08/30/99	14.33
Whittlesey Creek	Lake Superior	Lat 46°35'41", long 90°57'17", in SE 1/4 NE 1/4 sec.35, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, at State Highway 13, 3.6 mi west of Ashland.	--	1950 1970	08/31/99	18.67
Whittlesey Creek Tributary	Whittlesey Creek	Lat 46°35'49", long 90°58'07", in SW 1/4 NW 1/4 sec.35, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, at town road, 4.0 mi east of Ashland.	--	1972-77 1988	08/31/99	0.691
Whittlesey Creek Tributary	Whittlesey Creek	Lat 46°35'51", long 90°51'17", in SW 1/4 NE 1/4 sec.35, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, at State Highway 13, 3.6 mi west of Ashland.	--	--	08/31/99	0.73
North Fish Creek Tributary	North Fish Creek	Lat 46°34'44", long 91°00'44", in NE 1/4 SE 1/4 sec.5, T.47 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, at County Highway G, 3.4 mi east of Moquah.	--	--	08/31/99	0.0
North Fish Creek	Fish Creek	Lat 46°34'45", long 90°57'55", in NW 1/4 SW 1/4 sec.2, T.47 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, at U.S. Highway 2, 3.9 mi west of Ashland.	--	1967 1969-76	08/31/99	77.08

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Dis- charge (ft ³ /s)
STREAMS TRIBUTARY TO LAKE SUPERIOR--CONTINUED						
Unnamed Tribu- tary to Lake Superior	Lake Superior	Lat 46°35'24", long 90°57'56", in SW 1/4 SW 1/4 sec.35, T.48 N., R.5 W., Bayfield County, Hydrologic Unit 04010301, at Terwilliger Road, 3.8 mi west of Ashland.	--	--	08/31/99	0.0841
STREAMS TRIBUTARY TO LAKE MICHIGAN						
Peshtigo River	Lake Michigan	Lat 45°21'28", long 88°13'14", in NW 1/4 NW 1/4 sec.11, T.33 N., R.18 E., Marinette County, Hydrologic Unit 04030105, at bridge on Parkway Road, 0.5 mi downstream from Caldron Falls Dam, 7.7 mi southwest of Athelstane.	466	--	04/06/99	835
ST. CROIX RIVER BASIN						
Lower Tamarack River	St. Croix River	Lat 46°04'49", long 92°23'37", in SE 1/4 NW 1/4 sec.32, T.42 N., R.16 W., Pine County, MN, Hydrologic Unit 07030001, at town road 3 mi southwest of Markville, MN.	188	1998	11/11/98	85.7
CHIPPEWA RIVER BASIN						
Allequash Creek, Site 3	Trout River	Lat 46°01'58", long 89°36'28", in NE 1/4 SW 1/4 sec.15, T.41 N., R.7 E., Vilas County, Hydrologic Unit 07050002, upstream of bridge on unnamed road, near Boulder Junction.	--	1992-98	05/19/99 06/17/99 08/11/99 09/30/99	4.95 2.64 3.78 3.06
Little John Lake Tributary	Allequash Creek	Lat 46°01'29", long 89°39'00", in NE 1/4 NW 1/4 sec.20, T.41 N., R.7 E., Vilas County, Hydrologic Unit 07050002, at confluence with Allequash Creek, near Boulder Junction.	--	1992-98	05/19/99 06/17/99 08/11/99 09/30/99	0.84 0.21 2.05 0.62
North Creek	Trout River	Lat 46°04'43", long 89°40'02", in SW 1/4 NE 1/4 sec.31, T.42 N., R.7 E., Vilas County, Hydrologic Unit 07050002, at inlet to Trout Lake, 2.6 mi southwest of Boulder Junction.	3.58	1992-96 1998	12/15/98 05/19/99 06/17/99 08/11/99 09/29/99	2.46 2.45 2.69 2.92 2.90
Mann Creek	Trout River	Lat 46°00'41", long 89°40'33", in NW 1/4 NW 1/4 sec.30, T.41 N., R.7 E., Vilas County, Hydrologic Unit 07050002, at County Trunk Highway N, near Boulder Junction.	--	1991-96 1998	11/02/98 05/19/99 06/17/99 08/12/99 09/29/99	6.28 1.09 1.45 2.08 1.96

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Dis- charge (ft ³ /s)
CHIPPEWA RIVER BASIN--CONTINUED						
Gresham Creek	Trout River	Lat 46°02'41", long 89°46'01", in NE 1/4 SE 1/4 sec. 8, T.41 N., R.6 E., Vilas County, Hydrologic Unit 07050002, at bridge on County Highway H, 7.6 mi southwest of Boulder Junction.	11.0	1989	10/29/98 11/19/98 03/11/99 04/08/99 04/13/99 04/29/99 05/25/99 06/18/99 08/17/99 09/28/99	3.28 7.07 3.98 8.79 10.2 6.05 8.41 0.76 8.76 1.86
WISCONSIN RIVER BASIN						
Muskellunge Creek	Wisconsin River	Lat 45°56'00", long 89°25'28", in NW 1/4 SW 1/4 sec. 19, T.40 N., R.9 E., Vilas County, Hydrologic Unit 07050002, on town road, 3.7 mi northeast of St. Germain.	--	1979 1996	12/02/98 01/20/99 02/07/99 02/22/99 03/04/99 03/18/99 04/01/99 04/15/99 04/29/99 05/13/99 06/15/99 07/23/99	5.82 5.79 5.07 4.98 5.90 5.77 9.13 6.86 5.82 9.85 6.34 6.42
Little St. Germain Creek	Wisconsin River	Lat 45°53'55", long 89°27'10", in SW 1/4 SE 1/4 sec. 35, T.40 N., R.8 E., Vilas County, Hydrologic Unit 07050001, just upstream of State Highway 70 about 1 1/4 mi east of St. Germain.	--	--	01/21/99 02/07/99 02/22/99 03/04/99 03/17/99 03/18/99 04/01/99 04/15/99 04/29/99 05/13/99 06/15/99 07/23/99	11.92 12.05 6.15 6.04 7.11 6.68 5.89 5.89 8.46 7.05 8.28 7.53
Black Earth Creek	Blue Mounds Creek	Lat 43°05'49", long 89°37'32", in SE 1/4 NE 1/4 sec.11, T.7 N., R.7 E., Dane County, Hydrologic Unit 07070005, on bridge on Prenote Road, 1.7 mi southeast of Cross Plains.	9.53	1985-86 1995	04/21/99 06/28/99 07/28/99 08/27/99 09/22/99 10/25/99	2.86 2.52 2.82 2.50 1.70 1.9

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Dis- charge (ft ³ /s)
ROCK RIVER BASIN						
Pike Lake Northeast Tributary	Rock River	Lat 43°18'47", long 88°19'11", in SE 1/4 SE 1/4 sec.23, T.10 N., R.18 E., Washington County, Hydrologic Unit 07090001, just west of Kettle Moraine Drive, 2.3 mi southwest of Slinger.	--	--	09/30/99	0.27
Pike Lake Tributary	Rock River	Lat 43°18'26", long 88°19'27", in NE 1/4 NE 1/4 sec.26, T.10 N., R.18 E., Washington County, Hydrologic Unit 07090001, approximately 100 ft upstream from Pike Lake, 2.7 mi southwest of Slinger.	--	--	09/30/99	0.10
Maunsha River	Crawfish River	Lat 43°13'10", long 89°08'05", in SW 1/4 NE 1/4 sec.25, T.9 N., R.11 E., Dane County, Hydrologic Unit 07090002, at country road, 4.7 mi northeast of Sun Prairie.	37.1	1967 1990 1998	11/09/98 12/08/98	8.81 10.4
Koshkonong Creek	Rock River	Lat 43°08'58", long 89°14'13", in NE 1/4 NW 1/4 sec.19, T.8 N., R.11 E., Dane County, Hydrologic Unit 07090001, at bridge on town road 3.68 mi downstream from sewage treatment plant at Sun Prairie.	12.7	1974 1989-90	04/21/99 06/29/99 07/28/99 08/20/99 09/21/99 10/27/99	10.9 8.15 7.8 6.4 4.5 4.7
Koshkonong Creek	Rock River	Lat 42°57'05", long 89°01'37", in SE 1/4 SW 1/4 sec.25, T.6 N., R.12 E., Dane County, Hydrologic Unit 07090001, 1.5 mi south of Rockdale.	1.50	1996	04/20/99 06/29/99 07/28/99 08/18/99 09/21/99 10/25/99	106 87 80 48 35 40
Sixmile Creek	Yahara River	Lat 43°10'29", long 89°25'58", in NE 1/4 NW 1/4 sec.16, T.8 N., R.9 E., Dane County, Hydrologic Unit 07090001, on right bank at bridge on town road, 1.5 mi southeast of Waunakee.	41.1	1998	11/09/98 12/08/98	12.1 13.8
West Branch Sugar River	Sugar River	Lat 42°54'47", long 89°37'19", in NE 1/4 NE 1/4 sec.14, T.5 N., R.7 E., Dane County, Hydrologic Unit 07090004, at State Highway 92, 2.9 mi southeast of Mt. Vernon.	32.7	1959 1969 1990 1996	04/21/99 06/28/99 07/28/99 08/23/99 09/22/99 10/27/99	26.4 26.1 24.2 21.2 18 14

ILLINOIS RIVER BASIN

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

Water-quality data in this section are for samples collected at gaging stations and other sites on streams for reconnaissance or other purposes on a non-continuous basis.

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

STREAMS TRIBUTARY TO LAKE MICHIGAN

04072185 TROUT CREEK NEAR HOWARD, WI (LAT 44 32 10N LONG 088 07 48W)												
DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	BICAR-BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	
FEB 1999	16...	1515	E13	7.6	.2	11.4	725	--	--	1.63	.010	
MAR 10...	1545	E2.5	753	8.2	.0	12.4	750	--	--	2.61	.013	
AUG 25...	1300	.90	731	8.0	21.6	9.0	747	299	251	.224	.025	
SEP 08...	0915	.70	772	7.7	17.7	6.9	738	334	274	.193	<.010	
DATE		NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	2,6-DI-ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALPHA BHC, DIS-SOLVED (UG/L) (34253)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)
FEB 1999	16...	.068	.46	.48	.039	.024	.017	--	--	--	--	--
MAR 10...	.083	.78	.73	.051	.035	.032	--	--	--	--	--	--
AUG 25...	<.020	.54	.42	.199	.069	.051	<.0030	<.0020	<.002	<.0020	.109	
SEP 08...	<.020	.50	.37	.217	.209	.177	<.0030	<.0020	<.002	<.0020	<.001	
DATE		BEN-FLUR-ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	CAR-BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO-FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR-PYRIFOS DIS-SOLVED (UG/L) (38933)	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	DI-AZINON, DIS-SOLVED (UG/L) (39572)	DIAZ-INON D10 SRG WAT FLT 0.7 U GF, REC PERCENT (91063)	DI-ELDRIN DIS-SOLVED (UG/L) (39381)
FEB 1999	16...	--	--	--	--	--	--	--	--	--	--	--
MAR 10...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 25...	<.0020	<.0020	<.0030	<.0030	<.0040	<.0100	<.0020	E.0428	<.002	105	<.001	
SEP 08...	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020	<.0020	<.002	90.0	<.001	
DATE		DISUL-FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL-FLUR-ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO-PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	HCH ALPHA D6 SRG WAT FLT 0.7 U GF, REC PERCENT (91065)	LINDANE DIS-SOLVED (UG/L) (39341)	LIN-URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	METHYL AZIN-THION, WAT FLT 0.7 U GF, REC (UG/L) (39532)	METHYL PARA-THION WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARA-THION WAT FLT 0.7 U GF, REC (UG/L) (82667)
FEB 1999	16...	--	--	--	--	--	--	--	--	--	--	--
MAR 10...	--	--	--	--	--	--	--	--	--	--	--	--
AUG 25...	<.0170	<.0020	<.0040	<.0030	<.0030	86.8	<.004	<.0020	<.005	<.0010	<.0060	
SEP 08...	<.0170	<.0020	<.0040	<.0030	<.0030	99.2	<.004	<.0020	<.005	<.0010	<.0060	

E Estimated

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072185 TROUT CREEK NEAR HOWARD, WI (LAT 44 32 10N LONG 088 07 48W)

DATE	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PARA- THION, DIS- SOLVED (UG/L) (39542)	PEB- ULATE WATER FILTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	P, P' DDE DISSOLV (UG/L) (34653)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)
FEB 1999											
16...	--	--	--	--	--	--	--	--	--	--	--
MAR											
10...	--	--	--	--	--	--	--	--	--	--	--
AUG											
25...	<.010	<.004	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030
SEP											
08...	<.002	<.004	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030
DATE	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PROP- CHLOR, WATER, DISS, REC (UG/L) (04024)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)
FEB 1999											
16...	--	--	--	--	--	--	--	--	--	--	--
MAR											
10...	--	--	--	--	--	--	--	--	--	--	--
AUG											
25...	E.0069	<.0040	<.0130	<.0070	.0446	<.0070	<.0100	<.0130	<.0020	<.0010	<.0020
SEP											
08...	<.0180	<.0040	<.0130	<.0070	<.0050	<.0070	<.0100	<.0130	<.0020	<.0010	<.0020

04072233 LANCASTER BROOK AT SHAWANO AVENUE AT HOWARD, WI (LAT 44 33 29N LONG 088 06 10W)

		DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	
FEB 1999	16...	1350	8.4	720	7.6	.2	11.0	725	--	--	4.05	.032
MAR	10...	1445	2.7	835	8.1	.1	12.7	750	--	--	2.37	.013
AUG	25...	1120	.68	733	7.9	19.4	7.7	747	287	237	1.06	<.010
SEP	08...	1030	.60	813	7.4	17.8	7.5	739	284	233	.193	<.010
DATE		NITRO- GEN, AM- MONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC (UG/L) (46342)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)
FEB 1999	16...	.121	1.1	1.0	.116	.085	.064	--	--	--	--	--
MAR	10...	.139	.56	.45	.032	.019	.020	--	--	--	--	--
AUG	25...	<.020	.47	.22	.070	.024	.020	<.0030	<.0020	<.002	<.0020	.129
SEP	08...	<.020	.49	.38	.071	.052	.033	<.0030	<.0020	<.002	<.0020	.023

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072233

LANCASTER BROOK AT SHAWANO AVENUE AT HOWARD, WI (LAT 44 33 29N LONG 088 06 10W)

DATE	BEN- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82673)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DIAZ- INON D10 SRG WAT FLT 0.7 U GF, REC PERCENT (91063)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)
FEB 1999											
16...	--	--	--	--	--	--	--	--	--	--	--
MAR											
10...	--	--	--	--	--	--	--	--	--	--	--
AUG											
25...	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020	E.0604	<.002	110	<.001
SEP											
08...	<.0020	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020	E.0190	<.002	102	<.001
DATE	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS REC (UG/L) (04095)	HCH ALPHA D6 SRG WAT FLT 0.7 U GF, REC PERCENT (91065)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)
FEB 1999											
16...	--	--	--	--	--	--	--	--	--	--	--
MAR											
10...	--	--	--	--	--	--	--	--	--	--	--
AUG											
25...	<.0170	<.0020	<.0040	<.0030	<.0030	87.5	<.004	<.0020	<.005	<.0010	<.0060
SEP											
08...	<.0170	<.0020	<.0040	<.0030	<.0030	101	<.004	<.0020	<.005	<.0010	<.0060
DATE	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	PARA- THION, DIS- SOLVED (UG/L) (39542)	PFB- ULATE WATER FLTRD 0.7 U GF, REC (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	P,P' DDE DISSOLV (UG/L) (34653)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)
FEB 1999											
16...	--	--	--	--	--	--	--	--	--	--	--
MAR											
10...	--	--	--	--	--	--	--	--	--	--	--
AUG											
25...	.013	<.004	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030
SEP											
08...	<.002	<.004	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030
DATE	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PROP- CHLOR, WATER, DISS, REC (UG/L) (04024)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)
FEB 1999											
16...	--	--	--	--	--	--	--	--	--	--	--
MAR											
10...	--	--	--	--	--	--	--	--	--	--	--
AUG											
25...	<.0180	<.0040	<.0130	<.0070	.0203	<.0070	<.0100	<.0130	<.0020	<.0010	<.0020
SEP											
08...	<.0180	<.0040	<.0130	<.0070	<.0050	<.0070	<.0100	<.0130	<.0020	<.0010	<.0020

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

C4C73470

PUCHYAN RIVER AT GREEN LAKE, WI (LAT 43 50 48N LONG 088 57 36W)

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 1998			
01...	1108	11	.022
20...	1340	5.7	.029
NOV			
17...	1135	6.8	.032
JAN 1999			
06...	1345	8.4	.027
29...	0850	33	.026
FEB			
10...	1455	37	.023
26...	1225	50	.032
MAR			
18...	1140	31	.032
APR			
12...	1415	161	.030
20...	1140	146	.021
MAY			
04...	1425	93	.042
JUN			
25...	1304	33	.038
JUL			
07...	1515	58	.034
27...	1210	245	.023
AUG			
20...	1445	50	.023
SEP			
10...	1605	20	.024

C4C85046

APPLE CREEK AT SNIDERVILLE, WI (LAT 44 21 18N LONG 088 11 28W)

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	SOLIDS, RESIDUE AT 105 DEG. C, TOTAL (MG/L) (00500)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
APR 1999									
05...	1410	E45	--	--	--	--	836	--	.251
MAY									
26...	1245	9.8	--	--	--	--	824	--	.153
JUN									
04...	1440	44	--	--	--	--	808	--	.235
09...	1300	E23	--	--	--	--	4760	--	.268
11...	1230	E130	--	--	--	--	826	--	.925
14...	1530	E40	--	--	19.0	--	660	--	.322
JUL									
27...	1500	E4.0	--	--	--	--	--	18	.285
AUG									
12...	1100	E.40	--	--	--	--	594	--	.231
25...	1330	.89	--	--	--	--	570	--	.213
SEP									
08...	1600	.00	1820	7.6	19.4	8.9	--	--	.070

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04085454 MEEME RIVER AT CT HIGHWAY XX NEAR CLEVELAND, WI (LAT 43 55 20N LONG 087 48 45W)

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PH WATER LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 1998									
01...	1238	--	3.6	8.3	--	7900	9	.035	.109
09...	1258	4.7	--	8.4	2.2	1000	8	.047	.169
16...	1210	4.1	--	8.2	1.5	400	5	<.013	.092
22...	1118	3.4	--	8.2	1.5	170	5	.014	.080
28...	1032	3.1	--	8.3	1.9	130	<5	<.013	.092
NOV									
06...	0804	--	3.1	8.3	1.5	440	7	<.013	.052
17...	1135	--	12	8.1	4.9	1900	6	.107	.199
DEC									
02...	0802	--	5.2	8.2	1.1	160	6	.026	.079
19...	1052	--	4.8	8.4	1.3	310	6	.040	.058
29...	0904	3.4	--	7.9	2.0	--	16	.082	.100
JAN 1999									
14...	0846	2.1	--	7.8	1.3	140	16	.155	.111
27...	0826	41	--	7.6	1.8	40	<5	.097	.295
FEB									
09...	0936	34	--	8.1	.3	170	11	.107	.157
23...	0918	--	8.3	8.0	1.4	--	6	.058	.080
MAR									
10...	1442	--	14	8.3	4.3	<10	11	.023	.068
23...	0854	--	E11	8.5	.4	10	6	<.013	.050
APR									
06...	0758	--	41	8.0	2.2	<10	17	.042	.148
21...	0756	--	7.2	8.3	.5	30	<5	.039	.070
MAY									
03...	1458	--	5.2	9.1	1.8	10	5	.013	.084
10...	0936	--	7.2	--	1.1	30	<5	.014	.089
18...	0838	--	27	8.0	<.3	3000	16	.139	.216
24...	1412	--	45	8.1	2.3	4900	25	.073	.253
JUN									
03...	0832	--	31	8.1	3.8	61000	41	.168	.362
07...	1448	--	E190	7.8	3.6	17000	108	.036	.688
15...	1016	--	34	8.0	3.3	410	30	.122	.336
22...	1248	--	5.9	8.5	2.5	280	15	.051	.181
29...	0948	17	--	8.3	3.1	15000	38	.159	.290
JUL									
07...	1610	5.0	--	8.5	3.0	260	11	.035	.234
13...	0636	5.2	--	8.3	1.7	1200	22	.047	.214
19...	1836	22	--	8.0	4.9	E700000	57	.261	.562
28...	1056	4.2	--	8.4	1.6	460	10	.028	.223
AUG									
04...	1315	4.5	--	8.5	1.8	220	15	.021	.223
10...	0732	3.0	--	8.2	.3	290	11	.027	.168
23...	1505	2.6	--	8.4	3.3	200	5	.025	.158
31...	1126	1.9	--	8.2	15	130	7	.022	.136
SEP									
08...	1042	1.6	--	8.4	2.2	800	9	.028	.137
15...	1842	2.5	--	8.5	2.2	230	18	.018	.107
23...	1034	3.6	--	8.3	1.0	580	11	.033	.090
29...	1426	6.9	--	8.2	2.1	44000	13	.075	.158

04085455 MEEME RIVER AT WASHINGTON ROAD NEAR CLEVELAND, W (LAT 43 54 49N LONG 087 48 31W)

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
NOV 1998					
17...		1125	13	5	.095 .188

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

040872015 OAK CREEK TRIBUTARY @ COLLEGE AVE AT MILWAUKEE, W (LAT 42 55 48N LONG 087 53 23W)

DATE	TIME	PH WATER WHOLE LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, CHEM- ICAL (LOW LEVEL) (MG/L) (00335)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOVER -ABLE (MG/L) (00921)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
DEC 1998 20...	2355	8.1	48	<200	110	64	7	1.30	2.8
JAN 1999 17...	1616	7.3	220	47	280	64	11	4.71	14
SEP 27...	0724	7.6	57	10	64	35	178	.292	2.1

DATE	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	CADMIUM TOTAL RECOVER -ABLE (UG/L) (01113)	COPPER, TOTAL RECOVER -ABLE (UG/L) (01119)	LEAD, TOTAL RECOVER -ABLE (UG/L) (01114)	ZINC, TOTAL RECOVER -ABLE (UG/L) (01094)	OIL AND GREASE, TOTAL RECOV. GRAVI- METRIC (MG/L) (00556)	1,2,- ETHANE- DIOL, WATER, UNFLTRD REC (MG/L) (91075)	1,2,- PROP- ANEDIOL WATER, UNFLTRD REC (MG/L) (91080)
DEC 1998 20...	.040	<1	<1	1	<20	2	<18.0	<18.0
JAN 1999 17...	.056	<1	3	2	120	4	<18.0	24.0
SEP 27...	.348	1	12	10	80	<5	<18.0	<18.0

ST. CROIX RIVER BASIN

05340300 TRADE RIVER NEAR FREDRIC, WI (LAT 45 37 41N LONG 092 29 19W)

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
MAY 1999 13...	1230	191	144	7.6	10.6	9.9	53	53

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

WISCONSIN RIVER BASIN

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
05390685 MUSKELLUNGE CREEK NEAR ST. GERMAIN, WI (LAT 45 56 01N LONG 089 25 29W)				
DEC 1998				
02...	1600	5.8	.043	--
JAN 1999				
21...	1620	5.8	.047	.013
FEB				
07...	1320	5.1	.051	.018
22...	1400	5.0	.049	.018
MAR				
04...	1432	5.9	.016	.018
18...	1550	5.7	--	.016
18...	1552	5.7	.046	--
18...	1830	5.8	.043	.019
APR				
01...	1330	9.1	.085	--
15...	1700	6.9	.057	.025
29...	1130	5.8	.073	.020
MAY				
13...	1600	9.9	.101	--
JUN				
15...	1520	6.3	.069	--
JUL				
23...	1130	6.4	.072	.020
05390701 LITTLE SAINT GERMAIN CREEK NEAR EAGLE RIVER, WI (LAT 45 53 55N LONG 089 27 10W)				
JAN 1999				
21...	1300	12	.016	.002
FEB				
07...	1430	12	.019	<.002
22...	1230	6.2	.016	.003
MAR				
04...	1330	6.0	.041	.004
17...	1830	7.1	.025	--
18...	1510	6.7	.027	--
18...	1512	6.7	--	.004
APR				
01...	1520	5.9	.046	--
15...	1635	5.9	.039	.007
29...	1030	8.5	.023	--
29...	1130	8.5	--	.006
MAY				
13...	1645	7.1	.019	--
JUN				
15...	1510	8.3	.026	--
JUL				
22...	1115	7.5	.020	--

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

WISCONSIN RIVER BASIN--CONTINUED

054064509		BLACK EARTH CREEK LOW FLOW #3 NR CROSS PLAINS,WI (LAT 43 05 49N LONG 089 37 32W)									
DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD (UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI, KF AGAR PER (COLS./100 ML) (31673)
APR 1999											
21...	1405	2.9	604	8.5	11.5	3.7	16.2	737	20	E5	--
JUN 28...	1325	2.5	657	8.1	17.5	9.8	9.9	732	13	720	--
JUL 28...	1450	2.8	667	7.9	22.5	14	8.7	741	19	670	--
AUG 27...	0930	2.5	677	7.9	15.0	12	8.6	740	<10	930	620
SEP 22...	1200	1.7	660	8.0	9.0	17	10.6	741	<10	440	--
DATE	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)
APR 1999											
21...	289	--	--	--	--	15	26	<.10	--	--	.014
JUN 28...	317	--	--	--	--	13	24	.11	--	--	.036
JUL 28...	297	--	--	--	--	10	25	<.10	--	--	.064
AUG 27...	--	73	38	12	1.6	14	27	<.10	15	386	.050
SEP 22...	317	--	--	--	--	15	21	<.10	--	--	.033
DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC TOTAL (UG/L AS AS) (01002)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)
APR 1999											
21...	2.24	<.020	.57	.080	E.034	.034	--	--	--	--	--
JUN 28...	2.89	.044	.23	.117	<.050	.067	--	--	--	--	--
JUL 28...	2.91	.028	.44	.160	.078	.086	--	--	--	--	--
AUG 27...	2.78	.047	.47	.148	.068	.064	1	E20	<1	1	<1
SEP 22...	3.83	.038	.28	.105	E.045	.049	--	--	--	--	--
DATE	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	
APR 1999											
21...	--	--	--	--	--	--	--	--	--	13	
JUN 28...	--	--	--	--	--	--	--	--	--	68	
JUL 28...	--	--	--	--	--	--	--	--	--	38	
AUG 27...	2	1100	10	<1	250	193	<.10	2	<40	45	
SEP 22...	--	--	--	--	--	--	--	--	--	44	

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

WISCONSIN RIVER BASIN--CONTINUED

054064509 BLACK EARTH CREEK LOW FLOW #3 NR CROSS PLAINS,WI (LAT 43 05 49N LONG 089 37 32W)

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)
AUG 1999					
27...	0530	677	7.8	16.0	8.1
27...	0600	678	7.9	15.5	8.0
27...	0630	678	7.9	15.5	8.2
27...	0700	678	7.9	15.0	8.2
27...	0730	678	7.9	15.0	8.3
27...	0800	677	7.9	15.0	8.4
27...	0830	678	7.9	15.0	8.4
27...	0900	678	7.9	15.0	8.5
27...	0931	677	7.9	15.0	8.6
27...	1000	677	7.9	15.0	8.6

MISCELLANEOUS WATER-QUALITY DATA, OCTOBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)
OCT 1999 25...	1025	1.9	657	7.9	5.5	22	11.9	741	<10	200	240
DATE	SULFATE DIS- SOLVED (MG/L) AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L) AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L) AS F) (00950)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L) AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L) AS N) (00623)	PHOS- PHORUS TOTAL (MG/L) AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L) AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L) AS P) (00671)	SEDI- MENT, SUS- PENDEED (MG/L) (80154)
OCT 1999 25...	15	21	<.10	.021	3.87	.044	.20	.101	E.035	.032	83

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

515

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

ROCK RIVER BASIN

05427270

KOSHKONONG CREEK NEAR SUN PRAIRIE, WI (LAT 43 08 58N LONG 089 14 13W)

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCHI, KF AGAR (COLS. PER 100 ML) (31673)	
		ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)
APR 1999	21...	0935	11	1140	7.5	10.5	4.5	10.2	737	29	730	--
JUN	29...	1430	8.1	1220	7.3	19.5	3.0	9.7	738	27	2900	--
JUL	28...	1055	7.8	1280	7.7	21.0	4.0	7.6	740	26	3600	--
AUG	20...	0930	6.4	1170	7.7	18.0	1.6	5.8	740	19	E10000	E6000
SEP	21...	1410	4.5	1450	7.7	16.0	1.2	8.0	746	<10	430	E40
DATE	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	
APR 1999	21...	282	--	--	--	29	160	.42	--	--	.048	
JUN	29...	258	--	--	--	23	200	.38	--	--	.161	
JUL	28...	316	--	--	--	30	180	.46	--	--	.114	
AUG	20...	--	70	37	114	6.2	22	190	.43	15	658	.052
SEP	21...	336	--	--	--	31	240	.62	--	--	.097	
DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC TOTAL (UG/L AS AS) (01002)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	
APR 1999	21...	<.050	.195	1.1	1.57	1.60	<.010	--	--	--	--	
JUN	29...	5.16	.225	.32	1.28	<.050	1.26	--	--	--	--	
JUL	28...	8.91	.190	1.1	2.29	2.04	1.90	--	--	--	--	
AUG	20...	5.54	.200	1.0	1.39	1.48	1.32	1	120	<1	<1	
SEP	21...	6.87	.375	1.2	3.23	2.18	2.15	--	--	--	--	
DATE	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	SEDI-MENT, SUS-PENDED (MG/L) (80154)		
APR 1999	21...	--	--	--	--	--	--	--	--	8		
JUN	29...	--	--	--	--	--	--	--	--	5		
JUL	28...	--	--	--	--	--	--	--	--	10		
AUG	20...	6	300	44	<1	370	375	<.10	2	<40	--	
SEP	21...	--	--	--	--	--	--	--	--	15		

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

ROCK RIVER BASIN--CONTINUED

05427270

KOSHKONONG CREEK NEAR SUN PRAIRIE, WI (LAT 43 08 58N LONG 089 14 13W)

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)
AUG 1999					
20...	0530	968	7.4	17.5	4.5
20...	0600	984	7.6	17.5	4.5
20...	0630	1030	7.6	17.5	4.7
20...	0700	1020	7.6	17.5	4.7
20...	0730	1030	7.6	17.5	4.8
20...	0800	1060	7.6	17.5	5.0
20...	0830	1130	7.6	17.5	5.4
20...	0900	1180	7.7	18.0	5.8
20...	0931	1170	7.7	18.0	5.8
20...	1000	1280	7.7	18.5	6.4

MISCELLANEOUS WATER-QUALITY DATA, OCTOBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)
OCT 1999 25...	1335	40	820	8.4	7.0	.63	15.7	744	<10	80	324
DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDEED (MG/L) (80154)
OCT 1999 25...	43	57	.17	.037	3.80	.063	.47	.176	.128	.145	5

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

517

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

ROCK RIVER BASIN--CONTINUED

05427507

KOSHKONONG CREEK NEAR ROCKDALE, WI (LAT 42 57 05N LONG 089 01 37W)

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	TEMPER-ATURE WATER (DEG C) (00010)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (00340)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI, KF AGAR PER (COLS./100 ML) (31673)	
		ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)
APR 1999	20...	1020	106	777	8.0	9.5	15	11.9	738	35	310	--
JUN	29...	1130	87	789	7.8	19.5	36	10.7	740	35	1300	--
JUL	28...	0820	80	796	7.8	24.5	36	6.1	742	36	1000	--
AUG	18...	0930	48	848	8.1	21.0	12	7.2	743	19	830	270
SEP	21...	0930	35	845	8.2	12.0	1.6	9.3	750	<10	700	--
DATE	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	
APR 1999	20...	294	--	--	--	59	40	.16	--	--	.026	
JUN	29...	307	--	--	--	39	48	.16	--	--	.061	
JUL	28...	306	--	--	--	39	45	.14	--	--	.070	
AUG	18...	--	80	46	32	2.6	35	65	.16	13	492	.053
SEP	21...	313	--	--	--	37	67	.18	--	--	.065	
DATE	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, AMMONIA + ORGANIC DIS-SOLVED (MG/L AS N) (00623)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ARSENIC TOTAL (UG/L AS AS) (01002)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)	
APR 1999	20...	4.15	.129	1.1	.445	.110	.103	--	--	--	--	
JUN	29...	4.02	.174	1.0	.376	.197	.153	--	--	--	--	
JUL	28...	3.48	.156	.46	.438	.123	.205	--	--	--	--	
AUG	18...	3.64	.138	.64	.363	.238	.205	4	40	<1	<1	
SEP	21...	3.96	.160	.64	.281	.195	.178	--	--	--	--	
DATE	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI) (01067)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	SEDI-MENT, SUS-PENDED (MG/L) (80154)		
APR 1999	20...	--	--	--	--	--	--	--	--	30		
JUN	29...	--	--	--	--	--	--	--	--	100		
JUL	28...	--	--	--	--	--	--	--	--	184		
AUG	18...	3	1300	E6.1	1	140	83	<.10	3	<40	65	
SEP	21...	--	--	--	--	--	--	--	--	32		

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

ROCK RIVER BASIN--CONTINUED

05427507

KOSHKONONG CREEK NEAR ROCKDALE, WI (LAT 42 57 05N LONG 089 01 37W)

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)
AUG 1999					
18...	0530	835	8.2	22.5	6.9
18...	0600	836	8.2	22.5	6.9
18...	0630	837	8.2	22.0	6.9
18...	0700	841	8.2	22.0	6.9
18...	0730	843	8.2	21.5	7.0
18...	0800	844	8.2	21.5	7.0
18...	0830	846	8.2	21.0	7.0
18...	0900	847	8.1	21.0	7.1
18...	0931	848	8.1	21.0	7.2
18...	1000	849	8.1	21.0	7.2

MISCELLANEOUS WATER-QUALITY DATA, OCTOBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	ANC UNFLTRD TIT 4.5 LAB (MG/L AS CACO3) (90410)
OCT 1999 25...	1335	40	820	8.4	7.0	.63	15.7	744	<10	80	324
DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDEd (MG/L) (80154)
OCT 1999 25...	43	57	.17	.037	3.80	.063	.47	.176	.128	.145	5

[illegible]

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

ROCK RIVER BASIN--CONTINUED

05435980

WEST BRANCH SUGAR RIVER NEAR MT. VERNON, WI (LAT 42 54 47N LONG 089 37 19W)

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)
AUG 1999					
23...	0530	676	8.0	14.0	9.2
23...	0600	674	8.0	14.0	9.1
23...	0630	672	8.0	14.0	9.1
23...	0700	670	8.0	14.0	9.1
23...	0730	669	8.0	14.0	9.1
23...	0800	669	8.0	13.5	9.2
23...	0830	666	8.0	13.5	9.1
23...	0900	654	8.0	14.0	9.2
23...	0931	652	8.0	14.0	9.2
23...	1000	641	8.0	14.0	9.2

MISCELLANEOUS WATER-QUALITY DATA, OCTOBER 1999

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	BARO- METRIC PRES- SURE (MM HG) (00025)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	ANC UNFLTRD LAB (MG/L AS CACO3) (90410)
OCT 1999 27...	0900	14	681	7.9	5.5	6.5	11.1	749	<10	220	284

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS- SOLVED (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHOPHOS- PHORUS DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDEDED (MG/L) (80154)
OCT 1999 27...	22	32	<.10	.019	5.78	<.020	.22	.113	E.048	.042	35

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

ILLINOIS RIVER BASIN

BEGIN- NING DATE	BEGIN- NING TIME	ENDING DATE	ENDING TIME	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)
424519088334101 HONES LAWN SAMPLER AT LAUDERDALE, WI (LAT 42 45 19N LONG 088 33 41W)						
APR 1999						
23...	0800	990423	1500	--	.652	--
424541088334601 LAUD CC #5 DOWNHILL LAWN SAMPLER AT LAUDERDALE, W (LAT 42 45 41N LONG 088 33 46W)						
APR 1999						
09...	1200	990409	1500	--	5.18	--
23...	0800	990423	1500	--	14.3	--
MAY						
12...	0001	990512	0500	--	14.6	--
16...	1700	990517	0300	--	3.91	--
17...	1600	990518	1100	--	.313	--
JUN						
13...	1200	990613	1600	268	5.32	--
JUL						
20...	0200	990720	0600	1400	6.29	--
AUG						
13...	0200	990813	0215	8150	15.4	--
SEP						
26...	1500	990929	0600	1250	4.65	--
424541088334602 LAUD CC #5 UPHILL LAWN SAMPLER AT LAUDERDALE, WI (LAT 42 45 41N LONG 088 33 46W)						
APR 1999						
09...	1200	990409	1500	--	6.61	--
23...	0800	990423	1500	--	4.93	--
JUN						
01...	1200	990601	1600	300	4.18	--
13...	1200	990613	1600	--	4.98	--
JUL						
20...	0200	990720	0600	678	23.2	--
AUG						
13...	0200	990813	0215	--	7.52	--
SEP						
26...	1500	990929	1500	350	4.20	--
424543088334001 ZIELINSKI LAWN SAMPLER AT LAUDERDALE, WI (LAT 42 45 43N LONG 088 33 40W)						
JUN 1999						
01...	1200	990601	1600	1070	1.49	--
AUG						
13...	0200	990813	0215	--	5.03	--
SEP						
26...	1500	990929	1500	--	2.64	--
424603088340201 HENDERSON LAWN SAMPLER AT LAUDERDALE, WI (LAT 42 46 03N LONG 088 34 02W)						
APR 1999						
09...	1200	990409	1500	--	16.6	--
23...	0800	990423	1500	580	.707	--
MAY						
12...	0001	990512	0500	--	16.6	--
16...	1700	990517	0300	246	2.14	--
JUN						
01...	1200	990601	1600	226	1.16	--
13...	1200	990613	1600	274	1.34	--
SEP						
26...	1500	990929	1500	88	1.86	--
424611088334001 PETERSEN LAWN SAMPLER AT LAUDERDALE, WI (LAT 42 46 11N LONG 088 33 40W)						
APR 1999						
23...	0800	990423	1500	4990	3.05	--
MAY						
16...	1700	990517	0300	3560	5.78	--
17...	1600	990518	1100	1270	2.26	.560
JUN						
01...	1200	990601	1600	956	.991	--
13...	1200	990613	1600	1450	1.26	--
AUG						
13...	0200	990813	0215	--	57.9	--
SEP						
26...	1500	990929	1500	152	2.59	--

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

ILLINOIS RIVER BASIN--CONTINUED

BEGIN- NING DATE	BEGIN- NING TIME	ENDING DATE	ENDING TIME	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDEED (MG/L) (00530)	PHOS- TOTAL (MG/L AS P) (00665)
424616088334201 MASON LAWN SAMPLER AT LAUDERDALE, WI (LAT 42 46 16N LONG 088 33 42W)					
SEP 1999 26...	1500	990929	1500	256	3.45
424623088345101 CSANDA LAWN SAMPLER NEAR LAUDERDALE, WI (LAT 42 46 23N LONG 088 34 51W)					
APR 1999 09...	1200	990409	1500	--	23.5
23...	0800	990423	1500	--	12.3
JUN 01...	1200	990601	1600	408	6.64
SEP 26...	1500	990929	1500	126	4.50
424654088343101 YANDEL UPHILL LAWN SAMPLER NEAR LAUDERDALE, WI (LAT 42 46 54N LONG 088 34 31W)					
APR 1999 23...	0800	990423	1500	--	6.54
JUN 01...	1200	990601	1600	352	7.39
JUL 20...	0200	990720	0600	--	1.71
AUG 13...	0200	990813	0215	--	4.67
SEP 26...	1500	990929	1500	206	5.01
424654088343102 YANDEL DOWNHILL LAWN SAMPLER NEAR LAUDERDALE, WI (LAT 42 46 54N LONG 088 34 31W)					
APR 1999 23...	0800	990423	1500	--	30.6
JUN 01...	1200	990601	1600	126	3.11
13...	1200	990613	1600	770	15.8
JUL 20...	0200	990720	0600	--	3.89
SEP 26...	1500	990929	1500	308	1.83
424654088343103 YANDEL OPEN AREA LAWN SAMPLER NEAR LAUDERDALE, W(LAT 42 46 54N LONG 088 34 31W)					
JUN 1999 01...	1200	990601	1600	452	4.10
424654088343104 YANDEL NEAR STAIRS LAWN SAMPLER NEAR LAUDERDALE,W(LAT 42 46 54N LONG 088 34 31W)					
APR 1999 23...	0800	990423	1500	42	.301
MAY 12...	0001	990512	0500	--	10.9
16...	1700	990517	0300	--	1.55
17...	1600	990518	1100	--	1.06
JUN 13...	1200	990613	1600	984	22.8
SEP 26...	1500	990929	1500	--	7.97

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

ILLINOIS RIVER BASIN--CONTINUED

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDEDED (MG/L) (80154)
05545129 FONTANA CREEK SITE D2 AT FONTANA, WI (LAT 42 32 37N LONG 088 34 40W)				
NOV 1997				
18...	1015	2.3	.020	--
MAY 1998				
13...	1145	2.6	.029	--
JUL				
15...	1230	2.2	.026	--
055451295 FONTANA CREEK TRIBUTARY SITE D1 AT FONTANA, WI (LAT 42 32 43N LONG 088 34 34W)				
NOV 1997				
18...	0930	1.7	.021	--
MAY 1998				
13...	1055	1.9	.031	--
JUL				
15...	1200	1.4	.037	2
055451302 LAKE GENEVA TRIBUTARY SITE C AT FONTANA, WI (LAT 42 33 08N LONG 088 34 22W)				
NOV 1997				
18...	0820	.27	.028	--
MAY 1998				
13...	1020	.32	.048	--
055451305 LAKE GENEVA TRIBUTARY SITE G AT FONTANA, WI (LAT 42 32 46N LONG 088 33 38W)				
NOV 1997				
18...	1140	--	.041	--
MAY 1998				
13...	1345	.42	.041	--
055451306 LAKE GENEVA TRIBUTARY SITE B AT FONTANA, WI (LAT 42 33 29N LONG 088 34 10W)				
MAY 1998				
13...	0945	.18	.031	--
055451307 LAKE GENEVA TRIBUTARY SITE A AT FONTANA, WI (LAT 42 33 35N LONG 088 33 58W)				
NOV 1997				
08...	0720	.75	.022	--
MAY 1998				
13...	0900	.68	.029	--
JUL				
15...	1034	.69	.029	1
055451308 LAKE GENEVA TRIBUTARY SITE H NEAR FONTANA, WI (LAT 42 32 57N LONG 088 32 09W)				
NOV 1997				
18...	1230	--	.041	--
MAY 1998				
14...	1430	.49	.043	--
JUL				
15...	1334	.14	.076	38
05545132 LAKE GENEVA TRIBUTARY SITE Q AT WILLIAMS BAY, WI (LAT 42 34 46N LONG 088 32 00W)				
MAY 1998				
14...	0730	.67	.026	--
JUN				
26...	1330	1.3	.034	--
055451321 LAKE GENEVA TRIBUTARY SITE I NEAR FONTANA, WI (LAT 42 33 00N LONG 088 31 45W)				
MAY 1998				
14...	1415	.15	.055	--

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

ILLINOIS RIVER BASIN--CONTINUED

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
055451322 LAKE GENEVA TRIBUTARY SITE J NEAR FONTANA, WI (LAT 42 33 01N LONG 088 31 27W)				
NOV 1997				
18...	1400	--	.025	--
MAY 1998				
14...	1350	.37	.035	--
055451323 LAKE GENEVA TRIBUTARY SITE K NEAR LAKE GENEVA, W(LAT 42 33 03N LONG 088 31 02W)				
MAY 1998				
14...	1330	--	.055	--
055451332 LAKE GENEVA TRIBUTARY SITE P NEAR LAKE GENEVA, W(LAT 42 34 23N LONG 088 28 28W)				
MAY 1998				
13...	1812	.66	.053	--
JUL				
15...	1625	--	.039	0
055451333 LAKE GENEVA TRIBUTARY SITE L NEAR LAKE GENEVA, W(LAT 42 33 33N LONG 088 28 07W)				
NOV 1997				
18...	1500	--	.036	--
MAY 1998				
14...	1255	--	.071	--
055451334 LAKE GENEVA TRIBUTARY SITE M NEAR LAKE GENEVA, W(LAT 42 33 27N LONG 088 27 56W)				
NOV 1997				
18...	1515	.30	.052	--
MAY 1998				
14...	1145	1.3	.106	--
055451335 LAKE GENEVA TRIBUTARY SITE N NEAR LAKE GENEVA, W(LAT 42 33 28N LONG 088 27 48W)				
MAY 1998				
14...	1130	.20	.061	--
055451337 LAKE GENEVA TRIBUTARY SITE O NEAR LAKE GENEVA, W(LAT 42 33 59N LONG 088 26 15W)				
NOV 1997				
18...	1600	.32	.068	--
MAY 1998				
14...	1015	1.2	.075	--
JUN				
26...	1154	7.2	.495	--
30...	1015	--	1.05	--
JUL				
15...	1440	.28	.930	251

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

ILLINOIS RIVER BASIN--CONTINUED

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDEDED (MG/L) (80154)
05545129 FONTANA CREEK SITE D2 AT FONTANA, WI (LAT 42 32 37N LONG 088 34 40W)				
APR 1999				
09...	1420	4.0	.027	2
23...	1200	5.4	.053	10
JUN				
14...	1515	5.0	.033	--
SEP				
16...	0945	4.6	.022	52
055451295 FONTANA CREEK TRIBUTARY SITE D1 AT FONTANA, WI (LAT 42 32 43N LONG 088 34 34W)				
APR 1999				
09...	1345	2.2	.032	18
23...	1115	3.7	.058	101
JUN				
14...	1450	2.0	.039	--
SEP				
16...	0920	2.0	.015	54
055451303 LAKE GENEVA TRIBUTARY SITE E AT FONTANA, WI (LAT 42 32 43N LONG 088 34 07W)				
SEP 1999				
16...	1015	.02	.012	21
055451304 LAKE GENEVA TRIBUTARY SITE F AT FONTANA, WI (LAT 42 32 44N LONG 088 33 54W)				
SEP 1999				
16...	1035	.02	.094	31
055451307 LAKE GENEVA TRIBUTARY SITE A AT FONTANA, WI (LAT 42 33 35N LONG 088 33 58W)				
APR 1999				
09...	1520	.96	.019	8
23...	1240	1.5	.022	10
JUN				
14...	1600	1.2	.028	--
SEP				
15...	1300	1.1	.017	48
055451308 LAKE GENEVA TRIBUTARY SITE H NEAR FONTANA, WI (LAT 42 32 57N LONG 088 32 09W)				
SEP 1999				
15...	1435	.08	.113	64
05545132 LAKE GENEVA TRIBUTARY SITE Q AT WILLIAMS BAY, WI (LAT 42 34 46N LONG 088 32 00W)				
SEP 1999				
15...	1315	.18	.018	53
055451333 LAKE GENEVA TRIBUTARY SITE L NEAR LAKE GENEVA, W (LAT 42 33 33N LONG 088 28 07W)				
SEP 1999				
16...	1115	<.10	.061	--
055451334 LAKE GENEVA TRIBUTARY SITE M NEAR LAKE GENEVA, W (LAT 42 33 27N LONG 088 27 56W)				
SEP 1999				
16...	1150	.59	.052	18
055451335 LAKE GENEVA TRIBUTARY SITE N NEAR LAKE GENEVA, W (LAT 42 33 28N LONG 088 27 48W)				
SEP 1999				
16...	1130	.36	.075	92

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

ILLINOIS RIVER BASIN--CONTINUED

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
055451337 LAKE GENEVA TRIBUTARY SITE O NEAR LAKE GENEVA, W(LAT 42 33 59N LONG 088 26 15W)				
APR 1999				
09...	1210	2.0	.097	10
23...	1030	11	.090	13
MAY				
10...	1105	.95	.078	7
17...	1330	7.1	.114	8
JUN				
09...	1240	.70	.271	29
14...	1400	14	.300	21
JUL				
15...	1200	.05	.955	186
23...	1830	.65	.834	161
AUG				
16...	1455	.07	.659	173
SEP				
15...	1245	--	.424	34

MISCELLANEOUS WATER-QUALITY DATA, OCTOBER 1999

DATE	TIME	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT 1999			
05...	1620	.085	3

QUALITY OF GROUND WATER

STATION	NUMBER	LOCAL IDENT- I- PIER	GEO- LOGIC UNIT	DATE	DEPTH OF WELL, TOTAL (FEET) (72008)	N15/N14 NO3 FRAC WATER FLTRD 0.45 U PER MIL (82690)
MENOMINEE COUNTY						
450049088532601	ME-29/13E/11-0238		100SDGV	02-03-99	86.00	6.8

GROUND-WATER RECORDS

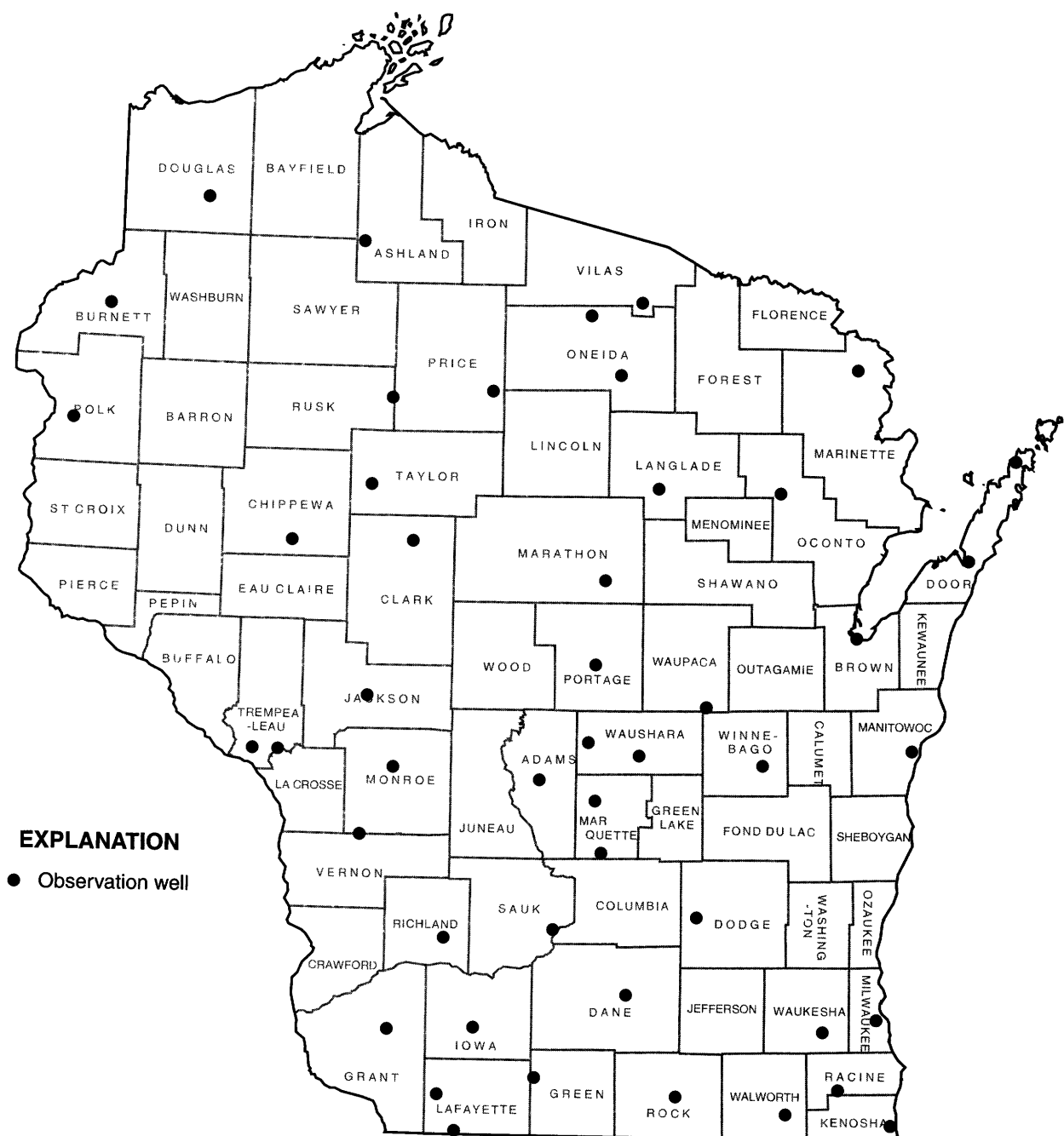


Figure 6. Location of observation wells in Wisconsin.

GROUND-WATER LEVELS
ADAMS COUNTY

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435759089490001. Local number, AD-17/06E/08-0076.

LOCATION.--Lat 43°57'59", long 89°49'00", Hydrologic Unit 07070003. Owner: Wis. Dept. of Natural Resources.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 1 1/4 in., depth 21 ft, cased to 19 ft, well point 19-21 ft.

INSTRUMENTATION.--Water level measured weekly by observer.

DATUM.--Elevation of land-surface datum is 955 ft above sea level. Measuring point: top of casing, 1.50 ft above land-surface datum.

PERIOD OF RECORD.--September 1969 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.69 ft below land-surface datum. May 29, 1973; lowest water level measured, 18.14 ft below land-surface datum, Mar. 7, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 5	14.20	DEC 7	15.01	FEB 15	15.25	APR 13	14.35	JUN 7	14.05	AUG 9	13.59
12	14.35	14	15.00	22	15.20	19	14.17	21	14.98	16	13.97
19	14.50	21	15.17	MAR 1	15.02	26	13.90	28	14.90	23	13.40
26	14.60	28	15.19	8	15.00	MAY 3	14.06	JUL 7	14.90	31	13.80
NOV 2	14.64	JAN 4	15.35	15	14.99	10	13.83	12	14.62	SEP 8	13.70
9	14.72	11	15.41	22	14.98	17	13.93	19	14.59	16	14.17
16	14.49	19	15.59	29	14.97	24	13.74	26	13.15	21	14.60
23	14.59	FEB 1	15.60	APR 5	14.85	JUN 1	14.20	AUG 2	13.35	29	14.60
30	14.70	8	15.72								

ASHLAND COUNTY

460936090531701. Local number, AS-43/04W/32-0006.

LOCATION.--Lat 46°09'36", long 90°53'17", Hydrologic Unit 07050001. Owner: U.S. Forest Service.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 5 in., depth 89 ft.

INSTRUMENTATION.--Water level measured monthly by observer.

DATUM.--Elevation of land-surface datum is 1,470 ft above sea level. Measuring point: top of hole in pump base, at land-surface datum.

PERIOD OF RECORD.--August 1957 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.40 ft below land-surface datum, Mar. 25, 1985; lowest water level measured, 32.35 ft below land-surface datum, Apr. 1, 1964.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 16	28.50	JAN 14	29.10	MAR 19	30.40	MAY 20	28.40	JUL 15	29.10	SEP 9	29.84

GROUND-WATER LEVELS
BROWN COUNTY

443228088003101. Local number, BN-24/20E/24-0076.

LOCATION.--Lat 44°32'28", long 88°00'31", Hydrologic Unit 04030204. Owner: Wisconsin Public Service Corp.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 5 in., depth 500 ft, cased to 150 ft, open end.

INSTRUMENTATION.--Water level measured monthly by observer.

DATUM.--Elevation of land-surface datum is 590 ft above sea level. Measuring point: top of 3-in. pipe, 4.00 ft above land-surface datum.

PERIOD OF RECORD.--April 1950 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 41.24 ft below land-surface datum, May 3, 1961; lowest water level measured, 248.97 ft below land-surface datum, Aug. 30, 1955.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	147.40	JAN 19	139.65	APR 13	136.50	JUN 16	142.20	JUL 13	144.50	AUG 3	149.60
DEC 2	145.20	MAR 3	136.95								

BURNETT COUNTY

455224092215601. Local number, BT-39/16W/17-0002.

LOCATION.--Lat 45°52'24", long 92°21'56", Hydrologic Unit 07030001. Owner: Wis. Dept. of Natural Resources.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 8 in., depth 46 ft, cased to 46 ft, perforated 44 1/2-46 ft.

INSTRUMENTATION.--Water level measured weekly by observer.

DATUM.--Elevation of land-surface datum is 981 ft above sea level. Measuring point: pointer on float gage, 4.87 ft above land-surface datum.

PERIOD OF RECORD.--May 1937 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 30.33 ft below land-surface datum, June 28, 1968; lowest water level measured, 37.90 ft below land-surface datum, Aug. 21, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	32.52	DEC 4	32.57	FEB 5	32.60	APR 9	32.73	JUN 11	32.48	AUG 6	32.30
9	32.51	11	32.52	12	32.61	16	32.75	18	32.50	13	32.27
16	32.47	18	32.54	19	32.71	23	32.80	25	32.37	20	32.29
23	32.38	25	32.55	26	32.62	30	32.67	JUL 2	32.38	27	32.31
30	32.45	JAN 1	32.55	MAR 5	32.74	MAY 7	32.66	9	32.32	SEP 3	32.30
NOV 6	32.49	8	32.52	12	32.72	14	32.67	16	32.34	10	32.39
13	32.50	15	32.54	19	32.71	21	32.55	23	32.33	17	32.37
20	32.50	22	32.60	26	32.72	28	32.55	30	32.25	24	32.37
27	32.48	29	32.66	APR 2	32.68	JUN 4	32.49				

GROUND-WATER LEVELS
CHIPPEWA COUNTY

531

445544091155701. Local number, CH-28/07W/17-0142.

LOCATION.--Lat 44°55'44", long 91°15'57", Hydrologic Unit 07050005. Owner: Wis. Dept. of Transportation.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled domestic artesian well, diameter 6 in., depth 60 ft, cased to 39 ft, open end.

INSTRUMENTATION.--Water level measured weekly by observer.

DATUM.--Elevation of land-surface datum is 965 ft above sea level. Measuring point: 1/4-in. hole in top of casing, 2.20 ft above land-surface datum.

PERIOD OF RECORD.--January 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.97 ft below land-surface datum, Oct. 28, 1986; lowest water level measured, 33.46 ft below land-surface datum, Jan. 10, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 14	29.08	JAN 15	29.26	MAR 15	29.82	MAY 19	30.21	JUL 14	29.89	SEP 12	29.98
DEC 15	29.55	FEB 15	29.71	APR 14	30.15	JUN 15	30.12	AUG 14	29.90		

CLARK COUNTY

445619090335201. Local number, CK-28/02W/01-0509.

LOCATION.--Lat 44°565'19", long 90°33'52", Hydrologic Unit 07050006. Owner: Richard Laube.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled domestic artesian well, diameter 5 in., depth 40 ft.

INSTRUMENTATION.--Water level measured by observer.

DATUM.--Elevation of land-surface datum is 1,265 ft above sea level. Measuring point: casing cap, 5 ft below land-surface datum.

PERIOD OF RECORD.--July 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.33 ft below land-surface datum, Oct. 27, 1986; lowest water level measured, 24.98 ft below land-surface datum, Feb. 28, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 31	23.43	JAN 30	23.51	FEB 27	23.59	AUG 20	23.88	SEP 15	24.09

**GROUND-WATER LEVELS
DANE COUNTY**

430456089190601. Local number, DN-07/10E/09-0105.

LOCATION.--Lat 43°04'56", long 89°19'06", Hydrologic Unit 07070005. Owner: City of Madison.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 10 in., depth 380 ft, cased to 85 ft, open end.

INSTRUMENTATION.--Continuous water-level recorder.

DATUM.--Elevation of land-surface datum is 870 ft above sea level. Measuring point: top of casing, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--September 1974 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.91 ft below land-surface datum, July 11, 1993; lowest water level measured, 32.35 ft below land-surface datum, May 27, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	28.10	28.21	27.50	27.80	28.35	27.29	27.27	24.96	25.32	25.98	27.33	26.69
10	27.14	27.33	28.05	27.58	28.31	27.40	27.60	25.42	25.87	26.52	25.96	26.68
15	27.83	27.28	27.51	28.46	27.00	27.87	26.72	25.62	25.37	27.34	25.72	27.90
20	27.18	27.55	27.16	28.33	27.52	28.09	26.43	24.83	24.83	26.67	26.81	27.04
25	27.66	27.53	26.80	27.58	27.41	28.26	25.10	25.08	25.95	26.42	26.08	27.12
EOM	27.19	26.89	28.40	28.17	26.80	28.48	25.26	25.31	26.00	27.11	26.23	26.78
WY 1999	MAX	28.84	APR 1	MIN	24.58	MAY 23						

DODGE COUNTY

432407088552701. Local number, DG-11/13E/23-0081.

LOCATION.--Lat 43°24'15", long 88°55'26", Hydrologic Unit 07090002. Owner: Wis. Dept. of Transportation.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth 125 ft, cased to 57 ft, open end.

INSTRUMENTATION.--Water level measured bi-monthly by observer.

DATUM.--Elevation of land-surface datum is 880 ft above sea level. Measuring point: 1/4-in. hole in side of casing, 1.30 ft above land-surface datum.

PERIOD OF RECORD.--November 1964 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.00 ft below land-surface datum, Dec. 4, 1991; lowest water level measured, 26.67 ft below land-surface datum, Feb. 3, 1965.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 14	19.72	DEC 28	20.89	MAR 9	19.03	APR 29	17.59	JUN 9	18.28	AUG 18	19.14
NOV 17	20.17	JAN 25	20.02								

GROUND-WATER LEVELS
DOOR COUNTY

533

451518087042601. Local number, DR-32/28E/15-0317.

LOCATION.--Lat 44°15'18", long 87°04'26", Hydrologic Unit 04030102. Owner: Town of Liberty.

AQUIFER.--Silurian dolomite.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 4 in., depth 155 f, cased to 153 ft.

INSTRUMENTATION.--Water level measured by observer.

DATUM.--Elevation of land-surface datum is 580 ft above sea level. Measuring point: top of casing, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--June 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 30.70 ft below land-surface datum, Mar. 27, 1986; lowest water level measured, 43.93 ft below land-surface datum, Jan. 2, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	43.87	JAN 5	42.50	MAR 2	36.50	MAY 6	39.14	JUL 7	41.00	SEP 3	42.39
NOV 2	43.87	FEB 2	39.07	APR 5	38.26	JUN 2	39.88	AUG 4	40.71		

445055087213801. Local number, DR-27/26E/05-0265

LOCATION.--Lat 44°50'55", long 87°21'38", Hydrologic Unit 04030102. Owner: U.S. Geol. Survey.

AQUIFER.--Silurian dolomite.

WELL CHARACTERISTICS.--Drilled observation, diameter 6 in., depth 442 ft, cased to 170 ft, open end.

INSTRUMENTATION.--Water level measured by observer.

DATUM.--Elevation of land-surface datum is 616 ft above sea level. Measuring point: top of casing, 1.57 ft above land-surface datum.

REMARKS.--Water level affected by pumping of nearby wells.

PERIOD OF RECORD.--September 1971 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, -3.49 ft above land-surface datum, Apr. 20, 1972; lowest water level, 35.33 ft below land-surface datum, Feb. 1, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 8	28.34	FEB 20	33.70	MAR 25	26.55	MAY 5	23.26	JUN 20	28.39	AUG 25	29.22
NOV 6	19.51	25	32.29	APR 5	25.49	10	24.79	JUL 5	28.39	SEP 2	29.47
DEC 15	20.47	MAR 5	30.95	15	26.69	20	23.44	15	28.37	5	29.92
FEB 5	29.42	15	29.01	25	24.67	JUN 5	28.42	AUG 10	28.49		

GROUND-WATER LEVELS
DOUGLAS COUNTY

461921091484201. Local number, DS-44/12W/01-0327.

LOCATION.--Lat 46°19'21", long 91°48'42", Hydrologic Unit 04010301. Owner: Wis. Dept. of Natural Resources.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 6 in., depth 148 ft, cased to 145 ft.

INSTRUMENTATION.--Water level measured by observer.

DATUM.--Elevation of land-surface datum is 1,090 ft above sea level. Measuring point: hole in pump base, 4.33 ft above land-surface datum.

PERIOD OF RECORD.--June 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 72.16 ft above land-surface datum, Dec. 28, 1972; lowest water level measured, 81.05 ft below land-surface datum, July 7, 1971.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 4	78.56	JAN 4	78.63	MAR 1	78.71	MAY 1	78.77	JUN 30	78.20	SEP 2	77.39
30	79.57	FEB 1	78.56	APR 1	78.55	JUN 1	78.79				

**GROUND-WATER LEVELS
GRANT COUNTY**

535

425551090391301. Local number, GR-05/02W/06-0005.

LOCATION.--Lat 42°55'51", long 90°39'13", Hydrologic Unit 07060003. Owner: Homer Yelinek.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 5 in., depth 35 ft, cased to 5 ft, open end.

INSTRUMENTATION.--Water level measured monthly by observer.

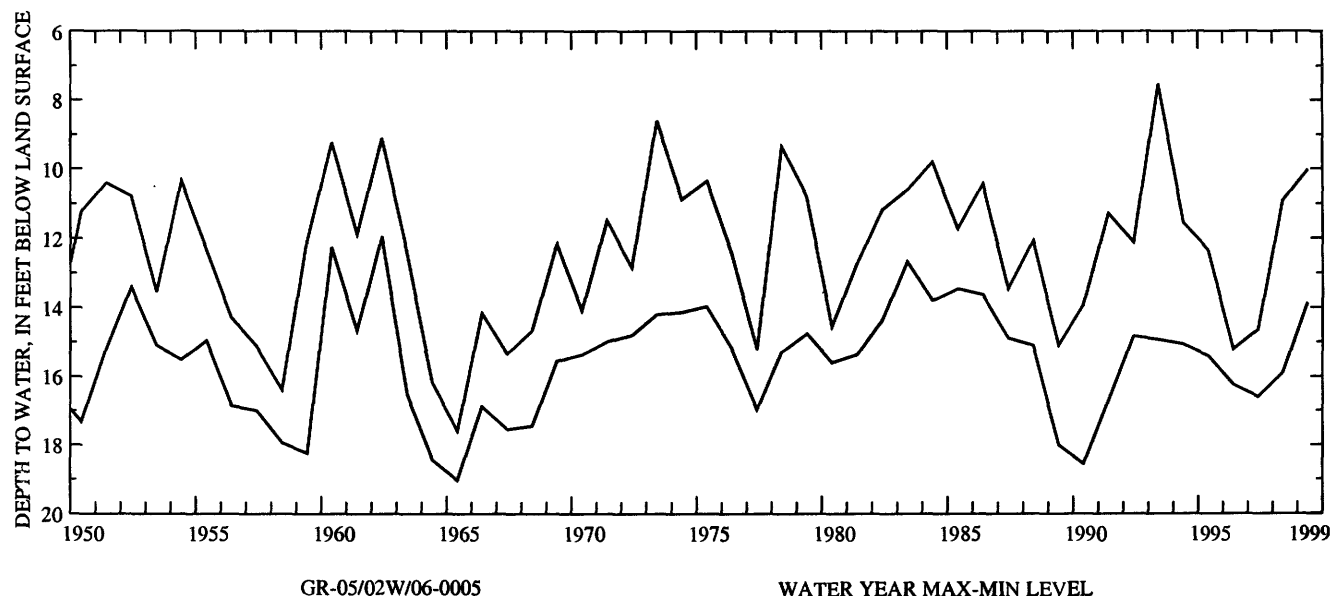
DATUM.--Elevation of land-surface datum is 980 ft above sea level. Measuring point: edge of pump base, 0.50 ft above land-surface datum.

PERIOD OF RECORD.--July 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.52 ft below land-surface datum, July 22, 1993; lowest water level measured, 19.03 ft below land-surface datum, Aug. 17, 1965.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 20	12.30	DEC 14	13.41	FEB 23	13.87	APR 7	12.04	JUL 30	11.37	SEP 22	13.41
NOV 12	12.60	JAN 28	12.94	MAR 17	13.32	JUN 15	10.03	AUG 25	11.93		



[illegible]

GROUND-WATER LEVELS KENOSHA COUNTY

423214087503801. Local number, KE-01/22E/13-0046.

LOCATION.--Lat 42°32'14", long 87°50'38", Hydrologic Unit 04040002. Owner: St. Joseph Home.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled well, diameter 6 in., depth 135 ft, cased to 82 ft, open end.

INSTRUMENTATION.--Water level measured by observer.

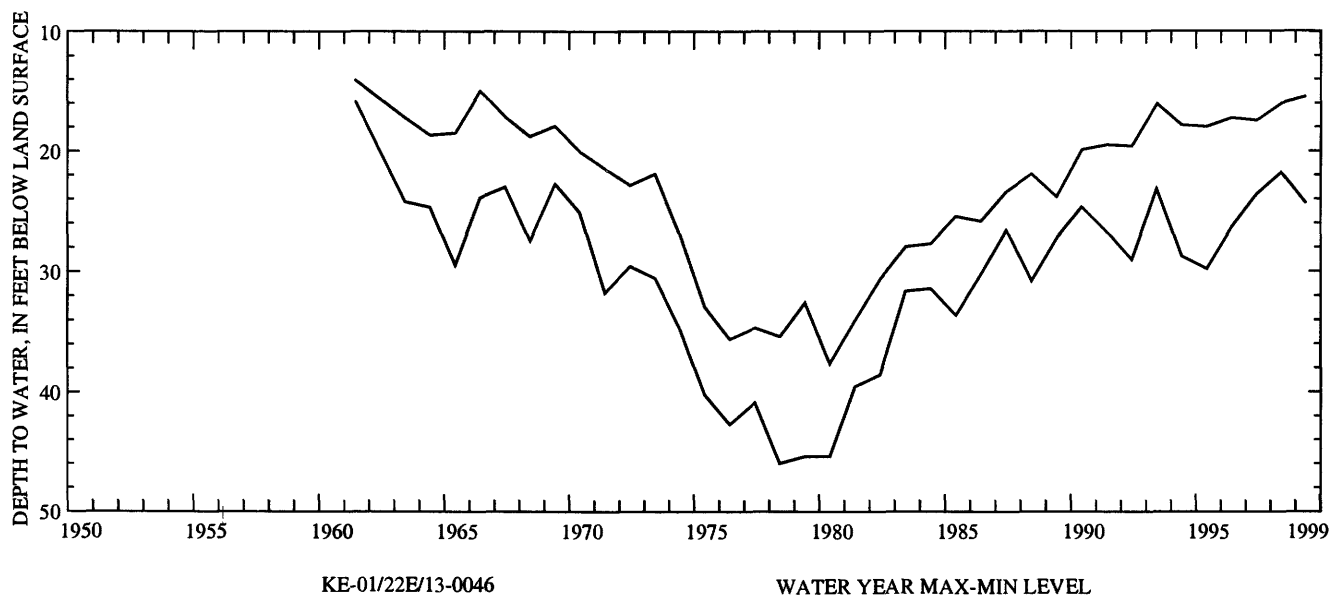
DATUM.--Elevation of land-surface datum is 645 ft above sea level. Measuring point: top of casing, 1.60 ft above land-surface datum.

PERIOD OF RECORD.--January 1961 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.00 ft below land-surface datum, Mar. 16, 1961; lowest water level measured, 46.02 ft below land-surface datum, June 6, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	20.06	DEC 7	19.38	FEB 1	17.91	MAR 29	17.71	MAY 17	16.02	JUL 6	21.02
19	19.68	14	18.48	8	19.15	APR 5	17.33	24	15.44	12	22.41
26	19.79	21	18.53	16	18.55	12	17.43	30	16.56	19	21.25
NOV 2	18.96	28	18.55	22	18.17	19	17.45	JUN 7	18.91	26	24.35
9	19.05	JAN 3	18.64	MAR 1	18.87	26	15.67	14	16.90	AUG 2	23.45
16	19.12	11	18.71	8	18.27	MAY 3	15.63	21	17.47	9	22.95
23	19.29	18	18.99	15	17.73	10	17.23	28	19.89	16	21.63
30	19.40	25	18.24	22	17.78						



[illegible]

GROUND-WATER LEVELS LANGLADE COUNTY

450933089084801. Local number, LA-31/11E/20-0064.

LOCATION.--Lat 45°09'33", long 89°08'48", Hydrologic Unit 07070002. Owner: Wis. Dept. of Natural Resources.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 2 in., depth 20 ft, cased to 18 ft, well point 18-20 ft.

INSTRUMENTATION.--Water level measured weekly by observer.

DATUM.--Elevation of land-surface datum is 1,508 ft above sea level. Measuring point: top of collar on casing, 0.30 ft above land-surface datum.

PERIOD OF RECORD.--July 1948 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.40 ft below land-surface datum, June 21, 1993; lowest water level measured, 16.46 ft below land-surface datum, Jan. 31, 1949.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

		WATER				WATER				WATER							
DATE		LEVEL		DATE		LEVEL		DATE		LEVEL		DATE		LEVEL			
OCT	7	14.60	DEC	12	14.83	FEB	8	15.32	APR	12	14.30	JUN	14	13.92	AUG	9	13.40
	14	14.62		19	14.93		15	15.30		19	14.13		21	14.01		16	13.42
	21	14.70		26	14.85		22	15.17		26	14.09		JUL 5	14.02		23	13.57
	28	14.71		JAN 5	14.77		MAR 1	15.36		MAY 11	13.93		12	13.60		30	13.67
NOV	1	14.73		12	15.14		8	15.38		17	13.85		19	13.40	SEP	5	13.76
	8	14.70		19	15.13		15	15.47		24	13.76		24	13.40		12	13.90
	20	14.63		26	15.10		29	15.01		31	13.75		26	13.35		19	13.92
	28	14.70		FEB 1	15.32		APR 5	14.67		JUN 7	13.81		AUG 2	13.42		26	14.00
DEC	5	14.78															

GROUND-WATER LEVELS
MANITOWOC COUNTY

541

440430087420401. Local number, MN-19/23E/35-0028.

LOCATION.--Lat 44°04'30", long 87°42'04", Hydrologic Unit 04030101. Owner: Wis. Dept. of Transportation.

AQUIFER.--Silurian dolomite.

WELL CHARACTERISTICS.--Drilled domestic artesian well, diameter 6 in., depth 147 ft, cased to 133 ft, open end.

INSTRUMENTATION.--Water level measured weekly by observer.

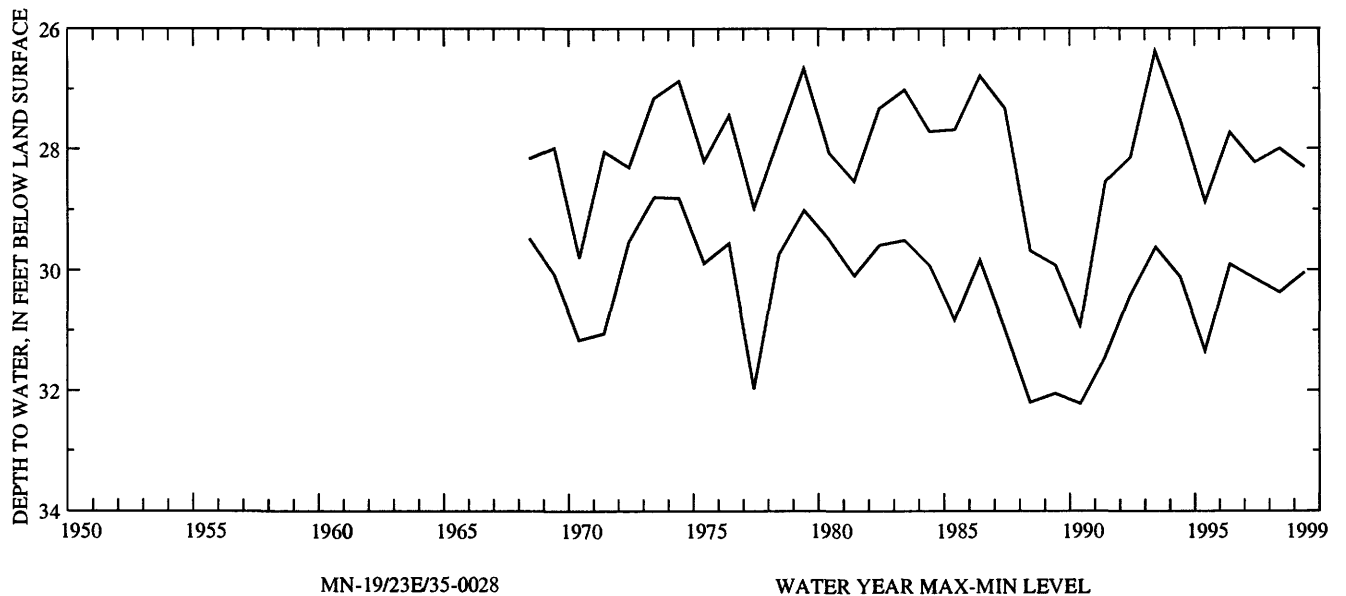
DATUM.--Elevation of land-surface datum is 670 ft above sea level. Measuring point: 1/4-in. hole in pump base, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--June 1968 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.37 ft below land-surface datum, May 4, 1993; lowest water level measured, 32.22 ft below land-surface datum, Dec. 28, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	29.31	FEB 24	28.65	MAY 11	29.14	JUN 22	28.55	AUG 4	28.95	SEP 7	29.73
13	29.30	APR 14	28.79	18	28.82	29	28.34	10	29.08	14	29.73
20	29.39	20	28.84	JUN 2	28.69	JUL 6	28.67	18	29.17	21	30.04
26	29.39	24	28.90	8	28.55	14	28.85	24	29.30	28	29.71
NOV 3	29.40	MAY 5	29.13	15	28.30	27	28.88	SEP 2	29.52		



**GROUND-WATER LEVELS
MARATHON COUNTY**

444709089265301. Local number, MR-27/09E/31-0028.

LOCATION.--Lat 44°47'09", long 89°26'53", Hydrologic Unit 07070002. Owner: U.S. Geol. Survey.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 1 1/4 in., depth 27 ft, cased to 25 ft, well point 25-27 ft.

INSTRUMENTATION.--Water level measured weekly by observer.

DATUM.--Elevation of land-surface datum is 1,229 ft above sea level. Measuring point: top of pipe, 0.80 ft above land-surface datum.

PERIOD OF RECORD.--November 1944 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.18 ft below land-surface datum, Aug. 1, 1993; lowest water level measured, 26.09 ft below land-surface datum, Mar. 30, 1959.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 4	19.63	NOV 22	19.98	JAN 10	20.38	FEB 28	20.83	APR 18	20.94	MAY 30	21.02
11	19.69	29	20.04	17	20.43	MAR 7	20.89	25	20.98	JUN 5	21.05
18	19.72	DEC 6	20.08	24	20.54	14	20.96	MAY 2	21.02	13	21.07
25	19.78	13	20.16	31	20.57	21	20.73	9	21.02	JUL 20	22.03
NOV 1	19.79	20	20.20	FEB 7	20.65	28	20.71	16	21.02	AUG 16	21.87
8	20.17	27	20.26	14	20.71	APR 4	20.84	23	21.02	SEP 25	22.40
15	19.92	JAN 3	20.32	21	20.80	11	20.87				

GROUND-WATER LEVELS
MARINETTE COUNTY

543

453816087590101. Local number, MT-37/20E/34-0007.

LOCATION.--Lat 45°38'16", long 87°59'01", Hydrologic Unit 04030108. Owner: Wis. Dept. of Natural Resources.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in., depth 33 ft, cased to 33 ft, open end.

INSTRUMENTATION.--Water level measured weekly by observer.

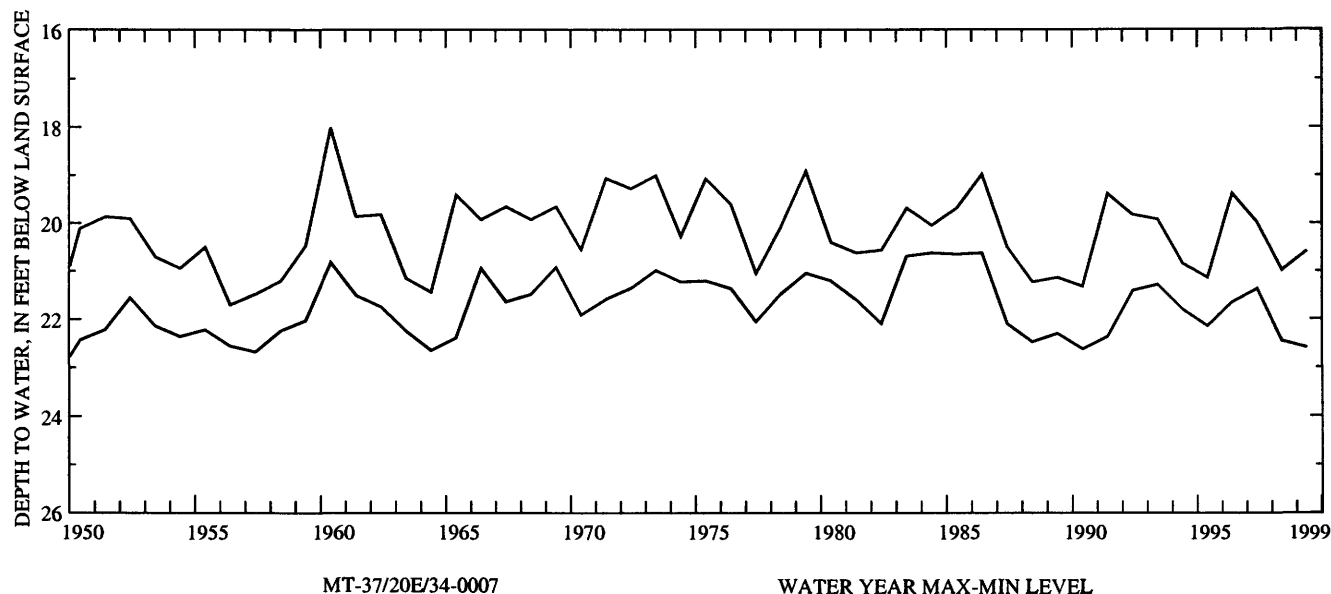
DATUM.--Elevation of land-surface datum is 980 ft above sea level. Measuring point: pointer on float gage, 4.00 ft above land-surface datum.

PERIOD OF RECORD.--March 1939 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.01 ft below land-surface datum, May 17, 1960; lowest water level measured, 23.26 ft below land-surface datum, Nov. 2, 1948.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	22.39	DEC 1	22.35	JAN 26	22.59	MAR 30	22.23	JUN 1	21.13	AUG 3	20.67
15	22.40	8	22.40	FEB 2	22.59	APR 13	21.68	8	21.11	10	20.74
20	22.42	15	22.46	9	22.59	19	21.61	15	21.06	17	20.61
26	22.46	22	22.50	16	22.50	27	21.61	22	21.10	24	20.71
NOV 3	22.46	29	22.53	MAR 2	22.47	MAY 4	21.68	29	21.22	SEP 7	20.97
10	22.50	JAN 6	22.53	9	22.54	11	21.50	JUL 6	21.10	14	21.07
17	22.42	19	22.56	16	22.55	18	21.37	20	20.60	22	21.18
24	22.35	23	22.47	23	22.41	25	21.16	27	20.58	28	21.27



GROUND-WATER LEVELS
MARQUETTE COUNTY

435244089293401. Local number, MQ-16/08E/12-0009.

LOCATION.--Lat 43°52'44", long 89°29'34", Hydrologic Unit 04030201. Owner: Village of Westfield.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth 274 ft.

INSTRUMENTATION.--Water level measured bi-monthly by observer.

DATUM.--Elevation of land-surface datum is 880 ft above sea level. Measuring point: top of casing, at land-surface datum.

PERIOD OF RECORD.--October 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.15 ft below land-surface datum, July 13, 1993; lowest water level measured, 19.69 ft below land-surface datum, Jan. 25, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	16.01	JAN 25	19.69	APR 29	14.92	JUN 9	15.02	SEP 8	14.26

433956089275601. Local number, MQ-14/09E/30-0026.

LOCATION.--Lat 43°39'56", long 89°27'56", Hydrologic Unit 04030201. Owner: Leslie Mountford.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in., depth 170 ft, cased to 145 ft, open end.

INSTRUMENTATION.--Water level measured bi-monthly by observer.

DATUM.--Elevation of land-surface datum is 800 ft above sea level. Measuring point: 1/4-in. hole in cap of casing, 0.75 ft above land-surface datum.

PERIOD OF RECORD.--May 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.80 ft below land-surface datum, Apr. 2, 1973; lowest water level measured, 19.22 ft below land-surface datum, Feb. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 18	17.10	JAN 25	16.96	APR 29	15.96	JUN 8	14.94	JUL 20	15.71	SEP 7	16.12

**GROUND-WATER LEVELS
MILWAUKEE COUNTY**

545

425613088014301. Local number, ML-06/21E/32-0148.

LOCATION.--Lat 42°56'13", long 88°01'43", Hydrologic Unit 04040002. Owner: Milwaukee County.

AQUIFER.--Silurian dolomite.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 5 in., depth 180 ft, cased to 43 ft, open end.

INSTRUMENTTION.--Water level measured monthly by observer.

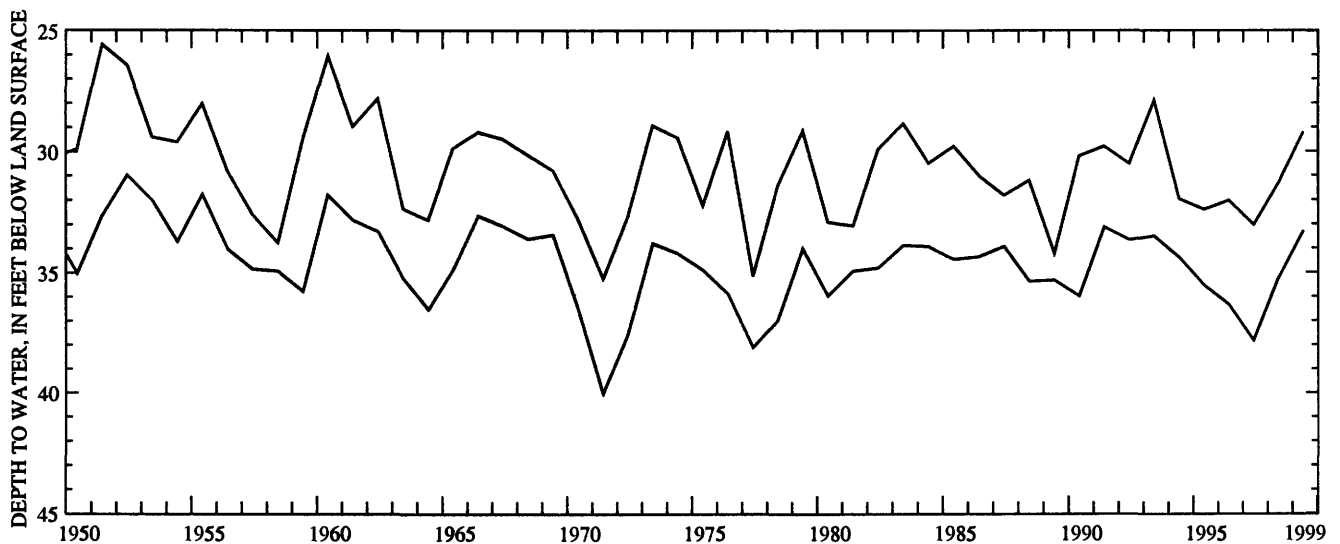
DATUM.--Elevation of land-surface datum is 774 ft above sea level. Measuring point: top of 1/4-in. pipe, at land-surface datum.

PERIOD OF RECORD.--September 1946 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.56 ft below land-surface datum, May 4, 1951; lowest water level measured, 40.03 ft below land-surface datum, Aug. 13, 1971.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 13	32.91	JAN 22	33.29	APR 28	32.81	JUN 2	29.20	JUL 13	29.24	AUG 25	31.02
DEC 16	33.01	MAR 9	31.59								



ML-06/21E/32-0148

WATER YEAR MAX-MIN LEVEL

GROUND-WATER LEVELS
MONROE COUNTY

434342090495601. Local number, MO-15/04W/34-0002.

LOCATION.--Lat 43°43'42", long 90°49'56", Hydrologic Unit 07060001. Owner: Joseph Anderson.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 5 in., depth 44 ft.

INSTRUMENTATION.--Continuous water-level recorder.

DATUM.--Elevation of land-surface datum is 1,100 ft above sea level. Measuring point: top of casing, 0.50 ft above land-surface datum.

REMARKS.--No measurements made in 1981-82 water year.

PERIOD OF RECORD.--July 1934 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.70 ft below land-surface datum, Apr. 10, 1976; lowest water level measured, 18.68 ft below land-surface datum, Feb. 23, 1935.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.86	6.92	7.01	7.22	7.18	6.94	6.84	6.68	6.78	6.84	6.70	6.98
10	6.86	6.92	7.09	7.22	7.16	7.09	5.79	6.77	7.17	6.80	6.80	6.94
15	6.88	6.81	7.10	7.23	6.89	7.12	6.52	6.55	6.80	6.89	6.87	6.99
20	6.90	6.92	7.18	7.16	7.07	6.79	6.76	6.41	6.81	6.52	6.90	7.01
25	6.92	6.96	7.18	7.18	7.12	6.97	6.29	6.57	6.85	6.70	6.91	7.06
EOM	6.91	7.01	7.18	7.18	6.49	7.01	6.66	6.68	6.86	6.68	6.88	6.97
WY 1999	MAX	8.04	JUL 16	MIN	5.79	APR 10						

440026090390101. Local number, MO-18/02W/29-0017.

LOCATION.--Lat 44°00'26", long 90°39'01", Hydrologic Unit 07040006. Owner: U.S. Army.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 9 in., depth 192 ft, cased to 109 ft, open end.

INSTRUMENTATION.--Continuous water-level recorder.

DATUM.--Elevation of land-surface datum is 909 ft above sea level. Measuring point: top of casing, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--November 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 0.48 ft below land-surface datum, Sept. 29, 1965; lowest water level, 8.62 ft below land-surface datum, Oct. 7, 1987.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.49	5.25	5.63	7.04	7.32	6.95	6.88	5.81	5.66	6.10	4.83	5.24
10	4.57	5.26	5.72	7.04	7.36	7.21	6.61	5.84	5.76	6.13	4.92	5.28
15	4.71	5.14	5.77	7.05	7.01	7.20	6.06	5.99	5.89	6.16	5.11	5.36
20	4.86	5.39	6.25	7.15	6.87	6.81	5.91	5.83	5.95	6.05	5.14	5.41
25	4.94	5.47	6.52	7.17	6.80	6.98	5.76	5.68	6.05	5.05	5.19	5.48
EOM	5.12	5.61	6.95	7.25	6.78	6.95	5.88	5.63	6.12	4.91	5.01	5.31
WY 1999	MAX	7.36	FEB 9	MIN	4.43	OCT 1						

GROUND-WATER LEVELS
OCONTO COUNTY

547

450819088263901. Local number, OC-31/16E/25-0179.

LOCATION.--Lat 45°08'19", long 88°26'392", Hydrologic Unit 04030104. Owner: U.S. Forest Service.

AQUIFER.--Prairie du Chien.

WELL CHARACTERISTICS.--Drilled public water-table well, diameter 6 in., depth 46 ft, cased to 38 ft, open end.

INSTRUMENTATION.--Water level measured by observer.

DATUM.--Elevation of land-surface datum is 920 ft above sea level. Measuring point: hole in pump base, 2.00 ft above land-surface datum.

PERIOD OF RECORD.--September 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.54 ft below land-surface datum, June 30, 1993; lowest water level measured, 20.52 ft below land-surface datum, May 12, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	19.54	DEC 2	19.93	FEB 3	20.19	APR 7	19.83	JUN 9	19.28	AUG 11	19.99
14	19.93	9	19.97	10	20.11	28	19.62	16	19.31	18	19.97
20	19.99	30	20.09	17	20.09	MAY 5	19.56	30	19.39	25	20.09
NOV 4	20.02	JAN 13	20.13	24	20.17	12	20.52	JUL 14	19.39	SEP 8	19.99
11	19.87	20	20.15	MAR 10	20.20	19	19.11	21	19.32	22	19.97
18	19.87	27	20.17	17	19.92	25	19.31	28	19.96	29	19.98
25	19.89										

ONEIDA COUNTY

455213089323501. Local number, ON-39/08E/18-0022.

LOCATION.--Lat 45°52'13", long 89°32'35", Hydrologic Unit 07070001. Owner: Wisconsin Valley Improvement Co.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Jettied unused water-table well, diameter 6 in., depth 27 ft, cased to 27 ft, open end.

INSTRUMENTATION.--Water level measured by observer.

DATUM.--Elevation of land-surface datum is 1,607 ft above sea level. Measuring point: top of casing, 6.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1944 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 12.31 ft below land-surface datum, May 26, 1973; lowest water level, 19.29 ft below land-surface datum, Mar. 27, 1949.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 10	16.89	DEC 20	17.24	MAR 5	17.96	APR 30	17.71	JUN 5	16.31	AUG 31	15.63
25	16.94	JAN 20	17.61	APR 10	17.89	MAY 15	17.33	JUL 10	15.58	SEP 25	15.98
NOV 15	17.01	EB 5	17.70	15	17.80	31	16.57				

GROUND-WATER LEVELS
ONEIDA COUNTY

453720089215401. Local number, ON-36/09E/09-0024.

LOCATION.--Lat 45°37'20", long 89°21'54", Hydrologic Unit 07070001. Owner: U.S. Geol. Survey.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Driven observation water-table well, diameter 1 1/4 in., depth 33 ft, cased to 37 ft, well point 31-33 ft.

INSTRUMENTATION.--Water level measured weekly by observer.

DATUM.--Elevation of land-surface datum is 1,560 ft above sea level. Measuring point: top of casing, 0.80 ft above land-surface datum.

PERIOD OF RECORD.--November 1944 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.67 ft below land-surface datum, Aug. 3, 1968; lowest water level measured, 23.16 ft below land-surface datum, Mar. 12, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 5	21.50	NOV 30	21.76	JAN 25	22.13	MAR 22	22.38	MAY 10	21.67	JUL 5	21.48
12	21.55	DEC 7	21.78	FEB 1	22.35	29	22.38	17	21.60	12	21.39
19	21.60	14	21.81	8	22.38	APR 5	22.18	24	21.53	19	21.27
26	21.66	21	21.84	15	22.38	12	21.90	JUN 7	21.40	26	21.22
NOV 2	21.66	28	21.88	22	22.35	19	21.78	14	21.35	AUG 2	21.18
9	21.68	JAN 4	21.91	MAR 1	22.35	26	21.71	21	21.38	9	21.20
16	21.72	13	21.95	8	22.36	MAY 3	21.67	28	21.40	SEP 7	21.41
23	21.75	18	22.04	15	22.37						

GROUND-WATER LEVELS
POLK COUNTY

549

452352092332001. Local number, PK-34/18W/26-0093.

LOCATION.--Lat 45°23'52", long 92°33'20", Hydrologic Unit 07030005. Owner: Wis. Dept. of Transportation.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled domestic artesian well, diameter 6 in., depth 64 ft, cased to 60 ft, open end.

INSTRUMENTATION.--Water level measured weekly by observer.

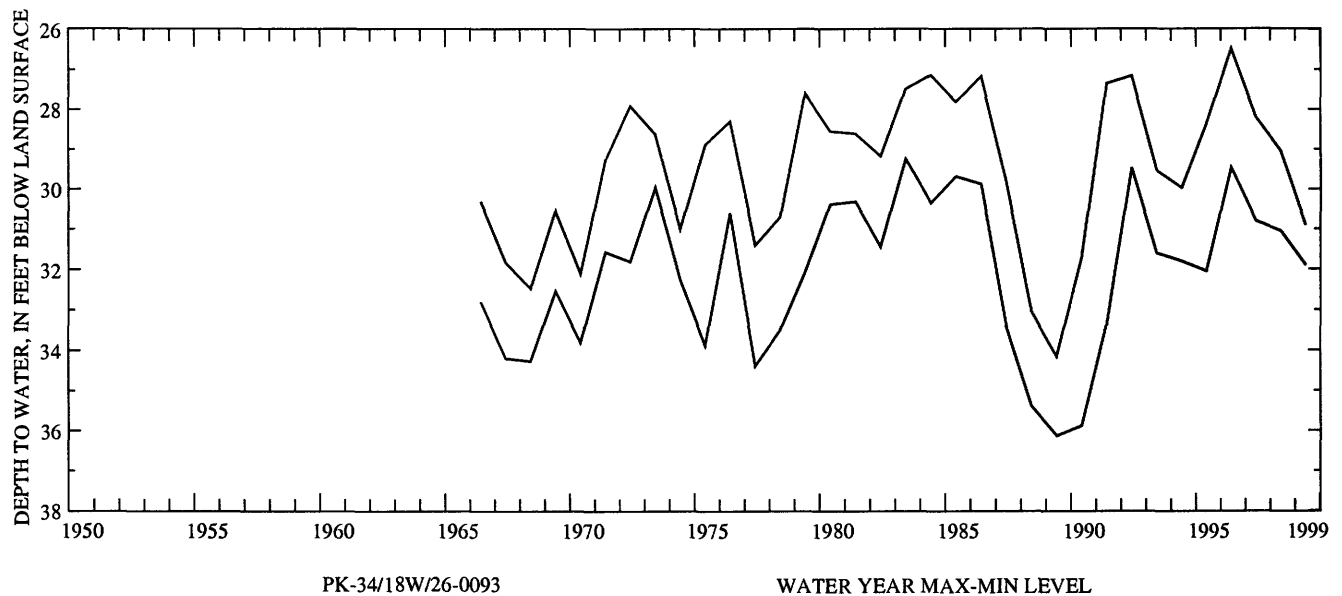
DATUM.--Elevation of land-surface datum is 1,140 ft above sea level. Measuring point: hole in pump base, 2.00 ft above land-surface datum.

PERIOD OF RECORD.--March 10, 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.72 ft below land-surface datum, June 20, 1973; lowest water level measured, 36.13 ft below land-surface datum, Mar. 22, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 16	30.68	JAN 15	30.90	MAR 15	31.88	MAY 17	31.40	JUL 15	31.40	SEP 14	31.65
DEC 15	31.08	FEB 15	31.65	APR 15	31.60	JUN 1	31.50	AUG 16	31.50		



**GROUND-WATER LEVELS
PORTAGE COUNTY**

443127089174101. Local number, PT-24/10E/28-0015.

LOCATION.--Lat 44°31'27", long 89°17'41", Hydrologic Unit 04030202. Owner: Lawrence Krogwold.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Driven unused water-table well, diameter 2 in., depth 52 ft, cased to 50 ft, screened 50-52 ft.

INSTRUMENTATION.--Water level measured by observer.

DATUM.--Elevation of land-surface datum is 1,133 ft above sea level. Measuring point: rim of casing, 1.50 ft above land-surface datum.

PERIOD OF RECORD.--August 1950 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.50 ft below land-surface datum, Aug. 4, 1973; lowest water level measured, 41.54 ft below land-surface datum, Mar. 1, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 11	31.73	DEC 12	31.80	FEB 16	32.96	APR 15	32.80	JUN 8	32.18	AUG 21	32.61
NOV 15	31.76	JAN 11	32.85	MAR 9	33.01	MAY 10	32.12	JUL 19	32.48	SEP 18	33.09

GROUND-WATER LEVELS
PRICE COUNTY

551

453311090065301. Local number, PR-35/03E/04-0065.

LOCATION.--Lat 45°33'11", long 90°06'53", Hydrologic Unit 07070001. Owner: Town of Knox.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in., depth 118 ft, cased to 118 ft, open end.

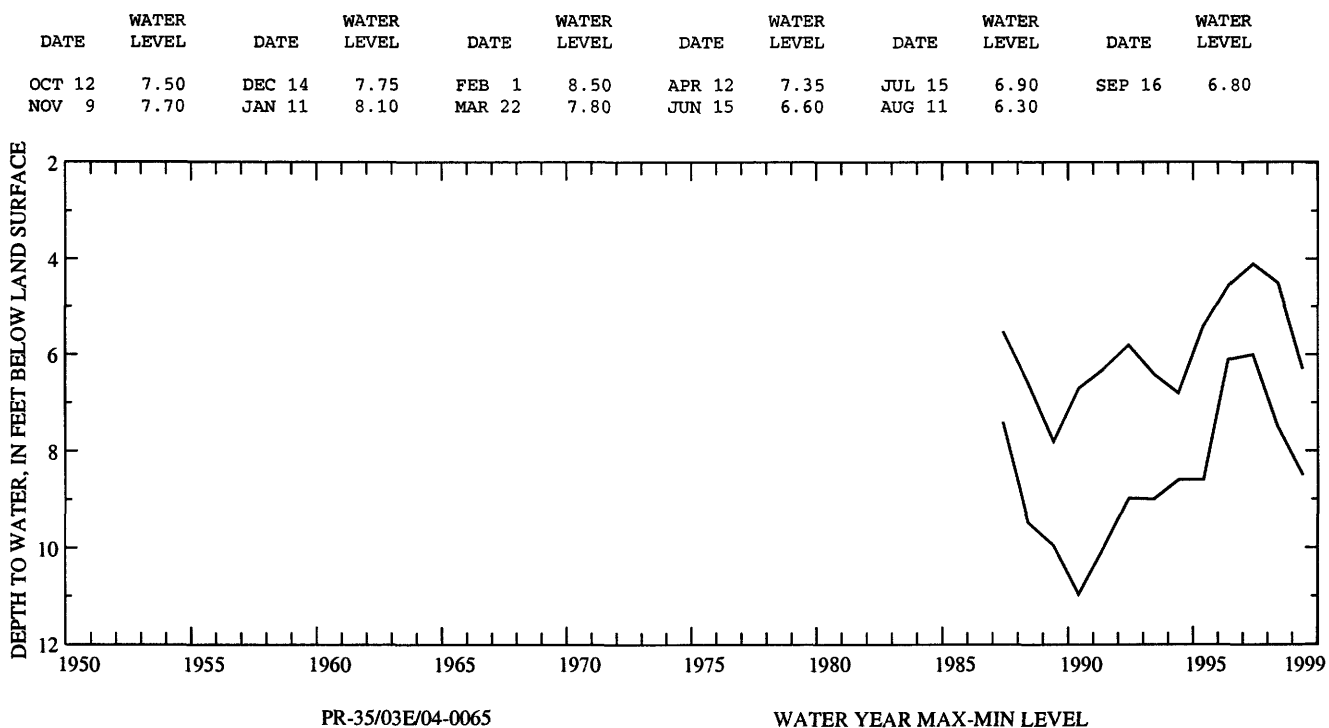
INSTRUMENTATION.--Water level measured monthly by observer.

DATUM.--Elevation of land-surface datum is 1,695 ft above sea level. Measuring point: top of casing, 2.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.10 ft above land-surface datum, July 14, 1997; lowest water level measured, 10.96 ft below land-surface datum, Feb. 15, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999



GROUND-WATER LEVELS RACINE COUNTY

424119088081801. Local number, RA-03/20E/28-0062.

LOCATION.--Lat 42°41'19", long 88°08'18", Hydrologic Unit 07120006. Owner: Wis. Dept .of Transportation.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled artesian well, diameter 6 in., depth 104 ft, cased to 104 ft, open hole.

INSTRUMENTATION.--Water level measured monthly by observer.

DATUM.--Elevation of land-surface datum is 800 ft above sea level. Measuring point: hole in pump base, 1.50 ft above land-surface datum.

PERIOD OF RECORD.--November 1963 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.21 ft below land-surface datum, Apr. 28, 1988; lowest water level measured, 31.15 ft below land-surface datum, Nov. 11, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	25.60	DEC 9	26.40	FEB 17	26.39	APR 14	24.24	JUN 16	22.00	AUG 11	25.40
NOV 16	26.28	JAN 20	26.59	MAR 10	25.05	MAY 19	23.04	JUL 14	23.79		

RICHLAND COUNTY

431840090203201. Local number, RI-10/01E/26-0023.

LOCATION.--Lat 43°18'40", long 90°20'32", Hydrologic Unit 07070005. Owner: Koch Tractor, Inc.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled domestic artesian well, diameter 6 in., depth 160 ft, cased to 135 ft, open end.

INSTRUMENTATION.--Water level measured by observer.

DATUM.--Elevation of land-surface datum is 725 ft above sea level. Measuring point: top of 1-in. breather pipe, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--February 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.11 ft below land-surface datum, May 22, 1973; lowest water level measured, 16.45 ft below land-surface datum, Mar. 14, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

[illegible]

GROUND-WATER LEVELS
ROCK COUNTY

553

423956089022301. Local number, RO-02/12E/02-0003.

LOCATION.--Lat 42°39'56", long 89°02'23", Hydrologic Unit 07090001. Owner: School for the Blind, Janesville.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 10 in., depth 470 ft, cased to 113 ft, open end.

INSTRUMENTATION.--Water level measured by observer.

DATUM.--Elevation of land-surface datum is 824 ft above sea level. Measuring point: 1/4-in. hole cap of casing, 1.50 ft above land-surface datum.

PERIOD OF RECORD.--July 1947 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.27 ft below land-surface datum, Apr. 2 and 16, 1986; lowest water level measured, 67.52 ft below land-surface datum, Nov. 10, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	60.83	JAN 1	59.40	MAR 3	58.00	APR 30	56.17	AUG 9	56.44	SEP 17	58.01
NOV 30	64.12	FEB 1	57.90	APR 5	58.17	JUN 16	55.92				

RUSK COUNTY

453107090420101. Local number, RU-35/03W/14-0089.

LOCATION.--Lat 45°31'07", long 90°42'01", Hydrologic Unit 07050004. Owner: Hawkins Cemetery.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled public-supply water-table well, diameter 6 in., depth 25 ft.

INSTRUMENTATION.--Water level measured monthly by observer.

DATUM.--Elevation of land-surface datum is 1,380 ft above sea level. Measuring point: top of casing, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--April 1957 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.25 ft below land-surface datum, June 12, 1991; lowest water level measured, 23.50 ft below land-surface datum, Mar. 2, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 16	15.63	FEB 17	16.77	APR 14	14.74	JUN 24	12.32	JUL 20	13.05	SEP 10	13.19
NOV 23	16.04	MAR 11	16.86	MAY 21	10.20						

GROUND-WATER LEVELS
SAUK COUNTY

432100089440001. Local number, SK-10/06E/02-0003.

LOCATION.--Lat 43°21'00", long 89°44'00", Hydrologic Unit 07070005. Owner: Badger Army Ammunition Plant.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 12 in., depth 451 ft, cased to 160 ft, open end.

INSTRUMENTATION.--Continuous water-level recorder.

DATUM.--Elevation of land-surface datum is 884 ft above sea level. Measuring point: hole in platform, at land-surface datum.

REMARKS.--Water level affected by pumping of nearby wells.

PERIOD OF RECORD.--May 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 67.23 ft below land-surface datum, Aug. 10, 1993; lowest water level, 83.92 ft below land-surface datum, Aug. 2, 1946.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	74.44	75.06	75.44	76.09	76.62	76.91	77.03	74.05	72.61	75.38	75.66	75.50
10	74.56	74.78	75.69	76.13	76.64	76.94	76.82	74.15	72.74	73.57	76.05	75.84
15	74.64	75.13	75.64	76.19	76.63	76.87	76.15	73.99	72.88	78.32	76.75	76.21
20	74.84	75.33	75.88	76.34	76.90	76.99	75.75	73.88	72.83	77.53	75.78	75.55
25	74.82	75.25	75.82	76.52	76.85	77.05	75.55	73.79	75.83	76.86	75.97	76.29
EOM	75.01	75.57	76.03	76.60	76.75	76.83	74.82	73.67	78.32	72.66	76.02	76.04
WY 1999	MAX	78.32	JUN 30	MIN	72.61	JUN 5						

TAYLOR COUNTY

450947090483902. Local number, TA-31/04W/13-0001.

LOCATION.--Lat 45°09'47", long 90°48'39", Hydrologic Unit 07050005. Owner: Village of Gilman.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 18 in., depth 26 ft, cased to 16 ft, screened 16-26 ft.

INSTRUMENTATION.--Continuous water-level recorder.

DATUM.--Elevation of land-surface datum is 1,200 ft above sea level. Measuring point: top of casing, 2.00 ft above land-surface datum.

REMARKS.--Water level affected by pumping of nearby wells.

PERIOD OF RECORD.--April 1957 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.69 ft below land-surface datum, June 21, 1993; lowest water level, 13.11 ft below land-surface datum, Oct. 15, 1959.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.93	9.90	9.68	9.68	9.65	9.58	7.79	9.54	9.12	9.61	8.42	9.63
10	9.98	9.89	9.74	9.68	9.66	9.69	7.71	7.97	9.04	8.83	8.80	9.77
15	10.02	9.48	9.82	9.68	9.11	9.70	8.31	8.65	9.34	8.83	9.08	9.75
20	9.88	9.43	9.88	9.76	9.03	8.95	8.92	7.89	9.61	8.86	9.15	9.84
25	9.94	9.51	9.72	9.53	9.07	8.74	9.11	7.72	9.71	9.12	9.14	9.92
EOM	9.83	9.61	9.68	9.58	9.51	8.09	9.39	8.69	9.89	8.45	8.89	9.84
WY 1999	MAX	10.02	OCT 14	MIN	7.27	APR 7						

GROUND-WATER LEVELS
TREMPEALEAU COUNTY

555

440422091182901. Local number, TR-19/08W/35-0001.

LOCATION.--Lat 44°04'22", long 91°18'29", Hydrologic Unit 07040007. Owner: Mrs. William Davidson.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in., depth 195 ft.

INSTRUMENTATION.--Water level measured monthly by observer.

DATUM.--Elevation of land-surface datum is 820 ft above sea level. Measuring point: top of casing, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--October 1947 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 131.38 ft below land-surface datum, Sept. 7, 1993; lowest water level measured, 146.56 ft below land-surface datum, Sept. 1, 1959.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	139.66	DEC 1	140.97	MAR 11	139.04	MAY 3	137.90	AUG 1	137.38	SEP 2	137.84
NOV 2	140.55	FEB 7	139.32	APR 3	139.20	JUL 1	138.57				

440414091270401. Local number, TR-19/09W/33-0009.

LOCATION.--Lat 44°04'14", long 91°27'04", Hydrologic Unit 07040005. Owner: Village of Centerville.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled public-supply water-table, diameter 6 in., depth 71 ft, cased to 66 ft, screened 66-71 ft.

INSTRUMENTATION.--Water level measured monthly by observer.

DATUM.--Elevation of land-surface datum is 740 ft above sea level. Measuring point: top of breather pipe, at land-surface datum.

REMARKS.--Water level affected by pumping of nearby wells.

PERIOD OF RECORD.--May 1953 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 42.80 ft below land-surface datum, Oct. 12, 1993, and Apr. 12, 1994; lowest water level measured, 57.11 ft below land-surface datum, Mar. 16, 1965.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 15	46.40	DEC 9	46.80	MAR 4	47.60	MAY 8	48.10	JUL 7	48.40	SEP 14	47.80
NOV 9	49.40	FEB 5	47.10	APR 7	47.80	JUN 7	48.30				

**GROUND-WATER LEVELS
VILAS COUNTY**

455517089144001. Local number, VI-40/10E/28-0033.

LOCATION.--Lat 45°55'17", long 89°14'40", Hydrologic Unit 07070001. Owner: Trees for Tomorrow, Inc.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled observation water table well, diameter 6 in., depth 37 ft, cased to 37 ft.

INSTRUMENTATION.--Water level measured monthly by observer.

DATUM.--Elevation of land-surface datum is 1,640 ft above sea level. Measuring point: top of casing, 0.75 ft above land-surface datum.

PERIOD OF RECORD.--December 1965 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.41 ft below land-surface datum, May 14, 1997; lowest water level measured, 14.92 ft below land-surface datum, Aug. 10, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 19	13.42	DEC 15	13.74	FEB 15	13.91	APR 15	13.65	JUN 15	12.95	AUG 16	12.81
NOV 17	13.66	JAN 15	13.91	MAR 15	14.03	MAY 15	13.40	JUL 15	12.72		

WALWORTH COUNTY

423532088254601. Local number, WW-02/17E/36-0037.

LOCATION.--Lat 42°35'32", long 88°25'46", Hydrologic Unit 07120006. Owner: Lake Geneva Water Works.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 10 in., depth 820 ft, cased to 10 in., 0-214 ft; 8 in., 214-227 ft, open end.

INSTRUMENTATION.--Water level measured monthly by observer.

DATUM.--Elevation of land-surface datum is 860 ft above sea level. Measuring point: top of casing, 2.00 ft above land-surface datum.

PERIOD OF RECORD.--February 1962 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 129.48 ft below land-surface datum, Feb. 14, 1962; lowest water level measured, 230.05 ft below land-surface datum, Aug. 25, 1999.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 15	217.61	NOV 24	217.61	DEC 9	217.25	MAR 27	222.21	AUG 25	230.05

**GROUND-WATER LEVELS
WAUKESHA COUNTY**

557

425535088131701. Local number, WK-05/19E/02-0031.

LOCATION.--Lat 42°55'35", long 88°13'17", Hydrologic Unit 07120006. Owner: William Bahl.

AQUIFER.--Silurian dolomite.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth 508 ft, cased to 434 ft, open end.

INSTRUMENTATION.--Continuous water-level recorder.

DATUM.--Elevation of land-surface datum is 962 ft above sea level. Measuring point: top of casing, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--May 1947 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 126.06 ft below land-surface datum, May 10, 1973; lowest water level, 139.27 ft below land-surface datum, Aug. 31, 1998.

**WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
LOWEST VALUE**

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	137.12	134.01	134.98	133.79	134.82	135.50	135.35	134.02				
10	136.06	137.25	136.40	133.72	136.02	136.29	136.01	133.97				133.09
15	138.89	134.98	137.27	133.71	135.20	135.65	134.90				134.11	
20	137.30	134.44	134.06	134.79	138.60	135.11	136.01			133.15		
25	136.48	135.43	134.18	134.75	138.56	135.73	135.79		133.02		134.13	
EOM	136.27	134.85	133.94	134.99	134.82	135.53	133.84		132.96		133.95	133.39
WY 1999	MAX	139.40	MAR 7	MIN	131.65	JUN 2						

WAUPACA COUNTY

441545088522901. Local number, WP-21/13E/25-0002.

LOCATION.--Lat 44°15'45", long 88°52'29", Hydrologic Unit 04030202. Owner: Village of Fremont.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in., depth 205 ft, cased to 109 ft, open end.

INSTRUMENTATION.--Water level measured weekly by observer.

DATUM.--Elevation of land-surface datum is 764 ft above sea level. Measuring point: hole in cap, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--August 1950 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 8.65 ft below land-surface datum, Apr. 7, 1979; lowest water level measured, 17.45 ft below land-surface datum, May 12, 1997.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	14.19	DEC 4	13.91	FEB 5	14.50	APR 2	14.25	MAY 21	13.94	JUL 16	13.59
9	14.21	11	14.10	12	14.52	9	13.85	28	13.98	23	13.69
16	14.23	18	14.25	19	14.59	16	13.58	JUN 4	13.93	AUG 2	13.74
23	14.23	30	14.29	26	14.60	23	13.66	11	13.94	6	13.76
30	14.29	JAN 8	14.30	MAR 5	14.63	30	13.80	25	13.55	13	13.84
NOV 13	14.11	15	14.30	12	14.49	MAY 7	13.87	JUL 2	13.53	27	13.85
20	14.04	22	14.34	19	14.34	14	13.92	9	13.52	SEP 30	14.39
27	13.95	29	14.43	26	14.30						

GROUND-WATER LEVELS
WAUSHARA COUNTY

440713089320801. Local number, WS-19/08E/15-0008.

LOCATION.--Lat 44°07'13", long 89°32'08", Hydrologic Unit 07070003. Owner: University of Wisconsin Experiment Farm, Hancock.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in., depth 18 ft, cased to 18 ft.

INSTRUMENTATION.--Continuous water-level recorder.

DATUM.--Elevation of land-surface datum is 1,080 ft above sea level. Measuring point: top of casing, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--May 1951 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 5.88 ft below land-surface datum, July 5, 1973; lowest water level, 15.34 ft below land-surface datum, Apr. 25, 1959.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5					12.35	12.41	12.43	11.89	11.75	12.74	11.80	11.56
10					12.38	12.41	12.43	11.83	11.75	12.76	11.75	11.57
15					12.38	12.41	12.44	11.79	11.96	12.76	11.64	11.61
20					12.39	12.41	12.27	11.77	12.52	12.27	11.64	11.66
25					12.40	12.41	12.10	11.75	12.62	12.08	11.60	11.72
EOM				12.30	12.41	12.41	11.97	11.75	11.78	11.87	11.72	11.68
WY 1999	MAX	12.45	APR 11	MIN	11.75	MAY 24						

440345089151701. Local number, WS-18/10E/01-0105.

LOCATION.--Lat 44°03'45", long 89°15'17", Hydrologic Unit 04030201. Owner: Ronald Campbell.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in., depth 14 ft, cased to 14 ft, open hole.

INSTRUMENTATION.--Continuous water-level recorder.

DATUM.--Elevation of land-surface datum is 873 ft above sea level. Measuring point: top of casing, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--April 1956 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.08 ft below land-surface datum, June 18, 1993; lowest water level measured, 7.87 ft below land-surface datum, Mar. 19, 1959.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	3.68	3.45	3.38	3.80	3.35	2.88	2.67	2.90	2.21		1.11	
10	3.23	3.39	3.51	3.83	3.24	3.08	2.29	2.68				
15	3.43	2.94	3.55	3.85	2.63	3.07	2.16	2.94				
20	3.18	3.08	3.64	3.64	3.02	3.07	2.63	2.39		1.17		
25	3.40	3.18	3.66	3.51	3.18	3.18	2.62	2.61		1.13		
EOM	3.28	3.35	3.74	3.49	2.70	3.18	2.87	2.84				
WY 1999	MAX	3.89	JAN 13	MIN	1.89	APR 12						

GROUND-WATER LEVELS
WINNEBAGO COUNTY

559

440122088324601. Local number, WI-18/16E/23-0006.

LOCATION.--Lat 44°01'22", long 88°2'46", Hydrologic Unit 04030201. Owner: City of Oshkosh.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in., depth 200 ft.

INSTRUMENTATION.--Water level measured monthly by observer.

DATUM.--Elevation of land-surface datum is 765 ft above sea level. Measuring point: top of 1-in. pipe, at land-surface datum.

REMARKS.--Water level affected by pumping of nearby wells.

PERIOD OF RECORD.--August 1950 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.65 ft below land-surface datum, Apr. 28, 1993; lowest water level measured, 45.13 ft below land-surface datum, Jan. 1, 1966.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 2	22.61	NOV 25	21.72	JAN 27	21.11	MAR 31	21.02	MAY 26	20.00	JUL 29	20.26
30	22.01	DEC 28	21.97	MAR 1	20.88	APR 27	20.09	JUN 29	20.52	AUG 31	21.30

The reports listed below are a partial list of reports prepared by the Wisconsin District in cooperation with other agencies since 1948. The list contains reports that are relevant and contribute significantly to understanding the hydrology of Wisconsin's water resources.

The reports published in a U.S. Geological Survey series are for sale by the U.S. Geological Survey, Box 25425, Federal Center, Denver, CO 80225. Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices can be obtained by writing to the above address or by calling (303)236-7476. Copies of reports published by the University of Wisconsin, Geological and Natural History Survey, can be obtained from their office at 3817 Mineral Point Road, Madison, WI 53705.

WATER-SUPPLY PAPERS

Kammerer, P.A., Jr., and Krug, W.R., 1993, Wisconsin stream water quality, in U.S. Geological Survey, National water summary 1990-91—Hydrologic events and stream water quality: U.S. Geological Survey Water-Supply Paper 2400, p. 561-568.

Melcher, N.B., and Walker, J.F., 1992, Evaluation of selected methods for determining streamflow during periods of ice effect: U.S. Geological Survey Water-Supply Paper 2378, 47 p.

U.S. Geological Survey, 1991, National water summary 1988-89—Hydrologic Events and Floods and Droughts: U.S. Geological Survey Water-Supply Paper 2375, 591 p.

_____, 1990, National water summary 1987—Hydrologic events and water supply and use: U.S. Geological Survey Water-Supply Paper 2350, 553 p.

_____, 1988, National water summary 1986—Hydrologic events, selected water-quality trends, and ground-water quality: U.S. Geological Survey Water-Supply Paper 2325, 569 p.

_____, 1986, National water summary 1985—Hydrologic events and surface-water resources: U.S. Geological Survey Water-Supply Paper 2300, 506 p.

_____, 1985, National water summary 1984—Hydrologic events, selected water-quality trends, and ground-water resources: U.S. Geological Survey Water-Supply Paper 2275, 467 p.

_____, 1984, National water summary 1983—Hydrologic events and issues: U.S. Geological Survey Water-Supply Paper 2250, 243 p.

Batten, W.G., and Hindall, S.M., 1980, Sediment deposition in the White River Reservoir, northwestern Wisconsin: U.S. Geological Survey Water-Supply Paper 2069, 30 p.

Sherrill, M.G., 1978, Geology and ground water in Door County, Wisconsin, with emphasis on contamination potential in the Silurian dolomite: U.S. Geological Survey Water-Supply Paper 2047, 38 p.

Hurtgen, D.C., 1975, Summary of floods, June 29-30 in southwestern Wisconsin, in Summary of floods in the United States during 1969: U.S. Geological Survey Water-Supply Paper 2030, p. 116-119.

Bell, E.A., and Sherrill, M.G., 1974, Water availability in central Wisconsin—an area of near-surface crystalline rock: U.S. Geological Survey Water-Supply Paper 2022, 32 p.

Novitzki, R.P., 1973, Improvement of trout streams in Wisconsin by augmenting low flows with ground water: U.S. Geological Survey Water-Supply Paper 2017, 52 p.

Oakes, E., Field, S.J., and Seeger, L.P., 1973, The Pine-Popple River basin—hydrology of a wild river area, northeastern Wisconsin: U.S. Geological Survey Water-Supply Paper 2006, 57 p.

Hamilton, L.J., 1971, Water for cranberry culture in the Cranmoor area of central Wisconsin: U.S. Geological Survey Water-Supply Paper 1999-I, 20 p.

Hurtgen, D.C., 1972, Floods of March 27-April 4, 1967, in northwestern and west-central Wisconsin, in Summary of floods in the United States during 1967: U.S. Geological Survey Water-Supply Paper 1880-C, p. 7-10.

Hutchinson, R.D., 1970, Ground-water resources of Racine and Kenosha Counties, Wisconsin: U.S. Geological Survey Water-Supply Paper 1878, 63 p.

Olcott, P.G., 1966, Geology and water resources of Winnebago County, Wisconsin: U.S. Geological Survey Water-Supply Paper 1814, 61 p.

Weeks, E.P., Erickson, D.W., and Holt, C.L.R., Jr., 1965, Hydrology of the Little Plover River basin, Portage County, Wisconsin, and the effects of water-resources development: U.S. Geological Survey Water-Supply Paper 1811, 78 p.

Green, J.H., and Hutchinson, R.D., 1965, Ground-water pumpage and water-level changes in the Milwaukee-Waukesha area, Wisconsin, 1950-61: U.S. Geological Survey Water-Supply Paper 1809-I, 19 p.

Summers, W.K., 1965, Geology and ground-water resources of Waushara County, Wisconsin: U.S. Geological Survey Water-Supply Paper 1809-B, 32 p.

Holt, C.L.R., Jr., and Knowles, D.B., 1963, The water situation in Wisconsin in the role of ground water in the national water situation: U.S. Geological Survey Water-Supply Paper 1800, p. 943-960.

Holt, C.L.R., Jr., 1965, Geology and water resources of Portage County, Wisconsin: U.S. Geological Survey Water-Supply Paper 1796, 77 p.

Cline, D.R., 1965, Geology and ground-water resources of Dane County, Wisconsin: U.S. Geological Survey Water-Supply Paper 1779-U, 64 p.

Berkstresser, C.F., Jr., 1964, Ground-water resources of Waupaca County, Wisconsin: U.S. Geological Survey Water-Supply Paper 1669-U, 38 p.

Knowles, D.B., 1964, Ground-water conditions in the Green Bay area, Wisconsin, 1950-60: U.S. Geological Survey Water-Supply Paper 1669-J, 37 p.

Cline, D.R., 1963, Hydrology of upper Black Earth Creek basin, Wisconsin, with a section on surface water by M.W. Busby: U.S. Geological Survey Water-Supply Paper 1669-C, 27 p.

Collier, C.R., 1963, Sediment characteristics of small streams in southern Wisconsin, 1954-59: U.S. Geological Survey Water-Supply Paper 1669-B, 34 p.

LeRoux, E.F., 1963, Geology and ground-water resources of Rock County, Wisconsin: U.S. Geological Survey Water-Supply Paper 1619-X, 50 p.

Newport, T.G., 1962, Geology and ground-water resources of Fond du Lac County, Wisconsin: U.S. Geological Survey Water-Supply Paper 1604, 52 p.

Knowles, D.B., Dreher, F.C., and Whetstone, G.W., 1964, Water resources of the Green Bay area, Wisconsin: U.S. Geological Survey Water-Supply Paper 1499-G, 66 p.

LeRoux, E.F., 1957, Geology and ground-water resources of Outagamie County, Wisconsin: U.S. Geological Survey Water-Supply Paper 1421, 57 p.

Harger, A.H., and Drescher, W.J., 1954, Ground-water conditions in south-western Langlade County, Wisconsin: U.S. Geological Survey Water-Supply Paper 1294, 39 p.

Foley, F.C., Walton, W.D., and Drescher, W.J., 1953, Ground-water conditions in the Milwaukee-Waukesha area, Wisconsin: U.S. Geological Survey Water-Supply Paper 1229, 96 p.

HYDROLOGIC INVESTIGATIONS ATLASES

Gebert, W.A., Graczyk, D.J., and Krug, W.R., 1987, Average annual runoff in the United States, 1951-80: U.S. Geological Survey Hydrologic Investigations Atlas HA-710, 1 sheet.

Hughes, P.E., Hannuksela, J.S., and Danchuk, W.J., 1981, Flood of July 1-5, 1978, on the Kickapoo River, Southwestern Wisconsin: U.S. Geological Survey Hydrologic Investigations Atlas HA-653, 7 sheets.

Oakes, E.L., and Cotter, R.D., 1975, Water resources of Wisconsin—Upper Wisconsin River basin: U.S. Geological Survey Hydrologic Investigations Atlas HA-536, 3 sheets.

Young, H.L., and Skinner, E.L., 1974, Water resources of Wisconsin—Lake Superior basin: U.S. Geological Survey Hydrologic Investigations Atlas HA-524, 3 sheets.

Hindall, S.M., and Borman, R.G., 1974, Water resources of Wisconsin—Lower Wisconsin River basin: U.S. Geological Survey Hydrologic Investigations Atlas HA-479, 3 sheets.

Young, H.L., and Borman, R.D., 1973, Water resources of Wisconsin—Trempealeau-Black River basin: U.S. Geological Survey Hydrologic Investigations Atlas HA-474, 4 sheets.

Oakes, E.L., and Hamilton, L.J., 1973, Water resources of Wisconsin—Menominee-Oconto-Peshtigo River basin, U.S. Geological Survey Hydrologic Investigations Atlas HA-470, 4 sheets.

Hindall, S.M., and Skinner, E.L., 1973, Water resources of Wisconsin—Pecatonica-Sugar River basin: U.S. Geological Survey Hydrologic Investigations Atlas HA-453, 3 sheets.

Young, H.L., and Hindall, S.M., 1973, Water resources of Wisconsin—St. Croix River basin: U.S. Geological Survey Hydrologic Investigations Atlas HA-451, 4 sheets.

Skinner, E.L., and Borman, R.G., 1973, Water resources of Wisconsin—Lake Michigan basin: U.S. Geological Survey Hydrologic Investigations Atlas HA-432, 4 sheets.

Shearman, J.O., and Holmstrom, B.K., 1971, Floods on Rock River in southwestern Jefferson County, Wisconsin: U.S. Geological Survey Hydrologic Investigations Atlas HA-413, 1 sheet.

_____, 1971, Floods on Rock River in northeastern Jefferson County, Wisconsin: U.S. Geological Survey Hydrologic Investigations Atlas HA-394, 1 sheet.

Shearman, J.O., 1970, Floods on Rock River in northern Rock County, Wisconsin: U.S. Geological Survey Hydrologic Investigations Atlas HA-393, 1 sheet.

Gebert, W.A., 1971, Low-flow frequency of Wisconsin streams: U.S. Geological Survey Hydrologic Investigations Atlas HA-390, 1 sheet.

Young, H.L., and Hindall, S.M., 1972, Water resources of Wisconsin—Chippewa River basin: U.S. Geological Survey Hydrologic Investigations Atlas HA-386, 4 sheets.

Hindall, S.M., and Flint, R.F., 1970, Sediment yields of Wisconsin streams: U.S. Geological Survey Hydrologic Investigations Atlas HA-376, 1 sheet.

Devaul, R.W., and Green, J.H., 1971, Water resources of Wisconsin—Central Wisconsin River basin: U.S. Geological Survey Hydrologic Investigations Atlas HA-367, 4 sheets.

Cotter, R.D., Hutchinson, R.D., Skinner, E.L., and Wentz, D.A., 1969, Water resources of Wisconsin—Rock-Fox River basin: U.S. Geological Survey Hydrologic Investigations Atlas HA-360, 4 sheets.

Olcott, P.G., 1968, Water resources of Wisconsin—Fox-Wolf River basin: U.S. Geological Survey Hydrologic Investigations Atlas HA-321, 4 sheets.

U.S. Geological Survey, 1965, Preliminary map of the conterminous United States showing depth to and quality of shallowest ground water containing more than 1,000 parts per million dissolved solids: U.S. Geological Survey Hydrologic Investigations Atlas HA-199, 31 p., 2 sheets.

PROFESSIONAL PAPERS

Young, H.L., 1992, Summary of ground-water hydrology of the Cambrian-Ordovician aquifer system in the northern midwest, United States: U.S. Geological Survey Professional Paper 1405-A, 55 p.

_____, 1992, Hydrogeology of the Cambrian-Ordovician aquifer system in the northern midwest, United States: U.S. Geological Survey Professional Paper 1405-B, 99 p., 1 pl.

Mandle, R.J., and Kontis, A.L., 1992, Simulation of regional ground-water flow in the Cambrian-Ordovician aquifer system in the northern midwest, United States: U.S. Geological Survey Professional Paper 1405-C, 97 p.

Siegel, D.I., 1989, Geochemistry of the Cambrian-Ordovician aquifer system in the northern midwest, United States: U.S. Geological Survey Professional Paper 1405-D, 76 p.

Green, J.H., 1968, The Troy Valley of southeastern Wisconsin: U.S. Geological Survey Professional Paper 600-C, p. 135-139.

Carey, K.L., 1967, The underside of river ice, St. Croix River, Wisconsin: U.S. Geological Survey Professional Paper 575-C, p. 195-199.

_____, 1966, Observed configuration and computed roughness of the underside of river ice, St. Croix River, Wisconsin: U.S. Geological Survey Professional Paper 550-B, p. 192-198.

Weeks, E.P., 1964, Field methods for determining vertical permeability and aquifer anisotropy: U.S. Geological Survey Professional Paper 501-D, p. 193-198.

_____, E.P., 1964, Use of water-level recession curves to determine the hydraulic properties of glacial outwash in Portage County, Wisconsin: U.S. Geological Survey Professional Paper 501-B, p. 181-184.

WATER-RESOURCES INVESTIGATIONS REPORTS

Krohelski, J.T., Feinstein, D.T., and Lenz, B.N., 1999, Simulation of stage and hydrologic budget for Shell Lake, Washburn County, Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 99-4209, 23 p.

Batten, W.G., Yeskis, D.J., and Dunning, C.P., 1999, Hydrogeologic properties of the Ordovician Sinnipee Group at test well BN-483, better brite superfund site, De Pere, Wisconsin: U.S. Geological Survey Water Resources Investigations Report 99-4199, 19 p.

Waschbusch, R.J., 1999, Evaluation of the effectiveness of an urban stormwater treatment unit in Madison, Wisconsin, 1996-97: U.S. Geological Survey Water Resources Investigations Report 99-4195, 49 p.

Steuer, J.S., Hall, D.W., and Fitzgerald, S.A., 1999, Distribution and transport of polychlorinated biphenyls and associated particulates in the Hayton Millpond, South Branch Manitowoc River, Wisconsin, 1993-95: U.S. Geological Survey Water-Resources Investigations Report 99-4101, 20 p.

Steuer, J.S., Fitzgerald, S.A., and Hall, D.A., 1999, Distribution and transport of polychlorinated biphenyls and associated particulates in the Milwaukee River system, Wisconsin, 1993-95: U.S. Geological Survey Water-Resources Investigations Report 99-4100, 37 p.

Fitzpatrick, F.A., Knox, J.D., and Whitman, H.E., 1999, Effects of historical land-cover changes on flooding and sedimentation, North Fish Creek, Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 99-4083, 12 p.

Waschbusch, R.J., Selbig, W.R., and Bannerman, R.T., 1999, Sources of phosphorus in stormwater and street dirt from two urban residential basins in Madison, Wisconsin, 1994-95: U.S. Geological Survey Water-Resources Investigations Report 99-4021, 47 p.

Saad, D.A., and Thorstenson, D.C., 1998, Flow and geochemistry along shallow ground-water flowpaths in an agricultural area in southeastern Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 98-4179, 62 p.

Robertson, D.M., 1998, Evaluation of the surface-water sampling design in the Western Lake Michigan Drainages in relation to environmental factors affecting water quality at base flow: U.S. Geological Survey Water-Resources Investigations Report 98-4072, 53 p.

Walker, J.F., Saad, D.A., and Krohelski, J.T., 1998, Optimization of ground-water withdrawal in the lower Fox River communities, Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 97-4218, 24 p.

Richards, K.D., Sullivan, D.J., and Stewart, J.S., 1998, Surface-water quality at fixed sites in the Western Lake Michigan Drainages, Wisconsin and Michigan, and the effects of natural and human factors, 1993-95: U.S. Geological Survey Water-Resources Investigations Report 97-4208, 40 p.

Stewart, J.S., 1998, Combining satellite data with ancillary data to produce a refined land-use/land-cover map: U.S. Geological Survey Water-Resources Investigations Report 97-4203, 11 p., 3 pl.

Conlon, T.D., 1998, Hydrogeology and simulation of ground-water flow in the sandstone aquifer, northeastern Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 97-4096, 60 p., 1 pl.

Elder, J.F., Manion, B.J., and Goddard, G.L., 1997, Mesocosm experiments to assess factors affecting phosphorus retention and release in an extended Wisconsin wetland: U.S. Geological Survey Water-Resources Investigations Report 97-4272, 14 p.

Steuer, Jeffrey, Selbig, William, Hornewer, Nancy, and Prey, Jeffrey, 1997, Sources of contamination in an urban basin in Marquette, Michigan and an analysis of concentrations, loads, and data quality: U.S. Geological Survey Water-Resources Investigations Report 97-4242, 25 p.

Peters, Charles A., et. al, 1997, Environmental setting and implications for water quality in the Western Lake Michigan Drainage: U.S. Geological Survey Water-Resources Investigations Report 97-4196, 79 p.

Scudder, B.C., Sullivan, D.J., Fitzpatrick, F.A., and Rheaume, S.J., 1997, Trace elements and synthetic organic compounds in biota and streambed sediment of the Western Lake Michigan Drainages, 1992-1995: U.S. Geological Survey Water-Resources Investigations Report 97-4192, 34 p.

Fitzgerald, S.A., 1997, Results of quality-control sampling of water, bed sediment, and tissue in the Western Lake Michigan Drainages study unit of the National Water-Quality Assessment program: U.S. Geological Survey Water-Resources Investigations Report 97-4148, 24 p.

Batten, W.G., Brown, T.A., Mills, P.C., and Sabin, T.J., 1997, Rock-stratigraphic nomenclature, lithology, and subcrop area of the Galena-Platteville bedrock unit in Illinois and Wisconsin: U.S. Geological Survey Water Resources Investigations Report 97-4054-B, 1 sheet.

Sullivan, D.J. and Peterson, E.M., 1997, Fish communities of benchmark streams in agricultural areas of eastern Wisconsin: U.S. Geological Survey Water Resources Investigations Report 96-4038-D, 23 p.

Sullivan, D.J., 1997, Fish communities of fixed sites in the Western Lake Michigan Drainages, Wisconsin and Michigan, 1993-95: U.S. Geological Survey Water-Resources Investigations Report 95-4211-C, 23 p.

Fitzpatrick, F.A., and Giddings, E.M.P., 1997, Stream habitat characteristics of fixed sites in the Western Lake Michigan Drainages, Wisconsin and Michigan, 1993-95: U.S. Geological Survey Water-Resources Investigations Report 95-4211-B, 58 p.

- Garn, H.S., Olson, D.L., Seidel, T.L., and Rose, W.J., 1996, Hydrology and water quality of Lauderdale Lakes, Walworth County, Wisconsin, 1993–94: U.S. Geological Survey Water-Resources Investigations Report 96–4235, 29 p.
- Conlon, T.D., 1996, Hydrogeology of the sand and gravel aquifer in the vicinity of the Wild Rose State Fish Hatchery, North-Central Waushara County, Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 96–4213, 14 p.
- Legg, A.D., Bannerman, R.T., and Panuska, J., 1996, Variation in the relation of rainfall to runoff from residential lawns in Madison, Wisconsin, July and August 1995: U.S. Geological Survey Water-Resources Investigations Report 96–4194, 11 p.
- Robertson, D.M., Field, S.J., Elder, J.F., Goddard, G.L., and James, W.F., 1996, Phosphorus dynamics in Delavan Lake Inlet, southeastern Wisconsin, 1994: U.S. Geological Survey Water-Resources Investigations Report 96–4160, 18 p.
- Robertson, D.M., 1996, Use of frequency-volume analyses to estimate regionalized yields and load of sediment, phosphorus, and polychlorinated biphenyls to Lakes Michigan and Superior: U.S. Geological Survey Water-Resources Investigations Report 96–4092, 47 p.
- Fitzpatrick, F.A., Peterson, E.M., and Stewart, J.S., 1996, Habitat characteristics of benchmark streams in agricultural areas of eastern Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 96–4038–B, 35 p.
- Rheume, S.J., Stewart, J.S., and Lenz, B.N., 1996, Environmental setting of benchmark streams in agricultural areas of eastern Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 96–4038–A, 50 p.
- Robertson, D.M., and Saad, D.A., 1996, Water-quality assessment of the Western Lake Michigan Drainages—Analysis of available information on nutrients and suspended sediment, water years 1971–90: U.S. Geological Survey Water-Resources Investigations Report 96–4012, 165 p.
- Rose, W.J., and Graczyk, D.J., 1996, Sediment transport, particle size, and loads in North Fish Creek in Bayfield County, Wisconsin, water years 1990–91: U.S. Geological Survey Water-Resources Investigations Report 95–4222, 18 p.
- Batten, W.G., and Lidwin, R.A., 1996, Water resources of the Lac du Flambeau Indian Reservation, Wisconsin, 1981–86: U.S. Geological Survey Water-Resources Investigations Report 94–4025, 42 p., 3 pls.
- Sullivan, D.J., Peterson, E.M., and Richards, K.D., 1995, Environmental setting of fixed sites in the Western Lake Michigan Drainages, Michigan and Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 95–4211–A, 30 p.
- Batten, W.G., and Lidwin, R.A., 1995, Water resources of the Bad River Indian Reservation, northern Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 95–4207, 45 p., 2 pl.
- Conlon, T.D., 1995, Hydrogeology of southwestern Sheboygan County, Wisconsin, in the vicinity of the Kettle Moraine Springs Fish Hatchery: U.S. Geological Survey Water-Resources Investigations Report 94–4106, 17 p.
- Corsi, S.R., and Schuler, J.G., 1995, Discharge ratings for tainter gates and roller gates at Lock and Dam No. 7 on the Mississippi River, La Crescent, Minnesota: U.S. Geological Survey Water-Resources Investigations Report 95–4089, 17 p.
- DeWild, J.F., and Krohelski, J.T., 1995, Radon-222 concentrations in ground water and soil gas on Indian Reservations in Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 95–4088, 12 p.
- Kammerer, P.A., Jr., 1995, Ground-water flow and quality in Wisconsin's shallow aquifer system: U.S. Geological Survey Water-Resources Investigations Report 90–4171, 42 p., 2 pl.
- Goddard, G.L., and Field, S.J., 1994, Hydrology and water quality of Whitewater and Rice Lakes in southeastern Wisconsin, 1990–91: U.S. Geological Survey Water-Resources Investigations Report 94–4101, 36 p.
- Krohelski, J.T., Kammerer, P.A., Jr., and Conlon, T.D., 1994, Water resources of the Menominee Indian Reservation of Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 93–4053, 54 p., 4 pls.
- Rose, W.J., 1993, Hydrology of Little Rock Lake in Vilas County, north-central Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 93–4139, 22 p.
- Graczyk, D.J., Surface-water hydrology and quality, and macroinvertebrate and smallmouth bass populations in four stream basins in southwestern Wisconsin, 1987–90: U.S. Geological Survey Water-Resources Investigations Report 93–4024, 70 p.
- Batten, W.G., and Conlon, T.D., 1993, Hydrogeology of glacial deposits in a preglacial bedrock valley, Waukesha County, Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 92–4077, 15 p.
- House, L.B., 1993, Simulation of the effects of hypothetical residential development on water levels in Graber Pond, Middleton, Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 92–4029, 10 p.
- Lidwin, R.A., and Krohelski, J.T., 1993, Hydrology and water quality of the Forest County Potawatomi Indian Reservation, Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 91–4136, 24 p.
- Krug, W.R., Conger, D.H., and Gebert, W.A., 1992, Flood-frequency characteristics of Wisconsin Streams: U.S. Geological Survey Water-Resources Investigations Report 91–4128, 185 p.
- Rose, W.J., 1993, Water and phosphorus budgets and trophic state, Balsam Lake, northwestern Wisconsin, 1987–1989: U.S. Geological Survey Water-Resources Investigations Report 91–4125, 28 p.
- Field, S.J., 1993, Hydrology and water quality of Powers Lake, southeastern Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 90–4126, 36 p.
- Field, S.J., 1993, Hydrology and water quality of Wind Lake in southeastern Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 91–4107, 61 p.

- Hughes, P.E., 1993, Hydrology, water quality, trophic status, and aquatic plants of Fowler Lake, Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 91-4076, 44 p.
- Rose, W.J., 1992, Sediment transport, particle sizes, and loads in lower reaches of the Chippewa, Black, and Wisconsin Rivers in western Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 90-4124, 38 p.
- Wentz, D.A., and Rose, W.J., 1991, Hydrology of Lakes Clara and Vandercook in north-central Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 89-4204, 24 p.
- Patterson, G.L., 1990, Ground-water levels and quality at Crex Meadows Wildlife Area, Burnett County, Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 89-4129, 19 p.
- Field, S.J., and Graczyk, D.J., 1990, Hydrology, aquatic macrophytes, and water quality of Black Earth Creek and its tributaries, Dane County, Wisconsin, 1985-86: U.S. Geological Survey Water-Resources Investigations Report 89-4089, 44 p.
- Krug, W.R., Gebert, W.A., Graczyk, D.J., Stevens, D.L., Jr., Rochelle, B.P., Church, M.R., and Campbell, W.G., 1988, Runoff map for the Northeastern, Southeastern, and Mid-Atlantic United States for water years 1951-80: U.S. Geological Survey Water-Resources Investigations Report 88-4094, 44 p.
- Rose, W.J., 1988, Water resources of the Apostle Islands National Lakeshore, northern Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 87-4220, 44 p.
- Field, S.J., and Duerk, M.D., 1988, Hydrology and water quality of Delavan Lake in southeastern Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 87-4168, 61 p.
- Walker, J.F., Osen, L.L., and Hughes, P.E., 1987, Cost effectiveness of the U.S. Geological Survey's stream-gaging program in Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 86-4125, 44 p.
- Krohelski, J.T., Ellefson, B.R., and Storlie, C.A., 1987, Estimated use of ground water for irrigation in Wisconsin, 1984: U.S. Geological Survey Water-Resources Investigations Report 86-4079, 12 p., 1 pl.
- House, L.B., 1987, Simulation of unsteady flow in the Milwaukee Harbor Estuary at Milwaukee, Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 86-4050, 19 p.
- Conger, D.H., 1986, Estimating magnitude and frequency of floods for Wisconsin urban streams: U.S. Geological Survey Water-Resources Investigations Report 86-4005, 18 p.
- Graczyk, D.J., 1986, Water quality in the St. Croix National Scenic Riverway, Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 85-4319, 48 p.
- Field, S.J., 1986, Relations between precipitation, streamflow, and water quality in the Galena River basin, Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 85-4214, 48 p.
- Emmons, P.J., 1987, An evaluation of the bedrock aquifer system in northeastern Wisconsin: U.S. Geological Survey Water-Resources Investigations report 85-4199, 48 p.
- Krug, W.R., and Goddard, G.L., 1986, Effects of urbanization on streamflow, sediment loads, and channel morphology in Pheasant Branch basin near Middleton, Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 85-4068, 82 p.
- Cotter, R.D., 1986, Hydrogeology and ground-water quality of Lannon-Sussex Area, northeastern Waukesha County, Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 84-4213, 28 p.
- Field, S.J., 1985, Nonpoint-source discharges and water quality of Elk Creek basin, west-central Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 84-4094, 38 p.
- Field, S.J., and Lidwin, R.A., 1984, An assessment of nonpoint-source discharges, streamflow, and water quality in Onion River, Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 84-4066, 78 p.
- House, L.B., 1984, Effects of urbanization on three ponds in Middleton, Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 84-4051, 17 p.
- Kammerer, P.A., Jr., 1984, An overview of ground-water-quality data in Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 83-4239, 58 p.
- Krug, W.R., and House, L.B., 1984, Evaluation of alternative reservoir-management practices in the Rock River basin, Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 83-4186, 21 p.
- Duerk, M.D., 1983, Automatic dilution gaging of rapidly varying flow: U.S. Geological Survey Water-Resources Investigations Report 83-4088, 17 p.
- Kammerer, P.A., Jr., Lidwin, R.A., Mason, J.W., and Narf, R.P., 1983, Aquatic biology in Nederlo Creek, southwestern Wisconsin: U.S. Geological Survey Water Resources Investigations 82-56, 27 p.
- Lawrence, C.L., and Ellefson, B.R., 1982, Water use in Wisconsin, 1979: U.S. Geological Survey Water Resources Investigations 82-444, 98 p.
- Wentz, D.A., and Graczyk, D.J., 1982, Effects of a Floodwater-Retarding Structure on the Hydrology and Ecology of Trout Creek in Southwestern Wisconsin: U.S. Geological Survey Water-Resources Investigations 82-23, 68 p.
- Holmstrom, B.K., 1982, Low-flow characteristics of streams in the Lake Michigan basin, Wisconsin: U.S. Geological Survey Water-Resources Investigations Open-File Report 81-1193, 102 p.
- House, L.B., 1981, An assessment of streamflow, water quality, and the effects of construction on impoundment on Bridge Creek at Augusta, Wisconsin: U.S. Geological Survey Water-Resources Investigations Open-File Report 81-1192, 25 p.
- Field, S.J., and Lidwin, R.A., 1982, Water-quality assessment of Steiner Branch basin, Lafayette County, Wisconsin: U.S. Geological Survey Water-Resources Investigations 81-52, 58 p.
- Gebert, W.A., 1982, Low-flow characteristics of streams in the Central Wisconsin River basin, Wisconsin: U.S. Geological Survey Water-Resources Investigations Open-File Report 81-495, 99 p.
- Conger, D.H., 1981, Techniques for estimating magnitude and frequency of floods for Wisconsin streams: U.S. Geological Survey Water-Resources Investigations Open-File Report 80-1214, 116 p.

- Krug, W.R., and House, L.B., 1980, Streamflow model of Wisconsin River for estimating flood frequency and volume: U.S. Geological Survey Water-Resources Investigations 80-1103, 44 p.
- Holmstrom, B.K., 1980, Low-flow characteristics of streams in the Menominee-Oconto-Peshigo River basin, Wisconsin: U.S. Geological Survey Water-Resources Investigations Open-File Report 80-749, 82 p.
- _____, 1980, Low-flow characteristics of streams in the St. Croix River basin, Wisconsin: U.S. Geological Survey Water-Resources Investigations Open-File Report 80-696, 62 p.
- Gebert, W.A., 1980, Low-flow characteristics of streams in the upper Wisconsin River basin, Wisconsin: U.S. Geological Survey Water-Resources Investigations Open-File Report 80-691, 60 p.
- Krug, W.R., 1981, Hydrologic effects of proposed changes in management practices, Winnebago Pool, Wisconsin: U.S. Geological Survey Water-Resources Investigations 80-107, 19 p.
- House, L.B., and Skavroncek, S., 1981, Comparison of the propane-area tracer method and predictive equations for determination of stream-re-aeration coefficients on two small streams in Wisconsin: U.S. Geological Survey Water-Resources Investigations 80-105, 18 p.
- Kontis, A.L., and Mandle, R.J., 1980, Data-base system for northern Midwest regional aquifer-system analysis: U.S. Geological Survey Water-Resources Investigations 80-104, 27 p.
- Grant, R.S., and Goddard, G., 1980, Channel erosion and sediment transport in Pheasant Branch basin near Middleton, Wisconsin, a preliminary report: U.S. Geological Survey Water-Resources Investigations Open-File Report 80-161, 19 p., 11 figs., 3 tables.
- McLeod, R.S., 1980, The effects of using ground water to maintain water levels of Cedar Lake, Wisconsin: U.S. Geological Survey Water-Resources Investigations 80-23, 35 p.
- Grant, R.S., and Skavroncek, S., 1980, Comparison of tracer methods and predictive models for determination of stream-re-aeration coefficients on three small streams in Wisconsin: U.S. Geological Survey Water-Resources Investigations 80-19, 36 p.
- Hindall, S.M., 1979, Ground-water quality in selected areas of Wisconsin: U.S. Geological Survey Water-Resources Investigations Open-File Report 79-1594, 20 p.
- Stedfast, D.A., 1979, Low-flow characteristics of streams in the Pecatonica-Sugar River basin, Wisconsin: U.S. Geological Survey Water-Resources Investigations Open-File Report 79-1274, 92 p.
- Grant, R.S., and Goddard, G.L., 1979, Urban storm-runoff modeling—Madison, Wisconsin: U.S. Geological Survey Water-Resources Investigations Open-File Report 79-1273, 20 p.
- Novitzki, R.P., and Holmstrom, B.K., 1979, Monthly and annual water budgets of Lake Wingra, Madison, Wisconsin, 1971-77: U.S. Geological Survey Water-Resources Investigations 79-100, 31 p.
- Kammerer, P.A., and Sherrill, M.G., 1979, Hydrology and water quality in the Nederlo Creek basin before construction of two water-retention structures: U.S. Geological Survey Water-Resources Investigations 79-95, 42 p.
- Gebert, W.A., 1979, Low-flow characteristics of streams in Lake Superior basin, Wisconsin: U.S. Geological Survey Water-Resources Investigations 79-38, 74 p.
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- Gebert, W.A., 1979, Red Cedar River basin, Wisconsin: Low-flow characteristics: U.S. Geological Survey Water-Resources Investigations 79-29, 12 p.
- Holmstrom, B.K., 1979, Low-flow characteristics of streams in the Trempealeau-Black River basin, Wisconsin: U.S. Geological Survey Water-Resources Investigations 79-9, 79 p.
- Sherrill, M.G., 1979, Contamination potential in the Silurian dolomite aquifer, eastern Wisconsin: U.S. Geological Survey Water-Resources Investigations 78-108, 2 pls.
- Holmstrom, B.K., 1978, Low-flow characteristics of streams in the Rock-Fox River basin, Wisconsin: U.S. Geological Survey Water-Resources Investigations 78-85, 98 p.
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- Novitzki, R.P., 1978, Hydrology of the Nevin wetland near Madison, Wisconsin: U.S. Geological Survey Water-Resources Investigations 78-48, 25 p.
- Grant, R.S., 1978, Re-aeration capacity of the Rock River between Lake Koshkonong, Wisconsin, and Rockton, Illinois: U.S. Geological Survey Water-Resources Investigations 77-128, 33 p.
- Gebert, W.A., 1978, Low-flow characteristics of streams in the lower Wisconsin River basin: U.S. Geological Survey Water-Resources Investigations 77-118, 80 p.
- Gebert, W.A., and Holmstrom, B.K., 1977, Low-flow characteristics at gaging stations on the Wisconsin, Fox, and Wolf Rivers, Wisconsin: U.S. Geological Survey Water-Resources Investigations 77-27, 20 p.
- Rose, W.J., 1977, Hydrologic considerations associated with dredging spring ponds in Wisconsin: U.S. Geological Survey Water-Resources Investigations 77-18, 35 p.
- Krug, W.R., 1976, Simulation of streamflow of Flambeau River at Park Falls, Wisconsin, to define low-flow characteristics: U.S. Geological Survey Water-Resources Investigations 76-116, 14 p.
- Grant, R.S., 1976, Re-aeration of coefficient measurements of 10 small streams in Wisconsin using radioactive tracers—with a section on the energy-dissipation model: U.S. Geological Survey Water-Resources Investigations 76-96, 50 p.
- Novitzki, R.P., 1976, Recycling ground water in Waushara County, Wisconsin: Resource management for cold-water fish hatcheries: U.S. Geological Survey Water-Resources Investigations 76-20, 60 p.

Hindall, S.M., 1976, Measurement and prediction of sediment yields in Wisconsin streams: U.S. Geological Survey Water-Resources Investigations 54-75, 27 p.

Oakes, E.L., Hendrickson, G.E., and Zuehls, E.E., 1975, Hydrology of the Lake Wingra basin, Dane County, Wisconsin: U.S. Geological Survey Water-Resources Investigations 17-75, 31 p.

Gebert, W.A., and Holmstrom, B.K., 1974, Low-flow characteristics of Wisconsin streams at sewage-treatment plants: U.S. Geological Survey Water-Resources Investigations 45-74, 101 p.

Hendrickson, G.E., Knutilla, R.L., and Doonan, C.J., 1973, Hydrology and recreation of selected cold-water rivers of the St. Lawrence River basin in Michigan, New York, and Wisconsin: U.S. Geological Survey Water-Resources Investigations 8-73, 73 p.

OPEN-FILE REPORTS

Corsi, S.R., Greb, S. R., Bannerman, R.T., and Pitt, R.E., 1999, Evaluation of the multi-chambered treatment train, a retrofit water-quality management device: U.S. Geological Survey Open-File Report 99-270, 24 p.

Maertz, D.E., 1999, Water-resources investigations in Wisconsin, 1999: U.S. Geological Survey Open-File Report 99-229, 112 p.

Wisconsin District Lake-Studies Team, 1999, Water-quality and lake-stage data for Wisconsin lakes, water year 1998: U.S. Geological Survey Open-File Report 99-98, 143 p.

Krug, W.R., 1999, Simulation of the effects of operating Lakes Mendota, Monona, and Waubesa, south-central Wisconsin, as multipurpose reservoirs to maintain dry-weather flow: U.S. Geological Survey Open-File Report 99-67, 18 p.

Hall, D.W., Behrendt, T.E., and Hughes, P.E., 1998, Temperature, pH, conductance, and dissolved oxygen in cross sections of 11 Lake Michigan tributaries, 1994-95: U.S. Geological Survey Open-File Report 98-567, 85 p.

Maertz, D.E., 1998, Water-resources investigations in Wisconsin: U.S. Geological Survey Open-File Report 98-295, 96 p.

Wisconsin District Lake-Studies Team, 1998, Water-quality and lake-stage data for Wisconsin lakes, water year 1997: U.S. Geological Survey Open-File Report 98-78A, 129 p.

Ellefson, B.R., Fan, C.H., and Ripley, J.L., 1997, Water use in Wisconsin, 1995: U.S. Geological Survey Open-File Report 97-356, 1 sheet.

Maertz, D.E., 1997, Water-resources investigations in Wisconsin: U.S. Geological Survey Open-File Report 97-351, 91 p.

Wisconsin District Lake-Studies Team, 1997, Water-quality and lake-stage data for Wisconsin lakes, water year 1996: U.S. Geological Survey Open-File Report 97-123, 134 p.

Rappold, K.F., Wierl, J.A., and Amerson, F.U., 1997, Watershed characteristics and land management in the nonpoint-source evaluation monitoring watersheds in Wisconsin: U.S. Geological Survey Open-File Report 97-119, 39 p.

Owens, D.W., Corsi, S.R., and Rappold, K.F., 1997, Evaluation of nonpoint-source contamination, Wisconsin: Selected topics for water year 1995: U.S. Geological Survey Open-File Report 96-661A, 41 p.

Bannerman, R.T., Legg, A.D., and Greb, S.R., 1996, Quality of Wisconsin stormwater 1989-94: U.S. Geological Survey Open-File Report 96-458, 26 p.

Maertz, D.E., 1996, Water-resources investigations in Wisconsin: U.S. Geological Survey Open-File Report 96-333, 74 p.

Wisconsin District Lake-Studies Team, 1996, Water-quality and lake-stage data for Wisconsin lakes, water year 1995: U.S. Geological Survey Open-File Report 96-168, 123 p.

Wierl, J.A., Rappold, K.F., and Amerson, F.U., 1996, Summary of the land-use inventory for the nonpoint-source evaluation monitoring watersheds in Wisconsin: U.S. Geological Survey Open-File Report 96-123, 23 p.

Steuer, J.J., Selbig, W.R. and Hornewer, N.J., 1996, Contaminant concentrations in stormwater from eight Lake Superior basin cities, 1993-94: U.S. Geological Survey Open-File Report 96-122, 16 p.

Waschbusch, R.J., 1996, Stormwater-runoff data, Madison, Wisconsin, 1993-94: U.S. Geological Survey Open-File Report 95-733, 33 p.

Maertz, D.E., 1995, Water-resources investigations in Wisconsin: U.S. Geological Survey Open-File Report 95-328, 84 p.

Walker, J.F., Graczyk, D.J., Corsi, S.R., Owens, D.W., and Wierl, J.A., 1995, Evaluation of nonpoint-source contamination, Wisconsin: Land-use and best-management-practices inventory, selected streamwater-quality data, urban-watershed quality assurance and quality control, constituent loads in rural streams, and snowmelt-runoff analysis, water year 1994: U.S. Geological Survey Open-File Report 95-320, 21 p.

Wisconsin District Lake-Studies Team, 1995, Water-quality and lake-stage data for Wisconsin lakes, water year 1994: U.S. Geological Survey Open-File Report 95-190, 157 p.

Peters, C.A., 1995, National Water-Quality Assessment Program, Western Lake Michigan Drainages—Summaries of Liaison Committee Meeting, Green Bay, Wisconsin, March 28-29, 1995: U.S. Geological Survey Open-File Report 95-163, 57 p.

Corsi, S.R., Walker, J.F., Graczyk, D.J., Greb, S.R., Owens, D.W., and Rappold, K.F., 1995, Evaluation of nonpoint-source contamination, Wisconsin: Selected streamwater-quality data, land-use and best-management practices inventory, and quality assurance and quality control, water year 1993: U.S. Geological Survey Open-File Report 94-707, 57 p.

Krohelski, J.T., and Batten, W.G., 1995, Simulation of stage and the hydrologic budget of Devils Lake, Sauk County, Wisconsin: U.S. Geological Survey Open-File Report 94-348, 22 p.

House, L.B., 1995, Distribution and transport of polychlorinated biphenyls in Little Lake Butte des Morts, Fox River, Wisconsin, April 1987-October 1988: U.S. Geological Survey Open-File Report 93-31, 43 p., 1 pl.

Maertz, D.E., 1994, Water-resources investigations in Wisconsin: 1994: U.S. Geological Survey Open-File Report 94-321, 92 p.

Graczyk, D.J., Walker, J.F., Greb, S.R., Corsi, S.R., and Owens, D.W., 1993, Evaluation of nonpoint-source contamination, Wisconsin: Selected data for 1992 water year: U.S. Geological Survey Open-File Report 93-630, 48 p.

- House, L.B., Waschbusch, R.J., and Hughes, P.E., 1993, Water quality on an urban wet detention pond in Madison, Wisconsin, 1987-88: U.S. Geological Survey Open-File Report 93-172, 57 p.
- House, L.B., Hughes, P.E., and Waschbusch, R.J., 1993, Concentrations and loads of polychlorinated biphenyls in major tributaries entering Green Bay, Lake Michigan, 1989-90: U.S. Geological Survey Open-File Report 93-132, 41 p.
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- Ellefson, B.R., Sabin, T.J., and Krohelski, J.T., 1993, Water use in Wisconsin, 1990: U.S. Geological Survey Open-File Report 93-118, 1 sheet.
- Maertz, D.E., 1992, Water-resources investigations in Wisconsin: Programs and activities of the U.S. Geological Survey, 1991-92: U.S. Geological Survey Open-File Report 92-125, 93 p.
- Elder, J.F., Krabbenhoft, D.P., and Walker, J.F., 1992, Water, energy, and biogeochemical budgets (WEBB) program: Data availability and research at the northern temperate lakes site, Wisconsin: U.S. Geological Survey Open-File Report 92-48, 15 p.
- Krabbenhoft, D.P., and Krohelski, J.T., 1992, Data on water quality, lake sediment, and lake-level fluctuation, St. Croix Indian Reservation, Wisconsin, 1981-87: U.S. Geological Survey Open-File Report 92-26, 53 p.
- Setmire, J.G., 1991, National Water-Quality Assessment Program — Western Lake Michigan Drainage Basin: U.S. Geological Survey Open-File Report 91-161, Water Fact Sheet, 2 p.
- Melcher, N.B. and Walker, J.F., 1990, Evaluation of selected methods for determining streamflow during periods of ice effect: U.S. Geological Survey Open-File Report 90-554, 51 p.
- U.S. Geological Survey, 1990, The effects of the 1988 drought on the water resources of Wisconsin: U.S. Geological Survey Open-File Report 90-149, Water Fact Sheet, 2 p.
- Hughes, Peter E., 1993, Hydrologic and water-quality data for the East River basin in northeastern Wisconsin: U.S. Geological Survey Open-File Report 89-245, 91 p.
- House, L.B., 1990, Data on polychlorinated biphenyls, dieldrin, lead, and cadmium in Wisconsin and upper Michigan tributaries to Green Bay, July 1987 through April 1988: U.S. Geological Survey Open-File Report 89-52, 11 p.
- Gebert, W.A., Graczyk, D.J., and Krug, W.R., 1988, Runoff for selected sites in Shenandoah National Park, Virginia, July 18, 1981 through July 17, 1982: U.S. Geological Survey Open-File Report 88-98, 13 p.
- Ellefson, B.R., Rury, K.S., and Krohelski, J.T., 1988, Water use in Wisconsin, 1985: U.S. Geological Survey Open-File Report 87-699.
- Krug, W.R., Gebert, W.A., and Graczyk, D.J., 1989, Preparation of average annual runoff map of the United States, 1951-80: U.S. Geological Survey Open-File Report 87-535, 414 p.
- Krug, W.R., Ostenso, N.A., and Krohelski, J.T., 1988, Prediction of the effects of mine dewatering on four lakes near Crandon, Wisconsin, by use of a water-budget model: U.S. Geological Survey Open-File Report 87-471, 63 p.
- Graczyk, D.J., Gebert, W.A., Krug, W.R., and Allord, G.J., 1987, Maps of runoff in the Northeastern Region and southern Blue Ridge Province of the United States during selected time periods in 1983-85: U.S. Geological Survey Open-File Report 87-106, 8 p., 3 pl.
- Graczyk, D.J., Krug, W.R., and Gebert, W.A., 1986, A history of annual streamflows from the 21 water-resource regions in the United States and Puerto Rico, 1951-83: U.S. Geological Survey Open-File Report 86-128, 30 p.
- Henrich, E.W., 1984, Drainage-area data for Wisconsin streams: U.S. Geological Survey Open-File Report 83-933, 322 p.
- Lawrence, C.L., Ellefson, B.R., and Cotter, R.D., 1984, Public-supply pumpage in Wisconsin in 1979: U.S. Geological Survey Open-File Report 83-931, 40 p.
- Lawrence, C.L., and Ellefson, B.R., 1979, Water use in Wisconsin, 1979: U.S. Geological Survey Open-File Report 82-444, 98 p.
- Novitzki, R.P., 1979, Streamflow estimates in selected Wisconsin streams: U.S. Geological Survey Open-File Report 79-1282, 11 p.
- Harr, C.A., and Novitzki, R.P., 1979, Availability of supplemental water supplies at salmonid fish-propagation stations in Wisconsin: U.S. Geological Survey Open-File Report 79-1170, 13 p.
- Krug, W.R., 1979, Simulation of streamflow of Rock River at Lake Koshkonong, Wisconsin, to determine effects of withdrawal of powerplant-cooling water: U.S. Geological Survey Open-File Report 79-253, 21 p.
- McLeod, R.S., 1978, Water-level declines in the Madison area, Dane County, Wisconsin: U.S. Geological Survey Open-File Report 78-936, 15 p.
- Field, S.J., 1978, Low-flow characteristics of small streams in proposed Public Law 566 basins: U.S. Geological Survey Open-File Report 78-664, 32 p.
- Hindall, S.M., 1978, Suspended-sediment transport in the Big Eau Pleine River basin, central Wisconsin: U.S. Geological Survey Open-File Report 78-313, 12 p.
- Lawrence, C.L., 1976, Regional flood limits of lower Yahara River, Lake Waubesa and south, in Dane County, Wisconsin: U.S. Geological Survey Open-File Report 76-805, 20 p.
- Krug, W.R., 1976, Probable maximum flood at Lake Chippewa near Winter, Wisconsin: U.S. Geological Survey Open-File Report 76-800, 14 p.
- Grant, R.S., 1976, Waste-assimilation study of Koshkonong Creek below sewage-treatment plant at Sun Prairie, Wisconsin: U.S. Geological Survey Open-File Report 76-655, 44 p.
- Lawrence, C.L., 1976, Regional flood limits of upper Yahara River in Dane County, Wisconsin: U.S. Geological Survey Open-File Report 76-448, 15 p.
- Holmstrom, B.K., 1976, Low-flow characteristics and mean annual discharge of North Branch Manitowoc River at Potter, Wisconsin: U.S. Geological Survey Open-File Report 76-204, 20 p.

- Krug, W.R., 1976, Flood-plain delineation for regional flood in Dane County, Wisconsin: U.S. Geological Survey Open-File Report 76-164, 168 p.
- Field, S.J., 1975, Low-flow study of the Pike River basin, Racine and Kenosha Counties, Wisconsin: U.S. Geological Survey Open-File Report 75-653, 10 p.
- Green, J.H., 1975, Flow characteristics of the lower Wisconsin River: U.S. Geological Survey Open-File Report 75-582, 9 p.
- Holmstrom, B.K., 1975, Streamflow characteristics of Klawitter Creek basin near Westfield, Wisconsin: U.S. Geological Survey Open-File Report 75-527, 14 p.
- Krug, W.R., 1975, Analysis of operational plan for Lake Chippewa near Winter, Wisconsin: U.S. Geological Survey Open-File Report 75-487, 17 p.
- Holmstrom, B.K., 1975, Low-flow characteristics of the Eau Claire River basin near Antigo, Wisconsin: U.S. Geological Survey Open-File Report 75-336, 19 p.
- Gebert, W.A., 1974, Streamflow characteristics of Little Wolf River—Holt Creek basin near Galloway, Wisconsin: U.S. Geological Survey Open-File Report, 10 p.
- Lawrence, C.L., and Holmstrom, B.K., 1973, Floods on Yahara River tributaries, Dane County, Wisconsin: U.S. Geological Survey Open-File Report, 19 p.
- Grant, R.S., Krug, W.R., and Duerk, M.D., 1973, Floodplain and floodway delineation for regional flood in central Marathon County, Wisconsin: U.S. Geological Survey Open-File Report, 33 p.
- Holmstrom, B.K., Gebert, W.A., and Borman, R.G., 1973, Alder Creek hydrology, Wisconsin: U.S. Geological Survey Open-File Report, 28 p.
- Lawrence, C.L., and Holmstrom, B.K., 1972, Flood in Starkweather Creek basin, Madison, Wisconsin: U.S. Geological Survey Open-File Report, 15 p.
- Holmstrom, B.K., 1972, Drainage-area data for Wisconsin streams: U.S. Geological Survey Open-File Report, 74 p. (Updated 1973, 1974, 1978, and 1979.)
- Hindall, S.M., 1972, Sediment yields of Wisconsin streams: U.S. Geological Survey Open-File Report, 2 p.
- Weeks, E.P., and Stangland, H.G., 1971, Effects of irrigation on streamflow in the central sand plains of Wisconsin: U.S. Geological Survey Open-File Report, 113 p.
- Conger, D.H., 1971, Estimating magnitude and frequency of floods in Wisconsin: U.S. Geological Survey Open-File Report, 200 p.
- Holmstrom, B.K., and Lawrence, C.L., 1971, Floods on Yahara River, Lake Mendota to Lake Kegonsa, Dane County, Wisconsin: U.S. Geological Survey Open-File Report, 12 p.
- Lawrence, C.L., and Holmstrom, B.K., 1971, Floods on Yahara River, Lake Kegonsa dam to countyline, Dane County, Wisconsin: U.S. Geological Survey Open-File Report, 10 p.
- Shearman, J.O., and Lawrence, C.L., 1971, Floods on Yahara River upstream from Lake Mendota, Dane County, Wisconsin: U.S. Geological Survey Open-File Report, 7 p.
- Gebert, W.A., 1971, Hydrology of Pine Creek: U.S. Geological Survey Open-File Report, 6 p.
- _____, 1971, Hulbert Creek hydrology, southwestern Wisconsin: U.S. Geological Survey Open-File Report, 11 p.
- Gonthier, J.B., 1970, Water resources of southeastern Wisconsin—Milwaukee River basin: U.S. Geological Survey Open-File Report, 138 p. (Extensively used in preparation of "A comprehensive plan for the Milwaukee River watershed", vol. 1 and 2, 1970 and 1971, Southeastern Wisconsin Regional Planning Commission Report No. 13, vol. 1, 514 p. and vol. 2, 623 p.)
- Hamilton, L.J., 1970, Availability of ground water in the lower Wisconsin River Valley, Wisconsin: U.S. Geological Survey Open-File Report, 45 p.
- Campbell, R.E., and Dreher, F.C., 1970, A proposed streamflow data program for Wisconsin: U.S. Geological Survey Open-File Report, 55 p.
- Shearman, J.O., 1969, Evaluation of flood potential, part 2 of flood-plain management—Lake Koshkonong: U.S. Geological Survey Open-File Report, 6 p.
- Young, K.B., 1965, Effect of treated effluent diversion on Yahara River flow: U.S. Geological Survey Open-File Report, 81 p.
- _____, 1965, Supplement to report on flow characteristics of Wisconsin streams: U.S. Geological Survey Open-File Report, 81 p.
- U.S. Geological Survey, 1964, Water-quality records in Michigan and Wisconsin: U.S. Geological Survey Open-File Report, 61 p.
- Young, K.B., 1963, Flow characteristics of Wisconsin streams: U.S. Geological Survey Open-File Report, 151 p.
- Ericson, D.W., 1961, Floods in Wisconsin, magnitude and frequency: U.S. Geological Survey Open-File Report, 109 p.
- _____, 1961, Wisconsin River near Dekorra, Wisconsin, flood-flow characteristics at proposed bridge site on the Wisconsin Freeway in Columbia County: U.S. Geological Survey Open-File Report, 13 p.
- Spicer, H.C., and Edwards, G.J., 1955, Electrical resistivity measurements in the Neillsville area, Wisconsin: U.S. Geological Survey Open-File Report, 34 p.
- _____, 1954, A resistivity survey to locate an aquifer in the glacial deposits near Marshfield, Wisconsin: U.S. Geological Survey Open-File Report, 76 p.
- Drescher, W.J., 1948, Results of pumping tests on artesian wells in the Milwaukee-Waukesha area, Wisconsin: U.S. Geological Survey Open-File Report, 22 p.

OPEN-FILE MAPS

- Gonthier, J.B., 1979, Water-table map of Waukesha County, Wisconsin: U.S. Geological Survey Water-Resources Investigations Open-File Map 79-43, 1 pl.
- Sherrill, M.G., and Erickson, J.R., 1979, Water-table map of Walworth County, Wisconsin: U.S. Geological Survey Water-Resources Investigations Open-File Map 79-42, 1 pl.
- Sherrill, M.G., and Schiller, J.J., 1979, Water-table map of Racine County, Wisconsin: U.S. Geological Survey Water-Resources Investigations Open-File Map 79-41, 1 pl.

Sherrill, M.G., Schiller, J.J., and Erickson, J.R., 1979, Water-table map of Milwaukee County, Wisconsin: U.S. Geological Survey Water-Resources Investigations Open-File Map 79-40, 1 pl.

Sherrill, M.G., and Schiller, J.J., 1979, Water-table map of Kenosha County, Wisconsin: U.S. Geological Survey Water-Resources Investigations Open-File Map 79-39, 1 pl.

Borman, R.G., 1976, Thickness of unconsolidated materials of Walworth County, Wisconsin: U.S. Geological Survey Open-File Report 76-465, scale 1:62,500.

_____, 1976, Water-table map of Walworth County, Wisconsin: U.S. Geological Survey Open-File Report 76-464, scale 1:62,500.

_____, 1976, Bedrock topography of Walworth County, Wisconsin: U.S. Geological Survey Open-File Report 76-463, scale 1:62,500.

_____, 1976, Bedrock geology of Walworth County, Wisconsin: U.S. Geological Survey Open-File Report 75-462, scale 1:62,500.

Gonthier, J.B., 1975, Bedrock topography of Waukesha County, Wisconsin: U.S. Geological Survey Open-File Report 75-572, scale 1:62,500.

_____, 1975, Water-table map of Waukesha County, Wisconsin: U.S. Geological Survey Open-File Report 75-571, scale 1:62,500.

Gonthier, J.B., 1975, Bedrock geology of Waukesha County, Wisconsin: U.S. Geological Survey Open-File Report 75-570, scale 1:62,500.

Borman, R.G., 1971, Preliminary map showing thickness of glacial deposits in Wisconsin: U.S. Geological Survey Open-File Report, scale 1:2,500,000.

_____, 1971, Preliminary map of probable well yields from bedrock in Wisconsin: U.S. Geological Survey Open-File Report, scale 1:2,500,000.

_____, 1971, Preliminary map of probable well yields from glacial deposits in Wisconsin: U.S. Geological Survey Open-File Report, scale 1:2,500,000.

ADMINISTRATIVE REPORTS

Rose, W.J., 1979, Bedload in northwestern Wisconsin's Nemadji River: U.S. Geological Survey Administrative Report, 12 p.

Kammerer, P.A., and Lidwin, R.A., 1977, Water quality in the Pine River basin Richland and Vernon Counties, Wisconsin: U.S. Geological Survey Administrative Report, 93 p.

Novitzki, R.P., 1971, Hydrologic investigations of Heart Lake, Green Lake County, Wisconsin: U.S. Geological Survey Administrative Report, 9 p.

_____, 1971, Hydrologic investigations for the Woodruff Fish Hatchery, Oneida County, Wisconsin: U.S. Geological Survey Administrative Report, 4 p.

_____, 1971, Hydrologic investigations of a proposed reservoir site in Trempealeau County, Wisconsin: U.S. Geological Survey Administrative Report, 4 p.

WISCONSIN GEOLOGICAL AND NATURAL HISTORY SURVEY INFORMATION CIRCULARS

Batten, W.G., 1989, Hydrogeology of Wood County, Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 60, 27 p., 2 pls.

Patterson, G.L., and Zaporozec, Alexander, 1988, Analysis of water-level fluctuations in Wisconsin wells: Wisconsin Geological and Natural History Survey Information Circular 63, 38 p.

Batten, W.G., 1987, Water resources of Langlade County, Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 58, 28 p., 1 pl.

Krohelski, J.T., 1986, Hydrogeology and ground-water use and quality, Brown County, Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 57, 42 p.

House, L.B., 1986, Stage fluctuations of Wisconsin Lakes: Wisconsin Geological and Natural History Survey Information Circular No. 49, 84 p.

Devaul, R.W., Harr, C.A., and Schiller, J.J., 1983, Ground-water resources and geology of Dodge County, Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 44, 34 p.

Erickson, R.M., and Cotter, R.D., 1983, Trends in ground-water levels in Wisconsin through 1981: Wisconsin Geological and Natural History Survey Information Circular 43, 139 p.

Novitzki, R.P., 1982, Hydrology of Wisconsin Wetlands: Wisconsin Geological and Natural History Survey Information Circular 40, 22 p.

Kammerer, P.A., Jr., 1981, Ground-water quality atlas of Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 39, 39 p.

Young, H.L., and Batten, W.G., 1980, Ground-water resources and geology of Washington and Ozaukee Counties, Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 38, 37 p.

Harr, C.A., Trotta, L.C., and Borman, R.G., 1978, Ground-water resources and geology of Columbia County, Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 37, 30 p.

Hindall, S.M., 1978, Effects of irrigation on water quality in the sand plain of central Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 36, 50 p.

Borman, R.G., 1976, Ground-water resources and geology of Walworth County, Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 34, 45 p.

Borman, R.G., and Trotta, L.C., 1976, Ground-water resources and geology of Jefferson County, Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 33, 31 p.

Borman, R.G., 1976, Ground-water resources and geology of St. Croix County, Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 32, 30 p.

Bell, E.A., and Hindall, S.M., 1975, The availability of ground water for irrigation in the Rice Lake-Eau Claire area, Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 31, 65 p.

McLeod, R.S., 1975, A digital-computer model for estimating hydrologic changes in the aquifer system in Dane County, Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 30, 40 p.

Gonthier, J.B., 1975, Ground-water resources of Waukesha County, Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 29, 47 p.

McLeod, R.S., 1975, A digital-computer model for estimating drawdown in the sandstone aquifer in Dane County, Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 28, 91 p.

Holt, C.L.R., Jr., and Skinner, E.L., 1973, Ground-water quality in Wisconsin through 1972: Wisconsin Geological and Natural History Survey Information Circular 22, 148 p.

Erickson, R.M., 1972, Trends in ground-water levels in Wisconsin, 1967–71: Wisconsin Geological and Natural History Survey Information Circular 21, 40 p. (Supplement to Information Circular 9).

Holt, C.L.R., Jr., Cotter, R.D., Green, J.H., and Olcott, P.G., 1970, Hydrogeology of the Rock-Fox River basin of southeastern Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 17, 47 p. (Prepared for the Annual Meeting of the Geological Society of America-Field Trip Guidebook).

Devaul, R.W., 1967, Trends in ground-water levels in Wisconsin through 1966: Wisconsin Geological and Natural History Survey Information Circular 9, 109 p.

Ryling, R.W., 1961, A preliminary study of the distribution of saline water in the bedrock aquifers of eastern Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 5, 23 p.

Drescher, W.J., 1956, Ground water in Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 3, 37 p.

_____, 1955, Some effects of precipitation on ground water in Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 1, 17 p.

WISCONSIN GEOLOGICAL AND NATURAL HISTORY SURVEY MISCELLANEOUS PAPERS

Patterson, G.L., 1989, Water resources of Vilas County, Wisconsin: Wisconsin Geological and Natural History Survey Miscellaneous Paper 89–1, 46 p.

FACT SHEETS

Graczyk, D.J., Vanden Brook, J.P., and Rheineck, B.D., 1999, Herbicides in the Pecatonica, Trempealeau, and Yahara Rivers in Wisconsin, May 1997–July 1998: U.S. Geological Survey Fact Sheet FS–167–99, 9 p.

Wierl, J.A., Giddings, E.M.P., and Bannerman, R.T., 1998, Evaluation of a method for comparing phosphorus loads from barnyards and croplands in Otter Creek watershed, Wisconsin: U.S. Geological Survey Fact Sheet FS–168–98, 4 p.

Rose, W.J., and Robertson, D.M., 1998, Hydrology, water quality, and phosphorus loading of Kirby Lake, Barron County, Wisconsin: U.S. Geological Survey Fact Sheet, FS–066–98, 4 p.

Stuntebeck, T.D., and Bannerman, R.T., 1998, Effectiveness of barnyard best management practices in Wisconsin: U.S. Geological Survey Fact Sheet FS–051–98, 4 p.

Team for Evaluating the Wisconsin Water-Monitoring Network, 1998, Plan for an integrated long-term water-monitoring network for Wisconsin: U.S. Geological Survey Fact Sheet FS–048–98, 4 p.

Corsi, S.R., Graczyk, D.J., Owens, D.W., and Bannerman, R.T., 1997, Unit-area loads of suspended sediment, suspended solids, and total phosphorus from small watersheds in Wisconsin: U.S. Geological Survey Fact Sheet FS–195–97, 4 p.

Graczyk, D.J., and Vanden Brook, J.P., 1997, Herbicides in the Pecatonica and Yahara Rivers in southwestern Wisconsin, May 1996–July 1996: U.S. Geological Survey Fact Sheet FS–175–97, 4 p.

Lenz, B.N., 1997, Feasibility of combining two aquatic benthic macroinvertebrate community databases for water-quality assessment: U.S. Geological Survey Fact Sheet FS–132–97, 4 p.

Hunt, R.J., 1996, Do created wetlands replace the wetlands that are destroyed?: U.S. Geological Survey Fact Sheet FS–246–96, 4 p.

Elder, J.F., and Goddard, G.L., 1996, Sediment and nutrient trapping efficiency of a constructed wetland near Delavan Lake, Wisconsin, 1993–1995: U.S. Geological Survey Fact Sheet FS–232–96, 4 p.

Kammerer, P.A., Jr., 1996, Hydrology and water quality of Park Lake, south-central Wisconsin: U.S. Geological Survey Fact Sheet FS–197–96, 4 p.

Matzen, A.M., and Saad, D.A., 1996, Pesticides in ground water in the Western Lake Michigan Drainages, Wisconsin and Michigan, 1983–1995: U.S. Geological Survey Fact Sheet FS–192–96, 4 p.

U.S. Geological Survey, 1996, Real-time streamflow conditions: U.S. Geological Survey Fact Sheet FS–190–96, 2 p.

Krabbenhoft, D.P., 1996, Mercury studies in the Florida Everglades: U.S. Geological Survey Fact Sheet FS–166–96, 4 p.

Fitzgerald, S.A., and Steuer, J.J., 1996, The Fox River PCB transport study—stepping stone to a healthy Great Lakes ecosystem: U.S. Geological Survey Fact Sheet FS–116–96, 4 p.

Sullivan, D.J., and Richards, K.D., 1996, Pesticides in streams in the Western Lake Michigan Drainages, Wisconsin and Michigan, 1993–95: U.S. Geological Survey Fact Sheet FS–107–96, 4 p.

Stuntebeck, T.D., 1995, Evaluating barnyard best management practices in Wisconsin using upstream-downstream monitoring: U.S. Geological Survey Fact Sheet FS–221–95, 4 p.

Robertson, D.M., and Saad, D.A., 1995, Environmental factors used to subdivide the Western Lake Michigan Drainages into relatively homogeneous units for water-quality site selection: U.S. Geological Survey Fact Sheet FS–220–95, 4 p.

Krabbenhoft, D.P., and Rickert, D.A., 1995, Mercury contamination of aquatic ecosystems: U.S. Geological Survey Fact Sheet FS–216–95, 4 p.

Saad, D.A., 1995, Nitrate in ground water in the Western Lake Michigan Drainage Basin, Wisconsin and Michigan: U.S. Geological Survey Fact Sheet FS–070–94, 2 p.

JOURNAL ARTICLES

Elder, J.F., 1994, Distribution and grain-size partitioning of metals in bottom sediments of an experimentally acidified Wisconsin Lake: *Water Resources Bulletin*, vol. 30, no. 2, p. 251-259.

Krabbenhoft, D.P., Bowser, C.J. Kendall, C., and Gat, J.R., 1994, Use of oxygen-18 and deuterium to assess the hydrology of groundwater-lake systems: *American Chemical Society Advances in Chemistry Series No. 237, Environment Chemistry of Lakes and Reservoirs*, p. 67-90.

Walker, J.F., 1994, Methods for measuring discharge under ice cover: *Journal of Hydraulic Engineering*, vol. 120, no. 11, p. 1327-1336.

Walker, J.F., 1994, Statistical techniques for assessing water-quality effects of BMPs: *Journal of Irrigation and Drainage Engineering*, vol. 120, no. 2, p. 334-347.

OTHER PUBLICATIONS

Hunt, Randy and Zheng, Chunmiao, 1999, Newsletter: Debating complexity in modeling; *Eos, Transactions, American Geophysical Union*, v. 80, no. 3, p. 29.

Peters, C.A., et al, 1998, Water-quality in the Western Lake Michigan Drainages, Wisconsin and Michigan, 1992-95: *U.S. Geological Survey Circular 1156*, 40 p.

Team for Evaluating the Wisconsin Water-Monitoring Network, 1998, An integrated water-monitoring network for Wisconsin: *University of Wisconsin, Water Resources Center Special Report WRC SR 98-01*, 62 p.

Hunt, R.J., 1997, Book Review: Wetlands-Environmental gradients, boundaries, and buffers: *Ground Water*, v. 35, no. 4, p. 731.

Krabbenhoft, D.P., and Webster, K.E., 1995, Transient hydrogeological controls on the chemistry of a seepage lake: *Water Resources Research*, vol. 31, no. 9, September 1995, p. 2295-2305.

Greb, S.R., and Graczyk, D.J., 1995, Frequency-duration analysis of dissolved-oxygen concentrations in two southwestern Wisconsin streams: *Water Resources Bulletin, American Water Resources Association*, vol. 31, no. 3, June 1995, p. 431-438.

Krabbenhoft, D.P., Benoit, J.M., Babiarz, C.L., Hurley, J.P., and Andren, A.W., 1995, Mercury cycling in the Allequash Creek watershed, northern Wisconsin: *Water, Air, and Soil Pollution*, vol. 80, nos. 1/4, February 1995, p. 425-433.

Assel, R.A., and Robertson, D.M., 1995, Changes in winter air temperatures near Lake Michigan, 1851-1993, as determined from regional lake-ice records: *Limnology and Oceanography*, vol. 40, no. 1, January 1995, p. 165-176.

Wentz, D.A., Rose, W.J., and Webster, K.E., 1995, Long-term hydrologic and biogeochemical responses of a soft water seepage lake in north central Wisconsin: *Water Resources Research*, vol. 31, no. 1, January 1995, p. 199-212.

Velleux, M., Endicott, D., Steuer, J., Jaeger, S., and Patterson, D., 1995, Long-term simulation of PCB export from the Fox River to Green Bay: *Journal of Great Lakes Research, International Association for Great Lakes Research*, vol. 21, no. 3, 1995, p. 359-372.

Wentz, D.A., Krohelski, J.T., Rose, W.J., 1994, Hydrology, in Klepinger, Kent E., ed., *The Wisconsin Regional Integrated Lake Watershed Acidification Study (RILWAS), 1983-1986: Wisconsin Department of Natural Resources PUBL-RS-909-94*, p. 5-1 to 6-44.

Greb, S.R., and Graczyk, D.J., 1993, Dissolved oxygen characteristics of Wisconsin streams: *Water Science Technology*, v. 28, no. 3-5, p. 575-581.

Bannerman, R.T., Owens, D.W., Dodds, R.B., and Hornewer, N.J., 1993, Sources of pollutants in Wisconsin stormwater: *Water Science Technology*, v. 28, no. 3-5, p. 241-259.

Walker, J.F., and Graczyk, D.J., 1993, Preliminary evaluation of effects of best management practices in the Black Earth Creek, Wisconsin, priority watershed: *Water Science Technology*, v. 28, no. 3-5, p. 539-548.

Krabbenhoft, D.P., and Babiarz, C.L., 1992, The role of groundwater transport in aquatic mercury cycling: *Water Resources Research*, v. 28, no. 12, December 1992, p. 3119-3128.

Mason, J.W., Graczyk, D.J., and Kerr, R.A., 1991, Effects of runoff on smallmouth bass populations in four southwestern Wisconsin streams: *First International Small-mouth Bass Symposium*, 1991, p. 28-38.

Graczyk, D.J., and Sonzogni, W.C., 1991, Reduction of dissolved oxygen concentration in Wisconsin streams during summer runoff: *Journal of Environmental Quality*, v. 20, no. 2, p. 445-451.

Elder, J.F., and Collins, J.J., 1991, Freshwater molluscs as indicators of bioavailability and toxicity of metals in surface-water systems: *Reviews of Environmental Contamination and Toxicology*, v. 122, no. 4, p. 37-79.

Walker, J.F., Pickard, S.A., and Sonzogni, W.C., 1989, Spreadsheet watershed modeling for nonpoint-source pollution management in a Wisconsin basin: *Water Resources Bulletin*, v. 25, no. 1, p. 139-147.

Wentz, D.A., Garrison, P.J., and Bockheim, J.G., 1989, Section 7—Chemical input-output budgets, in Knauer, D., and Brouwer, S.A., eds., *The Wisconsin Regional Integrated Lake-Watershed Acidification Study (RILWAS): 1981-1983: Palo Alto, California, Electric Power Research Institute Report EA-6214*, p. 7-1 to 7-30.

Wentz, D.A., and Rose, W.J., 1989, Interrelationships among hydrologic-budget components of a northern Wisconsin seepage lake and implications for acid-deposition modeling: *Archives of Environmental Contamination and Toxicology*, v. 18, p. 147-155.

Wentz, D.A., Rose, W.J., and Krohelski, J.T., 1989, Section 5—Hydrologic component, in Knauer, D., and Brouwer, S.A., eds., *The Wisconsin Regional Integrated Lake-Watershed Acidification Study (RILWAS): 1981-1983: Palo Alto, California, Electric Power Research Institute Report EA-6214*, p. 5-1 to 5-77.

Rochelle, B.P., Church, M.R., Gebert, W.A., Graczyk, D.J., and Krug, W.R., 1988, Relationship between annual runoff and watershed area for the eastern United States: *Water Resources Bulletin*, vol. 24, no. 1, February 1988, p. 35-41.

Walker, J.F., 1988, General two-point method for determining velocity in open channel: *Journal of Hydraulic Engineering*, v. 114, no. 7, p. 801-805.

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CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
<i>Length</i>		
inch (in.)	2.54×10^1	millimeter
	2.54×10^{-2}	meter
foot (ft)	3.048×10^{-1}	meter
mile (mi)	1.609×10^0	kilometer
<i>Area</i>		
acre	4.047×10^3	square meter
	4.047×10^{-1}	square hectometer
	4.047×10^{-3}	square kilometer
square mile (mi ²)	2.590×10^0	square kilometer
<i>Volume</i>		
gallon (gal)	3.785×10^0	liter
	3.785×10^0	cubic decimeter
	3.785×10^{-3}	cubic meter
million gallons (Mgal)	3.785×10^3	cubic meter
	3.785×10^{-3}	cubic hectometer
cubic foot (ft ³)	2.832×10^1	cubic decimeter
	2.832×10^{-2}	cubic meter
cubic-foot-per-second day [(ft ³ /s) d]	2.447×10^3	cubic meter
	2.447×10^{-3}	cubic hectometer
acre-foot (acre-ft)	1.233×10^3	cubic meter
	1.233×10^{-3}	cubic hectometer
	1.233×10^{-6}	cubic kilometer
<i>Flow</i>		
cubic foot per second (ft ³ /s)	2.832×10^1	liter per second
	2.832×10^1	cubic decimeter per second
	2.832×10^{-2}	cubic meter per second
gallon per minute (gal/min)	6.309×10^{-2}	liter per second
	6.309×10^{-2}	cubic decimeter per second
	6.309×10^{-5}	cubic meter per second
million gallons per day (Mgal/d)	4.381×10^1	cubic decimeter per second
	4.381×10^{-2}	cubic meter per second
<i>Mass</i>		
ton (short)	9.072×10^{-1}	megagram or metric ton

Sea level: In this report “sea level” refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment for the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.



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