

Water Resources Data Wisconsin Water Year 1998

Water-Data Report WI-98-1



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 1998

1997

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1998

JANUARY							FEBRUARY							MARCH						
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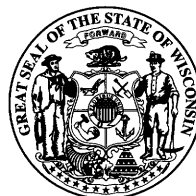
Water Resources Data Wisconsin Water Year 1998

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

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



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BRUCE BABBITT, Secretary

U. S. GEOLOGICAL SURVEY
CHARLES G. GROAT, Director

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City of Middleton
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Wisconsin Department of Tourism
Minnesota Pollution Control Agency

For additional information write to:

District Chief, Water Resources Division
U.S. Geological Survey
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:

Thomas J. Popowski, Rice Lake, northwest
Jeffrey J. Hanig, Merrill, northeast
Josef Habale, Middleton, southwest

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

S. R. Corsi	P.R. Homant	K. D. Richards	J.J. Steuer
B.M. Esser	D.E. Housner	W. J. Rose	T.D. Stuntebeck
C.H. Fan	K. R. Koenig	T. D. Rutter	J. F. Walker
G. L. Goddard	W. R. Krug	J. G. Schuler	R.J. Waschbusch
D. J. Graczyk	B. N. Lenz	P. A. Stark	T. A. Wittwer
H. L. Hanson	S. A. March		

Additional assistance in data processing and preparation of the report was provided by:

R. B. Bodoh	M. M. Greenwood
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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DISCONTINUED SURFACE-WATER DISCHARGE STATIONS

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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	3.27	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
Peshtigo 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

DISCONTINUED SURFACE-WATER DISCHARGE STATIONS

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

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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	1914–80, 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 Rhineland, WI	05391226	101	1976–79
Wisconsin River at Whirlpool Rapids, nr Rhineland, 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

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
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
APPLE RIVER BASIN			
Apple River near Shullsburg, WI	05418731	9.34	1981–82

DISCONTINUED SURFACE-WATER DISCHARGE STATIONS

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Station name	Station number	Drainage area (mi ²)	Period of record
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
Rock River at Hustisford, WI	05424082	511	1978–85
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

The following daily- or continuous-record surface-water-quality stations were discontinued prior to the 1998 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
Peshigo River at Peshigo, WI	04069500	1,080	T	1989-90
			SED	1988-90
Peshigo River at mouth near Peshigo, 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
Boswer 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
Lincoln Creek at 47th Street at Milwaukee, WI	040869415	9.56	T	1993-97 ²
			DO	1994-97 ²

DISCONTINUED SURFACE-WATER-QUALITY STATIONS

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Station name	Station number	Drainage area (mi ²)	Type of record	Period of record
STREAMS TRIBUTARY TO LAKE MICHIGAN—CONTINUED				
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
Brewery Creek at Cross Plains, WI	05406470	10.5	SED ³	1985–86
Black Earth Creek at Mills Street at Cross Plains, WI	05406476	25.5	T,DO	1990–95

DISCONTINUED SURFACE-WATER-QUALITY STATIONS

Station name	Station number	Drainage area (mi ²)	Type of record	Period of record
WISCONSIN RIVER BASIN--CONTINUED				
Garfoot Creek near Cross Plains, WI	05406491	5.39	SED ³	1985-86
Black Earth Creek at Black Earth, WI	05406500	45.6	T	1954-65, 1985-86
			DO	1986 ¹
			SED	1956-65, 1985-86
			C	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	1975-80 ¹ , 1981
			SED	1975-79
Kickapoo River at Ontario, WI	05407500	150	T	1974-77
			SED	1973-77
Kickapoo River near Rockton, WI	05407920	260	T,SED	1972-77
Kickapoo River at LaFarge, WI	05408000	266	T,SC	1971-77
			SED	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	1992-96
			C	1993-96
Rattlesnake Creek near North Andover, WI	05413449	42.4	T,DO	1987-96
			C	1992-94
GALENA RIVER BASIN				
Little Platte River near Platteville, WI	05414213	79.7	T	1987-90
			DO	1987-90 ¹
Sinsinawa River near Hazel Green, WI	05414800	24.9	T	1987-90
			DO	1987-90 ¹
Pats Creek near Belmont, WI	05414894	5.42	T,SC,C	1981-82
			DO	1982 ¹
Madden Branch Tributary near Belmont, WI	05414915	2.83	T,SC,C	1981-82
			DO	1981 ¹
Madden Branch near Meekers Grove, WI	05414920	15.06	T,SC,C	1981-82
			DO	1981-82 ¹
			PH	1982 ¹
APPLE RIVER BASIN				
Apple River near Shullsburg, WI	05418731	9.34	T,SC,C	1981-82
			DO	1981 ¹
ROCK RIVER BASIN				
Crawfish River at Milford, WI	05426000	762	SED	1980-82
Rock River at Indianford, WI	05427570	2,630	T	1975-78
			SC,DO,PH	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	1987-91
			DO	1987-91 ¹
Yellowstone River near Blanchardville, WI	05433500	28.5	T	1954-60
			SED	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	1954-60
			SED	1956-60

DISCONTINUED SURFACE-WATER-QUALITY STATIONS

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Station name	Station numberr	Drainage area (mi ²)	Type of record	Period of record
ROCK RIVER BASIN—CONTINUED				
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 periods

² Numerous periods of missing record

³ 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; 1998 water year data for lakes are published in Open-File Report 99-98.

Water-resources data for Wisconsin for the 1998 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 154 gaging stations and peak stage and discharge from 77 crest-stage stations; stage for 7 lakes and contents for 24 reservoirs; water-quality data from 42 streams and from 3 lakes; precipitation from 16 sites; and water-level records from 52 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-98-1." 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.dwidn.er.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. Cannestra, administrator.
 City of Muskego, Tom Zagar, grants coordinator.
 City of River Falls, Darrin Beier, city engineer.
 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.

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 31.23 inches for the 1998 water year was 0.42 inches less than the normal annual precipitation of 31.65 inches for water years 1961-90. Average precipitation values ranged from 69 percent of normal at both the Willow Reservoir WVI weather station in north central Wisconsin and Crivitz High Falls WPS weather station in northeast Wisconsin to 141 percent of normal at the Dodgeville 1 NE WWTP and Muscoda weather stations in southwest Wisconsin (from tables provided by Lyle Anderson, Program Assistant, UW-Extension, Geological and Natural History Survey, written commun., 1999).

Runoff differed for rivers throughout the State and ranged from 54 percent in northwest Wisconsin to 146 percent in southeast Wisconsin. Runoff was lowest (54 percent of the average annual runoff from 1975-98) for the Nemadji River near South Superior and highest (146 percent of the average annual runoff from 1976-79, 1981-98) for the Underwood Creek at Wauwatosa station which monitors a small urban basin (drainage area is 18.2 square miles) in southeastern Wisconsin. Departures of runoff in the 1998 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.

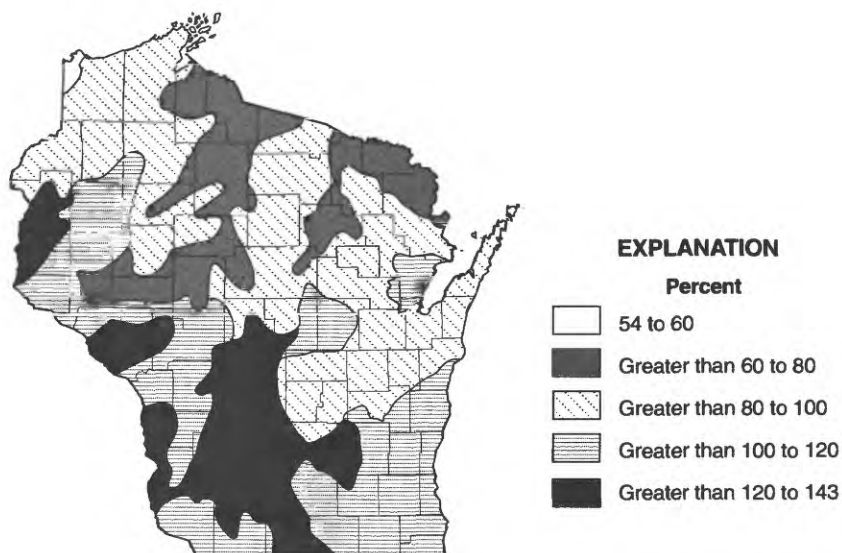


Figure 1. 1998 runoff as percentage of long-term average runoff.

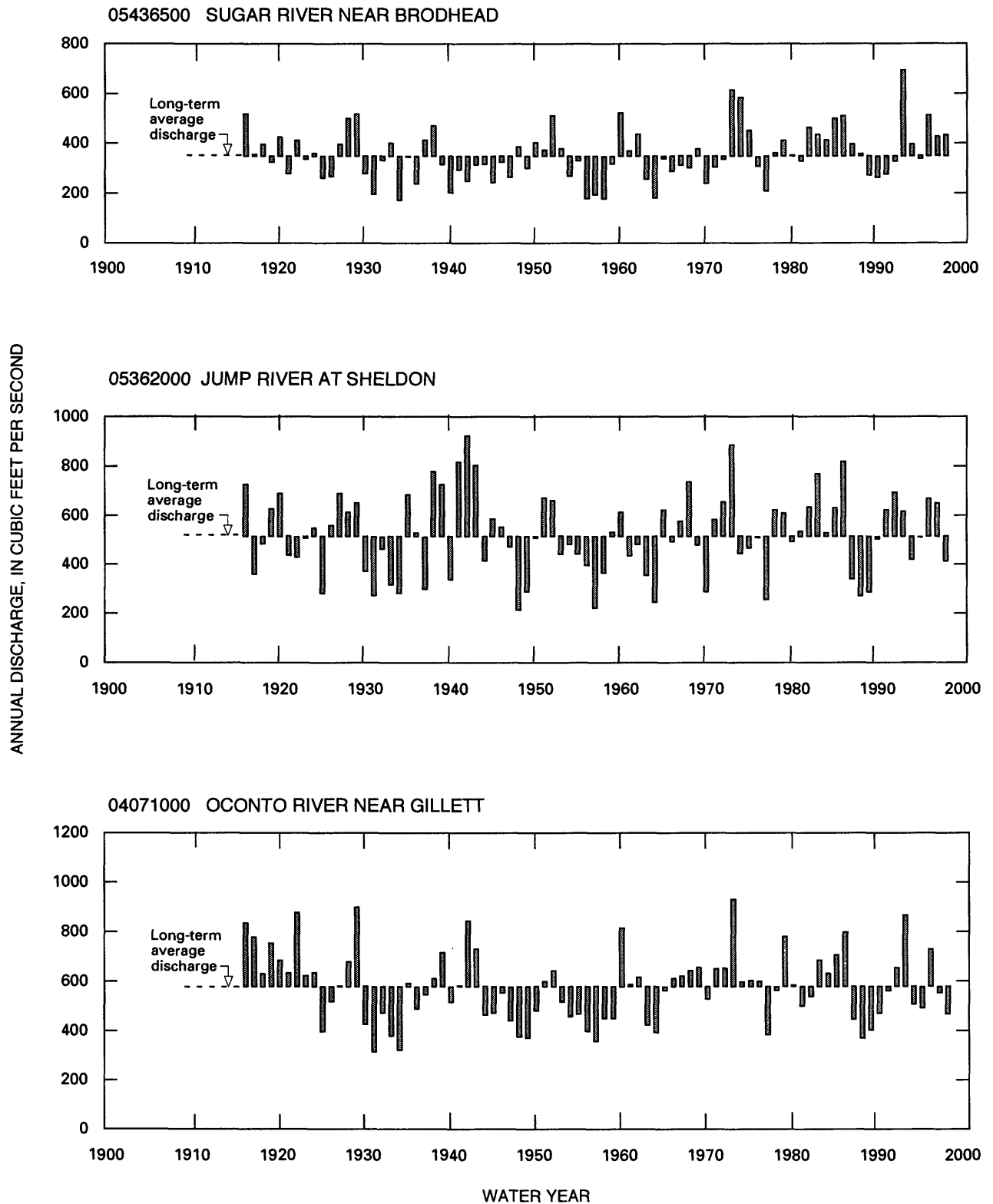


Figure 2. Comparison of annual discharge at representative gaging stations to their long-term average discharge for water years 1916–1998.

WATER RESOURCES DATA - WISCONSIN, 1998

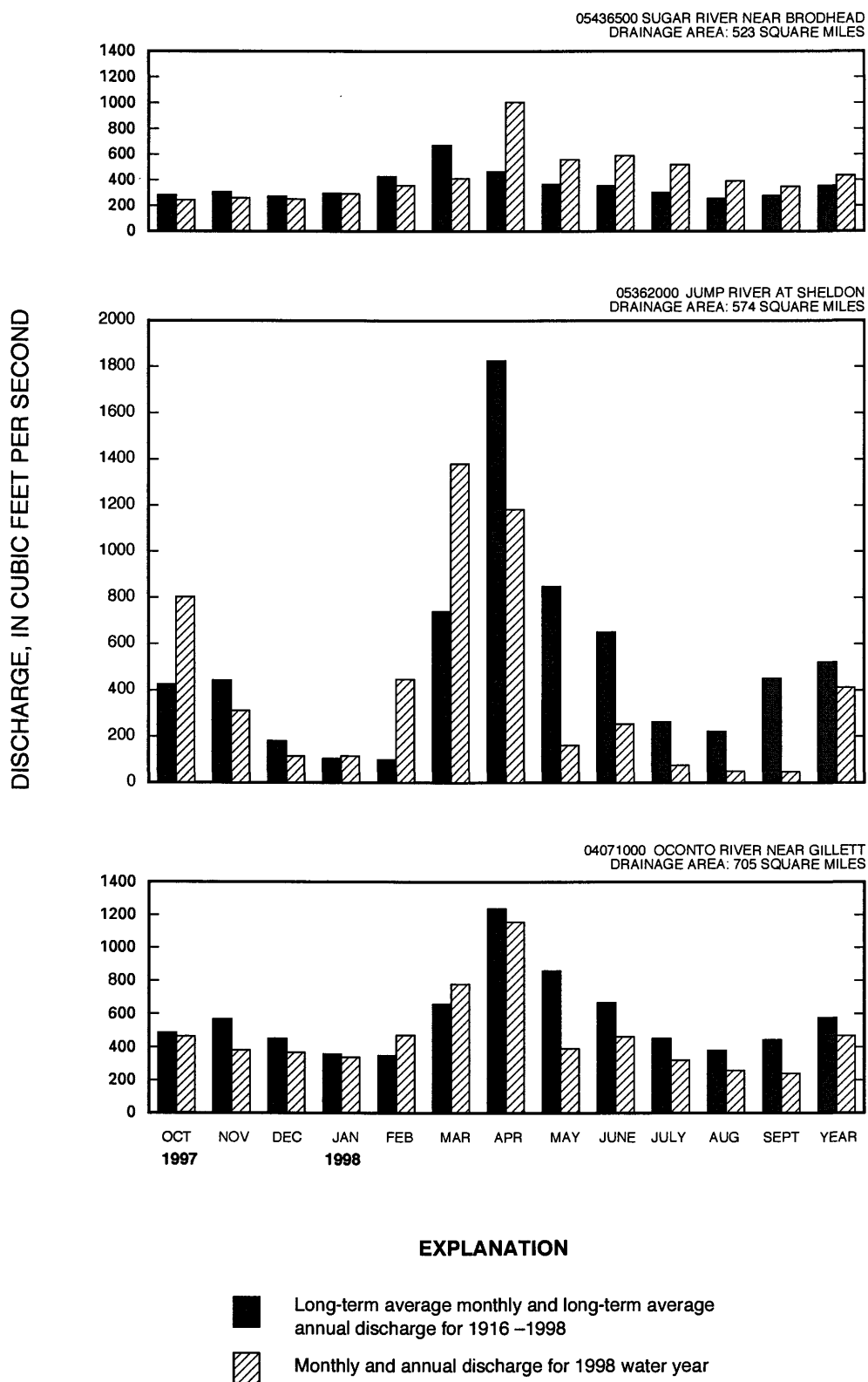


Figure 3. Comparison of discharge at representative gaging stations during 1998 water year with discharge for 1916 – 1998.

Annual discharges for the individual water years (1916-98) 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 1998 water year to discharge for a 83-year base period at the same three gaging stations are shown in Figure 3.

Low flows occurred at 21 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 from July through September in northern Wisconsin. Monthly precipitation values were 4.46, 5.69, and 4.24 inches below normal in northwestern, north central, and northeastern Wisconsin, respectively, in the July through September period (from tables provided by Lyle Anderson, Program Assistant, UW-Extension, Geological and Natural History Survey, written commun., 1999). The precipitation for the April to October period was 9 inches below normal for the upper portion of the Wisconsin River from Rhinelander to Nekoosa. It was the second driest summer in the past 109 years in northern Wisconsin with only 1976 being drier (Wisconsin State Journal, November 16, 1998). This resulted in Q7 values that exceeded the 5 year recurrence interval at a number of stations in northern Wisconsin in late July, early August, and September. The Q7 values and recurrence intervals for 21 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)
04024430	Nemadji River near South Superior	Sept. 3	37	6
04027000	Bad River near Odanah	Sept. 6	79	5
04063700	Popple River near Fence	Sept. 16	19	9
04066003	Menominee River near Pembine	July 31	1,070	9
04067500	Menominee River near McAllister	Aug. 1	1,140	10
04069500	Peshtigo River at Peshtigo	July 25	220	10
04071000	Oconto River near Gillett	July 30	200	6
04074950	Wolf River at Langlade	July 30	155	14
04077400	Wolf River near Shawano	July 29	334	6
04079000	Wolf River at New London	Sept. 8	494	8
04087030	Menomonee River at Menomonee Falls	Sept. 7	1.6	7
05332500	Namekagon River near Trego	Sept. 14	251	5
0533500	St. Croix River near Danbury	Sept. 7	597	5
05360500	Flambeau River near Bruce	Sept. 8	309	42
05365500	Chippewa River at Chippewa Falls	July 30	1,020	5
05369500	Chippewa River at Durand	July 30	2,390	6
05393500	Spirit River at Spirit Falls	July 29	3.4	7
05395000	Wisconsin River at Merrill	Sept. 19	794	9
05398000	Wisconsin River at Rothschild	Sept. 19	993	12
05400760	Wisconsin River at Wisconsin Rapids	Sept. 14	944	27
05404000	Wisconsin River near Wisconsin Dells	Sept. 22	2,000	7

Runoff from snowmelt and rainfall caused flooding in Wisconsin in late March and early April. A storm in June and major thunderstorms in August also caused floods with discharges that equalled or exceeded those with a recurrence interval of 5 years (Krug and others, 1991). Heavy rains of three to six inches in a 18-hour period on June 27 and 28 hit Trempealeau, Jackson, and Clark Counties in west central Wisconsin and resulted in damage to homes and roads (Wisconsin State Journal, June 28, 1998). Rains in south central Wisconsin on August 5 and 6 created localized flooding on urban streams in several communities. A 13-year old boy almost lost his life when he was swept away by flood waters in a drainage ditch in a city park in Janesville, WI. He was submerged in a culvert for about 15 minutes before being rescued. Torrential rains on August 6, 1998 in Milwaukee, Waukesha, and Sheboygan Counties caused flooding in a number of streams in eastern and southeastern Wisconsin. Numerous homes and basements were flooded in Milwaukee, Wauwatosa, Brown Deer, and Sheboygan. The official rainfall estimate for Sheboygan was 10.7 inches for the 24-hour period ending noon on August 7 with one unofficial reading of just over 12 inches (Wisconsin State Journal, August 7, 1998) which far exceeds the 100-year 24-hour precipitation value of 7 inches for the Sheboygan area (Huff and Angel, 1992). Initial estimates of damages compiled by county emergency management directors totaled \$54.7 million but were expected to increase to \$85 million when complete assessments were made. Federal disaster aid was approved by President Clinton (Wisconsin State Journal, August 13, 1998). Two boys, ages 10 and 14, lost their lives when they were swept away by flood waters in a drainage ditch tributary to Underwood Creek at Elm Grove (Wisconsin State Journal, August 9, 1998). The U.S. Geological Survey gaging station Underwood Creek at Wauwatosa recorded a record high stage of 13.10 ft, which is 2.57 ft higher than the previous peak of record. Peak discharges at 18 stations which had recurrence intervals that equalled or exceeded 5 years are summarized in the following table:

Station number	Station name	Date	Peak discharge (ft ³ /s)	Recurrence interval (years)
04026450	Bad River near Mellen	Apr. 1	1,640	10
04067760	Peshtigo River near Cavour	Apr. 1	1,100	5
04085400	Killsnake River near Chilton	Apr. 1	1,000	5
04086000	Sheboygan River at Sheboygan	Aug. 6	7,820	34
04087000	Milwaukee River at Milwaukee	Aug. 6	8,600	10
04087088	Underwood River at Wauwatosa	Aug. 6	7,500	90
04087100	Honey Creek at Milwaukee	Aug. 5	570	7
04087120	Menomonee River at Wauwatosa	Aug. 6	12,800	65
05332500	Namekagon River near Trego	Apr. 1	1,830	8
05341500	Apple River near Sommerset	Apr. 4	1,590	5
05341900	Kinnickinnic River Tributary at River Falls	June 27	3,590	13
05356000	Chippewa River at Bishops Bridge near Winter	Apr. 2	5,290	8
05379500	Trempealeau River at Dodge	June 29	7,730	8
05382200	French Creek near Ettrick	June 27	2,450	66
05427948	Pheasant Branch at Middleton	Mar. 31	505	6
05429500	Yahara River at McFarland	Apr. 16	533	5
05543830	Fox River at Waukesha	Aug. 8	1,460	8
05548150	North Branch Nippersink Creek near Genoa City	Feb. 21	295	12

References cited:

Huff, Floyd A., and Angel, James R., 1992, Rainfall Frequency Atlas of the Midwest: Midwestern Climate Center Research Report 92-03, Bulletin 71, p.95.

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.

Wisconsin State Journal, Heavy rains flood highways, rout some people from homes: Madison, Wis., June 28, 1998.

_____, Heavy rains continue to bring misery to Wisconsin: Madison, Wis., August 7, 1998.

_____, Body of second boy who died during storm found: Madison, Wis., August 9, 1998.

_____, Flood victims welcome first lady, aid: Madison, Wis., August 13, 1998.

_____, Dry summer leaves reservoirs low: Madison, Wis., November 16, 1998.

Water Quality

Suspended-sediment and total phosphorus yields for the 1998 water year at two monitoring stations in southern Wisconsin showed suspended sediment yields and total phosphorus yields lower than the long-term average. The suspended-sediment yield at the Grant River at Burton in southwestern Wisconsin was 200 tons/mi² (tons per square mile), or 82 percent of the average annual yield for 1978-98. The suspended-sediment yield for Jackson Creek Tributary near Elkhorn in southeastern Wisconsin for water year 1998 was 66 tons/mi², which was 91 percent of the average annual yield for the period 1984-98. The total phosphorus yield for Jackson Creek Tributary was 288 lbs/mi² (pounds per square mile), or 64 percent of the 1984-98 annual average.

Ground-Water Levels

Maps showing the seasonal ground-water trends for the year (fig. 4) are based on water-level data from 23 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 1997; WINTER consists of measurements from January through March 1998; SPRING consists of measurements from April through June 1998; and SUMMER consists of measurements from July through September 1998. Mean seasonal water levels were compared to the long-term mean seasonal water levels. The 1998 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 1998 water year were normal to above normal for most of the wells in the State. Vilas and Marinette Counties had below normal ground-water levels at the beginning of the water year, and these levels remained below normal for the entire water year. The large extent of normal and above-normal ground-water levels can be attributed to near normal rainfall during the 1998 water year and normal rainfall during the previous water year.

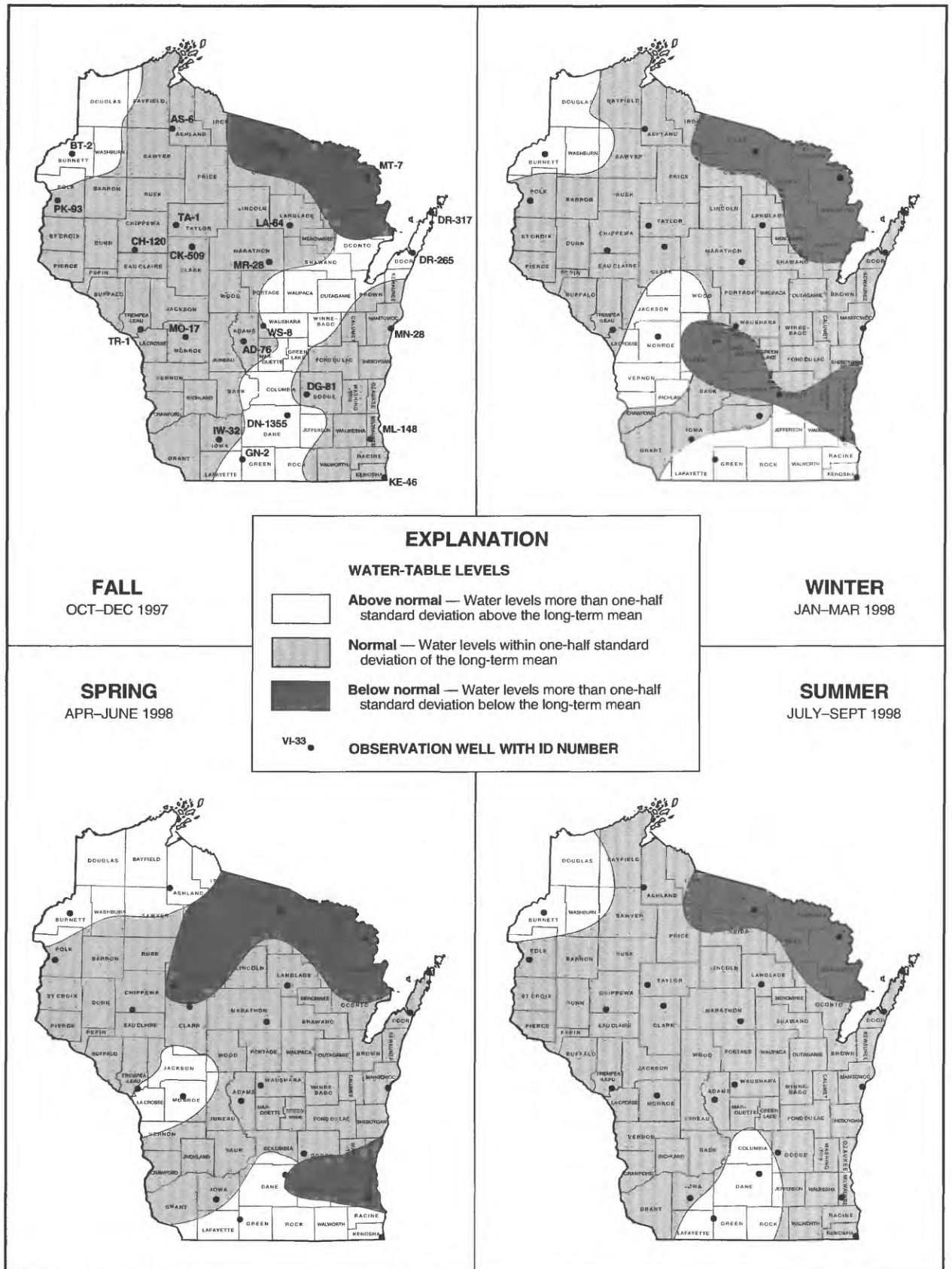


Figure 4. Relation of seasonal water-table levels to long-term means.

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.

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 1998 water year that began October 1, 1997, and ended September 30, 1998. 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.

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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 OUTPUTREMARK

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 52 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 52 wells are presented in this report, water-level data are currently being collected for a total of 132 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°C + 0.2° 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° ± 1.0° 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 (m^2), 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-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.

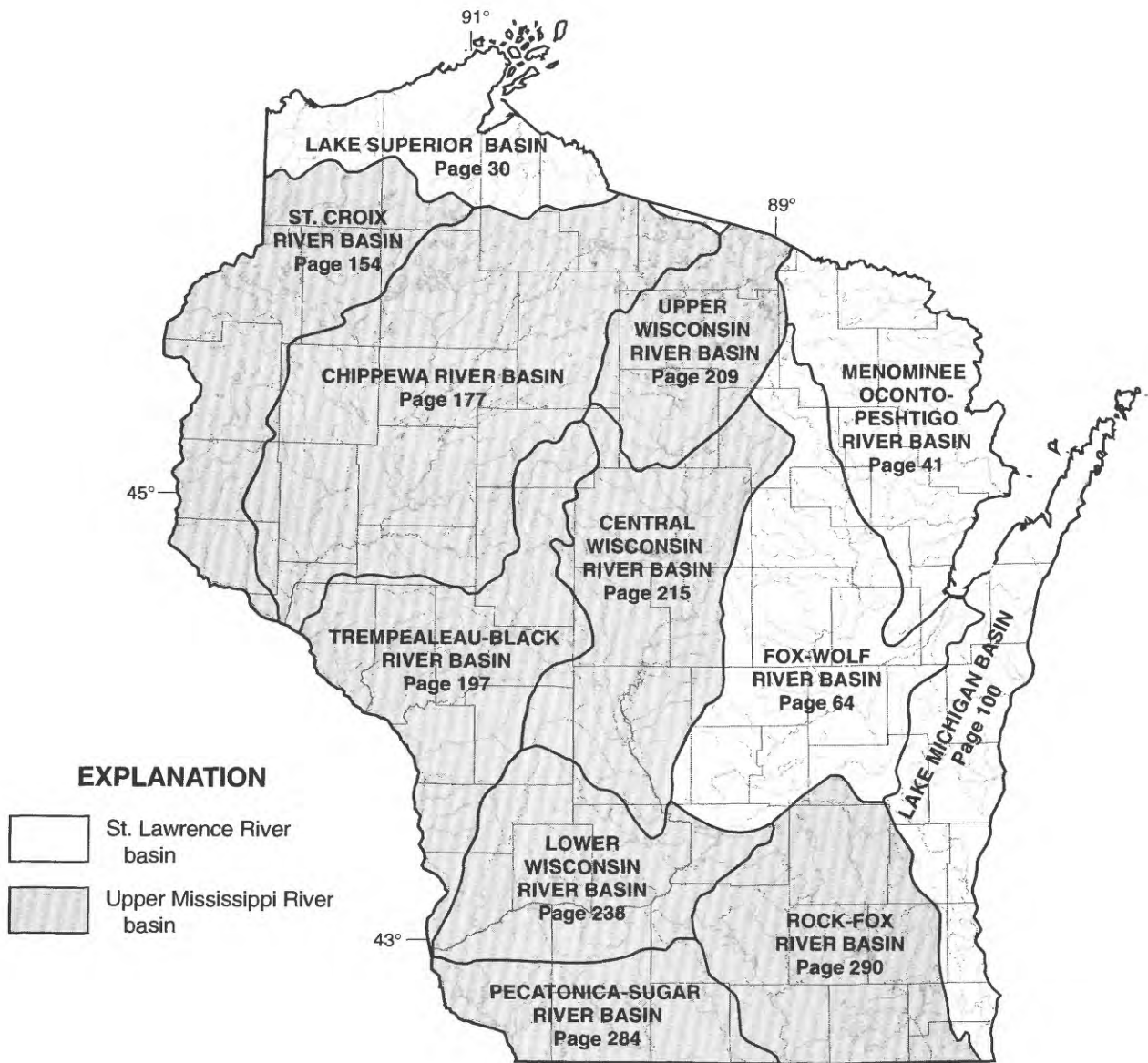
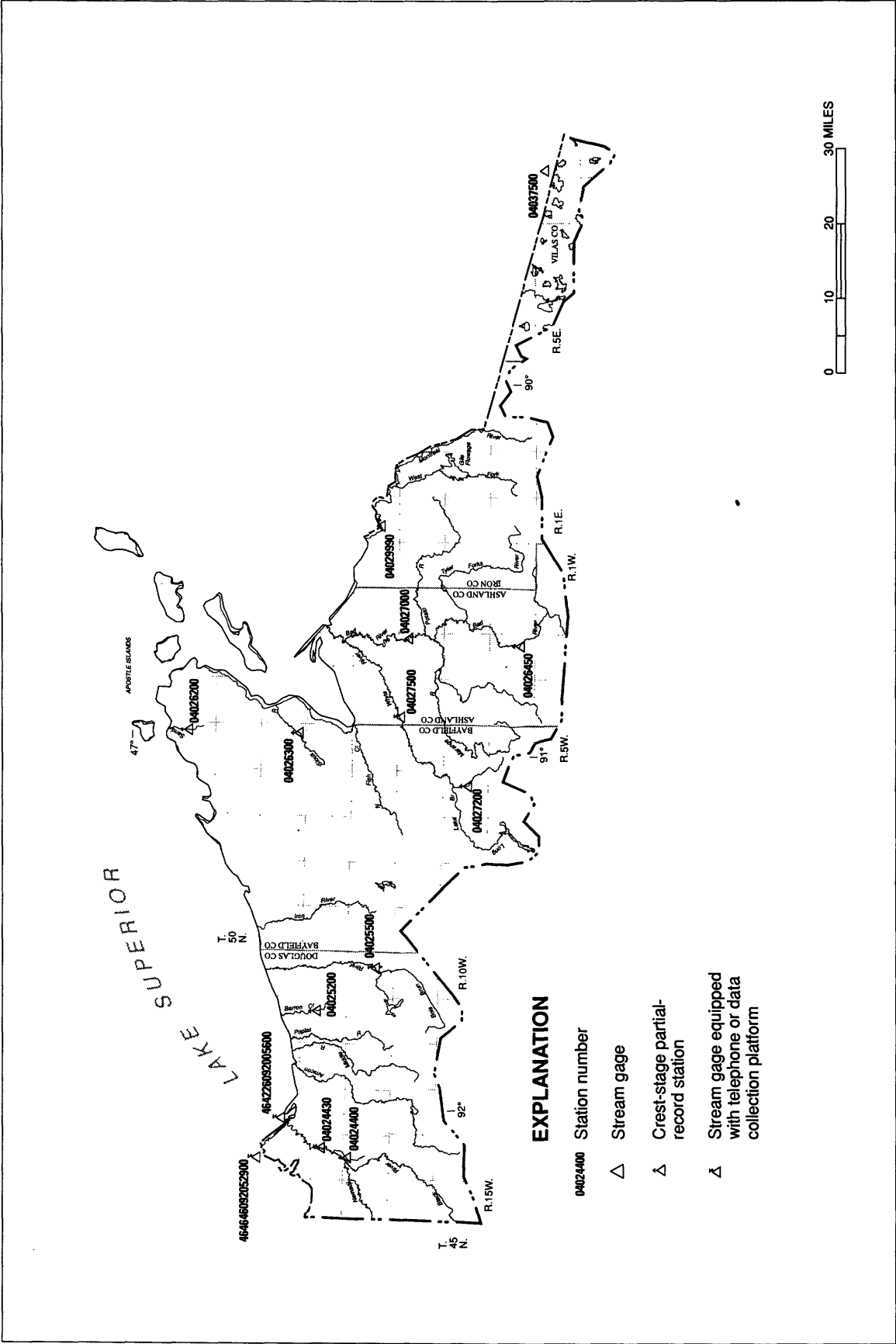


Figure 5. Major surface-water drainage basins and index of hydrologic records.

ST. LAWRENCE RIVER BASIN RECORDS



Base from U.S. Geological Survey 1:100,000 digital data; 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 September 1998 (fragmentary) discontinued.

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 12). 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	754	---	---	-377	443	3240	3870	-42	634	1170	-1270	-117
2	217	---	---	274	906	618	2440	1170	391	484	-1630	908
3	1220	---	---	1240	194	2180	2540	1000	-209	-324	-4080	649
4	-841	---	---	-363	400	1440	2150	1870	1610	817	-2700	-501
5	1090	---	-2280	-1450	-86	682	1100	-775	912	213	-1190	1650
6	509	---	-1650	518	429	1170	1320	967	1020	859	-62	718
7	740	---	-198	67	595	831	2610	797	249	1240	-807	-3080
8	1040	---	580	-931	592	1400	3950	170	1010	1040	934	198
9	-571	---	160	1700	528	-2440	3290	1960	1170	-84	530	-69
10	-166	---	1190	618	705	2050	2600	1240	288	659	619	522
11	633	---	691	439	1540	1980	1980	761	1790	94	-449	1050
12	1520	---	1040	1440	-206	1240	2610	467	2360	-44	-1360	-1120
13	1970	---	428	114	-802	1640	3980	289	2660	-516	1440	468
14	356	---	1250	734	-805	209	-224	-468	2720	637	-794	539
15	1100	---	952	506	360	-199	1990	186	1540	-24	-294	-213
16	1350	---	191	211	231	472	1560	33	1320	126	161	299
17	1500	---	9.5	670	-635	-215	-534	992	539	-516	-899	1040
18	1280	---	1370	1080	159	-1800	1760	838	1020	976	-1280	-96
19	-2900	---	352	475	1410	322	1920	-669	2790	-26	445	496
20	-447	---	766	-576	786	373	1620	-843	3490	551	-538	461
21	---	---	190	-6.1	679	-200	1250	1190	2720	-1370	34	-1340
22	---	---	737	174	526	471	1400	1030	2200	942	-733	159
23	---	---	1190	717	668	-626	-500	844	2100	538	436	814
24	---	---	629	206	1070	83	254	641	1320	2030	480	78
25	---	---	898	-2370	-291	427	1160	25	1910	-599	282	453
26	---	---	991	-541	-105	1460	2420	857	1070	1390	667	642
27	---	---	422	411	2820	962	1010	498	1140	-445	682	-484
28	169	---	968	404	3210	1430	921	-966	1400	-849	-434	870
29	-771	---	261	962	---	1680	947	-601	569	764	-1240	-9.7
30	---	---	1680	791	---	1750	105	1140	653	8.9	461	-1710
31	---	---	1110	360	---	-127	---	-1450	---	-413	971	---
TOTAL	9752	---	13927.5	7496.9	15321	22503	51499	13151	42386	9328.9	-11618	3274.3
MEAN	443	---	516	242	547	726	1717	424	1413	301	-375	109
MAX	1970	---	1680	1700	3210	3240	3980	1960	3490	2030	1440	1650
MIN	-2900	---	-2280	-2370	-805	-2440	-534	-1450	-209	-1370	-4080	-3080

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 1998, BY WATER YEAR (WY)

	1995	1996	1997	1998	1995	1996	1997	1998	1995	1996	1997	1998
MEAN	786	872	918	1104	1036	1051	3060	815	1031	1147	290	279
MAX	1933	1317	1205	1993	1786	1580	6168	1437	1413	1905	705	647
(WY)	1996	1997	1997	1996	1996	1995	1997	1996	1998	1996	1995	1995
MIN	110	638	516	242	547	726	1141	204	809	301	-375	46.5
(WY)	1997	1995	1998	1998	1998	1998	1995	1997	1996	1998	1998	1996

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1995 - 1998

ANNUAL MEAN										1016		
HIGHEST ANNUAL MEAN										1476		1996
LOWEST ANNUAL MEAN										550		1998
HIGHEST DAILY MEAN				11600	Apr 6		3980	Apr 13		13400	Apr 20	1996
LOWEST DAILY MEAN				-5660	May 12		-4080	Aug 3		-5660	May 12	1997
ANNUAL SEVEN-DAY MINIMUM				-1970	May 9		-1680	Aug 1		-1970	May 9	1997
10 PERCENT EXCEEDS				2260			1900			2620		
50 PERCENT EXCEEDS				847			545			899		
90 PERCENT EXCEEDS				-373			-774			-525		

STREAMS TRIBUTARY TO LAKE SUPERIOR
464226092005600 SUPERIOR BAY ENTRY CHANNEL AT SUPERIOR, WI

LOCATION.--Lat 46°42'26", long 92°00'56", in SW 1/4 SW 1/4 sec.21, T.49 N., R.13 W., Douglas County, Hydrologic Unit 04010301, on right bank about 600 ft northeast of Coast Guard Station at northwest end of Wisconsin Point at Superior.

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

PERIOD OF RECORD.--October 1995 to June 1998 (fragmentary) discontinued.

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

REMARKS.--No estimated daily discharges. Records fair (see page 12). 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	---	3800	1250	-244	-204	6380	4160	-220	654	---	---	---
2	---	4760	2130	1220	127	5150	5360	1270	6190	---	---	---
3	---	7220	2400	-68	1040	4100	5610	924	5630	---	---	---
4	---	2490	4090	1880	1090	4090	5380	1430	2870	---	---	---
5	1850	1150	4380	2530	1010	3000	4930	3450	3270	---	---	---
6	1230	2040	2920	1930	28	2840	4620	-292	2770	---	---	---
7	386	1130	944	637	738	1410	4910	833	3150	---	---	---
8	-270	1680	524	2860	1010	2920	7590	1730	1410	---	---	---
9	4490	3990	770	5190	-1210	6800	7370	43	1440	---	---	---
10	-1640	4290	947	-1730	-1230	-676	4920	-142	1610	---	---	---
11	1250	5810	1470	-1070	-2360	-195	4050	-512	1480	---	---	---
12	-1090	370	1570	926	-1620	2240	3500	75	4170	---	---	---
13	5140	-756	347	-2030	3210	-779	5840	-278	4930	---	---	---
14	3360	2580	830	1400	562	-1210	6480	1190	3630	---	---	---
15	2340	6060	1090	952	863	1830	5030	89	366	---	---	---
16	1840	2750	1130	776	-1110	509	5430	5420	2700	---	---	---
17	1840	-108	114	1370	2340	-345	4690	-446	2740	---	---	---
18	1570	3130	2190	-40	1870	3950	2580	2080	832	---	---	---
19	7600	391	46	-309	-119	3270	3230	4420	5890	---	---	---
20	2940	1470	-61	2070	125	445	2190	1490	8260	---	---	---
21	2860	-41	368	910	1020	1340	2150	1650	8180	---	---	---
22	1510	3470	1640	1760	365	1170	-1340	1420	6970	---	---	---
23	572	-719	810	1570	1430	1100	5470	1810	---	---	---	---
24	1970	2310	458	445	1260	1250	1120	1880	---	---	---	---
25	3840	-175	788	1850	1170	1390	1060	510	---	---	---	---
26	634	2220	-883	3650	3930	3110	3390	1310	---	---	---	---
27	1170	840	1020	1520	8200	2050	1630	322	---	---	---	---
28	3620	1550	1080	1220	6960	4350	1340	4030	---	---	---	---
29	130	2070	-319	-117	---	3240	-44	2210	---	---	---	---
30	1300	486	138	900	---	7220	-1110	-1200	---	---	---	---
31	662	---	897	681	---	97	---	5320	---	---	---	---
TOTAL	51104	66258	35078	32639	30495	72046	111536	41816	79142	---	---	---
MEAN	1893	2209	1132	1053	1089	2324	3718	1349	3597	---	---	---
MAX	7600	7220	4380	5190	8200	7220	7590	5420	8260	---	---	---
MIN	-1640	-756	-883	-2030	-2360	-1210	-1340	-1200	366	---	---	---

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 1998, BY WATER YEAR (WY)

	MEAN	---	3505	1133	1230	1090	1886	6479	3631	2143	4790	1835	1768
MAX	---	4801	1134	1408	1090	2324	9240	4987	2338	5657	1887	1768	1768
(WY)	---	1997	1997	1997	1997	1998	1997	1996	1996	1996	1996	1996	1996
MIN	---	2209	1132	1053	1089	1448	3718	1349	1947	3923	1782	1768	1768
(WY)	---	1998	1998	1998	1998	1997	1998	1998	1997	1997	1997	1996	1996

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR
(OCTOBER-JUNE)

WATER YEARS 1996 - 1998

HIGHEST DAILY MEAN	20500	Apr 6	8260	Jun 20	21200	Apr 20 1996
LOWEST DAILY MEAN	(a) -2900	Jun 12	-2360	Feb 11	-4490	Jun 15 1996
ANNUAL SEVEN-DAY MINIMUM	-420	Jun 8	-663	Feb 6	-1070	Dec 21 1996
10 PERCENT EXCEEDS	7510		5290		7520	
50 PERCENT EXCEEDS	1840		1440		2090	
90 PERCENT EXCEEDS	127		-276		-43	

(a) Estimated

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

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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 September 1998 (discontinued).

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: Ice-affected period, Nov. 9 to Mar. 26. Records good except those for ice-affected period, which is poor (see page 12). 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	102	90	80	74	1100	1460	152	363	177	56	44
2	61	129	90	84	72	800	2010	145	1520	153	54	39
3	60	153	90	86	70	680	2180	136	1460	133	52	39
4	60	161	88	84	70	580	1840	128	762	121	51	38
5	60	157	88	82	70	500	1330	124	510	114	51	38
6	59	147	86	82	72	450	1030	116	385	110	50	37
7	58	142	86	82	74	400	968	111	314	107	49	37
8	61	142	86	82	78	340	1600	108	262	116	56	37
9	63	140	86	82	80	300	1180	103	215	123	61	35
10	63	130	86	80	80	260	875	98	182	111	62	48
11	64	120	86	76	82	300	732	94	173	101	57	45
12	66	110	86	70	80	270	662	93	443	94	52	43
13	82	100	86	66	80	230	678	100	568	87	49	49
14	131	100	88	64	82	200	765	164	419	83	50	57
15	152	100	90	66	84	180	627	159	301	107	45	60
16	148	98	90	70	90	160	525	149	238	165	45	66
17	140	96	90	70	100	140	455	180	198	137	58	50
18	125	96	90	70	150	130	394	170	177	110	64	49
19	116	98	94	70	220	120	367	144	902	101	57	47
20	109	100	90	70	300	110	335	124	1740	99	53	46
21	102	98	88	70	330	120	305	106	1090	89	50	41
22	99	96	86	70	290	120	282	94	666	80	49	39
23	97	90	88	70	330	120	260	82	456	74	59	40
24	93	84	88	70	370	110	244	80	337	68	66	40
25	88	90	86	70	440	150	224	76	279	66	66	41
26	86	94	86	70	520	220	205	73	330	63	60	45
27	86	94	86	72	820	376	187	67	362	63	53	54
28	85	94	86	72	1600	823	175	73	302	63	51	55
29	84	92	84	72	---	1140	168	78	253	61	49	53
30	86	90	84	72	---	2110	160	88	210	60	46	53
31	90	---	82	72	---	1550	---	261	---	57	45	---
TOTAL	2735	3343	2710	2296	6708	14089	22223	3676	15417	3093	1666	1365
MEAN	88.2	111	87.4	74.1	240	454	741	119	514	99.8	53.7	45.5
MAX	152	161	94	86	1600	2110	2180	261	1740	177	66	66
MIN	58	84	82	64	70	110	160	67	173	57	45	35
CFSM	.21	.27	.21	.18	.57	1.08	1.76	.28	1.22	.24	.13	.11
IN.	.24	.30	.24	.20	.59	1.25	1.97	.33	1.37	.27	.15	.12

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1998, BY WATER YEAR (WY)

	MEAN	342	322	141	84.2	101	462	1392	610	489	350	190	351
MAX	1082	1200	418	177	336	1088	2426	1355	1357	790	978	1485	
(WY)	1983	1992	1992	1984	1984	1995	1986	1979	1993	1986	1986	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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1974 - 1998
ANNUAL TOTAL	119891	79321	
ANNUAL MEAN	328	217	402
HIGHEST ANNUAL MEAN			786
LOWEST ANNUAL MEAN			200
HIGHEST DAILY MEAN	(a) 5000	2180	7630
LOWEST DAILY MEAN	53	35	(a) 19
ANNUAL SEVEN-DAY MINIMUM	57	37	(a) 26
INSTANTANEOUS PEAK FLOW		(b) 2380	(c) Mar 30
INSTANTANEOUS PEAK STAGE		(a) 18.94	(d) 13700
ANNUAL RUNOFF (CFSM)	.78	.52	25.97
ANNUAL RUNOFF (INCHES)	10.62	7.03	13.01
10 PERCENT EXCEEDS	590	504	999
50 PERCENT EXCEEDS	140	90	150
90 PERCENT EXCEEDS	66	51	57

(a) Ice affected

(b) Gage height, 14.29 ft

(c) Also occurred Apr. 3

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

04025500 BOIS BRULE RIVER AT BRULE, WI

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: Jan. 22-28, and ice-affected periods, Nov. 17, 22-24, Dec. 21 to Jan. 4, Jan. 10-21, Feb. 4-8, and Mar. 7-16. Records good except those for estimated daily discharges, which are fair (see page 12). 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	131	152	140	130	140	332	390	154	161	145	119	119
2	130	156	141	130	139	297	410	152	186	141	119	118
3	130	161	143	130	137	258	381	150	180	138	119	118
4	131	158	144	130	130	232	347	149	167	136	119	118
5	130	154	144	135	130	215	317	151	154	136	118	117
6	131	152	143	136	130	205	294	148	146	140	117	117
7	135	151	143	135	130	190	283	145	141	141	120	117
8	142	150	142	135	130	190	283	143	137	142	123	117
9	145	150	142	137	138	180	269	142	135	138	122	117
10	138	151	143	130	138	180	254	141	135	134	120	117
11	135	149	143	130	138	170	248	140	140	132	119	116
12	136	146	142	130	138	160	241	139	153	132	118	116
13	153	143	141	120	138	150	238	141	161	130	117	133
14	152	143	142	120	138	150	234	139	162	131	119	132
15	148	144	142	120	139	150	223	138	153	141	119	128
16	143	143	142	130	141	150	213	148	141	136	119	124
17	141	140	141	130	145	157	205	143	136	131	126	122
18	139	140	141	130	149	155	199	139	151	129	123	121
19	138	140	141	130	151	155	196	138	185	129	121	122
20	138	140	140	130	151	154	195	134	197	127	119	124
21	137	138	130	140	151	152	191	132	198	125	118	121
22	137	140	130	140	151	152	184	131	180	124	121	120
23	137	140	130	140	159	152	179	130	163	123	130	120
24	137	140	130	140	170	152	175	129	152	122	130	122
25	135	141	130	140	176	156	171	129	158	121	124	122
26	135	142	130	140	210	170	167	129	180	122	121	127
27	135	142	130	140	372	254	164	128	169	124	121	128
28	135	142	130	140	362	386	161	136	164	121	123	126
29	135	141	130	140	---	372	159	132	157	120	121	125
30	135	140	130	140	---	417	157	147	149	122	119	126
31	138	---	130	139	---	369	---	169	---	121	119	---
TOTAL	4262	4369	4270	4137	4521	6562	7128	4366	4791	4054	3743	3650
MEAN	137	146	138	133	161	212	238	141	160	131	121	122
MAX	153	161	144	140	372	417	410	169	198	145	130	133
MIN	130	138	130	120	130	150	157	128	135	120	117	116
CFSM	1.17	1.23	1.17	1.13	1.37	1.79	2.01	1.19	1.35	1.11	1.02	1.03
IN.	1.34	1.38	1.35	1.30	1.43	2.07	2.25	1.38	1.51	1.28	1.18	1.15

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1943 - 1998, BY WATER YEAR (WY)

MEAN	159	162	143	133	133	155	279	235	193	167	147	157
MAX	259	295	205	164	187	265	399	495	416	345	252	297
(WY)	1978	1972	1972	1984	1966	1945	1976	1950	1944	1952	1986	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

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SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1943 - 1998	
ANNUAL TOTAL	62386		55853			
ANNUAL MEAN	171		153		172	
HIGHEST ANNUAL MEAN					223	1972
LOWEST ANNUAL MEAN					133	1948
HIGHEST DAILY MEAN	536	Apr 6	417	Mar 30	1270	Jun 5 1944
LOWEST DAILY MEAN	130	(a) Aug 12,13	116	Sep 11,12	74	Mar 23 1943
ANNUAL SEVEN-DAY MINIMUM	(b) 130	Dec 21	117	Sep 6	89	Mar 23 1943
INSTANTANEOUS PEAK FLOW			433	Mar 29	(c) 1520	Jun 5 1944
INSTANTANEOUS PEAK STAGE			2.96	Mar 29	(d) 5.20	Jun 5 1944
INSTANTANEOUS LOW FLOW			114	Sep 11	67	Mar 13 1943
ANNUAL RUNOFF (CFSM)	1.45		1.30		1.45	
ANNUAL RUNOFF (INCHES)	19.67		17.61		19.75	
10 PERCENT EXCEEDS	216		193		256	
50 PERCENT EXCEEDS	150		140		147	
90 PERCENT EXCEEDS	133		121		120	

(a) Also occurred Sept. 25,26, Oct. 2,3,5, and Dec. 21-31

(b) Ice affected

(c) From rating curve extended above 750 ft³/s

(d) From graph based on gage readings

STREAMS TRIBUTARY TO LAKE SUPERIOR

04027000 BAD RIVER NEAR ODANAH, WI

LOCATION.--Lat 46°29'15", long 90°41'45", in SE 1/4 sec.2, T.46 N., R.3 W., Ashland County, Hydrologic Unit 04010302, Bad River Indian Reservation, on left bank just downstream from Elm Hoist bridge, 5.0 mi downstream from Potato River, 8.5 mi south of Odanah, and 23 mi from mouth.

DRAINAGE AREA.--597 mi².

PERIOD OF RECORD.--July 1914 to December 1922 (monthly discharge for some periods published in WSP 1307) May 1948 to current year.

REVISED RECORDS.--WSP 1337: 1922. WDR WI-82-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 668.30 ft above sea level. May 17, 1948, to Nov. 6, 1959, and Oct. 19, 1960, to Nov. 23, 1961, water-stage recorder. Nov. 7, 1959, to Oct. 18, 1960, and Nov. 24, 1961, to July 12, 1962, nonrecording gage. Prior to Nov. 11, 1922, water-stage recorder at site 2 mi downstream at different datum.

REMARKS.--Estimated daily discharges: Ice-affected period, Nov. 13 to Mar. 29. Records are good except those for ice-affected period, which is poor (see page 12).

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.

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	229	373	220	180	200	1100	7310	258	490	254	92	94
2	241	704	220	190	200	920	5960	247	1120	228	92	90
3	227	673	210	190	190	800	3810	237	1140	211	92	88
4	210	667	210	200	180	700	2590	224	776	195	90	85
5	193	613	200	190	180	620	1900	219	567	179	89	81
6	186	554	200	190	190	560	1480	220	437	195	87	81
7	235	514	200	190	200	500	1250	214	353	210	88	81
8	370	489	200	190	200	460	1260	207	301	224	98	81
9	361	473	210	190	200	390	1110	195	265	232	103	80
10	344	513	220	180	210	360	953	188	239	204	109	78
11	296	486	210	170	210	350	832	181	239	179	106	76
12	268	374	200	170	210	320	742	174	1280	162	103	74
13	292	320	200	160	210	310	675	192	1270	148	98	123
14	391	310	200	160	200	300	644	198	874	139	93	152
15	404	300	210	160	200	300	623	180	618	145	90	129
16	371	290	220	170	210	300	569	241	462	143	87	114
17	332	250	210	170	260	280	514	292	366	134	103	106
18	306	250	210	180	310	280	468	253	307	127	126	100
19	290	240	200	180	450	260	437	220	320	121	124	97
20	280	230	200	190	460	250	460	196	374	114	113	93
21	272	230	190	190	420	250	569	178	384	106	108	91
22	267	220	180	190	370	260	534	165	341	102	104	89
23	260	200	190	190	430	270	467	157	294	99	117	87
24	254	200	190	190	500	280	422	152	261	95	156	88
25	248	220	190	200	800	300	383	148	304	91	164	88
26	241	260	190	200	1100	500	352	147	826	90	143	97
27	234	250	190	200	1600	2200	323	140	523	91	128	106
28	230	240	180	200	1300	6000	298	139	415	94	121	109
29	228	230	180	200	---	7600	281	144	341	93	111	114
30	227	220	180	200	---	9380	268	146	287	92	102	118
31	238	---	180	200	---	7890	---	417	---	93	97	---
TOTAL	8525	10893	6190	5760	11190	44290	37484	6269	15774	4590	3334	2890
MEAN	275	363	200	186	400	1429	1249	202	526	148	108	96.3
MAX	404	704	220	200	1600	9380	7310	417	1280	254	164	152
MIN	186	200	180	160	180	250	268	139	239	90	87	74
CFSM	.46	.61	.33	.31	.67	2.39	2.09	.34	.88	.25	.18	.16
IN.	.53	.68	.39	.36	.70	2.76	2.34	.39	.98	.29	.21	.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

	MEAN	MAX	MIN	(WY)	MEAN	MAX	MIN	(WY)	MEAN	MAX	MIN	(WY)
1914	477	1861	67.1	1914	532	2151	95.2	1914	292	638	107	1914
1915	194	713	69.3	1915	194	1984	1949	1915	194	1984	1949	1915
1916	669	2494	113	1916	669	1973	1917	1916	669	1973	1917	1916
1917	2195	4187	513	1917	2195	1960	202	1917	2195	1960	202	1917
1918	1063	2752	202	1918	1063	1950	121	1918	1063	1950	121	1918
1919	655	2054	77.9	1919	655	1948	1964	1919	655	1948	1964	1919
1920	478	2311	68.2	1920	478	1948	1964	1920	478	1948	1964	1920
1921	296	1565	82.2	1921	296	1948	1964	1921	296	1948	1964	1921
1922	357	1775	74.3	1922	357	1948	1964	1922	357	1948	1964	1922

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

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SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1914 - 1998	
ANNUAL TOTAL	234339		157189		619	
ANNUAL MEAN	642		431		942	1983
HIGHEST ANNUAL MEAN					346	1990
LOWEST ANNUAL MEAN					22000	Apr 24 1960
HIGHEST DAILY MEAN	10300	Apr 6	9380	Mar 30	52	(a) Oct 1 1948
LOWEST DAILY MEAN	129	Aug 13	74	Sep 12	54	Feb 19 1964
ANNUAL SEVEN-DAY MINIMUM	132	Aug 8	79	Sep 6	(b) 27700	Apr 24 1960
INSTANTANEOUS PEAK FLOW			10100	Mar 30	(c) 21.70	Apr 24 1960
INSTANTANEOUS PEAK STAGE			(c) 13.00	Mar 30	(d) 34	Nov 8 1976
INSTANTANEOUS LOW FLOW			74	Sep 11, 12	1.04	
ANNUAL RUNOFF (CFSM)	1.08		.72		14.08	
ANNUAL RUNOFF (INCHES)	14.60		9.79		1440	
10 PERCENT EXCEEDS	1370		653		272	
50 PERCENT EXCEEDS	380		210		118	
90 PERCENT EXCEEDS	200		96			

(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 periods, Dec. 6-18, 22-25, Dec. 29 to Jan. 3, Jan. 5-9, and Jan. 13 to Feb. 16. Records good except those for ice-affected periods, which are fair (see page 12). Diurnal fluctuation caused by hydroelectric plant at gage. 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	141	218	206	160	200	658	2250	186	262	191	159	161
2	167	196	208	180	200	585	1480	182	452	189	158	161
3	168	189	204	210	190	447	1280	181	376	187	159	161
4	169	221	206	205	180	334	1080	178	386	185	159	160
5	170	193	199	170	160	271	826	178	313	185	162	159
6	167	194	190	200	180	244	605	178	225	187	163	159
7	169	200	190	190	200	231	462	178	212	192	162	159
8	172	197	190	200	200	226	432	175	199	192	161	156
9	194	185	200	190	200	225	387	175	173	189	165	155
10	166	195	190	180	200	175	360	174	174	186	175	155
11	165	205	190	91	200	174	313	176	224	178	168	155
12	172	178	200	169	200	192	289	176	416	184	162	155
13	197	188	190	170	200	203	273	179	463	183	155	156
14	171	200	190	180	200	198	239	183	393	180	149	175
15	178	178	200	190	200	189	245	171	288	177	156	176
16	180	195	200	200	200	180	232	195	235	177	157	173
17	181	160	190	200	202	207	223	222	198	178	154	171
18	180	180	200	200	257	198	220	199	206	176	163	162
19	181	193	200	200	281	193	210	188	320	175	172	156
20	180	192	201	200	249	184	218	176	380	176	169	154
21	180	193	166	200	228	200	216	169	335	170	160	154
22	182	193	150	200	222	197	204	165	286	159	154	150
23	182	165	170	200	240	181	198	161	235	157	152	147
24	182	141	160	200	265	197	202	158	203	160	173	147
25	181	210	180	200	294	182	204	146	196	159	175	150
26	180	216	193	190	284	204	198	150	223	158	173	164
27	180	218	144	200	553	716	193	145	258	159	164	170
28	183	209	145	200	631	1650	189	146	261	161	158	170
29	184	203	170	200	---	1470	187	148	204	161	160	170
30	185	204	180	200	---	1890	186	145	197	161	160	170
31	187	---	170	200	---	1650	---	228	---	161	161	---
TOTAL	5474	5809	5772	5875	6816	13851	13601	5411	8293	5433	5018	4811
MEAN	177	194	186	190	243	447	453	175	276	175	162	160
MAX	197	221	208	210	631	1890	2250	228	463	192	175	176
MIN	141	141	144	91	160	174	186	145	173	157	149	147
CFSM	.59	.64	.62	.63	.81	1.48	1.51	.58	.92	.58	.54	.53
IN.	.68	.72	.71	.73	.84	1.71	1.68	.67	1.02	.67	.62	.59

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 1998, BY WATER YEAR (WY)

	MEAN	239	251	203	188	194	310	581	365	288	265	226	240
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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1948 - 1998

ANNUAL TOTAL	94949	86164	
ANNUAL MEAN	260	236	280
HIGHEST ANNUAL MEAN			426
LOWEST ANNUAL MEAN			217
HIGHEST DAILY MEAN	2670	Apr 6	4100
LOWEST DAILY MEAN	134	Sep 30	61
ANNUAL SEVEN-DAY MINIMUM	156	Sep 28	68
INSTANTANEOUS PEAK FLOW			3050
INSTANTANEOUS PEAK STAGE			4.84
ANNUAL RUNOFF (CFSM)	.86	.78	7.90
ANNUAL RUNOFF (INCHES)	11.73	10.65	12.63
10 PERCENT EXCEEDS	289	285	468
50 PERCENT EXCEEDS	206	189	210
90 PERCENT EXCEEDS	171	158	160

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

STREAMS TRIBUTARY TO LAKE SUPERIOR
04029990 MONTREAL RIVER AT SAXON FALLS NEAR SAXON, WI

39

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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	92	111	119	83	792	2960	215	160	113	110	71
2	115	92	99	131	95	650	2720	205	195	110	110	71
3	110	242	105	137	89	578	2270	205	303	110	116	76
4	110	193	93	137	95	438	1550	218	225	108	110	71
5	110	152	99	137	89	370	1550	225	172	108	110	59
6	98	146	99	145	89	319	785	218	124	119	110	59
7	86	146	99	143	95	244	720	218	106	126	110	59
8	107	146	112	128	95	244	792	225	94	126	110	71
9	110	146	144	137	195	228	650	215	76	119	110	65
10	115	134	122	110	101	137	650	215	88	106	116	29
11	108	158	123	110	95	143	445	198	100	100	110	17
12	108	134	129	134	95	143	445	198	165	100	110	30
13	115	117	129	119	101	155	325	210	464	119	105	30
14	120	123	129	101	95	137	325	210	464	119	110	107
15	145	110	153	107	95	137	325	210	290	142	106	95
16	140	110	135	113	105	110	285	240	205	120	106	71
17	134	81	141	125	130	125	285	240	148	120	124	68
18	128	99	165	125	140	125	225	225	125	119	135	59
19	128	93	159	119	170	125	225	218	100	119	100	59
20	98	105	159	125	193	100	251	210	100	115	88	59
21	115	141	165	125	188	100	251	203	100	110	88	65
22	115	118	141	125	188	100	226	203	119	105	71	47
23	110	118	143	119	190	125	226	203	100	105	71	41
24	110	87	143	119	278	105	226	203	95	100	106	53
25	104	118	143	119	363	125	198	203	100	110	100	47
26	104	130	141	131	428	220	198	215	236	110	90	53
27	50	130	129	107	720	1030	195	196	165	119	90	53
28	65	130	129	95	792	3760	225	210	165	113	76	65
29	53	105	143	110	---	3760	201	170	76	113	76	65
30	80	105	137	105	---	3850	215	125	113	120	76	76
31	65	---	119	95	---	3200	---	125	---	119	82	---
TOTAL	3266	3801	4038	3752	5392	21675	19944	6374	4973	3542	3132	1791
MEAN	105	127	130	121	193	699	665	206	166	114	101	59.7
MAX	145	242	165	145	792	3850	2960	240	464	142	135	107
MIN	50	81	93	95	83	100	195	125	76	100	71	17
CFSM	.40	.48	.50	.46	.74	2.67	2.54	.78	.63	.44	.39	.23
IN.	.46	.54	.57	.53	.77	3.08	2.83	.91	.71	.50	.44	.25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 1998, BY WATER YEAR (WY)

MEAN	205	256	180	165	160	314	962	526	371	284	194	196
MAX	495	801	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 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1938 - 1998	
ANNUAL TOTAL	139047.0		81680			
ANNUAL MEAN	381		224		318	
HIGHEST ANNUAL MEAN					487	
LOWEST ANNUAL MEAN					162	
HIGHEST DAILY MEAN	5300		3850		9880	
LOWEST DAILY MEAN	50		17		7.2	
ANNUAL SEVEN-DAY MINIMUM	71		43		7.7	
ANNUAL RUNOFF (CFSM)	1.45		.85		1.21	
ANNUAL RUNOFF (INCHES)	19.74		11.60		16.48	
10 PERCENT EXCEEDS	1040		281		649	
50 PERCENT EXCEEDS	230		119		192	
90 PERCENT EXCEEDS	105		76		87	

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 12). Flow regulated by Cisco Lake (station 04037400). Several measurements of water temperature were made during the year. Gage-height telemeter at station.

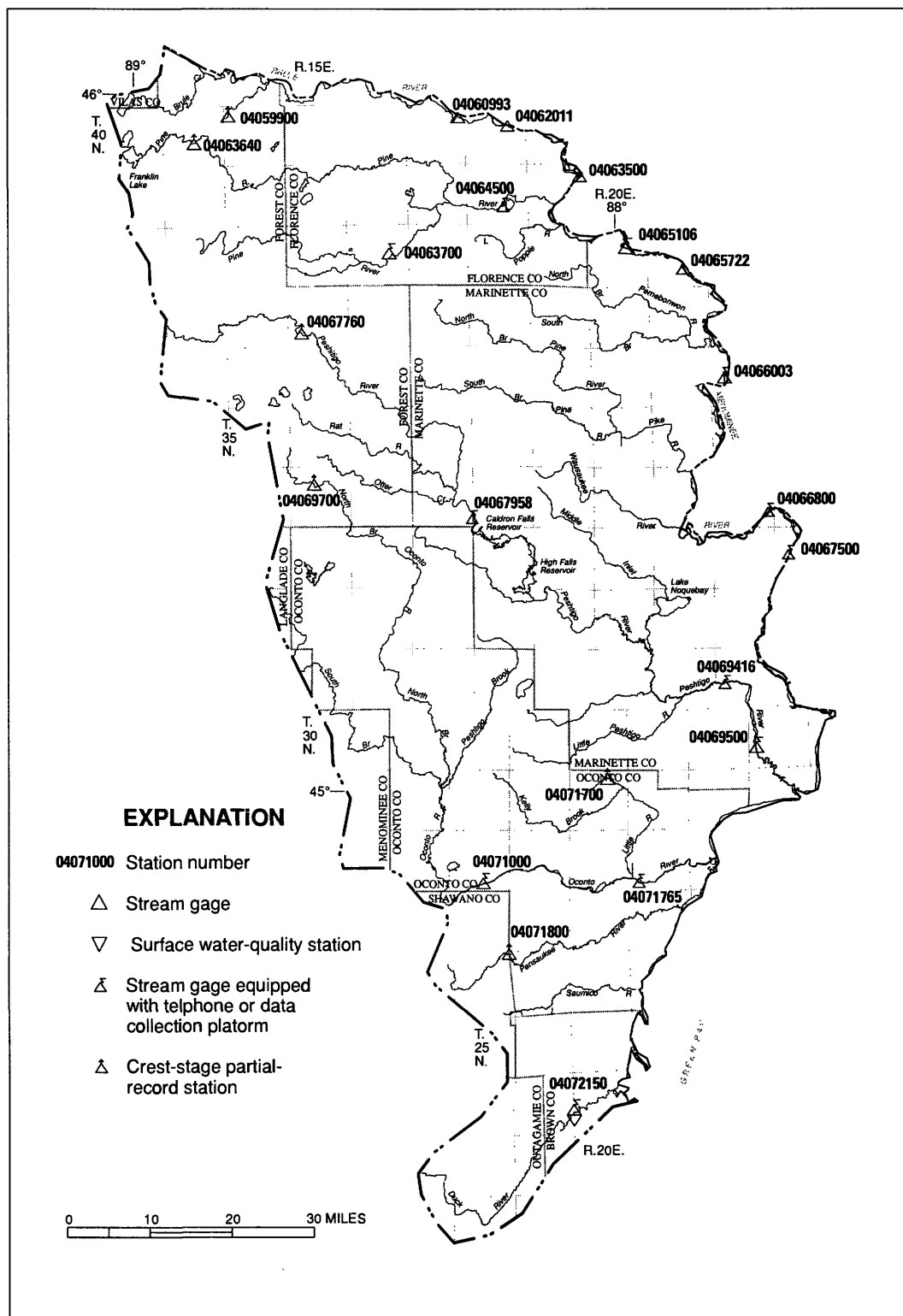
DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	50	37	57	40	13	144	33	.34	41	.46	.30
2	26	50	28	48	40	28	141	46	23	30	.50	.30
3	27	49	29	40	40	66	139	45	48	30	.49	.30
4	26	50	30	40	40	90	136	45	47	29	.49	.30
5	27	49	37	33	40	95	134	27	47	29	.43	.30
6	29	49	44	26	33	76	132	1.0	46	53	.42	.30
7	94	49	44	26	27	47	131	.43	44	69	.44	.30
8	160	48	53	26	27	36	128	.38	23	26	.45	.30
9	173	47	60	27	27	37	58	.35	.47	1.8	.45	.30
10	164	48	58	27	27	38	3.9	.34	.37	1.3	.43	.30
11	162	48	58	27	27	37	2.7	.33	.40	1.0	.44	.31
12	157	47	49	44	27	37	1.7	.32	40	.95	.44	.33
13	105	47	31	71	27	38	1.4	.31	110	.83	.45	.42
14	27	68	23	77	27	38	1.3	11	127	.57	.45	49
15	8.9	86	23	77	27	38	1.2	25	85	.57	.44	107
16	8.7	84	23	64	34	38	1.1	24	16	.57	.43	125
17	8.7	82	23	56	50	38	.97	23	2.1	.61	.41	119
18	8.7	65	23	56	58	28	.90	24	16	.58	.42	68
19	8.7	47	23	47	58	22	.83	12	26	.52	.41	18
20	19	47	24	29	49	22	.89	.53	24	.44	.41	3.3
21	49	46	24	16	41	22	.82	.44	23	.45	.39	3.2
22	97	47	24	9.5	41	22	.74	.33	12	.80	.37	3.1
23	118	47	24	9.8	33	31	.68	.28	1.1	.97	.42	2.8
24	113	47	24	10	28	49	.61	.28	.96	.90	.37	2.4
25	108	46	24	10	19	57	.61	.30	1.0	.90	.34	2.0
26	105	46	24	38	13	68	.54	.30	15	.83	.35	.77
27	101	46	24	60	13	98	.52	.29	26	.79	.35	.45
28	98	46	25	59	13	125	.46	.30	27	.80	.34	.39
29	93	44	32	58	---	127	9.4	.29	40	.63	.31	25
30	92	42	49	57	---	137	19	.30	48	.60	.30	71
31	71	---	58	48	---	141	---	.33	---	.50	.30	---
TOTAL	2299.7	1567	1052	1273.3	926	1739	1193.27	322.43	919.74	324.91	12.70	604.47
MEAN	74.2	52.2	33.9	41.1	33.1	56.1	39.8	10.4	30.7	10.5	.41	20.1
MAX	173	86	60	77	58	141	144	46	127	69	.50	125
MIN	8.7	42	23	9.5	13	13	.46	.28	.34	.44	.30	.30
CFSM	1.46	1.03	.67	.81	.65	1.11	.78	.21	.60	.21	.01	.40
IN.	1.69	1.15	.77	.93	.68	1.28	.88	.24	.67	.24	.01	.44

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1998, BY WATER YEAR (WY)												
MEAN	69.5	67.5	48.5	39.4	34.9	43.8	61.2	46.7	45.6	32.0	25.8	38.1
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 1997 CALENDAR YEAR			FOR 1998 WATER YEAR			WATER YEARS 1945 - 1998		
ANNUAL TOTAL			17984.56			12234.52					
ANNUAL MEAN			49.3			33.5			46.1		
HIGHEST ANNUAL MEAN									65.9		1973
LOWEST ANNUAL MEAN									25.2		1949
HIGHEST DAILY MEAN									288		May 1-4 1951
LOWEST DAILY MEAN			173	Oct 9		173	Oct 9		.08		(a)
ANNUAL SEVEN-DAY MINIMUM			.67	Aug 13		.28	May 23, 24		.09		Jul 28 1988
INSTANTANEOUS PEAK FLOW			.69	Aug 8		.29	May 23				
INSTANTANEOUS PEAK STAGE						181	Oct 8		288		May 1-4 1951
ANNUAL RUNOFF (CFSM)			.97			5.60	Oct 8		(b) 6.10		May 1-4 1951
ANNUAL RUNOFF (INCHES)			13.20			.66			.91		
10 PERCENT EXCEEDS			119			8.98			12.35		
50 PERCENT EXCEEDS			45			26			103		
90 PERCENT EXCEEDS			1.3			.37			37		
									.92		

(a) July 21, Aug. 2, 3, 1988
(b) Present datum



MENOMINEE-OCONTO-PESHTIGO BASIN

REMARKS.--Estimated daily discharges: Nov. 14 to Feb. 25 and Mar. 8-9, 14-23. Records good except for estimated daily discharges, which are fair (see page 12). 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 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	259	329	260	240	250	387	1390	265	350	282	188	173
2	253	347	260	240	250	397	1250	261	317	252	183	189
3	251	330	260	240	250	364	1060	259	322	239	180	177
4	276	311	260	240	250	332	869	263	278	252	178	171
5	259	300	260	240	250	314	727	257	252	241	178	168
6	266	292	260	240	250	304	626	247	239	313	182	163
7	458	282	260	240	250	294	575	250	236	343	202	166
8	449	278	260	240	250	280	541	241	235	294	207	177
9	407	277	260	240	250	270	500	241	226	262	206	175
10	383	277	260	225	250	233	471	234	220	241	235	175
11	331	272	260	200	250	236	444	226	257	236	204	165
12	305	267	260	205	250	296	429	227	659	234	191	160
13	411	264	260	210	250	310	419	296	768	224	185	207
14	533	260	260	220	250	260	421	285	545	219	185	276
15	435	260	270	230	260	260	419	255	391	221	190	264
16	361	260	280	240	260	260	396	254	339	211	187	249
17	331	260	270	250	270	260	396	247	294	206	190	228
18	326	250	270	250	270	260	394	241	277	196	200	205
19	326	250	260	250	270	260	382	233	263	197	192	196
20	340	250	250	250	280	260	380	225	250	193	187	185
21	326	250	240	250	280	260	371	223	236	188	181	179
22	311	250	240	250	285	260	346	220	224	181	182	176
23	304	220	240	250	290	265	335	227	213	179	238	174
24	296	200	240	250	300	265	323	217	232	179	225	178
25	291	250	240	250	300	271	310	213	259	179	209	181
26	286	270	240	250	320	330	304	207	278	178	220	199
27	281	270	240	250	352	607	294	205	272	200	201	224
28	276	270	240	250	378	983	285	213	253	190	191	217
29	275	270	240	250	---	1090	279	217	252	189	182	216
30	271	270	240	250	---	1290	267	212	296	197	176	218
31	308	---	240	250	---	1400	---	327	---	194	172	---
TOTAL	10185	8136	7880	7440	7615	12858	15203	7488	9233	6910	6027	5831
MEAN	329	271	254	240	272	415	507	242	308	223	194	194
MAX	533	347	280	250	378	1400	1390	327	768	343	238	276
MIN	251	200	240	200	250	233	267	205	213	178	172	160
CFSM	.90	.74	.69	.66	.74	1.13	1.38	.66	.84	.61	.53	.53
IN.	1.04	.83	.80	.76	.77	1.31	1.55	.76	.94	.70	.61	.59

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

MEAN	328	337	277	252	244	321	653	501	396	334	289	312
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 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1914 - 1998

	FOR 1960-1969		FOR 1970-1979		FOR 1980-1989		FOR 1990-1999	
ANNUAL TOTAL	133483		104806					
ANNUAL MEAN	366		287				352	
HIGHEST ANNUAL MEAN							512	1973
LOWEST ANNUAL MEAN							221	1990
HIGHEST DAILY MEAN	2010	Apr 7	1400	Mar 31	4420			Jul 2 1953
LOWEST DAILY MEAN	200	Nov 24	160	Sep 12	130			Dec 2 1963
ANNUAL SEVEN-DAY MINIMUM	210	Feb 23	169	Sep 6	140			Jan 2 1995
INSTANTANEOUS PEAK FLOW			(a)1440	Mar 31	4700			Jul 2 1953
INSTANTANEOUS PEAK STAGE			(b)6.03	Jan 9	(c)7.45			Apr 26 1996
INSTANTANEOUS LOW FLOW			160	Sep 11, 12	(d)118			Dec 2 1963
ANNUAL RUNOFF (CFSM)	1.00		.78				.96	
ANNUAL RUNOFF (INCHES)	13.57		10.65				13.07	
10 PERCENT EXCEEDS	596		382		553			
50 PERCENT EXCEEDS	280		252		290			
90 PERCENT EXCEEDS	220		188		205			

(d) Discharge measurement

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

43

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: Sept. 22-30. Records good (see page 12). 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.

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	390	457	372	305	400	520	3620	384	495	378	282	265
2	373	469	374	364	377	540	3320	394	415	335	288	297
3	366	437	378	435	357	471	2440	384	438	355	274	270
4	383	430	379	357	344	466	1460	387	431	338	262	268
5	391	395	378	318	334	437	886	382	362	341	280	266
6	397	414	377	380	376	416	778	359	343	424	291	263
7	629	431	396	395	366	416	715	358	362	476	309	253
8	648	405	382	373	389	424	706	379	360	388	324	265
9	559	394	380	376	360	401	597	346	331	389	352	279
10	509	389	379	322	358	283	654	344	318	343	502	259
11	469	388	371	243	378	282	534	344	360	326	282	292
12	446	398	358	284	373	406	560	330	825	367	275	253
13	582	349	340	373	363	403	545	422	956	309	275	241
14	723	412	356	303	368	369	558	406	714	325	312	372
15	572	401	415	343	361	363	533	382	522	327	289	404
16	458	348	363	349	368	374	509	369	442	294	275	330
17	450	352	342	367	411	366	528	355	446	306	313	331
18	429	380	399	376	410	422	511	361	376	301	297	314
19	454	416	382	376	409	379	503	346	393	300	294	267
20	443	348	367	376	423	369	485	305	377	299	301	305
21	426	363	264	376	385	393	456	318	341	280	335	254
22	421	339	295	359	399	393	465	325	313	297	270	245
23	410	341	396	369	407	376	478	324	325	276	371	250
24	409	254	311	364	419	365	415	328	311	247	333	255
25	391	349	348	362	447	413	434	328	398	256	294	250
26	388	457	390	362	465	467	394	318	377	256	328	300
27	397	353	332	362	468	750	417	295	365	345	292	300
28	380	402	300	359	514	1150	410	365	363	285	291	305
29	378	380	376	380	---	1680	411	345	335	285	291	310
30	390	384	361	385	---	2400	382	256	406	285	260	280
31	444	---	290	363	---	3160	---	455	---	285	272	---
TOTAL	14105	11635	11151	11056	11029	19654	24704	10994	12800	10018	9414	8543
MEAN	455	388	360	357	394	634	823	355	427	323	304	285
MAX	723	469	415	435	514	3160	3620	455	956	476	502	404
MIN	366	254	264	243	334	282	382	256	311	247	260	241

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1998, BY WATER YEAR (WY)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
MEAN	432	405	350	333	336	433	1013	870	489	415	355
MAX	712	571	416	424	410	634	2288	2757	730	610	465
(WY)	1991	1993	1992	1997	1997	1998	1996	1996	1996	1996	1997
MIN	276	307	270	259	270	359	322	355	334	272	296
(WY)	1990	1990	1990	1991	1991	1994	1990	1998	1992	1990	1990

SUMMARY STATISTICS

	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1990 - 1998
ANNUAL TOTAL	216061	155103	
ANNUAL MEAN	592	425	483
HIGHEST ANNUAL MEAN			810
LOWEST ANNUAL MEAN			325
HIGHEST DAILY MEAN	4360	Apr 8	7750
LOWEST DAILY MEAN	254	Nov 24	182
ANNUAL SEVEN-DAY MINIMUM	326	Jul 30	202
INSTANTANEOUS PEAK FLOW		3880	8480
INSTANTANEOUS PEAK STAGE		10.39	13.91
10 PERCENT EXCEEDS	897	509	661
50 PERCENT EXCEEDS	421	372	373
90 PERCENT EXCEEDS	353	281	275

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 12). 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 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1310	989	1330	949	1660	1740	6190	984	1100	1220	863	993
2	1280	915	1300	1210	1580	1740	5870	802	1190	1130	801	993
3	1250	1220	1330	1330	1640	1980	4910	784	1140	1220	745	884
4	1110	1190	1340	1370	1680	2130	3900	813	985	1130	741	941
5	1020	1250	1310	1290	1780	2140	3190	917	1080	1080	782	821
6	1360	1300	1270	1340	1760	2220	2170	882	766	1180	755	764
7	1510	1190	1290	1310	1730	2150	2250	893	765	1210	748	891
8	1960	1310	1360	1370	1800	2100	2480	877	760	1270	694	893
9	1900	1200	1330	1250	1750	2110	2140	834	871	1210	758	911
10	1930	1140	1300	1350	1730	1970	2180	809	849	1090	961	819
11	1650	938	1280	917	1730	1660	2050	845	848	1130	877	846
12	1660	962	1360	1030	1670	1430	1790	905	1590	892	909	839
13	1870	877	1350	1350	1700	1450	1860	842	2380	983	827	853
14	1640	861	1170	1410	1630	1150	1730	765	2420	1120	742	1450
15	1500	770	1370	1380	1600	1070	1570	789	1720	1060	794	1840
16	1290	813	1390	1370	1740	1500	1590	758	1370	995	778	1830
17	1460	793	1370	1490	1770	1820	1590	754	1370	966	744	1560
18	1270	853	1320	1440	1730	1820	1530	1370	1340	872	841	1210
19	1050	1240	1410	1440	1780	1850	986	1320	1110	880	812	995
20	1170	1500	1250	1360	1810	1680	1350	913	1110	825	809	954
21	1220	1240	1100	1340	1750	960	1640	884	955	1040	787	948
22	1250	1220	1130	1450	1790	785	1650	873	948	969	794	1020
23	1200	1280	1190	1340	1660	902	1430	850	823	938	773	999
24	1200	1400	1210	1360	1570	822	1110	711	911	937	960	896
25	974	1310	1220	1290	1670	847	761	659	1010	838	987	1080
26	1050	1280	1270	1470	1530	1000	739	700	780	864	969	973
27	934	1280	1300	1670	1520	1250	1030	750	1080	870	1040	1280
28	912	1220	1240	1670	1730	1660	1090	723	1060	877	912	1040
29	1240	1110	1290	1730	---	2390	1190	699	1020	813	964	1240
30	1070	1080	1340	1740	---	4180	1090	725	1230	867	1100	1410
31	1170	---	1330	1740	---	5610	---	930	---	839	1030	---
TOTAL	41410	33731	40050	42756	47490	56116	63056	26360	34581	31315	26297	32173
MEAN	1336	1124	1292	1379	1696	1810	2102	850	1153	1010	848	1072
MAX	1960	1500	1410	1740	1810	5610	6190	1370	2420	1270	1100	1840
MIN	912	770	1100	917	1520	785	739	659	760	813	694	764

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)												
MEAN	1483	1612	1467	1407	1382	1602	3191	3058	2146	1603	1306	1412
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 1997 CALENDAR YEAR			FOR 1998 WATER YEAR			WATER YEARS 1914 - 1998	
TOTAL	701108			475335				
ANNUAL MEAN	1921			1302			1806	
HIGHEST ANNUAL MEAN							3069	
LOWEST ANNUAL MEAN							922	
HIGHEST DAILY MEAN	6640	Apr	9	6190	Apr	1	18100	Apr 26
LOWEST DAILY MEAN	727	Aug	8	659	May	25	57	Sep 26
ANNUAL SEVEN-DAY MINIMUM	821	Aug	6	710	May	24	277	Oct 18
INSTANTANEOUS PEAK FLOW				6480	Apr	1	(a) 19500	Apr 26
INSTANTANEOUS PEAK STAGE				10.10	Apr	1	(b) 12.54	Apr 27
10 PERCENT EXCEEDS	3260			1790			3050	
50 PERCENT EXCEEDS	1710			1210			1480	
90 PERCENT EXCEEDS	1100			798			853	

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

STREAMS TRIBUTARY TO LAKE MICHIGAN

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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 periods, Nov. 13-25, Nov. 30 to Dec. 16, Dec. 21 to Mar. 28. Records good except those for ice-affected periods, which are poor (see page 12). 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	55	83	45	35	42	130	652	78	56	47	23	24
2	53	94	45	37	41	140	663	73	58	43	22	22
3	48	100	45	38	40	140	651	69	58	40	22	22
4	45	96	46	39	40	120	604	66	59	41	22	24
5	41	89	45	40	42	110	542	64	56	39	22	22
6	43	85	46	40	45	110	478	60	51	41	23	21
7	82	81	47	40	49	100	416	58	47	44	29	20
8	102	78	47	39	52	90	355	66	45	45	32	19
9	109	78	49	38	52	76	309	56	43	41	32	20
10	112	77	48	37	52	72	266	52	41	36	33	19
11	103	75	48	37	50	66	227	49	42	33	28	19
12	94	68	47	37	49	64	199	47	84	32	26	18
13	148	64	46	36	47	60	178	58	121	30	24	19
14	197	58	47	37	47	58	179	64	128	29	25	20
15	193	54	47	37	48	56	182	61	119	30	26	20
16	174	50	47	38	49	52	176	58	109	30	25	19
17	157	54	47	39	52	50	171	57	100	28	28	19
18	137	52	49	40	52	52	177	54	89	28	29	19
19	124	49	49	39	54	50	175	50	78	28	28	18
20	124	47	48	39	54	50	164	46	68	25	29	19
21	116	45	41	38	52	52	152	42	58	24	26	18
22	106	43	41	38	52	54	142	40	50	23	25	19
23	96	41	41	37	52	56	130	39	45	22	42	21
24	88	40	40	37	54	58	118	37	45	21	45	25
25	86	40	40	38	62	60	109	36	47	21	37	21
26	80	46	39	38	70	84	102	36	47	21	31	25
27	79	47	38	39	86	150	96	38	45	24	29	30
28	77	47	37	39	110	250	89	39	46	26	31	30
29	74	47	36	40	---	332	84	39	47	24	27	27
30	71	45	36	40	---	466	92	36	48	24	24	26
31	72	---	35	42	---	549	---	45	---	24	23	---
TOTAL	3086	1873	1362	1188	1495	3757	7878	1613	1930	964	868	645
MEAN	99.5	62.4	43.9	38.3	53.4	121	263	52.0	64.3	31.1	28.0	21.5
MAX	197	100	49	42	110	549	663	78	128	47	45	30
MIN	41	40	35	35	40	50	84	36	41	21	22	18
CFSM	.72	.45	.32	.28	.38	.87	1.89	.37	.46	.22	.20	.15
IN.	.83	.50	.36	.32	.40	1.01	2.11	.43	.52	.26	.23	.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1998, BY WATER YEAR (WY)

STATISTICS		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	120	116	66.5	49.1	48.1	87.0	311	221	142	76.6	65.9	109																									
MAX	265	220	116	86.6	107	356	613	617	345	235	147	356																									
(WY)	1972	1986	1992	1969	1984	1973	1979	1965	1993	1968	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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1964 - 1998
ANNUAL TOTAL	41437.0	26659	
ANNUAL MEAN	114	73.0	118
HIGHEST ANNUAL MEAN			175
LOWEST ANNUAL MEAN			64.3
HIGHEST DAILY MEAN	(a) 620	Apr 9, 10	1610
LOWEST DAILY MEAN	32	Aug 10-14	10
ANNUAL SEVEN-DAY MINIMUM	32	Aug 8	12
INSTANTANEOUS PEAK FLOW		665	1640
INSTANTANEOUS PEAK STAGE		3.17	4.70
INSTANTANEOUS LOW FLOW		16	(c) 5.9
ANNUAL RUNOFF (CFSM)	.82	.53	.85
ANNUAL RUNOFF (INCHES)	11.09	7.13	11.50
10 PERCENT EXCEEDS	245	130	257
50 PERCENT EXCEEDS	66	47	71
90 PERCENT EXCEEDS	45	24	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, revised.

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

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: May 4 to Aug. 19 (bridge construction) and ice-affected periods, Nov. 23-25, Dec. 8, 13-15, 20-25, 28, 29, Dec. 31 to Feb. 20, Mar. 7-17, and Mar. 20-24. Records good except those for estimated daily discharges, which are fair (see page 12). 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	253	375	236	210	240	558	2260	319	290	200	96	141
2	272	424	233	230	240	584	2130	285	340	200	84	113
3	249	440	236	230	230	517	1970	278	310	190	80	113
4	237	404	247	230	230	486	1760	250	280	180	86	102
5	216	374	250	230	240	424	1570	250	250	180	94	130
6	240	344	245	230	240	390	1390	240	230	220	110	108
7	446	338	262	240	240	370	1210	220	220	230	150	101
8	525	326	240	230	240	360	1100	230	210	200	160	104
9	525	315	256	230	240	310	962	210	200	190	150	106
10	509	317	266	230	240	230	857	210	230	170	170	100
11	485	308	246	220	240	270	762	200	270	150	150	91
12	426	253	239	220	240	310	703	210	430	140	140	112
13	566	250	240	220	240	310	636	230	660	150	140	98
14	760	289	260	220	240	270	633	250	700	140	130	89
15	730	290	260	230	240	260	658	240	580	140	150	105
16	715	219	243	220	240	270	653	230	480	140	140	113
17	567	185	274	230	250	270	611	220	390	130	150	108
18	506	244	260	240	270	270	642	210	320	120	150	97
19	460	267	225	230	270	251	619	200	280	110	130	107
20	449	225	240	230	280	280	614	180	230	110	132	87
21	452	244	210	240	283	280	563	180	220	96	138	115
22	419	190	230	230	265	290	542	160	190	90	141	91
23	394	200	240	240	266	280	502	150	200	90	188	76
24	357	180	210	230	319	280	424	150	230	86	207	88
25	346	220	230	230	326	289	428	150	210	78	183	118
26	344	265	222	230	345	375	391	150	220	90	157	120
27	329	245	214	230	410	611	365	140	220	100	154	129
28	312	241	210	230	497	1060	345	160	210	100	144	109
29	302	240	220	230	---	1310	318	170	210	120	146	133
30	313	251	214	240	---	1800	316	160	220	120	125	149
31	339	---	220	230	---	1930	---	250	---	88	109	---
TOTAL	13043	8463	7378	7110	7601	15495	25934	6482	9030	4348	4284	3253
MEAN	421	282	238	229	271	500	864	209	301	140	138	108
MAX	760	440	274	240	497	1930	2260	319	700	230	207	149
MIN	216	180	210	210	230	230	316	140	190	78	80	76
CFSM	.79	.53	.45	.43	.51	.94	1.62	.39	.56	.26	.26	.20
IN.	.91	.59	.51	.50	.53	1.08	1.81	.45	.63	.30	.30	.23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 1998, BY WATER YEAR (WY)

	MEAN	381	394	260	219	197	313	953	813	551	375	303	370
MAX	1017	694	431	473	351	1188	1882	2127	1424	969	760	1115	
(WY)	1929	1946	1971	1939	1969	1973	1967	1965	1939	1942	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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1924 - 1998
ANNUAL TOTAL	163786	112421	
ANNUAL MEAN	449	308	428
HIGHEST ANNUAL MEAN			658
LOWEST ANNUAL MEAN			210
HIGHEST DAILY MEAN	2390	2260	4380
LOWEST DAILY MEAN	160	76	.00 (a)
ANNUAL SEVEN-DAY MINIMUM	171	90	41
INSTANTANEOUS PEAK FLOW		2360	
INSTANTANEOUS PEAK STAGE		6.55	
ANNUAL RUNOFF (CFSM)	.84	.58	.80
ANNUAL RUNOFF (INCHES)	11.43	7.85	10.91
10 PERCENT EXCEEDS	904	548	890
50 PERCENT EXCEEDS	308	239	303
90 PERCENT EXCEEDS	230	111	147

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

STREAMS TRIBUTARY TO LAKE MICHIGAN

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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: Ice-affected periods, Nov. 22-26, Dec. 21 to Jan. 3, and Jan. 9 to Feb. 18. Records good except those for ice-affected periods, which are fair (see page 12). 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 tele-meter 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
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1690	1370	1640	1100	2000	2400	8960	1340	1550	1510	1040	1240
2	1520	1490	1680	1400	1900	2540	8500	1320	1650	1520	995	1200
3	1540	1760	1660	1600	1900	2660	7380	1250	1620	1480	934	1110
4	1350	1730	1680	1650	1900	2790	6070	1270	1460	1390	955	1070
5	1390	1740	1630	1670	2000	2760	5200	1250	1380	1340	942	1010
6	1610	1630	1670	1680	1900	2670	3920	1250	1200	1570	1020	1040
7	1970	1610	1650	1670	1900	2570	3680	1290	1110	1560	991	983
8	2480	1770	1660	1630	2000	2640	3760	1260	1090	1640	1010	1020
9	2630	1620	1660	1600	2000	2580	3420	1190	1150	1560	1000	1080
10	2410	1510	1620	1500	2000	2290	3210	1220	1170	1480	1170	1040
11	2290	1330	1640	1200	1900	2040	3060	1210	1180	1320	1100	1050
12	2160	1360	1710	1300	1900	1900	2630	1140	1880	1200	1170	1010
13	2470	1230	1620	1600	1900	1760	2570	1150	3050	1210	1020	1010
14	2460	1130	1510	1700	1900	1550	2400	1150	3370	1380	1040	1620
15	2430	1190	1710	1600	1900	1470	2440	1150	2640	1340	1000	1920
16	2220	1100	1780	1600	1900	1900	2280	1120	2090	1150	1020	1910
17	1990	1080	1670	1700	2000	2070	2370	1200	1820	1200	981	1740
18	1990	1180	1660	1700	2100	2180	2320	1570	1900	1170	1110	1500
19	1540	1600	1690	1700	2070	2220	1860	1630	1510	1150	1020	1120
20	1680	1930	1640	1600	2120	2090	2150	1210	1550	1050	1030	1150
21	1670	1600	1200	1600	2150	1350	2380	1170	1340	1260	965	1140
22	1780	1400	1300	1700	2140	1250	2400	1160	1210	1130	999	1120
23	1700	1500	1400	1600	2090	1170	2120	1080	1170	1120	1030	1120
24	1640	1500	1500	1600	2030	1220	1740	974	1220	1100	1310	1120
25	1440	1500	1500	1500	2050	1230	1240	951	1380	1070	1240	1180
26	1510	1600	1500	1700	2050	1560	1290	950	1140	1050	1290	1230
27	1350	1650	1500	1800	2000	2140	1590	917	1340	1050	1210	1490
28	1320	1510	1500	1900	2390	2730	1620	938	1410	1050	1200	1260
29	1620	1450	1500	2000	---	4020	1650	939	1500	1050	1240	1410
30	1490	1470	1500	2000	---	6330	1560	985	1540	1050	1190	1550
31	1570	---	1500	1900	---	8020	---	1180	---	1040	1260	---
TOTAL	56910	44540	49080	50500	56090	76100	95770	36414	47620	39190	33482	37443
MEAN	1836	1485	1583	1629	2003	2455	3192	1175	1587	1264	1080	1248
MAX	2630	1930	1780	2000	2390	8020	8960	1630	3370	1640	1310	1920
MIN	1320	1080	1200	1100	1900	1170	1240	917	1090	1040	934	983

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1998, BY WATER YEAR (WY)

MEAN	1886	1919	1912	1856	1964	2055	3712	3834	2691	2026	1623	1750
MAX	2810	2531	2458	2258	2286	2455	6167	7555	4184	2831	2290	2225
(WY)	1996	1993	1993	1993	1997	1998	1996	1996	1993	1996	1996	1994
MIN	1632	1283	1542	1369	1391	1764	1953	1175	1587	1264	1080	1248
(WY)	1993	1995	1995	1995	1995	1994	1994	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1993 - 1998

ANNUAL TOTAL	888239	623139	
ANNUAL MEAN	2434	1707	2269
HIGHEST ANNUAL MEAN			3135
LOWEST ANNUAL MEAN			1707
HIGHEST DAILY MEAN	9500	Apr 7	16000
LOWEST DAILY MEAN	950	Aug 12	917
ANNUAL SEVEN-DAY MINIMUM	1010	Aug 6	951
INSTANTANEOUS PEAK FLOW			9410
INSTANTANEOUS PEAK STAGE		11.90	Apr 1
10 PERCENT EXCEEDS	4230		3600
50 PERCENT EXCEEDS	2100		1940
90 PERCENT EXCEEDS	1430		1250

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 12). 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1980	1780	1910	1460	2290	3000	11200	1640	1730	1690	1100	1270
2	1800	1800	1990	1720	2260	3150	11300	1570	1900	1690	1080	1300
3	1800	2060	1970	1780	2210	3420	10100	1470	1810	1690	1050	1260
4	1490	2130	1940	2020	2160	3460	8470	1530	1710	1580	1050	1200
5	1660	2180	1900	1850	2400	3390	7240	1420	1550	1500	1040	1070
6	1820	2070	1930	1950	2310	3330	5630	1430	1370	1830	1040	1100
7	2330	1970	1940	1870	2280	3110	4980	1450	1230	1820	1040	1090
8	2830	1960	1960	1890	2370	3170	4980	1470	1320	1800	1040	1070
9	2950	2100	1960	1940	2420	3090	4450	1410	1320	1860	1040	1090
10	2950	1910	1890	1800	2380	2740	4110	1370	1320	1700	1190	1140
11	2640	1700	1930	1500	2350	2380	3910	1390	1340	1540	1200	1110
12	2560	1680	1940	1570	2250	2430	3450	1290	1950	1440	1300	1100
13	2860	1510	1900	1880	2320	2070	3370	1340	3280	1340	1120	1080
14	3150	1440	1800	2010	2210	2030	3040	1320	3800	1490	1110	1660
15	2970	1480	1930	2020	2080	1810	3020	1310	3090	1460	1120	2140
16	2790	1440	2020	1900	2260	2060	2940	1300	2410	1200	1110	2090
17	2520	1380	1960	2040	2410	2460	2950	1370	2070	1200	1100	1940
18	2510	1450	1930	2090	2480	2490	3000	1730	2290	1220	1150	1660
19	2030	1780	1980	2000	2440	2590	2520	1790	1720	1200	1200	1230
20	2090	2250	1910	1970	2400	2480	2680	1410	1750	1130	1130	1300
21	2090	1910	1520	1940	2470	1660	3040	1330	1560	1240	1120	1220
22	2170	1720	1670	1940	2490	1540	3040	1270	1440	1220	1100	1240
23	2080	1820	1770	1940	2470	1530	2760	1150	1290	1180	1140	1220
24	2030	1870	1760	1910	2380	1530	2260	1110	1400	1160	1440	1220
25	1760	1910	1780	1840	2400	1570	1640	1070	1590	1130	1430	1250
26	1720	1960	1790	1940	2480	1980	1600	1080	1350	1070	1410	1380
27	1780	1900	1800	2120	2440	2710	1930	1070	1510	1130	1430	1630
28	1680	1840	1740	2290	2950	3720	1940	1060	1550	1080	1360	1420
29	1890	1730	1800	2290	---	5170	1980	1080	1670	1080	1290	1510
30	1860	1770	1850	2340	---	7970	1930	1070	1730	1110	1350	1640
31	1830	---	1840	2210	---	10100	---	1360	---	1110	1410	---
TOTAL	68620	54500	58010	60020	66360	94140	125460	41660	54050	42890	36690	40630
MEAN	2214	1817	1871	1936	2370	3037	4182	1344	1802	1384	1184	1354
MAX	3150	2250	2020	2340	2950	10100	11300	1790	3800	1860	1440	2140
MIN	1490	1380	1520	1460	2080	1530	1600	1060	1230	1070	1040	1070

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1998, BY WATER YEAR (WY)

	MEAN	2051	2389	2256	2067	2044	2470	4380	3821	2895	2088	1651	1900
MAX	3401	4412	3008	2533	2548	3037	8159	8850	4832	3359	2598	2456	
(WY)	1996	1989	1989	1993	1997	1998	1996	1996	1993	1996	1996	1994	
MIN	1081	1382	1555	1489	1443	2028	1356	1344	1062	1100	1184	1223	
(WY)	1990	1990	1990	1995	1995	1994	1990	1998	1988	1988	1998	1989	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1988 - 1998

ANNUAL TOTAL	1060980	743030	
ANNUAL MEAN	2907	2036	
HIGHEST ANNUAL MEAN			2554
LOWEST ANNUAL MEAN			3781
HIGHEST DAILY MEAN	12300	11300	21500
LOWEST DAILY MEAN	1090	1040	846
ANNUAL SEVEN-DAY MINIMUM	1160	1040	932
INSTANTANEOUS PEAK FLOW		11700	22000
INSTANTANEOUS PEAK STAGE		13.07	17.39
INSTANTANEOUS LOW FLOW		982	603
10 PERCENT EXCEEDS	5220	2960	4070
50 PERCENT EXCEEDS	2410	1800	2090
90 PERCENT EXCEEDS	1690	1130	1310

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04066003 MENOMINEE RIVER BELOW PEMENE CREEK NEAR PEMBINE, WI

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.

DRAINAGE AREA.--3,140 mi².

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 periods, Nov. 17-25, Dec. 7-14, Dec. 21 to Feb. 14, and Mar. 7-19. Records good except those for ice-affected periods, which are fair (see page 12). 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.

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	1840	1870	1730	1600	2300	3220	12000	1700	1520	1630	1100	1270
2	1870	1900	1900	1500	2200	3330	12600	1650	1800	1650	1090	1250
3	1800	1940	1940	1900	2200	3600	11200	1500	1840	1630	1050	1250
4	1610	2230	1930	1900	2100	3640	9270	1550	1670	1590	1040	1160
5	1650	2250	1900	1800	2300	3530	7830	1460	1500	1500	1030	1090
6	1670	2140	1910	1800	2300	3480	6050	1450	1450	1580	1060	1050
7	2240	2010	1900	1900	2300	3100	5280	1470	1270	1800	1110	1070
8	2850	1950	1900	1800	2400	3100	4950	1510	1240	1750	1120	1050
9	2960	2190	1900	1700	2400	3000	4780	1420	1270	1850	1120	1060
10	3030	2010	1800	1700	2300	2800	4110	1380	1260	1690	1100	1130
11	2670	1750	1800	1400	2400	2200	4100	1410	1320	1640	1250	1110
12	2650	1710	1900	1300	2200	2300	3490	1370	1550	1380	1260	1100
13	2870	1650	1900	1700	2200	2000	3400	1310	3010	1320	1200	1060
14	3340	1470	1900	1800	2200	2000	3110	1310	3720	1290	1140	1340
15	3050	1480	1780	1900	2090	1800	3060	1280	3230	1500	1140	2110
16	2870	1460	1990	2000	2280	1800	3080	1300	2420	1330	1090	1960
17	2650	1300	1920	2000	2340	2200	3050	1290	1990	1200	1100	1960
18	2600	1300	1860	2000	2480	2400	3150	1500	2280	1240	1100	1520
19	2290	1500	1920	2000	2430	2500	2870	1740	1730	1250	1200	1430
20	2050	2200	1960	1900	2420	2500	2500	1610	1670	1150	1130	1190
21	2150	1800	1700	1800	2500	1850	3180	1330	1630	1110	1120	1280
22	2160	1700	1500	2000	2500	1580	3090	1260	1450	1300	1090	1250
23	2220	1800	1600	1900	2500	1580	2890	1200	1250	1160	1140	1240
24	2050	1900	1700	1800	2430	1520	2420	1150	1260	1170	1210	1240
25	1880	2000	1700	1800	2440	1610	1890	1080	1440	1140	1540	1250
26	1770	1930	1700	1900	2530	1970	1660	1070	1490	1100	1370	1360
27	1740	1860	1700	2000	2550	2820	1830	1070	1360	1130	1380	1530
28	1740	1850	1600	2200	3110	3960	1950	1040	1560	1110	1340	1550
29	1890	1720	1500	2300	---	5140	2000	1080	1590	1110	1220	1380
30	1890	1730	1700	2300	---	7890	2020	1080	1690	1120	1330	1550
31	1810	---	1700	2200	---	10500	---	1270	---	1110	1300	---
TOTAL	69860	54600	55840	57800	66400	94920	132810	41840	52460	42530	36470	39790
MEAN	2254	1820	1801	1865	2371	3062	4427	1350	1749	1372	1176	1326
MAX	3340	2250	1990	2300	3110	10500	12600	1740	3720	1850	1540	2110
MIN	1610	1300	1500	1300	2090	1520	1660	1040	1240	1100	1030	1050

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 1998, BY WATER YEAR (WY)

	MEAN	2505	2645	2319	2137	2104	2615	5616	4820	3396	2520	2088	2324
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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1950 - 1998
ANNUAL TOTAL	1104620	745320	
ANNUAL MEAN	3026	2042	2924
HIGHEST ANNUAL MEAN			4318
LOWEST ANNUAL MEAN			1778
HIGHEST DAILY MEAN	13700	Apr 7	26700
LOWEST DAILY MEAN	1150	Aug 12	840
ANNUAL SEVEN-DAY MINIMUM	1220	Aug 6	914
INSTANTANEOUS PEAK FLOW		12800	Apr 2
INSTANTANEOUS PEAK STAGE		12.95	Apr 2
10 PERCENT EXCEEDS	5360	3050	4950
50 PERCENT EXCEEDS	2640	1780	2300
90 PERCENT EXCEEDS	1700	1130	1450

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

(b) Ice affected

04066800 MENOMINEE RIVER AT KOSS, MI
(FORMERLY PUBLISHED AS 04067000 MENOMINEE RIVER BELOW KOSS, MI)

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.

DRAINAGE AREA.--3,700 mi².

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 to September 1998. Records prior to October 1913 published in WSP 244, 264, and 384.

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

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: July 16 to Sept. 9, when flow affected by variable backwater from dam 3.4 mi downstream. Records good except those for variable backwater period, which is fair (see page 12). 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.

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	---	---	---	---	---	---	---	---	1770	1780	1100	1300
2	---	---	---	---	---	---	---	---	1810	1740	1100	1300
3	---	---	---	---	---	---	---	---	2020	1670	1100	1300
4	---	---	---	---	---	---	---	---	1880	1610	1100	1200
5	---	---	---	---	---	---	---	---	1880	1690	1000	1100
6	---	---	---	---	---	---	---	---	1470	1640	1000	1000
7	---	---	---	---	---	---	---	---	1600	1830	1100	1000
8	---	---	---	---	---	---	---	---	1450	1810	1200	1100
9	---	---	---	---	---	---	---	---	1570	1730	1200	1100
10	---	---	---	---	---	---	---	---	1570	1770	1200	1100
11	---	---	---	---	---	---	---	---	1520	1700	1200	1080
12	---	---	---	---	---	---	---	---	1730	1590	1300	1100
13	---	---	---	---	---	---	---	---	2420	1340	1400	1090
14	---	---	---	---	---	---	---	---	3450	1350	1200	1100
15	---	---	---	---	---	---	---	---	3740	1280	1200	1760
16	---	---	---	---	---	---	---	---	2910	1400	1200	2190
17	---	---	---	---	---	---	---	---	2300	1300	1200	2240
18	---	---	---	---	---	---	---	---	2060	1200	1200	1870
19	---	---	---	---	---	---	---	---	2160	1200	1200	1570
20	---	---	---	---	---	---	---	---	1580	1300	1200	1280
21	---	---	---	---	---	---	---	---	1660	1200	1200	1140
22	---	---	---	---	---	---	---	---	1590	1200	1200	1220
23	---	---	---	---	---	---	---	---	1590	1100	1200	1230
24	---	---	---	---	---	---	---	---	1360	1100	1300	1260
25	---	---	---	---	---	---	---	---	1370	1100	1400	1310
26	---	---	---	---	---	---	---	---	1810	1100	1500	1510
27	---	---	---	---	---	---	---	---	1490	1100	1500	1650
28	---	---	---	---	---	---	---	---	1600	1100	1400	1780
29	---	---	---	---	---	---	---	---	1620	1100	1400	1660
30	---	---	---	---	---	---	---	---	1520	1200	1400	1650
31	---	---	---	---	---	---	---	---	---	1200	1400	---
TOTAL	---	---	---	---	---	---	---	---	56500	43430	38300	41190
MEAN	---	---	---	---	---	---	---	---	1883	1401	1235	1373
MAX	---	---	---	---	---	---	---	---	3740	1830	1500	2240
MIN	---	---	---	---	---	---	---	---	1360	1100	1000	1000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

MEAN	2579	2851	2210	1981	1860	2685	6653	5753	3899	2729	2152	2439
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

STREAMS TRIBUTARY TO LAKE MICHIGAN
04066800 MENOMINEE RIVER AT KOSS, MI--CONTINUED

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SUMMARY STATISTICS

FOR 1998 WATER YEAR
(JUNE-SEPTEMBER)

WATER YEARS 1914 - 1998

ANNUAL MEAN			3157	
HIGHEST ANNUAL MEAN			5262	1916
LOWEST ANNUAL MEAN			1642	1931
HIGHEST DAILY MEAN	3740	Jun 15	33000	May 10 1960
LOWEST DAILY MEAN	(a) 1000	(b) Aug 5, 6	162	Sep 15 1931
ANNUAL SEVEN-DAY MINIMUM	1070	Sep 5	402	Sep 9 1931
10 PERCENT EXCEEDS	1880		5960	
50 PERCENT EXCEEDS	1360		2340	
90 PERCENT EXCEEDS	1100		1370	

(a) Estimated

(b) Also occurred Sept. 6, 7

REMARKS.--Estimated daily discharges: Oct. 1 to Nov. 15, Sept. 28, 29, and ice-affected periods, Dec. 24-26, Dec. 31 to Jan. 2, Jan. 4, 5, and Jan. 9 to Mar. 16. Records good except for estimated daily discharges, which are fair (see page 12). 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.

MEAN	3004	3305	2632	2406	2394	3036	6584	5307	3947	3148	2368	2686
MAX	6755	7332	4561	3777	4710	5687	12810	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 WATER YEAR		WATER YEARS 1945 - 1998	
ANNUAL TOTAL	883390		3414	
ANNUAL MEAN	2420		5496	1960
HIGHEST ANNUAL MEAN			2118	1948
LOWEST ANNUAL MEAN			31800	May 9 1960
HIGHEST DAILY MEAN	15200	Apr 3	810	Oct 26 1948
LOWEST DAILY MEAN	1040	Sep 7	952	Oct 24 1948
ANNUAL SEVEN-DAY MINIMUM	1140	Aug 1	32500	May 9 1960
INSTANTANEOUS PEAK FLOW	15300	Apr 3	(a) 20.00	May 9 1960
INSTANTANEOUS PEAK STAGE	15.81	Apr 3	(b) 538	Oct 6 1946
INSTANTANEOUS LOW FLOW			6090	
10 PERCENT EXCEEDS	3670		2630	
50 PERCENT EXCEEDS	2030		1650	
90 PERCENT EXCEEDS	1260			

(a) From graph based on gage readings
(b) 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 to September 1998.

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

REMARKS.--No estimated daily discharges. Records good (see page 12). 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	---	---	---	---	---	---	---	---	243	234	139	160
2	---	---	---	---	---	---	---	---	262	221	138	166
3	---	---	---	---	---	---	---	---	256	220	135	165
4	---	---	---	---	---	---	---	---	241	230	132	164
5	---	---	---	---	---	---	---	---	230	221	136	160
6	---	---	---	---	---	---	---	---	222	245	149	171
7	---	---	---	---	---	---	---	---	219	230	181	172
8	---	---	---	---	---	---	---	---	218	217	192	161
9	---	---	---	---	---	---	---	---	216	216	211	152
10	---	---	---	---	---	---	---	---	214	208	197	146
11	---	---	---	---	---	---	---	---	231	199	180	141
12	---	---	---	---	---	---	---	---	344	192	167	140
13	---	---	---	---	---	---	---	---	409	185	158	135
14	---	---	---	---	---	---	---	---	440	180	155	144
15	---	---	---	---	---	---	---	---	402	180	167	156
16	---	---	---	---	---	---	---	---	344	177	188	150
17	---	---	---	---	---	---	---	---	295	174	201	148
18	---	---	---	---	---	---	---	---	282	180	209	149
19	---	---	---	---	---	---	---	---	284	166	201	144
20	---	---	---	---	---	---	---	---	242	159	194	140
21	---	---	---	---	---	---	---	---	226	161	177	138
22	---	---	---	---	---	---	---	---	213	163	171	137
23	---	---	---	---	---	---	---	---	203	158	205	140
24	---	---	---	---	---	---	---	---	213	151	210	141
25	---	---	---	---	---	---	---	---	231	147	209	144
26	---	---	---	---	---	---	---	---	263	144	195	174
27	---	---	---	---	---	---	---	---	275	142	179	223
28	---	---	---	---	---	---	---	---	277	140	174	230
29	---	---	---	---	---	---	---	---	261	139	174	215
30	---	---	---	---	---	---	---	---	251	139	166	200
31	---	---	---	---	---	---	---	---	---	143	158	---
TOTAL	---	---	---	---	---	---	---	---	8007	5661	5448	4806
MEAN	---	---	---	---	---	---	---	---	267	183	176	160
MAX	---	---	---	---	---	---	---	---	440	245	211	230
MIN	---	---	---	---	---	---	---	---	203	139	132	135
CFSM	---	---	---	---	---	---	---	---	.60	.41	.39	.36
IN.	---	---	---	---	---	---	---	---	.67	.47	.45	.40

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

MEAN	---	---	---	---	---	---	---	---	267	183	176	160
MAX	---	---	---	---	---	---	---	---	267	183	176	160
(WY)	---	---	---	---	---	---	---	---	1998	1998	1998	1998
MIN	---	---	---	---	---	---	---	---	267	183	176	160
(WY)	---	---	---	---	---	---	---	---	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(JUNE-SEPTEMBER)

HIGHEST DAILY MEAN	440	Jun 14
LOWEST DAILY MEAN	132	Aug 4
ANNUAL SEVEN-DAY MINIMUM	137	Jul 30
INSTANTANEOUS PEAK FLOW	445	Jun 14
INSTANTANEOUS PEAK STAGE	4.52	Jun 14
INSTANTANEOUS LOW FLOW	132	Aug 3-5
10 PERCENT EXCEEDS	262	
50 PERCENT EXCEEDS	180	
90 PERCENT EXCEEDS	140	

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 to September 1998.

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

REMARKS.--No estimated daily discharges. Records good (see page 12). Diurnal fluctuation caused by powerplant upstream. 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	---	---	---	---	---	---	---	---	561	517	250	328
2	---	---	---	---	---	---	---	---	469	513	223	473
3	---	---	---	---	---	---	---	---	480	521	208	392
4	---	---	---	---	---	---	---	---	503	449	239	342
5	---	---	---	---	---	---	---	---	498	501	275	318
6	---	---	---	---	---	---	---	---	445	468	255	316
7	---	---	---	---	---	---	---	---	494	476	284	356
8	---	---	---	---	---	---	---	---	497	535	363	334
9	---	---	---	---	---	---	---	---	434	335	462	492
10	---	---	---	---	---	---	---	---	519	364	324	540
11	---	---	---	---	---	---	---	---	567	453	364	551
12	---	---	---	---	---	---	---	---	631	398	386	512
13	---	---	---	---	---	---	---	---	805	289	301	497
14	---	---	---	---	---	---	---	---	859	339	382	550
15	---	---	---	---	---	---	---	---	720	352	388	534
16	---	---	---	---	---	---	---	---	742	313	357	575
17	---	---	---	---	---	---	---	---	616	265	360	368
18	---	---	---	---	---	---	---	---	536	273	498	220
19	---	---	---	---	---	---	---	---	593	304	405	306
20	---	---	---	---	---	---	---	---	549	287	409	296
21	---	---	---	---	---	---	---	---	498	281	389	393
22	---	---	---	---	---	---	---	---	426	230	422	369
23	---	---	---	---	---	---	---	---	448	209	452	323
24	---	---	---	---	---	---	---	---	465	256	455	237
25	---	---	---	---	---	---	---	---	631	247	464	164
26	---	---	---	---	---	---	---	---	881	229	300	303
27	---	---	---	---	---	---	---	---	929	213	421	382
28	---	---	---	---	---	---	---	---	904	205	330	375
29	---	---	---	---	---	---	---	---	867	216	370	363
30	---	---	---	---	---	---	---	---	710	211	329	356
31	---	---	---	---	---	---	---	---	---	214	289	---
TOTAL	---	---	---	---	---	---	---	---	18277	10463	10954	11565
MEAN	---	---	---	---	---	---	---	---	609	338	353	386
MAX	---	---	---	---	---	---	---	---	929	535	498	575
MIN	---	---	---	---	---	---	---	---	426	205	208	164

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

MEAN	---	---	---	---	---	---	---	---	609	338	353	386
MAX	---	---	---	---	---	---	---	---	609	338	353	386
(WY)	---	---	---	---	---	---	---	---	1998	1998	1998	1998
MIN	---	---	---	---	---	---	---	---	609	338	353	386
(WY)	---	---	---	---	---	---	---	---	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(JUNE-SEPTEMBER)

HIGHEST DAILY MEAN	929	Jun 27
LOWEST DAILY MEAN	164	Sep 25
ANNUAL SEVEN-DAY MINIMUM	218	Jul 28
INSTANTANEOUS PEAK FLOW	1010	Jun 27
INSTANTANEOUS PEAK STAGE	8.67	Jun 27
10 PERCENT EXCEEDS	609	
50 PERCENT EXCEEDS	389	
90 PERCENT EXCEEDS	232	

STREAMS TRIBUTARY TO LAKE MICHIGAN
04069500 PESHTIGO RIVER AT PESHTIGO, WI

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: Mar. 10-28, Apr. 17-21, and ice-affected periods, Nov. 14-20, Dec. 29 to Jan. 3, and Jan. 6 to Mar. 9. Records good except those for estimated daily discharges, which are poor (see page 12). Diurnal fluctuation caused by two powerplants upstream. 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	525	582	484	420	520	1500	4620	691	514	592	266	248
2	454	548	449	440	540	1800	5340	732	401	544	205	413
3	483	618	492	420	520	1700	5110	786	405	542	224	345
4	546	792	537	391	490	1500	4740	852	407	473	242	286
5	382	586	520	478	520	1300	3920	841	418	568	291	242
6	398	656	501	480	520	1200	3370	736	346	418	286	238
7	448	631	496	470	520	1100	2820	628	402	466	339	268
8	676	539	510	480	500	1000	2310	710	419	591	361	222
9	736	515	544	490	500	900	1970	606	362	380	504	382
10	699	499	448	540	500	640	1490	598	420	369	370	484
11	821	533	489	520	500	540	1430	588	576	442	323	519
12	890	555	478	500	500	580	1260	572	629	401	332	485
13	1060	524	526	470	490	640	1290	630	906	317	233	448
14	1260	500	445	450	490	600	1220	531	980	271	328	570
15	1300	500	481	470	500	640	1300	540	845	405	316	498
16	1440	520	512	490	480	620	1260	499	782	395	268	572
17	1450	470	494	520	480	580	1500	525	687	246	305	336
18	1100	460	483	490	540	660	1600	504	439	274	440	250
19	1170	500	496	520	580	720	1700	465	547	380	355	176
20	1010	460	496	520	620	580	1600	472	499	302	387	218
21	833	449	400	520	620	640	1500	465	467	314	327	323
22	904	373	520	520	600	580	1380	452	352	268	358	298
23	773	423	466	500	640	660	1290	406	347	200	388	247
24	856	280	357	480	720	640	1130	345	402	256	366	203
25	812	439	431	480	680	600	1060	414	727	256	452	180
26	723	546	383	480	740	760	930	407	1120	212	245	212
27	641	551	373	490	860	1100	876	334	1200	198	360	284
28	619	446	289	500	1200	1700	782	396	1160	224	303	272
29	673	599	330	490	---	2500	720	375	1050	231	319	272
30	583	435	370	490	---	3030	687	392	928	221	292	253
31	651	---	480	520	---	3630	---	411	---	200	208	---
TOTAL	24916	15529	14280	15029	16370	34640	60205	16903	18737	10956	9993	9744
MEAN	804	518	461	485	585	1117	2007	545	625	353	322	325
MAX	1450	792	544	540	1200	3630	5340	852	1200	592	504	572
MIN	382	280	289	391	480	540	687	334	346	198	205	176
CFSM	.74	.48	.43	.45	.54	1.03	1.86	.50	.58	.33	.30	.30
IN.	.86	.53	.49	.52	.56	1.19	2.07	.58	.65	.38	.34	.34

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 1998, BY WATER YEAR (WY)

	MEAN	810	911	641	548	554	1078	2085	1480	1064	650	592	748
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	329	250	268	283	424	485	538	228	300	285	264	
(WY)	1990	1977	1990	1990	1990	1964	1990	1977	1988	1989	1957	1989	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1953 - 1998

ANNUAL TOTAL	345546	247302											
ANNUAL MEAN	947	678								930			
HIGHEST ANNUAL MEAN										1559		1973	
LOWEST ANNUAL MEAN										591		1957	
HIGHEST DAILY MEAN	4770	Apr 8	5340	Apr 2	9600	May 9	1960						
LOWEST DAILY MEAN	241	Aug 8	176	Sep 19	84	Aug 5	1957						
ANNUAL SEVEN-DAY MINIMUM	317	Aug 7	220	Jul 25	172	Aug 4	1957						
INSTANTANEOUS PEAK FLOW			5510	Apr 2	(a) 9790	May 9	1960						
INSTANTANEOUS PEAK STAGE			9.29	Apr 2	11.59	May 9	1960						
ANNUAL RUNOFF (CFSM)	.88		.63		.86								
ANNUAL RUNOFF (INCHES)	11.90		8.52		11.70								
10 PERCENT EXCEEDS	1660		1210		1830								
50 PERCENT EXCEEDS	800		500		680								
90 PERCENT EXCEEDS	440		278		353								

(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

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04071000 OCONTO RIVER NEAR GILLET, WI

LOCATION.--Lat 44°51'53", long 88°18'00", in NW 1/4 sec.34, T.28 N., R.18 E., Oconto County, Hydrologic Unit 04030104, on left bank 300 ft upstream from County Trunk Highway BB bridge, 2.0 mi upstream from Christy Brook, 2.0 mi south of Gillett, and at mile 29.

DRAINAGE AREA.--705 mi².

PERIOD OF RECORD.--June 1906 to March 1909, October 1913 to current year. Monthly discharge for some periods published in WSP 1307.

REVISED RECORDS.--WSP 1207: 1922. WSP 1307: 1907-8(M), 1914-16(M), 1918-21(M), 1923-33(M), 1937-38(M), 1943(M). WDR WI-79-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 732.87 ft above sea level (levels by Wisconsin Department of Transportation). See WSP 1727 for history of changes prior to Aug. 25, 1938.

REMARKS.--Estimated daily discharges: Ice-affected periods, Nov. 15 to Dec. 6, Dec. 21 to Feb. 26, and Mar. 10-20. Records good except those for ice-affected periods, which are fair (see page 12). 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	380	420	400	340	330	1110	2320	486	378	713	199	223
2	366	417	400	360	330	1130	2570	497	366	610	199	221
3	361	424	420	370	330	1130	2560	512	336	519	198	235
4	359	432	420	380	350	1070	2340	539	319	464	198	252
5	351	436	410	390	370	992	2040	547	308	437	201	238
6	344	431	410	400	340	898	1780	512	302	419	210	238
7	345	424	400	390	320	814	1580	492	300	395	229	234
8	361	411	395	360	320	758	1420	467	298	382	272	224
9	439	403	369	330	330	715	1280	447	298	358	324	218
10	478	400	369	280	350	620	1170	426	304	346	358	215
11	470	394	369	280	350	560	1060	410	317	329	354	213
12	455	389	367	320	350	470	967	396	398	315	302	211
13	472	381	372	300	350	560	883	386	482	304	262	195
14	552	365	328	320	350	560	812	392	515	291	256	205
15	652	350	355	320	350	540	758	389	459	291	265	244
16	726	350	438	320	380	520	755	372	423	293	285	255
17	727	340	583	330	420	480	791	361	410	280	277	252
18	648	340	522	330	450	560	860	353	380	275	276	238
19	580	280	424	340	480	520	901	346	360	267	283	231
20	507	400	378	340	500	540	922	337	345	257	273	225
21	472	340	280	360	520	524	925	313	329	247	263	220
22	456	310	320	360	520	477	898	305	320	224	255	215
23	443	310	340	350	560	481	818	304	302	220	257	210
24	439	310	290	340	680	477	753	304	292	224	266	211
25	436	320	300	330	760	512	698	305	623	223	276	214
26	442	440	350	330	840	708	649	303	784	221	267	247
27	433	400	320	330	890	910	599	298	979	218	259	296
28	426	420	250	330	1060	1040	553	311	1050	213	254	370
29	421	420	250	330	---	1180	502	317	1010	207	245	357
30	413	410	270	330	---	1380	492	300	897	204	238	329
31	416	---	300	330	---	1890	---	386	---	201	230	---
TOTAL	14370	11467	11399	10520	13180	24126	34656	12113	13884	9947	8031	7236
MEAN	464	382	368	339	471	778	1155	391	463	321	259	241
MAX	727	440	583	400	1060	1890	2570	547	1050	713	358	370
MIN	344	280	250	280	320	470	492	298	292	201	198	195
CFSM	.66	.54	.52	.48	.67	1.10	1.64	.55	.66	.46	.37	.34
IN.	.76	.61	.60	.56	.70	1.27	1.83	.64	.73	.52	.42	.38

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1906 - 1998, BY WATER YEAR (WY)												
MEAN	490	569	452	361	351	653	1231	875	676	463	384	452
MAX	1216	1377	900	700	643	1867	3435	2185	1744	1022	742	1347
(WY)	1942	1986	1907	1907	1984	1973	1922	1960	1916	1922	1960	1928
MIN	199	259	216	206	204	240	379	357	197	226	158	190
(WY)	1949	1934	1990	1957	1948	1934	1931	1931	1988	1988	1934	1933

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1906 - 1998
ANNUAL TOTAL	194065	170929	
ANNUAL MEAN	532	468	580
HIGHEST ANNUAL MEAN			930
LOWEST ANNUAL MEAN			315
HIGHEST DAILY MEAN	2550	Apr 8	6790
LOWEST DAILY MEAN	246	Aug 11	95
ANNUAL SEVEN-DAY MINIMUM	256	Aug 7	137
INSTANTANEOUS PEAK FLOW		(a) 2620	8400
INSTANTANEOUS PEAK STAGE		(b) 5.48	(c) 11.20
INSTANTANEOUS LOW FLOW		187	(d) 93
ANNUAL RUNOFF (CFSM)	.75	.66	.82
ANNUAL RUNOFF (INCHES)	10.24	9.02	11.19
10 PERCENT EXCEEDS	866	827	1060
50 PERCENT EXCEEDS	410	366	441
90 PERCENT EXCEEDS	325	237	258

(a) Gage height, 4.68 ft

(b) Ice affected

(c) From floodmarks, caused by a failure of a dam at Pulcifer 4 mi above station

(d) Flow retarded by anchor ice above station

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 September 1998.

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

REMARKS.--Estimated daily discharges: Oct. 1 to Nov. 5, Jan. 1-8, Jan. 23 to Mar. 18, Mar. 20 to Apr. 3, and ice-affected period, Jan. 16-22. Records good except those for Oct. 1 to Apr. 3, which are poor (see page 12). 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	490	560	336	330	370	1200	4300	571	641	1100	177	218
2	470	560	304	350	370	1400	4100	559	442	920	176	199
3	450	560	284	370	370	1500	3900	626	378	662	176	198
4	430	560	312	380	370	1300	2560	695	362	620	177	227
5	420	680	316	390	420	1200	2250	662	354	538	192	275
6	410	493	295	400	370	1100	1980	618	342	553	232	231
7	410	489	374	380	330	960	1960	565	337	521	265	211
8	410	445	300	350	340	980	1620	634	331	458	277	207
9	480	467	308	327	350	900	1490	541	274	415	378	198
10	540	488	319	308	370	740	1260	485	389	418	366	196
11	540	455	314	296	370	540	1200	500	397	381	366	190
12	540	438	327	309	360	450	1020	449	650	363	398	202
13	560	441	365	303	380	560	1070	430	611	328	303	206
14	700	448	347	233	370	560	917	422	731	291	229	265
15	800	377	296	249	420	520	854	424	537	348	304	259
16	840	405	407	320	430	500	900	448	521	359	277	278
17	840	488	371	330	460	480	1010	362	515	301	326	281
18	800	394	348	350	500	620	1210	356	479	257	294	262
19	620	313	387	360	560	502	1190	348	443	290	279	233
20	620	325	346	360	600	650	1130	353	415	278	302	217
21	620	335	316	390	620	520	1050	330	370	255	297	202
22	600	261	260	390	640	520	1050	279	364	222	292	202
23	580	303	296	380	660	560	983	261	346	206	273	202
24	580	346	252	370	800	600	791	310	331	194	254	197
25	580	288	238	360	1000	860	827	345	1370	190	274	194
26	580	378	310	360	1200	1000	718	339	2030	195	284	253
27	580	290	313	330	1400	1200	695	326	2110	210	267	338
28	580	338	249	330	1400	1500	615	283	2140	211	257	313
29	580	286	272	370	---	1900	583	320	1600	197	241	463
30	580	317	281	350	---	2500	571	366	1520	192	230	380
31	560	---	310	340	---	4700	---	672	---	174	228	---
TOTAL	17790	12528	9753	10665	15830	32522	43804	13879	21330	11647	8391	7297
MEAN	574	418	315	344	565	1049	1460	448	711	376	271	243
MAX	840	680	407	400	1400	4700	4300	695	2140	1100	398	463
MIN	410	261	238	233	330	450	571	261	274	174	176	190
CFSM	.59	.43	.33	.36	.59	1.09	1.51	.46	.74	.39	.28	.25
IN.	.69	.48	.38	.41	.61	1.25	1.69	.53	.82	.45	.32	.28

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1998, BY WATER YEAR (WY)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
MEAN	366	451	316	310	369	1038	926	676	969	381	350	504
MAX	574	556	382	344	565	1132	1460	995	1439	507	518	1044
(WY)	1998	1989	1998	1998	1998	1990	1998	1990	1990	1990	1990	1990
MIN	250	378	251	263	263	934	423	448	711	260	261	225
(WY)	1990	1990	1990	1990	1990	1989	1990	1998	1998	1989	1989	1989

SUMMARY STATISTICS

	FOR 1998 WATER YEAR	WATER YEARS 1989 - 1998
ANNUAL TOTAL	205436	
ANNUAL MEAN	563	554
HIGHEST ANNUAL MEAN		623
LOWEST ANNUAL MEAN		478
HIGHEST DAILY MEAN	(a) 4700	Mar 31 1998
LOWEST DAILY MEAN	174	Jul 31
ANNUAL SEVEN-DAY MINIMUM	181	Jul 30
INSTANTANEOUS PEAK FLOW	(c)	(d) 5300
INSTANTANEOUS PEAK STAGE	(c)	(e) 11.24
ANNUAL RUNOFF (CFSM)	.58	.57
ANNUAL RUNOFF (INCHES)	7.91	7.80
10 PERCENT EXCEEDS	1060	1080
50 PERCENT EXCEEDS	380	370
90 PERCENT EXCEEDS	232	220

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

(b) Also occurred July 31, 1998

(c) Maximum recorded discharge of 4,820 ft³/s at stage of 10.47 ft occurred on Mar. 31; discharge and stage may have been greater during period of estimated record

(d) Gage height, 10.91 ft, backwater from ice

(e) Backwater from ice

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

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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: Ice-affected periods, Dec. 8, 13, 17, 20-27, Jan. 1, and Jan. 9 to Feb. 25. Records good except for ice-affected periods and discharges less than 1.0 ft³/s, which are poor (see page 12). 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	1.8	3.3	3.3	2.9	4.5	300	2050	16	3.8	268	.38	.11
2	1.5	3.3	3.3	2.9	6.5	210	1050	19	3.3	168	.30	.53
3	2.8	3.3	3.8	4.4	6.6	171	537	26	3.5	100	.23	.56
4	.91	3.3	4.4	4.5	5.2	145	325	32	4.1	60	.20	.33
5	.86	3.4	4.9	6.9	5.0	121	211	34	3.0	41	.28	.25
6	.94	4.3	5.0	7.2	4.8	103	139	28	2.2	41	2.7	.17
7	1.3	4.2	4.7	8.8	4.7	92	108	22	1.8	37	6.2	.12
8	1.8	4.2	4.5	8.1	4.5	84	94	19	1.3	36	5.9	.10
9	1.2	4.2	4.4	5.0	4.5	75	116	17	1.0	29	4.0	.10
10	.96	4.3	4.4	3.5	4.5	45	118	15	1.2	21	2.7	.09
11	1.4	4.2	4.4	3.0	4.5	45	95	13	4.7	17	1.7	.08
12	1.7	4.0	4.4	4.7	4.5	51	80	11	52	15	1.3	.08
13	4.4	3.9	4.4	4.3	4.6	43	54	10	150	12	.92	.07
14	4.0	3.9	4.5	4.1	4.8	39	46	9.1	127	10	.64	.46
15	5.3	4.2	4.1	4.0	5.0	37	44	7.9	83	12	.57	2.1
16	6.1	4.1	4.0	3.9	10	35	113	7.0	46	11	.36	.78
17	5.0	4.1	4.1	3.9	25	38	347	5.6	26	7.9	.36	.53
18	5.6	4.0	4.1	4.0	45	31	254	5.1	17	6.7	.38	.80
19	5.0	4.0	4.1	4.2	85	37	140	4.5	13	5.7	.38	1.1
20	4.6	3.7	4.2	4.4	180	44	100	3.5	9.6	4.9	.31	.95
21	4.4	3.7	4.1	4.4	300	49	77	2.9	7.0	4.2	.33	.60
22	5.6	3.4	4.0	4.3	280	65	62	2.3	5.6	4.3	.35	.44
23	4.2	3.4	4.0	4.2	300	97	50	1.7	3.9	3.6	.58	.34
24	3.3	3.0	3.9	4.3	320	161	41	1.6	11	3.1	.69	.27
25	3.2	3.0	3.8	4.3	310	245	33	2.6	96	3.0	.66	.23
26	3.3	3.2	3.7	4.3	272	299	27	1.7	336	2.8	.48	19
27	3.3	3.1	3.6	4.3	265	292	23	1.4	742	2.3	.35	5.4
28	3.2	3.2	3.3	4.4	403	220	20	1.7	1580	1.5	.28	6.2
29	3.0	3.2	3.3	4.4	---	150	18	1.2	823	1.1	.20	5.5
30	3.0	3.3	3.0	4.5	---	129	16	.90	434	.74	.13	4.2
31	3.4	---	2.9	4.5	---	1090	---	6.3	---	.51	.12	---
TOTAL	97.07	110.4	124.6	142.6	2869.2	4543	6388	329.00	4592.0	930.35	33.98	51.49
MEAN	3.13	3.68	4.02	4.60	102	147	213	10.6	153	30.0	1.10	1.72
MAX	6.1	4.3	5.0	8.8	403	1090	2050	34	1580	268	6.2	19
MIN	.86	3.0	2.9	2.9	4.5	31	16	.90	1.0	.51	.12	.07
CFSM	.03	.03	.04	.04	.95	1.36	1.97	.10	1.42	.28	.01	.02
IN.	.03	.04	.04	.05	.99	1.56	2.20	.11	1.58	.32	.01	.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1998, BY WATER YEAR (WY)

	MEAN	12.7	39.9	21.9	8.08	23.5	164	182	45.9	105	37.2	7.60	9.73
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	77.2	9.40	2.79	.000	.000	.000	.000	
(WY)	1989	1990	1990	1990	1989	1994	1990	1988	1988	1988	1988	1989	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1988 - 1998

ANNUAL TOTAL	16798.29	20211.69	
ANNUAL MEAN	46.0	55.4	56.5
HIGHEST ANNUAL MEAN			123
LOWEST ANNUAL MEAN			19.8
HIGHEST DAILY MEAN	1100	Mar 29	2050
LOWEST DAILY MEAN	.62	Aug 5	.07
ANNUAL SEVEN-DAY MINIMUM	.80	Jul 31	.09
INSTANTANEOUS PEAK FLOW			2270
INSTANTANEOUS PEAK STAGE			17.85
ANNUAL RUNOFF (CFSM)	.43		.51
ANNUAL RUNOFF (INCHES)	5.79		6.96
10 PERCENT EXCEEDS	90		139
50 PERCENT EXCEEDS	8.7		4.4
90 PERCENT EXCEEDS	2.4		.53
			3690
			.00
			.00
			(a) 4520
			(b) 21.00
			.52
			7.11
			114
			7.1
			.13

(a) Based on rating curve extended above 1,500 ft³/s on basis of contracted-opening measurement of peak flow
(b) 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 1997 TO SEPTEMBER 1998

		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)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	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)	
OCT 1997												
17...	0815	5.9	910	8.2	7.8	8.8	750	410	100	39	34	
NOV												
17...	1415	7.3	1020	8.1	.9	14.9	749	440	110	43	41	
DEC												
10...	0720	4.6	1120	8.3	.6	12.6	742	470	110	47	52	
JAN 1998												
21...	0700	4.4	1150	7.8	.2	11.8	751	460	110	47	52	
FEB												
19...	0750	85	902	8.0	.3	12.9	742	370	87	36	42	
MAR												
11...	1500	51	910	8.3	.9	15.6	768	410	100	38	25	
APR												
16...	0750	68	758	8.3	5.6	10.3	744	350	85	32	24	
MAY												
14...	0820	9.6	838	8.1	17.6	7.7	744	370	85	38	29	
JUN												
10...	0805	1.2	862	8.0	14.3	7.7	741	350	78	38	43	
11...	2205	18	--	--	--	--	--	--	--	--	--	
12...	0630	33	--	--	--	--	--	--	--	--	--	
12...	1120	27	--	--	--	--	--	--	--	--	--	
JUL												
15...	0835	9.2	792	8.1	24.4	7.1	740	350	85	34	23	
AUG												
13...	0735	.90	975	8.0	19.8	6.9	746	410	85	48	42	
SEP												
17...	1215	.55	730	8.3	20.6	10.5	744	280	54	35	35	
DATE		POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	CAR- BONATE WATER DIS IT FIELD CO3 (00452)	BICAR- BONATE WATER DIS IT FIELD HCO3 (00453)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS (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 1997												
17...	9.7	--	361	296	71	81	.21	8.7	567	<.050	<.010	
NOV												
17...	8.0	10	357	309	70	93	.18	6.2	616	.113	.010	
DEC												
10...	7.1	--	403	330	83	120	.16	3.3	652	.537	<.010	
JAN 1998												
21...	6.8	--	412	338	80	110	.24	7.4	696	1.13	.019	
FEB												
19...	8.6	--	415	340	71	93	.12	8.4	551	1.71	.016	
MAR												
11...	6.5	6	265	229	95	70	.12	6.6	566	5.68	.012	
APR												
16...	5.4	--	337	276	68	60	.12	3.0	463	1.99	.015	
MAY												
14...	6.4	4	329	276	66	67	.13	1.1	517	.295	.016	
JUN												
10...	5.8	2	275	231	50	91	.18	3.6	506	.080	.019	
11...	--	--	--	--	--	--	--	--	--	--	--	
12...	--	--	--	--	--	--	--	--	--	--	--	
12...	--	--	--	--	--	--	--	--	--	--	--	
JUL												
15...	7.0	5	321	265	65	52	.19	3.8	512	.446	.017	
AUG												
13...	7.0	--	254	211	170	82	.33	6.1	639	.064	.010	
SEP												
17...	5.6	7	229	200	73	73	.16	5.4	459	.145	<.010	

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

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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 1997										
17...	<.015	.68	.69	.214	.192	.175	52	18	28	73
NOV										
17...	<.020	.55	.60	.082	.109	.104	58	13	30	75
DEC										
10...	<.020	.47	.50	.021	.019	.019	36	8.3	32	58
JAN 1998										
21...	.145	.62	.64	.066	.050	.059	25	16	44	60
FEB										
19...	.295	1.3	1.1	.319	.261	.234	32	18	18	98
MAR										
11...	<.020	.99	1.0	.080	.067	.064	21	26	22	76
APR										
16...	.044	1.1	.91	.111	.077	.058	33	26	25	98
MAY										
14...	.049	1.3	1.1	.090	.075	.069	35	47	16	38
JUN										
10...	.065	1.1	.78	.107	.059	.071	23	34	9	67
11...	--	--	--	--	--	--	--	--	60	97
12...	--	--	--	--	--	--	--	--	121	98
12...	--	--	--	--	--	--	--	--	51	97
JUL										
15...	.051	1.6	1.4	.106	.087	.093	41	22	25	72
AUG										
13...	.084	.98	.68	.146	.106	.095	15	30	8	88
SEP										
17...	.037	.74	.72	.099	.077	.072	12	22	--	--

PESTICIDE ANALYSES

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)	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)
OCT 1997												
17...	0815	5.9	910	8.2	7.8	8.8	750	<.0020	<.002	<.0020	.090	<.0020
NOV												
17...	1415	7.3	1020	8.1	.9	14.9	749	<.0020	<.002	<.0020	.043	<.0020
DEC												
10...	0720	4.6	1120	8.3	.6	12.6	742	<.0020	<.002	<.0020	.037	<.0020
JAN 1998												
21...	0700	4.4	1150	7.8	.2	11.8	751	<.0020	<.002	<.0020	.038	<.0020
FEB												
19...	0750	85	902	8.0	.3	12.9	742	<.0020	<.002	<.0020	.032	<.0020
MAY												
14...	0820	9.6	838	8.1	17.6	7.7	744	<.0020	<.002	<.0020	.047	<.0020
JUN												
10...	0805	1.2	862	8.0	14.3	7.7	741	.0130	<.002	<.0020	.134	<.0020
24...	1010	7.6	740	8.1	22.1	7.8	740	.0196	<.002	<.0020	1.72	<.0020
JUL												
15...	0835	9.2	792	8.1	24.4	7.1	740	<.0020	<.002	<.0020	.472	<.0020
28...	1550	1.6	903	8.4	31.0	11.3	734	<.0020	<.002	<.0020	.276	<.0020
AUG												
13...	0735	.90	975	8.0	19.8	6.9	746	<.0020	<.002	<.0020	.133	<.0020

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

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

PESTICIDE ANALYSES

DATE	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)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 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 GF, REC PERCENT (91063)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DISUL- FOTON WATER FLTRD GF, REC (UG/L) (82677)	EPTC WATER FLTRD GF, REC (UG/L) (82668)
OCT 1997												
17...	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020	E.0355	<.002	97.7	<.001	<.0170	<.0020
NOV												
17...	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020	E.0188	<.002	108	<.001	<.0170	<.0020
DEC												
10...	<.0020	<.0030	<.0030	<.0040	.0093	<.0020	E.0254	<.002	105	<.001	<.0170	<.0020
JAN 1998												
21...	<.0020	<.0030	<.0030	<.0040	<.0100	<.0020	E.0249	<.002	72.6	<.001	<.0170	<.0020
FEB												
19...	<.0020	<.0030	<.0030	<.0040	<.0040	<.0020	E.0165	<.002	95.4	<.001	<.0170	<.0020
MAY												
14...	<.0020	<.0030	<.0030	<.0040	.0130	<.0020	E.0115	<.002	110	<.001	<.0170	.0043
JUN												
10...	<.0020	<.0030	<.0030	<.0040	.0382	<.0020	E.0419	<.002	116	<.001	<.0170	E.0023
24...	<.0020	<.0030	E.0211	<.0040	.491	<.0020	E.115	<.002	111	<.001	<.0170	E.0021
JUL												
15...	<.0020	<.0030	<.0030	<.0040	.0810	<.0020	E.0602	<.002	93.0	<.001	<.0170	<.0020
28...	<.0020	<.0030	<.0030	<.0040	.0222	<.0020	E.0172	<.002	111	<.001	<.0170	<.0020
AUG												
13...	<.0020	<.0030	<.0030	<.0040	<.0200	<.0020	E.0180	<.002	115	<.001	<.0170	<.0020

DATE	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)	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 SENCOR WATER DISSOLV (UG/L) (82630)
OCT 1997											
17...	<.0040	<.0030	<.0030	107	<.004	<.0020	<.010	<.0500	<.0060	.043	<.004
NOV											
17...	<.0040	<.0030	<.0030	95.1	<.004	<.0020	<.010	<.0010	<.0060	.014	<.004
DEC											
10...	<.0040	<.0030	<.0030	87.9	<.004	<.0020	<.005	<.0010	<.0060	.020	<.004
JAN 1998											
21...	<.0040	<.0030	<.0030	65.2	<.004	<.0020	<.005	<.0010	<.0060	.016	<.004
FEB											
19...	<.0040	<.0030	<.0030	109	<.004	<.0020	<.005	<.0010	<.0060	.045	<.004
MAY											
14...	<.0040	<.0030	<.0030	104	<.004	<.0020	<.005	<.0010	<.0060	.030	<.004
JUN											
10...	<.0040	<.0030	<.0030	107	<.004	<.0020	<.005	<.0010	<.0060	1.22	<.004
24...	<.0040	<.0030	<.0030	112	<.004	<.0020	<.005	<.0010	<.0060	.581	.030
JUL											
15...	<.0040	<.0030	<.0030	93.9	<.004	<.0020	<.005	<.0010	<.0060	.124	<.004
28...	<.0040	<.0030	<.0030	114	<.004	<.0020	<.005	<.0010	<.0060	.107	<.004
AUG											
13...	<.0040	<.0030	<.0030	97.1	<.004	<.0020	<.005	<.0010	<.0060	.038	<.004

E Estimated

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

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

PESTICIDE ANALYSES

DATE	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 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)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRO- PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)
OCT 1997											
17...	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040
NOV											
17...	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040
DEC											
10...	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040
JAN 1998											
21...	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040
FEB											
19...	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0034	<.0040
MAY											
14...	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0072	<.0040
JUN											
10...	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0115	<.0040
24...	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0054	<.0040
JUL											
15...	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0101	<.0040
28...	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040
AUG											
13...	<.0040	<.0030	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040
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)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)
OCT 1997											
17...	<.0130	<.0070	.250	<.0070	<.0100	<.0130	105	<.0020	<.0010	<.0020	<.0030
NOV											
17...	<.0130	<.0070	.0862	<.0070	<.0100	<.0130	100	<.0020	<.0010	<.0020	<.0030
DEC											
10...	<.0130	<.0070	.100	<.0070	<.0100	<.0130	105	<.0020	<.0010	<.0020	<.0030
JAN 1998											
21...	<.0130	<.0070	.0817	<.0070	<.0100	<.0130	77.8	<.0020	<.0010	<.0020	<.0030
FEB											
19...	<.0130	<.0070	.0266	<.0070	<.0100	<.0130	109	<.0020	<.0010	<.0020	<.0030
MAY											
14...	<.0130	<.0070	.0870	<.0070	<.0100	<.0130	89.3	<.0020	<.0010	<.0020	<.0030
JUN											
10...	<.0130	<.0070	.0386	<.0070	<.0100	<.0130	124	<.0020	<.0010	<.0020	<.0030
24...	<.0130	<.0070	.163	<.0070	<.0100	<.0130	117	<.0020	<.0010	<.0020	<.0030
JUL											
15...	<.0130	<.0070	.0224	<.0070	<.0100	<.0130	111	<.0020	<.0010	<.0020	<.0030
28...	<.0130	<.0070	<.0200	<.0070	<.0100	<.0130	123	<.0020	<.0010	<.0020	<.0030
AUG											
13...	<.0130	<.0070	.0128	<.0070	<.0100	<.0130	103	<.0020	<.0010	<.0020	<.0030

E Estimated



STREAMS TRIBUTARY TO LAKE MICHIGAN

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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: Jan. 1-5, 12-15, Jan. 30 to Feb. 2, and ice-affected periods, Dec. 21-23, 27, 28, Jan. 6-11, 16-26, and Feb. 4, 6, 7. Records are fair (see page 12). 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	1.0	.52	1.1	.44	7.8	23	9.6	3.6	2.8	1.6	.66
2	1.3	.97	.52	1.2	.45	8.1	24	9.0	3.5	2.8	1.6	.66
3	1.3	.93	.52	1.3	.46	8.2	24	8.8	3.3	2.7	1.6	.59
4	1.3	.86	.52	1.1	.46	8.1	22	8.2	3.2	2.6	1.6	.51
5	1.3	.81	.50	.80	.46	7.7	23	7.7	3.2	2.5	1.6	.48
6	1.3	.83	.49	.68	.45	7.6	27	7.4	3.2	2.5	1.7	.46
7	1.3	.83	.49	.64	.45	7.3	25	7.5	3.2	2.5	1.6	.44
8	1.3	.80	.49	.62	.47	7.2	23	6.9	3.1	2.5	1.5	.43
9	1.5	.75	.49	.60	.47	6.7	22	6.3	3.2	2.4	1.4	.40
10	1.4	.73	.49	.58	.46	6.2	17	6.2	3.1	2.4	1.4	.37
11	1.4	.59	.49	.58	.53	5.8	16	6.1	3.4	2.4	1.4	.33
12	1.5	.52	.49	.58	.53	5.6	15	5.9	3.3	2.4	1.3	.30
13	1.7	.53	.48	.58	.49	5.6	15	5.9	3.1	2.4	1.2	.29
14	1.6	.53	.46	.58	.56	5.3	14	5.4	3.0	2.4	1.2	.82
15	1.4	.53	.45	.60	.71	5.0	14	5.3	2.9	2.4	1.2	.55
16	1.4	.54	.46	.64	.91	4.8	15	5.3	2.8	2.2	1.1	.45
17	1.4	.46	.45	.56	2.1	4.8	13	4.9	2.8	2.1	1.2	.50
18	1.3	.49	.44	.54	3.5	6.7	13	4.7	2.9	2.0	1.1	.46
19	1.3	.49	.43	.52	3.6	7.4	12	4.6	2.8	2.1	1.0	.45
20	1.3	.48	.43	.50	3.6	6.7	12	4.4	4.7	2.3	1.0	.46
21	1.2	.47	.42	.49	3.5	6.6	11	4.1	3.4	5.6	1.0	.48
22	1.1	.47	.40	.52	3.8	6.6	11	4.1	2.8	2.2	1.2	.43
23	1.0	.47	.35	.54	4.5	6.6	11	4.0	2.7	2.1	1.0	.41
24	1.1	.46	.32	.52	5.4	6.5	11	4.0	2.7	2.0	.93	.44
25	1.0	.49	.32	.50	6.2	7.2	10	3.9	2.6	1.9	.85	.38
26	.96	.52	.32	.49	6.8	8.6	11	3.8	2.5	1.9	.78	.43
27	.98	.52	.36	.48	8.0	8.5	9.7	3.7	3.2	1.8	.74	.37
28	1.0	.52	.40	.49	7.7	8.0	9.2	3.8	3.4	1.8	.74	.30
29	1.0	.52	.43	.49	---	7.6	8.9	3.6	3.0	1.7	.74	.31
30	1.0	.52	.60	.44	---	13	8.9	3.6	2.9	1.7	.73	.43
31	1.0	---	.99	.44	---	27	---	3.7	---	1.6	.69	---
TOTAL	38.84	18.63	14.52	19.70	67.00	238.8	470.7	172.4	93.5	72.7	36.70	13.59
MEAN	1.25	.62	.47	.64	2.39	7.70	15.7	5.56	3.12	2.35	1.18	.45
MAX	1.7	1.0	.99	1.3	8.0	27	27	9.6	4.7	5.6	1.7	.82
MIN	.96	.46	.32	.44	.44	4.8	8.9	3.6	2.5	1.6	.69	.29
CFSM	.41	.20	.15	.21	.78	2.53	5.14	1.82	1.02	.77	.39	.15
IN.	.47	.23	.18	.24	.82	2.91	5.74	2.10	1.14	.89	.45	.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1998, BY WATER YEAR (WY)

	3.72	4.21	3.48	2.37	3.73	8.45	8.33	4.65	3.51	2.97	2.36	3.74
MEAN	3.72	4.21	3.48	2.37	3.73	8.45	8.33	4.65	3.51	2.97	2.36	3.74
MAX	12.9	12.7	7.47	5.28	9.29	16.1	15.7	8.31	7.37	5.29	4.39	18.5
(WY)	1987	1986	1986	1983	1984	1986	1998	1983	1984	1984	1986	1986
MIN	.37	.30	.46	.55	1.74	3.20	3.61	2.22	1.29	1.40	.83	.45
(WY)	1988	1988	1988	1988	1987	1987	1984	1997	1988	1987	1987	1998

SUMMARY STATISTICS

	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1982 - 1998	
ANNUAL TOTAL	1026.13		1257.08			
ANNUAL MEAN	2.81		3.44		4.70	
HIGHEST ANNUAL MEAN					7.94	
LOWEST ANNUAL MEAN					2.77	
HIGHEST DAILY MEAN	(a) 44	Mar 21	27	(b) Mar 31	89	Sep 22 1986
LOWEST DAILY MEAN	(c) .14	Feb 7-16	.29	Sep 13	(c) .14	Feb 7-16 1997
ANNUAL SEVEN-DAY MINIMUM	(d) .14	Feb 7	(d) .35	Dec 22	(d) .14	Feb 7 1997
INSTANTANEOUS PEAK FLOW			59		781	Sep 10 1986
INSTANTANEOUS PEAK STAGE			4.94		10.14	Sep 10 1986
ANNUAL RUNOFF (CFSM)	.92		1.13		1.54	
ANNUAL RUNOFF (INCHES)	12.52		15.33		20.95	
10 PERCENT EXCEEDS	6.5		8.5		9.3	
50 PERCENT EXCEEDS	1.8		1.4		2.9	
90 PERCENT EXCEEDS	.45		.45		.56	

(a) Estimated daily mean

(b) Also occurred Apr. 6

(c) Ice affected Feb. 7, 9, and 13-15

(d) Ice affected

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 ton, Sept. 11-18, 24-30, 1982, Jan. 11-16, 1987, Oct. 13-16, 18-20, 1987, Feb. 2-17, 1997, Nov. 17, 1997, Aug. 10-16, 29-31, Sept. 1-13, and 22-29, 1998.

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, 0.06 lb, Oct. 28, 31, Nov. 5-6, 12-16, 21, 26-27, 1987.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 2,150 mg/L, June 20; minimum observed, 1 mg/L, Aug. 12 and Sept. 2.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 39 tons, Mar. 31; minimum daily, 0 ton, Nov. 17, Aug. 10-16, Aug. 29 to Sept. 13, and Sept. 22-29.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 2.67 mg/L, June 20; minimum observed, 0.05 mg/L, Mar. 23, May 13, June 26, and Aug. 12.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 109 lb, Mar. 31; minimum daily, 0.07 lb, Sept. 28, 29.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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)	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 1997					APR 1998					
*01...	1315	1.2	.070	--	01...	0950	22	--	--	160
*01...	1535	1.3	--	13	01...	1433	23	.192	--	150
NOV					*01...	1436	23	.196	--	252
*19...	1150	.50	.073	4	02...	1325	24	.151	--	92
DEC					04...	1330	22	.114	--	66
*18...	1227	.43	.059	9	06...	1130	28	.107	--	86
JAN 1998					09...	1240	22	.092	--	37
*06...	1234	.74	.071	7	*10...	1225	16	.085	--	33
*16...	1305	.70	.063	13	*22...	1405	11	.061	--	16
FEB					MAY					
17...	1230	2.1	.120	16	*13...	1332	5.7	.051	.030	8
18...	0135	3.4	.144	59	JUN					
19...	0140	3.6	.127	29	11...	1745	4.3	.096	--	26
21...	1350	3.4	.070	14	20...	2140	11	.414	--	425
23...	1355	4.6	.069	15	20...	2200	22	.690	--	770
*25...	1237	6.3	.083	34	20...	2225	48	.848	--	2020
MAR					20...	2305	16	2.67	--	2150
02...	1340	8.5	.055	--	21...	0100	6.7	1.20	--	634
19...	0005	7.8	.088	47	*26...	1110	2.5	.051	--	17
19...	1205	7.3	.079	23	27...	0610	3.7	.636	--	324
20...	0040	7.3	.070	36	28...	0330	4.3	.164	--	144
22...	0155	6.6	.061	--	28...	0930	3.4	.156	--	44
23...	1258	6.1	.051	11	28...	1530	3.1	.062	--	13
26...	0330	8.1	.066	36	29...	0425	3.0	.058	--	15
30...	1930	16	.413	321	JUL					
30...	2150	34	1.23	862	20...	2335	6.2	.430	--	473
31...	0950	21	.847	586	20...	2355	13	.491	.103	655
31...	1210	22	.657	471	21...	0010	27	.802	--	1060
*31...	1213	22	.628	539	21...	0030	54	1.54	.188	1850
31...	2150	26	.319	225	21...	0100	46	.801	--	744

* Equal-width increment (EWI) sample

STREAMS TRIBUTARY TO LAKE MICHIGAN
04073462 WHITE CREEK AT FOREST GLEN BEACH NEAR GREEN LAKE, 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)	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)	DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
JUL 1998						SEP 1998				
21...	0215	9.1	1.10	.332	341	*02...	1400	.65	.071	1
21...	0625	3.3	.261	--	137	14...	0910	.79	.148	28
*21...	1059	2.5	.095	--	13	14...	1730	1.4	.262	63
AUG						30...	1305	.80	.174	34
*12...	1245	1.3	.050	--	1					
22...	1925	1.6	.216	--	56					

* Equal-width increment (EWI) sample

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	.02	.01	.02	.01	.37	10	.32	.09	.07	.01	.00
2	.04	.02	.01	.02	.01	.33	6.3	.29	.09	.07	.01	.00
3	.04	.01	.01	.03	.01	.32	5.1	.27	.08	.07	.01	.00
4	.04	.01	.01	.02	.01	.31	4.1	.24	.08	.06	.01	.00
5	.04	.01	.01	.02	.01	.29	4.7	.22	.08	.06	.01	.00
6	.04	.01	.01	.01	.01	.28	5.9	.21	.08	.06	.01	.00
7	.04	.01	.01	.01	.01	.26	4.3	.20	.08	.05	.01	.00
8	.04	.01	.01	.01	.01	.25	3.0	.18	.08	.05	.01	.00
9	.04	.01	.01	.01	.01	.23	2.3	.16	.08	.05	.01	.00
10	.04	.01	.01	.01	.01	.20	1.6	.15	.08	.05	.00	.00
11	.04	.01	.01	.02	.01	.19	1.3	.14	.12	.04	.00	.00
12	.04	.01	.01	.02	.01	.17	1.2	.13	.10	.04	.00	.00
13	.05	.01	.01	.02	.01	.17	1.1	.13	.10	.04	.00	.00
14	.04	.01	.01	.02	.02	.16	1.0	.12	.09	.04	.00	.08
15	.04	.01	.01	.02	.02	.15	.97	.12	.09	.04	.00	.01
16	.04	.01	.01	.02	.03	.14	.98	.12	.08	.03	.00	.01
17	.03	.00	.01	.02	.14	.13	.79	.11	.08	.03	.06	.01
18	.03	.01	.01	.02	.41	.59	.71	.11	.08	.03	.02	.01
19	.03	.01	.01	.02	.25	.62	.64	.10	.08	.03	.01	.01
20	.03	.01	.01	.02	.19	.56	.58	.10	9.4	.35	.01	.01
21	.03	.01	.01	.02	.14	.39	.54	.10	1.4	8.8	.01	.01
22	.02	.01	.01	.02	.15	.27	.50	.10	.17	.05	.16	.00
23	.02	.01	.01	.02	.19	.21	.48	.09	.15	.04	.02	.00
24	.02	.01	.01	.02	.32	.30	.44	.09	.14	.04	.01	.00
25	.02	.01	.01	.02	.53	.53	.41	.09	.13	.03	.01	.00
26	.02	.01	.01	.02	.53	.79	.41	.09	.12	.03	.01	.00
27	.02	.01	.01	.02	.53	.69	.36	.09	1.2	.02	.01	.00
28	.02	.01	.01	.02	.43	.57	.33	.09	.64	.02	.01	.00
29	.02	.01	.01	.01	---	.48	.31	.09	.11	.02	.00	.00
30	.02	.01	.01	.01	---	13	.30	.09	.08	.02	.00	.01
31	.02	---	.02	.01	---	39	---	.09	---	.02	.00	---
TOTAL	1.00	0.31	0.32	0.55	4.01	61.95	60.65	4.43	15.18	10.35	0.43	0.16

WTR YR 1998 TOTAL 159.24

STREAMS TRIBUTARY TO LAKE MICHIGAN

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

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

[illegible]

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: Jan. 9, Mar. 9-10, May 27, June 20-29, and July 20-21. 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 12). 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	9.6	15	9.5	9.8	10	61	242	57	23	30	9.4	12
2	12	16	13	8.5	16	53	231	67	26	28	10	9.9
3	4.6	12	13	20	12	43	216	65	17	30	8.2	8.9
4	17	13	19	11	12	39	179	61	22	19	20	9.8
5	16	16	16	25	12	37	155	59	18	19	20	8.3
6	10	16	18	24	11	36	128	56	19	22	17	8.5
7	5.8	16	18	22	11	35	112	54	18	17	18	5.1
8	6.2	15	17	10	11	26	104	52	20	20	16	8.0
9	20	14	15	16	10	18	86	42	20	19	12	7.7
10	13	12	14	22	9.9	22	80	45	22	20	13	6.7
11	8.0	12	15	13	11	21	78	42	18	14	10	10
12	11	16	17	9.6	14	26	71	40	54	14	11	6.8
13	19	14	24	12	11	18	77	45	31	16	10	5.8
14	26	12	18	8.9	11	25	73	38	29	13	15	21
15	14	8.5	18	9.6	13	19	87	30	20	16	18	32
16	14	6.6	19	9.5	19	20	113	44	19	16	9.0	18
17	12	19	19	9.6	34	18	113	25	23	12	26	15
18	11	11	20	11	46	43	111	30	23	12	11	10
19	13	13	21	12	51	58	101	25	36	11	12	8.6
20	10	12	20	10	54	52	87	24	37	12	13	8.5
21	13	11	19	8.4	55	54	71	26	66	87	12	11
22	9.9	6.8	16	8.7	52	61	65	21	40	34	13	9.6
23	11	12	19	12	48	60	61	19	28	25	31	8.8
24	15	9.6	17	9.9	51	59	57	17	30	19	23	11
25	9.0	11	15	9.2	48	69	48	19	32	12	15	10
26	13	10	18	9.5	52	57	64	17	35	11	12	11
27	8.9	12	16	12	81	66	58	18	45	16	14	7.8
28	15	9.2	16	10	68	61	56	24	84	17	9.6	7.1
29	16	9.8	15	11	---	45	54	33	39	9.6	14	11
30	9.7	11	15	11	---	72	50	17	37	12	11	7.1
31	17	---	11	10	---	224	---	27	---	10	9.0	---
TOTAL	389.7	371.5	520.5	385.2	833.9	1498	3028	1139	931	612.6	442.2	315.0
MEAN	12.6	12.4	16.8	12.4	29.8	48.3	101	36.7	31.0	19.8	14.3	10.5
MAX	26	19	24	25	81	224	242	67	84	87	31	32
MIN	4.6	6.6	9.5	8.4	9.9	18	48	17	17	9.6	8.2	5.1
CFSM	.23	.23	.31	.23	.56	.90	1.89	.69	.58	.37	.27	.20
IN.	.27	.26	.36	.27	.58	1.04	2.11	.79	.65	.43	.31	.22

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1998, BY WATER YEAR (WY)

	MEAN	22.0	28.1	22.4	16.5	24.3	72.5	67.4	39.9	44.8	35.1	23.7	19.2
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	45.5	31.2	16.1	4.57	3.78	5.03	9.01	
(WY)	1989	1998	1990	1989	1989	1995	1990	1988	1988	1988	1988	1988	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1987 - 1998

ANNUAL TOTAL	11787.2	10466.6	
ANNUAL MEAN	32.3	28.7	35.5
HIGHEST ANNUAL MEAN			79.9
LOWEST ANNUAL MEAN			18.7
HIGHEST DAILY MEAN	246	242	705
LOWEST DAILY MEAN	4.6	4.6	-4.1
ANNUAL SEVEN-DAY MINIMUM	10	7.2	2.1
ANNUAL RUNOFF (CFSM)	.60	.54	.66
ANNUAL RUNOFF (INCHES)	8.20	7.28	9.01
10 PERCENT EXCEEDS	64	61	73
50 PERCENT EXCEEDS	19	17	21
90 PERCENT EXCEEDS	12	9.5	7.3

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, 175 mg/L, Apr. 8; minimum observed, 2 mg/L, Dec. 2.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 64 tons, Apr. 1; minimum daily, 0.06 ton, Dec. 1.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 0.32 mg/L, July 22; minimum observed, 0.03 mg/L, Nov. 19 and Dec. 2.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 281 lb, Apr. 1; minimum daily, 1.1 lb, Nov. 22.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT 1997					MAR 1998				
01...	1718	9.6	.080	16	30...	0844	72	.172	34
*01...	1720	9.6	.069	13	30...	1759	72	.148	41
09...	0144	20	.084	13	31...	0144	224	.201	74
09...	1359	20	.092	15	31...	0929	224	.280	89
12...	1759	11	.112	22	31...	1714	224	.203	72
13...	1544	19	.065	18	APR				
14...	1214	26	.116	18	01...	0059	242	.235	118
21...	1244	13	.105	15	01...	1400	242	.207	86
28...	1159	15	.067	9	*01...	1402	242	.198	33
30...	1159	9.7	.075	6	02...	0014	231	.215	98
NOV					02...	0759	231	.230	90
11...	1229	12	.071	6	02...	1544	231	.191	30
*19...	1245	13	.030	10	02...	2329	231	.188	80
DEC					03...	1459	216	.206	94
02...	1159	13	.030	2	04...	0629	179	.176	77
16...	1214	19	.080	9	04...	1944	179	.191	95
30...	1214	15	.082	23	05...	1214	155	.170	72
JAN 1998					06...	1129	128	.199	99
*06...	0950	24	.085	14	07...	0259	112	.211	116
29...	1229	11	.087	8	07...	1914	112	.202	58
FEB					08...	1129	104	.250	175
12...	1214	14	.081	8	09...	0259	86	.183	105
19...	1159	51	.111	10	10...	1140	80	.144	23
26...	1214	52	.069	5	*10...	1142	80	.140	24
27...	0429	81	.070	9	12...	1200	71	.148	67
27...	2244	81	.093	12	13...	1315	77	.158	51
28...	1529	68	.060	6	15...	1045	87	.118	37
MAR					16...	1115	113	.149	38
06...	1259	36	.053	7	17...	1230	113	.108	13
13...	1214	18	.052	5	18...	1145	111	.111	22
20...	1159	52	.073	5	20...	1200	87	.115	27
*23...	1214	60	.073	6	*22...	1335	65	.117	25
25...	1959	69	.043	6	24...	1729	57	.147	33
27...	0014	66	.090	28	25...	0115	48	--	51
28...	0159	61	.127	33	27...	0829	58	.135	28
29...	0314	45	.130	31	27...	1159	58	.108	20
29...	2314	45	.166	50					

* Equal-width increment (EWI) sample

DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)					DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)				
IN CUBIC FEET PER SECOND (00060)					IN CUBIC FEET PER SECOND (00060)				
PHOS-PHORUS TOTAL (MG/L AS P) (00665)					PHOS-PHORUS TOTAL (MG/L AS P) (00665)				
SEDI-MENT, SUS-PENDED (MG/L) (80154)					SEDI-MENT, SUS-PENDED (MG/L) (80154)				
DATE	TIME				DATE	TIME			
MAY 1998					JUL 1998				
01...	0514	57	.083	21	03...	1559	30	.204	95
04...	1159	61	.127	47	10...	1159	20	.177	90
07...	2244	54	.139	38	15...	1314	16	.216	33
11...	1159	42	.135	33	20...	1859	12	.203	15
13...	1554	45	.175	37	21...	0329	87	.221	27
15...	2329	30	.114	35	21...	1124	87	.283	25
18...	1229	30	.119	38	22...	1529	34	.319	70
23...	1059	19	.226	44	24...	1159	19	.266	74
27...	1335	18	.065	14	31...	1214	10	.234	57
29...	2329	33	.234	46	AUG				
JUN					12...	1220	11	.154	46
02...	1144	26	.201	30	17...	0829	26	.104	12
06...	1859	19	.184	31	23...	0429	31	.192	37
09...	1229	20	.195	27	24...	1529	23	.200	21
11...	1859	18	.181	34	28...	1229	9.6	.199	14
16...	1159	19	.260	27	SEP				
18...	0744	23	.212	41	06...	2214	8.5	.164	20
26...	1003	35	.090	12	18...	1214	10	.203	27
					26...	1559	11	.170	18

DAILY MEAN VALUES

[illegible]

STREAMS TRIBUTARY TO LAKE MICHIGAN

04073468 GREEN LAKE INLET AT COUNTY TRUNK HIGHWAY A NEAR GREEN LAKE, 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	4.5	6.0	1.5	4.4	4.6	19	281	27	26	26	11	12
2	4.6	6.4	2.1	3.8	7.4	17	258	36	28	27	12	9.6
3	1.8	4.8	2.3	9.0	5.5	13	230	39	18	32	9.3	8.5
4	6.8	5.2	3.5	5.0	5.5	12	178	41	23	21	22	9.1
5	6.6	6.3	3.2	11	5.4	11	148	42	18	20	21	7.6
6	4.2	6.3	3.9	11	5.0	10	137	40	19	23	17	7.6
7	2.5	6.3	4.1	10	4.9	10	125	40	18	17	18	4.6
8	2.8	5.8	4.2	4.6	4.9	7.4	128	39	21	20	15	7.3
9	9.7	5.4	4.0	7.4	4.4	5.1	80	31	21	19	11	7.2
10	6.8	4.6	4.0	10	4.4	6.2	63	33	22	19	12	6.3
11	4.5	4.6	4.6	6.0	4.8	5.9	61	31	18	14	8.6	9.6
12	6.4	5.5	5.6	4.4	6.2	7.3	57	33	56	14	9.1	6.7
13	8.0	4.3	8.4	5.6	5.0	5.1	64	41	35	17	7.7	5.8
14	15	3.3	6.8	4.1	5.3	7.4	54	31	35	15	11	21
15	8.6	2.1	7.3	4.4	6.5	5.9	58	20	26	19	12	33
16	8.5	1.5	8.1	4.4	9.9	6.5	85	27	26	18	5.4	19
17	7.2	3.8	8.2	4.5	19	6.1	69	16	29	14	15	16
18	6.5	2.0	8.7	5.1	26	15	66	20	26	14	7.0	11
19	7.6	2.1	9.1	5.6	30	22	62	18	36	12	8.5	9.2
20	5.8	1.9	8.7	4.7	30	20	54	20	34	13	10	8.9
21	7.3	1.8	8.3	3.9	29	21	44	25	54	126	10	11
22	5.3	1.1	7.0	4.1	25	24	41	23	29	57	13	9.6
23	5.5	1.9	8.3	5.6	22	23	43	22	19	40	32	8.6
24	7.0	1.6	7.4	4.6	22	19	44	15	18	28	25	11
25	4.0	1.8	6.6	4.3	19	18	37	13	17	17	16	9.4
26	5.3	1.6	7.9	4.4	20	21	48	8.3	18	15	13	10
27	3.4	1.9	7.1	5.6	35	38	37	7.0	25	22	15	5.7
28	5.5	1.5	7.1	4.7	26	42	30	14	52	23	10	3.9
29	6.1	1.6	6.6	5.2	---	36	27	33	27	13	15	4.5
30	3.8	1.8	6.6	5.1	---	64	24	21	29	15	11	2.2
31	6.9	---	4.9	4.7	---	279	---	32	---	13	9.1	---
TOTAL	188.5	104.8	186.1	177.2	392.7	796.9	2633	838.3	823	743	411.7	295.9

STREAMS TRIBUTARY TO LAKE MICHIGAN

73

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 12). Flow regulated by dams 1.1 mi and 180 ft upstream. 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	21	11	10	15	25	57	379	99	43	96	30	24
2	21	11	10	15	27	44	383	110	39	93	31	22
3	20	12	11	15	27	35	379	114	37	92	29	21
4	21	12	12	15	27	35	373	114	35	85	32	19
5	21	12	12	18	27	35	363	113	33	80	31	17
6	20	13	13	18	28	40	352	112	34	72	33	17
7	20	13	13	18	28	40	340	114	34	68	35	17
8	20	14	13	18	28	39	327	117	34	72	35	15
9	21	14	13	20	27	40	311	118	36	73	34	14
10	18	14	13	20	28	40	307	115	42	68	32	12
11	18	14	13	19	28	44	293	112	45	65	29	11
12	19	14	14	19	29	45	285	111	55	59	28	10
13	22	13	13	19	29	46	254	108	51	56	27	10
14	19	13	13	19	30	43	229	104	50	53	27	13
15	17	13	14	19	30	42	227	105	49	51	26	15
16	17	13	14	19	32	42	237	110	48	47	26	13
17	17	13	14	20	35	42	234	100	49	48	29	12
18	17	13	14	20	36	54	228	100	55	47	28	12
19	16	12	14	20	37	72	219	94	68	44	27	12
20	15	11	14	19	38	113	201	89	69	42	27	12
21	14	11	14	20	40	122	176	84	81	72	24	12
22	14	12	14	20	42	121	170	78	76	64	24	12
23	14	11	14	21	43	119	162	73	72	60	30	11
24	13	11	14	21	45	117	154	70	76	57	29	11
25	13	12	14	22	46	114	149	71	80	51	27	11
26	12	11	14	22	48	111	152	67	85	47	26	12
27	12	11	14	22	57	114	152	58	96	43	26	12
28	13	11	14	22	65	113	150	55	107	40	25	11
29	12	11	14	23	---	102	133	44	106	36	24	10
30	12	10	14	23	---	111	102	39	103	34	22	12
31	12	---	14	24	---	255	---	42	---	32	22	---
TOTAL	521	366	411	605	982	2347	7421	2840	1788	1847	875	412
MEAN	16.8	12.2	13.3	19.5	35.1	75.7	247	91.6	59.6	59.6	28.2	13.7
MAX	22	14	14	24	65	255	383	118	107	96	35	24
MIN	12	10	10	15	25	35	102	39	33	32	22	10
CFSM	.16	.12	.13	.19	.33	.72	2.36	.87	.57	.57	.27	.13
IN.	.18	.13	.15	.21	.35	.83	2.63	1.01	.63	.65	.31	.15

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1998, BY WATER YEAR (WY)

	1997	1998	1997	1998	1997	1998	1997	1998	1997	1998	1997	1998
MEAN	16.8	9.54	14.0	28.1	45.5	130	187	93.0	75.3	68.2	45.7	27.4
MAX	16.8	12.2	14.8	36.6	56.0	184	247	94.5	90.9	76.8	63.1	41.0
(WY)	1998	1998	1997	1997	1997	1997	1998	1997	1997	1997	1997	1997
MIN	16.8	6.88	13.3	19.5	35.1	75.7	127	91.6	59.6	59.6	28.2	13.7
(WY)	1998	1997	1998	1998	1998	1998	1997	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1997 - 1998

ANNUAL TOTAL	24741	20415	
ANNUAL MEAN	67.8	55.9	
HIGHEST ANNUAL MEAN			55.9
LOWEST ANNUAL MEAN			55.9
HIGHEST DAILY MEAN	267	383	383
LOWEST DAILY MEAN	10	10	4.3
ANNUAL SEVEN-DAY MINIMUM	11	11	5.1
INSTANTANEOUS PEAK FLOW		423	423
INSTANTANEOUS PEAK STAGE		5.60	5.60
ANNUAL RUNOFF (CFSM)	.65	.53	.53
ANNUAL RUNOFF (INCHES)	8.77	7.23	7.24
10 PERCENT EXCEEDS	153	116	143
50 PERCENT EXCEEDS	55	29	45
90 PERCENT EXCEEDS	13	12	12

(a) Also occurred on Dec. 1,2

(b) Also occurred on Dec. 1,2, Sept. 12,13, and 29

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: Ice-affected periods, Nov. 22 to Dec. 14, Dec. 22 to Feb. 16, and Mar. 10-19. Records good except for ice-affected periods, which are poor (see page 12). 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	681	733	780	600	760	1680	2280	2150	915	1440	642	601
2	690	735	820	660	760	1710	2490	2130	986	1440	626	596
3	682	725	860	760	760	1740	2680	2130	699	1450	606	577
4	675	710	860	860	760	1760	2830	2110	540	1450	575	557
5	651	710	820	900	780	1760	2920	2090	524	1430	639	537
6	655	721	780	920	780	1750	2970	2060	551	1420	691	535
7	644	726	780	940	780	1730	2970	2040	576	1400	763	515
8	630	748	780	920	780	1710	2970	2020	602	1380	813	489
9	649	768	780	840	780	1670	2950	1980	639	1360	821	461
10	644	774	780	740	800	1500	2910	1940	657	1350	805	496
11	593	750	780	700	800	1400	2860	1910	722	1310	759	517
12	605	748	780	680	820	1400	2810	1870	847	1270	702	509
13	674	741	740	660	840	1300	2780	1840	949	1230	688	489
14	697	736	720	660	880	1300	2760	1800	992	1170	676	546
15	655	721	930	680	900	1200	2720	1750	1020	1100	664	590
16	645	725	879	680	980	1200	2780	1710	1050	1030	648	739
17	648	712	821	680	1030	1200	2810	1650	1060	964	675	859
18	631	742	802	700	1110	1200	2780	1580	1120	912	689	700
19	628	743	796	700	1190	1300	2750	1510	1180	888	678	567
20	627	728	768	700	1230	1400	2710	1410	1250	853	712	574
21	625	718	734	700	1270	1420	2680	1290	1300	1010	699	595
22	602	700	720	700	1350	1480	2630	1170	1320	1030	690	846
23	620	700	700	700	1400	1530	2570	1070	1320	980	739	1010
24	645	680	700	700	1450	1580	2500	1010	1320	931	771	1010
25	627	700	700	700	1470	1620	2430	983	1310	889	756	862
26	626	740	680	700	1500	1660	2390	985	1300	825	719	514
27	624	780	660	720	1570	1690	2330	970	1340	786	693	385
28	678	820	640	720	1630	1730	2270	958	1380	748	678	393
29	702	800	640	740	---	1750	2210	967	1400	720	666	423
30	699	780	640	740	---	1780	2170	935	1430	688	644	442
31	724	---	620	740	---	2070	---	911	---	669	619	---
TOTAL	20176	22114	23490	22840	29160	48220	79910	48929	30299	34123	21546	17934
MEAN	651	737	758	737	1041	1555	2664	1578	1010	1101	695	598
MAX	724	820	930	940	1630	2070	2970	2150	1430	1450	821	1010
MIN	593	680	620	600	760	1200	2170	911	524	669	575	385
CFSM	.49	.55	.57	.55	.78	1.16	1.99	1.18	.75	.82	.52	.45
IN.	.56	.61	.65	.63	.81	1.34	2.22	1.36	.84	.95	.60	.55

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1898 - 1998, BY WATER YEAR (WY)

MEAN	985	1077	897	699	759	1765	2232	1461	1179	913	792	890
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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1898 - 1998

ANNUAL TOTAL	400049		398741			
ANNUAL MEAN	1096		1092		1140	
HIGHEST ANNUAL MEAN					2203	1993
LOWEST ANNUAL MEAN					559	1964
HIGHEST DAILY MEAN	3020	Apr 4,6	2970	Apr 6-8	6900	Mar 17,18 1946
LOWEST DAILY MEAN	593	Oct 11	385	Sep 27	217	Jun 27 1988
ANNUAL SEVEN-DAY MINIMUM	624	Oct 21	497	Sep 7	266	Jan 30 1900
INSTANTANEOUS PEAK FLOW			2980	Apr 7	6900	Mar 17,18 1946
INSTANTANEOUS PEAK STAGE			12.60	Apr 7	15.50	Mar 17,18 1946
INSTANTANEOUS LOW FLOW			374	Sep 27	210	Jun 27 1988
ANNUAL RUNOFF (CFSM)	.82		.82		.85	
ANNUAL RUNOFF (INCHES)	11.11		11.07		11.56	
10 PERCENT EXCEEDS	1770		2060		2170	
50 PERCENT EXCEEDS	914		796		865	
90 PERCENT EXCEEDS	649		620		500	

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04074950 WOLF RIVER AT LANGLADE, WI

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: Ice-affected periods, Nov. 12 to Feb. 26 and Mar. 3-24. Records good except those for ice-affected periods, which are poor (see page 12). 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	361	389	310	260	300	648	1520	312	268	363	156	202
2	355	407	300	270	290	639	1560	316	262	339	155	249
3	350	408	300	280	280	620	1470	317	250	270	152	215
4	348	413	300	300	280	620	1380	318	240	271	152	203
5	337	418	310	300	300	560	1280	311	230	252	155	197
6	301	413	290	300	300	520	1180	320	228	243	166	192
7	390	399	290	290	300	500	1100	333	227	244	232	187
8	406	382	290	280	310	480	1010	301	226	245	244	183
9	489	378	300	270	310	420	946	292	224	241	227	181
10	573	374	310	260	300	350	884	280	231	230	210	176
11	588	364	310	260	300	360	827	272	243	223	194	179
12	590	340	300	260	300	380	776	266	344	226	186	173
13	799	320	290	270	300	370	733	290	428	218	181	171
14	855	330	300	280	300	340	698	317	524	206	180	179
15	792	330	310	290	300	340	651	310	511	211	181	191
16	786	300	340	290	310	340	648	323	406	211	188	188
17	778	290	330	290	330	350	655	349	359	203	201	179
18	755	310	320	290	350	370	680	372	331	197	211	175
19	717	290	300	290	360	340	710	311	303	193	203	170
20	609	280	270	300	370	350	656	281	289	191	199	167
21	532	280	270	300	370	370	613	270	259	185	190	171
22	510	280	290	280	370	370	580	262	247	180	189	163
23	494	270	290	280	380	360	549	254	237	175	237	158
24	488	260	270	290	410	350	520	250	262	175	249	180
25	488	290	280	290	440	370	470	246	327	174	243	218
26	510	310	270	290	470	497	410	240	356	177	222	254
27	501	310	260	290	588	709	395	252	484	175	227	285
28	417	290	260	280	675	843	345	254	425	171	214	263
29	387	300	260	290	---	875	320	245	368	169	212	240
30	375	310	260	290	---	1020	313	230	369	161	205	227
31	370	---	260	300	---	1180	---	254	---	157	191	---
TOTAL	16251	10035	9040	8810	9893	15841	23879	8948	9458	6676	6152	5916
MEAN	524	335	292	284	353	511	796	289	315	215	198	197
MAX	855	418	340	300	675	1180	1560	372	524	363	249	285
MIN	301	260	260	260	280	340	313	230	224	157	152	158
CFSM	1.13	.72	.63	.61	.76	1.10	1.72	.62	.68	.47	.43	.43
IN.	1.31	.81	.73	.71	.79	1.27	1.92	.72	.76	.54	.49	.48

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1998, 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
MEAN	450	451	376	322	318	473	831	612	488	357	325	409																					
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	193	213	278	263	289	173	183	188	171																					
(WY)	1977	1977	1977	1977	1982	1982	1990	1998	1988	1989	1989	1989																					

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1966 - 1998
ANNUAL TOTAL	165221	130899	
ANNUAL MEAN	453	359	453
HIGHEST ANNUAL MEAN			666
LOWEST ANNUAL MEAN			326
HIGHEST DAILY MEAN	1630	Apr 6	2420
LOWEST DAILY MEAN	250	Aug 12	137
ANNUAL SEVEN-DAY MINIMUM	255	Aug 7	155
INSTANTANEOUS PEAK FLOW		1600	2440
INSTANTANEOUS PEAK STAGE		9.67	10.40
INSTANTANEOUS LOW FLOW		150	119
ANNUAL RUNOFF (CFSM)	.98	.77	.98
ANNUAL RUNOFF (INCHES)	13.27	10.52	13.28
10 PERCENT EXCEEDS	654	620	763
50 PERCENT EXCEEDS	374	300	372
90 PERCENT EXCEEDS	290	187	240

STREAMS TRIBUTARY TO LAKE MICHIGAN

04075050 WOLF RIVER AT HIGHWAY M NEAR LANGLADE, WI

LOCATION.--Lat 45°07'38", long 88°39'45", in SE 1/4 NE 1/4 sec.31, T.31 N., R.14 E., Langland County, Hydrologic Unit 04030202, at County Highway M bridge near State Highway 55, 5.7 mi southeast of Langlade.

DRAINAGE AREA.--489 mi².

PERIOD OF RECORD.--April 1986 to current year.

REMARKS.--Discharge values are estimated from record at station 04074950 Wolf River at Langlade.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO 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)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	
DEC 1997												
17...	0900	330	200	8.0	.3	14.0	732	100	<10	26	12	
MAR 1998												
11...	0815	360	195	7.8	.2	14.9	765	102	13	26	12	
APR 01...	0840	1480	101	8.6	3.0	12.6	718	99	31	12	5.4	
MAY 19...	0850	318	210	8.1	21.0	8.2	732	96	16	22	10	
JUL 29...	0830	168	256	8.0	19.1	8.5	727	97	<10	28	14	
SEP 21...	1235	174	266	8.2	16.1	9.5	732	101	<10	29	14	
DATE		SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	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)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	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)
DEC 1997												
17...	2.6	.81	3.1	4.9	.13	11	138	7	.314	<.020	.22	
MAR 1998												
11...	2.8	.96	3.7	6.4	.13	12	136	4	.282	<.020	.29	
APR 01...	1.9	.87	2.4	3.8	.10	7.2	78	--	.124	.048	.65	
MAY 19...	2.6	.85	3.0	4.6	.16	6.1	126	6	.059	.051	.48	
JUL 29...	2.9	.85	3.7	5.7	.18	5.9	149	<1	<.050	<.020	.29	
SEP 21...	2.9	1.2	3.5	6.2	.22	6.9	159	<1	.104	<.020	.24	
DATE		PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ANTI-MONY, DIS-SOLVED (UG/L AS SB) (01095)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)
DEC 1997												
17...	<.010	.010	20	<10	--	<1	<1	12	10	--	30	
MAR 1998												
11...	<.010	.014	30	10	<1.0	<1	<1	11	11	<1.0	<10	
APR 01...	.080	.016	210	25	<1.0	<1	<1	12	8.1	<1.0	20	
MAY 19...	.032	<.010	60	6.7	<1.0	--	<1	--	11	<1.0	<10	
JUL 29...	<.010	<.010	30	7.1	<1.0	<1	1	13	12	<1.0	10	
SEP 21...	.017	.010	20	4.8	<1.0	--	1	--	13	<1.0	<10	

STREAMS TRIBUTARY TO LAKE MICHIGAN
04075050 WOLF RIVER AT HIGHWAY M NEAR LANGLADE, WI--CONTINUED

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	BORON, DIS- SOLVED (UG/L AS B) (01020)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO) (01037)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
DEC 1997 17...	17	<1	<1.0	<1	<1.0	<1	<1.0	<1	<1.0	160	120
MAR 1998 11...	<16	<1	<1.0	<1	<1.0	<1	<1.0	<1	<1.0	270	140
APR 01...	<16	<1	<1.0	<1	<1.0	<1	<1.0	1	<1.0	--	180
MAY 19...	<16	--	<1.0	--	<1.0	<1	<1.0	<1	<1.0	270	64
JUL 29...	<16	<1	<1.0	<1	<1.0	<1	<1.0	<1	<1.0	230	35
SEP 21...	<16	--	<1.0	--	<1.0	<1	<1.0	<1	<1.0	100	39

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOV- ERABLE (UG/L AS LI) (01132)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)
DEC 1997 17...	<1	<1.0	<10	<4	10	5.3	--	<50	<1.0	<1	<1
MAR 1998 11...	<1	<1.0	<10	<4	32	11	<1.0	<50	<1.0	<1	<1
APR 01...	<1	<1.0	<10	<4	--	13	<1.0	<50	<1.0	<1	<1
MAY 19...	--	<1.0	<10	<4	94	14	<1.0	<1	<1.0	<1	<1
JUL 29...	<1	<1.0	<10	<4	35	10	<1.0	<1	<1.0	<1	<1
SEP 21...	--	<1.0	<10	<4	28	7.3	<1.0	<1	<1.0	<1	<1

DATE	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	THAL- LIUM, TOTAL (UG/L AS TL) (01059)	THAL- LIUM, DIS- SOLVED (UG/L AS TL) (01057)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DIS- SOLVED (UG/L AS U) (22703)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CYANIDE TOTAL (MG/L AS CN) (00720)	CYANIDE DIS- SOLVED (MG/L AS CN) (00723)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
DEC 1997 17...	<.20	<1	<.50	<10	<20	<1.0	4.9	<.010	<.01	1
MAR 1998 11...	<1.0	<1	<.50	<10	1.3	<1.0	5.9	<.010	<.01	4
APR 01...	<1.0	<1	<.50	10	1.4	<1.0	10	<.010	<.01	33
MAY 19...	<1.0	--	<.50	<10	<1.0	<1.0	5.8	<.010	<.01	10
JUL 29...	<1.0	<1	<.50	<10	<1.0	<1.0	3.4	<.010	<.01	5
SEP 21...	<1.0	--	<.50	<10	1.3	<1.0	3.2	<.010	<.01	--

STREAMS TRIBUTARY TO LAKE MICHIGAN
04075050 WOLF RIVER AT HIGHWAY M NEAR LANGLADE, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

PESTICIDE ANALYSES

		DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	ACETO- CHLOR, WATER, FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALPHA- HCH, D6 SUR SCD 1379 WTR, FLTRD, PERCENT (UG/L) (90505)	AMETRYN WATER, DISS, REC, (UG/L) (38401)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	BRO- MACIL, WATER, DISS, REC (UG/L) (04029)	BUTA- CHLOR, WATER, DISS, REC (UG/L) (04026)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	
MAY 1998											
JUL 19...	0850	318	<.0500	<.050	91.3	<.050	E.020	<.0500	<.05	<.0500	
JUL 29...	0830	168	<.0500	<.050	87.6	<.050	<.050	<.0500	<.05	<.0500	
DATE		CAR- BOXIN, WATER, DISS, REC (UG/L) (04027)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DEISO- PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	DIAZI- NON D10 SUR SCD 1379 WTR, FLTRD PERCENT (UG/L) (90670)	DIPHEN- AMID, WATER, DISS, REC (UG/L) (04033)	HEXA- ZINONE, WATER, DISS, REC (UG/L) (04025)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	PRO- METON, WATER, DISS, REC (UG/L) (04037)
MAY 1998											
JUL 19...	<.05	<.200	<.0500	<.0500	90.8	<.05	<.05	<.050	<.050	<.0500	
JUL 29...	<.05	<.200	E.0317	<.0500	84.2	<.05	<.05	<.050	<.050	<.0500	
DATE		PRO- METRYN, WATER, DISS, REC (UG/L) (04036)	PROP- AZINE WATER DISS REC (UG/L) (38535)	PROP- CHLOR, WATER, DISS, REC (UG/L) (04024)	SI- CLOATE, WATER, DISS, REC (UG/L) (04031)	SIMA- TRYN, WATER, DISS, REC (UG/L) (04030)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TER- BACIL, WATER, DISS, REC (UG/L) (04032)	TRI- FLUR- ALIN, WATER, DISS, REC (UG/L) (04023)	VERNO- LATE, WATER, DISS, REC (UG/L) (04034)	
MAY 1998											
JUL 19...	<.0500	<.050	<.0500	<.05	<.05	<.0500	<.05	<.05	<.05	<.05	
JUL 29...	<.0500	<.050	<.0500	<.05	<.05	<.0500	<.05	<.05	<.05	<.05	

E Estimated

STREAMS TRIBUTARY TO LAKE MICHIGAN

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04077100 WOLF RIVER AT KESHENA, WI

LOCATION.--Lat 44°53'00", long 88°38'05", in NE 1/4 NE 1/4 sec.26, T.28 N., R.15 E., Menominee County, Hydrologic Unit 04030202, at bridge on town road, at Keshena.

PERIOD OF RECORD.--May 1995 to current year.

REMARKS.--Discharge is estimated based on drainage area comparison with 04077400, Wolf River near Shawano.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO 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)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) (00301)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	
DEC 1997												
17...	1020	562	270	8.2	.2	14.9	732	107	24	31	14	
MAR 1998												
11...	0945	439	244	7.9	.2	14.7	755	102	17	27	13	
APR 01...	1010	2680	131	8.1	3.5	12.7	726	100	26	15	7.1	
MAY 19...	1035	619	248	8.1	23.7	9.2	732	113	<10	29	14	
JUL 29...	1000	319	290	8.3	21.1	8.3	727	98	<10	32	17	
SEP 21...	1410	313	305	8.2	19.8	9.6	732	110	<10	32	17	
DATE		SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	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)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) (00530)	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)
DEC 1997												
17...	2.6	.89	3.4	6.1	.19	11	155	42	.468	<.020	.57	
MAR 1998												
11...	2.9	1.0	4.3	7.2	.15	11	150	4	.366	<.020	.32	
APR 01...	1.7	.89	2.1	4.7	.11	7.4	91	--	.126	.037	.71	
MAY 19...	2.7	1.0	3.4	5.8	.22	6.2	152	2	<.050	.036	.35	
JUL 29...	3.0	.98	4.1	6.6	.26	6.1	165	3	<.050	<.020	.27	
SEP 21...	2.9	1.3	3.9	7.1	.27	7.5	178	1	.110	<.020	.23	
DATE		PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ALUM-INUM, TOTAL RECOV-ERABLE (UG/L AS AL) (01105)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ANTI-MONY, DIS-SOLVED (UG/L AS SB) (01095)	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA) (01007)	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	BORON, TOTAL RECOV-ERABLE (UG/L AS B) (01022)
DEC 1997												
17...	.021	<.010	200	<10	--	<1	<1	19	11	--	20	
MAR 1998												
11...	<.010	<.010	20	8.4	<1.0	<1	<1	13	12	<1.0	<10	
APR 01...	.064	.015	200	22	<1.0	<1	<1	11	8.4	<1.0	10	
MAY 19...	<.010	<.010	20	6.2	<1.0	--	<1	--	12	<1.0	<10	
JUL 29...	<.010	<.010	30	7.6	<1.0	1	1	14	13	<1.0	20	
SEP 21...	.015	<.010	30	4.6	<1.0	--	1	--	14	<1.0	20	

STREAMS TRIBUTARY TO LAKE MICHIGAN
04077100 WOLF RIVER AT KESHENA, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	BORON, DIS- SOLVED (UG/L AS B) (01020)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV- ERABLE (UG/L AS CO) (01037)	COBALT, DIS- SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	IRON, DIS- SOLVED (UG/L AS FE) (01046)
DEC 1997											
17...	<16	<1	<1.0	3	<1.0	<1	<1.0	<1	<1.0	860	87
MAR 1998											
11...	<16	<1	<1.0	<1	<1.0	<1	<1.0	<1	<1.0	240	120
APR											
01...	<16	<1	<1.0	1	<1.0	<1	<1.0	1	<1.0	--	140
MAY											
19...	16	--	<1.0	--	<1.0	<1	<1.0	<1	<1.0	140	51
JUL											
29...	17	<1	<1.0	<1	<1.0	<1	<1.0	<1	<1.0	110	37
SEP											
21...	<16	--	<1.0	--	<1.0	<1	<1.0	<1	<1.0	100	38

DATE	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM TOTAL RECOV- ERABLE (UG/L AS LI) (01132)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)
DEC 1997											
17...	2	<1.0	<10	<4	160	6.2	--	<50	<1.0	<1	<1
MAR 1998											
11...	<1	<1.0	<10	<4	31	16	<1.0	<50	<1.0	<1	<1
APR											
01...	<1	<1.0	<10	<4	--	12	<1.0	<50	<1.0	<1	<1
MAY											
19...	--	<1.0	<10	<4	60	25	<1.0	<1	<1.0	<1	<1
JUL											
29...	<1	<1.0	<10	<4	48	18	<1.0	<1	<1.0	<1	<1
SEP											
21...	--	<1.0	<10	<4	34	15	<1.0	<1	<1.0	<1	<1

DATE	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	THAL- LIUM, TOTAL (UG/L AS TL) (01059)	THAL- LIUM, DIS- SOLVED (UG/L AS TL) (01057)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	URANIUM NATURAL DIS- SOLVED (UG/L AS U) (22703)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CYANIDE TOTAL (MG/L AS CN) (00720)	CYANIDE DIS- SOLVED (MG/L AS CN) (00723)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
DEC 1997										
17...	<.20	<1	<.50	<10	<20	1.3	4.0	<.010	<.01	30
MAR 1998										
11...	<1.0	<1	<.50	<10	1.8	1.1	5.8	.010	<.01	3
APR										
01...	<1.0	<1	<.50	<10	<1.0	<1.0	11	<.010	<.01	29
MAY										
19...	<1.0	--	<.50	<10	1.6	1.3	4.8	<.010	<.01	4
JUL										
29...	<1.0	<1	<.50	<10	3.7	1.6	3.4	<.010	<.01	6
SEP										
21...	<1.0	--	<.50	<10	<1.0	1.5	3.1	<.010	<.01	--

STREAMS TRIBUTARY TO LAKE MICHIGAN
04077100 WOLF RIVER AT KESHENA, WI--CONTINUED

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

PESTICIDE ANALYSES

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	ACETO-CHLOR, WATER FLTRD REC (UG/L) (49260)	ALA-CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALPHA-HCH, D6 SUR SCD 1379 WTR, FLTRD, PERCENT (90505)	AMETRYN WATER, DISS, REC, (UG/L) (38401)	ATRA-ZINE, WATER, DISS, REC (UG/L) (39632)	BRO-MACIL, WATER, DISS, REC (UG/L) (04029)	BUTA-CHLOR, WATER, DISS, REC (UG/L) (04026)	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	
MAY 1998											
JUL 19...	1035	619	<.0500	<.050	100	<.050	E.026	<.0500	<.05	<.0500	
JUL 29...	1000	319	<.0500	<.050	91.2	<.050	<.050	<.0500	<.05	<.0500	
DATE		CAR-BOXIN, WATER, DISS, REC (UG/L) (04027)	CYANA-ZINE, WATER, DISS, REC (UG/L) (04041)	DEETHYL ATRA-ZINE, WATER, DISS, REC (UG/L) (04040)	DEISO-PROPYL ATRAZIN WATER, DISS, REC (UG/L) (04038)	DIAZI-NON D10 SUR SCD 1379 WTR, FLTRD PERCENT (90670)	DIPHEN-AMID, WATER, DISS, REC (UG/L) (04033)	HEXA-ZINONE, WATER, DISS, REC (UG/L) (04025)	METO-LACHLOR WATER DISSOLV (UG/L) (39415)	METRI-BUZIN WATER DISSOLV (UG/L) (82630)	PRO-METON, WATER, DISS, REC (UG/L) (04037)
MAY 1998											
JUL 19...	<.05	<.200	<.0500	<.0500	98.2	<.05	<.05	<.050	<.050	<.0500	
JUL 29...	<.05	<.200	E.0340	<.0500	85.4	<.05	<.05	<.050	<.050	<.0500	
DATE		PRO-METRYN, WATER, DISS, REC (UG/L) (04036)	PROP-AZINE WATER DISS REC (UG/L) (38535)	PROP-CHLOR, WATER, DISS, REC (UG/L) (04024)	SI-CLOATE, WATER, DISS, REC (UG/L) (04031)	SIMA-TRYN, WATER, DISS, REC (UG/L) (04030)	SI-MAZINE, WATER, DISS, REC (UG/L) (04035)	TER-BACIL, WATER, DISS, REC (UG/L) (04032)	TRI-FLUR-ALIN, WATER, DISS, REC (UG/L) (04023)	VERNO-LATE, WATER, DISS, REC (UG/L) (04034)	
MAY 1998											
JUL 19...	<.0500	<.050	<.0500	<.05	<.05	<.0500	<.05	<.05	<.05	<.05	
JUL 29...	<.0500	<.050	<.0500	<.05	<.05	<.0500	<.05	<.05	<.05	<.05	

E Estimated

STREAMS TRIBUTARY TO LAKE MICHIGAN
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. Gage-height telemeter at station.

REMARKS.--Estimated daily discharges: Ice-affected period, Dec. 29 to Feb. 25. Records fair except those for ice-affected period, which is poor (see page 12). Minor regulation by power dam upstream.

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	597	658	642	500	540	1600	2770	598	665	708	341	365
2	581	700	645	560	520	1300	2920	669	589	636	329	392
3	638	710	663	660	500	1320	2640	653	541	621	309	454
4	598	706	653	620	500	1140	2330	702	541	548	355	433
5	569	691	643	620	540	1050	2070	640	497	539	331	396
6	570	693	653	640	520	1010	1870	630	494	496	408	384
7	587	702	647	600	540	975	1730	604	478	528	476	380
8	704	673	638	580	560	926	1620	665	482	522	513	352
9	738	656	696	540	560	856	1500	588	521	487	615	356
10	845	616	712	520	540	655	1400	576	473	462	550	377
11	938	628	676	500	540	625	1340	567	484	453	382	366
12	921	591	671	500	540	680	1280	543	667	442	449	384
13	1160	505	588	500	540	777	1220	589	735	434	411	391
14	1500	590	585	520	540	789	1130	632	758	436	390	375
15	1470	662	611	520	540	743	1110	612	778	408	379	398
16	1310	563	699	520	560	702	1110	624	748	418	388	431
17	1230	423	647	520	600	692	1140	627	632	395	374	421
18	1170	559	691	520	640	766	1280	646	598	375	447	392
19	1110	561	672	520	660	750	1340	638	565	349	437	384
20	1060	553	664	520	680	624	1260	559	530	335	451	366
21	871	502	486	540	680	700	1100	517	506	403	464	382
22	796	502	511	540	680	723	1020	501	468	370	408	361
23	800	508	538	520	700	740	967	513	467	327	405	352
24	768	443	555	520	740	692	900	498	490	340	462	357
25	796	566	545	520	780	730	849	510	693	323	460	375
26	740	691	609	520	824	825	758	528	1220	336	457	572
27	771	699	559	520	1230	1210	731	510	1340	335	434	778
28	752	667	494	520	1490	1590	669	551	1320	387	443	752
29	676	661	500	520	---	1790	649	532	988	324	432	670
30	626	662	500	520	---	1880	582	475	818	321	383	612
31	655	---	500	540	---	2310	---	696	---	357	375	---
TOTAL	26547	18341	18893	16760	18284	31170	41285	18193	20086	13415	13058	13008
MEAN	856	611	609	541	653	1005	1376	587	670	433	421	434
MAX	1500	710	712	660	1490	2310	2920	702	1340	708	615	778
MIN	569	423	486	500	500	624	582	475	467	321	309	352
CFSM	1.05	.75	.75	.66	.80	1.23	1.69	.72	.82	.53	.52	.53
IN.	1.21	.84	.86	.76	.83	1.42	1.88	.83	.92	.61	.60	.59

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1907 - 1998, BY WATER YEAR (WY)

	MEAN	721	748	608	524	503	732	1347	1102	902	680	614	702
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 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1907 - 1998	
ANNUAL TOTAL	297242		249040		766	
ANNUAL MEAN	814		682		1119	
HIGHEST ANNUAL MEAN					510	
LOWEST ANNUAL MEAN					1973	
HIGHEST DAILY MEAN	3220	Apr 7	2920	Apr 2	(a) 5200	Mar 15 1973
LOWEST DAILY MEAN	422	Aug 11	309	Aug 3	194	Feb 7 1936
ANNUAL SEVEN-DAY MINIMUM	459	Aug 6	334	Jul 29	260	Feb 3 1936
INSTANTANEOUS PEAK FLOW			3030	Apr 1		
INSTANTANEOUS PEAK STAGE			10.93	Apr 1	(b) 15.59	Dec 2 1983
INSTANTANEOUS LOW FLOW			(c) 193	Aug 3	(d) 77	Nov 19 1989
ANNUAL RUNOFF (CFSM)	1.00		.84		.94	
ANNUAL RUNOFF (INCHES)	13.55		11.35		12.75	
10 PERCENT EXCEEDS	1220		1140		1290	
50 PERCENT EXCEEDS	673		588		640	
90 PERCENT EXCEEDS	560		384		415	

(a) Ice affected

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

(c) Regulation

(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.

WATER-DISCHARGE RECORDS

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, Nov. 13-28, Dec. 4-10, 13-18, Dec. 20 to Jan. 4, Jan. 9 to Feb. 15, Feb. 27, and Mar. 7-24. Records good except those for ice-affected periods, which are poor (see page 12).

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	108	124	110	110	94	281	452	113	198	161	72	75
2	107	126	107	110	94	237	428	114	151	131	71	75
3	106	124	107	110	90	202	353	121	119	118	74	76
4	106	121	110	110	88	179	282	129	106	145	75	76
5	104	119	110	104	86	163	222	122	99	126	78	74
6	103	117	100	113	88	152	194	114	94	119	89	74
7	111	116	100	110	90	130	177	112	93	123	121	73
8	125	115	100	107	90	140	163	114	93	118	123	71
9	131	115	110	100	94	120	154	110	92	111	136	71
10	136	115	110	98	98	100	146	106	99	103	110	71
11	129	114	107	94	100	120	140	103	109	96	94	71
12	120	97	106	88	110	130	137	102	184	93	86	72
13	195	110	90	84	110	120	134	113	187	89	84	73
14	258	110	100	84	120	130	140	112	148	89	84	78
15	242	110	110	86	130	130	144	107	123	93	85	85
16	192	110	120	86	138	120	154	112	117	90	86	84
17	152	110	110	86	142	120	182	112	117	88	91	80
18	138	120	110	88	142	110	213	106	115	80	96	77
19	130	120	105	86	143	110	220	100	107	78	93	76
20	129	110	100	86	140	110	198	95	102	79	86	76
21	125	100	100	86	132	110	169	92	108	79	82	73
22	122	110	110	88	126	110	152	89	94	77	81	72
23	120	110	110	88	125	120	140	89	90	75	88	71
24	117	110	110	88	127	120	132	89	94	75	88	73
25	117	110	110	88	137	126	125	92	201	79	86	76
26	116	110	100	86	140	179	119	90	394	80	81	127
27	116	110	96	88	210	259	115	89	361	79	79	188
28	115	110	84	88	297	305	114	91	313	75	81	155
29	114	107	100	90	---	321	113	91	237	73	78	116
30	114	109	110	92	---	335	113	84	180	73	76	107
31	118	---	110	94	---	378	---	220	---	72	75	---
TOTAL	4116	3389	3262	2916	3481	5267	5525	3333	4525	2967	2729	2566
MEAN	133	113	105	94.1	124	170	184	108	151	95.7	88.0	85.5
MAX	258	126	120	113	297	378	452	220	394	161	136	188
MIN	103	97	84	84	86	100	113	84	90	72	71	71
CFSM	1.16	.99	.92	.83	1.09	1.49	1.62	.94	1.32	.84	.77	.75
IN.	1.34	1.11	1.06	.95	1.14	1.72	1.80	1.09	1.48	.97	.89	.84

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1998, BY WATER YEAR (WY)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
MEAN	144	147	117	107	106	134	232	174	180	137	139	122
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	117	112	99.3	87.7	79.3	122	139	108	98.2	78.8	88.0	85.5
(WY)	1995	1995	1995	1995	1995	1997	1995	1998	1995	1995	1998	1998

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1993 - 1998
ANNUAL TOTAL	49888	44076	
ANNUAL MEAN	137	121	145
HIGHEST ANNUAL MEAN			184
LOWEST ANNUAL MEAN			116
HIGHEST DAILY MEAN	700	Apr 6	952 Jun 18 1996
LOWEST DAILY MEAN	(a) 84	Dec 28	64 Jul 30 1995
ANNUAL SEVEN-DAY MINIMUM	(b) 91	Aug 6	68 Jul 25 1995
INSTANTANEOUS PEAK FLOW		470	1060 Jun 18 1996
INSTANTANEOUS PEAK STAGE		7.48	8.88 Jun 18 1996
INSTANTANEOUS LOW FLOW		(d) 31	(d) 31 Dec 13 1997
ANNUAL RUNOFF (CFSM)	1.20	1.06	1.27
ANNUAL RUNOFF (INCHES)	16.28	14.38	17.27
10 PERCENT EXCEEDS	198	179	228
50 PERCENT EXCEEDS	112	110	120
90 PERCENT EXCEEDS	100	78	88

- (a) Ice affected
(b) Estimated
(c) Also occurred Sept. 8-11, 23
(d) Result of freezeup

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

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WATER-QUALITY RECORDS

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

REMARKS.--Samples are point samples unless otherwise indicated.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO 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)	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)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
MAR 1998												
27...	1100	256	--	--	--	--	1.01	.064	.68	.085	.036	27
28...	0850	305	--	--	--	--	.713	.034	.37	.022	--	17
28...	2050	310	--	--	--	--	.633	.047	.45	.018	--	14
29...	0850	312	--	--	--	--	.570	.036	.39	.016	--	11
29...	2050	330	--	--	--	--	.528	.034	.42	.016	--	16
30...	0850	335	--	--	--	--	.536	.041	.42	.014	--	6
30...	2050	340	--	--	--	--	.522	.042	.40	.024	--	10
31...	0850	373	--	--	--	--	.474	.043	.45	.016	--	10
31...	2050	404	--	--	--	--	.440	.053	.57	.023	--	14
APR												
01...	0850	454	--	--	--	--	.415	.046	.49	.021	--	14
01...	2050	460	--	--	--	--	.396	.042	.62	.023	<.010	17
02...	0850	438	--	--	--	--	.387	.038	.46	.018	<.010	9
03...	0009	387	--	--	--	--	.377	<.020	.68	.046	--	9
04...	0010	315	--	--	--	--	.390	<.020	.56	.033	--	8
05...	0011	241	--	--	--	--	.474	<.020	.61	.038	--	9
06...	0012	203	--	--	--	--	.600	<.020	.55	.036	--	7
07...	0013	185	--	--	--	--	.604	<.020	.50	.028	--	9
08...	0014	169	--	--	--	--	.662	<.020	.56	.035	.012	8
*08...	1300	164	--	--	--	--	.659	<.020	.47	.028	.012	9
08...	1350	164	264	8.6	8.2	11.9	.658	<.020	.55	.031	.012	6
JUN												
01...	1317	196	--	--	--	--	.385	.089	.76	.025	.011	19
02...	1311	150	--	--	--	--	.348	.027	.74	<.010	--	10
03...	1312	118	--	--	--	--	.425	.035	.47	<.010	--	6
04...	1013	107	314	8.2	13.2	11.1	--	--	--	--	--	5
*04...	1115	106	--	--	--	--	.525	<.020	.39	<.010	.011	5
12...	1038	190	--	--	--	--	.604	.032	.91	.049	--	28
13...	1036	190	--	--	--	--	.431	.103	.67	.031	--	21
14...	1037	150	--	--	--	--	.466	.079	.60	.015	--	13
15...	1038	123	--	--	--	--	.498	.087	.58	.020	--	11
16...	1039	116	--	--	--	--	.507	.084	.51	.020	--	10
17...	1040	119	--	--	--	--	.554	.090	.53	.019	--	10
18...	1041	114	--	--	--	--	.545	.106	.53	.019	.018	11
*18...	1215	114	336	7.8	19.5	9.3	.567	.108	.61	.027	.019	7
19...	1155	103	--	--	--	--	.571	<.020	.46	.022	--	8
20...	1156	101	--	--	--	--	.587	.029	.56	.026	--	6
21...	2355	98	--	--	--	--	.541	.021	.74	.042	.018	12
*25...	1230	174	285	7.6	20.7	8.9	.557	.069	.95	.104	.019	26
26...	0800	402	--	--	--	--	.248	.021	1.0	.064	--	53
26...	1550	408	--	--	--	--	.190	.030	1.1	.064	--	23
29...	0920	243	--	--	--	--	.280	<.020	.97	.051	--	19
29...	1110	237	--	--	--	--	.305	<.020	.98	.055	--	15
30...	1111	178	--	--	--	--	.420	<.020	.87	.057	--	14
JUL												
01...	1112	162	--	--	--	--	.530	<.020	.82	.061	.010	15
*01...	1415	160	273	7.9	21.2	9.0	.491	<.020	.75	.049	<.010	11
02...	1240	129	--	--	--	--	.513	.064	.55	.044	--	11

* Equal-width increment (EWI) sample

STREAMS TRIBUTARY TO LAKE MICHIGAN

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, Nov. 16-25, Dec. 5, 8, 9, 12-15, Dec. 17 to Jan. 4, Jan. 9 to Feb. 15, and Mar. 9-24. Records good except those for ice-affected periods, which are poor (see page 12). Flow affected by pumping for irrigation many times during summer months. 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	33	40	33	22	24	208	305	50	225	80	18	18
2	33	40	33	22	25	166	306	50	168	63	19	17
3	39	42	33	23	24	126	273	52	106	53	19	17
4	43	43	33	26	23	96	209	57	67	56	19	18
5	41	43	34	29	23	81	151	57	55	59	19	18
6	32	41	32	30	23	72	113	53	49	53	21	19
7	21	40	32	31	23	62	97	51	45	54	28	18
8	23	39	34	31	24	64	91	50	44	51	40	18
9	45	40	32	26	25	56	83	49	43	47	38	18
10	52	40	33	22	26	52	76	48	43	45	37	18
11	51	39	33	21	27	49	70	47	46	43	37	19
12	49	39	30	19	28	49	68	45	88	42	30	19
13	70	38	34	18	28	50	65	38	134	33	21	19
14	121	38	29	18	28	49	71	39	92	21	20	19
15	139	38	26	19	31	48	83	49	64	22	20	25
16	113	40	29	19	35	47	87	53	53	21	21	29
17	70	44	31	20	40	50	113	50	52	22	24	29
18	59	37	30	20	38	58	151	49	48	24	27	24
19	53	33	33	20	39	50	168	48	44	29	28	18
20	50	21	31	19	41	44	163	42	41	35	30	18
21	48	19	29	20	41	43	127	35	40	29	38	18
22	45	20	27	20	41	43	93	32	39	20	36	18
23	43	19	27	21	40	40	79	23	31	19	35	18
24	42	18	25	20	44	35	70	22	26	19	28	18
25	41	23	26	20	53	32	64	24	55	19	17	18
26	41	34	26	21	65	84	60	36	180	20	17	29
27	41	33	25	21	166	162	56	44	238	24	18	59
28	41	34	25	22	210	206	53	38	205	29	19	58
29	40	33	24	22	---	242	51	28	140	28	18	42
30	40	33	24	23	---	265	50	27	92	27	18	38
31	40	---	23	23	---	278	---	162	---	23	18	---
TOTAL	1599	1041	916	688	1235	2907	3446	1448	2553	1110	778	714
MEAN	51.6	34.7	29.5	22.2	44.1	93.8	115	46.7	85.1	35.8	25.1	23.8
MAX	139	44	34	31	210	278	306	162	238	80	40	59
MIN	21	18	23	18	23	32	50	22	26	19	17	17
CFSM	.68	.45	.39	.29	.58	1.23	1.51	.61	1.12	.47	.33	.31
IN.	.78	.51	.45	.34	.60	1.42	1.68	.71	1.24	.54	.38	.35

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1998, BY WATER YEAR (WY)

	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	56.8	61.0	40.9	31.2	33.5	74.0	149	96.9	93.6
MAX	94.7	128	73.3	45.7	44.1	116	241	167	222
(WY)	1996	1993	1993	1996	1998	1990	1996	1993	1993
MIN	23.2	27.2	13.5	18.5	18.5	41.5	40.4	46.7	31.6
(WY)	1990	1990	1990	1995	1995	1997	1990	1998	1995

SUMMARY STATISTICS

	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1990 - 1998
ANNUAL TOTAL	21814	18435	
ANNUAL MEAN	59.8	50.5	66.0
HIGHEST ANNUAL MEAN			100
LOWEST ANNUAL MEAN			46.4
HIGHEST DAILY MEAN	646	306	697
LOWEST DAILY MEAN	(a)18	17	(c)11
ANNUAL SEVEN-DAY MINIMUM	(a)22	18	12
INSTANTANEOUS PEAK FLOW		(d)307	905
INSTANTANEOUS PEAK STAGE		2.73	(e)5.09
ANNUAL RUNOFF (CFSM)	.78	.66	.86
ANNUAL RUNOFF (INCHES)	10.64	8.99	11.75
10 PERCENT EXCEEDS	112	92	132
50 PERCENT EXCEEDS	40	38	44
90 PERCENT EXCEEDS	29	19	23

(a) Ice affected

(b) Also occurred Aug. 26, Sept. 2,3

(c) Result of freezeup

(d) Gage height, 2.72 ft

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

STREAMS TRIBUTARY TO LAKE MICHIGAN

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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.

EXTREMES FOR PERIOD OF RECORD.--

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

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 28.5°C, July 13, 14, 20; minimum, 0.0°C, Nov. 12, 13, 15-28, 30, Dec. 3-9, Dec. 11 to Feb. 25, Mar. 1, 2, 6, 7, 9-24.

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	14.0	10.0	12.0	8.5	7.0	7.5	1.0	.5	1.0	.0	.0	.0
2	15.5	10.5	12.5	7.0	5.5	6.5	1.0	.5	.5	.0	.0	.0
3	16.5	11.5	13.5	6.5	5.0	5.5	.5	.0	.5	.0	.0	.0
4	17.0	14.0	15.5	5.5	4.5	5.0	1.5	.0	.5	.0	.0	.0
5	18.0	13.5	15.5	5.0	4.0	4.5	.0	.0	.0	.0	.0	.0
6	16.0	13.5	14.5	5.5	3.5	4.5	1.0	.0	.5	.0	.0	.0
7	16.5	13.5	14.5	5.0	3.5	4.0	1.5	.0	.5	.0	.0	.0
8	18.5	14.0	16.0	5.0	4.5	4.5	.0	.0	.0	.0	.0	.0
9	16.0	14.0	15.5	5.0	4.0	4.5	.5	.0	.0	.0	.0	.0
10	15.5	12.5	13.5	4.0	2.5	3.5	1.5	.5	.5	.0	.0	.0
11	14.5	12.0	13.0	2.5	1.0	2.0	1.0	.0	.5	.0	.0	.0
12	15.0	12.5	13.5	1.5	.0	.5	1.0	.0	.0	.0	.0	.0
13	14.5	12.0	13.5	2.5	.0	1.0	.0	.0	.0	.0	.0	.0
14	12.0	9.5	11.0	2.0	.5	1.0	.0	.0	.0	.0	.0	.0
15	9.5	8.5	9.0	1.5	.0	.5	.5	.0	.0	.0	.0	.0
16	10.0	8.0	9.0	1.0	.0	.0	.5	.0	.0	.0	.0	.0
17	11.0	8.0	9.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	11.0	8.0	9.0	1.0	.0	.0	1.0	.0	.5	.0	.0	.0
19	9.5	8.0	8.5	.0	.0	.0	1.0	.0	.5	.0	.0	.0
20	9.0	7.0	8.0	.0	.0	.0	1.0	.0	.0	.0	.0	.0
21	7.0	5.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	5.5	3.5	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
23	5.0	3.5	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
24	4.5	3.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
25	5.5	2.5	3.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
26	4.0	2.5	3.0	.5	.0	.0	.0	.0	.0	.0	.0	.0
27	4.0	2.0	3.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
28	5.0	2.0	3.5	1.0	.0	.5	.0	.0	.0	.0	.0	.0
29	5.0	2.0	3.5	1.5	.5	1.0	.0	.0	.0	.0	.0	.0
30	7.0	3.0	5.0	1.0	.0	1.0	.0	.0	.0	.0	.0	.0
31	8.5	5.5	7.0	---	---	---	.0	.0	.0	.0	.0	.0
MONTH	18.5	2.0	9.5	8.5	.0	1.9	1.5	.0	.2	.0	.0	.0

STREAMS TRIBUTARY TO LAKE MICHIGAN

0407809265 MIDDLE BRANCH EMBARRASS RIVER NEAR WITTENBERG, 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	.0	.0	.0	.5	.0	.5	4.5	3.0	3.5	16.5	13.0	14.0
2	.0	.0	.0	1.0	.0	.5	4.5	4.0	4.0	15.5	14.0	14.5
3	.0	.0	.0	1.5	.5	.5	6.0	4.5	5.0	15.5	13.0	14.0
4	.0	.0	.0	1.5	.5	1.0	8.0	5.5	6.5	18.0	13.0	15.0
5	.0	.0	.0	1.5	.5	1.0	9.0	6.5	7.5	20.0	14.0	16.5
6	.0	.0	.0	2.5	.0	1.0	9.0	6.5	7.5	21.0	14.0	17.0
7	.0	.0	.0	4.0	.0	1.5	10.0	7.0	8.0	17.0	15.5	16.5
8	.0	.0	.0	1.5	.5	1.0	10.0	7.5	8.5	20.5	14.5	17.0
9	.0	.0	.0	2.5	.0	.5	10.5	7.5	8.5	20.5	14.5	17.0
10	.0	.0	.0	1.5	.0	.5	11.5	7.0	9.0	21.0	14.0	17.0
11	.0	.0	.0	1.0	.0	.0	13.5	7.5	10.0	21.5	14.0	17.5
12	.0	.0	.0	1.5	.0	.5	15.0	9.5	12.0	20.0	15.0	17.5
13	.0	.0	.0	.5	.0	.0	13.5	11.5	12.5	21.5	15.5	18.0
14	.0	.0	.0	1.5	.0	.5	16.0	12.0	13.5	23.0	14.5	18.5
15	.0	.0	.0	1.0	.0	.0	12.5	10.5	12.0	22.5	17.0	19.5
16	.0	.0	.0	1.5	.0	.5	10.5	6.0	8.0	23.5	18.5	20.5
17	.0	.0	.0	2.5	.0	1.0	8.0	5.0	6.0	23.5	18.0	20.0
18	.0	.0	.0	.0	.0	.0	9.0	5.5	7.0	24.5	18.5	21.5
19	.5	.0	.0	1.5	.0	.5	9.5	7.5	8.5	26.0	20.0	22.5
20	1.0	.0	.5	4.0	.0	1.0	11.5	9.0	10.0	24.0	19.5	21.5
21	1.5	.0	.5	4.0	.0	1.5	13.5	10.0	11.5	24.0	17.5	20.0
22	2.5	.0	1.0	4.5	.0	1.5	15.0	10.5	12.5	22.0	16.0	18.5
23	2.0	.0	1.0	4.0	.0	1.5	16.5	11.0	13.5	22.5	14.5	18.0
24	2.0	.0	1.0	6.0	.0	2.5	17.0	12.0	14.0	17.0	14.5	15.5
25	2.5	.0	1.0	6.5	1.5	3.5	16.5	11.5	13.5	23.0	14.0	18.0
26	3.0	1.0	1.5	6.0	3.0	4.0	16.5	11.5	13.5	22.0	14.5	18.0
27	1.5	.5	1.0	5.5	4.0	4.5	16.5	10.5	13.0	23.0	16.0	19.5
28	1.0	.5	.5	5.0	4.0	4.5	18.0	10.0	13.0	25.5	18.5	21.5
29	---	---	---	4.0	3.5	4.0	17.0	11.0	13.5	26.0	19.5	22.5
30	---	---	---	4.5	4.0	4.5	17.5	11.0	13.5	21.0	18.0	19.0
31	---	---	---	4.5	3.5	4.0	---	---	---	18.5	15.5	17.0
MONTH	3.0	.0	.3	6.5	.0	1.5	18.0	3.0	10.0	26.0	13.0	18.2
JUNE			JULY			AUGUST			SEPTEMBER			
1	16.0	14.5	15.5	24.0	19.5	21.5	26.5	18.0	22.0	22.5	17.0	19.5
2	15.5	14.5	15.0	24.0	19.5	21.5	26.0	18.0	22.0	22.0	16.0	19.0
3	16.5	13.5	14.5	22.5	20.5	21.5	24.5	19.5	22.0	22.5	16.0	19.0
4	16.5	13.0	14.5	24.0	19.5	21.5	22.5	20.0	21.0	23.0	15.5	19.0
5	15.5	13.0	14.0	23.5	19.5	21.0	22.0	20.0	21.0	23.5	16.5	20.0
6	15.0	12.0	13.5	21.5	19.5	20.5	20.5	19.5	20.0	24.0	19.0	21.0
7	16.5	11.5	14.0	21.5	19.5	20.0	22.5	19.5	21.0	22.5	17.5	20.0
8	18.0	11.5	14.5	22.0	19.0	20.0	22.5	20.0	21.0	21.5	16.0	18.5
9	14.5	13.0	13.5	25.0	18.5	21.5	25.5	19.5	22.0	21.5	14.5	18.0
10	14.5	13.5	14.0	25.0	19.5	22.0	25.5	20.5	23.0	21.5	14.5	18.0
11	14.0	13.5	14.0	25.5	19.5	22.0	25.0	20.5	22.5	23.5	17.0	20.0
12	17.5	14.0	15.5	27.0	20.5	23.0	25.5	20.0	22.5	24.0	19.0	21.0
13	19.5	15.5	17.5	28.5	21.5	24.5	25.5	18.5	22.0	24.0	19.0	21.0
14	19.5	17.0	18.0	28.5	22.0	25.0	25.5	19.0	22.0	21.5	20.0	20.5
15	22.5	17.5	19.5	26.5	22.5	24.5	25.0	19.0	22.0	23.0	19.5	21.0
16	22.0	18.0	20.0	27.5	20.5	24.0	24.5	17.5	21.0	22.5	17.5	20.0
17	23.5	18.0	20.5	28.0	20.5	24.0	25.5	20.0	22.5	23.0	17.5	20.0
18	21.5	19.5	20.0	27.5	20.0	23.5	24.5	19.0	21.5	22.5	17.5	20.0
19	22.5	19.0	20.5	27.0	21.5	24.0	24.5	19.5	21.5	23.0	17.0	20.0
20	25.5	18.5	21.5	28.5	22.0	24.5	26.0	20.5	23.0	22.0	18.5	20.0
21	26.5	20.5	23.0	28.0	23.0	25.0	26.0	21.5	23.5	19.5	16.0	17.5
22	26.0	20.5	23.0	27.0	21.5	24.0	23.0	21.5	22.0	18.5	14.0	16.0
23	27.0	20.5	23.5	25.0	19.5	22.0	25.0	21.5	23.0	18.0	12.0	15.0
24	25.0	20.5	22.5	24.0	18.5	21.0	25.5	21.5	23.0	17.5	14.0	15.5
25	24.5	20.5	22.0	25.0	18.0	21.0	25.5	19.5	22.5	18.0	13.5	15.5
26	22.5	20.5	21.5	25.0	17.0	21.0	26.0	19.0	22.5	18.5	16.0	17.0
27	22.5	20.5	21.0	26.5	20.0	23.0	24.0	19.0	21.5	19.0	16.5	17.5
28	24.0	21.0	22.0	26.0	20.0	22.5	25.0	20.5	22.5	18.5	15.0	16.5
29	24.0	21.0	22.5	26.0	19.5	22.5	25.5	19.5	22.0	19.0	15.5	17.0
30	24.0	20.5	22.0	26.0	20.5	23.0	24.5	18.0	21.0	16.0	13.5	15.0
31	---	---	---	27.0	19.0	22.5	23.5	17.0	20.5	---	---	---
MONTH	27.0	11.5	18.4	28.5	17.0	22.5	26.5	17.0	21.9	24.0	12.0	18.6

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

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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, Nov. 21-25, Dec. 8-15, Dec. 21 to Feb. 15, and Mar. 8-24. Records good except those for ice-affected periods, which are poor (see page 12). Slight diurnal fluctuation caused by powerplants above station. 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	193	217	168	120	150	1320	1920	234	785	542	117	102
2	187	233	168	130	150	1110	1820	241	866	410	112	101
3	184	236	172	140	140	853	1430	246	714	341	108	102
4	178	227	176	140	140	618	1090	300	452	387	108	106
5	175	221	171	140	150	537	884	292	287	353	112	105
6	172	215	170	140	150	431	578	272	257	384	135	101
7	169	210	173	140	140	394	548	254	234	440	178	99
8	173	208	150	130	140	340	467	252	205	373	220	95
9	175	202	140	130	140	270	424	252	204	311	223	97
10	186	197	160	130	150	230	359	226	235	283	221	99
11	211	194	160	130	150	220	345	211	270	254	182	100
12	213	188	150	120	150	220	321	208	483	231	164	91
13	285	168	140	120	140	230	312	207	702	216	152	90
14	503	175	140	120	150	210	326	238	605	203	137	107
15	535	186	150	130	150	200	313	231	430	188	124	133
16	496	176	173	130	156	190	387	218	303	177	123	131
17	401	149	155	130	167	200	519	231	281	167	126	127
18	312	169	157	130	194	210	702	224	256	157	131	126
19	278	172	169	130	212	190	809	205	231	153	139	121
20	269	160	163	130	226	210	747	187	223	150	140	116
21	240	150	130	130	233	200	590	174	210	155	132	104
22	232	150	130	130	230	210	503	162	191	154	131	102
23	223	130	150	130	233	230	412	155	177	141	147	100
24	215	140	140	130	251	250	362	152	185	130	156	102
25	202	150	140	130	292	262	317	151	689	128	149	103
26	210	146	130	130	385	358	293	153	1350	129	130	190
27	203	145	130	140	756	588	263	150	1630	130	115	344
28	212	152	130	140	1250	838	254	168	1740	128	113	268
29	174	159	130	140	---	983	240	174	1330	123	113	237
30	193	165	130	140	---	1130	236	156	834	123	109	197
31	201	---	120	140	---	1560	---	297	---	114	103	---
TOTAL	7600	5390	4665	4090	6775	14792	17771	6621	16359	7175	4350	3896
MEAN	245	180	150	132	242	477	592	214	545	231	140	130
MAX	535	236	176	140	1250	1560	1920	300	1740	542	223	344
MIN	169	130	120	120	140	190	236	150	177	114	103	90

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1919 - 1998, BY WATER YEAR (WY)

	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930
MEAN	268	289	198	152	158	394	764	441	357	218	189	241
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 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1919 - 1998	
ANNUAL TOTAL	110333		99484			
ANNUAL MEAN	302		273		300	
HIGHEST ANNUAL MEAN					515	
LOWEST ANNUAL MEAN					126	
HIGHEST DAILY MEAN	2580	Apr 7	1920	Apr 1	6280	Apr 10 1922
LOWEST DAILY MEAN	(a) 120	Dec 31	90	Sep 13	24	Aug 3 1931
ANNUAL SEVEN-DAY MINIMUM	129	Aug 6	96	Sep 7	27	Aug 2 1931
INSTANTANEOUS PEAK FLOW			2000	Apr 1	7080	Apr 12 1965
INSTANTANEOUS PEAK STAGE			6.65	Apr 1	(b) 12.13	Apr 12 1965
10 PERCENT EXCEEDS	517		525		660	
50 PERCENT EXCEEDS	220		182		193	
90 PERCENT EXCEEDS	150		121		94	

(a) Ice affected

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

STREAMS TRIBUTARY TO LAKE MICHIGAN

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, Nov. 22-26, Dec. 11 to Feb. 24, and Mar. 11-16. Records good except those for ice-affected periods, which are poor (see page 12). 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1190	1230	1080	840	900	3030	4290	1930	991	3530	595	574
2	1170	1240	1060	860	920	3190	5810	1760	1210	3720	548	577
3	1140	1240	1060	900	920	3300	7190	1660	1430	3780	530	570
4	1100	1240	1080	920	940	3380	7910	1620	1510	3710	547	547
5	1050	1240	1090	920	940	3480	8140	1630	1490	3520	557	533
6	1030	1240	1090	900	920	3600	8050	1640	1380	3270	636	534
7	1010	1240	1070	880	920	3640	7720	1620	1190	3010	789	532
8	996	1230	1060	840	900	3630	7260	1570	1070	2790	870	514
9	1010	1220	1060	800	900	3540	6710	1520	1010	2580	937	505
10	1030	1220	1040	780	920	3330	6090	1480	980	2360	991	502
11	1070	1200	1000	760	940	3000	5480	1450	1010	2110	1020	502
12	1110	1180	960	760	980	2700	4920	1360	1270	1840	1000	476
13	1230	1160	920	780	1000	2500	4380	1280	1480	1590	901	455
14	1340	1160	920	800	1000	2200	3970	1220	1660	1390	798	502
15	1450	1130	900	820	1100	2000	3680	1190	1750	1270	733	587
16	1580	1090	960	840	1100	1900	3550	1180	1770	1190	689	643
17	1710	1040	1000	860	1200	1840	3500	1170	1690	1160	705	687
18	1760	985	1100	860	1400	1740	3470	1150	1570	1100	723	685
19	1770	995	1100	880	1500	1660	3440	1120	1480	1040	720	663
20	1740	988	1000	880	1600	1640	3380	1090	1360	1000	705	653
21	1730	981	980	900	1600	1630	3310	1080	1260	988	693	642
22	1710	960	960	920	1600	1620	3210	1060	1150	923	673	616
23	1650	960	940	940	1700	1620	3150	1010	1070	831	688	593
24	1590	920	920	940	1900	1680	3080	975	1040	782	717	583
25	1510	940	900	920	2080	1850	2980	961	1200	750	714	568
26	1410	1000	880	900	2220	2190	2830	935	1580	743	699	621
27	1330	1120	860	880	2530	2500	2650	917	2230	735	688	868
28	1290	1140	840	880	2850	2670	2490	924	2740	696	668	1170
29	1260	1120	840	900	---	2780	2330	930	3050	637	628	1310
30	1250	1090	820	900	---	2880	2140	916	3330	590	599	1300
31	1240	---	820	900	---	3360	---	952	---	612	572	---
TOTAL	41456	33499	30310	26860	37480	80080	137110	39300	45951	54247	22333	19512
MEAN	1337	1117	978	866	1339	2583	4570	1268	1532	1750	720	650
MAX	1770	1240	1100	940	2850	3640	8140	1930	3330	3780	1020	1310
MIN	996	920	820	760	900	1620	2140	916	980	590	530	455
CFSM	.59	.49	.43	.38	.59	1.14	2.02	.56	.68	.77	.32	.29
IN.	.68	.55	.50	.44	.62	1.32	2.26	.65	.76	.89	.37	.32

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1896 - 1998, BY WATER YEAR (WY)

MEAN	1493	1627	1231	960	929	2137	3980	2786	2150	1481	1142	1335
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

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SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1896 - 1998	
ANNUAL TOTAL	625221		568138		1777	
ANNUAL MEAN	1713		1557		3200	
HIGHEST ANNUAL MEAN					866	
LOWEST ANNUAL MEAN					15500	
HIGHEST DAILY MEAN	7420	Apr 10	8140	Apr 5	Apr 13 1922	
LOWEST DAILY MEAN	777	Aug 12	455	Sep 13	Aug 27 1931	
ANNUAL SEVEN-DAY MINIMUM	799	Aug 8	494	Sep 8	Sep 3 1933	
INSTANTANEOUS PEAK FLOW			8180	Apr 5		
INSTANTANEOUS PEAK STAGE			9.39	Apr 5	(a) 11.83	
ANNUAL RUNOFF (CFSM)	.76		.69		.80	
ANNUAL RUNOFF (INCHES)	10.29		9.35		10.68	
10 PERCENT EXCEEDS	3070		3280		3530	
50 PERCENT EXCEEDS	1250		1090		1280	
90 PERCENT EXCEEDS	983		666		710	

(a) Backwater from ice

STREAMS TRIBUTARY TO LAKE MICHIGAN

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.--No estimated daily discharges. Records fair, except those for days with negative mean daily flow, which are poor (see page 12). 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	-831	5260	2020	1820	2450	7500	12500	5260	817	5210	1220	3010
2	3080	1260	1600	1620	2730	7420	12500	4590	4020	6000	1570	1420
3	759	3200	3120	2170	2470	6770	10700	5230	2220	6110	-509	119
4	3880	1530	4090	2160	2460	6780	12300	4420	160	5810	2310	2060
5	2260	1530	3940	2840	2520	6180	12600	3850	1900	5430	2070	1530
6	-466	3170	986	2730	2440	6930	12500	3930	2720	7150	2390	1160
7	2980	2980	1070	2160	2560	5990	11500	4220	2200	6770	3420	2380
8	691	2880	2190	2490	2530	6190	11100	3440	-1510	6580	3470	380
9	5430	2880	2310	3910	2540	11900	14400	4450	626	6270	3240	170
10	-1320	4470	2320	1070	2610	3130	14600	5140	4510	4130	2500	2260
11	834	3640	2910	1780	2850	5450	13200	2490	-914	6280	1270	1670
12	999	355	3530	2050	2620	5740	9330	1150	7180	5470	2820	-1160
13	5840	612	1580	1850	2400	6370	11300	6740	2430	4840	2400	2600
14	3740	4270	1900	2050	2440	5620	13200	250	1190	2880	2820	459
15	584	4710	2080	2090	2590	5100	6960	2380	4810	4220	106	1940
16	2070	4330	2990	1990	2290	4810	13100	8900	3390	1700	2360	2530
17	3340	-481	1850	2120	2790	4370	12500	1070	818	3040	3020	1330
18	3130	3520	2860	2110	3990	3800	9800	3270	623	2060	872	1940
19	4130	1790	2760	2130	3560	5470	9530	4110	6500	3930	1680	1280
20	3390	1940	2450	2150	3820	4850	8730	1800	3180	564	4050	3170
21	4680	1490	1720	2250	3670	5060	9480	-899	4340	4480	1240	1170
22	780	3380	2850	2220	4060	4910	9140	1960	2980	2040	281	1500
23	1450	2930	2480	2130	4310	5060	9110	1520	688	4010	3300	997
24	1940	-292	1750	2100	5210	3640	6120	5520	3400	-822	2830	2410
25	3690	1950	2940	2120	2540	4100	5570	3150	3370	335	2610	1420
26	2890	2960	2290	2180	1010	6390	4910	1160	3210	3180	687	1530
27	3860	1110	1240	2100	6890	5640	9730	3180	3270	2970	1210	3620
28	2690	2950	2000	2100	7760	7200	7800	3320	6340	2260	3270	-528
29	2110	2600	2330	2260	---	4230	6410	1710	6940	428	2900	2040
30	1760	2670	1650	2180	---	6610	5700	-990	6120	-988	666	3020
31	1980	---	1520	2130	---	7130	---	7000	---	1310	906	---
TOTAL	72350	75594	71326	67060	90110	180340	306320	103321	87528	113647	62979	47427
MEAN	2334	2520	2301	2163	3218	5817	10210	3333	2918	3666	2032	1581
MAX	5840	5260	4090	3910	7760	11900	14600	8900	7180	7150	4050	3620
MIN	-1320	-481	986	1070	1010	3130	4910	-990	-1510	-988	-509	-1160
CFSM	.44	.47	.43	.41	.61	1.10	1.92	.63	.55	.69	.38	.30
IN.	.51	.53	.50	.47	.63	1.26	2.15	.72	.61	.80	.44	.33

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1998, BY WATER YEAR (WY)

	1992	1993	1994	1995	1996	1997	1998
MEAN	3657	4439	3806	2818	2905	5492	9012
MAX	6411	6201	6811	3673	3739	6348	12870
(WY)	1996	1996	1993	1992	1996	1992	1993
MIN	2334	2520	2301	1968	1870	4267	5517
(WY)	1998	1998	1998	1995	1995	1995	1995

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1992 - 1998

ANNUAL TOTAL	1451734	1278002	
ANNUAL MEAN	3977	3501	4677
HIGHEST ANNUAL MEAN			7221
LOWEST ANNUAL MEAN			3501
HIGHEST DAILY MEAN	18400	Apr 7	14600
LOWEST DAILY MEAN	-1930	Aug 14	-1510
ANNUAL SEVEN-DAY MINIMUM	1040	Sep 30	756
ANNUAL RUNOFF (CFSM)	.75		.66
ANNUAL RUNOFF (INCHES)	10.17		8.95
10 PERCENT EXCEEDS	7990		9480
50 PERCENT EXCEEDS	3120		3820
90 PERCENT EXCEEDS	1470		1780

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

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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, 30.0°C, June 22, 23, 1995; minimum observed, 0.0°C, for many days.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 29.5°C, July 20; minimum observed, 0.0°C, for many days November through February.

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	16.5	15.0	15.5	7.5	6.0	7.0	1.5	1.0	1.5	1.0	.5	.5
2	15.5	14.5	15.0	7.5	7.0	7.0	1.0	1.0	1.0	1.0	.5	1.0
3	16.5	15.0	15.5	7.5	6.5	7.0	1.0	.5	1.0	2.0	1.0	1.5
4	17.5	16.0	17.0	6.5	6.0	6.5	1.0	.5	1.0	1.5	.5	.5
5	18.0	16.5	17.5	6.5	6.0	6.0	.5	.0	.5	1.0	.5	1.0
6	19.0	18.0	18.0	6.5	6.0	6.0	.5	.0	.0	1.5	1.0	1.0
7	18.5	18.0	18.0	6.5	5.5	6.0	.5	.0	.5	1.5	1.0	1.0
8	19.0	18.5	18.5	6.5	6.0	6.0	.5	.5	.5	1.0	.0	.5
9	19.0	18.5	19.0	6.0	6.0	6.0	.5	.5	.5	.5	.0	.5
10	18.5	18.0	18.5	6.0	5.0	5.5	.5	.5	.5	.5	.0	.5
11	18.0	17.5	18.0	5.0	4.0	4.5	.5	.5	.5	.5	.0	.5
12	17.5	17.0	17.0	4.0	3.0	3.5	1.0	.5	1.0	.5	.5	.5
13	17.0	15.5	16.5	3.5	3.0	3.5	1.0	.5	.5	.5	.5	.5
14	15.5	13.0	14.0	3.0	1.5	1.5	1.0	.5	.5	.5	.5	.5
15	13.5	12.5	13.0	1.5	1.0	1.5	1.0	.5	1.0	.5	.5	.5
16	12.5	11.5	12.0	1.5	.5	.5	1.5	1.0	1.0	.5	.5	.5
17	12.0	11.5	11.5	1.0	.0	.5	1.0	1.0	1.0	.5	.5	.5
18	12.0	11.5	11.5	1.0	.5	.5	1.5	1.0	1.0	.5	.5	.5
19	11.5	11.0	11.5	.5	.5	.5	1.5	1.5	1.5	.5	.5	.5
20	11.0	10.0	10.5	1.0	.5	.5	1.5	1.0	1.5	.5	.5	.5
21	10.5	8.5	9.5	1.0	.5	1.0	1.0	1.0	1.0	.5	.5	.5
22	9.0	8.0	8.5	1.0	1.0	1.0	1.5	1.0	1.0	.5	.0	.5
23	8.0	7.0	7.5	1.0	.0	.5	1.0	1.0	1.0	.5	.5	.5
24	7.5	7.0	7.0	.5	.0	.0	1.0	1.0	1.0	.5	.5	.5
25	7.0	6.0	6.5	1.0	.5	.5	1.5	1.0	1.0	.5	.0	.5
26	6.0	4.5	5.5	1.5	1.0	1.0	1.5	1.0	1.0	.5	.0	.5
27	4.5	4.0	4.0	1.5	1.0	1.5	1.0	.5	1.0	.5	.5	.5
28	4.5	4.0	4.0	1.5	1.0	1.0	1.0	.5	1.0	.5	.5	.5
29	5.0	4.0	4.5	1.5	1.0	1.5	1.0	.5	.5	.5	.5	.5
30	6.0	4.0	5.0	1.5	1.5	1.5	.5	.5	.5	.5	.5	.5
31	6.5	6.0	6.0	---	---	---	1.0	.5	.5	.5	.5	.5
MONTH	19.0	4.0	12.1	7.5	.0	3.0	1.5	.0	.8	2.0	.0	.6

STREAMS TRIBUTARY TO LAKE MICHIGAN
04082400 FOX RIVER AT OSHKOSH, 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	.5	.5	.5	3.0	2.5	2.5	9.5	8.5	9.0	15.0	14.5	15.0
2	.5	.5	.5	3.5	3.0	3.0	9.0	8.0	8.5	15.0	15.0	15.0
3	.5	.5	.5	3.5	2.5	3.0	8.5	8.0	8.0	15.0	14.0	14.5
4	.5	.0	.5	3.0	2.5	2.5	8.5	7.5	8.0	16.0	14.0	14.5
5	.5	.5	.5	2.5	2.0	2.0	9.5	8.0	8.5	16.0	15.5	15.5
6	.5	.5	.5	2.5	2.0	2.5	10.0	9.0	9.5	17.0	16.0	16.5
7	.5	.5	.5	2.5	2.0	2.0	10.5	9.0	10.0	17.0	16.5	17.0
8	.5	.5	.5	2.5	1.5	2.0	10.5	8.5	9.5	17.5	16.5	17.0
9	.5	.5	.5	1.5	.0	1.0	9.0	8.0	8.5	18.0	16.5	17.0
10	.5	.5	.5	.5	.0	.0	9.0	7.5	8.5	18.0	17.0	17.5
11	.5	.5	.5	.5	.0	.5	10.5	8.5	9.5	19.5	18.0	18.5
12	1.0	.5	.5	1.0	.5	.5	12.5	10.0	11.0	19.5	18.0	18.5
13	1.0	.5	.5	1.0	.5	.5	12.5	11.5	12.0	20.5	18.5	19.5
14	.5	.5	.5	1.0	.0	.5	13.5	12.0	13.0	21.5	20.5	20.5
15	1.5	.5	1.0	1.0	.0	.5	13.0	11.5	12.5	21.5	20.5	21.0
16	1.5	1.0	1.5	1.5	.5	1.0	11.5	8.5	9.5	21.5	21.0	21.5
17	1.5	1.0	1.0	1.5	.5	1.0	9.5	8.0	9.0	22.5	20.0	21.5
18	1.5	1.0	1.0	1.0	1.0	1.0	10.5	8.5	9.5	22.5	21.5	22.0
19	1.5	1.0	1.0	1.0	.5	1.0	12.0	10.0	11.0	24.0	22.5	23.0
20	1.5	1.0	1.0	1.5	.5	1.0	12.5	11.5	12.0	24.0	23.0	23.5
21	1.5	1.0	1.5	2.0	.5	1.0	13.0	12.0	12.5	23.0	21.0	22.0
22	2.0	1.5	1.5	2.5	1.0	2.0	14.5	12.5	13.5	22.0	20.5	21.5
23	2.5	1.5	2.0	3.5	2.0	2.5	15.5	13.0	14.0	20.5	19.5	20.0
24	2.5	2.0	2.5	4.5	2.5	3.5	15.5	14.5	15.0	19.5	17.5	18.5
25	2.5	2.0	2.5	5.0	3.5	4.5	15.0	14.0	14.5	18.5	17.0	17.5
26	3.0	2.5	3.0	8.0	5.0	6.0	14.5	13.0	14.0	20.5	18.0	19.0
27	3.0	2.0	2.5	10.5	8.0	9.5	13.5	12.0	12.5	20.0	19.0	19.5
28	3.0	1.5	2.5	11.5	10.5	11.0	13.5	12.0	13.0	22.0	20.0	20.5
29	---	---	---	12.5	11.0	11.5	14.0	12.5	13.5	23.0	22.0	22.5
30	---	---	---	13.0	11.5	12.5	15.0	13.5	14.0	22.0	20.0	21.0
31	---	---	---	12.0	9.5	10.5	---	---	---	21.5	21.0	21.0
MONTH	3.0	.0	1.1	13.0	.0	3.3	15.5	7.5	11.1	24.0	14.0	19.1
JUNE				JULY			AUGUST			SEPTEMBER		
1	21.0	19.5	20.0	26.5	25.0	26.0	25.0	24.0	24.5	25.0	24.0	24.5
2	20.5	18.5	19.5	27.0	26.0	26.5	25.0	24.0	24.5	24.0	22.5	23.0
3	18.5	17.5	18.0	27.0	26.0	26.5	24.5	24.0	24.5	24.0	22.5	23.0
4	18.5	17.5	18.0	26.0	25.0	25.5	24.0	23.0	23.5	24.0	23.0	23.0
5	18.0	17.5	17.5	25.5	24.5	25.0	23.0	22.0	22.5	23.5	23.0	23.5
6	17.5	16.5	17.0	24.5	24.0	24.5	22.5	22.0	22.0	24.0	23.0	23.5
7	17.5	16.0	16.5	24.5	24.0	24.0	23.0	22.0	22.5	24.0	23.0	23.5
8	18.0	16.5	17.0	25.5	24.0	24.5	24.0	22.5	23.0	23.0	22.5	23.0
9	18.0	17.0	17.5	27.0	25.0	25.5	25.5	24.0	24.5	22.5	21.5	22.0
10	17.0	16.0	16.5	27.0	25.5	26.5	26.5	25.0	26.0	22.0	20.5	21.0
11	17.0	16.5	17.0	26.0	24.5	25.5	26.5	25.0	25.5	21.5	20.5	21.0
12	18.5	17.0	17.5	26.5	25.5	26.0	25.5	24.5	25.0	22.5	21.0	21.5
13	20.0	18.5	19.0	26.5	25.5	26.0	25.5	24.5	25.0	23.0	21.5	22.0
14	21.5	19.5	20.5	27.5	26.5	27.0	25.5	24.5	25.0	23.0	22.0	22.5
15	22.5	20.5	21.5	28.0	27.0	27.5	26.0	25.0	25.0	23.0	22.0	22.0
16	24.0	22.0	23.0	27.5	26.5	27.5	25.0	24.5	25.0	22.0	21.5	22.0
17	25.0	23.0	24.0	28.5	26.5	27.0	26.0	24.5	25.0	23.0	21.5	22.0
18	25.0	23.5	24.5	29.0	28.0	28.5	25.5	24.0	24.5	23.5	22.0	22.5
19	24.0	22.5	23.0	28.5	27.5	28.0	24.5	24.0	24.0	23.5	22.0	22.5
20	24.5	23.5	24.0	29.5	27.5	28.0	24.5	23.5	24.0	23.0	22.5	23.0
21	25.5	24.5	25.0	27.5	26.5	27.0	25.5	24.0	24.5	23.0	21.0	21.5
22	26.5	25.0	25.5	27.5	26.5	26.5	25.0	24.5	24.5	21.0	19.5	20.5
23	27.0	25.5	26.0	26.5	25.0	25.5	25.0	24.0	24.5	20.0	19.0	19.5
24	26.0	25.0	25.5	25.5	24.0	24.5	26.0	24.5	25.5	19.0	18.5	19.0
25	26.5	25.5	26.0	25.5	24.0	24.5	26.0	25.0	25.5	19.5	18.5	19.0
26	27.0	25.5	26.5	25.0	24.0	24.5	27.0	24.5	25.5	20.0	19.0	19.5
27	27.5	26.0	26.5	24.5	24.0	24.5	26.5	25.5	26.0	20.5	20.0	20.0
28	27.0	26.0	26.5	25.0	24.0	24.5	25.5	25.0	25.5	20.5	19.0	19.5
29	26.5	25.5	26.0	25.5	24.5	25.0	26.0	25.0	25.5	20.5	19.5	20.0
30	26.5	25.5	26.0	25.0	24.0	24.5	25.5	24.0	24.5	19.5	18.0	19.0
31	---	---	---	25.5	24.0	24.5	26.0	24.5	25.0	---	---	---
MONTH	27.5	16.0	21.7	29.5	24.0	25.8	27.0	22.0	24.6	25.0	18.0	21.6

STREAMS TRIBUTARY TO LAKE MICHIGAN

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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 12). 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, 3.24 ft, July 4; minimum recorded, 1.78 ft, Feb. 14, 17.

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	2.98	2.72	2.45	2.17	2.02	2.02	2.65	2.64	2.79	3.21	2.63	2.68
2	2.93	2.74	2.45	2.16	2.02	2.06	2.73	2.69	2.78	3.19	2.62	2.67
3	2.93	2.74	2.46	2.16	2.00	2.10	2.85	2.73	2.79	3.19	2.62	2.66
4	2.89	2.75	2.46	2.15	1.99	2.12	2.85	2.75	2.78	3.24	2.65	2.65
5	2.86	2.76	2.45	2.18	1.97	2.14	2.84	2.76	2.78	3.20	2.71	2.63
6	2.89	2.77	2.47	2.19	1.96	2.14	2.84	2.78	2.76	3.16	2.76	2.64
7	2.89	2.75	2.49	2.19	1.94	2.18	2.85	2.81	2.77	3.17	2.75	2.63
8	2.89	2.74	2.49	2.20	1.92	2.28	2.94	2.86	2.78	3.15	2.77	2.61
9	2.82	2.74	2.49	2.19	1.91	2.18	2.88	2.84	2.79	3.13	2.79	2.57
10	2.89	2.72	2.50	2.19	1.89	2.25	2.83	2.83	2.77	3.11	2.81	2.53
11	2.85	2.68	2.46	2.18	1.88	2.24	2.82	2.84	2.80	3.04	2.82	2.53
12	2.85	2.65	2.40	2.17	1.88	2.23	2.85	2.82	2.81	2.99	2.79	2.53
13	2.77	2.62	2.43	2.17	1.86	2.21	2.77	2.80	2.90	2.95	2.78	2.52
14	2.82	2.61	2.42	2.16	1.84	2.24	2.76	2.83	2.92	2.95	2.78	2.58
15	2.85	2.58	2.41	2.16	1.83	2.27	2.89	2.83	2.93	2.93	2.80	2.68
16	2.86	2.52	2.39	2.15	1.82	2.24	2.86	2.76	2.95	2.94	2.76	2.67
17	2.84	2.52	2.38	2.14	1.80	2.23	2.80	2.86	2.97	2.91	2.78	2.67
18	2.82	2.45	2.36	2.13	1.81	2.28	2.81	2.85	2.97	2.88	2.80	2.67
19	2.80	2.46	2.36	2.12	1.83	2.30	2.78	2.86	2.97	2.85	2.75	2.66
20	2.81	2.46	2.35	2.11	1.84	2.30	2.74	2.88	3.02	2.83	2.72	2.64
21	2.79	2.48	2.34	2.12	1.85	2.27	2.68	2.87	3.03	2.80	2.75	2.64
22	2.80	2.42	2.31	2.12	1.86	2.25	2.63	2.86	3.05	2.81	2.75	2.63
23	2.79	2.39	2.30	2.13	1.87	2.23	2.60	2.82	3.06	2.78	2.76	2.60
24	2.84	2.43	2.29	2.12	1.90	2.23	2.59	2.80	3.05	2.78	2.77	2.57
25	2.81	2.43	2.28	2.11	1.92	2.20	2.57	2.80	3.08	2.77	2.77	2.58
26	2.84	2.40	2.27	2.11	1.89	2.18	2.57	2.81	3.11	2.73	2.77	2.60
27	2.76	2.42	2.26	2.10	1.93	2.19	2.48	2.79	3.18	2.71	2.74	2.61
28	2.75	2.43	2.23	2.09	1.97	2.19	2.49	2.77	3.17	2.69	2.74	2.62
29	2.75	2.44	2.22	2.08	---	2.23	2.52	2.83	3.19	2.69	2.73	2.60
30	2.74	2.45	2.21	2.06	---	2.27	2.56	2.82	3.21	2.68	2.73	2.61
31	2.76	---	2.19	2.04	---	2.61	---	2.79	---	2.65	2.72	---
MEAN	2.83	2.58	2.37	2.14	1.90	2.22	2.73	2.81	2.94	2.94	2.75	2.62
MAX	2.98	2.77	2.50	2.20	2.02	2.61	2.94	2.88	3.21	3.24	2.82	2.68
MIN	2.74	2.39	2.19	2.04	1.80	2.02	2.48	2.64	2.76	2.65	2.62	2.52

STREAMS TRIBUTARY TO LAKE MICHIGAN
04084255 LAKE WINNEBAGO NEAR STOCKBRIDGE, WI

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 12). 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, 3.22 ft, June 29; minimum recorded, 1.71 ft, Feb. 14.

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	2.93	2.61	2.39	2.12	1.97	1.98	2.66	2.58	2.86	3.17	2.59	2.70
2	2.93	2.65	2.40	2.10	1.98	2.02	2.74	2.63	2.80	3.17	2.58	2.68
3	2.89	2.58	2.43	2.09	1.96	2.04	2.74	2.66	2.80	3.17	2.54	2.63
4	2.90	2.58	2.49	2.09	1.95	2.07	2.79	2.72	2.77	3.14	2.52	2.62
5	2.89	2.55	2.54	2.14	1.93	2.09	2.81	2.74	2.72	3.14	2.56	2.63
6	2.83	2.54	2.51	2.15	1.91	2.11	2.80	2.74	2.75	3.13	2.64	2.60
7	2.83	2.57	2.48	2.14	1.90	2.11	2.78	2.73	2.75	3.11	2.71	2.55
8	2.85	2.57	2.45	2.13	1.88	1.99	2.66	2.72	2.73	3.10	2.75	2.53
9	2.94	2.56	2.43	2.19	1.86	2.04	2.67	2.75	2.66	3.09	2.77	2.53
10	2.85	2.59	2.39	2.18	1.85	2.22	2.80	2.77	2.72	3.02	2.78	2.55
11	2.81	2.58	2.41	2.14	1.85	2.22	2.83	2.79	2.74	3.00	2.73	2.53
12	2.80	2.55	2.45	2.13	1.84	2.21	2.82	2.77	2.89	2.99	2.74	2.48
13	2.93	2.43	2.41	2.13	1.82	2.22	2.75	2.79	2.87	2.96	2.75	2.48
14	2.94	2.43	2.38	2.12	1.80	2.23	2.76	2.79	2.86	2.93	2.77	2.56
15	2.83	2.49	2.36	2.12	1.78	2.20	2.69	2.80	2.88	2.94	2.73	2.60
16	2.81	2.61	2.35	2.11	1.77	2.19	2.70	2.92	2.90	2.91	2.72	2.62
17	2.81	2.55	2.33	2.10	1.76	2.17	2.85	2.85	2.93	2.87	2.74	2.63
18	2.83	2.51	2.32	2.09	1.78	2.19	2.82	2.85	2.89	2.86	2.69	2.63
19	2.82	2.47	2.32	2.08	1.79	2.21	2.75	2.85	2.97	2.87	2.71	2.63
20	2.79	2.43	2.31	2.07	1.80	2.20	2.69	2.85	2.99	2.85	2.73	2.64
21	2.80	2.40	2.29	2.07	1.81	2.21	2.64	2.79	3.03	2.85	2.71	2.63
22	2.78	2.46	2.27	2.07	1.82	2.21	2.60	2.72	3.03	2.83	2.71	2.56
23	2.74	2.48	2.27	2.08	1.83	2.20	2.57	2.70	3.01	2.82	2.78	2.56
24	2.67	2.41	2.23	2.07	1.86	2.18	2.53	2.70	3.01	2.76	2.78	2.60
25	2.67	2.39	2.25	2.07	1.87	2.16	2.44	2.77	3.05	2.72	2.76	2.57
26	2.59	2.40	2.25	2.07	1.85	2.16	2.32	2.77	3.08	2.74	2.74	2.58
27	2.66	2.39	2.22	2.06	1.88	2.19	2.36	2.76	3.10	2.76	2.72	2.61
28	2.65	2.38	2.20	2.05	1.93	2.18	2.43	2.82	3.18	2.73	2.73	2.59
29	2.61	2.38	2.18	2.05	---	2.19	2.48	2.80	3.22	2.68	2.75	2.58
30	2.59	2.39	2.17	2.02	---	2.20	2.52	2.73	3.19	2.64	2.71	2.56
31	2.58	---	2.15	1.99	---	2.45	---	2.83	---	2.59	2.68	---
MEAN	2.79	2.50	2.34	2.10	1.86	2.16	2.67	2.76	2.91	2.92	2.70	2.59
MAX	2.94	2.65	2.54	2.19	1.98	2.45	2.85	2.92	3.22	3.17	2.78	2.70
MIN	2.58	2.38	2.15	1.99	1.76	1.98	2.32	2.58	2.66	2.59	2.52	2.48

STREAMS TRIBUTARY TO LAKE MICHIGAN

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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: Apr. 4 and June 27 to July 7. Records good, except for estimated daily discharges, which are fair (see page 12). 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	2380	2900	2280	3080	3940	5150	10000	3200	1970	5000	1480	1640
2	3500	2860	2350	3080	3910	5360	9450	3310	1890	5400	1490	1570
3	3260	2840	2410	3030	3970	5760	9270	3360	1670	5800	1490	1500
4	3260	2790	2460	3010	3970	5880	11000	3500	1650	5800	1350	1480
5	3290	2760	2450	3110	3930	5930	12800	3760	1680	5600	1420	1490
6	2640	2860	2450	3120	3900	6090	12800	3650	1660	5800	1690	1480
7	1880	2660	2510	3070	3850	6030	12800	3530	1680	6400	1680	1420
8	1910	2720	2970	2690	3850	5660	12300	3400	1700	7180	1770	1320
9	2100	2750	3460	3320	3840	5190	12000	3450	1680	7280	1800	1200
10	1870	3750	3360	3250	3830	5600	12600	3510	1650	7020	1780	1470
11	1910	4980	3380	3290	3800	6050	12900	3630	1770	6950	1680	1460
12	1960	4760	3460	3150	3810	6020	13100	3720	2200	6960	1670	1270
13	2300	5260	3330	3200	3780	5960	13000	3730	1930	5980	1740	1250
14	2020	4340	3370	3100	3790	6010	12500	3030	1990	4340	1820	1490
15	1830	3700	3400	3200	3780	6110	12500	2380	1960	3390	1680	1610
16	2230	3820	3360	3240	3760	6140	12200	2550	2030	3490	1650	1410
17	2990	3940	3340	3230	3750	6080	12800	2400	2120	3480	1830	1600
18	3130	3960	3310	3180	3840	6060	12900	2430	2220	3400	1600	1590
19	3140	3190	3320	3160	3870	6120	12700	2390	2320	3380	1690	1460
20	2930	2550	3290	3130	3860	6120	12500	2310	2340	3350	1800	1490
21	2870	2390	3260	3120	3840	6130	12200	2270	2390	2870	1710	1400
22	2820	2460	3510	3140	3830	6230	11800	2150	2420	1850	1620	1300
23	2920	2310	3780	3150	3850	6270	10800	2120	2400	1780	1870	1300
24	2800	2190	3160	3120	3890	6270	9800	2060	2530	1660	1830	1450
25	2670	2380	3140	3110	3870	6310	9120	2120	2980	1680	1720	1460
26	2560	2380	3180	3110	4330	6240	8790	2190	3330	1720	1680	1460
27	2620	2360	3120	3130	5240	6320	7430	2230	6200	1780	1740	1420
28	3010	2350	3160	3060	5190	6170	4710	2210	5800	1680	1780	1330
29	2940	2320	3130	3480	---	6170	3780	2350	5400	1440	1680	1380
30	2940	2290	3120	4050	---	6240	3020	1870	4700	1580	1610	1370
31	2910	---	3090	3990	---	8640	---	1820	---	1550	1610	---
TOTAL	81590	92820	95910	99100	111070	188310	323570	86630	76260	125590	51960	43070
MEAN	2632	3094	3094	3197	3967	6075	10790	2795	2542	4051	1676	1436
MAX	3500	5260	3780	4050	5240	8640	13100	3760	6200	7280	1870	1640
MIN	1830	2190	2280	2690	3750	5150	3020	1820	1650	1440	1350	1200
CFSM	.44	.52	.52	.54	.67	1.02	1.81	.47	.43	.68	.28	.24
IN.	.51	.58	.60	.62	.69	1.18	2.02	.54	.48	.79	.32	.27

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1998, BY WATER YEAR (WY)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	4340	5031	4294	3911	3953	5219	6673	5619	5308	4080	3029	3403	
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	1845	2923	2541	2535	2313	3024	2688	2682	1243	944	971	1226	
(WY)	1990	1990	1990	1990	1995	1995	1990	1988	1988	1988	1988	1988	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1986 - 1998

ANNUAL TOTAL	1528330	1375880	
ANNUAL MEAN	4187	3770	
HIGHEST ANNUAL MEAN			4523
LOWEST ANNUAL MEAN			8107
HIGHEST DAILY MEAN	11100	Apr 15	18000
LOWEST DAILY MEAN	1410	Aug 17	840
ANNUAL SEVEN-DAY MINIMUM	1600	Aug 15	899
ANNUAL RUNOFF (CFSM)	.70	.63	.76
ANNUAL RUNOFF (INCHES)	9.56	8.60	10.33
10 PERCENT EXCEEDS	7530	6290	8800
50 PERCENT EXCEEDS	3380	3120	3750
90 PERCENT EXCEEDS	2030	1600	1680

STREAMS TRIBUTARY TO LAKE MICHIGAN

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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2380	3080	2360	3460	4550	6110	11800	3590	1970	5380	1260	1460
2	3620	3180	2520	3290	4460	6160	11000	3730	2010	5830	1390	1540
3	3580	3190	2550	3190	4470	6570	11000	3740	1670	6180	1460	1280
4	3360	2870	2480	3270	4570	6760	12300	3780	1590	6020	1230	1360
5	3400	3060	2570	3350	4500	6810	13600	3950	1620	5960	1180	1370
6	2900	2980	2400	3360	4400	6920	13700	4140	1690	6270	1880	1400
7	1940	2810	3040	3270	4350	6820	13900	3830	1690	6900	1540	1380
8	1850	2940	2820	2970	4180	6610	14200	3470	1720	7600	1570	1210
9	2230	2950	3760	3330	4340	5820	13600	3430	1700	7590	1730	1210
10	1810	3480	3600	2880	4240	6210	13900	3610	1630	7060	1680	1320
11	1970	5320	3470	3450	4160	6900	14200	3690	1770	7210	1480	1520
12	2070	5310	3580	3170	4340	6830	14000	3700	2310	7220	1450	1220
13	2510	5670	3560	3100	4230	6580	14300	3860	1950	5780	1670	1070
14	2140	4860	3420	3030	4240	6660	14500	3290	1690	4460	1780	1700
15	1960	3910	3720	3150	4240	6860	14500	2320	1950	3520	1550	1670
16	2120	4010	3570	3340	4230	6970	14800	2470	1990	3730	1580	1320
17	3370	4060	3460	3350	4270	6940	14800	2360	2090	3330	1810	1420
18	3410	4170	3520	3330	4410	6720	15000	2320	2200	3480	1480	1460
19	3250	3290	3500	3320	4510	6720	14800	2330	2300	3530	1580	1360
20	3190	2470	3390	3330	4500	6760	14700	2250	2270	3390	1740	1270
21	3010	2400	3280	3240	4450	6760	14100	2240	2400	2950	1600	1440
22	2830	2320	3890	3300	4430	6950	13100	2040	2480	1850	1420	1170
23	3140	2190	4220	3330	4430	6980	13300	2050	2380	1620	1900	1270
24	3100	2120	3260	3320	4480	6970	11700	2080	2590	1490	1810	1420
25	2820	2550	3400	3310	4490	7020	10900	2090	3200	1570	1620	1280
26	2680	2580	3420	3320	4760	6920	10600	2130	3400	1520	1570	1410
27	2590	2320	3290	3340	6130	7060	8690	2170	6490	1580	1690	1520
28	3120	2340	3470	3330	6310	6890	5970	2170	6000	1590	1600	1190
29	3150	2360	3320	3620	---	6810	3990	2370	5570	1290	1590	1260
30	3120	2290	3350	4510	---	6980	3000	1810	4990	1350	1460	1360
31	3140	---	3280	4570	---	12000	---	1980	---	1430	1490	---
TOTAL	85760	97080	101470	104130	126670	214070	369950	88990	77310	128680	48790	40860
MEAN	2766	3236	3273	3359	4524	6905	12330	2871	2577	4151	1574	1362
MAX	3620	5670	4220	4570	6310	12000	15000	4140	6490	7600	1900	1700
MIN	1810	2120	2360	2880	4160	5820	3000	1810	1590	1290	1180	1070

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1896 - 1998, BY WATER YEAR (WY)

	MEAN	3341	3994	4007	4020	4080	4968	7217	6082	5039	3466	2685	2836
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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1896 - 1998

ANNUAL TOTAL	1593180	1483760	
ANNUAL MEAN	4365	4065	4319
HIGHEST ANNUAL MEAN			8427
LOWEST ANNUAL MEAN			1626
HIGHEST DAILY MEAN	11900	Apr 15	24000
LOWEST DAILY MEAN	1330	Aug 18	138
ANNUAL SEVEN-DAY MINIMUM	1680	Aug 15	499
10 PERCENT EXCEEDS	8060		7840
50 PERCENT EXCEEDS	3580		3600
90 PERCENT EXCEEDS	2140		1680

STREAMS TRIBUTARY TO LAKE MICHIGAN

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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.

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

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

REMARKS.--No estimated daily discharges. Records good (see page 12). 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	2910	2860	2260	2660	3760	6070	16000	1940	2380	6090	1960	1880
2	3070	2910	2250	2860	4760	5640	12000	3540	775	6570	2890	1700
3	3160	2760	2330	2770	3620	6190	9970	3450	2150	5580	2650	948
4	3700	3100	2620	2350	4020	4800	11300	3500	805	6210	1370	1970
5	3450	2590	2500	3410	4210	6400	13600	3690	1380	6310	91	2110
6	358	2760	2690	3250	4110	6670	13700	3360	1700	6330	1220	414
7	1200	3740	2350	3030	4100	6430	13800	2360	1650	6370	1820	670
8	2340	2810	2640	961	3990	5660	13100	2490	1280	7640	2570	937
9	2410	2880	3090	5050	4020	6480	13600	2830	770	7770	2910	1430
10	1330	3450	3100	3110	3900	5290	13300	3320	815	7020	1090	2030
11	1810	4700	4010	3290	3830	6500	14000	2890	128	7280	843	1460
12	1600	6110	4190	3220	3960	6510	14100	3010	2900	7220	1620	-340
13	2580	4340	2820	3290	3410	5870	13800	3610	1150	6600	2730	-313
14	1750	4770	3570	2010	3830	5860	13800	3050	1260	4330	2300	1280
15	1380	4400	3360	3120	3860	6360	12600	3300	151	3840	905	898
16	739	4900	3430	3300	3740	6360	16300	2930	-884	3000	1670	1240
17	2780	3600	3220	3050	3920	6450	15200	4030	1230	3810	599	2290
18	3230	3840	3320	3400	4490	5880	14100	4180	2150	3330	1570	2240
19	3040	3680	3040	3470	4900	7170	14000	3660	2190	3780	2520	2060
20	3400	2360	3420	3060	4770	6430	13900	2380	3530	3490	1670	2010
21	2070	2220	3030	2770	4880	6490	13100	1760	4540	2890	990	173
22	3060	2630	3440	3310	4370	6980	12700	609	5190	2680	2010	950
23	3070	2970	4220	3270	4160	7400	11900	1250	3110	2030	2010	2420
24	2260	1990	2730	3410	5240	7270	10400	1990	3710	1450	1970	1570
25	2960	1820	3630	3200	4320	7000	9180	2190	2690	2540	1820	1590
26	2070	2590	3600	2860	4220	6850	8390	1610	3800	3160	1740	2850
27	2930	2030	3240	3370	6180	6840	8000	2810	11000	2240	2550	815
28	3730	2570	3020	3390	6220	7130	5820	3660	8810	2720	2110	1590
29	2700	2260	3030	3090	---	6020	3520	807	5660	1960	2750	921
30	2970	1670	3410	3820	---	6840	3110	2100	5200	369	1230	865
31	2910	---	3600	4020	---	15600	---	1690	---	1710	1760	---
TOTAL	76967	95310	97160	97171	120790	207440	358290	83996	81220	136319	55938	40658
MEAN	2483	3177	3134	3135	4314	6692	11940	2710	2707	4397	1804	1355
MAX	3730	6110	4220	5050	6220	15600	16300	4180	11000	7770	2910	2850
MIN	358	1670	2250	961	3410	4800	3110	609	-884	369	91	-340
CFSM	.39	.50	.50	.50	.68	1.06	1.89	.43	.43	.69	.29	.21
IN.	.45	.56	.57	.57	.71	1.22	2.11	.49	.48	.80	.33	.24

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1998, BY WATER YEAR (WY)

MEAN	3769	5358	4715	4042	3990	6271	7883	6475	6779	5050	3742	3407
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	1699	3069	2977	2768	2070	3320	3010	2710	2484	2140	1804	1355
(WY)	1990	1990	1990	1990	1995	1995	1990	1998	1994	1995	1998	1998

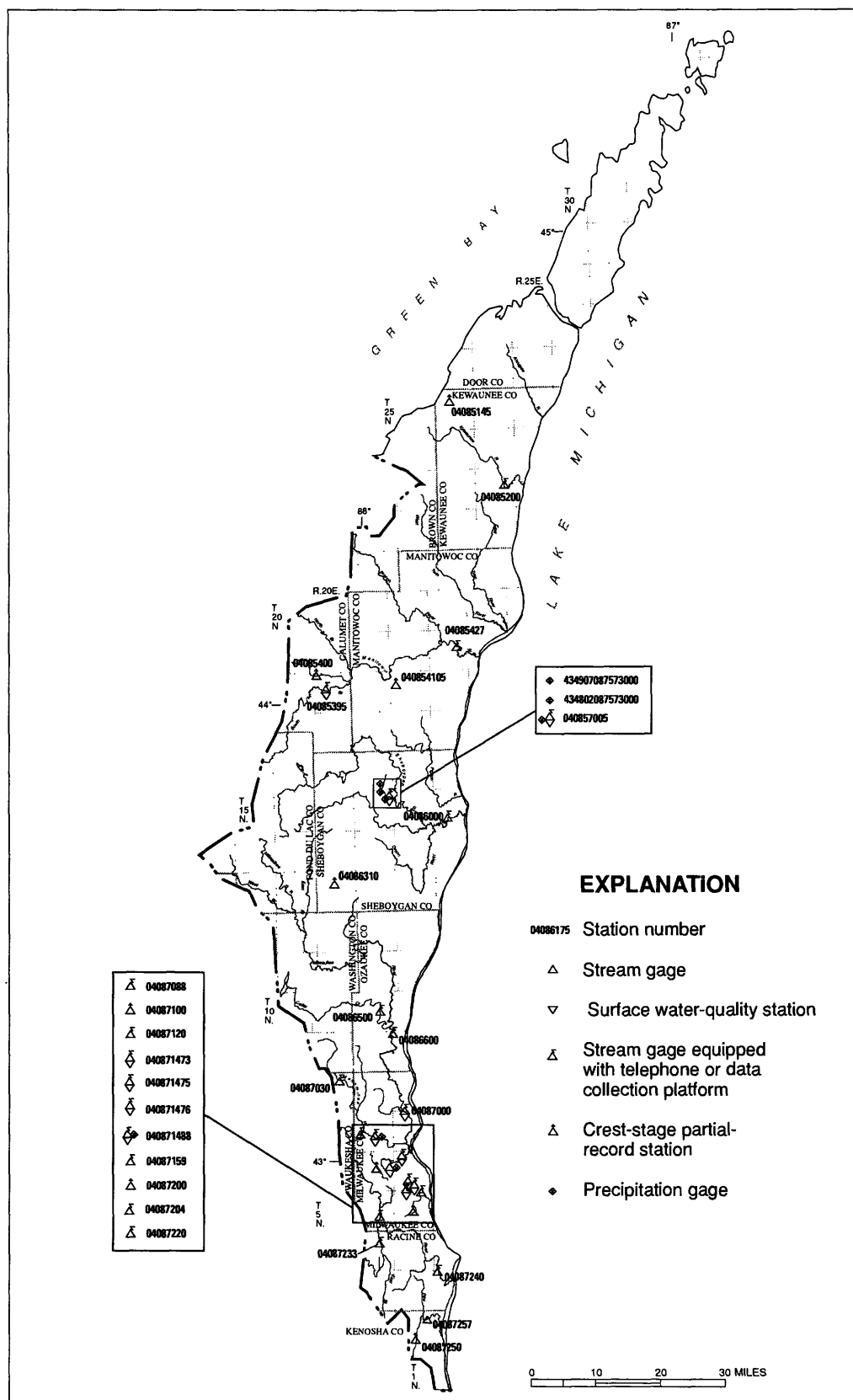
SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1989 - 1998

ANNUAL TOTAL	1635796	1451259	
ANNUAL MEAN	4482	3976	5124
HIGHEST ANNUAL MEAN			9102
LOWEST ANNUAL MEAN			3851
HIGHEST DAILY MEAN	14800	Mar 28	33800
LOWEST DAILY MEAN	-539	May 28	-3260
ANNUAL SEVEN-DAY MINIMUM	1030	Sep 6	598
ANNUAL RUNOFF (CFSM)	.71	.63	.81
ANNUAL RUNOFF (INCHES)	9.61	8.53	11.00
10 PERCENT EXCEEDS	8710	7190	9860
50 PERCENT EXCEEDS	3700	3100	4090
90 PERCENT EXCEEDS	1850	1240	1950



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

LAKE MICHIGAN BASIN

STREAMS TRIBUTARY TO LAKE MICHIGAN

101

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 September 1998. 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: Nov. 1-3 and ice-affected periods, Jan. 8-14, Feb. 3-5, 21, and Mar. 9, 10. Records good except those for ice-affected periods, which are poor (see page 12). 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	---	15	19	14	18	216	1630	50	51	84	13	6.8
2	---	15	19	14	25	183	828	56	39	57	13	7.7
3	---	16	20	17	25	134	403	65	32	46	13	7.4
4	---	16	21	19	22	103	238	70	29	40	14	7.5
5	---	17	21	26	21	86	167	61	26	34	15	7.2
6	---	18	21	29	21	77	125	54	25	36	30	6.8
7	---	17	20	26	21	71	103	53	25	39	32	6.8
8	---	17	20	19	21	65	105	57	24	35	18	6.9
9	---	25	20	15	20	55	125	51	24	31	14	6.9
10	---	24	20	13	20	47	102	46	25	28	12	7.0
11	---	23	20	15	21	43	84	44	27	25	11	7.1
12	---	23	20	14	21	36	75	42	52	24	9.7	7.3
13	---	22	19	14	21	33	67	41	50	22	9.4	7.7
14	---	22	18	17	21	31	67	38	37	21	9.1	9.4
15	---	22	17	18	21	29	68	36	30	26	10	14
16	---	22	17	18	25	28	194	34	27	27	9.7	13
17	---	20	17	18	46	27	389	31	25	23	9.4	11
18	---	21	17	18	120	32	215	30	23	21	8.9	11
19	---	19	17	18	162	45	131	28	28	19	8.4	9.8
20	---	19	17	17	168	48	96	27	29	19	8.2	9.4
21	---	18	16	16	165	49	80	26	25	18	8.1	9.0
22	---	18	17	16	149	69	70	25	22	17	8.1	8.7
23	---	15	15	16	152	100	64	25	20	17	9.0	8.7
24	---	16	15	16	176	132	60	26	21	16	8.6	8.9
25	---	18	16	16	190	150	55	31	85	16	7.9	8.9
26	---	18	16	16	147	182	53	29	156	16	7.4	125
27	---	18	14	16	140	187	49	26	376	16	7.2	79
28	---	19	15	17	212	141	47	26	698	15	7.3	38
29	---	19	15	17	---	93	46	25	398	14	7.0	28
30	---	19	14	17	---	92	46	23	157	14	6.7	23
31	---	---	11	17	---	871	---	48	---	13	6.6	---
TOTAL	---	571	544	539	2171	3455	5782	1224	2586	829	351.7	507.9
MEAN	---	19.0	17.5	17.4	77.5	111	193	39.5	86.2	26.7	11.3	16.9
MAX	---	25	21	29	212	871	1630	70	698	84	32	125
MIN	---	15	11	13	18	27	46	23	20	13	6.6	6.8
CFSM	---	.15	.14	.14	.61	.88	1.52	.31	.68	.21	.09	.13
IN.	---	.17	.16	.16	.64	1.01	1.69	.36	.76	.24	.10	.15

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1998, BY WATER YEAR (WY)

	MEAN	47.7	68.3	54.4	37.5	59.9	268	210	83.8	87.0	40.8	33.9	57.0
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	77.5	56.4	21.2	12.3	8.29	7.90	8.98	
(WY)	1967	1977	1977	1977	1977	1970	1990	1977	1988	1965	1970	1966	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR
(NOVEMBER-DECEMBER)

FOR 1998 WATER YEAR
(NOVEMBER-SEPTEMBER)

WATER YEARS 1964 - 1998

ANNUAL MEAN										87.8		
HIGHEST ANNUAL MEAN										178		1993
LOWEST ANNUAL MEAN										35.7		1970
HIGHEST DAILY MEAN										5950		Jun 23 1990
LOWEST DAILY MEAN	(a) 11			25	Nov 9		1630	Apr 1		5.9		Jul 30 1965
ANNUAL SEVEN-DAY MINIMUM	14			14	Dec 25		7.0	Sep 5		6.3		Aug 22 1970
INSTANTANEOUS PEAK FLOW							1790	Apr 1		(b) 8570		Jun 23 1990
INSTANTANEOUS PEAK STAGE							12.96	Apr 1		(c) 16.03		Mar 30 1960
INSTANTANEOUS LOW FLOW							(a) 3.8	Dec 15		(a) 3.8		Dec 15 1997
ANNUAL RUNOFF (CFSM)										.69		
ANNUAL RUNOFF (INCHES)										9.40		
10 PERCENT EXCEEDS				22			128			178		
50 PERCENT EXCEEDS				18			22			32		
90 PERCENT EXCEEDS				15			9.3			13		

(a) Result of freezeup

(b) Gage height, 16.00 ft, from crest-stage gage

(c) Backwater from ice

STREAMS TRIBUTARY TO LAKE MICHIGAN
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.

WATER-DISCHARGE RECORDS

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: June 26 to July 3 and ice-affected period, Jan. 3 to Feb. 19. Records fair except those for estimated daily discharges and periods of flow less than 3 ft³/s, which are poor (see page 12).

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	15	12	13	13	14	159	914	73	20	78	4.5	3.8
2	15	12	13	13	15	148	694	87	17	68	3.9	5.2
3	15	12	15	13	16	134	549	88	17	64	3.3	4.3
4	14	12	16	15	15	120	485	86	16	51	4.4	3.2
5	8.6	12	16	17	15	108	440	79	16	40	13	2.6
6	12	12	15	22	15	100	385	73	16	26	24	2.4
7	16	13	15	35	15	91	329	68	15	23	26	3.9
8	8.4	13	15	23	16	83	277	64	14	21	28	3.5
9	11	12	15	16	16	68	242	60	15	18	28	3.1
10	12	12	15	14	16	82	214	54	18	16	22	3.1
11	11	12	16	13	16	57	183	43	19	15	16	2.7
12	10	11	16	12	16	44	155	41	29	13	13	2.2
13	10	11	16	11	16	38	132	38	23	12	11	2.2
14	10	10	15	12	16	35	121	34	19	11	10	6.5
15	8.5	11	16	12	16	32	135	31	17	11	9.6	16
16	2.5	11	17	12	17	29	289	35	16	11	8.0	8.8
17	6.5	10	17	12	24	30	356	28	15	10	8.7	5.8
18	7.8	11	18	12	36	51	288	24	14	9.6	9.9	4.7
19	8.1	11	18	12	66	97	216	19	17	9.5	8.7	3.7
20	8.7	11	18	12	84	118	184	17	15	9.5	7.2	3.2
21	9.2	11	18	12	86	122	172	18	13	10	6.3	2.5
22	9.2	11	18	12	86	135	167	17	12	10	6.1	2.3
23	9.2	11	18	12	86	149	156	17	12	8.9	8.4	2.3
24	9.2	10	17	12	94	156	141	16	15	7.2	8.3	2.5
25	9.2	11	17	13	101	165	123	17	16	6.9	5.9	2.7
26	9.3	11	16	13	104	176	108	16	34	10	5.2	3.4
27	9.9	12	15	13	140	179	94	16	120	7.2	5.3	3.6
28	10	12	14	13	158	166	85	18	110	5.6	5.2	2.9
29	11	12	15	13	---	145	77	19	90	4.7	4.6	2.7
30	11	13	14	13	---	157	71	17	84	4.7	3.5	4.8
31	12	---	14	13	---	649	---	21	---	4.7	3.0	---
TOTAL	319.3	345	491	440	1315	3823	7782	1234	854	596.5	321.0	120.6
MEAN	10.3	11.5	15.8	14.2	47.0	123	259	39.8	28.5	19.2	10.4	4.02
MAX	16	13	18	35	158	649	914	88	120	78	28	16
MIN	2.5	10	13	11	14	29	71	16	12	4.7	3.0	2.2
CFSM	.09	.11	.15	.13	.43	1.13	2.38	.37	.26	.18	.09	.04
IN.	.11	.12	.17	.15	.45	1.30	2.66	.42	.29	.20	.11	.04

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1998, BY WATER YEAR (WY)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
MEAN	15.7	24.0	15.9	13.4	40.5	106	119	45.9	56.7	62.1	18.3	13.2
MAX	29.3	47.5	24.0	21.6	63.7	189	259	63.8	170	232	30.4	35.3
(WY)	1994	1996	1994	1997	1997	1997	1998	1996	1996	1993	1993	1993
MIN	7.17	10.9	8.74	6.21	6.42	58.2	48.2	30.1	12.1	2.46	8.48	4.02
(WY)	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1995	1998

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1993 - 1998
ANNUAL TOTAL	18828.3	17641.4	
ANNUAL MEAN	51.6	48.3	40.8
HIGHEST ANNUAL MEAN			54.8
LOWEST ANNUAL MEAN			17.3
HIGHEST DAILY MEAN	395	Mar 29	914
LOWEST DAILY MEAN	2.5	Oct 16	2.2
ANNUAL SEVEN-DAY MINIMUM	7.3	Oct 15	2.7
INSTANTANEOUS PEAK FLOW			947
INSTANTANEOUS PEAK STAGE			6.95
INSTANTANEOUS LOW FLOW			1.3
ANNUAL RUNOFF (CFSM)	.47		.44
ANNUAL RUNOFF (INCHES)	6.43		6.02
10 PERCENT EXCEEDS	130		103
50 PERCENT EXCEEDS	23		19
90 PERCENT EXCEEDS	11		6.4

(a) Also occurred July 31 to Aug. 1, 1995

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 1993 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: July 1994 to current year.

SUSPENDED-SOLIDS DISCHARGE: June 1993 to May 15, 1996.

INSTRUMENTATION.--Stage-activated water-quality sampler since June 16, 1993. Continuous water-temperature recorder since July 7, 1994.

REMARKS.--Chemical analyses by the Wisconsin State Laboratory of Hygiene and National Water-Quality Laboratory. Samples are point samples unless otherwise indicated. Records represent water temperature at sensor within 0.5°C. Missing record June 26 to July 3 and July 16-20.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum observed, 33.5°C, July 14, 1995; minimum observed, 0.0°C, on many days during 1995, 1996, 1997, and 1998 water years.

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 26 tons, Mar. 12, 1995; minimum daily, 0.08 ton, on many days during 1994 and 1995 water years.

SUSPENDED-SOLIDS CONCENTRATIONS: Maximum observed, 466 mg/L, July 25, 1994; minimum observed, 3 mg/L, numerous days.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 31.0°C, July 14; minimum observed, 0.0°C, on many day.

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	16.5	9.5	13.0	11.0	8.5	10.0	3.5	2.5	3.0	1.0	.0	.5
2	18.0	11.0	14.5	9.0	5.5	7.0	3.5	2.5	3.0	1.5	.0	1.0
3	22.0	14.5	18.0	7.0	4.5	5.5	3.0	2.0	2.5	1.5	.5	1.0
4	22.5	18.0	20.0	6.0	4.5	5.0	2.5	1.5	2.0	1.0	.0	1.0
5	22.5	15.0	19.0	6.0	4.5	5.0	2.5	1.5	2.0	1.0	.0	.5
6	21.5	15.0	18.0	6.5	5.0	5.5	3.0	1.0	2.0	1.0	.0	.5
7	22.0	16.5	19.0	7.0	5.0	6.0	2.5	1.0	1.5	1.0	.0	.5
8	23.5	18.0	20.5	6.5	5.0	5.5	2.5	1.5	2.0	1.0	.0	.5
9	20.5	16.5	19.0	6.5	5.0	5.5	2.0	1.0	1.5	1.0	.0	.0
10	16.5	13.0	15.0	5.5	3.0	4.5	2.0	1.0	1.5	.0	.0	.0
11	18.0	13.5	15.5	3.5	1.5	2.5	2.0	1.0	1.5	.5	.0	.0
12	17.0	14.0	15.5	2.0	.0	1.0	2.5	1.0	1.5	.5	.0	.0
13	17.0	11.0	15.0	3.0	.5	2.0	3.0	1.0	1.5	.5	.0	.0
14	11.5	7.0	8.5	4.0	2.5	3.0	3.0	1.0	1.5	.5	.0	.0
15	11.0	6.5	8.5	3.5	2.5	3.0	2.5	1.0	2.0	.5	.0	.0
16	12.5	9.0	10.5	4.0	2.0	3.0	2.5	1.5	2.0	1.0	.0	.0
17	13.0	9.0	11.0	4.0	2.0	3.0	3.0	1.0	2.0	1.0	.0	.5
18	13.0	9.0	11.0	4.0	2.5	3.0	2.5	1.5	2.0	1.0	.0	.5
19	10.5	8.5	9.5	3.5	2.0	3.0	2.5	1.5	2.0	1.0	.0	.5
20	10.0	7.0	8.5	3.5	2.0	2.5	2.0	1.5	1.5	1.0	.0	.0
21	8.5	5.5	7.0	4.0	1.5	2.5	2.5	1.5	1.5	.5	.0	.5
22	5.5	3.0	4.5	3.0	1.5	2.5	2.0	1.0	1.5	.5	.0	.5
23	5.0	3.0	4.0	2.5	1.0	2.0	1.5	.5	1.0	1.0	.0	.0
24	6.0	4.0	5.0	3.5	1.5	2.5	1.5	.5	1.0	1.0	.0	.5
25	6.5	3.5	5.0	4.0	2.0	3.0	1.5	.5	1.0	1.0	.0	.5
26	5.5	2.5	3.5	4.5	2.0	3.0	1.5	.0	.5	.5	.0	.0
27	4.0	1.0	2.5	3.5	2.0	3.0	1.5	.0	.5	.5	.0	.0
28	5.0	1.5	3.5	4.0	2.0	3.0	1.0	.0	.5	1.0	.0	.5
29	6.0	2.5	4.5	3.5	2.5	3.0	1.0	.0	.5	1.0	.0	.5
30	8.5	4.0	6.5	4.0	2.5	3.0	1.0	.0	.5	1.0	.0	.5
31	11.0	8.0	9.5	---	---	---	1.0	.0	.5	1.0	.0	.5
MONTH	23.5	1.0	11.1	11.0	.0	3.8	3.5	.0	1.5	1.5	.0	.4

STREAMS TRIBUTARY TO LAKE MICHIGAN
04085395 SOUTH BRANCH MANITOWOC RIVER AT HAYTON, 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	1.0	.0	.5	4.5	3.0	4.0	8.0	6.0	7.0	15.0	13.0	14.0
2	1.0	.0	.5	4.5	2.5	3.5	8.5	6.0	7.0	14.0	12.5	13.0
3	1.5	.0	.5	3.5	1.5	2.5	8.5	6.5	7.5	14.5	12.0	13.0
4	1.0	.0	.5	3.0	1.5	2.0	10.0	5.5	7.5	19.0	11.5	15.0
5	1.0	.0	.5	3.0	1.0	2.0	11.0	7.0	8.5	19.5	14.0	16.5
6	1.0	.0	.5	3.5	1.5	2.5	10.5	7.5	9.0	19.0	15.0	17.0
7	1.0	.0	.5	4.5	1.5	3.0	12.0	8.5	10.0	17.0	15.0	15.5
8	1.0	.0	.5	3.5	.5	1.5	11.5	8.0	9.5	20.0	13.5	16.5
9	1.5	.0	.5	1.0	.0	.5	9.5	6.5	7.5	19.5	15.0	17.0
10	1.5	.0	.5	3.0	.0	1.0	10.5	6.0	8.0	20.0	14.5	17.0
11	1.0	.0	.5	2.5	.0	1.5	13.0	7.5	10.0	20.5	15.0	18.0
12	1.5	.0	1.0	3.0	.5	1.5	15.5	10.5	12.5	20.0	15.5	18.0
13	1.5	.5	1.0	2.0	.5	1.0	14.5	11.5	13.0	23.5	16.5	20.0
14	1.5	.5	1.0	1.0	.0	.5	15.5	12.0	13.5	23.5	19.0	21.0
15	2.0	.0	1.0	1.5	.0	.5	13.5	8.0	11.0	24.0	19.5	21.5
16	2.5	1.0	1.5	1.5	.0	1.0	8.5	4.5	6.5	23.0	19.0	21.0
17	2.0	.5	1.5	1.5	.5	1.0	9.0	4.0	6.5	23.5	18.5	21.0
18	1.5	.5	1.0	1.5	.0	1.0	13.0	7.0	9.5	25.5	20.0	22.5
19	1.5	.0	.5	1.5	.0	.5	14.5	10.0	12.0	26.5	22.0	24.0
20	1.5	.0	.5	2.5	.0	1.0	14.5	11.0	12.5	24.5	21.5	23.0
21	1.5	.0	1.0	3.0	.0	1.5	13.5	11.0	12.0	23.5	19.5	21.5
22	2.5	.5	1.0	4.5	.5	2.5	15.5	10.5	12.5	21.5	18.0	19.5
23	3.0	1.0	1.5	5.5	1.5	3.0	17.0	12.0	14.0	20.5	16.5	19.0
24	3.0	1.5	2.0	7.0	2.5	4.0	17.0	13.5	15.0	19.5	15.5	17.5
25	3.5	1.5	2.5	7.0	3.5	4.5	16.5	12.5	14.0	22.0	14.5	17.5
26	4.5	1.5	2.5	10.0	5.0	7.5	15.0	11.0	13.0	24.0	17.5	20.5
27	5.0	2.5	4.0	15.0	9.0	12.0	15.0	9.5	12.0	23.5	19.5	21.0
28	6.0	3.0	4.0	14.0	11.5	12.5	15.5	9.5	12.0	26.0	19.0	22.0
29	---	---	---	13.5	11.0	12.0	16.0	10.5	13.0	25.5	21.0	23.0
30	---	---	---	14.0	10.5	13.0	16.0	11.5	13.5	22.5	20.0	21.0
31	---	---	---	11.0	6.5	8.0	---	---	---	22.0	18.5	20.5
MONTH	6.0	.0	1.2	15.0	.0	3.6	17.0	4.0	10.6	26.5	11.5	19.0
	JUNE			JULY			AUGUST			SEPTEMBER		
1	21.0	18.0	19.5	---	---	---	25.5	22.0	23.5	24.0	21.0	22.5
2	19.0	16.5	17.5	---	---	---	27.0	22.0	24.0	23.0	20.0	21.5
3	19.0	15.0	16.5	---	---	---	23.5	22.0	23.0	24.5	19.5	22.0
4	19.0	15.0	17.0	26.0	22.0	24.0	22.0	21.0	21.5	25.5	20.0	22.5
5	18.5	15.5	16.5	25.0	21.0	23.5	21.0	20.5	21.0	25.5	21.0	23.0
6	16.5	14.5	15.5	24.5	22.0	23.5	21.5	20.5	21.0	26.5	22.0	24.0
7	18.5	13.0	15.5	25.5	21.5	23.0	24.0	20.5	22.0	24.5	21.0	23.0
8	20.5	15.0	17.5	27.5	22.5	24.5	26.0	22.0	24.0	21.5	18.0	19.5
9	18.0	15.5	17.0	30.0	23.5	26.5	28.0	23.0	25.5	22.5	17.5	19.5
10	17.0	15.0	16.0	26.5	24.5	25.5	28.5	24.5	26.0	22.5	18.0	20.0
11	17.0	15.5	16.0	28.5	23.0	25.0	26.0	23.5	24.5	23.0	17.5	20.0
12	21.5	15.5	18.5	28.5	23.0	25.5	26.5	21.5	23.5	22.0	19.5	20.5
13	25.5	19.5	22.0	28.5	24.0	26.5	26.5	22.0	24.0	25.5	20.0	22.5
14	24.0	21.5	23.0	31.0	25.5	28.0	27.0	22.0	24.5	23.0	21.5	22.0
15	25.5	21.0	23.0	29.0	26.5	28.0	25.5	23.0	24.0	22.5	20.5	21.5
16	27.0	22.5	24.5	---	---	---	28.0	22.0	24.5	24.5	19.0	21.5
17	27.5	23.0	25.0	---	---	---	26.0	22.5	24.0	25.5	20.0	22.5
18	26.5	23.5	24.5	---	---	---	24.5	22.0	23.5	25.5	20.5	23.0
19	25.0	21.5	23.0	---	---	---	25.5	21.5	23.0	25.0	21.0	23.0
20	28.0	21.5	24.5	---	---	---	26.0	20.5	23.0	24.0	21.0	22.5
21	27.5	23.5	25.0	28.0	25.0	26.5	27.0	23.5	25.0	21.5	18.5	20.0
22	27.5	22.5	25.5	28.0	24.5	26.0	26.5	23.5	24.5	20.0	16.5	18.5
23	29.5	24.0	26.5	26.0	23.0	24.5	27.5	23.0	25.0	20.0	15.0	17.5
24	28.5	24.0	26.0	26.0	22.0	24.0	27.0	24.0	25.5	20.0	15.5	17.5
25	29.0	24.0	26.5	25.0	22.5	23.5	28.0	24.0	25.5	20.5	16.0	18.5
26	---	---	---	27.0	21.5	24.0	28.0	24.0	25.5	23.0	19.5	21.0
27	---	---	---	26.5	22.0	24.0	26.5	23.5	24.5	22.0	19.0	21.0
28	---	---	---	27.0	23.0	25.0	26.0	23.0	24.0	22.0	17.5	19.5
29	---	---	---	26.5	23.0	24.5	26.5	23.0	24.5	21.0	17.5	19.0
30	---	---	---	26.5	22.5	24.5	25.5	22.0	23.5	19.0	15.5	18.0
31	---	---	---	26.5	22.0	24.0	25.5	21.0	23.0	---	---	---
MONTH	---	---	---	---	---	---	28.5	20.5	23.9	26.5	15.0	20.9

STREAMS TRIBUTARY TO LAKE MICHIGAN
04085427 MANITOWOC RIVER AT MANITOWOC, WI

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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 September 1998.

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: Feb. 26, Mar. 25-30, and ice-affected periods, Dec. 23-26, 28-30, Jan. 1 to Feb. 25, and Mar. 11-14. Records good except for the period Dec. 1 to Mar. 31, which is poor (see page 12). 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	---	---	53	35	42	665	2040	511	58	261	21	22
2	---	---	53	37	45	672	2020	486	62	208	18	21
3	---	---	55	40	50	661	1730	464	57	163	18	19
4	---	---	57	45	48	634	1620	446	55	127	23	19
5	---	---	56	50	47	609	1540	417	49	114	23	19
6	---	---	54	66	46	587	1460	386	43	129	79	18
7	---	---	52	80	46	557	1380	357	42	127	397	17
8	---	---	58	110	49	530	1380	326	43	120	245	16
9	---	---	52	50	50	488	1380	297	43	113	214	16
10	---	---	50	45	50	364	1310	267	41	99	176	17
11	---	---	48	40	50	320	1260	240	45	78	144	16
12	---	---	48	35	50	290	1180	209	61	62	137	15
13	---	---	42	33	50	270	1030	180	77	55	117	16
14	---	---	52	38	50	250	999	169	77	52	78	21
15	---	---	55	37	50	244	1040	150	66	47	55	28
16	---	---	48	36	50	234	1470	137	59	40	44	25
17	---	---	55	37	70	210	1340	135	57	35	39	28
18	---	---	51	38	130	205	1270	116	60	33	34	28
19	---	---	45	38	180	238	1170	99	52	32	33	27
20	---	---	45	38	300	291	1020	89	46	31	30	26
21	---	---	44	38	450	345	995	80	48	34	28	24
22	---	---	43	38	400	425	934	62	41	31	30	23
23	---	---	42	38	380	500	872	55	43	33	30	22
24	---	---	41	38	380	547	816	55	38	30	32	20
25	---	---	39	40	390	580	743	59	61	37	34	19
26	---	---	38	42	450	620	679	64	54	34	31	20
27	---	---	38	42	598	580	631	62	351	27	29	25
28	---	---	37	42	693	540	605	60	349	25	28	23
29	---	---	37	42	---	520	568	62	295	27	24	28
30	---	---	36	42	---	500	525	59	285	27	23	34
31	---	---	36	42	---	1870	---	59	---	24	22	---
TOTAL	---	---	1460	1372	5194	15346	35007	6158	2658	2255	2236	652
MEAN	---	---	47.1	44.3	186	495	1167	199	88.6	72.7	72.1	21.7
MAX	---	---	58	110	693	1870	2040	511	351	261	397	34
MIN	---	---	36	33	42	205	525	55	38	24	18	15
CFSM	---	---	.09	.08	.35	.94	2.22	.38	.17	.14	.14	.04
IN.	---	---	.10	.10	.37	1.09	2.48	.44	.19	.16	.16	.05

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1998, BY WATER YEAR (WY)

	MEAN	209	270	195	122	197	884	1011	383	276	139	73.8	146
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 1997 CALENDAR YEAR (DECEMBER)	FOR 1998 WATER YEAR (DECEMBER-SEPTEMBER)	WATER YEARS 1972 - 1998
ANNUAL MEAN			329
HIGHEST ANNUAL MEAN			728
LOWEST ANNUAL MEAN			82.7
HIGHEST DAILY MEAN			8000
LOWEST DAILY MEAN	58 Dec 8	2040 Apr 1	7.0 Mar 31 1979
ANNUAL SEVEN-DAY MINIMUM	36 Dec 30,31	15 Sep 12	8.1 Oct 3 1989
INSTANTANEOUS PEAK FLOW	37 Dec 25	16 Sep 7	8.1 Sep 28 1989
INSTANTANEOUS PEAK STAGE		2200 Apr 1	(a) 8280 Mar 31 1979
INSTANTANEOUS LOW FLOW		9.10 Apr 1	(b) 13.30 Mar 25 1986
ANNUAL RUNOFF (CFSM)		15 Sep 11-13	6.8 (c) Jul 8 1988
ANNUAL RUNOFF (INCHES)			.62
10 PERCENT EXCEEDS			8.49
50 PERCENT EXCEEDS	56	663	880
90 PERCENT EXCEEDS	48	55	120
	37	25	30

(a) Gage height, 13.24 ft

(b) From floodmarks

(c) Also occurred Oct. 3-5, 1989

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 Dec. 10, 14, Jan. 9, 17, 20, 23, 26-27, 30-31, and Mar. 8 because recorded precipitation interpreted as collector snowmelt.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 4.61 in., Aug. 6, 1998.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 4.61 in., Aug. 6.

RAINFALL ACCUMULATED (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	.02	.00	.00	.14	.05	.14	.66	.00	.00	.00	.30
2	.00	.00	.00	.00	.00	.06	.00	.00	.01	.00	.00	.01
3	.00	.03	.00	.00	.00	.00	.00	.05	.00	.09	.02	.00
4	.00	.01	.00	.51	.00	.00	.00	.00	.00	.00	.71	.00
5	.00	.26	.00	.18	.00	.00	.00	.01	.02	.00	.36	.00
6	.00	.03	.00	.13	.00	.03	.00	.00	.00	.01	4.61	.00
7	.00	.00	.00	.00	.00	.00	.00	.12	.00	.00	.01	.00
8	.00	.00	.00	.00	.00	.00	.48	.00	.00	.00	.00	.00
9	.10	.02	.00	.00	.00	.00	.17	.00	.16	.00	.00	.00
10	.00	.00	.00	.00	.02	.00	.00	.00	.02	.00	.00	.00
11	.00	.00	.00	.00	.08	.00	.00	.00	.83	.00	.00	.00
12	.00	.00	.00	.00	.01	.00	.00	.04	.00	.00	.00	.00
13	.43	.00	.00	.00	.00	.00	.33	.00	.01	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	1.49
15	.00	.00	.00	.00	.00	.00	1.18	.11	.00	.35	.00	.00
16	.00	.00	.00	.00	.10	.00	.36	.00	.05	.00	.00	.00
17	.00	.00	.00	.00	.10	.36	.00	.00	.00	.00	.10	.00
18	.00	.00	.00	.00	.01	.70	.00	.00	1.16	.00	.00	.00
19	.01	.00	.00	.00	.00	.02	.00	.00	.01	.23	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.21	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.47	.00
23	.18	.00	.00	.00	.06	.00	.00	.00	.00	.00	.03	.00
24	.00	.00	.00	.00	.01	.00	.00	.01	.41	.00	.00	.05
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.14	.00	.00	.00	.00	.00	.12	.00	.00	.00	.00	.02
27	.03	.02	.00	.00	.92	.00	.00	.00	1.02	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.55	.51	.00	.17	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.01	.00	.00	---	1.86	.02	.00	.00	.00	.00	.49
31	.03	---	.00	.00	---	1.13	---	.82	---	.00	.00	---
TOTAL	0.92	0.40	0.00	0.82	1.45	4.21	2.80	2.37	4.21	0.94	6.49	2.36

STREAMS TRIBUTARY TO LAKE MICHIGAN

107

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 Nov. 14, 15, 17, Dec. 6, 7, 9, 10, 14, 21, Jan. 9, 15, 17, 23, 26-31, and Mar. 8, 12 because recorded precipitation interpreted as collector snowmelt.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 4.84 in., Aug. 6, 1998.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 4.84 in., Aug. 6.

RAINFALL ACCUMULATED (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	.03	.00	.00	.15	.06	.23	.58	.00	.00	.00	.18
2	.00	.01	.00	.00	.00	.08	.00	.00	.00	.00	.00	.01
3	.00	.03	.23	.00	.00	.07	.02	.08	.00	.30	.02	.00
4	.01	.01	.05	.53	.00	.00	.00	.00	.00	.01	.80	.00
5	.00	.31	.00	.24	.00	.00	.00	.03	.01	.00	.38	.00
6	.00	.02	.00	.12	.00	.06	.00	.00	.00	.02	4.84	.00
7	.00	.00	.00	.01	.00	.01	.00	.05	.00	.00	.01	.00
8	.00	.01	.00	.00	.00	.00	.52	.01	.00	.00	.00	.00
9	.06	.02	.00	.00	.00	.00	.28	.00	.13	.00	.00	.00
10	.00	.00	.00	.00	.04	.00	.00	.00	.02	.00	.00	.00
11	.00	.00	.00	.00	.12	.00	.00	.00	.77	.00	.00	.00
12	.00	.00	.00	.00	.01	.00	.00	.04	.00	.00	.00	.00
13	.39	.00	.00	.00	.00	.00	.32	.00	.01	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.01	1.24
15	.00	.00	.00	.00	.00	.00	.79	.11	.00	.46	.00	.01
16	.00	.00	.00	.00	.13	.00	.06	.00	.00	.00	.00	.00
17	.05	.00	.00	.00	.14	.44	.01	.00	.00	.00	.08	.00
18	.00	.00	.00	.00	.01	.79	.00	.00	.96	.00	.00	.00
19	.01	.00	.00	.00	.00	.02	.00	.00	.00	.21	.00	.00
20	.00	.00	.00	.00	.02	.00	.00	.00	.00	.23	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.39	.00
23	.17	.00	.00	.00	.07	.00	.00	.00	.00	.00	.02	.00
24	.00	.00	.00	.00	.01	.00	.00	.01	.45	.00	.00	.05
25	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00
26	.19	.00	.00	.00	.00	.00	.10	.00	.00	.00	.00	.00
27	.09	.02	.00	.00	1.01	.00	.00	.00	1.04	.00	.00	.00
28	.01	.00	.00	.00	.01	.00	.01	.40	.50	.00	.19	.00
29	.00	.01	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	1.89	.03	.00	.00	.00	.00	.37
31	.05	---	.00	.00	---	1.20	---	.73	---	.00	.00	---
TOTAL	1.03	0.47	0.28	0.90	1.72	4.62	2.38	2.04	3.90	1.25	6.74	1.86

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, Nov. 16-17, 23-25, Dec. 3-6, 13-14, 21, 24, Dec. 27 to Jan. 1, Jan. 9 to Feb. 18, and Mar. 8-19. Records are good except those for estimated daily discharges, which are poor (see page 12). 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	1.8	2.8	2.3	3.0	3.0	14	72	11	3.9	3.6	1.7	2.0
2	1.8	2.5	2.2	3.8	3.4	11	35	12	3.4	3.2	1.7	2.1
3	1.8	2.5	2.2	3.2	3.2	10	20	10	3.0	3.0	2.0	1.9
4	1.8	2.5	2.1	3.1	3.1	8.9	15	8.3	2.8	3.3	2.4	1.9
5	1.7	2.6	2.1	5.3	3.0	7.8	11	7.0	2.7	2.6	3.0	1.8
6	1.6	3.4	2.3	5.2	2.9	7.3	9.3	6.2	2.6	2.6	55	1.8
7	1.6	3.3	2.4	4.6	2.8	6.8	7.9	6.3	2.6	2.5	50	1.8
8	1.7	3.1	2.5	4.3	2.7	6.6	9.0	6.2	2.6	2.4	20	1.8
9	1.7	2.8	2.4	3.8	2.7	6.2	22	5.1	2.6	2.4	10	1.7
10	1.7	2.5	2.5	3.5	2.9	5.8	15	4.5	3.0	2.4	6.0	1.7
11	1.8	2.4	2.4	3.2	3.2	5.6	11	3.9	3.9	2.3	4.3	1.5
12	2.0	2.4	2.3	3.0	3.4	5.4	8.5	3.7	5.3	2.3	3.5	1.6
13	2.5	2.4	2.2	2.8	3.5	5.2	7.3	3.7	4.2	2.3	3.1	1.6
14	2.4	2.3	2.3	2.7	3.4	5.0	9.2	3.5	3.7	2.3	2.7	2.3
15	2.4	2.4	2.3	2.6	4.0	4.8	25	3.4	3.3	2.3	2.6	3.0
16	2.4	2.3	2.4	2.5	5.0	4.6	74	3.3	3.1	2.3	2.4	2.5
17	2.5	2.2	2.4	2.4	12	4.5	33	2.9	2.9	2.3	2.4	2.2
18	2.5	2.3	2.4	2.3	18	38	18	2.8	3.2	2.4	2.4	2.1
19	2.5	2.4	2.4	2.2	18	40	12	2.6	5.7	2.4	2.2	2.0
20	2.5	2.3	2.5	2.1	15	32	9.6	2.5	4.6	2.3	2.2	1.8
21	2.5	2.5	2.4	2.0	12	25	8.3	2.5	3.8	2.4	2.2	1.6
22	2.3	2.3	2.4	1.9	11	22	7.3	2.4	3.4	2.3	2.4	1.5
23	2.2	2.2	2.4	1.8	11	18	6.7	2.3	3.1	2.1	2.8	1.6
24	2.4	2.1	2.5	1.8	11	15	6.0	2.4	3.5	2.0	2.5	1.6
25	2.3	2.1	2.4	2.0	9.5	13	5.6	2.4	3.2	2.0	2.3	1.6
26	2.4	2.2	2.5	2.5	8.3	12	6.2	2.4	2.9	1.9	2.2	1.7
27	2.8	2.2	2.4	3.0	30	9.9	5.7	2.3	8.0	1.9	2.2	1.6
28	2.7	2.3	2.3	2.8	21	8.2	5.3	2.4	8.4	1.8	2.2	1.5
29	2.8	2.4	2.2	2.7	---	7.0	5.0	2.7	5.7	1.7	2.1	1.7
30	2.8	2.4	2.2	2.6	---	23	5.0	2.7	4.4	1.9	2.0	1.9
31	2.8	---	2.1	2.7	---	186	---	4.3	---	1.8	1.9	---
TOTAL	68.7	74.1	72.4	91.4	229.0	568.6	484.9	137.7	115.5	73.0	204.4	55.4
MEAN	2.22	2.47	2.34	2.95	8.18	18.3	16.2	4.44	3.85	2.35	6.59	1.85
MAX	2.8	3.4	2.5	5.3	30	186	74	12	8.4	3.6	55	3.0
MIN	1.6	2.1	2.1	1.8	2.7	4.5	5.0	2.3	2.6	1.7	1.7	1.5
CFSM	.23	.26	.25	.31	.86	1.93	1.70	.47	.41	.25	.69	.19
IN.	.27	.29	.28	.36	.90	2.23	1.90	.54	.45	.29	.80	.22

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1998, BY WATER YEAR (WY)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	3.07	4.93	4.98	4.35	7.37	15.4	13.2	5.31	6.95	3.99	2.94	2.51
MAX	4.82	8.67	11.5	6.76	13.9	25.4	35.6	7.15	17.3	12.9	6.59	5.59
(WY)	1992	1993	1992	1992	1994	1993	1993	1993	1996	1993	1998	1993
MIN	2.11	2.47	2.34	2.67	2.09	7.36	6.24	3.60	2.39	2.18	2.15	1.58
(WY)	1995	1998	1998	1995	1995	1996	1997	1992	1994	1995	1996	1995

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1991 - 1998
ANNUAL TOTAL	1991.2	2175.1	
ANNUAL MEAN	5.46	5.96	6.23
HIGHEST ANNUAL MEAN			10.9
LOWEST ANNUAL MEAN			3.41
HIGHEST DAILY MEAN	108 Jun 21	186 Mar 31	186 Mar 31 1998
LOWEST DAILY MEAN	1.6 Oct 6	1.5 (a) Sep 11	1.3 Sep 15 1995
ANNUAL SEVEN-DAY MINIMUM	1.7 Oct 4	1.6 Sep 22	1.4 Sep 11 1995
INSTANTANEOUS PEAK FLOW		255 Mar 31	255 Mar 31 1998
INSTANTANEOUS PEAK STAGE		7.77 Mar 31	(b) 8.26 Mar 17 1993
INSTANTANEOUS LOW FLOW		1.3 (c) Sep 11	1.3 (d) Sep 14 1995
ANNUAL RUNOFF (CFSM)	.57	.63	.66
ANNUAL RUNOFF (INCHES)	7.80	8.52	8.92
10 PERCENT EXCEEDS	10	11	12
50 PERCENT EXCEEDS	2.7	2.6	3.4
90 PERCENT EXCEEDS	2.0	1.8	2.0

(a) Also occurred Sept. 22, 28

(b) Backwater from ice

(c) Also occurred Sept. 22

(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 point 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, 28.0°C, June 26; minimum observed, 0.0°C, many days during winter period

DISSOLVED OXYGEN (OCTOBER): Maximum observed, 15.6 mg/L, Oct. 22; minimum observed, 4.9 mg/L, Oct. 13.

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)	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)	NITRO- GEN, DIS- SOLVED (MG/L) AS N (00608)	PHOS- PHORUS TOTAL (MG/L) AS P (00665)
OCT 1997									
01...	1226	--	1.8	8.5	1.1	2400	<5	<.010	.059
08...	0938	--	1.8	8.6	1.0	1100	5	<.013	.075
16...	1508	--	2.5	8.6	1.2	600	<5	<.013	.054
24...	1054	--	2.4	8.3	1.3	2300	<5	<.013	.045
29...	1500	--	2.7	8.8	1.4	400	34	.020	.066
NOV									
13...	0725	--	2.7	8.2	.9	600	6	.041	.027
DEC									
18...	0944	--	2.3	8.3	<6.0	60	7	.051	.046
JAN 1998									
28...	0912	2.8	--	8.2	.6	150	10	.122	.075
FEB									
26...	1208	--	8.1	8.4	1.0	50	6	.035	.077
MAR									
12...	1230	5.4	--	8.1	.7	20	9	.065	.054
26...	0914	--	12	8.3	1.0	300	6	.050	.089
APR									
*09...	1028	--	29	8.0	2.0	3300	52	.158	.315
16...	1146	--	84	8.0	1.8	3000	38	.122	.366
23...	1056	--	7.1	8.6	1.7	300	4	<.013	.050
30...	0918	--	5.0	8.5	1.6	690	<5	<.013	.029
MAY									
07...	0854	--	5.7	8.3	1.8	840	6	.019	.046
14...	0916	--	3.7	8.2	1.8	2500	<5	.013	.051
20...	1026	--	2.6	8.4	1.9	1700	<5	.069	.080
28...	1102	--	2.6	8.2	2.4	9300	13	.097	.096
JUN									
03...	1016	--	3.0	8.5	1.2	2500	<5	.052	.051
11...	1500	--	3.2	8.4	1.2	1400	15	.042	.078
18...	1028	--	2.9	8.4	1.3	8800	5	.018	.069
25...	1036	--	3.4	8.4	1.0	1600	7	.032	.072
JUL									
01...	1014	--	3.7	8.5	.9	900	7	.028	.068
09...	1535	--	2.4	8.8	1.3	1200	<10	<.013	.073
16...	1045	--	2.4	8.4	--	4400	21	.039	.058
23...	0956	--	2.2	8.3	.8	270	7	.040	.097
30...	0936	--	2.1	8.2	1.0	4600	6	.030	.066
AUG									
07...	0908	--	47	7.9	2.3	37000	20	.030	.378
13...	1034	--	3.2	8.3	1.9	20000	15	.018	.092
19...	1115	--	2.2	8.3	1.5	3600	<5	.034	.066
27...	1022	--	2.2	8.3	1.5	5000	<5	.013	.058
SEP									
03...	1018	--	2.0	8.3	.7	2500	<5	.019	.054
09...	1028	--	1.8	8.3	<.3	1300	<5	.032	.055
17...	1332	--	2.2	8.4	1.0	320	5	.035	.083
24...	0926	--	1.7	8.3	2.3	2400	<5	.039	.062

* Grab sample

STREAMS TRIBUTARY TO LAKE MICHIGAN
040857005 OTTER CREEK, AT WILLOW ROAD, NEAR PLYMOUTH, 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	14.5	9.5	12.0	11.0	8.0	10.0	3.5	2.5	3.0	.0	.0	.0
2	16.0	9.5	13.0	8.0	4.5	6.5	3.5	2.5	3.0	.0	.0	.0
3	19.0	12.0	15.5	7.5	4.0	5.5	3.0	.5	2.0	5.5	.0	3.5
4	19.5	15.0	17.5	7.5	4.5	6.0	3.0	1.0	2.0	2.0	.5	1.5
5	19.5	12.5	16.0	7.0	5.5	6.0	1.0	.0	.5	3.0	2.0	2.5
6	18.5	13.0	16.0	7.0	6.0	6.5	1.0	.0	.5	3.5	2.5	3.0
7	19.5	14.5	16.5	8.0	5.0	6.5	3.0	.0	1.5	3.0	1.5	2.0
8	20.0	14.5	17.0	6.0	3.5	5.0	1.5	.0	.5	1.5	.0	.5
9	19.5	14.0	17.5	6.5	5.5	6.0	2.5	1.5	2.0	.0	.0	.0
10	15.5	11.0	13.0	6.0	2.5	4.5	2.5	1.0	2.0	.0	.0	.0
11	16.0	10.0	13.0	3.5	1.5	2.5	2.5	1.0	1.5	.0	.0	.0
12	16.0	13.0	14.5	2.5	.0	1.0	2.5	.0	1.5	.0	.0	.0
13	15.5	10.5	14.0	2.5	.0	1.0	.0	.0	.0	.0	.0	.0
14	10.5	7.5	9.0	4.0	1.5	2.5	1.0	.0	.0	.0	.0	.0
15	12.0	7.0	9.5	3.5	1.0	2.0	3.0	.0	1.0	.0	.0	.0
16	12.0	8.0	9.5	2.0	.0	.5	4.0	1.0	2.0	.0	.0	.0
17	12.0	6.0	8.5	.5	.0	.0	3.5	.0	1.5	.0	.0	.0
18	12.0	6.0	8.5	3.0	.0	1.0	3.5	.5	2.0	.0	.0	.0
19	10.0	6.5	8.5	2.0	.0	.5	4.5	2.5	3.5	.0	.0	.0
20	10.0	5.5	7.5	2.5	.0	1.0	3.0	.5	2.5	.0	.0	.0
21	7.5	5.0	6.0	2.5	.0	.5	1.5	.0	.5	.0	.0	.0
22	6.5	2.5	4.0	2.5	.0	1.0	2.0	1.0	1.5	.0	.0	.0
23	6.0	2.5	4.5	.5	.0	.0	1.5	.0	.5	.0	.0	.0
24	7.5	6.0	6.5	.5	.0	.0	1.0	.0	.5	.0	.0	.0
25	8.0	5.0	6.0	2.0	.0	.5	2.0	.0	1.0	.0	.0	.0
26	5.5	3.0	4.0	5.5	1.5	3.0	1.5	.0	.5	.0	.0	.0
27	6.0	2.5	4.0	3.5	1.0	2.0	.5	.0	.0	.0	.0	.0
28	7.0	2.5	4.5	5.5	3.0	4.0	.0	.0	.0	.0	.0	.0
29	8.0	4.0	6.0	5.5	4.0	5.0	.0	.0	.0	.0	.0	.0
30	9.5	4.5	7.0	5.5	3.5	4.5	.0	.0	.0	.0	.0	.0
31	12.0	8.5	10.0	---	---	---	.0	.0	.0	1.5	.0	.5
MONTH	20.0	2.5	10.3	11.0	.0	3.2	4.5	.0	1.2	5.5	.0	.4
FEBRUARY			MARCH			APRIL			MAY			
1	2.5	1.0	1.5	6.0	3.5	4.5	8.5	6.0	7.0	13.5	11.5	12.0
2	3.5	1.0	2.0	4.5	3.0	4.0	8.5	5.5	7.0	14.0	11.0	12.5
3	3.0	.5	1.5	4.0	1.5	3.0	8.5	5.5	7.0	13.5	11.0	12.0
4	1.0	.0	.0	4.0	1.5	3.0	12.5	4.5	8.0	20.0	10.0	14.5
5	3.0	.0	1.0	4.5	1.5	3.0	12.5	4.5	8.0	17.0	12.5	14.5
6	2.5	.0	.5	5.0	2.0	3.0	12.0	5.0	8.0	16.0	10.5	13.5
7	3.5	.0	1.5	7.0	.5	3.5	13.5	6.0	9.5	14.0	12.5	13.0
8	4.0	.5	2.0	3.0	.0	1.0	10.0	6.0	7.0	20.0	11.5	15.0
9	2.5	.0	.5	.0	.0	.0	8.0	5.0	6.0	20.0	11.5	15.5
10	2.5	.0	1.5	.0	.0	.0	12.5	4.0	8.0	20.0	11.0	15.0
11	3.5	1.5	2.5	.0	.0	.0	15.0	5.5	10.0	21.0	12.0	16.5
12	4.5	.5	2.0	.0	.0	.0	16.0	8.5	11.5	18.5	12.5	16.0
13	3.5	.0	1.5	.0	.0	.0	13.0	8.5	11.0	23.5	14.5	18.5
14	4.5	1.5	2.5	.0	.0	.0	15.5	10.0	12.0	22.5	14.0	18.0
15	6.0	1.5	3.0	.0	.0	.0	11.5	5.5	8.0	23.0	15.5	19.0
16	5.0	2.0	3.5	.0	.0	.0	6.5	4.5	5.5	24.0	16.5	19.5
17	2.5	1.5	2.0	.0	.0	.0	12.5	5.0	8.0	24.5	15.0	19.5
18	2.0	1.5	2.0	.5	.0	.0	14.5	6.5	10.5	25.5	17.5	21.0
19	2.5	1.5	2.0	1.0	.0	.5	16.5	7.5	11.5	26.0	18.5	21.5
20	3.5	1.5	2.5	3.0	.5	1.5	15.0	7.5	11.5	22.5	16.5	19.5
21	4.0	2.0	2.5	5.0	.0	2.0	13.5	9.0	11.0	21.5	14.0	17.0
22	6.0	2.0	3.5	6.5	.5	3.0	17.5	8.5	13.0	18.5	12.0	15.0
23	6.5	2.5	4.0	7.5	1.0	4.0	18.0	8.5	13.5	20.5	11.0	15.5
24	6.0	2.5	4.0	8.5	1.5	5.0	16.5	10.5	13.5	15.5	12.5	13.5
25	6.0	1.0	3.5	8.0	3.5	5.5	15.0	8.5	12.0	21.0	12.0	16.0
26	8.0	3.0	5.0	13.0	5.5	9.5	13.5	8.5	10.5	22.5	13.0	17.5
27	5.5	3.5	4.5	14.0	10.5	12.0	15.5	6.0	10.5	22.0	13.5	17.5
28	6.5	2.0	4.0	13.0	9.0	11.0	17.0	6.5	11.5	25.5	15.5	20.0
29	---	---	---	15.0	8.0	11.0	16.0	8.5	12.0	24.0	18.0	20.5
30	---	---	---	14.0	7.0	11.5	15.0	10.0	12.5	20.0	15.0	17.0
31	---	---	---	7.5	6.5	7.0	---	---	---	21.5	16.0	18.0
MONTH	8.0	.0	2.4	15.0	.0	3.5	18.0	4.0	9.8	26.0	10.0	16.6

040857005 OTTER CREEK, AT WILLOW ROAD, NEAR PLYMOUTH, 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	20.5	13.5	17.0	25.0	18.0	21.0	23.0	16.0	19.5	21.5	16.5	19.0
2	17.0	14.5	16.0	25.5	18.0	21.5	22.0	17.5	19.5	20.5	16.0	18.0
3	18.5	12.5	15.0	23.5	20.0	21.5	19.5	17.5	18.5	21.0	15.5	18.0
4	19.5	12.0	15.0	23.5	19.0	21.0	19.0	18.5	18.5	21.0	15.0	18.0
5	16.5	12.0	14.0	24.0	17.0	20.5	19.0	18.0	18.5	22.0	16.0	19.0
6	14.5	11.0	13.0	22.5	19.0	20.5	20.5	18.5	20.0	23.0	18.0	20.5
7	18.5	10.5	14.5	22.0	18.0	20.0	22.5	20.0	21.0	21.5	17.5	19.5
8	19.5	11.5	15.0	24.5	19.0	21.5	24.0	21.0	22.0	18.0	14.0	16.0
9	14.5	13.0	13.5	25.5	18.0	21.5	25.0	20.5	22.5	19.0	13.0	16.0
10	15.5	12.5	14.0	25.0	19.5	21.5	25.5	21.0	23.0	19.5	13.0	16.5
11	15.0	13.5	14.5	24.5	16.5	20.5	22.5	19.5	21.0	21.5	15.5	18.5
12	22.0	15.0	18.0	25.0	17.5	21.0	21.5	17.0	19.5	20.5	17.0	19.0
13	23.5	16.5	19.5	25.5	18.5	22.0	22.0	17.0	19.5	23.0	18.0	20.0
14	22.0	16.5	19.0	27.5	21.0	24.5	23.0	17.0	20.0	20.0	18.5	19.0
15	24.0	16.0	19.5	25.5	21.5	23.5	23.0	18.5	20.5	20.0	17.5	18.5
16	24.0	17.5	20.5	25.5	20.0	22.5	23.0	16.0	19.5	20.5	15.0	17.5
17	24.5	17.5	20.5	25.5	19.5	22.5	22.0	18.5	20.0	20.5	15.0	17.5
18	22.5	18.0	20.0	25.0	18.5	22.0	22.5	18.0	20.0	21.0	15.0	18.0
19	22.5	17.0	19.5	26.0	20.0	23.0	22.0	17.5	19.5	21.5	15.5	18.5
20	26.0	17.0	21.5	27.0	20.5	23.5	23.0	17.5	20.0	21.5	16.5	19.0
21	24.5	20.0	21.5	25.0	21.5	23.5	24.0	19.0	21.5	18.5	15.0	17.0
22	25.0	18.5	22.0	23.5	20.5	22.0	23.0	18.5	21.0	17.0	13.5	15.0
23	26.0	19.0	22.0	23.0	18.5	20.5	25.0	20.0	22.0	16.0	11.0	13.5
24	26.0	18.5	22.0	22.5	16.5	19.5	23.5	20.5	22.0	17.5	13.0	15.0
25	27.5	20.5	24.0	22.0	17.5	19.5	24.5	19.5	22.0	19.5	12.5	16.0
26	28.0	21.0	24.0	22.5	15.5	19.0	24.5	18.5	21.5	21.0	17.0	19.0
27	24.5	19.0	22.0	24.5	18.5	21.0	22.0	18.0	20.5	20.0	16.5	18.5
28	25.0	19.5	22.0	25.0	18.0	21.5	22.0	19.5	20.5	18.5	13.0	16.0
29	25.5	19.5	22.5	23.5	18.0	21.0	23.5	18.5	21.0	18.5	14.5	16.0
30	24.5	19.5	22.0	23.5	19.0	21.0	21.5	17.0	19.5	16.5	13.0	15.5
31	---	---	---	23.0	17.0	20.0	22.0	16.0	18.5	---	---	---
MONTH	28.0	10.5	18.8	27.5	15.5	21.4	25.5	16.0	20.4	23.0	11.0	17.6

OXYGEN DISSOLVED (MG/L), 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	13.8	8.3	10.5		---	---	---		---	---	---		---	---	---
2	13.6	7.6	10.2		---	---	---		---	---	---		---	---	---
3	13.2	6.8	9.4		---	---	---		---	---	---		---	---	---
4	12.3	6.5	8.4		---	---	---		---	---	---		---	---	---
5	13.1	5.7	8.8		---	---	---		---	---	---		---	---	---
6	12.5	5.8	8.5		---	---	---		---	---	---		---	---	---
7	12.5	5.8	8.4		---	---	---		---	---	---		---	---	---
8	11.3	5.3	7.8		---	---	---		---	---	---		---	---	---
9	10.2	5.3	7.1		---	---	---		---	---	---		---	---	---
10	11.8	6.1	8.6		---	---	---		---	---	---		---	---	---
11	11.9	6.3	8.9		---	---	---		---	---	---		---	---	---
12	11.0	5.7	7.7		---	---	---		---	---	---		---	---	---
13	10.1	4.9	7.3		---	---	---		---	---	---		---	---	---
14	12.2	7.6	9.7		---	---	---		---	---	---		---	---	---
15	12.7	8.4	10.0		---	---	---		---	---	---		---	---	---
16	12.7	8.5	10.0		---	---	---		---	---	---		---	---	---
17	13.3	8.8	10.6		---	---	---		---	---	---		---	---	---
18	13.7	8.8	10.7		---	---	---		---	---	---		---	---	---
19	13.2	8.7	10.4		---	---	---		---	---	---		---	---	---
20	14.3	9.2	11.1		---	---	---		---	---	---		---	---	---
21	14.5	9.4	11.5		---	---	---		---	---	---		---	---	---
22	--	10.7	12.7		---	---	---		---	---	---		---	---	---
23	14.7	9.5	11.9		---	---	---		---	---	---		---	---	---
24	---	---	---		---	---	---		---	---	---		---	---	---
25	---	---	---		---	---	---		---	---	---		---	---	---
26	---	---	---		---	---	---		---	---	---		---	---	---
27	---	---	---		---	---	---		---	---	---		---	---	---
28	---	---	---		---	---	---		---	---	---		---	---	---
29	---	---	---		---	---	---		---	---	---		---	---	---
30	---	---	---		---	---	---		---	---	---		---	---	---
31	---	---	---		---	---	---		---	---	---		---	---	---

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 Nov. 14, 15, Dec. 25, 28, Jan. 9, 17, 23, 25, 26, 28, 29, and Mar. 8, 13 because recorded precipitation interpreted as collector snowmelt.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 5.41 in., Aug. 6, 1998.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 5.41 in., Aug. 6.

RAINFALL ACCUMULATED (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	.01	.00	.00	.08	.05	.17	.90	.00	.00	.00	.36
2	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00	.01
3	.00	.00	.57	.00	.00	.01	.00	.12	.00	.08	.02	.00
4	.00	.01	.01	.47	.00	.00	.00	.00	.00	.01	.65	.00
5	.00	.27	.00	.24	.00	.00	.00	.00	.00	.00	.30	.00
6	.00	.00	.00	.05	.00	.04	.00	.00	.00	.03	5.41	.00
7	.00	.00	.00	.02	.00	.00	.00	.13	.00	.00	.02	.00
8	.00	.00	.00	.00	.00	.00	.32	.00	.00	.00	.01	.00
9	.05	.00	.00	.00	.00	.00	.21	.00	.12	.00	.00	.00
10	.00	.00	.00	.00	.04	.00	.00	.00	.03	.00	.00	.00
11	.00	.00	.00	.00	.08	.00	.00	.00	.92	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00	.00
13	.35	.00	.00	.00	.00	.00	.20	.00	.01	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	1.06
15	.00	.00	.00	.00	.00	.00	.83	.10	.00	.15	.00	.00
16	.00	.00	.00	.00	.10	.00	.46	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.08	.27	.00	.00	.00	.00	.09	.00
18	.00	.00	.00	.00	.00	.65	.00	.00	.77	.00	.00	.00
19	.00	.00	.02	.00	.00	.00	.00	.00	.00	.22	.00	.00
20	.00	.00	.02	.00	.00	.00	.00	.00	.00	.22	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.07	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.56	.00
23	.13	.00	.00	.00	.04	.00	.00	.00	.00	.00	.01	.00
24	.00	.00	.00	.00	.01	.00	.00	.01	.46	.00	.00	.05
25	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00
26	.34	.00	.00	.00	.00	.00	.22	.00	.00	.00	.00	.00
27	.00	.02	.00	.00	.74	.00	.00	.00	.96	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.36	.52	.00	.20	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.01
30	.00	.00	.00	.00	---	2.19	.00	.00	.04	.00	.00	.46
31	.04	---	.00	.00	---	1.15	---	.65	---	.00	.00	---
TOTAL	0.91	0.31	0.62	0.78	1.17	4.39	2.41	2.31	3.84	0.78	7.28	1.95

REMARKS.--Estimated daily discharges: Oct. 7-21 and ice-affected periods, Dec. 28 to Feb. 17 and Mar. 11-17. Records good except those for ice-affected periods, which are poor (see page 12). Diurnal fluctuation caused by numerous powerplants above station. Gage-height telemeter at station.

(b) Result of freezeup

STREAMS TRIBUTARY TO LAKE MICHIGAN

04086500 CEDAR CREEK NEAR CEDARBURG, WI

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: Ice-affected periods, Nov. 16-25, Dec. 13-18, Dec. 25 to Jan. 2, Jan. 9 to Feb. 11, and Mar. 11-15. Records good except those for ice-affected periods, which are poor (see page 12). 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	16	23	38	30	60	281	883	204	52	76	18	17
2	17	22	36	35	82	219	925	327	42	56	18	17
3	18	22	36	52	88	185	771	303	36	45	18	18
4	18	22	38	64	82	164	600	245	34	41	23	18
5	17	21	39	100	76	143	454	191	31	37	27	18
6	17	23	36	137	72	130	347	157	31	34	72	17
7	17	27	37	143	70	129	271	153	30	32	96	17
8	18	26	33	126	68	133	226	199	28	32	73	17
9	18	25	35	60	68	163	308	178	29	30	61	17
10	19	24	38	52	72	130	342	137	41	28	48	18
11	19	25	38	56	120	110	324	115	46	26	41	18
12	19	23	38	60	185	98	275	102	77	25	36	18
13	19	23	36	62	171	90	215	117	66	24	32	17
14	26	23	33	52	152	84	214	115	48	24	29	19
15	23	25	33	52	155	72	246	93	41	23	29	32
16	20	23	35	52	245	69	449	82	36	23	26	31
17	20	22	35	54	388	64	574	69	33	22	24	27
18	20	28	36	52	452	197	531	61	33	22	23	25
19	19	29	36	52	451	377	400	64	58	21	23	22
20	19	28	40	49	396	380	307	70	64	22	21	20
21	20	28	39	49	328	338	239	54	48	59	20	17
22	19	27	39	48	264	291	199	46	37	61	20	17
23	18	26	39	49	209	234	171	42	32	35	34	17
24	20	25	37	50	180	190	148	38	32	25	29	17
25	21	24	37	49	163	164	133	44	37	22	24	17
26	21	23	36	50	146	154	147	41	34	20	22	17
27	23	25	36	52	220	145	177	37	41	18	20	16
28	26	26	35	54	309	130	149	35	121	18	19	15
29	23	29	32	56	---	127	127	41	175	17	19	15
30	23	34	30	56	---	118	120	38	127	16	18	16
31	23	---	30	56	---	593	---	42	---	17	17	---
TOTAL	616	751	1116	1909	5272	5702	10272	3440	1540	951	980	567
MEAN	19.9	25.0	36.0	61.6	188	184	342	111	51.3	30.7	31.6	18.9
MAX	26	34	40	143	452	593	925	327	175	76	96	32
MIN	16	21	30	30	60	64	120	35	28	16	17	15
CFSM	.17	.21	.30	.51	1.57	1.53	2.85	.92	.43	.26	.26	.16
IN.	.19	.23	.35	.59	1.63	1.77	3.18	1.07	.48	.29	.30	.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1998, BY WATER YEAR (WY)

	MEAN	44.5	58.5	50.7	50.7	65.8	196	165	82.6	72.7	42.1	25.2	45.8
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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1930 - 1998
ANNUAL TOTAL	32558	33116	
ANNUAL MEAN	89.2	90.7	74.9
HIGHEST ANNUAL MEAN			168
LOWEST ANNUAL MEAN			13.5
HIGHEST DAILY MEAN	(a) 640	Feb 23	925
LOWEST DAILY MEAN	16	(b) Sep 29-30	15
ANNUAL SEVEN-DAY MINIMUM	17	Sep 27	16
INSTANTANEOUS PEAK FLOW			958
INSTANTANEOUS PEAK STAGE			8.93
INSTANTANEOUS LOW FLOW			6.2
ANNUAL RUNOFF (CFSM)	.74		.76
ANNUAL RUNOFF (INCHES)	10.09		10.27
10 PERCENT EXCEEDS	222		229
50 PERCENT EXCEEDS	51		38
90 PERCENT EXCEEDS	21		18

(a) Ice affected

(b) Also occurred Oct. 1

(c) From graph based on gage readings, backwater from ice

STREAMS TRIBUTARY TO LAKE MICHIGAN
04086600 MILWAUKEE RIVER NEAR CEDARBURG, WI

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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: Apr. 11 to May 13 and ice-affected period, Dec. 25 to Feb. 10. Records fair except those for estimated daily discharges, which are poor (see page 12). 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	97	136	174	140	300	1070	3100	580	176	392	119	111
2	78	135	176	150	360	975	3280	1000	172	323	121	113
3	77	139	183	180	400	917	2950	940	164	277	114	110
4	78	139	195	200	410	843	2500	860	149	261	186	107
5	79	139	195	230	390	757	2130	740	136	241	226	105
6	79	139	182	250	360	703	1740	620	127	220	499	102
7	75	153	172	290	350	667	1380	610	120	203	843	97
8	72	204	174	260	340	648	1150	600	119	196	812	95
9	74	161	174	240	330	666	1220	460	131	189	768	91
10	74	158	174	230	320	482	984	420	154	187	684	90
11	74	128	175	230	343	503	600	400	193	176	569	89
12	74	151	179	230	445	478	540	390	249	168	459	87
13	89	150	175	230	568	492	400	400	304	167	350	85
14	91	144	164	230	521	421	440	439	294	165	262	111
15	105	151	203	230	510	393	500	384	256	171	216	152
16	111	149	248	230	642	369	1700	336	222	168	188	215
17	106	146	213	220	1090	347	2000	299	197	186	160	183
18	98	158	222	220	1350	551	1800	268	195	181	147	153
19	107	162	219	220	1380	1140	1600	292	243	187	139	127
20	114	153	219	210	1300	1280	1200	330	346	203	134	121
21	115	165	218	200	1170	1230	1000	284	302	287	126	116
22	103	158	208	200	1040	1160	800	236	276	363	136	103
23	95	143	208	210	927	1060	900	190	251	266	202	94
24	95	249	193	210	851	959	580	158	248	228	220	91
25	104	209	160	200	799	869	480	167	254	197	199	103
26	133	177	160	210	752	797	440	182	237	176	173	101
27	146	163	160	240	885	744	420	169	256	165	148	91
28	135	164	150	230	1090	688	400	164	434	152	142	86
29	139	164	110	230	---	648	400	168	668	142	134	80
30	143	165	140	250	---	600	390	167	512	130	125	96
31	133	---	140	260	---	2050	---	177	---	120	117	---
TOTAL	3093	4752	5663	6860	19223	24507	37024	12430	7385	6487	8718	3305
MEAN	99.8	158	183	221	687	791	1234	401	246	209	281	110
MAX	146	249	248	290	1380	2050	3280	1000	668	392	843	215
MIN	72	128	110	140	300	347	390	158	119	120	114	80
CFSM	.16	.26	.30	.36	1.13	1.30	2.03	.66	.41	.34	.46	.18
IN.	.19	.29	.35	.42	1.18	1.50	2.27	.76	.45	.40	.53	.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1998, BY WATER YEAR (WY)

MEAN	320	492	393	258	431	958	973	464	481	253	215	300
MAX	1157	1565	757	406	997	1793	2501	757	1887	767	349	1593
(WY)	1987	1986	1983	1985	1984	1986	1993	1984	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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1982 - 1998

ANNUAL TOTAL	149338	139447	
ANNUAL MEAN	409	382	459
HIGHEST ANNUAL MEAN			720
LOWEST ANNUAL MEAN			247
HIGHEST DAILY MEAN	2040	Jun 22	4870
LOWEST DAILY MEAN	66	Aug 8	42
ANNUAL SEVEN-DAY MINIMUM	75	Oct 6	49
INSTANTANEOUS PEAK FLOW			5500
INSTANTANEOUS PEAK STAGE			12.88
INSTANTANEOUS LOW FLOW			42
ANNUAL RUNOFF (CFSM)	.67	.63	.76
ANNUAL RUNOFF (INCHES)	9.15	8.55	10.27
10 PERCENT EXCEEDS	954	907	995
50 PERCENT EXCEEDS	265	209	281
90 PERCENT EXCEEDS	113	105	119

DRAINAGE AREA.--696 mi².

PERIOD OF RECORD.--April 1914 to current year. Published as "near Milwaukee" prior to 1936.

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: Ice-affected period, Dec. 26 to Feb. 2. Records good except those for ice-affected period, which is poor (see page 12). Occasional regulation caused by recreation dam approximately 1,200 ft upstream. Gage-height telemeter at station.

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51	135	169	160	310	1190	3430	883	233	429	81	101
2	62	135	175	160	380	1070	3650	1410	228	352	83	111
3	23	128	222	190	409	996	3470	1400	215	344	84	92
4	98	129	202	210	413	924	2970	1280	202	287	275	85
5	100	151	185	250	399	837	2540	1130	193	241	355	77
6	96	166	182	270	371	763	2120	985	183	223	2790	75
7	96	140	164	320	359	697	1770	996	173	203	1430	68
8	98	156	168	280	354	871	1630	922	167	187	891	61
9	99	169	168	260	341	916	2150	836	202	180	775	60
10	96	150	194	250	325	627	1740	718	236	170	697	56
11	92	141	187	240	534	510	1350	640	292	161	558	54
12	95	120	173	240	778	474	1140	595	291	142	494	54
13	129	158	203	240	715	486	1020	641	338	132	403	53
14	111	237	257	240	625	475	1060	593	336	126	321	170
15	130	223	266	240	590	411	1160	525	309	178	269	154
16	122	171	193	230	771	381	2090	477	272	130	223	123
17	116	151	188	230	1330	433	2310	424	236	113	201	140
18	111	120	183	230	1650	907	2160	302	282	117	178	120
19	115	159	181	230	1600	1410	1910	204	295	126	157	100
20	123	161	184	220	1480	1500	1610	288	334	306	145	83
21	114	168	188	210	1310	1370	1450	278	334	304	146	84
22	110	146	182	210	1160	1250	1170	239	304	224	135	77
23	108	147	177	220	1030	1140	994	231	273	242	157	67
24	116	174	165	220	943	1030	859	230	330	186	204	67
25	111	119	164	210	870	936	747	224	255	159	262	63
26	196	164	170	230	819	855	866	242	247	135	186	73
27	206	154	190	250	1130	790	855	225	377	119	160	66
28	142	152	160	240	1250	735	796	280	544	112	148	62
29	144	146	120	250	---	685	732	297	573	102	132	60
30	136	185	150	260	---	661	694	229	618	93	121	96
31	133	---	150	270	---	1850	---	295	---	86	109	---
TOTAL	3479	4655	5660	7260	22246	27180	50443	18019	8872	5909	12170	2552
MEAN	112	155	183	234	795	877	1681	581	296	191	393	85.1
MAX	206	237	266	320	1650	1850	3650	1410	618	429	2790	170
MIN	23	119	120	160	310	381	694	204	167	86	81	53
CFSM	.16	.22	.26	.34	1.14	1.26	2.42	.84	.42	.27	.56	.12
IN.	.19	.25	.30	.39	1.19	1.45	2.70	.96	.47	.32	.65	.11

MEAN	280	353	302	254	390	1056	973	500	398	223	209	266
MAX	1316	1956	981	864	2201	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

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SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1914 - 1998	
ANNUAL TOTAL	181592		168445		433	
ANNUAL MEAN	498		461		874	1986
HIGHEST ANNUAL MEAN					112	1958
LOWEST ANNUAL MEAN					14800	Mar 20 1918
HIGHEST DAILY MEAN	8970	Jun 21	3650	Apr 2	(a) .00	Sep 8 1943
LOWEST DAILY MEAN	(a) 23	Oct 3	(a) 23	Oct 3	8.3	Aug 3 1936
ANNUAL SEVEN-DAY MINIMUM	75	Oct 1	58	Sep 7	16500	Jun 21 1997
INSTANTANEOUS PEAK FLOW			8600	Aug 6	10.00	Jun 21 1997
INSTANTANEOUS PEAK STAGE			7.50	Aug 6	(a) .00	Sep 8 1943
INSTANTANEOUS LOW FLOW			(a) 1.5	Oct 1	.62	
ANNUAL RUNOFF (CFSM)	.71		.66		8.46	
ANNUAL RUNOFF (INCHES)	9.71		9.00		983	
10 PERCENT EXCEEDS	1080		1160		228	
50 PERCENT EXCEEDS	320		230		71	
90 PERCENT EXCEEDS	132		98			

(a) Result of regulation

STREAMS TRIBUTARY TO LAKE MICHIGAN
04087000 MILWAUKEE RIVER AT MILWAUKEE, WI--CONTINUED
(NATIONAL WATER-QUALITY ASSESSMENT PROGRAM STATION)

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 1997 TO SEPTEMBER 1998

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT- ANCE	PH WATER WHOLE FIELD (STAND- ARD	TEMPER- ATURE WATER	OXYGEN, DIS- SOLVED	BARO- METRIC PRES- SURE (MM OF	HARD- NESS TOTAL (MG/L AS	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	
		(00061)	(US/CM) (00095)	(UNITS) (00400)	(DEG C) (00010)	(MG/L) (00300)	(HG) (00025)	(CACO3) (00900)	(00915)	(00925)	(00930)	
OCT 1997												
02...	1030	343	744	8.4	14.8	11.0	740	320	62	40	46	
16...	1245	112	830	8.5	12.6	10.2	754	320	63	39	52	
NOV												
17...	1030	109	950	8.2	.5	13.9	750	350	76	40	58	
DEC												
09...	1245	191	970	8.7	1.3	13.8	741	350	73	40	63	
JAN 1998												
20...	1400	220	940	8.1	.2	13.8	748	370	79	43	47	
FEB												
18...	1230	1650	738	8.3	2.9	13.6	736	250	54	27	30	
MAR												
12...	0900	430	830	8.3	.2	14.0	759	330	70	37	46	
APR												
15...	1050	984	660	8.3	12.2	9.4	738	290	64	32	28	
MAY												
13...	1235	647	690	7.9	20.2	10.3	741	310	66	35	29	
JUN												
09...	1400	160	702	8.4	17.2	10.0	740	270	44	40	43	
JUL												
14...	1410	105	750	8.7	28.1	13.0	742	290	56	37	40	
AUG												
10...	1220	691	540	8.3	25.0	7.4	740	230	49	26	23	
SEP												
17...	1630	132	720	8.3	23.1	9.2	744	210	34	31	47	
DATE		POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	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)
OCT 1997												
02...	3.6	2	308	256	34	88	.18	.37	454	.069	.013	
16...	4.2	2	308	256	33	95	.22	4.0	480	.342	.018	
NOV												
17...	3.8	3	310	258	36	110	.23	4.7	545	1.47	.013	
DEC												
09...	3.4	11	313	274	38	120	.14	5.7	539	1.85	<.010	
JAN 1998												
20...	3.5	--	314	257	42	91	.19	11	555	2.17	.016	
FEB												
18...	3.6	--	250	205	30	64	.13	7.8	392	2.38	<.010	
MAR												
12...	2.9	7	289	251	38	88	.12	7.1	489	1.89	<.010	
APR												
15...	2.9	--	303	248	26	57	.12	5.7	389	1.32	.014	
MAY												
13...	2.5	12	290	258	22	55	.11	3.6	409	1.00	.015	
JUN												
09...	2.9	13	242	224	29	82	.18	3.5	410	<.050	.015	
JUL												
14...	3.2	18	297	251	28	80	.15	13	425	<.050	.013	
AUG												
10...	4.5	1	147	123	32	43	.13	11	342	.899	.019	
SEP												
17...	3.5	20	324	216	33	99	.19	1.7	434	.139	.013	

STREAMS TRIBUTARY TO LAKE MICHIGAN
04087000 MILWAUKEE RIVER AT MILWAUKEE, WI--CONTINUED

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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 1997										
02...	<.015	1.2	.47	.124	.045	<.010	24	5.2	48	97
16...	<.015	.61	.38	.109	.060	.051	24	6.1	13	96
NOV										
17...	.036	.49	.48	.081	.070	.074	61	19	41	87
DEC										
09...	.030	.46	.46	.037	.031	.065	34	9.2	24	90
JAN 1998										
20...	.121	.58	.60	.067	.053	.066	27	11	52	68
FEB										
18...	.041	.91	.60	.182	.096	.091	19	9.0	44	91
MAR										
12...	<.020	.70	.62	.057	.032	.036	32	20	23	81
APR										
15...	.044	1.1	.61	.125	.048	.036	33	11	43	96
MAY										
13...	<.020	1.2	.68	.109	.042	.039	23	11	24	84
JUN										
09...	.051	1.9	.54	.129	<.010	.015	<10	<4.0	15	80
JUL										
14...	.050	1.4	.59	.074	.022	.018	<10	<4.0	35	98
AUG										
10...	.048	1.1	.73	.142	.079	.085	63	13	22	95
SEP										
17...	.020	1.1	.48	.120	.025	.022	24	12	--	--

PESTICIDE ANALYSES

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	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 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)
OCT 1997											
02...	1030	343	<.0020	<.002	<.0020	.037	<.0020	<.0020	<.0030	<.0030	<.0040
16...	1245	112	<.0020	<.002	<.0020	.023	<.0020	<.0020	<.0030	<.0030	<.0040
NOV											
17...	1030	109	<.0020	<.002	<.0020	.021	<.0020	<.0020	<.0030	<.0030	<.0040
DEC											
09...	1245	191	<.0020	<.002	<.0020	.014	<.0020	<.0020	<.0030	<.0030	<.0040
JAN 1998											
20...	1400	220	<.0020	<.002	<.0020	.023	<.0020	<.0020	E.0147	<.0030	<.0040
FEB											
18...	1230	1650	<.0020	<.002	<.0020	.025	<.0020	<.0020	<.0030	<.0030	<.0040
MAR											
12...	0900	430	<.0020	<.002	<.0020	.019	<.0020	<.0020	<.0030	<.0030	<.0040
APR											
15...	1050	984	E.0026	<.002	<.0020	.030	<.0020	<.0020	E.0024	<.0030	<.0040
MAY											
13...	1235	647	.0385	<.002	<.0020	.055	<.0020	<.0020	<.0030	<.0030	<.0040
JUN											
09...	1400	160	.0240	<.002	<.0020	.104	<.0020	<.0020	<.0030	<.0030	<.0040
JUL											
14...	1410	105	<.0020	<.002	<.0020	.215	<.0020	<.0020	<.0030	<.0030	<.0040
AUG											
10...	1220	691	<.0020	<.002	<.0020	.131	<.0020	<.0020	<.0030	<.0030	<.0040

E Estimated

STREAMS TRIBUTARY TO LAKE MICHIGAN
04087000 MILWAUKEE RIVER AT MILWAUKEE, WI-CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

PESTICIDE ANALYSES

DATE	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 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)	FONOFOS WATER DISS REC (UG/L) (04095)
OCT 1997											
02...	<.0040	<.0020	E.0249	<.002	98.2	<.001	<.0170	<.0020	<.0040	<.0030	<.0030
16...	<.0040	<.0020	E.0209	<.002	91.3	<.001	<.0170	<.0020	<.0040	<.0030	<.0030
NOV											
17...	<.0040	<.0020	E.0129	<.002	104	<.001	<.0170	<.0020	<.0040	<.0030	<.0030
DEC											
09...	<.0040	<.0020	E.0142	<.002	103	<.001	<.0170	<.0020	<.0040	<.0030	<.0030
JAN 1998											
20...	.0044	<.0020	E.0155	<.002	99.0	<.001	<.0170	<.0020	<.0040	<.0030	<.0030
FEB											
18...	.0281	<.0020	E.0231	<.002	93.5	<.001	<.0170	<.0020	<.0040	<.0030	<.0030
MAR											
12...	.0049	<.0020	E.0243	<.002	85.3	<.001	<.0170	<.0020	<.0040	<.0030	<.0030
APR											
15...	<.0040	<.0020	E.0238	<.002	118	<.001	<.0170	<.0020	<.0040	<.0030	<.0030
MAY											
13...	.0155	<.0020	E.0193	<.002	121	<.001	<.0170	<.0020	<.0040	<.0030	<.0030
JUN											
09...	.0485	<.0020	E.0552	.008	116	<.001	<.0170	.0068	<.0040	<.0030	<.0030
JUL											
14...	.0760	<.0020	E.0266	<.002	111	<.001	<.0170	<.0020	<.0040	<.0030	<.0030
AUG											
10...	.0749	<.0020	E.0231	<.002	116	<.001	<.0170	<.0020	<.0040	<.0030	<.0030

DATE	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 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)
OCT 1997										
02...	106	<.004	<.0020	<.005	<.0010	<.0060	.004	<.004	<.0040	<.0030
16...	104	<.004	<.0020	<.005	<.0010	<.0060	<.002	<.004	<.0040	<.0030
NOV										
17...	90.2	<.004	<.0020	<.005	<.0300	<.0060	<.002	<.004	<.0040	<.0030
DEC										
09...	86.0	<.004	<.0020	<.010	<.0010	<.0060	<.002	<.004	<.0040	<.0030
JAN 1998										
20...	92.4	<.004	<.0020	<.010	<.0200	<.0060	E.002	<.004	<.0040	<.0030
FEB										
18...	109	<.004	<.0020	<.005	<.0010	<.0060	.009	<.004	<.0040	<.0030
MAR										
12...	95.4	<.004	<.0020	<.005	<.100	<.0060	E.004	<.004	<.0040	<.0030
APR										
15...	97.1	<.004	<.0020	<.005	<.0010	<.0060	.007	<.004	<.0100	<.0030
MAY										
13...	97.3	<.004	<.0020	<.005	<.0010	<.0060	.021	<.004	<.0040	<.0030
JUN										
09...	103	<.004	<.0020	<.005	<.0010	<.0060	.026	<.004	<.0040	<.0030
JUL										
14...	101	<.004	<.0020	<.005	<.0010	<.0060	.008	<.004	<.0040	<.0030
AUG										
10...	94.9	<.004	<.0020	<.050	<.0010	<.0060	.017	<.004	<.0040	<.0030

E Estimated

STREAMS TRIBUTARY TO LAKE MICHIGAN
04087000 MILWAUKEE RIVER AT MILWAUKEE, WI--CONTINUED

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

PESTICIDE ANALYSES

DATE	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)	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)
OCT 1997										
02...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0109	<.0040	<.0130
16...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130
NOV										
17...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	.0376	<.0040	<.0130
DEC										
09...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0112	<.0040	<.0130
JAN 1998										
20...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130
FEB										
18...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130
MAR										
12...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0062	<.0040	<.0130
APR										
15...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0099	<.0040	<.0130
MAY										
13...	<.004	<.0040	<.0040	.0050	<.0020	<.0060	<.0030	E.0127	<.0040	<.0130
JUN										
09...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	.0257	<.0040	<.0130
JUL										
14...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0143	<.0040	<.0130
AUG										
10...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0163	<.0040	<.0130
DATE	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)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)
OCT 1997										
02...	<.0070	.0191	<.0070	<.0100	<.0130	114	<.0020	<.0010	<.0020	<.0030
16...	<.0070	.0136	<.0070	<.0100	<.0130	104	<.0020	<.0010	<.0020	<.0030
NOV										
17...	<.0070	.0093	<.0070	<.0100	<.0130	104	<.0020	<.0010	<.0020	<.0030
DEC										
09...	<.0070	.0064	<.0070	<.0100	<.0130	102	<.0020	<.0010	<.0020	<.0030
JAN 1998										
20...	<.0070	.0081	<.0070	<.0100	<.0130	106	<.0020	<.0010	<.0020	<.0030
FEB										
18...	<.0070	<.0050	<.0070	<.0100	<.0130	109	<.0020	<.0010	<.0020	<.0030
MAR										
12...	<.0070	.0053	<.0070	<.0100	<.0130	97.1	<.0020	<.0010	<.0020	<.0030
APR										
15...	<.0070	.0113	<.0070	.0234	<.0130	101	<.0020	<.0010	<.0020	<.0030
MAY										
13...	<.0070	.0476	<.0070	.0213	<.0130	97.3	<.0020	<.0010	<.0020	<.0030
JUN										
09...	<.0070	.0225	<.0070	<.0100	<.0130	128	<.0020	<.0010	<.0020	<.0030
JUL										
14...	<.0070	.0342	<.0070	<.0100	<.0130	119	<.0020	<.0010	<.0020	<.0030
AUG										
10...	<.0070	.0146	<.0070	<.0100	<.0130	115	<.0020	<.0010	<.0020	<.0030

E Estimated

STREAMS TRIBUTARY TO LAKE MICHIGAN
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: Oct. 11 to Nov. 6 and ice-affected periods, Dec. 14 to Feb. 10 and Mar. 9-15. Records fair except those for estimated daily discharges, which are poor (see page 12). 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 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	5.6	10	11	26	89	439	77	11	18	3.4	2.5
2	13	4.9	9.3	15	50	69	397	94	9.1	12	2.9	2.7
3	5.5	5.0	11	20	45	61	291	69	7.5	15	2.8	2.3
4	5.3	6.0	11	56	37	50	182	56	6.3	8.6	5.9	2.3
5	5.4	11	10	70	32	44	101	45	6.0	8.2	13	2.1
6	3.8	14	9.0	86	29	44	62	39	5.9	7.5	75	1.9
7	3.0	6.7	8.5	98	28	42	47	59	5.2	7.5	80	1.8
8	5.3	6.7	8.2	60	27	55	93	83	4.6	7.1	46	1.6
9	7.1	6.1	9.0	44	26	50	207	62	11	6.3	25	1.6
10	5.2	5.9	9.7	28	25	36	214	44	14	5.7	15	1.7
11	4.8	6.3	9.5	26	69	30	151	34	26	5.0	12	1.7
12	4.5	7.1	9.4	24	128	28	99	34	31	3.9	9.7	1.4
13	18	6.5	10	22	116	25	77	44	18	3.4	8.1	1.5
14	11	6.7	9.6	21	90	23	91	37	12	3.5	7.6	12
15	6.0	7.2	9.2	20	100	22	126	29	9.1	4.8	7.4	7.5
16	4.9	7.4	10	20	146	21	272	22	7.2	6.2	6.1	4.9
17	4.8	7.3	11	19	209	30	269	16	6.3	5.4	5.7	3.4
18	4.8	6.7	9.6	19	225	134	204	13	13	4.5	5.4	2.6
19	4.8	6.8	8.6	19	203	177	132	13	18	5.1	4.7	2.5
20	4.7	7.9	8.4	19	158	138	79	12	11	31	4.5	2.2
21	5.0	8.2	8.8	19	110	103	77	11	7.8	48	4.2	2.1
22	5.0	7.8	8.8	20	80	80	65	9.3	5.7	22	4.2	2.1
23	5.0	7.7	8.4	20	63	62	48	8.8	5.0	13	3.6	2.2
24	5.0	7.3	8.0	20	60	50	39	9.5	13	8.6	4.4	2.3
25	8.6	6.9	8.0	20	52	44	34	10	7.9	6.5	6.5	2.2
26	16	7.3	8.0	20	45	42	60	9.4	5.9	5.0	3.7	2.3
27	28	8.3	7.4	20	124	39	53	8.0	27	4.5	3.3	2.1
28	10	7.3	7.4	21	129	36	41	16	83	4.3	3.6	2.0
29	7.6	8.6	7.6	22	---	36	36	16	60	3.6	3.4	2.0
30	6.8	13	7.4	22	---	47	33	10	31	3.8	2.6	4.6
31	6.0	---	7.2	22	---	362	---	15	---	3.7	2.2	---
TOTAL	240.9	224.2	278.0	923	2432	2069	4019	1005.0	478.5	291.7	381.9	84.1
MEAN	7.77	7.47	8.97	29.8	86.9	66.7	134	32.4	15.9	9.41	12.3	2.80
MAX	28	14	11	98	225	362	439	94	83	48	80	12
MIN	3.0	4.9	7.2	11	25	21	33	8.0	4.6	3.4	2.2	1.4
CFSM	.22	.22	.26	.86	2.50	1.92	3.86	.93	.46	.27	.36	.08
INF.	.26	.24	.30	.99	2.61	2.22	4.31	1.08	.51	.31	.41	.09

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1998, 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
MEAN	21.0	29.5	24.7	16.9	31.9	61.2	63.9	27.2	28.2	18.4	14.8	19.7												
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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1975 - 1998
ANNUAL TOTAL	12773.8	12427.3	
ANNUAL MEAN	35.0	34.0	29.8
HIGHEST ANNUAL MEAN			53.4
LOWEST ANNUAL MEAN			10.9
HIGHEST DAILY MEAN	(a) 960	439	(a) 960
LOWEST DAILY MEAN	3.0	1.4	.63
ANNUAL SEVEN-DAY MINIMUM	(b) 3.6	1.6	.82
INSTANTANEOUS PEAK FLOW		454	(c) 1500
INSTANTANEOUS PEAK STAGE		5.60	(d) 8.31
ANNUAL RUNOFF (CFSM)	1.01	.98	.86
ANNUAL RUNOFF (INCHES)	13.69	13.32	11.67
10 PERCENT EXCEEDS	61	87	64
50 PERCENT EXCEEDS	15	11	14
90 PERCENT EXCEEDS	5.8	3.6	4.2

(a) Estimated

(b) Ice affected

(c) From rating curve extended above 717 ft³/s

(d) From floodmarks

STREAMS TRIBUTARY TO LAKE MICHIGAN
04087088 UNDERWOOD CREEK AT WAUWATOSA, WI

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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).

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, Jan. 10-19 and Mar. 10-16. Records good except those for ice-affected periods, which are poor (see page 12). Gage-height telemeter at station.

REVISIONS.--The date for maximum discharge for the 1978 water year has been revised from Sept. 30 to May 13, 1978.

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	4.3	4.1	4.7	5.8	21	19	69	40	7.9	6.2	4.0	12
2	4.3	4.0	4.2	8.1	30	16	37	20	6.5	5.1	3.7	13
3	3.9	3.8	14	11	20	17	25	17	5.6	18	3.6	6.7
4	3.8	3.7	8.1	43	16	13	20	15	5.1	7.3	69	6.2
5	3.7	11	5.2	43	13	12	17	13	5.3	4.7	67	5.7
6	3.6	8.4	4.5	51	12	15	15	12	4.9	4.3	1420	6.2
7	4.0	4.9	4.2	40	12	12	16	50	4.7	5.0	909	7.6
8	4.2	4.3	4.2	22	12	53	59	22	4.6	4.5	245	5.2
9	4.8	4.1	4.9	21	11	30	104	15	14	4.3	67	4.7
10	3.8	4.1	9.4	13	11	16	44	13	9.9	3.9	29	4.8
11	3.6	3.8	7.0	11	65	13	28	12	26	3.8	20	4.6
12	3.8	3.6	5.5	10	49	11	22	16	12	3.7	16	5.0
13	12	3.7	4.7	9.2	29	10	35	19	6.6	3.7	13	5.1
14	4.5	3.6	4.5	8.6	21	9.4	38	11	5.6	3.6	13	40
15	4.0	6.0	5.0	8.0	23	8.8	57	10	5.2	22	13	18
16	3.6	4.0	5.6	7.6	33	8.6	147	13	5.1	7.8	10	7.9
17	3.6	3.9	5.0	7.2	54	27	52	7.5	4.8	4.6	9.4	6.3
18	3.3	3.8	4.6	6.8	43	97	32	7.1	12	3.9	8.8	5.9
19	3.7	3.6	4.6	6.4	27	65	24	18	13	7.0	8.2	4.7
20	3.4	4.7	4.9	6.0	21	32	21	7.2	6.0	39	8.1	4.5
21	3.4	4.0	4.2	7.1	17	24	44	6.7	5.1	20	7.4	4.3
22	3.3	3.9	5.4	7.5	15	19	24	6.3	4.5	8.5	7.1	4.2
23	5.3	3.7	4.5	8.8	15	17	19	6.2	4.6	6.1	7.1	4.3
24	5.8	3.9	4.9	7.5	17	15	16	11	27	4.9	6.6	5.1
25	4.1	3.8	6.0	7.2	13	14	14	7.2	6.2	4.4	31	4.5
26	25	3.8	4.8	8.0	12	13	27	6.6	4.9	4.1	8.4	4.5
27	15	10	4.4	8.2	69	12	16	6.1	36	4.0	7.8	4.0
28	6.0	5.7	4.4	8.9	27	14	13	19	65	3.8	9.7	3.7
29	4.9	9.9	4.9	10	---	11	14	26	11	3.8	7.4	3.9
30	4.3	7.3	4.1	8.6	---	15	14	7.8	14	3.8	6.2	21
31	4.1	---	3.7	8.6	---	154	---	31	---	3.9	5.8	---
TOTAL	167.1	149.1	166.1	429.1	708	792.8	1063	471.7	343.1	229.7	3041.3	233.6
MEAN	5.39	4.97	5.36	13.8	25.3	25.6	35.4	15.2	11.4	7.41	98.1	7.79
MAX	25	11	14	51	69	154	147	50	65	39	1420	40
MIN	3.3	3.6	3.7	5.8	11	8.6	13	6.1	4.5	3.6	3.6	3.7
CFSM	.30	.27	.29	.76	1.39	1.41	1.95	.84	.63	.41	5.39	.43
IN.	.34	.30	.34	.88	1.45	1.62	2.17	.96	.70	.47	6.22	.48

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1998, BY WATER YEAR (WY)												
MEAN	8.89	11.5	11.1	8.61	13.3	24.8	27.1	15.1	15.7	11.8	16.5	12.0
MAX	26.9	42.2	27.2	39.1	26.3	73.4	73.6	46.9	68.8	29.5	98.1	56.0
(WY)	1987	1986	1983	1988	1985	1979	1993	1990	1997	1997	1998	1986
MIN	2.43	1.81	1.57	.031	1.83	6.74	6.24	2.28	4.80	3.29	3.49	3.06
(WY)	1976	1977	1977	1977	1977	1981	1977	1977	1976	1976	1976	1982

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1975 - 1998
ANNUAL TOTAL	6708.2	7794.6	
ANNUAL MEAN	18.4	21.4	14.7
HIGHEST ANNUAL MEAN			23.2
LOWEST ANNUAL MEAN			4.21
HIGHEST DAILY MEAN	1270	1420	1420
LOWEST DAILY MEAN	3.3	3.3	.00
ANNUAL SEVEN-DAY MINIMUM	3.5	3.5	.00
INSTANTANEOUS PEAK FLOW		(b) 7500	(b) 7500
INSTANTANEOUS PEAK STAGE		13.10	13.10
ANNUAL RUNOFF (CFSM)	1.01	1.17	.81
ANNUAL RUNOFF (INCHES)	13.71	15.93	10.98
10 PERCENT EXCEEDS	25	34	31
50 PERCENT EXCEEDS	8.2	7.9	7.0
90 PERCENT EXCEEDS	4.0	3.9	3.0

(a) No flow on all or part of many days during 1977 winter period

(b) From rating curve extended above 96 ft³/s based on slope-area measurement of peak flow

PERIOD OF RECORD.--October 1961 to current year.

REMARKS.--Estimated daily discharges: Aug. 14-24 and ice-affected periods, Nov. 24, Dec. 28 to Jan. 1, Jan. 9-17, and Mar. 10-15. Records good except those for estimated daily discharges: Aug. 14-24, which are fair and ice-affected periods, which are poor (see page 12). Gage-height telemeter at station.

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	18	33	35	111	178	896	240	44	53	12	28
2	19	16	27	48	179	143	622	175	35	42	11	45
3	18	17	68	72	150	136	433	141	30	77	11	21
4	15	17	57	197	124	115	266	119	27	52	298	18
5	14	38	36	264	106	102	176	105	27	32	328	16
6	13	61	28	301	97	111	134	95	24	29	3250	16
7	14	25	25	264	93	101	118	278	21	33	3120	20
8	14	19	22	152	89	320	331	158	21	26	555	13
9	21	18	26	110	85	235	817	127	56	27	155	14
10	18	18	47	90	84	120	496	103	75	23	90	13
11	13	16	47	84	364	100	282	89	118	21	67	13
12	13	16	34	78	463	90	196	109	91	20	55	12
13	56	18	28	74	268	80	206	135	54	19	47	13
14	27	18	26	68	189	76	266	90	37	19	43	148
15	17	30	29	64	189	72	364	78	31	103	39	101
16	16	24	32	62	276	69	984	79	27	41	36	33
17	16	18	31	60	496	129	565	57	25	20	33	24
18	13	20	29	59	465	583	351	52	62	17	31	20
19	13	19	28	56	336	490	225	91	98	36	29	17
20	13	22	32	55	250	283	162	48	37	212	28	15
21	14	25	29	57	189	202	236	43	28	211	27	15
22	13	20	34	60	152	164	147	38	23	63	26	14
23	19	18	28	66	129	138	122	34	21	40	25	13
24	27	18	26	63	145	119	106	56	126	27	24	17
25	18	18	37	58	117	109	95	39	37	21	124	15
26	86	17	30	64	105	103	183	36	25	17	31	18
27	99	41	24	67	478	98	125	34	218	15	26	14
28	36	39	25	68	260	98	105	104	341	15	33	11
29	25	41	25	77	---	88	100	138	103	14	26	12
30	22	57	24	72	---	109	94	56	100	13	21	63
31	20	---	23	71	---	990	---	145	---	13	20	---
TOTAL	741	742	990	2916	5989	5751	9203	3092	1962	1351	8621	792
MEAN	23.9	24.7	31.9	94.1	214	186	307	99.7	65.4	43.6	278	26.4
MAX	99	61	68	301	496	990	984	278	341	212	3250	148
MIN	13	16	22	35	84	69	94	34	21	13	11	11
CFSM	.19	.20	.26	.76	1.74	1.51	2.49	.81	.53	.35	2.26	.21
IN.	.22	.22	.30	.88	1.81	1.74	2.78	.94	.59	.41	2.61	.22

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 1996, BY WATER YEAR (WY)												
MEAN	66.1	82.0	79.9	58.0	95.6	209	205	104	104	75.4	76.5	81.9
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 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1962 - 1998	
ANNUAL TOTAL	49980		42150			
ANNUAL MEAN	137		115		103	
HIGHEST ANNUAL MEAN					195	
LOWEST ANNUAL MEAN					24.0	
HIGHEST DAILY MEAN	7520	Jun 21	3250	Aug 6	7520	Jun 21 1997
LOWEST DAILY MEAN	13	(a) Oct 6	11	(b) Aug 2	(c) 2.8	Jan 18 1964
ANNUAL SEVEN-DAY MINIMUM	14	Oct 16	13	Jul 28	(c) 3.1	Feb 22 1963
INSTANTANEOUS PEAK FLOW			(d) 12800	Aug 6	(e) 13500	(f) Apr 21 1973
INSTANTANEOUS PEAK STAGE			18.30	Aug 6	(g) 18.63	Jun 21 1997
ANNUAL RUNOFF (CFSM)	1.11		.94		.84	
ANNUAL RUNOFF (INCHES)	15.12		12.75		11.37	
10 PERCENT EXCEEDS	211		262		232	
50 PERCENT EXCEEDS	57		48		44	
90 PERCENT EXCEEDS	19		16		14	

- (a) Also occurred on Oct. 11, 12, 18-20, and 22
- (b) Also occurred on Aug. 3 and Sept. 28
- (c) Ice affected
- (d) From rating curve extended above 9,430 ft^3/s on basis of slope-area measurement of peak flow
- (e) From rating curve extended above 6,000 ft^3/s on basis of slope-area measurement of peak flow, gage height 13.92 ft, datum then in use
- (f) Also occurred June 21, 1997, discharge determined from rating curve extended above 9,430 ft^3/s on basis of slope-area measurement of peak flow
- (g) High-water mark on gage-house door was 18.87 ft

STREAMS TRIBUTARY TO LAKE MICHIGAN

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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 September 1998.

GAGE.--Water-stage recorder. Elevation of gage is 670 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 1-12, Aug. 5-6, and ice-affected period, Dec. 28 to Feb. 12. Records good except those for estimated daily discharges, which are poor (see page 12).

REVISIONS.--The maximum discharge for Nov. 12, 1996 to May 21, 1997 has been revised to 25 ft³/s, Feb. 21, 1997. The daily discharge for Feb. 21, 1997, has been revised to 15 ft³/s. Revised discharges, in cubic feet per second, for February 1997 are given below. These figures supersede those published in the report for 1997.

	TOTAL	MEAN	MAX	MIN
February 1997	33.49	1.20	15	.05

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	---	.03	.14	.06	.45	.80	2.0	2.8	.19	.08	.02	.19
2	---	.02	.11	.12	.60	.74	1.1	.64	.16	.05	.02	.43
3	---	.02	1.1	.50	.45	.92	.84	1.1	.15	.29	.02	.06
4	---	.02	.27	1.8	.35	.64	.72	.60	.12	.12	.53	.04
5	---	.70	.12	1.4	.25	.56	.68	.53	.15	.03	18	.02
6	---	.30	.09	1.7	.35	.68	.67	.54	.14	.02	15	.04
7	---	.15	.07	1.1	.32	.54	.86	1.8	.16	.06	.73	.03
8	---	.11	.06	.60	.30	5.7	5.6	.62	.15	.05	.50	.02
9	---	.10	.15	.45	.28	1.3	15	.51	.81	.02	.38	.02
10	---	.10	.74	.40	.40	.76	1.9	.45	.46	.02	.28	.02
11	---	.06	.42	.32	4.0	.59	1.2	.45	1.7	.02	.22	.02
12	---	.03	.19	.26	1.5	.64	.95	.95	.45	.02	.14	.02
13	---	.02	.15	.24	1.1	.61	1.1	.68	.27	.02	.12	.02
14	---	.02	.13	.23	.87	.57	1.1	.40	.18	.02	.18	2.2
15	---	.05	.15	.21	.94	.45	3.1	.38	.17	.96	.19	.75
16	---	.02	.17	.19	1.4	.48	12	.36	.15	.21	.13	.12
17	---	.01	.13	.17	1.8	2.1	1.3	.32	.11	.05	.12	.04
18	---	.01	.12	.16	1.1	7.5	.83	.28	.38	.02	.11	.03
19	---	.01	.12	.16	.75	2.5	.64	.71	.52	.25	.10	.03
20	---	.02	.11	.17	.76	1.1	.62	.27	.09	2.2	.10	.04
21	---	.04	.10	.17	.62	.79	1.9	.25	.06	.57	.14	.03
22	---	.02	.22	.17	.49	.67	.63	.24	.02	.12	.11	.02
23	---	.02	.14	.18	.45	.65	.55	.27	.03	.04	.11	.02
24	---	.01	.12	.17	.93	.58	.49	.29	.84	.02	.13	.11
25	---	.04	.28	.16	.67	.58	.44	.23	.12	.02	3.9	.03
26	---	.04	.21	.16	.66	.60	.71	.22	.07	.02	.16	.46
27	---	.32	.10	.17	4.5	.58	.36	.19	2.2	.03	.10	.03
28	---	.19	.09	.18	1.0	.90	.37	.75	2.7	.03	.40	.02
29	---	.70	.08	.19	---	.53	.37	1.2	.18	.02	.13	.37
30	---	.48	.06	.18	---	1.6	.70	.19	.15	.02	.08	.70
31	---	---	.03	.25	---	9.3	---	1.2	---	.02	.08	---
TOTAL	---	3.66	5.97	12.22	27.29	45.96	58.73	19.42	12.88	5.42	42.23	5.93
MEAN	---	.12	.19	.39	.97	1.48	1.96	.63	.43	.17	1.36	.20
MAX	---	.70	1.1	1.8	4.5	9.3	15	2.8	2.7	2.2	18	2.2
MIN	---	.01	.03	.06	.25	.45	.36	.19	.02	.02	.02	.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1998, BY WATER YEAR (WY)												
MEAN	---	---	.23	.33	1.26	1.13	.63	.43	.17	1.36	.20	
MAX	---	---	.27	.39	1.55	1.48	1.96	.63	.43	.17	1.36	.20
(WY)	---	---	1997	1998	1997	1998	1998	1998	1998	1998	1998	1998
MIN	---	---	.19	.27	.97	.79	.70	.63	.43	.17	1.36	.20
(WY)	---	---	1998	1997	1998	1997	1997	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(NOVEMBER-SEPTEMBER)

WATER YEARS 1997 - 1998
(PARTIAL YEARS)

HIGHEST DAILY MEAN	18	Aug 5	18	Aug 5 1998
LOWEST DAILY MEAN	.01	(a) Nov 17	.01	(a) Nov 17 1997
ANNUAL SEVEN-DAY MINIMUM	.02	Nov 16	.02	Nov 16 1997
INSTANTANEOUS PEAK FLOW	32	Aug 5	32	Aug 5 1998
INSTANTANEOUS PEAK STAGE	(b) 15.95	Aug 5	(b) 15.95	Aug 5 1998
INSTANTANEOUS LOW FLOW	.01	Many days	.01	Many days
10 PERCENT EXCEEDS	1.3		1.6	
50 PERCENT EXCEEDS	.24		.32	
90 PERCENT EXCEEDS	.02		.03	

(a) Also occurred on Nov. 18-19,24

(b) Based on floodmark in gage house

STREAMS TRIBUTARY TO LAKE MICHIGAN
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 September 1998.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1996 to May 1997, November 1997 to September 1998.

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, 25.5°C, Aug. 6; minimum observed, 0.0°C, many days during winter.

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)	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)	
OCT 1997												
16...	1205	.02	--	7.9	21	<12	78	32	26	.236	1.6	
DEC 10...	1152	--	.52	--	--	--	--	--	--	--	--	
JAN 1998												
08...	1900	--	1.0	--	--	--	--	--	--	--	--	
20...	0942	--	.21	7.9	14	<4.0	120	46	<5	.577	1.2	
FEB 05...	1208	--	.76	--	--	--	--	--	--	--	--	
MAR 03...	1022	--	.85	--	--	--	--	--	--	--	--	
26...	1420	--	.59	--	--	--	--	--	--	--	--	
APR 30...	1304	--	.38	8.1	<9	<6.0	120	51	<5	.045	.40	
JUN 10...	1500	--	.32	--	--	--	--	--	--	--	--	
23...	1402	--	.04	--	--	--	--	--	--	--	--	
JUL 20...	2145	--	17	--	--	--	--	--	--	--	--	
28...	0952	--	.04	7.8	<9	<6.0	120	49	<5	.030	.56	
SEP 10...	1022	--	.04	--	--	--	--	--	--	--	--	
30...	0938	--	.04	--	--	--	--	--	--	--	--	
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 RECOVER. GRAVI-METRIC (MG/L) (00556)	1,2 ETH-ANEDIOL UNFIL-TERED, TOTAL RECOVER (MG/L) (99918)	1,2 PRO-PANEDIOL UNFIL-TERED, TOTAL RECOVER (MG/L) (99919)	GLYCOL HYDRO-LIZERS UNFIL-TERED, TOTAL RECOVER (COLS./ 100ML) (99920)	PSEU-MONAS UNFIL-TERED, TOTAL RECOVER (COLS./ 100ML) (99921)	PRESUMP. AERO-MONAS UNFIL-TERED, TOTAL RECOVER (COLS./ 100ML) (99922)
OCT 1997												
16...	.087	--	4	3	<20	<2	<18.0	<18.0	--	--	--	--
DEC 10...	--	--	--	--	--	<2	--	--	--	--	--	--
JAN 1998												
08...	--	--	--	--	--	<2	--	--	--	--	--	--
20...	.039	--	4	2	30	<2	<18.0	<18.0	500	190	--	--
FEB 05...	--	--	--	--	--	--	--	--	460	--	--	--
MAR 03...	--	--	--	--	--	<2	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	140	1000	--	--
APR 30...	.031	--	3	1	<20	<2	<18.0	<18.0	1100	400	13000	--
JUN 10...	--	--	--	--	--	--	--	--	24000	5500	100	--
23...	--	--	--	--	--	--	--	--	920	50.0	310	--
JUL 20...	--	--	--	--	--	<2	--	--	--	--	--	--
28...	.044	<1	2	<1	<20	<2	<18.0	<18.0	23000	1500	3200	--
SEP 10...	--	--	--	--	--	--	--	--	80	350	<10.0	--
30...	--	--	--	--	--	--	--	--	1800	3700	600	--

STREAMS TRIBUTARY TO LAKE MICHIGAN
040871473 WILSON PARK CREEK AT GMIA INFALL AT MILWAUKEE, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

COMPOSITE SAMPLES

BEGIN- NING DATE	BEGIN- NING TIME	ENDING DATE	ENDING TIME	RUNOFF VOLUME OF CUBIC FEET (99905)	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)
12-10-97	0555	12-10-97	2020	.046	8.0	32	<60	61	16
01-04-98	0625	01-04-98	1045	.020	7.5	34	14	39	13
01-08-98	0835	01-08-98	1935	.028	8.0	15	<6.0	89	31
03-03-98	0605	03-03-98	1020	.014	8.2	22	<6.0	95	39
07-20-98	2005	07-21-98	0625	.214	7.7	30	<6.0	22	6.7

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	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)	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)	1,2 ETH- ANEDIOL UNFIL- TERED, TOTAL RECOV (MG/L) (99918)	1,2 PRO- PANEDIOL UNFIL- TERED, TOTAL RECOV (MG/L) (99919)
12-10-97	50	--	.297	1.2	.140	--	9	10	70	<18.0	<18.0
01-04-98	20	1.22	.562	2.4	.085	--	6	4	30	<18.0	<18.0
01-08-98	7	--	.465	1.3	.032	--	3	1	<20	<18.0	<18.0
03-03-98	23	--	.257	.90	.057	--	12	5	30	<18.0	<18.0
07-20-98	63	--	.079	1.2	.168	<1	9	8	40	<18.0	<18.0

TEMPERATURE, WATER (DEG. C), 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	---	---	---	---	---	---	4.5	3.5	4.0	1.0	.0	.5
2	---	---	---	---	---	---	4.0	3.0	3.5	1.0	.0	.5
3	---	---	---	---	---	---	4.0	3.5	3.5	3.0	.5	2.0
4	---	---	---	---	---	---	4.0	2.0	3.0	2.5	1.0	2.0
5	---	---	---	---	---	---	2.5	1.5	2.0	4.0	2.0	3.5
6	---	---	---	---	---	---	2.5	1.5	1.5	4.0	3.0	3.5
7	---	---	---	---	---	---	2.0	1.5	1.5	4.0	2.5	3.0
8	---	---	---	7.5	5.5	6.5	2.0	1.0	1.5	3.0	.0	2.0
9	---	---	---	7.0	6.0	6.5	2.0	1.0	1.5	1.5	.5	1.5
10	---	---	---	7.0	5.0	6.0	2.0	1.0	1.5	1.0	.5	.5
11	---	---	---	5.5	4.0	4.5	2.0	1.5	1.5	1.0	.0	.5
12	---	---	---	4.5	3.0	4.0	2.0	1.0	1.5	1.0	.0	.5
13	---	---	---	4.0	2.5	3.0	2.0	1.0	1.5	.5	.0	.0
14	---	---	---	4.0	3.0	3.5	2.0	1.0	1.5	.0	.0	.0
15	---	---	---	4.0	2.5	3.0	2.0	1.0	1.5	.0	.0	.0
16	---	---	---	3.5	2.0	2.5	2.5	1.0	1.5	.0	.0	.0
17	---	---	---	2.5	1.5	2.0	2.0	1.0	1.5	.0	.0	.0
18	---	---	---	2.5	1.5	2.0	2.0	1.0	1.5	.0	.0	.0
19	---	---	---	2.0	1.0	1.5	3.0	2.0	2.5	.0	.0	.0
20	---	---	---	1.5	1.0	1.5	2.5	1.5	2.0	.0	.0	.0
21	---	---	---	2.0	1.0	1.5	2.0	1.0	1.5	.5	.0	.0
22	---	---	---	2.5	1.5	2.0	1.5	1.0	1.5	.5	.0	.0
23	---	---	---	2.0	1.0	1.5	1.5	1.0	1.5	.5	.0	.0
24	---	---	---	1.5	1.0	1.0	1.5	1.0	1.5	.5	.0	.0
25	---	---	---	1.5	1.0	1.0	2.0	.5	1.0	.5	.0	.0
26	---	---	---	3.0	1.0	2.0	1.5	.5	1.0	1.0	.0	.5
27	---	---	---	3.0	1.5	2.0	2.0	.5	1.0	1.0	.0	.5
28	---	---	---	4.5	2.5	3.5	1.0	.5	1.0	1.5	.0	.5
29	---	---	---	6.0	4.0	4.5	1.0	.5	1.0	1.0	.0	.5
30	---	---	---	6.0	4.0	5.0	1.0	.5	1.0	1.0	.5	.5
31	---	---	---	---	---	---	1.0	.5	.5	1.5	.0	1.0
MONTH	---	---	---	---	---	---	4.5	.5	1.7	4.0	.0	.8

STREAMS TRIBUTARY TO LAKE MICHIGAN
040871473 WILSON PARK CREEK AT GMIA INFALL AT MILWAUKEE, 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	1.5	.0	.5	5.5	4.0	4.5	10.0	6.0	7.5	10.5	9.5	10.0
2	1.0	.0	.5	4.5	3.5	4.0	8.5	5.5	7.0	12.5	9.0	10.5
3	1.5	.5	1.0	4.5	2.5	3.5	8.5	6.0	7.0	11.0	9.5	10.0
4	1.0	.0	.5	3.5	2.5	3.0	12.0	5.0	8.0	14.0	9.0	11.5
5	1.5	.0	.5	4.0	2.5	3.0	12.0	4.5	8.0	13.5	11.0	12.0
6	2.0	.5	1.0	4.5	2.5	3.5	12.0	5.0	8.0	14.0	11.0	12.5
7	2.0	.5	1.0	4.5	2.0	3.5	12.0	6.0	8.5	12.5	11.0	12.0
8	2.5	1.0	1.5	4.0	2.0	3.0	8.5	6.0	7.0	14.5	10.5	12.0
9	2.0	.5	1.5	2.5	.5	1.5	6.5	4.0	5.5	14.5	10.0	12.0
10	2.5	1.0	1.5	2.0	.5	1.0	12.0	3.0	7.0	14.5	10.0	12.0
11	2.0	.0	1.0	2.0	.5	1.0	11.0	5.0	8.0	16.5	10.5	13.0
12	3.5	.0	1.5	1.5	.5	1.0	15.0	8.0	11.0	16.0	11.5	13.5
13	2.5	1.0	2.0	2.0	.5	1.0	11.5	9.0	10.0	18.0	13.5	15.5
14	4.0	2.0	3.0	2.0	.5	1.0	14.5	9.5	11.5	18.5	13.0	15.5
15	5.0	1.5	3.0	2.0	.5	1.5	11.0	6.5	8.5	19.5	14.0	16.5
16	4.5	3.0	3.5	3.0	1.0	1.5	7.5	5.0	6.5	19.5	15.0	17.0
17	4.0	3.0	3.5	3.5	.5	1.5	12.5	4.0	8.0	20.0	14.0	17.0
18	4.0	3.0	3.5	2.5	.5	1.5	13.5	6.5	10.0	20.5	15.0	17.5
19	4.5	3.0	3.5	3.0	1.0	2.0	14.5	8.0	11.0	22.0	16.5	19.0
20	4.5	3.0	4.0	5.0	1.0	2.5	13.5	8.5	11.0	19.5	15.5	17.5
21	5.0	3.0	4.0	7.0	1.0	3.5	12.0	8.5	10.0	18.5	14.0	16.0
22	6.0	3.5	5.0	7.0	1.5	4.0	13.5	8.0	10.5	15.5	12.5	14.0
23	6.0	4.0	5.0	8.0	2.5	5.0	15.0	8.5	11.5	17.5	12.0	14.5
24	6.0	4.5	5.0	8.0	2.5	5.0	14.0	10.0	11.5	14.5	12.5	13.5
25	6.0	3.5	4.5	8.5	4.5	6.5	12.5	9.0	11.0	18.0	12.0	14.5
26	6.5	4.5	5.5	14.0	7.0	11.0	12.0	9.0	10.0	19.5	13.0	15.5
27	6.5	4.5	5.5	15.0	11.0	12.5	12.5	7.0	9.5	19.5	13.0	16.0
28	6.0	3.5	5.0	14.0	9.5	11.5	12.5	7.5	10.0	21.0	15.0	17.5
29	---	---	---	14.0	8.5	11.5	11.5	9.0	10.0	21.0	17.5	19.0
30	---	---	---	16.5	11.0	13.5	11.0	9.5	10.0	19.0	15.5	17.0
31	---	---	---	11.5	6.5	8.0	---	---	---	20.5	16.0	18.0
MONTH	6.5	.0	2.8	16.5	.5	4.4	15.0	3.0	9.1	22.0	9.0	14.6
JUNE				JULY			AUGUST			SEPTEMBER		
1	19.0	15.0	16.5	22.5	19.0	20.5	22.5	18.0	20.0	20.0	18.0	19.0
2	17.5	14.5	16.0	22.5	18.5	20.5	22.5	19.0	21.0	20.0	18.5	19.0
3	17.5	13.5	15.0	22.0	19.5	20.5	21.5	20.0	21.0	19.0	17.0	18.0
4	18.0	12.0	14.5	21.5	19.5	20.5	21.5	20.0	20.5	19.5	17.0	18.0
5	15.5	13.0	14.0	22.5	18.5	20.0	22.5	18.5	20.5	20.0	17.0	18.5
6	15.0	11.5	13.0	22.5	19.0	20.5	25.5	15.0	20.5	21.0	18.5	19.5
7	17.0	11.5	14.0	21.0	19.5	20.0	21.5	20.5	21.0	21.0	18.5	19.5
8	18.0	11.5	14.5	21.5	19.0	20.0	21.5	20.5	21.0	18.5	16.0	17.0
9	15.0	13.5	14.0	23.0	19.0	20.5	22.5	20.5	21.5	17.5	15.5	16.5
10	16.5	13.5	15.0	22.0	19.5	20.5	22.5	21.0	22.0	18.0	15.5	16.5
11	16.5	14.0	15.0	22.5	18.0	19.5	22.0	20.5	21.0	18.5	16.0	17.5
12	19.5	15.5	17.0	22.0	18.5	20.0	22.0	20.0	20.5	19.5	17.0	18.0
13	20.0	16.0	18.0	23.0	18.5	20.5	21.5	19.5	20.5	21.0	18.0	19.5
14	19.0	16.0	17.5	24.5	20.0	22.0	21.5	19.5	20.5	20.5	19.5	19.5
15	21.5	15.5	18.0	24.0	20.5	22.5	21.5	20.0	20.5	20.0	19.0	19.5
16	21.5	16.0	18.5	24.0	21.0	22.5	21.5	19.0	20.0	19.5	18.0	19.0
17	22.5	17.0	19.0	23.5	20.0	21.5	21.0	19.5	20.5	19.0	17.5	18.5
18	21.5	18.0	19.5	24.0	19.5	21.5	20.5	19.5	20.0	19.0	17.0	18.0
19	21.0	18.0	19.5	24.0	20.5	22.0	20.5	19.0	19.5	19.5	17.0	18.5
20	22.5	18.0	20.0	25.0	20.5	22.5	21.0	18.0	19.5	20.5	18.0	19.0
21	23.0	19.5	21.0	23.5	21.5	22.5	22.0	20.5	21.0	20.0	17.0	18.0
22	22.5	18.5	20.0	22.5	21.0	21.5	22.5	20.5	21.5	17.5	15.5	16.5
23	23.0	18.0	20.0	23.0	19.5	21.0	22.5	20.5	21.5	16.0	14.0	15.0
24	23.0	19.0	21.0	21.5	18.5	20.0	22.5	21.5	21.5	16.5	15.0	15.5
25	24.5	21.0	22.5	22.0	18.5	20.0	21.5	21.0	21.5	18.0	15.0	16.5
26	24.5	20.5	22.0	22.5	18.0	20.0	21.5	19.5	21.0	19.5	17.5	18.5
27	23.0	20.5	21.5	23.0	19.0	20.5	21.0	20.0	20.5	20.0	19.0	19.5
28	23.0	20.5	21.5	23.0	19.0	21.0	21.0	20.0	20.5	19.0	16.5	17.5
29	22.5	20.5	21.5	23.0	19.5	21.0	21.5	20.0	20.5	17.5	16.5	17.0
30	22.0	20.0	20.5	22.5	19.5	21.0	21.0	19.0	20.0	18.0	17.0	17.5
31	---	---	---	22.5	19.0	20.5	20.5	18.0	19.5	---	---	---
MONTH	24.5	11.5	18.0	25.0	18.0	20.9	25.5	15.0	20.7	21.0	14.0	18.0

STREAMS TRIBUTARY TO LAKE MICHIGAN

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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 September 1998.

GAGE.--Water-stage recorder. Elevation of gage is 670 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Dec. 5, Jan. 5-6, Mar. 23-26, May 29 to June 10. Records are good except for estimated daily discharges, which are poor (see page 12).

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	.21	.25	2.8	1.5	6.2	8.9	1.0	.29	.16	1.2
2	---	.15	.17	1.8	5.8	1.2	2.6	1.3	.50	.24	.16	1.1
3	---	.15	4.5	1.6	2.5	1.9	1.7	3.0	.40	1.0	.23	.26
4	---	.15	.57	13	1.3	1.0	1.1	1.2	.34	.39	2.8	.22
5	---	2.4	.24	8.4	.79	.80	.87	.83	.30	.22	93	.20
6	---	1.4	.17	10	1.3	1.3	.74	.86	.28	.24	25	.20
7	---	.28	.15	4.2	1.3	.83	1.3	6.8	.27	.27	1.9	.20
8	---	.20	.15	1.7	1.4	22	19	1.3	.26	.23	1.7	.18
9	---	.18	.21	2.9	1.4	4.8	43	.84	1.7	.20	.81	.17
10	---	.18	2.7	1.7	2.0	1.9	4.3	.71	.60	.20	.51	.17
11	---	.16	1.1	.87	31	1.2	2.3	.63	6.6	.19	.36	.17
12	---	.15	.33	.65	10	1.1	1.6	2.5	.92	.19	.34	.17
13	---	.15	.24	.40	3.2	1.0	2.6	1.8	.32	.19	.33	.17
14	---	.15	.21	.35	2.4	.84	2.7	.59	.23	.19	.60	10
15	---	.21	.26	.43	2.9	.60	9.8	.55	.21	4.4	.48	2.6
16	---	.17	.27	.37	5.4	.57	35	.53	.19	.65	.30	.34
17	---	.15	.21	.34	8.0	8.4	3.8	.39	.18	.26	.28	.27
18	---	.15	.20	.28	4.3	27	2.1	.39	2.3	.24	.23	.23
19	---	.15	.20	.25	2.1	10	1.5	1.8	1.6	1.1	.19	.21
20	---	.17	.18	.24	1.9	3.5	1.8	.41	.33	8.8	.19	.20
21	---	.17	.17	.34	1.4	2.3	6.7	.37	.27	2.5	.19	.19
22	---	.14	.30	.35	1.2	1.8	1.7	.32	.24	.38	.19	.18
23	---	.13	.23	.63	1.1	1.5	1.3	.29	.24	.29	.19	.17
24	---	.13	.20	.36	3.9	1.3	1.0	.59	3.0	.21	.61	.30
25	---	.12	.56	.29	1.2	1.0	.90	.31	.39	.19	13	.51
26	---	.14	.33	.51	1.0	.96	2.1	.26	.32	.19	.34	1.1
27	---	.97	.24	.41	16	.93	.84	.27	9.0	.18	.28	.19
28	---	.27	.24	.44	2.3	1.9	.66	2.8	11	.16	1.7	.16
29	---	2.3	.29	.68	---	.85	.65	3.5	.65	.16	.34	1.0
30	---	.96	.23	.43	---	2.4	2.0	1.1	.39	.16	.26	3.5
31	---	---	.19	.44	---	29	---	3.0	---	.16	.24	---
TOTAL	---	12.21	15.25	54.61	119.89	135.38	161.86	48.14	44.03	24.07	146.91	25.56
MEAN	---	.41	.49	1.76	4.28	4.37	5.40	1.55	1.47	.78	4.74	.85
MAX	---	2.4	4.5	13	31	29	43	8.9	11	8.8	93	10
MIN	---	.12	.15	.24	.79	.57	.65	.26	.18	.16	.16	.16

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1998, BY WATER YEAR (WY)

	MEAN	---	.41	.74	1.61	4.22	3.19	3.57	1.55	1.47	.78	4.74	.85
MAX	---	.41	1.00	1.76	4.28	4.37	5.40	1.55	1.47	.78	4.74	.85	
(WY)	---	1998	1997	1998	1998	1998	1998	1998	1998	1998	1998	1998	
MIN	---	.41	.49	1.47	4.16	2.02	1.74	1.55	1.47	.78	4.74	.85	
(WY)	---	1998	1998	1997	1997	1997	1997	1998	1998	1998	1998	1998	

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(NOVEMBER-SEPTEMBER)WATER YEARS 1997 - 1998
(PARTIAL YEARS)

HIGHEST DAILY MEAN	93	Aug 5	93	Aug 5 1998
LOWEST DAILY MEAN	.12	Nov 25	.12	Nov 25 1997
ANNUAL SEVEN-DAY MINIMUM	.14	Nov 20	.14	Nov 20 1997
INSTANTANEOUS PEAK FLOW	587	Aug 5	587	Aug 5 1998
INSTANTANEOUS PEAK STAGE	16.23	Aug 5	16.23	Aug 5 1998
INSTANTANEOUS LOW FLOW	.11	Nov 24,25	.11	Nov 24,25 1997
10 PERCENT EXCEEDS	4.4		4.2	
50 PERCENT EXCEEDS	.54		.64	
90 PERCENT EXCEEDS	.17		.18	

STREAMS TRIBUTARY TO LAKE MICHIGAN

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 September 1998.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1996 to May 1997, October 1997 to September 1998.

DISSOLVED OXYGEN: October 1997 to September 1998.

INSTRUMENTATION.--Stage-activated water-quality sampler since November 1996. Continuous water-temperature recorder since November 1996. Continuous dissolved oxygen since October 1997.

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, 26.5°C, July 15, 1998; minimum observed, 0.5°C, Feb. 18, 21, 1997.

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, 26.5°C, July 15; minimum observed, 1.5°C, Feb. 11-12 and Mar. 8, 18.

DISSOLVED OXYGEN: Maximum observed, 14.1 mg/L, Feb. 27; minimum observed, 0.0 mg/L, June 27 and July 7.

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)	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)
OCT 1997											
16...	1040	.17	--	8.2	36	<12	100	42	6	1.39	2.3
DEC											
10...	1234	--	3.7	--	--	--	--	--	--	--	--
JAN 1998											
08...	2030	--	1.6	--	--	--	--	--	--	--	--
20...	1456	--	.22	8.1	630	370	130	50	8	9.14	23
FEB											
05...	1036	--	.72	--	--	--	--	--	--	--	--
MAR											
03...	1006	--	1.8	--	--	--	--	--	--	--	--
26...	1350	--	1.1	--	--	--	--	--	--	--	--
APR											
30...	1332	--	.62	8.0	180	100	130	52	<5	3.96	6.2
JUN											
10...	1700	--	.48	--	--	--	--	--	--	--	--
23...	1328	--	.27	--	--	--	--	--	--	--	--
JUL											
20...	2220	--	86	--	--	--	--	--	--	--	--
28...	1626	--	.17	7.9	73	39	130	57	10	2.07	3.4
SEP											
10...	1114	--	.17	--	--	--	--	--	--	--	--
30...	0832	--	.20	--	--	--	--	--	--	--	--

STREAMS TRIBUTARY TO LAKE MICHIGAN

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040871475 WILSON PARK CREEK AT GMIA OUTFALL #7 AT MILWAUKEE, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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 RECOVER GRAVI- METRIC (MG/L) (00556)	1,2 ETH- ANEDIOL UNFIL- TERED, TOTAL RECOVER (MG/L) (99918)	1,2 PRO- PANEDIOL UNFIL- TERED, TOTAL RECOVER (MG/L) (99919)	GLYCOL HYDRO- LIZERS UNFIL- TERED, TOTAL RECOVER (COLS./ 100ML) (99920)	PSEUDO- MONAS UNFIL- TERED, TOTAL RECOVER (COLS./ 100ML) (99921)	PRESUMP. AERO- MONAS UNFIL- TERED TOTAL RECOVER (COLS./ 100ML) (99922)
OCT 1997											
16...	.046	--	2	<1	20	<2	<18.0	<18.0	--	--	--
DEC 10...	--	--	--	--	--	17	--	--	--	--	--
JAN 1998											
08...	--	--	--	--	--	8	--	--	--	--	--
20...	.045	--	3	1	50	<2	57.0	220	1700	150	--
FEB 05...	--	--	--	--	--	--	--	--	42000	--	--
MAR 03...	--	--	--	--	--	<2	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	690	10.0	--
APR 30...	.033	--	3	<1	30	<2	<18.0	18.0	2300	2000	1600
JUN 10...	--	--	--	--	--	--	--	--	26000	7000	2000
23...	--	--	--	--	--	--	--	--	28000	700	480
JUL 20...	--	--	--	--	--	<2	--	--	--	--	--
28...	.075	<1	3	3	<20	<2	<18.0	<18.0	2300	1600	2700
SEP 10...	--	--	--	--	--	--	--	--	130	940	<10.0
30...	--	--	--	--	--	--	--	--	14000	4100	6000

COMPOSITE SAMPLES

BEGIN- NING DATE	BEGIN- NING TIME	ENDING DATE	ENDING TIME	RUNOFF VOLUME OF CUBIC FEET (99905)	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 RECOVER- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOVER -ABLE (MG/L) (00921)
12-10-97	0635	12-10-97	2055	.187	8.0	7300	4000	57	13
01-04-98	0605	01-04-98	1230	.129	8.0	6600	<300	51	14
01-08-98	0825	01-08-98	1940	.067	7.9	2000	1600	100	30
03-03-98	0610	03-03-98	0955	.026	7.9	1200	800	97	36
07-20-98	1950	07-21-98	0345	.824	7.9	60	16	56	19

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)	1,2 ETH- ANEDIOL UNFIL- TERED, TOTAL RECOVER (MG/L) (99918)	1,2 PRO- PANEDIOL UNFIL- TERED, TOTAL RECOVER (MG/L) (99919)
12-10-97	40	2.87	19	.122	--	19	19	160	220	3700
01-04-98	93	7.43	100	.137	--	19	11	160	960	3600
01-08-98	14	7.02	24	.059	--	8	5	90	140	1000
03-03-98	7	4.74	9.1	.067	--	8	2	60	120	700
07-20-98	290	.564	2.3	.273	1	42	51	430	<18.0	<18.0

STREAMS TRIBUTARY TO LAKE MICHIGAN
040871475 WILSON PARK CREEK AT GMIA OUTFALL #7 AT MILWAUKEE, 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	---	---	---	12.0	11.5	12.0	8.0	7.5	7.5	6.0	5.5	5.5
2	---	---	---	11.5	11.5	11.5	8.0	7.5	8.0	6.0	3.5	5.0
3	---	---	---	11.5	11.0	11.5	8.5	5.0	6.5	5.5	3.5	5.0
4	---	---	---	11.5	10.5	11.0	7.0	6.5	7.0	5.0	2.0	3.0
5	---	---	---	11.5	8.5	11.0	---	---	---	---	---	---
6	---	---	---	11.0	9.0	10.5	6.0	5.5	6.0	---	---	---
7	---	---	---	11.0	10.5	11.0	6.5	6.0	6.0	4.5	4.5	4.5
8	---	---	---	10.5	10.0	10.5	7.0	6.5	7.0	5.0	4.5	4.5
9	---	---	---	10.5	10.5	10.5	7.5	7.0	7.0	4.5	3.5	4.0
10	---	---	---	10.5	9.5	10.0	7.0	3.0	5.5	4.0	3.5	4.0
11	---	---	---	10.0	9.5	10.0	6.0	5.0	5.5	4.5	4.0	4.0
12	---	---	---	9.5	9.0	9.0	6.5	6.0	6.0	4.5	3.5	4.0
13	---	---	---	9.5	9.5	9.5	6.5	5.5	6.0	4.0	3.5	3.5
14	---	---	---	10.0	9.5	9.5	7.0	5.5	6.0	4.5	4.0	4.5
15	---	---	---	9.5	8.0	9.0	7.0	6.0	6.5	5.0	4.5	4.5
16	---	---	---	8.5	7.5	8.0	7.0	6.5	6.5	4.5	4.5	4.5
17	---	---	---	8.5	8.5	8.5	6.5	6.0	6.5	5.0	4.5	4.5
18	---	---	---	9.0	8.0	8.5	6.5	6.5	6.5	4.5	4.0	4.0
19	---	---	---	8.5	7.0	8.0	7.0	6.5	6.5	4.5	4.0	4.0
20	---	---	---	9.0	8.5	8.5	7.0	6.0	6.5	4.5	4.0	4.5
21	---	---	---	8.5	7.5	8.0	6.5	5.5	6.5	5.0	4.5	4.5
22	---	---	---	8.5	8.0	8.5	6.5	6.0	6.5	5.0	4.5	5.0
23	---	---	---	8.0	6.0	7.0	6.5	6.0	6.0	5.0	4.0	4.5
24	---	---	---	7.0	6.0	6.5	6.5	6.0	6.5	5.0	4.0	4.5
25	---	---	---	8.0	7.0	7.5	6.5	5.5	6.0	4.5	4.5	4.5
26	---	---	---	8.0	7.5	8.0	6.0	5.5	6.0	5.0	4.5	4.5
27	---	---	---	8.0	6.0	7.5	6.0	5.5	5.5	4.5	4.5	4.5
28	---	---	---	8.0	6.5	7.5	6.0	6.0	6.0	5.0	4.5	4.5
29	---	---	---	8.5	7.5	8.0	6.0	6.0	6.0	4.5	4.0	4.0
30	11.5	11.5	11.5	8.0	7.5	7.5	6.0	5.5	6.0	4.0	4.0	4.0
31	12.0	11.5	11.5	---	---	---	5.5	5.0	5.5	4.5	4.0	4.0
MONTH	---	---	---	12.0	6.0	9.1	---	---	---	---	---	---
	FEBRUARY			MARCH			APRIL			MAY		
1	4.5	2.5	4.0	6.0	5.5	5.5	8.0	7.0	7.5	11.0	10.0	10.0
2	3.0	2.0	2.5	5.5	5.5	5.5	7.5	7.0	7.0	10.0	9.5	10.0
3	3.0	2.5	3.0	5.5	5.0	5.0	7.5	7.0	7.0	10.5	10.0	10.0
4	3.0	3.0	3.0	5.0	5.0	5.0	7.5	6.5	7.0	10.5	9.5	10.0
5	3.5	3.0	3.5	5.0	5.0	5.0	7.5	7.0	7.0	10.5	10.0	10.5
6	4.0	3.0	3.5	5.5	4.5	5.0	7.5	7.0	7.0	11.0	10.0	10.5
7	3.5	3.0	3.5	5.5	5.0	5.0	8.5	7.5	7.5	12.0	11.0	11.5
8	4.0	3.0	3.5	5.5	1.5	3.5	8.0	6.5	7.0	11.0	10.5	10.5
9	4.0	3.0	3.5	3.5	3.0	3.5	6.5	5.0	5.5	11.0	10.5	10.5
10	4.0	3.0	3.5	3.5	3.0	3.5	8.0	5.5	6.5	11.0	10.0	10.5
11	3.0	1.5	2.5	3.5	2.5	3.0	8.0	6.5	7.0	11.0	10.5	10.5
12	3.5	1.5	2.5	3.5	3.0	3.5	9.0	7.5	8.0	16.0	11.0	11.5
13	3.5	3.0	3.5	4.0	3.5	4.0	10.0	8.0	9.0	14.5	12.0	12.5
14	4.0	3.5	4.0	4.0	3.0	3.5	9.5	8.5	9.0	12.0	11.5	12.0
15	4.5	4.0	4.0	4.0	3.5	4.0	9.5	7.0	8.5	12.0	12.0	12.0
16	5.0	3.5	4.5	4.0	4.0	4.0	7.0	5.5	6.5	12.5	12.0	12.5
17	4.5	3.5	4.0	4.5	2.0	3.5	8.5	6.5	7.0	12.5	12.0	12.0
18	4.5	4.0	4.0	3.0	1.5	2.0	9.0	7.5	8.0	12.5	12.0	12.5
19	5.0	4.5	4.5	3.0	2.5	3.0	9.5	8.0	8.5	16.0	12.5	14.0
20	5.0	4.5	5.0	4.0	3.0	3.5	9.5	8.0	9.0	14.0	13.5	13.5
21	5.0	4.5	5.0	5.0	3.5	4.0	10.0	8.5	9.0	13.5	13.0	13.0
22	5.5	5.0	5.0	4.5	4.0	4.5	9.5	8.5	9.0	13.0	12.5	13.0
23	5.5	5.0	5.5	---	---	---	10.0	8.5	9.0	12.5	12.5	12.5
24	6.5	4.5	5.5	---	---	---	10.0	9.0	9.5	13.0	12.5	12.5
25	5.5	5.0	5.5	---	---	---	10.0	9.0	9.5	12.5	12.0	12.5
26	6.0	5.5	5.5	---	---	---	9.5	9.0	9.5	12.5	12.5	12.5
27	6.0	5.0	5.5	7.5	6.5	7.0	9.5	8.5	9.0	12.5	12.5	12.5
28	6.0	5.0	5.5	8.5	7.5	8.0	9.5	9.0	9.0	16.5	12.5	14.0
29	---	---	---	8.0	7.0	7.5	9.5	9.0	9.0	---	---	---
30	---	---	---	12.0	7.5	9.0	10.5	9.5	9.5	---	---	---
31	---	---	---	10.5	6.5	8.0	---	---	---	---	---	---
MONTH	6.5	1.5	4.1	---	---	---	10.5	5.0	8.1	---	---	---

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	---	---	---	17.5	17.0	17.5	17.5	17.0	17.0	21.5	18.5	18.5
2	---	---	---	17.5	17.0	17.0	17.5	17.0	17.0	20.5	18.5	19.0
3	---	---	---	22.5	16.5	18.0	20.5	17.0	17.0	18.5	18.5	18.5
4	---	---	---	20.0	17.5	18.5	22.0	19.0	20.5	18.5	18.0	18.5
5	---	---	---	18.0	17.0	17.5	21.5	19.0	20.5	18.5	18.0	18.0
6	13.5	13.0	13.5	17.5	17.0	17.0	21.5	20.5	21.0	18.5	18.0	18.0
7	13.5	13.0	13.0	17.5	17.0	17.0	21.0	19.5	20.0	18.5	18.0	18.0
8	13.5	13.0	13.0	17.0	17.0	17.0	24.5	19.5	20.0	18.0	17.0	17.5
9	14.5	13.0	13.5	17.0	16.5	17.0	20.5	19.5	19.5	17.5	17.0	17.0
10	14.0	13.0	13.5	17.0	16.5	17.0	19.5	19.0	19.5	17.5	17.5	17.5
11	16.5	13.5	14.5	17.0	16.5	16.5	19.5	19.0	19.0	17.5	17.5	17.5
12	16.0	14.5	15.0	17.0	16.5	17.0	19.0	19.0	19.0	18.0	17.5	17.5
13	14.5	14.0	14.5	17.0	16.5	17.0	19.0	18.5	19.0	18.0	17.5	17.5
14	14.5	14.0	14.0	17.0	16.5	17.0	22.0	18.5	19.0	21.0	17.5	20.0
15	14.0	14.0	14.0	26.5	16.5	18.5	21.0	19.0	19.0	20.5	19.0	19.5
16	14.0	14.0	14.0	23.0	19.0	20.0	19.0	18.5	18.5	19.0	18.5	19.0
17	14.5	14.0	14.0	19.0	18.0	18.5	18.5	18.5	18.5	19.0	18.5	18.5
18	18.5	14.0	14.5	18.0	18.0	18.0	19.0	18.5	18.5	18.5	18.0	18.5
19	18.0	15.5	16.0	21.5	17.5	19.0	18.5	18.0	18.5	18.5	18.0	18.0
20	15.5	15.0	15.0	23.0	18.0	19.0	18.5	18.0	18.0	18.0	18.0	18.0
21	15.0	14.5	15.0	22.0	19.5	20.5	19.0	18.0	18.5	18.5	17.5	18.0
22	15.0	14.5	15.0	19.5	19.0	19.0	18.5	18.5	18.5	18.0	17.0	17.0
23	15.5	14.5	15.0	19.0	18.0	18.5	19.0	18.5	18.5	17.0	16.5	17.0
24	19.0	15.0	18.0	18.0	18.0	18.0	23.0	18.5	19.0	17.5	17.0	17.5
25	19.0	17.0	17.5	18.0	17.5	18.0	23.0	20.0	20.5	20.5	17.0	17.5
26	17.5	16.5	17.0	18.0	17.5	17.5	20.0	19.0	19.5	21.0	18.0	18.5
27	20.5	16.5	18.5	17.5	17.5	17.5	19.5	19.0	19.0	18.5	18.0	18.0
28	21.0	18.5	19.5	17.5	17.0	17.5	21.0	19.0	19.5	18.0	17.5	17.5
29	19.0	18.0	18.5	17.5	17.0	17.5	19.5	19.0	19.5	18.5	17.5	18.0
30	18.0	17.0	17.5	17.5	17.0	17.0	19.0	18.5	19.0	20.0	18.0	18.5
31	---	---	---	17.5	17.0	17.0	19.0	18.5	18.5	---	---	---
MONTH	---	---	---	26.5	16.5	17.8	24.5	17.0	19.0	21.5	16.5	18.5

[illegible]

STREAMS TRIBUTARY TO LAKE MICHIGAN
040871475 WILSON PARK CREEK AT GMIA OUTFALL #7 AT MILWAUKEE, WI--CONTINUED

OXYGEN DISSOLVED (MG/L), 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	10.5	7.2	8.1	9.7	7.4	8.4	---	---	---	9.4	7.0	8.0
2	9.8	9.1	9.4	9.4	8.9	9.2	---	---	---	7.6	6.2	7.0
3	9.1	8.5	8.8	10.1	8.4	9.1	---	---	---	10.2	6.5	8.1
4	8.6	8.3	8.4	8.7	8.4	8.6	---	---	---	8.9	7.4	8.1
5	---	---	---	8.7	8.5	8.6	---	---	---	8.6	6.2	7.5
6	8.5	7.6	7.9	9.6	8.4	8.9	---	---	---	8.6	5.9	7.6
7	8.3	7.8	8.0	8.6	8.5	8.6	---	---	---	10.1	5.7	7.9
8	8.4	7.7	8.1	12.6	8.3	10.4	---	---	---	7.3	5.5	6.8
9	8.4	7.9	8.2	10.3	9.6	9.9	---	---	---	7.3	3.8	6.5
10	9.2	7.7	8.4	9.8	9.3	9.5	---	---	---	5.2	3.9	4.5
11	11.8	9.0	10.5	9.5	9.1	9.3	---	---	---	8.6	4.5	6.1
12	11.4	9.6	10.2	10.2	9.1	9.5	---	---	---	9.5	5.4	7.2
13	9.7	9.3	9.5	10.0	8.8	9.0	---	---	---	8.1	3.9	5.7
14	9.6	9.2	9.3	9.7	8.7	9.0	8.6	7.8	8.3	5.2	4.1	4.8
15	9.5	9.1	9.3	8.9	8.5	8.7	9.2	8.3	8.8	5.0	4.1	4.5
16	10.8	8.8	9.4	8.9	8.6	8.8	9.3	8.4	9.0	4.9	3.9	4.3
17	10.0	8.4	9.1	12.4	8.6	9.8	9.4	8.6	9.1	---	---	---
18	---	---	---	12.4	10.2	11.2	9.3	8.6	9.1	---	---	---
19	---	---	---	10.7	9.6	10.2	---	---	---	---	---	---
20	---	---	---	9.8	9.4	9.6	---	---	---	---	---	---
21	---	---	---	9.4	8.7	9.2	---	---	---	---	---	---
22	---	---	---	9.0	8.6	8.9	---	---	---	5.0	4.8	4.9
23	---	---	---	---	---	---	---	---	---	5.2	4.8	5.0
24	---	---	---	---	---	---	---	---	---	7.6	4.7	5.0
25	---	---	---	---	---	---	6.8	6.2	6.5	4.7	4.5	4.6
26	4.2	2.6	3.1	---	---	---	8.3	6.7	6.9	---	---	---
27	14.1	3.3	9.0	---	---	---	7.0	6.7	6.8	---	---	---
28	7.6	6.2	6.9	---	---	---	7.0	6.6	6.9	---	---	---
29	---	---	---	---	---	---	7.2	6.5	6.9	---	---	---
30	---	---	---	---	---	---	9.1	6.8	7.2	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
JUNE			JULY			AUGUST			SEPTEMBER			
1	---	---	---	3.4	2.3	3.1	1.6	.5	1.0	5.3	1.1	1.7
2	---	---	---	3.2	2.2	2.5	1.5	.6	.9	4.5	2.3	3.1
3	---	---	---	4.3	2.2	3.0	5.1	.4	1.0	3.0	1.9	2.4
4	---	---	---	3.5	2.4	3.2	6.2	2.3	4.4	2.4	1.8	2.0
5	---	---	---	2.8	1.6	2.4	10.6	4.7	7.0	2.1	1.4	1.8
6	---	---	---	2.5	.3	1.6	8.9	3.9	5.5	2.0	1.6	1.8
7	---	---	---	.8	.0	.3	5.3	4.2	4.7	2.6	1.6	2.1
8	---	---	---	1.6	.5	1.1	4.9	1.9	4.3	3.3	2.0	2.8
9	---	---	---	1.9	.3	1.0	4.7	2.8	3.8	3.4	1.8	2.5
10	---	---	---	1.7	.5	1.1	2.8	1.6	2.4	3.6	2.0	2.7
11	7.8	3.2	4.5	1.9	.3	1.0	2.5	1.6	2.2	3.3	2.4	3.1
12	3.9	2.2	2.6	.9	.3	.6	2.2	1.8	2.1	3.8	2.8	3.4
13	2.2	1.8	2.0	1.2	.4	.6	2.1	1.5	1.9	3.8	3.1	3.5
14	1.8	1.5	1.6	1.3	.5	.7	2.5	.4	1.7	5.8	1.6	4.1
15	1.7	1.3	1.5	4.6	.3	1.0	1.8	.6	1.5	4.7	3.8	4.2
16	1.4	1.0	1.2	3.7	2.9	3.4	2.1	.6	1.8	4.0	2.7	3.4
17	---	---	---	3.7	2.2	3.1	.6	.3	.5	2.9	1.9	2.6
18	---	---	---	2.6	1.4	2.2	1.7	.3	1.0	2.3	1.2	1.8
19	4.0	2.3	2.8	6.2	1.2	3.0	2.4	.6	1.5	2.5	1.4	1.9
20	2.4	1.2	2.0	9.1	1.3	2.8	1.9	.7	1.4	3.0	1.8	2.5
21	1.5	.2	.8	5.7	3.0	3.8	1.5	.3	.8	4.3	1.8	3.2
22	.5	.2	.3	3.1	2.4	2.8	1.4	.4	.8	4.2	1.5	3.4
23	---	---	---	2.9	1.5	2.6	2.8	1.4	2.1	5.0	2.8	4.0
24	4.6	1.4	2.5	2.6	.8	1.8	6.3	2.3	2.8	3.9	.9	2.7
25	1.9	.2	.8	1.8	.4	1.0	7.5	4.3	6.4	5.3	3.0	3.9
26	.3	.2	.2	.8	.4	.4	6.6	3.9	5.4	5.4	2.0	3.8
27	5.5	.0	2.8	.9	.4	.5	4.4	2.7	3.7	2.8	1.6	2.2
28	5.5	.3	3.5	1.5	.3	.5	5.9	2.6	4.0	2.7	.4	1.9
29	5.2	1.2	2.7	1.6	.3	.9	3.9	2.8	3.5	6.4	1.5	3.6
30	4.2	1.0	3.4	2.2	.5	.9	3.4	1.5	2.5	5.5	3.1	4.4
31	---	---	---	1.5	.5	1.0	2.4	1.4	1.8	---	---	---
MONTH	---	---	---	9.1	.0	1.7	10.6	.3	2.7	6.4	.4	2.9

STREAMS TRIBUTARY TO LAKE MICHIGAN

135

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 September 1998.

GAGE.--Water-stage recorder. Elevation of gage is 700 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 1-7, Apr. 17 to May 29. Records are fair except for estimated daily discharges, which are poor (see page 12).

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	---	.00	.00	.00	.04	.00	.06	.15	.00	.00	.00	.06
2	---	.00	.00	.02	.04	.00	.01	.00	.00	.00	.00	.00
3	---	.00	.13	.04	.01	.02	.01	.05	.00	.02	.01	.00
4	---	.00	.01	.25	.01	.00	.00	.00	.00	.00	.09	.00
5	---	.10	.00	.11	.00	.00	.00	.00	.00	.00	2.6	.00
6	---	.00	.00	.20	.01	.01	.00	.02	.00	.00	.45	.00
7	---	.00	.00	.01	.01	.00	.03	.14	.00	.01	.01	.00
8	---	.00	.00	.00	.01	.41	.44	.00	.00	.00	.00	.00
9	---	.00	.01	.03	.01	.01	.60	.00	.10	.00	.00	.00
10	---	.00	.07	.01	.01	.00	.02	.00	.02	.00	.00	.00
11	---	.00	.02	.00	.48	.00	.01	.00	.26	.00	.00	.00
12	---	.00	.01	.00	.02	.00	.00	.13	.01	.00	.00	.00
13	---	.00	.00	.00	.00	.00	.06	.00	.00	.00	.00	.00
14	---	.00	.00	.00	.01	.01	.07	.00	.00	.00	.01	.38
15	---	.00	.01	.00	.02	.00	.29	.00	.00	.24	.00	.02
16	---	.00	.01	.00	.10	.00	.54	.00	.00	.00	.00	.00
17	---	.00	.00	.00	.06	.23	.00	.00	.00	.00	.00	.00
18	---	.00	.00	.00	.01	.39	.00	.00	.12	.00	.00	.00
19	---	.00	.00	.00	.00	.08	.00	.09	.02	.03	.00	.00
20	---	.00	.00	.00	.01	.01	.09	.00	.00	.37	.00	.00
21	---	.00	.00	.00	.00	.01	.09	.00	.00	.04	.00	.00
22	---	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	---	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00
24	---	.00	.00	.00	.07	.00	.00	.05	.11	.00	.02	.00
25	---	.00	.01	.00	.00	.00	.00	.00	.00	.00	.43	.03
26	---	.00	.01	.01	.00	.00	.04	.00	.00	.00	.00	.01
27	---	.05	.00	.00	.27	.00	.00	.00	.29	.00	.00	.00
28	---	.01	.00	.00	.00	.04	.00	.25	.33	.00	.03	.00
29	---	.08	.00	.01	---	.00	.00	.00	.00	.00	.00	.02
30	---	.01	.00	.00	---	.05	.11	.00	.00	.00	.00	.11
31	---	---	.00	.00	---	.61	---	.19	---	.00	.00	---
TOTAL	---	0.25	0.30	0.70	1.20	1.88	2.47	1.07	1.26	0.71	3.65	0.63
MEAN	---	.008	.010	.023	.043	.061	.082	.035	.042	.023	.12	.021
MAX	---	.10	.13	.25	.48	.61	.60	.25	.33	.37	2.6	.38
MIN	---	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1998, BY WATER YEAR (WY)

	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997	1997
MEAN	---	.014	.025	.036	.073	.055	.063	.039	.042	.023	.12	.021
MAX	---	.023	.041	.049	.10	.061	.082	.045	.042	.023	.12	.021
(WY)	---	1997	1997	1997	1997	1998	1998	1997	1998	1998	1998	1998
MIN	---	.008	.010	.023	.043	.049	.043	.035	.042	.023	.12	.021
(WY)	---	1998	1998	1998	1998	1997	1997	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(NOVEMBER-SEPTEMBER)WATER YEARS 1997 - 1998
(PARTIAL YEARS)

ANNUAL TOTAL	14.12											
ANNUAL MEAN	.042											
HIGHEST ANNUAL MEAN								.046				
LOWEST ANNUAL MEAN								.052		1997		
HIGHEST DAILY MEAN	2.6	Aug 5						.042		1998		
LOWEST DAILY MEAN	.00	Many days						.00		Many days		
ANNUAL SEVEN-DAY MINIMUM	.00	Many periods						.00		Many periods		
INSTANTANEOUS PEAK FLOW	34	Aug 5						34		Aug 5 1998		
INSTANTANEOUS PEAK STAGE	3.74	Aug 5						3.74		Aug 5 1998		
INSTANTANEOUS LOW FLOW	.00	Many days						.00		Many days		
10 PERCENT EXCEEDS	.10							.11				
50 PERCENT EXCEEDS	.00							.01				
90 PERCENT EXCEEDS	.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 September 1998.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1996 to May 1997, November 1997 to September 1998.

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, 27.0°C, July 15, 1998; minimum observed, 0.0°C, many days during winter.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 27.0°C, July 15; minimum observed, 0.0°C, Jan. 23 and Feb. 11.

WATER-QUALITY DATA, OCTOBER 1997 TO SEPTEMBER 1998

		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, 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)	
OCT 1997												
16...	1255	.01	--	8.3	450	84	99	18	30	33.1	38	
DEC												
10...	1336	--	.10	--	--	--	--	--	--	--	--	
JAN 1998												
08...	0945	--	<.01	8.1	2100	1800	--	--	12	10.7	17	
08...	2130	--	<.01	--	--	--	--	--	--	--	--	
20...	1538	--	<.01	7.6	33000	>4200	200	38	13	17.6	140	
FEB												
05...	0956	--	<.01	--	--	--	--	--	--	--	--	
MAR												
03...	0922	--	.02	--	--	--	--	--	--	--	--	
26...	1440	--	<.01	--	--	--	--	--	--	--	--	
APR												
30...	1124	--	<.01	7.7	4000	2000	360	81	31	135	140	
JUN												
10...	1400	--	.01	--	--	--	--	--	--	--	--	
23...	1232	--	<.01	--	--	--	--	--	--	--	--	
JUL												
20...	2010	--	1.8	--	--	--	--	--	--	--	--	
28...	1506	--	<.01	8.1	150	36	88	55	15	67.9	78	
SEP												
10...	0934	--	<.01	--	--	--	--	--	--	--	--	
30...	0822	--	<.01	--	--	--	--	--	--	--	--	
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 ETH- ANEDIOL UNFIL- TERED, TOTAL RECOV (MG/L) (99918)	1,2 PRO- PANEDIOL UNFIL- TERED, TOTAL RECOV (MG/L) (99919)	GLYCOL HYDRO- LIZERS UNFIL- TERED, TOTAL RECOV (COLS./ 100ML) (99920)	PSEUDO- MONAS UNFIL- TERED, TOTAL RECOV (COLS./ 100ML) (99921)	PRESUMP. AERO- MONAS UNFIL- TERED, TOTAL RECOV (COLS./ 100ML) (99922)
OCT 1997												
16...	.246	--	2	<1	<20	--	<18.0	<18.0	--	--	--	--
DEC												
10...	--	--	--	--	--	13	--	--	--	--	--	--
JAN 1998												
08...	--	--	--	--	--	--	89.0	760	--	--	--	--
08...	--	--	--	--	--	<2	--	--	--	--	--	--
20...	.243	--	10	40	340	11	610	22000	12000	40.0	--	--
FEB												
05...	--	--	--	--	--	--	--	--	170000	--	--	--
MAR												
03...	--	--	--	--	--	28	--	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	E69000	3300	--	--
APR												
30...	.086	--	6	2	<20	<2	<43.0	<18.0	12000	12000	3400	--
JUN												
10...	--	--	--	--	--	--	--	--	44000	32000	10000	--
23...	--	--	--	--	--	--	--	--	2900	1000	600	--
JUL												
20...	--	--	--	--	--	--	--	--	--	--	--	--
28...	.319	<1	2	<1	20	3	<18.0	<18.0	320	1100	<10.0	--
SEP												
10...	--	--	--	--	--	--	--	--	300	1000	<10.0	--
30...	--	--	--	--	--	--	--	--	9000	3300	500	--

E Estimated

STREAMS TRIBUTARY TO LAKE MICHIGAN
040871476 HOLMES AVENUE CREEK TRIB AT GMIA OUTFALL #1 AT MILWAUKEE, WI--CONTINUED

WATER-QUALITY DATA, OCTOBER 1997 TO SEPTEMBER 1998

COMPOSITE SAMPLES

BEGIN- NING DATE	BEGIN- NING TIME	ENDING DATE	ENDING TIME	RUNOFF VOLUME OF CUBIC FEET (99905)	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)
12-10-97	0725	12-10-97	2045	.005	8.1	15000	8400	38	5.8
01-04-98	0610	01-04-98	1200	.001	7.8	1700	900	48	5.9
03-03-98	0855	03-03-98	1015	.001	8.0	27000	>10000	59	7.3
07-20-98	1906	07-20-98	2004	.035	7.7	35	9.1	34	16

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) (00608)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L) (00625)	PHOS- PHORUS TOTAL (MG/L) (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)	1,2 ETH- ANEDIOL UNFIL- TERED, TOTAL RECOV (MG/L) (99918)	1,2 PRO- ANEDIOL UNFIL- TERED, TOTAL RECOV (MG/L) (99919)
12-10-97	26	3.62	30	.079	--	16	23	140	490	8500
01-04-98	12	7.50	80	.190	--	5	5	50	18.0	570
03-03-98	6	5.33	61	<.005	--	11	17	60	--	39000
07-20-98	166	.384	1.2	.179	1	15	7	80	<18.0	< 18.0

TEMPERATURE, WATER (DEG. C), 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	---	---	---	---	---	---	9.0	8.5	8.5	6.5	4.5	6.0
2	---	---	---	---	---	---	9.5	8.5	9.0	7.5	2.0	5.0
3	---	---	---	---	---	---	9.0	1.5	5.0	6.0	1.5	4.0
4	---	---	---	---	---	---	8.5	6.0	7.5	3.5	.5	1.5
5	---	---	---	---	---	---	9.0	8.0	8.5	5.5	3.0	4.5
6	---	---	---	---	---	---	9.0	8.5	8.5	6.0	3.5	4.5
7	---	---	---	---	---	---	8.5	8.0	8.0	5.5	3.5	4.5
8	---	---	---	11.5	10.5	11.0	9.0	8.0	8.5	6.0	5.0	5.5
9	---	---	---	11.0	10.5	10.5	10.0	3.5	7.0	7.0	.5	2.5
10	---	---	---	10.5	9.5	10.5	8.0	.5	3.5	4.0	1.5	2.5
11	---	---	---	9.5	9.0	9.5	6.0	1.5	4.0	6.0	4.0	5.0
12	---	---	---	9.0	7.5	8.0	7.5	6.0	7.0	6.0	3.5	5.0
13	---	---	---	9.5	7.5	8.5	8.0	6.5	7.0	3.5	2.0	2.5
14	---	---	---	8.0	6.5	7.0	9.0	6.5	7.5	5.5	2.5	4.5
15	---	---	---	11.5	7.0	9.0	8.5	2.5	6.5	7.5	3.5	5.0
16	---	---	---	10.5	9.5	10.0	8.5	5.5	6.5	6.0	5.0	5.5
17	---	---	---	10.5	9.0	10.0	8.5	7.0	8.0	7.0	4.5	5.5
18	---	---	---	11.0	8.5	10.0	8.5	8.0	8.5	5.0	4.0	4.5
19	---	---	---	8.5	7.0	8.0	8.5	8.0	8.0	5.5	4.5	5.0
20	---	---	---	11.0	7.0	8.5	8.0	7.0	7.5	5.5	5.0	5.0
21	---	---	---	10.0	9.0	9.5	8.0	7.0	7.5	5.5	.5	3.5
22	---	---	---	10.5	9.5	10.0	9.0	3.0	6.0	6.0	3.0	4.5
23	---	---	---	9.5	8.0	8.5	8.0	6.5	7.5	7.5	.0	3.0
24	---	---	---	9.0	7.5	8.0	8.0	6.0	7.5	5.5	4.5	5.0
25	---	---	---	10.0	9.0	9.5	8.0	4.0	5.5	5.5	5.0	5.5
26	---	---	---	10.0	9.0	9.5	6.0	5.0	5.5	6.5	2.0	5.0
27	---	---	---	9.0	3.5	7.0	7.5	6.0	6.5	5.0	3.5	4.5
28	---	---	---	10.0	7.0	9.0	7.5	6.5	7.0	5.5	5.0	5.0
29	---	---	---	10.0	6.0	8.5	7.0	2.5	5.0	5.0	2.5	3.0
30	---	---	---	9.0	6.5	8.0	7.0	6.0	6.5	4.0	3.5	3.5
31	---	---	---	---	---	---	6.5	4.0	5.0	4.5	3.5	4.0
MONTH	---	---	---	---	---	---	10.0	.5	6.9	7.5	.0	4.3

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 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	3.5	1.0	2.5	5.5	5.5	5.5	9.5	6.5	7.5	11.5	9.0	10.0
2	1.5	.5	1.0	6.0	4.5	5.5	7.0	6.5	6.5	9.0	8.5	8.5
3	2.0	1.0	2.0	5.0	1.0	3.5	6.5	6.0	6.0	12.0	8.5	9.5
4	3.5	2.0	2.5	5.5	4.5	5.0	6.5	5.5	6.0	9.5	8.5	8.5
5	4.0	3.5	3.5	5.0	4.5	5.0	6.5	5.5	6.0	8.5	8.5	8.5
6	4.5	2.0	3.5	5.5	2.0	4.5	6.5	5.5	6.0	13.0	8.5	8.5
7	3.0	2.0	2.5	5.5	4.5	5.0	10.5	6.0	7.0	13.5	10.0	11.5
8	3.5	2.0	3.0	5.0	.5	2.5	7.5	5.5	6.5	10.0	9.5	9.5
9	4.0	2.0	3.0	4.5	.5	2.5	6.0	4.0	5.0	9.0	8.5	9.0
10	3.5	1.5	2.5	4.0	2.5	3.5	6.5	6.0	6.0	9.0	8.5	8.5
11	2.5	.0	1.5	3.5	3.5	3.5	6.5	5.5	6.0	9.0	8.5	8.5
12	2.0	.5	1.5	4.0	3.5	4.0	6.5	6.5	6.5	18.0	8.5	9.5
13	3.5	2.0	3.0	5.5	2.0	4.5	13.5	6.5	8.0	16.0	9.5	11.0
14	4.0	2.0	3.0	5.5	3.5	4.5	11.0	7.5	9.0	9.5	9.0	9.0
15	3.5	2.0	3.0	4.0	3.0	3.5	8.5	5.5	7.0	17.5	9.0	9.0
16	3.5	2.0	3.0	4.0	3.0	4.0	7.0	4.5	6.0	18.0	9.5	11.5
17	3.5	2.0	3.0	5.5	.5	3.0	7.0	6.5	6.5	9.5	9.0	9.5
18	4.0	3.0	3.5	2.5	1.0	1.5	7.0	6.5	7.0	9.5	9.5	9.5
19	5.0	4.0	4.5	3.5	1.0	2.5	7.0	6.5	7.0	19.5	9.5	12.0
20	5.0	3.0	4.0	4.0	3.5	4.0	11.5	6.5	7.5	10.0	9.5	10.0
21	5.0	5.0	5.0	4.5	3.0	3.5	11.5	8.0	9.0	10.0	9.5	10.0
22	5.5	5.0	5.0	4.5	3.5	4.0	8.5	7.5	8.0	10.0	9.5	9.5
23	5.5	4.5	5.0	4.5	3.5	4.0	7.5	7.5	7.5	10.0	9.5	10.0
24	6.0	4.5	5.5	4.5	4.0	4.5	7.5	7.5	7.5	15.0	10.0	11.5
25	5.5	5.0	5.5	5.0	4.5	4.5	8.0	7.0	7.5	10.5	10.0	10.0
26	5.5	5.5	5.5	5.5	5.0	5.0	9.0	7.0	8.0	10.0	10.0	10.0
27	6.5	4.5	5.5	5.5	5.5	5.5	7.5	6.5	7.0	10.0	9.5	10.0
28	6.0	5.5	5.5	13.0	5.5	8.5	7.5	6.5	7.0	20.5	10.0	13.0
29	---	---	---	7.0	6.0	6.5	7.5	7.0	7.5	19.5	11.5	14.0
30	---	---	---	18.0	6.0	9.0	11.5	7.5	8.0	11.5	11.0	11.5
31	---	---	---	10.0	6.0	7.5	---	---	---	19.0	11.0	13.5
MONTH	6.5	.0	3.5	18.0	.5	4.5	13.5	4.0	7.0	20.5	8.5	10.1
	JUNE			JULY			AUGUST			SEPTEMBER		
1	11.5	11.0	11.5	15.0	13.5	14.0	15.5	15.0	15.5	21.5	15.5	16.5
2	11.0	11.0	11.0	14.0	13.5	13.5	15.5	15.0	15.0	19.5	15.5	17.0
3	11.0	10.5	11.0	25.0	13.5	16.0	23.5	15.0	15.5	16.5	15.0	16.0
4	11.0	10.5	10.5	17.5	14.5	15.0	23.5	16.0	19.0	16.5	15.5	16.5
5	11.0	10.5	10.5	14.5	14.0	14.0	22.0	16.0	19.5	16.5	15.5	16.0
6	10.5	10.0	10.5	14.0	14.0	14.0	26.5	20.0	22.0	17.0	16.0	16.5
7	11.0	10.5	10.5	18.0	13.5	15.0	25.0	18.0	19.5	17.0	15.5	16.5
8	11.0	10.5	10.5	14.5	13.5	14.0	18.5	16.5	17.5	16.0	15.0	15.5
9	15.0	10.5	12.0	14.0	13.5	14.0	17.0	16.0	16.5	16.5	15.5	16.0
10	14.0	11.5	12.0	14.5	13.5	14.0	17.0	16.0	16.5	16.0	15.0	15.5
11	19.0	11.5	15.0	14.0	13.5	14.0	18.0	16.5	17.0	16.5	15.5	16.0
12	15.5	12.0	13.0	14.0	13.5	14.0	17.0	16.0	16.5	17.5	16.0	16.5
13	12.0	12.0	12.0	14.0	13.5	14.0	16.5	16.0	16.0	17.0	16.5	16.5
14	12.0	11.5	12.0	14.5	13.5	14.0	25.0	16.0	17.0	21.5	16.0	19.5
15	12.0	11.5	12.0	27.0	14.0	17.0	18.5	16.0	17.0	20.5	17.0	18.5
16	12.0	11.5	12.0	20.0	15.0	16.0	16.5	16.0	16.5	18.0	16.5	17.0
17	12.0	11.5	12.0	15.0	14.5	15.0	17.5	16.0	16.0	17.0	15.0	16.5
18	20.5	11.5	13.0	15.0	14.5	14.5	17.5	16.0	16.5	17.0	15.0	16.5
19	18.5	12.5	14.0	22.5	14.5	16.5	16.5	15.5	16.0	17.0	16.0	16.5
20	12.5	12.0	12.5	25.5	14.5	17.0	16.5	15.5	16.0	17.0	16.5	16.5
21	12.5	12.0	12.0	21.5	16.0	17.5	17.5	16.0	16.5	16.5	14.0	15.5
22	12.5	12.0	12.0	16.0	15.0	15.5	16.5	16.0	16.0	16.0	14.0	15.0
23	14.5	12.0	12.5	15.5	15.0	15.0	16.5	16.0	16.0	16.0	14.5	15.5
24	22.0	12.0	16.5	15.5	15.0	15.0	24.0	16.0	16.5	16.0	14.5	15.5
25	14.0	13.0	13.5	15.5	15.0	15.0	22.5	17.0	19.0	21.5	14.0	16.0
26	13.0	13.0	13.0	15.5	15.0	15.0	17.0	16.5	17.0	20.5	16.5	17.5
27	22.5	12.5	17.0	15.5	15.0	15.0	17.0	16.5	16.5	17.0	15.5	16.5
28	22.5	14.5	18.0	15.5	15.0	15.0	21.5	16.5	18.5	16.5	14.5	16.0
29	15.5	14.0	14.5	15.5	15.0	15.0	17.5	16.5	17.0	19.0	15.0	17.0
30	14.0	14.0	14.0	16.0	15.0	15.5	17.0	16.5	16.5	20.5	15.5	17.0
31	---	---	---	16.0	15.5	15.5	17.0	15.5	16.5	---	---	---
MONTH	22.5	10.0	12.7	27.0	13.5	15.0	26.5	15.0	17.0	21.5	14.0	16.5

STREAMS TRIBUTARY TO LAKE MICHIGAN

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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 September 1998.

GAGE.--Water-stage recorder. Elevation of gage is 640 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 1-4, June 23-30, July 24 to Aug. 11, Sept. 29-30 and ice-affected period, Jan. 15-21. Records are fair except those for estimated daily discharges, which are poor (see page 12).

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	---	2.0	3.6	4.4	21	10	31	47	6.0	4.3	3.3	9.2
2	---	2.0	3.0	12	31	9.3	16	12	4.7	4.1	3.3	11
3	---	2.4	25	14	17	13	12	15	7.4	12	3.8	4.2
4	---	2.2	6.4	67	12	8.5	9.8	9.1	4.5	5.5	35	3.7
5	---	15	4.2	42	9.1	7.7	8.7	7.8	4.0	3.7	300	3.0
6	---	11	2.9	58	10	10	8.0	7.3	3.5	3.7	90	3.1
7	---	3.3	2.4	25	10	6.8	11	42	3.2	4.7	22	3.1
8	---	2.6	2.3	13	9.3	102	82	9.9	3.2	3.7	12	2.9
9	---	2.5	2.9	20	10	25	170	7.2	19	3.5	9.5	3.0
10	---	3.0	14	11	10	11	24	6.4	9.6	3.3	8.5	3.2
11	---	2.8	8.9	7.4	134	8.4	15	6.5	38	3.1	7.1	2.9
12	---	2.5	5.1	6.6	45	8.2	13	22	8.5	3.0	5.5	3.0
13	---	2.4	5.5	4.8	18	7.2	19	14	4.4	3.3	5.3	3.3
14	---	2.4	4.4	4.6	14	6.7	19	6.2	3.8	6.6	7.8	65
15	---	6.8	5.0	4.5	15	5.7	53	6.2	3.9	36	6.2	23
16	---	3.1	4.9	4.4	31	5.7	139	6.7	3.8	7.1	4.5	23
17	---	2.8	4.3	4.4	42	36	22	4.9	3.8	3.7	4.7	8.6
18	---	2.6	4.0	4.3	23	115	15	5.0	18	3.1	4.6	4.3
19	---	2.3	3.9	4.3	13	43	12	15	13	8.6	4.5	4.0
20	---	3.4	3.7	4.8	13	17	13	6.4	4.3	51	4.6	4.2
21	---	2.6	3.6	5.5	9.6	13	38	4.8	3.6	15	4.5	3.6
22	---	2.5	4.7	6.0	8.7	11	12	4.8	3.5	4.8	4.4	3.4
23	---	2.2	3.8	8.4	8.1	9.6	10	4.6	3.6	3.8	4.4	3.2
24	---	1.9	3.9	6.1	25	8.7	9.1	8.7	14	3.6	5.5	4.9
25	---	2.3	6.6	4.9	9.1	8.6	8.1	4.6	5.0	3.5	77	4.1
26	---	2.1	4.2	6.6	8.3	8.6	17	4.7	4.8	3.4	6.5	11
27	---	9.8	3.2	6.7	74	7.5	7.7	5.2	55	3.7	4.6	3.8
28	---	4.5	3.3	7.3	14	12	6.8	27	58	3.8	12	3.0
29	---	14	4.4	9.4	---	6.9	6.7	32	8.0	3.8	4.8	8.0
30	---	7.8	3.3	7.1	---	15	12	6.9	10	3.7	3.7	24
31	---	---	3.8	7.4	---	133	---	29	---	3.5	3.8	---
TOTAL	---	126.8	161.2	391.9	644.2	690.1	819.9	388.9	332.1	226.6	673.4	256.7
MEAN	---	4.23	5.20	12.6	23.0	22.3	27.3	12.5	11.1	7.31	21.7	8.56
MAX	---	15	25	67	134	133	170	47	58	51	300	65
MIN	---	1.9	2.3	4.3	8.1	5.7	6.7	4.6	3.2	3.0	3.3	2.9
CFSM	---	.37	.46	1.11	2.03	1.96	2.41	1.11	.98	.64	1.92	.75
IN.	---	.42	.53	1.29	2.11	2.26	2.69	1.28	1.09	.74	2.21	.84

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1998, BY WATER YEAR (WY)

	MEAN	---	4.23	5.65	10.2	21.4	16.4	17.9	12.5	11.1	7.31	21.7	8.56
MAX	---	4.23	6.09	12.6	23.0	22.3	27.3	12.5	11.1	7.31	21.7	8.56	
(WY)	---	1998	1997	1998	1998	1998	1998	1998	1998	1998	1998	1998	
MIN	---	4.23	5.20	7.73	19.8	10.6	8.55	12.5	11.1	7.31	21.7	8.56	
(WY)	---	1998	1998	1997	1997	1997	1997	1998	1998	1998	1998	1998	

SUMMARY STATISTICS

FOR 1998 WATER YEAR (NOVEMBER-SEPTEMBER)

WATER YEARS 1997 - 1998 (PARTIAL YEARS)

HIGHEST DAILY MEAN	(a) 300	Aug 5	(a) 300	Aug 5 1998
LOWEST DAILY MEAN	1.9	Nov 24	1.8	Jan 19 1997
ANNUAL SEVEN-DAY MINIMUM	2.4	Nov 20	2.4	Nov 20 1997
INSTANTANEOUS PEAK FLOW	2090	Aug 5	2090	Aug 5 1998
INSTANTANEOUS PEAK STAG	(b) 19.40	Aug 5	(b) 19.40	Aug 5 1998
INSTANTANEOUS LOW FLOW	1.0	Nov 24	1.0	Nov 24 1997
10 PERCENT EXCEEDS	30		24	
50 PERCENT EXCEEDS	6.7		5.9	
90 PERCENT EXCEEDS	3.1		2.9	

(a) Estimated

(b) From floodmark

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 September 1998.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1996 to April 1997, November 1997 to September 1998.

DISSOLVED OXYGEN: November, 1996 to April 1997, November 1997 to September 1998.

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, 29.0°C, June 25 and July 14, 19, 1998; minimum observed, 0.0°C, many days during winter.

DISSOLVED OXYGEN: Maximum observed, 19.1 mg/L, Feb. 11, 1998; minimum observed, 0.0 mg/L, Feb. 24, 1997.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 29.0°C, June 25 and July 14, 19; minimum observed, 0.0°C, many days during winter.

DISSOLVED OXYGEN: Maximum observed, 19.1 mg/L, Feb. 11; minimum observed, 2.1 mg/L, May 16.

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)	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)
OCT 1997											
16...	0930	3.0	--	8.1	<9	<12	79	34	<5	<.013	.30
DEC											
10...	1048	--	8.1	--	--	--	--	--	--	--	--
JAN 1998											
08...	2230	--	13	--	--	--	--	--	--	--	--
20...	1204	--	4.5	8.0	81	54	91	38	18	.837	2.9
FEB											
05...	1358	--	8.6	--	--	--	--	--	--	--	--
MAR											
03...	1542	--	14	--	--	--	--	--	--	--	--
26...	1505	--	8.8	--	--	--	--	--	--	--	--
APR											
30...	1542	--	5.9	8.3	<9	<6.0	110	52	<5	.114	.70
JUN											
10...	1100	--	6.5	--	--	--	--	--	--	--	--
23...	0924	--	3.4	--	--	--	--	--	--	--	--
JUL											
20...	2315	--	123	--	--	--	--	--	--	--	--
28...	1154	--	4.7	8.5	25	<6.0	66	31	<5	.035	.61
SEP											
10...	1538	--	3.5	--	--	--	--	--	--	--	--
30...	1122	--	3.1	--	--	--	--	--	--	--	--

STREAMS TRIBUTARY TO LAKE MICHIGAN

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040871488 WILSON PARK CREEK AT ST. LUKES HOSPITAL AT MILWAUKEE, WI-CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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 RECOVER GRAVI- METRIC (MG/L) (00556)	1,2 ETH- ANEDIOL UNFIL- TERED, TOTAL RECOVER (MG/L) (99918)	1,2 PRO- PANEDIOL UNFIL- TERED, TOTAL RECOVER (MG/L) (99919)	GLYCOL HYDRO- LIZERS UNFIL- TERED, TOTAL RECOVER (COLS./ 100ML) (99920)	PSEUDO- MONAS UNFIL- TERED, TOTAL RECOVER (COLS./ 100ML) (99921)	PRESUMP. AERO- MONAS UNFIL- TERED, TOTAL RECOVER (COLS./ 100ML) (99922)
OCT 1997											
16...	.146	--	4	<1	<20	<2	<18.0	<18.0	--	--	--
DEC											
10...	--	--	--	--	--	<2	--	--	--	--	--
JAN 1998											
08...	--	--	--	--	--	<2	--	--	--	--	--
20...	.080	--	2	1	<20	<2	18.0	36.0	150	100	--
FEB											
05...	--	--	--	--	--	--	--	--	13000	--	--
MAR											
03...	--	--	--	--	--	<2	--	--	--	--	--
26...	--	--	--	--	--	--	--	--	2800	720	--
APR											
30...	.049	--	4	<1	<20	<2	<18.0	<18.0	6600	600	200
JUN											
10...	--	--	--	--	--	--	--	--	11000	19000	1700
23...	--	--	--	--	--	--	--	--	2900	1200	70.0
JUL											
20...	--	--	--	--	--	--	--	--	--	--	--
28...	.154	<1	7	2	<20	4	<18.0	<18.0	420	2000	3600
SEP											
10...	--	--	--	--	--	--	--	--	80.0	310	<10.0
30...	--	--	--	--	--	--	--	--	3200	370	800

COMPOSITE SAMPLES

BEGIN- NING DATE	BEGIN- NING TIME	ENDING DATE	ENDING TIME	RUNOFF VOLUME MILLIONS OF CUBIC FEET (99905)	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 RECOVER- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, TOTAL RECOVER -ABLE (MG/L) (00921)
12-10-97	0900	12-11-97	0110	1.12	7.8	670	700	63	16
01-08-98	1130	01-09-98	0305	.754	7.9	240	170	84	33
03-03-98	1205	03-03-98	1525	.151	8.0	260	130	86	40
07-20-98	1945	07-21-98	0955	4.99	7.9	94	12	50	19

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)	1,2 ETH- ANEDIOL UNFIL- TERED, TOTAL RECOVER (MG/L) (99918)	1,2 PRO- PANEDIOL UNFIL- TERED, TOTAL RECOVER (MG/L) (99919)
12-10-97	91	.610	4.7	.225	--	27	24	170	49.0	710
01-08-98	14	1.13	3.4	.060	--	8	2	40	<18.0	120
03-03-98	37	.608	1.9	.107	--	7	4	50	<18.0	110
07-20-98	293	.259	2.1	.353	1	35	41	190	<18.0	<18.0

STREAMS TRIBUTARY TO LAKE MICHIGAN
040871488 WILSON PARK CREEK AT ST. LUKES HOSPITAL AT MILWAUKEE, WI--CONTINUED

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	---	---	---	6.0	4.0	5.0	2.5	.0	1.0
2	---	---	---	---	---	---	---	---	---	6.5	.5	2.5
3	---	---	---	---	---	---	6.0	4.0	5.0	9.0	3.5	6.0
4	---	---	---	---	---	---	5.0	2.0	4.0	6.5	2.0	3.5
5	---	---	---	---	---	---	---	---	---	9.0	3.0	5.0
6	---	---	---	---	---	---	6.5	.0	2.5	8.5	3.0	5.0
7	---	---	---	---	---	---	6.5	1.5	3.5	7.0	3.0	4.5
8	---	---	---	9.5	6.3	7.6	6.5	2.0	3.0	6.0	.0	2.0
9	---	---	---	8.5	7.0	7.5	7.0	2.0	3.5	4.0	1.0	2.5
10	---	---	---	7.5	5.0	6.5	9.5	.0	3.0	1.5	.0	.5
11	---	---	---	7.5	4.0	5.5	7.5	2.0	4.0	1.0	.0	.5
12	---	---	---	5.5	1.5	3.5	7.0	1.0	3.5	1.0	.0	.5
13	---	---	---	5.5	2.5	4.0	5.0	.0	2.0	2.0	.0	.5
14	---	---	---	6.0	4.0	4.5	5.0	.5	2.5	2.5	.0	1.0
15	---	---	---	5.0	2.5	4.0	6.5	.5	3.0	3.0	.0	1.0
16	---	---	---	4.5	2.0	3.0	7.5	2.0	4.0	4.0	.0	1.0
17	---	---	---	3.5	1.0	2.0	5.5	1.0	3.0	3.5	.0	1.0
18	---	---	---	4.5	1.0	2.5	7.0	1.5	3.5	3.0	.0	1.0
19	---	---	---	5.0	.0	3.0	8.0	4.0	5.0	3.5	.0	1.0
20	---	---	---	5.0	2.0	3.5	6.5	2.0	4.0	5.0	.0	1.0
21	---	---	---	6.0	3.0	4.0	5.5	1.0	3.0	2.0	.0	1.0
22	---	---	---	5.5	2.5	4.0	6.5	2.0	3.5	3.0	.5	1.0
23	---	---	---	2.5	1.0	2.0	6.0	1.5	3.5	3.5	.5	1.5
24	---	---	---	2.5	.5	1.5	5.0	.0	3.0	5.0	.5	2.0
25	---	---	---	5.5	1.5	4.0	4.0	1.5	3.0	2.5	.0	1.0
26	---	---	---	7.5	4.0	5.5	4.5	1.5	2.5	5.5	1.5	3.0
27	---	---	---	6.0	3.0	4.5	3.5	.0	1.5	7.0	1.0	3.0
28	---	---	---	8.5	5.0	6.5	3.5	.0	1.5	4.5	2.5	3.5
29	---	---	---	8.0	6.0	7.0	3.5	.5	2.0	4.0	1.0	3.0
30	---	---	---	7.5	5.0	6.5	2.5	.0	1.0	3.5	2.0	3.0
31	---	---	---	---	---	---	2.0	.0	1.0	5.0	1.5	3.0
MONTH	---	---	---	---	---	---	---	---	---	9.0	.0	2.1
FEBRUARY			MARCH			APRIL			MAY			
1	5.0	2.5	3.0	8.5	4.5	5.5	10.0	7.0	8.0	12.0	11.0	11.5
2	5.0	2.0	3.0	7.0	4.0	5.0	9.0	6.5	7.5	14.5	10.0	12.0
3	4.5	2.5	3.0	8.5	3.0	5.0	9.0	6.5	7.5	12.0	10.5	11.0
4	3.5	1.5	2.5	6.5	2.5	4.5	13.0	5.5	8.5	19.5	9.5	14.0
5	4.0	2.0	2.5	6.0	3.0	4.5	13.0	5.0	8.5	15.0	11.5	13.0
6	5.5	1.5	3.5	5.5	3.0	4.5	12.5	5.5	9.0	16.5	11.5	14.0
7	4.5	1.5	3.0	6.5	2.5	4.5	13.0	6.5	9.5	13.5	11.5	12.5
8	5.5	2.5	3.5	6.0	1.5	3.5	9.0	6.5	7.5	18.5	11.5	14.5
9	5.0	2.0	3.0	3.5	.5	2.5	7.0	5.0	6.0	18.0	11.0	14.5
10	5.0	2.5	4.0	4.5	.0	1.5	12.0	4.5	7.5	18.5	10.5	14.0
11	4.0	2.0	3.5	6.0	.0	1.5	12.0	6.0	8.5	20.0	11.5	15.5
12	5.0	2.0	3.5	6.0	.5	2.0	16.0	8.0	11.5	18.0	12.0	15.5
13	4.5	2.5	3.5	5.0	.0	2.5	12.0	9.0	10.5	22.0	14.5	18.0
14	5.5	3.5	4.5	6.0	.0	2.5	16.0	10.0	12.0	22.0	14.0	18.0
15	7.5	3.0	5.0	4.0	.0	2.0	10.5	7.5	9.0	22.5	15.5	19.0
16	6.0	4.5	5.0	6.0	.5	3.0	7.5	5.5	6.5	23.5	16.5	19.5
17	5.0	4.0	4.5	5.5	.0	3.0	13.0	5.5	9.0	23.5	15.0	19.0
18	8.5	2.0	4.5	3.0	2.0	2.5	15.0	6.5	10.5	24.5	16.5	20.5
19	8.0	3.5	5.0	3.5	2.5	3.0	16.0	8.0	11.5	24.5	18.0	21.0
20	8.0	3.5	5.0	5.5	2.0	3.5	14.5	8.5	11.5	21.5	16.0	19.0
21	9.5	3.5	5.0	8.5	1.5	4.5	13.0	9.5	10.5	20.0	14.5	17.0
22	11.0	4.0	6.5	8.0	2.0	4.5	15.5	8.5	11.5	16.5	12.5	14.5
23	12.0	4.0	6.5	10.0	3.0	6.0	17.0	8.5	12.5	20.0	12.5	15.5
24	10.0	4.5	6.0	10.0	3.0	6.0	15.5	10.0	12.5	15.0	13.5	14.0
25	10.0	3.5	6.0	9.5	5.0	7.0	14.0	9.0	12.0	21.0	12.5	16.0
26	9.0	5.0	7.0	16.0	8.0	12.0	13.0	8.5	10.5	23.0	14.0	18.0
27	8.0	5.0	6.0	15.0	11.0	13.0	14.0	7.0	10.0	22.0	14.5	18.0
28	8.5	4.0	6.0	14.5	10.0	11.5	15.0	7.0	11.0	23.5	15.5	19.0
29	---	---	---	16.5	8.5	12.5	13.0	9.5	11.0	22.5	14.5	18.5
30	---	---	---	17.0	11.5	14.0	12.5	10.0	11.0	21.0	14.0	17.0
31	---	---	---	11.5	7.5	8.5	---	---	---	22.5	16.5	19.0
MONTH	12.0	1.5	4.4	17.0	.0	5.4	17.0	4.5	9.8	24.5	9.5	16.2

WATER TEMPERATURE, DEGREES CELSIUS, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	10.3	7.4	8.3	---	---	---	---	---	---	10.2	4.8	7.6
2	10.4	9.7	10.1	---	---	---	---	---	---	10.3	5.4	8.2
3	9.8	8.5	9.1	---	---	---	---	---	---	10.0	4.2	7.0
4	9.2	8.0	8.7	---	---	---	---	---	---	13.7	5.7	9.6
5	---	---	---	---	---	---	---	---	---	13.3	5.4	8.3
6	---	---	---	---	---	---	---	---	---	15.3	4.9	9.6
7	---	---	---	9.4	6.7	7.6	---	---	---	9.9	2.7	6.5
8	12.3	11.3	11.8	12.6	6.9	10.2	---	---	---	13.1	6.6	9.6
9	---	---	---	11.3	10.4	10.9	---	---	---	15.9	6.3	10.8
10	13.2	11.3	12.0	11.6	10.0	10.6	---	---	---	16.9	6.0	10.8
11	19.1	12.9	16.1	---	---	---	---	---	---	16.4	5.7	10.8
12	18.6	15.4	16.9	15.1	12.5	13.5	---	---	---	16.6	3.5	9.7
13	15.6	12.8	14.7	15.0	10.8	13.4	---	---	---	---	---	---
14	13.5	11.4	12.7	11.9	9.6	10.7	10.8	3.1	7.3	---	---	---
15	12.8	10.0	11.7	11.6	10.0	10.8	12.5	5.8	8.8	17.4	4.1	10.3
16	14.0	9.3	10.8	11.9	8.4	10.3	15.5	9.5	12.9	12.9	2.1	7.1
17	14.4	8.9	11.3	---	---	---	12.4	5.9	9.8	---	---	---
18	11.3	7.3	9.1	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	10.9	4.2	6.5	---	---	---
27	---	---	---	---	---	---	9.7	6.3	8.4	---	---	---
28	---	---	---	---	---	---	9.6	5.6	7.8	---	---	---
29	---	---	---	---	---	---	11.1	5.5	7.9	---	---	---
30	---	---	---	---	---	---	11.1	5.1	7.8	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
JUNE			JULY			AUGUST			SEPTEMBER			
1	---	---	---	13.9	5.6	9.6	---	---	---	15.5	7.3	11.0
2	---	---	---	13.8	4.9	9.4	---	---	---	14.6	5.6	10.0
3	---	---	---	---	---	---	---	---	---	16.0	7.4	11.1
4	---	---	---	---	---	---	---	---	---	15.5	7.6	10.9
5	---	---	---	---	---	---	---	---	---	14.3	7.3	10.0
6	---	---	---	---	---	---	---	---	---	12.7	6.8	9.2
7	---	---	---	---	---	---	---	---	---	13.3	6.6	9.7
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	12.1	5.5	8.4	---	---	---	---	---	---
10	---	---	---	12.3	5.3	8.6	---	---	---	---	---	---
11	8.8	6.5	7.7	11.7	6.1	8.6	---	---	---	13.0	7.3	9.4
12	10.9	6.3	8.6	11.5	6.0	8.5	16.4	7.1	10.8	12.9	7.0	9.2
13	10.5	5.8	7.7	---	---	---	15.7	6.7	10.6	12.3	6.9	8.9
14	12.0	5.6	8.9									

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: Ice-affected periods, Nov. 24, 25, Jan. 11-17, and Mar. 10-15. Records good except those for ice-affected periods, which are poor, and those for discharges greater than 500 ft³/s, which are fair (see page 12). 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	6.6	4.8	6.2	10	38	15	48	82	9.0	8.1	5.6	13
2	6.4	4.8	5.7	19	44	14	26	19	7.6	7.6	6.9	23
3	6.4	5.1	42	20	23	21	19	22	10	29	7.8	7.2
4	7.5	4.9	10	110	15	13	16	14	7.0	9.4	96	6.4
5	7.6	23	7.0	68	12	12	14	12	7.3	6.4	564	5.6
6	7.2	16	6.0	97	15	17	13	11	7.5	6.7	209	6.4
7	7.5	6.1	5.7	39	13	11	19	71	8.1	8.4	44	9.1
8	7.4	5.3	6.1	20	13	170	126	15	7.7	7.0	18	5.8
9	16	5.0	8.0	32	15	38	276	11	39	7.4	13	5.9
10	6.2	5.1	29	16	16	15	36	9.0	16	7.3	12	6.2
11	5.6	5.0	16	10	216	12	24	9.5	65	6.8	11	6.2
12	5.6	4.8	8.7	9.4	66	11	19	39	15	6.5	10	6.3
13	29	4.6	8.1	8.8	27	10	33	28	7.9	6.7	9.3	6.1
14	7.1	4.7	7.0	8.4	20	9.4	31	10	7.2	10	13	116
15	6.0	12	9.4	8.0	22	9.0	82	10	7.4	66	12	34
16	5.9	5.2	8.7	7.6	44	8.7	226	12	7.5	14	7.4	27
17	6.0	4.7	7.0	7.4	66	56	32	8.1	7.7	7.2	7.5	12
18	5.7	4.9	6.7	7.3	34	170	22	8.4	30	7.3	7.6	6.8
19	6.4	5.0	6.5	7.2	19	66	17	26	26	18	7.3	6.5
20	6.0	8.0	6.1	7.2	18	26	18	9.8	7.4	106	7.5	6.5
21	6.2	6.5	5.9	9.3	14	19	60	7.4	6.8	29	7.6	6.2
22	6.2	5.5	8.0	10	12	16	18	6.8	7.0	10	7.5	6.0
23	10	5.1	6.6	14	12	14	15	6.4	7.1	8.6	6.8	6.0
24	8.4	4.8	7.8	9.3	34	13	13	14	27	8.3	8.5	8.7
25	4.6	5.0	12	7.3	13	13	12	6.1	8.4	7.5	128	6.4
26	41	5.2	9.1	14	12	13	33	6.6	7.8	7.2	9.6	17
27	16	20	6.0	18	122	12	12	7.1	101	7.5	7.8	6.2
28	7.4	8.3	5.7	20	20	19	11	51	107	7.6	18	5.6
29	5.4	25	7.1	24	---	10	11	52	11	7.5	7.6	15
30	5.1	13	5.9	18	---	28	16	25	19	7.4	6.1	46
31	5.0	---	6.5	19	---	223	---	63	---	6.7	6.4	---
TOTAL	277.4	237.4	290.5	675.2	975	1084.1	1298	672.2	602.4	453.1	1282.8	439.1
MEAN	8.95	7.91	9.37	21.8	34.8	35.0	43.3	21.7	20.1	14.6	41.4	14.6
MAX	41	25	42	110	216	223	276	82	107	106	564	116
MIN	4.6	4.6	5.7	7.2	12	8.7	11	6.1	6.8	6.4	5.6	5.6
CFSM	.48	.42	.50	1.16	1.85	1.86	2.30	1.15	1.07	.78	2.20	.78
IN.	.55	.47	.57	1.34	1.93	2.15	2.57	1.33	1.19	.90	2.54	.87

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1998, BY WATER YEAR (WY)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	20.6	26.3	19.4	14.2	20.4	26.6	33.4	23.0	27.0	26.5	35.6	23.4				
MAX	60.5	67.8	48.9	43.7	41.9	44.9	104	72.9	75.0	49.9	82.3	68.4				
(WY)	1992	1986	1983	1988	1994	1993	1993	1990	1997	1986	1986	1986				
MIN	6.81	7.91	3.96	4.72	5.27	8.87	14.1	9.07	11.4	12.6	13.9	8.41				
(WY)	1995	1998	1990	1994	1995	1996	1989	1992	1985	1996	1996	1995				

STREAMS TRIBUTARY TO LAKE MICHIGAN

04087159 KINNICKINNIC RIVER AT SOUTH 11TH STREET AT MILWAUKEE, WI--CONTINUED

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1983 - 1998
ANNUAL TOTAL	8365.0	8287.2	
ANNUAL MEAN	22.9	22.7	24.7
HIGHEST ANNUAL MEAN			39.8 1986
LOWEST ANNUAL MEAN			18.9 1995
HIGHEST DAILY MEAN	1170 Jun 21	564 Aug 5	1630 Aug 6 1986
LOWEST DAILY MEAN	4.6 (a) Oct 25	4.6 (a) Oct 25	(b) 2.9 Dec 26-28 1989
ANNUAL SEVEN-DAY MINIMUM	4.9 Nov 8	4.9 Nov 8	(b) 3.0 Dec 23 1989
INSTANTANEOUS PEAK FLOW		3990 Aug 5	(c) 10600 Aug 6 1986
INSTANTANEOUS PEAK STAGE		12.24 Aug 5	(d) 14.41 Aug 6 1986
ANNUAL RUNOFF (CFSM)	1.22	1.21	1.31
ANNUAL RUNOFF (INCHES)	16.55	16.40	17.86
10 PERCENT EXCEEDS	31	44	48
50 PERCENT EXCEEDS	8.3	10	9.6
90 PERCENT EXCEEDS	5.7	5.9	5.9

(a) Also occurred Nov. 13

(b) Ice affected

(c) From rating curve extended above 600 ft³/s on basis of step-backwater analysis at peak gage height

(d) 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. 31 to Jan. 1, Jan. 9-22, and Mar. 10-15. Records good except those for ice-affected periods and periods of flow less than 4.0 cfs, which are poor (see page 12). 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	2.5	6.6	3.8	21	37	165	92	15	5.2	1.5	3.3
2	2.0	1.7	3.6	5.1	78	28	79	46	9.8	4.2	1.5	13
3	2.2	1.6	14	31	65	27	47	35	7.0	4.1	1.4	3.4
4	2.1	1.7	17	65	41	23	33	32	5.9	4.6	9.1	1.8
5	1.9	3.4	6.6	103	28	19	25	25	5.5	4.5	235	1.4
6	2.0	10	3.9	101	23	18	20	22	4.8	3.5	182	1.3
7	1.8	6.0	3.7	114	27	17	19	76	4.6	3.2	39	9.2
8	2.6	2.7	3.1	48	23	119	95	55	4.3	3.3	20	1.9
9	3.9	2.5	3.2	40	22	142	371	30	6.9	3.0	11	1.0
10	2.9	2.0	8.2	30	22	44	196	23	14	2.6	7.8	.92
11	1.7	1.7	15	20	167	25	86	20	21	2.3	6.9	.93
12	1.5	1.6	9.7	12	272	15	55	20	31	2.2	5.2	.91
13	4.8	1.6	5.4	9.0	118	13	42	31	12	2.1	4.0	.87
14	4.2	1.8	5.2	8.4	71	12	52	21	7.1	1.9	3.9	15
15	1.7	2.6	4.9	8.2	55	11	63	17	5.8	11	4.5	46
16	1.5	2.6	5.5	8.0	54	10	412	16	5.3	16	3.1	7.4
17	1.5	2.1	5.8	7.8	102	23	190	14	5.0	6.8	2.2	3.1
18	1.6	2.2	4.9	7.6	98	212	84	12	5.9	2.9	1.9	1.9
19	1.5	2.0	4.8	7.4	57	182	51	19	18	2.8	1.6	1.6
20	1.5	2.0	4.6	7.4	42	95	38	13	8.3	18	1.5	1.4
21	1.4	2.3	3.9	7.4	34	57	86	9.8	5.1	38	1.5	1.1
22	1.3	2.2	4.0	7.6	29	40	51	7.5	4.3	9.0	1.6	.93
23	1.4	1.7	4.3	10	26	31	33	7.2	3.8	4.6	1.6	.74
24	1.8	1.5	4.5	11	33	26	27	6.8	6.0	3.3	2.7	.89
25	2.0	1.7	4.8	8.9	27	23	22	6.8	5.8	2.6	80	1.7
26	4.2	2.2	5.2	9.3	22	21	25	6.3	3.8	2.1	13	2.5
27	16	3.2	4.7	10	123	20	20	6.0	30	1.9	4.8	1.8
28	5.1	5.3	3.4	11	63	22	16	16	67	1.8	7.3	1.1
29	3.2	7.5	3.8	14	---	19	14	47	17	1.6	6.2	1.3
30	2.4	16	3.4	15	---	20	16	14	7.5	1.5	2.8	14
31	2.5	---	3.2	14	---	192	---	35	---	1.5	2.0	---
TOTAL	86.2	97.9	180.9	754.9	1743	1543	2433	781.4	347.5	172.1	666.6	142.39
MEAN	2.78	3.26	5.84	24.4	62.3	49.8	81.1	25.2	11.6	5.55	21.5	4.75
MAX	16	16	17	114	272	212	412	92	67	38	235	46
MIN	1.3	1.5	3.1	3.8	21	10	14	6.0	3.8	1.5	1.4	.74
CFSM	.11	.13	.23	.97	2.49	1.99	3.24	1.01	.46	.22	.86	.19
IN.	.13	.15	.27	1.12	2.59	2.30	3.62	1.16	.52	.26	.99	.21

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1998, BY WATER YEAR (WY)

	MEAN	11.6	18.0	20.0	14.3	24.3	50.1	48.6	23.6	21.8	14.6	14.1	16.7
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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1964 - 1998
ANNUAL TOTAL	6986.2	8948.89	
ANNUAL MEAN	19.1	24.5	23.1
HIGHEST ANNUAL MEAN			41.7
LOWEST ANNUAL MEAN			6.67
HIGHEST DAILY MEAN	660	Jun 21	855
LOWEST DAILY MEAN	1.3	Oct 22	.74
ANNUAL SEVEN-DAY MINIMUM	1.5	Oct 17	1.2
INSTANTANEOUS PEAK FLOW			542
INSTANTANEOUS PEAK STAGE			7.39
INSTANTANEOUS LOW FLOW			.69
ANNUAL RUNOFF (CFSM)	.77		.98
ANNUAL RUNOFF (INCHES)	10.40		13.32
10 PERCENT EXCEEDS	37		63
50 PERCENT EXCEEDS	6.6		7.4
90 PERCENT EXCEEDS	2.2		1.6

(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, Nov. 11-13, 24, Dec. 14, 21-24, 27, 28, Dec. 30 to Jan. 1, Jan. 10-29, and Mar. 11-16. Records good except those for ice-affected periods, which are poor (see page 12). 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	4.4	18	6.4	25	85	346	95	42	9.8	3.0	6.0
2	3.5	4.2	8.4	6.9	88	61	149	104	18	7.0	3.0	24
3	3.5	3.9	6.8	44	108	52	98	57	14	6.3	3.2	13
4	3.6	3.9	41	85	83	43	67	51	13	11	7.2	6.3
5	3.3	4.0	19	149	62	35	46	39	12	7.6	235	5.4
6	3.0	27	9.9	151	46	31	39	33	11	5.7	501	5.0
7	2.7	12	8.0	208	44	32	34	74	10	5.3	287	5.0
8	2.9	5.1	6.6	125	40	81	96	118	9.3	5.6	200	4.9
9	4.4	4.1	6.1	96	38	202	347	64	9.8	5.2	55	4.6
10	6.0	4.3	8.3	76	33	99	347	40	24	4.7	29	4.9
11	4.9	4.1	26	52	135	56	127	32	20	4.7	20	4.5
12	3.9	4.1	19	35	417	40	87	30	56	4.5	15	4.5
13	5.5	4.2	11	25	234	28	61	64	20	4.4	13	4.2
14	11	4.4	9.0	20	126	25	91	40	13	4.4	12	7.6
15	3.7	4.4	8.5	19	107	23	86	28	10	4.2	19	90
16	3.1	7.9	8.6	19	107	22	437	27	9.4	13	12	29
17	3.0	6.2	12	18	149	22	347	23	8.6	5.6	8.2	11
18	3.0	5.2	12	18	194	200	134	20	7.3	4.0	7.2	7.3
19	3.0	5.2	11	17	135	308	91	24	30	4.0	6.4	6.1
20	3.1	4.5	9.6	16	101	167	61	26	16	5.3	5.8	5.9
21	3.2	4.2	8.8	16	80	103	105	17	9.5	34	5.9	5.7
22	3.1	4.2	9.0	17	61	76	93	15	7.7	9.2	6.2	5.4
23	2.9	4.3	9.2	18	47	55	57	15	6.7	5.3	6.0	5.2
24	3.6	4.1	9.2	19	53	42	44	16	7.0	4.4	5.8	5.0
25	4.9	3.9	9.4	16	55	37	38	18	12	4.0	87	5.3
26	3.8	4.1	9.5	16	38	35	39	15	6.7	3.9	45	8.1
27	46	4.7	9.0	17	122	32	43	13	25	3.6	15	8.2
28	17	19	8.0	19	144	30	31	17	81	3.6	13	5.3
29	4.9	9.6	7.5	22	---	31	29	70	53	3.8	15	5.5
30	3.8	34	7.0	26	---	27	27	30	14	3.2	8.0	12
31	4.0	---	6.6	25	---	180	---	42	---	3.1	6.7	---
TOTAL	177.8	215.2	352.0	1397.3	2872	2260	3597	1257	576.0	200.4	1655.6	314.9
MEAN	5.74	7.17	11.4	45.1	103	72.9	120	40.5	19.2	6.46	53.4	10.5
MAX	46	34	41	208	417	308	437	118	81	34	501	90
MIN	2.7	3.9	6.1	6.4	25	22	27	13	6.7	3.1	3.0	4.2
CFSM	.12	.15	.23	.92	2.08	1.48	2.44	.82	.39	.13	1.09	.21
IN.	.13	.16	.27	1.06	2.17	1.71	2.72	.95	.44	.15	1.25	.24

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1998, BY WATER YEAR (WY)

	MEAN	23.5	31.6	37.3	30.2	46.4	96.9	88.6	42.6	40.7	26.1	25.3	29.9
MAX		95.5	151	118	190	161	315	316	138	137	142	72.3	214
(WY)		1992	1986	1983	1974	1971	1979	1973	1990	1969	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 1997 CALENDAR YEAR			FOR 1998 WATER YEAR			WATER YEARS 1964 - 1998		
ANNUAL TOTAL	12584.2			14875.2					
ANNUAL MEAN	34.5			40.8			43.2		
HIGHEST ANNUAL MEAN							84.0		
LOWEST ANNUAL MEAN							12.7		
HIGHEST DAILY MEAN	1250	Jun 22		501	Aug 6		2390	Apr 21	1973
LOWEST DAILY MEAN	2.7	Oct 7		2.7	Oct 7		.44	Aug 9,10	1971
ANNUAL SEVEN-DAY MINIMUM	3.0	Oct 17		3.0	Oct 17		1.1	Aug 4	1971
INSTANTANEOUS PEAK FLOW				558	Aug 6		3700	Apr 21	1973
INSTANTANEOUS PEAK STAGE				7.25	Aug 6		9.31	Apr 21	1973
INSTANTANEOUS LOW FLOW				2.7	Oct 6-8		.38	Aug 10	1971
ANNUAL RUNOFF (CFSM)	.70			.83			.88		
ANNUAL RUNOFF (INCHES)	9.51			11.25			11.93		
10 PERCENT EXCEEDS	58			103			91		
50 PERCENT EXCEEDS	14			15			16		
90 PERCENT EXCEEDS	4.1			4.0			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. 27-29, Dec. 31 to Jan. 1, Jan. 10-27, and Mar. 10-17. Records are fair except those for ice-affected periods, which are poor (see page 12). 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	6.7	2.9	34	11	51	74	347	77	33	19	2.2	3.6
2	5.4	3.5	23	16	154	64	210	82	25	13	2.4	4.0
3	4.8	3.6	21	106	180	56	124	70	19	10	2.2	4.3
4	4.6	3.4	47	134	146	51	99	66	16	35	2.9	3.5
5	4.7	3.0	42	195	114	46	80	57	14	27	7.5	3.0
6	5.4	4.4	28	227	91	43	66	54	13	15	7.7	3.7
7	4.6	8.9	20	257	96	41	58	168	11	15	4.6	7.6
8	4.8	8.5	15	192	85	65	86	315	10	34	4.4	8.3
9	5.0	7.6	14	160	78	141	343	172	11	18	4.1	4.0
10	4.2	7.1	16	130	72	82	499	109	30	12	3.3	3.5
11	3.4	6.5	20	110	216	54	274	83	30	10	2.7	3.7
12	3.3	6.0	18	72	517	46	158	67	67	8.5	2.2	4.2
13	3.8	6.2	17	50	390	40	115	162	47	6.0	2.1	4.6
14	4.9	6.3	14	35	203	36	112	113	31	5.1	3.3	6.0
15	3.7	7.8	12	30	133	32	99	81	24	4.6	3.3	17
16	3.2	8.4	14	28	113	31	552	65	19	4.2	3.1	14
17	2.9	5.4	21	26	116	31	542	52	15	4.1	2.8	6.2
18	2.7	4.4	24	25	157	151	279	43	13	3.9	2.6	4.4
19	2.5	5.1	27	24	124	267	172	39	16	3.8	2.5	4.2
20	2.4	5.0	40	24	100	192	123	35	14	3.5	2.6	5.2
21	2.0	6.3	37	23	86	117	138	30	10	6.6	2.8	8.9
22	1.9	7.3	32	23	75	94	157	27	9.0	6.6	2.6	9.5
23	1.9	9.2	28	24	67	79	112	28	8.2	5.0	2.7	8.9
24	2.0	9.5	25	24	66	66	93	27	7.3	4.2	3.0	8.9
25	2.4	9.8	25	25	63	58	79	25	6.1	3.3	20	9.1
26	2.7	12	21	26	57	55	81	21	9.6	3.3	12	11
27	9.1	12	17	27	92	49	82	18	13	3.0	4.9	12
28	7.5	17	17	31	93	47	69	17	53	2.7	4.1	12
29	3.3	16	16	37	---	46	63	38	70	2.7	4.4	12
30	2.2	39	16	43	---	42	59	32	33	2.6	3.6	13
31	2.1	---	12	45	---	167	---	34	---	2.5	3.5	---
TOTAL	120.1	252.1	713	2180	3735	2363	5271	2207	677.2	294.2	132.1	220.3
MEAN	3.87	8.40	23.0	70.3	133	76.2	176	71.2	22.6	9.49	4.26	7.34
MAX	9.1	39	47	257	517	267	552	315	70	35	20	17
MIN	1.9	2.9	12	11	51	31	58	17	6.1	2.5	2.1	3.0
CFSM	.07	.15	.40	1.23	2.34	1.34	3.08	1.25	.40	.17	.07	.13
IN.	.08	.16	.47	1.42	2.44	1.54	3.44	1.44	.44	.19	.09	.14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1998, BY WATER YEAR (WY)

	MEAN	21.7	35.8	44.9	33.8	59.3	113	107	50.9	41.5	24.0	21.5	31.4
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	2.20	1.28	
(WY)	1964	1964	1964	1977	1977	1968	1977	1977	1977	1991	1985	1971	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1964 - 1998

ANNUAL TOTAL	13080.6	18165.0	
ANNUAL MEAN	35.8	49.8	48.5
HIGHEST ANNUAL MEAN			98.4
LOWEST ANNUAL MEAN			4.57
HIGHEST DAILY MEAN	568	Feb 22	1410
LOWEST DAILY MEAN	1.9	Oct 22,23	(a).40
ANNUAL SEVEN-DAY MINIMUM	2.2	Oct 19	(b).45
INSTANTANEOUS PEAK FLOW			(c)1440
INSTANTANEOUS PEAK STAGE			(d)11.26
ANNUAL RUNOFF (CFSM)	.63		.85
ANNUAL RUNOFF (INCHES)	8.54		11.57
10 PERCENT EXCEEDS	80	131	121
50 PERCENT EXCEEDS	16	19	15
90 PERCENT EXCEEDS	3.2	3.2	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. 31 to Jan. 1, Jan. 12-14, 18-20, and Mar. 11-13. Records good except those for ice-affected periods, which are fair (see page 12). 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	17	14	73	36	113	396	771	194	98	78	6.0	18
2	16	12	76	40	190	302	993	276	98	51	5.5	15
3	15	9.8	65	92	327	227	822	284	67	41	5.3	14
4	14	8.7	75	208	362	196	496	224	56	40	5.6	18
5	13	9.0	95	336	313	171	332	199	51	47	8.7	17
6	13	15	86	459	239	153	240	168	45	56	152	15
7	12	15	69	643	206	143	190	205	43	39	263	14
8	11	19	56	641	193	230	230	372	40	33	320	14
9	11	22	49	544	179	448	965	561	42	43	244	12
10	9.2	20	51	343	166	467	1140	459	54	42	91	11
11	6.9	18	58	197	412	340	1220	278	75	32	45	9.8
12	7.3	17	65	180	980	170	887	196	116	28	33	7.8
13	12	16	65	160	1130	160	521	299	146	25	27	6.2
14	11	15	51	140	1120	147	387	318	108	21	24	6.0
15	12	16	49	134	750	130	349	275	74	17	21	12
16	16	16	48	119	512	117	1210	186	59	16	20	58
17	13	16	47	113	461	116	1280	151	51	16	21	53
18	11	18	51	92	496	356	1280	124	46	20	18	28
19	10	19	57	84	548	688	859	106	48	19	16	22
20	9.2	19	63	80	502	917	500	98	57	16	13	17
21	9.1	19	68	80	376	785	407	97	58	16	11	13
22	9.5	18	70	77	294	501	391	78	39	25	9.5	9.9
23	9.1	18	64	77	241	346	381	71	33	34	8.9	8.4
24	8.8	17	60	78	220	262	301	69	29	22	9.7	7.2
25	9.1	17	59	75	221	206	234	68	28	19	31	6.7
26	9.9	18	55	78	207	183	213	69	30	16	102	6.2
27	16	19	46	77	281	166	205	62	38	16	70	5.7
28	30	20	40	80	373	153	194	57	81	12	34	5.5
29	38	26	48	87	---	145	163	75	159	9.3	25	6.4
30	24	61	39	98	---	142	149	122	154	7.2	24	6.5
31	18	---	35	108	---	354	---	107	---	6.5	21	---
TOTAL	421.1	547.5	1833	5556	11412	9117	17310	5848	2023	863.0	1685.2	443.3
MEAN	13.6	18.3	59.1	179	408	294	577	189	67.4	27.8	54.4	14.8
MAX	38	61	95	643	1130	917	1280	561	159	78	320	58
MIN	6.9	8.7	35	36	113	116	149	57	28	6.5	5.3	5.5
CFSM	.07	.10	.31	.95	2.16	1.56	3.06	1.00	.36	.15	.29	.08
IN.	.08	.11	.36	1.09	2.25	1.80	3.41	1.15	.40	.17	.33	.09

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1998, BY WATER YEAR (WY)

	MEAN	66.2	108	132	97.4	166	351	351	173	129	83.7	66.6	88.0
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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1963 - 1998

ANNUAL TOTAL	42111.7	57059.1	
ANNUAL MEAN	115	156	151
HIGHEST ANNUAL MEAN			268
LOWEST ANNUAL MEAN			23.3
HIGHEST DAILY MEAN	1740	Jun 23	4010
LOWEST DAILY MEAN	6.9	Oct 11	.00
ANNUAL SEVEN-DAY MINIMUM	9.2	Oct 20	.00
INSTANTANEOUS PEAK FLOW			4500
INSTANTANEOUS PEAK STAGE			8.54
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (CFSM)	.61		.80
ANNUAL RUNOFF (INCHES)	8.30		10.86
10 PERCENT EXCEEDS	225	409	395
50 PERCENT EXCEEDS	56	59	54
90 PERCENT EXCEEDS	15	9.9	9.3

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: Sept. 6-10 and ice-affected periods, Dec. 27 to Jan. 1, Jan. 11-27, and Mar. 10-13. Records good except those for estimated daily discharges, which are fair (see page 12). 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 1997 TO SEPTEMBER 1998

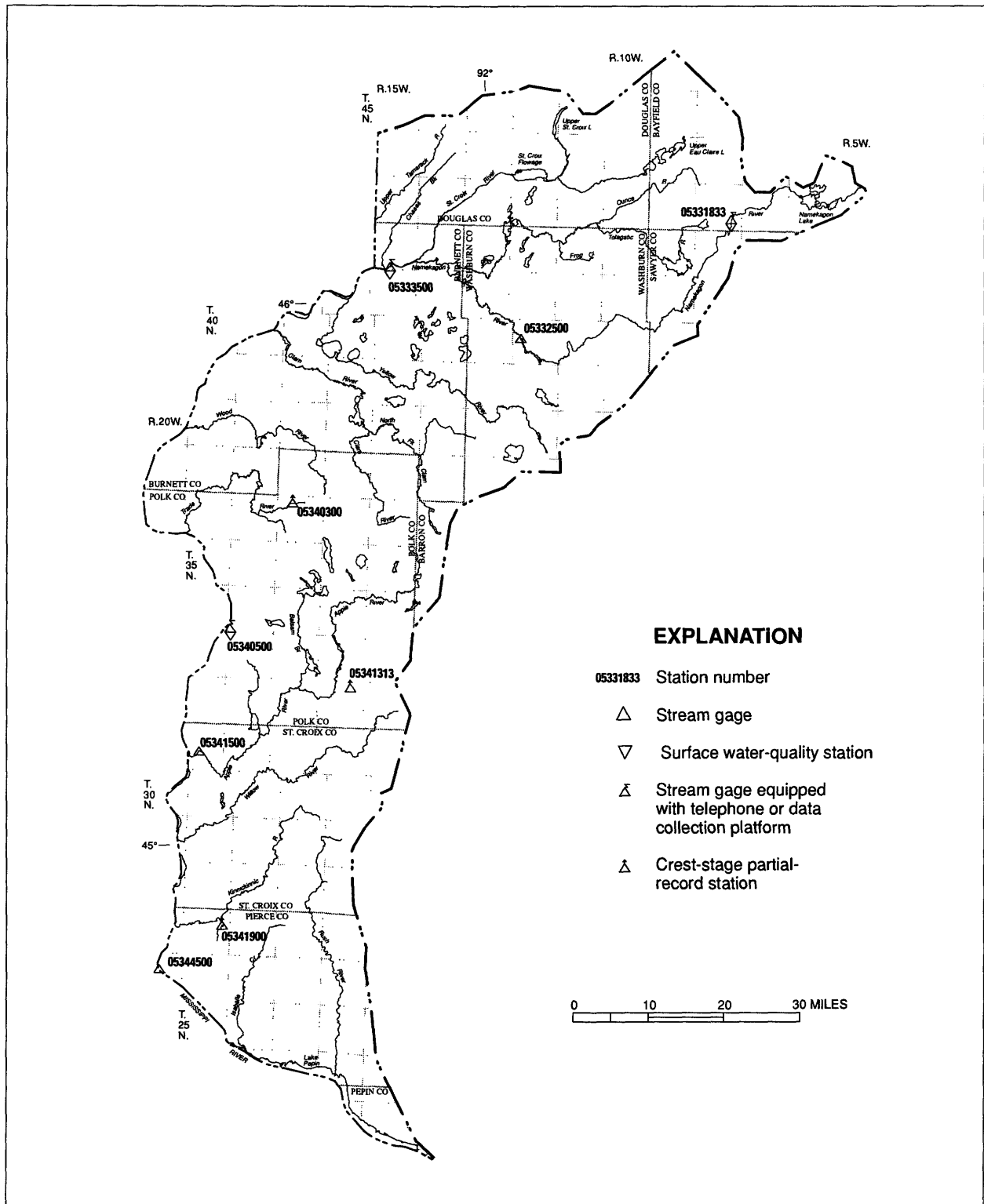
DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	7.8	61	18	41	48	230	46	21	18	8.3	11
2	12	6.8	42	22	126	43	138	36	19	16	8.3	14
3	12	7.4	59	84	123	40	89	32	17	44	9.2	11
4	11	7.9	71	105	98	35	64	31	17	127	18	11
5	8.9	7.7	47	187	72	32	52	31	16	41	27	9.7
6	9.9	16	34	211	63	31	45	31	16	28	33	8.8
7	10	10	25	234	70	28	42	110	15	52	20	30
8	10	7.8	22	141	59	115	120	127	14	43	17	15
9	11	7.4	22	113	57	157	464	74	26	27	14	12
10	11	7.9	33	86	57	74	238	50	38	21	13	11
11	8.9	9.1	41	66	314	54	134	42	41	17	12	10
12	8.0	9.1	35	48	437	43	88	39	73	16	12	9.5
13	15	9.2	28	42	187	41	68	78	34	15	11	9.6
14	13	9.3	23	37	129	38	69	48	25	15	11	13
15	9.6	11	23	31	94	32	67	38	21	14	14	49
16	8.4	11	29	27	80	31	655	31	19	13	11	19
17	8.1	11	38	24	100	42	220	25	18	13	11	14
18	6.5	11	33	19	124	253	134	24	18	12	11	12
19	5.2	11	38	18	87	217	93	26	32	12	11	11
20	5.9	11	38	18	68	140	72	22	18	13	11	10
21	6.9	11	30	18	58	88	126	20	16	31	12	11
22	7.0	14	28	18	50	66	101	20	15	18	11	11
23	7.2	14	22	19	45	55	70	20	15	17	11	10
24	8.6	12	21	18	45	47	55	21	15	11	11	9.7
25	8.7	13	22	17	39	46	45	18	15	10	95	9.6
26	7.1	18	21	18	36	42	59	18	28	11	22	9.9
27	26	15	18	19	91	38	48	17	25	9.3	15	9.3
28	12	20	17	23	62	41	41	22	58	10	16	9.1
29	10	27	17	28	---	35	38	43	33	10	14	9.6
30	8.9	103	17	31	---	33	36	21	22	9.7	11	11
31	8.9	---	17	32	---	233	---	35	---	9.3	11	---
TOTAL	308.7	436.4	972	1772	2812	2218	3701	1196	740	703.3	511.8	390.8
MEAN	9.96	14.5	31.4	57.2	100	71.5	123	38.6	24.7	22.7	16.5	13.0
MAX	26	103	71	234	437	253	655	127	73	127	95	49
MIN	5.2	6.8	17	17	36	28	36	17	14	9.3	8.3	8.8
CFSM	.26	.38	.81	1.48	2.61	1.86	3.20	1.00	.64	.59	.43	.34
IN.	.30	.42	.94	1.71	2.72	2.14	3.58	1.16	.72	.68	.49	.38

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1998, BY WATER YEAR (WY)												
MEAN	18.0	30.7	35.3	26.1	37.3	74.4	73.2	42.1	32.1	21.3	20.9	26.5
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 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1972 - 1998												
ANNUAL TOTAL	11612.6			15762.0			36.4					
ANNUAL MEAN	31.8			43.2			59.0					
HIGHEST ANNUAL MEAN							8.10					
LOWEST ANNUAL MEAN							1993					
HIGHEST DAILY MEAN	630			Feb 21			655			Apr 16		
LOWEST DAILY MEAN	5.2			Oct 19			5.2			Oct 19		
ANNUAL SEVEN-DAY MINIMUM	6.7			Oct 17			6.7			Oct 17		
INSTANTANEOUS PEAK FLOW							959			Apr 16		
INSTANTANEOUS PEAK STAGE							6.83			Apr 16		
ANNUAL RUNOFF (CFSM)	.83						1.12			(a) 1480		
ANNUAL RUNOFF (INCHES)	11.22						15.23			(b) 9.14		
10 PERCENT EXCEEDS	68						96			82		
50 PERCENT EXCEEDS	18						22			16		
90 PERCENT EXCEEDS	8.9						9.4			5.6		

(a) Gage height, 8.15 ft
(b) 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, Nov. 16-28, Dec. 6-11, Dec. 21 to Jan. 4, Jan. 10-20, Feb. 4-10, and Mar. 9-19. Records good except those for ice-affected periods, which are fair (see page 12). 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	87	110	100	84	93	207	442	133	157	140	67	58
2	88	112	100	86	93	191	428	129	195	130	67	58
3	86	113	100	90	91	183	378	125	189	124	71	55
4	85	115	100	90	90	174	339	122	163	122	68	54
5	89	117	98	92	90	166	313	119	146	118	67	55
6	101	115	98	91	90	161	295	115	135	117	68	53
7	129	111	98	91	90	157	288	114	126	117	69	51
8	120	106	96	91	90	154	288	113	118	116	73	51
9	116	106	96	91	90	140	274	112	121	111	70	51
10	111	106	96	90	90	130	259	109	117	105	68	51
11	109	105	96	80	91	120	250	105	146	103	67	50
12	109	104	96	76	91	130	246	103	210	98	67	49
13	133	105	97	76	90	120	241	102	198	95	66	51
14	125	101	98	76	89	120	230	102	175	95	66	54
15	120	102	98	78	89	120	223	104	155	102	63	54
16	114	98	98	82	90	120	214	125	143	96	66	54
17	112	96	94	86	94	120	207	114	132	92	73	52
18	118	96	98	90	97	120	197	112	136	88	68	51
19	107	94	96	92	97	120	193	108	186	89	64	51
20	103	94	91	94	97	119	201	101	204	86	63	52
21	101	94	90	96	97	118	196	99	210	83	62	49
22	99	94	90	95	96	116	185	98	182	79	64	49
23	99	94	90	95	100	113	175	97	164	78	70	48
24	99	92	90	95	109	110	168	95	159	75	69	50
25	98	92	90	94	113	111	164	92	160	74	65	52
26	97	94	90	95	135	123	157	91	177	74	64	63
27	97	98	88	94	239	206	151	91	171	71	63	59
28	97	100	86	93	241	364	144	97	160	69	64	56
29	96	100	84	94	---	390	139	93	147	67	62	53
30	95	101	84	93	---	458	136	110	142	70	61	54
31	102	---	84	93	---	413	---	181	---	68	61	---
TOTAL	3242	3065	2910	2763	2962	5394	7121	3411	4824	2952	2056	1588
MEAN	105	102	93.9	89.1	106	174	237	110	161	95.2	66.3	52.9
MAX	133	117	100	96	241	458	442	181	210	140	73	63
MIN	85	92	84	76	89	110	136	91	117	67	61	48
CFSM	.83	.81	.75	.71	.84	1.38	1.88	.87	1.28	.76	.53	.42
IN.	.96	.90	.86	.82	.87	1.59	2.10	1.01	1.42	.87	.61	.47

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 1998, BY WATER YEAR (WY)

	1996	1997	1998	1996	1997	1998	1996	1997	1998	1996	1997	1998
MEAN	131	156	126	115	117	135	259	181	143	147	102	102
MAX	158	210	158	141	128	174	281	265	161	226	128	158
(WY)	1997	1997	1997	1997	1997	1998	1997	1996	1998	1996	1996	1996
MIN	105	102	93.9	89.1	106	104	237	110	120	95.2	66.3	52.9
(WY)	1998	1998	1998	1998	1998	1996	1998	1998	1997	1998	1998	1998

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1996 - 1998
ANNUAL TOTAL	48495	42288	
ANNUAL MEAN	133	116	134
HIGHEST ANNUAL MEAN			152
LOWEST ANNUAL MEAN			116
HIGHEST DAILY MEAN	405	458	502
LOWEST DAILY MEAN	81	48	48
ANNUAL SEVEN-DAY MINIMUM	84	50	50
INSTANTANEOUS PEAK FLOW		473	517
INSTANTANEOUS PEAK STAGE		3.31	3.46
INSTANTANEOUS LOW FLOW		47	47
ANNUAL RUNOFF (CFSM)	1.05	.92	1.06
ANNUAL RUNOFF (INCHES)	14.32	12.49	14.42
10 PERCENT EXCEEDS	183	187	240
50 PERCENT EXCEEDS	120	98	125
90 PERCENT EXCEEDS	92	63	87

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, 26.0°C, June 28, 29, 1996; 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, 25.0°C, July 13; minimum, 0.0°C, on many days.

SPECIFIC CONDUCTANCE: Maximum, 173 µS/cm, Feb. 22; minimum, 60 µS/cm, Mar. 30.

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)	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)	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)
OCT 1997												
14...	0930	--	123	131	7.3	6.9	10.9	745	103	56	15	4.5
NOV												
11...	1430	--	104	134	7.6	2.2	13.8	740	96	60	17	4.6
DEC												
09...	1030	96	--	143	7.3	1.3	13.3	730	93	60	17	4.9
JAN 1998												
13...	1445	76	--	148	7.0	.1	12.2	760	96	58	19	5.2
FEB												
24...	1430	--	110	125	7.7	5.8	12.5	735	97	58	17	4.4
MAR												
24...	1330	--	110	146	7.4	5.2	14.3	753	112	49	16	4.6
30...	1615	--	473	62	6.8	3.5	12.3	--	--	22	6.9	2.0
APR												
28...	1500	--	143	131	7.6	14.7	10.8	735	91	54	16	4.5
MAY												
12...	1335	--	106	140	7.8	12.8	10.3	720	82	61	17	4.7
JUN												
02...	1530	--	212	108	7.2	13.6	10.0	728	88	42	12	3.3
JUL												
15...	1400	--	102	135	8.2	23.4	9.2	735	80	60	17	4.7
SEP												
09...	1330	--	51	164	8.3	14.9	10.9	735	8	76	22	6.1

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	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)	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 1997											
14...	2.3	.73	67	55	3.8	2.5	<.10	13	89	.089	<.010
NOV											
11...	2.4	.61	70	58	3.6	2.8	<.10	14	93	.120	.010
DEC											
09...	2.5	.61	64	53	4.2	16	<.10	14	99	.093	<.010
JAN 1998											
13...	2.6	.67	67	55	4.2	9.2	<.10	16	105	.154	<.010
FEB											
24...	2.3	.66	61	50	4.1	2.6	<.10	14	99	.161	<.010
MAR											
24...	2.6	.62	54	44	3.9	9.9	<.10	13	89	.117	.014
30...	1.4	.73	24	20	2.6	1.5	<.10	7.7	55	.091	<.010
APR											
28...	2.3	.59	60	49	3.8	2.6	<.10	11	82	.067	<.010
MAY											
12...	2.6	.64	67	55	3.9	2.5	<.10	10	86	<.050	<.010
JUN											
02...	2.0	.43	46	37	2.9	1.8	<.10	8.7	76	.071	.017
JUL											
15...	2.5	.59	62	51	3.2	2.5	<.10	13	89	<.050	<.010
SEP											
09...	2.8	.66	99	81	4.6	2.8	<.10	15	108	.839	<.010

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDEED TOTAL (MG/L AS C) (00689)	SEDI- MENT, SUS- PENDEED (MG/L) (80154)
OCT 1997											
14...	<.015	.32	.25	<.010	<.010	<.010	180	12	6.5	--	4
NOV											
11...	<.020	.17	.19	<.010	.014	.033	110	11	4.0	.30	4
DEC											
09...	<.020	.20	<.10	<.010	<.010	.010	93	11	3.4	.40	1
JAN 1998											
13...	<.020	.25	.16	<.010	<.010	<.010	96	8.8	3.1	.30	8
FEB											
24...	<.020	.38	.26	<.010	<.010	.016	210	20	4.5	.30	7
MAR											
24...	.020	.20	<.10	<.010	<.010	<.010	100	12	4.0	.20	1
30...	.057	.57	.43	.044	.021	.011	220	21	11	1.7	10
APR											
28...	.042	.30	.19	<.010	<.010	<.010	130	25	4.7	.50	4
MAY											
12...	.043	.29	.22	<.010	<.010	<.010	130	24	4.2	.30	3
JUN											
02...	.023	.50	.39	.017	.021	<.010	190	24	8.9	.60	--
JUL											
15...	<.020	.29	.26	.013	<.010	<.010	170	21	4.5	.30	3
SEP											
09...	.045	.14	.12	.011	<.050	<.010	96	15	2.2	.20	2

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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	11.5	8.0	10.0	8.0	6.0	7.0	2.0	2.0	2.0	.5	.5	.5
2	14.0	9.5	11.5	6.0	5.0	5.0	2.5	2.0	2.0	2.5	.5	1.5
3	15.5	10.5	13.0	5.0	4.0	4.5	2.5	2.0	2.0	2.5	.0	1.5
4	15.0	11.5	13.5	4.5	3.5	4.0	2.0	1.0	1.5	1.0	.0	.5
5	15.5	11.5	13.0	4.5	3.5	4.0	1.5	.5	1.0	2.0	1.0	1.5
6	13.0	10.5	11.0	5.0	3.5	4.0	2.0	1.0	1.5	2.5	1.5	2.0
7	13.0	10.5	11.5	5.0	4.5	4.5	2.0	1.0	1.5	2.0	2.0	2.0
8	15.5	13.0	14.5	5.0	4.5	4.5	2.0	.5	1.0	2.0	1.5	1.5
9	15.5	10.5	13.0	5.0	3.5	4.5	2.0	1.0	1.5	1.5	.0	1.0
10	11.5	8.0	10.0	3.5	1.5	3.0	2.5	2.0	2.0	.5	.0	.0
11	13.5	10.5	12.0	2.5	1.0	1.5	2.0	1.5	2.0	.5	.0	.5
12	14.5	13.0	13.5	1.0	.0	.5	1.5	.5	1.0	.5	.0	.5
13	14.0	9.0	12.5	2.0	.5	1.5	1.5	.0	1.0	.5	.0	.5
14	9.0	7.0	7.5	2.5	1.0	2.0	2.0	.5	1.0	.5	.5	.5
15	9.0	6.5	7.5	1.5	1.0	1.0	2.5	1.0	1.5	.5	.5	.5
16	9.5	6.5	8.0	1.5	.0	1.0	2.5	1.0	2.0	.5	.5	.5
17	9.5	6.0	8.0	1.0	.0	.5	2.5	.5	1.5	.5	.5	.5
18	10.5	7.5	9.0	1.0	.5	1.0	3.0	1.5	2.0	1.0	.5	.5
19	10.5	8.0	9.5	1.0	.0	.5	2.5	2.0	2.0	1.5	.5	1.0
20	8.5	6.5	7.5	2.0	1.0	1.5	2.0	.0	1.0	1.5	.5	1.0
21	6.5	4.5	5.5	1.0	.0	.5	.5	.0	.5	1.5	.5	1.0
22	5.5	4.0	4.5	1.0	.0	1.0	1.5	.5	1.0	1.5	1.0	1.0
23	6.0	3.5	5.0	.5	.0	.0	2.5	1.0	1.5	2.0	.5	1.0
24	6.0	4.0	5.0	.5	.0	.0	1.5	.0	1.0	1.5	.5	1.0
25	4.5	3.5	4.0	2.5	.5	1.5	2.0	1.0	1.5	1.5	.5	1.0
26	3.5	3.0	3.5	3.0	1.5	2.0	1.5	.0	1.0	1.5	.5	1.0
27	5.0	2.5	3.5	3.0	1.5	2.0	.5	.0	.0	2.0	1.0	1.5
28	6.0	3.5	4.5	2.5	.5	1.5	1.0	.5	.5	2.5	1.5	2.0
29	5.5	3.0	4.5	2.5	.5	1.5	1.0	.0	.5	2.0	1.5	2.0
30	6.0	5.0	5.5	2.0	1.0	2.0	1.0	.0	1.0	3.0	1.5	2.0
31	8.0	6.0	7.0	---	---	---	.5	.0	.0	3.0	1.5	2.5
MONTH	15.5	2.5	8.7	8.0	.0	2.3	3.0	.0	1.3	3.0	.0	1.1
FEBRUARY			MARCH			APRIL			MAY			
1	3.0	2.0	2.5	3.5	2.5	3.0	3.5	2.0	2.5	18.0	11.5	14.5
2	2.5	1.5	2.0	3.5	2.0	3.0	5.0	3.0	4.0	16.5	11.5	14.0
3	2.5	.5	1.5	3.0	1.5	2.5	7.5	3.0	5.5	17.5	10.5	14.0
4	1.5	.5	.5	2.5	1.5	2.0	8.5	4.0	6.5	18.0	11.5	14.5
5	2.0	.5	1.0	3.0	1.5	2.0	9.5	5.0	7.5	18.0	12.0	15.0
6	2.0	.5	1.0	4.0	1.5	2.5	8.5	7.0	8.0	18.0	11.0	14.5
7	2.5	.5	1.0	5.5	2.0	3.5	7.5	5.5	6.5	15.0	12.0	13.0
8	2.5	.5	1.5	4.0	2.5	3.5	7.0	4.5	5.5	15.5	10.0	12.5
9	3.5	1.0	2.5	3.0	.5	1.5	9.0	4.5	6.5	17.0	9.5	13.0
10	3.0	2.5	3.0	1.0	.5	.5	10.0	4.5	7.0	17.0	10.0	13.5
11	3.5	2.0	2.5	1.0	.5	.5	12.0	7.0	9.5	16.5	10.5	13.5
12	4.0	1.0	2.5	2.0	.5	1.0	13.5	9.5	11.5	16.0	12.5	14.0
13	2.5	1.5	1.5	1.0	.5	.5	12.5	11.0	11.5	19.5	12.0	15.5
14	2.5	1.5	2.0	2.5	.5	1.0	12.0	9.5	10.5	21.0	13.5	17.0
15	4.5	2.5	3.5	2.5	.5	1.0	10.0	8.0	9.0	21.5	16.0	18.5
16	4.5	3.0	4.0	3.5	.5	1.5	11.0	6.0	8.5	19.5	15.5	17.0
17	4.5	3.0	4.0	4.0	.5	2.5	9.5	6.5	8.0	19.0	13.5	16.0
18	4.0	3.0	3.5	3.0	2.0	2.5	10.5	7.0	8.5	22.5	15.0	18.5
19	5.5	2.5	3.5	4.0	1.5	2.5	10.0	7.0	8.5	22.5	16.5	19.5
20	4.0	2.5	3.0	5.5	.5	2.5	13.0	8.0	10.0	20.0	14.0	17.0
21	4.0	2.0	3.0	5.0	1.5	3.5	13.5	8.5	11.0	19.0	12.5	15.5
22	6.0	3.0	4.5	6.5	2.0	4.5	15.0	8.5	11.5	17.0	11.0	14.0
23	5.0	4.0	4.5	6.5	3.5	5.0	15.5	9.5	12.5	18.5	11.0	14.5
24	6.5	4.0	5.0	7.5	2.0	5.0	16.5	11.5	13.5	15.5	11.5	13.5
25	5.0	3.5	4.5	7.5	5.0	6.5	15.0	10.5	12.5	18.5	11.0	15.0
26	4.5	4.0	4.0	9.5	7.0	8.0	14.5	9.0	11.5	20.0	12.5	16.5
27	4.0	2.0	2.5	9.0	4.5	7.0	14.5	7.5	11.0	20.0	13.0	16.5
28	3.0	1.5	2.0	5.5	3.5	4.5	15.5	8.0	11.5	22.0	15.0	18.5
29	---	---	---	5.5	3.5	4.5	16.5	9.5	13.0	21.0	14.5	17.5
30	---	---	---	4.5	3.5	4.0	17.5	10.5	14.0	16.0	12.0	13.5
31	---	---	---	3.5	2.5	3.0	---	---	---	16.0	12.5	14.0
MONTH	6.5	.5	2.7	9.5	.5	3.1	17.5	2.0	9.2	22.5	9.5	15.3

ST. CROIX RIVER BASIN
05331833 NAMEKAGON RIVER AT LEONARDS, 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	17.5	11.0	14.0	23.0	16.5	19.5	19.5	13.5	16.0	18.0	13.5	15.5
2	15.0	11.5	13.0	22.5	17.0	20.0	19.0	14.5	16.5	16.0	11.0	13.5
3	14.0	10.0	12.0	20.0	17.5	19.0	17.5	15.5	16.5	17.5	10.5	13.5
4	14.0	10.5	12.5	22.0	15.0	18.0	19.5	14.0	16.5	18.5	11.0	14.5
5	12.0	10.0	11.0	20.0	15.5	18.0	20.0	15.0	17.5	20.0	13.0	16.5
6	12.5	10.0	11.5	18.5	16.5	17.5	19.5	15.5	17.5	19.0	14.0	16.0
7	14.5	10.0	12.0	18.5	16.0	17.0	19.0	16.0	17.0	16.5	11.5	14.0
8	15.5	9.5	13.0	21.5	16.0	18.0	20.5	15.5	17.5	16.5	9.5	12.5
9	14.0	11.5	13.0	22.5	15.5	19.0	22.0	15.5	18.5	16.5	9.5	13.0
10	13.0	12.0	12.5	22.0	17.0	19.5	20.5	15.0	17.5	18.5	12.0	15.0
11	13.5	12.0	12.5	23.0	16.5	19.5	20.0	14.5	17.0	19.0	13.5	16.0
12	16.0	13.0	14.0	23.5	17.5	20.5	19.0	14.0	16.5	18.0	15.0	16.5
13	20.0	14.5	17.0	25.0	18.5	21.5	20.5	15.0	17.5	18.0	14.5	16.0
14	20.0	15.5	17.5	24.5	19.0	21.5	21.0	15.5	18.0	17.0	14.5	15.5
15	21.0	15.5	18.0	24.0	18.0	21.0	19.5	13.5	16.5	18.0	12.5	14.5
16	22.5	16.5	19.5	21.5	17.0	19.5	18.0	14.0	16.0	17.5	11.0	14.0
17	21.0	16.0	18.5	22.0	16.0	19.0	17.0	13.5	15.5	18.0	11.5	14.5
18	19.5	17.0	18.0	20.0	15.0	18.0	17.5	11.0	14.5	18.5	12.5	15.0
19	20.0	17.0	18.0	22.5	16.5	19.0	19.0	13.5	16.0	19.5	14.0	16.0
20	18.5	17.0	18.0	23.0	16.0	19.5	20.0	16.0	17.5	18.0	13.5	15.5
21	20.0	17.0	18.5	22.0	17.0	19.5	20.0	14.0	17.0	14.0	11.0	12.5
22	21.0	16.5	18.5	20.5	15.0	17.5	17.0	14.0	14.5	12.5	8.0	10.0
23	21.5	17.0	19.0	18.5	13.5	16.0	20.5	14.0	16.5	12.0	8.0	10.0
24	22.5	18.0	20.0	18.5	13.0	15.5	18.5	15.0	17.0	11.5	10.0	10.5
25	22.0	18.5	20.0	18.5	13.5	15.5	19.5	13.5	16.5	16.0	10.0	12.5
26	24.0	18.0	20.5	19.5	13.0	16.5	20.0	13.5	16.5	13.5	12.5	13.0
27	24.5	19.5	22.0	21.0	14.5	17.5	18.0	14.5	16.5	15.0	11.5	13.0
28	24.0	20.0	22.0	20.5	14.5	17.0	21.0	15.5	17.5	15.0	9.0	12.0
29	22.5	18.0	20.0	17.5	13.0	15.5	19.5	14.5	17.0	15.0	10.5	12.5
30	21.5	17.0	19.5	18.5	13.0	15.5	18.0	12.0	15.0	12.0	9.0	10.5
31	---	---	---	18.0	12.5	15.5	18.5	11.5	15.0	---	---	---
MONTH	24.5	9.5	16.5	25.0	12.5	18.3	22.0	11.0	16.6	20.0	8.0	13.8

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, 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	144	139	142	139	134	136	147	145	146	155	147	151
2	143	140	142	135	132	134	147	146	147	150	147	148
3	147	141	143	133	130	132	147	145	146	151	147	148
4	144	142	143	132	130	131	146	144	146	153	150	152
5	145	141	143	133	130	131	148	144	147	152	150	151
6	147	125	141	134	131	132	145	142	144	150	148	149
7	134	126	128	136	133	134	146	144	145	150	148	149
8	130	127	128	136	135	136	149	145	147	150	149	149
9	132	129	130	137	135	136	146	143	145	154	149	150
10	134	132	133	139	136	137	146	144	145	163	154	161
11	135	130	132	140	137	139	146	143	145	162	156	159
12	134	130	133	144	140	142	150	139	144	156	153	154
13	131	124	127	144	140	142	147	138	143	158	154	157
14	129	126	127	143	140	142	145	139	143	156	152	154
15	130	128	129	143	141	142	144	141	143	154	150	152
16	132	130	131	145	143	144	144	142	143	150	149	149
17	133	131	132	153	140	147	147	143	145	150	148	149
18	133	127	131	146	140	144	146	141	143	149	147	148
19	136	131	134	148	145	146	145	143	144	149	147	148
20	138	136	137	147	145	146	152	145	147	150	148	149
21	140	138	139	151	147	150	154	148	151	150	148	149
22	141	138	140	149	145	146	150	146	148	150	148	149
23	141	139	140	152	147	149	148	146	147	149	148	149
24	141	139	140	152	148	149	151	148	149	150	148	149
25	143	140	141	149	145	147	151	147	148	151	148	149
26	144	142	143	145	143	144	151	147	149	150	149	150
27	144	141	143	146	143	145	157	133	148	152	148	149
28	144	141	143	147	145	146	155	150	151	149	147	148
29	145	142	144	148	145	147	152	150	151	149	147	148
30	145	142	144	148	145	146	152	149	150	149	147	148
31	143	139	141	---	---	---	158	151	155	149	146	148
MONTH	147	124	137	153	130	141	158	133	147	163	146	150

ST. CROIX RIVER BASIN

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05331833 NAMEKAGON RIVER AT LEONARDS, WI--CONTINUED

SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE, 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	147	146	147	110	102	105	72	69	70	125	122	123
2	147	146	147	114	104	111	75	70	72	127	124	125
3	151	146	148	117	105	114	83	75	79	129	126	127
4	155	147	151	123	108	118	89	83	86	130	126	128
5	154	146	151	126	120	123	92	89	90	131	128	130
6	154	136	148	127	123	126	94	92	93	132	125	130
7	152	145	149	125	114	117	96	93	95	131	127	130
8	152	146	149	119	117	118	94	92	93	132	128	130
9	150	147	148	123	119	121	97	94	95	134	127	131
10	147	146	147	132	115	125	101	97	99	136	131	134
11	147	146	147	134	114	123	104	101	103	139	133	137
12	148	146	147	136	123	128	105	103	104	140	133	137
13	149	147	148	135	130	132	107	103	106	145	133	136
14	150	148	149	136	130	133	108	106	107	140	135	138
15	171	145	148	138	127	133	120	108	109	141	129	137
16	146	144	145	139	131	135	120	110	110	132	124	126
17	144	142	143	134	132	133	112	110	111	136	126	128
18	150	142	143	135	134	134	113	111	112	130	127	129
19	142	139	140	135	133	134	113	110	112	134	130	131
20	165	139	145	138	133	136	111	109	110	136	131	134
21	172	140	144	136	133	135	111	110	110	133	130	132
22	173	148	154	137	135	136	111	110	111	134	130	132
23	150	135	147	136	135	135	112	111	112	135	131	133
24	142	131	134	137	135	136	114	112	113	137	133	135
25	143	138	141	136	134	135	115	114	114	138	127	134
26	140	122	132	134	125	130	132	115	118	138	129	135
27	122	95	104	125	82	105	120	118	119	140	129	137
28	102	95	98	82	63	70	122	119	120	139	126	134
29	---	---	---	68	63	65	122	120	121	143	137	141
30	---	---	---	65	60	62	123	120	122	144	121	133
31	---	---	---	72	65	70	---	---	---	121	102	109
MONTH	173	95	143	139	60	119	132	69	104	145	102	131
JUNE			JULY			AUGUST			SEPTEMBER			
1	114	106	109	133	121	126	157	153	155	164	157	161
2	111	94	101	129	124	127	157	152	155	164	158	161
3	102	94	96	130	129	129	157	151	154	165	161	163
4	106	102	104	132	127	129	157	151	154	166	163	164
5	112	106	108	141	129	132	157	148	154	167	162	165
6	116	112	114	132	130	130	156	152	154	166	161	164
7	121	116	118	133	129	131	158	152	155	167	163	165
8	124	120	121	136	133	134	155	151	153	166	160	165
9	125	121	122	139	135	137	156	151	154	165	158	162
10	128	125	126	142	138	139	157	152	155	164	161	162
11	130	107	121	145	140	142	158	153	156	165	162	164
12	107	96	99	146	140	143	157	153	155	167	163	165
13	105	99	100	149	143	145	157	153	155	167	163	165
14	111	104	107	149	137	141	157	152	155	167	162	165
15	117	111	113	140	135	137	159	154	156	167	163	165
16	161	112	119	142	139	141	158	153	156	167	163	165
17	126	119	123	145	140	142	157	150	152	168	164	166
18	127	121	125	147	141	144	156	152	154	168	164	166
19	121	106	111	148	142	145	158	153	156	168	164	166
20	108	105	107	150	141	147	159	154	157	169	165	167
21	108	105	106	151	145	148	160	156	158	170	166	168
22	116	108	112	152	148	150	161	156	159	171	166	169
23	121	116	118	154	148	151	160	153	157	170	166	169
24	124	116	119	155	150	153	160	154	157	170	167	168
25	127	114	120	156	150	153	161	155	158	170	166	168
26	125	110	113	155	149	153	162	156	159	169	160	163
27	125	111	115	157	147	154	162	155	159	166	162	164
28	127	113	117	158	152	155	162	150	157	168	165	167
29	120	116	118	156	153	154	161	152	157	170	165	168
30	130	119	123	156	152	154	162	152	158	169	163	167
31	---	---	---	157	153	155	164	155	160	---	---	---
MONTH	161	94	114	158	121	143	164	148	156	171	157	165

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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	432	400	431	396	382	1210	1830	472	472	545	323	323
2	432	400	431	382	382	1110	1830	472	505	400	323	323
3	432	472	431	382	382	810	1830	472	472	400	323	323
4	432	472	431	382	382	626	1650	472	562	400	323	323
5	432	472	431	382	382	626	1650	472	562	400	323	323
6	354	472	431	382	382	626	1440	437	562	440	323	323
7	359	472	431	382	382	626	1100	437	562	440	323	323
8	462	472	396	382	382	626	898	437	400	440	323	323
9	432	472	396	382	382	530	898	437	400	359	323	288
10	432	472	396	382	382	330	802	437	400	359	323	288
11	432	472	396	382	382	480	802	400	400	359	323	288
12	432	472	396	288	382	480	802	400	489	359	323	288
13	472	472	396	288	382	559	802	400	489	359	323	288
14	472	472	396	288	382	559	802	400	489	359	323	251
15	472	472	396	288	382	559	617	400	545	359	323	251
16	472	472	396	288	382	481	617	400	545	359	323	251
17	472	321	396	288	556	472	617	400	505	359	323	251
18	472	321	396	288	455	472	617	472	545	359	323	251
19	472	321	396	382	455	472	617	471	545	359	323	251
20	472	431	396	382	382	476	543	400	545	359	323	251
21	472	431	396	382	382	472	593	400	545	321	323	323
22	472	431	396	382	382	472	545	357	545	323	323	323
23	362	431	396	382	455	472	545	357	545	323	323	323
24	400	431	396	382	455	472	589	357	545	249	323	323
25	400	431	396	382	556	472	589	357	545	249	323	323
26	400	431	396	382	556	472	589	359	545	249	323	323
27	400	431	396	382	615	612	514	359	545	382	323	323
28	400	431	396	382	615	612	589	359	545	382	323	323
29	400	431	396	382	---	1360	472	339	545	288	323	323
30	400	431	396	382	---	1440	472	339	545	288	323	323
31	400	---	396	382	---	1650	---	472	---	323	323	---
TOTAL	13345	13112	12521	11198	11976	20636	26261	12743	15444	11150	10013	9011
MEAN	430	437	404	361	428	666	875	411	515	360	323	300
MAX	472	472	431	396	615	1650	1830	472	562	545	323	323
MIN	354	321	396	288	382	330	472	339	400	249	323	251
CFSM	.88	.90	.83	.74	.88	1.36	1.79	.84	1.05	.74	.66	.62
IN.	1.02	1.00	.95	.85	.91	1.57	2.00	.97	1.18	.85	.76	.69

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1998, BY WATER YEAR (WY)

MEAN	445	443	386	352	347	445	709	635	557	484	407	476
MAX	893	814	580	531	512	778	1118	1156	1093	1026	687	1834
(WY)	1969	1997	1992	1969	1969	1945	1997	1950	1944	1958	1953	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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1928 - 1998
ANNUAL TOTAL	189524	167410	
ANNUAL MEAN	519	459	474
HIGHEST ANNUAL MEAN			607
LOWEST ANNUAL MEAN			300
HIGHEST DAILY MEAN	2610	1830	5200
LOWEST DAILY MEAN	321	249	113
ANNUAL SEVEN-DAY MINIMUM	364	251	159
ANNUAL RUNOFF (CFSM)	1.06	.94	.97
ANNUAL RUNOFF (INCHES)	14.45	12.76	13.20
10 PERCENT EXCEEDS	617	589	717
50 PERCENT EXCEEDS	472	400	416
90 PERCENT EXCEEDS	396	323	287

(a) Also occurred Sept. 7, 1930

DRAINAGE AREA.--1,580 mi².

PERIOD OF RECORD.--March 1914 to September 1981, October 1984 to current year. Prior to October 1933, published as "at Swiss".

GAGE.--Water-stage recorder. Datum of gage is 882.21 ft above sea level. Prior to Apr. 23, 1937, nonrecording gage 40 ft downstream at same datum. Apr. 23, 1937, to Jan. 5, 1939, nonrecording gage at present site and datum.

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

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

MEAN	1194	1214	1022	908	901	1344	2356	1836	1517	1293	1060	1213
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 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1914 - 1998	
ANNUAL TOTAL	526813		435264		1320	
ANNUAL MEAN	1443		1193		1982	1986
HIGHEST ANNUAL MEAN					795	1934
LOWEST ANNUAL MEAN					8740	May 2 1954
HIGHEST DAILY MEAN	6500	Apr 7	5460	Apr 3	405	(a) Aug 6 1934
LOWEST DAILY MEAN	762	Aug 14	559	Sep 8	417	Aug 12 1934
ANNUAL SEVEN-DAY MINIMUM	872	Aug 8	597	Sep 7	10200	May 6 1950
INSTANTANEOUS PEAK FLOW			5510	Apr 2	8.22	May 6 1950
INSTANTANEOUS PEAK STAGE			5.13	Apr 2	393	Aug 6,13 1934
INSTANTANEOUS LOW FLOW			540	Sep 21	.84	
ANNUAL RUNOFF (CFSM)	.91		.75		11.35	
ANNUAL RUNOFF (INCHES)	12.40		10.25		2200	
10 PERCENT EXCEEDS	1770		1670		1090	
50 PERCENT EXCEEDS	1250		1030		725	
90 PERCENT EXCEEDS	964		681			

(a) Also occurred Aug. 13,16,17, 1934

ST. CROIX RIVER BASIN
05333500 ST. CROIX RIVER NEAR DANBURY, WI--CONTINUED

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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 1997 TO SEPTEMBER 1998

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 HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	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)
OCT 1997												
15...	1100	--	1430	133	7.3	8.4	10.7	750	97	62	16	4.9
NOV												
12...	1200	--	1140	134	7.7	.8	15.0	740	96	63	17	4.7
DEC												
10...	0945	--	1120	151	7.3	.4	14.0	740	94	67	18	5.1
JAN 1998												
14...	1200	720	--	163	6.9	.1	11.5	740	88	72	20	5.5
FEB												
25...	1050	--	1520	114	7.4	1.9	12.4	732	91	61	18	4.6
MAR												
25...	1030	--	1210	136	7.4	4.6	12.7	730	95	58	11	3.1
31...	1115	--	4580	73	7.0	3.0	12.2	726	95	35	11	3.2
APR												
29...	1015	--	1290	127	7.4	13.4	10.3	747	101	56	17	4.4
MAY												
13...	1045	--	1100	135	7.6	16.4	9.5	740	96	59	16	4.6
JUN												
03...	0830	--	1780	113	7.2	13.9	9.5	742	10	53	15	4.3
JUL												
16...	0910	--	1080	127	7.9	23.7	7.8	748	81	60	16	4.7
AUG												
27...	1045	--	680	135	7.9	21.6	10.3	741	85	67	19	5.4
SEP												
10...	1140	--	614	141	8.2	19.3	10.6	740	86	70	20	5.9

ST. CROIX RIVER BASIN
05333500 ST. CROIX RIVER NEAR DANBURY, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	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)	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 1997											
15...	2.5	.75	72	59	3.4	2.4	<.10	11	89	.077	<.010
NOV											
12...	2.4	.67	73	60	3.1	2.6	<.10	12	107	.099	.012
DEC											
10...	2.6	.66	77	63	3.9	2.7	<.10	13	95	.099	<.010
JAN 1998											
14...	2.7	.73	83	68	4.0	2.7	<.10	16	107	.201	<.010
FEB											
25...	2.4	.80	72	59	3.9	2.6	<.10	14	100	.247	<.010
MAR											
25...	1.7	.48	70	57	3.8	2.6	<.10	8.4	89	.140	.018
31...	1.9	.75	42	34	3.1	2.4	<.10	9.6	71	.101	<.010
APR											
29...	2.6	.64	66	54	3.6	2.4	<.10	9.8	84	<.050	<.010
MAY											
13...	2.6	.62	66	54	3.4	2.3	<.10	8.5	82	<.050	<.010
JUN											
03...	2.4	.52	58	48	3.1	1.8	<.10	8.4	85	.074	.020
JUL											
16...	2.4	.38	44	36	2.5	2.2	<.10	10	86	<.050	<.010
AUG											
27...	2.7	.54	79	64	3.1	2.5	<.10	12	95	<.050	<.010
SEP											
10...	2.8	.59	82	67	3.5	2.6	<.10	12	100	.086	<.010

ST. CROIX RIVER BASIN
05333500 ST. CROIX RIVER NEAR DANBURY, WI--CONTINUED

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WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDE TOTAL (MG/L AS C) (00689)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT 1997											
15...	<.015	.38	.30	<.010	<.010	.014	160	11	7.6	.40	5
NOV											
12...	<.020	.23	.21	<.010	<.010	.023	200	9.6	4.8	.30	5
DEC											
10...	<.020	.21	<.10	<.010	<.010	.017	200	8.1	3.6	.40	6
JAN 1998											
14...	<.020	.17	.15	<.010	<.010	<.010	170	8.8	2.7	.20	4
FEB											
25...	<.020	.35	.25	.011	.010	.020	340	17	5.4	.30	6
MAR											
25...	.021	.25	<.10	.012	<.010	.011	140	5.8	4.5	.30	4
31...	.048	.60	.33	.047	.022	.014	280	23	8.1	.90	--
APR											
29...	.046	.33	.22	<.010	<.010	.011	140	8.3	5.4	.30	5
MAY											
13...	.043	.34	.25	<.010	<.010	<.010	91	11	4.5	.30	4
JUN											
03...	.046	.50	.31	<.010	.015	.016	180	14	6.8	.40	--
JUL											
16...	<.020	.37	.34	<.010	<.010	<.010	120	10	5.5	.50	5
AUG											
27...	.020	.16	<.10	<.010	<.010	<.010	60	9.9	3.7	.20	2
SEP											
10...	<.020	.23	.28	.024	<.010	.012	48	9.5	2.9	.20	2

ST. CROIX RIVER BASIN

05340500 ST. CROIX RIVER AT ST. CROIX FALLS, WI
(NATIONAL WATER-QUALITY ASSESSMENT PROGRAM STATION)

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.

DRAINAGE AREA.--6,240 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1902 to current year. Prior to January 1910, monthly discharge only, published in WSP 1308. Prior to October 1939, published as "near St. Croix Falls."

REVISED RECORDS.--WSP 1115: 1929. WDR WI-82-1: Drainage area.

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: Jan. 19 to Feb. 19. Records good except those for estimated daily discharges, which are fair (see page 12). Diurnal fluctuation caused by St. Croix Falls Powerplant 1,500 ft upstream. Gage-height telemeter and data-collection platform 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	2760	3600	3280	1590	2800	11900	13900	3730	3280	4430	1580	1970
2	2800	3390	3120	2480	2500	12700	16000	3370	3820	3940	1520	1830
3	2900	3930	3080	2170	2500	12500	17000	3130	4220	3770	1730	1780
4	2700	3630	3180	2250	2400	11400	17600	3250	4360	3450	1600	1740
5	2600	3770	2930	2110	2500	10100	17600	3030	4450	3220	1690	1800
6	2440	3690	2520	2290	2600	8880	16600	3040	4360	3030	1770	1780
7	2560	3600	2780	2100	2300	7950	15000	3000	4010	2820	2400	1790
8	2230	3710	2810	2340	2500	7240	13800	3060	3960	3140	1930	1600
9	2570	3750	2900	2420	2700	6930	13100	3000	3540	3410	1850	1590
10	2430	3590	2720	2000	2500	5800	12400	2860	3240	3020	2460	1600
11	2750	3650	3020	1800	2400	4320	11500	2690	3050	3120	2150	1700
12	2880	3660	2800	1890	2600	3930	11000	2590	3000	3120	2120	1620
13	3690	3450	2730	1620	2500	4120	10100	2820	3530	2620	1850	1550
14	4020	3450	2780	2000	2600	4080	9400	2770	4590	2630	1770	1470
15	4290	3540	2780	2200	2800	4020	9230	2780	4400	3160	1710	1560
16	4360	2880	2620	2110	2400	3930	8870	3020	4390	3280	1610	1570
17	4030	2140	2240	2430	2700	4070	8220	2810	4250	3470	1740	1660
18	3850	2500	2930	2290	3200	4480	7620	3170	4220	3380	1990	1520
19	3920	2730	2480	2500	3800	4390	7110	3230	4310	2910	2180	1540
20	3800	2710	2650	2400	4170	4070	6830	2950	5030	3080	2850	1670
21	3840	2970	2250	2500	4240	3730	6590	2880	6030	2530	2380	1650
22	3440	3060	1870	2600	4510	3540	6120	2790	5980	2430	2770	1580
23	3420	2940	2280	2600	4840	3320	5540	2430	5730	2290	2850	1550
24	3240	2820	2520	2200	5390	3050	5380	2440	5480	2070	2840	1740
25	3060	2180	2470	2800	6090	3460	4800	2230	5350	2030	2710	1700
26	3170	2780	2490	2400	6790	3480	4890	2130	5000	1850	2590	2240
27	2900	3280	2080	2600	8080	4290	4530	2420	4990	1850	2490	2400
28	3000	3770	1490	2500	9500	5510	4040	2270	4740	1840	2410	2330
29	3030	3620	1620	2500	---	7330	3970	2210	5210	1790	2090	2010
30	3100	3190	1860	2500	---	10300	3840	2390	4270	1800	2020	2190
31	3230	---	2210	2600	---	12000	---	3760	---	1660	2150	---
TOTAL	99010	97980	79490	70790	103910	196820	292580	88250	132790	87140	65800	52730
MEAN	3194	3266	2564	2284	3711	6349	9753	2847	4426	2811	2123	1758
MAX	4360	3930	3280	2800	9500	12700	17600	3760	6030	4430	2850	2400
MIN	2230	2140	1490	1590	2300	3050	3840	2130	3000	1660	1520	1470
CFSM	.51	.52	.41	.37	.59	1.02	1.56	.46	.71	.45	.34	.28
IN.	.59	.58	.47	.42	.62	1.17	1.74	.53	.79	.52	.39	.31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1902 - 1998, BY WATER YEAR (WY)

MEAN	3786	3485	2587	2193	2159	4259	10177	7473	5734	4143	2878	3512
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

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05340500 ST. CROIX RIVER AT ST. CROIX FALLS, WI--CONTINUED

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1902 - 1998	
ANNUAL TOTAL	1798870		1367290		4378	
ANNUAL MEAN	4928		3746		8569	
HIGHEST ANNUAL MEAN					1754	
LOWEST ANNUAL MEAN					53900	
HIGHEST DAILY MEAN	41200	Apr 8	17600	Apr 4,5	75	May 8 1950
LOWEST DAILY MEAN	1490	Dec 28	1470	Sep 14	754	Jul 17 1910
ANNUAL SEVEN-DAY MINIMUM	2030	Dec 25	1550	Sep 13	54900	Jul 29 1934
INSTANTANEOUS PEAK FLOW			17800	Apr 4	25.19	May 8 1950
INSTANTANEOUS PEAK STAGE			9.20	Apr 4	.70	May 8 1950
ANNUAL RUNOFF (CFSM)	.79		.60		9.53	
ANNUAL RUNOFF (INCHES)	10.72		8.15		9070	
10 PERCENT EXCEEDS	6450		6310		2790	
50 PERCENT EXCEEDS	3420		2900		1570	
90 PERCENT EXCEEDS	2500		1790			

ST. CROIX RIVER BASIN
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 1997 TO 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)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	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)	
OCT 1997												
15...	1430	5670	181	7.7	11.0	10.1	750	97	84	22	7.2	
NOV												
13...	0800	4070	178	7.6	1.2	13.8	740	92	84	23	7.4	
DEC												
10...	1430	1670	204	7.6	.3	14.0	742	94	94	25	8.1	
JAN 1998												
14...	1645	3130	--	7.7	.0	--	740	--	102	28	8.7	
FEB												
25...	1510	6150	175	7.7	.5	12.5	732	91	79	22	6.7	
MAR												
25...	1430	3440	182	7.7	4.6	12.8	730	95	71	22	7.0	
31...	1530	13200	124	7.5	5.3	13.6	726	113	49	14	4.6	
APR												
29...	1430	6000	161	7.5	15.4	10.0	747	101	51	21	6.5	
MAY												
13...	1435	3080	183	7.9	18.8	9.1	740	96	83	22	7.0	
JUN												
03...	1330	4720	171	7.7	17.6	8.6	742	10	77	20	6.8	
JUL												
16...	1245	4780	174	8.3	27.3	8.1	748	81	--	22	7.3	
AUG												
05...	1000	1600	191	7.9	22.5	7.6	754	89	--	--	--	
27...	1515	3200	188	7.8	23.4	9.1	741	85	72	23	7.8	
SEP												
10...	1530	1580	199	8.1	20.3	9.5	740	86	95	26	8.6	
DATE		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)	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 1997												
15...	3.4	1.2	99	81	3.8	4.2	<.10	12	116	.173	<.010	
NOV												
13...	3.4	.92	98	80	3.2	4.2	<.10	11	118	.150	.013	
DEC												
10...	4.0	.92	109	90	4.5	4.8	<.10	13	127	.270	<.010	
JAN 1998												
14...	4.0	1.0	116	95	4.6	5.6	<.10	16	144	.463	<.010	
FEB												
25...	3.4	1.9	94	77	4.3	5.1	<.10	13	129	.447	<.010	
MAR												
25...	3.6	1.3	80	65	4.6	12	<.10	13	121	.257	.023	
31...	2.7	1.7	54	44	3.9	3.7	<.10	9.5	89	.231	<.010	
APR												
29...	3.0	1.2	61	50	3.8	17	<.10	8.9	120	.084	<.010	
MAY												
13...	3.7	1.1	94	77	4.0	4.0	<.10	9.0	112	.128	<.010	
JUN												
03...	3.7	.96	87	71	3.6	3.9	<.10	8.9	112	.120	.022	
JUL												
16...	3.5	.78	83	68	2.6	3.8	<.10	11	115	<.050	<.010	
AUG												
05...	--	--	--	--	--	--	--	--	--	.087	<.010	
27...	3.9	.82	86	70	3.1	12	<.10	13	127	.116	<.010	
SEP												
10...	3.8	.85	111	91	3.8	4.1	<.10	12	128	.142	<.010	

05340500 ST. CROIX RIVER AT ST. CROIX FALLS, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDEED TOTAL (MG/L AS C) (00689)	SEDI- MENT, SUS- PENDEED (MG/L) (80154)
OCT 1997											
15...	<.015	.41	.29	.014	<.010	.011	110	18	6.7	.40	4
NOV											
13...	<.020	.32	.29	<.010	<.010	.025	270	15	6.0	.30	4
DEC											
10...	<.020	.27	.18	.014	<.010	.014	260	20	4.7	.40	5
JAN 1998											
14...	<.020	.23	.20	.011	.012	.014	200	25	3.7	.20	4
FEB											
25...	.066	.57	.43	.036	.023	.026	500	34	5.4	.50	7
MAR											
25...	.026	.37	.22	.013	<.010	<.010	320	24	5.9	.30	2
31...	.057	.89	.49	.091	.034	.022	360	30	10	2.0	22
APR											
29...	.055	.48	.41	<.010	<.010	<.010	180	49	7.9	.40	5
MAY											
13...	.053	.44	.35	.014	<.010	<.010	110	38	5.8	.50	5
JUN											
03...	.060	.41	.34	.028	.034	.018	120	19	5.8	.30	--
JUL											
16...	.021	.71	.45	.026	.016	<.010	89	<4.0	8.2	1.1	6
AUG											
05...	.060	--	.44	--	<.010	<.010	--	--	--	--	--
27...	.023	.32	<.10	<.010	<.010	<.010	44	9.9	5.9	.50	3
SEP											
10...	<.020	.40	.29	.033	<.010	.011	32	14	3.9	.60	6

ST. CROIX RIVER BASIN
05340500 ST. CROIX RIVER AT ST. CROIX FALLS, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

PESTICIDE DATA

		DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	ACETO- CHLOR, WATER FLTRD REC (UG/L) (49260)	ACIFL- UORFEN WATER, FLTRD, GF 0.7U REC (UG/L) (49315)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALDI- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (49312)	ALDI- CARB SULFONE WAT,FLT REC (UG/L) (49313)	ALDICA- RB SUL- FOXIDE, WAT,FLT REC (UG/L) (49314)	ALPHA BHC DIS- SOLVED (UG/L) (34253)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	BDMC, SURROG, WATER, UNFLTRD REC PERCENT (99835)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	
OCT 1997	15...	1430	5670	<.0020	<.0350	<.002	<.0160	<.0160	<.0210	<.0020	.009	79.0	<.0020
NOV	13...	0800	4070	<.0020	<.0350	<.002	<.0160	<.0160	<.0210	<.0020	.008	71.0	<.0020
DEC	10...	1430	1670	<.0020	<.0350	<.002	<.550	<.100	<.0210	<.0020	.007	84.0	<.0020
JUN 1998	03...	1330	4720	.0259	--	.011	--	--	<.0020	.104	--	--	<.0020
AUG	05...	1000	1600	<.0020	--	<.002	--	--	<.0020	.013	--	--	<.0020
DATE		BENTA- ZON, WATER, FLTRD, GF 0.7U REC (UG/L) (38711)	BRO- MACIL, WATER, DISS, REC (UG/L) (04029)	BRO- MOXYNIL WATER, FLTRD, GF 0.7U REC (UG/L) (49311)	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CAR- BARYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49310)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CARBO- FURAN, WATER, FLTRD, GF 0.7U REC (UG/L) (49309)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CLOPYR- ALID, WATER, FLTRD, GF 0.7U REC (UG/L) (49305)	CHLOR- AMBEN, WATER, FLTRD, GF 0.7U REC (UG/L) (49307)	CHLORO- THALO- NIL, WAT,FLT GF 0.7U REC (UG/L) (49306)
OCT 1997	15...	<.0140	<.0350	<.0350	<.0020	<.0030	<.0080	<.0030	<.0280	<.0040	<.0500	<.0110	<.0350
NOV	13...	<.0140	<.0350	<.0350	<.0020	E.0039	<.0080	<.0030	<.0280	<.0040	<.0500	<.0110	<.0350
DEC	10...	<.0140	<.0350	<.0350	<.0020	<.0030	<.0080	<.0030	<.120	<.0040	<.230	<.420	<.480
JUN 1998	03...	--	--	--	<.0020	<.0030	--	<.0030	--	<.0040	--	--	--
AUG	05...	--	--	--	<.0020	<.0030	--	<.0030	--	<.0040	--	--	--
DATE		CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DACTHAL MONO- ACID, WAT,FLT GF 0.7U REC (UG/L) (49304)	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)	DICAMBA WATER, FLTRD, GF 0.7U REC (UG/L) (38442)	DICHLOR BENIL, WATER, FLTRD, GF 0.7U REC (UG/L) (49303)	DICHLOR PROP, WATER, FLTRD, GF 0.7U REC (UG/L) (49302)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DINOSEB WATER, FLTRD, GF 0.7U REC (UG/L) (49301)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)
OCT 1997	15...	<.0040	<.0170	<.0020	E.0035	<.002	97.2	<.0350	<.0200	<.0320	<.001	<.0350	<.0170
NOV	13...	<.0040	<.0170	<.0020	E.0056	<.002	108	<.0350	<.0200	<.0320	<.001	<.0350	<.0170
DEC	10...	<.0040	<.0170	<.0020	E.0057	<.002	116	<.0350	<.120	<.0320	<.001	<.0350	<.0170
JUN 1998	03...	.0071	--	<.0020	E.0172	<.002	99.1	--	--	--	<.001	--	<.0170
AUG	05...	<.0040	--	<.0020	E.0081	<.002	91.9	--	--	--	<.001	--	<.0170

E Estimated

05340500 ST. CROIX RIVER AT ST. CROIX FALLS, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

PESTICIDE DATA

DATE	DIURON, WATER, FLTRD, GF 0.7U REC (UG/L) (49300)	DNOC WAT,FLT GF 0.7U REC (UG/L) (49299)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ESFEN- VAL- ERATE, WAT,FLT GF 0.7U REC (UG/L) (49298)	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)	FEN- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49297)	FLUO- METURON WATER, FLTRD, GF 0.7U REC (UG/L) (38811)	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)	LINURON WATER, FLTRD, GF 0.7U REC (UG/L) (38478)
OCT 1997												
15...	<.0200	<.0350	<.0020	<.0190	<.0040	<.0030	<.0130	<.0350	<.0030	94.4	<.004	<.0180
NOV												
13...	<.0200	<.0350	<.0020	<.0190	<.0040	<.0030	<.0130	<.0350	<.0030	100	<.004	<.0180
DEC												
10...	<.0200	<.420	<.0020	--	<.0040	<.0030	<.0130	<.0350	<.0030	93.9	<.004	<.0180
JUN 1998												
03...	--	--	<.0020	--	<.0040	<.0030	--	--	<.0030	102	<.004	--
AUG												
05...	--	--	<.0020	--	<.0040	<.0030	--	--	<.0030	104	<.004	--
DATE	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	MCPA, WATER, FLTRD, GF 0.7U REC (UG/L) (38482)	MCPB, WATER, FLTRD, GF 0.7U REC (UG/L) (38487)	METHIO- CARB, WATER, FLTRD, GF 0.7U REC (UG/L) (38501)	METH- OMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (49296)	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)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)
OCT 1997												
15...	<.0020	<.005	<.0500	<.0350	<.0260	<.0170	<.0010	<.0060	E.004	<.004	<.0040	<.0030
NOV												
13...	<.0020	<.005	<.0500	<.0350	<.0260	<.0170	<.0010	<.0060	.005	<.004	<.0040	<.0030
DEC												
10...	<.0020	<.005	<.170	<.140	<.0260	<.0170	<.0010	<.0060	<.002	<.004	<.0040	<.0030
JUN 1998												
03...	<.0020	<.005	--	--	--	--	<.0010	<.0060	.016	<.004	<.0040	<.0030
AUG												
05...	<.0020	<.005	--	--	--	--	<.0010	<.0060	<.002	<.004	<.0040	<.0030
DATE	NEB- URON, WATER, FLTRD, GF 0.7U REC (UG/L) (49294)	NORFLUR AZON, WATER, FLTRD, GF 0.7U REC (UG/L) (49293)	1-NAPH THOL, WATER, FLTRD, GF 0.7U REC (UG/L) (49295)	ORY- ZALIN, WATER, FLTRD, GF 0.7U REC (UG/L) (49292)	OXAMYL, WATER, FLTRD, GF 0.7U REC (UG/L) (38866)	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)	PIC- LORAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49291)	P, P' DDE DISSOLV (UG/L) (34653)
OCT 1997												
15...	<.0150	<.0240	<.0070	<.0190	<.0180	<.004	<.0040	<.0040	<.0050	<.0020	<.0500	<.0060
NOV												
13...	<.0150	<.0240	<.0070	<.0190	<.0180	<.004	<.0040	<.0040	<.0050	<.0020	<.0500	<.0060
DEC												
10...	<.0150	<.0240	--	<.310	<.0180	<.004	<.0040	<.0040	<.0050	<.0020	<.0500	<.0060
JUN 1998												
03...	--	--	--	--	--	<.004	<.0040	<.0040	<.0050	<.0020	--	<.0060
AUG												
05...	--	--	--	--	--	<.004	<.0040	<.0040	<.0050	<.0020	--	<.0060

E Estimated

ST. CROIX RIVER BASIN
05340500 ST. CROIX RIVER AT ST. CROIX FALLS, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

PESTICIDE DATA

DATE	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)	PRO-PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	PRO-CHLOR, WATER, DISS, REC (UG/L) (04024)	PRO-PHAM, WATER, FLTRD, GF 0.7U REC (UG/L) (49236)	PRO-POXUR, WATER, FLTRD, GF 0.7U REC (UG/L) (38538)	SILVEX, DIS- SOLVED (UG/L) (39762)	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)
OCT 1997											
15...	<.0030	E.0037	<.0040	<.0130	<.0070	<.0350	<.0350	<.0210	<.0050	<.0070	<.0100
NOV											
13...	<.0030	<.0180	<.0040	<.0130	<.0070	<.0350	<.0350	<.0210	<.0050	<.0070	<.0100
DEC											
10...	<.0030	<.0180	<.0040	<.0130	<.0070	<.0350	<.0350	<.0210	<.0050	<.0070	<.0100
JUN 1998											
03...	<.0030	<.0180	<.0040	<.0130	<.0070	--	--	--	<.0050	<.0070	<.0100
AUG											
05...	<.0030	<.0180	<.0040	<.0130	<.0070	--	--	--	<.0050	<.0070	<.0100

DATE	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)	3HYDRXY CARBO- FURAN WAT, FLT GF 0.7U REC (UG/L) (49308)	TRIAL-LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI-CLOPYR, WATER, FLTRD, GF 0.7U REC (UG/L) (49235)	TRI-FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)	2,4-DB WATER, FLTRD, GF 0.7U REC (UG/L) (38746)	2,4-D, DIS- SOLVED (UG/L) (39732)	2,4,5-T DIS- SOLVED (UG/L) (39742)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)
OCT 1997											
15...	<.0130	128	<.0020	<.0140	<.0010	<.0500	<.0020	<.035	<.0350	<.0350	<.0030
NOV											
13...	<.0130	117	<.0020	<.0140	<.0010	<.0500	<.0020	<.035	<.0350	<.0350	<.0030
DEC											
10...	<.0130	120	<.0020	<.0140	<.0010	<.250	<.0020	<.150	<.240	<.0350	<.0030
JUN 1998											
03...	<.0130	113	<.0020	--	<.0010	--	<.0020	--	--	--	<.0030
AUG											
05...	<.0130	119	<.0020	--	<.0010	--	<.0020	--	--	--	<.0030

E Estimated

ST. CROIX RIVER BASIN
05341500 APPLE RIVER NEAR SOMERSET, WI

175

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.

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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	365	552	391	240	367	836	1460	391	323	722	269	391
2	404	528	384	423	389	893	1420	359	498	701	255	376
3	404	403	360	408	414	757	1540	379	415	593	274	384
4	395	577	361	320	353	746	1590	415	669	454	280	381
5	371	636	389	383	328	714	1450	415	624	469	259	354
6	373	576	426	418	348	622	1070	420	298	469	278	371
7	399	384	383	388	355	604	1080	420	392	440	302	400
8	401	423	364	393	362	628	1040	407	361	478	390	391
9	398	412	380	449	392	622	984	409	378	462	561	372
10	390	410	378	255	382	530	1050	416	366	394	615	378
11	420	399	387	231	393	428	875	431	324	400	472	361
12	425	437	398	363	381	476	864	386	330	404	373	338
13	411	466	367	325	361	537	843	358	324	368	272	324
14	461	423	374	363	366	428	859	370	310	390	296	329
15	659	411	374	372	373	516	760	339	325	384	273	294
16	784	370	401	384	377	444	785	452	247	365	287	307
17	607	410	373	366	409	429	737	469	355	352	281	285
18	534	432	394	388	420	384	734	508	418	365	258	312
19	438	384	386	407	472	356	752	468	606	343	366	306
20	474	404	369	554	534	360	513	557	480	374	417	328
21	424	465	319	499	480	430	456	544	399	387	390	315
22	512	380	405	425	518	363	468	519	399	369	430	307
23	487	366	380	396	553	363	593	468	474	362	409	299
24	370	321	391	392	549	392	570	328	425	344	432	318
25	414	384	390	349	622	408	652	309	601	313	575	308
26	384	377	368	393	619	440	516	320	658	279	489	347
27	392	379	333	410	721	430	527	301	540	251	531	318
28	397	378	315	356	763	534	416	291	661	276	479	379
29	384	422	404	409	---	756	373	281	654	239	482	415
30	431	440	386	389	---	888	384	295	640	271	426	368
31	428	---	311	382	---	1120	---	421	---	257	437	---
TOTAL	13736	12949	11641	11830	12601	17434	25361	12446	13494	12275	11858	10356
MEAN	443	432	376	382	450	562	845	401	450	396	383	345
MAX	784	636	426	554	763	1120	1590	557	669	722	615	415
MIN	365	321	311	231	328	356	373	281	247	239	255	285
CFSM	.77	.75	.65	.66	.78	.97	1.46	.69	.78	.68	.66	.60
IN.	.88	.83	.75	.76	.81	1.12	1.63	.80	.87	.79	.76	.67

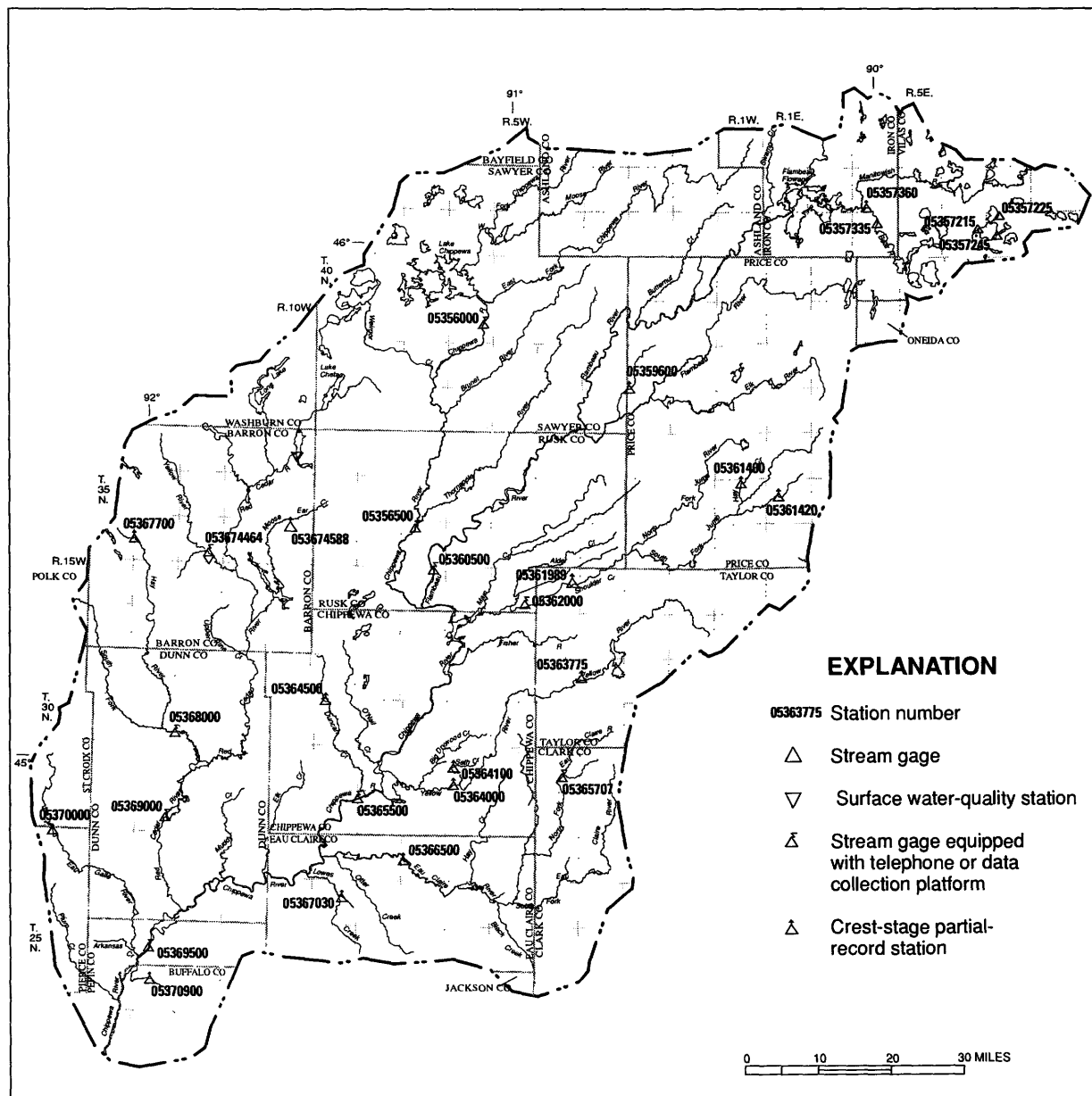
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1901 - 1998, BY WATER YEAR (WY)

	MEAN	287	284	250	233	238	384	552	418	381	283	240	291
MAX	713	727	616	519	450	730	1335	1000	1030	576	704	808	
(WY)	1996	1997	1997	1997	1998	1946	1965	1906	1905	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 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1901 - 1998

ANNUAL TOTAL	181344	165981	
ANNUAL MEAN	497	455	319
HIGHEST ANNUAL MEAN			563
LOWEST ANNUAL MEAN			144
HIGHEST DAILY MEAN	1630	Apr 7	2510
LOWEST DAILY MEAN	248	Aug 11	7.0
ANNUAL SEVEN-DAY MINIMUM	301	Jun 20	49
ANNUAL RUNOFF (CFSM)	.86	.79	.55
ANNUAL RUNOFF (INCHES)	11.65	10.66	7.48
10 PERCENT EXCEEDS	699	656	531
50 PERCENT EXCEEDS	420	398	251
90 PERCENT EXCEEDS	360	310	144

(a) Also occurred Sept. 30, 1929, July 19, 1932, and Aug. 2,3, 1933



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.--No estimated daily discharges. Records good (see page 12). Flow regulated by Moose Lake and Lake Chippewa. 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	908	488	454	447	447	524	3380	281	308	862	312	300
2	898	480	450	445	445	502	4510	281	313	852	311	300
3	429	904	455	442	445	483	5250	281	338	854	313	300
4	425	899	461	442	445	480	5220	287	297	426	310	300
5	429	956	455	441	444	894	4920	294	238	431	310	300
6	430	801	450	441	873	475	4300	294	241	434	310	298
7	433	805	451	441	464	471	3610	294	244	440	311	299
8	433	496	452	441	463	470	3150	294	243	440	312	298
9	433	474	452	443	878	1140	2580	297	243	440	304	300
10	428	654	451	447	872	1530	1870	295	240	440	300	303
11	425	795	450	444	867	1530	1540	294	244	440	300	302
12	430	794	454	449	867	1530	1550	300	244	440	304	300
13	436	789	449	449	869	1530	1550	302	243	440	306	300
14	426	790	451	449	457	528	1540	302	242	775	304	300
15	425	788	449	446	457	465	1540	306	366	775	304	300
16	425	794	449	441	867	880	1460	311	457	448	306	300
17	425	787	449	441	868	873	882	304	457	448	309	300
18	425	787	449	441	870	869	473	301	459	448	306	300
19	425	788	449	441	867	873	473	302	457	448	306	301
20	425	786	449	441	870	872	473	300	457	448	306	300
21	425	786	449	441	457	457	472	300	457	445	304	300
22	878	786	449	441	457	457	464	300	457	448	306	300
23	898	785	449	441	461	467	348	300	889	450	306	300
24	891	786	449	441	468	474	283	300	903	383	303	300
25	474	785	449	441	476	477	281	300	883	306	300	300
26	474	766	449	441	518	482	281	300	888	306	300	299
27	624	470	449	445	664	505	281	300	462	305	302	295
28	603	467	448	448	572	643	281	304	455	312	301	293
29	604	467	446	448	---	580	282	300	884	313	299	293
30	622	466	445	448	---	1250	281	310	878	312	300	294
31	651	---	446	449	---	2310	---	316	---	313	300	---
TOTAL	16657	21419	13957	13756	17708	25021	53525	9250	13487	14622	9465	8975
MEAN	537	714	450	444	632	807	1784	298	450	472	305	299
MAX	908	956	461	449	878	2310	5250	316	903	862	313	303
MIN	425	466	445	441	444	457	281	281	238	305	299	293

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1912 - 1998, BY WATER YEAR (WY)

	MEAN	679	853	992	916	773	441	528	761	796	674	619	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	321	201	194	117	20.0	24.2	39.8	40.3	146	140	
(WY)	1925	1925	1990	1922	1918	1923	1925	1923	1925	1925	1970	1970	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1912 - 1998
ANNUAL TOTAL	263111	217842	
ANNUAL MEAN	721	597	727
HIGHEST ANNUAL MEAN			1174
LOWEST ANNUAL MEAN			258
HIGHEST DAILY MEAN	1620	Feb 6	7520
LOWEST DAILY MEAN	410	Sep 6, 7	14
ANNUAL SEVEN-DAY MINIMUM	425	(b) Sep 1	15
INSTANTANEOUS PEAK FLOW			7520
INSTANTANEOUS PEAK STAGE			11.05
INSTANTANEOUS LOW FLOW			14
10 PERCENT EXCEEDS	1480		1400
50 PERCENT EXCEEDS	614		583
90 PERCENT EXCEEDS	430		172

(a) Also occurred May 1-5, 1925

(b) Also occurred Oct. 15

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.

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 period, Nov. 16 to Feb. 26. Records good except those for ice-affected period, which is poor (see page 12). Flow from 48 percent of the drainage area regulated by Moose Lake and Lake Chippewa. Gage-height telemeter at station.

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1200	1240	780	800	940	8720	9210	670	973	1290	477	465
2	1210	1400	800	820	920	5270	10500	664	903	1240	411	465
3	1110	1350	760	840	920	3520	9950	660	709	1220	422	455
4	750	1680	700	860	920	2900	8720	650	769	1180	449	451
5	728	1600	700	860	920	2360	7660	636	666	794	452	438
6	669	1630	780	860	940	2330	6630	634	625	742	469	437
7	748	1380	800	860	1200	1740	5850	634	622	798	505	439
8	775	1350	780	860	1100	1720	5060	660	566	738	478	450
9	813	995	780	840	1100	1530	4360	664	582	756	436	450
10	796	952	760	800	1400	2210	3510	638	589	744	426	446
11	766	1180	720	800	1500	2310	2620	617	613	704	437	450
12	759	1250	720	780	1500	2140	2430	606	676	683	439	439
13	1260	1200	720	780	1500	2040	2410	606	712	692	438	442
14	1620	1210	720	780	1400	1850	2560	606	682	673	455	443
15	1390	1200	720	780	1200	1020	2400	622	645	902	452	451
16	1220	1100	720	800	1200	1030	2240	911	853	938	451	446
17	1120	1100	720	820	1400	1290	1960	998	871	688	510	427
18	1000	1100	760	840	1500	1270	1530	792	804	641	548	420
19	989	1100	740	840	1500	1300	1150	749	1050	651	508	422
20	899	1100	700	840	1300	1230	1110	762	1010	669	497	481
21	908	1100	720	840	1000	1270	1090	710	879	666	494	468
22	847	1100	720	820	920	919	1060	672	860	624	515	459
23	1290	1000	740	820	980	912	1040	590	808	584	567	444
24	1200	1000	740	820	1200	915	959	640	1420	599	538	452
25	1270	1000	760	820	1300	957	772	554	2090	573	514	464
26	911	1000	780	840	1800	1210	741	589	2090	491	480	621
27	820	1000	780	880	6870	1940	728	588	1790	514	465	596
28	898	920	760	920	11500	6850	675	592	1420	485	459	534
29	977	860	760	960	---	10800	684	586	1140	436	458	503
30	943	760	760	940	---	9390	687	623	1280	463	458	490
31	1060	---	760	920	---	8460	---	976	---	478	463	---
TOTAL	30946	34857	23160	26040	49930	91403	100296	20899	28697	22656	14671	13948
MEAN	998	1162	747	840	1783	2948	3343	674	957	731	473	465
MAX	1620	1680	800	960	11500	10800	10500	998	2090	1290	567	621
MIN	669	760	700	780	920	912	675	554	566	436	411	422

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

MEAN	1286	1441	1396	1205	1062	1455	2690	1926	1737	1251	1039	1367
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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1914 - 1998

ANNUAL TOTAL	534475		457503			
ANNUAL MEAN	1464		1253		1485	
HIGHEST ANNUAL MEAN					2290	1986
LOWEST ANNUAL MEAN					666	1934
HIGHEST DAILY MEAN	12200	Apr 6	11500	Feb 28	24900	Sep 1 1941
LOWEST DAILY MEAN	612	Aug 14	411	Aug 2	155	Jun 10 1932
ANNUAL SEVEN-DAY MINIMUM	622	Aug 9	436	Sep 13	218	Aug 3 1925
INSTANTANEOUS PEAK FLOW			11800	Feb 28	(a) 29000	Sep 17 1994
INSTANTANEOUS PEAK STAGE			11.77	Feb 28	(b) 20.46	Sep 1 1941
INSTANTANEOUS LOW FLOW			335	Jul 29	155	Jun 10 1932
10 PERCENT EXCEEDS	2130		1890		2710	
50 PERCENT EXCEEDS	1200		808		1110	
90 PERCENT EXCEEDS	749		461		500	

(a) From rating curve extended above 25,100 ft³/s, gage height, 18.12 ft

(a) From facing cut
(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: Feb. 2-17 and ice-affected periods, Jan. 10, 14, 15. Records good except those for period of silt accumulation on orifice, June 1 to Sept. 30, which are fair, and those for estimated daily discharges, which are poor (see page 12).

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	13	14	13	14	13	13	21	8.1	7.2	12	5.9	6.7
2	13	14	13	14	13	13	19	8.2	9.2	14	5.9	6.4
3	13	15	14	14	13	13	19	7.9	8.5	14	6.0	6.2
4	12	15	14	14	13	13	18	7.5	8.1	12	6.2	6.2
5	12	15	14	15	13	13	18	7.2	7.9	10	5.9	6.1
6	13	15	15	14	13	13	16	7.3	8.0	11	6.0	6.5
7	16	14	15	14	12	13	17	7.3	7.6	10	6.1	6.4
8	16	14	14	14	12	13	17	7.0	7.4	10	6.4	5.7
9	15	14	14	14	13	13	15	7.6	7.4	10	6.8	5.6
10	15	14	15	15	13	12	14	6.6	8.0	9.7	7.2	5.5
11	15	14	15	15	13	12	14	6.9	7.9	9.2	7.2	5.4
12	15	14	16	15	13	12	12	6.6	13	9.7	6.9	5.6
13	17	14	16	16	13	12	11	7.0	14	9.0	6.9	5.9
14	16	14	16	16	13	12	11	7.8	13	9.7	6.5	7.0
15	16	14	15	16	13	12	11	8.4	12	9.2	6.5	7.3
16	16	12	15	16	13	12	11	8.4	11	7.7	6.4	7.1
17	16	12	15	16	13	12	10	8.7	10	7.2	7.8	7.1
18	15	13	15	16	13	12	9.9	8.6	9.6	6.9	7.7	7.4
19	16	13	15	16	13	11	10	7.8	9.0	7.2	7.3	7.3
20	16	12	14	16	13	11	10	7.1	8.8	6.2	6.9	7.2
21	15	12	14	15	12	11	10	6.8	7.7	6.1	6.9	7.2
22	15	14	14	15	12	11	10	6.5	9.2	5.8	7.0	6.6
23	15	13	14	15	12	11	10	5.9	14	5.7	7.5	6.3
24	14	13	14	15	13	11	11	5.7	14	5.6	8.2	6.2
25	13	13	14	15	13	11	11	5.8	13	5.6	8.3	6.7
26	13	13	15	15	13	12	9.6	5.7	12	5.7	8.1	8.0
27	13	13	14	15	13	14	8.7	5.6	12	6.0	7.7	8.0
28	12	13	14	16	13	17	8.5	5.9	12	6.1	7.3	7.2
29	12	13	14	14	---	17	8.5	6.2	12	5.7	7.2	7.6
30	12	13	15	14	---	18	8.4	6.4	14	6.0	6.9	7.9
31	13	---	15	13	---	18	---	7.3	---	5.6	6.6	---
TOTAL	443	406	450	462	359	398	379.6	219.8	307.5	258.6	214.2	200.3
MEAN	14.3	13.5	14.5	14.9	12.8	12.8	12.7	7.09	10.3	8.34	6.91	6.68
MAX	17	15	16	16	13	18	21	8.7	14	14	8.3	8.0
MIN	12	12	13	13	12	11	8.4	5.6	7.2	5.6	5.9	5.4

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1998, BY WATER YEAR (WY)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	13.5	13.8	12.2	10.8	10.2	11.5	15.0	13.5	11.8	12.5	9.23	10.5
MAX	22.7	20.2	14.5	14.9	12.8	15.8	18.3	19.3	14.9	17.1	12.4	14.8
(WY)	1992	1992	1998	1998	1998	1997	1992	1996	1993	1997	1997	1994
MIN	7.75	10.9	9.67	9.02	8.80	9.33	11.2	7.09	8.88	8.34	6.91	6.68
(WY)	1993	1994	1996	1995	1992	1993	1995	1998	1992	1998	1998	1998

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1991 - 1998

ANNUAL TOTAL	5160.8	4098.0	
ANNUAL MEAN	14.1	11.2	12.1
HIGHEST ANNUAL MEAN			14.4
LOWEST ANNUAL MEAN			10.7
HIGHEST DAILY MEAN	25	21	56
LOWEST DAILY MEAN	8.4	5.4	.93
ANNUAL SEVEN-DAY MINIMUM	9.1	5.7	1.1
INSTANTANEOUS PEAK FLOW		(a) 22	(b) 79
INSTANTANEOUS PEAK STAGE		(c) 1.69	(c) 2.77
INSTANTANEOUS LOW FLOW		4.7	.69
10 PERCENT EXCEEDS	17	15	17
50 PERCENT EXCEEDS	14	12	11
90 PERCENT EXCEEDS	12	6.3	7.7

(a) Gage height, 1.62 ft

(b) Gage height, 2.36 ft

(c) Ice jam

CHIPPEWA RIVER BASIN

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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. 16-29, Apr. 22 to May 8, June 2-12, and June 26 to July 16, and ice-affected periods, Nov. 9-30, Dec. 21 to Feb. 1, Mar. 3-8, and 10-18. Records fair except those for estimated daily discharges, which are poor (see page 12).

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	2.7	3.2	3.7	3.4	3.6	4.1	5.7	1.8	1.6	3.1	1.6	2.8
2	2.3	2.7	3.7	3.4	3.7	3.9	4.7	1.7	1.7	2.6	1.4	2.8
3	2.0	2.5	3.8	3.6	3.6	3.7	4.4	1.6	2.0	2.3	1.5	2.7
4	1.8	2.3	3.7	3.5	3.8	3.5	4.2	1.6	1.9	2.2	1.5	2.7
5	1.8	2.3	3.7	3.4	4.0	3.5	4.1	1.6	1.6	2.1	1.4	2.7
6	2.6	2.2	3.7	3.5	4.1	3.5	3.6	1.6	1.6	2.9	1.5	2.6
7	3.1	2.1	3.7	3.6	4.0	3.5	3.8	1.6	1.6	2.5	1.7	2.6
8	2.1	2.2	3.7	3.6	4.0	3.5	2.9	1.7	1.7	2.3	1.5	2.6
9	2.2	2.2	3.6	3.6	4.0	3.4	2.3	1.5	2.0	2.2	1.8	2.6
10	2.0	2.2	3.6	3.4	3.9	3.3	2.1	1.5	3.0	2.1	1.6	2.5
11	1.9	2.2	3.6	3.4	3.9	3.1	2.0	1.5	3.1	2.0	1.5	2.5
12	1.9	2.2	3.6	3.3	3.9	3.0	2.1	1.7	4.3	1.9	1.5	2.4
13	3.1	2.2	3.6	3.3	3.9	3.2	2.2	2.0	2.6	1.8	1.5	2.6
14	2.2	2.3	3.6	3.3	3.8	3.3	2.1	1.6	1.9	1.9	1.5	3.5
15	3.9	2.4	3.6	3.6	3.8	3.2	2.0	1.7	1.6	2.0	1.5	2.8
16	4.0	2.3	3.5	3.9	3.9	3.2	1.9	2.2	1.5	1.8	1.5	2.6
17	3.5	2.2	3.5	3.7	3.9	3.3	1.9	1.8	1.5	1.6	2.5	3.3
18	3.1	2.4	3.5	3.6	3.9	3.3	1.9	1.6	1.5	1.4	1.8	7.1
19	3.5	2.6	3.5	3.6	3.9	3.4	1.9	1.6	1.5	1.4	1.6	7.2
20	3.3	2.5	3.4	3.5	3.8	3.4	2.1	1.5	1.5	1.4	1.6	6.9
21	3.1	2.4	3.3	3.6	3.7	3.4	2.0	1.6	1.4	1.3	1.6	6.3
22	3.0	2.3	3.3	3.7	3.7	3.4	2.3	1.6	1.4	1.3	1.9	5.8
23	3.0	2.2	3.3	3.6	3.7	3.4	2.3	1.6	1.4	1.3	2.2	5.4
24	3.1	2.1	3.3	3.5	3.8	3.4	2.2	1.3	1.8	1.6	2.2	5.2
25	3.2	2.0	3.4	3.4	3.8	3.6	2.0	1.3	1.9	4.1	2.0	4.8
26	3.3	2.4	3.4	3.4	4.0	4.2	1.9	1.7	2.5	4.1	2.0	5.0
27	3.0	2.8	3.4	3.5	4.2	6.3	1.9	1.9	3.0	4.3	2.0	4.7
28	3.1	3.1	3.5	3.6	4.1	6.0	1.9	1.7	3.8	3.8	2.0	4.4
29	2.9	3.3	3.5	3.6	---	5.2	1.8	1.4	3.1	3.2	2.0	4.3
30	2.8	3.5	3.5	3.6	---	5.8	1.8	1.9	3.5	2.3	2.1	4.2
31	2.7	---	3.5	3.6	---	5.0	---	2.4	---	1.7	2.2	---
TOTAL	86.2	73.3	109.7	109.3	108.4	118.0	78.0	51.8	63.5	70.5	54.2	117.6
MEAN	2.78	2.44	3.54	3.53	3.87	3.81	2.60	1.67	2.12	2.27	1.75	3.92
MAX	4.0	3.5	3.8	3.9	4.2	6.3	5.7	2.4	4.3	4.3	2.5	7.2
MIN	1.8	2.0	3.3	3.3	3.6	3.0	1.8	1.3	1.4	1.3	1.4	2.4

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1998, BY WATER YEAR (WY)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	3.41	3.95	3.02	2.74	2.80	2.91	3.15	3.56	3.34	3.27	3.22	4.12
MAX	4.02	6.28	3.54	3.53	3.87	4.34	4.85	6.18	6.73	4.89	4.84	6.85
(WY)	1996	1994	1998	1998	1998	1992	1996	1997	1991	1996	1997	1992
MIN	2.78	2.44	2.46	2.05	1.70	1.58	1.29	1.55	1.47	2.27	1.62	2.53
(WY)	1998	1998	1996	1997	1997	1995	1995	1994	1992	1998	1994	1995

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1991 - 1998
ANNUAL TOTAL	1280.1	1040.5	
ANNUAL MEAN	3.51	2.85	3.21
HIGHEST ANNUAL MEAN			3.68
LOWEST ANNUAL MEAN			2.61
HIGHEST DAILY MEAN	11	7.2	36
LOWEST DAILY MEAN	(a)1.5	(c)1.3	.54
ANNUAL SEVEN-DAY MINIMUM	(a)1.5	1.4	.90
INSTANTANEOUS PEAK FLOW		(d)8.2	(e)39
INSTANTANEOUS PEAK STAGE		(f)9.31	(f)10.19
INSTANTANEOUS LOW FLOW		1.1	.33
10 PERCENT EXCEEDS	5.4	4.0	4.9
50 PERCENT EXCEEDS	3.3	2.8	3.0
90 PERCENT EXCEEDS	1.7	1.6	1.6

- (a) Ice affected
 (b) Also occurred Mar. 6,7, ice affected
 (c) Also occurred May 25 and July 21-23
 (d) Gage height, 8.42 ft
 (e) Gage height, 9.62 ft
 (f) 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 12).

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	39	44	38	37	42	40	54	39	29	47	21	18
2	38	44	37	37	44	40	54	38	31	43	21	17
3	38	44	38	38	43	40	54	37	30	44	21	16
4	38	44	38	37	42	40	53	36	28	45	20	15
5	37	43	38	38	42	40	52	36	27	43	19	14
6	39	43	39	38	42	40	51	35	27	47	19	14
7	45	42	38	38	41	40	53	35	26	46	21	14
8	45	42	38	38	39	40	53	34	26	46	22	13
9	47	42	38	39	41	40	52	33	25	46	22	13
10	46	42	38	40	41	39	51	32	26	44	21	13
11	45	41	38	39	40	39	50	31	27	42	21	13
12	45	40	37	40	40	39	50	31	39	42	20	13
13	50	40	37	40	40	39	50	32	40	41	19	13
14	48	40	37	42	40	40	50	32	40	40	18	16
15	48	39	37	42	40	39	49	33	40	39	17	16
16	46	38	36	42	40	39	47	34	40	38	16	15
17	45	38	36	43	40	39	45	35	40	36	21	15
18	44	37	36	43	40	40	45	35	40	35	21	15
19	45	37	36	43	39	40	45	35	39	34	19	15
20	45	36	36	43	39	39	46	34	38	33	19	15
21	44	36	36	42	39	39	45	33	37	31	19	14
22	43	37	36	42	38	39	44	32	36	29	19	13
23	43	38	36	43	39	38	44	31	36	27	21	13
24	42	38	36	43	39	38	43	30	38	25	22	13
25	41	38	36	43	39	38	43	28	40	25	23	13
26	41	38	36	44	38	39	42	26	40	24	23	15
27	40	38	36	44	39	43	40	26	41	25	22	15
28	39	38	37	43	40	47	39	27	44	24	22	14
29	39	38	37	42	---	47	39	27	42	22	21	15
30	39	38	37	42	---	50	38	28	44	23	19	15
31	40	---	37	41	---	50	---	31	---	22	19	---
TOTAL	1324	1193	1146	1266	1126	1260	1421	1006	1056	1108	628	433
MEAN	42.7	39.8	37.0	40.8	40.2	40.6	47.4	32.5	35.2	35.7	20.3	14.4
MAX	50	44	39	44	44	50	54	39	44	47	23	18
MIN	37	36	36	37	38	38	38	26	25	22	16	13

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1998, BY WATER YEAR (WY)

	MEAN	38.0	42.7	44.5	44.0	40.7	39.6	46.2	51.6	46.5	45.3	33.7	31.7
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	44.4
(WY)	1996	1997	1992	1997	1997	1992	1996	1996	1996	1996	1996	1997	1997
MIN	31.1	35.0	36.1	34.3	35.5	33.0	35.4	32.5	34.9	32.9	20.3	14.4	14.4
(WY)	1994	1995	1995	1995	1994	1994	1994	1998	1994	1994	1998	1998	1998

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1991 - 1998

ANNUAL TOTAL	17136	12967	
ANNUAL MEAN	46.9	35.5	41.7
HIGHEST ANNUAL MEAN			49.8
LOWEST ANNUAL MEAN			34.8
HIGHEST DAILY MEAN	66 Jan 5, 6	54 Apr 1-3	85 May 20 1996
LOWEST DAILY MEAN	30 Aug 14	13 (a) Sep 8	13 (a) Sep 8 1998
ANNUAL SEVEN-DAY MINIMUM	33 Aug 9	13 Sep 7	13 Sep 7 1998
INSTANTANEOUS PEAK FLOW		56 Apr 2	89 May 19 1996
INSTANTANEOUS PEAK STAGE		1.66 Apr 2	1.99 May 19 1996
INSTANTANEOUS LOW FLOW		12 Sep 11, 23	12 Sep 11, 23 1998
10 PERCENT EXCEEDS	56	45	56
50 PERCENT EXCEEDS	46	38	41
90 PERCENT EXCEEDS	38	19	30

(a) Also occurred Sept. 9-13, 22-25

CHIPPEWA RIVER BASIN

183

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: July 29 to Aug. 11 and ice-affected periods, Nov.11 to Mar. 2 and Mar. 10-24. Records are poor (see page 12).

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	39	34	43	38	40	78	247	58	47	69	12	5.4
2	38	37	42	38	40	78	249	54	52	65	12	5.1
3	37	38	41	40	40	76	225	52	50	62	11	5.2
4	36	38	41	40	40	71	194	51	45	62	11	5.2
5	35	37	43	39	41	67	167	46	40	60	10	4.8
6	35	37	42	39	43	62	146	43	36	66	9.8	4.4
7	39	37	42	38	45	57	151	40	34	68	9.4	4.2
8	47	37	42	37	47	51	154	39	32	70	9.0	4.1
9	51	37	42	37	49	46	142	38	31	69	8.8	4.0
10	50	38	43	36	52	42	132	37	31	69	8.4	4.6
11	46	37	43	36	52	39	119	35	34	65	8.2	4.8
12	42	36	43	35	52	38	114	35	72	62	8.0	5.2
13	55	36	45	35	52	40	106	37	95	60	7.9	5.5
14	61	36	47	35	52	39	98	38	84	58	7.7	5.7
15	58	37	49	35	52	38	95	36	74	55	7.5	5.0
16	52	37	50	36	52	37	88	39	69	53	7.6	4.7
17	47	37	52	37	54	37	85	38	65	53	7.8	4.5
18	41	36	52	38	56	37	79	35	61	49	8.0	4.3
19	37	36	52	38	56	38	75	33	58	46	7.8	4.0
20	35	37	52	37	56	40	81	31	55	42	7.4	4.0
21	33	36	50	37	56	39	80	29	53	37	7.2	4.0
22	31	36	48	37	56	39	76	29	51	33	7.1	4.0
23	30	35	47	36	56	39	72	28	48	28	8.0	4.0
24	30	34	46	36	60	39	68	27	49	25	7.2	4.1
25	30	34	44	36	66	43	68	26	54	22	6.5	4.1
26	31	37	42	36	72	51	68	26	59	20	6.0	4.2
27	31	41	41	36	74	78	69	30	62	19	5.8	4.4
28	31	43	40	36	76	134	68	30	65	17	5.9	4.4
29	30	44	39	37	---	164	63	29	66	15	5.7	4.9
30	30	43	38	38	---	209	66	31	71	14	5.9	5.1
31	31	---	38	39	---	217	---	44	---	13	5.8	---
TOTAL	1219	1118	1379	1148	1487	2063	3445	1144	1643	1446	250.4	137.9
MEAN	39.3	37.3	44.5	37.0	53.1	66.5	115	36.9	54.8	46.6	8.08	4.60
MAX	61	44	52	40	76	217	249	58	95	70	12	5.7
MIN	30	34	38	35	40	37	63	26	31	13	5.7	4.0
CFSM	.48	.46	.55	.46	.65	.82	1.41	.45	.67	.57	.10	.06
IN.	.56	.51	.63	.53	.68	.94	1.58	.52	.75	.66	.11	.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1998, BY WATER YEAR (WY)

	MEAN	69.8	78.0	67.0	60.4	67.2	90.3	136	112	79.1	75.5	53.6	56.5
MAX	130	151	117	105	110	187	234	184	129	108	89.5	159	
(WY)	1995	1992	1992	1992	1992	1992	1996	1996	1993	1996	1996	1994	
MIN	37.1	26.4	43.2	35.5	43.4	44.3	67.3	36.9	54.4	46.6	8.08	4.60	
(WY)	1994	1994	1994	1994	1994	1994	1994	1998	1992	1998	1998	1998	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1992 - 1998

ANNUAL TOTAL	27266	16480.3	
ANNUAL MEAN	74.7	45.2	78.7
HIGHEST ANNUAL MEAN			104
LOWEST ANNUAL MEAN			45.2
HIGHEST DAILY MEAN	176	249	570
LOWEST DAILY MEAN	30	4.0	4.0
ANNUAL SEVEN-DAY MINIMUM	30	4.0	4.0
INSTANTANEOUS PEAK FLOW		(b) 256	589
INSTANTANEOUS PEAK STAGE		(c) 2.42	3.47
INSTANTANEOUS LOW FLOW		(d) 3.9	3.9
ANNUAL RUNOFF (CFSM)	.92	.56	.97
ANNUAL RUNOFF (INCHES)	12.48	7.54	13.16
10 PERCENT EXCEEDS	113	72	137
50 PERCENT EXCEEDS	74	39	66
90 PERCENT EXCEEDS	37	6.3	36

(a) Also occurred Sept. 19-23

(b) Gage height, 2.37 ft

(c) Control submerged

(d) 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 periods, Nov. 21-28, Dec. 25 to Feb. 26, and Mar. 10-17. Records good except those for ice-affected periods, which are fair (see page 12). 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1630	1630	1400	840	960	4080	9500	1040	1200	798	543	577
2	1680	2590	1290	860	1000	3590	9570	672	1140	777	446	440
3	1660	2640	1230	1100	940	3230	7510	1030	950	814	406	424
4	1570	2760	1290	1000	840	2760	7000	986	1060	796	570	399
5	1520	2160	1360	840	880	2920	6490	717	1040	827	568	368
6	1390	2300	1140	960	1000	2690	4850	770	966	824	581	371
7	1380	1860	1270	1000	900	2060	5150	846	698	789	582	365
8	1740	1730	1310	960	920	1850	4620	815	700	1120	517	362
9	1850	1760	1340	860	920	2040	4720	688	763	780	506	330
10	2280	1680	1330	840	1000	1300	4430	773	620	1100	549	230
11	2220	1770	1390	800	1000	1100	3590	838	535	838	479	238
12	2130	1670	1250	800	940	1300	3140	808	852	1050	525	303
13	2500	1410	1130	780	980	1400	2770	595	1450	783	517	348
14	4370	1680	1210	740	1000	1100	3370	732	2080	819	561	350
15	3640	1360	1170	700	1100	1300	2650	691	1740	731	538	507
16	3550	1510	1280	800	1300	1200	2710	905	1590	600	467	464
17	2560	1100	1320	920	1400	1100	2670	1080	1080	726	686	495
18	2500	1170	1050	980	1500	1350	2380	978	1060	795	762	429
19	2570	1480	1300	1000	1600	1270	1680	977	769	810	508	376
20	2550	1190	1230	960	1600	1040	1840	1100	1080	638	459	484
21	2030	1200	1170	920	1600	907	1860	810	902	793	557	436
22	2260	1200	832	920	1600	1150	2110	744	669	784	626	441
23	1790	1100	1000	880	1600	1360	1550	604	752	735	708	397
24	1970	1000	1240	860	1500	1190	1590	502	978	758	721	360
25	1830	940	1200	860	1600	1130	1490	473	1160	713	584	357
26	1630	1400	1100	840	2500	1260	1410	617	1100	727	696	791
27	1770	1400	1000	900	4480	2100	1410	615	1260	528	601	542
28	1490	1300	800	840	5690	9560	1150	470	1310	528	431	442
29	1540	1340	720	960	---	11200	1020	599	1300	546	410	442
30	1450	1270	740	920	---	9290	847	660	1150	604	461	544
31	1410	---	1000	920	---	9110	---	1130	---	585	584	---
TOTAL	64460	47600	36092	27560	42350	86937	105077	24265	31954	23716	17149	12612
MEAN	2079	1587	1164	889	1513	2804	3503	783	1065	765	553	420
MAX	4370	2760	1400	1100	5690	11200	9570	1130	2080	1120	762	791
MIN	1380	940	720	700	840	907	847	470	535	528	406	230

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1998, BY WATER YEAR (WY)

	MEAN	1801	1695	1311	1159	1163	1725	3620	2593	2054	1637	1462	1843
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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1951 - 1998

ANNUAL TOTAL	778065	519772	
ANNUAL MEAN	2132	1424	1835
HIGHEST ANNUAL MEAN			2900
LOWEST ANNUAL MEAN			993
HIGHEST DAILY MEAN	15100	Apr 7	23200
LOWEST DAILY MEAN	(a) 720	Dec 29	205
ANNUAL SEVEN-DAY MINIMUM	(a) 937	Dec 25	309
INSTANTANEOUS PEAK FLOW			13100
INSTANTANEOUS PEAK STAGE		8.99	Mar 29
10 PERCENT EXCEEDS	3020		3400
50 PERCENT EXCEEDS	1760		1380
90 PERCENT EXCEEDS	1200		780

(a) Ice affected

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.

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 period, Nov. 12 to Mar. 25. Records good except those for ice-affected period, which is poor (see page 12). Gage-height telemeter at station.

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	180	426	140	94	160	2500	7090	156	213	188	34	41
2	171	746	140	100	160	2100	5440	153	281	153	34	39
3	169	792	140	96	150	1700	3940	150	228	137	35	39
4	166	648	130	96	150	1300	2780	155	189	128	36	38
5	158	563	130	98	150	1000	2020	146	158	120	37	37
6	159	503	130	100	140	700	1500	134	136	121	40	35
7	499	453	130	100	150	460	1220	128	120	112	48	34
8	1030	413	120	98	160	500	1340	127	108	106	47	33
9	1190	394	130	96	160	360	1260	132	101	99	48	33
10	1470	403	150	94	170	300	1010	142	99	94	45	32
11	1130	349	130	92	170	270	814	132	103	87	40	32
12	831	270	120	90	170	280	693	122	187	78	33	32
13	2150	240	110	92	180	220	626	131	654	72	32	32
14	3130	270	110	90	190	180	593	220	712	67	31	33
15	2490	250	120	92	200	180	551	258	574	63	30	33
16	1750	210	120	94	210	170	472	306	410	60	36	32
17	1230	180	110	96	210	170	412	445	306	58	94	31
18	940	230	120	100	260	160	375	373	247	53	78	31
19	783	210	110	100	310	140	349	273	309	52	64	31
20	717	210	110	110	400	150	341	205	304	50	61	34
21	653	200	110	120	380	170	353	162	248	50	54	32
22	575	170	100	130	370	190	359	134	197	48	52	31
23	512	150	110	140	370	210	340	116	158	45	66	33
24	458	130	100	150	450	200	310	103	149	43	83	36
25	414	150	96	160	600	230	280	97	188	40	84	37
26	382	160	96	170	900	477	253	93	215	38	73	96
27	357	150	94	160	2600	1850	226	86	222	41	62	139
28	329	150	94	160	3000	4870	199	81	273	39	54	147
29	303	150	94	160	---	5660	182	78	295	37	48	114
30	288	150	92	160	---	8240	166	83	250	35	45	94
31	291	---	90	160	---	7850	---	112	---	34	43	---
TOTAL	24905	9320	3576	3598	12520	42787	35494	5033	7634	2348	1567	1441
MEAN	803	311	115	116	447	1380	1183	162	254	75.7	50.5	48.0
MAX	3130	792	150	170	3000	8240	7090	445	712	188	94	147
MIN	158	130	90	90	140	140	166	78	99	34	30	31
CFSM	1.39	.54	.20	.20	.78	2.40	2.05	.28	.44	.13	.09	.08
IN.	1.61	.60	.23	.23	.81	2.76	2.29	.33	.49	.15	.10	.09

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1915 - 1998, BY WATER YEAR (WY)

MEAN	424	442	181	104	101	741	1826	849	651	263	232	453
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--CONTINUED

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1915 - 1998	
ANNUAL TOTAL	210143		150223		521	
ANNUAL MEAN	576		412		923	1942
HIGHEST ANNUAL MEAN					214	1948
LOWEST ANNUAL MEAN					40800	Aug 31 1941
HIGHEST DAILY MEAN	11200	Apr 5,6	8240	Mar 30	11	Dec 18 1943
LOWEST DAILY MEAN	85	Aug 15-17	30	Aug 15	14	(a) Jan 25 1924
ANNUAL SEVEN-DAY MINIMUM	90	Aug 12	32	Sep 16	(b) 46000	Aug 31 1941
INSTANTANEOUS PEAK FLOW			8770	Mar 30	(c) 18.80	Aug 31 1941
INSTANTANEOUS PEAK STAGE			10.61	Mar 30	11	Dec 18 1943
INSTANTANEOUS LOW FLOW			30	Aug 14,15	.90	
ANNUAL RUNOFF (CFSM)	1.00		.71		12.28	
ANNUAL RUNOFF (INCHES)	13.57		9.70		1300	
10 PERCENT EXCEEDS	890		787		156	
50 PERCENT EXCEEDS	280		150		46	
90 PERCENT EXCEEDS	130		39			

(a) Also occurred July 11, 1936

(b) From rating curve extended above 13,000 ft³/s on basis of contracted-opening measurement of peak flow

(c) From floodmark

CHIPPEWA RIVER BASIN

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05365500 CHIPPEWA RIVER AT CHIPPEWA FALLS, WI

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.

DRAINAGE AREA.--5,650 mi².

PERIOD OF RECORD.--June 1888 to September 1983, October 1986 to current year. Monthly discharge for some periods published in WSP 1308.

REVISED RECORDS.--WSP 785: 1934(M). WSP 1508: 1897, 1905, 1918(M), 1924(M). WDR WI-81-1: Drainage area.

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.--No estimated daily discharges. Records good (see page 12). 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.

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	3470	3600	3070	2250	1200	29200	42600	1630	4660	4150	1010	1110
2	4340	5660	2780	1970	1910	21600	41700	2090	2810	3150	941	1090
3	3260	7410	3090	2730	2450	19600	32200	1990	3060	3180	987	1320
4	3470	4040	3010	3370	3840	12400	27800	2990	2510	2800	999	1060
5	2050	5630	3310	2640	2850	8980	24600	1770	2400	2130	1000	1020
6	2830	5250	2980	1850	1930	10100	20300	1520	2690	2900	1040	1020
7	3300	4140	2670	1930	1050	9460	15900	1520	1310	2890	3390	1020
8	4460	4670	3120	2500	1300	3840	13000	2780	1390	2970	1550	1250
9	6260	3800	3080	2440	2260	8940	13400	1950	1860	2830	1500	1170
10	3820	4120	2930	2170	3460	5940	13300	1460	2550	3140	1260	1120
11	5850	3830	3090	1450	4220	6610	12700	2200	2300	1780	1050	1090
12	4670	4070	2600	1980	4070	6500	8060	2310	1940	1810	1070	1020
13	7950	3910	2210	2450	2000	4750	8190	2190	2430	2670	1090	1060
14	9970	3350	2170	2300	1170	1850	7420	3770	4240	2570	1100	1060
15	12700	3660	3040	2030	2140	2920	7700	1840	4480	2710	1090	1060
16	8330	3710	3070	2170	3150	4520	7760	3370	4400	2640	1050	1060
17	9200	3240	3480	1280	3630	4440	6590	3980	3800	1920	2450	1070
18	4300	2900	2410	1400	5320	5380	5220	4580	2790	1260	2520	1060
19	6480	3340	2580	2590	7750	5390	5140	3010	3780	1100	2430	1070
20	5360	3520	2880	2550	5720	4210	4850	3100	4150	2720	2180	1090
21	4620	3850	1570	2650	4360	1400	4750	2600	2220	2330	1980	1090
22	4610	3550	2730	2380	4920	1510	4920	1820	1970	1090	1590	1090
23	4820	2270	1690	2460	7400	2900	4190	1420	2740	1110	1070	1090
24	5350	3160	2590	1980	6990	4690	4050	1520	3660	1420	1960	1080
25	4580	2320	2710	2140	7420	4990	3170	1460	4850	1670	1070	1090
26	3940	2760	2510	3970	8970	4410	2290	1640	5140	1070	1620	2080
27	3290	3980	2000	2850	13100	5650	2900	2290	6070	1490	1750	2260
28	3580	3500	1850	3260	31000	19400	3410	2370	4900	1520	1730	1740
29	4140	3170	2330	2890	---	37200	3780	1870	5670	1100	1070	1440
30	3490	2990	1450	2450	---	43500	1620	1460	3480	1040	1070	1550
31	3710	---	2030	1560	---	44200	---	1560	---	1160	1210	---
TOTAL	158200	115400	81030	72640	145580	346480	353510	70060	100250	66320	45827	36330
MEAN	5103	3847	2614	2343	5199	11180	11780	2260	3342	2139	1478	1211
MAX	12700	7410	3480	3970	31000	44200	42600	4580	6070	4150	3390	2260
MIN	2050	2270	1450	1280	1050	1400	1620	1420	1310	1040	941	1020

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1888 - 1998, BY WATER YEAR (WY)

	MEAN	4270	4240	3011	2600	2645	5379	11679	8531	6863	4304	3374	4457
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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1888 - 1998

ANNUAL TOTAL	2001149	1591627	
ANNUAL MEAN	5483	4361	5109
HIGHEST ANNUAL MEAN			8833
LOWEST ANNUAL MEAN			2453
HIGHEST DAILY MEAN	49100	Apr 7	95500
LOWEST DAILY MEAN	983	Aug 9	40
ANNUAL SEVEN-DAY MINIMUM	1830	Aug 9	308
INSTANTANEOUS PEAK FLOW			102000
INSTANTANEOUS PEAK STAGE			24.80
10 PERCENT EXCEEDS	7330		11200
50 PERCENT EXCEEDS	4460		3560
90 PERCENT EXCEEDS	2570		1300

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, Nov. 16-18, 21-24, Dec. 1 to Feb. 26, and Mar. 2-25. Records good except those for ice-affected periods, which are poor (see page 12). 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	5.1	22	5.8	2.6	3.5	297	840	11	14	14	.47	1.3
2	4.7	30	5.6	2.7	4.5	130	441	10	9.4	10	.47	1.1
3	4.5	29	5.4	2.8	4.3	80	216	10	6.7	10	.48	1.1
4	4.1	25	5.2	2.7	4.2	60	115	10	5.6	11	.57	.84
5	3.9	22	5.0	2.6	4.0	45	79	10	4.7	8.2	.74	.81
6	3.8	20	5.0	2.6	4.5	38	64	9.8	3.7	6.9	1.6	.61
7	5.1	18	5.0	2.5	5.0	30	52	9.6	3.3	5.9	2.6	.58
8	9.2	17	5.0	2.4	5.4	32	44	9.8	3.0	5.8	2.9	.54
9	20	16	5.6	2.3	5.8	25	37	9.9	3.0	5.0	3.0	.53
10	24	18	5.2	2.2	6.0	23	33	9.2	3.2	4.3	2.0	.52
11	19	14	5.0	2.1	6.0	20	29	9.1	4.7	3.7	1.6	.52
12	18	12	5.2	2.1	6.0	16	26	7.8	19	3.0	1.4	.52
13	195	11	4.8	2.0	5.6	15	27	7.6	18	2.6	1.1	.51
14	144	11	4.5	2.1	5.2	11	25	6.7	11	2.1	1.0	.49
15	89	11	4.0	2.1	4.9	9.0	24	6.8	7.4	1.8	.89	.50
16	53	11	4.0	2.1	4.9	8.6	22	8.8	5.7	1.5	.74	.50
17	38	10	3.8	2.2	25	8.2	20	8.5	4.9	1.3	25	.49
18	29	9.8	3.5	2.3	170	8.0	19	8.1	12	1.2	28	.49
19	25	8.7	3.2	2.4	160	8.6	17	5.9	38	1.4	15	.48
20	24	7.5	3.1	2.3	140	9.0	16	4.6	30	1.5	12	.56
21	21	6.6	2.9	2.6	90	10	15	4.0	18	1.0	7.9	.57
22	19	6.2	2.9	2.7	60	17	14	3.5	11	.74	5.6	.56
23	17	5.6	2.9	2.8	100	27	12	3.2	7.5	.58	5.5	.53
24	16	5.2	2.8	2.9	150	30	13	2.8	8.7	.56	5.2	.55
25	14	5.1	2.8	3.0	140	40	13	2.9	46	.55	4.2	.57
26	13	5.3	2.7	3.1	180	83	14	3.0	51	.54	3.4	52
27	12	5.8	2.6	3.3	598	130	12	2.8	64	.53	2.7	21
28	12	6.1	2.6	3.7	533	231	12	2.9	60	.50	2.3	9.3
29	12	6.1	2.6	3.5	---	293	12	2.4	36	.49	2.0	5.9
30	12	6.0	2.6	3.3	---	1040	11	2.0	22	.48	1.6	4.3
31	13	---	2.5	3.2	---	751	---	8.5	---	.47	1.4	---
TOTAL	879.4	381.0	123.8	81.2	2425.8	3525.4	2274	211.2	531.5	107.64	143.36	108.27
MEAN	28.4	12.7	3.99	2.62	86.6	114	75.8	6.81	17.7	3.47	4.62	3.61
MAX	195	30	5.8	3.7	598	1040	840	11	64	14	28	52
MIN	3.8	5.1	2.5	2.0	3.5	8.0	11	2.0	3.0	.47	.47	.48
CFSM	.56	.25	.08	.05	1.70	2.23	1.49	.13	.35	.07	.09	.07
IN.	.64	.28	.09	.06	1.77	2.57	1.66	.15	.39	.08	.10	.08

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1998, BY WATER YEAR (WY)

	MEAN	28.6	50.4	15.2	5.84	12.0	117	119	51.5	66.3	19.3	33.8	48.4
MAX	123	262	79.7	31.4	86.6	181	267	184	339	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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1986 - 1998

ANNUAL TOTAL	15771.4	10792.57	
ANNUAL MEAN	43.2	29.6	44.6
HIGHEST ANNUAL MEAN			93.0
LOWEST ANNUAL MEAN			25.5
HIGHEST DAILY MEAN	(a)1500	Apr 1	1040
LOWEST DAILY MEAN	1.4	Aug 11	.47
ANNUAL SEVEN-DAY MINIMUM	1.8	Aug 8	.48
INSTANTANEOUS PEAK FLOW			1910
INSTANTANEOUS PEAK STAGE			6.62
INSTANTANEOUS LOW FLOW			.45
ANNUAL RUNOFF (CFSM)	.85		.58
ANNUAL RUNOFF (INCHES)	11.50		7.87
10 PERCENT EXCEEDS	60		48
50 PERCENT EXCEEDS	14		5.8
90 PERCENT EXCEEDS	3.5		.78

(a) Ice affected

(b) Also occurred Aug. 1,2

(c) From rating curve extended above 2,500 ft³/s on basis of step-backwater measurement of peak flow

CHIPPEWA RIVER BASIN

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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: Ice-affected periods, Nov. 20-25, Dec. 20 to Jan. 1, Jan. 9-24, Feb. 5-9, and Mar. 10-15. Records good except those for ice-affected periods, which are fair (see page 12). Flow is regulated occasionally at small dam upstream. 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	85	103	85	72	79	230	628	86	140	123	66	71
2	83	102	85	81	79	183	765	84	116	107	66	71
3	82	96	86	81	78	158	389	86	101	128	69	70
4	82	93	86	75	69	141	317	88	91	123	73	71
5	79	97	84	79	68	127	263	90	88	107	76	66
6	82	96	84	80	70	121	193	87	83	101	74	69
7	92	91	83	80	72	114	187	90	79	100	90	70
8	93	89	83	80	72	110	177	99	76	103	87	69
9	89	89	84	76	76	104	143	95	73	103	85	68
10	86	90	84	74	78	80	145	89	77	99	79	67
11	83	69	84	66	78	74	143	85	80	81	74	66
12	86	103	83	64	77	74	136	84	100	70	74	66
13	112	93	83	62	77	76	138	84	99	67	69	66
14	114	90	83	64	77	78	135	81	91	86	66	67
15	102	89	83	66	77	78	125	85	69	90	64	67
16	94	89	83	68	80	79	118	117	78	80	66	67
17	85	86	82	70	97	82	112	108	118	85	81	66
18	85	79	83	72	197	85	107	88	117	82	83	67
19	87	79	83	74	359	92	106	91	190	79	81	69
20	85	80	78	72	242	81	118	86	232	77	84	73
21	82	80	74	72	183	84	116	79	375	75	86	73
22	80	80	74	74	151	86	106	77	285	72	89	71
23	80	80	74	74	146	86	97	78	155	70	97	69
24	80	76	74	74	152	87	90	76	277	69	101	71
25	80	82	74	74	143	88	90	74	361	69	84	73
26	78	87	72	75	140	98	88	72	380	69	77	135
27	78	87	70	77	196	123	85	70	344	69	75	130
28	78	87	70	65	255	304	83	70	258	68	76	103
29	78	86	70	88	---	447	83	69	153	67	75	89
30	84	85	68	79	---	447	84	73	139	67	72	74
31	90	---	64	78	---	509	---	115	---	66	71	---
TOTAL	2674	2633	2453	2286	3468	4526	5367	2656	4825	2652	2410	2254
MEAN	86.3	87.8	79.1	73.7	124	146	179	85.7	161	85.5	77.7	75.1
MAX	114	103	86	88	359	509	765	117	380	128	101	135
MIN	78	69	64	62	68	74	83	69	69	66	64	66
CFSM	.56	.57	.52	.48	.81	.95	1.17	.56	1.05	.56	.51	.49
IN.	.65	.64	.60	.56	.84	1.10	1.30	.65	1.17	.64	.59	.55

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1998, BY WATER YEAR (WY)

	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	102	114	83.5	76.9	84.9	152	220	111
MAX	204	178	101	88.2	124	226	343	184
(WY)	1996	1997	1992	1997	1998	1995	1996	1996
MIN	74.4	74.2	73.1	63.2	64.0	117	166	85.7
(WY)	1992	1995	1995	1995	1995	1997	1994	1998

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1991 - 1998
ANNUAL TOTAL	41588	38204	
ANNUAL MEAN	114	105	112
HIGHEST ANNUAL MEAN			137
LOWEST ANNUAL MEAN			93.5
HIGHEST DAILY MEAN	1070	Apr 3	1210
LOWEST DAILY MEAN	(a) 64	Dec 31	23
ANNUAL SEVEN-DAY MINIMUM	(a) 70	Dec 25	55
INSTANTANEOUS PEAK FLOW			873
INSTANTANEOUS PEAK STAGE			5.27
INSTANTANEOUS LOW FLOW			(b) 20
ANNUAL RUNOFF (CFSM)	.74		.68
ANNUAL RUNOFF (INCHES)	10.11		9.29
10 PERCENT EXCEEDS	141		144
50 PERCENT EXCEEDS	89		83
90 PERCENT EXCEEDS	77		69

(a) Ice affected

(b) 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, 28.0°C, June 21, 1995; minimum, 0.0°C, for many days.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum temperature, 26.5°C, July 14, 15; minimum, 0.0°C, Dec. 30, 31, Jan. 9-21, 23-25, 28, Feb. 3-12, and Mar. 10.

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	14.0	13.5	13.5	7.0	6.5	7.0	2.0	1.5	2.0	1.0	.5	.5
2	14.5	13.0	13.5	6.5	5.5	6.0	2.0	1.5	2.0	1.5	.5	1.0
3	16.0	14.0	15.0	5.5	4.5	5.0	2.0	2.0	2.0	1.0	.5	.5
4	16.5	15.5	16.0	4.5	4.0	4.0	2.0	1.5	2.0	1.0	.5	.5
5	16.5	15.5	16.0	4.0	4.0	4.0	2.0	1.5	1.5	1.0	.5	1.0
6	16.0	14.5	15.5	4.0	3.5	4.0	1.5	1.0	1.5	1.0	.5	1.0
7	15.5	14.5	15.0	4.5	4.0	4.5	1.5	1.0	1.0	1.0	.5	1.0
8	16.5	15.5	16.0	4.5	4.0	4.5	1.0	1.0	1.0	1.0	.5	.5
9	16.5	14.0	15.5	4.5	4.0	4.5	1.5	1.0	1.0	1.0	.0	.5
10	14.0	13.0	13.5	4.0	3.0	3.5	1.5	1.0	1.5	.5	.0	.0
11	14.5	13.5	14.0	3.0	2.0	3.0	1.5	1.0	1.0	.5	.0	.5
12	15.0	14.5	15.0	2.0	2.0	2.0	1.5	1.0	1.0	.5	.0	.0
13	15.0	12.5	14.0	2.0	1.5	2.0	2.0	1.0	1.5	.5	.0	.0
14	12.5	10.5	11.5	2.0	1.5	1.5	2.0	1.0	1.5	.5	.0	.5
15	10.5	9.5	10.0	1.5	1.0	1.5	2.0	1.0	1.5	.5	.0	.0
16	10.5	9.5	10.0	1.5	1.0	1.0	2.0	1.0	1.5	.5	.0	.5
17	10.0	9.0	9.5	2.0	1.0	1.5	2.0	1.0	1.5	.5	.0	.5
18	10.5	9.5	10.0	1.5	1.0	1.5	2.0	1.5	1.5	.5	.0	.5
19	11.0	10.0	10.5	1.5	1.0	1.0	2.0	1.0	1.5	1.0	.0	.5
20	10.0	8.5	9.5	1.5	1.0	1.0	1.5	1.0	1.0	.5	.0	.0
21	8.5	6.5	7.5	1.5	.5	1.0	1.5	1.0	1.0	1.0	.0	.5
22	6.5	6.0	6.5	1.5	1.0	1.0	1.5	1.0	1.5	1.0	.5	.5
23	6.0	5.5	6.0	1.5	.5	1.0	1.5	.5	1.0	1.0	.0	.5
24	6.0	5.0	5.5	1.5	.5	1.0	1.0	.5	1.0	1.0	.0	.5
25	5.0	4.5	5.0	2.0	1.0	1.0	1.0	.5	1.0	1.0	.0	.5
26	4.5	4.0	4.5	1.5	1.0	1.0	1.0	.5	.5	.5	.5	.5
27	4.5	4.0	4.0	1.5	1.0	1.5	1.0	.5	.5	1.0	.5	.5
28	5.0	4.0	4.5	2.0	1.0	1.5	1.0	.5	.5	1.0	.5	.5
29	5.5	4.0	4.5	2.0	1.5	1.5	1.0	.5	.5	.5	.0	.5
30	5.5	5.0	5.5	2.0	1.5	2.0	1.0	.0	.5	1.0	.5	.5
31	7.0	5.5	6.0	---	---	---	.5	.0	.5	1.0	.5	.5
MONTH	16.5	4.0	10.4	7.0	.5	2.5	2.0	.0	1.2	1.5	.0	.5

CHIPPEWA RIVER BASIN
053674464 YELLOW RIVER AT BARRON, 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	1.0	.5	.5	1.5	1.0	1.5	4.0	3.5	3.5	18.5	16.0	17.0
2	1.0	.5	.5	1.5	1.0	1.5	4.5	3.5	4.0	17.5	16.0	17.0
3	1.0	.0	.5	2.0	1.5	1.5	7.5	4.5	5.5	17.5	15.5	16.5
4	1.0	.0	.5	2.0	1.5	2.0	8.5	6.0	7.5	18.0	16.0	17.0
5	1.0	.0	.5	2.0	1.5	1.5	10.0	7.0	8.5	18.5	16.5	17.5
6	1.0	.0	.5	2.5	1.5	2.0	10.0	8.5	9.0	19.0	17.0	18.0
7	1.0	.0	.5	3.0	1.5	2.5	10.0	9.0	9.5	18.5	17.0	18.0
8	1.0	.0	.5	3.0	2.0	2.5	9.5	8.5	9.0	18.5	16.5	17.0
9	1.0	.0	.5	2.0	.5	1.5	9.5	7.5	8.5	18.5	16.5	17.5
10	1.0	.0	.5	2.0	.0	.5	10.5	8.0	9.0	19.0	17.0	17.5
11	1.0	.0	.5	2.0	.5	1.0	12.0	10.0	11.0	18.5	17.0	18.0
12	1.0	.0	.5	2.5	1.0	1.5	13.5	11.5	12.5	19.0	17.5	18.0
13	1.0	.5	.5	2.5	1.0	1.5	13.5	12.5	13.0	19.5	17.0	18.0
14	1.0	.5	.5	2.0	.5	1.0	13.5	12.0	13.0	20.5	18.0	19.0
15	1.5	.5	1.0	1.5	.5	1.0	13.0	11.0	12.0	21.5	20.0	20.5
16	1.5	.5	1.0	2.0	.5	1.0	12.0	10.0	11.0	21.0	20.0	20.5
17	1.5	1.0	1.0	2.0	1.0	1.5	11.0	10.0	10.5	21.5	20.0	20.5
18	1.5	1.0	1.0	1.5	1.0	1.5	12.0	10.5	11.0	22.5	20.5	21.5
19	1.0	.5	.5	2.5	1.0	1.5	12.0	10.5	11.0	23.5	21.5	22.5
20	1.0	.5	.5	3.5	1.5	2.0	12.5	10.5	11.5	23.5	22.0	22.5
21	1.0	.5	1.0	4.0	2.0	3.0	14.0	11.0	12.5	23.0	21.5	22.0
22	2.0	1.0	1.5	4.5	3.0	3.5	15.0	12.5	14.0	21.5	20.0	21.0
23	2.0	1.5	2.0	5.0	3.5	4.0	16.0	13.5	15.0	21.0	19.5	20.0
24	3.0	2.0	2.5	5.5	3.5	4.0	17.0	15.0	16.0	19.5	18.0	19.0
25	3.0	2.5	3.0	5.5	4.0	4.5	16.5	15.0	15.5	20.0	18.0	19.0
26	3.0	2.5	2.5	6.5	5.0	5.5	16.0	14.0	15.0	21.0	19.0	20.0
27	2.5	2.5	2.5	8.5	6.5	7.5	16.0	14.0	15.0	21.5	19.5	20.5
28	2.5	1.5	2.0	9.5	8.0	8.5	16.5	14.0	15.0	23.5	21.0	22.0
29	---	---	---	8.0	5.5	6.5	17.0	14.5	15.5	24.0	22.0	22.5
30	---	---	---	5.5	5.0	5.5	17.5	15.0	16.0	22.0	20.0	21.0
31	---	---	---	5.0	3.5	4.5	---	---	---	20.0	19.0	19.5
MONTH	3.0	.0	1.0	9.5	.0	2.8	17.5	3.5	11.3	24.0	15.5	19.4
	JUNE			JULY			AUGUST			SEPTEMBER		
1	19.5	18.0	18.5	24.0	22.5	23.5	22.5	21.0	21.5	21.0	19.5	20.0
2	18.5	16.5	17.5	23.5	23.0	23.5	22.5	21.0	21.5	20.0	18.5	19.0
3	16.5	15.0	16.0	24.0	22.0	23.0	21.5	20.5	21.0	19.5	18.0	18.5
4	16.5	15.5	16.0	23.5	22.0	22.5	20.5	20.0	20.5	19.5	18.0	18.5
5	16.5	15.0	15.5	22.5	22.0	22.5	21.0	20.0	20.0	20.0	18.0	19.0
6	16.0	15.0	15.5	23.0	22.0	22.5	20.5	20.0	20.5	21.0	19.0	20.0
7	16.5	14.5	15.5	22.5	22.0	22.0	21.0	20.0	20.5	20.5	18.5	19.5
8	17.0	15.0	16.0	23.5	21.5	22.5	22.0	20.0	21.0	19.5	18.0	18.5
9	16.5	15.5	16.0	23.5	22.0	23.0	22.5	21.0	22.0	19.0	17.5	18.0
10	16.0	15.0	15.5	24.0	22.5	23.0	23.5	21.5	22.5	19.0	17.5	18.0
11	16.0	15.5	15.5	24.0	23.0	23.5	23.0	21.5	22.5	20.0	18.0	18.5
12	17.5	15.5	16.5	24.5	23.0	24.0	23.0	22.0	22.0	20.5	19.0	19.5
13	19.5	17.5	18.5	25.5	23.0	24.5	23.0	21.5	22.0	21.5	19.5	20.0
14	20.5	19.0	19.5	26.5	24.5	25.5	23.5	21.5	22.0	21.0	20.0	20.5
15	21.5	19.5	20.5	26.5	25.0	25.5	22.5	21.0	21.5	21.5	20.0	20.5
16	22.5	21.0	21.5	26.0	24.5	25.5	22.0	21.0	21.0	21.0	19.5	20.0
17	22.5	21.5	22.0	25.5	24.0	24.5	21.5	20.0	21.0	20.5	19.0	20.0
18	22.0	20.5	21.5	24.5	23.5	24.0	20.5	20.0	20.0	20.5	19.0	19.5
19	21.0	20.0	20.5	25.0	23.0	24.0	20.5	19.5	20.0	20.5	19.5	20.0
20	21.0	19.5	20.0	24.5	23.5	24.0	21.5	20.0	20.5	21.0	19.0	20.0
21	20.5	19.0	19.5	24.5	23.0	23.5	22.5	20.5	21.0	19.0	17.0	18.0
22	22.0	19.5	20.5	24.5	23.0	23.5	21.5	20.5	21.0	17.5	16.0	16.5
23	22.0	21.0	21.5	23.5	22.0	22.5	22.0	20.5	21.0	16.0	15.0	15.5
24	23.0	21.5	22.0	22.5	21.5	22.0	22.0	21.0	21.5	15.0	14.5	15.0
25	23.0	21.5	22.5	23.0	21.0	21.5	22.5	20.5	21.5	15.5	14.0	15.0
26	24.0	22.0	23.0	22.5	21.0	21.5	22.0	21.0	21.5	17.0	15.0	16.0
27	24.0	22.5	23.5	23.0	21.0	22.0	21.5	21.0	21.0	17.0	16.0	16.5
28	24.5	22.5	23.5	23.5	21.5	22.0	22.0	20.5	21.0	16.5	16.0	16.5
29	24.0	22.5	23.5	23.0	21.0	22.0	22.5	21.0	21.5	17.5	16.0	17.0
30	24.0	22.5	23.5	23.0	21.0	21.5	22.0	20.5	21.0	16.5	15.0	16.0
31	---	---	---	22.5	21.0	21.5	21.0	20.0	20.5	---	---	---
MONTH	24.5	14.5	19.4	26.5	21.0	23.1	23.5	19.5	21.2	21.5	14.0	18.3

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, Nov. 18-25, Dec. 21 to Feb. 11, and Mar. 9-17. Records good except those for ice-affected periods, which are poor (see page 12). 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 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	278	310	252	200	200	791	1760	310	467	427	223	217
2	287	320	252	220	210	580	2720	306	358	403	221	214
3	287	299	252	210	210	518	1640	320	326	405	237	212
4	289	289	253	200	200	474	1000	311	308	426	249	210
5	284	280	251	190	200	438	793	310	299	388	235	208
6	280	274	247	190	190	417	695	300	291	369	229	205
7	286	271	244	190	200	401	689	295	277	351	261	204
8	298	268	248	190	200	393	717	338	270	358	296	202
9	294	269	247	180	210	370	614	339	268	348	265	200
10	287	268	245	180	220	320	550	334	274	341	249	199
11	282	271	245	180	220	290	522	316	277	328	237	199
12	287	275	246	180	226	290	506	301	332	309	230	197
13	384	265	245	170	231	300	497	295	312	307	227	197
14	401	263	244	180	227	300	495	286	300	303	223	196
15	345	266	243	190	225	300	473	291	293	297	220	196
16	328	262	247	200	227	300	449	497	285	299	229	195
17	314	249	241	200	249	310	430	475	280	288	271	195
18	305	240	244	200	549	311	416	383	295	288	266	194
19	297	240	241	200	841	308	410	364	416	278	254	194
20	286	230	238	190	734	306	416	342	423	274	283	210
21	280	230	210	200	567	308	409	321	451	271	295	209
22	276	220	210	200	491	307	389	300	461	264	272	200
23	275	220	200	200	486	308	377	288	376	257	296	199
24	277	220	200	200	602	309	367	282	497	251	282	204
25	274	260	190	190	513	315	359	281	841	247	261	208
26	271	263	190	200	458	371	351	276	821	244	247	225
27	269	257	180	200	685	427	339	271	710	241	237	273
28	267	255	190	200	1050	1030	331	272	666	237	235	250
29	266	254	190	200	---	2290	320	266	535	232	231	233
30	265	251	190	200	---	1880	311	264	464	229	224	227
31	270	---	180	200	---	1560	---	422	---	225	220	---
TOTAL	9089	7839	7055	6030	10621	16822	19345	9956	12173	9485	7705	6272
MEAN	293	261	228	195	379	543	645	321	406	306	249	209
MAX	401	320	253	220	1050	2290	2720	497	841	427	296	273
MIN	265	220	180	170	190	290	311	264	268	225	220	194
CFSM	.70	.63	.54	.47	.91	1.30	1.54	.77	.97	.73	.59	.50
IN.	.81	.70	.63	.54	.95	1.50	1.72	.89	1.08	.84	.69	.56
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 1998, BY WATER YEAR (WY)												
MEAN	264	262	227	202	224	491	635	359	342	271	262	282
MAX	579	704	470	412	657	1021	2054	767	778	667	513	762
(WY)	1986	1971	1966	1981	1981	1983	1965	1954	1993	1979	1980	1986
MIN	139	138	122	97.2	85.2	155	166	153	153	135	126	141
(WY)	1959	1959	1959	1959	1959	1956	1959	1958	1959	1964	1964	1958
SUMMARY STATISTICS FOR 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1951 - 1998												
ANNUAL TOTAL	131194			122392			318			1986		
ANNUAL MEAN	359			335			424			1959		
HIGHEST ANNUAL MEAN							152					
LOWEST ANNUAL MEAN							13000			Mar 31 1967		
HIGHEST DAILY MEAN	2420			Apr 3			2720			Apr 2		
LOWEST DAILY MEAN	(a)180			Dec 27, 31			(a)170			Jan 13		
ANNUAL SEVEN-DAY MINIMUM	(a)187			Dec 25			(a)180			Jan 8		
INSTANTANEOUS PEAK FLOW							3070			(b)13600		
INSTANTANEOUS PEAK STAGE							10.50			Apr 2		
INSTANTANEOUS LOW FLOW							(a)			15.04		
ANNUAL RUNOFF (CFSM)	.86						.80			(c)55		
ANNUAL RUNOFF (INCHES)	11.68						10.89			.76		
10 PERCENT EXCEEDS	480						493			10.35		
50 PERCENT EXCEEDS	294						274			489		
90 PERCENT EXCEEDS	246						200			240		
										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 12). Flow regulated by powerplants at Menomonie and Cedar Falls. 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	1070	1460	1220	770	1190	3650	6070	1250	1590	1980	735	827
2	1230	1420	1150	704	1170	3270	6990	1300	1640	1860	702	896
3	1200	1370	1150	1310	1120	2990	7140	1360	1410	1840	802	696
4	1170	1380	1110	1260	1010	2800	6020	1340	1530	1680	834	973
5	1120	1410	1160	928	935	2300	4860	1330	1350	1610	865	840
6	1220	1340	1150	1060	853	2230	3830	1310	1280	1430	801	867
7	1150	1320	1140	1210	1060	1570	3520	1330	1080	1510	1010	748
8	1330	1300	1050	1200	1040	1650	3080	1280	996	1490	1040	924
9	1280	1330	1120	1150	1110	1680	3210	1410	1170	1300	1050	706
10	1250	1270	1110	1010	1180	1410	2980	1360	1160	1280	1060	761
11	1200	1240	1150	659	1180	1160	2470	1290	1090	1280	897	827
12	1410	1250	1170	475	1130	1330	2280	1140	1360	1030	935	830
13	1500	1260	1050	678	1080	1470	1860	1310	1350	1310	764	783
14	1800	1240	1100	1040	1080	1240	980	1100	1360	1070	943	801
15	1950	1240	1060	947	1080	1690	654	1470	1200	1070	930	819
16	1570	1240	1100	933	1180	1310	1060	1570	1430	1080	977	781
17	1450	1210	1110	1050	1370	1480	1690	1980	1120	969	1080	693
18	1320	1270	1100	1010	1810	1410	1610	1840	1470	928	994	785
19	1360	1170	1090	1070	2170	1320	1540	1260	1690	952	887	803
20	1270	1160	1050	1130	2830	1240	1760	1380	1920	929	1280	878
21	1330	1240	1050	1130	2820	1260	1510	1210	1720	1010	1080	951
22	1240	1220	935	987	2250	1190	1550	1160	1940	935	1190	707
23	1290	1240	936	1050	1940	1270	1490	1120	1780	899	1130	784
24	1270	922	1140	1070	2040	1240	1500	1250	2160	864	1250	948
25	1220	1110	1070	1060	1870	1330	1520	977	3250	902	1270	836
26	1230	1340	949	1060	2200	1570	1420	1310	3820	805	1050	1180
27	1220	1240	842	1050	2460	1960	1240	1040	4110	822	1090	1210
28	1200	1260	747	1130	3350	3210	1430	1200	3780	818	967	1410
29	1240	1250	1120	1140	---	4290	1270	1100	3020	762	958	1040
30	1190	1200	936	1100	---	5950	1280	1180	2320	978	883	931
31	1280	---	807	1100	---	6050	---	1480	---	750	769	---
TOTAL	40560	37902	32872	31471	44508	66520	77814	40637	55096	36143	30223	26235
MEAN	1308	1263	1060	1015	1590	2146	2594	1311	1837	1166	975	875
MAX	1950	1460	1220	1310	3350	6050	7140	1980	4110	1980	1280	1410
MIN	1070	922	747	475	853	1160	654	977	996	750	702	693

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1907 - 1998, BY WATER YEAR (WY)

	MEAN	1143	1159	980	898	958	1933	2311	1482	1467	1119	967	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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1907 - 1998

ANNUAL TOTAL	549371	519981	1300
ANNUAL MEAN	1505	1425	1842
HIGHEST ANNUAL MEAN			711
LOWEST ANNUAL MEAN			(a) 1973
HIGHEST DAILY MEAN	8570	7140	29000
LOWEST DAILY MEAN	747	475	100
ANNUAL SEVEN-DAY MINIMUM	918	781	310
INSTANTANEOUS PEAK FLOW		8940	(b) 40000
INSTANTANEOUS PEAK STAGE		6.65	(c) 16.00
10 PERCENT EXCEEDS	1970	2090	2180
50 PERCENT EXCEEDS	1280	1200	1050
90 PERCENT EXCEEDS	1050	835	635

(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, Jan. 10 to Feb. 15. Records good except those for ice-affected period, which is fair (see page 12). 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.

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	5740	6040	5080	3700	3100	32000	54800	4240	4210	7220	2500	2820
2	5490	6280	5010	3740	2900	31400	56200	3860	6590	7180	2350	2830
3	6070	9860	4520	3520	3800	25600	56100	4510	4780	6370	2330	2580
4	5610	8290	4790	4470	4500	22200	46400	4600	4780	6170	2440	2800
5	5750	8620	4810	4790	5000	15300	36300	5240	4620	5130	2260	2740
6	3950	8110	5240	4040	4500	14000	29500	4190	4330	4840	2450	2730
7	4210	8260	4980	3610	3500	13800	25300	3750	4810	5220	3240	2700
8	4930	6910	4530	3910	2600	10700	19700	4200	3230	5240	5320	2530
9	6590	7420	5270	4210	3000	9090	17600	5150	3040	5150	3440	2830
10	8150	6430	4310	4200	3800	11500	17800	4490	3170	4770	3450	2660
11	6450	6600	4770	3800	5400	7930	17000	3780	4300	4970	3090	2620
12	7920	6450	5100	2600	6000	9050	15800	4580	4690	3680	2920	2740
13	8040	6290	4500	3000	4800	9100	11800	4460	3650	3720	2530	2680
14	10900	5940	3720	3500	3500	6740	11000	4180	5590	4080	2410	2590
15	14500	5160	4240	3700	2800	4730	10900	5410	5830	3890	2900	2620
16	13600	5600	4570	3600	3780	5560	10100	4840	6500	3810	2650	2620
17	12600	5630	4810	3500	5250	6540	10200	6470	6030	3870	3050	2510
18	10400	5140	5320	2800	6200	7050	9800	6380	5480	2970	4240	2600
19	7790	4680	4210	2900	9680	7710	8980	7020	5580	2940	4100	2550
20	9310	5170	4210	4400	10600	7380	8300	5140	6540	2880	4260	2920
21	7420	5310	4550	4500	10900	5850	8210	5070	6580	3530	4200	2710
22	6750	5740	3560	4500	10000	4440	7660	4650	4530	3720	4110	2700
23	6980	5570	3540	4100	9490	3990	7710	3420	4590	2910	3860	2650
24	7430	3980	3800	4000	11200	4880	6820	3440	5950	2800	3330	2890
25	7800	4720	3900	3700	11000	6940	6640	3590	7720	2600	3870	2840
26	6390	4490	4230	3900	12800	8210	6430	3500	9330	2870	3050	3080
27	6030	4710	3840	5200	14700	7670	5080	3370	10800	2600	3430	3970
28	5780	5970	3810	5000	22400	12700	5120	4170	11300	2620	3410	4570
29	5740	5040	3260	5200	---	27400	6260	3820	10300	2620	3560	3560
30	6180	5120	3800	4800	---	40000	5880	3640	9470	2350	3020	3500
31	5710	---	2920	4000	---	48400	---	3630	---	2520	2760	---
TOTAL	230210	183530	135200	122890	197200	427860	539390	138790	178320	125240	100530	86140
MEAN	7426	6118	4361	3964	7043	13800	17980	4477	5944	4040	3243	2871
MAX	14500	9860	5320	5200	22400	48400	56200	7020	11300	7220	5320	4570
MIN	3950	3980	2920	2600	2600	3990	5080	3370	3040	2350	2260	2510

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1998, BY WATER YEAR (WY)

MEAN	6596	6917	5415	4826	5090	9745	15890	10410	9331	6298	5078	7055
MAX	20360	20190	11600	8181	11160	25120	34170	28220	37730	19070	12180	27950
(WY)	1986	1992	1966	1984	1984	1973	1967	1954	1943	1968	1995	1941
MIN	2103	2209	2335	2289	2404	3645	4718	3336	2699	2271	2026	1954
(WY)	1977	1977	1934	1934	1990	1931	1931	1931	1934	1934	1934	1948

SUMMARY STATISTICS

	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1928 - 1998
ANNUAL TOTAL	3085030	2465300	
ANNUAL MEAN	8452	6754	7713
HIGHEST ANNUAL MEAN			11550
LOWEST ANNUAL MEAN			3992
HIGHEST DAILY MEAN	55700	56200	117000
LOWEST DAILY MEAN	2750	2260	1100
ANNUAL SEVEN-DAY MINIMUM	3360	2390	1580
INSTANTANEOUS PEAK FLOW		56900	123000
INSTANTANEOUS PEAK STAGE		13.15	16.93
INSTANTANEOUS LOW FLOW		2220	1020
10 PERCENT EXCEEDS	11000	10900	14200
50 PERCENT EXCEEDS	7400	4770	5600
90 PERCENT EXCEEDS	4440	2780	2980

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.

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

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.--Estimated daily discharges: July 24-27. Records good except those for estimated daily discharges, which are fair (see page 12). 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.

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	24	19	18	17	85	674	22	35	40	21	20
2	17	28	19	18	17	52	351	21	31	35	21	20
3	18	25	19	17	17	48	164	22	28	33	22	20
4	37	23	19	18	17	44	83	22	26	33	23	19
5	32	22	19	19	17	37	56	21	26	35	22	19
6	22	21	18	18	17	34	45	21	26	34	22	19
7	21	21	19	18	17	31	44	21	25	33	23	19
8	21	21	19	17	17	30	55	24	24	31	53	18
9	41	20	19	17	17	29	44	43	24	28	32	18
10	22	20	19	17	17	27	36	47	25	27	23	18
11	4.9	20	18	17	17	25	35	35	27	27	21	18
12	17	20	18	18	17	24	33	29	28	27	20	18
13	36	20	18	18	17	24	31	25	27	27	20	18
14	39	20	18	18	17	23	32	23	27	27	20	18
15	28	20	18	18	17	23	32	41	26	24	20	18
16	24	19	18	18	18	22	30	150	26	22	19	18
17	23	19	18	18	41	22	27	76	27	22	20	18
18	22	19	18	18	231	23	27	41	30	23	21	18
19	21	19	18	18	177	22	27	22	56	24	21	19
20	20	19	18	17	100	21	28	22	50	24	27	20
21	19	19	18	18	67	21	28	22	38	24	23	18
22	19	20	18	18	48	21	28	21	33	23	25	18
23	19	19	18	18	65	23	28	21	31	22	25	18
24	19	19	18	18	89	26	27	23	240	21	22	19
25	19	19	18	19	54	28	26	23	367	21	21	19
26	19	19	18	18	46	39	25	22	180	21	20	21
27	19	19	18	18	278	120	24	21	457	22	20	20
28	19	19	18	18	250	1290	23	21	175	21	21	18
29	19	19	18	18	---	308	23	21	82	20	20	18
30	19	19	18	17	---	691	23	22	50	21	19	19
31	21	---	17	18	---	315	---	31	---	21	19	---
TOTAL	692.9	611	566	553	1719	3528	2109	976	2247	813	706	561
MEAN	22.4	20.4	18.3	17.8	61.4	114	70.3	31.5	74.9	26.2	22.8	18.7
MAX	41	28	19	19	278	1290	674	150	457	40	53	21
MIN	4.9	19	17	17	17	21	23	21	24	20	19	18

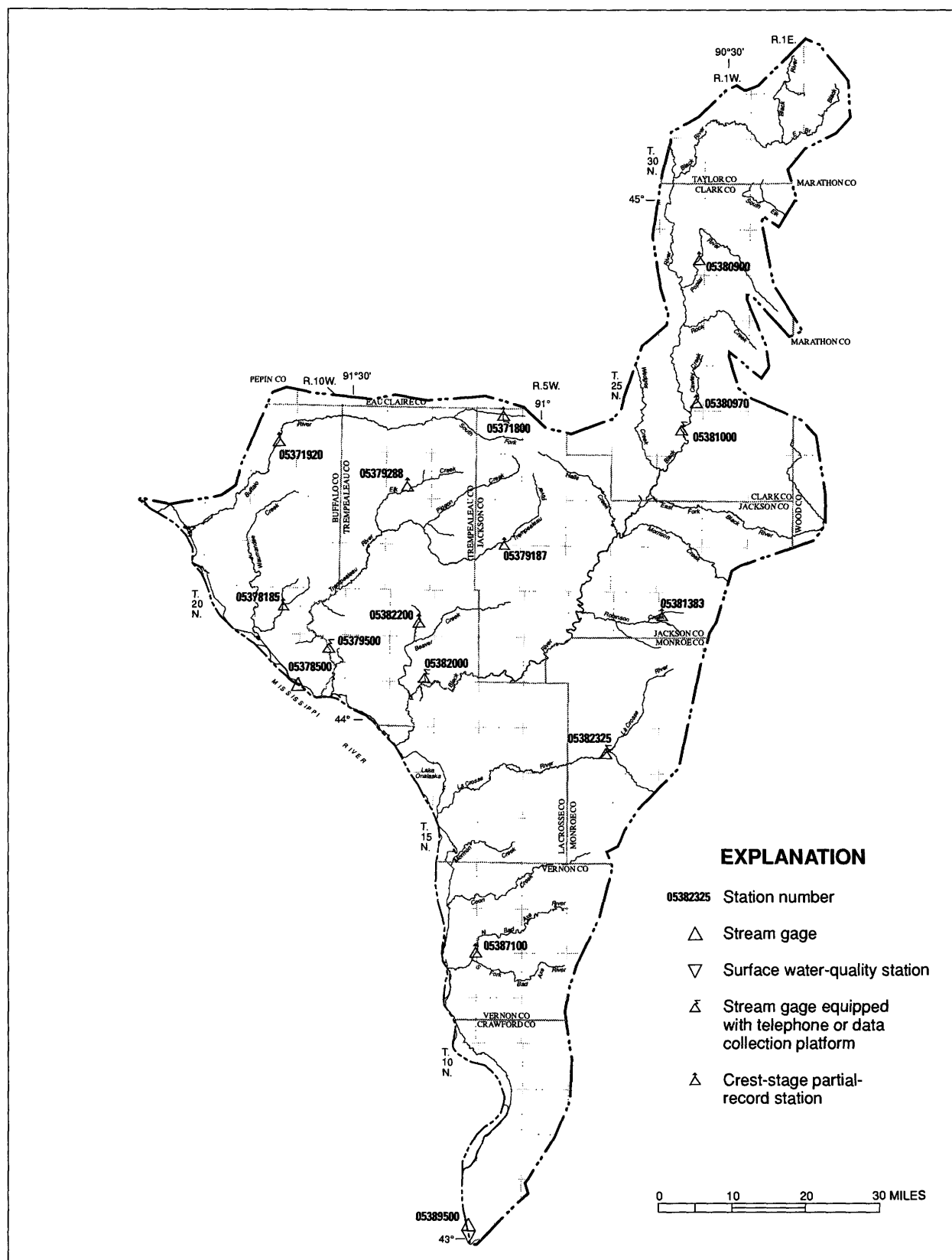
MEAN	26.2	27.8	18.7	15.4	21.6	78.2	65.6	36.5	41.4	27.6	29.1	31.2
MAX	81.3	86.2	39.7	23.0	71.6	164	128	94.9	148	94.1	90.1	153
(WY)	1971	1971	1978	1997	1981	1989	1969	1973	1980	1978	1995	1986
MIN	10.4	7.24	4.22	5.21	5.77	10.1	19.5	12.4	11.6	12.5	5.95	9.81
(WY)	1970	1969	1969	1969	1969	1970	1987	1977	1969	1988	1969	1969

CHIPPEWA RIVER BASIN
05370000 EAU GALLE RIVER AT SPRING VALLEY, WI--CONTINUED

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1969 - 1998	
ANNUAL TOTAL	13497.9		15081.9		35.0	
ANNUAL MEAN	37.0		41.3		55.8	1980
HIGHEST ANNUAL MEAN					21.2	1988
LOWEST ANNUAL MEAN					2190	Mar 28 1989
HIGHEST DAILY MEAN	1030	Mar 28	1290	Mar 28	(a) .00	Aug 12-16 1971
LOWEST DAILY MEAN	4.9	Oct 11	4.9	Oct 11	.91	Sep 15 1969
ANNUAL SEVEN-DAY MINIMUM	17	Jul 28	17	Feb 1	(b) 3030	Jun 7 1980
INSTANTANEOUS PEAK FLOW			1750	Mar 28	(b) 19.90	Jun 7 1980
INSTANTANEOUS PEAK STAGE			17.99	Mar 28	(a) .00	Aug 11-16 1971
INSTANTANEOUS LOW FLOW			3.6	Oct 10,11	48	
10 PERCENT EXCEEDS	39		47		18	
50 PERCENT EXCEEDS	21		21		12	
90 PERCENT EXCEEDS	18		18			

(a) 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

(b) 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
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. 1-7 and ice-affected period, Jan. 10-18. Records good except those for estimated daily discharges, which are fair to poor (see page 12). 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26000	21900	21800	16800	19900	52000	75600	46500	29800	75800	21300	15900
2	20000	22800	21800	16400	19400	60900	90500	42600	28400	70100	19000	15800
3	18000	23800	22200	16700	18300	66800	103000	42000	29400	67300	19700	16200
4	19000	25200	22300	17500	18100	69500	113000	40100	28200	66200	20900	16200
5	19000	25900	22200	18900	18100	69600	117000	36200	29300	65000	25300	16300
6	20000	26000	22200	19800	16900	68200	117000	34700	29300	61800	22200	16000
7	22000	26000	22000	20100	16200	64200	115000	33400	29200	58700	18000	15900
8	21800	25700	22000	19500	16800	62400	112000	34900	29100	54900	16600	15800
9	21900	25700	22200	18400	17100	58700	109000	34900	29200	52200	18600	16300
10	20800	25500	22000	16000	17000	51100	105000	32600	29200	49800	28400	15900
11	20000	25600	21800	14000	17700	49400	101000	31400	26600	47000	23500	15400
12	19600	24600	21800	12700	18100	47400	97700	29800	25900	44400	16700	15000
13	24300	23600	21900	12400	18000	40700	95200	29100	26800	42300	17200	14600
14	28200	23300	21800	12000	18500	35900	92700	29500	27000	40800	18100	14900
15	30600	23800	21000	13000	18300	33900	88100	29000	25500	37600	19700	14700
16	32100	24400	20700	15000	17700	32500	85200	29700	26500	36100	17100	14800
17	32300	23900	20400	17000	17400	31900	80800	30600	29500	34500	17100	13700
18	31300	23100	20000	19000	19400	32600	77000	30800	30700	33300	20000	13500
19	30800	21800	20300	22800	24300	33300	74500	32500	32900	33000	21600	13600
20	30400	19300	20700	23200	29900	33800	72400	36000	32800	32000	21400	13900
21	28100	17400	21000	23200	31600	31300	70000	34900	29900	31900	20800	15500
22	27900	18800	20800	23200	32600	29300	67300	33900	32600	32000	20300	17100
23	26800	23500	20100	23400	33100	29000	65300	33300	35400	30800	25900	15500
24	24600	23500	18900	23700	34400	26900	63600	33500	36700	29400	27800	14800
25	24800	22500	18800	23600	36100	25900	60200	34100	40400	27400	22500	13100
26	26100	22200	18600	23300	39500	26700	57300	32400	44800	26600	18400	13700
27	27700	21800	18100	22900	44600	29200	55900	27500	51000	25300	19100	15100
28	26200	21700	17500	21300	46900	33400	52800	27600	66100	22900	20400	18300
29	24100	22000	17100	20700	---	39000	49900	29700	76400	21300	20000	18800
30	23200	21700	16900	21000	---	51700	47200	30100	81400	21100	18600	17000
31	22700	---	17300	20400	---	64700	---	32300	---	21500	17300	---
TOTAL	770300	697000	636200	587900	675900	1381900	2511200	1035600	1070000	1293000	633500	463300
MEAN	24850	22320	20520	18960	24140	44580	83710	33410	35670	41710	20440	15440
MAX	32300	26000	22300	23700	46900	69600	117000	46500	81400	75800	28400	18800
MIN	18000	17400	16900	12000	16200	25900	47200	27500	25500	21100	16600	13100
AC-FT	1528000	1382000	1262000	1166000	1341000	2741000	4981000	2054000	2122000	2565000	1257000	919000
CFSM	.42	.39	.35	.32	.41	.75	1.41	.56	.60	.70	.35	.26

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 1998, BY WATER YEAR (WY)

	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
MEAN	22640	22960	17750	15290	15540	30660	61750	48500	39120	31740	21430	22440
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

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SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1928 - 1998	
ANNUAL TOTAL	16004800		11755800		29180	
ANNUAL MEAN	43850		32210		56850	1986
HIGHEST ANNUAL MEAN					9742	1934
LOWEST ANNUAL MEAN					264000	Apr 20 1965
HIGHEST DAILY MEAN	194000	Apr 12	117000	Apr 5, 6	2250	Dec 29 1933
LOWEST DAILY MEAN	16900	Dec 30	(a) 12000	Jan 14	3210	Dec 27 1933
ANNUAL SEVEN-DAY MINIMUM	17800	Dec 25	13600	Jan 10	268000	Apr 19 1965
INSTANTANEOUS PEAK FLOW			118000	Apr 5	(b) 20.77	Apr 19 1965
INSTANTANEOUS PEAK STAGE			13.03	Apr 5	(c) 1940	Dec 12 1980
INSTANTANEOUS LOW FLOW					21140000	
ANNUAL RUNOFF (AC-FT)	31750000		23320000			
ANNUAL RUNOFF (CFSM)		.74		.54		.49
10 PERCENT EXCEEDS	73400		64400		60400	
50 PERCENT EXCEEDS	30000		25300		21000	
90 PERCENT EXCEEDS	21800		16700		9940	

(a) Estimated, result of freezeup
 (b) From highwater mark
 (c) Result of ice jam upstream

TREMPEALEAU RIVER BASIN
05379500 TREMPEALEAU RIVER AT DODGE, WI

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. 29 to Jan. 7 and Jan. 9 to Feb. 17. Records fair except those for ice-affected periods, which are fair to poor (see page 12). Gage-height telemeter and data-collection platform 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	413	440	384	380	310	1840	1320	450	535	4170	388	470
2	413	456	384	450	320	1300	1560	447	490	2760	386	457
3	410	446	388	560	320	962	1470	543	448	2060	395	449
4	394	430	392	760	320	852	1100	585	427	1640	418	443
5	405	424	392	700	320	750	860	533	420	1290	455	436
6	393	418	388	640	320	683	762	479	415	1010	509	430
7	387	412	383	580	320	645	705	471	413	871	578	425
8	390	410	380	444	320	619	668	712	408	778	706	422
9	408	408	379	380	330	598	629	755	428	719	648	411
10	417	407	379	360	340	549	586	629	492	676	642	408
11	423	407	379	380	340	527	563	535	511	630	530	397
12	424	403	376	400	350	534	555	495	604	595	479	388
13	639	397	376	320	360	520	554	477	636	571	455	381
14	781	400	374	280	370	513	565	462	621	561	447	378
15	640	397	376	290	370	487	566	453	518	527	450	385
16	564	395	373	300	380	466	583	477	481	516	449	383
17	504	387	373	300	520	464	620	476	491	499	475	385
18	478	400	384	300	1290	478	609	460	545	484	476	383
19	464	396	375	300	1510	483	557	443	765	480	465	387
20	452	409	367	300	1550	473	535	434	588	480	467	394
21	446	394	356	300	1410	478	516	421	526	478	460	395
22	438	387	372	300	1050	513	502	409	490	466	616	389
23	435	393	368	300	1160	580	495	404	466	453	1360	385
24	432	391	363	300	1350	604	489	416	482	440	1460	386
25	426	383	364	300	1160	612	479	458	1030	431	1100	388
26	423	389	362	300	1010	715	495	441	1320	423	744	390
27	419	377	362	300	1500	806	499	422	1730	419	595	403
28	419	384	357	310	1780	903	478	467	4210	409	561	401
29	419	384	360	310	---	996	460	537	6490	402	530	391
30	417	384	360	300	---	904	454	492	5660	398	506	393
31	421	---	360	300	---	928	---	548	---	391	484	---
TOTAL	14094	12108	11586	11744	20680	21782	20234	15331	32640	26027	18234	12133
MEAN	455	404	374	379	739	703	674	495	1088	840	588	404
MAX	781	456	392	760	1780	1840	1560	755	6490	4170	1460	470
MIN	387	377	356	280	310	464	454	404	408	391	386	378
CFSM	.71	.63	.58	.59	1.15	1.09	1.05	.77	1.69	1.31	.91	.63
IN.	.82	.70	.67	.68	1.20	1.26	1.17	.89	1.89	1.51	1.05	.70

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

	MEAN	377	390	324	281	334	822	682	483	497	418	366	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	181	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 1997 CALENDAR YEAR			FOR 1998 WATER YEAR			WATER YEARS 1914 - 1998		
ANNUAL TOTAL	179809			216593			450		
ANNUAL MEAN	493			593			813		
HIGHEST ANNUAL MEAN							237		
LOWEST ANNUAL MEAN							1973		
HIGHEST DAILY MEAN	2030			Mar 31			12900		
LOWEST DAILY MEAN	(a) 280			Jan 1			(a) 98		
ANNUAL SEVEN-DAY MINIMUM	(a) 297			Feb 5			(a) 106		
INSTANTANEOUS PEAK FLOW				7730			17400		
INSTANTANEOUS PEAK STAGE				12.29			(b) 10.35		
ANNUAL RUNOFF (CFSM)	.77			.92			.70		
ANNUAL RUNOFF (INCHES)	10.40			12.53			9.51		
10 PERCENT EXCEEDS	684			903			734		
50 PERCENT EXCEEDS	433			450			340		
90 PERCENT EXCEEDS	320			360			198		

(a) Ice affected

(b) Datum then in use

BLACK RIVER BASIN
05381000 BLACK RIVER AT NEILLSVILLE, WI

201

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: Ice-affected periods, Nov. 14, 15, 18-25, Dec. 5-18, and Dec. 20 to Feb. 25. Records good except those for ice-affected periods, which are poor (see page 12). 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	150	285	148	100	92	4570	10100	145	105	503	29	49
2	144	315	148	100	98	3100	7070	135	115	353	27	46
3	138	381	151	110	98	2290	4420	135	131	279	37	46
4	133	403	157	120	98	1650	2720	136	118	238	56	42
5	126	374	150	140	98	1230	1870	136	105	228	60	42
6	119	339	150	150	98	941	1320	138	93	208	66	39
7	122	309	140	170	100	731	976	142	88	164	84	36
8	124	288	140	160	100	678	813	151	80	198	84	35
9	403	275	140	160	100	599	733	144	86	243	88	34
10	578	269	140	150	110	390	635	131	99	190	80	34
11	659	258	140	120	110	315	555	123	410	158	71	31
12	622	239	150	110	110	338	489	117	1690	134	64	30
13	2960	204	140	100	120	294	461	117	737	117	57	29
14	2730	200	130	96	120	261	452	110	568	104	52	30
15	2580	190	130	90	120	230	420	106	472	92	52	30
16	1910	186	130	94	130	211	488	148	418	85	53	28
17	1250	172	140	100	160	215	515	152	362	82	55	27
18	851	160	140	100	450	207	438	157	321	70	59	27
19	611	190	140	100	760	190	391	162	284	65	299	26
20	499	190	130	100	1300	205	346	140	231	58	240	27
21	444	180	130	100	1600	202	315	123	196	55	176	26
22	403	160	130	100	1500	237	288	106	165	52	135	26
23	367	160	120	100	1600	366	263	93	140	47	119	26
24	337	160	120	100	1900	638	240	91	144	43	103	27
25	312	150	120	110	2200	1050	224	91	285	41	94	28
26	291	149	110	110	3040	1820	205	85	474	38	85	30
27	275	153	110	120	5940	2460	187	79	4090	37	79	351
28	262	152	110	110	6800	2860	171	101	1360	34	76	421
29	257	148	110	110	---	3070	159	84	967	33	68	350
30	244	146	110	100	---	5810	150	76	728	31	60	241
31	242	---	110	98	---	8420	---	111	---	30	54	---
TOTAL	20143	6785	4114	3528	28952	45578	37414	3765	15062	4010	2662	2214
MEAN	650	226	133	114	1034	1470	1247	121	502	129	85.9	73.8
MAX	2960	403	157	170	6800	8420	10100	162	4090	503	299	421
MIN	119	146	110	90	92	190	150	76	80	30	27	26
CFSM	.87	.30	.18	.15	1.38	1.96	1.67	.16	.67	.17	.11	.10
IN.	1.00	.34	.20	.18	1.44	2.26	1.86	.19	.75	.20	.13	.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 1998, BY WATER YEAR (WY)

MEAN	395	461	190	110	132	1259	1962	859	823	308	244	532
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

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1905 - 1998	
ANNUAL TOTAL	246044		174227		603	
ANNUAL MEAN	674		477		1213	1942
HIGHEST ANNUAL MEAN					160	1931
LOWEST ANNUAL MEAN					38200	Sep 10 1938
HIGHEST DAILY MEAN	12200	Apr 2	10100	Apr 1	.70	(a) Aug 10 1936
LOWEST DAILY MEAN	93	Aug 11	26	Sep 19, 21-23	1.0	Aug 10 1936
ANNUAL SEVEN-DAY MINIMUM	105	Aug 9	26	Sep 17	48800	Sep 10 1938
INSTANTANEOUS PEAK FLOW			11200	Apr 1	23.80	Sep 10 1938
INSTANTANEOUS PEAK STAGE			12.66	Apr 1	.60	Aug 15 1936
INSTANTANEOUS LOW FLOW			25	Sep 19	.80	
ANNUAL RUNOFF (CFSM)	.90		.64		10.93	
ANNUAL RUNOFF (INCHES)	12.22		8.65		1500	
10 PERCENT EXCEEDS	1100		971		150	
50 PERCENT EXCEEDS	258		144		36	
90 PERCENT EXCEEDS	130		47			

(a) Also occurred Aug. 11, 14-16, 1936

BLACK RIVER BASIN

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05382000 BLACK RIVER NEAR GALESVILLE, WI

LOCATION.--Lat 44°04'22", long 91°17'41", in SW 1/4 sec.1, T.18 N., R.8 W., LaCrosse County, Hydrologic Unit 07040007, on left bank 1,000 ft upstream from bridge on U.S. Highway 53, 4.5 mi southeast of Galesville, and 4.8 mi downstream from Fleming Creek.

DRAINAGE AREA.--2,080 mi².

PERIOD OF RECORD.--December 1931 to current year.

REVISED RECORDS.--WSP 1438: 1932-34, 1935-36(M). WDR WI-81-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 658.43 ft above sea level. Prior to Apr. 2, 1941, nonrecording gage on bridge 1,000 ft downstream at same datum. Apr. 3, 1941, to Oct. 1, 1971, water-stage recorder at site 1,100 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Feb. 24 to Mar. 7 and ice-affected period, Dec. 31 to Feb. 17. Records good except those for estimated daily discharges, which are fair (see page 12). 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 telemeter and data-collection platform 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	983	994	753	700	520	9600	8460	1110	868	13800	771	795
2	901	1020	743	760	560	13000	13000	1040	770	8010	759	776
3	816	1070	773	840	600	8800	18200	1050	771	4840	762	743
4	846	1160	780	1000	560	5600	14600	1070	820	3680	809	725
5	822	1120	782	900	560	4300	10700	1040	750	3110	932	711
6	805	1180	792	880	560	3400	7200	999	707	2890	1040	692
7	763	1040	775	740	560	2900	5060	998	714	2530	1050	685
8	749	1080	767	720	560	2600	3850	1110	687	2170	1130	673
9	829	1060	762	700	580	2440	3320	1130	729	2050	1160	659
10	888	982	770	740	600	2300	2870	1120	836	1970	1140	636
11	1230	974	758	800	620	1990	2540	1090	885	1760	1060	631
12	1290	973	758	860	640	1620	2310	1050	1280	1650	932	621
13	1640	961	763	660	660	1680	2270	922	3370	1500	862	614
14	3080	954	761	600	660	1620	2240	916	3860	1410	830	602
15	4700	943	759	560	660	1490	2180	927	3110	1350	828	598
16	5040	879	735	560	700	1320	2260	905	2400	1270	892	597
17	4580	881	749	560	780	1300	2440	923	1870	1220	975	580
18	3530	858	737	560	939	1330	3040	924	1750	1150	925	564
19	2680	798	737	560	1360	1360	2830	994	1470	1100	946	547
20	2070	784	738	560	2380	1420	2540	813	1430	1070	930	534
21	1810	826	718	560	2820	1320	2260	792	1380	1070	960	517
22	1570	842	738	560	2890	1400	2020	821	1290	1040	1090	503
23	1420	761	734	560	2850	1420	1830	782	1140	978	1370	495
24	1300	723	726	560	3500	1660	1670	799	1120	964	1580	486
25	1290	791	707	560	4300	1850	1510	804	1220	929	1370	487
26	1250	751	712	600	5200	2790	1440	730	2630	898	1200	490
27	1180	728	732	600	5600	3860	1380	707	5500	884	1130	493
28	1080	734	723	580	7400	4730	1280	839	10800	863	1010	492
29	1090	743	723	580	---	5550	1170	820	27200	826	912	495
30	1030	771	716	560	---	6100	1150	866	19500	805	871	536
31	989	---	700	540	---	6470	---	963	---	786	839	---
TOTAL	52251	27381	23121	20520	49619	107220	127620	29054	100857	68573	31065	17977
MEAN	1686	913	746	662	1772	3459	4254	937	3362	2212	1002	599
MAX	5040	1180	792	1000	7400	13000	18200	1130	27200	13800	1580	795
MIN	749	723	700	540	520	1300	1150	707	687	786	759	486
CFSM	.81	.44	.36	.32	.85	1.66	2.05	.45	1.62	1.06	.48	.29
IN.	.93	.49	.41	.37	.89	1.92	2.28	.52	1.80	1.23	.56	.32

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 1998, BY WATER YEAR (WY)

AN	1294	1437	993	739	763	3053	4669	2522	2258	1248	924	1530
MAX	5231	4401	3468	2661	3664	9521	12210	7993	11880	4361	4421	9373
(WY)	1987	1935	1992	1932	1984	1973	1967	1960	1993	1978	1995	1938
MIN	277	337	320	268	263	406	1315	591	427	322	293	306
(WY)	1959	1949	1959	1959	1959	1934	1957	1934	1988	1933	1964	1948

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1932 - 1998	
ANNUAL TOTAL	698426		655258		1785	
ANNUAL MEAN	1913		1795		3456	
HIGHEST ANNUAL MEAN					699	
LOWEST ANNUAL MEAN					1993	
HIGHEST DAILY MEAN					27200	
LOWEST DAILY MEAN					Jun 29	
ANNUAL SEVEN-DAY MINIMUM					486	
INSTANTANEOUS PEAK FLOW					Sep 24	
INSTANTANEOUS PEAK STAGE					491	
INSTANTANEOUS LOW FLOW					Sep 23	
ANNUAL RUNOFF (CFSM)					30600	
ANNUAL RUNOFF (INCHES)					14.76	
10 PERCENT EXCEEDS					Jun 29	
50 PERCENT EXCEEDS					485	
90 PERCENT EXCEEDS					Sep 24,25	
(a) Ice affected					180	
(b) Gage height, 14.63 ft, at location 1,000 ft downstream					16.64	

LA CROSSE RIVER BASIN
05382325 LA CROSSE RIVER AT SPARTA, WI

LOCATION.--Lat 43°56'15", long 90°48'38", in SE 1/4 NE 1/4 sec.23, T17 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. 30 to Jan. 1, Jan. 10-20, and Mar. 13-16. Records good except those for ice-affected periods, which are fair (see page 12). Gage-height telemeter at station. Occasional regulation from two dams upstream from gage.

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	120	129	122	100	127	176	298	144	215	279	148	158
2	120	131	122	116	128	166	228	147	170	234	147	154
3	118	132	127	124	121	164	181	162	158	262	137	149
4	116	132	129	123	119	157	171	159	151	269	200	154
5	114	130	123	133	117	151	163	149	149	236	274	152
6	113	129	121	136	115	149	159	142	147	210	306	155
7	113	128	121	138	117	147	156	168	146	208	350	156
8	119	128	119	129	116	148	157	213	144	198	263	153
9	179	128	120	125	117	147	158	178	203	182	201	153
10	146	128	122	80	117	136	151	158	246	184	182	153
11	130	125	121	100	118	132	149	148	316	184	168	152
12	135	123	120	96	118	131	149	145	503	178	167	150
13	217	122	121	94	117	130	158	145	265	175	164	150
14	175	124	119	94	117	130	160	140	171	173	195	158
15	149	126	119	100	122	130	170	143	132	169	220	162
16	142	123	120	110	154	130	243	159	177	166	177	152
17	139	121	118	110	226	139	213	141	198	165	228	150
18	135	123	119	110	198	147	180	136	151	163	212	149
19	134	122	119	110	172	146	167	135	204	164	181	148
20	132	121	120	110	165	143	163	133	153	167	171	148
21	130	120	115	118	155	147	157	131	136	175	172	148
22	130	121	117	116	153	154	151	131	120	169	183	147
23	132	119	116	117	155	160	148	132	110	165	347	145
24	136	116	115	115	155	160	146	158	169	162	307	148
25	133	120	115	116	148	165	146	161	258	159	209	148
26	131	122	115	116	163	175	166	140	259	157	179	148
27	129	121	112	116	214	172	155	134	870	157	173	148
28	128	122	113	116	208	164	146	206	1050	155	181	146
29	128	122	113	117	---	160	145	248	785	153	173	146
30	128	123	100	115	---	186	144	175	424	151	168	153
31	129	---	98	116	---	283	---	315	---	150	159	---
TOTAL	4180	3731	3651	3516	4052	4825	5078	4976	8180	5719	6342	4533
MEAN	135	124	118	113	145	156	169	161	273	184	205	151
MAX	217	132	129	138	226	283	298	315	1050	279	350	162
MIN	113	116	98	80	115	130	144	131	110	150	137	145
CFSM	.81	.74	.71	.68	.87	.93	1.01	.96	1.63	1.10	1.23	.90
IN.	.93	.83	.81	.78	.90	1.07	1.13	1.11	1.82	1.27	1.41	1.01
MEAN	156	156	142	133	146	187	212	189	207	175	163	166
MAX	184	179	160	142	168	213	324	279	323	288	205	216
(WY)	1996	1996	1995	1995	1994	1996	1993	1993	1993	1993	1998	1994
MIN	123	124	118	113	133	156	168	160	140	130	111	112
(WY)	1997	1998	1998	1998	1993	1998	1997	1997	1997	1997	1992	1996
SUMMARY STATISTICS												
				FOR 1997 CALENDAR YEAR			FOR 1998 WATER YEAR			WATER YEARS 1992 - 1998		
ANNUAL TOTAL	51496			58783			170			1993		
ANNUAL MEAN	141			161			211			1997		
HIGHEST ANNUAL MEAN							142					
LOWEST ANNUAL MEAN												
HIGHEST DAILY MEAN	295			Sep 17			1050			Jun 28 1998		
LOWEST DAILY MEAN	(a) 98			Dec 31			(a) 80			Jan 10 1998		
ANNUAL SEVEN-DAY MINIMUM	(a) 109			Dec 25			(a) 96			Jan 10 1998		
INSTANTANEOUS PEAK FLOW							1270			Jun 28 1998		
INSTANTANEOUS PEAK STAGE							8.94			8.94		
ANNUAL RUNOFF (CFSM)	.84						.96			1.02		
ANNUAL RUNOFF (INCHES)	11.47						13.09			13.82		
10 PERCENT EXCEEDS	177						211			226		
50 PERCENT EXCEEDS	132						148			155		
90 PERCENT EXCEEDS	118						116			120		

(a) Ice affected

MISSISSIPPI RIVER MAIN STEM
05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--CONTINUED

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, 513 microsiemens, Apr. 27; minimum daily, 337 microsiemens, Apr. 1.

WATER TEMPERATURE: Maximum daily, 29.0°C, Sept. 9; minimum daily, 2.0°C, Nov. 19, 21, and Jan. 1, 9, 14.

SEDIMENT CONCENTRATIONS: Maximum daily mean, 74 mg/L, Mar. 27; minimum daily mean, 3 mg/L, Jan. 13, 14, and 22-30.

SEDIMENT LOADS: Maximum daily, 9,770 tons, Apr. 34; minimum daily, 136 tons, Jan. 16.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	TEMPER- ATURE WATER (DEG C) (00010)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1997						
23...	1245	9.6	48800	12	1580	86
NOV						
18...	1215	.9	41700	22	2480	52
APR 1998						
01...	1315	--	82200	128	28400	84
MAY						
19...	1245	21.3	48000	43	5570	96
JUN						
23...	1230	24.6	58600	48	7590	95
AUG						
04...	1210	--	35200	33	3140	91
SEP						
30...	1130	20.8	36100	77	7510	98

MISSISSIPPI RIVER MAIN STEM
05389500 MISSISSIPPI RIVER AT MCGREGOR, IA--CONTINUED

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SPECIFIC CONDUCTANCE MICROSIEMENS/CM AT 25 DEG C, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY INSTANTANOUES VALUES

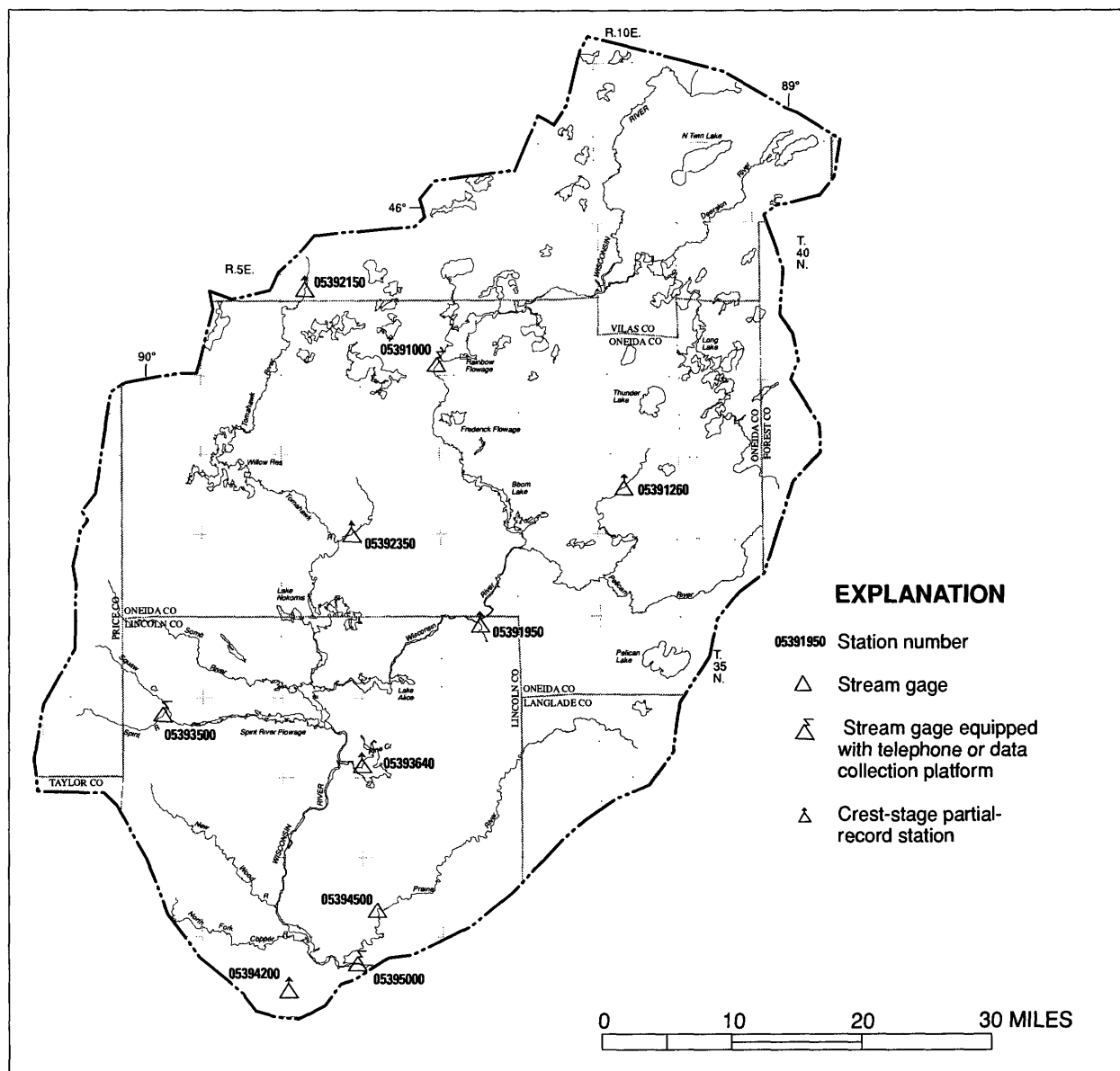
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	390	---	432	469	---	---	337	487	428	416	---	---
2	---	---	---	---	426	464	---	---	---	---	---	419
3	404	453	426	---	---	---	342	---	426	416	422	---
4	---	---	---	---	448	470	---	476	---	---	---	422
5	---	434	440	470	---	---	---	---	484	---	421	---
6	399	---	---	---	446	472	492	476	---	414	---	---
7	---	418	---	468	---	---	---	---	---	---	425	422
8	403	---	422	---	---	---	494	478	428	415	---	---
9	---	---	---	472	424	470	---	---	---	---	---	420
10	---	420	---	---	---	---	490	---	486	406	424	---
11	401	---	---	---	424	475	---	479	---	---	---	408
12	---	414	442	486	---	---	---	---	430	---	419	---
13	---	---	---	---	426	470	490	478	---	404	---	---
14	403	413	---	481	---	---	---	---	---	---	430	416
15	---	---	446	476	---	---	492	---	431	---	---	---
16	420	---	448	---	420	466	---	---	---	---	---	418
17	---	425	456	---	---	---	493	---	430	---	424	---
18	427	420	---	---	422	466	---	---	---	---	---	414
19	---	448	456	469	---	---	---	---	430	---	421	---
20	---	---	---	---	424	450	490	---	---	406	---	---
21	418	436	---	466	---	---	---	---	---	---	428	415
22	397	---	464	---	---	---	492	---	432	406	---	---
23	360	---	---	468	423	442	---	---	---	---	---	416
24	423	436	469	---	---	---	494	---	---	407	423	---
25	---	---	---	---	---	450	---	---	---	---	---	412
26	---	441	464	465	---	---	---	---	---	---	424	---
27	443	---	---	---	---	444	513	---	---	407	---	---
28	---	431	---	477	---	---	---	---	---	---	421	414
29	440	---	469	---	---	---	480	---	---	349	---	---
30	---	---	---	476	---	438	---	---	---	---	---	413
31	461	---	460	---	---	---	---	---	---	350	424	---

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY INSTANTANEOUS VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	---	4.0	2.0	---	---	4.0	8.0	22.0	22.0	---	---
2	---	---	---	---	4.0	5.0	---	---	---	---	---	27.0
3	21.0	5.0	5.0	---	---	---	3.0	---	21.0	23.0	24.0	---
4	---	---	---	---	5.0	6.0	---	7.0	---	---	---	28.0
5	---	7.0	3.0	3.0	---	---	---	---	22.0	---	26.0	---
6	20.0	---	---	---	5.0	5.0	4.0	8.0	---	22.0	---	---
7	---	6.0	---	4.0	---	---	---	---	---	---	---	28.0
8	21.0	---	4.0	---	---	---	5.0	9.0	20.0	21.0	---	---
9	---	---	---	2.0	5.0	6.0	---	---	---	---	---	29.0
10	---	5.0	---	---	---	---	5.0	---	21.0	26.0	---	---
11	17.0	---	---	---	4.0	6.0	---	7.0	---	---	---	25.0
12	---	4.0	4.0	3.0	---	---	---	---	22.0	---	---	---
13	---	---	---	---	3.0	5.0	4.0	8.0	---	23.0	---	---
14	15.0	5.0	---	2.0	---	---	---	---	---	---	---	23.0
15	---	---	4.0	---	---	---	6.0	---	23.0	---	---	---
16	12.0	---	3.0	---	4.0	5.0	---	---	---	---	---	22.0
17	---	3.0	4.0	---	---	---	4.0	---	24.0	---	---	---
18	14.0	---	---	---	5.0	5.0	---	---	---	---	---	23.0
19	---	2.0	5.0	---	---	---	---	---	23.0	---	---	---
20	---	---	---	---	4.0	6.0	5.0	---	---	22.0	---	---
21	11.0	2.0	---	4.0	---	---	---	---	---	---	---	22.0
22	10.0	---	4.0	---	---	---	6.0	---	24.0	23.0	---	---
23	9.5	---	---	4.0	4.0	5.0	---	---	---	---	---	20.0
24	7.0	3.0	4.0	---	---	---	5.0	---	---	25.0	---	---
25	---	---	---	---	---	6.0	---	---	---	---	---	21.0
26	---	4.0	2.5	3.0	---	---	---	---	---	---	---	---
27	9.0	---	---	---	---	5.0	5.0	---	---	25.0	---	---
28	---	5.0	---	3.0	---	---	---	---	---	---	---	19.0
29	8.0	---	5.0	---	---	---	7.0	---	---	21.0	---	---
30	---	---	---	3.0	---	8.0	---	---	---	---	---	19.0
31	9.0	---	4.0	---	---	---	---	---	---	20.0	---	---
27	443	---	---	---	---	444	513	---	---	407	---	---
28	---	431	---	477	---	---	---	---	---	---	421	414
29	440	---	469	---	---	---	480	---	---	349	---	---
30	---	---	---	476	---	438	---	---	---	---	---	413
31	461	---	460	---	---	---	---	---	---	350	424	---

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	25	2120	8	642	5	329	5	269	7	510	13	2160
2	25	1950	6	483	5	320	5	252	8	603	14	2480
3	25	1750	4	363	6	373	4	233	6	445	14	2710
4	26	1620	5	401	6	403	4	225	5	360	15	2940
5	26	1580	7	510	6	401	4	225	6	368	15	3060
6	26	1670	6	496	5	375	4	243	6	389	14	3090
7	19	1430	5	431	5	331	4	255	7	425	14	3040
8	13	969	5	433	4	288	4	252	8	473	13	2940
9	15	1060	6	456	4	300	4	253	9	469	13	2780
10	19	1410	6	477	5	336	4	267	8	381	13	2510
11	23	1660	5	408	6	377	4	242	7	345	12	2200
12	23	1600	4	329	6	412	4	207	7	417	13	2070
13	24	1720	4	313	6	413	3	174	7	431	15	2210
14	24	2220	4	314	6	430	3	141	7	455	15	2320
15	22	2320	5	359	6	443	4	149	7	466	16	2220
16	20	2190	5	421	5	381	4	136	7	482	16	1840
17	18	2000	8	558	4	274	5	155	8	520	15	1480
18	15	1760	13	916	5	288	5	192	8	599	14	1530
19	14	1650	7	446	5	304	5	235	8	699	15	1730
20	14	1520	5	341	5	294	4	250	8	870	16	1870
21	13	1350	6	344	4	274	4	260	8	985	24	2790
22	8	812	6	319	4	259	3	242	8	1020	39	4570
23	9	780	7	333	4	252	3	212	8	1040	63	6840
24	8	688	7	436	4	247	3	204	9	1140	70	6680
25	7	586	8	631	5	258	3	204	9	1210	69	6070
26	6	514	8	689	5	265	3	198	10	1340	71	6520
27	5	454	6	499	5	264	3	198	11	1630	74	7060
28	6	506	5	391	5	267	3	198	12	1860	71	7670
29	8	667	5	382	5	264	3	199	---	---	66	8550
30	9	745	5	366	5	286	3	224	---	---	62	9110
31	10	768	---	---	5	285	5	330	---	---	54	9350
TOTAL	---	42069	---	13487	---	9993	---	6824	---	19932	---	122390
APRIL			MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	47	8870	21	3220	22	2390	17	4310	15	1120	15	890
2	44	9070	21	3060	20	2130	15	4250	14	1030	13	700
3	42	9770	21	2990	18	1950	14	4060	16	1100	12	580
4	35	8940	21	2830	18	1880	15	4140	24	1620	12	515
5	27	7670	21	2700	19	1790	15	4130	18	1310	14	576
6	21	6560	22	2650	21	1900						



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

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 12). 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	461	651	925	998	976	675	245	471	298	507	409	407
2	716	655	939	1010	962	676	249	470	298	478	408	404
3	762	688	942	1000	949	609	254	470	297	451	408	402
4	767	735	941	995	942	569	258	477	343	448	405	372
5	772	794	940	995	934	546	268	474	376	448	405	347
6	713	839	944	991	928	516	280	473	400	519	405	343
7	566	839	944	986	920	507	285	434	415	561	405	342
8	651	834	980	980	911	496	289	421	413	627	408	357
9	526	825	1020	978	906	486	304	429	397	668	406	370
10	489	822	1020	975	908	484	316	428	384	615	406	377
11	508	896	1020	969	892	482	316	420	399	578	407	380
12	510	936	1020	970	879	478	324	416	373	566	406	374
13	460	915	1020	967	870	471	326	417	317	555	404	370
14	412	910	1010	956	862	456	325	425	316	530	403	365
15	401	913	1010	939	856	455	314	448	311	423	399	335
16	400	922	1010	939	837	455	305	476	309	443	402	313
17	565	1030	1010	934	821	450	306	482	311	437	405	311
18	667	1080	1000	927	814	438	299	445	366	429	404	309
19	657	811	996	925	806	435	291	414	410	421	404	317
20	813	1010	997	923	801	433	383	404	417	420	404	323
21	876	952	996	918	798	432	444	395	416	419	403	317
22	848	958	1000	974	795	429	442	371	400	416	404	312
23	850	958	996	1040	788	425	434	348	386	415	408	304
24	760	949	992	1040	784	421	421	348	390	414	357	296
25	714	940	995	1030	780	423	409	348	388	414	327	295
26	723	941	993	1020	780	366	405	349	387	415	327	297
27	678	935	986	1020	718	269	400	349	382	415	371	302
28	647	929	986	1010	672	244	434	349	378	413	408	307
29	641	934	989	1000	---	271	471	345	390	409	413	306
30	636	927	988	994	---	269	474	346	338	409	411	302
31	638	---	986	985	---	234	---	320	---	409	410	---
TOTAL	19827	26528	30595	30388	23889	13900	10271	12762	11005	14672	12342	10156
MEAN	640	884	987	980	853	448	342	412	367	473	398	339
MAX	876	1080	1020	1040	976	676	474	482	417	668	413	407
MIN	400	651	925	918	672	234	245	320	297	409	327	295
MEAN	663	703	784	836	829	655	412	716	737	672	591	603
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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1936 - 1998

ANNUAL TOTAL	292181	216335	
ANNUAL MEAN	800	593	684
HIGHEST ANNUAL MEAN			1062
LOWEST ANNUAL MEAN			359
HIGHEST DAILY MEAN	1190	1080	2820
LOWEST DAILY MEAN	298	234	35
ANNUAL SEVEN-DAY MINIMUM	305	252	107
INSTANTANEOUS PEAK FLOW		1110	3570
INSTANTANEOUS PEAK STAGE		3.24	7.59
10 PERCENT EXCEEDS	1080	988	1040
50 PERCENT EXCEEDS	842	456	659
90 PERCENT EXCEEDS	441	314	310

WISCONSIN RIVER BASIN
05393500 SPIRIT RIVER AT SPIRIT FALLS, WI

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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: Ice-affected period, Nov. 11 to Mar. 27. Records good except for period of beaver activity, Sept. 10-30, which is fair, and those for ice-affected period, which is poor (see page 12). 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	24	87	28	19	27	210	1070	28	59	24	3.2	6.3
2	22	111	28	19	26	170	909	30	39	20	3.2	5.4
3	20	95	29	20	26	130	592	35	29	18	3.2	5.1
4	18	81	29	20	26	100	407	32	24	22	3.4	5.1
5	17	71	28	21	25	86	305	29	21	17	3.9	4.4
6	20	64	30	22	25	76	233	26	19	14	4.3	3.3
7	167	59	31	22	26	72	203	24	19	14	7.2	3.3
8	215	55	30	22	27	76	202	28	18	14	9.8	3.4
9	240	53	31	21	27	62	165	27	17	13	7.0	3.6
10	237	52	34	21	28	54	136	24	21	12	5.9	4.1
11	148	45	44	20	29	49	118	22	33	10	5.1	4.5
12	107	41	37	19	29	48	105	21	461	9.4	5.2	4.7
13	551	39	33	19	28	47	98	45	481	8.6	5.2	5.1
14	796	37	31	19	28	44	104	50	218	8.9	5.5	5.8
15	434	37	32	19	28	42	98	38	115	8.3	8.6	6.7
16	264	35	33	20	29	40	89	86	80	7.3	7.7	6.8
17	184	34	33	20	31	41	91	74	56	6.6	11	7.0
18	143	35	33	21	33	39	106	47	42	6.1	12	7.2
19	130	32	31	21	36	42	73	35	40	5.9	9.3	6.6
20	125	30	27	21	39	48	69	27	35	5.5	8.4	6.5
21	109	28	23	21	42	47	76	22	29	5.3	7.7	7.7
22	96	27	22	21	40	46	66	20	24	4.9	8.8	9.0
23	85	26	23	22	38	45	58	18	20	4.6	21	9.8
24	77	25	22	21	40	45	52	16	27	4.4	17	11
25	71	26	22	21	54	54	46	16	38	4.3	12	15
26	64	27	23	22	72	170	41	14	35	4.2	9.7	31
27	58	29	22	23	140	400	36	21	42	4.0	8.6	34
28	54	30	22	24	270	1200	33	22	59	3.6	8.3	26
29	51	29	21	25	---	1000	32	19	50	3.6	8.2	25
30	48	29	21	26	---	1330	30	18	33	3.5	6.1	26
31	55	---	20	27	---	1090	---	43	---	3.4	6.3	---
TOTAL	4630	1369	873	659	1269	6903	5643	957	2184	290.4	242.8	299.4
MEAN	149	45.6	28.2	21.3	45.3	223	188	30.9	72.8	9.37	7.83	9.98
MAX	796	111	44	27	270	1330	1070	86	481	24	21	34
MIN	17	25	20	19	25	39	30	14	17	3.4	3.2	3.3
CFSM	1.83	.56	.35	.26	.56	2.73	2.31	.38	.89	.11	.10	.12
IN.	2.11	.62	.40	.30	.58	3.15	2.57	.44	1.00	.13	.11	.14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 1998, BY WATER YEAR (WY)

	MEAN	75.4	76.7	38.7	20.8	19.4	111	324	149	96.6	47.0	35.5	77.3
MAX	306	338	293	71.8	69.8	467	697	408	398	209	359	396	
(WY)	1986	1992	1976	1960	1984	1946	1951	1973	1943	1968	1995	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	
(WY)	1977	1977	1977	1977	1977	1956	1946	1987	1988	1964	1944	1976	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1942 - 1998

ANNUAL TOTAL	39361.9	25319.6	88.5	
ANNUAL MEAN	108	69.4	140	1973
HIGHEST ANNUAL MEAN			36.3	1957
LOWEST ANNUAL MEAN				
HIGHEST DAILY MEAN	2540	Apr 6	1330	Mar 30
LOWEST DAILY MEAN	9.9	Aug 14	3.2	Aug 1-3
ANNUAL SEVEN-DAY MINIMUM	11	Aug 10	3.4	Jul 29
INSTANTANEOUS PEAK FLOW			1500	Mar 30
INSTANTANEOUS PEAK STAGE			5.88	Mar 30
INSTANTANEOUS LOW FLOW				
ANNUAL RUNOFF (CFSM)	1.32		.85	
ANNUAL RUNOFF (INCHES)	17.94		11.54	
10 PERCENT EXCEEDS	199		127	218
50 PERCENT EXCEEDS	39		28	28
90 PERCENT EXCEEDS	24		5.9	8.0

(a) From rating curve extended above 2,500 ft³/s

WISCONSIN RIVER BASIN
05394500 PRAIRIE RIVER NEAR MERRILL, WI

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.

DRAINAGE AREA.--184 mi².

PERIOD OF RECORD.--January 1914 to September 1931, August 1939 to current year. Monthly discharge for some periods published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1915-17(M), 1919-21(M), 1923-31(M), 1942-43(M), 1945(M), 1948-50(M). WDR WI-77-1: Drainage area. WDR WI-79-1: 1972.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,297.22 ft above sea level. Prior to Oct. 9, 1968, nonrecording gage 40 ft downstream at same datum.

REMARKS.--Estimated daily discharges: Apr. 16, 18-22, June 27-29, and ice-affected periods, Nov. 12-28, Dec. 5, 6, 8, 9, Dec. 12 to Feb. 11, Feb. 13, Mar. 7-17, Mar. 20 and 21. Records good except those for ice-affected periods, which are poor (see page 12). 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	111	197	113	70	86	430	1470	117	137	109	68	70
2	109	214	113	70	86	376	1240	122	121	98	69	113
3	108	201	116	72	84	330	955	127	108	93	70	83
4	106	181	117	74	84	266	705	125	101	93	71	75
5	104	166	110	78	86	225	535	118	96	87	71	74
6	106	156	110	80	88	204	416	113	94	88	74	70
7	226	149	117	82	88	170	355	112	93	87	78	69
8	261	144	100	82	90	170	319	114	92	86	78	68
9	308	141	110	80	92	140	292	110	92	87	76	68
10	369	139	114	78	94	120	257	106	96	82	73	68
11	299	136	114	74	98	120	229	102	109	81	70	69
12	229	120	110	72	101	120	213	103	322	78	69	69
13	557	110	100	70	96	110	206	144	377	77	69	69
14	806	120	96	70	98	120	220	137	348	78	70	74
15	657	120	100	72	100	120	226	124	250	79	75	75
16	457	110	100	72	103	120	224	236	235	79	72	75
17	329	100	100	74	111	110	246	250	187	76	81	76
18	256	100	96	74	123	113	255	184	143	75	80	84
19	235	98	98	74	134	110	257	145	124	74	75	77
20	232	98	92	72	143	110	243	122	113	73	73	75
21	213	96	86	74	139	110	215	110	105	73	72	75
22	195	94	86	76	132	117	187	103	96	71	74	74
23	178	94	88	78	136	115	169	98	90	70	89	73
24	170	92	84	76	148	117	158	94	107	70	88	75
25	163	96	82	74	167	134	148	93	141	72	80	76
26	156	100	80	74	232	296	140	91	161	73	75	149
27	149	100	78	76	442	549	132	107	198	72	73	147
28	147	110	76	78	480	689	126	113	233	70	74	111
29	145	112	74	80	---	755	121	107	173	69	72	106
30	143	114	72	82	---	1070	119	100	128	69	71	107
31	163	---	70	86	---	1470	---	117	---	68	70	---
TOTAL	7687	3808	3002	2344	3861	9006	10378	3844	4670	2457	2300	2494
MEAN	248	127	96.8	75.6	138	291	346	124	156	79.3	74.2	83.1
MAX	806	214	117	86	480	1470	1470	250	377	109	89	149
MIN	104	92	70	70	84	110	119	91	90	68	68	68
CFSM	1.35	.69	.53	.41	.75	1.58	1.88	.67	.85	.43	.40	.45
IN.	1.55	.77	.61	.47	.78	1.82	2.10	.78	.94	.50	.46	.50

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

	MEAN	169	170	113	92.9	90.4	190	436	257	211	136	173
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

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SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1914 - 1998	
ANNUAL TOTAL	71036		55851		181	
ANNUAL MEAN	195		153		272	1942
HIGHEST ANNUAL MEAN					108	1931
LOWEST ANNUAL MEAN					4200	Aug 31 1941
HIGHEST DAILY MEAN	2260	Apr 6	1470	(a) Mar 31	35	Oct 26 1947
LOWEST DAILY MEAN	(b) 70	Dec 31	68	(c) Jul 31	52	Dec 28 1948
ANNUAL SEVEN-DAY MINIMUM	(b) 76	Dec 25	69	Sep 7	(d) 5800	Aug 31 1941
INSTANTANEOUS PEAK FLOW			1540	Mar 31	(e) 9.45	Aug 31 1941
INSTANTANEOUS PEAK STAGE			5.96	Mar 31	34	Oct 26 1947
INSTANTANEOUS LOW FLOW			(f) 65	Jan 1	.98	
ANNUAL RUNOFF (CFSM)	1.06		.83		13.35	
ANNUAL RUNOFF (INCHES)	14.36		11.29		348	
10 PERCENT EXCEEDS	314		255		117	
50 PERCENT EXCEEDS	123		106		76	
90 PERCENT EXCEEDS	97		72			

(a) Also occurred Apr. 1
(b) Ice affected
(c) Also occurred Aug. 1 and Sept. 8-10
(d) Based on rating curve extended above 2,200 ft³/s
(e) From floodmarks
(f) Result of freezeup

WISCONSIN RIVER BASIN

05395000 WISCONSIN RIVER AT MERRILL, WI

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, Nov. 16-25, Dec. 4-6, 8, 12, 21, 24, 26-30, Jan. 1, 4, Jan. 9 to Feb. 24, and Mar. 5-9, 11-24. Records good except for ice-affected periods, which are fair (see page 12). Flow regulated by 20 reservoirs and 9 powerplants upstream from station. Gage-height telemeter at station.

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

DAILY MEAN VALUES

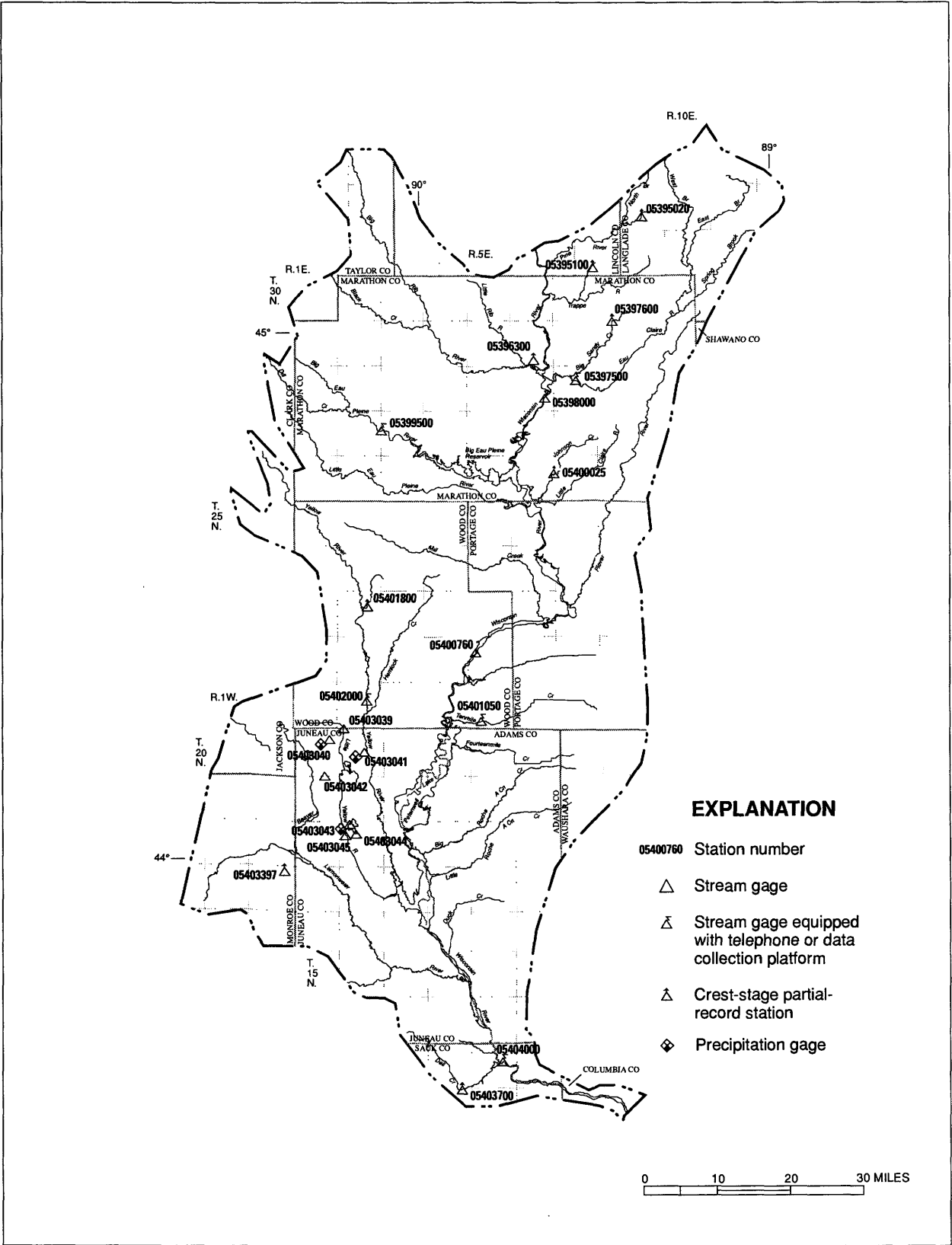
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2320	2860	2570	2400	2400	3970	12400	1990	1850	1570	1250	895
2	2120	3130	2550	2480	2400	3960	11100	2130	1680	1680	1130	1150
3	2380	3010	2530	2490	2400	3510	8980	1960	1470	1500	1010	1130
4	2420	2530	2700	2400	2500	3040	6400	1980	1140	1200	1340	1050
5	1970	2300	2600	2600	2400	2700	4730	1920	1540	1620	1120	866
6	2270	2730	2500	2410	2400	2500	4290	1740	1220	1980	1350	667
7	3420	2840	2270	2410	2400	2600	3940	1850	1570	1620	1240	670
8	3420	2720	2500	2460	2400	2200	3800	1750	1530	1650	1010	1030
9	3180	2620	2590	2300	2300	2300	3010	1650	1540	1560	1130	1610
10	2990	2760	2650	2200	2200	2050	2700	1740	1420	1460	1530	720
11	2790	2620	2660	2200	2200	2200	2450	1660	1770	1500	1170	789
12	2470	2490	2600	2000	2300	1900	2620	1690	3290	1370	931	697
13	4590	2390	2390	1900	2300	2000	2690	2080	4280	1400	1030	824
14	6470	2790	2500	2200	2300	2100	2490	1670	3860	1520	1080	1340
15	6300	2830	2630	2500	2200	2100	2360	1870	2830	1570	1190	725
16	4770	2600	2570	2300	2300	2100	2370	2150	1890	1550	1090	631
17	3890	2600	2480	2600	2300	2000	2390	2230	1720	1550	1360	956
18	3230	2500	2600	2600	2300	2200	2130	1980	1760	1340	1550	877
19	3090	2600	2500	2300	2600	2100	2410	1610	1870	1300	1260	823
20	3290	2400	2320	2400	2400	1900	2430	1470	1510	1160	1090	889
21	3180	2600	2500	2400	2300	1800	2440	1710	1500	1240	1030	860
22	3170	2600	2350	2400	2300	2000	2140	1620	1460	1180	1140	810
23	2710	2600	2510	2400	2400	2000	1990	1450	1590	1300	1220	714
24	2600	2600	2300	2400	2300	2100	2060	1360	1840	1040	1190	731
25	2400	2500	2250	2600	2770	2070	2060	1560	1900	1210	868	728
26	2450	2580	2300	2500	2980	3040	2110	1750	1970	1180	1010	1330
27	2290	2540	2400	2500	3790	4250	2090	1600	2140	1390	1020	1500
28	2320	2590	2400	2400	3840	5420	1640	1530	2240	994	1230	765
29	2350	2570	2400	2400	---	6510	1790	1640	1690	1120	1120	636
30	2190	2670	2400	2400	---	10700	1750	1170	1390	1120	924	1020
31	2460	---	2330	2300	---	11500	---	1990	---	1150	1020	---
TOTAL	95500	79170	76850	73850	69680	100820	105760	54500	57460	43024	35633	27433
MEAN	3081	2639	2479	2382	2489	3252	3525	1758	1915	1388	1149	914
MAX	6470	3130	2700	2600	3840	11500	12400	2230	4280	1980	1550	1610
MIN	1970	2300	2250	1900	2200	1800	1640	1170	1140	994	868	631

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1903 - 1998, BY WATER YEAR (WY)

	MEAN	2568	2422	2100	1997	1940	2609	4748	3676	3116	2344	2087	2551
MAX	8654	4632	3887	3138	3063	6275	11510	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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1903 - 1998
ANNUAL TOTAL	1120920	819680	
ANNUAL MEAN	3071	2246	2666
HIGHEST ANNUAL MEAN			4558
LOWEST ANNUAL MEAN			1348
HIGHEST DAILY MEAN	20400	Apr 6	36400
LOWEST DAILY MEAN	1670	Aug 26	90
ANNUAL SEVEN-DAY MINIMUM	1940	Aug 10	194
INSTANTANEOUS PEAK FLOW		13500	Apr 1
INSTANTANEOUS PEAK STAGE		10.19	Apr 1
10 PERCENT EXCEEDS	3760	3040	4730
50 PERCENT EXCEEDS	2700	2200	2100
90 PERCENT EXCEEDS	2200	1070	1240

(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

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 period, Nov. 13 to Mar. 25. Records good except those for ice-affected period, which is poor (see page 12). 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	132	163	94	76	98	740	2090	149	364	253	57	58
2	130	193	92	80	96	580	1890	147	190	189	56	58
3	124	203	94	84	94	440	1430	150	139	156	56	58
4	121	189	88	86	92	340	996	154	118	155	63	73
5	116	176	88	90	90	260	724	147	104	126	60	65
6	114	166	88	92	90	200	550	138	98	133	62	61
7	127	158	90	92	92	160	456	121	93	130	71	59
8	198	152	84	90	94	190	395	133	90	118	74	58
9	253	148	86	88	96	160	347	129	90	109	81	58
10	301	145	88	86	98	140	308	122	98	99	71	58
11	413	141	86	84	100	140	274	117	112	92	66	57
12	364	126	84	82	100	150	251	117	370	85	62	57
13	584	110	82	80	100	150	240	145	403	81	61	57
14	973	130	80	80	98	150	280	176	345	79	59	57
15	1130	120	84	82	100	150	304	162	258	76	62	59
16	899	110	90	84	100	140	331	306	200	73	64	61
17	488	130	84	86	110	130	442	374	215	71	73	60
18	350	140	88	88	120	120	676	266	184	68	76	58
19	296	150	84	86	130	110	678	202	148	67	73	58
20	265	140	80	86	140	130	561	162	126	65	68	58
21	261	120	80	84	130	160	448	135	111	64	64	57
22	228	110	84	88	130	160	369	120	99	62	63	57
23	206	100	82	90	120	150	310	109	91	60	67	57
24	191	90	80	88	120	170	269	101	92	59	68	57
25	180	92	80	88	150	190	236	100	324	59	70	58
26	169	94	86	90	280	447	208	96	669	60	64	91
27	164	96	84	92	600	994	186	91	705	59	61	207
28	157	96	82	94	1000	1480	174	97	625	59	60	164
29	150	98	80	96	---	1640	163	97	442	58	59	117
30	147	94	78	98	---	1580	154	90	333	58	58	102
31	148	---	76	100	---	1620	---	1030	---	58	58	---
TOTAL	9379	3980	2626	2710	4568	13171	15740	5483	7236	2881	2007	2155
MEAN	303	133	84.7	87.4	163	425	525	177	241	92.9	64.7	71.8
MAX	1130	203	94	100	1000	1640	2090	1030	705	253	81	207
MIN	114	90	76	76	90	110	154	90	90	58	56	57
CFSM	.81	.35	.23	.23	.44	1.13	1.40	.47	.64	.25	.17	.19
IN.	.93	.39	.26	.27	.45	1.31	1.56	.54	.72	.29	.20	.21

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

MEAN	210	236	140	91.5	88.0	353	750	364	300	159	152	209
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

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SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1914 - 1998	
ANNUAL TOTAL	91171		71936		254	
ANNUAL MEAN	250		197		440	1942
HIGHEST ANNUAL MEAN					131	1925
LOWEST ANNUAL MEAN					7180	Aug 21 1926
HIGHEST DAILY MEAN	4360	Apr 6	2090	Apr 1	(b) 25	(c) Jan 6 1926
LOWEST DAILY MEAN	76	(a) Aug 9-11	56	Aug 2, 3	(b) 26	Jan 10 1926
ANNUAL SEVEN-DAY MINIMUM	79	Aug 7	57	Jul 28	(e) 8300	Aug 21 1926
INSTANTANEOUS PEAK FLOW			(d) 2190	Apr 1	(f) 10.14	Mar 24 1991
INSTANTANEOUS PEAK STAGE			(f) 6.36	Feb 27	(h) 8.0	Jul 17 1944
INSTANTANEOUS LOW FLOW			56	(g) Aug 1		
ANNUAL RUNOFF (CFSM)	.67		.53		.68	
ANNUAL RUNOFF (INCHES)	9.04		7.14		9.19	
10 PERCENT EXCEEDS	366		382		540	
50 PERCENT EXCEEDS	140		109		130	
90 PERCENT EXCEEDS	89		60		60	

(a) Also occurred Dec. 31, ice affected

(b) Ice affected

(c) Also occurred Jan. 10-15, 17, 18, 1926, ice affected, and Oct. 3, 1948

(d) Gage height, 5.05 ft

(e) From rating curve extended above 6,000 ft³/s, gage height, 8.4 ft, from graph based on gage readings

(f) Ice jam

(g) Also occurred Aug. 2, 3, Sept. 2, 3, 13

(h) Probably result of temporary regulation

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.

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2840	3470	3160	2100	2800	11100	23400	2120	3560	2400	1190	1250
2	2710	4050	3050	2700	2900	9140	21200	2360	2200	2370	1350	1280
3	2960	3910	2900	2980	2600	7760	15800	2660	1950	2090	1070	1210
4	2830	3570	3260	2600	2700	5900	10900	2310	1580	1580	1520	1130
5	2580	3150	3110	2680	2800	4930	7750	2330	1650	1930	1290	1050
6	2200	3190	3130	3050	2700	4500	6740	2030	1560	2600	1240	1010
7	3220	3630	2850	2730	2700	4040	6030	2160	1590	2550	1490	957
8	3850	3310	2820	2740	2700	4120	5640	2020	1750	2390	1240	964
9	5020	3280	3010	2600	2600	3660	4710	1960	1610	2020	1620	1770
10	5050	3430	3240	2500	2500	2700	3890	1960	1820	1690	1570	1000
11	4320	3340	3010	2200	2400	3500	3760	1880	1780	1720	1290	916
12	3840	3010	3200	2400	2600	2700	3400	1750	6060	1570	1130	978
13	7970	2910	2820	2000	2600	2800	3620	2490	7490	1560	1080	964
14	12700	3240	2810	1900	2600	2800	3730	2220	5600	1670	1130	1340
15	11100	3400	3070	2600	2500	2800	3350	2190	4330	1810	1360	1190
16	7950	3200	3080	2700	2500	2700	3690	4400	2970	1560	1320	1000
17	5980	3000	2920	2700	2890	2800	4160	3820	2700	1590	1590	1090
18	4910	3000	2950	2800	2940	2770	4360	2990	2210	1450	1530	1070
19	4270	3200	2990	2700	3320	2950	4280	2270	2390	1220	1480	1030
20	4420	3000	2760	2500	4110	2760	3900	1900	1910	1240	1190	1060
21	4280	2900	2750	2700	3790	2530	3750	1820	1760	1380	1130	996
22	4120	3000	2780	2600	3740	2460	3290	1810	1670	1060	1180	969
23	3680	2700	2970	2600	3750	2780	2920	1690	1580	1380	1420	931
24	3460	2700	2570	2700	4370	2890	2780	1550	2050	1280	1340	995
25	3170	2900	2530	2500	5170	3280	2600	1640	3340	1130	1010	969
26	3000	3170	2730	2600	7310	6660	2720	1850	5150	1390	1110	2220
27	3190	3010	2400	2700	11200	10200	2470	1760	5340	1410	1160	2570
28	2860	3010	2500	2800	13000	12300	2260	1610	5870	1180	1280	1370
29	3090	3060	2800	2800	---	12600	1970	1830	3970	1230	1170	1100
30	2900	3160	2700	2700	---	16900	2270	1440	3210	1170	1090	1200
31	3240	---	2100	2900	---	20900	---	4680	---	1310	1060	---
TOTAL	137710	95900	88970	80780	107790	179930	171340	69500	90650	50930	39630	35579
MEAN	4442	3197	2870	2606	3850	5804	5711	2242	3022	1643	1278	1186
MAX	12700	4050	3260	3050	13000	20900	23400	4680	7490	2600	1620	2570
MIN	2200	2700	2100	1900	2400	2460	1970	1440	1560	1060	1010	916

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1998, BY WATER YEAR (WY)

MEAN	3301	3344	2756	2488	2402	4231	7534	4625	3836	2792	2451	3174
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

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05398000 WISCONSIN RIVER AT ROTHSCILD, WI--CONTINUED

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1945 - 1998	
ANNUAL TOTAL	1530570		1148709		3577	
ANNUAL MEAN	4193		3147		5953	1973
HIGHEST ANNUAL MEAN					1686	1977
LOWEST ANNUAL MEAN					44500	Mar 31 1967
HIGHEST DAILY MEAN	39000	Apr 6	23400	Apr 1	575	Jun 16 1988
LOWEST DAILY MEAN	2100	Aug 9	916	Sep 11	757	Nov 28 1976
ANNUAL SEVEN-DAY MINIMUM	2240	Aug 8	993	Sep 19	49200	(a) Apr 12 1965
INSTANTANEOUS PEAK FLOW			25500	Apr 1	(b) 18.46	(a) Apr 12 1965
INSTANTANEOUS PEAK STAGE			23.08	Apr 1	575	Jun 16 1988
INSTANTANEOUS LOW FLOW					6580	
10 PERCENT EXCEEDS	5430		4920		2620	
50 PERCENT EXCEEDS	3100		2700		1500	
90 PERCENT EXCEEDS	2500		1190			

(a) Also occurred Mar. 31, 1967

(b) Datum then in use

WISCONSIN RIVER BASIN
05399500 BIG EAU PLEINE RIVER NEAR STRATFORD, WI

LOCATION.--Lat 44°49'19", long 90°04'46", on line between sec.13, T.27 N., R.3 E., and sec.18, T.27 N., R.4 E., Marathon County, Hydrologic Unit 07070002, on left bank 15 ft upstream from bridge on State Highway 97, 1.0 mi north of Stratford, and 1.4 mi downstream from small tributary.

DRAINAGE AREA.--224 mi².

PERIOD OF RECORD.--July 1914 to December 1925, April 1937 to current year. Monthly discharge for some periods published in WSP 1308.

REVISED RECORDS.--WSP 1308: 1917, 1920-22, 1926, 1946, 1948, 1950. WSP 1508: 1915-25(M), 1937, 1946(M), 1948(M).

GAGE.--Water-stage recorder. Datum of gage is 1,154.24 ft above sea level. July 24, 1914, to Dec. 31, 1925, nonrecording gage at site 0.5 mi upstream at different datum. Apr. 30, 1937, to Sept. 15, 1938, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Ice-affected periods, Nov. 13, Nov. 16 to Feb. 27, and Mar. 7-22. Records good except those for ice-affected periods, which are poor (see page 12). Gage-height telemeter at station.

EXTREMES OUTSIDE OF PERIOD OF RECORD.--Flood of June 5, 1914, reached a stage of 20.7 ft, from floodmarks; discharge, 40,000 ft³/s, former site and datum.

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	22	48	22	21	22	957	3300	23	151	112	4.6	5.5
2	21	51	22	21	22	553	1360	22	65	82	4.0	8.4
3	20	52	22	22	22	419	651	26	35	309	4.6	6.9
4	19	49	21	22	21	278	377	27	24	311	6.9	5.6
5	17	44	21	22	21	198	259	27	18	98	9.0	4.6
6	17	41	21	22	22	161	193	24	15	79	11	4.2
7	18	39	22	22	22	120	166	23	13	74	13	3.7
8	22	37	20	23	23	100	157	25	12	68	16	3.3
9	47	36	21	22	23	88	127	22	12	89	15	3.0
10	102	35	21	22	23	72	101	21	15	66	11	2.9
11	88	33	21	21	24	62	85	19	112	47	8.6	3.0
12	72	32	20	21	24	54	75	16	1880	36	7.3	2.7
13	1240	32	20	20	24	45	76	16	461	30	6.7	2.6
14	999	28	20	20	24	41	97	15	212	27	6.4	3.1
15	489	28	21	21	25	34	90	14	122	24	6.9	3.2
16	263	29	22	21	27	29	120	18	131	21	7.2	3.0
17	165	28	22	21	35	26	219	23	115	19	16	2.9
18	115	24	22	21	70	31	158	19	89	17	37	2.6
19	88	23	23	21	140	40	111	17	83	15	42	2.4
20	75	23	22	21	180	30	87	14	74	14	28	3.6
21	63	22	22	21	130	34	72	7.3	58	13	20	3.6
22	55	21	22	22	90	40	62	9.2	43	12	16	3.2
23	49	20	22	22	190	79	54	8.5	34	10	16	2.9
24	46	20	21	22	350	228	47	8.7	31	9.1	15	3.1
25	43	20	21	21	800	599	41	9.3	166	8.5	14	3.2
26	41	21	22	21	1600	1240	37	8.4	533	7.5	12	185
27	38	22	22	21	2300	1050	34	7.9	1170	7.1	9.9	513
28	36	22	22	21	2210	884	29	9.7	683	6.5	8.6	186
29	35	23	21	21	---	801	26	9.7	305	7.0	7.6	86
30	34	23	21	22	---	2150	21	8.1	169	6.6	6.4	55
31	39	---	20	22	---	2370	---	165	---	5.4	5.3	---
TOTAL	4378	926	662	663	8464	12813	8232	662.8	6831	1630.7	392.0	1118.2
MEAN	141	30.9	21.4	21.4	302	413	274	21.4	228	52.6	12.6	37.3
MAX	1240	52	23	23	2300	2370	3300	165	1880	311	42	513
MIN	17	20	20	20	21	26	21	7.3	12	5.4	4.0	2.4
CFSM	.63	.14	.10	.10	1.35	1.85	1.23	.10	1.02	.23	.06	.17
IN.	.73	.15	.11	.11	1.41	2.13	1.37	.11	1.13	.27	.07	.19

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925
MEAN	111	132	47.6	20.1	31.8	420	594	232	211	75.8	72.2	162
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

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05399500 BIG EAU PLEINE RIVER NEAR STRATFORD, WI--CONTINUED

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1914 - 1998	
ANNUAL TOTAL	70611		46772.7		176	
ANNUAL MEAN	193		128		355	1980
HIGHEST ANNUAL MEAN					47.6	1977
LOWEST ANNUAL MEAN					26100	Sep 9 1938
HIGHEST DAILY MEAN	6620	Apr 2	3300	Apr 1	(a) .00	(b) Jan 22 1961
LOWEST DAILY MEAN	12	Aug 11	2.4	Sep 19	(a) .00	Jan 22 1961
ANNUAL SEVEN-DAY MINIMUM	17	Aug 7	2.8	Sep 13	(d) 41000	Sep 9 1938
INSTANTANEOUS PEAK FLOW			(c) 4070	Apr 1	(f) 24.50	Sep 9 1938
INSTANTANEOUS PEAK STAGE			(e) 12.47	Feb 26	.00	(g) Aug 17 1947
INSTANTANEOUS LOW FLOW			2.0	Sep 17	.79	
ANNUAL RUNOFF (CFSM)	.86		.57		10.70	
ANNUAL RUNOFF (INCHES)	11.73		7.77		370	
10 PERCENT EXCEEDS	207		215		25	
50 PERCENT EXCEEDS	38		23		4.6	
90 PERCENT EXCEEDS	21		7.0			

- (a) Occurred during ice-affected period
 (b) Also occurred Jan. 23 to Feb. 5, 1961
 (c) Gage height, 11.45 ft
 (d) Based on rating curve extended above 24,000 ft³/s
 (e) Ice jam
 (f) From floodmarks
 (g) Also occurred Jan. 22 to Feb. 5, 1961, ice-affected period

WISCONSIN RIVER BASIN

05400760 WISCONSIN RIVER AT WISCONSIN RAPIDS, WI

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.

DRAINAGE AREA.--5,420 mi².

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.

REVISED RECORDS.--WSP 1308: 1915(M).

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 1997 to September 1998 were as follows: December, 6.5; January, 41.4; June, 17.9; and September, 66.0.

COOPERATION.--Figures of daily discharges were provided by Consolidated Water Power Company and Wisconsin Valley Improvement Company. Records were reviewed by the Geological Survey.

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	2800	3360	3420	2970	3450	14700	31100	3150	4260	4760	1740	1250
2	2860	3650	3470	2710	3250	13500	32800	3040	4160	4450	1830	1250
3	3270	4150	3400	3220	3430	10300	25100	3400	3260	4240	2050	1430
4	3370	3950	3500	3330	3350	8800	14900	3180	1970	3950	2890	1270
5	3340	3360	3530	3490	3010	6040	12800	3310	2000	2470	3470	1240
6	3030	3320	3540	3360	3520	5790	9950	2760	2000	2650	1910	1530
7	2430	3310	3330	3350	3280	5790	7480	3120	2060	5070	1740	1450
8	3970	3310	2800	3290	3320	5740	7360	3230	2040	4310	1720	1330
9	4420	3320	2910	2990	3020	4520	6760	2760	3170	3500	1390	1190
10	4480	3490	3320	2590	3060	4020	5400	2230	3150	2900	1470	1190
11	4470	3500	3380	2690	3190	4540	4740	2370	2780	2430	2050	1230
12	4480	3230	3400	2460	3080	4430	3700	3010	5860	2960	2050	1210
13	6660	3100	3520	2610	3110	4530	4510	2900	9380	1850	1650	1100
14	12600	3050	3450	2520	3030	4500	5070	2910	8290	1870	1370	969
15	12700	3060	3300	2480	2980	4480	4360	2840	5110	2500	1370	965
16	10400	3150	3260	3550	3350	3900	4950	3400	3310	3000	1980	917
17	6850	3290	3230	3400	3090	2840	5360	3900	2640	2890	2270	915
18	5430	3100	3210	2870	3460	3320	5400	3810	3160	2270	2170	946
19	5270	3070	3630	3030	3300	3290	6310	3140	2730	2290	2420	924
20	4380	3200	3330	3150	4060	3060	6040	2570	2480	2430	2760	973
21	3920	3170	2970	3400	4660	3020	4740	1820	2120	2320	2370	1100
22	4800	3100	2900	3620	4810	3120	4100	1780	2370	2150	2150	1100
23	4340	3010	3480	3360	4910	2590	4020	1970	2360	2070	2100	1100
24	3800	2670	3250	3200	5000	2720	3710	2410	3440	1980	2170	1050
25	3750	2810	3210	3210	5580	3700	3140	2560	5940	1610	1570	959
26	3140	3530	3120	3240	8860	5120	3150	2260	8110	1870	1410	2070
27	3010	3260	2860	3190	11300	5560	3250	2480	15100	2140	1390	3070
28	2960	2920	2880	3350	13000	10900	2850	3370	13900	1780	1470	2480
29	3110	3260	3240	3220	---	13800	2420	2010	9620	1540	1540	1330
30	3160	3250	2830	3270	---	20800	3090	2470	6810	1610	1340	1050
31	3280	---	2750	3530	---	24700	---	3510	---	1780	1210	---
TOTAL	146480	97950	100420	96650	123460	214120	238560	87670	143580	83640	59020	38588
MEAN	4725	3265	3239	3118	4409	6907	7952	2828	4786	2698	1904	1286
MAX	12700	4150	3630	3620	13000	24700	32800	3900	15100	5070	3470	3070
MIN	2430	2670	2750	2460	2980	2590	2420	1780	1970	1540	1210	915

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

	MEAN	MAX	MIN
1914	4170	13070	1987
1915	4436	10270	1920
1916	3343	7928	1966
1917	3069	5589	1973
1918	3172	6368	1984
1919	6442	19180	1973
1920	11080	25940	1922
1921	6917	19730	1960
1922	6086	19570	1943
1923	3535	10820	1978
1924	3140	9199	1926
1925	4351	17670	1938
1926	1286	1227	1227
1927	1976	1976	1976

WISCONSIN RIVER BASIN

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05400760 WISCONSIN RIVER AT WISCONSIN RAPIDS, WI--CONTINUED

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1914 - 1998	
ANNUAL TOTAL	1870430		1430138		4970	
ANNUAL MEAN	5124		3918		8499	1973
HIGHEST ANNUAL MEAN					2107	1977
LOWEST ANNUAL MEAN					63600	Jun 21 1993
HIGHEST DAILY MEAN	47300	Apr 7	32800	Apr 2	165	Aug 12 1934
LOWEST DAILY MEAN	1680	Aug 17	915	Sep 17	790	Jun 18 1988
ANNUAL SEVEN-DAY MINIMUM	2710	Jul 29	944	Sep 14	(a) 70400	Sep 12 1938
INSTANTANEOUS PEAK FLOW			34100	Apr 2	9660	
10 PERCENT EXCEEDS	6590		5890		3380	
50 PERCENT EXCEEDS	3810		3180		1790	
90 PERCENT EXCEEDS	2870		1540			

(a) From rating curve extended above 58,000 ft³/s

WISCONSIN RIVER BASIN
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 to September 1998.

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: Feb. 1-5, Apr. 10-28, and ice-affected periods, Feb. 6-16 and Mar. 9-24. Records good except those for estimated daily discharges, which are fair (see page 12). 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	25	74	134	73	51	133	46	47
2	---	---	---	---	25	73	135	78	49	120	45	47
3	---	---	---	---	24	73	124	78	48	113	44	47
4	---	---	---	---	24	65	116	79	45	109	49	46
5	---	---	---	---	24	64	110	78	44	103	55	45
6	---	---	---	---	24	65	105	73	43	99	67	45
7	---	---	---	---	24	64	102	74	42	95	75	44
8	---	---	---	---	25	65	99	73	41	91	80	43
9	---	---	---	---	25	62	96	70	45	88	76	42
10	---	---	---	---	26	56	94	68	49	83	72	41
11	---	---	---	---	26	54	94	66	51	80	68	42
12	---	---	---	---	26	52	92	66	58	77	65	42
13	---	---	---	---	25	52	82	64	59	74	62	40
14	---	---	---	---	26	52	76	62	58	70	62	44
15	---	---	---	---	27	52	84	62	56	68	62	44
16	---	---	---	---	29	50	100	63	52	66	59	43
17	---	---	---	---	33	50	100	59	49	64	63	42
18	---	---	---	---	38	50	98	57	50	60	63	41
19	---	---	---	---	45	50	96	56	53	60	61	41
20	---	---	---	---	49	52	92	54	52	59	58	41
21	---	---	---	---	50	54	88	55	49	61	57	38
22	---	---	---	---	51	56	86	52	47	60	57	38
23	---	---	---	---	53	58	84	50	45	57	58	37
24	---	---	---	---	55	62	82	51	46	56	58	36
25	---	---	---	---	60	65	82	52	104	55	56	37
26	---	---	---	---	63	70	80	50	156	53	54	36
27	---	---	---	---	69	74	78	48	163	51	52	36
28	---	---	---	---	72	73	76	51	170	50	51	38
29	---	---	---	---	---	72	73	50	161	49	50	37
30	---	---	---	---	---	75	72	47	145	48	49	36
31	---	---	---	---	---	101	---	56	---	47	48	---
TOTAL	---	---	---	---	1043	1935	2830	1915	2081	2299	1822	1236
MEAN	---	---	---	---	37.3	62.4	94.3	61.8	69.4	74.2	58.8	41.2
MAX	---	---	---	---	72	101	135	79	170	133	80	47
MIN	---	---	---	---	24	50	72	47	41	47	44	36

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1998, BY WATER YEAR (WY)

	MEAN	53.2	54.1	50.1	36.8	34.8	67.8	105	90.4	77.1	60.6	47.1	52.7
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 1998 WATER YEAR
(FEBRUARY-SEPTEMBER)

ANNUAL MEAN
HIGHEST ANNUAL MEAN
LOWEST ANNUAL MEAN
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

170 Jun 28
24 (a) Feb 3-7
(a) 24 Feb 1
175 Jun 28
5.81 Jun 28
23 Feb 6
97
57
37

WATER YEARS 1964 - 1998

61.1
113
30.2
427
10
10
456
6.62
9.5
108
53
24

1973
1964
Mar 31 1979
(b) Feb 13 1964
Feb 22 1964
Mar 31 1979
Mar 31 1979
Dec 16 1964

(a) Estimated

(b) Also occurred Feb. 14,15, Feb. 22 to Mar. 2, 1964, and Feb. 2-4,11,12, 1965

REMARKS.--Estimated daily discharges: Ice-affected periods, Nov. 11-24, Dec. 17, 21, 27-31, Jan. 3 to Feb. 11, and Mar. 10-19. Records good except those for ice-affected periods, which are poor (see page 12). There is a large recreation dam about 5.0 mi upstream. Gage-height telemeter at station.

DAILY MEAN VALUES

[illegible]

WISCONSIN RIVER BASIN
05402000 YELLOW RIVER AT BABCOCK, WI--CONTINUED

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	49	54	29	9.0	27	1900	2700	43	23	529	11	11
2	46	57	29	8.7	31	1070	2480	42	18	260	10	11
3	51	61	32	9.8	33	689	1280	42	19	169	11	10
4	58	65	35	13	32	491	752	43	16	126	17	9.8
5	64	65	34	20	30	341	456	40	15	101	22	9.5
6	75	63	34	31	30	273	287	37	15	83	23	9.9
7	82	60	35	42	30	234	189	35	14	70	24	10
8	90	57	34	45	30	208	170	39	13	61	19	11
9	107	55	33	40	29	204	141	37	15	53	16	11
10	129	53	33	30	28	150	117	34	22	57	14	11
11	166	49	33	20	27	140	101	31	29	32	14	13
12	141	48	32	20	27	130	89	29	116	30	13	13
13	261	46	33	19	26	110	77	28	641	27	12	13
14	1430	45	32	21	26	100	71	27	620	25	13	14
15	967	44	31	22	25	72	75	27	451	22	16	15
16	585	43	29	23	26	66	155	37	242	21	16	13
17	367	41	28	24	30	62	341	37	134	18	18	12
18	194	38	28	24	40	62	349	37	100	16	22	13
19	160	36	28	24	93	62	221	38	81	15	20	11
20	124	35	28	23	281	63	144	34	64	15	18	8.0
21	96	33	27	24	405	63	123	28	54	14	16	8.2
22	85	31	27	25	459	66	110	23	47	14	19	8.2
23	77	30	27	25	569	74	91	20	39	13	29	7.9
24	71	29	26	25	756	101	77	18	42	14	30	8.8
25	67	30	24	25	1040	237	68	18	204	13	24	8.3
26	64	27	23	26	1180	662	59	18	472	13	20	10
27	60	26	22	27	1610	982	54	17	1650	13	17	12
28	55	27	20	27	2840	967	51	18	3980	12	15	12
29	54	28	16	27	---	806	48	19	2240	12	14	12
30	53	28	13	27	---	940	45	20	1120	12	13	14
31	53	---	10	27	---	1260	---	19	---	12	12	---
TOTAL	5881	1304	865	753.5	9760	12585	10921	935	12496	1872	538	330.6
MEAN	190	43.5	27.9	24.3	349	406	364	30.2	417	60.4	17.4	11.0
MAX	1430	65	35	45	2840	1900	2700	43	3980	529	30	15
MIN	46	26	10	8.7	25	62	45	17	13	12	10	7.9
CFSM	.88	.20	.13	.11	1.62	1.89	1.69	.14	1.94	.28	.08	.05
IN.	1.02	.23	.15	.13	1.69	2.18	1.89	.16	2.16	.32	.09	.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 1998, BY WATER YEAR (WY)

	MEAN	110	118	64.6	27.2	44.1	394	550	238	173	65.7	51.3	128
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	

SUMMARY STATISTICS

FOR 1998 WATER YEAR

WATER YEARS 1944 - 1998

ANNUAL TOTAL	58241.1		
ANNUAL MEAN	160		
HIGHEST ANNUAL MEAN		163	
LOWEST ANNUAL MEAN		376	1973
HIGHEST DAILY MEAN		37.4	1977
LOWEST DAILY MEAN	3980	10300	Apr 2 1952
ANNUAL SEVEN-DAY MINIMUM	7.9	1.4	(a) Sep 14 1948
INSTANTANEOUS PEAK FLOW	8.5	1.4	Sep 13 1948
INSTANTANEOUS PEAK STAGE	(b) 5020	11600	Apr 2 1952
INSTANTANEOUS LOW FLOW	13.67	17.38	Apr 2 1952
ANNUAL RUNOFF (CFSM)	7.2	.94	Aug 11 1985
ANNUAL RUNOFF (INCHES)	.74	.76	
10 PERCENT EXCEEDS	10.08	10.33	
50 PERCENT EXCEEDS	356	370	
90 PERCENT EXCEEDS	32	32	
	13	8.0	

(a) Also occurred Sept. 15-19, 25, 26, 1948

(b) Gage height, 13.61 ft

WISCONSIN RIVER BASIN

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05403039 REMINGTON DITCH NEAR FINLEY, WI

LOCATION.--Lat 44°14'57", long 90°10'50", in NW 1/4 SE 1/4 sec 31, T.20 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.--Not determined.

PERIOD OF RECORD.--April to September 1998.

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.--No estimated daily discharges. Records are good (see page 12).

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	---	---	---	---	---	---	---	14	1.9	188	.10	11
2	---	---	---	---	---	---	---	16	3.4	168	.19	13
3	---	---	---	---	---	---	---	19	2.7	147	.19	11
4	---	---	---	---	---	---	---	21	.11	128	6.2	8.8
5	---	---	---	---	---	---	---	18	.41	103	14	8.6
6	---	---	---	---	---	---	---	14	.54	86	18	8.3
7	---	---	---	---	---	---	---	16	.41	79	26	7.3
8	---	---	---	---	---	---	---	20	.00	65	25	7.3
9	---	---	---	---	---	---	---	18	2.5	52	20	4.5
10	---	---	---	---	---	---	---	14	8.5	47	18	4.5
11	---	---	---	---	---	---	---	13	12	41	16	4.0
12	---	---	---	---	---	---	---	15	23	32	12	2.2
13	---	---	---	---	---	---	---	14	21	26	5.4	1.2
14	---	---	---	---	---	---	---	13	16	21	5.5	3.3
15	---	---	---	---	---	---	---	12	14	18	7.3	4.3
16	---	---	---	---	---	---	---	14	10	14	5.8	2.9
17	---	---	---	---	---	---	---	12	8.1	11	11	3.4
18	---	---	---	---	---	---	---	9.2	7.9	7.7	12	2.4
19	---	---	---	---	---	---	---	8.0	13	5.9	8.6	1.6
20	---	---	---	---	---	---	---	6.5	12	4.8	6.4	1.5
21	---	---	---	---	---	---	---	6.2	9.3	6.0	6.0	.81
22	---	---	---	---	---	---	---	32	5.3	6.7	7.5	.10
23	---	---	---	---	---	---	---	26	4.1	4.8	3.0	.00
24	---	---	---	---	---	---	---	24	5.5	13	2.3	.00
25	---	---	---	---	---	---	---	22	7.0	113	2.2	.00
26	---	---	---	---	---	---	---	21	5.4	141	2.1	.10
27	---	---	---	---	---	---	---	15	3.7	186	1.3	1.1
28	---	---	---	---	---	---	---	13	6.7	219	.90	2.0
29	---	---	---	---	---	---	---	12	7.1	228	.68	1.2
30	---	---	---	---	---	---	---	11	5.2	212	.87	2.6
31	---	---	---	---	---	---	---	5.8	---	.41	11	---
TOTAL	---	---	---	---	---	---	---	176	348.7	1290.27	1268.76	359.18
MEAN	---	---	---	---	---	---	---	19.6	11.2	43.0	40.9	11.6
MAX	---	---	---	---	---	---	---	32	21	228	188	26
MIN	---	---	---	---	---	---	---	11	3.7	.00	.41	.10

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

MEAN	---	---	---	---	---	---	19.6	11.2	43.0	40.9	11.6	3.97
MAX	---	---	---	---	---	---	19.6	11.2	43.0	40.9	11.6	3.97
(WY)	---	---	---	---	---	---	1998	1998	1998	1998	1998	1998
MIN	---	---	---	---	---	---	19.6	11.2	43.0	40.9	11.6	3.97
(WY)	---	---	---	---	---	---	1998	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(APRIL-SEPTEMBER)

ANNUAL TOTAL	3561.92
ANNUAL MEAN	22.0
HIGHEST DAILY MEAN	228 Jun 29
LOWEST DAILY MEAN	.00 Jun 8, Sep 23-25
ANNUAL SEVEN-DAY MINIMUM	.30 Sep 21
10 PERCENT EXCEEDS	45
50 PERCENT EXCEEDS	9.3
90 PERCENT EXCEEDS	.83

WISCONSIN RIVER BASIN

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.--Not determined.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April to September 1998.

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 12).

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	---	---	---	---	---	---	---	.37	.00	6.9	.00	.03
2	---	---	---	---	---	---	---	.27	.00	7.3	.00	.06
3	---	---	---	---	---	---	---	.29	.00	7.8	.00	.03
4	---	---	---	---	---	---	---	.24	.00	8.2	.00	.00
5	---	---	---	---	---	---	---	.11	.00	8.4	.00	.00
6	---	---	---	---	---	---	---	.05	.00	8.5	.00	.00
7	---	---	---	---	---	---	---	.06	.00	8.6	.00	.00
8	---	---	---	---	---	---	---	.10	.00	8.7	.00	.00
9	---	---	---	---	---	---	---	.08	.00	7.8	.00	.00
10	---	---	---	---	---	---	---	.06	.00	6.5	.03	.00
11	---	---	---	---	---	---	---	.03	.00	5.5	.18	.00
12	---	---	---	---	---	---	---	.03	.00	4.5	.26	.00
13	---	---	---	---	---	---	---	.00	.00	3.6	.30	.00
14	---	---	---	---	---	---	---	.00	.00	2.9	.26	.00
15	---	---	---	---	---	---	---	.00	.00	2.1	.27	.00
16	---	---	---	---	---	---	---	.00	.00	1.5	.18	.00
17	---	---	---	---	---	---	---	.00	.00	.89	.40	.00
18	---	---	---	---	---	---	---	.00	.00	.36	.48	.00
19	---	---	---	---	---	---	---	.00	.00	.11	.37	.00
20	---	---	---	---	---	---	---	.00	.00	.00	.34	.00
21	---	---	---	---	---	---	---	.00	.00	.00	.58	.00
22	---	---	---	---	---	---	---	.00	.00	.00	.94	.00
23	---	---	---	---	---	---	---	.00	.00	.00	1.3	.00
24	---	---	---	---	---	---	1.0	.00	.23	.00	1.2	.00
25	---	---	---	---	---	---	.88	.00	2.9	.00	.95	.00
26	---	---	---	---	---	---	.85	.00	3.4	.00	.77	.00
27	---	---	---	---	---	---	.73	.00	5.1	.00	.60	.00
28	---	---	---	---	---	---	.63	.00	6.0	.00	.48	.00
29	---	---	---	---	---	---	.50	.00	6.2	.00	.35	.00
30	---	---	---	---	---	---	.44	.00	6.6	.00	.19	.00
31	---	---	---	---	---	---	---	.00	---	.00	.11	---
TOTAL	---	---	---	---	---	---	5.03	1.69	30.43	100.16	10.54	0.12
MEAN	---	---	---	---	---	---	.72	.055	1.01	3.23	.34	.004
MAX	---	---	---	---	---	---	1.0	.37	6.6	8.7	1.3	.06
MIN	---	---	---	---	---	---	.44	.00	.00	.00	.00	.00

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

MEAN	---	---	---	---	---	---	.72	.055	1.01	3.23	.34	.004
MAX	---	---	---	---	---	---	.72	.055	1.01	3.23	.34	.004
(WY)	---	---	---	---	---	---	1998	1998	1998	1998	1998	1998
MIN	---	---	---	---	---	---	.72	.055	1.01	3.23	.34	.004
(WY)	---	---	---	---	---	---	1998	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(APRIL-SEPTEMBER)

ANNUAL TOTAL	147.97
ANNUAL MEAN	.92
HIGHEST DAILY MEAN	8.7 Jul 8
LOWEST DAILY MEAN	.00 Many days
ANNUAL SEVEN-DAY MINIMUM	.00 Many periods
10 PERCENT EXCEEDS	4.4
50 PERCENT EXCEEDS	.00
90 PERCENT EXCEEDS	.00

05403040 WEST BRANCH LITTLE YELLOW RIVER NEAR FINLEY, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--April to September 1998.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established April 24, 1998.

EXTREMES FOR CURRENT PERIOD.--Maximum daily rainfall, 2.59 in., June 24.

RAINFALL ACCUMULATED (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	.28
2	---	---	---	---	---	---	---	.03	.00	.00	.00	.00
3	---	---	---	---	---	---	---	.18	.00	.11	.48	.00
4	---	---	---	---	---	---	---	.00	.00	.00	1.48	.00
5	---	---	---	---	---	---	---	.00	.01	.00	1.53	.00
6	---	---	---	---	---	---	---	.00	.00	.00	.87	.00
7	---	---	---	---	---	---	---	.44	.00	.00	.01	.00
8	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
9	---	---	---	---	---	---	---	.00	1.18	.00	.00	.00
10	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	1.19	.00	.00	.00
12	---	---	---	---	---	---	---	.01	.38	.00	.02	.00
13	---	---	---	---	---	---	---	.00	.00	.10	.00	.00
14	---	---	---	---	---	---	---	.00	.00	.00	.25	.38
15	---	---	---	---	---	---	---	.18	.00	.02	.00	.00
16	---	---	---	---	---	---	---	.01	.15	.00	.06	.03
17	---	---	---	---	---	---	---	.00	.01	.00	.51	.00
18	---	---	---	---	---	---	---	.00	.59	.00	.00	.00
19	---	---	---	---	---	---	---	.02	.00	.13	.00	.00
20	---	---	---	---	---	---	---	.00	.04	.16	.09	.00
21	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
22	---	---	---	---	---	---	---	.00	.00	.00	.45	.00
23	---	---	---	---	---	---	---	.00	.00	.00	.15	.01
24	---	---	---	---	---	---	.00	.53	2.59	.00	.00	.01
25	---	---	---	---	---	---	.06	.00	1.45	.00	.00	.02
26	---	---	---	---	---	---	.11	.00	.02	.00	.00	.12
27	---	---	---	---	---	---	.00	.02	1.75	.00	.01	.01
28	---	---	---	---	---	---	.00	.90	.11	.00	.00	.00
29	---	---	---	---	---	---	.00	.00	.07	.00	.01	.00
30	---	---	---	---	---	---	.00	.00	.00	.01	.00	.36
31	---	---	---	---	---	---	---	.37	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	2.69	9.54	0.53	5.92	1.22

WISCONSIN RIVER BASIN

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.--Not determined.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April to September 1998.

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.--No estimated daily discharges. Records are good (see page 12).

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	---	---	---	---	---	---	---	3.2	1.7	13	1.4	2.8
2	---	---	---	---	---	---	---	3.1	1.5	11	1.3	2.3
3	---	---	---	---	---	---	---	3.4	1.4	9.0	1.2	1.4
4	---	---	---	---	---	---	---	3.6	1.4	7.7	1.7	1.2
5	---	---	---	---	---	---	---	3.3	1.4	6.6	2.9	1.1
6	---	---	---	---	---	---	---	3.0	1.4	5.8	3.6	1.1
7	---	---	---	---	---	---	---	3.2	1.4	5.2	4.8	1.0
8	---	---	---	---	---	---	---	4.3	1.3	6.0	4.6	.93
9	---	---	---	---	---	---	---	4.2	1.7	7.3	3.1	.90
10	---	---	---	---	---	---	---	3.3	2.3	6.6	3.9	.86
11	---	---	---	---	---	---	---	3.0	2.8	4.6	3.0	.84
12	---	---	---	---	---	---	---	2.8	5.1	3.7	1.9	.81
13	---	---	---	---	---	---	---	2.5	4.2	4.6	1.7	.81
14	---	---	---	---	---	---	---	2.3	3.4	4.0	1.7	1.1
15	---	---	---	---	---	---	---	2.4	2.9	3.6	1.7	1.5
16	---	---	---	---	---	---	---	2.8	2.5	2.8	1.6	.99
17	---	---	---	---	---	---	---	2.4	2.3	3.3	2.0	.84
18	---	---	---	---	---	---	---	2.2	2.4	2.6	2.4	.81
19	---	---	---	---	---	---	---	1.9	3.1	3.1	2.1	.81
20	---	---	---	---	---	---	---	1.9	2.9	2.3	1.8	.76
21	---	---	---	---	---	---	6.1	1.8	2.5	3.3	1.6	.75
22	---	---	---	---	---	---	6.1	1.7	2.3	2.9	1.6	.72
23	---	---	---	---	---	---	6.0	1.7	2.2	2.5	1.8	.72
24	---	---	---	---	---	---	4.6	1.9	2.6	1.9	1.7	.74
25	---	---	---	---	---	---	4.6	1.8	49	2.2	1.6	.72
26	---	---	---	---	---	---	4.2	1.6	42	2.2	1.4	.73
27	---	---	---	---	---	---	3.8	1.5	50	1.7	1.4	.76
28	---	---	---	---	---	---	3.5	2.2	43	1.5	2.9	.72
29	---	---	---	---	---	---	3.4	2.1	23	1.4	3.1	.83
30	---	---	---	---	---	---	3.3	1.7	16	1.4	1.7	2.3
31	---	---	---	---	---	---	---	2.0	---	1.4	1.7	---
TOTAL	---	---	---	---	---	---	45.6	78.8	279.7	135.2	68.9	31.85
MEAN	---	---	---	---	---	---	4.56	2.54	9.32	4.36	2.22	1.06
MAX	---	---	---	---	---	---	6.1	4.3	50	13	4.8	2.8
MIN	---	---	---	---	---	---	3.3	1.5	1.3	1.4	1.2	.72

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	---	---	---	---	---	---	4.56	2.54	9.32	4.36	2.22	1.06
MAX	---	---	---	---	---	---	4.56	2.54	9.32	4.36	2.22	1.06
(WY)	---	---	---	---	---	---	1998	1998	1998	1998	1998	1998
MIN	---	---	---	---	---	---	4.56	2.54	9.32	4.36	2.22	1.06
(WY)	---	---	---	---	---	---	1998	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(APRIL-SEPTEMBER)

ANNUAL TOTAL	640.05	
ANNUAL MEAN	3.93	
HIGHEST DAILY MEAN	50	Jun 27
LOWEST DAILY MEAN	.72	Sep 22, 23, 25, 28
ANNUAL SEVEN-DAY MINIMUM	.73	Sep 22
10 PERCENT EXCEEDS	6.0	
50 PERCENT EXCEEDS	2.3	
90 PERCENT EXCEEDS	.85	

05403041 EAST BRANCH SPENCER-ROBINSON DITCH NEAR FINLEY, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--April to September 1998.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established April 21, 1998.

EXTREMES FOR CURRENT PERIOD.--Maximum daily rainfall, 2.34 in., June 2.

RAINFALL ACCUMULATED (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	.11
2	---	---	---	---	---	---	---	.06	2.34	.00	.00	.00
3	---	---	---	---	---	---	---	.16	.00	.10	.09	.00
4	---	---	---	---	---	---	---	.01	.00	.00	.78	.00
5	---	---	---	---	---	---	---	.00	.00	.00	1.08	.00
6	---	---	---	---	---	---	---	.00	.00	.00	.53	.00
7	---	---	---	---	---	---	---	.30	.00	.00	.00	.00
8	---	---	---	---	---	---	---	.00	.00	.01	.02	.00
9	---	---	---	---	---	---	---	.00	.73	.00	.00	.00
10	---	---	---	---	---	---	---	.00	.01	.00	.00	.00
11	---	---	---	---	---	---	---	.00	.94	.00	.00	.00
12	---	---	---	---	---	---	---	.00	.03	.00	.00	.00
13	---	---	---	---	---	---	---	.00	.00	.01	.00	.00
14	---	---	---	---	---	---	---	.00	.00	.00	.37	.32
15	---	---	---	---	---	---	---	.39	.00	.00	.00	.01
16	---	---	---	---	---	---	---	.01	.00	.00	.00	.02
17	---	---	---	---	---	---	---	.00	.00	.00	.60	.00
18	---	---	---	---	---	---	---	.00	.50	.00	.00	.00
19	---	---	---	---	---	---	---	.03	.00	.08	.00	.00
20	---	---	---	---	---	---	---	.00	.04	.14	.00	.00
21	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
22	---	---	---	---	---	---	.00	.00	.00	.01	.26	.00
23	---	---	---	---	---	---	.00	.00	.00	.00	.09	.03
24	---	---	---	---	---	---	.00	.35	1.47	.00	.00	.00
25	---	---	---	---	---	---	.05	.00	1.40	.00	.00	.01
26	---	---	---	---	---	---	.10	.00	.00	.00	.00	.11
27	---	---	---	---	---	---	.00	.00	1.39	.00	.01	.01
28	---	---	---	---	---	---	.00	.81	.10	.00	.00	.00
29	---	---	---	---	---	---	.00	.00	.00	.00	.00	.00
30	---	---	---	---	---	---	.00	.00	.00	.00	.00	.38
31	---	---	---	---	---	---	---	.48	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	2.60	8.95	0.35	3.83	1.00

WISCONSIN RIVER BASIN
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.--Not determined.

PERIOD OF RECORD.--April to September 1998.

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: May 20 to June 9, July 8 to Aug. 12, and Aug. 30 to Sept. 30. Records good except for estimated daily discharges, which are poor (see page 12).

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	---	---	---	---	---	---	---	2.4	1.6	31	2.0	1.4
2	---	---	---	---	---	---	---	2.3	1.5	21	1.9	.90
3	---	---	---	---	---	---	---	2.6	1.4	16	1.8	.70
4	---	---	---	---	---	---	---	3.6	1.3	13	2.4	.64
5	---	---	---	---	---	---	---	3.3	1.2	11	4.0	.60
6	---	---	---	---	---	---	---	2.6	1.2	9.8	5.0	.56
7	---	---	---	---	---	---	---	3.6	1.2	8.4	6.8	.54
8	---	---	---	---	---	---	---	7.0	1.3	8.2	6.0	.52
9	---	---	---	---	---	---	---	5.0	1.6	10	4.6	.48
10	---	---	---	---	---	---	---	3.9	2.1	9.0	5.6	.47
11	---	---	---	---	---	---	---	3.1	3.5	7.0	3.5	.46
12	---	---	---	---	---	---	---	2.4	9.5	5.6	2.5	.45
13	---	---	---	---	---	---	---	1.9	9.4	6.4	2.0	.60
14	---	---	---	---	---	---	---	1.6	6.7	5.8	2.3	.80
15	---	---	---	---	---	---	---	1.1	4.5	5.0	3.6	.60
16	---	---	---	---	---	---	---	1.5	3.0	4.2	2.6	.47
17	---	---	---	---	---	---	---	.91	2.3	4.7	4.9	.45
18	---	---	---	---	---	---	---	.48	2.2	4.0	5.7	.45
19	---	---	---	---	---	---	---	.81	4.3	4.5	3.6	.42
20	---	---	---	---	---	---	---	.90	2.7	3.5	2.6	.41
21	---	---	---	---	---	---	---	1.0	2.6	4.7	2.2	.40
22	---	---	---	---	---	---	5.0	1.2	2.2	4.2	2.8	.40
23	---	---	---	---	---	---	4.1	1.5	2.0	3.5	5.2	.42
24	---	---	---	---	---	---	3.6	1.7	4.5	2.9	3.5	.40
25	---	---	---	---	---	---	3.1	1.5	66	3.2	2.9	.42
26	---	---	---	---	---	---	4.0	1.4	80	3.2	2.3	.44
27	---	---	---	---	---	---	3.7	1.4	80	2.6	1.8	.40
28	---	---	---	---	---	---	3.1	1.9	92	2.1	1.3	.50
29	---	---	---	---	---	---	2.8	1.7	74	2.0	.85	.54
30	---	---	---	---	---	---	2.5	1.5	47	2.0	.90	.76
31	---	---	---	---	---	---	---	1.7	---	2.0	1.5	---
TOTAL	---	---	---	---	---	---	31.9	67.50	512.8	220.5	98.65	16.60
MEAN	---	---	---	---	---	---	3.54	2.18	17.1	7.11	3.18	.55
MAX	---	---	---	---	---	---	5.0	7.0	92	31	6.8	1.4
MIN	---	---	---	---	---	---	2.5	.48	1.2	2.0	.85	.40

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

MEAN	---	---	---	---	---	---	3.54	2.18	17.1	7.11	3.18	.55
MAX	---	---	---	---	---	---	3.54	2.18	17.1	7.11	3.18	.55
(WY)	---	---	---	---	---	---	1998	1998	1998	1998	1998	1998
MIN	---	---	---	---	---	---	3.54	2.18	17.1	7.11	3.18	.55
(WY)	---	---	---	---	---	---	1998	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(APRIL-SEPTEMBER)

ANNUAL TOTAL	947.95	
ANNUAL MEAN	5.85	
HIGHEST DAILY MEAN	92	Jun 28
LOWEST DAILY MEAN	.40	Sep 21, 22, 24, 27
ANNUAL SEVEN-DAY MINIMUM	.41	Sep 19
10 PERCENT EXCEEDS	8.8	
50 PERCENT EXCEEDS	2.4	
90 PERCENT EXCEEDS	.48	

WISCONSIN RIVER BASIN

233

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.--Not determined.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April to September 1998.

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.--Records are good (see page 12).

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	---	---	---	---	---	---	---	44	22	303	49	31
2	---	---	---	---	---	---	---	45	27	263	37	30
3	---	---	---	---	---	---	---	47	28	251	26	28
4	---	---	---	---	---	---	---	46	27	272	37	31
5	---	---	---	---	---	---	---	46	25	259	53	36
6	---	---	---	---	---	---	---	45	21	266	81	39
7	---	---	---	---	---	---	---	48	19	269	73	40
8	---	---	---	---	---	---	---	52	15	267	68	38
9	---	---	---	---	---	---	---	52	17	298	67	59
10	---	---	---	---	---	---	---	52	19	245	65	65
11	---	---	---	---	---	---	---	51	22	163	61	49
12	---	---	---	---	---	---	---	48	48	174	56	36
13	---	---	---	---	---	---	---	48	62	126	49	33
14	---	---	---	---	---	---	---	45	56	68	49	33
15	---	---	---	---	---	---	---	43	51	71	54	33
16	---	---	---	---	---	---	---	45	46	72	52	32
17	---	---	---	---	---	---	---	42	42	71	55	31
18	---	---	---	---	---	---	---	40	39	69	77	27
19	---	---	---	---	---	---	---	39	34	68	81	23
20	---	---	---	---	---	---	---	36	26	65	70	21
21	---	---	---	---	---	---	---	33	28	64	62	19
22	---	---	---	---	---	---	---	61	30	27	60	16
23	---	---	---	---	---	---	---	58	28	25	58	13
24	---	---	---	---	---	---	---	55	28	27	54	12
25	---	---	---	---	---	---	---	52	26	70	57	5.7
26	---	---	---	---	---	---	---	54	14	125	59	2.3
27	---	---	---	---	---	---	---	52	4.0	209	60	4.7
28	---	---	---	---	---	---	---	49	5.8	329	59	4.7
29	---	---	---	---	---	---	---	46	8.1	406	57	5.7
30	---	---	---	---	---	---	---	44	10	385	56	7.2
31	---	---	---	---	---	---	---	---	20	---	52	---
TOTAL	---	---	---	---	---	---	---	471	1120.9	2277	4276	1732
MEAN	---	---	---	---	---	---	---	52.3	36.2	75.9	138	55.9
MAX	---	---	---	---	---	---	---	61	52	406	303	81
MIN	---	---	---	---	---	---	---	44	4.0	15	52	26

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

MEAN	---	---	---	---	---	---	---	36.2	75.9	138	55.9	26.8
MAX	---	---	---	---	---	---	---	36.2	75.9	138	55.9	26.8
(WY)	---	---	---	---	---	---	---	1998	1998	1998	1998	1998
MIN	---	---	---	---	---	---	---	36.2	75.9	138	55.9	26.8
(WY)	---	---	---	---	---	---	---	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(APRIL-SEPTEMBER)

HIGHEST DAILY MEAN	406	Jun 29
LOWEST DAILY MEAN	2.3	Sep 26
ANNUAL SEVEN-DAY MINIMUM	6.0	Sep 24
10 PERCENT EXCEEDS	152	
50 PERCENT EXCEEDS	48	
90 PERCENT EXCEEDS	18	

WISCONSIN RIVER BASIN
05403043 LITTLE YELLOW RIVER NEAR NECEDAH, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--May to September 1998.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established May 6, 1998. Collector was found to be plugged with debris on July 8. Actual rainfall for the period June 1 to July 8 may be greater than reported.

EXTREMES FOR CURRENT PERIOD.--Maximum daily rainfall, 2.42 in., Aug. 4.

RAINFALL ACCUMULATED (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	.09
2	---	---	---	---	---	---	---	---	.00	.01	.00	.00
3	---	---	---	---	---	---	---	---	.00	.00	.24	.00
4	---	---	---	---	---	---	---	---	.00	.01	2.42	.00
5	---	---	---	---	---	---	---	---	.01	.00	.82	.00
6	---	---	---	---	---	---	---	.00	.00	.00	1.05	.00
7	---	---	---	---	---	---	---	.68	.00	.00	.01	.00
8	---	---	---	---	---	---	---	.00	.00	.05	.00	.00
9	---	---	---	---	---	---	---	.00	1.25	.00	.03	.00
10	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
11	---	---	---	---	---	---	---	.00	1.47	.00	.00	.00
12	---	---	---	---	---	---	---	.00	.02	.00	.00	.00
13	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
14	---	---	---	---	---	---	---	.00	.00	.00	.77	.70
15	---	---	---	---	---	---	---	.44	.00	.10	.00	.00
16	---	---	---	---	---	---	---	.06	.01	.00	.00	.00
17	---	---	---	---	---	---	---	.00	.03	.00	.76	.00
18	---	---	---	---	---	---	---	.00	.73	.00	.00	.00
19	---	---	---	---	---	---	---	.01	.24	.19	.00	.00
20	---	---	---	---	---	---	---	.00	.13	.31	.00	.06
21	---	---	---	---	---	---	---	.00	.00	.00	.00	.00
22	---	---	---	---	---	---	---	.00	.00	.02	.31	.00
23	---	---	---	---	---	---	---	.01	.00	.00	.25	.03
24	---	---	---	---	---	---	---	.79	.89	.00	.00	.02
25	---	---	---	---	---	---	---	.00	.71	.00	.00	.01
26	---	---	---	---	---	---	---	.00	.01	.00	.00	.05
27	---	---	---	---	---	---	---	.00	.06	.00	.23	.04
28	---	---	---	---	---	---	---	.96	.01	.00	.00	.00
29	---	---	---	---	---	---	---	.01	.01	.00	.00	.22
30	---	---	---	---	---	---	---	.00	.01	.00	.00	.34
31	---	---	---	---	---	---	---	.88	---	.00	.00	---
TOTAL	---	---	---	---	---	---	---	---	5.59	0.69	6.89	1.56

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 Rynearson Flowage Pool No. 1, and 4.5 mi northwest of Necedah.

DRAINAGE AREA.--Not determined.

PERIOD OF RECORD.--April to September 1998.

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.--Daily mean discharge estimated from once-daily observed gage-height readings May 29 to July 8 and Sept. 21-30. Records are fair (see page 12).

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	71	75	5.8	17
2	---	---	---	---	---	---	---	36	32	67	6.0	17
3	---	---	---	---	---	---	---	38	42	78	7.3	17
4	---	---	---	---	---	---	---	36	17	88	27	15
5	---	---	---	---	---	---	---	32	12	83	37	15
6	---	---	---	---	---	---	---	26	11	73	47	14
7	---	---	---	---	---	---	---	26	9.4	69	52	13
8	---	---	---	---	---	---	---	27	9.0	64	45	11
9	---	---	---	---	---	---	---	25	12	59	40	11
10	---	---	---	---	---	---	---	23	16	47	35	12
11	---	---	---	---	---	---	---	114	39	38	31	12
12	---	---	---	---	---	---	---	122	59	34	26	12
13	---	---	---	---	---	---	---	117	35	34	23	13
14	---	---	---	---	---	---	---	80	24	31	28	15
15	---	---	---	---	---	---	---	52	21	29	32	15
16	---	---	---	---	---	---	---	45	18	25	27	13
17	---	---	---	---	---	---	---	33	18	23	35	13
18	---	---	---	---	---	---	---	60	17	21	32	13
19	---	---	---	---	---	---	---	59	19	22	29	12
20	---	---	---	---	---	---	---	37	19	20	28	11
21	---	---	---	---	---	---	---	27	18	19	26	4.2
22	---	---	---	---	---	---	54	22	17	18	33	19
23	---	---	---	---	---	---	51	19	16	15	41	23
24	---	---	---	---	---	---	49	22	22	16	34	25
25	---	---	---	---	---	---	47	23	53	16	29	20
26	---	---	---	---	---	---	51	20	81	14	26	2.7
27	---	---	---	---	---	---	48	24	140	14	24	4.6
28	---	---	---	---	---	---	44	67	160	12	23	7.8
29	---	---	---	---	---	---	42	87	149	10	21	9.7
30	---	---	---	---	---	---	39	67	115	9.5	20	10
31	---	---	---	---	---	---	---	40	---	7.1	18	---
TOTAL	---	---	---	---	---	---	425	1442	1271.4	1130.6	888.1	397.0
MEAN	---	---	---	---	---	---	47.2	46.5	42.4	36.5	28.6	13.2
MAX	---	---	---	---	---	---	54	122	160	88	52	25
MIN	---	---	---	---	---	---	39	19	9.0	7.1	5.8	2.7

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

MEAN	---	---	---	---	---	---	---	46.5	42.4	36.5	28.6	13.2
MAX	---	---	---	---	---	---	---	46.5	42.4	36.5	28.6	13.2
(WY)	---	---	---	---	---	---	---	1998	1998	1998	1998	1998
MIN	---	---	---	---	---	---	---	46.5	42.4	36.5	28.6	13.2
(WY)	---	---	---	---	---	---	---	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(APRIL-SEPTEMBER)

HIGHEST DAILY MEAN	160	Jun 28
LOWEST DAILY MEAN	2.7	Sep 26
ANNUAL SEVEN-DAY MINIMUM	8.2	Jul 28
10 PERCENT EXCEEDS	70	
50 PERCENT EXCEEDS	26	
90 PERCENT EXCEEDS	11	

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.--Not determined.

PERIOD OF RECORD.--April to September 1998.

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: Aug. 12 to Sept. 11. Records good except for estimated daily discharges, which are poor (see page 12).

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	---	---	---	---	---	---	---	6.0	15	34	8.5	5.4
2	---	---	---	---	---	---	---	8.1	15	30	8.1	4.7
3	---	---	---	---	---	---	---	10	15	29	8.1	4.3
4	---	---	---	---	---	---	---	11	15	34	15	4.0
5	---	---	---	---	---	---	---	12	15	31	21	3.5
6	---	---	---	---	---	---	---	12	15	28	26	3.2
7	---	---	---	---	---	---	---	13	14	25	26	2.9
8	---	---	---	---	---	---	---	15	14	23	24	2.6
9	---	---	---	---	---	---	---	15	15	21	22	2.4
10	---	---	---	---	---	---	---	15	18	18	21	2.3
11	---	---	---	---	---	---	---	15	20	15	18	2.1
12	---	---	---	---	---	---	---	15	23	14	17	2.0
13	---	---	---	---	---	---	---	14	22	14	15	1.9
14	---	---	---	---	---	---	---	14	21	13	14	2.1
15	---	---	---	---	---	---	---	14	20	13	15	2.5
16	---	---	---	---	---	---	---	15	18	13	14	2.3
17	---	---	---	---	---	---	---	14	17	13	13	1.8
18	---	---	---	---	---	---	---	13	16	13	16	1.5
19	---	---	---	---	---	---	---	13	18	13	15	1.4
20	---	---	---	---	---	---	---	12	17	13	14	.97
21	---	---	---	---	---	---	---	12	16	13	13	.81
22	---	---	---	---	---	---	---	11	16	12	11	.61
23	---	---	---	---	---	---	---	3.3	10	15	12	.55
24	---	---	---	---	---	---	---	1.4	12	16	11	.48
25	---	---	---	---	---	---	---	1.6	12	21	11	.44
26	---	---	---	---	---	---	---	4.5	11	22	10	.34
27	---	---	---	---	---	---	---	5.0	10	32	9.8	.11
28	---	---	---	---	---	---	---	5.2	13	41	9.7	.10
29	---	---	---	---	---	---	---	5.1	13	39	9.4	.16
30	---	---	---	---	---	---	---	4.9	12	37	9.2	.15
31	---	---	---	---	---	---	---	15	---	8.9	5.8	---
TOTAL	---	---	---	---	---	---	---	31.0	387.1	598	523.0	57.62
MEAN	---	---	---	---	---	---	---	3.88	12.5	19.9	16.9	1.92
MAX	---	---	---	---	---	---	---	5.2	15	41	26	5.4
MIN	---	---	---	---	---	---	---	1.4	6.0	14	8.9	.10

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

MEAN	---	---	---	---	---	---	---	3.88	12.5	19.9	16.9	14.2	1.92
MAX	---	---	---	---	---	---	---	3.88	12.5	19.9	16.9	14.2	1.92
(WY)	---	---	---	---	---	---	---	1998	1998	1998	1998	1998	1998
MIN	---	---	---	---	---	---	---	3.88	12.5	19.9	16.9	14.2	1.92
(WY)	---	---	---	---	---	---	---	1998	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(APRIL-SEPTEMBER)

ANNUAL TOTAL	2036.82
ANNUAL MEAN	12.7
HIGHEST DAILY MEAN	41 Jun 28
LOWEST DAILY MEAN	.10 Sep 28
ANNUAL SEVEN-DAY MINIMUM	.25 Sep 24
10 PERCENT EXCEEDS	23
50 PERCENT EXCEEDS	13
90 PERCENT EXCEEDS	1.8

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 periods, Jan. 10-28 and Mar. 12-17. Records good (see page 12). 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4440	4150	4910	4370	5960	8490	28500	4900	4680	17000	2010	3370
2	4480	4640	4940	4710	5940	8820	33100	4680	4800	17500	2190	3020
3	4450	4980	5000	4930	6240	8710	31000	5040	5110	16300	2530	3150
4	4380	5450	5050	4930	6310	8510	29500	5200	5180	10900	2960	2830
5	4340	5440	5350	5110	6310	8650	26000	4990	4990	9490	5280	2810
6	4150	5400	5500	5200	6400	8970	24400	4960	4360	9980	8530	3150
7	3890	5220	5320	5280	6460	9290	17000	5150	4250	9330	9500	3120
8	4190	4870	5010	6200	6510	8860	15600	5210	4110	7880	6060	2510
9	4960	4900	4860	6300	5940	9030	17300	5010	4270	6980	4090	2640
10	5520	5270	4410	5000	6330	8370	16000	5000	4490	7040	3970	2550
11	5860	5110	4500	4300	6450	7100	12100	5020	5250	7370	4210	2600
12	5990	4460	4470	4500	6470	6600	9330	4660	6850	6860	4190	2910
13	6560	4980	4430	3500	6570	6600	9350	4960	8920	5130	4240	2760
14	7720	4640	4450	4500	6570	6600	9080	5300	11600	4820	3950	2320
15	7650	4410	4580	5200	6530	6600	8870	4930	11900	4570	3520	2360
16	7740	4390	4560	5000	6480	6400	8300	4700	12000	4130	3440	2320
17	10900	4240	4970	5000	6760	6600	8300	4870	9950	3710	3140	2050
18	14000	4240	5000	5400	7110	6920	8170	5590	8250	3950	3480	1920
19	14300	4150	4940	5800	7350	6940	8110	6110	8840	3920	4060	2210
20	11300	4280	4880	6000	6830	6930	8210	5610	8420	3930	5220	2080
21	7550	4620	5190	6400	5910	6860	9190	4610	5710	3750	4740	1940
22	5600	4460	5370	6000	6480	6710	8510	3830	5000	3560	4500	1960
23	5380	4530	5030	6000	6950	6780	7800	3640	4370	3580	4830	1980
24	6800	4030	4430	6200	7120	6760	7740	3460	4560	3600	5230	1890
25	7100	4640	4150	6200	7050	5610	7640	3460	5300	3280	4950	2110
26	5480	4100	4280	6200	7210	5460	7180	3580	7150	3210	5020	2200
27	5580	4100	4380	6000	8450	6720	6390	3470	9470	2800	4580	1930
28	5040	4460	4460	5800	8630	7070	5110	3490	21400	2520	4010	1900
29	4420	4500	4350	5880	---	6900	5330	3810	20700	2510	3900	1960
30	3720	4850	4120	5740	---	8760	4860	3700	15900	2680	3830	2050
31	3750	---	4120	5840	---	16600	---	3940	---	2230	3490	---
TOTAL	197240	139510	147010	167490	187320	239220	397970	142880	237780	194510	135650	72600
MEAN	6363	4650	4742	5403	6690	7717	13270	4609	7926	6275	4376	2420
MAX	14300	5450	5500	6400	8630	16600	33100	6110	21400	17500	9500	3370
MIN	3720	4030	4120	3500	5910	5460	4860	3460	4110	2230	2010	1890

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 1998, BY WATER YEAR (WY)

	MEAN	5968	6346	5143	4797	5071	8276	13080	9477	8566	5352	4342	5946
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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1935 - 1998

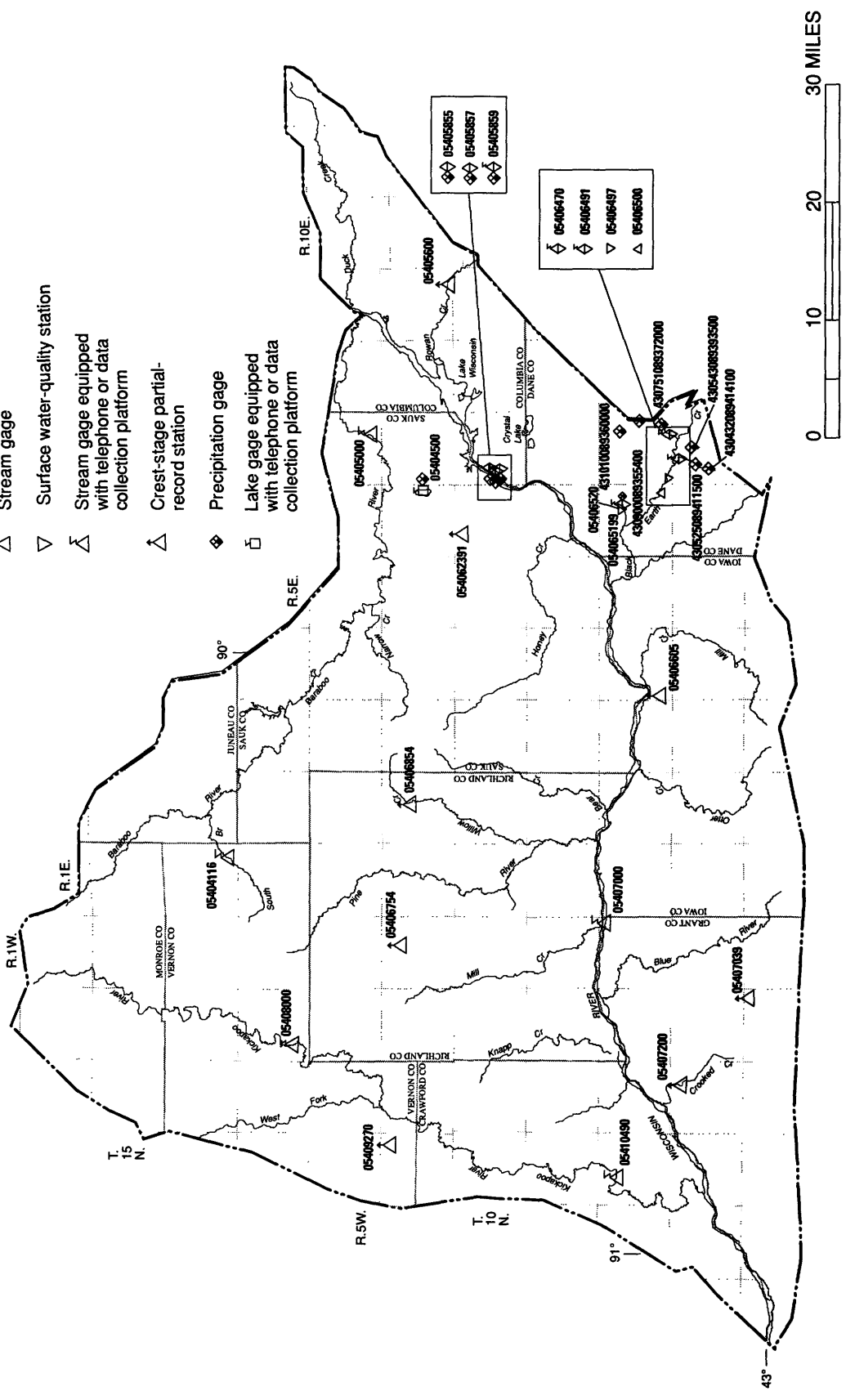
ANNUAL TOTAL	2560330	2259180	6859
ANNUAL MEAN	7015	6190	12420
HIGHEST ANNUAL MEAN			2993
LOWEST ANNUAL MEAN			71200
HIGHEST DAILY MEAN	37200	Apr 9	1890
LOWEST DAILY MEAN	3460	Jul 26	2000
ANNUAL SEVEN-DAY MINIMUM	4130	Aug 1	33600
INSTANTANEOUS PEAK FLOW			13.42
INSTANTANEOUS PEAK STAGE			Apr 2
10 PERCENT EXCEEDS	8390	9120	(a)23.83
50 PERCENT EXCEEDS	5870	5050	12200
90 PERCENT EXCEEDS	4190	3130	2890

(a) Present datum

EXPLANATION

05404116 Station number

- △ Stream gage
- ▽ Surface water-quality station
- △ Stream gage equipped with telephone or data collection platform
- △ Crest-stage partial-record station
- ◆ Precipitation gage
- Lake gage equipped with telephone or data collection platform



LOWER WISCONSIN RIVER BASIN

Based on 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: Aug. 9-17, and ice-affected periods, Dec. 26 to Jan. 2, Jan. 10-25, and Mar. 10-16. Records good except those for estimated daily discharges, which are fair (see page 12). 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	10	13	11	8.6	12	31	102	18	15	25	14	12
2	11	13	11	10	13	28	49	18	15	21	14	12
3	11	13	13	16	11	27	37	23	13	68	17	12
4	10	12	13	14	10	23	31	20	12	38	24	12
5	10	12	12	21	9.7	21	28	18	12	29	29	11
6	9.6	13	11	22	10	21	26	16	12	27	29	12
7	10	12	11	20	10	20	24	30	12	27	35	12
8	11	12	11	14	10	20	26	36	12	27	68	11
9	13	12	11	13	11	15	27	21	30	24	25	11
10	11	12	12	8.2	10	14	22	19	23	22	20	11
11	10	11	12	8.0	10	14	21	18	216	21	16	11
12	14	11	11	8.0	11	15	20	17	108	20	14	11
13	87	11	10	8.0	11	15	21	16	35	20	14	11
14	17	12	10	8.2	10	15	21	16	26	20	18	25
15	14	12	11	8.4	14	15	23	17	22	20	16	21
16	13	11	12	8.6	27	15	41	18	42	19	14	15
17	12	11	12	9.0	87	18	23	14	27	19	24	13
18	12	12	12	9.0	53	27	22	14	53	19	19	13
19	12	11	11	9.2	41	32	20	16	75	19	16	13
20	12	11	12	9.2	42	24	19	15	28	22	16	13
21	12	11	9.8	9.4	28	25	19	14	34	36	16	12
22	12	11	11	9.4	26	28	18	14	23	23	15	12
23	12	10	11	9.4	26	34	18	14	20	22	17	11
24	13	9.2	10	9.4	25	38	17	20	28	20	15	13
25	12	11	10	9.4	23	57	16	19	23	20	15	13
26	11	11	9.6	11	26	75	42	16	20	20	14	14
27	12	11	8.6	10	105	43	20	15	209	19	14	13
28	12	11	8.8	10	56	31	19	39	375	10	15	12
29	12	11	8.6	11	---	28	18	16	36	9.5	14	13
30	13	11	8.4	10	---	52	18	13	81	15	13	16
31	14	---	8.4	10	---	437	---	26	---	14	12	---
TOTAL	444.6	344.2	333.2	341.4	727.7	1258	808	586	1637	715.5	602	391
MEAN	14.3	11.5	10.7	11.0	26.0	40.6	26.9	18.9	54.6	23.1	19.4	13.0
MAX	87	13	13	22	105	437	102	39	375	68	68	25
MIN	9.6	9.2	8.4	8.0	9.7	14	16	13	12	9.5	12	11
CFSM	.37	.29	.27	.28	.66	1.04	.69	.48	1.40	.59	.50	.33
IN.	.42	.33	.32	.32	.69	1.20	.77	.56	1.56	.68	.57	.37

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1998, BY WATER YEAR (WY)

	MEAN	15.0	17.4	14.2	14.2	18.0	39.1	32.8	24.1	33.7	18.5	15.2	22.9
MAX	26.1	28.6	22.9	26.8	28.4	50.8	70.9	52.5	75.3	52.3	28.2	95.3	
(WY)	1994	1993	1993	1996	1994	1989	1993	1993	1990	1993	1993	1992	
MIN	6.79	8.14	4.42	8.95	6.91	25.7	8.47	13.2	8.38	5.83	6.69	6.12	
(WY)	1990	1991	1990	1991	1989	1991	1990	1989	1989	1989	1988	1990	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1988 - 1998

ANNUAL TOTAL	6359.0	8188.6	
ANNUAL MEAN	17.4	22.4	22.3
HIGHEST ANNUAL MEAN			35.1
LOWEST ANNUAL MEAN			13.0
HIGHEST DAILY MEAN	134	Mar 21	437
LOWEST DAILY MEAN	(a)8.4	Dec 30,31	(a)8.0
ANNUAL SEVEN-DAY MINIMUM	(a)8.9	Dec 25	(a)8.2
INSTANTANEOUS PEAK FLOW			1200
INSTANTANEOUS PEAK STAGE			12.50
ANNUAL RUNOFF (CFSM)	.45		.57
ANNUAL RUNOFF (INCHES)	6.05		7.79
10 PERCENT EXCEEDS	29		34
50 PERCENT EXCEEDS	13		14
90 PERCENT EXCEEDS	11		10
			7.0

(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 12). Lake has no surface outlet.

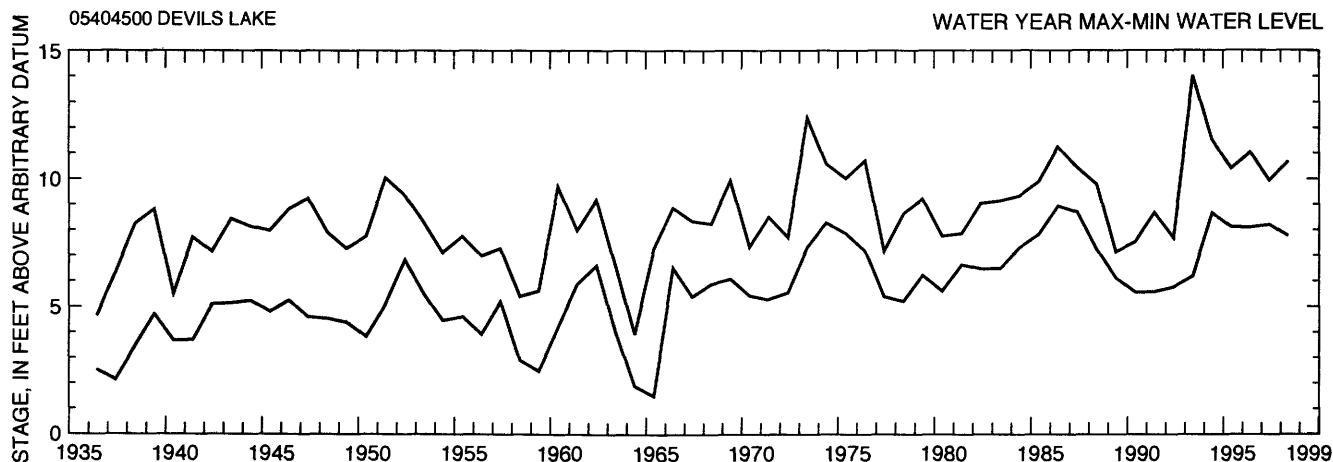
EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 14.13 ft, July 18, 1993; minimum observed, 1.49 ft Feb. 8, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum recorded gage height, 10.70 ft, June 29 and 30; minimum recorded, 7.71 ft, Jan. 1.

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	8.62	8.20	7.90	7.76	7.84	8.11	9.54	10.32	10.23	10.67	10.00	9.84
2	8.60	8.19	7.89	7.76	7.86	8.12	9.61	10.34	10.19	10.65	9.98	9.81
3	8.59	8.18	7.92	7.76	7.86	8.14	9.64	10.39	10.16	10.66	9.96	9.78
4	8.57	8.17	7.93	7.76	7.86	8.14	9.67	10.39	10.13	10.66	10.06	9.75
5	8.56	8.16	7.92	7.80	7.85	8.14	9.68	10.39	10.10	10.64	10.19	9.73
6	8.54	8.16	7.91	7.81	7.84	8.16	9.69	10.38	10.07	10.61	10.26	9.71
7	8.53	8.15	7.90	7.81	7.84	8.16	9.70	10.40	10.04	10.60	10.28	9.69
8	8.52	8.14	7.89	7.81	7.84	8.21	9.75	10.45	10.02	10.58	10.27	9.65
9	8.52	8.14	7.89	7.83	7.83	8.26	9.81	10.44	10.04	10.56	10.25	9.62
10	8.49	8.13	7.90	7.82	7.83	8.25	9.82	10.43	10.06	10.54	10.24	9.60
11	8.47	8.11	7.90	7.82	7.84	8.25	9.83	10.42	10.11	10.51	10.21	9.57
12	8.46	8.10	7.89	7.81	7.84	8.24	9.84	10.41	10.23	10.48	10.19	9.54
13	8.50	8.09	7.88	7.81	7.84	8.24	9.86	10.40	10.24	10.45	10.17	9.52
14	8.47	8.07	7.87	7.83	7.84	8.23	9.91	10.39	10.23	10.43	10.15	9.68
15	8.45	8.07	7.87	7.83	7.83	8.23	9.98	10.37	10.22	10.40	10.16	9.82
16	8.43	8.05	7.86	7.83	7.84	8.22	10.20	10.37	10.21	10.37	10.13	9.80
17	8.41	8.04	7.85	7.83	7.88	8.23	10.27	10.34	10.19	10.34	10.13	9.78
18	8.39	8.02	7.84	7.83	7.89	8.30	10.30	10.31	10.25	10.31	10.12	9.77
19	8.36	8.01	7.84	7.82	7.90	8.37	10.31	10.31	10.39	10.31	10.10	9.75
20	8.34	8.00	7.84	7.82	7.90	8.38	10.33	10.29	10.40	10.31	10.07	9.73
21	8.31	7.99	7.83	7.83	7.91	8.38	10.34	10.26	10.41	10.34	10.06	9.69
22	8.28	7.98	7.83	7.83	7.91	8.39	10.35	10.23	10.40	10.31	10.05	9.66
23	8.28	7.97	7.83	7.85	7.92	8.40	10.35	10.19	10.38	10.28	10.02	9.63
24	8.26	7.95	7.82	7.85	7.94	8.42	10.35	10.23	10.40	10.24	10.01	9.62
25	8.24	7.95	7.81	7.85	7.95	8.45	10.34	10.24	10.39	10.21	10.00	9.60
26	8.24	7.94	7.80	7.85	7.97	8.52	10.36	10.22	10.36	10.18	9.98	9.59
27	8.24	7.94	7.79	7.85	8.05	8.58	10.35	10.20	10.48	10.15	9.96	9.58
28	8.23	7.92	7.79	7.85	8.09	8.60	10.33	10.24	10.66	10.12	9.94	9.56
29	8.21	7.92	7.78	7.85	---	8.63	10.32	10.26	10.68	10.09	9.92	9.55
30	8.21	7.91	7.77	7.84	---	8.72	10.31	10.24	10.68	10.06	9.89	9.55
31	8.20	---	7.77	7.84	---	9.31	---	10.25	---	10.03	9.87	---
MEAN	8.40	8.05	7.86	7.82	7.89	8.35	10.04	10.33	10.28	10.39	10.08	9.67
MAX	8.62	8.20	7.93	7.85	8.09	9.31	10.36	10.45	10.68	10.67	10.28	9.84
MIN	8.20	7.91	7.77	7.76	7.83	8.11	9.54	10.19	10.02	10.03	9.87	9.52



WISCONSIN RIVER BASIN
05404500 DEVILS LAKE NEAR BARABOO, WI--CONTINUED

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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. Rainfall estimated to be 0.00 on Nov. 12, 17, Dec. 14, 15, 26, Jan. 29, 31, Feb. 1, and Mar. 7, because recorded precipitation interpreted as collector snowmelt.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 3.63 in., Sept. 14.

RAINFALL ACCUMULATED (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	.04	.00	.00	.00	.06	.01	.30	.00	.00	.00	.00
2	.00	.00	.00	.00	.02	.03	.01	.51	.00	.00	.00	.00
3	.00	.12	.00	.00	.00	.05	.00	.28	.02	.55	.39	.00
4	.00	.01	.00	.51	.00	.00	.00	.00	.00	.00	2.16	.00
5	.00	.09	.00	.25	.00	.01	.00	.00	.05	.00	.69	.00
6	.00	.03	.00	.02	.00	.00	.00	.00	.00	.00	.43	.00
7	.00	.02	.00	.00	.00	.00	.19	.79	.00	.05	.00	.00
8	.06	.00	.00	.00	.00	.00	.66	.01	.00	.00	.02	.00
9	.04	.08	.00	.00	.00	.00	.11	.00	.95	.00	.05	.00
10	.00	.02	.00	.00	.04	.00	.01	.00	.00	.00	.02	.00
11	.00	.00	.00	.00	.19	.00	.00	.00	1.61	.00	.00	.00
12	.22	.00	.00	.00	.00	.00	.00	.00	.08	.00	.02	.00
13	.30	.00	.00	.00	.00	.00	.52	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.22	3.63
15	.00	.00	.00	.00	.00	.00	1.32	.11	.00	.00	.00	.01
16	.00	.00	.00	.00	.22	.00	.38	.00	.04	.00	.00	.00
17	.00	.00	.00	.00	.11	.35	.00	.00	.00	.00	.39	.00
18	.00	.00	.00	.00	.01	.77	.00	.00	1.57	.00	.00	.00
19	.00	.00	.00	.00	.01	.04	.00	.36	.00	.06	.00	.00
20	.00	.00	.00	.00	.00	.09	.02	.00	.16	.86	.00	.00
21	.00	.00	.00	.00	.00	.00	.11	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.08	.00	.00	.00	.01	.00	.00	.03	.00	.00	.00	.06
24	.01	.00	.00	.00	.02	.00	.00	.22	.55	.00	.23	.11
25	.00	.00	.00	.00	.00	.00	.01	.15	.00	.00	.00	.02
26	.00	.00	.00	.00	.08	.00	.28	.11	.00	.00	.00	.00
27	.01	.00	.00	.00	.69	.00	.00	.02	1.76	.02	.05	.08
28	.39	.00	.00	.00	.00	.00	.00	.12	.87	.00	.02	.00
29	.00	.00	.00	.00	---	.01	.00	.01	.03	.00	.00	.12
30	.04	.00	.00	.00	---	2.74	.00	.00	.06	.00	.00	.44
31	.00	---	.00	.00	---	.88	---	.01	---	.00	.00	---
TOTAL	1.15	0.41	0.00	0.78	1.40	5.03	3.63	3.03	7.75	1.54	4.69	4.47

WISCONSIN RIVER BASIN
05405000 BARABOO RIVER NEAR BARABOO, WI

LOCATION.--Lat 43°28'51", long 89°38'09", in NW 1/4 NW 1/4 sec.35, T.12 N., R.7 E., Sauk County, Hydrologic Unit 07070004, on left bank 50 ft downstream from highway bridge, 0.3 mi downstream from Rowley Creek and 5.3 mi east of Baraboo.

DRAINAGE AREA.--609 mi².

PERIOD OF RECORD.--December 1913 to March 1922. September 1942 to current year.

REVISED RECORDS.--WSP 455: 1915. WSP 505: 1917(M). WSP 1438: 1914, 1915(M), 1916-17, 1918-20(M), 1944(M), 1949(M). WSP 1914: 1948, 1950, 1956. WDR WI-75-1: 1968. WDR WI-77-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 788.21 ft above sea level. Dec. 18, 1913, to Mar. 31, 1922, nonrecording gage at bridge 2.3 mi upstream at datum 7.6 ft higher. Sept. 24, 1942, to June 10, 1963, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: May 21-28 and ice-affected periods, Dec. 27 to Jan. 3, Jan. 10-26, Feb. 5-10, and Mar. 10-17. Records good except for estimated daily discharges, which are fair (see page 12). Apparent occasional regulation at low flow by dams upstream. Gage-height telemeter at station.

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.

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	232	262	237	180	240	979	3700	361	475	1660	259	268
2	226	262	254	170	250	948	3610	360	399	1590	258	258
3	218	266	253	220	256	890	2990	416	386	1530	256	247
4	210	274	254	269	257	712	2530	443	340	1470	324	244
5	208	273	255	328	240	559	2220	442	297	1310	603	240
6	204	275	257	367	220	485	1880	435	275	976	744	237
7	203	274	252	417	210	432	1490	437	261	817	725	235
8	203	270	241	417	210	417	1100	535	249	713	634	230
9	208	266	243	387	220	415	916	582	274	591	541	230
10	204	264	243	260	220	350	811	569	371	507	481	228
11	207	262	253	220	230	300	717	525	492	454	415	221
12	213	262	241	210	233	280	610	415	1050	410	356	219
13	265	257	240	200	233	270	549	362	1350	380	325	219
14	311	250	233	200	237	260	553	338	1400	360	316	335
15	434	248	222	200	242	260	592	316	1470	346	326	410
16	492	247	234	200	280	270	1000	299	1490	330	367	457
17	408	248	228	200	481	280	1160	275	1410	318	413	424
18	301	245	239	210	771	382	998	265	1210	307	412	350
19	266	236	240	210	867	592	854	293	1380	308	396	288
20	252	233	242	210	875	716	710	278	1460	317	387	262
21	246	237	241	210	818	722	584	270	1330	370	372	249
22	246	233	239	210	729	722	521	260	1180	447	335	245
23	247	218	234	210	660	746	474	260	962	448	326	239
24	245	192	229	210	601	792	436	250	714	404	323	234
25	244	205	227	210	565	828	405	250	574	347	320	235
26	248	240	224	210	536	917	403	250	516	314	312	245
27	260	239	180	221	633	923	400	260	768	300	303	250
28	258	236	170	225	907	901	400	520	1430	295	291	248
29	260	235	180	230	---	878	409	570	1740	288	282	243
30	262	236	190	233	---	907	385	635	1810	282	279	260
31	262	---	190	235	---	2680	---	627	---	269	276	---
TOTAL	8043	7445	7165	7479	12221	20813	33407	12098	27063	18458	11957	8050
MEAN	259	248	231	241	436	671	1114	390	902	595	386	268
MAX	492	275	257	417	907	2680	3700	635	1810	1660	744	457
MIN	203	192	170	170	210	260	385	250	249	269	256	219
CFSM	.43	.41	.38	.40	.72	1.10	1.83	.64	1.48	.98	.63	.44
IN.	.49	.45	.44	.46	.75	1.27	2.04	.74	1.65	1.13	.73	.49

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

	MEAN	282	328	245	248	332	819	710	433	425	320	316
	MAX	842	942	519	945	1135	1759	2588	1518	1332	1495	1285
	(WY)	1973	1986	1993	1946	1966	1948	1993	1973	1920	1993	1965
	MIN	117	116	76.2	78.3	89.3	170	253	138	112	112	100
	(WY)	1959	1959	1959	1959	1959	1964	1946	1958	1958	1965	1958

WISCONSIN RIVER BASIN
05405000 BARABOO RIVER NEAR BARABOO, WI--CONTINUED

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SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1914 - 1998	
ANNUAL TOTAL	145767		174199		393	
ANNUAL MEAN	399		477		824	1993
HIGHEST ANNUAL MEAN					158	1958
LOWEST ANNUAL MEAN					7540	Mar 26 1917
HIGHEST DAILY MEAN	1460	Mar 29	3700	Apr 1	26	Oct 6 1950
LOWEST DAILY MEAN	(a)170	Dec 28	(a)170	(b)Dec 28	(a)72	Dec 8 1958
ANNUAL SEVEN-DAY MINIMUM	(a)194	Dec 25	(a)180	Dec 27	(c)7900	Mar 26 1917
INSTANTANEOUS PEAK FLOW			3960	Apr 1	22.78	Ju1 18 1993
INSTANTANEOUS PEAK STAGE			19.54	Apr 1	.64	
ANNUAL RUNOFF (CFSM)	.66		.78		8.76	
ANNUAL RUNOFF (INCHES)	8.90		10.64			
10 PERCENT EXCEEDS	708		919		780	
50 PERCENT EXCEEDS	310		288		242	
90 PERCENT EXCEEDS	230		218		139	

(a) Ice affected

(b) Also occurred Jan. 2

(c) 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 September 1998.

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 12). 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)
5/19/98	0215	5/19/98	0345	9.33	0.003
5/28/98	0615	5/28/98	0710	5.31	0.004
5/28/98	2025	5/28/98	2110	3.36	0.003
5/31/98	0145	5/31/98	0250	13.9	0.013
6/18/98	1230	6/18/98	1335	478	0.383
6/18/98	1420	6/18/98	1430	0.778	0.003
6/18/98	1530	6/18/98	1630	496	0.319
6/18/98	1825	6/18/98	1845	4.73	0.007
6/27/98	0335	6/27/98	0400	76.5	0.102
6/27/98	2230	6/27/98	2245	1.56	0.004
6/28/98	0125	6/28/98	0200	80.1	0.076
6/29/98	2330	6/30/98	0200	7.56	0.003
8/03/98	1735	8/03/98	2015	24.2	0.004
8/04/98	0730	8/04/98	1100	4.08	0.001
8/04/98	2400	8/05/98	0110	3.81	0.003
8/06/98	1515	8/06/98	1525	0.240	0.001

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1997 to September 1998.

INSTRUMENTATION.--Water-quality sampler November 1997 to September 1998.

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 1997 TO SEPTEMBER 1998

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)
06-18-98	1230	06-18-98	1335	0.478×10^{-3}	308
06-18-98	1530	06-18-98	1630	0.496×10^{-3}	528
06-28-98	0125	06-28-98	0200	0.801×10^{-4}	103

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)
06-18-98	76	1.71	5.16	16	1.98	--
06-18-98	100	.746	5.78	13	1.76	--
06-28-98	19	.528	.353	2.0	.537	.252

WISCONSIN RIVER BASIN

05405855 LAKE WISCONSIN TRIBUTARY #3 NEAR PRAIRIE DU SAC, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--November 1997 to September 1998.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established Nov. 1, 1997. Rainfall estimated to be 0.00 for Nov. 1-2, 14-16, Dec. 3, 6-7, 9-10, 19-26, Jan. 9, 15, 20, 24, 26-27, 29, Feb. 1-4, 10-11, and Mar. 1-3, 6-9, 12-13 because recorded precipitation interpreted as collector snowmelt. Missing record May 31, June 1-24, Aug. 20-30, and Sept. 30.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.83 in., Mar. 30.

RAINFALL ACCUMULATED, 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	.07	.23	---	.00	.00	.00
2	---	.00	.00	.00	.00	.00	.00	1.09	---	.02	.00	.00
3	---	.00	.00	.00	.00	.00	.00	.06	---	1.03	.81	.00
4	---	.00	.00	.49	.00	.00	.00	.00	---	.00	1.35	.00
5	---	.14	.00	.24	.00	.00	.00	.00	---	.01	.35	.01
6	---	.03	.00	.03	.00	.00	.00	.00	---	.00	.39	.00
7	---	.00	.00	.00	.00	.00	.20	.79	---	.12	.01	.00
8	---	.00	.00	.00	.00	.05	.59	.00	---	.00	.00	.00
9	---	.07	.00	.00	.00	.00	.13	.00	---	.00	.06	.00
10	---	.03	.00	.00	.00	.00	.00	.00	---	.00	.00	.01
11	---	.00	.00	.00	.00	.00	.00	.00	---	.00	.01	.00
12	---	.00	.00	.00	.00	.00	.00	.03	---	.00	.00	.00
13	---	.00	.00	.00	.00	.00	.66	.00	---	.00	.00	.00
14	---	.00	.00	.00	.00	.00	.00	.00	---	.00	.48	2.74
15	---	.00	.00	.00	.00	.00	.98	.00	---	.00	.00	.01
16	---	.00	.00	.00	.31	.00	.18	.00	---	.00	.00	.00
17	---	.00	.00	.00	.07	.00	.01	.00	---	.00	.45	.01
18	---	.00	.00	.00	.00	.00	.00	.00	---	.00	.00	.01
19	---	.00	.00	.00	.00	.00	.00	.47	---	.28	.00	.00
20	---	.00	.00	.00	.01	.00	.13	.00	---	1.04	---	.00
21	---	.01	.00	.00	.00	.00	.26	.00	---	.00	---	.00
22	---	.00	.00	.00	.00	.00	.00	.00	---	.02	---	.00
23	---	.00	.00	.00	.04	.00	.00	.03	---	.00	---	.06
24	---	.00	.00	.00	.00	.00	.00	1.21	---	.00	---	.20
25	---	.00	.00	.00	.00	.00	.02	.00	.00	.00	---	.04
26	---	.00	.00	.00	.12	.00	.36	.00	.00	.00	---	.00
27	---	.05	.00	.00	.54	.00	.00	.00	1.67	.04	---	.00
28	---	.00	.00	.00	.00	.00	.00	1.12	.97	.00	---	.01
29	---	.04	.00	.00	---	.07	.01	.01	.08	.01	---	.36
30	---	.01	.00	.00	---	2.83	.00	.00	.10	.00	---	---
31	---	---	.00	.00	---	.90	---	.98	---	.00	.01	---
TOTAL	---	0.38	0.00	0.76	1.09	3.85	3.60	6.02	2.82	2.57	3.92	3.46

WISCONSIN RIVER BASIN

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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 September 1998.

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 12). 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)
1/09/98	2345	1/10/98	0005	0.36	0.0008
3/30/98	1905	3/30/98	1930	4.17	0.009
3/30/98	2140	3/30/98	2310	24.7	0.007
5/24/98	0705	5/24/98	1200	14.6	0.007
5/28/98	0625	5/28/98	0715	6.96	0.007
5/28/98	2025	5/28/98	2035	0.78	0.003
5/31/98	0145	5/31/98	0225	178	0.222
6/11/98	1500	6/11/98	1550	12.9	0.007
6/18/98	1215	6/18/98	1315	424	0.610
6/18/98	1400	6/18/98	1630	1320	0.902
6/18/98	1800	6/18/98	1850	27.5	0.033
6/27/98	0330	6/27/98	0405	235	0.450
6/28/98	0120	6/28/98	0215	333	0.340
7/03/98	0805	7/03/98	0845	15.6	0.033
7/20/98	1630	7/20/98	1700	4.21	0.004
7/20/98	1800	7/20/98	1820	3.65	0.007
8/03/98	1750	8/03/98	1810	0.90	0.003
8/04/98	0730	8/04/98	0750	2.88	0.004
8/04/98	2400	8/05/98	0015	0.63	0.003
8/06/98	1515	8/06/98	1525	0.78	0.003
8/14/98	1730	8/14/98	1745	1.71	0.004

WISCONSIN RIVER BASIN

05405857 LAKE WISCONSIN TRIBUTARY #2 NEAR PRAIRIE DU SAC, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1997 to September 1998.

INSTRUMENTATION.--Water-quality sampler November 1997 to September 1998.

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 1997 TO SEPTEMBER 1998

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)
06-18-98	1215	06-18-98	1315	0.424x10 ⁻³	808
06-18-98	1800	06-18-98	1850	0.275x10 ⁻³	620
06-27-98	0330	06-27-98	0405	0.235x10 ⁻³	618
06-28-98	0120	06-28-98	0215	0.333x10 ⁻³	420
07-03-98	0805	07-03-98	0845	0.156x10 ⁻⁴	584

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)
06-18-98	100	1.59	2.79	9.1	1.18	--
06-18-98	88	.994	2.69	7.6	1.31	--
06-27-98	62	.965	.250	18	.889	.011
06-28-98	50	.356	.096	2.6	.751	.204
07-03-98	70	1.11	.045	3.0	.768	--

WISCONSIN RIVER BASIN

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05405857 LAKE WISCONSIN TRIBUTARY #2 NEAR PRAIRIE DU SAC, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--November 1997 to September 1998.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established Nov. 6, 1997. Rainfall estimated to be 0.00 for Nov. 14-16, Dec. 3, 6-7, 9-10, 19-26, Jan. 9, 15, 20, 24, 26-27, 29, Feb. 1-4, and Mar. 1-3, 6-9, 12-13 because recorded precipitation interpreted as collector snowmelt. Missing record Feb. 7-25, May 31, and June 1-24.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.81 in., Sept. 14.

RAINFALL ACCUMULATED, 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	.07	.22	---	.00	.00	.00
2	---	---	.00	.00	.00	.00	.00	1.05	---	.02	.00	.00
3	---	---	.00	.00	.00	.00	.00	.05	---	1.03	.84	.00
4	---	---	.00	.40	.00	.00	.00	.00	---	.00	1.43	.00
5	---	---	.00	.23	.00	.00	.00	.00	---	.00	.31	.01
6	---	.00	.00	.03	.00	.00	.00	.00	---	.00	.38	.00
7	---	.00	.00	.00	---	.00	.09	.70	---	.12	.00	.00
8	---	.00	.00	.00	---	.00	.42	.00	---	.00	.00	.00
9	---	.00	.00	.00	---	.00	.11	.00	---	.00	.06	.01
10	---	.00	.00	.00	---	.00	.00	.00	---	.00	.00	.00
11	---	.00	.00	.00	---	.00	.00	.00	---	.00	.00	.00
12	---	.00	.00	.00	---	.00	.00	.03	---	.00	.00	.00
13	---	.00	.00	.00	---	.00	.65	.00	---	.00	.00	.00
14	---	.00	.00	.00	---	.00	.01	.00	---	.00	.50	2.81
15	---	.00	.00	.00	---	.00	.86	.01	---	.00	.00	.00
16	---	.00	.00	.00	---	.00	.15	.00	---	.00	.00	.01
17	---	.00	.00	.00	---	.31	.00	.00	---	.00	.45	.01
18	---	.00	.00	.00	---	.51	.00	.00	---	.00	.00	.00
19	---	.00	.00	.00	---	.19	.00	.44	---	.28	.01	.01
20	---	.00	.00	.00	---	.00	.10	.00	---	.99	.00	.00
21	---	.00	.00	.00	---	.00	.22	.00	---	.01	.00	.00
22	---	.00	.00	.00	---	.00	.00	.00	---	.01	.00	.00
23	---	.00	.00	.00	---	.00	.00	.02	---	.00	.12	.05
24	---	.00	.00	.00	---	.00	.00	1.13	---	.00	.16	.20
25	---	.00	.00	.00	---	.00	.00	.00	.01	.00	.00	.04
26	---	.00	.00	.00	.07	.00	.20	.00	.01	.00	.00	.00
27	---	.04	.00	.00	.35	.00	.00	.00	1.66	.03	.19	.00
28	---	.00	.00	.00	.00	.00	.00	1.22	.94	.00	.03	.00
29	---	.02	.00	.00	---	.06	.01	.01	.07	.01	.01	.35
30	---	.01	.00	.00	---	2.67	.00	.00	.10	.00	.00	.43
31	---	---	.00	.00	---	.81	---	---	---	.00	.00	---
TOTAL	---	0.07	0.00	0.66	0.42	4.55	2.89	4.88	2.79	2.50	4.49	3.93

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 September 1998.

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 12). 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)
3/30/98	1905	3/30/98	1925	4.08	0.007
3/30/98	1945	3/30/98	1955	1.32	0.004
3/30/98	2130	3/30/98	2305	13.80	0.004
4/16/98	0100	4/16/98	0110	2.10	0.007
5/28/98	0635	5/28/98	0725	20.85	0.013
5/28/98	2030	5/28/98	2110	10.74	0.007
5/31/98	0150	5/31/98	0245	276	0.329
6/18/98	1245	6/18/98	1330	322	0.361
6/18/98	1415	6/18/98	1445	9.54	0.009
6/18/98	1530	6/18/98	1635	446	0.450
6/18/98	1825	6/18/98	1920	8.99	0.007
6/18/98	2000	6/18/98	2035	6.72	0.004
6/27/98	0330	6/27/98	0415	192	0.259
6/27/98	2245	6/27/98	2315	6.84	0.007
6/28/98	0120	6/28/98	0340	273	0.269
7/03/98	0825	7/03/98	0910	49.0	0.042
7/20/98	1650	7/20/98	1700	0.90	0.003
8/04/98	0735	8/04/98	0800	11.2	0.013
8/04/98	2400	8/05/98	0025	8.18	0.013
8/06/98	1515	8/06/98	1525	2.10	0.007

WISCONSIN RIVER BASIN

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05405859 LAKE WISCONSIN TRIBUTARY #1 NEAR PRAIRIE DU SAC, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1997 to September 1998.

INSTRUMENTATION.--Water-quality sampler November 1997 to September 1998.

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 1997 TO SEPTEMBER 1998

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)
06-18-98	1245	06-18-98	1330	0.321X10 ⁻³	396
06-18-98	1530	06-18-98	1635	0.446X10 ⁻³	468
06-27-98	0330	06-27-98	0415	0.192X10 ⁻³	474
06-28-98	0120	06-28-98	0340	0.273X10 ⁻³	370
07-03-98	0825	07-03-98	0910	0.490X10 ⁻⁴	380

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)
06-18-98	52	1.95	3.60	8.7	1.30	--
06-18-98	60	1.13	3.40	7.2	1.34	--
06-27-98	52	1.21	.260	3.6	1.04	.332
06-28-98	38	.612	.093	2.7	.911	.346
07-03-98	80	1.48	.471	3.6	1.34	--

WISCONSIN RIVER BASIN

05405859 LAKE WISCONSIN TRIBUTARY #1 NEAR PRAIRIE DU SAC, WI--CONTINUED

PRECIPITATION QUANTITY

PERIOD OF RECORD.--November 1997 to September 1998.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established Nov. 1, 1997. Rainfall estimated to be 0.00 for Nov. 1-2, 14-16, Dec. 3, 6-7, 9-10, 19-26, Jan. 9, 15, 20, 24, 26-27, 29, Feb. 1-4, 10-11, and Mar. 1-3, 6, 9, 12-13 because recorded precipitation interpreted as collector snowmelt.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.76 in., Sept. 14.

RAINFALL ACCUMULATED, 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	.08	.22	.00	.00	.00	.00
2	---	.00	.00	.00	.00	.00	.00	1.06	.01	.02	.00	.00
3	---	.00	.00	.00	.00	.00	.00	.06	.00	1.05	.87	.00
4	---	.00	.00	.38	.00	.00	.00	.00	.00	.00	1.35	.00
5	---	.12	.00	.23	.00	.00	.00	.00	.02	.00	.33	.01
6	---	.04	.00	.03	.00	.00	.00	.00	.00	.00	.37	.00
7	---	.00	.00	.00	.00	.00	.11	.76	.00	.12	.01	.00
8	---	.00	.00	.00	.00	.00	.45	.00	.00	.00	.00	.00
9	---	.07	.00	.00	.00	.00	.12	.00	.48	.00	.06	.00
10	---	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
11	---	.00	.00	.00	.00	.00	.00	.00	.96	.00	.00	.00
12	---	.00	.00	.00	.00	.00	.00	.04	.15	.00	.00	.00
13	---	.00	.00	.00	.00	.00	.69	.00	.00	.00	.00	.00
14	---	.00	.00	.00	.01	.00	.01	.00	.00	.00	.53	2.76
15	---	.00	.00	.00	.00	.00	.85	.01	.00	.00	.00	.00
16	---	.00	.00	.00	.22	.00	.15	.00	.03	.00	.00	.01
17	---	.00	.00	.00	.03	.31	.00	.00	.01	.00	.46	.00
18	---	.00	.00	.00	.00	.48	.00	.00	2.28	.00	.00	.01
19	---	.00	.00	.00	.00	.18	.00	.45	.00	.27	.00	.01
20	---	.01	.00	.00	.01	.00	.11	.00	.21	.95	.00	.00
21	---	.00	.00	.00	.00	.00	.24	.00	.01	.01	.00	.00
22	---	.01	.00	.00	.00	.00	.01	.00	.00	.01	.00	.00
23	---	.00	.00	.00	.03	.00	.00	.03	.00	.00	.13	.05
24	---	.00	.00	.00	.02	.00	.00	1.17	.54	.00	.16	.21
25	---	.00	.00	.00	.00	.00	.01	.00	.00	.00	.01	.04
26	---	.00	.00	.00	.10	.00	.25	.00	.00	.00	.00	.00
27	---	.05	.00	.00	.42	.00	.00	.00	1.60	.03	.21	.00
28	---	.00	.00	.00	.00	.00	.00	1.23	.95	.00	.04	.00
29	---	.04	.00	.00	---	.07	.01	.00	.08	.01	.00	.31
30	---	.00	.00	.00	---	2.63	.00	.00	.11	.00	.00	.44
31	---	---	.00	.00	---	.79	---	.86	---	.00	.01	---
TOTAL	---	0.36	0.00	0.64	0.84	4.46	3.09	5.89	7.44	2.47	4.54	3.86

431010089360000 BREWERY CREEK RAIN GAGE #1 NEAR CROSS PLAINS, WI

LOCATION.--Lat 43°10'10", long 89°36'00", in NE 1/4 SE 1/4 sec.13, T.8 N., R.7 E., Dane County, Hydrologic Unit 07070005, on Whip-porwill Road, 0.5 mi south of intersection with County Trunk K.

PERIOD OF RECORD.--October 1989 to September 1998 (non-frozen precipitation) discontinued.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established Oct. 27, 1989. Rainfall estimated to be 0.00 for Oct. 27, Dec. 26, Jan. 15, 23, 24, 26-27, Feb. 1-2, 12, and Mar. 1-3, 6-7, 19 because recorded precipitation interpreted as collector snowmelt. Rainfall data missing Oct. 31 through Dec. 23.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 4.09 in., July 5, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.95 in., Mar. 30.

RAINFALL ACCUMULATED (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	.18	.02	.00	.00	.01
2	.00	---	---	.00	.00	.00	.00	1.42	.01	.00	.00	.00
3	.00	---	---	.00	.00	.00	.00	.01	.00	1.32	.07	.00
4	.00	---	---	.27	.00	.00	.00	.01	.00	.00	.90	.00
5	.00	---	---	.17	.00	.00	.00	.00	.01	.00	.06	.00
6	.00	---	---	.02	.00	.00	.00	.06	.00	.13	.14	.02
7	.00	---	---	.00	.00	.00	.47	.86	.00	.24	.00	.00
8	.03	---	---	.00	.00	.00	.44	.00	.01	.03	.08	.00
9	.09	---	---	.00	.00	.00	.15	.00	.23	.00	.02	.00
10	.00	---	---	.00	.15	.00	.00	.00	.00	.00	.00	.00
11	.01	---	---	.00	.00	.00	.00	.00	1.05	.00	.00	.00
12	.26	---	---	.00	.00	.00	.01	.08	.11	.00	.00	.00
13	.41	---	---	.00	.00	.00	.71	.00	.00	.00	.00	.00
14	.00	---	---	.00	.00	.00	.00	.00	.00	.00	.34	2.51
15	.00	---	---	.00	.00	.00	.91	.19	.00	.00	.01	.00
16	.00	---	---	.00	.22	.00	.26	.00	.04	.00	.00	.00
17	.00	---	---	.00	.03	.35	.00	.00	.00	.00	.34	.00
18	.00	---	---	.00	.00	.36	.00	.00	2.26	.00	.00	.00
19	.00	---	---	.00	.00	.00	.00	.16	.00	.49	.00	.00
20	.00	---	---	.00	.00	.00	.20	.00	.39	.64	.00	.00
21	.00	---	---	.00	.00	.00	.24	.00	.04	.01	.09	.00
22	.00	---	---	.00	.00	.00	.00	.00	.00	.02	.00	.00
23	.17	---	---	.00	.04	.00	.00	.02	.00	.00	.15	.02
24	.00	---	.00	.00	.10	.00	.00	1.02	.39	.00	.16	.21
25	.00	---	.00	.00	.00	.00	.00	.00	.11	.00	.01	.01
26	.00	---	.00	.00	.13	.00	.27	.00	.00	.00	.00	.00
27	.00	---	.00	.00	.55	.00	.00	.00	1.71	.03	.18	.00
28	.00	---	.00	.00	.00	.00	.00	.52	.45	.00	.13	.00
29	.00	---	.00	.00	---	.01	.00	.00	.15	.00	.00	.06
30	.03	---	.00	.00	---	2.95	.00	.13	.00	.01	.00	.35
31	---	---	.00	.00	---	.95	---	.46	---	.00	.00	---
TOTAL	---	---	---	0.46	1.22	4.62	3.66	5.12	6.98	2.92	2.68	3.19

WISCONSIN RIVER BASIN

430900089355400 BREWERY CREEK RAIN GAGE #2 NEAR CROSS PLAINS, WI

LOCATION.--Lat 43°09'00", long 89°35'54", in SW 1/4 SW 1/4 sec.19, T.8 N., R.8 E., Dane County, Hydrologic Unit 07070005, at the intersection of County Trunk P and County Trunk K.

PERIOD OF RECORD.--October 1989 to September 1998 (non-frozen precipitation) discontinued.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established Oct. 28, 1989. Rainfall estimated to be 0.00 for Oct. 27, Nov. 2-3, 10-11, Dec. 4, 7, 10-11, 13, 17, 20-21, 26, Jan. 9, 22, 24, 26, 28, Feb. 1-2, 11, and Mar. 1-3, 6, 19 because recorded precipitation interpreted as collector snowmelt. Unpublished rainfall data collected at this site during 1985-86 water years are available for inspection at the District Office.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 4.60 in., July 5, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.95 in., Mar. 30.

RAINFALL ACCUMULATED (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	.17	.00	.04	.00	.00	.00	.21	.02	.00	.00	.03
2	.00	.00	.00	.00	.00	.00	.00	1.40	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.01	.00	.86	.00	.00
4	.00	.00	.00	.42	.00	.00	.00	.00	.00	.00	.51	.00
5	.00	.19	.00	.23	.00	.00	.00	.00	.01	.00	.00	.00
6	.00	.05	.00	.02	.00	.00	.00	.10	.00	.14	.03	.01
7	.00	.00	.00	.00	.00	.00	.49	.96	.00	.27	.01	.00
8	.02	.00	.00	.00	.00	.00	.52	.00	.01	.00	.04	.00
9	.07	.05	.00	.00	.00	.00	.18	.00	.20	.00	.01	.00
10	.00	.00	.00	.00	.12	.00	.00	.00	.00	.00	.01	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.87	.00	.00	.00
12	.21	.00	.00	.00	.00	.00	.00	.11	.06	.00	.00	.00
13	.39	.00	.00	.00	.00	.00	.68	.01	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.37	2.47
15	.00	.00	.00	.00	.00	.00	.98	.10	.00	.00	.01	.00
16	.00	.00	.00	.00	.19	.00	.37	.01	.03	.00	.00	.00
17	.00	.00	.00	.00	.04	.41	.01	.00	.01	.00	.34	.00
18	.00	.00	.00	.00	.00	.35	.00	.00	2.28	.00	.00	.00
19	.00	.00	.00	.00	.01	.00	.00	.15	.00	.60	.00	.00
20	.00	.05	.00	.00	.01	.00	.27	.00	.37	.50	.00	.00
21	.00	.00	.00	.00	.00	.00	.29	.00	.03	.00	.07	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.00
23	.13	.00	.00	.00	.03	.00	.00	.01	.00	.00	.27	.02
24	.00	.00	.00	.00	.10	.00	.00	1.13	.42	.00	.21	.20
25	.00	.00	.00	.00	.00	.00	.00	.00	.06	.00	.00	.03
26	.01	.00	.00	.00	.12	.00	.31	.00	.00	.00	.00	.00
27	.00	.02	.00	.00	.57	.00	.00	.00	1.67	.02	.14	.00
28	.00	.01	.00	.00	.00	.00	.00	.55	.45	.00	.15	.00
29	.01	.07	.00	.00	---	.02	.00	.00	.14	.01	.00	.05
30	.01	.01	.00	.00	---	2.95	.00	.02	.00	.00	.00	.34
31	.01	---	.00	.00	---	1.01	---	.38	---	.00	.00	---
TOTAL	0.86	0.62	0.00	0.71	1.19	4.74	4.10	5.15	6.63	2.41	2.18	3.15

WISCONSIN RIVER BASIN

255

430751089372000 BREWERY CREEK RAIN GAGE #3 NEAR CROSS PLAINS, WI

LOCATION.--Lat 43°07'51", long 89°37'20", in NE 1/4 NE 1/4 sec.35, T.8 N., R.7 E., Dane County, Hydrologic Unit 07070005, on County Trunk P, 1.9 mi north of intersection with U.S. Highway 14.

PERIOD OF RECORD.--October 1989 to September 1998 (non-frozen precipitation) discontinued.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established Oct. 28, 1989. Rainfall estimated to be 0.00 for Oct. 27, Nov. 3, Dec. 3-4, 7, 9-11, 13, 20, Jan. 9, 15, 24, 26, Feb. 1-2, 11, and Mar. 1-3, 6, 9, 19 because recorded precipitation interpreted as collector snowmelt. Rainfall data missing June 4 to July 2.

EXTREMES FOR PERIOD OR RECORD.--Maximum daily rainfall, 4.41 in., July 5, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 3.11 in., Mar. 30.

RAINFALL ACCUMULATED (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	.15	.00	.09	.00	.00	.00	.22	.02	---	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.94	.01	---	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.75	.14	.00
4	.00	.00	.00	.43	.00	.00	.00	.01	---	.00	1.02	.00
5	.00	.17	.00	.22	.00	.00	.00	.00	---	.00	.14	.00
6	.00	.05	.00	.02	.00	.00	.00	.06	---	.13	.07	.02
7	.00	.00	.00	.00	.00	.00	.45	.83	---	.09	.01	.00
8	.02	.00	.00	.00	.00	.00	.57	.00	---	.00	.07	.00
9	.06	.04	.00	.00	.00	.00	.21	.00	---	.00	.01	.00
10	.00	.00	.00	.00	.12	.00	.00	.00	---	.00	.01	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	---	.00	.00	.00
12	.23	.00	.00	.00	.00	.00	.00	.14	---	.00	.00	.00
13	.37	.00	.00	.00	.00	.00	.67	.01	---	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	---	.00	.45	2.41
15	.00	.00	.00	.00	.00	.00	.94	.15	---	.00	.00	.00
16	.00	.00	.00	.00	.19	.00	.33	.00	---	.00	.00	.01
17	.00	.01	.00	.00	.05	.35	.00	.00	---	.00	.30	.00
18	.00	.00	.00	.00	.00	.31	.00	.00	---	.00	.01	.00
19	.00	.00	.00	.00	.01	.00	.00	.14	---	.90	.00	.00
20	.00	.06	.00	.00	.01	.00	.26	.00	---	.41	.00	.00
21	.00	.00	.00	.00	.00	.00	.31	.00	---	.00	.10	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	---	.01	.00	.00
23	.12	.00	.00	.00	.04	.00	.00	.03	---	.00	.34	.01
24	.00	.00	.00	.00	.08	.00	.00	1.26	---	.00	.28	.21
25	.00	.00	.00	.00	.00	.00	.07	.00	---	.00	.00	.03
26	.00	.00	.00	.00	.14	.00	.20	.00	---	.00	.00	.00
27	.00	.02	.00	.01	.49	.00	.00	.00	---	.02	.13	.00
28	.00	.00	.00	.00	.00	.00	.00	.47	---	.00	.15	.00
29	.00	.08	.00	.00	---	.04	.01	.00	---	.00	.00	.03
30	.02	.00	.00	.00	---	3.11	.00	.01	---	.01	.00	.43
31	.01	---	.00	.00	---	1.01	---	.45	---	.00	.00	---
TOTAL	0.83	0.58	0.00	0.77	1.13	4.82	4.02	4.72	---	---	3.23	3.15

WISCONSIN RIVER BASIN
05406470 BREWERY CREEK AT CROSS PLAINS, WI

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.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1984 to September 1986, October 1989 to September 1998 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 900 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Ice-affected periods, Nov. 23, 24, Dec. 12-15, 17, 21, 25, 27-31, Jan. 1, 10-17, Feb. 5-7, and Mar. 8-17. Records fair except those for ice-affected periods, which are poor (see page 12). 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	1.4	1.2	1.1	1.3	1.7	8.1	1.9	1.9	2.7	1.6	1.5
2	1.1	1.4	1.2	1.4	1.4	1.6	3.3	2.2	1.8	2.4	1.6	1.5
3	1.1	1.4	1.1	1.7	1.4	1.6	2.5	5.6	1.7	3.7	1.6	1.5
4	1.1	1.4	1.2	1.6	1.3	1.5	2.1	2.5	1.7	4.2	2.1	1.5
5	1.1	1.4	1.2	1.9	1.3	1.5	2.0	2.2	1.7	2.7	2.3	1.5
6	1.1	1.4	1.1	2.0	1.3	1.5	1.9	2.1	1.7	2.6	2.0	1.6
7	1.1	1.4	1.1	1.7	1.3	1.4	1.9	4.2	1.7	2.8	1.8	1.6
8	1.1	1.4	1.1	1.6	1.3	1.3	3.7	3.9	1.6	2.8	1.8	1.5
9	1.1	1.4	1.2	1.4	1.3	1.3	4.9	2.4	1.7	2.3	1.7	1.5
10	1.1	1.4	1.2	1.3	1.3	1.2	2.5	2.1	1.8	2.2	1.6	1.5
11	1.1	1.3	1.2	1.3	1.6	1.2	2.1	1.9	2.9	2.1	1.6	1.6
12	1.1	1.3	1.1	1.2	1.7	1.2	1.9	1.9	2.6	1.9	1.5	1.6
13	1.5	1.3	1.1	1.1	1.6	1.2	2.3	1.9	2.3	1.8	1.5	1.6
14	1.3	1.3	1.1	1.1	1.5	1.2	2.8	1.7	2.4	1.8	1.6	3.6
15	1.3	1.3	1.1	1.2	2.0	1.2	5.5	1.7	2.2	1.7	1.7	6.3
16	1.3	1.3	1.2	1.2	2.6	1.2	7.3	1.7	2.1	1.6	1.6	2.5
17	1.3	1.3	1.2	1.2	3.3	1.3	3.4	1.6	2.1	1.6	1.7	2.2
18	1.3	1.3	1.2	1.2	2.4	2.7	2.5	1.6	16	1.6	1.7	2.1
19	1.3	1.3	1.2	1.2	2.0	2.7	2.2	1.6	12	2.3	1.6	2.1
20	1.3	1.2	1.2	1.2	1.8	2.3	2.0	1.5	4.1	2.0	1.6	2.1
21	1.2	1.2	1.2	1.2	1.7	2.4	3.0	1.5	4.1	2.0	1.7	2.1
22	1.2	1.1	1.3	1.2	1.6	2.4	2.2	1.5	3.0	1.9	1.7	2.0
23	1.2	1.1	1.3	1.2	1.5	2.3	2.0	1.5	2.7	1.8	1.8	2.0
24	1.2	1.1	1.2	1.2	1.6	2.0	1.9	3.0	3.2	1.8	1.8	2.1
25	1.2	1.1	1.2	1.2	1.5	2.0	1.8	2.1	2.7	1.6	1.8	2.1
26	1.2	1.1	1.2	1.2	1.5	2.0	2.0	1.8	2.4	1.6	1.6	2.1
27	1.2	1.2	1.1	1.2	2.5	1.8	1.8	1.7	3.3	1.7	1.6	2.1
28	1.3	1.2	1.1	1.2	2.0	1.7	1.7	1.9	24	1.6	1.7	1.9
29	1.4	1.2	1.1	1.2	---	1.6	1.7	1.8	4.5	1.6	1.7	1.9
30	1.4	1.2	1.1	1.3	---	10	1.7	1.8	3.3	1.6	1.6	2.1
31	1.4	---	1.0	1.3	---	39	---	2.3	---	1.6	1.5	---
TOTAL	37.7	38.4	36.0	41.0	47.6	98.0	84.7	67.1	119.2	65.6	52.7	61.3
MEAN	1.22	1.28	1.16	1.32	1.70	3.16	2.82	2.16	3.97	2.12	1.70	2.04
MAX	1.5	1.4	1.3	2.0	3.3	39	8.1	5.6	24	4.2	2.3	6.3
MIN	1.1	1.1	1.0	1.1	1.3	1.2	1.7	1.5	1.6	1.6	1.5	1.5
CFSM	.16	.17	.15	.17	.22	.41	.37	.28	.52	.27	.22	.27
IN.	.18	.19	.17	.20	.23	.47	.41	.32	.58	.32	.25	.30

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1998, BY WATER YEAR (WY)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	1.91	2.15	1.60	1.69	2.78	4.06	2.46	2.02	2.67	3.56	2.09	2.18
MAX	4.10	4.73	3.82	3.22	5.43	10.5	3.66	3.33	4.76	13.4	6.83	5.15
(WY)	1994	1986	1994	1994	1985	1993	1993	1994	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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1985 - 1998

ANNUAL TOTAL	825.1	749.3	
ANNUAL MEAN	2.26	2.05	2.43
HIGHEST ANNUAL MEAN			4.30
LOWEST ANNUAL MEAN			.58
HIGHEST DAILY MEAN	50	39	142
LOWEST DAILY MEAN	(a)1.0	(a)1.0	.00
ANNUAL SEVEN-DAY MINIMUM	1.1	1.1	.00
INSTANTANEOUS PEAK FLOW		100	420
INSTANTANEOUS PEAK STAGE		11.64	15.05
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (CFSM)	.29	.27	.32
ANNUAL RUNOFF (INCHES)	3.99	3.62	4.29
10 PERCENT EXCEEDS	2.7	2.7	4.0
50 PERCENT EXCEEDS	1.5	1.6	1.8
90 PERCENT EXCEEDS	1.1	1.2	.28

(a) Ice affected

(b) Occurred on many days July to September 1991

(c) Also occurred many days during 1991 water year

WISCONSIN RIVER BASIN
05406470 BREWERY CREEK AT CROSS PLAINS, WI--CONTINUED

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WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1984 to September 1986, October 1989 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1984 to September 1986, October 1989 to current year.

DISSOLVED OXYGEN: April 1990 to June 30, 1991.

SUSPENDED-SOLIDS DISCHARGE: October 1989 to September 1991.

TOTAL-NITROGEN DISCHARGE: October 1984 to June 1986.

SUSPENDED-SEDIMENT DISCHARGE: October 1984 to June 1986, October 1989 to current year.

TOTAL-PHOSPHORUS DISCHARGE: October 1984 to June 1986, October 1989 to current year.

INSTRUMENTATION.--Water-quality sampler December 1984 to June 1986, October 1989 to current year; continuous water temperature recorder November 1984 to September 1986, October 1989 to current year; dissolved oxygen recorder April 1990 to June 1991.

REMARKS.-- Chemical analyses by the Wisconsin State Laboratory of Hygiene. Suspended-sediment analyses by U.S. Geological Survey Laboratory. Samples are point samples unless otherwise indicated. The 1997 water year total phosphorus discharge records published in the 1997 water year data report were incorrectly labeled as 1996 water year records.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum observed, 33.0°C, May 28 and July 22, 1991; minimum observed, 0.0°C, on many days during 1985, 1986, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, and 1998 winter periods.

DISSOLVED OXYGEN: Maximum observed, 21.8 mg/L, Apr. 5, 1990; minimum observed, 0.0 mg/L, Aug. 19, 1990.

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 243 tons, June 29, 1990; minimum daily, 0.00 ton, Aug. 23 to Sept. 9, 1990; Dec. 25-31, 1990, Jan. 1-31, Feb. 1-8, 10-20, May 20, 22-23, June 12-13, 28-30, July 12-20, 23-27, 30-31, Aug. 1-6, Aug. 18 to Sept. 11, Sept. 13, 21-22, and 24-30, 1991.

TOTAL-NITROGEN DISCHARGE: Maximum daily, 4,550 lb, July 25, 1985; minimum daily, 10 lb, May 24-25, 1985.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 917 tons, July 5, 1993; minimum daily, 0.0 ton Oct. 1-2, 1991, and Dec. 6, 1992.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 2,450 lb, July 5, 1993; minimum daily, 0.00 lb, July 20, 24-27, 31, Aug. 1-6, 22-29, 31, Sept. 1-2, and 4-10, 1991.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 27.0°C, May 18; minimum observed, 0.0°C, Nov. 12, 16-17, 21-24, Dec. 5-8, 12-14, 17, 20-21, 24-31, Jan. 1-2, 8-18, 21, 25, Feb. 5-8, and Mar. 8-16, 21.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 127 tons, Mar. 30; minimum observed, 0.06 ton, Aug. 19.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 626 lb, Mar. 31; minimum daily, 0.67 lb, Nov. 21-22.

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)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1997							
*10...	1015	1.1	1500	.090	.181	78	--
*31...	1015	1.4	120	.073	.151	101	--
NOV							
*21...	1610	1.2	40	.050	.108	58	--
DEC							
*04...	1707	1.2	13000	.035	.160	89	--
JAN 1998							
*05...	1415	1.8	1900	.252	.264	121	--
FEB							
*02...	1015	1.4	460	.094	.131	75	--
16...	2359	4.0	--	.602	.714	329	--
*18...	1010	2.4	--	.091	.196	62	--
MAR							
*02...	1330	1.5	<10	.087	.108	44	--
*25...	0835	1.9	30	.069	.124	40	--
30...	1930	11	--	1.21	3.74	1410	--
30...	2000	16	300000	.729	3.21	2040	--
30...	2115	33	--	1.39	16.9	11800	--
30...	2200	41	--	.707	7.14	8080	--
30...	2245	66	--	.648	8.71	6550	92
30...	2400	95	43000	.440	6.00	3620	95

* Equal-width increment (EWI) sample

WISCONSIN RIVER BASIN
05406470 BREWERY CREEK AT CROSS PLAINS, 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)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDEED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
MAR 1998							
31...	0430	64	--	.482	2.71	978	95
31...	1045	27	100000	.431	2.05	495	--
*31...	1050	27	--	.576	1.97	449	--
31...	1509	23	20000	.124	1.28	357	--
*31...	1510	23	--	.271	3.42	281	--
31...	1929	19	--	1.10	3.46	--	--
31...	2045	21	--	1.20	11.1	--	--
31...	2145	22	--	.627	6.07	--	--
APR							
01...	0130	15	--	.098	1.07	349	--
01...	0917	8.0	20000	<.013	.638	292	--
*01...	0918	8.0	--	.166	1.58	160	--
*06...	1113	1.8	230	.131	.148	85	--
*13...	1200	2.2	--	<.013	.007	--	--
*20...	1125	2.0	100	.061	.116	84	--
MAY							
*04...	1200	2.5	1200	.076	.203	43	--
08...	1005	3.9	--	.158	.305	92	--
*28...	1440	1.9	100000	.087	.230	62	--
JUN							
11...	1745	4.3	--	.350	1.09	195	--
*12...	1445	2.3	--	.046	.162	51	--
18...	1300	10	--	.222	.520	380	--
18...	1415	18	--	.210	2.26	1650	--
18...	1445	28	--	.789	8.05	4850	99
18...	2015	35	--	.326	2.53	701	97
19...	0245	24	--	.161	.964	199	98
19...	0630	14	--	.104	.653	145	--
19...	1133	8.9	--	.080	.417	68	--
*19...	1135	8.9	--	.093	.410	64	--
19...	1845	6.0	--	.042	.304	79	--
*24...	1455	3.3	150000	.029	.300	29	--
27...	2315	13	32000	.134	.308	1040	99
27...	2345	9.7	--	.168	.394	--	--
28...	0045	24	30000	.110	1.55	151	99
28...	0115	31	530000	.506	4.59	2240	99
28...	0145	37	--	.711	4.12	--	--
28...	0200	41	640000	.578	3.59	1350	99
28...	0300	52	320000	.282	1.92	888	98
28...	0815	38	420000	.129	1.45	310	99
28...	1015	26	530000	.117	1.13	226	--
28...	1201	19	--	.132	1.00	183	--
*28...	1205	19	530000	.138	.987	131	--
28...	1330	15	44000	.163	.773	134	--
28...	2130	6.9	23000	.034	.385	152	--
*29...	1010	4.4	5000	.081	.236	50	--
JUL							
09...	0813	2.4	2400	.020	.112	18	92
*20...	1322	1.8	6000	<.013	.138	25	88
AUG							
*05...	1250	2.2	55000	.022	.216	53	--
*18...	0814	1.7	1800	.007	.119	14	--
*31...	1046	1.5	440	.029	.103	21	--
SEP							
15...	0345	9.7	--	<.013	.822	50	97
*16...	0944	7.1	--	.044	.136	45	--
*22...	1732	2.0	3300	.021	.088	--	--

* Equal-width increment (EWI) sample

WISCONSIN RIVER BASIN

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05406470 BREWERY CREEK AT CROSS PLAINS, 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	14.0	9.5	11.0	10.5	7.0	9.0	5.0	3.5	4.0	.50	.00	.00
2	16.5	9.0	12.0	7.5	5.5	6.5	5.0	3.5	4.0	4.0	.00	1.0
3	19.0	11.0	14.5	6.5	5.0	6.0	4.5	2.0	3.0	6.5	3.0	5.0
4	18.5	13.0	15.5	7.5	5.5	6.0	4.5	1.5	3.0	3.0	1.5	2.0
5	19.5	10.0	14.0	7.0	5.5	6.0	3.0	.00	1.0	4.5	3.0	3.5
6	19.0	10.5	14.5	7.0	5.5	6.0	3.5	.00	1.5	5.0	3.5	4.0
7	20.0	13.0	16.0	8.5	6.0	7.0	5.0	.00	2.5	4.0	1.5	3.0
8	19.5	14.0	16.5	7.5	6.5	7.0	2.5	.00	1.5	2.0	.00	1.0
9	17.0	12.0	15.5	7.5	6.0	6.5	4.5	1.5	2.5	4.0	.00	1.5
10	15.0	8.5	11.5	6.5	4.0	5.5	4.0	1.0	2.5	.50	.00	.00
11	15.5	10.0	12.5	5.0	2.0	3.5	5.0	2.5	3.5	.50	.00	.00
12	16.0	13.0	14.0	4.0	.00	1.5	3.5	.00	2.0	.50	.00	.00
13	15.5	9.0	13.0	4.5	1.0	3.0	1.5	.00	.50	.50	.00	.00
14	9.5	6.5	8.0	5.0	2.5	3.5	1.5	.00	.50	.50	.00	.00
15	11.0	5.0	7.5	4.0	1.5	2.5	4.0	.50	2.0	.50	.00	.00
16	13.0	7.0	9.5	3.5	.00	1.5	5.5	1.0	3.0	.50	.00	.00
17	11.5	5.5	8.5	2.0	.00	.50	3.5	.00	1.5	1.0	.00	.50
18	12.0	5.0	8.0	5.0	.50	2.0	5.0	1.5	3.0	2.0	.00	.50
19	10.0	5.5	7.5	4.5	1.0	2.0	6.0	2.0	4.0	3.0	.50	1.5
20	10.5	4.0	7.0	4.5	.50	2.0	4.5	.00	2.5	3.0	1.5	2.0
21	7.5	4.0	6.0	4.0	.00	1.5	2.0	.00	.50	2.0	.00	1.0
22	8.5	4.5	6.0	3.0	.00	1.5	3.0	1.5	2.0	2.5	.50	1.5
23	7.5	5.0	6.0	2.0	.00	.50	3.0	2.0	2.5	3.0	.50	2.0
24	9.0	7.0	7.5	1.0	.00	.00	3.0	.00	1.5	3.5	.50	2.5
25	9.5	5.5	7.0	5.5	1.0	3.0	3.0	.00	1.5	2.5	.00	1.0
26	6.0	1.5	3.5	6.5	2.0	4.0	3.5	.00	1.5	3.5	1.0	2.5
27	7.5	2.0	4.0	4.5	1.5	3.0	1.0	.00	.00	4.0	2.0	3.0
28	7.5	2.0	4.5	7.0	3.0	5.0	1.0	.00	.00	4.5	2.0	3.0
29	9.5	3.5	6.0	6.0	5.0	5.5	2.5	.00	1.5	4.5	2.5	3.0
30	9.0	5.0	7.0	6.0	4.0	5.0	1.0	.00	.00	3.5	1.5	2.5
31	12.5	8.0	10.0	---	---	---	.50	.00	.00	5.0	1.5	3.0
MONTH	20.0	1.5	9.8	10.5	.00	3.9	6.0	.00	1.9	6.5	.00	1.6
FEBRUARY			MARCH			APRIL			MAY			
1	4.0	2.5	3.0	6.5	2.5	4.5	9.5	6.5	8.0	16.0	10.5	12.5
2	5.5	1.5	3.0	5.0	3.0	4.0	9.0	5.5	7.0	13.0	11.0	12.0
3	3.5	1.5	2.5	6.0	2.5	4.0	7.5	5.5	6.5	13.0	10.5	11.5
4	3.5	.50	1.5	5.5	2.0	3.5	16.0	4.5	9.0	21.0	9.5	14.5
5	5.0	.00	1.5	7.0	2.5	4.5	16.5	3.5	9.0	22.0	10.5	15.0
6	4.0	.00	1.0	6.5	2.0	4.0	16.0	6.0	10.0	18.5	10.0	13.5
7	5.5	.00	1.5	9.5	.50	4.5	14.0	6.5	10.0	14.5	12.0	13.0
8	5.0	.00	2.0	3.5	.00	1.0	9.0	7.0	8.0	20.5	11.5	15.0
9	5.5	1.0	3.0	.50	.00	.00	8.5	6.0	7.0	21.5	11.0	15.0
10	5.0	2.0	3.5	.50	.00	.00	15.5	4.5	9.0	21.5	9.5	14.5
11	4.0	2.5	3.5	.50	.00	.00	16.0	4.5	9.5	23.0	9.0	15.0
12	7.5	1.5	3.5	1.5	.00	.50	19.5	8.0	12.5	22.5	10.5	15.5
13	4.5	1.0	2.5	2.5	.00	1.0	12.5	9.0	10.5	24.5	11.0	16.5
14	6.0	2.5	4.0	6.0	.00	2.0	18.5	9.0	13.0	25.5	11.0	17.5
15	9.0	2.0	4.5	4.5	.00	1.5	10.0	7.5	9.0	24.5	14.0	18.5
16	7.0	3.0	4.0	5.5	.00	2.0	8.0	5.5	6.5	25.0	14.0	18.5
17	4.0	3.0	3.5	4.0	1.0	2.0	14.5	4.0	8.5	26.0	11.0	17.5
18	4.0	2.5	3.5	2.5	1.0	2.0	17.5	5.0	10.5	27.0	13.0	19.0
19	6.0	3.5	4.5	5.0	1.5	3.0	14.5	5.5	10.0	23.0	14.5	18.5
20	6.5	3.5	4.5	7.5	1.5	3.5	13.0	5.5	9.0	19.5	12.5	16.0
21	7.0	3.0	4.5	11.0	.00	4.0	12.5	8.5	10.0	22.5	11.0	15.5
22	10.0	3.0	5.5	11.5	.50	5.0	18.5	6.0	11.5	14.5	10.5	12.5
23	6.0	3.0	4.5	12.0	2.0	6.0	20.0	6.5	12.0	22.0	11.0	15.5
24	12.0	4.0	7.0	12.5	1.0	6.0	21.0	7.0	13.0	14.0	12.0	13.0
25	10.5	2.5	5.5	10.5	4.5	7.5	16.0	8.0	11.5	23.0	11.0	15.5
26	11.5	5.0	7.5	16.0	8.0	12.0	11.5	7.0	10.0	23.5	10.5	16.5
27	7.0	4.0	5.5	15.5	11.0	13.0	18.5	5.0	10.5	25.0	12.0	17.5
28	9.0	3.5	5.0	14.0	7.5	10.5	17.5	5.5	10.5	26.5	14.0	19.0
29	---	---	---	21.0	6.5	12.5	20.0	8.0	12.5	24.5	15.0	19.0
30	---	---	---	15.5	12.0	13.5	17.5	9.5	13.0	22.0	13.0	17.5
31	---	---	---	13.0	7.5	10.0	---	---	---	23.0	15.0	18.0
MONTH	12.0	.00	3.8	21.0	.00	4.8	21.0	3.5	9.9	27.0	9.0	15.8

WISCONSIN RIVER BASIN
05406470 BREWERY CREEK AT CROSS PLAINS, 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	20.0	11.0	15.0	20.5	15.5	18.5	17.5	14.0	15.5	16.0	13.0	14.5
2	21.5	12.0	16.0	20.5	15.5	18.5	17.5	14.5	16.0	15.0	13.0	14.0
3	18.5	12.0	14.5	19.5	16.0	18.0	17.0	15.5	16.5	15.5	13.0	14.0
4	18.5	9.5	13.5	18.5	17.0	17.5	18.0	15.5	16.5	15.5	12.5	14.0
5	16.5	11.0	13.5	18.5	14.5	17.0	17.0	16.5	16.5	16.0	12.5	14.0
6	15.5	10.0	12.5	18.5	16.0	17.5	18.5	16.0	16.5	16.0	14.0	15.0
7	19.0	9.0	13.5	18.0	16.5	17.5	18.0	15.5	16.5	16.0	14.0	15.0
8	17.0	9.5	13.5	19.0	16.5	17.5	18.5	16.5	17.5	14.0	12.0	13.0
9	14.5	12.0	13.0	19.0	16.0	18.0	18.5	15.5	17.0	14.5	11.0	12.5
10	16.5	12.0	14.0	19.5	16.0	18.0	18.5	16.0	17.0	15.0	11.5	13.0
11	17.0	13.0	14.5	19.5	15.5	17.5	17.5	15.5	16.5	16.0	13.0	14.0
12	22.0	13.5	17.0	19.5	15.5	17.5	16.5	14.5	15.5	16.5	13.0	14.5
13	19.5	12.5	16.0	19.5	16.0	18.0	17.0	14.5	16.0	16.5	13.0	14.5
14	17.5	12.5	15.0	20.5	17.0	19.0	19.0	14.5	16.0	17.0	15.0	16.0
15	20.5	12.5	16.5	21.0	18.0	19.5	17.5	15.5	16.5	16.5	15.0	16.5
16	19.5	13.0	16.5	20.0	17.5	18.5	17.5	14.5	16.0	16.0	13.5	15.0
17	21.0	13.0	17.0	20.0	17.0	18.5	17.5	15.5	16.5	15.5	13.0	14.0
18	21.0	15.0	17.5	20.0	17.0	18.5	16.5	15.5	16.0	15.5	13.0	14.0
19	20.5	16.0	18.0	20.5	18.0	19.0	17.0	14.0	15.5	16.5	13.5	15.0
20	23.0	14.5	18.5	20.5	17.5	19.0	17.0	15.5	16.0	16.5	14.0	15.0
21	22.0	16.0	18.5	20.0	18.0	19.0	17.5	15.5	16.5	14.5	13.0	13.5
22	20.5	14.5	17.5	18.5	16.5	17.5	18.0	15.5	16.5	14.5	12.0	13.0
23	21.5	14.5	18.0	18.0	16.0	17.0	19.0	16.5	17.5	13.5	10.0	12.0
24	23.0	16.5	20.0	17.5	15.0	16.0	18.0	16.0	16.5	13.0	12.0	12.5
25	23.5	17.5	20.5	17.0	15.0	16.0	18.0	15.5	16.5	15.5	11.5	13.0
26	22.5	17.0	20.5	17.5	14.5	16.0	17.0	14.5	15.5	17.5	14.5	16.0
27	23.5	18.0	21.0	19.0	15.5	17.0	16.0	14.5	15.0	17.0	14.0	16.0
28	24.5	20.0	22.0	19.0	15.5	17.0	16.0	15.0	15.5	15.0	12.0	13.5
29	21.0	17.0	18.5	17.5	15.5	16.5	17.0	14.0	15.5	16.0	13.0	14.0
30	20.5	16.0	18.0	18.5	15.5	17.0	16.5	14.0	15.0	14.5	12.5	13.5
31	---	---	---	18.0	14.5	16.0	15.5	13.0	14.0	---	---	---
MONTH	24.5	9.0	16.7	21.0	14.5	17.7	19.0	13.0	16.1	17.5	10.0	14.1

WISCONSIN RIVER BASIN

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05406470 BREWERY CREEK AT CROSS PLAINS, 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	.21	.38	.25	.35	.27	.21	5.0	.25	.28	.29	.18	.09
2	.21	.37	.26	.46	.27	.19	.85	.28	.27	.23	.19	.08
3	.21	.36	.26	.56	.27	.19	.59	2.3	.25	.94	.20	.08
4	.21	.34	.28	.52	.26	.18	.51	.29	.24	1.2	.29	.08
5	.22	.32	.28	.63	.25	.17	.46	.24	.23	.18	.34	.08
6	.22	.32	.27	.64	.25	.17	.43	.22	.23	.16	.25	.08
7	.22	.31	.28	.53	.25	.17	.42	1.1	.22	.51	.21	.08
8	.22	.30	.28	.48	.24	.15	3.1	1.0	.21	.51	.19	.08
9	.23	.29	.30	.43	.23	.15	5.9	.42	.22	.10	.16	.08
10	.24	.28	.30	.39	.23	.14	1.2	.36	.22	.10	.13	.08
11	.24	.27	.30	.38	.29	.14	.47	.33	.92	.10	.12	.08
12	.25	.26	.29	.35	.31	.14	.44	.32	.52	.09	.10	.08
13	.32	.25	.29	.31	.28	.14	1.0	.32	.31	.09	.09	.08
14	.29	.24	.29	.31	.26	.14	1.6	.30	.31	.10	.09	.29
15	.28	.24	.29	.33	.56	.13	7.7	.29	.28	.10	.09	.75
16	.29	.23	.32	.33	1.7	.13	15	.29	.27	.10	.07	.29
17	.29	.22	.33	.32	1.7	.14	2.6	.27	.26	.10	.07	.25
18	.29	.22	.34	.32	.45	.83	.55	.27	52	.10	.07	.23
19	.30	.21	.34	.32	.32	.83	.49	.28	4.6	.34	.06	.22
20	.30	.20	.35	.31	.28	.54	.45	.26	.69	.13	.07	.21
21	.30	.18	.34	.31	.25	.61	1.9	.26	1.2	.14	.07	.20
22	.30	.18	.37	.30	.23	.61	.45	.25	.35	.14	.07	.20
23	.31	.18	.36	.30	.22	.54	.39	.25	.26	.14	.08	.19
24	.31	.19	.35	.29	.22	.22	.35	.60	.26	.14	.08	.19
25	.31	.20	.35	.29	.20	.22	.32	.35	.21	.14	.08	.19
26	.31	.21	.36	.28	.20	.21	.34	.30	.18	.15	.08	.18
27	.32	.22	.33	.28	.68	.18	.29	.28	2.6	.15	.08	.17
28	.33	.23	.33	.27	.37	.17	.26	.32	31	.16	.09	.15
29	.36	.24	.34	.27	---	.16	.25	.30	.76	.16	.09	.15
30	.37	.25	.34	.28	---	127	.24	.28	.40	.17	.09	.16
31	.37	---	.31	.27	---	114	---	.36	---	.18	.09	---
TOTAL	8.63	7.69	9.68	11.41	11.04	248.80	53.55	12.94	99.75	7.14	3.87	5.07

WTR YR 1998 TOTAL 479.57

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	1.1	1.1	.92	1.5	.95	1.1	43	1.8	2.2	2.1	1.6	.84
2	1.1	1.1	.94	2.0	.97	.95	6.5	2.3	2.1	1.8	1.7	.83
3	1.1	1.1	.95	2.4	.97	.93	3.3	14	2.0	4.9	1.7	.82
4	1.1	1.1	1.0	2.3	.96	.89	2.4	2.8	1.9	6.5	2.4	.81
5	1.1	1.0	1.0	2.7	.94	.86	1.9	2.7	1.9	1.9	2.7	.82
6	1.1	1.0	1.0	2.8	.95	.88	1.5	2.8	1.9	1.7	2.2	.85
7	1.1	.99	1.0	2.3	.96	.86	1.5	8.2	1.9	2.7	2.0	.85
8	1.1	.97	1.0	2.1	.97	.79	12	7.1	1.8	2.7	1.8	.84
9	1.1	.96	1.1	1.8	.96	.79	22	3.8	1.8	1.4	1.6	.83
10	1.1	.94	1.1	1.6	.96	.73	1.9	3.3	1.9	1.3	1.5	.83
11	1.1	.92	1.1	1.6	1.3	.74	1.5	3.0	10	1.3	1.4	.84
12	1.1	.89	1.1	1.4	1.5	.74	1.4	2.8	4.1	1.2	1.3	.83
13	1.4	.86	1.1	1.3	1.3	.75	1.6	2.8	2.0	1.2	1.2	.83
14	1.3	.85	1.1	1.3	1.2	.75	6.3	2.6	2.0	1.2	1.2	6.8
15	1.2	.83	1.1	1.3	2.8	.76	29	2.5	1.8	1.2	1.3	20
16	1.2	.82	1.2	1.3	4.9	.76	55	2.5	1.7	1.1	1.1	2.1
17	1.2	.79	1.3	1.3	8.6	.83	9.8	2.3	1.7	1.1	1.1	1.5
18	1.1	.79	1.3	1.3	2.8	5.8	1.6	2.2	274	1.2	1.1	1.3
19	1.1	.78	1.4	1.2	2.0	5.8	1.4	2.3	47	1.8	1.0	1.2
20	1.1	.73	1.4	1.2	1.7	4.1	1.3	2.1	6.6	1.5	1.0	1.1
21	1.1	.67	1.4	1.2	1.5	4.5	7.4	2.1	7.8	1.5	1.0	1.1
22	1.1	.67	1.5	1.1	1.4	4.5	1.5	2.0	4.8	1.5	1.0	.99
23	1.1	.68	1.5	1.1	1.3	4.1	1.4	2.0	4.3	1.5	1.1	.93
24	1.1	.70	1.4	1.1	1.2	1.4	1.4	4.2	4.8	1.5	1.1	.94
25	1.1	.73	1.4	1.1	1.1	1.4	1.4	2.1	3.4	1.4	1.0	.93
26	1.0	.77	1.5	1.0	1.1	1.4	1.6	2.3	2.3	1.5	.96	.89
27	1.0	.82	1.4	1.0	3.8	1.3	1.5	2.1	4.3	1.5	.91	.85
28	1.1	.84	1.4	.99	2.2	1.2	1.5	2.4	205	1.5	.98	.78
29	1.1	.87	1.4	.97	---	1.2	1.5	2.3	6.0	1.5	.98	.75
30	1.1	.90	1.4	.99	---	370	1.6	2.1	2.8	1.5	.88	.79
31	1.1	---	1.3	.96	---	626	---	2.5	---	1.6	.83	---
TOTAL	34.7	26.17	37.71	46.21	51.29	1046.81	225.7	100.0	615.8	56.3	41.64	53.77

WTR YR 1998 TOTAL 2336.10

WISCONSIN RIVER BASIN

430432089414100 GARFOOT CREEK RAIN GAGE #1 NEAR CROSS PLAINS, WI

LOCATION.--Lat 43°04'32", long 89°41'41", in SW 1/4 SE 1/4 sec.17, T.7 N., R.7 E., Dane County, Hydrologic Unit 07070005, on Garfoot Road, 2.8 mi south of intersection with County Trunk KP.

PERIOD OF RECORD.--October 1989 to September 1998 (non-frozen precipitation) discontinued.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established Oct. 13, 1989. Rainfall estimated to be 0.00 for Oct. 23, 26-28, Nov. 3, 10, 16-18, Dec. 4-7, 9-11, 13-14, 20, 22, 26, 30-31, Jan. 1, 9, 15, 24, 26-28, Feb. 1-2, 10-12, 16-18, 20, 23-24, 26-27, and Mar. 1-3, 6, 11, 13-14, 16, 19 because recorded precipitation interpreted as collector snowmelt. Rainfall data missing for the periods Nov. 20 to Dec. 3 and June 9 to July 2.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 3.33 in., Mar. 30, 1998.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 3.33 in., Mar. 30.

RAINFALL ACCUMULATED (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	.15	---	.00	.00	.00	.01	.13	.03	---	.00	.00
2	.00	.00	---	.00	.00	.00	.00	.51	.00	---	.00	.00
3	.00	.00	---	.00	.00	.00	.00	.04	.00	1.51	.54	.00
4	.00	.00	.00	.40	.00	.00	.00	.00	.00	.01	1.52	.00
5	.00	.17	.00	.25	.00	.00	.00	.00	.02	.00	.28	.00
6	.00	.05	.00	.03	.00	.00	.00	.15	.00	.00	.14	.00
7	.00	.00	.00	.00	.00	.00	.49	1.01	.00	.24	.00	.00
8	.03	.00	.00	.00	.00	.00	.64	.00	.02	.08	.03	.00
9	.08	.05	.00	.00	.00	.00	.26	.00	---	.00	.04	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	---	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	---	.00	.00	.00
12	.28	.00	.00	.00	.00	.00	.00	.01	---	.00	.00	.00
13	.43	.00	.00	.00	.00	.00	.84	.01	---	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	---	.00	.30	3.07
15	.00	.00	.00	.00	.00	.00	1.09	.18	---	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.46	.00	---	.00	.00	.00
17	.00	.00	.00	.00	.00	.38	.00	.00	---	.00	.34	.00
18	.00	.00	.00	.00	.00	.45	.00	.00	---	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.15	---	.90	.00	.00
20	.00	---	.00	.00	.00	.00	.36	.00	---	.79	.04	.00
21	.00	---	.00	.00	.00	.00	.28	.00	---	.00	.65	.00
22	.00	---	.00	.00	.00	.00	.00	.02	---	.01	.00	.00
23	.00	---	.00	.00	.00	.00	.00	.11	---	.00	.80	.01
24	.00	---	.00	.00	.00	.00	.00	1.42	---	.00	.31	.26
25	.00	---	.00	.00	.00	.00	.12	.00	---	.00	.01	.03
26	.00	---	.00	.00	.00	.00	.23	.00	---	.00	.00	.00
27	.00	---	.00	.00	.00	.00	.00	.00	---	.01	.14	.00
28	.00	---	.00	.00	.00	.00	.00	.68	---	.00	.20	.00
29	.00	---	.00	.00	---	.02	.03	.02	---	.00	.01	.03
30	.03	---	.00	.00	---	3.33	.00	.01	---	.01	.00	.47
31	.01	---	.00	.00	---	1.13	---	.48	---	.00	.00	---
TOTAL	0.86	---	---	0.68	0.00	5.31	4.81	4.93	---	---	5.35	3.87

430525089411500 GARFOOT CREEK RAIN GAGE #2 NEAR CROSS PLAINS, WI

LOCATION.--Lat 43°05'25", long 89°41'15", in SW 1/4 SW 1/4 sec.8, T.7 N., R.7 E., Dane County, Hydrologic Unit 07070005, on Garfoot Road, 1.6 mi south of intersection with County Trunk KP.

PERIOD OF RECORD.--October 1989 to September 1998 (non-frozen precipitation) discontinued.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established Oct. 12, 1989. Rainfall estimated to be 0.00 for Oct. 23, 26-27, Nov. 3, 17, Dec. 4, 7, 13-15, 21-22, 24, 26-27, Jan. 1, 9, 15, 26-28, Feb. 1-2, 5, 10-11, and Mar. 1-3, 6, 13, 16, 19 because recorded precipitation interpreted as collector snowmelt. Rainfall data missing for the period Nov. 20 to Dec. 3. Unpublished rainfall data collected at this site during 1985-86 water years are available for inspection at the District office.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 3.89 in., July 5, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 3.35 in., Mar. 30.

RAINFALL ACCUMULATED (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	.15	---	.00	.00	.00	.00	.14	.02	.00	.00	.00
2	.00	.00	---	.00	.00	.00	.00	.51	.01	.00	.00	.00
3	.00	.00	---	.00	.00	.00	.00	.01	.00	1.55	.38	.00
4	.00	.00	.00	.30	.00	.00	.00	.00	.00	.00	1.35	.00
5	.00	.18	.00	.24	.00	.00	.00	.00	.02	.00	.18	.00
6	.00	.04	.00	.00	.00	.00	.00	.04	.00	.00	.07	.00
7	.00	.01	.00	.00	.00	.00	.42	.95	.00	.25	.00	.00
8	.02	.00	.00	.00	.00	.00	.61	.00	.02	.00	.03	.00
9	.08	.04	.00	.00	.00	.00	.21	.00	.19	.00	.03	.00
10	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	1.09	.00	.00	.00
12	.28	.00	.00	.00	.00	.00	.00	.01	.10	.00	.00	.00
13	.42	.00	.00	.00	.00	.00	.82	.01	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.24	2.74
15	.00	.00	.00	.00	.00	.00	1.03	.19	.00	.00	.01	.00
16	.00	.00	.00	.00	.14	.00	.42	.00	.25	.00	.00	.01
17	.01	.00	.00	.00	.05	.35	.01	.00	.00	.00	.32	.00
18	.00	.00	.00	.00	.00	.40	.00	.00	2.27	.00	.00	.00
19	.00	.00	.00	.00	.01	.00	.00	.23	.00	1.37	.00	.00
20	.00	---	.00	.00	.01	.00	.34	.00	.51	.71	.02	.00
21	.00	---	.00	.00	.00	.00	.28	.00	.03	.00	.54	.00
22	.00	---	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00
23	.00	---	.00	.00	.05	.00	.00	.09	.00	.00	.64	.01
24	.00	---	.00	.00	.08	.00	.00	1.43	.48	.00	.25	.26
25	.00	---	.00	.00	.00	.00	.10	.00	.17	.00	.01	.01
26	.00	---	.00	.00	.17	.00	.21	.00	.00	.00	.00	.00
27	.00	---	.00	.00	.58	.00	.00	.00	1.74	.02	.11	.00
28	.00	---	.00	.00	.00	.00	.00	.45	.69	.00	.21	.00
29	.00	---	.00	.00	---	.04	.03	.02	.06	.00	.00	.03
30	.02	---	.00	.00	---	3.35	.00	.01	.01	.00	.00	.35
31	.01	---	.00	.00	---	1.15	---	.47	---	.00	.00	---
TOTAL	0.84	---	---	0.54	1.09	5.29	4.48	4.58	7.66	3.90	4.40	3.41

WISCONSIN RIVER BASIN

430543089393500 GARFOOT CREEK RAIN GAGE #3 NEAR CROSS PLAINS, WI

LOCATION.--Lat 43°05'43", long 89°39'35", in NW 1/4 SW 1/4 sec.10, T.7 N., R.7 E., Dane County, Hydrologic Unit 07070005, on Stage Coach Road, 0.5 mi west of intersection with County Trunk P.

PERIOD OF RECORD.--October 1989 to September 1998 (non-frozen precipitation) discontinued.

GAGE.--Tipping bucket rain gage with electronic datalogger.

REMARKS.--Gage established Oct. 27, 1989. Rainfall estimated to be 0.00 for Dec. 26, Jan. 1, 15, and Feb. 1-2, 5, 10-11 because recorded precipitation interpreted as collector snowmelt. Rainfall data missing for the periods Oct. 1 to Dec. 23, Mar. 2 to Apr. 13, and Sept. 2-30.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily rainfall, 3.60 in., July 5, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum daily rainfall, 2.49 in., June 18.

RAINFALL ACCUMULATED (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	.04	---	.19	.02	.00	.00	.00
2	---	---	---	.00	.00	---	---	.60	.00	.00	.00	---
3	---	---	---	.00	.00	---	---	.02	.00	1.64	.35	---
4	---	---	---	.48	.00	---	---	.01	.00	.00	1.56	---
5	---	---	---	.26	.00	---	---	.00	.02	.00	.25	---
6	---	---	---	.04	.00	---	---	.06	.00	.00	.11	---
7	---	---	---	.00	.00	---	---	1.01	.00	.17	.00	---
8	---	---	---	.00	.00	---	---	.00	.01	.00	.02	---
9	---	---	---	.00	.00	---	---	.00	.21	.00	.02	---
10	---	---	---	.00	.00	---	---	.00	.01	.00	.01	---
11	---	---	---	.00	.00	---	---	.00	1.21	.00	.00	---
12	---	---	---	.00	.00	---	---	.01	.16	.00	.00	---
13	---	---	---	.00	.00	---	---	.00	.00	.00	.00	---
14	---	---	---	.00	.00	---	.00	.00	.00	.00	.26	---
15	---	---	---	.00	.00	---	1.09	.16	.00	.00	.01	---
16	---	---	---	.00	.19	---	.38	.00	.35	.00	.00	---
17	---	---	---	.00	.06	---	.00	.00	.01	.00	.32	---
18	---	---	---	.00	.00	---	.00	.00	2.49	.00	.00	---
19	---	---	---	.00	.02	---	.00	.18	.00	1.36	.00	---
20	---	---	---	.00	.00	---	.35	.00	.35	.68	.00	---
21	---	---	---	.00	.00	---	.32	.00	.05	.00	.52	---
22	---	---	---	.00	.00	---	.00	.02	.00	.00	.01	---
23	---	---	---	.00	.06	---	.00	.11	.00	.00	.58	---
24	---	---	.00	.00	.08	---	.00	1.51	.46	.00	.21	---
25	---	---	.00	.00	.00	---	.15	.00	.13	.00	.01	---
26	---	---	.00	.00	.17	---	.23	.00	.00	.00	.00	---
27	---	---	.00	.00	.56	---	.00	.00	1.85	.02	.11	---
28	---	---	.00	.00	.00	---	.00	.44	.71	.01	.20	---
29	---	---	.00	.00	---	---	.01	.01	.05	.00	.00	---
30	---	---	.00	.00	---	---	.00	.01	.00	.00	.00	---
31	---	---	.00	.00	---	---	---	.52	---	.00	.00	---
TOTAL	---	---	---	0.78	1.14	---	---	4.86	8.09	3.88	4.55	---

05406491 GARFOOT CREEK NEAR CROSS PLAINS, WI

LOCATION.--Lat 43°06'37", long 89°40'46", in NW 1/4 SW 1/4 sec.4, T.7 N., R.7 E., Dane County, Hydrologic Unit 07070005, on left bank at bridge on Garfoot Road, 0.5 mi upstream from Black Earth Creek.

DRAINAGE AREA.--5.39 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1984 to September 1986, October 1989 to May 1994, August 1994 to September 1998 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 860 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Ice-affected periods, Jan. 10, 13, and Mar. 9. Records are fair (see page 12). 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	3.4	4.6	4.3	2.9	3.4	5.3	19	7.1	6.5	7.2	5.6	5.2
2	3.2	4.5	4.1	3.5	3.6	4.9	9.7	7.4	6.2	6.9	5.5	5.1
3	3.2	4.5	3.9	6.2	3.6	4.7	8.2	9.3	5.9	20	5.6	5.1
4	4.2	4.5	4.0	5.1	3.5	4.7	7.5	7.6	5.8	13	7.7	5.1
5	4.3	4.4	4.0	6.8	3.4	4.6	7.0	7.2	5.8	8.0	10	5.1
6	4.6	4.7	3.8	6.0	3.3	4.5	6.8	7.0	5.8	7.7	7.3	5.2
7	4.8	4.4	3.8	4.8	3.2	4.5	6.8	10	5.6	8.0	7.1	5.2
8	4.1	4.1	3.8	4.3	3.2	4.6	10	9.8	5.6	7.6	6.9	5.0
9	3.6	4.0	3.8	4.1	3.2	4.1	12	7.7	5.7	7.3	6.7	4.9
10	3.6	4.0	3.8	3.8	3.2	3.9	7.6	7.2	5.8	7.1	6.5	4.9
11	3.6	3.9	3.8	3.5	4.2	3.8	6.7	7.0	9.0	6.8	6.3	4.7
12	3.7	3.7	3.7	3.4	5.1	3.7	6.7	7.0	7.7	6.6	6.2	4.7
13	5.0	3.6	3.6	3.3	4.6	3.9	8.1	6.9	6.6	6.5	6.1	4.9
14	4.3	3.6	3.5	3.3	4.3	4.2	9.8	6.7	6.1	6.6	6.3	17
15	4.2	3.6	3.5	3.2	6.4	4.1	14	6.7	5.9	6.4	6.9	10
16	4.2	3.4	3.8	3.2	7.6	4.1	17	6.7	6.0	6.5	6.7	6.6
17	4.1	3.4	3.8	3.2	8.6	4.4	10	6.5	6.0	6.4	6.6	6.1
18	3.8	3.4	3.8	3.2	6.1	8.2	8.4	6.5	26	6.2	6.0	5.9
19	3.8	3.4	3.8	3.1	5.2	7.7	7.9	6.6	24	9.5	5.9	6.0
20	3.8	3.4	3.8	3.0	5.0	6.7	7.9	6.5	10	7.9	5.8	6.0
21	3.8	3.4	3.8	3.2	4.9	6.7	11	6.4	11	8.4	6.0	5.8
22	3.8	3.4	3.8	3.2	4.7	7.1	8.4	6.3	7.4	7.1	6.5	5.7
23	3.9	3.5	3.7	3.2	4.6	6.9	7.9	6.2	6.9	6.8	8.0	5.6
24	4.0	3.3	3.8	3.2	4.7	6.3	7.5	11	8.3	6.5	6.3	5.9
25	4.0	3.4	3.8	3.2	4.6	6.4	7.4	7.9	7.3	6.4	6.7	5.8
26	4.2	3.5	3.7	3.2	4.6	6.1	8.1	7.0	7.4	6.3	5.8	5.8
27	4.6	3.7	3.2	3.2	7.7	5.5	7.3	6.7	8.5	6.4	5.6	5.8
28	4.4	3.8	3.0	3.2	5.9	5.1	7.0	7.1	48	6.0	6.2	5.6
29	4.3	3.9	3.0	3.2	---	5.1	6.9	7.0	8.4	5.8	5.9	5.5
30	4.3	4.4	3.0	3.2	---	18	6.9	6.7	7.7	5.6	5.5	5.9
31	4.3	---	2.9	3.2	---	91	---	7.6	---	5.6	5.4	---
TOTAL	125.1	115.4	114.1	115.1	132.4	260.8	269.5	227.3	286.9	233.1	199.6	180.1
MEAN	4.04	3.85	3.68	3.71	4.73	8.41	8.98	7.33	9.56	7.52	6.44	6.00
MAX	5.0	4.7	4.3	6.8	8.6	91	19	11	48	20	10	17
MIN	3.2	3.3	2.9	2.9	3.2	3.7	6.7	6.2	5.6	5.6	5.4	4.7
CFSM	.75	.71	.68	.69	.88	1.56	1.67	1.36	1.77	1.40	1.19	1.11
IN.	.86	.80	.79	.79	.91	1.80	1.86	1.57	1.98	1.61	1.38	1.24

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1998, BY WATER YEAR (WY)

MEAN	4.77	4.96	4.20	3.99	5.06	7.01	6.50	5.65	5.90	6.02	4.86	4.56
MAX	6.53	8.76	5.55	5.30	7.61	12.8	11.6	7.77	10.0	15.0	8.64	7.22
(WY)	1994	1986	1994	1997	1994	1993	1993	1995	1996	1993	1993	1993
MIN	2.19	2.59	2.10	2.10	2.72	3.29	2.74	3.38	3.33	2.44	2.56	2.06
(WY)	1991	1991	1990	1991	1991	1996	1990	1990	1992	1990	1990	1990

SUMMARY STATISTICS

	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1985 - 1998
ANNUAL TOTAL	1847.7	2259.4	
ANNUAL MEAN	5.06	6.19	5.23
HIGHEST ANNUAL MEAN			7.69
LOWEST ANNUAL MEAN			3.18
HIGHEST DAILY MEAN	31	91	91
LOWEST DAILY MEAN	2.5	2.9	1.7
ANNUAL SEVEN-DAY MINIMUM	2.6	3.1	1.8
INSTANTANEOUS PEAK FLOW		212	(c) 212
INSTANTANEOUS PEAK STAGE		6.78	7.57
INSTANTANEOUS LOW FLOW			1.6
ANNUAL RUNOFF (CFSM)	.94	1.15	.97
ANNUAL RUNOFF (INCHES)	12.75	15.59	13.18
10 PERCENT EXCEEDS	6.9	8.1	7.4
50 PERCENT EXCEEDS	4.5	5.6	4.6
90 PERCENT EXCEEDS	3.4	3.4	2.7

(a) Also occurred Jan. 1

(b) Also occurred Aug. 9, 10, Sept. 30, Oct. 1, 2, 1990

(c) Gage height, 6.78 ft

(d) Also occurred Oct. 27, 1990

WISCONSIN RIVER BASIN
05406491 GARFOOT CREEK NEAR CROSS PLAINS, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1984 to September 1986, October 1989 to September 1998 (discontinued).

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1984 to September 1986, October 1989 to September 1998 (discontinued).

DISSOLVED OXYGEN: April 1984 to September 1985, April 1990 to September 1998 (discontinued).

SUSPENDED-SOLIDS DISCHARGE: October 1989 to September 1991.

TOTAL-NITROGEN DISCHARGE: October 1984 to June 1986.

SUSPENDED-SEDIMENT DISCHARGE: October 1984 to June 1986, October 1991 to September 1998 (discontinued).

TOTAL-PHOSPHORUS DISCHARGE: October 1984 to June 1986, October 1989 to September 1998 (discontinued).

INSTRUMENTATION.--Water-quality sampler December 1984 to June 1986, October 1989 to current year; continuous water temperature recorder November 1984 to September 1986, October 1989 to current year; dissolved oxygen recorder April 1984 to September 1985, April 1990 to current year.

REMARKS.-- Chemical analyses by the Wisconsin State Laboratory of Hygiene. Suspended-sediment analyses by U.S. Geological Survey Laboratory. Samples are point samples unless otherwise indicated.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum observed, 28.0°C, June 28, 1998; minimum observed, 0.0°C, on several days during 1985, 1986, 1990, 1991, 1993, 1994, 1995, 1996, 1997, and 1998 winter periods.

DISSOLVED OXYGEN: Maximum observed, 17.4 mg/L, Apr. 11, 1990; minimum observed, 0.5 mg/L, June 18, 1998.

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 77 tons, June 29, 1990; minimum daily, 0.04 ton, Feb. 26-27, and Aug. 7, 9-10, 1990.

TOTAL-NITROGEN DISCHARGE: Maximum daily, 2,980 lb, July 25, 1985; minimum daily, 49 lb, Jan. 26 to Feb. 3, 1985.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 148 tons, Mar. 31, 1998; minimum, 0.05 ton, Mar. 11, 1996.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 1,030 lb, Mar. 31, 1998; minimum daily, 0.44 lb, Feb. 13-15, 1997.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 28.0°C, June 28; minimum observed, 0.0°C, Jan. 10-11, 13, and Mar. 11-12.

DISSOLVED OXYGEN: Maximum observed, 15.9 mg/L, Dec. 31; minimum observed, 0.5 mg/L, June 18.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 148 tons, Mar. 31; minimum daily, 0.10 ton, Nov. 18-22 and Mar. 2-7, 9-13.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 1,030 lb, Mar. 31; minimum daily, 1.5 lb, Oct. 2-3.

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)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 1997							
*10...	0845	3.6	2800	.019	.088	31	--
*31...	0820	4.3	4100	<.013	.070	20	--
NOV							
*21...	1515	3.4	6100	.037	.104	10	--
DEC							
*04...	1510	4.0	40	.280	.290	25	--
JAN 1998							
*05...	1140	5.9	17000	.455	.546	36	--
FEB							
*02...	0820	3.6	3600	.119	.231	88	--
16...	2200	10	--	.338	.784	123	--
*18...	0935	6.2	--	.072	.211	17	--
MAR							
*02...	0905	4.9	400	.040	.070	7	--
*25...	0640	6.3	170	.048	.121	--	--
*25...	0655	6.3	--	--	--	14	--
30...	1815	13	--	.151	1.30	542	--
30...	1915	21	--	.255	3.18	2110	--
30...	2000	38	--	.535	4.67	2170	--
30...	2030	45	--	.344	3.78	2210	--
30...	2245	81	--	.385	4.09	1840	97
30...	2345	130	--	.288	4.23	1770	97
31...	0045	184	--	.293	3.94	1200	--
31...	0145	210	--	--	--	1200	96
31...	1015	72	--	.102	1.14	291	--
*31...	1030	70	--	.144	1.09	254	--
31...	1415	64	--	--	--	356	--
*31...	1445	64	--	.063	.974	--	--
*31...	1450	60	--	--	--	221	--
31...	1456	59	12000	.149	.993	230	--
31...	1645	48	--	--	--	176	--

* Equal-width increment (EWI) sample

WISCONSIN RIVER BASIN

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05406491 GARFOOT CREEK NEAR CROSS PLAINS, 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)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
APR 1998							
01...	0145	37	13000	.085	.843	215	--
01...	0400	27	10000	.026	.746	177	--
*01...	0955	17	--	.154	1.42	94	--
01...	1001	17	7700	<.013	.552	138	--
*06...	0845	7.0	170	.032	.091	62	--
08...	0545	12	--	.087	.199	--	--
08...	1030	12	--	.193	.620	103	--
09...	1830	10	--	.089	.385	70	--
13...	2245	16	--	.214	1.09	--	--
15...	1345	22	--	.239	1.29	--	--
15...	2400	14	--	.106	.549	--	--
16...	1130	20	--	.186	.822	--	--
17...	0445	11	--	.165	.394	--	--
*20...	0934	7.8	11000	.022	.158	19	--
MAY							
*04...	1025	7.6	3300	.013	.086	--	--
07...	1845	15	--	.233	.838	--	--
*08...	0944	9.6	--	.059	.231	33	--
*28...	1335	7.6	120000	.077	.146	40	--
JUN							
*11...	1915	16	--	.212	1.06	--	--
*12...	1237	7.2	--	.061	.210	--	--
18...	1415	23	--	.083	1.66	1020	--
18...	1445	31	--	.058	1.49	974	--
18...	1515	40	--	.079	1.61	1100	95
18...	1600	48	--	.129	1.96	1040	95
18...	2030	58	--	.141	1.39	495	88
18...	2245	68	--	.151	1.37	379	93
19...	0245	52	--	.075	.814	199	--
19...	0445	39	--	.066	.740	156	--
19...	0645	28	--	.073	.701	131	--
19...	1045	19	--	.075	.541	93	--
19...	1112	17	--	.078	.601	78	--
*19...	1115	17	--	.086	.578	72	--
20...	1010	9.1	--	.073	.149	81	--
*24...	1324	8.8	21000	.088	.300	53	--
27...	2400	27	K420000	.119	1.67	832	97
28...	0015	33	K320000	.084	1.42	838	97
28...	0030	41	K420000	.072	1.52	877	97
28...	0100	51	110000	.124	2.51	1800	--
28...	0145	61	92000	.274	3.30	--	--
28...	0330	72	K320000	.082	1.87	736	98
28...	0700	84	K210000	.071	1.18	280	97
28...	1100	65	89000	.042	.761	114	94
28...	1128	62	--	<.013	.721	110	--
*28...	1135	61	K530000	.047	.718	121	--
28...	1300	49	K210000	.031	.673	139	--
28...	1430	38	69000	.034	.609	129	--
28...	1615	27	39000	.038	.546	113	--
28...	1915	18	18000	.035	.463	90	--
*29...	0935	8.5	24000	.056	.166	31	--
JUL							
03...	1700	32	--	.066	1.24	945	98
03...	1715	39	--	.110	2.17	1710	99
03...	1745	48	--	.123	2.62	1890	99
03...	2315	36	--	.063	.697	241	98
04...	0100	26	--	.092	.690	127	97
04...	0400	17	--	.107	.550	86	94
*09...	0835	7.4	7700	.032	.096	--	--
*20...	1210	7.0	11000	.014	.101	33	76
AUG							
05...	0400	12	--	.049	.676	64	--
*05...	1421	9.6	61000	.056	.336	21	--
*18...	1020	6.0	9000	.033	.064	15	--
*31...	1208	5.4	13000	.024	.062	8	--
SEP							
*14...	1430	20	--	.074	1.19	330	--
14...	1530	27	--	.139	1.53	337	99
14...	1745	34	--	.212	1.69	188	97
14...	2345	24	--	.093	1.00	72	94
15...	0245	15	--	.070	.710	59	--
*16...	1010	6.5	--	.036	.116	10	--
22...	1824	5.6	8000	.020	.088	--	--

* Equal-width increment (EWI) sample

K Results based on count outside of the acceptable range (non-deal colony count)

WISCONSIN RIVER BASIN
05406491 GARFOOT CREEK NEAR CROSS PLAINS, 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	12.5	9.5	11.0	10.5	8.0	9.5	6.5	5.5	6.0	5.5	1.0	3.5
2	15.0	9.5	11.5	8.0	7.0	7.5	6.5	6.0	6.0	7.0	4.0	5.5
3	16.5	10.5	13.0	7.5	6.5	7.0	6.0	5.0	5.5	6.5	4.5	6.0
4	15.5	11.5	14.0	8.5	7.0	7.5	6.0	4.5	5.5	4.5	3.5	4.0
5	16.5	10.0	13.0	8.0	7.0	7.5	4.5	3.5	4.0	5.5	4.5	5.0
6	16.0	10.0	13.0	8.0	7.0	7.5	5.5	3.5	4.5	5.5	4.5	5.0
7	16.5	12.0	14.0	9.0	7.5	8.0	6.0	3.0	5.0	5.0	4.0	4.5
8	16.5	12.5	14.5	8.5	7.5	8.0	5.0	3.0	4.5	4.0	3.0	3.5
9	15.0	11.0	14.0	8.0	7.5	8.0	6.0	4.5	5.0	5.0	1.5	4.0
10	13.5	8.5	11.0	7.5	6.0	7.0	5.5	4.0	5.0	1.5	.0	.5
11	13.5	10.0	11.5	6.5	4.5	5.5	6.5	5.0	5.5	3.0	.0	1.5
12	14.5	12.0	13.0	5.5	3.5	4.5	5.5	3.0	4.5	3.0	.5	2.5
13	14.0	9.0	12.0	6.0	4.0	5.5	5.5	3.0	4.0	1.5	.0	.5
14	9.5	7.5	8.5	7.0	5.0	6.0	5.5	2.0	3.5	3.0	1.0	1.5
15	11.0	6.5	8.5	5.5	4.5	5.0	6.5	4.0	5.0	4.5	3.0	3.5
16	12.0	8.0	9.5	5.5	3.0	4.0	7.0	4.0	5.5	4.5	3.0	4.0
17	11.5	7.0	9.0	6.0	2.5	4.0	6.0	3.0	4.5	5.0	2.0	4.0
18	11.5	6.5	8.5	6.5	4.0	5.0	7.0	4.5	5.5	4.0	1.5	3.0
19	10.0	7.5	8.5	6.0	4.0	5.0	7.0	5.0	6.0	5.0	3.0	4.0
20	10.0	6.0	8.0	6.5	4.0	5.0	6.0	3.0	5.0	5.0	3.5	4.0
21	8.5	6.0	7.0	6.0	3.5	4.5	5.5	2.0	3.5	4.0	2.5	3.5
22	9.0	6.5	7.5	5.5	3.5	4.5	5.0	4.5	5.0	5.0	3.5	4.5
23	8.5	6.5	7.5	5.0	3.0	4.0	5.5	4.5	5.0	5.5	3.5	4.5
24	9.0	8.0	8.5	5.0	2.0	3.5	5.0	2.5	4.0	6.5	2.0	4.5
25	9.5	7.0	8.0	7.5	4.5	6.0	5.0	3.0	4.5	4.5	2.0	3.5
26	7.0	4.5	5.5	7.5	4.5	6.0	5.5	3.5	4.5	6.0	4.5	5.0
27	8.0	5.0	6.0	6.5	4.5	5.5	4.0	1.0	2.5	7.0	4.5	5.5
28	8.5	5.0	6.5	8.0	5.5	7.0	5.0	2.0	4.0	7.0	4.5	5.5
29	9.5	5.5	7.5	7.0	6.5	7.0	4.5	3.0	4.0	6.5	4.5	5.5
30	9.5	7.0	8.5	7.0	6.0	6.5	4.5	1.5	3.0	5.5	4.0	4.5
31	11.5	9.0	10.0	---	---	---	3.0	.5	2.0	6.5	4.0	5.0
MONTH	16.5	4.5	10.0	10.5	2.0	6.1	7.0	.5	4.6	7.0	.0	3.9
FEBRUARY			MARCH			APRIL			MAY			
1	6.5	5.0	5.5	7.0	5.0	6.0	9.5	7.0	8.0	13.0	10.0	11.0
2	7.0	4.0	5.0	6.5	5.0	5.5	8.5	7.0	7.5	11.5	10.0	10.5
3	5.5	4.0	5.0	7.0	5.0	5.5	8.0	6.5	7.5	11.5	10.0	10.5
4	5.5	3.5	4.0	6.5	4.5	5.5	12.5	6.5	9.0	16.0	9.5	12.0
5	6.5	3.0	4.0	7.5	5.0	6.0	13.0	6.0	8.5	16.0	10.5	12.5
6	6.5	1.5	4.0	7.5	4.5	5.5	13.0	7.0	9.5	15.0	9.5	12.0
7	7.0	2.5	4.0	8.5	3.5	5.5	12.0	8.0	9.5	12.0	11.0	11.5
8	6.5	3.0	4.5	5.0	.5	2.5	9.0	7.5	8.0	16.5	11.0	13.0
9	6.5	4.0	5.0	4.0	.5	2.0	8.5	6.5	7.5	16.5	10.5	13.0
10	6.5	4.5	5.5	6.5	1.0	2.5	12.5	6.0	8.5	16.0	9.0	12.0
11	6.0	4.5	5.5	6.0	.0	2.5	12.5	6.5	9.0	16.0	9.0	12.0
12	7.0	3.5	5.0	7.0	.0	3.0	15.0	8.5	11.0	16.5	10.0	13.0
13	6.0	3.5	4.5	6.0	2.0	4.0	11.0	9.0	10.0	17.0	10.5	13.0
14	7.0	4.5	5.5	7.5	1.5	4.0	14.5	9.0	11.5	18.0	10.5	14.0
15	8.0	3.5	5.0	6.0	2.0	3.5	9.5	8.0	9.0	18.0	12.0	15.0
16	6.5	3.5	4.5	7.5	1.5	4.0	8.0	6.0	6.5	18.0	12.0	14.5
17	4.5	3.5	4.0	6.0	3.5	4.5	12.0	5.5	8.5	18.0	10.5	14.0
18	5.0	4.0	4.5	4.0	3.5	3.5	13.5	6.5	9.5	19.0	11.5	14.5
19	7.0	5.0	5.5	5.0	3.0	4.0	12.5	7.0	9.5	16.5	12.5	14.0
20	7.0	5.0	5.5	7.0	3.0	4.5	11.5	7.5	9.0	14.5	11.0	13.0
21	7.5	5.0	6.0	9.0	3.0	5.0	11.5	8.5	9.5	16.0	10.0	12.5
22	9.0	5.0	6.5	9.0	2.5	5.0	14.0	7.5	10.0	12.0	10.0	11.0
23	7.0	5.5	6.5	9.5	3.5	6.0	15.0	7.5	11.0	16.0	10.0	12.5
24	10.0	5.5	7.5	10.0	3.5	6.0	15.5	8.0	11.5	12.5	10.5	11.5
25	9.5	5.0	6.5	9.5	5.5	7.5	13.0	8.5	10.5	16.0	10.5	12.5
26	10.0	6.5	8.0	13.5	8.5	11.0	10.5	8.0	9.5	16.5	10.0	13.0
27	7.5	5.5	6.5	13.0	10.0	11.5	13.5	6.5	9.5	17.5	11.0	13.5
28	8.5	5.0	6.0	12.0	8.5	10.0	13.0	7.0	9.5	18.5	12.0	14.5
29	---	---	---	16.5	8.0	11.5	15.0	8.5	11.0	17.5	13.0	14.5
30	---	---	---	13.0	11.0	12.0	13.5	9.5	11.0	16.5	11.5	13.5
31	---	---	---	13.0	8.5	10.0	---	---	---	17.5	12.5	14.5
MONTH	10.0	1.5	5.3	16.5	.0	5.8	15.5	5.5	9.3	19.0	9.0	12.9

05406491 GARFOOT CREEK NEAR CROSS PLAINS, 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	15.5	10.5	12.5	17.5	12.5	14.5	16.0	11.0	13.0	15.5	11.5	13.0
2	16.0	11.0	13.0	17.5	12.5	14.5	15.5	11.5	13.5	14.5	11.0	12.5
3	14.0	10.5	12.0	21.0	13.0	16.0	15.0	12.5	13.5	15.0	11.0	13.0
4	14.0	9.0	11.5	19.0	14.0	16.5	16.0	13.0	14.0	15.0	11.0	13.0
5	13.5	10.5	11.5	17.0	12.5	14.5	17.0	14.5	16.0	15.5	11.0	13.0
6	12.5	10.0	11.0	16.0	13.5	14.5	15.0	14.0	14.5	15.0	12.0	13.0
7	15.0	8.5	11.5	15.5	13.5	14.5	16.0	13.5	14.5	15.0	12.0	13.5
8	13.5	9.0	11.0	16.5	13.0	14.5	16.5	13.5	14.5	14.0	10.5	12.0
9	11.5	11.0	11.5	17.0	13.0	14.5	16.5	12.5	14.5	14.0	10.0	11.5
10	13.5	11.0	12.0	17.0	12.5	14.5	17.0	13.0	14.5	15.0	10.0	12.0
11	15.0	11.0	13.0	17.0	12.0	14.0	16.0	12.5	14.0	15.5	11.0	13.0
12	17.0	12.5	14.5	17.0	12.0	14.0	16.0	12.0	13.5	15.5	11.5	13.0
13	16.0	12.0	13.5	17.0	12.0	14.5	15.0	12.0	13.5	16.0	11.5	13.5
14	14.5	11.5	13.0	18.0	12.5	15.0	16.5	12.0	14.0	17.5	13.0	15.0
15	16.0	11.5	13.5	18.0	13.0	15.0	15.5	13.0	14.0	17.0	14.0	15.5
16	16.0	11.5	13.5	17.5	12.5	14.5	16.0	12.0	14.0	15.5	12.5	14.0
17	16.0	11.5	13.5	17.0	12.5	14.5	16.0	13.0	14.0	15.5	11.5	13.0
18	18.5	13.0	15.5	17.0	12.0	14.0	14.5	13.0	14.0	15.0	11.5	13.0
19	19.0	14.0	17.0	18.5	13.0	16.0	16.0	12.0	13.5	16.0	12.0	13.5
20	18.5	13.0	15.5	17.5	13.0	15.0	15.0	12.5	14.0	15.5	12.5	13.5
21	18.0	14.0	16.0	17.0	14.5	16.0	15.0	13.0	14.0	13.5	11.5	12.5
22	16.0	12.5	14.0	16.0	13.0	14.5	17.0	14.0	15.0	13.5	10.5	12.0
23	17.0	12.5	14.5	16.0	12.5	14.0	19.0	14.0	16.5	13.5	9.0	11.0
24	19.0	13.5	15.5	16.0	11.5	13.5	15.5	14.0	14.5	12.5	11.0	11.5
25	19.0	14.5	16.0	15.0	12.0	13.0	17.0	14.0	15.0	14.5	10.5	12.5
26	18.0	13.5	15.5	16.0	11.5	13.5	16.0	12.5	14.0	16.0	13.0	14.5
27	19.0	14.5	16.5	16.5	12.0	14.0	14.5	12.5	13.5	15.5	12.0	14.0
28	28.0	16.5	22.0	17.0	12.0	14.0	15.0	13.5	14.0	14.5	10.5	12.0
29	17.5	14.0	15.5	16.0	12.0	13.5	16.5	12.5	14.0	15.0	11.5	13.0
30	17.5	13.5	15.0	16.5	12.0	14.0	15.5	12.0	13.5	13.5	11.0	12.0
31	---	---	---	16.0	11.5	13.5	15.0	11.5	13.0	---	---	---
MONTH	28.0	8.5	14.0	21.0	11.5	14.5	19.0	11.0	14.1	17.5	9.0	12.9

OXYGEN DISSOLVED (MG/L), 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	10.1	8.8	9.3	10.0	8.6	9.2	12.0	10.9	11.4	15.6	10.8	13.3
2	9.9	8.3	9.2	10.8	9.4	9.9	11.6	10.7	11.1	14.3	11.5	12.8
3	9.7	8.0	8.9	10.5	9.5	9.9	11.7	9.3	10.7	13.2	10.5	11.7
4	9.6	8.1	8.7	11.2	9.6	10.2	12.8	9.8	11.2	14.3	10.3	12.3
5	9.8	7.9	9.0	11.0	9.6	10.2	12.0	10.8	11.4	12.3	8.9	10.9
6	10.4	8.4	9.3	10.4	9.6	9.9	11.9	10.8	11.3	---	---	---
7	9.9	8.3	9.0	11.1	9.6	10.1	12.0	10.9	11.4	---	---	---
8	10.1	8.0	9.0	10.6	9.7	10.0	12.1	11.1	11.5	---	---	---
9	10.3	8.1	9.2	10.8	9.8	10.1	12.0	10.9	11.4	---	---	---
10	11.1	9.0	10.1	11.4	9.9	10.5	12.3	11.0	11.5	---	---	---
11	10.4	8.9	9.6	11.8	10.3	10.9	12.4	11.1	11.5	---	---	---
12	9.8	8.3	9.0	12.0	10.7	11.2	12.5	11.3	11.8	---	---	---
13	9.6	7.1	8.4	11.7	10.5	11.0	12.8	11.3	11.9	---	---	---
14	11.2	9.6	10.4	11.5	10.4	10.8	12.8	11.2	12.1	---	---	---
15	11.6	9.9	10.7	11.8	10.5	11.0	12.4	11.3	11.7	---	---	---
16	11.1	9.8	10.4	12.2	10.9	11.4	12.5	11.3	11.8	---	---	---
17	11.5	9.6	10.6	12.1	10.8	11.4	13.0	11.4	12.2	---	---	---
18	11.5	9.7	10.7	11.9	10.7	11.2	12.8	11.1	11.9	---	---	---
19	11.3	9.8	10.6	12.1	10.9	11.3	12.9	11.1	12.0	---	---	---
20	12.0	10.3	11.0	11.4	10.5	11.0	12.9	11.3	11.9	---	---	---
21	11.9	10.4	11.1	12.0	10.8	11.3	13.4	11.5	12.5	---	---	---
22	12.1	10.5	11.2	11.3	10.6	11.0	12.6	11.1	12.0	---	---	---
23	11.5	10.1	10.8	12.4	11.0	11.6	13.2	11.6	12.4	---	---	---
24	11.2	9.7	10.4	12.6	11.0	11.8	13.5	11.6	12.5	---	---	---
25	12.1	10.3	10.9	11.9	10.6	11.1	13.7	11.6	12.6	---	---	---
26	11.5	9.7	10.9	11.8	10.6	11.0	13.9	11.5	12.6	---	---	---
27	11.3	9.1	10.4	11.9	10.5	11.1	14.3	10.6	13.2	---	---	---
28	11.2	8.2	9.9	11.8	10.4	11.0	14.2	12.0	13.0	---	---	---
29	10.8	7.7	9.5	11.3	10.3	10.7	13.9	11.6	12.9	---	---	---
30	11.7	9.4	10.5	11.9	10.3	10.9	14.4	12.1	13.4	---	---	---
31	11.0	9.0	9.8	---	---	---	15.9	12.0	13.9	---	---	---
MONTH	12.1	7.1	10.0	12.6	8.6	10.8	15.9	9.3	12.0	15.6	8.9	12.2

WISCONSIN RIVER BASIN
05406491 GARFOOT CREEK NEAR CROSS PLAINS, WI--CONTINUED

OXYGEN DISSOLVED (MG/L), 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	---	---	---	14.5	11.4	12.4	9.2	7.6	8.6	12.7	8.8	10.3
2	---	---	---	13.3	10.4	11.8	10.5	8.9	9.8	12.2	8.7	10.0
3	---	---	---	13.6	10.4	11.4	11.2	9.2	10.7	11.9	8.7	9.8
4	---	---	---	13.7	10.6	11.6	11.7	9.5	10.8	12.9	8.6	10.4
5	---	---	---	14.2	10.5	11.7	11.9	9.8	11.0	12.5	8.6	10.1
6	---	---	---	14.1	10.6	11.9	11.6	9.5	10.8	12.6	8.6	10.1
7	---	---	---	14.7	10.6	12.0	11.4	9.3	10.2	9.2	7.8	8.5
8	---	---	---	13.9	10.7	12.0	10.2	9.4	9.8	11.0	7.9	9.2
9	---	---	---	14.4	11.3	12.5	10.5	9.8	10.1	11.5	8.2	9.6
10	13.0	9.7	11.1	14.7	11.7	12.8	11.8	9.6	10.7	11.2	8.0	9.3
11	11.5	9.7	10.3	14.8	11.8	12.9	11.8	9.8	10.8	11.6	8.1	9.6
12	12.5	10.0	10.8	14.7	11.4	12.9	12.2	9.4	10.6	11.7	8.2	9.6
13	12.4	10.3	11.0	14.6	10.8	12.3	11.1	8.5	9.9	11.3	8.5	9.6
14	13.3	10.4	11.3	14.9	11.2	12.6	11.6	8.3	9.9	11.2	8.1	9.5
15	13.2	10.2	11.1	15.1	11.4	12.7	10.2	9.1	9.7	10.6	7.3	9.1
16	12.3	9.3	10.8	15.2	11.1	12.8	10.5	7.0	9.6	10.3	7.6	9.0
17	10.6	7.1	8.7	14.1	8.9	11.8	11.8	8.5	10.5	10.2	8.2	9.2
18	11.7	10.4	10.9	10.8	8.9	10.0	12.3	9.6	10.9	10.0	7.7	8.9
19	13.1	10.7	11.4	12.5	9.9	11.0	12.8	9.9	11.3	9.7	8.1	8.7
20	13.4	10.9	11.6	13.6	10.4	11.5	12.8	9.1	10.7	10.1	8.3	9.2
21	13.9	10.3	11.8	13.7	10.4	11.6	11.0	8.9	9.5	10.3	8.9	9.6
22	13.7	9.4	11.3	13.8	10.6	11.8	12.5	8.8	10.3	10.2	8.8	9.6
23	13.2	11.0	11.9	14.2	10.7	11.9	12.6	8.7	10.3	10.1	8.4	9.3
24	14.8	10.7	12.1	14.9	10.9	12.4	12.9	8.5	10.3	9.6	8.4	9.1
25	15.3	10.7	12.5	14.2	9.7	11.6	13.2	8.5	10.3	10.1	9.2	9.6
26	14.7	10.3	11.6	14.3	8.7	10.8	11.5	8.0	9.5	10.3	9.1	9.8
27	10.6	9.3	9.9	13.0	8.8	10.4	13.9	9.1	11.0	10.3	9.0	9.7
28	14.2	10.5	11.8	13.3	9.2	10.9	13.4	9.0	10.9	9.6	8.4	9.1
29	---	---	---	13.9	8.2	10.8	13.9	8.7	10.7	10.1	8.8	9.4
30	---	---	---	11.8	5.6	9.1	13.6	8.7	10.4	10.2	9.1	9.5
31	---	---	---	8.2	6.9	7.7	---	---	---	9.6	8.4	9.1
MONTH	15.3	7.1	11.2	15.2	5.6	11.6	13.9	7.0	10.3	12.9	7.3	9.5
JUNE			JULY			AUGUST			SEPTEMBER			
1	10.7	9.5	10.1	11.0	9.3	10.1	10.4	8.8	9.7	9.1	8.0	8.6
2	---	---	---	10.4	9.2	9.7	10.6	8.8	9.7	9.2	8.1	8.6
3	---	---	---	9.8	5.9	8.5	11.0	9.0	9.8	9.2	7.9	8.6
4	---	---	---	9.0	6.6	8.3	9.8	4.3	8.5	9.4	8.1	8.7
5	---	---	---	9.8	9.0	9.4	12.2	1.8	6.3	9.3	8.0	8.7
6	---	---	---	9.7	9.1	9.4	8.9	8.1	8.6	9.1	8.1	8.5
7	---	---	---	9.6	9.0	9.3	9.3	8.4	8.8	9.3	8.1	8.6
8	---	---	---	9.7	9.2	9.4	9.5	8.5	8.9	9.6	8.4	9.0
9	---	---	---	9.7	8.5	9.2	9.8	8.4	9.0	9.7	8.6	9.1
10	---	---	---	9.3	8.6	8.9	9.8	8.5	9.1	9.7	8.4	9.1
11	---	---	---	9.4	8.6	9.0	10.2	8.9	9.4	9.6	8.1	8.9
12	---	---	---	9.4	8.6	9.0	10.6	8.9	9.6	9.7	8.4	8.9
13	10.2	9.3	9.7	9.6	8.5	9.1	10.7	9.2	9.8	9.8	8.5	9.0
14	10.3	9.6	10.0	9.6	8.3	9.0	10.8	8.7	9.8	8.7	5.5	7.2
15	10.5	9.6	10.0	9.4	8.5	9.0	10.7	8.9	9.7	8.1	5.6	7.3
16	10.3	2.1	9.0	9.7	8.7	9.2	10.9	9.1	9.9	9.5	8.1	8.8
17	10.6	9.2	10.0	9.7	8.7	9.2	10.3	8.4	9.3	9.7	8.7	9.1
18	10.2	.5	7.8	9.9	8.7	9.3	9.7	8.5	9.2	9.8	8.3	9.2
19	9.2	1.1	4.1	9.0	7.1	8.2	10.0	8.5	9.1	9.8	8.5	9.1
20	9.8	7.8	9.4	9.8	7.4	8.9	9.5	8.4	8.9	9.7	8.7	9.1
21	9.4	7.7	8.9	9.2	7.4	8.4	9.7	7.6	8.8	10.5	7.7	9.5
22	10.4	9.2	9.9	9.8	8.6	9.0	9.5	7.5	8.5	11.4	9.0	9.7
23	10.6	9.0	9.9	9.9	8.7	9.2	8.3	6.8	7.8	10.2	8.8	9.5
24	10.0	8.0	9.0	9.9	8.9	9.4	8.8	7.6	8.4	9.5	8.7	9.0
25	9.5	8.4	8.9	10.1	9.1	9.6	9.0	7.8	8.4	9.6	8.3	9.0
26	10.2	9.0	9.6	10.2	9.0	9.6	9.8	8.6	9.1	9.0	7.6	8.4
27	9.6	7.5	9.2	10.4	9.0	9.6	9.7	7.9	9.1	9.1	7.8	8.4
28	8.2	1.6	3.2	10.4	8.9	9.6	9.6	8.5	8.9	9.6	8.3	8.8
29	9.3	3.4	5.8	10.7	9.1	9.8	9.9	8.5	9.1	9.3	8.0	8.6
30	10.4	8.6	9.7	10.5	9.2	9.7	10.3	8.5	9.6	8.9	8.0	8.5
31	---	---	---	10.8	9.2	9.8	10.4	8.3	9.3	---	---	---
MONTH	---	---	---	11.0	5.9	9.2	12.2	1.8	9.0	11.4	5.5	8.8

WISCONSIN RIVER BASIN
05406491 GARFOOT CREEK NEAR CROSS PLAINS, WI--CONTINUED

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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	.23	.23	.23	.27	.78	.11	7.9	.15	.66	.68	.82	.11
2	.22	.22	.24	.33	.84	.10	3.0	.14	.61	.70	.84	.11
3	.23	.21	.24	.59	.76	.10	2.2	2.6	.58	34	.91	.12
4	.31	.21	.27	.49	.65	.10	1.7	.14	.56	3.3	1.3	.12
5	.32	.20	.28	.66	.57	.10	1.4	.19	.54	1.7	1.2	.12
6	.35	.20	.27	.60	.49	.10	1.1	.28	.54	1.6	.41	.12
7	.37	.19	.27	.50	.43	.10	1.1	3.0	.51	1.5	.39	.13
8	.33	.17	.27	.46	.38	.11	3.4	2.9	.50	1.4	.36	.12
9	.29	.16	.27	.46	.34	.10	6.1	.70	.50	1.2	.34	.12
10	.30	.16	.28	.43	.31	.10	1.3	.66	.50	1.1	.32	.12
11	.30	.15	.28	.41	.35	.10	1.0	3.7	1.4	1.0	.31	.12
12	.29	.13	.27	.41	.38	.10	.90	.65	.64	.94	.29	.12
13	.39	.13	.27	.41	.31	.10	1.9	.65	.55	.88	.28	.13
14	.33	.12	.27	.43	.26	.12	2.9	.64	.50	.84	.28	6.8
15	.32	.12	.27	.43	1.4	.12	6.2	.65	.49	.77	.30	1.2
16	.30	.11	.29	.45	2.7	.12	9.5	.65	.49	.73	.28	.20
17	.29	.11	.30	.46	1.5	.13	3.0	.63	.48	.68	.27	.16
18	.27	.10	.30	.48	.31	2.2	2.1	.64	38	.62	.24	.16
19	.26	.10	.31	.47	.22	1.7	.45	.66	10	1.6	.22	.16
20	.25	.10	.31	.48	.19	.92	.40	.65	2.2	1.0	.21	.16
21	.25	.10	.31	.52	.18	.92	3.7	.65	2.3	1.2	.21	.15
22	.25	.10	.31	.54	.16	1.2	.36	.64	1.3	.69	.24	.15
23	.24	.11	.31	.56	.15	1.0	.31	.64	1.1	.68	.46	.15
24	.25	.11	.32	.58	.14	.71	.27	1.1	1.2	.68	.19	.16
25	.24	.12	.33	.60	.13	.24	.25	.83	1.0	.70	.19	.15
26	.25	.14	.32	.62	.12	.25	.25	.74	1.0	.72	.16	.16
27	.26	.15	.28	.64	1.7	.24	.21	.72	1.2	.76	.14	.16
28	.24	.17	.27	.66	.53	.24	.19	.77	52	.75	.15	.15
29	.24	.19	.27	.68	---	.26	.17	.75	.85	.75	.14	.15
30	.23	.22	.27	.70	---	73	.16	.70	.69	.76	.12	.16
31	.22	---	.27	.73	---	148	---	1.7	---	.79	.12	---
TOTAL	8.62	4.53	8.75	16.05	16.28	232.69	63.42	29.52	122.89	64.72	11.69	11.94

WTR YR 1998 TOTAL 591.10

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	1.6	1.8	5.2	8.0	4.3	2.2	76	3.8	5.2	4.9	3.0	1.8
2	1.5	1.8	5.4	9.8	4.5	1.9	20	3.7	4.9	4.2	3.0	1.8
3	1.5	1.8	5.6	18	4.5	1.8	12	17	4.7	122	3.0	1.8
4	2.0	1.8	6.3	15	4.3	1.9	7.3	3.6	4.7	37	7.1	1.8
5	2.1	1.8	6.4	20	4.1	1.9	4.8	3.4	4.6	15	28	1.8
6	2.2	2.0	6.2	17	3.9	1.9	3.4	3.3	4.7	11	12	1.8
7	2.3	1.9	6.4	13	3.8	1.9	3.7	24	4.5	7.8	10	1.9
8	2.0	1.8	6.5	12	3.8	2.0	18	16	4.5	5.3	8.6	1.8
9	1.7	1.8	6.6	11	3.7	1.8	18	9.4	4.6	3.9	7.3	1.8
10	1.7	1.9	6.8	9.6	3.7	1.8	5.1	8.6	4.7	3.7	6.2	1.8
11	1.7	1.8	6.9	8.6	4.7	1.8	3.3	8.1	29	3.6	5.4	1.7
12	1.7	1.8	6.8	8.1	5.6	1.8	3.2	7.9	13	3.5	4.6	1.8
13	2.3	1.8	6.8	7.6	5.1	1.9	18	7.7	7.1	3.5	4.0	1.8
14	2.0	1.8	6.7	7.4	4.7	2.1	30	7.3	6.2	3.5	3.6	103
15	1.9	1.8	6.9	7.0	15	2.1	57	7.2	5.7	3.4	3.5	29
16	1.9	1.8	7.5	6.8	18	2.2	62	7.0	5.5	3.5	3.0	4.8
17	1.8	1.8	7.8	6.6	23	2.4	20	6.6	5.1	3.4	2.6	3.7
18	1.7	1.8	7.9	6.4	7.5	15	12	6.5	188	3.3	2.1	3.4
19	1.6	1.9	8.1	5.8	5.4	13	8.8	6.4	91	15	2.0	3.3
20	1.6	1.9	8.2	5.6	4.7	9.4	6.8	6.1	9.7	8.3	2.0	3.2
21	1.6	1.9	8.3	5.7	4.2	9.4	29	5.9	19	10	2.1	2.9
22	1.6	2.1	8.4	5.6	3.7	11	6.5	5.7	8.5	3.9	4.8	2.8
23	1.6	2.3	8.5	5.5	3.3	10	5.9	5.5	9.4	3.7	9.7	2.6
24	1.6	2.4	8.7	5.3	3.0	8.0	5.3	29	11	3.5	2.2	2.7
25	1.6	2.6	9.1	5.1	2.7	4.2	5.1	6.7	9.8	3.5	2.3	2.7
26	1.7	2.9	9.0	5.0	2.5	4.2	5.3	5.8	8.0	3.4	2.0	2.7
27	1.8	3.3	7.8	4.8	16	4.0	4.6	5.4	11	3.5	1.9	2.6
28	1.7	3.7	7.7	4.7	2.7	3.8	4.2	5.7	319	3.3	2.1	2.5
29	1.7	4.1	7.8	4.5	---	3.9	4.0	5.6	8.8	3.1	2.0	2.4
30	1.6	5.0	7.9	4.4	---	310	3.8	5.3	6.1	3.0	1.9	2.6
31	1.6	---	7.8	4.3	---	1030	---	8.9	---	3.0	1.8	---
TOTAL	54.9	66.9	226.0	258.2	172.4	1469.3	463.1	253.1	818.0	309.7	153.8	200.3

WTR YR 1998 TOTAL 4445.7

WISCONSIN RIVER BASIN

05406497 BLACK EARTH CREEK AT SOUTH VALLEY ROAD NEAR BLACK EARTH, WI

LOCATION.--Lat 43°07'30", long 89°42'35", in NE 1/4 SW 1/4 sec.31, T.8 N., R.7 E., Dane County, Hydrologic Unit 07070005, on right bank, at bridge on South Valley Road, 2.1 mi southeast of Black Earth.

DRAINAGE AREA.--40.6 mi², of which 2.8 mi² probably is noncontributing.

PERIOD OF RECORD.--November 1989 to September 1998 (discontinued).

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1989 to September 1998 (discontinued).

DISSOLVED OXYGEN: April 1990 to September 1998 (discontinued).

INSTRUMENTATION.--Continuous water temperature recorder since November 1989 and continuous dissolved oxygen recorder since April 1990.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum observed, 24.0°C, June 27, 1991 and June 28, 1998; minimum observed, 0.0°C, many days during the 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, and 1998 water years.

DISSOLVED OXYGEN: Maximum observed, 18.5 mg/L, June 11, 1997; minimum observed, 3.9 mg/L, July 2, 1991.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum observed, 24.0°C, June 28; minimum observed, 0.0°C, Jan. 10, 13.

DISSOLVED OXYGEN: Maximum observed, 15.0 mg/L, Feb. 9; minimum observed, 4.1 mg/L, May 19.

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	13.0	10.5	11.5	11.5	8.5	10.0	7.0	6.0	6.5	5.0	1.5	3.5
2	14.5	10.0	12.5	8.5	7.5	8.0	6.5	6.0	6.5	7.0	4.5	5.5
3	16.0	12.0	14.0	7.5	7.0	7.5	6.5	5.0	6.0	7.5	6.0	7.0
4	16.5	13.5	15.0	8.5	7.0	7.5	6.0	5.0	5.5	6.0	4.5	5.0
5	16.5	11.5	14.0	8.0	7.5	8.0	5.0	4.0	4.5	6.0	5.0	5.5
6	16.0	11.5	14.0	8.0	7.5	8.0	5.0	4.0	4.5	6.5	5.5	6.0
7	17.0	13.5	15.0	9.0	8.0	8.5	6.5	4.5	5.0	6.0	4.5	5.5
8	16.5	14.0	15.5	8.5	8.0	8.5	5.0	4.0	4.5	4.5	3.5	4.0
9	16.0	12.5	15.0	8.5	8.0	8.5	6.0	5.0	5.5	5.0	2.5	4.0
10	13.0	9.5	11.5	8.0	7.0	7.5	6.0	4.5	5.5	2.5	.0	1.0
11	13.5	11.0	12.0	7.0	5.0	6.5	6.5	5.5	6.0	3.0	.5	1.5
12	14.5	12.5	13.5	6.0	4.0	5.0	6.0	3.5	5.0	3.5	1.5	3.0
13	14.5	9.5	13.0	6.5	5.0	5.5	5.0	3.0	4.0	1.5	.0	.5
14	9.5	7.5	8.5	7.0	5.5	6.5	5.0	2.5	4.0	2.5	1.0	1.5
15	10.5	6.5	8.5	6.5	5.0	5.5	6.0	4.0	5.0	4.5	2.5	3.5
16	11.5	8.5	10.0	6.0	4.0	5.0	7.0	5.0	6.0	5.0	3.5	4.5
17	11.0	7.5	9.5	---	---	---	5.5	3.5	4.5	5.5	3.0	4.5
18	11.0	7.5	9.5	---	---	---	6.5	5.0	6.0	4.0	2.0	3.0
19	10.0	8.0	9.0	6.5	4.5	5.5	7.0	5.5	6.0	5.0	3.5	4.0
20	9.5	7.0	8.5	6.0	4.5	5.5	6.5	4.0	5.5	5.0	4.0	4.5
21	8.5	6.5	7.5	6.0	4.0	5.5	5.0	2.5	4.0	4.0	3.0	4.0
22	8.5	7.0	7.5	5.5	4.0	5.0	5.5	4.5	5.0	5.0	4.0	4.5
23	8.5	7.0	8.0	4.5	3.0	4.0	5.5	5.0	5.5	5.5	4.0	5.0
24	9.5	8.5	9.0	5.0	2.5	4.0	5.0	3.5	4.5	6.0	3.5	5.0
25	9.5	7.5	8.5	7.5	5.0	6.0	5.0	3.5	4.5	4.5	2.5	3.5
26	8.0	5.0	6.0	8.0	6.0	7.0	5.5	4.0	4.5	6.0	4.5	5.5
27	7.5	5.0	6.0	6.5	5.0	6.0	4.5	2.0	3.0	7.0	5.5	6.0
28	8.0	5.0	7.0	8.0	6.0	7.0	5.0	2.5	4.0	7.0	5.0	6.0
29	9.0	6.0	8.0	8.0	7.5	7.5	5.0	3.5	4.5	6.5	5.5	6.0
30	10.0	7.5	8.5	8.0	7.0	7.5	4.0	2.0	3.5	5.5	4.5	5.0
31	11.5	9.5	11.0	---	---	---	3.5	1.5	2.5	7.0	4.5	5.5
MONTH	17.0	5.0	10.5	11.5	2.5	6.7	7.0	1.5	4.9	7.5	.0	4.3

05406497 BLACK EARTH CREEK AT SOUTH VALLEY ROAD NEAR BLACK EARTH, 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	6.5	5.0	6.0	7.0	5.5	6.5	9.5	8.0	8.5	13.0	10.5	11.5
2	6.5	4.0	5.5	---	---	---	9.0	7.5	8.0	12.0	10.5	11.5
3	6.0	5.0	5.5	---	---	---	8.5	7.5	8.0	11.5	10.5	11.0
4	5.5	4.0	4.5	---	---	---	12.0	6.5	9.0	16.5	10.0	13.0
5	6.0	3.5	5.0	---	---	---	12.5	6.5	9.5	16.5	11.5	14.0
6	6.0	2.5	4.5	---	---	---	12.0	8.0	10.0	14.5	11.0	12.5
7	6.0	3.0	4.5	---	---	---	11.5	8.5	10.0	13.5	11.5	12.5
8	6.0	4.0	5.0	---	---	---	9.5	8.0	8.5	17.0	11.5	14.0
9	6.5	4.5	5.5	---	---	---	8.5	7.0	7.5	16.5	11.5	14.0
10	6.5	5.0	6.0	---	---	---	12.0	6.5	9.0	16.0	10.5	13.0
11	6.5	5.5	6.0	---	---	---	12.5	7.0	10.0	16.5	10.0	13.5
12	7.0	4.5	5.5	---	---	---	14.5	9.0	11.5	16.5	11.0	14.0
13	6.0	4.0	5.0	---	---	---	12.0	9.5	10.5	17.0	11.5	14.5
14	7.0	5.0	6.0	---	---	---	14.5	9.5	12.0	18.0	11.5	15.0
15	8.5	5.0	6.5	---	---	---	12.0	8.5	9.5	18.0	13.5	16.0
16	7.5	5.5	6.5	---	---	---	8.5	7.0	7.5	18.5	13.5	16.0
17	5.5	5.0	5.5	---	---	---	12.0	6.0	8.5	18.0	11.5	15.0
18	6.0	5.0	5.5	---	---	---	13.5	7.5	10.5	19.0	13.0	16.0
19	7.0	6.0	6.5	---	---	---	12.5	8.0	10.5	17.5	13.5	15.5
20	7.5	6.0	6.5	---	---	---	11.0	8.0	10.0	15.5	12.5	14.0
21	7.5	6.0	6.5	---	---	---	11.5	9.0	10.0	16.0	11.0	13.5
22	9.0	6.0	7.5	---	---	---	14.0	8.0	11.0	14.0	10.5	12.0
23	8.0	6.5	7.0	---	---	---	15.0	8.5	11.5	16.0	11.0	13.0
24	10.0	7.0	8.5	---	---	---	15.5	9.0	12.0	13.5	11.5	12.0
25	9.0	6.0	7.5	---	---	---	13.0	9.5	11.0	16.5	10.5	13.5
26	9.5	7.5	8.5	14.0	9.5	12.0	11.5	8.5	10.0	17.0	11.5	14.0
27	9.0	6.5	7.5	13.5	11.5	12.5	13.5	7.0	10.0	18.0	12.0	15.0
28	8.5	6.0	7.0	12.5	9.5	11.0	13.0	7.5	10.5	19.0	13.0	16.0
29	---	---	---	15.0	9.0	12.0	14.0	9.0	11.5	18.0	14.0	16.0
30	---	---	---	13.5	12.0	12.5	13.5	10.5	12.0	17.0	12.5	15.0
31	---	---	---	12.5	9.0	10.5	---	---	---	17.5	14.0	16.0
MONTH	10.0	2.5	6.1	15.0	5.5	11.0	15.5	6.0	9.9	19.0	10.0	14.0
	JUNE			JULY			AUGUST			SEPTEMBER		
1	15.0	11.5	13.5	18.0	14.5	16.0	17.5	13.0	15.0	17.0	13.0	15.0
2	16.5	11.5	14.0	18.0	14.0	16.0	16.5	13.0	15.0	16.0	12.5	14.5
3	14.5	11.5	13.0	18.5	14.0	16.0	16.0	14.0	15.0	16.5	12.5	14.5
4	14.0	10.0	12.5	18.0	15.0	16.5	16.0	14.0	15.0	16.5	12.5	14.5
5	13.5	11.0	12.5	17.0	13.5	15.5	17.0	15.5	16.5	17.0	12.5	15.0
6	12.5	10.5	11.5	17.5	14.5	15.5	16.0	15.0	15.5	16.0	13.5	15.0
7	15.0	9.5	12.5	16.5	14.5	15.5	17.5	14.5	16.0	16.5	14.0	15.0
8	13.5	10.5	12.0	17.0	14.5	16.0	18.0	15.0	16.5	15.0	12.0	13.5
9	13.0	11.5	12.0	18.0	14.5	16.0	18.0	14.5	16.0	15.0	11.0	13.0
10	14.0	11.5	12.5	18.0	14.0	16.0	18.0	14.5	16.5	16.0	11.5	14.0
11	15.5	12.5	13.5	17.5	13.5	15.5	17.5	14.0	15.5	16.5	12.5	14.5
12	17.5	13.5	15.5	17.5	13.5	15.5	17.0	13.5	15.0	16.5	13.0	15.0
13	16.5	13.0	14.5	18.0	13.5	16.0	16.5	13.5	15.0	17.0	13.5	15.5
14	15.0	13.0	14.0	19.0	14.5	16.5	17.5	13.5	15.5	17.0	14.5	15.5
15	16.5	12.5	14.5	19.5	15.0	17.0	17.5	14.5	16.0	17.0	15.0	16.0
16	16.0	13.0	14.5	18.5	14.5	16.5	17.5	13.5	15.5	16.5	13.5	15.0
17	17.0	12.5	15.0	18.0	14.0	16.0	17.5	14.5	16.0	16.0	13.0	14.5
18	19.0	14.0	16.0	18.0	14.0	16.0	16.0	14.5	15.0	16.0	13.0	14.5
19	18.5	16.0	17.5	20.0	15.0	17.5	17.0	13.0	15.0	17.0	13.5	15.0
20	19.0	14.5	16.5	18.5	15.0	17.0	16.5	14.5	15.5	16.0	14.0	15.0
21	19.0	15.5	17.0	18.5	16.5	17.0	16.5	14.5	15.5	15.0	12.5	13.5
22	17.5	14.0	16.0	17.0	14.5	16.0	18.0	15.0	16.0	---	---	---
23	18.0	14.0	16.0	17.5	14.0	15.5	19.5	15.5	17.5	---	---	---
24	20.0	15.0	17.0	17.5	13.5	15.0	18.0	15.5	16.0	---	---	---
25	20.0	15.5	18.0	16.0	13.5	15.0	18.0	15.0	16.5	---	---	---
26	19.0	15.0	17.5	17.0	13.0	15.0	17.5	14.0	16.0	---	---	---
27	20.0	16.0	18.0	18.0	13.5	16.0	16.0	14.0	15.0	---	---	---
28	24.0	18.0	21.0	18.0	13.5	16.0	16.0	14.0	15.0	---	---	---
29	19.5	16.0	17.5	17.0	14.0	15.5	17.5	13.5	15.5	---	---	---
30	18.5	15.0	16.5	17.5	14.0	15.5	17.0	13.5	15.5	---	---	---
31	---	---	---	17.0	13.5	15.5	16.5	13.0	14.5	---	---	---
MONTH	24.0	9.5	15.1	20.0	13.0	16.0	19.5	13.0	15.6	17.0	11.0	14.7

WISCONSIN RIVER BASIN

05406497 BLACK EARTH CREEK AT SOUTH VALLEY ROAD NEAR BLACK EARTH, WI--CONTINUED

OXYGEN DISSOLVED (MG/L), 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	---	---	---	10.2	8.5	9.2	12.1	10.2	11.0	14.1	11.5	12.8
2	---	---	---	11.9	9.3	10.1	11.9	10.5	11.0	13.6	10.8	12.0
3	---	---	---	11.4	9.5	10.2	12.3	10.5	11.2	11.6	10.7	11.1
4	---	---	---	12.1	9.7	10.4	12.8	10.5	11.4	12.6	11.3	11.9
5	---	---	---	12.0	9.7	10.4	12.7	10.7	11.4	11.9	10.4	11.2
6	---	---	---	11.0	9.5	10.1	12.5	10.7	11.4	11.2	10.4	10.7
7	---	---	---	11.9	9.5	10.3	12.5	10.7	11.3	11.7	10.4	11.0
8	---	---	---	11.1	9.5	10.1	12.1	10.7	11.2	11.9	10.9	11.3
9	---	---	---	11.3	9.5	10.2	12.3	10.4	11.1	12.4	11.1	11.5
10	---	---	---	12.2	9.6	10.6	12.3	10.5	11.1	13.4	11.5	12.6
11	11.3	8.7	9.8	12.5	10.0	11.0	12.3	10.4	11.0	13.5	11.7	12.6
12	10.4	8.1	9.0	12.9	10.6	11.4	12.6	10.6	11.4	12.9	11.7	12.1
13	9.8	7.6	8.7	12.6	10.0	11.1	12.8	10.9	11.6	13.7	12.2	12.9
14	11.7	8.2	10.4	12.0	10.0	10.8	12.9	10.8	11.7	13.2	11.9	12.5
15	12.1	9.6	10.7	12.9	10.0	11.1	12.7	10.7	11.5	12.9	11.4	12.0
16	12.0	9.5	10.4	13.5	10.3	12.0	12.6	10.7	11.3	12.6	11.1	11.7
17	12.2	9.5	10.6	---	---	---	13.1	10.7	11.6	12.9	11.1	11.8
18	12.3	9.6	10.6	---	---	---	12.8	10.5	11.4	13.6	11.5	12.4
19	11.6	9.5	10.4	12.8	9.9	10.9	13.0	10.5	11.3	13.3	11.2	12.0
20	12.7	9.8	11.0	12.0	9.8	10.6	13.0	10.5	11.4	13.2	11.2	11.9
21	12.6	10.0	11.1	12.8	9.8	10.9	13.6	11.2	12.0	13.1	11.4	12.0
22	12.9	9.0	11.2	11.7	9.9	10.7	12.1	11.0	11.4	13.3	11.4	12.0
23	12.1	10.0	10.8	13.1	10.3	11.3	12.9	11.0	11.6	13.7	11.0	12.0
24	11.7	9.9	10.4	13.3	10.3	11.5	13.0	11.2	11.8	13.4	11.0	11.9
25	13.1	10.0	11.1	12.6	9.7	10.8	13.6	11.3	12.1	13.9	11.3	12.3
26	12.0	10.2	11.1	12.5	9.7	10.6	13.5	11.2	12.0	13.8	10.8	11.9
27	13.2	10.5	11.6	12.2	9.9	10.7	14.0	11.3	12.5	13.8	10.8	11.8
28	13.2	10.2	11.4	12.4	9.8	10.6	13.6	11.3	12.2	13.9	10.6	11.8
29	13.2	10.0	11.2	11.2	9.8	10.2	13.2	11.3	11.9	14.1	10.6	11.8
30	12.2	9.5	10.6	12.2	9.6	10.6	14.2	11.6	12.6	14.1	10.9	12.0
31	12.1	8.5	10.1	---	---	---	14.6	11.9	13.0	14.4	10.7	12.1
MONTH	13.2	7.6	10.6	13.5	8.5	10.7	14.6	10.2	11.6	14.4	10.4	11.9
FEBRUARY			MARCH			APRIL			MAY			
1	13.3	10.3	11.5	13.4	10.5	11.6	9.5	8.5	9.1	13.2	8.2	10.0
2	14.5	10.5	11.9	---	---	---	10.1	9.4	9.8	11.9	8.1	9.5
3	13.6	10.4	11.6	---	---	---	10.6	9.7	10.1	10.5	8.0	8.9
4	14.6	11.1	12.2	---	---	---	11.3	9.2	10.3	13.3	7.9	10.1
5	14.6	11.0	12.2	---	---	---	11.5	9.2	10.2	12.9	7.9	9.8
6	14.5	10.9	12.3	---	---	---	11.7	8.9	10.2	13.0	8.0	10.0
7	14.7	10.9	12.3	---	---	---	11.9	9.0	10.0	9.7	7.9	8.6
8	14.6	10.9	12.2	---	---	---	10.0	8.9	9.5	11.7	7.8	9.3
9	15.0	10.8	12.2	---	---	---	10.6	9.5	10.0	12.4	7.6	9.7
10	14.6	10.5	11.8	---	---	---	12.3	9.4	10.6	12.8	7.6	9.9
11	13.4	10.0	11.1	---	---	---	12.3	9.0	10.5	13.1	7.7	10.0
12	13.9	10.3	11.6	---	---	---	12.5	8.5	10.3	13.3	7.6	9.9
13	13.4	10.4	11.5	---	---	---	11.9	8.4	9.5	12.4	6.5	8.9
14	14.3	10.5	11.7	---	---	---	12.9	8.3	10.0	12.1	6.7	9.0
15	14.0	10.3	11.6	---	---	---	9.7	8.7	9.2	11.6	6.1	8.7
16	12.8	10.3	11.2	---	---	---	10.2	9.3	9.8	11.2	5.8	8.2
17	11.2	10.2	10.7	---	---	---	12.5	9.3	10.7	10.4	5.2	7.8
18	11.9	10.8	11.2	---	---	---	13.0	8.9	10.7	10.2	4.6	6.8
19	13.0	10.5	11.4	---	---	---	13.3	9.0	10.8	9.1	4.1	6.9
20	13.0	10.4	11.3	---	---	---	13.6	8.9	10.6	8.7	5.9	6.9
21	13.3	10.4	11.5	---	---	---	12.2	8.7	9.9	9.5	4.4	6.8
22	13.8	10.0	11.5	---	---	---	14.0	8.5	10.8	9.2	5.9	7.5
23	12.3	10.0	11.0	---	---	---	13.9	8.2	10.6	9.5	5.3	7.3
24	13.3	9.9	11.0	---	---	---	13.9	8.0	10.4	8.2	4.4	6.3
25	13.8	9.6	11.4	---	---	---	13.9	8.1	10.4	11.2	8.1	9.5
26	12.3	8.5	10.2	13.3	8.4	10.4	11.7	8.1	9.6	11.6	8.1	9.6
27	10.6	8.3	9.6	12.6	8.4	9.9	14.5	8.8	11.2	11.9	8.3	9.8
28	13.3	10.1	11.3	12.8	8.5	10.3	14.4	8.7	11.0	10.3	7.8	9.1
29	---	---	---	13.5	8.0	10.4	14.4	8.2	10.6	11.6	7.9	9.4
30	---	---	---	11.4	7.0	8.9	13.8	8.2	10.3	11.7	8.2	9.7
31	---	---	---	8.8	7.0	8.1	---	---	---	10.7	8.3	9.1
MONTH	15.0	8.3	11.5	13.5	7.0	9.9	14.5	8.0	10.2	13.3	4.1	8.8

WISCONSIN RIVER BASIN

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05406497 BLACK EARTH CREEK AT SOUTH VALLEY ROAD NEAR BLACK EARTH, WI--CONTINUED

OXYGEN DISSOLVED (MG/L), 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	12.0	8.7	10.0	11.7	8.2	9.7	13.6	7.8	10.2	11.5	7.7	9.3
2	11.9	8.9	10.2	11.7	8.1	9.6	13.2	7.8	10.1	11.6	7.6	9.2
3	12.3	9.0	10.5	10.6	6.6	8.6	12.8	7.7	9.5	11.5	7.8	9.2
4	12.7	9.5	10.9	9.5	6.8	8.1	10.2	7.1	8.5	11.7	7.7	9.3
5	12.4	9.4	10.7	11.3	8.2	9.5	8.4	6.7	7.5	11.8	7.7	9.3
6	12.8	9.8	11.0	10.2	8.0	8.9	9.3	7.0	8.0	11.2	7.6	9.1
7	12.9	9.4	11.2	10.7	7.9	9.0	10.2	7.0	8.4	11.9	7.6	9.3
8	13.3	9.4	11.2	10.9	8.0	9.1	10.2	7.0	8.3	12.0	8.0	9.6
9	11.1	9.5	10.1	10.9	7.6	9.1	10.4	6.9	8.4	12.4	8.3	9.9
10	12.9	9.7	11.1	11.0	7.5	9.0	10.5	6.8	8.3	12.5	7.9	9.8
11	10.4	8.5	9.7	11.5	7.7	9.2	10.8	6.9	8.5	12.2	7.8	9.5
12	12.1	8.5	10.0	11.6	7.6	9.3	10.7	7.1	8.6	12.0	7.4	9.3
13	12.1	8.4	10.1	12.1	7.6	9.4	10.6	7.1	8.5	11.8	6.2	8.8
14	11.8	8.8	10.2	12.1	7.4	9.3	10.7	6.8	8.4	7.5	4.8	6.7
15	12.6	8.9	10.5	12.1	7.3	9.3	10.8	6.1	8.2	7.8	4.8	6.1
16	12.4	8.1	9.9	12.4	7.3	9.4	11.4	7.3	9.0	11.4	7.3	9.2
17	12.8	8.2	10.5	12.4	7.6	9.5	10.9	7.3	8.6	11.8	8.0	9.5
18	12.0	6.3	8.7	12.6	7.5	9.5	10.5	7.5	8.7	12.1	8.2	9.8
19	8.8	6.3	7.7	10.8	6.9	8.3	11.4	7.6	9.0	11.8	7.9	9.5
20	10.7	8.0	9.1	12.2	7.2	9.0	10.9	7.4	8.7	11.8	7.8	9.4
21	10.8	7.6	9.0	11.2	6.5	8.5	10.9	7.3	8.7	12.4	8.0	9.7
22	11.6	8.5	9.9	11.8	7.4	9.0	10.9	7.0	8.6	---	---	---
23	12.1	8.7	10.1	12.3	7.7	9.7	9.7	6.4	8.0	---	---	---
24	10.6	7.6	9.1	12.4	7.9	9.7	9.7	6.4	7.9	---	---	---
25	11.3	7.7	9.1	12.1	8.0	9.7	10.8	7.0	8.5	---	---	---
26	11.8	7.7	9.5	12.5	8.1	10.0	11.1	7.1	8.8	---	---	---
27	9.9	7.8	8.7	12.8	7.8	9.8	10.3	7.4	8.7	---	---	---
28	7.8	5.5	6.2	13.0	7.6	9.8	10.8	7.7	8.7	---	---	---
29	9.7	6.9	8.3	13.2	7.6	9.9	11.4	7.7	9.2	---	---	---
30	11.0	8.1	9.3	13.3	7.7	9.8	11.6	7.6	9.3	---	---	---
31	---	---	---	13.4	7.8	10.1	11.6	7.9	9.5	---	---	---
MONTH	13.3	5.5	9.8	13.4	6.5	9.3	13.6	6.1	8.7	12.5	4.8	9.1

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 periods, Jan. 10-14 and 24. Records fair (see page 12). 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	26	29	25	23	24	37	167	52	33	64	45	43
2	26	29	25	23	25	35	99	53	31	57	44	43
3	27	29	26	32	24	34	84	72	29	77	44	43
4	27	28	27	32	24	33	74	61	27	100	54	43
5	27	28	26	39	24	32	67	55	26	68	85	42
6	27	28	26	40	23	32	63	53	25	66	62	42
7	27	29	25	35	23	31	61	64	25	64	58	42
8	27	29	26	32	23	32	77	75	24	63	53	42
9	27	30	26	31	23	31	90	61	23	60	49	42
10	28	29	26	26	23	30	72	56	23	58	47	42
11	28	29	26	25	26	29	63	54	36	56	45	42
12	28	28	26	25	31	28	58	52	38	55	44	42
13	34	28	26	25	31	28	59	51	30	54	43	42
14	30	28	25	25	30	27	73	48	26	55	43	82
15	29	27	25	25	34	27	92	46	23	55	46	94
16	29	26	25	25	45	27	121	47	23	53	43	60
17	29	25	26	25	54	28	91	43	21	52	45	53
18	29	25	26	25	46	43	75	41	84	51	44	50
19	29	25	26	24	41	51	68	41	151	77	42	48
20	28	26	26	24	38	47	64	39	49	61	41	46
21	28	25	25	24	36	48	75	38	53	66	41	45
22	29	25	25	24	34	50	66	37	37	58	46	45
23	29	24	25	24	33	51	62	35	31	56	51	44
24	29	24	25	24	33	48	59	57	35	53	50	47
25	29	24	25	24	32	46	57	48	30	52	51	46
26	29	24	25	24	32	44	58	41	29	51	47	45
27	29	24	24	24	42	40	55	36	36	49	45	45
28	29	24	23	24	40	38	54	37	317	49	47	44
29	29	25	23	23	---	37	53	35	94	48	47	44
30	29	25	23	23	---	77	52	32	75	47	45	46
31	29	---	23	23	---	455	---	38	---	46	43	---
TOTAL	880	799	781	822	894	1596	2209	1498	1484	1821	1490	1434
MEAN	28.4	26.6	25.2	26.5	31.9	51.5	73.6	48.3	49.5	58.7	48.1	47.8
MAX	34	30	27	40	54	455	167	75	317	100	85	94
MIN	26	24	23	23	23	27	52	32	21	46	41	42
CFSM	.66	.62	.59	.62	.75	1.20	1.72	1.13	1.16	1.37	1.12	1.12
IN.	.76	.69	.68	.71	.78	1.39	1.92	1.30	1.29	1.58	1.30	1.25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 1998, BY WATER YEAR (WY)

	MEAN	30.8	32.2	29.6	28.8	32.8	48.5	42.1	37.2	36.4	36.2	31.1	32.3
MAX	50.8	70.3	48.0	51.6	64.9	85.3	86.5	91.2	79.4	140	73.2	66.0	
(WY)	1994	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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1954 - 1998
ANNUAL TOTAL	13793	15708	
ANNUAL MEAN	37.8	43.0	34.9
HIGHEST ANNUAL MEAN			61.0
LOWEST ANNUAL MEAN			19.8
HIGHEST DAILY MEAN	217	455	733
LOWEST DAILY MEAN	23	21	12
ANNUAL SEVEN-DAY MINIMUM	24	23	13
INSTANTANEOUS PEAK FLOW		661	1750
INSTANTANEOUS PEAK STAGE		4.98	6.58
INSTANTANEOUS LOW FLOW		19	(c) 4.8
ANNUAL RUNOFF (CFSM)	.88	1.01	.82
ANNUAL RUNOFF (INCHES)	11.99	13.65	11.07
10 PERCENT EXCEEDS	54	64	51
50 PERCENT EXCEEDS	32	36	30
90 PERCENT EXCEEDS	26	24	19

(a) Also occurred July 26, 29, 1965

(b) Also occurred Feb. 4

(c) Result of freezeup

WISCONSIN RIVER BASIN

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05407000 WISCONSIN RIVER AT MUSCODA, WI

LOCATION.--Lat 43°11'53", long 90°26'36", in NW 1/4 sec.1, T.8 N., R.1 W., Grant County, Hydrologic Unit 07070005, on left bank at bridge on State Highway 80, 0.5 mi upstream from Eagle Mill Creek and 1.0 mi north of Muscoda.

DRAINAGE AREA.--10,400 mi².

PERIOD OF RECORD.--December 1902 to December 1903, gage height and discharge measurements only, October 1913 to current year. Monthly discharge for October and November 1913 published in WSP 1308. Gage-height records collected at same site November 1908 to December 1912 are contained in reports of U. S. Weather Bureau.

REVISED RECORDS.--WSP 785: 1921(M). WSP 875: 1921. WSP 1308: 1915(M), 1917-18(M), 1920-21(M), 1924(M). WDR WI-79-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 666.77 ft above sea level. Prior to Nov. 22, 1929, nonrecording gage on bridge 200 ft upstream at same datum. Nov. 22, 1929, to Mar. 15, 1930, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Ice-affected period, Jan. 11 to Feb. 11. Records good except those for ice-affected period, which is fair (see page 12). Flow regulated by 24 reservoirs and many powerplants upstream from station. In 1938 when the maximum of record occurred, there were 21 reservoirs upstream from station, the two large reservoirs, Petenwell and Castle Rock were not yet in existence. Usually flows less than 20 ft³/s were diverted out of the basin through Portage Canal to the Fox River throughout the year. Gage-height telemeter and data-collection platform 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	5900	5650	6050	5140	7600	11400	19500	8060	6410	25000	4490	5650
2	6110	5270	5860	5670	8000	11400	23100	7900	5930	23100	3790	5150
3	5140	6330	6450	5870	8200	11200	28400	8310	7090	21300	3930	4940
4	6330	6310	6580	7270	7800	11000	35800	8120	6460	22400	4920	4640
5	4960	6310	6570	8970	8800	10800	38600	8120	7220	21600	6520	4860
6	6110	7490	6380	6920	8000	11500	36100	7840	6650	17200	7030	4200
7	5670	6490	6660	7380	8400	10200	34500	8140	6850	14800	8890	4470
8	5580	7130	6710	6990	8400	12200	30700	9090	5660	13900	10700	4880
9	4500	7210	6730	7500	8200	11500	26100	9050	6140	12200	11200	4580
10	5540	6330	6790	8000	8600	10400	21200	8140	6450	11000	7800	3990
11	6570	5930	6520	6400	7400	10500	20700	7980	6440	9920	6490	3960
12	6830	6630	5320	4400	8950	9800	18700	7460	8370	9720	6340	4060
13	7170	6500	5790	4200	8040	8140	15900	7970	9210	9630	5990	4300
14	7150	6160	6480	4200	8190	9540	13900	6910	10400	8760	6220	4380
15	8370	6410	6400	5800	8280	8160	12900	7870	12200	7510	6130	6330
16	9500	6440	5560	5000	8540	9060	14200	7300	12900	6570	6540	5450
17	9140	5340	6230	6400	8760	8480	12800	6540	15500	7530	5500	4840
18	9870	5480	6000	6400	9210	9080	13000	7350	14400	6100	5640	4070
19	11600	5910	6480	6400	9270	9910	12000	6590	15200	6430	5220	4450
20	13000	5890	6530	6800	9520	9770	12800	7980	15100	6260	5330	3690
21	14600	5750	6560	7200	9980	9850	10800	8030	13900	6810	6390	4060
22	13200	5670	6570	7600	9160	9440	12500	7840	12400	6380	7190	4000
23	8930	5710	6480	7600	8460	9930	12000	6130	9190	6010	7010	3510
24	7780	6220	6940	7600	9080	9320	11400	6330	9080	5850	6280	3700
25	7190	5370	6580	7600	9450	9810	10400	5640	7610	5770	7190	4010
26	7980	5670	5930	7800	9610	9270	11300	6110	8320	5530	6870	3500
27	9040	6170	5640	8000	9930	7980	10600	6000	8420	5380	6830	3870
28	6650	5960	6020	7200	11000	8900	9090	5100	14600	4960	6770	4110
29	7190	5540	5390	8200	---	9780	9010	6300	17500	4980	6710	3730
30	6720	5850	6610	8600	---	10200	8100	5820	22700	4680	5570	3850
31	6180	---	6520	7400	---	14000	---	6740	---	4250	5540	---
TOTAL	240500	183120	195330	210510	244830	312520	546100	226760	308300	321530	201020	131230
MEAN	7758	6104	6301	6791	8744	10080	18200	7315	10280	10370	6485	4374
MAX	14600	7490	6940	8970	11000	14000	38600	9090	22700	25000	11200	6330
MIN	4500	5270	5320	4200	7400	7980	8100	5100	5660	4250	3790	3500

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

	MEAN	7431	7805	6573	6091	6642	10860	16910	11880	10500	7319	5916	7215
MAX	25460	17130	13100	11400	12020	30400	37650	32270	28840	17780	11610	31280	
(WY)	1987	1986	1966	1973	1966	1973	1922	1960	1993	1978	1924	1938	
MIN	2638	2662	2616	3209	3113	3501	4788	4621	3091	2754	2567	2651	
(WY)	1977	1977	1977	1924	1924	1934	1964	1977	1988	1988	1988	1976	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1914 - 1998
ANNUAL TOTAL	3273320	3121750	
ANNUAL MEAN	8968	8553	8758
HIGHEST ANNUAL MEAN			16030
LOWEST ANNUAL MEAN			4145
HIGHEST DAILY MEAN	39300	Apr 10, 11	79500
LOWEST DAILY MEAN	4500	Oct 9	1460
ANNUAL SEVEN-DAY MINIMUM	5470	Oct 3	1900
INSTANTANEOUS PEAK FLOW			80800
INSTANTANEOUS PEAK STAGE		7.88	11.48
10 PERCENT EXCEEDS	11400		15300
50 PERCENT EXCEEDS	7600		6960
90 PERCENT EXCEEDS	5680		3910

LOCATION.--Lat 43°34'27", long 90°38'35", on east-west quarter section line in W 1/2 sec.29, T.13 N., R.2 W., Vernon County, Hydrologic Unit 07070006, on left bank 10 ft upstream from bridge on State Highway 82, in La Farge, 0.3 mi upstream from Otter Creek, and 1.3 mi downstream from powerplant.

DRAINAGE AREA.--266 mi².

PERIOD OF RECORD.--October 1938 to current year.

REVISED RECORDS.--WSP 1388: 1951(M), 1954(M). WSP 1438: 1944-45(M), 1946, 1948, 1950(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 781.54 ft above sea level. Prior to Dec. 4, 1939, nonrecording gage on highway bridge at same datum.

REMARKS.--Estimated daily discharges: Oct. 29-31 and ice-affected periods, Nov. 18-21, 24-27, Dec. 14-16, Dec. 24 to Feb. 16, and Mar. 10-17. Records fair except those for ice-affected periods, which are poor (see page 12). 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	111	148	131	110	130	265	1030	161	228	364	154	148
2	110	145	131	110	140	234	544	160	173	296	152	146
3	111	144	131	110	130	224	377	183	165	960	156	146
4	112	145	133	120	120	212	308	188	157	982	267	145
5	111	144	134	130	110	193	269	166	155	409	334	143
6	111	140	133	150	120	185	247	156	154	327	242	140
7	111	141	133	140	120	181	231	164	154	304	330	140
8	111	140	128	130	120	176	224	317	151	278	235	138
9	128	140	126	110	120	174	227	213	168	250	192	137
10	142	140	128	100	120	140	207	180	345	228	176	136
11	122	140	129	100	120	140	193	169	271	214	167	135
12	126	138	128	120	120	140	190	165	837	205	161	135
13	434	135	124	110	120	140	186	163	349	198	157	134
14	291	138	120	110	120	150	197	158	235	194	157	142
15	185	139	130	110	120	150	188	154	205	187	279	169
16	169	138	140	110	150	150	253	165	300	180	192	148
17	162	135	158	110	365	160	254	158	359	175	188	142
18	158	130	146	110	350	166	211	150	239	169	289	140
19	157	130	134	110	256	193	193	154	389	172	184	137
20	156	130	134	110	266	173	186	151	266	196	172	136
21	153	130	123	120	209	170	181	147	322	344	173	135
22	151	127	132	120	195	185	172	147	236	204	168	134
23	152	133	130	120	197	215	167	148	201	192	174	131
24	155	120	120	120	203	220	165	157	229	175	175	130
25	152	120	120	120	188	226	163	184	281	169	167	130
26	149	130	120	120	181	299	175	162	221	165	160	132
27	149	130	120	120	364	290	192	153	1040	165	156	137
28	150	131	120	120	421	233	166	158	2010	166	165	135
29	150	131	110	120	---	211	162	198	728	160	163	135
30	150	131	110	120	---	225	161	157	523	158	154	139
31	150	---	110	120	---	1180	---	198	---	158	150	---
TOTAL	4779	4063	3966	3630	5175	7000	7419	5284	11091	8344	5989	4175
MEAN	154	135	128	117	185	226	247	170	370	269	193	139
MAX	434	148	158	150	421	1180	1030	317	2010	982	334	169
MIN	110	120	110	100	110	140	161	147	151	158	150	130
CFSM	.58	.51	.48	.44	.69	.85	.93	.64	1.39	1.01	.73	.52
IN.	.67	.57	.55	.51	.72	.98	1.04	.74	1.55	1.17	.84	.55

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1998, BY WATER YEAR (WY)

MEAN	146	154	133	128	159	306	276	194	194	163	143	160
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 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1939 - 1998	
ANNUAL TOTAL	57931		70915			
ANNUAL MEAN	159		194		180	
HIGHEST ANNUAL MEAN					282	
LOWEST ANNUAL MEAN					97.1	
HIGHEST DAILY MEAN	610	Mar 22	2010	Jun 28	7730	Feb 9 1966
LOWEST DAILY MEAN	(a)97	Mar 14	(a)100	Jan 10,11	36	Nov 3 1939
ANNUAL SEVEN-DAY MINIMUM	111	Oct 1	(b)109	Jan 9	(b)49	Jan 3 1968
INSTANTANEOUS PEAK FLOW			2150	Jun 28	14300	Jul 1 1978
INSTANTANEOUS PEAK STAGE			10.63	Jun 28	14.92	Jul 1 1978
INSTANTANEOUS LOW FLOW			(a)86	Jan 10		
ANNUAL RUNOFF (CFSM)	.60		.73		.67	
ANNUAL RUNOFF (INCHES)	8.10		9.92		9.17	
10 PERCENT EXCEEDS	213		284		262	
50 PERCENT EXCEEDS	140		156		133	
90 PERCENT EXCEEDS	120		120		86	

(a) Result of freezeup
(b) Ice affected

05410490 KICKAPOO RIVER AT STEUBEN, WI

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: Apr. 5, 6, and ice-affected periods, Dec. 16, 17, Dec. 29 to Jan. 4, Jan. 10 to Feb. 6, and Mar. 11-17. Records good except those for estimated daily discharges: Apr. 5, 6, which is fair and ice-affected periods, which are poor (see page 12). Data-collection platform and 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	400	424	389	340	340	916	1330	499	448	1900	485	475
2	397	427	387	360	340	781	1480	497	497	2000	477	471
3	396	424	390	380	350	682	1600	522	467	1860	481	465
4	396	420	396	400	350	647	1650	525	439	1440	515	463
5	394	419	398	435	360	620	1200	538	427	1490	749	459
6	390	415	395	440	370	588	868	509	422	1600	865	455
7	387	408	387	446	377	564	767	495	420	1700	767	451
8	385	407	378	441	382	563	725	538	416	1360	703	448
9	391	406	376	435	396	562	706	632	429	980	708	445
10	402	405	377	400	405	542	681	637	470	824	655	439
11	418	403	382	360	399	470	649	545	648	747	622	436
12	419	401	381	340	400	440	615	512	996	696	571	435
13	502	399	379	320	404	430	600	494	1060	663	544	434
14	635	396	376	330	404	430	599	481	999	641	532	448
15	767	400	348	340	410	440	598	470	723	621	572	486
16	569	402	350	340	448	450	618	473	618	601	577	498
17	494	396	370	350	524	470	670	469	595	582	652	481
18	471	381	377	360	696	517	698	465	785	565	603	450
19	457	376	390	360	767	571	637	450	749	602	623	442
20	448	405	398	360	651	603	589	456	785	613	608	441
21	440	389	382	350	614	595	577	446	878	682	569	440
22	435	392	374	350	585	587	561	433	826	766	549	437
23	430	386	373	350	543	601	546	429	733	709	537	433
24	428	364	387	350	537	624	532	444	659	611	526	438
25	428	352	381	350	537	635	522	457	663	575	529	439
26	428	378	376	340	553	639	530	467	679	549	518	443
27	427	403	370	340	688	676	528	460	653	537	502	446
28	424	394	317	330	848	702	540	437	1370	529	509	447
29	423	389	350	330	---	659	521	439	1550	523	507	443
30	420	388	330	330	---	681	503	448	1730	509	501	442
31	422	---	320	340	---	1080	---	453	---	494	487	---
TOTAL	13823	11949	11584	11297	13678	18765	22640	15120	22134	27969	18043	13530
MEAN	446	398	374	364	489	605	755	488	738	902	582	451
MAX	767	427	398	446	848	1080	1650	637	1730	2000	865	498
MIN	385	352	317	320	340	430	503	429	416	494	477	433
CFSM	.65	.58	.54	.53	.71	.88	1.10	.71	1.07	1.31	.85	.66
IN.	.75	.65	.63	.61	.74	1.02	1.23	.82	1.20	1.51	.98	.76

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 1998, BY WATER YEAR (WY)

MEAN	418	434	380	360	424	781	704	521	506	484	423	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 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1933 - 1998	
ANNUAL TOTAL	167922		200532		491	
ANNUAL MEAN	460		549		792	1993
HIGHEST ANNUAL MEAN					273	1958
LOWEST ANNUAL MEAN					12600	Jul 3 1978
HIGHEST DAILY MEAN	1080	Mar 30	2000	Jul 2	(b)165	(c)Dec 10-20 1958
LOWEST DAILY MEAN	(a)317	Dec 28	(a)317	Dec 28	(b)165	Dec 10 1958
ANNUAL SEVEN-DAY MINIMUM	(b)349	Dec 25	(b)336	Jan 26	16500	Jul 3 1978
INSTANTANEOUS PEAK FLOW			2050	Jul 2	(d)14.81	Jul 3 1978
INSTANTANEOUS PEAK STAGE			12.30	Jul 2	(d)161	Aug 9 1936
INSTANTANEOUS LOW FLOW						
ANNUAL RUNOFF (CFSM)	.67		.80		9.72	
ANNUAL RUNOFF (INCHES)	9.09		10.86		747	
10 PERCENT EXCEEDS	594		756		401	
50 PERCENT EXCEEDS	422		465		260	
90 PERCENT EXCEEDS	374		368			

(a) Result of freezeup

(b) Ice affected

(c) Also occurred Jan. 4-9, Feb. 5-7, 1959, ice affected

(d) 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 1997 TO SEPTEMBER 1998

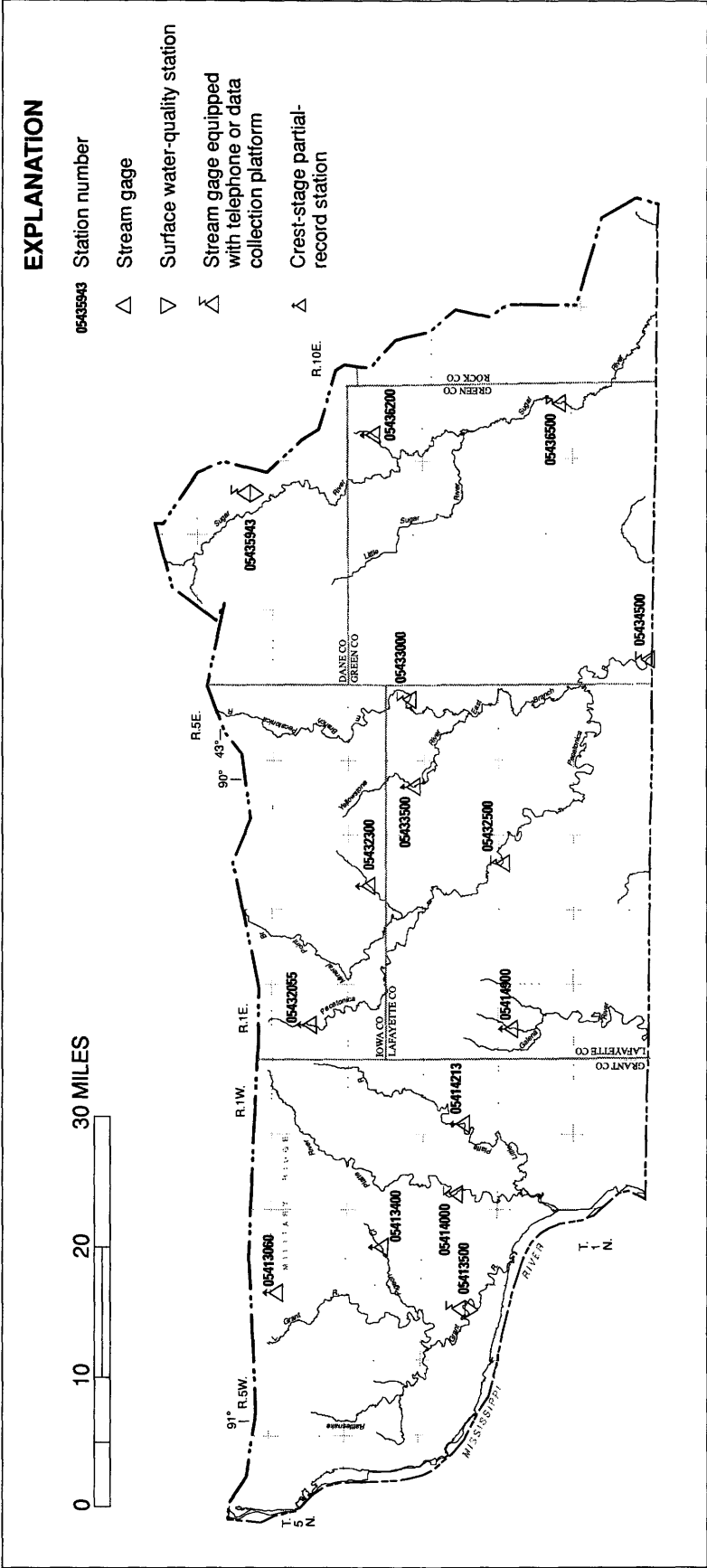
	LAC VIEUX DESERT	TWIN LAKES	BUCKATABON LAKE	SEVENMILE LAKE	LOWER NINEMILE LAKE	BURNT ROLLWAYS RESERVOIR	LONG LAKE	DEERSKIN LAKE
Sept. 30	326	277	115	62	100	549	187	17
Oct. 31	365	262	115	63	100	581	197	17
Nov. 30	250	179	85	31	77	320	181	16
Dec. 31	104	89	42	0	0	61	144	10
Jan. 31	81	67	43	0	17	0	111	10
Feb. 28	35	39	33	0	39	0	103	9
Mar. 31	161	123	77	18	99	292	176	14
Apr. 30	207	150	107	41	97	536	182	14
May 31	171	148	114	30	103	581	159	14
June 30	209	198	115	67	100	578	174	18
July 31	153	165	114	28	98	487	125	13
Aug.31	137	159	113	27	98	469	119	14
Sept. 30	123	151	115	22	98	411	101	12

	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	403	75	159	269	1,857	305	137	488
Oct. 31	405	73	165	273	1,984	284	138	505
Nov. 30	381	56	85	231	1,723	197	58	485
Dec. 31	232	35	48	209	1,561	139	24	479
Jan. 31	24	14	28	171	962	109	21	417
Feb. 28	18	15	25	160	566	91	11	367
Mar. 31	239	46	120	268	742	236	100	528
Apr. 30	394	63	155	274	1,690	258	139	477
May 31	391	62	166	269	1,327	246	140	491
June 30	408	72	162	278	1,749	280	138	496
July 31	379	57	153	256	1,196	213	114	417
Aug. 31	371	49	163	273	845	194	109	422
Sept. 30	354	42	163	259	573	160	102	392

RESERVOIRS IN WISCONSIN RIVER BASIN--CONTINUED

MONTH-END CONTENTS, IN MILLIONS OF CUBIC FEET, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

	SQUIRREL LAKE	WILLOW RESERVOIR	LAKE NOKOMIS	SPIRIT RIVER FLOWAGE	BIG EAU PLEINE RESERVOIR	LAKE DUBAY	PETENWELL FLOWAGE	CASTLE ROCK FLOWAGE
Sept. 30	167	2,816	1,520	582	3,839	4,125	17,630	5,956
Oct. 31	169	3,026	1,627	690	4,016	4,163	17,668	5,883
Nov. 30	111	2,633	1,488	508	3,628	4,175	17,756	5,896
Dec. 31	50	2,075	1,092	364	2,774	3,846	17,588	5,786
Jan. 31	10	1,538	799	224	1,826	3,181	15,503	5,837
Feb. 28	38	1,085	746	274	2,767	3,990	15,638	4,372
Mar. 31	107	1,650	926	701	4,346	4,318	18,072	6,194
Apr. 30	142	2,525	1,385	509	4,298	4,258	17,492	5,896
May 31	146	1,859	1,142	444	3,529	4,239	18,064	6,061
June 30	167	2,020	1,407	629	4,289	4,150	17,756	6,221
July 31	135	1,425	1,049	339	3,201	4,054	17,720	5,923
Aug. 31	123	894	702	159	1,989	3,990	17,588	5,890
Sept. 30	113	696	399	129	1,457	4,101	17,729	5,741



PECATONICA-SUGAR BASIN

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

GRANT RIVER BASIN
05413500 GRANT RIVER AT BURTON, WI

285

LOCATION.--Lat 42°43'13", long 90°49'09", in NW 1/4 sec.23, T.3 N., R.4 W., Grant County, Hydrologic Unit 07060003, on right bank at downstream side of highway bridge at Burton, 5.9 mi northwest of Potosi and 9.5 mi upstream from mouth.

DRAINAGE AREA.--269 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1934 to current year. Published as "near Burton" October 1934 to September 1947. Records published for both sites March to September 1947. October 1934, monthly discharge published in WSP 1308.

REVISED RECORDS.--WSP 825: 1935-36. WSP 1308: 1935-37(M), 1941(M), 1945-46(M), 1949(M). WSP 1728: 1942(M). WDR WI-76-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 606.43 ft above sea level. Oct. 17, 1934, to Sept. 30, 1947, non-recording gage at site 6 mi upstream at datum 33.18 ft higher. Mar. 18, 1947, to July 27, 1949, nonrecording gage at present site and datum.

REMARKS.--Estimated daily discharges: Ice-affected periods, Nov. 17, 18, 24, 25, Dec. 14-18, 21, Dec. 27 to Jan. 3, Jan. 10 to Feb. 1, and Mar. 10-15. Records good except those for ice-affected periods, which are poor (see page 12). Data-collection platform and 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	96	107	97	90	92	195	1160	210	202	220	149	176
2	96	103	95	94	120	176	658	207	180	206	149	173
3	98	103	100	100	105	164	486	221	174	200	152	175
4	98	102	106	109	98	156	405	214	168	324	189	172
5	96	99	98	109	94	144	353	200	168	234	348	165
6	95	101	95	121	92	139	319	193	166	229	403	164
7	96	102	95	113	93	134	298	203	164	240	215	164
8	95	101	95	106	94	143	333	266	161	212	202	160
9	97	101	96	104	93	131	370	220	178	201	203	157
10	96	100	98	70	93	98	327	204	186	192	222	157
11	95	99	97	90	99	110	292	198	200	187	197	157
12	98	98	95	84	187	110	278	196	387	182	178	157
13	176	99	94	80	120	110	272	192	235	181	171	155
14	158	100	94	84	110	110	279	185	207	179	169	209
15	113	100	96	86	106	110	255	183	203	175	375	367
16	106	98	94	88	115	119	349	185	198	172	230	211
17	104	94	94	88	126	121	373	175	190	168	222	185
18	104	96	94	88	127	153	305	172	196	166	291	178
19	103	98	96	88	115	208	286	170	427	191	208	175
20	101	97	94	88	111	192	273	168	248	189	197	173
21	99	99	92	90	109	195	279	166	264	192	201	168
22	98	96	95	92	108	200	262	164	240	181	192	163
23	99	97	96	94	107	208	244	168	212	174	218	160
24	101	96	94	92	112	205	234	327	231	168	216	182
25	100	98	94	92	108	200	226	243	235	163	199	180
26	101	99	92	88	109	221	243	195	210	162	186	170
27	108	97	88	88	193	215	241	186	203	160	178	167
28	103	98	92	86	246	190	215	181	342	160	224	159
29	106	98	86	86	---	175	211	186	316	157	224	160
30	107	100	84	86	---	395	211	181	236	154	190	164
31	108	---	80	88	---	2480	---	207	---	152	180	---
TOTAL	3251	2976	2916	2862	3282	7507	10037	6166	6727	5871	6678	5303
MEAN	105	99.2	94.1	92.3	117	242	335	199	224	189	215	177
MAX	176	107	106	121	246	2480	1160	327	427	324	403	367
MIN	95	94	80	70	92	98	211	164	161	152	149	155
CFSM	.39	.37	.35	.34	.44	.90	1.24	.74	.83	.70	.80	.66
IN.	.45	.41	.40	.40	.45	1.04	1.39	.85	.93	.81	.92	.73

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 1998, BY WATER YEAR (WY)

	1935	1938	1959	1959	1959	1958	1957	1958	1936	1936	1937	1958
MEAN	118	128	110	133	204	326	183	165	201	174	148	132
MAX	276	626	350	467	668	1057	505	489	920	808	502	330
(WY)	1994	1962	1973	1974	1948	1959	1973	1973	1947	1993	1943	1993
MIN	45.8	41.3	37.7	33.4	36.1	55.3	66.0	46.8	50.6	35.8	41.6	42.2
(WY)	1935	1938	1959	1959	1959	1958	1957	1958	1936	1936	1937	1958

GRANT RIVER BASIN
05413500 GRANT RIVER AT BURTON, WI--CONTINUED

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1935 - 1998	
ANNUAL TOTAL	57147		63576		168	
ANNUAL MEAN	157		174		351	1993
HIGHEST ANNUAL MEAN					59.3	1958
LOWEST ANNUAL MEAN					10700	Jun 13 1947
HIGHEST DAILY MEAN	(a) 2300	Feb 19	2480	Mar 31	30	(b) Aug 5 1936
LOWEST DAILY MEAN	(a) 78	Jan 18	(a) 70	Jan 10	31	(c) Aug 3 1936
ANNUAL SEVEN-DAY MINIMUM	(a) 82	Jan 13	(a) 83	Jan 10	(d) 25000	Jul 16 1950
INSTANTANEOUS PEAK FLOW			3850	Mar 31	24.82	Jul 16 1950
INSTANTANEOUS PEAK STAGE			19.07	Mar 31	(f) 21	Mar 4 1954
INSTANTANEOUS LOW FLOW			(e) 65	Jan 10	.63	
ANNUAL RUNOFF (CFSM)	.58		.65		8.50	
ANNUAL RUNOFF (INCHES)	7.90		8.79		253	
10 PERCENT EXCEEDS	193		258		114	
50 PERCENT EXCEEDS	113		163		59	
90 PERCENT EXCEEDS	95		94			

(a) Ice affected

(b) Also occurred Aug. 8, 9, 1936, Sept. 22, 1937, and Feb. 19, 20, 1959, ice affected

(c) Also occurred Jan. 4, 1959, ice affected

(d) From rating curve extended above 18,000 ft³/s on basis of slope-area measurement of peak flow

(e) Result of freezeup, may have been lower, Jan. 10 (2400) to Jan. 11 (1145) when orifice froze

(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. Most sediment samples were taken in a single vertical. 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, 5,760 mg/L, Mar. 31; minimum observed, 6 mg/L, Dec. 8.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 29,700 tons, Mar. 31; minimum daily, 1.6 tons, Dec. 9.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- IN CUBIC FEET PER SECOND (00060)	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 1997					May 1998			
02...	0900	--	96	21	14...	0900	183	59
06...	1015	--	95	15	18...	0900	170	60
09...	0810	--	97	27	21...	0755	166	82
15...	0815	--	113	81	24...	0950	323	409
15...	1235	--	112	59	26...	0900	195	100
15...	1245	--	111	48	29...	0930	188	131
*17...	0935	--	104	66	JUN			
*20...	0930	--	101	115	01...	0800	207	182
*24...	0910	--	101	71	04...	0915	167	108
*28...	1000	--	103	34	*08...	1005	159	89
*31...	0850	--	108	34	11...	0845	178	108
NOV					15...	0730	202	148
*03...	0900	--	103	59	18...	0800	178	128
*06...	0800	--	101	49	19...	0800	548	936
*10...	1020	--	101	63	20...	0845	248	396
*14...	1015	--	100	21	22...	0920	242	196
DEC					25...	0820	248	145
*08...	1210	--	94	9	29...	0635	347	567
08...	1220	--	94	6	JUL			
JAN 1998					02...	0730	207	136
*19...	1212	88	--	12	06...	0850	221	150
MAR					08...	1110	209	178
*04...	1345	--	156	31	08...	1120	209	119
04...	1355	--	155	30	09...	0855	200	175
25...	0915	--	198	61	13...	0810	180	116
31...	0815	--	3480	5760	16...	0640	173	139
31...	1052	--	2470	4840	20...	0720	196	79
31...	1205	--	2250	4610	23...	0345	176	92
*31...	1215	--	2220	4580	27...	0705	161	102
31...	1224	--	2190	4600	30...	0715	154	112
APR					AUG			
01...	0930	--	1190	1520	03...	0825	151	126
*01...	1415	--	991	936	06...	0745	477	352
*01...	1432	--	981	1250	10...	0815	213	184
01...	1435	--	981	1310	13...	0710	172	92
02...	1344	--	638	424	15...	0730	299	280
*02...	1354	--	636	446	17...	1055	205	165
02...	1406	--	633	445	21...	0830	205	162
03...	0915	--	495	386	24...	0840	221	88
05...	1045	--	353	172	27...	0920	178	77
07...	0800	--	300	143	31...	0800	181	67
10...	0855	--	331	96	*31...	1435	179	58
14...	0850	--	287	131	31...	1445	179	56
17...	0950	--	370	147	SEP			
20...	0730	--	272	110	04...	0705	175	80
23...	0750	--	245	97	07...	0810	164	100
25...	0750	--	226	85	10...	1050	156	59
MAY					15...	0735	435	214
04...	0910	--	214	37	18...	0745	179	80
*04...	1445	--	209	38	21...	0945	168	57
04...	1450	--	209	37	24...	0840	173	57
08...	0900	--	271	126				
11...	0930	--	197	63				

* Equal-width increment (EWI) sample

GRANT RIVER BASIN
05413500 GRANT RIVER AT BURTON, WI--CONTINUED

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

[illegible]

PLATTE RIVER BASIN
05414000 PLATTE RIVER NEAR ROCKVILLE, WI

289

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. 28-31, Jan. 10-20, and Mar. 10-15. Records good except those for ice-affected periods, which are poor (see page 12). Gage-height telemeter at station.

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

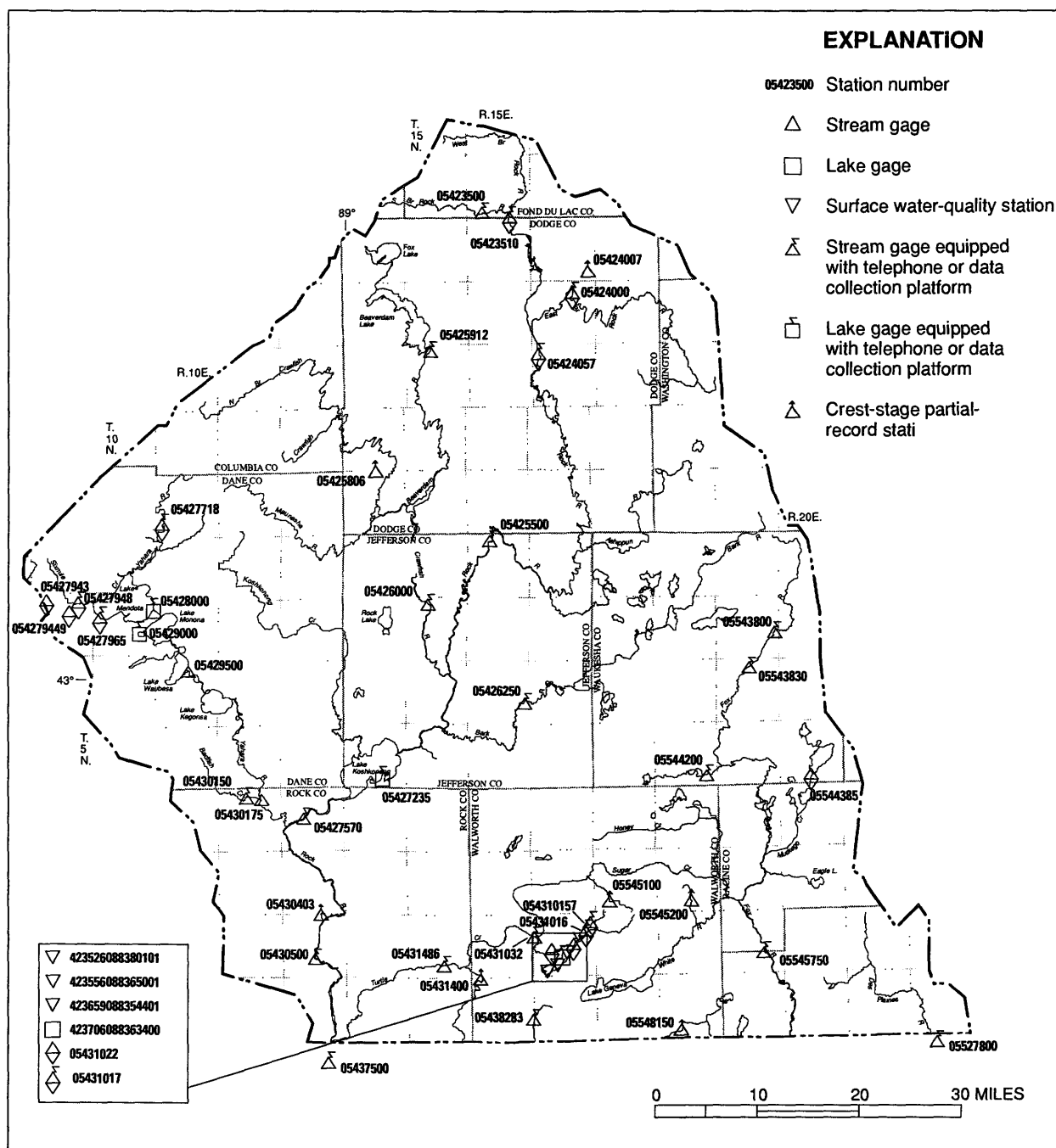
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	50	45	46	42	154	864	151	126	174	101	103
2	49	49	45	47	51	128	506	149	121	158	100	99
3	50	49	51	53	46	113	362	198	115	159	101	100
4	48	48	51	55	43	103	298	160	112	461	129	100
5	47	47	48	57	41	92	258	147	111	204	240	93
6	47	50	46	65	39	87	232	141	110	190	170	92
7	47	50	46	59	39	82	216	175	106	177	148	91
8	46	49	46	55	40	88	249	219	104	164	127	88
9	48	49	46	53	40	75	248	187	117	152	129	87
10	46	49	48	31	40	62	217	172	118	144	126	86
11	46	48	47	43	52	60	200	161	164	138	116	84
12	50	47	46	40	77	60	192	157	224	133	110	83
13	81	47	44	37	61	60	191	159	159	130	108	83
14	68	47	45	42	54	62	187	144	142	128	108	147
15	51	48	47	44	54	64	182	139	135	124	114	201
16	48	46	46	44	67	65	310	138	127	122	106	119
17	47	45	45	43	69	68	264	129	126	118	127	105
18	47	46	46	43	68	94	234	126	264	116	129	100
19	47	47	46	43	62	134	216	124	354	148	110	97
20	46	48	46	43	60	125	205	122	188	128	109	95
21	46	47	44	45	57	128	217	121	174	148	113	92
22	46	47	46	46	56	129	195	120	154	125	109	89
23	46	45	46	47	56	132	182	122	142	120	122	85
24	48	47	45	45	58	130	174	193	158	116	117	100
25	47	47	45	44	55	129	168	148	144	112	112	94
26	49	47	44	44	61	138	186	128	151	110	104	91
27	50	46	41	43	171	130	172	122	135	109	102	88
28	49	47	40	42	198	117	155	121	427	108	140	83
29	51	47	39	41	---	107	153	127	227	106	142	82
30	51	47	37	40	---	378	152	119	198	104	113	86
31	52	---	32	39	---	1870	---	151	---	103	106	---
TOTAL	1544	1426	1389	1419	1757	5164	7385	4570	4933	4529	3788	2943
MEAN	49.8	47.5	44.8	45.8	62.8	167	246	147	164	146	122	98.1
MAX	81	50	51	65	198	1870	864	219	427	461	240	201
MIN	46	45	32	31	39	60	152	119	104	103	100	82
CFSM	.35	.33	.32	.32	.44	1.17	1.73	1.04	1.16	1.03	.86	.69
IN.	.40	.37	.36	.37	.46	1.35	1.93	1.20	1.29	1.19	.99	.77
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 1998, BY WATER YEAR (WY)												
MEAN	69.6	76.3	63.5	77.2	107	179	114	104	129	106	89.0	78.3
MAX	146	372	155	315	379	483	291	328	586	660	348	202
(WY)	1962	1962	1973	1946	1938	1959	1993	1960	1947	1993	1943	1942
MIN	25.3	29.2	23.7	22.1	24.3	33.4	42.0	36.1	34.3	24.0	30.3	33.7
(WY)	1951	1938	1959	1959	1959	1957	1990	1958	1936	1936	1937	1989

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1935 - 1998
ANNUAL TOTAL	28686	40847	
ANNUAL MEAN	78.6	112	99.3
HIGHEST ANNUAL MEAN			234
LOWEST ANNUAL MEAN			40.8
HIGHEST DAILY MEAN	1180	1870	7830
LOWEST DAILY MEAN	(a) 32	(a) 31	7.0
ANNUAL SEVEN-DAY MINIMUM	(a) 40	40	18
INSTANTANEOUS PEAK FLOW		3220	(b) 43500
INSTANTANEOUS PEAK STAGE		10.60	17.26
INSTANTANEOUS LOW FLOW		(c) 18	.00
ANNUAL RUNOFF (CFSM)	.55	.79	.70
ANNUAL RUNOFF (INCHES)	7.51	10.70	9.50
10 PERCENT EXCEEDS	100	190	156
50 PERCENT EXCEEDS	57	97	67
90 PERCENT EXCEEDS	46	45	35

(a) Ice affected

(b) From rating curve extended above 7,000 ft³/s on basis of slope-area measurement of peak flow

(c) Result of freezeup



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

ROCK-FOX RIVER BASIN

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.

PERIOD OF RECORD.--October 1948 to September 1969. March 1987 to current year. Monthly discharge for October 1948 published in WSP 1308.

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.--Estimated daily discharges: July 21, 22, and ice-affected periods, Nov. 17, Dec. 13, Jan. 13-15, and Mar. 9-16. Records good except those for estimated periods, which are fair (see page 12). Gage-height telemeter at station.

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	4.2	3.3	3.0	5.1	49	355	73	23	45	7.9	5.4
2	2.9	3.4	3.4	3.3	5.7	45	295	73	21	36	7.8	5.3
3	2.6	3.3	4.4	5.3	5.9	42	229	73	19	31	7.7	4.9
4	3.0	3.3	4.9	11	5.9	38	183	71	17	28	12	4.5
5	3.2	3.4	4.4	14	5.8	34	152	67	16	23	11	4.4
6	8.5	4.2	4.0	15	5.7	33	128	61	16	21	15	3.8
7	9.0	4.2	3.4	14	5.7	31	111	65	15	20	14	3.9
8	9.8	3.9	3.3	9.9	5.5	30	101	69	14	23	11	3.5
9	7.9	3.6	3.3	8.9	5.5	21	96	63	20	20	9.5	3.7
10	6.4	3.2	3.4	6.8	5.5	19	90	56	21	18	8.4	3.9
11	8.3	3.2	3.5	5.7	6.4	18	84	51	33	17	7.7	3.9
12	8.8	3.4	3.5	5.4	6.8	17	80	48	43	16	7.0	3.8
13	8.9	3.4	3.2	5.2	6.7	16	77	45	37	14	6.8	3.7
14	2.6	3.4	3.0	5.0	6.6	15	84	41	32	14	8.4	21
15	2.2	3.4	2.8	5.0	7.0	15	121	39	27	13	7.0	13
16	2.2	3.1	3.3	4.9	9.1	15	226	35	32	11	6.2	9.3
17	2.7	3.1	3.6	4.9	24	20	201	31	35	11	9.1	7.8
18	2.4	3.0	3.5	4.2	34	47	165	28	35	10	6.5	6.9
19	1.9	3.1	3.4	4.3	39	69	131	26	54	12	6.3	6.4
20	1.4	3.1	3.6	4.7	44	63	110	23	38	12	6.1	5.4
21	2.1	3.0	3.3	4.7	44	57	98	20	32	40	6.0	5.0
22	2.3	2.6	3.0	4.7	46	63	91	19	28	30	29	4.7
23	3.0	2.4	3.1	5.0	45	61	84	19	25	22	39	4.5
24	3.8	2.0	3.2	4.8	46	57	79	19	24	17	15	4.5
25	2.6	2.2	3.2	4.2	41	55	74	20	21	14	11	5.2
26	2.5	2.8	3.0	4.2	40	58	82	20	19	12	8.6	4.9
27	2.8	2.8	2.8	4.7	55	58	81	18	39	11	7.5	4.4
28	3.5	2.9	2.8	5.3	55	54	75	22	55	10	7.2	4.1
29	3.6	3.0	2.8	5.3	---	50	71	22	44	8.8	6.3	4.1
30	3.8	3.2	3.0	5.3	---	78	68	20	64	8.5	5.8	7.6
31	4.2	---	3.0	5.2	---	360	---	34	---	8.3	5.2	---
TOTAL	131.5	95.8	104.4	193.9	611.9	1588	3822	1271	899	576.6	316.0	173.5
MEAN	4.24	3.19	3.37	6.25	21.9	51.2	127	41.0	30.0	18.6	10.2	5.78
MAX	9.8	4.2	4.9	15	55	360	355	73	64	45	39	21
MIN	1.4	2.0	2.8	3.0	5.1	15	68	18	14	8.3	5.2	3.5
CFSM	.07	.05	.05	.10	.34	.81	2.00	.64	.47	.29	.16	.09
IN.	.08	.06	.06	.11	.36	.93	2.24	.74	.53	.34	.18	.19

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1998, BY WATER YEAR (WY)

MEAN	18.3	21.8	16.8	12.1	16.9	68.5	73.0	32.8	26.7	25.9	15.8	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 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1949 - 1998	
ANNUAL TOTAL	8349.0		9783.6			
ANNUAL MEAN	22.9		26.8		28.8	
HIGHEST ANNUAL MEAN					94.1	
LOWEST ANNUAL MEAN					2.47	
HIGHEST DAILY MEAN	299	Mar 22	360	Mar 31	1280	Apr 4 1959
LOWEST DAILY MEAN	1.4	Oct 20	1.4	Oct 20	.00	(a)
ANNUAL SEVEN-DAY MINIMUM	2.1	Oct 15	2.1	Oct 15	.00	(b) Sep 7 1958
INSTANTANEOUS PEAK FLOW			387	Mar 31	(c) 1500	Apr 3 1959
INSTANTANEOUS PEAK STAGE			5.55	Mar 31	7.97	Apr 3 1959
INSTANTANEOUS LOW FLOW			1.1	Oct 19, 20		(d)
ANNUAL RUNOFF (CFSM)	.36		.42		.45	
ANNUAL RUNOFF (INCHES)	4.88		5.72		6.15	
10 PERCENT EXCEEDS	56		69		68	
50 PERCENT EXCEEDS	8.5		9.1		10	
90 PERCENT EXCEEDS	3.0		3.0		.90	

(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 September 1998.

GAGE.--Water-stage recorder. Elevation of gage is 800 ft above sea level, from topographic map.

REMARKS.--Estimated daily discharges: Nov. 1-5, and ice-affected periods, Jan. 9-18 and Mar. 10-17. Records good except for estimated daily discharges and periods of flow less than 5.0 ft³/s, which are poor (see page 12). 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	---	10	7.8	5.9	12	93	708	138	44	58	13	7.9
2	---	9.8	8.0	6.7	14	85	662	151	40	48	12	8.8
3	---	9.6	8.4	11	15	81	563	144	36	42	12	7.7
4	---	9.4	8.7	17	14	74	477	138	33	39	16	6.5
5	---	9.4	8.1	28	14	68	410	128	31	33	16	5.6
6	---	9.9	7.9	32	13	65	347	115	30	30	19	5.4
7	---	10	7.6	31	13	62	293	116	29	29	22	5.0
8	---	9.9	7.3	22	13	60	252	130	28	31	18	4.8
9	---	9.7	7.6	20	13	49	228	117	31	29	16	4.9
10	---	9.1	7.9	17	13	47	206	101	39	26	14	4.8
11	---	9.1	7.9	12	14	45	187	89	47	24	13	4.8
12	---	9.1	7.7	11	16	43	179	82	72	22	12	4.1
13	---	9.3	7.3	11	17	42	165	76	62	21	11	3.9
14	---	9.4	7.5	11	17	39	182	70	53	21	11	18
15	---	9.3	7.2	11	18	37	246	65	47	20	13	21
16	---	8.3	7.9	11	24	35	450	60	44	19	10	14
17	---	7.8	8.0	11	52	38	447	53	53	19	12	11
18	---	8.1	8.0	11	82	83	400	49	45	18	11	9.8
19	---	8.1	8.2	11	86	155	329	45	72	19	9.7	8.6
20	---	8.1	8.5	12	93	139	269	42	57	18	9.4	7.5
21	---	8.1	7.4	12	89	124	230	39	48	53	8.5	7.3
22	---	7.7	7.6	12	89	133	203	37	43	43	26	7.3
23	---	7.1	7.9	12	85	125	180	36	37	37	50	6.6
24	---	6.9	7.6	13	85	114	161	36	36	30	22	7.0
25	---	7.0	7.9	12	79	109	146	37	33	25	16	7.4
26	---	7.5	7.4	12	74	114	165	36	29	22	14	7.1
27	---	7.6	6.7	12	102	113	173	34	47	20	12	6.4
28	---	7.4	6.5	12	108	105	150	37	71	19	11	6.1
29	---	7.5	6.6	12	---	93	135	41	66	17	10	6.5
30	---	7.7	6.9	12	---	122	127	38	75	15	8.8	9.4
31	---	---	6.6	12	---	629	---	53	---	14	8.0	---
TOTAL	---	257.9	236.6	435.6	1264	3121	8670	2333	1378	861	456.4	235.2
MEAN	---	8.60	7.63	14.1	45.1	101	289	75.3	45.9	27.8	14.7	7.84
MAX	---	10	8.7	32	108	629	708	151	75	58	50	21
MIN	---	6.9	6.5	5.9	12	35	127	34	28	14	8.0	3.9
CFSM	---	.08	.07	.12	.40	.89	2.56	.67	.41	.25	.13	.07
IN.	---	.08	.08	.14	.42	1.03	2.85	.77	.45	.28	.15	.08

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

MEAN	---	8.60	7.63	14.1	45.1	101	289	75.3	45.9	27.8	14.7	7.84
MAX	---	8.60	7.63	14.1	45.1	101	289	75.3	45.9	27.8	14.7	7.84
(WY)	---	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998
MIN	---	8.60	7.63	14.1	45.1	101	289	75.3	45.9	27.8	14.7	7.84
(WY)	---	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(NOVEMBER-SEPTEMBER)

ANNUAL TOTAL	19248.7
ANNUAL MEAN	57.6
HIGHEST DAILY MEAN	708
LOWEST DAILY MEAN	3.9
ANNUAL SEVEN-DAY MINIMUM	4.6
INSTANTANEOUS PEAK FLOW	717
INSTANTANEOUS PEAK STAGE	9.63
ANNUAL RUNOFF (CFSM)	.51
ANNUAL RUNOFF (INCHES)	6.34
10 PERCENT EXCEEDS	139
50 PERCENT EXCEEDS	20
90 PERCENT EXCEEDS	7.4

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 September 1998.

PERIOD OF DAILY RECORD.--

SUSPENDED-SOLIDS DISCHARGE: December 1997 to September 1998.

TOTAL-PHOSPHORUS DISCHARGE: December 1997 to September 1998.

INSTRUMENTATION.--Water-quality sampler December 1997 to September 1998.

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

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 471 tons, Mar. 31; minimum daily, 0.080 ton, Jan. 1.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 4,050 lb, Mar. 31; minimum daily, 43.2 lb, Sept. 13.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	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)	*
NOV 1997						
*19...	1425	7.7	5	2.62	2.48	
DEC						
*16...	1045	7.2	<5	2.28	2.31	
JAN 1998						
*08...	0954	23	<5	1.64	1.36	
*29...	1200	12	<5	3.09	2.95	
FEB						
17...	1040	48	25	1.92	1.86	
*17...	1041	48	12	1.99	--	
*19...	1100	85	11	.868	.730	
*23...	1110	86	6	.563	.410	
27...	0745	99	28	.788	--	
27...	2000	111	35	.793	--	
MAR						
*02...	1045	86	<5	.422	.340	
18...	1645	99	14	1.15	--	
18...	2115	128	17	1.02	--	
19...	0915	160	20	.752	.630	
*19...	1520	156	10	.535	.460	
19...	1525	156	14	.630	.480	
*20...	0915	137	12	.507	--	
21...	0855	123	9	.462	--	
22...	0921	136	8	.434	--	
30...	2000	159	65	.569	--	
30...	2130	239	138	.756	--	
30...	2300	335	241	.922	--	
31...	0030	430	302	1.23	--	
31...	0245	533	294	1.21	--	
31...	0500	583	298	1.12	--	
31...	1745	687	292	1.26	--	
APR						
01...	0545	709	118	1.04	--	
01...	1745	711	174	.846	--	
02...	1745	639	51	.552	--	
03...	0545	583	37	.450	--	
04...	0545	495	30	.388	--	
05...	1900	394	31	.314	--	
06...	0700	360	47	.351	.210	
06...	1130	349	29	.323	.218	
15...	1530	265	68	.493	--	
15...	1945	351	80	.541	--	
16...	0615	437	69	.576	--	
16...	1815	473	58	.552	--	
17...	1815	437	41	.374	--	
18...	1815	385	44	.317	--	
19...	1815	312	58	.338	.164	
20...	1030	270	43	.283	.153	
*20...	1035	270	35	.273	.166	
MAY						
*01...	1030	139	34	.447	.338	
*14...	0900	69	69	.575	.440	
*28...	0930	33	44	.954	1.00	

* Equal-width increment (EWI) sample

ROCK RIVER BASIN

295

05423510 WEST BRANCH ROCK RIVER AT STATE HIGHWAY 49 NEAR WAUPUN, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

		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)		
JUN 1998							
*14...	1425	52	20	.740	.700		
18...	2345	67	58	1.29	--		
19...	0950	73	51	.875	.780		
*25...	1625	33	20	.959	.900		
27...	0830	69	44	1.51	--		
28...	1530	76	42	.983	--		
29...	0330	72	46	.991	--		
*29...	1345	66	24	.757	.650		
JUL							
*09...	1358	29	28	1.12	1.00		
21...	0430	76	95	1.61	1.12		
*21...	1005	47	64	.673	.380		
DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	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- PENDE (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDE (MG/L) (00535)
AUG 1998							
*04...	1005	13	3.1	130	588	49	18
*06...	1047	20	--	--	--	55	--
19...	1805	9.4	--	--	--	35	--
22...	2100	102	--	--	--	268	--
22...	2215	131	--	--	--	178	--
23...	0100	84	--	--	--	95	--
SEP							
*01...	1154	7.2	--	--	--	35	--
*13...	1905	3.6	--	--	--	25	--
*17...	1100	11	--	--	--	27	--
*29...	1834	6.2	--	--	--	25	--
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 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 TRICHR. UNCORR. WHOLE TOTAL (UG/L) (32210)
AUG 1998							
04...	4.22	.079	1.3	1.34	1.08	23.5	
06...	--	--	--	1.95	1.53	--	
19...	--	--	--	1.70	1.52	--	
22...	--	--	--	2.23	--	--	
22...	--	--	--	2.27	--	--	
23...	--	--	--	1.43	--	--	
SEP							
01...	--	--	--	1.86	1.54	--	
13...	--	--	--	2.05	1.84	--	
17...	--	--	--	2.77	2.70	--	
29...	--	--	--	2.91	2.32	--	

* Equal-width increment (EWI) sample

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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

[illegible]

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

[illegible]

ROCK RIVER BASIN

297

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 September 1998.

GAGE.--Water-stage recorder. Datum of gage is 857.20 ft above sea level.

REMARKS.--Estimated daily discharges: Ice-affected periods, Jan. 10-17 and Mar. 10-17. Records fair except those for ice-affected periods, which are poor (see page 12). Minor regulation by recreation dams. 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	---	---	37	27	41	194	1080	119	44	71	28	9.2
2	---	---	37	30	48	171	973	140	43	63	26	21
3	---	---	39	37	56	180	977	166	34	50	25	28
4	---	---	50	51	58	165	929	134	29	47	27	26
5	---	---	55	76	59	150	830	122	45	54	30	8.9
6	---	---	46	96	58	129	685	118	45	58	35	8.9
7	---	---	47	109	56	121	540	115	28	50	38	9.7
8	---	---	41	104	55	126	491	116	32	42	48	16
9	---	---	41	67	54	111	402	113	36	42	52	19
10	---	---	39	64	53	52	336	103	38	40	54	28
11	---	---	39	60	55	66	261	69	52	38	46	21
12	---	---	38	58	62	64	234	88	58	36	39	9.2
13	---	---	35	54	69	62	146	82	70	32	37	9.3
14	---	---	36	52	73	60	166	68	65	30	33	19
15	---	---	36	50	77	60	223	66	54	28	33	29
16	---	---	37	49	108	60	637	65	48	25	34	27
17	---	---	33	47	197	62	506	60	44	25	34	27
18	---	---	35	46	284	123	448	56	51	26	34	27
19	---	---	36	44	268	319	427	51	92	27	33	26
20	---	---	37	42	257	297	364	49	93	29	31	22
21	---	---	31	41	251	282	353	47	69	50	30	8.3
22	---	---	37	39	243	281	296	44	46	70	30	8.0
23	---	---	34	40	212	275	255	43	69	80	29	8.1
24	---	---	34	38	221	255	211	44	59	48	31	8.7
25	---	---	34	39	206	250	141	42	32	30	44	17
26	---	---	35	38	192	212	180	42	24	36	31	26
27	---	---	32	36	211	247	163	41	42	37	28	26
28	---	---	29	37	217	181	159	39	73	41	27	22
29	---	---	34	38	---	182	120	31	87	38	26	7.6
30	---	---	29	38	---	218	136	51	84	31	22	7.8
31	---	---	28	38	---	1400	---	49	---	30	8.9	---
TOTAL	---	---	1151	1585	3741	6355	12669	2373	1586	1304	1023.9	530.7
MEAN	---	---	37.1	51.1	134	205	422	76.5	52.9	42.1	33.0	17.7
MAX	---	---	55	109	284	1400	1080	166	93	80	54	29
MIN	---	---	28	27	41	52	120	31	24	25	8.9	7.6
CFSM	---	---	.21	.29	.75	1.15	2.36	.43	.30	.23	.18	.10
IN.	---	---	.24	.33	.78	1.32	2.63	.49	.33	.27	.21	.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1949 - 1998, BY WATER YEAR (WY)

	MEAN	50.5	57.9	39.1	32.2	51.3	207	255	96.7	59.2	68.8	30.8	44.3
MAX	290	199	187	125	239	567	907	442	210	352	166	391	
(WY)	1955	1962	1966	1960	1966	1952	1959	1960	1969	1952	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 WATER YEAR
(DECEMBER-SEPTEMBER)

WATER YEARS 1949 - 1998

ANNUAL TOTAL	32318.6		
ANNUAL MEAN	106	82.4	
HIGHEST ANNUAL MEAN		167	1960
LOWEST ANNUAL MEAN		18.4	1949
HIGHEST DAILY MEAN	1400	(a) 3300	Apr 3 1959
LOWEST DAILY MEAN	7.6		Sep 29
ANNUAL SEVEN-DAY MINIMUM	14	.20	Aug 23 1962
INSTANTANEOUS PEAK FLOW	1640	.56	Oct 6 1957
INSTANTANEOUS PEAK STAGE	9.24	(a) 3400	Apr 3 1959
ANNUAL RUNOFF (CFSM)	.59	(a) 11.02	Apr 3 1959
ANNUAL RUNOFF (INCHES)	6.72	.46	
10 PERCENT EXCEEDS	251	6.25	
50 PERCENT EXCEEDS	48	187	
90 PERCENT EXCEEDS	26	30	
		7.2	

(a) Ice affected

ROCK RIVER BASIN
05424000 EAST BRANCH ROCK RIVER NEAR MAYVILLE, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1997 to September 1998.

PERIOD OF DAILY RECORD.--

SUSPENDED-SOLIDS DISCHARGE: December 1997 to September 1998.

TOTAL-PHOSPHORUS DISCHARGE: December 1997 to September 1998.

INSTRUMENTATION.--Water-quality sampler December 1997 to September 1998.

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

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SOLIDS DISCHARGE: Maximum daily, 947 tons, Mar. 31; minimum daily, 0.36 ton, Jan. 1.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 6,790 lb, Mar. 31; minimum daily, 26.4 lb, Sept. 5-6.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	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)
NOV 1997					
*19...	1345	51	<5	.283	.222
DEC					
*16...	1210	37	<5	.300	.240
JAN 1998					
*08...	1150	107	<5	.333	.267
*29...	1245	38	<5	.410	.351
FEB					
*16...	2045	127	8	.274	--
17...	0345	155	5	.251	--
*17...	1115	196	6	.251	--
17...	1130	197	6	.242	.193
17...	1430	210	6	.247	--
17...	2045	240	5	.256	--
18...	0845	267	8	.250	--
18...	1200	305	8	.242	--
18...	2400	281	6	.254	--
*19...	1315	266	<5	.251	.200
19...	2400	262	<5	.248	--
23...	1300	231	<5	.135	.095
MAR					
02...	1130	173	<5	.155	.106
18...	0845	99	5	.202	--
18...	1745	148	6	.207	--
18...	2230	204	10	.263	--
19...	0445	267	8	.219	--
19...	0930	359	7	.198	.121
19...	1100	386	6	.190	--
19...	1245	372	10	.213	.137
19...	1315	365	7	.218	.137
19...	2115	332	9	.258	--
20...	2215	289	10	.494	--
*21...	0931	283	6	.224	--
22...	0946	279	6	.174	--
30...	1815	170	40	.216	--
30...	2100	345	28	.237	--
30...	2130	450	36	.235	--
30...	2215	596	46	.243	--
30...	2400	994	255	.684	--
31...	0115	1180	416	.986	--
31...	0345	1360	480	1.20	--
31...	0830	1570	252	.858	--
*31...	1700	1390	174	.881	--
31...	2145	1300	136	.751	--
APR					
01...	0400	1170	111	.617	--
01...	1300	1050	70	.510	--
02...	1300	972	50	.378	--
03...	1300	994	44	.311	--
04...	1300	926	30	.247	--
05...	1415	824	30	.220	--
06...	1100	652	49	.230	.101
*06...	1230	652	44	.210	.108

* Equal-width increment (EWI) sample

ROCK RIVER BASIN

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05424000 EAST BRANCH ROCK RIVER NEAR MAYVILLE, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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 1998					
15...	1830	283	51	.302	--
16...	0030	359	74	.376	--
16...	0345	464	61	.342	--
16...	0615	577	59	.343	--
16...	0845	729	60	.361	--
16...	1015	867	59	.363	--
16...	1730	678	45	.391	--
17...	0030	593	37	.383	--
18...	0900	450	29	.276	--
19...	2100	416	56	.254	.091
20...	1120	278	50	.228	.082
*20...	1130	279	45	.223	.078
MAY					
*01...	1115	116	90	.351	.100
*14...	0950	73	67	.332	.113
*28...	1018	54	33	.346	.130
JUN					
*11...	1845	81	51	.390	.204
*14...	1455	63	36	.325	.183
19...	0930	74	46	.393	--
*19...	1030	84	51	.386	.194
20...	1130	96	32	.348	--
23...	1845	96	30	.361	--
24...	1000	69	24	.322	--
25...	1722	24	34	.397	.232
28...	0545	89	28	.507	--
28...	1800	72	26	.425	--
29...	0830	76	40	.467	--
29...	1115	95	39	.448	--
*29...	1430	103	35	.425	.252
JUL					
*09...	1315	41	55	.422	.175
*21...	1100	47	40	.735	.380
AUG					
*06...	1213	34	27	.648	.500
*19...	1850	33	55	.546	.238
*24...	1034	28	41	.620	--
SEP					
*01...	1107	8.8	28	.540	.332
*13...	1834	9.2	38	.566	.276
14...	1645	29	51	.620	--
14...	1815	38	53	.592	--
15...	1815	27	55	.743	--
16...	1815	27	55	.729	--
*17...	1130	27	56	.720	.525
*29...	1908	7.5	43	.680	.430

* Equal-width increment (EWI) sample

05424000 EAST BRANCH ROCK RIVER NEAR MAYVILLE, WI--CONTINUED

DAILY MEAN VALUES

[illegible]

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

[illegible]

ROCK RIVER BASIN

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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 September 1998.

GAGE.--Acoustical Velocity Meter (AVM) system. Single-path transducer installation. Elevation of gage is 860 ft, from topographic map.

REMARKS.--No estimated daily discharges. Records are fair (see page 12). 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	---	---	77	65	80	615	1120	850	92	233	48	37
2	---	---	61	66	85	614	1240	802	103	222	53	29
3	---	---	45	72	83	609	1300	815	104	215	47	39
4	---	---	45	78	70	597	1320	718	98	217	51	36
5	---	---	53	135	79	520	1340	655	89	193	47	47
6	---	---	54	160	98	391	1400	592	93	190	56	28
7	---	---	57	162	118	378	1410	568	93	200	61	22
8	---	---	78	160	114	409	1430	619	71	138	66	26
9	---	---	88	142	112	574	1470	608	56	107	63	28
10	---	---	87	72	112	449	1370	616	64	61	44	44
11	---	---	85	54	112	511	1330	382	69	41	56	34
12	---	---	77	69	111	513	1060	182	90	47	52	30
13	---	---	75	70	100	501	1110	192	89	48	52	36
14	---	---	72	73	96	454	1080	172	88	55	46	33
15	---	---	78	105	111	434	983	143	103	39	46	34
16	---	---	83	70	155	422	1170	142	138	39	59	22
17	---	---	70	72	242	420	1250	132	102	36	48	36
18	---	---	60	73	280	483	1260	116	93	51	52	40
19	---	124	62	57	311	561	1290	112	165	45	58	47
20	---	131	64	65	358	595	1250	108	189	56	48	26
21	---	145	65	70	360	568	1240	99	190	49	38	41
22	---	148	66	71	357	569	1200	96	141	58	60	39
23	---	127	65	72	349	509	1180	95	106	60	51	50
24	---	120	66	73	339	516	1140	107	97	49	45	40
25	---	124	62	70	429	499	1090	106	106	52	37	42
26	---	89	64	81	513	492	1030	95	114	62	37	48
27	---	66	63	83	545	480	1000	91	100	43	52	24
28	---	70	61	84	607	545	960	85	97	41	40	37
29	---	71	65	81	---	458	922	98	140	37	31	27
30	---	80	63	83	---	532	881	95	222	46	31	39
31	---	---	66	80	---	824	---	121	---	37	32	---
TOTAL	---	1295	2077	2668	6326	16042	35826	9612	3302	2767	1507	1061
MEAN	---	108	67.0	86.1	226	517	1194	310	110	89.3	48.6	35.4
MAX	---	148	88	162	607	824	1470	850	222	233	66	50
MIN	---	66	45	54	70	378	881	85	56	36	31	22
CFSM	---	.24	.15	.19	.50	1.13	2.62	.68	.24	.20	.11	.08
IN.	---	.11	.17	.22	.52	1.31	2.92	.78	.27	.23	.12	.09

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

	MEAN	MAX	(WY)	MIN	(WY)
1998	67.0	86.1	1998	67.0	1998
1998	86.1	86.1	1998	86.1	1998
1998	226	226	1998	226	1998
1998	517	517	1998	517	1998
1998	1194	1194	1998	1194	1998
1998	310	310	1998	310	1998
1998	110	110	1998	110	1998
1998	89.3	89.3	1998	89.3	1998
1998	48.6	48.6	1998	48.6	1998
1998	35.4	35.4	1998	35.4	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR
(NOVEMBER-SEPTEMBER)

HIGHEST DAILY MEAN	1470	Apr	9
LOWEST DAILY MEAN	22	Sep	7,16
ANNUAL SEVEN-DAY MINIMUM	30	Sep	6
10 PERCENT EXCEEDS	832		
50 PERCENT EXCEEDS	91		
90 PERCENT EXCEEDS	39		

ROCK RIVER BASIN
05424057 ROCK RIVER AT HORICON, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--December 1997 to September 1998.

PERIOD OF DAILY RECORD.--

SUSPENDED-SOLIDS DISCHARGE: December 1997 to September 1998.

TOTAL-PHOSPHORUS DISCHARGE: December 1997 to September 1998.

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, 459 tons, Apr. 13; minimum daily, 0.73 ton, Jan. 11.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 3,280 lb, Apr. 1; minimum daily, 46.7 lb, Sept. 7.

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)	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)
NOV 1997						
19...	0930	124	--	29	.218	.015
DEC						
16...	1425	--	85	8	.190	.044
JAN 1998						
08...	1310	--	161	5	.234	.152
29...	1330	--	31	<5	.348	.260
FEB						
17...	1203	--	270	8	.240	.149
19...	1415	--	349	5	.212	.138
23...	1330	--	346	8	.181	.099
25...	0915	--	330	8	.154	.077
27...	0900	--	535	83	.358	.034
MAR						
02...	1215	--	606	38	.309	.052
04...	1245	--	597	36	.287	.031
11...	1310	--	512	37	.314	.004
18...	0900	--	425	25	.200	.014
19...	1215	--	567	24	.224	.011
20...	0815	--	638	25	.237	.064
21...	1005	--	568	29	.273	--
22...	1001	--	569	24	.261	--
23...	0920	--	463	47	.264	.031
25...	0910	--	481	78	.265	.016
APR						
01...	0910	--	1120	148	.573	.136
03...	0845	--	1300	98	.361	.106
04...	1325	--	1350	86	.313	.060
05...	0935	--	1350	70	.293	.060
06...	1250	--	1470	76	.289	.048
09...	1425	--	1510	94	.374	.029
13...	1025	--	1030	162	.417	.007
17...	0755	--	1220	53	.314	.065
20...	1210	--	1190	92	.295	.008
24...	0930	--	1110	118	.326	<.002
MAY						
01...	1220	--	827	88	.363	.006
14...	1045	--	171	67	.299	.007
28...	1130	--	78	43	.318	.010
JUN						
14...	1545	--	87	52	.376	.004
19...	1110	--	188	53	.390	.048
25...	1825	--	111	49	.413	.079
29...	1500	--	185	81	.446	.057
JUL						
09...	1220	--	112	76	.488	.011
21...	1150	--	53	39	.406	.096
AUG						
06...	1347	--	78	53	.526	.262
19...	1929	--	72	49	.464	.148
24...	1059	--	32	27	.244	--
SEP						
01...	1013	--	35	28	.431	.110
13...	1745	--	25	23	.358	.138
16...	0955	--	28	25	.558	.258
17...	1210	--	21	20	.475	.250
29...	2000	--	20	27	.402	.150

ROCK RIVER BASIN

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05424057 ROCK RIVER AT HORICON, 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	---	---	2.06	1.01	1.08	81.8	415	203	11.2	50.3	6.24	2.79
2	---	---	1.61	1.01	1.15	65.0	395	187	12.6	47.7	7.02	2.16
3	---	---	1.17	1.08	1.12	60.9	342	186	12.9	45.9	6.34	2.85
4	---	---	1.16	1.14	.94	58.3	305	160	12.3	46.0	7.02	2.59
5	---	---	1.34	1.94	1.07	50.7	262	143	11.3	40.6	6.59	3.33
6	---	---	1.35	2.25	1.32	38.3	287	127	11.9	39.8	7.98	1.95
7	---	---	1.40	2.23	1.59	37.2	310	119	12.1	41.6	8.68	1.51
8	---	---	1.89	2.17	1.54	40.4	336	127	9.31	28.5	9.34	1.76
9	---	---	2.10	1.92	1.51	56.9	373	122	7.43	21.8	8.86	1.86
10	---	---	2.05	.97	1.51	44.7	396	121	8.58	11.9	6.15	2.88
11	---	---	1.98	.73	1.51	50.7	443	73.5	9.36	7.54	7.78	2.19
12	---	---	1.76	.93	1.50	48.5	407	34.3	12.3	8.17	7.18	1.90
13	---	---	1.69	.94	1.35	44.8	459	35.4	12.3	7.89	7.14	2.25
14	---	---	1.60	.99	1.32	38.3	352	31.0	12.3	8.55	6.28	2.10
15	---	---	1.71	1.42	1.76	34.6	240	25.0	14.5	5.74	6.24	2.23
16	---	---	1.79	.94	2.87	31.7	215	24.1	19.5	5.43	7.96	1.43
17	---	---	1.48	.97	4.99	29.8	189	21.7	14.5	4.74	6.44	2.00
18	---	---	1.25	.99	4.86	32.5	222	18.5	13.3	6.35	6.93	2.21
19	---	---	1.26	.77	4.42	36.7	270	17.3	23.6	5.30	7.67	2.66
20	---	---	1.28	.88	5.39	41.3	306	16.1	26.7	6.23	5.83	1.51
21	---	---	1.27	.94	6.10	42.6	328	14.3	26.5	5.21	4.06	2.44
22	---	---	1.26	.96	6.81	42.8	339	13.5	19.4	6.23	5.63	2.38
23	---	---	1.22	.97	7.40	64.9	355	12.9	14.4	6.56	4.21	3.12
24	---	---	1.21	.99	7.32	87.6	359	14.1	13.0	5.46	3.33	2.56
25	---	---	1.12	.94	12.3	103	332	13.5	14.1	5.91	2.71	2.76
26	---	---	1.13	1.09	48.4	103	301	11.7	16.6	7.18	2.72	3.23
27	---	---	1.09	1.12	108	99.1	280	10.9	16.6	5.08	3.84	1.65
28	---	---	1.03	1.13	104	112	258	9.92	18.4	4.93	2.97	2.61
29	---	---	1.08	1.09	---	93.9	238	11.5	29.9	4.54	2.31	1.95
30	---	---	1.02	1.12	---	122	218	11.3	48.3	5.75	2.32	2.72
31	---	---	1.05	1.08	---	223	---	14.5	---	4.72	2.41	---
TOTAL	---	---	44.41	36.71	343.13	2017.0	9532	1930.02	485.18	501.61	180.18	69.58

WTR YR 1998 TOTAL 15139.82

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	---	---	83.0	77.0	136	1080	3280	1660	164	571	126	85.3
2	---	---	65.6	78.9	139	1030	2980	1550	186	549	141	66.4
3	---	---	48.2	86.9	131	980	2520	1550	189	536	127	88.0
4	---	---	48.0	95.0	107	931	2260	1350	180	546	140	80.0
5	---	---	56.4	166	117	816	2130	1210	165	490	131	103
6	---	---	57.3	198	140	621	2210	1080	174	487	159	60.4
7	---	---	60.3	203	163	609	2390	1020	176	517	172	46.7
8	---	---	82.2	202	152	667	2640	1090	136	360	184	54.4
9	---	---	92.4	183	144	948	2930	1060	108	281	174	57.7
10	---	---	91.1	94.4	139	751	2840	1060	125	158	120	89.3
11	---	---	88.7	72.2	134	859	2840	645	136	105	152	68.0
12	---	---	80.1	93.9	129	817	2320	303	179	118	140	59.1
13	---	---	77.7	97.1	112	747	2460	314	179	119	138	70.3
14	---	---	74.4	103	105	634	2250	278	178	134	121	72.6
15	---	---	80.3	151	127	567	1910	232	210	93.8	120	88.3
16	---	---	85.3	103	189	516	2110	231	284	92.3	153	63.8
17	---	---	72.4	108	309	481	2120	216	212	83.9	123	94.0
18	---	---	62.6	111	342	535	2090	191	194	117	132	101
19	---	---	65.3	88.6	359	676	2100	185	348	102	145	117
20	---	---	68.0	103	395	781	2000	179	402	125	110	64.0
21	---	---	69.7	113	382	822	2030	165	408	108	75.6	99.6
22	---	---	71.4	117	364	807	2010	161	305	129	104	93.5
23	---	---	71.0	121	340	725	2030	160	232	136	76.9	118
24	---	---	72.8	125	305	737	2010	181	214	113	60.8	93.3
25	---	---	69.0	122	392	715	1950	180	236	122	52.5	96.7
26	---	---	71.8	144	700	708	1870	162	258	147	56.4	109
27	---	---	71.4	150	1020	693	1840	156	231	104	85.2	53.8
28	---	---	69.7	155	1110	791	1800	146	228	101	70.4	81.8
29	---	---	75.0	151	---	682	1750	170	336	92.3	58.6	58.8
30	---	---	73.3	151	---	1020	1700	166	539	117	62.9	78.3
31	---	---	77.5	141	---	2110	---	214	---	95.3	69.8	---
TOTAL	---	---	2231.9	3905.0	8182	24856	67370	17265	6912	6849.6	3581.1	2412.1

WTR YR 1998 TOTAL 143564.7

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.

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. 31 to Jan. 2, Jan. 9-17, and Feb. 5-7. Records good except those for ice-affected periods, which are poor (see page 12). Flow partly regulated by powerplant at Watertown. 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	137	150	282	180	308	989	2000	1730	362	678	96	129
2	137	173	316	220	333	995	1790	1700	354	668	68	96
3	125	170	321	292	371	1020	1720	1660	351	650	72	105
4	113	173	285	316	385	1030	1720	1600	309	557	77	89
5	106	177	259	371	350	1050	1780	1550	241	417	112	76
6	96	185	235	453	330	1060	1860	1500	222	348	178	65
7	80	194	219	514	330	1070	1960	1570	208	298	371	61
8	106	221	229	514	320	1100	2070	1640	208	329	452	58
9	105	240	229	390	312	1070	2200	1520	205	344	428	57
10	99	241	232	350	303	975	2270	1400	209	345	351	56
11	92	236	230	360	314	877	2290	1330	248	328	319	54
12	91	211	224	350	431	801	2290	1240	323	244	265	52
13	98	219	223	340	533	919	2250	1350	385	196	268	50
14	92	235	231	330	539	933	2250	1230	401	172	218	74
15	104	248	244	330	550	941	2350	1150	368	148	173	90
16	107	236	275	320	670	897	2640	1050	312	100	144	106
17	113	214	269	320	792	877	2600	874	245	92	108	109
18	121	201	270	320	818	951	2400	728	248	102	93	113
19	116	225	247	325	813	1060	2290	582	322	99	109	114
20	123	241	217	317	801	1050	2260	464	376	122	98	90
21	121	237	200	318	793	1000	2290	391	463	233	104	68
22	123	241	211	315	791	979	2300	352	501	288	115	49
23	130	212	212	311	796	986	2260	315	466	318	149	67
24	133	191	210	312	804	984	2220	282	389	291	165	73
25	130	251	200	298	849	975	2140	294	321	251	205	72
26	130	285	202	306	843	975	2090	304	248	231	223	73
27	128	293	178	296	908	989	2000	299	323	205	199	73
28	139	268	115	298	973	996	1910	298	540	171	182	77
29	138	257	188	304	---	1000	1830	343	670	106	165	74
30	139	265	171	301	---	1010	1760	350	663	99	155	81
31	139	---	160	302	---	1800	---	373	---	92	144	---
TOTAL	3611	6690	7084	10273	16360	31359	63790	29469	10481	8522	5806	2351
MEAN	116	223	229	331	584	1012	2126	951	349	275	187	78.4
MAX	139	293	321	514	973	1800	2640	1730	670	678	452	129
MIN	80	150	115	180	303	801	1720	282	205	92	68	49
CFSM	.12	.23	.24	.34	.60	1.04	2.19	.98	.36	.28	.19	.08
IN.	.14	.26	.27	.39	.63	1.20	2.45	1.13	.40	.33	.22	.09

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1998, BY WATER YEAR (WY)

	MEAN	344	416	336	288	354	965	1305	702	425	344	244	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 1997 CALENDAR YEAR FOR 1998 WATER YEAR WATER YEARS 1931 - 1998

ANNUAL TOTAL	223417	195796	
ANNUAL MEAN	612	536	500
HIGHEST ANNUAL MEAN			1186
LOWEST ANNUAL MEAN			64.5
HIGHEST DAILY MEAN	1840	2640	4970
LOWEST DAILY MEAN	80	49	.90
ANNUAL SEVEN-DAY MINIMUM	96	55	1.1
INSTANTANEOUS PEAK FLOW		2880	(b) 5080
INSTANTANEOUS PEAK STAGE		4.88	(c) 6.96
ANNUAL RUNOFF (CFSM)	.63	.55	.52
ANNUAL RUNOFF (INCHES)	8.58	7.52	7.01
10 PERCENT EXCEEDS	1490	1580	1320
50 PERCENT EXCEEDS	351	298	260
90 PERCENT EXCEEDS	148	97	38

(a) Also occurred Sept. 9, 1944

(b) Gage height, 6.19 ft

(c) Backwater from ice

ROCK RIVER BASIN

305

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.

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 periods, Jan. 10-15 and Mar. 8-10. Records good except those for ice-affected periods, which are poor (see page 12). Flow regulated by dam 0.8 mi upstream. 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	33	16	13	16	92	57	331	305	22	217	7.3	9.4
2	19	16	13	17	91	60	379	295	31	209	6.7	6.9
3	19	16	15	17	90	61	372	291	26	198	6.4	6.1
4	20	15	16	20	89	62	371	239	22	191	9.1	6.2
5	20	15	17	21	87	61	362	174	20	171	8.8	5.8
6	18	16	15	22	86	62	361	114	21	165	9.3	5.6
7	18	15	15	24	85	62	347	129	20	161	8.5	5.8
8	17	15	15	27	83	62	354	139	17	158	8.7	5.7
9	20	15	15	53	82	62	366	136	18	157	9.0	5.0
10	17	17	16	45	81	62	353	138	20	91	10	5.0
11	14	16	16	33	81	62	343	137	29	45	9.4	5.0
12	14	15	15	23	81	61	315	129	71	42	9.0	4.5
13	19	13	15	22	61	61	320	146	93	23	9.0	4.5
14	17	14	15	25	47	61	342	92	86	11	10	14
15	15	16	15	140	47	60	334	19	88	11	9.4	6.6
16	15	15	16	116	47	59	373	30	87	11	9.0	6.0
17	15	13	16	114	49	61	367	18	84	10	11	5.8
18	15	13	16	112	50	87	360	17	92	9.7	10	5.9
19	16	13	16	110	50	101	360	20	129	10	9.4	5.6
20	16	13	16	108	52	104	355	19	142	14	9.4	5.8
21	17	13	16	107	53	102	356	15	152	10	9.9	6.3
22	15	13	16	106	55	101	354	15	181	11	9.2	5.6
23	14	14	15	105	51	135	354	16	205	11	11	11
24	15	13	16	103	49	148	342	21	200	8.4	9.7	14
25	15	13	16	102	49	139	327	23	203	8.0	10	13
26	17	13	16	101	52	145	325	21	202	7.7	9.3	14
27	16	13	16	100	55	143	318	20	211	8.8	8.0	15
28	15	13	16	98	55	150	311	25	226	9.0	8.0	13
29	14	13	16	96	---	141	303	23	222	8.2	8.7	13
30	14	14	16	94	---	195	298	18	229	7.9	7.9	17
31	15	---	16	93	---	270	---	43	---	7.4	7.0	---
TOTAL	524	429	481	2170	1850	2997	10353	2827	3149	2002.1	278.1	247.1
MEAN	16.9	14.3	15.5	70.0	66.1	96.7	345	91.2	105	64.6	8.97	8.24
MAX	33	17	17	140	92	270	379	305	229	217	11	17
MIN	14	13	13	16	47	57	298	15	17	7.4	6.4	4.5
CFSM	.11	.09	.10	.45	.42	.62	2.20	.58	.67	.41	.06	.05
IN.	.12	.10	.11	.51	.44	.71	2.45	.67	.75	.47	.07	.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1985 - 1998, BY WATER YEAR (WY)

	MEAN	87.0	114	92.2	82.6	75.2	175	198	101	87.7	97.6	60.9	63.1
MAX	446	351	289	281	182	312	527	449	369	561	249	282	
(WY)	1987	1986	1986	1986	1986	1994	1993	1993	1993	1993	1986	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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1985 - 1998

ANNUAL TOTAL	36233	27307.3	
ANNUAL MEAN	99.3	74.8	103
HIGHEST ANNUAL MEAN			244
LOWEST ANNUAL MEAN			39.0
HIGHEST DAILY MEAN	415	Apr 2	657
LOWEST DAILY MEAN	13	(a) Nov 13	.64
ANNUAL SEVEN-DAY MINIMUM	13	Nov 17	.77
INSTANTANEOUS PEAK FLOW		5.1	Feb 11 1987
INSTANTANEOUS PEAK STAGE		535	Mar 30
ANNUAL RUNOFF (CFSM)	.63	8.60	9.35
ANNUAL RUNOFF (INCHES)	8.59	.48	.66
10 PERCENT EXCEEDS	270	6.47	8.95
50 PERCENT EXCEEDS	71	227	278
90 PERCENT EXCEEDS	15	20	52
		8.8	6.8

(a) Also occurred Nov. 17-22, 24-29, and Dec. 1-2

(b) Gage height, 9.32 ft

ROCK RIVER BASIN
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.

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 WI-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, Nov. 23, 24, Dec. 13, Dec. 27 to Jan. 1, Jan. 9 to Feb. 17, and Mar. 8-15. Records good except those for ice-affected periods, which are poor (see page 12). 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 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	210	157	182	160	280	822	1470	1460	365	1140	168	140
2	188	173	172	161	290	817	1830	1390	382	1160	155	141
3	185	178	205	189	300	802	2140	1350	381	1150	140	129
4	176	178	216	230	320	768	2340	1280	362	1150	151	127
5	156	184	202	313	350	729	2400	1220	332	1080	191	116
6	163	206	178	414	350	685	2390	1180	298	1020	336	120
7	155	198	200	526	340	656	2340	1180	275	958	529	122
8	132	184	186	566	320	580	2320	1220	260	903	620	113
9	119	183	188	370	320	500	2310	1190	253	848	659	103
10	148	199	200	320	310	440	2220	1170	256	786	642	93
11	126	199	200	300	310	420	2140	1120	252	722	585	92
12	102	194	182	290	320	400	2010	1050	333	638	501	96
13	102	173	180	280	350	400	1940	1030	409	563	426	90
14	155	193	186	280	370	410	1940	949	446	495	375	95
15	156	206	188	270	400	410	1920	859	481	426	348	155
16	150	177	193	270	480	411	2110	789	466	389	303	184
17	151	186	188	270	640	422	2190	720	430	347	275	215
18	131	157	182	300	839	484	2290	631	412	296	260	238
19	140	166	195	300	915	655	2360	602	496	252	237	233
20	141	163	197	290	976	821	2350	547	623	249	233	221
21	143	160	175	290	994	884	2340	487	741	301	220	211
22	133	162	190	290	994	911	2290	435	801	323	208	191
23	121	160	197	290	972	945	2200	400	812	342	190	154
24	141	150	187	290	959	954	2110	387	787	318	215	142
25	155	152	193	300	895	919	2010	378	743	288	248	132
26	157	172	185	290	841	901	1920	355	730	252	244	113
27	143	162	180	290	807	896	1820	342	713	236	227	155
28	126	187	170	290	823	919	1710	353	854	202	231	149
29	152	191	160	280	---	870	1620	377	950	190	219	147
30	128	207	160	280	---	887	1530	385	1070	181	187	147
31	147	---	160	280	---	1210	---	393	---	170	161	---
TOTAL	4532	5357	5777	9269	16065	21928	62560	25229	15713	17375	9484	4364
MEAN	146	179	186	299	574	707	2085	814	524	560	306	145
MAX	210	207	216	566	994	1210	2400	1460	1070	1160	659	238
MIN	102	150	160	160	280	400	1470	342	252	170	140	90
CFSM	.19	.23	.24	.39	.75	.93	2.74	1.07	.69	.74	.40	.19
IN.	.22	.26	.28	.45	.78	1.07	3.05	1.23	.77	.85	.46	.21

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1998, BY WATER YEAR (WY)

	MEAN	272	304	252	242	306	1042	992	496	338	290	243
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 1997	CALENDAR YEAR	FOR 1998	WATER YEAR	WATER YEARS 1931 - 1998
ANNUAL TOTAL	188043		197653		
ANNUAL MEAN	515		542		416
HIGHEST ANNUAL MEAN					1117
LOWEST ANNUAL MEAN					61.8
HIGHEST DAILY MEAN	(a) 1700	Mar 13	2400	Apr 5	6130
LOWEST DAILY MEAN	102	Oct 12, 13	90	Sep 13	.30
ANNUAL SEVEN-DAY MINIMUM	126	Oct 7	97	Sep 8	1.5
INSTANTANEOUS PEAK FLOW			2410	Apr 5	6140
INSTANTANEOUS PEAK STAGE			6.57	Apr 5	11.15
ANNUAL RUNOFF (CFSM)	.68		.71		.55
ANNUAL RUNOFF (INCHES)	9.18		9.65		7.42
10 PERCENT EXCEEDS	1290		1210		1090
50 PERCENT EXCEEDS	330		300		190
90 PERCENT EXCEEDS	160		148		38

(a) Ice affected

ROCK RIVER BASIN

307

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, Jan. 1, 2, 9-20, and Mar. 10-17. Records good except those for ice-affected periods, which are fair (see page 12). 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	58	45	58	56	76	143	226	116	104	83	40	47
2	59	43	60	60	80	140	229	122	102	92	38	57
3	58	43	65	68	83	134	256	127	98	95	37	36
4	55	43	68	75	87	128	276	140	96	108	36	37
5	50	46	68	91	86	120	268	152	93	111	43	41
6	46	53	71	104	86	109	254	143	88	104	74	40
7	44	53	73	116	83	107	246	149	85	99	119	39
8	44	55	73	111	83	114	252	167	80	91	117	32
9	43	58	73	110	79	112	243	167	66	72	117	27
10	40	58	73	100	79	96	226	167	64	69	117	27
11	41	58	70	96	89	94	215	169	96	67	115	28
12	41	56	70	90	111	94	210	182	104	67	122	28
13	40	56	68	86	118	92	196	181	81	64	105	29
14	35	55	64	84	121	92	189	156	75	56	103	34
15	35	55	62	80	125	90	186	152	75	53	91	41
16	37	54	62	80	134	96	197	143	75	51	84	42
17	37	52	62	80	168	100	200	122	75	49	72	62
18	37	54	63	78	159	116	202	108	78	49	49	67
19	37	52	63	78	152	122	202	88	89	49	49	59
20	37	52	62	78	152	125	203	85	91	48	49	55
21	37	52	61	79	152	125	202	99	87	27	46	52
22	38	51	61	78	152	119	203	96	82	20	46	46
23	39	48	61	78	148	116	200	89	81	20	46	45
24	41	46	62	78	141	112	193	86	81	21	46	46
25	41	46	63	76	138	112	190	86	81	28	52	46
26	43	46	64	78	138	110	186	80	84	34	53	45
27	46	47	60	76	138	108	174	65	72	37	53	45
28	47	50	60	76	140	108	159	73	74	40	53	42
29	46	51	61	76	---	113	137	98	82	43	53	41
30	47	56	61	76	---	114	107	98	80	45	49	37
31	45	---	56	76	---	200	---	106	---	42	47	---
TOTAL	1344	1534	1998	2568	3298	3561	6227	3812	2519	1834	2121	1273
MEAN	43.4	51.1	64.5	82.8	118	115	208	123	84.0	59.2	68.4	42.4
MAX	59	58	73	116	168	200	276	182	104	111	122	67
MIN	35	43	56	56	76	90	107	65	64	20	36	27
CFSM	.36	.42	.53	.68	.97	.94	1.70	1.01	.69	.48	.56	.35
IN.	.41	.47	.61	.78	1.01	1.09	1.90	1.16	.77	.56	.65	.39

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1998, BY WATER YEAR (WY)

	MEAN	71.5	94.9	83.6	69.3	81.1	131	150	102	72.1	64.8	66.3	69.7
MAX	214	214	138	105	118	248	327	180	200	176	127	212	
(WY)	1987	1986	1986	1985	1985	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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1980 - 1998

ANNUAL TOTAL	34203	32089	
ANNUAL MEAN	93.7	87.9	88.7
HIGHEST ANNUAL MEAN			139
LOWEST ANNUAL MEAN			52.9
HIGHEST DAILY MEAN	226	Feb 23	459
LOWEST DAILY MEAN	34	Jun 15	3.6
ANNUAL SEVEN-DAY MINIMUM	36	Oct 14	3.8
INSTANTANEOUS PEAK FLOW		276	476
INSTANTANEOUS PEAK STAGE		1.84	2.56
ANNUAL RUNOFF (CFSM)	.77	.72	.73
ANNUAL RUNOFF (INCHES)	10.43	9.78	9.87
10 PERCENT EXCEEDS	166	159	159
50 PERCENT EXCEEDS	78	76	76
90 PERCENT EXCEEDS	46	41	32

ROCK RIVER BASIN

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 (see page 12). Lake level regulated by dam at Indianford. Gage-height tele-meter 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, 9.77 ft, Apr. 23; minimum recorded, 5.57 ft, Oct. 30.

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	6.13	5.74	5.77	5.60	5.73	7.26	7.88	9.11	6.49	6.97	6.05	6.10
2	6.10	5.76	5.73	5.59	5.74	7.28	8.20	9.01	6.47	7.05	6.06	6.13
3	6.09	5.78	5.75	5.61	5.76	7.29	8.47	8.96	6.41	7.14	6.06	6.13
4	6.08	5.78	5.81	5.67	5.78	7.27	8.68	8.87	6.34	7.26	6.09	6.14
5	6.06	5.78	5.84	5.79	5.82	7.24	8.83	8.77	6.28	7.25	6.28	6.15
6	6.04	5.82	5.81	5.90	5.84	7.23	8.95	8.69	6.24	7.23	6.50	6.16
7	6.01	5.75	5.80	6.02	5.86	7.19	9.04	8.65	6.19	7.20	6.62	6.17
8	5.97	5.69	5.79	6.14	5.87	7.19	9.17	8.65	6.12	7.15	6.72	6.14
9	5.99	5.65	5.79	6.26	5.87	7.25	9.26	8.60	6.09	7.09	6.82	6.10
10	5.94	5.63	5.80	6.28	5.86	7.13	9.30	8.56	6.11	7.00	6.91	6.10
11	5.90	5.64	5.79	6.29	5.88	7.05	9.34	8.50	6.23	6.92	6.92	6.10
12	5.86	5.65	5.77	6.30	5.96	7.01	9.35	8.43	6.37	6.83	6.88	6.09
13	5.91	5.66	5.75	6.30	6.03	6.96	9.38	8.41	6.42	6.72	6.82	6.09
14	5.94	5.69	5.71	6.29	6.16	6.92	9.43	8.30	6.45	6.61	6.75	6.14
15	5.90	5.73	5.70	6.27	6.27	6.88	9.42	8.19	6.47	6.49	6.68	6.24
16	5.93	5.75	5.70	6.23	6.38	6.84	9.48	8.13	6.45	6.38	6.56	6.19
17	5.96	5.74	5.71	6.18	6.52	6.81	9.52	8.00	6.39	6.25	6.45	6.17
18	6.00	5.75	5.71	6.14	6.66	6.83	9.59	7.86	6.34	6.17	6.32	6.16
19	6.04	5.77	5.72	6.09	6.80	6.88	9.65	7.73	6.40	6.12	6.20	6.19
20	6.07	5.80	5.72	6.05	6.92	6.98	9.68	7.54	6.43	6.05	6.14	6.24
21	6.10	5.82	5.71	6.01	7.02	7.05	9.73	7.34	6.50	6.08	6.13	6.27
22	6.04	5.81	5.70	5.97	7.11	7.11	9.73	7.13	6.54	6.05	6.12	6.27
23	6.00	5.79	5.70	5.94	7.16	7.18	9.72	6.96	6.57	6.06	6.12	6.24
24	5.99	5.75	5.70	5.91	7.22	7.22	9.69	6.85	6.58	6.03	6.12	6.25
25	5.91	5.73	5.70	5.87	7.22	7.24	9.63	6.75	6.58	5.99	6.15	6.25
26	5.87	5.72	5.69	5.84	7.20	7.29	9.58	6.64	6.57	5.97	6.14	6.27
27	5.80	5.70	5.67	5.80	7.22	7.32	9.48	6.54	6.57	5.94	6.13	6.29
28	5.72	5.72	5.66	5.78	7.24	7.36	9.38	6.50	6.68	5.95	6.16	6.27
29	5.68	5.73	5.65	5.76	---	7.32	9.29	6.56	6.76	6.00	6.18	6.27
30	5.66	5.79	5.63	5.74	---	7.36	9.20	6.52	6.89	6.03	6.16	6.29
31	5.68	---	5.62	5.73	---	7.58	---	6.57	---	6.04	6.12	---
MEAN	5.95	5.74	5.73	5.98	6.40	7.15	9.27	7.85	6.43	6.52	6.37	6.19
MAX	6.13	5.82	5.84	6.30	7.24	7.58	9.73	9.11	6.89	7.26	6.92	6.29
MIN	5.66	5.63	5.62	5.59	5.73	6.81	7.88	6.50	6.09	5.94	6.05	6.09

ROCK RIVER BASIN

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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.

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 12). 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 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	724	372	833	636	905	2580	3030	4610	1770	2240	309	544
2	610	375	765	632	911	2570	3450	4470	1770	2300	311	358
3	625	423	744	671	989	2510	3930	4450	1750	2420	348	385
4	612	436	748	739	1010	2470	4180	4350	1690	2630	353	399
5	551	483	747	778	1040	2450	4400	4250	1580	2600	563	380
6	605	839	747	928	1040	2360	4620	4130	1390	2570	1410	413
7	578	883	769	1240	1050	2450	4840	4030	1350	2550	1880	441
8	518	783	774	1300	1060	2660	5160	4020	1220	2430	1880	428
9	453	757	785	913	1050	2680	5360	3990	1140	2360	2010	380
10	550	713	806	1080	1060	2180	5140	3910	890	2320	2100	321
11	516	528	784	1240	1100	2150	5110	3820	822	2190	2160	315
12	457	470	706	1280	1140	2100	5050	4010	1120	2070	2120	350
13	181	503	716	1260	1230	2010	5080	4110	1410	1960	2050	351
14	357	533	715	1230	1360	2050	5200	4000	1510	1840	1930	388
15	654	568	699	1220	1470	2050	5410	3810	1680	1640	1910	688
16	202	485	719	1200	1650	1980	5420	3580	1720	1580	1760	830
17	222	503	725	1180	1810	1970	5350	3550	1650	1320	1630	801
18	220	512	723	1150	1920	2000	5420	3370	1540	1150	1600	535
19	248	385	735	1130	2080	2060	5550	3310	1440	1040	1290	430
20	288	493	733	1150	2240	2200	5570	3030	1560	1010	852	440
21	515	623	744	1170	2370	2210	5670	2840	1600	983	759	494
22	622	740	739	1120	2480	2250	5660	2640	1710	1010	738	501
23	614	728	723	1070	2520	2340	5660	2470	1790	997	659	466
24	828	712	749	1050	2490	2380	5670	2270	1760	996	712	450
25	946	712	722	1020	2570	2360	5660	2120	1680	991	754	449
26	1010	696	705	999	2580	2190	5760	2010	1800	945	765	362
27	756	682	712	965	2470	2240	5500	1890	1780	774	743	477
28	681	722	696	956	2540	2370	5290	1780	1890	334	750	495
29	700	745	698	953	---	2350	5130	1860	1960	275	748	467
30	469	832	681	929	---	2470	4930	1900	2100	313	764	485
31	375	---	664	900	---	2850	---	1830	---	326	752	---
TOTAL	16687	18236	22806	32089	46135	71490	152200	102410	47072	48164	36610	13823
MEAN	538	608	736	1035	1648	2306	5073	3304	1569	1554	1181	461
MAX	1010	883	833	1300	2580	2850	5760	4610	2100	2630	2160	830
MIN	181	372	664	632	905	1970	3030	1780	822	275	309	315
CFSM	.20	.23	.28	.39	.63	.88	1.93	1.26	.60	.59	.45	.18
IN.	.24	.26	.32	.45	.65	1.01	2.15	1.45	.67	.68	.52	.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 1998, 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
MEAN	1434	1687	1632	1154	1300	2990	3856	2414	1528	1419	1047	1119												
MAX	7729	5047	3745	2622	2403	6113	9466	6028	4866	4549	3377	3911												
(WY)	1987	1986	1986	1985	1988	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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1975 - 1998

ANNUAL TOTAL	647183	607722	
ANNUAL MEAN	1773	1665	1801
HIGHEST ANNUAL MEAN			3252
LOWEST ANNUAL MEAN			509
HIGHEST DAILY MEAN	4990	5760	11700
LOWEST DAILY MEAN	181	181	39
ANNUAL SEVEN-DAY MINIMUM	298	298	85
INSTANTANEOUS PEAK FLOW		5990	11900
INSTANTANEOUS PEAK STAGE		14.15	(a)16.23
ANNUAL RUNOFF (CFSM)	.67	.63	.68
ANNUAL RUNOFF (INCHES)	9.15	8.60	9.30
10 PERCENT EXCEEDS	3850	4010	3820
50 PERCENT EXCEEDS	1290	1120	1300
90 PERCENT EXCEEDS	558	441	362

(a) Datum then in use

ROCK RIVER BASIN
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: July 20, 21, and ice-affected periods, Dec. 27 to Jan. 1, Jan. 9-19, 22, Feb. 6, and Mar. 9-16. Records fair except those for estimated periods, which are poor (see page 12). 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	11	15	14	12	13	18	109	25	26	32	15	18
2	11	14	14	13	14	17	57	28	24	28	15	18
3	12	14	14	16	13	16	41	59	24	33	15	18
4	11	13	14	17	13	16	34	38	23	33	34	17
5	11	13	14	22	13	15	29	28	23	27	84	17
6	11	14	13	23	12	15	27	27	23	25	45	17
7	11	14	13	19	12	15	26	34	23	25	27	17
8	11	14	13	16	12	15	35	37	23	24	21	17
9	11	14	13	15	12	13	39	28	23	23	19	17
10	11	14	13	14	12	12	32	26	25	22	18	17
11	11	13	13	13	14	12	28	25	34	21	18	17
12	11	13	13	12	16	12	26	24	41	21	17	17
13	14	13	13	12	16	12	27	24	29	21	17	17
14	13	13	13	13	15	12	38	23	26	20	18	38
15	12	13	13	13	17	13	65	23	25	20	21	51
16	12	13	13	13	24	13	91	26	24	18	18	26
17	12	13	13	13	39	15	52	23	24	18	19	22
18	12	13	13	14	30	29	37	23	85	17	19	21
19	12	13	13	14	23	33	31	23	134	18	18	20
20	12	13	14	14	20	25	28	23	43	28	17	19
21	13	13	13	14	18	25	33	22	45	32	18	19
22	13	13	13	13	18	24	31	22	34	20	21	19
23	12	13	13	13	17	23	28	22	29	18	18	19
24	12	13	13	13	17	21	26	25	31	17	18	19
25	12	13	13	13	16	22	26	25	29	16	30	20
26	12	13	13	13	17	22	27	23	27	16	20	19
27	12	13	12	13	23	21	26	22	67	16	19	19
28	13	13	12	13	20	20	25	32	200	16	19	19
29	13	14	11	13	---	19	25	27	65	16	19	19
30	13	14	11	13	---	69	25	23	39	15	18	19
31	13	---	11	13	---	286	---	29	---	15	18	---
TOTAL	370	401	401	442	486	880	1124	839	1268	671	693	612
MEAN	11.9	13.4	12.9	14.3	17.4	28.4	37.5	27.1	42.3	21.6	22.4	20.4
MAX	14	15	14	23	39	286	109	59	200	33	84	51
MIN	11	13	11	12	12	12	25	22	23	15	15	17
CFSM	.16	.18	.18	.19	.24	.39	.51	.37	.57	.29	.30	.28
IN.	.19	.20	.20	.22	.25	.44	.57	.42	.64	.34	.35	.31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1998, 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
MEAN	15.9	17.1	15.1	16.6	26.4	43.1	24.4	19.3	22.9	22.7	18.2	18.6											
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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1976 - 1998
ANNUAL TOTAL	8957	8187	
ANNUAL MEAN	24.5	22.4	21.3
HIGHEST ANNUAL MEAN			39.1
LOWEST ANNUAL MEAN			10.9
HIGHEST DAILY MEAN	325	286	519
LOWEST DAILY MEAN	11	11	11
ANNUAL SEVEN-DAY MINIMUM	11	11	11
INSTANTANEOUS PEAK FLOW		413	2050
INSTANTANEOUS PEAK STAGE		5.37	6.58
INSTANTANEOUS LOW FLOW		(c)6.1	(c)2.9
ANNUAL RUNOFF (CFSM)	.33	.30	.29
ANNUAL RUNOFF (INCHES)	4.53	4.14	3.93
10 PERCENT EXCEEDS	32	33	32
50 PERCENT EXCEEDS	17	18	16
90 PERCENT EXCEEDS	12	12	8.5

- (a) Also occurred Oct. 4-12, and Dec. 29-31, ice affected
(b) Ice affected
(c) 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.

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, 2,370 mg/L, June 18; minimum observed, 5 mg/L, Aug. 11.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 341 tons, Mar. 31; minimum daily, 0.23 ton, Aug. 12, 13.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 2.12 mg/L, June 18; minimum observed, <0.01 mg/L, Oct. 29.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 1,670 lb, Mar. 31; minimum daily, 0.70 lb, Nov. 13-15.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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 1997					
*02...	1600	11	.048	--	19
29...	1530	23	<.010	--	153
NOV					
*20...	0940	13	<.010	--	19
DEC					
*18...	1615	13	.020	--	8
FEB 1998					
* 10...	1455	12	.036	--	23
17...	1110	40	.451	--	64
17...	1945	37	.279	--	34
18...	1145	30	.387	--	59
19...	1400	22	.173	--	27
27...	1545	25	.068	--	36
MAR					
18...	0800	25	.117	--	35
18...	1315	33	.133	--	44
18...	2115	37	.211	--	50
19...	0515	36	.233	--	47
19...	2115	29	.177	--	23
20...	1315	24	.149	--	16
23...	1545	23	.253	--	13
26...	0300	23	.122	--	23
30...	1730	51	--	--	1270
30...	1815	73	2.05	--	1320
30...	1915	100	1.48	.196	1120
30...	2000	134	1.72	--	1210
30...	2030	190	--	--	850
30...	2115	243	1.87	.507	1010
30...	2215	303	1.69	--	939
30...	2300	352	1.75	--	781
31...	0030	401	1.63	.455	793
31...	0745	317	.860	.542	458
31...	1245	259	1.09	--	284
31...	2330	181	.809	.427	246

* Equal-width increment (EWI) sample

ROCK RIVER BASIN
05427718 YAHARA RIVER AT WINDSOR, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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)
APR 1998					
01...	0859	113	.682	--	194
*01...	0903	113	.683	--	200
02...	1115	58	.450	--	--
04...	1115	33	.254	--	--
*07...	1030	26	.146	--	29
08...	0830	38	.500	--	140
13...	2345	35	.200	.198	47
14...	0230	43	.266	.093	126
14...	1830	32	.551	--	24
15...	1000	39	.215	.096	66
15...	1200	56	.325	.131	87
15...	1445	89	.476	.210	187
15...	1600	102	--	--	107
15...	2400	93	.517	.184	112
16...	0800	90	.205	--	133
*16...	1250	93	.462	.157	87
16...	1253	93	.440	--	123
16...	2200	88	.157	--	63
18...	0115	40	.088	--	35
20...	1016	29	.239	--	12
21...	0845	36	.097	--	21
MAY					
02...	2245	40	.188	--	59
03...	0100	58	.337	--	160
03...	0330	75	.415	--	176
03...	1100	62	.316	--	139
04...	0300	46	.244	--	40
04...	1900	31	.137	--	27
07...	1430	34	.142	--	35
07...	1715	42	.176	--	52
08...	0115	46	.273	--	74
08...	0915	37	.240	--	50
09...	0115	30	.219	--	48
14...	1215	24	.147	.030	45
18...	0845	23	.105	--	28
24...	1915	32	.223	--	79
28...	1045	39	.639	--	321
28...	1123	40	.797	--	424
28...	1125	40	.816	--	366
28...	1245	49	.860	.110	474
28...	1630	37	.475	--	208
*29...	1454	26	.162	--	33
31...	0800	31	.547	.110	363
31...	1600	28	.503	--	250
JUN					
01...	1440	26	.152	--	34
11...	1345	28	.125	--	42
11...	1830	44	.379	--	129
11...	2015	52	.480	--	231
11...	2115	62	.415	--	202
12...	0245	49	.292	--	83
12...	1845	35	.259	--	49
13...	1845	28	.147	--	42
16...	1225	24	.133	--	37
18...	1415	35	.347	--	113
18...	1530	44	--	--	451
18...	1600	55	.646	.186	366
18...	1645	78	1.34	--	916
18...	1800	106	.895	--	529
18...	1915	154	.952	.190	582
18...	2000	208	2.12	.313	1280
18...	2115	281	1.25	--	1960
18...	2200	321	.258	.200	2370
19...	0215	258	1.10	--	461
19...	0630	174	.782	.326	273
19...	0824	144	.771	--	249
*19...	0825	143	.741	--	299
19...	1530	86	.540	--	153
20...	0815	44	.296	--	104
21...	0015	36	.285	--	135
21...	0245	44	.385	--	179
21...	1045	50	.289	--	71
21...	1845	45	.250	--	129
24...	0300	28	.184	--	47
24...	1100	35	.133	--	67
26...	1100	27	.206	--	36

* Equal-width increment (EWI) sample

ROCK RIVER BASIN
05427718 YAHARA RIVER AT WINDSOR, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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- PENDEED (MG/L) (80154)
JUN 1998					
27...	0445	39	.254	--	103
27...	0615	57	1.33	--	746
27...	0730	79	1.11	--	1150
27...	0900	103	1.68	<.010	1270
27...	1300	87	.564	--	239
27...	2230	58	.541	--	213
27...	2400	89	.545	.175	232
28...	0130	138	1.41	--	1920
28...	0230	189	1.88	.049	1720
28...	0345	244	1.80	--	1030
28...	0445	286	1.83	.226	1150
28...	0831	278	.853	--	327
*28...	0832	278	.824	--	313
28...	2330	102	.622	--	130
30...	1500	39	.280	--	57
JUL					
02...	0700	29	.214	--	68
03...	1630	36	.326	--	100
03...	2130	45	.573	--	201
04...	1330	32	.272	--	57
09...	1615	23	.246	--	75
*15...	0820	21	.070	.042	27
*17...	0818	18	.064	--	29
21...	1702	23	.162	--	39
AUG					
04...	0945	25	.216	--	59
04...	1345	41	.249	.072	96
04...	1930	50	.285	--	124
04...	2315	71	.587	.229	193
05...	0130	93	.711	.312	212
05...	0230	108	--	--	266
05...	0315	122	.953	.227	283
05...	0800	100	.556	--	121
05...	1445	69	.538	.298	92
06...	0645	50	.382	--	80
06...	2245	38	.344	--	57
07...	1445	25	--	--	38
11...	1156	17	.106	--	5
17...	1700	24	.108	--	27
21...	2245	23	.392	--	543
24...	2230	20	.164	--	43
24...	2330	27	.230	--	57
25...	0300	36	.291	--	81
25...	0345	44	.358	--	738
25...	0930	28	.272	--	320
26...	0130	21	.177	--	41
27...	0815	18	.117	.051	33
*31...	1507	18	.051	--	11
SEP					
14...	0715	18	.156	--	47
14...	1230	25	.147	--	25
14...	1530	40	.226	--	63
14...	1715	52	.309	--	76
14...	1800	60	.415	--	106
14...	1915	73	--	--	168
14...	2100	84	.337	--	172
15...	0230	69	.472	--	144
15...	1430	44	.470	--	41
16...	0808	27	.218	--	39
23...	1245	19	.054	.033	10
30...	1915	22	.107	--	24

* Equal-width increment (EWI) sample

ROCK RIVER BASIN
05427718 YAHARA RIVER AT WINDSOR, WI-CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

		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)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML) (31673)	
MAY 1998	14...	1215	26	748	8.2	17.5	2.4	11.2	744	<10	600	--
JUL	15...	0820	25	758	8.0	20.0	4.4	8.8	738	<10	1800	--
AUG	27...	0815	17	754	8.0	17.5	4.4	8.7	748	<10	1900	2200
SEP	23...	1245	18	760	8.2	14.0	1.6	12.9	750	<10	570	--
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)	
MAY 1998	14...	298	--	--	--	--	28	39	<.10	--	--	.096
JUL	15...	301	--	--	--	--	25	39	<.10	--	--	.031
AUG	27...	304	78	46	16	2.0	24	41	.12	15	444	.030
SEP	23...	307	--	--	--	--	25	40	<.10	--	--	.021
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)	
MAY 1998	14...	5.94	.032	.38	.147	.035	.030	--	--	--	--	--
JUL	15...	6.86	.021	.36	.070	.033	.042	--	--	--	--	--
AUG	27...	7.38	.055	.26	.117	.050	.051	2	40	<1	1	<1
SEP	23...	8.20	.025	.31	.054	.041	.033	--	--	--	--	--
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)		
MAY 1998	14...	--	--	--	--	--	--	--	--	--	45	
JUL	15...	--	--	--	--	--	--	--	--	--	27	
AUG	27...	2	420	<10	<1	80	46	<.10	1	<10	33	
SEP	23...	--	--	--	--	--	--	--	--	--	10	
		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 1998										
		27...		0630	754	7.9	17.5	7.8				
		27...		0700	754	7.9	17.0	8.1				
		27...		0730	755	8.0	17.0	8.3				
		27...		0800	754	8.0	17.5	8.7				
		27...		0815	754	8.0	17.5	8.7				
		27...		0830	754	8.0	17.5	8.7				
		27...		0900	754	8.0	17.5	9.1				
		27...		0930	753	8.0	18.0	9.6				
		27...		1000	753	8.1	18.0	9.7				

05427718 YAHARA RIVER AT WINDSOR, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

PESTICIDE ANALYSES

		DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	ACETO- CHLOR, WATER, UNFLTRD REC (UG/L) (49259)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	ALA- CHLOR (ELISA) WAT FLT 0.7 U GF, REC (UG/L) (82695)	ATRA- ZINE WATER UNFLTRD REC (UG/L) (39630)	CYAN- AZINE TOTAL (UG/L) (81757)
OCT 1997								
20...	1340	12	7.58	<.10	<.150	6.4	<.150	<.500
NOV								
19...	1245	13	8.14	<.10	<.150	5.3	<.150	<.500
APR 1998								
14...	0922	42	4.53	<.10	<.150	4.9	<.150	<.500
27...	0852	26	6.13	<.10	<.150	7.9	<.150	<.500
MAY								
04...	0850	41	5.29	<.10	<.150	5.4	<.150	<.500
11...	0904	25	6.07	<.10	<.150	6.0	<.150	<.500
18...	0846	23	6.67	<.10	<.150	5.8	<.150	<.500
26...	0849	23	6.77	<.10	<.150	6.6	<.150	<.500
31...	1048	37	4.25	7.0	.242	6.2	.214	12.9
JUN								
09...	1258	23	7.44	<.10	<.150	5.6	<.150	<.500
12...	1000	41	7.53	.67	<.150	8.3	.534	2.20
16...	0745	24	6.93	<.10	<.150	6.3	<.150	<.500
19...	0945	127	4.97	4.6	.212	16	.188	2.26
23...	0738	30	6.09	.21	<.150	7.8	<.150	<.500
28...	0858	249	1.75	.22	<.150	4.4	<.150	2.46
JUL								
07...	0835	24	7.02	<.10	<.150	7.3	<.150	<.500
13...	0907	21	.645	<.10	<.150	3.3	<.150	<.500
DATE	DEETHYL ATRA- ZINE, WATER, WHOLE, TOTAL (UG/L) (75981)	DEETHYL DE-ISO PROPYL ATRAZIN WAT, WH TOTAL (UG/L) (75979)	DE-ISO PROPYL ATRAZIN WATER, WHOLE, TOTAL (UG/L) (75980)	DICAMBA TOTAL (UG/L) (82052)	MCP PP WATER WHOLE RECOVER (UG/L) (30193)	METOLA- CHLOR WATER WHOLE TOT.REC (UG/L) (82612)	METRI- BUZIN WATER WHOLE TOT.REC (UG/L) (82611)	2,4-D, TOTAL (UG/L) (39730)
OCT 1997								
20...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
NOV								
19...	.362	1	<.300	<.050	<.20	<.250	<.050	<.200
APR 1998								
14...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
27...	<.300	1	<.300	--	--	<.250	<.050	--
MAY								
04...	<.300	<1	<.300	<.050	<.20	<.250	<.050	.222
11...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
18...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
26...	<.300	<1	<.300	<.200	<1.0	<.250	<.050	<1.00
31...	<.300	<1	.426	4.14	<1.0	1.78	<.050	<1.00
JUN								
09...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
12...	<.300	<1	<.300	<.050	<.20	1.79	<.050	<.200
16...	<.300	<1	<.300	.101	<.20	<.250	<.050	<.200
19...	<.300	<1	<.300	.095	<.20	2.22	<.050	<.200
23...	<.300	<1	<.300	<.050	<.20	.273	<.050	<.200
28...	<.300	<1	.688	<.050	<.20	1.79	<.050	<.200
JUL								
07...	<.300	1	<.300	<.050	<.20	<.250	<.050	<.200
13...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200

		DIS-		PH				BARO-	OXYGEN	COLI-	ANC
		CHARGE,	SPE-	WATER				METRIC	DEMAND,	FORM,	UNFLTRD
		INST.	CIFIC	WHOLE				PRES-	CHEM-	FECAL,	TIT 4.5
		CUBIC	CON-	FIELD	TEMPER-	TUR-	OXYGEN,	SURE	ICAL	0.7	LAB
		FEET	DUCT-	(STAND-	ATURE	BID-	DIS-	(MM	(HIGH	UM-MF	(MG/L
		PER	ANCE	ARD	WATER	ITY	SOLVED	OF	LEVEL)	(COLS-	AS
		SECOND	(US/CM	UNITS)	(DEG C)	(NTU)	(MG/L)	(HG)	(MG/L)	100 ML)	CAC03)
		(00061)	(00095)	(00400)	(00010)	(00076)	(00300)	(00025)	(00340)	(31625)	(90410)

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)	SED- MENT, SUS- PENDED (MG/L) (80154)
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SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

DAILY MEAN VALUES

[illegible]

ROCK RIVER BASIN

05427943 PHEASANT BRANCH AT AIRPORT ROAD NEAR MIDDLETON, WI

LOCATION.--Lat 43°06'41", long 89°34'18", in SE 1/4 NW 1/4 sec.3, T.7 N., R.8 E., Dane County, Hydrologic Unit 07090001, on left bank 30 ft upstream from culvert on Airport Road at west edge of Morey Airport 1.7 mi west of Middleton.

DRAINAGE AREA.--9.62 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1977 to September 1981, October 1997 to September 1998.

GAGE.--Water-stage recorder. Elevation of gage is 915 ft, from topographic map.

REMARKS.--Estimated daily discharges: Jan. 10 to Feb. 11, Apr. 9-14, June 18, 19, 28, Aug. 5-19, and Sept. 22-30. Records good except those for estimated daily discharges, which are poor (see page 12).

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	.77	.59	.61	.59	.70	1.9	10	1.6	1.7	2.2	1.2	1.2
2	.79	.58	.60	.70	.90	1.7	4.4	3.1	1.6	1.9	1.2	1.2
3	.79	.56	.62	1.1	.80	1.7	2.8	8.5	1.6	4.0	1.2	1.2
4	.78	.56	.63	.97	.70	1.6	2.1	3.0	1.6	3.5	2.5	1.2
5	.79	.59	.59	1.5	.66	1.5	1.9	2.3	1.6	2.1	5.0	1.2
6	.80	.69	.58	1.7	.62	1.5	1.7	2.0	1.6	1.9	3.0	1.2
7	.77	.69	.58	1.3	.60	1.5	1.6	4.9	1.6	5.2	2.0	1.2
8	.75	.68	.58	1.2	.58	1.4	3.7	4.8	1.6	2.6	1.7	1.1
9	.74	.68	.58	1.1	.58	1.0	6.0	2.5	1.6	2.1	1.5	1.1
10	.74	.66	.58	.92	.70	1.4	3.6	2.1	1.6	1.9	1.4	1.1
11	.75	.62	.58	.80	1.0	1.3	2.5	1.9	3.4	1.7	1.3	1.1
12	.75	.60	.59	.70	1.7	1.2	1.8	1.8	3.2	1.6	1.3	1.1
13	.90	.60	.59	.66	1.8	1.1	3.2	1.7	2.3	1.6	1.3	1.1
14	.78	.59	.58	.64	1.8	1.1	5.0	1.6	2.0	1.5	1.4	4.3
15	.72	.59	.62	.62	2.4	1.1	7.8	1.6	1.9	1.5	1.5	4.3
16	.69	.60	.67	.62	3.4	1.1	8.2	1.6	1.8	1.5	1.4	1.7
17	.75	.57	.68	.62	4.5	1.1	3.7	1.6	1.8	1.6	1.5	1.4
18	.78	.57	.67	.62	3.3	2.2	2.5	1.5	17	1.5	1.4	1.3
19	.76	.57	.68	.60	2.6	2.5	2.1	1.5	14	1.8	1.4	1.3
20	.73	.56	.70	.60	2.2	2.3	1.9	1.5	4.0	1.6	1.4	1.2
21	.70	.56	.70	.60	2.0	2.5	3.0	1.5	5.9	1.6	1.3	1.2
22	.65	.56	.70	.60	1.9	2.6	2.2	1.5	2.7	1.5	1.4	1.1
23	.62	.55	.68	.58	1.8	2.5	1.9	1.5	2.2	1.4	1.5	1.1
24	.62	.53	.67	.58	1.7	2.3	1.7	2.4	2.5	1.3	1.4	1.4
25	.62	.52	.64	.58	1.7	2.3	1.6	2.0	2.2	1.3	1.4	1.2
26	.61	.56	.63	.58	1.6	2.5	1.9	1.7	2.0	1.3	1.3	1.2
27	.61	.57	.60	.58	2.6	1.7	1.7	1.6	3.1	1.3	1.2	1.1
28	.61	.57	.59	.56	2.2	1.4	1.6	1.7	25	1.3	1.4	1.1
29	.61	.59	.59	.56	---	1.4	1.6	1.7	3.5	1.3	1.4	1.1
30	.55	.63	.59	.56	---	16	1.6	1.6	2.7	1.2	1.3	1.6
31	.58	---	.55	.56	---	67	---	2.3	---	1.2	1.3	---
TOTAL	22.11	17.79	19.25	23.90	47.04	132.4	95.3	70.6	119.3	58.0	49.5	42.6
MEAN	.71	.59	.62	.77	1.68	4.27	3.18	2.28	3.98	1.87	1.60	1.42
MAX	.90	.69	.70	1.7	4.5	67	10	8.5	25	5.2	5.0	4.3
MIN	.55	.52	.55	.56	.58	1.0	1.6	1.5	1.6	1.2	1.2	1.1
CFSM	.07	.06	.06	.08	.17	.44	.33	.24	.41	.19	.17	.15
IN.	.09	.07	.07	.09	.18	.51	.37	.27	.46	.22	.19	.16

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1998, BY WATER YEAR (WY)

	MEAN	.85	.80	.78	1.00	2.05	3.07	1.92	1.37	2.91	2.22	1.98	2.84
MAX	1.37	1.25	1.17	2.74	5.51	5.28	3.18	2.28	7.50	6.70	3.76	5.97	
(WY)	1981	1979	1980	1980	1981	1979	1998	1998	1978	1978	1981	1981	
MIN	.53	.42	.57	.28	.25	1.05	1.28	.74	.90	.46	.62	.43	
(WY)	1978	1978	1978	1978	1978	1981	1978	1980	1981	1980	1978	1977	

SUMMARY STATISTICS

FOR 1998 WATER YEAR

WATER YEARS 1977 - 1998

ANNUAL TOTAL	697.79		
ANNUAL MEAN	1.91	1.85	
HIGHEST ANNUAL MEAN		2.01	1978
LOWEST ANNUAL MEAN		1.56	1979
HIGHEST DAILY MEAN	67	151	Jul 1 1978
LOWEST DAILY MEAN	.52	(a) .20	Jan 27 1978
ANNUAL SEVEN-DAY MINIMUM	.55	(a) .22	Jan 26 1978
INSTANTANEOUS PEAK FLOW	210	414	Sep 1 1981
INSTANTANEOUS PEAK STAGE	6.38	8.88	Sep 1 1981
INSTANTANEOUS LOW FLOW	.50	(b) .22	Jul 20 1980
ANNUAL RUNOFF (CFSM)	.20	.19	
ANNUAL RUNOFF (INCHES)	2.70	2.61	
10 PERCENT EXCEEDS	3.0	2.2	
50 PERCENT EXCEEDS	1.3	.85	
90 PERCENT EXCEEDS	.59	.43	

(a) Ice affected

(b) Minimum recorded flow during open-water conditions, but probably was less during period of ice affect

ROCK RIVER BASIN
05427943 PHEASANT BRANCH AT AIRPORT ROAD NEAR MIDDLETON, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June to September 1977, water years 1978 to 1981, November 1997 to September 1998.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: February to August 1998.

TOTAL-PHOSPHORUS DISCHARGE: February to August 1998.

INSTRUMENTATION.--Stage-activated water-quality sampler since February 1998.

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

EXTREMES FOR CURRENT YEAR (NOVEMBER-SEPTEMBER).--

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 152 tons, Mar. 31; minimum daily, 0.01 ton, many days.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 959 lbs, Mar. 31; minimum daily, 0.31 lb., Feb. 8-9.

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)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
NOV 1997						
*15...	1150	.59	--	--	--	20
DEC						
*03...	0950	.64	--	--	--	21
FEB 1998						
12...	1315	1.3	--	--	.100	57
15...	1505	2.1	--	--	--	28
17...	1115	4.3	--	--	1.57	21
27...	0355	1.7	--	--	--	5
27...	0445	1.7	--	--	.176	14
MAR						
*18...	1545	2.4	--	--	.211	12
*19...	0830	2.5	--	--	.786	20
APR						
*08...	1710	4.1	--	--	1.66	251
08...	2335	4.3	--	--	1.98	151
15...	1140	4.6	--	.395	.764	43
**15...	1141	4.6	--	.514	.880	75
15...	1300	7.6	--	--	136	
15...	1420	12	--	3.25	3.58	129
**15...	1421	12	--	2.22	3.06	--
15...	1425	12	--	--	3.35	179
*15...	1430	12	--	--	3.31	181
15...	1600	16	--	--	3.57	229
16...	1715	9.4	--	--	--	137
17...	1452	3.2	--	--	.910	120
**21...	0255	2.4	--	.140	.327	12
21...	0630	3.4	--	.260	.533	29
MAY						
**02...	1755	2.5	--	.684	.860	19
02...	1915	3.5	--	.960	1.03	23
*02...	2100	4.9	--	1.07	1.02	54
02...	2135	6.5	--	1.07	1.06	49
*02...	2310	12	--	4.15	4.16	252
03...	0040	14	--	2.66	3.16	259
03...	1155	6.4	--	--	--	137
04...	1125	3.0	--	--	.771	12
07...	1455	4.8	--	--	--	21
07...	1745	7.8	--	--	2.63	124
08...	1335	3.7	--	--	.668	30
*08...	1340	3.7	--	--	1.27	18
*11...	1410	1.8	--	--	.343	9
24...	1220	3.2	--	--	--	13
JUN						
11...	1720	6.4	--	.492	1.17	108
11...	1721	6.4	--	.556	1.15	184
*11...	1722	6.4	--	.570	1.10	145
**11...	1730	6.7	--	.279	.618	53
12...	1400	2.8	--	.622	.845	11
18...	1345	4.1	--	--	.356	21
**18...	1400	11	--	.175	.621	123
18...	1405	13	--	.143	.799	229
18...	1420	18	--	--	--	1170
18...	1455	22	--	--	3.36	1620
19...	0645	15	--	--	--	710
21...	0035	7.4	--	--	1.19	315
**27...	1000	3.9	--	.659	.927	78
27...	2330	4.8	72000	.596	.849	33
**27...	2340	7.2	--	.617	.929	70
27...	2345	8.6	--	.647	.871	53
**27...	2359	14	--	.536	1.13	418
27...	2400	14	--	.431	1.37	555

* Equal-width-increment (EWI) sample
** Siphon sampler

ROCK RIVER BASIN

05427943 PHEASANT BRANCH AT AIRPORT ROAD NEAR MIDDLETON, 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)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
Jun 1998						
28...	0020	18	--	.250	1.80	659
28...	0100	22	--	--	--	664
28...	0135	28	--	.376	1.90	906
28...	0150	36	--	.304	1.73	625
28...	1020	25	--	--	--	404
28...	1220	16	--	1.62	3.51	283
28...	1535	8.2	--	--	--	193
29...	1030	3.4	--	1.05	1.20	139
29...	1031	3.4	--	1.07	1.13	47
30...	1040	2.7	--	16.3	3.85	246
30...	1045	2.7	4000	18.3	4.04	222
JUL						
01...	0830	2.3	--	1.38	.832	12
03...	1710	4.0	--	--	.607	--
03...	1750	6.9	--	--	--	124
03...	1915	10	--	2.76	2.74	208
**03...	1950	12	--	.673	.577	32
04...	0545	4.0	--	--	2.62	97

** Siphon sampler

COMPOSITE SAMPLE

BEGIN- NING DATE	BEGIN- NING TIME	ENDING DATE	ENDING TIME	RUNOFF VOLUME MILLIONS OF CUBIC FEET (99905)	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)
06-27-98	2330	06-30-98	1040	2.45	<1	33	4	70

ROCK RIVER BASIN

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05427943 PHEASANT BRANCH AT AIRPORT ROAD NEAR MIDDLETON, 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	.03	e2.2	.04	.04	.09	.03	---
2	---	---	---	---	.01	.02	e.19	.61	.04	.05	.03	---
3	---	---	---	---	.01	.02	.08	3.9	.04	.57	.03	---
4	---	---	---	---	.01	.02	.05	.14	.04	.42	e.08	---
5	---	---	---	---	.01	.02	.04	.07	.04	.05	e.61	---
6	---	---	---	---	.01	.02	.03	.05	.04	.05	e.14	---
7	---	---	---	---	.01	.02	.03	.89	.04	e.68	e.04	---
8	---	---	---	---	.01	.02	1.2	.57	.04	.06	.04	---
9	---	---	---	---	.01	.01	e1.7	.10	.04	.05	.04	---
10	---	---	---	---	.01	.02	e.40	.07	.04	.05	.03	---
11	---	---	---	---	.01	.02	e.14	.05	.31	.04	.03	---
12	---	---	---	---	.02	.02	.06	.04	.15	.04	.03	---
13	---	---	---	---	.02	.02	.10	.04	.06	.04	.03	---
14	---	---	---	---	.02	.02	.16	.04	.05	.04	.03	---
15	---	---	---	---	.08	.01	3.6	.04	.05	.04	.04	---
16	---	---	---	---	.20	.01	3.5	.04	.04	.04	.03	---
17	---	---	---	---	.19	.02	1.2	.04	.04	.04	.04	---
18	---	---	---	---	.09	.06	.43	.04	27	.04	.03	---
19	---	---	---	---	.04	.13	.17	.04	17	.04	.03	---
20	---	---	---	---	.03	.13	.07	.04	.28	.04	.03	---
21	---	---	---	---	.03	.13	.17	.04	1.8	.04	.03	---
22	---	---	---	---	.03	.14	.07	.04	.08	.04	.03	---
23	---	---	---	---	.02	.13	.05	.04	.05	.03	.04	---
24	---	---	---	---	.02	.12	.04	.08	.06	.03	.03	---
25	---	---	---	---	.02	.12	.04	.07	.05	.03	.03	---
26	---	---	---	---	.02	.10	.05	.05	.05	.03	.03	---
27	---	---	---	---	.07	.03	.04	.05	.43	.03	.03	---
28	---	---	---	---	.03	.02	.04	.05	25	.03	.03	---
29	---	---	---	---	---	.02	.04	.04	1.1	.03	.03	---
30	---	---	---	---	---	---	.04	.04	1.0	.03	.03	---
31	---	---	---	---	---	e46 e152	---	e.07	---	.03	.03	---
TOTAL	---	---	---	---	1.04	199.45	15.93	7.42	75.00	2.82	1.73	---

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	---	---	---	---	.38	1.00	e49.9	2.95	3.19	10.8	2.25	---
2	---	---	---	---	.49	.94	e16.6	15.4	3.03	5.45	2.23	---
3	---	---	---	---	.43	.91	7.39	134	2.99	18.1	2.25	---
4	---	---	---	---	.38	.85	3.84	14.4	2.96	22.8	e5.24	---
5	---	---	---	---	.36	.82	2.35	7.09	2.91	3.87	e16.2	---
6	---	---	---	---	.33	.80	1.47	4.70	2.89	3.59	e7.06	---
7	---	---	---	---	.32	.79	1.11	43.7	2.89	e17.3	e3.65	---
8	---	---	---	---	.31	.74	22.1	31.0	2.89	4.75	3.15	---
9	---	---	---	---	.31	.56	e64.7	11.7	2.89	3.82	2.78	---
10	---	---	---	---	.38	.76	e19.7	6.25	2.91	3.44	2.59	---
11	---	---	---	---	.54	.70	e8.44	3.75	10.5	3.14	2.41	---
12	---	---	---	---	.70	.67	2.05	3.25	12.7	2.94	2.41	---
13	---	---	---	---	.76	.62	3.65	3.13	4.85	2.88	2.41	---
14	---	---	---	---	.70	.60	5.70	3.04	3.76	2.86	2.59	---
15	---	---	---	---	1.33	.59	113	2.99	3.51	2.79	2.78	---
16	---	---	---	---	8.15	.59	90.3	2.98	3.36	2.83	2.59	---
17	---	---	---	---	22.5	.64	21.4	2.90	3.29	2.89	2.78	---
18	---	---	---	---	8.40	2.57	9.52	2.83	131	2.82	2.59	---
19	---	---	---	---	1.98	9.44	5.99	2.87	126	3.34	2.59	---
20	---	---	---	---	1.21	9.91	4.03	2.83	12.6	2.99	2.52	---
21	---	---	---	---	1.08	10.4	7.52	2.80	28.1	2.96	2.50	---
22	---	---	---	---	1.00	10.9	4.45	2.80	5.69	2.80	2.52	---
23	---	---	---	---	.97	10.6	3.50	2.80	4.16	2.66	2.86	---
24	---	---	---	---	.94	9.62	3.18	e4.91	4.57	2.50	2.63	---
25	---	---	---	---	.90	9.60	3.03	3.72	4.11	2.48	2.63	---
26	---	---	---	---	.88	7.23	3.48	3.17	3.73	2.47	2.37	---
27	---	---	---	---	2.06	1.07	3.10	2.98	12.9	2.44	2.22	---
28	---	---	---	---	1.29	.77	2.92	3.21	368	2.40	2.59	---
29	---	---	---	---	---	.74	2.89	3.07	30.7	2.35	2.60	---
30	---	---	---	---	---	e252	2.89	2.99	40.5	2.31	2.46	---
31	---	---	---	---	---	e959	---	e4.58	---	2.28	2.33	---
TOTAL	---	---	---	---	59.08	1306.43	490.20	338.79	843.58	151.05	100.78	---

e Estimated

ROCK RIVER BASIN

054279449 SOUTH FORK PHEASANT BRANCH, DETENTION OUTLET, AT MIDDLETON, WI

LOCATION.--Lat 43°05'45", long 89°31'43", in NW 1/4 SE 1/4 sec.10, T.7 N., R.8 E., Dane County, Hydrologic Unit 07090001, on right bank 10 ft upstream from railroad bridge, at Middleton.

DRAINAGE AREA.--4.48 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1997 to September 1998.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 936 ft above sea level.

REMARKS.--Estimated daily discharges: Jan. 2-28, Mar. 30-31, June 18, and Aug. 5-7. Records good except those for estimated daily discharges and periods of flow between 0.00 ft³/s and 0.3 ft³/s, which are poor (see page 12).

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	.00	.01	.00	.00	.16	.58	7.9	.07	1.4	.46	.00	.22
2	.00	.00	.00	.03	.60	.38	.77	.96	.53	.31	.00	.12
3	.00	.00	.00	.08	.00	.31	.34	11	.39	4.6	.03	.02
4	.00	.00	.00	.30	.00	.24	.24	1.0	.31	8.2	12	.00
5	.00	.00	.00	.80	.00	.17	.16	.33	.26	1.0	12	.00
6	.00	.00	.00	.60	.00	.00	.03	.29	.06	.57	5.0	.00
7	.00	.00	.00	.40	.00	.00	.00	8.9	.00	1.7	1.5	.00
8	.00	.00	.00	.24	.00	.11	8.1	8.3	.00	1.5	.70	.00
9	.00	.00	.00	.14	.00	.11	8.0	1.0	.00	.49	.44	.00
10	.00	.00	.00	.08	.02	.03	1.5	.51	.00	.33	.33	.00
11	.00	.00	.00	.05	.38	.00	.55	.31	17	.23	.20	.00
12	.00	.00	.00	.03	.58	.00	.12	.18	13	.19	.10	.00
13	.03	.00	.00	.02	.70	.00	1.4	.15	2.0	.13	.03	.00
14	.00	.00	.00	.01	.46	.00	3.9	.04	.71	.00	.14	15
15	.00	.00	.00	.00	.28	.00	15	.00	.47	.00	1.5	15
16	.00	.00	.00	.00	1.1	.00	13	.00	.34	.00	.76	1.1
17	.00	.00	.00	.00	4.4	.03	2.0	.00	.22	.00	.75	.33
18	.00	.00	.00	.00	1.2	4.9	.50	.00	71	.00	1.1	.24
19	.00	.00	.00	.00	.55	4.8	.27	.02	28	6.0	.58	.10
20	.00	.00	.00	.00	.44	1.2	.20	.00	1.8	3.2	.33	.09
21	.00	.00	.00	.00	.34	.50	5.2	.00	.84	8.7	.26	.06
22	.00	.00	.00	.00	.28	.36	1.1	.00	.63	1.0	.28	.04
23	.00	.00	.00	.00	.23	.31	.33	.00	.32	.44	17	.00
24	.00	.00	.00	.00	.21	.19	.16	7.3	.77	.20	4.0	.00
25	.00	.00	.00	.00	.14	.02	.09	4.0	.77	.16	1.3	.00
26	.00	.00	.00	.00	.00	.00	.21	.68	.39	.11	.74	.00
27	.00	.00	.00	.00	2.3	.00	.49	.34	3.9	.00	.41	.00
28	.00	.00	.00	.00	1.5	.00	.23	6.0	70	.00	.71	.00
29	.00	.01	.00	.00	---	.00	.13	4.4	3.5	.00	.77	.00
30	.00	.00	.00	.00	---	12	.10	.74	.87	.00	.39	.03
31	.00	---	.00	.00	---	72	---	3.6	---	.00	.28	---
TOTAL	0.03	0.02	0.00	2.78	15.87	98.24	72.02	60.12	219.48	39.52	63.63	32.35
MEAN	.001	.001	.000	.090	.57	3.17	2.40	1.94	7.32	1.27	2.05	1.08
MAX	.03	.01	.00	.80	4.4	.72	15	11	71	8.7	17	15
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

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	.001	.001	.000	.090	.57	3.17	2.40	1.94	7.32	1.27	2.05	1.08
MAX	.001	.001	.000	.090	.57	3.17	2.40	1.94	7.32	1.27	2.05	1.08
(WY)	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998
MIN	.001	.001	.000	.090	.57	3.17	2.40	1.94	7.32	1.27	2.05	1.08
(WY)	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998	1998

SUMMARY STATISTICS

FOR 1998 WATER YEAR

ANNUAL TOTAL	604.06
ANNUAL MEAN	1.65
HIGHEST DAILY MEAN	(a)72 Mar 31
LOWEST DAILY MEAN	.00 Many days
ANNUAL SEVEN-DAY MINIMUM	.00 Many periods
INSTANTANEOUS PEAK FLOW	(a)232 Mar 31
INSTANTANEOUS PEAK STAGE	(a)14.50 Mar 31
INSTANTANEOUS LOW FLOW	.00 Many days
10 PERCENT EXCEEDS	3.7
50 PERCENT EXCEEDS	.03
90 PERCENT EXCEEDS	.00

(a) Estimated

ROCK RIVER BASIN

054279449 SOUTH FORK PHEASANT BRANCH, DETENTION OUTLET, AT MIDDLETON, WI--CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--February to September 1998.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: February to August 1998.

TOTAL-PHOSPHORUS DISCHARGE: February to August 1998.

INSTRUMENTATION.--Stage-activated water-quality sampler since February 1998.

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

EXTREMES FOR CURRENT YEAR (FEBRUARY-SEPTEMBER).--

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 170 tons, June 18; minimum daily, 0.0 ton, many days.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 394 lbs, June 18; minimum daily, 0.0 lb., many days.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
FEB 1998					
*12...	1245	.28	--	.086	20
*13...	0700	.76	--	--	24
15...	1727	.23	--	.337	36
16...	0455	.82	--	--	34
16...	2220	2.7	--	.329	38
27...	1114	1.9	--	.603	108
MAR					
*18...	1605	8.9	--	.182	66
*19...	0850	5.1	--	.191	38
30...	2000	3.3	--	.402	1400
30...	2240	72	--	.284	900
30...	2325	210	--	.820	1550
31...	0545	79	--	.493	499
APR					
01...	0545	12	--	.425	176
08...	0530	1.8	--	.345	150
08...	2325	13	--	.344	115
15...	1210	6.7	--	.318	104
*15...	1355	19	--	--	138
*15...	1400	20	--	.317	125
15...	1405	20	.119	.285	109
15...	1520	28	--	--	124
15...	1700	36	--	.158	149
15...	2325	24	--	--	123
16...	0930	13	--	.286	96
17...	1305	1.5	--	--	87
17...	1330	1.1	--	.223	88
*17...	1331	1.1	--	.216	85
21...	0010	1.2	.114	.226	56
*21...	0055	1.8	.100	.179	61
21...	0310	3.4	.085	.174	44
*21...	0445	4.8	.091	.159	50
MAY					
02...	2105	2.2	.089	.265	48
*02...	2115	2.5	.062	.095	32
02...	2220	5.3	.083	.128	27
*02...	2235	6.0	.075	.095	--
03...	0115	18	.101	.189	51
*03...	0125	18	.117	.181	62
03...	1430	8.0	--	--	56
04...	0025	2.3	--	.227	52
*07...	1400	5.8	.120	.244	50
07...	1415	6.5	.139	.321	69
07...	1600	14	.151	.264	54
*07...	1640	18	.176	.262	65
07...	1740	21	.154	.249	61
08...	0730	11	--	--	55
08...	1430	4.2	--	.219	37
24...	1030	2.9	.164	.354	95
24...	1031	2.9	.230	.212	89
*24...	1032	3.0	.373	.253	255
*24...	1130	6.5	.224	.184	56
24...	1145	7.3	.194	.263	82
24...	1146	7.3	.220	.243	78
24...	1335	13	--	--	110
26...	0320	.96	--	--	23

* Equal-width increment (EWI) sample

** Siphon sampler

ROCK RIVER BASIN

054279449 SOUTH FORK PHEASANT BRANCH, DETENTION OUTLET, AT MIDDLETON, 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)	NITRO- GEN, AMMONIA DIS- SOLVED AS N) (00608)	PHOS- PHORUS TOTAL AS P) (00665)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
May 1998						
28...	1145	3.0	--	--	.196	37
28...	1310	6.5	--	.047	.114	26
28...	1325	7.0	--	.046	.169	34
28...	1326	7.1	--	.055	.152	32
28...	1620	13	--	--	.234	70
29...	0805	4.8	--	--	.319	89
JUN						
11...	0440	.82	--	--	--	352
11...	1030	2.5	--	.223	.223	58
11...	1031	2.5	--	.257	.194	71
**11...	1045	2.9	--	.246	.193	56
11...	1325	6.5	--	.214	.220	82
11...	1326	6.5	--	.235	.219	89
**11...	1335	6.7	--	.214	.206	81
11...	1450	12	--	--	--	102
**11...	1514	19	--	.247	.278	123
11...	1515	20	--	.154	.242	113
11...	1516	20	--	.176	.241	112
11...	1545	27	--	--	.301	132
11...	1650	37	--	--	--	151
11...	1745	45	--	--	.427	251
*11...	1746	45	--	--	.416	242
12...	0140	31	--	--	--	205
12...	0545	20	--	--	.369	157
12...	1135	9.7	--	--	--	132
**18...	1345	18	--	.067	.188	91
18...	1350	22	--	.087	.222	101
18...	1420	45	--	--	--	908
18...	1440	95	--	--	1.52	1810
18...	1515	222	--	--	<.005	1370
18...	1725	173	--	--	--	1220
18...	1810	127	--	--	1.16	904
18...	2000	173	--	--	--	673
18...	2050	218	--	--	.792	557
20...	1145	1.2	--	--	--	137
**27...	1015	2.4	--	--	--	373
27...	1115	3.3	5500	.221	.225	62
**27...	2257	5.9	--	.112	.178	53
27...	2300	8.6	--	.190	.336	344
27...	2320	16	--	.104	.279	250
**27...	2327	18	--	.035	.270	199
27...	2355	33	--	.088	.330	--
28...	0055	58	--	--	--	610
28...	0115	83	--	.081	.687	562
28...	0140	110	--	--	--	618
28...	0205	137	--	.077	.965	808
28...	0250	167	--	--	--	1030
28...	0330	205	--	.073	1.23	961
28...	0400	219	--	.068	1.12	853
28...	0545	169	--	.058	.852	597
28...	0645	122	--	--	--	482
28...	0815	82	--	.062	.661	379
29...	1000	2.7	--	.072	.349	120
*29...	1001	2.7	--	.079	.343	74
30...	0850	.89	--	.083	.284	84
JUL						
**03...	1725	5.5	--	.319	.294	45
03...	1800	6.7	--	.143	<.005	47
03...	2250	19	--	.172	.416	191
**03...	2251	19	--	.089	.406	218
04...	1525	4.1	--	--	.351	129
20...	2335	15	--	.138	.386	126
**20...	2350	15	--	.078	.364	--
AUG						
**04...	2130	32	--	.132	.414	140
04...	2155	36	--	.089	.386	113
23...	0800	14	--	--	.188	30
23...	0830	21	--	--	.313	136
23...	1040	37	--	--	.372	172
23...	1940	17	--	--	.462	147

* Equal-width increment (EWI) sample

** Siphon sampler

COMPOSITE SAMPLE

BEGIN- NING DATE	BEGIN- NING TIME	ENDING DATE	ENDING TIME	RUNOFF VOLUME MILLIONS OF CUBIC FEET (99905)	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)
06-27-98	1115	06-30-98	0850	6.69	<1	19	9	60

054279449 SOUTH FORK PHEASANT BRANCH, DETENTION OUTLET, AT MIDDLETON, 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	.04	3.7	.00	e.18	.06	.00	---
2	---	---	---	---	.03	.02	.08	.08	.03	.03	.00	---
3	---	---	---	---	.00	.02	.02	1.7	.02	1.5	.00	---
4	---	---	---	---	.00	.01	.01	.10	.02	3.7	2.9	---
5	---	---	---	---	.00	.01	.01	.02	.01	.11	1.9	---
6	---	---	---	---	.00	.00	.00	.02	.00	.03	.27	---
7	---	---	---	---	.00	.00	.00	1.4	.00	e.34	.08	---
8	---	---	---	---	.00	.01	2.8	1.1	.00	e.28	.04	---
9	---	---	---	---	.00	.01	1.6	.07	.00	.03	.02	---
10	---	---	---	---	.00	.00	.10	.03	.00	.02	.02	---
11	---	---	---	---	e.03	.00	.03	.02	9.1	.01	.01	---
12	---	---	---	---	e.06	.00	.01	.01	5.5	.01	.01	---
13	---	---	---	---	e.07	.00	e.18	.01	.26	.01	.00	---
14	---	---	---	---	e.04	.00	e.70	.00	.04	.00	.01	---
15	---	---	---	---	e.02	.00	5.1	.00	.03	.00	e.28	---
16	---	---	---	---	e.13	.00	3.6	.00	.02	.00	e.09	---
17	---	---	---	---	e.82	.00	.46	.00	.01	.00	e.09	---
18	---	---	---	---	e.15	.75	.04	.00	170	.00	.06	---
19	---	---	---	---	e.05	.51	.01	.00	30	e2.5	.03	---
20	---	---	---	---	e.04	.08	.01	.00	.69	e.92	.02	---
21	---	---	---	---	.03	.03	.59	.00	.05	2.2	.01	---
22	---	---	---	---	.02	.02	.08	.00	.03	.08	.01	---
23	---	---	---	---	.02	.02	.02	.00	.02	.02	6.8	---
24	---	---	---	---	.01	.01	.01	1.8	e.10	.01	.52	---
25	---	---	---	---	.01	.00	.01	.58	e.10	.01	.07	---
26	---	---	---	---	.00	.00	.01	.04	.02	.01	.04	---
27	---	---	---	---	.52	.00	e.04	.02	1.2	.00	.02	---
28	---	---	---	---	.22	.00	e.02	1.0	110	.00	.04	---
29	---	---	---	---	---	.00	.01	.85	1.3	.00	.04	---
30	---	---	---	---	---	42	.01	.04	.18	.00	.02	---
31	---	---	---	---	---	130	---	e.63	---	.00	.02	---
TOTAL	---	---	---	---	2.28	173.54	19.26	9.52	328.91	11.88	13.42	---

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	---	---	---	---	.07	.32	16.7	.03	e1.49	.46	.00	---
2	---	---	---	---	.28	.18	.60	.67	.25	.20	.00	---
3	---	---	---	---	.00	.14	.16	11.7	.18	8.58	.01	---
4	---	---	---	---	.00	.11	.11	.88	.14	16.4	19.1	---
5	---	---	---	---	.00	.08	.08	.15	.12	.79	13.5	---
6	---	---	---	---	.00	.00	.02	.13	.03	.26	2.32	---
7	---	---	---	---	.00	.00	.00	11.7	.00	e1.93	.70	---
8	---	---	---	---	.00	.05	15.0	10.1	.00	e1.63	.32	---
9	---	---	---	---	.00	.05	10.2	.66	.00	.23	.21	---
10	---	---	---	---	.01	.01	.80	.24	.00	.16	.15	---
11	---	---	---	---	e.22	.00	.25	.14	34.0	.11	.09	---
12	---	---	---	---	e.36	.00	.05	.08	23.5	.09	.05	---
13	---	---	---	---	e.45	.00	e1.04	.07	1.64	.06	.01	---
14	---	---	---	---	e.27	.00	e3.58	.02	.33	.00	.06	---
15	---	---	---	---	e.15	.00	15.1	.00	.22	.00	e1.63	---
16	---	---	---	---	e.78	.00	18.1	.00	.16	.00	e.65	---
17	---	---	---	---	e4.14	.02	2.49	.00	.10	.00	e.64	---
18	---	---	---	---	e.87	4.66	.31	.00	394	.00	.52	---
19	---	---	---	---	e.34	4.53	.12	.01	76.6	e10.8	.27	---
20	---	---	---	---	e.26	.68	.12	.00	1.52	e4.57	.15	---
21	---	---	---	---	.33	.23	3.96	.00	.39	12.9	.12	---
22	---	---	---	---	.24	.17	.62	.00	.29	.60	.13	---
23	---	---	---	---	.17	.14	.15	.00	.15	.20	35.2	---
24	---	---	---	---	.14	.09	.07	8.52	e.66	.09	3.82	---
25	---	---	---	---	.08	.01	.04	3.53	e.66	.07	.61	---
26	---	---	---	---	.00	.00	.10	.36	.18	.05	.34	---
27	---	---	---	---	5.65	.00	e.36	.16	4.55	.00	.19	---
28	---	---	---	---	2.20	.00	e.13	7.44	312	.00	.33	---
29	---	---	---	---	---	.00	.06	6.11	7.29	.00	.36	---
30	---	---	---	---	---	39.2	.05	.34	1.27	.00	.18	---
31	---	---	---	---	---	217	---	e5.37	---	.00	.13	---
TOTAL	---	---	---	---	17.01	267.67	90.37	68.41	861.72	60.18	81.79	---

e Estimated

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 fair (see page 12). 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	1.0	1.8	1.1	.98	1.5	3.6	33	3.1	3.4	4.1	1.8	1.9
2	1.0	1.3	1.1	1.3	2.0	3.1	11	12	2.7	3.3	1.8	1.8
3	1.1	1.3	1.6	2.4	1.5	2.9	6.8	34	2.3	18	2.6	1.8
4	1.1	1.3	1.5	3.4	1.3	2.7	4.8	8.1	2.2	19	21	1.7
5	1.0	1.4	1.1	5.0	1.3	2.5	4.0	4.3	2.1	4.4	22	1.7
6	1.2	2.0	1.1	4.9	1.2	2.5	3.5	4.0	2.0	4.0	11	1.7
7	1.8	1.3	1.1	3.1	1.2	2.3	5.0	24	2.0	16	5.1	1.8
8	1.4	1.2	1.0	2.4	1.2	2.2	24	24	2.0	7.6	2.9	1.7
9	1.1	1.2	1.1	2.1	1.2	1.6	26	5.9	2.4	4.1	2.4	1.7
10	1.1	1.2	1.4	1.6	1.2	2.2	9.1	3.9	2.2	3.5	2.3	1.7
11	1.1	1.1	1.3	1.4	2.8	2.2	4.6	3.4	28	3.2	2.2	1.7
12	1.1	1.1	1.2	1.4	2.9	2.0	3.8	3.1	22	2.9	2.1	1.7
13	3.4	1.1	1.1	1.2	2.8	1.9	10	3.0	4.6	2.8	2.0	1.6
14	1.2	1.1	1.1	1.1	2.6	1.8	14	2.9	3.2	2.8	3.5	32
15	1.1	1.2	1.1	1.2	4.3	1.7	40	2.9	2.9	2.6	3.7	30
16	1.1	1.1	1.2	1.2	11	1.7	41	2.9	2.6	2.4	2.5	4.5
17	1.1	1.1	1.2	1.2	19	3.0	15	2.9	2.5	2.4	4.0	3.0
18	1.1	1.1	1.2	1.2	8.1	15	6.1	2.9	111	2.3	3.1	2.7
19	1.1	1.1	1.2	1.2	4.6	15	4.4	3.6	78	15	2.4	2.5
20	1.3	1.2	1.2	1.2	3.8	6.9	3.9	3.0	13	8.7	2.2	2.4
21	1.2	1.1	1.1	1.2	3.3	7.4	18	2.9	12	13	2.4	2.2
22	1.0	1.1	1.2	1.2	3.0	8.1	5.8	2.9	4.9	3.2	2.5	2.2
23	1.1	1.0	1.1	1.2	2.8	6.2	3.9	2.9	3.8	2.5	25	2.1
24	1.1	.99	1.1	1.2	3.1	4.9	3.4	19	6.1	2.4	6.8	2.7
25	1.1	1.1	1.1	1.2	2.6	4.6	3.2	5.9	3.9	2.3	3.7	2.2
26	1.2	1.1	1.1	1.2	2.7	4.8	5.3	3.0	3.1	2.2	2.7	2.2
27	1.5	1.1	1.0	1.2	12	3.5	3.6	2.6	12	2.1	2.1	2.1
28	1.3	1.1	1.0	1.2	6.0	3.0	3.1	9.4	135	2.0	3.7	2.0
29	1.3	1.3	1.0	1.2	---	2.7	2.9	7.2	17	1.9	2.8	2.0
30	1.2	1.6	.98	1.2	---	33	2.8	2.8	6.8	1.9	2.2	3.1
31	1.2	---	.96	1.1	---	224	---	11	---	1.8	1.9	---
TOTAL	38.6	36.69	35.54	52.58	111.0	379.0	322.0	223.5	495.7	164.4	156.4	122.4
MEAN	1.25	1.22	1.15	1.70	3.96	12.2	10.7	7.21	16.5	5.30	5.05	4.08
MAX	3.4	2.0	1.6	5.0	19	224	41	34	135	19	25	32
MIN	1.0	.99	.96	.98	1.2	1.6	2.8	2.6	2.0	1.8	1.8	1.6
CFSM	.07	.07	.07	.10	.23	.72	.63	.42	.97	.31	.30	.24
IN.	.08	.08	.08	.11	.24	.83	.70	.49	1.08	.36	.34	.27

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1998, BY WATER YEAR (WY)

	MEAN	2.44	3.14	2.35	2.60	6.43	11.3	5.23	3.20	5.38	5.62	3.19	3.66
MAX	6.42	12.3	6.11	7.75	20.4	34.6	14.7	7.21	20.8	32.5	8.78	13.0	
(WY)	1987	1986	1985	1997	1994	1993	1993	1998	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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1974 - 1998

ANNUAL TOTAL	1936.43	2137.81	
ANNUAL MEAN	5.31	5.86	
HIGHEST ANNUAL MEAN			4.56
LOWEST ANNUAL MEAN			11.0
HIGHEST DAILY MEAN	202	Feb 18	224
LOWEST DAILY MEAN	.96	Dec 31	.96
ANNUAL SEVEN-DAY MINIMUM	1.0	Dec 25	1.0
INSTANTANEOUS PEAK FLOW			505
INSTANTANEOUS PEAK STAGE			7.98
INSTANTANEOUS LOW FLOW			(a) .68
ANNUAL RUNOFF (CFSM)	.31		.34
ANNUAL RUNOFF (INCHES)	4.22		4.66
10 PERCENT EXCEEDS	7.0		6.1
50 PERCENT EXCEEDS	1.9		1.8
90 PERCENT EXCEEDS	1.1		.79

(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, 4,520 mg/L, Mar. 31; minimum observed, 5 mg/L, Feb. 20 and May 6, 10.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 1,410 tons, Mar. 31; minimum daily, 0.03 ton, Feb. 22, 23.

TOTAL-PHOSPHORUS CONCENTRATIONS: Maximum observed, 5.79 mg/L, Mar.30; minimum observed, 0.03 mg/L, Jan. 28.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 2,140 lb, Mar. 31; minimum daily, 0.19 lb, Jan. 14, 31.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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 DIS- TOTAL (MG/L AS P) (00665)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
OCT 1997							
13...	0500	9.8	--	--	.282	--	33
NOV							
*05...	1420	1.1	--	--	.084	--	74
05...	2205	3.2	--	--	.197	--	42
JAN 1998							
*02...	0755	1.1	--	--	.064	--	16
04...	1740	6.9	--	.354	.419	--	--
04...	1745	7.5	64	.345	.457	--	70
05...	1610	5.3	74	.207	.471	--	--
05...	1630	6.4	36	.188	.321	--	--
05...	2210	7.0	--	--	.394	--	38
*28...	1455	1.2	--	--	.034	--	33
FEB							
11...	1825	4.4	--	--	.137	--	35
15...	1715	5.3	--	.120	.184	--	25
15...	1805	6.5	--	.120	.174	--	--
16...	1945	22	--	.243	.499	--	78
*17...	1214	20	--	--	.633	--	52
17...	1215	20	--	--	.641	--	54
20...	0745	4.0	--	--	.166	--	5
27...	0310	6.2	--	--	.126	--	37
27...	0620	16	--	--	.161	--	62
27...	1220	11	--	--	.293	--	28
27...	1820	13	--	--	.321	--	39
MAR							
01...	0020	3.9	--	--	.269	--	11
17...	2135	5.8	--	--	.136	--	52
18...	2135	22	--	--	.137	--	46
21...	0935	5.1	--	--	.308	--	8
21...	2135	12	--	--	.287	--	9
27...	0335	3.9	--	--	.294	--	10
30...	1705	5.0	--	--	.230	--	32
30...	2035	77	--	--	.625	--	1140
30...	2215	140	--	--	4.09	.243	1480
30...	2300	258	--	--	5.79	.221	3770
30...	2340	338	--	--	1.22	--	2940

* Equal-width increment (EWI) sample

ROCK RIVER BASIN
05427948 PHEASANT BRANCH AT MIDDLETON, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) (00671)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
MAR 1998							
31...	0045	428	--	--	5.53	--	3140
31...	0145	476	--	--	1.72	.718	3510
31...	0505	428	--	--	1.58	--	4520
31...	0655	289	--	--	2.00	1.05	825
31...	1305	154	--	--	1.14	.839	475
APR							
01...	0715	40	--	--	1.16	--	214
02...	0515	13	--	--	.592	--	44
03...	1715	6.1	--	--	.272	--	14
05...	1815	3.9	--	--	.169	--	16
07...	2005	16	--	--	.254	--	82
08...	2350	31	--	--	.486	--	67
*09...	1250	29	--	--	.543	--	52
09...	1251	29	--	--	.540	--	52
12...	0550	3.9	--	--	.212	--	12
13...	1330	21	--	--	.222	--	79
14...	2150	8.2	--	--	.305	--	25
15...	0955	28	--	.194	.352	--	72
*15...	1139	33	--	--	--	--	69
15...	1205	36	--	.217	.377	--	114
15...	1310	45	--	.235	.589	--	95
15...	1520	65	--	.237	.356	--	239
15...	1535	73	--	.389	.992	--	527
15...	1600	88	--	.407	.940	--	449
*16...	1139	39	--	--	.648	--	--
16...	1140	39	--	--	.661	--	69
17...	0715	17	--	--	.196	--	11
19...	0715	4.5	--	--	.295	--	8
27...	0230	3.8	--	--	.196	--	6

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) (00608)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
MAY 1998					
01...	1445	4.4	--	.197	32
02...	0830	18	--	.330	226
02...	1750	5.9	--	.331	9
02...	1855	20	--	.280	23
02...	2145	34	.290	.338	--
02...	2146	34	.336	.414	--
02...	2315	50	--	.349	102
05...	2315	3.8	--	.193	12
06...	1605	5.7	--	.169	5
07...	0825	6.0	--	.216	8
07...	1355	29	.254	.293	95
07...	1640	36	.186	.416	259
07...	1650	36	.247	.281	--
07...	1651	37	.235	.273	--
07...	1655	37	.234	.273	--
07...	1656	37	.229	.264	--
07...	1700	38	.245	.292	--
07...	1701	38	.238	.225	--
07...	1730	45	.174	.455	249
07...	2130	53	--	.791	216
08...	1130	23	--	.524	25
10...	1130	3.9	--	.226	5
*15...	0900	2.8	--	.134	27
24...	0310	7.0	--	.213	22
24...	0335	19	--	.300	75
24...	0710	7.9	--	.290	24
24...	1105	54	--	.608	321
24...	1845	20	--	.271	80
26...	0645	3.1	--	.304	15
28...	0810	6.2	--	.285	19
28...	0825	16	--	.384	131
28...	1640	15	--	.253	31
29...	1040	5.4	--	.299	72
31...	0235	6.4	--	.280	28
31...	0315	39	--	.599	325
31...	0650	11	--	.285	45

* Equal-width increment (EWI) sample

ROCK RIVER BASIN
05427948 PHEASANT BRANCH AT MIDDLETON, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	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)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
JUN 1998						
01...	0050	4.5	--	.445	--	675
11...	0455	7.3	--	.169	--	33
11...	0515	18	--	.349	--	110
11...	0850	7.4	--	.352	--	29
11...	1500	33	--	.308	--	132
11...	1550	73	--	.906	--	536
11...	1950	62	--	.535	--	427
12...	1540	12	--	.389	--	144
13...	1540	4.1	--	.262	--	26
18...	1305	11	--	.202	--	19
18...	1330	67	--	.661	--	887
18...	1345	132	--	3.18	<.010	3080
18...	1420	188	--	1.81	--	1390
18...	1605	194	--	1.42	<.010	1820
18...	1640	240	--	.826	--	1850
18...	1855	287	--	.580	--	1520
18...	2255	306	--	1.24	.037	1820
19...	0105	232	--	1.47	.300	642
19...	0245	166	--	1.43	--	459
19...	0535	111	--	1.39	.539	324
19...	0835	76	--	1.21	--	244
*19...	0836	76	--	1.15	--	252
19...	1740	30	--	.130	--	50
20...	1740	9.1	--	.370	--	19
20...	2210	20	--	.280	--	12
22...	1010	5.1	--	.939	--	283
23...	1010	3.8	--	.440	--	92
24...	0555	18	--	.505	--	137
25...	0855	4.0	--	1.39	--	99
27...	0520	20	--	.356	--	180
27...	1420	9.6	--	.257	--	15
27...	2310	25	.156	.464	--	--
27...	2331	45	.324	1.70	--	--
27...	2335	60	.183	.622	--	--
27...	2340	84	.164	.929	--	--
27...	2341	89	.057	.945	--	--
27...	2345	110	.154	1.81	--	--
27...	2346	113	.065	5.46	--	--
27...	2355	139	--	2.83	<.010	2150
28...	0310	202	--	1.23	<.010	1070
28...	0340	234	--	--	--	1040
28...	0435	269	--	.680	.011	1180
28...	0820	228	--	1.14	--	677
28...	0931	185	--	1.66	.511	448
*28...	0933	184	--	1.66	.516	495
28...	1310	109	--	.838	.699	300
28...	2110	44	--	.807	--	150
29...	2020	11	--	.418	--	22
30...	1420	5.6	--	--	--	66
JUL						
02...	0715	3.5	--	.312	--	6
03...	0920	6.8	--	2.61	--	102
03...	1000	35	--	1.33	--	98
03...	1345	3.7	--	.413	--	17
03...	1645	56	--	.652	--	36
03...	1755	37	--	.750	--	52
03...	2155	36	--	.907	--	81
05...	1200	4.1	--	.347	--	52
07...	0810	12	--	.479	--	54
*13...	1455	2.8	--	.560	--	10
19...	0400	12	--	.288	--	23
19...	0430	60	--	.796	--	443
19...	1320	15	--	.211	--	12
20...	1905	14	--	.360	--	72
24...	1230	2.3	--	.220	--	59
AUG						
06...	1320	13	--	.222	--	--
06...	1520	13	--	--	--	38
20...	0830	2.2	--	.316	--	--
20...	0930	2.2	--	--	--	38
24...	1355	4.1	--	.324	--	76
SEP						
01...	1155	2.0	--	.200	--	35
14...	0715	11	--	.106	--	43
14...	1420	36	--	.306	--	78
14...	2110	73	--	.523	--	206
15...	0810	33	--	1.12	--	55
16...	0210	6.2	--	.701	--	16
30...	1420	10	--	.414	--	174

* Equal-width increment (EWI) sample

ROCK RIVER BASIN
05427948 PHEASANT BRANCH AT MIDDLETON, 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	.07	.13	.05	.04	.08	.11	17	.11	3.4	.23	.19	.18
2	.07	.09	.05	.06	.13	.09	1.1	2.4	.48	.06	.18	.17
3	.07	.14	.11	.20	.08	.08	.32	4.3	.15	2.9	.34	.16
4	.08	.18	.08	.45	.07	.07	.19	.20	.14	4.6	7.6	.16
5	.07	.19	.05	.64	.06	.07	.16	.15	.12	.54	6.6	.15
6	.10	.15	.05	.45	.06	.06	.14	.07	.11	.11	1.4	.15
7	.23	.06	.05	.22	.06	.06	.53	11	.10	3.0	.51	.15
8	.15	.06	.05	.14	.06	.05	4.1	3.7	.10	.85	.28	.15
9	.06	.06	.05	.11	.05	.04	3.7	.11	.11	.19	.23	.14
10	.06	.06	.06	.08	.06	.05	.47	.06	.09	.11	.21	.14
11	.06	.05	.05	.07	.23	.05	.17	.07	27	.10	.19	.14
12	.05	.05	.05	.06	.24	.05	.12	.09	13	.09	.18	.14
13	.31	.05	.05	.05	.19	.05	1.4	.11	.54	.08	.17	.13
14	.08	.05	.05	.05	.14	.04	2.0	.16	.19	.08	.46	11
15	.05	.05	.05	.05	.30	.04	16	.20	.14	.07	.39	6.0
16	.05	.05	.05	.05	1.8	.04	4.5	.19	.11	.06	.26	.20
17	.05	.05	.05	.05	2.8	.30	.51	.18	.08	.06	.53	.13
18	.05	.05	.05	.05	.29	3.5	.15	.16	488	.06	.32	.11
19	.05	.05	.05	.05	.08	1.1	.10	.31	81	4.2	.24	.10
20	.05	.06	.05	.05	.05	.18	.08	.14	.90	1.4	.22	.09
21	.05	.05	.05	.05	.04	.16	1.1	.13	1.4	2.5	.26	.09
22	.04	.05	.05	.05	.03	.20	.16	.12	2.6	.57	.26	.09
23	.05	.05	.05	.05	.03	.16	.07	.12	.87	.43	14	.08
24	.05	.04	.05	.05	.05	.13	.06	7.1	1.9	.37	1.8	.13
25	.05	.05	.05	.05	.04	.12	.06	.38	.87	.35	.39	.09
26	.05	.05	.05	.05	.04	.13	.22	.11	.21	.31	.23	.09
27	.06	.05	.04	.05	1.2	.10	.06	.08	8.4	.28	.18	.09
28	.05	.05	.04	.05	.34	.08	.05	1.0	278	.26	.45	.08
29	.06	.07	.04	.05	---	.07	.05	1.1	2.8	.23	.27	.08
30	.05	.12	.04	.05	---	186	.05	.21	.82	.22	.21	.31
31	.05	---	.04	.05	---	1410	---	5.0	---	.20	.18	---
TOTAL	2.32	2.21	1.60	3.47	8.60	1603.18	54.62	39.06	913.63	24.51	38.73	20.72

WTR YR 1998 TOTAL 2712.65

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	1.23	1.32	.36	.34	.43	4.36	187	2.77	7.17	7.57	1.65	2.06
2	1.01	.55	.35	.60	.92	2.60	31.6	20.7	4.02	5.61	1.58	1.76
3	.86	.58	.95	2.40	.49	1.69	11.6	59.3	2.50	79.0	5.62	1.60
4	.74	.56	.69	6.44	.36	1.08	5.95	11.5	1.71	73.9	92.5	1.46
5	.68	.87	.36	12.0	.34	.81	3.89	4.98	1.36	9.26	55.8	1.31
6	.83	1.37	.35	8.33	.34	.81	3.00	3.82	1.31	8.88	15.1	1.19
7	1.56	.48	.35	3.20	.33	.75	5.70	72.1	1.27	109	5.90	1.15
8	.89	.46	.34	1.52	.33	.72	50.8	76.6	1.31	41.8	3.22	1.02
9	.57	.44	.36	.62	.32	.50	72.9	11.4	1.54	14.7	2.64	.92
10	.53	.44	.44	.25	.37	.70	19.8	4.98	1.41	10.6	2.43	.86
11	.54	.42	.41	.23	1.69	.71	6.96	3.76	84.6	9.62	2.33	.81
12	.55	.42	.38	.23	1.74	.66	4.20	3.08	53.4	8.84	2.22	.73
13	3.84	.42	.38	.20	1.52	.62	13.4	2.62	8.00	8.42	2.19	.65
14	.58	.42	.37	.19	1.41	.59	26.1	2.28	3.91	7.25	6.62	75.3
15	.51	.44	.38	.20	5.06	.56	157	2.12	2.86	5.75	8.82	169
16	.53	.41	.38	.21	30.2	.54	136	2.35	2.16	4.54	4.95	14.4
17	.51	.41	.40	.21	66.6	1.61	18.6	2.06	1.69	3.76	9.31	5.64
18	.50	.41	.39	.20	18.1	13.4	8.23	2.03	617	3.10	7.25	3.17
19	.51	.41	.39	.20	6.20	13.5	6.87	3.48	458	27.6	4.71	2.57
20	.60	.46	.41	.20	3.42	8.52	6.24	2.12	18.3	13.7	3.68	2.29
21	.55	.43	.38	.20	2.50	11.6	63.0	2.05	28.6	24.3	3.98	2.04
22	.48	.41	.39	.20	1.94	12.5	12.8	2.03	20.4	4.98	4.37	1.92
23	.50	.39	.39	.21	1.57	9.74	5.26	2.03	9.72	3.48	101	1.79
24	.52	.37	.37	.22	1.47	7.62	4.39	38.9	20.8	2.84	15.6	3.60
25	.49	.40	.38	.21	1.08	7.31	3.85	9.04	20.6	2.70	7.57	1.90
26	.53	.42	.37	.21	.96	7.58	7.96	4.66	5.37	2.41	4.65	1.77
27	.69	.42	.34	.22	17.1	5.50	3.75	3.28	38.6	2.23	3.17	1.69
28	.59	.43	.35	.22	9.51	4.34	3.01	14.3	805	2.07	8.00	1.58
29	.59	.62	.35	.22	---	3.69	2.67	11.5	52.6	1.93	4.87	1.62
30	.54	1.10	.34	.20	---	423	2.45	3.51	14.2	1.85	2.59	4.68
31	.52	---	.33	.19	---	2140	---	24.3	---	1.72	2.18	---
TOTAL	23.57	16.28	12.43	40.07	176.30	2687.61	884.98	409.65	2289.41	503.41	396.50	310.48

WTR YR 1998 TOTAL 7750.69

ROCK RIVER BASIN

331

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 12). 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	.00	2.7	.43	.09	.71	.36	5.9	.16	.60	.15	.05	.03
2	.00	.78	.26	.43	2.1	.20	.66	11	.23	.05	.05	.00
3	.00	.30	1.1	.44	.86	.25	.40	8.2	.12	9.7	.84	.00
4	.00	.22	1.2	3.4	.31	.16	.32	.62	.00	4.5	23	.00
5	.00	.96	.42	5.8	.15	.11	.17	.26	.00	.41	8.0	.00
6	.00	2.1	.26	2.1	.11	.26	.08	1.7	.00	2.1	1.5	.00
7	.00	.69	.18	.56	.16	.16	2.5	17	.00	3.2	.59	.00
8	.00	.26	.13	.17	.14	.15	15	4.9	.00	.86	.21	.05
9	.16	.16	.19	.14	.11	.44	6.2	.44	.47	.24	.12	.03
10	.01	.12	.45	.06	.27	.37	1.2	.20	.33	.11	.07	.00
11	.03	.03	.37	.01	3.9	.22	.39	.04	31	.01	.01	.00
12	.16	.00	.26	.12	2.9	.11	.21	.00	8.2	.00	.01	.00
13	5.1	.00	.18	.01	.82	.07	8.6	.00	1.2	.06	.04	.00
14	.76	.00	.13	.00	.38	.07	3.2	.00	.21	.04	2.5	28
15	.29	.09	.14	.04	.89	.04	23	.11	.11	.00	2.0	8.8
16	.14	.02	.16	.03	3.7	.06	13	.18	.02	.00	.44	.58
17	.00	.00	.16	.04	4.2	3.2	2.0	.02	.00	.08	3.6	.58
18	.00	.00	.14	.04	.86	16	.53	.04	42	.05	1.0	.89
19	.00	.00	.14	.02	.36	4.9	.31	.53	18	14	.36	.07
20	.00	.43	.16	.01	.26	1.4	1.5	.09	1.7	8.4	.17	.05
21	.00	.34	.07	.02	.20	.73	7.5	.05	1.5	5.0	1.5	.00
22	.00	.20	.13	.07	.15	.68	.70	.01	.30	.44	1.3	.00
23	.02	.07	.14	.16	.10	.52	.36	.00	.13	.22	20	.00
24	.00	.07	.11	.14	1.1	.41	.32	15	6.6	.16	2.7	1.1
25	.00	.11	.11	.14	.41	.40	.09	1.8	.89	.03	2.9	.38
26	.32	.12	.09	.13	.54	.45	4.0	.34	.39	.00	.38	.21
27	.37	.27	.07	.13	10	.44	.71	.18	19	.08	.40	.11
28	.36	.27	.06	.13	1.4	.22	.21	20	47	.01	4.8	.04
29	.41	.79	.05	.13	---	.15	.27	2.7	3.3	.00	.57	.05
30	.26	1.2	.03	.15	---	30	.16	.34	.42	.06	.21	1.2
31	.16	---	.03	.13	---	48	---	8.1	---	.06	.08	---
TOTAL	8.55	12.30	7.35	14.84	37.09	110.53	99.49	94.01	183.72	50.02	79.40	42.17
MEAN	.28	.41	.24	.48	1.32	3.57	3.32	3.03	6.12	1.61	2.56	1.41
MAX	5.1	2.7	1.2	5.8	10	48	23	20	47	14	23	28
MIN	.00	.00	.03	.00	.10	.04	.08	.00	.00	.00	.01	.00
CFSM	.08	.12	.07	.15	.40	1.08	1.01	.92	1.86	.49	.78	.43
IN.	.10	.14	.08	.17	.42	1.25	1.12	1.06	2.08	.57	.90	.48

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1998, 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
MEAN	1.09	1.24	.56	.53	1.32	2.28	1.76	1.35	2.39	2.22	1.89	1.71											
MAX	3.19	3.64	1.99	1.73	3.60	6.97	4.30	3.03	6.99	6.51	4.24	4.97											
(WY)	1985	1993	1985	1990	1994	1993	1993	1998	1996	1993	1981	1980											
MIN	.11	.027	.000	.000	.050	.37	.54	.25	.33	.30	.36	.11											
(WY)	1995	1977	1990	1977	1978	1996	1985	1994	1987	1976	1988	1976											

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1976 - 1998

ANNUAL TOTAL	615.98	739.47	
ANNUAL MEAN	1.69	2.03	1.54
HIGHEST ANNUAL MEAN			3.09
LOWEST ANNUAL MEAN			.97
HIGHEST DAILY MEAN	41	48	77
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
INSTANTANEOUS PEAK FLOW		374	754
INSTANTANEOUS PEAK STAGE		3.11	4.16
ANNUAL RUNOFF (CFSM)	.51	.62	.47
ANNUAL RUNOFF (INCHES)	6.96	8.36	6.36
10 PERCENT EXCEEDS	3.4	4.9	3.4
50 PERCENT EXCEEDS	.24	.20	.14
90 PERCENT EXCEEDS	.00	.00	.00

(a) 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, and Sept. 15, 1998.

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, 3,360 mg/L, Mar. 30; minimum observed, 1 mg/L, Sept. 15.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 86 tons, Mar. 30; minimum daily, 0.00 ton, on many days.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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 1997				APR 1998			
13...	0048	4.1	26	09...	0745	8.7	21
13...	0348	9.8	26	09...	1700	3.9	14
13...	1248	4.2	3	13...	1025	22	144
NOV				13...	1645	9.4	31
01...	0326	9.7	77	14...	0500	4.8	15
JAN 1998				15...	0730	6.2	44
04...	1555	4.3	491	15...	0900	57	252
04...	1855	10	74	15...	1205	30	61
04...	2155	9.3	34	15...	1510	48	82
05...	0655	4.8	8	15...	2130	18	29
05...	1444	4.6	74	16...	0030	26	40
05...	1744	11	93	16...	0645	13	18
05...	2344	5.2	17	16...	1900	5.1	16
FEB				16...	2330	18	92
11...	1143	4.2	107	20...	1900	4.1	33
11...	1443	7.1	51	21...	0230	16	23
11...	2343	5.6	27	21...	1445	4.5	11
16...	1830	5.6	544	26...	0245	10	224
16...	1917	23	346	26...	1030	8.4	52
16...	2217	10	74	MAY			
17...	0717	4.9	25	02...	0725	6.4	82
24...	0124	4.6	92	02...	2020	5.5	23
27...	0240	21	207	02...	2125	50	190
27...	0540	23	116	03...	0015	23	50
27...	0840	16	31	03...	1230	5.8	13
27...	2040	4.2	15	06...	1910	28	506
MAR				07...	0900	23	72
17...	1826	6.4	70	07...	1815	28	34
17...	2126	18	72	08...	0930	4.5	10
18...	0926	20	46	24...	0250	30	174
18...	1255	19	33	24...	0900	13	9
*18...	1256	19	38	24...	1030	40	155
19...	0026	8.9	16	25...	0200	3.9	4
19...	1526	4.6	16	28...	0715	106	614
30...	1703	33	3360	28...	0745	151	1900
30...	1707	56	2640	28...	0815	67	612
30...	2004	137	2300	28...	1245	21	42
30...	2202	293	1060	29...	0415	5.1	11
30...	2343	142	474	31...	0230	76	213
31...	0311	58	240	31...	0255	85	904
31...	1601	27	107	31...	0345	21	221
APR				31...	1300	5.6	8
01...	0101	15	45	JUN			
01...	0701	8.3	35	11...	0420	82	202
01...	1001	4.3	277	11...	0450	118	491
07...	1815	4.0	57	11...	1115	16	12
07...	1910	21	219	11...	1515	134	198
07...	2145	3.7	51	11...	2400	17	18
08...	0400	33	55	12...	1215	4.8	9
08...	0715	22	42	12...	2030	4.8	32
08...	1015	13	24	18...	1300	75	352
08...	2230	13	19	18...	1330	176	1050

*Equal-width increment (EWI) sample

ROCK RIVER BASIN

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05427965 SPRING HARBOR STORM SEWER AT MADISON, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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 1998				AUG 1998			
18...	1355	324	505	04...	0100	4.3	47
18...	1400	155	1060	04...	0745	67	211
18...	1445	89	360	04...	0800	139	910
18...	1745	41	65	04...	0845	38	225
18...	1900	163	176	04...	1130	18	40
18...	2005	110	137	04...	1945	156	367
19...	0345	38	50	04...	2045	40	121
19...	2215	4.6	19	05...	0515	12	8
24...	0455	50	179	05...	1430	4.8	2
24...	0520	77	896	14...	1900	50	486
24...	0630	17	146	14...	2345	5.8	46
24...	1545	4.1	8	17...	1015	29	192
27...	0420	43	242	17...	1500	3.8	19
27...	0445	140	872	21...	1955	26	247
27...	0545	28	168	23...	0600	82	355
27...	1815	4.7	6	23...	0630	133	692
27...	2305	138	216	23...	0815	48	144
27...	2355	252	379	23...	1030	23	38
28...	0045	95	218	24...	0200	4.3	3
28...	0205	148	106	24...	2245	22	111
28...	1315	28	26	25...	0615	4.5	3
JUL				28...	0115	5.7	46
06...	1030	29	443	28...	0500	6.9	19
07...	1000	8.4	78	28...	1115	4.8	4
19...	0335	49	1270	SEP			
19...	0400	164	663	14...	0555	6.5	16
19...	0430	81	389	14...	0640	29	59
19...	0515	34	136	14...	1250	37	37
19...	2030	4.2	3	14...	1645	57	30
20...	1735	35	150	15...	0200	17	6
20...	1800	7.6	391	15...	1430	4.8	1
20...	1830	69	207	18...	0045	7.2	85
20...	1925	32	176	30...	1235	7.3	95
21...	1100	4.1	2				

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	.00	.41	.01	.00	.03	.01	.98	.01	.01	.00	.00	.00
2	.00	.01	.00	.02	.08	.00	.03	3.8	.00	.00	.00	.00
3	.00	.00	.04	.01	.02	.00	.02	.64	.00	1.4	.19	.00
4	.00	.00	.03	.86	.00	.00	.01	.02	.00	.21	12	.00
5	.00	.07	.01	.58	.00	.00	.01	.01	.00	.01	.23	.00
6	.00	.12	.00	.05	.00	.00	.00	.99	.00	.71	.05	.00
7	.00	.02	.00	.01	.00	.00	.81	2.4	.00	.47	.01	.00
8	.00	.00	.00	.00	.00	.00	1.4	.20	.00	.04	.00	.00
9	.00	.00	.00	.00	.00	.01	.31	.01	.01	.01	.00	.00
10	.00	.00	.01	.00	.01	.01	.04	.00	.01	.00	.00	.00
11	.00	.00	.01	.00	.49	.00	.01	.00	12	.00	.00	.00
12	.00	.00	.00	.00	.32	.00	.01	.00	.46	.00	.00	.00
13	.18	.00	.00	.00	.04	.00	1.5	.00	.04	.00	.00	.00
14	.01	.00	.00	.00	.01	.00	.17	.00	.00	.00	1.2	2.3
15	.00	.00	.00	.00	.24	.00	5.8	.01	.00	.00	.06	.09
16	.00	.00	.00	.00	1.7	.00	1.2	.01	.00	.00	.00	.00
17	.00	.00	.00	.00	.35	.56	.17	.00	.00	.00	.93	.09
18	.00	.00	.00	.00	.02	1.8	.02	.00	34	.00	.01	.13
19	.00	.00	.00	.00	.00	.21	.01	.03	2.3	10	.00	.00
20	.00	.02	.00	.00	.00	.05	.12	.00	.10	3.0	.00	.00
21	.00	.01	.00	.00	.00	.02	.36	.00	.06	.20	.39	.00
22	.00	.00	.00	.00	.00	.02	.02	.00	.01	.00	.03	.00
23	.00	.00	.00	.00	.00	.01	.01	.00	.00	.00	12	.00
24	.00	.00	.00	.00	.10	.01	.01	2.8	3.5	.00	.14	.09
25	.00	.00	.00	.00	.01	.01	.00	.02	.02	.00	.03	.00
26	.01	.00	.00	.00	.01	.01	.61	.00	.01	.00	.00	.00
27	.00	.00	.00	.00	1.5	.01	.02	.00	14	.00	.02	.00
28	.00	.00	.00	.00	.03	.00	.00	24	12	.00	.45	.00
29	.00	.04	.00	.00	---	.00	.01	.08	.12	.00	.00	.00
30	.00	.05	.00	.00	---	86	.00	.01	.01	.00	.00	.21
31	.00	---	.00	.00	---	26	---	4.8	---	.00	.00	---
TOTAL	0.20	0.75	0.11	1.53	4.96	114.74	13.66	39.84	78.66	16.05	27.74	2.91

WTR YR 1998 TOTAL 301.15

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 12). 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, 11.16 ft, July 4; minimum recorded, 8.99 ft, Dec. 23.

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	9.52	9.47	9.08	9.22	9.58	10.13	10.80	10.52	10.31	11.07	10.07	10.16
2	9.51	9.46	9.06	9.22	9.60	10.14	10.85	10.51	10.31	11.06	10.04	10.14
3	9.52	9.44	9.10	9.23	9.61	10.16	10.85	10.58	10.27	11.07	10.01	10.10
4	9.52	9.42	9.14	9.25	9.62	10.16	10.83	10.56	10.24	11.10	10.08	10.08
5	9.52	9.40	9.15	9.31	9.62	10.16	10.80	10.53	10.21	11.08	10.14	10.06
6	9.52	9.41	9.14	9.34	9.62	10.18	10.77	10.49	10.19	11.06	10.18	10.05
7	9.52	9.41	9.12	9.36	9.63	10.18	10.74	10.51	10.16	11.07	10.21	10.04
8	9.52	9.40	9.11	9.39	9.63	10.25	10.80	10.53	10.13	11.06	10.21	10.00
9	9.54	9.39	9.12	9.42	9.64	10.32	10.82	10.50	10.11	11.00	10.21	9.97
10	9.53	9.38	9.15	9.42	9.65	10.27	10.80	10.45	10.11	10.96	10.21	9.95
11	9.51	9.36	9.15	9.40	9.68	10.25	10.77	10.40	10.16	10.90	10.19	9.92
12	9.50	9.34	9.15	9.41	9.71	10.22	10.72	10.35	10.25	10.85	10.17	9.91
13	9.56	9.31	9.15	9.41	9.72	10.21	10.72	10.34	10.26	10.79	10.15	9.91
14	9.55	9.30	9.15	9.43	9.73	10.18	10.75	10.30	10.24	10.74	10.16	10.00
15	9.53	9.30	9.14	9.45	9.74	10.16	10.79	10.29	10.23	10.69	10.18	10.13
16	9.53	9.28	9.15	9.45	9.77	10.14	10.91	10.33	10.22	10.63	10.15	10.15
17	9.53	9.25	9.15	9.46	9.84	10.14	10.92	10.31	10.20	10.57	10.17	10.16
18	9.52	9.23	9.15	9.46	9.87	10.21	10.91	10.29	10.26	10.51	10.16	10.16
19	9.52	9.21	9.16	9.47	9.89	10.25	10.88	10.30	10.50	10.51	10.14	10.16
20	9.51	9.20	9.18	9.47	9.91	10.27	10.85	10.29	10.57	10.47	10.14	10.17
21	9.51	9.19	9.17	9.49	9.93	10.26	10.87	10.27	10.59	10.48	10.14	10.16
22	9.48	9.18	9.18	9.51	9.94	10.26	10.85	10.23	10.60	10.44	10.13	10.14
23	9.48	9.17	9.19	9.52	9.96	10.26	10.82	10.20	10.59	10.41	10.18	10.11
24	9.49	9.13	9.20	9.53	9.98	10.26	10.78	10.24	10.60	10.35	10.21	10.12
25	9.48	9.11	9.22	9.54	10.00	10.26	10.73	10.26	10.60	10.31	10.23	10.12
26	9.48	9.12	9.22	9.55	10.01	10.26	10.72	10.25	10.60	10.27	10.22	10.13
27	9.49	9.08	9.22	9.55	10.07	10.27	10.69	10.23	10.63	10.24	10.20	10.14
28	9.48	9.09	9.21	9.56	10.11	10.27	10.64	10.27	10.92	10.21	10.22	10.13
29	9.47	9.08	9.22	9.56	---	10.25	10.60	10.30	11.03	10.17	10.22	10.13
30	9.45	9.11	9.22	9.57	---	10.28	10.55	10.28	11.07	10.14	10.20	10.15
31	9.44	---	9.22	9.57	---	10.64	---	10.34	---	10.10	10.17	---
MEAN	9.51	9.27	9.16	9.44	9.79	10.23	10.78	10.36	10.41	10.66	10.16	10.09
MAX	9.56	9.47	9.22	9.57	10.11	10.64	10.92	10.58	11.07	11.10	10.23	10.17
MIN	9.44	9.08	9.06	9.22	9.58	10.13	10.55	10.20	10.11	10.10	10.01	9.91

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 12). 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, 6.22 ft, June 28; minimum recorded, 3.67 ft, Jan. 1, 3.

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	4.75	4.47	4.20	3.68	3.71	3.95	5.54	5.58	5.16	6.01	5.44	5.44
2	4.70	4.48	4.20	3.68	3.72	3.94	5.59	5.60	5.13	5.94	5.42	5.41
3	4.67	4.51	4.19	3.68	3.72	3.94	5.61	5.67	5.11	5.93	5.41	5.40
4	4.63	4.54	4.16	3.69	3.71	3.92	5.60	5.67	5.10	5.95	5.47	5.39
5	4.59	4.58	4.10	3.74	3.71	3.92	5.59	5.67	5.10	5.90	5.53	5.38
6	4.56	4.61	4.06	3.77	3.70	3.91	5.56	5.67	5.09	5.85	5.51	5.37
7	4.53	4.59	4.04	3.78	3.70	3.91	5.56	5.74	5.08	5.87	5.52	5.35
8	4.52	4.56	4.03	3.78	3.69	3.96	5.65	5.81	5.09	5.88	5.50	5.31
9	4.51	4.53	4.02	3.78	3.69	3.94	5.69	5.81	5.12	5.88	5.49	5.29
10	4.49	4.50	4.00	3.78	3.68	3.95	5.67	5.79	5.13	5.89	5.46	5.26
11	4.48	4.46	3.98	3.78	3.71	3.99	5.65	5.77	5.28	5.88	5.44	5.24
12	4.48	4.42	3.94	3.77	3.74	4.02	5.64	5.75	5.38	5.86	5.42	5.20
13	4.51	4.40	3.92	3.77	3.74	4.05	5.65	5.68	5.42	5.85	5.40	5.17
14	4.47	4.37	3.90	3.77	3.74	4.06	5.64	5.61	5.46	5.84	5.39	5.27
15	4.45	4.35	3.88	3.78	3.75	4.09	5.73	5.53	5.46	5.82	5.41	5.40
16	4.44	4.31	3.87	3.77	3.76	4.12	5.89	5.43	5.46	5.81	5.39	5.38
17	4.43	4.29	3.85	3.77	3.81	4.17	5.89	5.36	5.46	5.79	5.39	5.35
18	4.41	4.27	3.84	3.76	3.83	4.28	5.87	5.29	5.56	5.79	5.40	5.32
19	4.40	4.25	3.82	3.75	3.84	4.36	5.85	5.24	5.78	5.82	5.38	5.30
20	4.37	4.25	3.81	3.74	3.84	4.40	5.81	5.19	5.81	5.84	5.37	5.27
21	4.34	4.25	3.80	3.75	3.84	4.41	5.84	5.14	5.81	5.90	5.37	5.22
22	4.32	4.23	3.79	3.75	3.84	4.44	5.81	5.09	5.81	5.88	5.37	5.17
23	4.34	4.21	3.78	3.76	3.84	4.46	5.77	5.04	5.81	5.80	5.41	5.13
24	4.34	4.19	3.77	3.75	3.85	4.48	5.73	5.04	5.82	5.74	5.43	5.11
25	4.32	4.19	3.77	3.75	3.86	4.51	5.70	5.02	5.81	5.70	5.44	5.09
26	4.32	4.18	3.75	3.74	3.89	4.53	5.71	5.00	5.80	5.66	5.44	5.06
27	4.30	4.18	3.74	3.74	3.95	4.56	5.65	4.99	5.87	5.62	5.44	5.04
28	4.31	4.18	3.73	3.73	3.96	4.61	5.60	5.09	6.14	5.57	5.48	5.01
29	4.34	4.18	3.72	3.73	---	4.66	5.59	5.15	6.14	5.54	5.48	4.98
30	4.38	4.21	3.70	3.72	---	4.76	5.58	5.15	6.07	5.50	5.47	4.96
31	4.42	---	3.69	3.71	---	5.31	---	5.17	---	5.47	5.45	---
MEAN	4.46	4.36	3.90	3.75	3.78	4.25	5.69	5.41	5.51	5.80	5.44	5.24
MAX	4.75	4.61	4.20	3.78	3.96	5.31	5.89	5.81	6.14	6.01	5.53	5.44
MIN	4.30	4.18	3.69	3.68	3.68	3.91	5.54	4.99	5.08	5.47	5.37	4.96

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.--Estimated daily discharges: Ice-affected period, Mar. 9-14. Records fair (see page 12). Flow regulated by dams at outlets of Lake Mendota and Lake Waubesa. The Madison Metropolitan Sewerage District diverted an average of 66 ft³/s of effluent into the Badfish Creek basin during 1998 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	179	48	163	83	92	126	438	388	225	427	211	171
2	169	53	160	82	95	127	460	391	221	425	201	169
3	164	58	162	84	94	129	466	406	214	421	193	163
4	159	62	163	86	94	128	465	405	205	421	193	160
5	153	130	160	92	93	127	463	399	194	402	204	158
6	93	214	155	96	92	127	456	393	188	386	207	158
7	48	206	147	97	92	127	448	403	182	380	205	159
8	49	200	139	100	92	132	471	422	173	379	195	155
9	44	196	135	104	92	120	486	420	168	377	188	151
10	39	194	135	103	91	110	484	411	166	375	181	147
11	39	190	131	99	95	100	473	401	179	372	172	145
12	40	186	127	97	99	100	455	391	199	368	162	143
13	45	180	123	96	99	100	444	387	204	364	154	142
14	43	177	119	95	99	100	454	369	201	361	147	157
15	44	178	115	96	99	106	470	350	198	359	144	185
16	48	177	112	95	103	109	523	334	195	356	136	187
17	51	172	109	94	112	113	529	315	188	348	132	185
18	53	169	106	94	117	129	516	297	188	339	130	182
19	54	169	105	93	117	143	501	286	223	342	129	178
20	50	168	104	92	116	150	487	276	231	338	128	175
21	46	169	102	93	116	153	487	263	236	342	131	172
22	42	169	99	93	116	157	481	246	237	338	134	166
23	43	167	98	94	116	160	470	233	237	329	140	159
24	45	165	97	94	118	164	456	237	250	312	147	157
25	44	161	99	95	115	167	440	234	264	296	156	156
26	43	160	97	94	111	169	431	214	277	282	157	156
27	43	156	94	93	117	174	421	210	300	269	158	157
28	40	156	90	93	123	177	408	184	378	259	166	156
29	39	158	89	93	---	185	397	215	414	246	170	156
30	41	165	88	92	---	197	391	238	427	234	171	157
31	42	---	86	91	---	343	---	239	---	222	171	---
TOTAL	2032	4753	3709	2903	2915	4449	13871	9957	6962	10669	5113	4862
MEAN	65.5	158	120	93.6	104	144	462	321	232	344	165	162
MAX	179	214	163	104	123	343	529	422	427	427	211	187
MIN	39	48	86	82	91	100	391	184	166	222	128	142
CFSM	.20	.48	.37	.29	.32	.44	1.41	.98	.71	1.05	.50	.50
IN.	.23	.54	.42	.33	.33	.51	1.58	1.13	.79	1.21	.58	.55

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 1998, BY WATER YEAR (WY)

MEAN	124	156	148	140	156	249	264	182	145	144	117	114
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 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1930 - 1998	
ANNUAL TOTAL	69299		72195		162	
ANNUAL MEAN	190		198		336	1993
HIGHEST ANNUAL MEAN					63.8	1964
LOWEST ANNUAL MEAN					853	Apr 11 1959
HIGHEST DAILY MEAN	407	Apr 6	529	Apr 17	1.2	Jun 27 1979
LOWEST DAILY MEAN	39	Oct 10,11,29	39	Oct 10,11,29	2.0	Jun 22 1979
ANNUAL SEVEN-DAY MINIMUM	42	Oct 25	42	Oct 25	(b) 867	Apr 10 1959
INSTANTANEOUS PEAK FLOW			(a) 533	Apr 16	(d) 6.33	Jul 23,24 1950
INSTANTANEOUS PEAK STAGE			(c) 5.82	Jun 28	.49	
ANNUAL RUNOFF (CFSM)	.58		.60		6.71	
ANNUAL RUNOFF (INCHES)	7.88		8.21		324	
10 PERCENT EXCEEDS	348		409		135	
50 PERCENT EXCEEDS	169		162		39	
90 PERCENT EXCEEDS	89		90			

(a) Gage height, 5.42 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.--No estimated daily discharges. Records good (see page 12). Approximately 56 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	98	96	84	87	111	342	125	122	157	110	106
2	87	91	95	84	99	109	199	123	119	147	107	103
3	87	92	98	115	97	109	162	148	114	146	108	103
4	84	92	98	110	94	106	144	136	111	191	129	102
5	91	92	94	134	93	105	133	127	109	136	146	100
6	84	101	90	132	92	105	128	125	106	142	180	99
7	83	95	88	121	88	101	128	199	104	160	216	98
8	87	93	91	112	86	106	233	238	107	141	143	101
9	87	91	92	104	89	105	240	154	111	129	129	103
10	85	92	94	94	89	100	181	134	110	122	122	103
11	85	93	92	100	104	98	150	129	167	116	121	103
12	84	92	92	92	123	98	135	128	191	106	116	101
13	92	90	88	93	116	100	136	131	140	105	115	101
14	91	93	86	91	106	97	155	123	122	112	115	140
15	90	93	91	90	121	96	191	122	118	110	116	205
16	90	91	92	89	138	96	329	118	117	110	107	139
17	89	93	91	86	166	100	229	112	114	110	111	123
18	87	94	91	86	136	145	172	112	160	109	115	118
19	88	92	92	87	121	163	151	115	324	118	110	113
20	86	92	89	92	114	137	148	113	154	120	110	110
21	89	93	85	90	108	126	176	112	131	151	120	111
22	87	87	88	89	105	122	163	109	123	129	220	109
23	90	85	89	88	104	119	144	108	124	125	126	107
24	92	88	88	85	111	114	137	120	126	120	120	111
25	86	91	82	85	105	114	128	113	126	116	127	109
26	85	91	77	87	106	115	133	113	152	114	115	110
27	92	86	83	88	127	112	135	114	176	111	113	107
28	91	82	81	88	120	107	128	128	568	116	132	107
29	93	84	83	89	---	104	125	144	282	116	117	104
30	92	105	86	89	---	110	126	125	184	114	109	108
31	93	---	85	86	---	480	---	130	---	113	106	---
TOTAL	2732	2752	2767	2960	3045	3810	5081	4028	4712	3912	3931	3354
MEAN	88.1	91.7	89.3	95.5	109	123	169	130	157	126	127	112
MAX	93	105	98	134	166	480	342	238	568	191	220	205
MIN	83	82	77	84	86	96	125	108	104	105	106	98

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1998, BY WATER YEAR (WY)

	MEAN	94.4	101	95.4	90.1	105	126	122	104	115	103	95.2	96.1
MAX	139	163	129	122	163	190	193	130	252	171	133	139	
(WY)	1987	1986	1983	1988	1994	1993	1993	1998	1996	1993	1996	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	
(WY)	1978	1978	1979	1991	1979	1981	1990	1981	1991	1977	1977	1991	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1977 - 1998

ANNUAL TOTAL	40500	43084	
ANNUAL MEAN	111	118	
HIGHEST ANNUAL MEAN			104
LOWEST ANNUAL MEAN			136
HIGHEST DAILY MEAN	869	Feb 21	1450
LOWEST DAILY MEAN	77	Dec 26	35
ANNUAL SEVEN-DAY MINIMUM	82	Dec 25	48
INSTANTANEOUS PEAK FLOW			699
INSTANTANEOUS PEAK STAGE			7.35
10 PERCENT EXCEEDS	129		151
50 PERCENT EXCEEDS	97		109
90 PERCENT EXCEEDS	87		87

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.

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, Jan. 10-14. Records good except for ice-affected period, which is fair (see page 12). 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	265	243	337	280	256	278	1070	735	410	620	315	266
2	267	91	360	272	268	254	871	710	416	620	305	267
3	269	170	364	286	268	252	855	741	390	576	368	260
4	267	318	348	275	267	250	794	771	345	712	302	252
5	258	251	326	307	271	256	785	767	365	619	417	260
6	247	291	338	326	281	271	785	749	337	651	405	259
7	250	364	338	333	278	283	782	821	349	686	540	255
8	256	516	333	318	273	299	922	899	344	657	495	254
9	247	350	329	305	269	307	980	805	347	646	483	257
10	211	349	328	290	266	301	915	770	343	635	465	265
11	91	410	326	280	266	299	855	700	413	622	415	268
12	90	388	325	270	312	311	810	713	481	566	402	257
13	119	390	321	260	327	318	789	766	431	594	397	268
14	114	389	309	260	297	313	831	764	383	543	346	314
15	111	366	304	264	304	303	883	727	386	562	365	493
16	113	282	304	262	321	299	1070	699	449	496	356	449
17	124	334	278	259	364	301	1030	661	367	544	353	364
18	170	339	221	263	374	343	933	607	449	534	374	392
19	196	361	291	261	390	377	822	592	728	520	354	389
20	186	337	299	264	423	395	920	541	565	510	353	309
21	221	344	282	262	271	409	938	553	487	559	304	342
22	300	331	288	261	293	372	929	550	464	501	281	331
23	221	326	296	261	315	340	882	523	457	531	202	322
24	156	326	294	260	365	363	834	481	472	489	338	344
25	146	326	289	262	343	354	806	482	508	511	286	322
26	178	325	282	260	336	387	807	476	499	485	275	334
27	325	323	285	261	325	372	810	328	553	431	274	340
28	329	314	282	258	306	376	779	401	1020	289	301	319
29	326	315	279	251	---	365	707	367	815	198	287	307
30	320	333	281	252	---	387	736	477	711	193	267	324
31	309	---	279	252	---	1050	---	439	---	345	298	---
TOTAL	6682	9802	9516	8475	8629	10785	25930	19615	14284	16445	10923	9383
MEAN	216	327	307	273	308	348	864	633	476	530	352	313
MAX	329	516	364	333	423	1050	1070	899	1020	712	540	493
MIN	90	91	221	251	256	250	707	328	337	193	202	252
CFSM	.42	.63	.59	.53	.59	.67	1.67	1.22	.92	1.02	.68	.60
IN.	.48	.70	.68	.61	.62	.77	1.86	1.41	1.03	1.18	.78	.67

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1998, BY WATER YEAR (WY)

	348	407	391	338	364	468	479	385	347	325	297	321
MEAN	348	407	391	338	364	468	479	385	347	325	297	321
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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1977 - 1998

ANNUAL TOTAL	139845	150469	
ANNUAL MEAN	383	412	374
HIGHEST ANNUAL MEAN			629
LOWEST ANNUAL MEAN			262
HIGHEST DAILY MEAN	1690	Feb 21	1070 Apr 1, 16
LOWEST DAILY MEAN	90	Oct 12	90 Oct 12
ANNUAL SEVEN-DAY MINIMUM	109	Oct 11	109 Oct 11
INSTANTANEOUS PEAK FLOW			1480 Mar 31
INSTANTANEOUS PEAK STAGE			7.16 Mar 31
ANNUAL RUNOFF (CFSM)	.74	.80	11.16
ANNUAL RUNOFF (INCHES)	10.04	10.81	.72
10 PERCENT EXCEEDS	604	768	603
50 PERCENT EXCEEDS	326	337	338
90 PERCENT EXCEEDS	258	256	153

ROCK RIVER BASIN
05430500 ROCK RIVER AT AFTON, WI

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 periods, Jan. 1, 2, and 8-22. Records good except those for ice-affected periods, which are fair, and periods of discharge below 800 ft³/s, which are poor (see page 12). Diurnal fluctuation caused by powerplants above station. Data-collection platform 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	1110	860	1320	1000	1460	2850	4500	5810	2240	2990	910	1240
2	970	745	1390	1000	1460	2850	4510	5670	2200	2920	927	786
3	1070	675	1290	1100	1490	2920	5010	5610	2110	3040	825	770
4	1030	792	1260	1190	1550	2940	5250	5480	2040	3260	1030	1010
5	997	907	1260	1230	1540	2900	5390	5310	1970	3290	2230	875
6	958	1110	1200	1360	1540	2860	5530	5160	1830	3190	2380	863
7	951	1520	1230	1690	1550	2860	5710	5370	1690	3200	2550	908
8	939	1560	1240	1700	1550	3120	6200	5450	1680	3150	2670	907
9	825	1450	1250	1400	1550	3220	6460	5290	1550	3030	2630	831
10	765	1330	1290	1500	1550	2730	6420	5120	1460	2960	2740	755
11	832	1230	1280	1700	1630	2590	6320	4930	1370	2850	2760	872
12	762	1070	1280	1700	1670	2610	6180	4770	1520	2690	2670	784
13	667	1060	1220	1700	1730	2530	6230	4870	1830	2530	2570	811
14	462	1120	1230	1600	1800	2490	6370	4690	1870	2470	2450	951
15	797	1130	1220	1600	1880	2490	6440	4520	1970	2230	2350	1220
16	576	1050	1150	1600	2050	2460	6930	4220	2180	2310	2280	1520
17	454	950	1160	1600	2260	2480	6770	4090	2140	2090	2100	1470
18	461	1060	1100	1600	2330	2570	6710	3860	2040	1670	2020	1300
19	523	1010	1110	1500	2440	2600	6740	3730	2320	1650	1940	1050
20	551	902	1160	1600	2600	2740	6800	3530	2280	1670	1460	1050
21	604	1070	1150	1600	2650	2810	7120	3320	2170	1830	1380	919
22	974	1210	1160	1600	2630	2840	7080	3180	2200	1720	1280	1130
23	1110	1200	1150	1600	2740	2850	6940	2960	2390	1520	1190	1010
24	1020	1190	1160	1580	2900	2900	6770	2790	2420	1650	1110	994
25	1210	1200	1160	1560	2960	2880	6690	2590	2490	1570	1350	1020
26	1240	1200	1120	1540	3010	2830	6750	2450	2990	1580	1230	956
27	1310	1170	1120	1510	3000	2860	6590	2300	2760	1510	1270	900
28	1330	1180	1110	1450	2850	2970	6300	2020	3350	1210	1280	1100
29	1190	1190	1120	1460	---	2980	6050	2260	3290	525	1290	999
30	1030	1250	1090	1450	---	2920	5860	2250	2980	548	1270	1010
31	852	---	1070	1440	---	3870	---	2300	---	738	1250	---
TOTAL	27570	33391	37050	46160	58370	87520	186620	125900	65330	67591	55392	30011
MEAN	889	1113	1195	1489	2085	2823	6221	4061	2178	2180	1787	1000
MAX	1330	1560	1390	1700	3010	3870	7120	5810	3350	3290	2760	1520
MIN	454	675	1070	1000	1460	2460	4500	2020	1370	525	825	755
CFSM	.27	.33	.36	.45	.62	.85	1.86	1.22	.65	.65	.53	.30
IN.	.31	.37	.41	.51	.65	.97	2.08	1.40	.73	.75	.62	.33

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

	MEAN	1379	1569	1468	1312	1539	3357	4138	2542	1732	1413	1116	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	1003	389	314	247	183	212	
(WY)	1940	1964	1940	1959	1959	1940	1931	1958	1934	1934	1934	1939	

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1914 - 1998
ANNUAL TOTAL	809632	820905	
ANNUAL MEAN	2218	2249	1899
HIGHEST ANNUAL MEAN			3925
LOWEST ANNUAL MEAN			557
HIGHEST DAILY MEAN	5790	Mar 2	13000
LOWEST DAILY MEAN	454	Oct 17	42
ANNUAL SEVEN-DAY MINIMUM	546	Oct 14	115
INSTANTANEOUS PEAK FLOW		7220	(a) 13000
INSTANTANEOUS PEAK STAGE		9.24	(b) 13.05
ANNUAL RUNOFF (CFSM)	.66	.67	.57
ANNUAL RUNOFF (INCHES)	9.02	9.14	7.73
10 PERCENT EXCEEDS	4460	5140	4040
50 PERCENT EXCEEDS	1700	1600	1310
90 PERCENT EXCEEDS	1030	909	474

(a) Gage height, 11.81 ft, present datum

(b) Present datum, backwater from ice

ROCK RIVER BASIN

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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 of 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: July 27-31, Aug. 1, 18-24, and Sept. 17-30, and ice-affected periods, Nov. 17-25, Dec. 26-28, Jan. 9-22, 25, 26, and Mar. 9-16. Records good except those for estimated daily discharges, which are poor (see page 12). Gage-height tele-meter 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	.47	.55	.95	.70	4.3	1.9	10	3.1	1.0	2.6	.33	.67
2	.43	.53	.81	1.7	8.0	1.8	5.6	2.6	.96	2.3	.46	.56
3	.49	.56	1.6	4.4	4.3	1.9	4.0	2.4	.81	9.2	.53	.55
4	.39	.50	1.2	9.5	3.2	1.7	3.3	2.2	.89	7.5	4.3	.52
5	.31	1.0	.92	11	2.5	1.5	2.9	2.2	1.0	2.5	16	.60
6	.43	1.0	.73	12	2.3	1.7	2.9	11	.89	2.8	7.9	.61
7	.50	.67	.65	9.1	2.2	1.5	4.3	32	.90	2.1	1.7	11
8	.44	.57	.70	4.3	2.1	7.1	14	19	.99	1.9	1.2	.72
9	.68	.48	.85	3.0	2.0	3.5	16	8.7	2.7	1.9	.61	.52
10	.48	.52	1.2	2.1	2.0	2.0	8.2	6.0	1.3	2.0	.97	.50
11	.32	.51	.86	1.7	13	1.5	5.0	4.5	6.9	1.8	.65	.51
12	.30	.43	.86	1.5	10	1.3	4.0	4.2	4.7	1.7	.57	.41
13	2.6	.47	.78	1.4	4.4	1.2	5.3	6.1	5.6	1.7	.64	.31
14	.74	.50	.63	1.3	3.1	1.1	5.1	2.2	2.3	1.6	.99	10
15	.70	.69	.74	1.2	2.8	1.0	5.3	1.6	2.0	1.6	1.0	5.6
16	.57	.36	.83	1.1	3.7	1.1	15	1.5	1.8	1.3	.64	1.3
17	.56	.33	.80	1.1	5.6	2.9	6.6	1.2	1.7	1.1	.36	.70
18	.53	.32	.91	1.0	4.4	8.4	4.3	1.1	6.2	1.1	.35	.60
19	.53	.34	.92	1.0	2.9	5.2	3.7	1.3	4.6	1.5	.33	.52
20	.59	.33	.88	1.0	2.6	3.1	4.8	.98	2.1	4.0	.32	.47
21	.60	.32	.73	1.0	2.1	2.5	11	.89	1.8	4.9	.32	.45
22	.53	.31	.78	1.3	2.1	2.2	6.3	1.1	1.7	1.1	.50	.43
23	.72	.30	.75	1.5	2.0	2.2	4.2	.81	1.7	.56	.40	.41
24	.97	.31	.71	1.3	3.1	2.0	3.6	2.2	2.3	.55	.45	.40
25	.65	.35	.78	1.1	1.9	1.9	3.1	.89	4.8	.56	4.5	.70
26	2.5	.51	.70	1.3	1.9	2.0	5.2	.74	14	.51	.56	.50
27	1.6	1.0	.60	1.5	4.1	1.9	3.1	.64	12	.45	.61	.45
28	.85	.58	.56	1.7	2.3	2.4	2.7	1.9	22	.42	1.6	.42
29	.67	2.4	.86	1.9	---	1.6	2.7	2.5	7.7	.39	.55	.40
30	.70	1.6	.82	1.8	---	1.8	2.7	.95	3.5	.37	.43	.60
31	.66	---	.68	1.7	---	23	---	1.9	---	.34	.42	---
TOTAL	22.51	18.34	25.79	86.20	104.9	94.9	174.9	128.40	120.84	62.35	50.19	41.43
MEAN	.73	.61	.83	2.78	3.75	3.06	5.83	4.14	4.03	2.01	1.62	1.38
MAX	2.6	2.4	1.6	12	13	23	16	32	22	9.2	16	11
MIN	.30	.30	.56	.70	1.9	1.0	2.7	.64	.81	.34	.32	.31
CFSM	.17	.14	.19	.64	.86	.71	1.34	.95	.93	.46	.37	.32
IN.	.19	.16	.22	.74	.90	.81	1.50	1.10	1.04	.53	.43	.36

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1998, BY WATER YEAR (WY)

	MEAN	2.18	3.91	2.71	1.88	3.63	5.10	5.02	3.31	2.86	2.20	1.68	2.36
MAX	7.23	13.3	6.55	4.61	8.81	10.7	14.4	7.11	9.42	5.39	5.59	10.8	
(WY)	1986	1986	1985	1993	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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1984 - 1998
ANNUAL TOTAL	704.11	930.75	
ANNUAL MEAN	1.93	2.55	3.06
HIGHEST ANNUAL MEAN			5.74
LOWEST ANNUAL MEAN			1.70
HIGHEST DAILY MEAN	65 Feb 21	32 May 7	113 Feb 19 1994
LOWEST DAILY MEAN	.03 Sep 14	.30 (a) Oct 12	.03 Sep 14 1997
ANNUAL SEVEN-DAY MINIMUM	.07 Sep 8	.32 Nov 18	.07 Sep 8 1997
INSTANTANEOUS PEAK FLOW		57 Aug 5	210 Apr 19 1993
INSTANTANEOUS PEAK STAGE		8.08 Aug 5	10.00 Apr 19 1993
ANNUAL RUNOFF (CFSM)	.44	.59	.71
ANNUAL RUNOFF (INCHES)	6.04	7.98	9.59
10 PERCENT EXCEEDS	3.8	5.8	6.6
50 PERCENT EXCEEDS	.92	1.3	1.3
90 PERCENT EXCEEDS	.36	.43	.39

(a) Also occurred Nov. 23

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, 2,399 mg/L, Sept. 7; minimum observed, 4 mg/L, June 13.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 32 tons, May 7; minimum daily, 0.01 ton, on several days.

TOTAL PHOSPHORUS CONCENTRATIONS: Maximum observed, 3.2 mg/L, May 6; minimum observed, 0.02 mg/L, Mar. 17.

TOTAL PHOSPHORUS DISCHARGE: Maximum daily, 107 lb, May 7; minimum daily, 0.08 lb, on several days.

ROCK RIVER BASIN

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054310157 JACKSON CREEK TRIBUTARY NEAR ELKHORN, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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)	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)
OCT 1997					MAR 1998				
*02...	1030	.43	.053	56	31...	0745	25	.797	559
13...	0545	9.1	.252	476	*31...	0750	25	.210	--
*13...	0740	8.4	.340	134	31...	0900	34	1.20	860
13...	0745	8.2	.769	186	31...	1015	44	.160	733
*14...	0940	.68	.213	21	31...	1215	40	.617	366
26...	1530	6.3	--	194	31...	1615	27	.470	268
*27...	0915	1.6	.327	139	31...	2015	20	.429	229
*29...	0955	.67	.059	70	APR				
NOV					01...	0215	13	.289	68
*03...	1125	.57	.051	154	*01...	0735	11	.162	--
29...	1800	9.3	1.38	871	01...	1615	8.8	.183	40
*29...	2000	6.1	.360	284	*06...	0800	2.8	.054	--
DEC					07...	2345	14	1.20	763
*02...	1030	.91	.081	23	08...	0015	22	1.22	618
JAN 1998					08...	0215	21	.562	279
04...	1615	10	1.02	510	08...	0615	14	.342	191
04...	1715	16	1.19	735	08...	1215	12	.296	191
04...	2115	20	.375	135	08...	1815	10	.257	189
05...	0115	15	.240	69	08...	2215	13	.293	169
05...	0715	9.1	.237	46	09...	0215	13	.241	128
05...	1315	6.4	.188	51	09...	0945	21	.417	234
05...	1830	15	.336	110	09...	1305	22	--	393
06...	0030	11	.217	52	*09...	1306	22	--	49
06...	0630	7.6	.169	39	09...	1307	22	.393	--
06...	1230	5.6	.152	26	*09...	1308	21	.238	--
06...	1545	8.5	.315	122	09...	1545	18	.498	224
06...	2000	23	.395	145	09...	2145	13	.401	174
07...	0200	15	.200	42	10...	0345	10	.326	191
07...	0800	10	.183	26	*10...	0910	8.4	.141	--
*07...	1101	8.7	--	7	15...	2215	10	1.48	847
07...	1145	8.4	.147	26	16...	0130	18	.907	450
*07...	1146	8.4	.116	--	16...	0230	26	1.30	703
07...	1400	7.7	--	30	16...	0630	18	.508	295
*08...	0740	4.1	--	44	16...	1230	14	.449	205
FEB					16...	2230	9.4	.291	195
01...	1715	7.6	.389	856	*17...	0800	7.1	.122	14
01...	1915	8.8	.137	283	20...	1930	12	.963	922
01...	2115	9.9	.114	158	21...	0815	15	.854	499
02...	0115	11	.112	69	21...	1015	22	.373	615
02...	0515	9.8	.176	60	21...	1415	16	.410	276
02...	1115	7.4	.163	49	21...	1815	12	.263	244
*03...	0735	4.2	--	140	21...	2215	9.3	.247	89
*03...	0745	4.2	.059	--	26...	0345	12	.195	599
*09...	1000	2.1	.065	13	MAY				
11...	1100	11	1.17	616	*04...	0800	2.2	--	14
11...	1415	20	.091	281	*06...	1055	2.8	.048	16
11...	1615	23	.440	155	06...	1645	14	.179	1480
11...	1815	24	.388	125	06...	1745	28	3.19	1960
11...	2215	20	.256	63	06...	1815	40	2.33	1480
12...	0415	13	.175	37	06...	2015	37	1.36	841
12...	1215	8.8	.170	31	07...	0015	20	.533	271
12...	2015	7.3	.135	33	07...	0415	12	.367	172
*13...	0740	4.5	.071	33	07...	0615	21	.528	246
16...	2045	9.5	.939	486	07...	0900	34	.680	254
16...	2245	8.4	--	244	07...	1030	45	.584	298
17...	0045	7.6	.253	94	07...	1430	41	.999	981
17...	0245	7.3	--	73	07...	1830	39	.477	252
*17...	0735	5.9	.095	19	07...	2230	37	.566	207
MAR					08...	0230	29	.279	113
*02...	0745	1.8	.026	--	*08...	0909	20	--	20
08...	1100	7	1.16	460	08...	0910	20	--	99
08...	1300	12	.483	401	*08...	0911	20	.184	--
08...	1500	15	.501	292	08...	0912	20	.186	--
08...	1900	12	.215	76	08...	1430	16	.221	--
09...	0100	*3.5	.136	41	08...	2230	11	.206	--
*09...	0755	*3.5	.072	--	09...	1030	8.8	.138	47
*17...	0845	1.3	.021	10	09...	1430	8.3	--	71
18...	0500	8.2	.661	349	09...	2230	7.2	--	56
18...	0700	12	.659	339	*10...	0910	6.3	.072	88
18...	1100	11	.404	80	12...	2330	12	1.03	395
18...	1700	7.8	.253	49	13...	0130	12	.797	286
*19...	0810	5.5	.120	--	13...	0330	9.0	.399	181
31...	0115	15	.164	1390	*13...	0740	6.4	.107	17
31...	0515	9.5	.439	302	24...	0330	6.4	.512	555
31...	0630	17	.704	421	24...	0415	11	.275	437

* Equal-width increment sample

** Mean daily discharge (00060)

ROCK RIVER BASIN

054310157 JACKSON CREEK TRIBUTARY NEAR ELKHORN, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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)	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)
MAY 1998					JUL 1998				
24...	0600	4.3	.504	244	03...	1130	10	.068	8
*24...	1025	1.9	.114	129	03...	1530	4.3	.107	18
28...	1000	8.3	1.21	676	03...	1830	21	.238	24
28...	1200	4.3	.609	275	03...	1845	28	.090	73
29...	0015	5.4	.521	276	03...	2245	21	.682	327
29...	0115	9.4	.482	225	04...	0445	11	.225	28
29...	0315	4.4	.299	133	04...	1045	5.9	.164	9
*29...	0745	2.2	.107	9	04...	1845	3.7	.265	8
31...	0430	7.9	.866	477	*05...	0935	2.4	.079	25
31...	0630	4.1	.574	215	06...	1145	5.3	.113	19
JUN					06...	1345	4.6	.157	44
*02...	1025	.93	.085	11	*09...	1115	1.7	.077	30
09...	1715	7.0	.401	90	19...	0645	4.5	.378	99
09...	1800	11	.463	129	20...	2000	9.5	1.90	1340
09...	2000	4.9	.271	36	20...	2015	25	1.58	692
11...	0600	5.4	.163	45	20...	2100	36	.767	290
11...	0645	9.6	.262	55	20...	2300	12	.250	79
11...	1045	3.7	.117	10	21...	0245	3.6	.228	32
11...	1600	5.7	.156	17	21...	1415	14	1.02	347
11...	1730	15	.276	69	21...	1500	21	.475	125
11...	1900	22	.322	75	21...	1830	5.0	.245	36
11...	2100	13	.225	68	AUG				
12...	0100	6.2	.157	76	*02...	0805	.46	--	13
*12...	0745	3.3	.118	--	04...	0845	11	1.48	1040
*12...	0750	3.2	--	107	04...	0930	26	.725	244
12...	2030	6.5	.221	115	04...	1230	6.5	.316	51
12...	2145	17	.393	137	04...	1430	3.9	.254	35
12...	2345	8.7	.187	27	05...	0530	8.4	.978	1040
13...	0145	12	.179	44	05...	0700	24	.439	121
13...	0545	8.0	.127	8	05...	0745	33	.338	93
13...	1345	3.8	.097	5	05...	0945	20	.465	45
*14...	0845	2.3	.072	61	05...	1345	7.0	.214	21
18...	1745	11	.525	--	05...	1745	3.6	.198	15
18...	2030	21	.675	--	05...	1930	9.4	.336	62
18...	2130	28	.421	--	05...	2000	47	1.05	700
19...	0115	12	.211	--	05...	2030	57	.822	461
19...	0715	4.5	.139	--	06...	0230	19	.285	25
*19...	1045	3.4	.109	--	06...	1045	5.1	.184	11
24...	0815	4.4	.065	21	*06...	1046	5.1	.193	51
24...	1015	3.6	.163	22	06...	1125	4.9	.168	10
25...	2100	14	1.55	1400	*06...	1126	4.9	.270	58
25...	2115	32	.726	852	06...	1830	3.7	.167	25
25...	2315	24	.348	461	*07...	0805	1.4	.114	--
*26...	0835	20	.240	--	14...	2130	2.6	.332	84
26...	0915	18	.199	26	15...	0130	1.6	.146	35
26...	1515	9.1	.174	14	25...	0045	13	.788	562
27...	0515	4.1	.104	13	25...	0130	19	.919	440
27...	0615	24	.497	337	25...	0330	13	.276	60
27...	0645	32	.638	391	SEP				
*27...	0845	23	.339	424	07...	0030	11	2.77	2400
27...	0850	23	.396	446	07...	0045	21	--	1230
27...	1445	13	.204	85	07...	0100	29	1.33	763
27...	2245	5.6	.144	17	07...	0130	37	1.09	497
28...	0100	28	.670	615	07...	0330	34	--	79
28...	0115	37	.848	570	07...	0530	22	.438	49
28...	0300	24	.680	428	07...	0930	9.5	.285	30
28...	0500	27	.674	271	*08...	1050	.78	.205	--
28...	1100	24	.293	51	14...	0930	7.9	.233	50
28...	1900	20	.198	13	14...	1130	11	.249	46
29...	0300	11	.153	10	14...	1330	10	.230	37
*29...	0745	9.1	.112	--	14...	1730	8.9	.224	36
29...	0900	8.7	.129	8	14...	1900	14	.336	127
29...	1700	5.3	.099	8	14...	1945	21	.410	162
29...	2300	4.5	.118	12	14...	2145	27	.297	79
*30...	0745	3.7	.169	--	15...	0145	12	.266	84
30...	0900	3.7	.102	8	15...	0545	8.8	.240	76

* Equal-width increment (EWI) sample

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

[illegible]

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: Oct. 1-8, 11, and June 28-29 and ice-affected periods, Nov. 17-25, Dec. 26-31, Jan. 1-2, 9-27, and Mar. 9-16, 21. Records fair except those for estimated daily discharges, which are poor (see page 12). 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	1.7	1.7	3.8	1.5	8.6	11	54	10	5.7	22	.65	.80
2	.90	1.6	3.0	1.8	26	10	31	10	4.8	15	.62	.84
3	.70	1.7	3.5	13	22	9.8	22	9.2	4.1	17	.55	.72
4	.60	1.5	4.1	19	17	8.8	17	8.2	3.6	39	4.0	.68
5	.50	1.6	3.0	37	13	7.8	14	7.4	3.3	18	20	.60
6	.60	3.1	2.6	37	11	7.7	13	11	3.0	14	42	.56
7	.60	2.4	2.4	45	11	7.4	13	109	2.6	13	10	14
8	.50	2.2	2.1	27	10	14	35	122	2.5	9.4	7.8	3.4
9	.69	2.0	2.2	13	9.9	24	56	46	3.6	8.0	4.2	1.6
10	.78	1.9	2.7	8.4	9.8	13	46	28	4.8	6.7	2.6	1.1
11	.70	1.8	2.7	7.0	30	8.0	27	21	7.3	5.6	2.0	1.0
12	.81	1.6	2.1	6.4	62	6.6	19	17	18	4.9	1.5	.88
13	3.4	1.5	2.3	5.8	35	6.2	17	21	30	4.1	1.6	.71
14	2.0	1.6	2.1	5.4	25	5.6	20	17	18	3.5	1.5	4.6
15	1.3	1.9	1.9	5.2	20	5.2	17	15	11	2.9	2.5	13
16	1.0	1.6	2.3	4.9	19	5.0	48	13	7.9	2.6	1.7	4.2
17	.89	1.2	2.4	4.7	27	6.8	41	10	5.8	2.2	2.3	2.7
18	.80	1.1	2.6	4.4	27	19	25	9.1	6.1	1.9	2.2	2.2
19	.89	1.2	2.8	4.3	20	21	19	9.0	18	2.3	1.3	1.7
20	.93	1.2	3.2	4.2	17	15	16	7.8	9.6	2.2	1.0	1.2
21	.88	1.1	3.0	4.1	14	12	28	7.4	6.8	8.8	1.1	1.1
22	.94	1.1	2.9	4.0	13	11	29	7.7	5.3	6.4	1.3	.99
23	1.2	1.0	2.8	4.5	12	9.7	20	8.2	4.4	3.2	1.1	.90
24	1.9	.90	2.5	4.3	14	8.7	16	12	4.4	2.2	.92	.89
25	2.4	1.1	2.9	3.9	12	7.9	14	8.9	5.3	1.7	4.2	1.3
26	3.3	1.7	2.3	3.8	11	7.9	16	6.9	102	1.3	1.8	1.1
27	5.6	1.9	2.0	4.2	14	7.4	13	6.0	45	1.0	1.2	.86
28	3.1	2.7	1.7	5.2	13	8.4	11	7.9	60	.89	2.4	.77
29	2.0	2.9	1.6	5.8	---	7.3	10	12	90	.79	1.7	.79
30	1.6	6.1	1.4	5.8	---	7.4	9.9	7.2	39	.70	1.1	1.2
31	1.8	---	1.4	5.5	---	47	---	8.1	---	.67	.79	---
TOTAL	45.01	54.90	78.3	306.1	523.3	346.6	716.9	593.0	531.9	221.95	127.63	66.39
MEAN	1.45	1.83	2.53	9.87	18.7	11.2	23.9	19.1	17.7	7.16	4.12	2.21
MAX	5.6	6.1	4.1	45	62	47	56	122	102	39	42	14
MIN	.50	.90	1.4	1.5	8.6	5.0	9.9	6.0	2.5	.67	.55	.56
CFSM	.09	.11	.15	.59	1.11	.67	1.42	1.14	1.06	.43	.25	.13
IN.	.10	.12	.17	.68	1.16	.77	1.59	1.31	1.18	.49	.28	.15

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1998, BY WATER YEAR (WY)

	MEAN	4.27	7.38	5.50	7.53	16.4	18.9	27.4	14.5	24.0	7.61	6.83	3.72
MAX	10.8	22.4	10.5	11.6	33.9	48.2	77.4	27.3	66.2	22.6	23.8	7.16	
(WY)	1996	1996	1996	1996	1994	1993	1993	1996	1996	1993	1995	1993	
MIN	1.45	1.83	2.53	1.18	3.83	4.16	8.32	4.18	3.78	1.94	.94	1.05	
(WY)	1998	1998	1998	1994	1995	1996	1994	1994	1994	1995	1997	1996	

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1993 - 1998

ANNUAL TOTAL	2971.34	3611.98	
ANNUAL MEAN	8.14	9.90	10.3
HIGHEST ANNUAL MEAN			15.8
LOWEST ANNUAL MEAN			7.87
HIGHEST DAILY MEAN	316	122	578
LOWEST DAILY MEAN	.29	.50	.29
ANNUAL SEVEN-DAY MINIMUM	.35	.60	.35
INSTANTANEOUS PEAK FLOW		(c) 327	1190
INSTANTANEOUS PEAK STAGE		(c) 10.13	11.60
ANNUAL RUNOFF (CFSM)	.48	.59	.61
ANNUAL RUNOFF (INCHES)	6.58	8.00	8.33
10 PERCENT EXCEEDS	17	23	26
50 PERCENT EXCEEDS	3.2	4.6	4.8
90 PERCENT EXCEEDS	.57	.90	1.1

(a) Also occurred Sept. 8, 1997

(b) Also occurred Oct. 8, 1997

(c) Maximum instantaneous peak flow and stage may have been higher during period of missing record on June 28-29

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, and 1998 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.

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 water year.

DISSOLVED ORTHO-PHOSPHORUS DISCHARGE: Maximum daily, 614 lb, Feb. 21, 1997; minimum daily, 0.05 lb, Feb. 14, 1995.

EXTREMES FOR CURRENT YEAR.--

SUSPENDED-SEDIMENT CONCENTRATIONS: Maximum observed, 194 mg/L, May 6; minimum observed, 5 mg/L, June 27.

SUSPENDED-SEDIMENT DISCHARGE: Maximum daily, 18 tons, May 7; minimum daily, 0.01 ton, on several days.

TOTAL PHOSPHORUS CONCENTRATIONS: Maximum observed, 0.48 mg/L, June 28; minimum observed, 0.01 mg/L, May 6.

TOTAL PHOSPHORUS DISCHARGE: Maximum daily, 175 lb, May 8; minimum daily, 0.14 lb, Aug. 3.

DISSOLVED ORTHO-PHOSPHORUS CONCENTRATIONS: Maximum observed, 0.24 mg/L, Aug. 6; minimum observed, <0.01 mg/L, on several days.

DISSOLVED ORTHO-PHOSPHORUS DISCHARGE: Maximum daily, 83.9 lb, May 8; minimum daily, 0.06 lb, Aug. 3.

ROCK RIVER BASIN

05431016 JACKSON CREEK AT MOUND ROAD NEAR ELKHORN, 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)	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 1997						
**02...	0950	.90	--	.127	.024	50
**29...	1100	--	1.8	.135	.034	48
NOV						
03...	1325	--	1.8	.103	.021	49
DEC						
**02...	1050	--	2.9	.095	.041	92
JAN 1998						
05...	0810	--	39	.143	.168	20
06...	1445	--	30	.193	.122	7
06...	2145	--	44	--	--	25
07...	0330	--	53	.178	.117	23
07...	1100	--	47	.197	.125	12
**07...	1101	--	47	.205	.144	20
FEB						
02...	0500	--	26	.172	.020	70
02...	0800	--	26	.169	.035	73
02...	0810	--	27	.086	.021	70
02...	1100	--	27	.120	.043	53
02...	1815	--	27	.095	.060	21
03...	0750	--	22	.124	.059	92
**09...	1045	--	9.9	.129	.031	71
11...	1545	--	34	.099	.040	28
11...	2145	--	67	.173	.058	54
12...	0345	--	77	.302	.138	55
12...	0815	--	69	--	--	101
17...	0330	--	25	.120	<.010	44
17...	0755	--	28	.068	<.010	32
17...	0900	--	28	.085	--	28
18...	0100	--	28	.104	--	18
18...	0740	--	28	.088	--	19
MAR						
02...	0755	--	9.9	.047	.031	16
09...	0820	24	--	.057	<.010	129
09...	2215	24	--	.038	<.010	27
10...	0715	13	--	.235	.015	194
**17...	1035	--	5.8	.109	.021	58
18...	1445	--	23	.084	.012	43
18...	2045	--	24	.042	.010	14
19...	0245	--	23	.081	.029	10
19...	0820	--	22	.136	--	13
31...	1015	--	33	.153	<.010	51
31...	1615	--	79	.165	.036	43
31...	1915	--	83	.195	.063	34
31...	2215	--	79	.198	.085	31
APR						
01...	0415	--	67	.204	.095	23
*01...	0755	--	58	.179	.088	--
01...	1915	--	44	.160	--	18
02...	1315	--	29	.105	--	12
03...	0715	--	24	.096	--	15
06...	0810	--	13	.027	.024	16
08...	0530	--	31	.087	.031	27
08...	0830	--	36	--	--	16
08...	1130	--	40	.067	.034	10
08...	2030	--	40	.097	.047	10
09...	0830	--	50	.102	.063	11
09...	0840	--	51	.084	.020	11
09...	1730	--	67	.141	--	12
09...	2330	--	66	.167	--	10
10...	1130	--	45	.187	--	10
10...	2330	--	33	.139	--	13
11...	1430	--	25	.124	--	17
12...	0915	--	20	.089	.036	25
16...	0445	--	31	.144	.074	43
16...	1045	--	54	--	--	10
16...	1145	--	56	.098	.034	--
16...	1645	--	59	.169	.084	17
16...	2245	--	57	.169	.083	15
17...	0045	--	54	.110	.019	--
17...	0445	--	48	--	--	15
17...	0820	--	44	.142	.083	14
17...	1645	--	34	.076	--	16
18...	0145	--	30	.076	--	14
18...	1045	--	25	.069	--	12
21...	1200	--	26	.029	--	11
21...	1800	--	36	.046	--	18
21...	2100	--	37	.064	--	13
22...	0300	--	34	.061	--	14
22...	0900	--	30	.060	--	10
22...	1500	--	26	.076	--	11
22...	2100	--	24	.080	--	29

* Equal-width increment (EWI) sample

** Grab sample

ROCK RIVER BASIN

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05431016 JACKSON CREEK AT MOUND ROAD NEAR ELKHORN, 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)	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)
MAY 1998						
04...	0815	--	8.4	--	--	10
**06...	1140	--	7.5	.012	.011	8
06...	2330	--	35	.278	<.010	194
07...	0830	--	43	.146	.018	43
07...	1415	--	95	.152	.044	32
07...	1745	--	193	.207	.062	51
07...	2045	--	237	.316	.093	85
08...	0245	--	185	.320	.146	51
08...	0845	--	136	.297	--	39
08...	1745	--	85	.232	--	24
09...	0545	--	53	.190	--	28
09...	2045	--	36	.147	--	13
10...	0940	--	28	.099	.056	7
11...	0745	--	22	.080	.050	25
13...	1045	--	23	.073	.022	8
14...	0810	--	16	.049	<.010	6
JUN						
**02...	1130	--	4.8	.071	.041	5
12...	0805	--	22	.101	.027	74
19...	1100	--	21	.095	.033	8
26...	0115	--	62	.294	.018	130
26...	0200	--	102	.287	.037	94
26...	0315	--	151	.233	<.010	48
26...	0615	--	170	.249	.035	29
26...	1215	--	109	.280	.095	28
26...	1815	--	66	.285	.049	15
27...	0015	--	47	.193	.048	12
27...	1115	--	44	.189	.058	27
27...	2315	--	47	.132	.059	5
28...	0915	60	--	.437	.069	175
29...	1230	90	--	.237	.071	8
30...	0030	--	53	.183	.120	6
30...	0755	--	43	.162	.100	8
JUL						
07...	0740	--	14	.249	.049	--
**09...	1145	--	7.9	.090	.048	16
AUG						
06...	0115	--	64	.248	.167	13
06...	0415	--	71	.380	.191	16
06...	0715	--	61	.297	.135	10
06...	1003	--	46	.292	.174	6
**06...	1005	--	46	.237	.237	--
06...	1315	--	34	.275	--	7
06...	1615	--	24	.253	--	7
06...	2215	--	18	.275	--	6
07...	0850	--	10	.270	.010	7
SEP						
01...	0730	--	.72	.174	.079	7
07...	0545	--	19	.255	.069	28
07...	0845	--	22	.225	.121	21
07...	1145	--	21	.252	.103	36
07...	1445	--	16	.181	.099	20
**08...	1020	--	3.4	.216	.068	20
14...	0755	--	1.2	.130	.053	36
14...	2300	--	13	.234	.034	61
15...	0200	--	17	.401	.047	134
15...	0500	--	18	.186	.086	28
15...	0800	--	16	.210	.107	16
15...	1100	--	14	.253	.107	34
21...	0755	--	1.2	.145	.069	--

* Equal-width increment (EWI) sample

** Grab sample

[illegible][illegible]

PHOSPHORUS ORTHO WATER, WHOLE, DISSOLVED, LBS/DAY, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

ROCK RIVER BASIN

05431017 DELAVAN LAKE INLET AT STATE HIGHWAY 50 AT LAKE LAWN, WI

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 12).

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	2.2	2.2	4.9	1.9	11	14	70	13	7.4	29	.84	1.0
2	1.2	2.1	3.9	2.3	34	13	40	13	6.2	20	.81	1.1
3	.91	2.2	4.5	17	29	13	29	12	5.3	22	.71	.94
4	.78	1.9	5.3	25	22	11	22	11	4.7	51	5.2	.88
5	.65	2.1	3.9	48	17	10	18	9.6	4.3	23	26	.78
6	.78	4.0	3.4	48	14	10	17	14	3.9	18	55	.73
7	.78	3.1	3.1	58	14	9.6	17	142	3.4	17	13	18
8	.65	2.9	2.7	35	13	18	46	159	3.3	12	10	4.4
9	.90	2.6	2.9	17	13	31	73	60	4.7	10	5.5	2.1
10	1.0	2.5	3.5	11	13	17	60	36	6.2	8.7	3.4	1.4
11	.91	2.3	3.5	9.1	39	10	35	27	9.5	7.3	2.6	1.3
12	1.0	2.1	2.7	8.3	81	8.6	25	22	23	6.4	1.9	1.1
13	4.4	1.9	3.0	7.5	46	8.1	22	27	39	5.3	2.1	.92
14	2.6	2.1	2.7	7.0	33	7.3	26	22	23	4.5	1.9	6.0
15	1.7	2.5	2.5	6.8	26	6.8	22	20	14	3.8	3.3	17
16	1.3	2.1	3.0	6.4	25	6.5	62	17	10	3.4	2.2	5.5
17	1.2	1.6	3.1	6.1	35	8.8	53	13	7.5	2.9	3.0	3.5
18	1.0	1.4	3.4	5.7	35	25	33	12	7.9	2.5	2.9	2.9
19	1.2	1.6	3.6	5.6	26	27	25	12	23	3.0	1.7	2.2
20	1.2	1.6	4.2	5.5	22	20	21	10	12	2.9	1.3	1.6
21	1.1	1.4	3.9	5.3	18	16	36	9.6	8.8	11	1.4	1.4
22	1.2	1.4	3.8	5.2	17	14	38	10	6.9	8.3	1.7	1.3
23	1.6	1.3	3.6	5.8	16	13	26	11	5.7	4.2	1.4	1.2
24	2.5	1.2	3.3	5.6	18	11	21	16	5.7	2.9	1.2	1.2
25	3.1	1.4	3.8	5.1	16	10	18	12	6.9	2.2	5.5	1.7
26	4.3	2.2	3.0	4.9	14	10	21	9.0	133	1.7	2.3	1.4
27	7.3	2.5	2.6	5.5	18	9.6	17	7.8	58	1.3	1.6	1.1
28	4.0	3.5	2.2	6.8	17	11	14	10	78	1.2	3.1	1.0
29	2.6	3.8	2.1	7.5	---	9.5	13	16	117	1.0	2.2	1.0
30	2.1	7.9	1.8	7.5	---	9.6	13	9.4	51	.91	1.4	1.6
31	2.3	---	1.8	7.1	---	61	---	11	---	.87	1.0	---
TOTAL	58.46	71.4	101.7	397.5	682	449.4	933	773.4	689.3	288.28	166.16	86.25
MEAN	1.89	2.38	3.28	12.8	24.4	14.5	31.1	24.9	23.0	9.30	5.36	2.88
MAX	7.3	7.9	5.3	58	81	61	73	159	133	51	55	18
MIN	.65	1.2	1.8	1.9	11	6.5	13	7.8	3.3	.87	.71	.73
CFSM	.09	.11	.15	.59	1.12	.66	1.43	1.14	1.05	.43	.25	.13
IN.	.10	.12	.17	.68	1.16	.77	1.59	1.32	1.18	.49	.28	.15

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1998, BY WATER YEAR (WY)

	7.07	14.3	11.5	8.03	17.7	25.6	24.6	14.7	16.0	8.15	5.42	7.27
MEAN	7.07	14.3	11.5	8.03	17.7	25.6	24.6	14.7	16.0	8.15	5.42	7.27
MAX	25.9	54.5	30.3	19.5	44.1	68.3	101	35.4	86.0	29.3	30.5	37.4
(WY)	1987	1986	1992	1993	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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1984 - 1998

ANNUAL TOTAL	3866.41	4696.85	13.3
ANNUAL MEAN	10.6	12.9	30.3
HIGHEST ANNUAL MEAN			1993
LOWEST ANNUAL MEAN			5.38
HIGHEST DAILY MEAN	411	159	751
LOWEST DAILY MEAN	.38	.65	.22
ANNUAL SEVEN-DAY MINIMUM	.45	.78	.25
ANNUAL RUNOFF (CFSM)	.49	.59	.61
ANNUAL RUNOFF (INCHES)	6.60	8.01	8.29
10 PERCENT EXCEEDS	22	30	30
50 PERCENT EXCEEDS	4.2	6.0	4.8
90 PERCENT EXCEEDS	.74	1.2	.86

(a) Also occurred Sept. 7

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 and 1998 water years.

DISSOLVED ORTHO-PHOSPHORUS DISCHARGE: Maximum daily, 503 lb, June 26, 1998; minimum daily, 0.10 lb, Jan. 20, 1997 and Dec. 31, 1997.

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, 1.32 mg/L, June 26; minimum observed, 0.01 mg/L, Mar. 19.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 732 lb, June 26; minimum daily, 0.21 lb, Dec. 30-Jan. 1.

DISSOLVED ORTHO-PHOSPHORUS CONCENTRATIONS: Maximum observed, 0.809 mg/L, June 26; minimum observed, <0.010 mg/L, on several days.

DISSOLVED ORTHO-PHOSPHORUS DISCHARGE: Maximum daily, 503 lb, June 26; minimum daily, 0.10 lb, Dec. 31.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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)
OCT 1997					MAR 1998				
02...	1145	1.2	.250	.177	02...	0755	13	.030	.018
06...	1120	.78	.286	.177	17...	1010	8.8	.037	.016
13...	0845	4.4	.291	.218	18...	0830	25	.018	<.010
14...	0940	2.6	.280	.201	19...	0900	27	.010	<.010
27...	1005	7.3	.126	.090	31...	0840	61	.150	.026
28...	0850	4.0	.178	.125					
29...	1145	2.6	.148	.104	APR				
NOV					01...	0855	70	.055	.052
03...	1355	2.2	.085	.019	02...	1105	40	.137	.038
DEC					02...	1450	40	.125	.020
01...	0905	4.9	.064	.042	03...	1040	29	.139	.032
02...	1155	3.9	.062	.045	03...	1505	29	.159	.057
JAN 1998					04...	0955	22	.093	.043
05...	0910	48	.038	.019	05...	1100	18	.100	.056
07...	0855	58	.041	.036	06...	0915	17	.073	.039
FEB					08...	0825	46	.057	.017
*09...	1110	13	.016	.021	08...	1400	46	.055	.019
12...	0930	81	.024	.019	09...	0930	73	.066	.024
12...	1350	81	.026	.019	09...	1400	73	.066	.021
13...	0840	46	.059	<.010	10...	1010	60	.065	.028
13...	1420	46	.057	<.010	10...	1625	60	.070	.033
14...	0605	33	.051	<.010	11...	1045	35	.114	.055
14...	1515	33	.050	<.010	11...	1520	35	.106	.039
15...	0620	26	.038	<.010	12...	1005	25	.110	.047
15...	1530	26	.027	<.010	12...	1505	25	.138	.039
					14...	0830	26	.080	.024

* 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 1997 TO SEPTEMBER 1998

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)
APR 1998					JUN 1998				
16...	0900	62	.060	.024	27...	1040	58	.455	.391
16...	1415	62	.070	.015	27...	1700	58	.581	.360
17...	0900	53	.104	.029	28...	1025	78	.192	.092
*17...	1520	53	.052	--	28...	1820	78	.298	.131
*18...	0910	33	.070	--	29...	0925	117	.287	.069
*18...	1405	33	.069	--	29...	1435	117	.224	.228
*19...	0905	25	.047	--	30...	0915	51	.321	.093
*22...	0840	38	.041	.013	30...	1430	51	.058	.023
*23...	0850	26	.039	.026	JUL				
*24...	0855	21	.048	.029	01...	0840	29	.203	.132
MAY					02...	0835	20	.527	.145
04...	0905	11	.091	.032	03...	0605	22	.245	.161
06...	1230	14	.110	.014	04...	0955	51	.270	.119
*07...	0905	142	.121	.058	05...	1000	23	.292	.183
*07...	1420	142	.100	.066	06...	0835	18	.234	.194
*08...	0910	159	.247	.081	07...	0820	17	.242	.138
*08...	1400	159	.330	.028	08...	0855	12	.226	.143
*09...	1005	60	.215	.119	13...	0950	5.3	.278	--
*09...	1555	60	.228	.121	20...	1120	2.9	.505	.263
*10...	1010	36	.192	.099	21...	0850	11	.349	.114
*10...	1425	36	.166	.097	21...	1520	11	.404	.131
*11...	0850	27	.124	.101	22...	0850	8.3	.594	.438
13...	0825	27	.084	.011	23...	0850	4.2	.657	.510
14...	0900	22	.138	.024	24...	0845	2.9	.564	--
15...	0910	20	.145	.138	25...	0840	2.2	.449	--
15...	1500	20	.135	.090	26...	0845	1.7	.505	--
17...	0905	13	.152	.106	27...	0830	1.3	.397	--
24...	1050	16	.446	.371	AUG				
25...	0930	12	.683	.600	05...	0905	26	.135	.021
26...	0955	9.0	.653	.548	05...	1410	26	.553	.425
26...	1500	9.0	.832	.525	06...	0910	55	.755	.624
27...	0850	7.8	.671	.551	06...	1405	55	.714	.714
29...	0900	16	.495	.387	07...	0920	13	.790	.651
29...	1400	16	.805	.612	07...	1415	13	.761	.674
30...	1420	9.4	.712	.530	08...	0915	10	.659	.560
31...	1055	11	.823	.645	08...	1405	10	.671	.565
31...	1600	11	.831	.621	09...	0900	5.5	.624	.540
JUN					09...	1355	5.5	.612	.521
01...	0845	7.4	.791	.635	10...	1135	3.4	.577	.468
02...	1220	6.2	.867	.669	11...	0920	2.6	.555	.458
12...	0920	23	.762	.552	17...	0930	3.0	.470	.387
12...	1420	23	.567	.498	SEP				
13...	0910	39	.712	.582	01...	0815	1.0	.356	.257
13...	1405	39	.720	.584	07...	0920	18	.215	.176
14...	0915	23	.669	.535	07...	1355	18	.293	.162
14...	1300	23	.642	.540	08...	0910	4.4	.198	.159
15...	0900	14	.750	.539	08...	1440	4.4	.194	.150
15...	1455	14	.675	.515	09...	0800	2.1	.211	.158
16...	1000	10	.669	.534	10...	0850	1.4	.253	.152
17...	0910	7.5	.669	.584	11...	0855	1.3	.191	.143
19...	1135	23	.684	.565	14...	0900	6.0	.182	.134
19...	1440	23	.536	.403	15...	0910	17	.183	.144
20...	0855	12	.801	.679	15...	1400	17	.183	.138
20...	1540	12	.785	.693	16...	0815	5.5	.226	.176
21...	1015	8.8	.864	.723	16...	1325	5.5	.233	.184
22...	1420	6.9	1.00	.787	17...	0810	3.5	.253	--
23...	0950	5.7	1.09	.790	18...	0820	2.9	.250	.194
26...	0955	133	1.32	.809	21...	0835	1.4	.208	.161
26...	1430	133	.798	.642					

* Single vertical sample

PHOSPHORUS TOTAL, POUNDS PER DAY, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

DAILY MEAN VALUES

[illegible]

ROCK RIVER BASIN

423556088365001 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, 1997 TO MAY 18, 1998
(Milligrams per liter unless otherwise indicated)

	Nov. 17	Feb. 17	Apr. 14	May 18
Lake stage (ft)	4.84	5.02	5.02	4.97
Secchi-depth (meters)	5.0	1.8	4.4	6.6
Chlorophyll a, phytoplankton (µg/L)	0.59	24.0	0.87	1.2
Depth of sample (m)	0.5 16.3	0.5 15.0	0.5 16.0	0.5 5.0 12.0 16.0
Water temperature (°C)	6.6 6.3	1.9 2.0	8.8 8.6	18.6 18.4 11.9 10.4
Specific conductance (µS/cm)	566 568	565 740	591 592	584 585 603 610
pH (units)	8.3 8.3	8.6 7.8	8.3 8.4	8.4 8.4 8.0 7.7
Dissolved oxygen	10.5 9.8	14.6 6.3	12.2 11.1	10.6 10.4 7.9 4.6
Phosphorus, total (as P)	0.120 0.121	0.112 0.111	0.086 0.074	0.051 0.050 0.094 0.166
Phosphorus, ortho, dissolved (as P)	0.092 ---	0.050 0.083	0.042 0.046	0.010 0.020 0.059 ---
Nitrogen, NO ₂ + NO ₃ , diss. (as N)	0.123 ---	0.179 ---	0.207 0.210	0.207 --- --- ---
Nitrogen, ammonia, dissolved (as N)	0.119 ---	<0.002 ---	0.077 0.091	0.028 --- --- ---
Nitrogen, amm. + org., total (as N)	0.63 ---	0.75 ---	0.76 0.80	0.56 --- --- ---
Nitrogen, total (as N)	0.75 ---	0.93 ---	0.97 1.00	0.77 --- --- ---
Color (Pt-Co. scale)	---	---	11 12	---
Turbidity (NTU)	---	---	1.0 1.4	---
Hardness, as CaCO ₃	---	---	249 250	---
Calcium, dissolved (Ca)	---	---	46 46	---
Magnesium, dissolved (Mg)	---	---	32 33	---
Sodium, dissolved (Na)	---	---	25 24	---
Potassium, dissolved (K)	---	---	3 3	---
Alkalinity, as CaCO ₃	---	---	190 189	---
Sulfate, dissolved (SO ₄)	---	---	31 31	---
Chloride, dissolved (Cl)	---	---	58 59	---
Fluoride, dissolved (F)	---	---	141 145	---
Silica, dissolved (SiO ₂)	---	---	0.2 0.2	---
Solids, dissolved, at 180°C	---	---	329 329	---
Iron, dissolved (Fe) µg/L	---	---	<10 <10	---
Manganese, dissolved (Mn) µg/L	---	---	<0.40 4.2	---

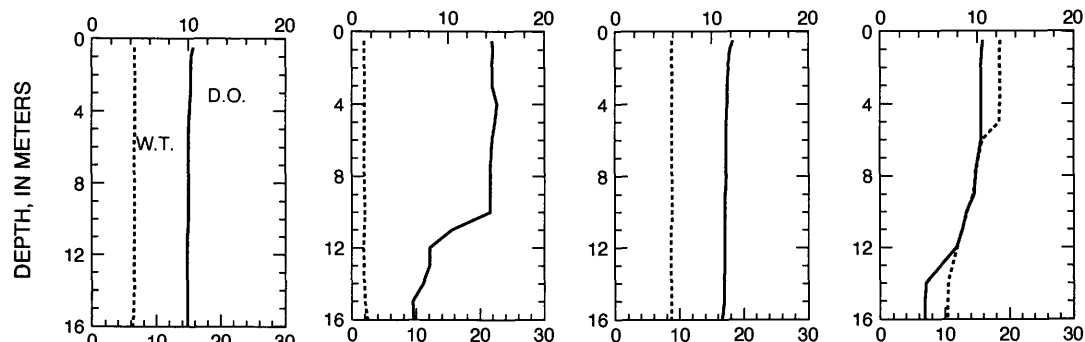
11-17-97

2-17-98

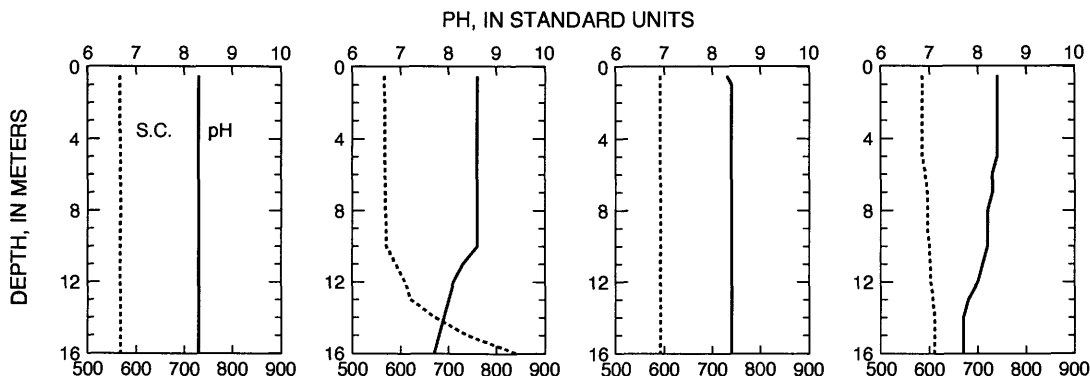
04-14-98

05-18-98

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

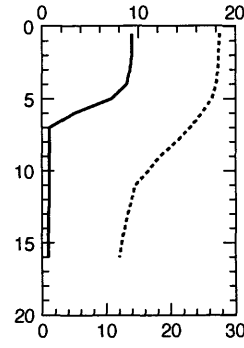
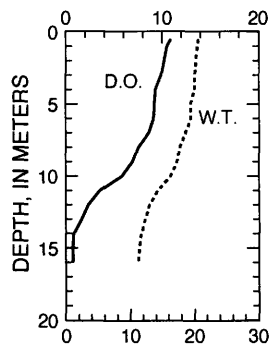
WATER-QUALITY DATA, JUNE 16 TO JULY 20, 1998
(Milligrams per liter unless otherwise indicated)

	June 16				July 20			
Lake stage (ft)	5.01				4.97			
Secchi-depth (meters)	4.3				2.7			
Chlorophyll a, phytoplankton (µg/L)	8.2				3.1			
Depth of sample (m)	0.5	6.0	13.0	16.0	0.5	5.0	13.0	16.0
Water temperature (°C)	20.6	19.4	12.3	11.2	27.6	26.4	13.3	12.0
Specific conductance (µS/cm)	562	566	604	608	516	529	622	639
pH (units)	8.7	8.6	7.6	7.5	8.4	8.3	7.5	7.3
Dissolved oxygen	10.9	9.1	1.6	0.7	9.3	7.2	0.6	0.6
Phosphorus, total (as P)	0.062	0.040	0.186	0.175	0.028	0.027	0.447	1.019
Phosphorus, ortho, dissolved (as P)	0.010	0.009	0.107	0.251	0.004	0.002	0.427	0.662
Nitrogen, NO ₂ + NO ₃ , diss. (as N)	0.016	---	---	---	<0.005	---	---	---
Nitrogen, ammonia, dissolved (as N)	0.034	---	---	---	0.020	---	---	---
Nitrogen, amm. + org., total (as N)	0.87	---	---	---	0.78	---	---	---
Nitrogen, total (as N)	0.89	---	---	---	0.78	---	---	---

06-16-98

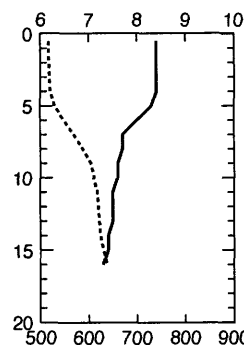
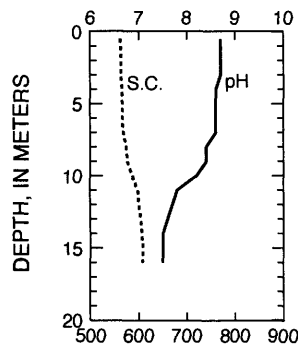
07-20-98

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

ROCK RIVER BASIN

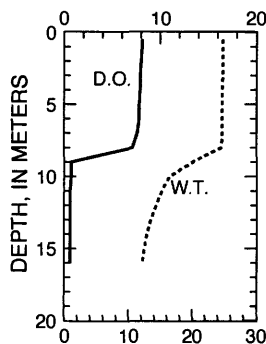
423556088365001 DELAVAN LAKE AT CENTER NEAR DELAVAN LAKE, WI--CONTINUED

WATER-QUALITY DATA, AUGUST 18, 1998
(Milligrams per liter unless otherwise indicated)

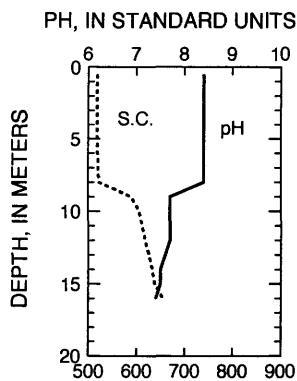
	Aug. 18							
Lake stage (ft)	4.94							
Secchi-depth (meters)	2.6							
Chlorophyll a, phytoplankton ($\mu\text{g/L}$)	5.8							
Depth of sample (m)	0.5	4.0	8.0	9.0	11.0	13.0	15	16.0
Water temperature ($^{\circ}\text{C}$)	24.8	24.7	24.6	20.0	15.2	13.5	12.5	12.2
Specific conductance ($\mu\text{S/cm}$)	518	518	521	589	611	626	638	655
pH (units)	8.4	8.4	8.4	7.7	7.7	7.6	7.5	7.4
Dissolved oxygen	8.1	7.9	7.1	0.7	0.6	0.6	0.6	0.6
Phosphorus, total (as P)	0.041	0.027	0.025	0.138	0.459	0.626	0.653	0.928
Phosphorus, ortho, dissolved (as P)	<0.001	---	<0.001	0.097	---	---	---	0.804
Nitrogen, $\text{NO}_2 + \text{NO}_3$, diss. (as N)	<0.005	---	---	---	---	---	---	---
Nitrogen, ammonia, dissolved (as N)	0.008	---	---	---	---	---	---	---
Nitrogen, amm. + org., total (as N)	0.61	---	---	---	---	---	---	---
Nitrogen, total (as N)	0.61	---	---	---	---	---	---	---

08-18-98

DISSOLVED OXYGEN (D.O.), IN MILLIGRAMS PER LITER



WATER TEMPERATURE (W.T.), IN DEGREES CELSIUS



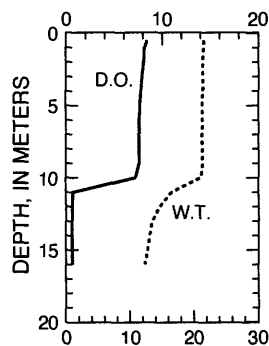
SPECIFIC CONDUCTANCE (S.C.), IN MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS

WATER-QUALITY DATA, SEPTEMBER 23, 1998
(Milligrams per liter unless otherwise indicated)

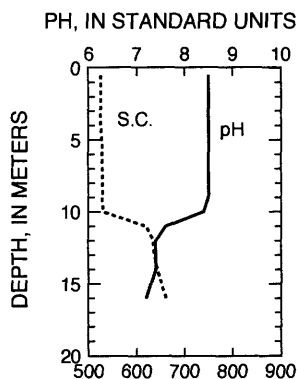
	Sept. 23			
Lake stage (ft)	5.00			
Secchi-depth (meters)	3.3			
Chlorophyll a, phytoplankton (µg/L)	6.2			
Depth of sample (m)	0.5	10.0	13.0	16.0
Water temperature (°C)	21.5	21.1	13.5	12.3
Specific conductance (µS/cm)	525	530	637	662
pH (units)	8.5	8.4	7.4	7.2
Dissolved oxygen	8.4	7.2	0.6	0.6
Phosphorus, total (as P)	0.030	0.032	0.653	0.861
Phosphorus, ortho, dissolved (as P)	<0.001	0.004	0.583	0.721
Nitrogen, NO ₂ + NO ₃ , diss. (as N)	0.007	---	---	---
Nitrogen, ammonia, dissolved (as N)	<0.002	---	---	---
Nitrogen, amm. + org., total (as N)	0.68	---	---	---
Nitrogen, total (as N)	0.68	---	---	---

09-23-98

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

ADDITIONAL WATER-QUALITY DATA, OCTOBER 3, 1997 TO SEPTEMBER 28, 1998

(Milligrams per liter unless otherwise indicated)

	Oct. 3	Oct. 7	Oct. 16	Oct. 20	Oct. 29	Apr. 24	Apr. 29	May 6
Lake stage (ft)	4.89	4.87	4.84	4.81	4.82	5.02	4.94	4.99
Secchi-depth (meters)	4.7	4.1	5.2	5.2	4.3	9.0	10.7	7.3
Depth of sample (meters)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Water temperature (°C)	17.5	18.5	16.5	14.5	11.0	10.8	11.0	13.5
Phosphorus, total (as P)	0.119	0.120	0.126	0.121	0.121	0.069	0.075	0.074

	May 19	May 27	June 1	June 8	June 22	June 29	July 13
Lake stage (ft)	4.97	5.02	5.10	4.95	4.97	5.25	5.02
Secchi-depth (meters)	7.9	3.4	5.3	5.0	4.1	3.1	3.3
Depth of sample (meters)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Water temperature (°C)	20.5	20.2	20.5	18.8	23.5	26.5	26.0
Phosphorus, total (as P)	0.045	0.039	0.045	0.036	0.043	0.036	0.033

	July 20					July 22				
Lake stage (ft)										
Secchi-depth (meters)			4.97					5.02		
Depth of sample (meters)	0.5	5.0	3.8					3.0		
Water temperature (°C)	28.0	---	7.0	9.0	11.0	0.5	5.0	7.0	9.0	11.0
Phosphorus, total (as P)	0.023	0.026	---	---	---	27.0	---	---	---	---
Phosphorus, ortho, dissolved (as P)	0.0023	0.0026	0.039	0.028	0.212	0.026	0.026	<0.005	0.041	0.227
	0.005	0.003	0.003	0.002	0.167	0.005	0.003	0.002	0.014	0.193

	July 27	Aug. 3	Aug. 10	Aug. 17	Aug. 24	Aug. 31				
Lake stage (ft)	4.96	4.86	5.01	4.96	4.92					
Secchi-depth (meters)	2.1	1.5	2.7	2.7	2.7					
Depth of sample (meters)	0.5	0.5	0.5	0.5	0.5	0.5	6.0	8.0	10.0	12.0
Water temperature (°C)	25.0	25.0	26.0	25.0	25.0	25.5	---	---	---	---
Phosphorus, total (as P)	0.027	0.025	0.022	0.028	0.027	0.026	0.021	0.019	0.647	0.810
Phosphorus, ortho, dissolved (as P)	---	---	---	---	---	0.005	0.002	<0.002	0.600	0.770

	Sept. 8					Sept. 15				
Lake stage (ft)										
Secchi-depth (meters)			4.98					5.04		
Depth of sample (meters)	0.5	6.0	1.8					2.8		
Water temperature (°C)	23.0	---	8.0	10.0	12.0	0.5	6.0	8.0	10.0	12.0
Phosphorus, total (as P)	0.014	0.014	---	---	---	22.8	---	---	---	---
Phosphorus, ortho, dissolved (as P)	0.002	0.002	0.017	0.060	0.255	0.028	0.030	0.023	0.030	0.421
	0.002	0.002	<0.002	0.015	0.208	0.002	0.002	0.002	0.010	0.397

	Sept. 21					Sept. 28				
Lake stage (ft)										
Secchi-depth (meters)			5.03					4.96		
Depth of sample (meters)	0.5	6.0	2.2					4.3		
Water temperature (°C)	22.5	---	8.0	10.0	12.0			0.5		
Phosphorus, total (as P)	0.031	0.025	---	---	---	21.0	---	---	---	---
Phosphorus, ortho, dissolved (as P)	<0.002	0.002	0.022	0.020	0.433	0.035	---	---	---	---
			0.002	0.003	0.390					

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 14 TO AUGUST 18, 1998

	Apr. 14	May 18	June 16	July 20	Aug. 18
	-----	-----	-----	-----	-----
Secchi-depth (meters)	4.3	5.2	4.5	2.6	2.0

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 14 TO AUGUST 18, 1998

	Apr. 14	May 18	June 16	July 20	Aug. 18
	-----	-----	-----	-----	-----
Secchi-depth (meters)	4.4	6.4	1.9	2.7	2.7

ROCK RIVER BASIN

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 12). 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, 5.33 ft, June 28; minimum, 4.78 ft, Oct. 26.

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	4.90	4.83	4.90	4.97	5.00	4.97	5.12	4.96	5.10	4.98	4.89	4.94
2	4.89	4.82	4.91	4.96	5.02	4.96	5.11	4.97	5.07	4.98	4.87	4.93
3	4.89	4.82	4.93	4.96	5.03	4.96	5.08	4.98	5.04	5.00	4.86	4.91
4	4.88	4.83	4.95	5.02	5.03	4.96	5.03	4.98	5.01	5.07	4.88	4.91
5	4.88	4.83	4.96	5.10	5.02	4.97	4.98	4.97	4.98	5.07	4.98	4.90
6	4.87	4.85	4.96	5.16	5.01	4.98	4.94	4.99	4.97	5.06	5.15	4.89
7	4.87	4.85	4.96	5.20	4.99	4.98	4.95	5.11	4.96	5.05	5.03	4.98
8	4.86	4.85	4.96	5.21	4.97	5.02	5.02	5.25	4.95	5.03	5.04	4.98
9	4.86	4.85	4.97	5.20	4.96	5.08	5.08	5.21	4.96	5.02	5.03	4.97
10	4.85	4.85	5.00	5.15	4.96	5.06	5.07	5.13	4.98	5.02	5.01	4.96
11	4.84	4.84	5.01	5.09	5.00	5.06	5.04	5.06	5.02	5.02	4.99	4.94
12	4.84	4.84	5.01	5.04	5.08	5.04	4.99	4.99	5.08	5.02	4.98	4.92
13	4.87	4.83	5.00	4.99	5.09	5.03	4.99	5.03	5.12	5.02	4.97	4.91
14	4.87	4.83	5.00	4.97	5.06	5.01	5.02	5.03	5.10	5.01	4.97	4.97
15	4.86	4.85	5.00	4.98	5.02	5.00	5.03	5.03	5.06	4.99	4.97	5.04
16	4.84	4.85	5.00	4.98	4.99	4.99	5.06	5.02	5.01	4.98	4.96	5.06
17	4.84	4.84	5.00	4.98	5.02	4.98	5.04	4.99	4.96	4.97	4.96	5.06
18	4.83	4.84	5.01	4.99	5.01	5.03	5.01	4.97	4.97	4.96	4.94	5.06
19	4.82	4.83	5.01	4.99	4.98	5.07	5.00	4.97	5.03	4.97	4.93	5.05
20	4.81	4.83	5.01	4.99	4.98	5.07	5.01	4.97	5.02	4.97	4.92	5.04
21	4.80	4.83	5.01	5.00	4.98	5.05	5.05	4.97	5.00	5.01	4.91	5.03
22	4.79	4.83	5.02	5.01	4.98	5.03	5.07	4.96	4.97	5.02	4.92	5.02
23	4.79	4.83	5.01	5.02	4.97	5.01	5.05	4.97	4.94	5.02	4.92	5.00
24	4.80	4.83	5.01	5.01	4.98	5.00	5.02	5.01	4.92	5.01	4.92	4.99
25	4.80	4.82	5.03	5.00	4.97	4.98	4.99	5.03	4.93	4.99	4.95	4.98
26	4.81	4.82	5.02	4.98	4.96	4.98	4.99	5.03	5.10	4.98	4.95	4.98
27	4.83	4.83	5.00	4.98	4.98	4.99	4.96	5.02	5.09	4.96	4.94	4.96
28	4.82	4.85	4.99	4.98	4.98	5.00	4.94	5.07	5.27	4.95	4.96	4.96
29	4.82	4.87	4.99	4.99	---	4.99	4.94	5.13	5.25	4.93	4.97	4.96
30	4.82	4.90	4.98	4.99	---	4.98	4.95	5.12	5.09	4.92	4.96	4.96
31	4.82	---	4.98	5.00	---	5.06	---	5.12	---	4.90	4.95	---
MEAN	4.84	4.84	4.99	5.03	5.00	5.01	5.02	5.03	5.03	5.00	4.96	4.98
MAX	4.90	4.90	5.03	5.21	5.09	5.08	5.12	5.25	5.27	5.07	5.15	5.06
MIN	4.79	4.82	4.90	4.96	4.96	4.96	4.94	4.96	4.92	4.90	4.86	4.89

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: Ice-affected periods, Jan. 10, and Mar. 9-10. Records good except those for ice-affected periods, which are poor (see page 12).

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	2.4	.80	1.1	15	14	26	70	22	24	61	2.0	.94
2	2.5	.73	1.1	15	19	26	74	23	25	7.9	1.8	.86
3	2.5	.78	1.0	14	28	15	71	23	24	2.1	1.9	.77
4	2.5	.77	.98	14	31	7.1	68	21	23	12	2.0	.76
5	2.2	.82	.96	20	31	7.1	66	17	12	29	44	.72
6	2.0	.81	.94	41	32	6.9	32	12	2.5	37	193	.81
7	2.1	.78	.79	62	32	6.2	11	72	2.2	37	112	.62
8	2.2	.69	.95	66	32	7.7	23	143	2.1	30	20	.59
9	2.4	.67	1.1	64	21	12	67	132	1.8	12	22	1.4
10	1.8	.84	1.1	62	10	13	83	109	1.5	2.1	18	1.6
11	.92	.89	1.1	61	19	20	80	106	2.1	2.9	6.7	1.1
12	.66	3.4	3.2	60	46	20	48	52	17	3.0	3.2	.88
13	.70	2.4	3.6	47	68	19	29	16	36	2.4	3.2	1.1
14	.62	1.5	3.0	20	73	19	26	14	50	5.0	3.3	1.0
15	.53	1.3	3.0	11	71	19	48	18	56	5.6	3.3	.85
16	.46	1.4	2.8	8.2	48	19	77	28	58	3.6	2.4	1.1
17	.69	1.1	2.8	7.3	49	20	88	29	25	2.8	1.8	2.9
18	.72	1.0	2.8	8.8	67	20	58	14	3.5	2.9	2.7	3.4
19	.77	1.2	2.7	8.5	41	27	34	3.9	16	3.1	3.2	3.8
20	.60	1.1	2.6	6.9	26	30	22	4.2	25	3.2	2.6	3.7
21	.55	1.1	2.8	7.2	26	29	36	3.9	26	3.3	2.5	4.0
22	.79	1.1	10	8.6	26	29	56	1.9	25	3.1	2.3	4.0
23	.66	1.0	16	18	26	28	59	3.0	26	3.2	2.2	3.4
24	.63	1.1	16	23	26	28	64	1.7	14	3.2	1.7	2.5
25	.76	1.2	15	23	26	18	66	2.6	2.9	3.1	1.7	2.4
26	.73	1.2	15	16	26	13	68	3.6	62	3.2	1.4	12
27	.68	1.2	15	8.0	26	20	45	4.3	107	3.0	1.4	6.8
28	.68	1.2	15	6.3	26	29	26	4.4	196	2.7	1.2	2.3
29	.86	1.2	15	6.8	---	33	22	21	250	2.7	1.2	2.1
30	.85	1.1	15	10	---	44	20	29	187	2.7	1.1	1.6
31	.82	---	15	11	---	52	---	24	---	2.4	1.0	---
TOTAL	37.28	34.38	187.42	749.6	966	663.0	1537	958.5	1302.6	297.2	466.8	70.00
MEAN	1.20	1.15	6.05	24.2	34.5	21.4	51.2	30.9	43.4	9.59	15.1	2.33
MAX	2.5	3.4	16	66	73	52	88	143	250	61	193	12
MIN	.46	.67	.79	6.3	10	6.2	11	1.7	1.5	2.1	1.0	.59
AC-FT	74	68	372	1490	1920	1320	3050	1900	2580	589	926	139
CFSM	.03	.03	.15	.61	.87	.54	1.29	.78	1.09	.24	.38	.06
IN.	.03	.03	.18	.70	.90	.62	1.44	.90	1.22	.28	.44	.07

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1998, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
MEAN	22.8	20.3	20.5	18.8	29.4	30.4	36.3	18.4	22.2	11.3	5.93	15.9			
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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1984 - 1998
ANNUAL TOTAL	6356.10	7269.78	
ANNUAL MEAN	17.4	19.9	20.9
HIGHEST ANNUAL MEAN			42.6
LOWEST ANNUAL MEAN			11.0
HIGHEST DAILY MEAN	258	250	406
LOWEST DAILY MEAN	.13	.46	.00 (a)
ANNUAL SEVEN-DAY MINIMUM	.62	.62	.00 (b)
INSTANTANEOUS PEAK FLOW			473
INSTANTANEOUS PEAK STAGE		8.35	8.35
ANNUAL RUNOFF (AC-FT)	12610	14420	15160
ANNUAL RUNOFF (CFSM)	.44	.50	.53
ANNUAL RUNOFF (INCHES)	5.94	6.79	7.14
10 PERCENT EXCEEDS	46	59	57
50 PERCENT EXCEEDS	5.3	7.1	7.4
90 PERCENT EXCEEDS	.82	.85	.04

(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

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, 1.22 mg/L, May 7; minimum observed, 0.010 mg/L, Sept. 7.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 133 lb, June 30; minimum daily, 0.06 lb, Sept. 7.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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)
OCT 1997				APR 1998			
02...	0905	2.4	.024	03...	1015	72	.079
13...	0825	.67	.081	03...	1445	71	.081
14...	0825	.61	.071	04...	0930	70	.077
27...	0950	.57	.062	05...	1035	66	.074
29...	0850	.58	.041	06...	0845	66	.073
NOV				08...	0810	12	.082
03...	0810	.68	.188	08...	1350	36	.078
DEC				09...	0915	37	.135
*02...	1305	1.1	.064	09...	1335	88	.128
JAN 1998				10...	0825	44	.075
05...	0845	14	.070	10...	1625	59	.518
06...	0825	22	.073	11...	0945	85	.074
07...	1005	67	.093	11...	1515	71	.076
FEB				12...	0930	85	.072
02...	0840	15	.073	12...	1440	30	.077
03...	0810	20	.077	14...	0800	29	.140
04...	0805	31	.092	16...	0840	57	.118
08...	1245	32	.074	16...	1340	89	.102
12...	0740	33	.089	17...	0840	88	.105
12...	1335	55	.620	17...	1510	87	.063
13...	0815	55	.080	18...	0850	62	.052
13...	1400	75	.080	18...	1350	52	.051
14...	0650	74	.081	19...	0855	34	.039
14...	1500	72	.082	22...	0815	47	.125
15...	0650	71	.084	23...	0830	43	.046
15...	1515	70	.079	MAY			
MAR				06...	0930	13	.079
02...	0825	26	.031	07...	0845	10	.081
09...	0855	**12	.052	07...	1410	132	1.22
16...	0850	20	.045	08...	0840	138	.070
17...	0940	20	.026	08...	1350	155	.051
18...	0805	20	.039	09...	0830	141	.061
19...	0845	20	.035	09...	1455	136	.070
20...	0755	31	.052	10...	0850	115	.054
22...	0855	28	.140	10...	1410	109	.057
31...	0820	53	.115	11...	0820	108	.080

* Grab sample

** Mean daily discharge (00060)

ROCK RIVER BASIN

365

05431022 DELAVAN LAKE OUTLET AT BORG ROAD NEAR DELAVAN, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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)
MAY 1998				JUN 1998			
13...	0800	16	.037	28...	1005	165	.130
14...	0835	17	.033	28...	1415	256	.166
15...	1435	29	.052	28...	1745	258	.082
17...	0850	29	.034	30...	0820	230	.081
24...	1035	1.6	.112	30...	1340	191	.248
25...	0920	1.4	.092	JUL			
26...	1450	5.6	.078	01...	0810	137	.076
27...	0815	3.8	.081	02...	0810	17	.088
29...	0840	11	.102	03...	0910	2.0	.070
29...	1345	31	.130	05...	0910	38	.081
30...	1400	29	.123	07...	0805	37	.076
31...	1540	23	.053	09...	1005	2.9	.248
JUN				21...	0825	3.4	.122
01...	0825	22	.113	23...	0835	3.3	.152
02...	0920	25	.148	24...	1450	3.2	.132
09...	0915	1.8	.117	AUG			
12...	0840	2.5	.085	05...	1355	1.7	.142
12...	1350	26	.062	06...	0850	191	.029
13...	1340	40	.059	06...	1350	194	.055
14...	1345	54	.075	07...	1355	107	.021
16...	0810	53	.054	08...	0900	18	.032
17...	0835	63	.060	09...	0850	23	.035
19...	1115	4.3	.049	10...	1015	22	.034
19...	1420	26	.262	11...	0900	12	.036
20...	0840	25	.040	SEP			
20...	1510	25	.029	07...	0900	.53	.024
21...	1000	26	.058	07...	1340	.53	<.010
22...	1410	24	.046	*08...	0915	.46	.013
23...	0940	26	.058	09...	0745	.63	.114
26...	0930	1.9	.093	11...	0840	1.3	.033
26...	1410	89	.174	15...	0845	.92	.035
27...	1015	105	.115	16...	1315	1.3	.041
27...	1630	106	.105	18...	0800	3.2	.047

* Grab sample

DAILY MEAN VALUES

[illegible]

ROCK RIVER BASIN

367

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.--Estimated daily discharges: Aug. 22-27. Records good except those for estimated daily discharges, which are fair (see page 12). 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	18	20	28	32	58	110	36	46	201	19	23
2	14	17	19	30	41	57	124	39	47	89	19	23
3	15	17	20	37	53	51	121	40	45	45	19	21
4	15	17	20	52	62	26	118	40	44	52	23	19
5	14	18	19	85	61	21	114	38	38	65	79	19
6	15	20	18	109	59	23	84	39	23	97	309	20
7	15	19	18	115	58	25	27	86	22	100	363	41
8	15	18	18	122	57	38	42	153	21	80	218	27
9	15	17	18	108	48	61	99	174	24	55	158	26
10	15	17	19	75	33	62	127	141	22	35	198	25
11	14	17	18	84	55	51	128	121	30	32	111	23
12	13	17	18	87	88	34	101	119	42	32	61	22
13	25	18	19	77	103	35	62	82	73	29	46	22
14	23	17	19	55	113	36	64	66	76	28	31	39
15	17	18	19	33	109	37	77	46	80	31	32	49
16	12	17	19	29	105	38	94	61	80	28	32	34
17	13	16	19	26	93	43	107	60	69	26	31	27
18	13	15	19	26	101	65	107	41	39	25	30	29
19	14	16	19	27	98	72	81	19	49	28	30	28
20	14	16	19	26	71	76	53	19	62	25	25	28
21	14	16	19	25	66	71	52	19	57	27	22	23
22	14	15	22	26	64	69	70	21	54	27	23	21
23	16	15	29	33	61	48	76	19	50	29	23	20
24	17	15	29	39	62	40	76	25	41	24	26	19
25	17	15	30	42	60	39	78	21	36	22	38	19
26	21	16	29	37	60	30	82	21	104	22	26	22
27	26	17	28	27	61	45	74	22	157	22	24	27
28	20	18	29	24	58	61	51	33	224	21	27	20
29	16	21	29	25	---	66	40	42	284	20	25	20
30	16	22	29	25	---	70	38	54	296	20	24	21
31	17	---	28	29	---	112	---	53	---	20	24	---
TOTAL	501	515	678	1563	1932	1560	2477	1750	2235	1357	2116	757
MEAN	16.2	17.2	21.9	50.4	69.0	50.3	82.6	56.5	74.5	43.8	68.3	25.2
MAX	26	22	30	122	113	112	128	174	296	201	363	49
MIN	12	15	18	24	32	21	27	19	21	20	19	19
CFSM	.19	.21	.26	.61	.83	.60	.99	.68	.89	.53	.82	.30
IN.	.22	.23	.30	.70	.86	.70	1.11	.78	1.00	.61	.94	.34

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 1998, BY WATER YEAR (WY)

	1996	1997	1998	1996	1997	1998	1996	1997	1998	1996	1997	1998
MEAN	19.7	19.6	28.9	45.6	86.3	66.8	66.8	49.4	94.7	31.7	34.9	24.0
MAX	23.3	22.0	35.9	50.4	104	83.2	82.6	56.5	171	43.8	68.3	29.7
(WY)	1997	1997	1997	1998	1997	1997	1998	1998	1998	1998	1998	1997
MIN	16.2	17.2	21.9	40.8	69.0	50.3	51.1	42.4	38.5	20.2	16.6	17.0
(WY)	1998	1998	1998	1997	1998	1998	1997	1997	1997	1997	1997	1996

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1996 - 1998

ANNUAL TOTAL	14472.3	17441	
ANNUAL MEAN	39.7	47.8	44.8
HIGHEST ANNUAL MEAN			47.8
LOWEST ANNUAL MEAN			41.8
HIGHEST DAILY MEAN	391	Feb 22	391
LOWEST DAILY MEAN	7.7	Jun 14	7.7
ANNUAL SEVEN-DAY MINIMUM	12	Jun 9	12
INSTANTANEOUS PEAK FLOW			493
INSTANTANEOUS PEAK STAGE			3.78
INSTANTANEOUS LOW FLOW			6.6
ANNUAL RUNOFF (CFSM)	.48	.57	.54
ANNUAL RUNOFF (INCHES)	6.46	7.79	7.31
10 PERCENT EXCEEDS	68	101	90
50 PERCENT EXCEEDS	24	30	28
90 PERCENT EXCEEDS	14	17	15

ROCK RIVER BASIN

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.

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, Nov. 24-25, Dec. 13-16, Dec. 27 to Jan. 3, Jan. 10-24, and Mar. 8-14. Records good except those for ice-affected periods, which are fair (see page 12). 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	66	74	70	84	126	338	127	132	448	81	88
2	54	65	69	76	115	122	273	130	124	291	79	86
3	55	63	69	96	125	122	245	151	119	207	78	85
4	54	63	71	150	131	110	226	138	116	329	87	83
5	55	62	68	221	127	89	212	130	113	197	275	80
6	55	70	65	257	120	85	201	128	104	182	1960	81
7	55	72	65	296	116	86	154	231	93	212	729	130
8	55	68	63	247	115	94	181	438	91	209	519	98
9	56	67	63	223	114	130	262	342	97	171	340	88
10	56	65	65	210	102	130	284	303	101	141	258	88
11	56	64	65	230	130	120	257	239	107	123	283	85
12	58	63	63	230	255	90	234	228	150	116	161	83
13	64	64	60	220	223	92	190	268	217	111	137	81
14	73	64	60	190	210	94	194	183	176	107	118	106
15	66	67	60	140	206	98	181	154	162	103	120	162
16	58	65	62	110	198	96	247	145	155	103	109	135
17	55	62	63	94	195	99	248	142	149	100	104	106
18	57	62	63	86	186	131	230	136	173	94	104	96
19	57	60	63	88	185	159	206	114	341	100	101	94
20	56	60	64	86	165	150	170	100	186	101	99	92
21	56	60	65	84	139	142	189	98	159	128	92	89
22	55	60	64	86	134	135	230	98	139	137	92	82
23	57	59	68	94	129	129	200	101	129	115	92	81
24	62	58	74	98	130	105	184	129	125	107	92	81
25	63	58	78	100	126	105	175	122	153	97	109	79
26	66	61	74	92	124	103	182	107	941	91	102	81
27	80	62	68	86	130	98	178	101	608	90	93	85
28	80	67	70	80	131	117	154	137	859	89	106	85
29	69	68	70	78	---	125	136	171	722	86	111	79
30	69	76	68	78	---	126	130	146	472	84	98	81
31	67	---	68	79	---	252	---	148	---	82	91	---
TOTAL	1872	1921	2062	4275	4145	3660	6291	5185	7213	4551	6820	2770
MEAN	60.4	64.0	66.5	138	148	118	210	167	240	147	220	92.3
MAX	80	76	78	296	255	252	338	438	941	448	1960	162
MIN	53	58	60	70	84	85	130	98	91	82	78	79
CFSM	.31	.33	.34	.70	.75	.60	1.07	.85	1.22	.75	1.12	.47
IN.	.35	.36	.39	.81	.78	.69	1.19	.98	1.36	.86	1.29	.52

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1998, BY WATER YEAR (WY)

	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
MEAN	100	109	104	106	142	229	175	127	117	97.2	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

05431486 TURTLE CREEK AT CARVERS ROCK ROAD NEAR CLINTON, WI--CONTINUED

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1939 - 1998	
ANNUAL TOTAL	41569		50765		124	
ANNUAL MEAN	114		139		289	
HIGHEST ANNUAL MEAN					43.0	1973
LOWEST ANNUAL MEAN					6400	1958
HIGHEST DAILY MEAN	2210	Feb 21	1960	Aug 6	16	Apr 21 1973
LOWEST DAILY MEAN	46	Sep 15	53	Oct 1	17	Sep 13 1958
ANNUAL SEVEN-DAY MINIMUM	48	Sep 9	54	Oct 1	17	Sep 9 1958
INSTANTANEOUS PEAK FLOW			2290	Aug 6	(a) 16500	Apr 21 1973
INSTANTANEOUS PEAK STAGE			8.92	Aug 6	(b) 12.85	Apr 21 1973
INSTANTANEOUS LOW FLOW			(c) 32	Dec 28	(c) 8.0	Dec 29 1956
ANNUAL RUNOFF (CFSM)	.58		.71		.63	
ANNUAL RUNOFF (INCHES)	7.86		9.60		8.57	
10 PERCENT EXCEEDS	149		230		228	
50 PERCENT EXCEEDS	76		103		84	
90 PERCENT EXCEEDS	55		62		43	

(a) From rating curve extended above 6,500 ft³/s on basis of slope-area measurement of peak flow

(b) Site and datum then in use

(c) Result of freezeup

ROCK RIVER BASIN

05432500 PECATONICA RIVER AT DARLINGTON, WI

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. 26 to Jan. 2, Jan. 10-25, Feb. 7, 8, and Mar. 10-17. Records good except those for ice-affected periods, which are fair (see page 12). 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	92	102	106	76	91	341	2120	349	379	512	211	185
2	91	99	96	84	101	272	1480	344	299	435	207	181
3	93	97	98	114	101	242	839	475	279	401	207	190
4	93	98	107	132	93	226	654	426	261	797	241	200
5	89	96	98	132	84	203	565	361	255	683	324	180
6	88	101	88	151	84	190	509	336	249	466	346	175
7	89	104	94	141	84	182	473	363	244	443	429	175
8	88	100	91	126	84	182	544	543	236	407	317	170
9	92	97	90	117	86	167	649	454	250	376	251	166
10	93	97	93	80	86	120	565	376	276	352	243	163
11	90	96	93	90	108	140	474	351	296	334	236	161
12	91	92	90	86	155	130	440	336	573	318	220	160
13	112	92	78	82	140	130	426	332	401	309	212	159
14	130	93	71	80	124	120	463	315	315	301	209	274
15	103	94	97	80	121	120	442	300	296	290	216	728
16	95	93	100	82	134	120	652	331	281	280	218	382
17	94	76	77	84	157	130	778	302	320	270	213	260
18	93	92	99	84	161	194	601	274	399	263	242	231
19	93	97	93	86	145	294	532	268	1240	286	214	218
20	92	92	89	88	136	281	495	263	1370	318	202	209
21	91	94	76	88	130	267	507	257	639	338	205	203
22	91	92	95	90	125	267	515	251	503	313	203	192
23	91	71	91	90	123	265	445	257	427	271	205	184
24	94	81	88	90	129	257	413	369	404	256	234	195
25	94	105	83	90	127	249	390	420	408	246	215	206
26	93	95	80	91	127	263	407	304	413	240	201	194
27	100	90	66	91	325	261	460	273	402	236	190	188
28	98	91	82	92	518	234	378	264	948	233	232	179
29	99	94	80	93	---	217	356	336	1130	228	272	174
30	100	119	78	91	---	243	354	290	642	222	210	177
31	101	---	76	88	---	1190	---	377	---	217	192	---
TOTAL	2953	2840	2743	2989	3879	7497	17926	10497	14135	10641	7317	6459
MEAN	95.3	94.7	88.5	96.4	139	242	598	339	471	343	236	215
MAX	130	119	107	151	518	1190	2120	543	1370	797	429	728
MIN	88	71	66	76	84	120	354	251	236	217	190	159
CFSM	.35	.35	.32	.35	.51	.89	2.19	1.24	1.73	1.26	.86	.79
IN.	.40	.39	.37	.41	.53	1.02	2.44	1.43	1.93	1.45	1.00	.88

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1998, BY WATER YEAR (WY)

	MEAN	129	140	122	157	217	378	244	197	233	202	150	140
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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1939 - 1998
ANNUAL TOTAL	62936	89876	
ANNUAL MEAN	172	246	192
HIGHEST ANNUAL MEAN			534
LOWEST ANNUAL MEAN			66.5
HIGHEST DAILY MEAN	(a) 1500	Feb 22	2120
LOWEST DAILY MEAN	(b) 66	Dec 27	(b) 66
ANNUAL SEVEN-DAY MINIMUM	(a) 78	Dec 25	(a) 77
INSTANTANEOUS PEAK FLOW			2290
INSTANTANEOUS PEAK STAGE			12.36
INSTANTANEOUS LOW FLOW			(b) 40
ANNUAL RUNOFF (CFSM)	.63	.90	
ANNUAL RUNOFF (INCHES)	8.58	12.25	
10 PERCENT EXCEEDS	242	461	330
50 PERCENT EXCEEDS	129	194	123
90 PERCENT EXCEEDS	92	88	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

05433000 EAST BRANCH PECATONICA RIVER NEAR BLANCHARDVILLE, WI

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.

DRAINAGE AREA.--221 mi².

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: Feb. 27, 28, and ice-affected periods, Nov. 18-25, Dec. 13 to Jan. 25, Feb. 7, 8, and Mar. 10-15. Records good except those for periods of discharge over 600 ft³/s, which are fair, and estimated daily discharges, which are poor (see page 12). Gage-height telemeter at station.

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

1	109	118	121	96	106	177	1360	272	209	404	183	161
2	108	116	113	96	113	175	757	268	191	344	180	159
3	109	116	116	100	108	171	533	292	185	330	180	159
4	109	115	119	110	105	167	425	274	179	694	196	157
5	107	112	114	120	104	155	373	253	177	411	235	154
6	107	118	110	130	102	151	343	241	175	353	216	152
7	108	118	109	120	100	149	325	288	173	337	211	153
8	108	115	109	110	100	153	404	467	169	317	192	150
9	111	114	109	110	103	155	477	325	177	295	184	148
10	110	114	111	100	103	130	393	283	193	278	181	148
11	109	112	110	98	116	120	332	266	219	267	178	147
12	111	111	109	96	145	120	318	258	409	255	174	146
13	123	111	100	94	132	120	314	252	241	249	172	145
14	125	112	100	94	123	120	367	239	208	242	171	203
15	111	113	100	94	126	130	345	230	201	235	181	502
16	111	111	100	96	147	130	532	242	193	229	176	217
17	111	105	100	96	165	132	511	224	190	222	173	178
18	111	100	100	98	161	175	401	212	251	218	181	168
19	111	100	100	100	143	258	367	208	915	229	170	163
20	110	100	100	100	136	226	352	205	518	239	168	161
21	109	100	100	100	131	214	397	201	335	296	170	159
22	109	100	100	100	128	214	384	198	289	244	171	155
23	111	98	100	100	125	204	335	202	261	222	172	152
24	113	98	100	100	131	193	317	262	255	213	196	159
25	111	100	100	100	127	188	304	281	251	207	177	161
26	111	110	100	106	127	192	323	212	386	203	168	157
27	116	109	96	105	240	186	348	199	288	200	163	154
28	115	111	100	107	250	178	291	195	800	198	217	149
29	116	113	98	105	---	171	279	204	1230	193	210	148
30	116	135	96	107	---	205	278	195	611	190	172	150
31	116	---	96	103	---	990	---	215	---	187	164	---
TOTAL	3462	3305	3236	3191	3697	6049	12485	7663	9879	8501	5682	5115
MEAN	112	110	104	103	132	195	416	247	329	274	183	171
MAX	125	135	121	130	250	990	1360	467	1230	694	235	502
MIN	107	98	96	94	100	120	278	195	169	187	163	145
CFSM	.51	.50	.47	.47	.60	.88	1.88	1.12	1.49	1.24	.83	.77
IN.	.58	.56	.54	.54	.62	1.02	2.10	1.29	1.66	1.43	.96	.86

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 1998, BY WATER YEAR (WY)

MEAN	112	118	109	127	168	265	197	163	168	153	120	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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1939 - 1998
ANNUAL TOTAL	63497	72265	
ANNUAL MEAN	174	198	151
HIGHEST ANNUAL MEAN			338
LOWEST ANNUAL MEAN			70.4
HIGHEST DAILY MEAN	(a) 1100	Feb 22	1360
LOWEST DAILY MEAN	(a) 96	Dec 27, 30, 31	(a) 94
ANNUAL SEVEN-DAY MINIMUM	(a) 98	Dec 25	(a) 95
INSTANTANEOUS PEAK FLOW			1660
INSTANTANEOUS PEAK STAGE			12.25
INSTANTANEOUS LOW FLOW			(d) 89
ANNUAL RUNOFF (CFSM)	.79	.90	(d) 18
ANNUAL RUNOFF (INCHES)	10.69	12.16	9.31
10 PERCENT EXCEEDS	243	335	237
50 PERCENT EXCEEDS	140	161	110
90 PERCENT EXCEEDS	109	100	66

(a) Ice affected

(b) Also occurred on Sept. 1, 22, 23, 29, Oct. 2, 6, 1958, and Dec. 19, 20, 1964

(c) Gage height, 15.74 ft

(d) 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. 27 to Jan. 5, Jan. 10 to Feb. 11, and Mar. 12-17. 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 12). 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 1997 TO SEPTEMBER 1998
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	445	481	491	390	450	1280	2160	1380	1110	2110	789	748
2	438	487	511	390	460	1200	2490	1360	1140	2120	775	729
3	432	485	483	400	490	1060	3140	1370	1070	1880	763	716
4	433	484	479	480	480	977	3670	1380	1010	1630	768	715
5	429	480	484	580	470	921	3530	1390	970	1580	889	714
6	423	482	468	684	450	871	3010	1320	947	1690	1210	701
7	419	498	455	724	450	830	2490	1290	928	1690	1320	688
8	413	501	443	691	450	827	2160	1400	910	1580	1170	679
9	418	493	443	626	460	841	2090	1500	917	1420	1070	674
10	421	481	444	440	470	791	2060	1540	936	1300	951	656
11	429	472	454	420	480	702	2010	1420	993	1220	882	638
12	432	466	445	450	600	640	1910	1310	1180	1150	847	636
13	446	461	438	430	681	620	1760	1280	1380	1100	817	632
14	475	455	413	420	680	600	1720	1230	1350	1070	793	724
15	497	454	375	400	642	600	1670	1180	1170	1040	786	1200
16	481	447	440	390	630	620	1810	1140	1080	1010	789	1480
17	450	447	445	400	663	640	1930	1140	1080	980	798	1390
18	439	441	437	400	720	769	2020	1120	1090	953	799	1070
19	435	432	436	410	736	954	2060	1070	1640	957	806	896
20	434	444	438	420	701	1100	1980	1040	1820	962	789	821
21	432	448	430	420	664	1110	1910	1010	1950	1020	770	783
22	427	446	419	420	638	1070	1850	994	2040	1060	754	760
23	427	439	417	430	620	1040	1780	982	1940	1060	749	735
24	431	410	431	430	627	1010	1700	1110	1640	973	747	719
25	435	425	439	430	636	985	1590	1240	1410	918	787	719
26	442	468	427	430	637	963	1540	1290	1310	883	786	741
27	446	466	400	440	771	956	1570	1180	1290	859	763	730
28	466	445	380	440	1070	948	1570	1080	1670	855	781	708
29	484	442	410	450	---	913	1510	1060	1890	839	843	687
30	480	456	400	450	---	881	1430	1150	1990	821	887	672
31	478	---	390	450	---	1550	---	1130	---	805	815	---
TOTAL	13737	13836	13565	14335	16826	28269	62120	38086	39851	37535	26493	23761
MEAN	443	461	438	462	601	912	2071	1229	1328	1211	855	792
MAX	497	501	511	724	1070	1550	3670	1540	2040	2120	1320	1480
MIN	413	410	375	390	450	600	1430	982	910	805	747	632
CFSM	.43	.45	.42	.45	.58	.88	2.00	1.19	1.28	1.17	.83	.77
IN.	.49	.50	.49	.52	.61	1.02	2.23	1.37	1.43	1.35	.95	.85

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1998, BY WATER YEAR (WY)

	MEAN	527	584	513	586	811	1404	969	794	811	790	579	571
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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1940 - 1998
ANNUAL TOTAL	265599	328414	
ANNUAL MEAN	728	900	745
HIGHEST ANNUAL MEAN			1720
LOWEST ANNUAL MEAN			292
HIGHEST DAILY MEAN	(a) 4900	Feb 23	3670
LOWEST DAILY MEAN	(b) 375	Dec 15	375
ANNUAL SEVEN-DAY MINIMUM	(a) 407	Dec 25	394
INSTANTANEOUS PEAK FLOW			3730
INSTANTANEOUS PEAK STAGE			14.54
INSTANTANEOUS LOW FLOW			Apr 4
ANNUAL RUNOFF (CFSM)	.70	.87	21.46
ANNUAL RUNOFF (INCHES)	9.56	11.82	(c) .00
10 PERCENT EXCEEDS	1050	1650	.72
50 PERCENT EXCEEDS	577	763	9.78
90 PERCENT EXCEEDS	438	430	520
			255

(a) Ice affected
(b) Result of freezeup
(c) Result of regulation

ROCK RIVER BASIN

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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.--Estimated daily discharges: Apr. 19-29. Records good October to March and fair April to September (see page 12). Gage-height and water-quality telemeter at station. Effluent discharged into creek occasionally from Aug. 10-27 and continuously at an average rate of 3.77 ft³/s from Aug. 28 to Sept. 30 (data provided by Madison Metropolitan Sewerage District).

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	3.9	3.8	3.4	3.1	3.4	4.6	25	6.7	6.5	7.7	6.2	11
2	4.4	3.6	3.3	3.2	3.8	4.5	8.7	8.7	5.6	7.1	6.2	12
3	4.1	3.4	3.5	3.6	3.6	4.5	7.2	13	4.9	19	6.5	12
4	3.5	3.3	3.4	4.5	3.6	4.3	6.5	7.5	4.9	18	13	12
5	3.4	3.5	3.4	6.6	3.5	4.2	6.2	7.2	4.8	8.5	9.3	9.9
6	3.5	4.0	3.3	5.6	3.5	4.3	6.0	9.0	4.8	7.8	8.4	10
7	3.5	3.7	3.2	4.1	3.4	4.2	6.6	42	4.8	7.7	7.6	10
8	3.5	3.3	3.2	4.0	3.3	4.4	21	21	4.8	7.8	7.1	9.6
9	3.6	3.3	3.3	3.8	3.4	4.2	21	9.9	5.2	7.5	6.9	10
10	3.5	3.3	3.3	3.6	3.6	4.1	8.3	8.3	5.1	7.4	6.9	9.9
11	3.4	3.2	3.2	3.5	5.7	4.0	6.9	8.0	21	7.2	7.0	10
12	3.5	3.2	3.2	3.6	6.6	4.0	6.6	7.6	15	7.1	7.4	10
13	5.2	3.2	3.1	3.6	5.1	4.0	14	7.3	6.9	7.2	7.4	10
14	3.9	3.2	3.1	3.6	4.2	3.9	11	7.4	5.7	7.2	8.2	33
15	3.5	3.1	3.3	3.6	5.4	3.7	32	7.6	5.5	7.2	9.1	35
16	3.4	3.0	3.3	3.5	6.9	3.8	35	7.3	5.5	7.2	7.3	13
17	3.4	3.0	3.3	3.4	9.0	4.3	13	6.9	5.3	6.9	8.6	11
18	3.3	3.1	3.3	3.3	5.1	12	9.4	7.0	53	6.5	8.4	10
19	3.3	3.1	3.3	3.4	4.4	11	7.4	7.3	69	12	7.5	10
20	3.3	3.3	3.2	3.4	4.3	6.5	7.2	7.1	11	9.2	7.4	9.8
21	3.3	3.1	3.2	3.4	4.2	5.6	15	6.9	7.9	11	12	9.7
22	3.3	3.0	3.3	3.4	4.1	5.8	9.0	7.1	7.1	7.6	12	9.6
23	3.3	2.9	3.2	3.4	4.1	5.5	7.6	7.2	6.7	7.3	16	9.5
24	3.4	3.0	3.2	3.3	4.6	5.1	7.0	16	8.1	7.0	11	11
25	3.2	3.1	3.3	3.3	4.3	5.1	6.8	7.5	6.9	6.9	12	10
26	3.4	3.2	3.2	3.3	4.4	5.0	8.4	6.5	6.8	6.9	9.0	10
27	3.5	3.1	3.2	3.4	9.6	4.8	7.4	6.3	10	7.0	9.2	10
28	3.5	3.1	3.1	3.4	5.5	4.6	6.6	12	118	6.9	14	10
29	3.4	3.4	3.2	3.4	---	4.5	6.4	8.3	20	6.7	11	10
30	3.3	4.0	3.2	3.3	---	20	6.4	6.4	9.1	6.6	11	11
31	3.4	---	3.1	3.3	---	133	---	11	---	6.4	10	---
TOTAL	110.1	98.5	100.8	113.9	132.6	299.5	339.6	302.0	449.9	256.5	283.6	359.0
MEAN	3.55	3.28	3.25	3.67	4.74	9.66	11.3	9.74	15.0	8.27	9.15	12.0
MAX	5.2	4.0	3.5	6.6	9.6	133	35	42	118	19	16	35
MIN	3.2	2.9	3.1	3.1	3.3	3.7	6.0	6.3	4.8	6.4	6.2	9.5
CFSM	.17	.16	.16	.18	.23	.48	.56	.48	.74	.41	.45	.59
IN.	.20	.18	.18	.21	.24	.55	.62	.55	.82	.47	.52	.66

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 1998, BY WATER YEAR (WY)

	1997	1998	1997	1998	1997	1998	1997	1998	1997	1998	1997	1998
MEAN	5.34	4.32	4.14	5.78	11.2	11.6	8.83	8.07	11.0	8.11	6.84	7.86
MAX	7.12	5.36	5.03	7.88	17.7	13.6	11.3	9.74	15.0	8.27	9.15	12.0
(WY)	1997	1997	1997	1997	1997	1997	1998	1998	1998	1998	1998	1998
MIN	3.55	3.28	3.25	3.67	4.74	9.66	6.34	6.39	6.93	7.94	4.53	3.76
(WY)	1998	1998	1998	1998	1998	1998	1997	1997	1997	1997	1997	1997

SUMMARY STATISTICS

FOR 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1997 - 1998

ANNUAL TOTAL	2567.0	2846.0	
ANNUAL MEAN	7.03	7.80	
HIGHEST ANNUAL MEAN			7.73
LOWEST ANNUAL MEAN			7.80
HIGHEST DAILY MEAN	166	Feb 21	133
LOWEST DAILY MEAN	2.9	Nov 23	2.9
ANNUAL SEVEN-DAY MINIMUM	3.1	Nov 21	3.1
INSTANTANEOUS PEAK FLOW			(a) 231
INSTANTANEOUS PEAK STAGE			(b) 7.22
ANNUAL RUNOFF (CFSM)	.35		.38
ANNUAL RUNOFF (INCHES)	4.70		5.17
10 PERCENT EXCEEDS	7.8		11
50 PERCENT EXCEEDS	4.5		5.2
90 PERCENT EXCEEDS	3.3		3.4

(a) Gage height, 7.16 ft

(b) 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 to September 1998.

INSTRUMENTATION.--Continuous water temperature recorder since November 1996. Dissolved-oxygen recorder May to September 1998.

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

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum, 25.5°C, June 28, 1998; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 25.5°C, June 28; minimum 0.0°C on many days during winter period.

DISSOLVED OXYGEN (MAY TO SEPTEMBER): Maximum, 19.8 mg/L, May 18; minimum, 2.0 mg/L, Sept. 26.

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	14.5	10.5	12.0	12.0	8.5	10.5	6.5	5.0	6.0	4.5	.0	2.0
2	16.0	10.0	12.5	8.5	7.0	8.0	7.0	5.5	6.0	6.5	3.0	5.0
3	17.5	12.0	14.5	8.0	6.5	7.5	6.5	4.0	5.5	8.0	5.5	7.0
4	17.5	13.0	15.0	9.0	7.0	7.5	7.5	4.5	5.5	5.5	2.5	4.0
5	18.0	11.5	14.5	8.5	7.0	7.5	5.5	3.0	4.0	4.5	3.5	4.0
6	17.5	12.0	14.5	8.5	7.0	8.0	5.0	3.0	4.0	5.0	4.0	4.5
7	18.0	14.0	15.5	10.0	7.5	8.5	7.0	3.5	4.5	5.0	4.0	4.5
8	17.5	14.0	16.0	9.0	8.0	8.5	5.0	3.5	4.0	4.0	1.5	3.0
9	17.0	12.0	15.5	8.5	7.5	8.0	6.5	4.0	5.0	5.5	1.0	3.5
10	14.5	10.0	12.0	9.0	6.0	7.5	6.0	3.5	5.0	1.5	.0	.5
11	14.5	11.0	12.5	7.5	4.0	6.0	7.0	4.5	5.5	2.5	.0	.5
12	15.5	13.0	14.0	6.5	3.0	4.5	6.5	2.5	4.5	2.5	.0	1.5
13	15.0	10.0	13.5	6.0	4.0	5.0	5.5	2.0	3.0	2.0	.0	.5
14	10.5	8.0	9.5	7.5	5.0	6.0	5.0	1.5	3.0	1.5	.5	1.0
15	11.5	6.5	9.0	6.5	4.0	5.0	6.5	3.0	4.5	4.0	1.0	2.0
16	13.0	8.5	10.5	5.5	2.0	4.0	8.0	3.5	5.0	4.5	2.5	3.5
17	12.5	7.5	9.5	6.0	1.5	3.5	6.5	2.5	4.0	5.0	1.0	3.5
18	12.0	7.0	9.0	7.0	3.5	5.0	7.0	4.0	5.5	4.0	.5	2.0
19	11.0	7.5	9.5	7.5	4.0	5.0	7.5	5.0	6.0	5.5	2.5	3.5
20	11.5	7.0	9.0	6.0	4.0	5.0	7.0	2.5	5.0	5.5	3.0	4.0
21	9.5	6.5	8.0	7.0	3.5	5.0	4.5	1.0	3.0	4.0	2.0	3.0
22	10.0	6.5	8.0	5.0	3.0	4.0	5.0	4.0	4.5	5.5	3.5	4.0
23	9.0	7.0	8.0	5.0	2.0	3.0	5.5	4.5	4.5	6.0	3.0	4.5
24	10.0	8.5	9.0	5.5	1.0	3.0	4.5	2.5	4.0	7.5	1.5	4.0
25	10.5	7.0	8.5	8.0	4.0	6.0	5.0	2.5	3.5	4.0	1.5	2.5
26	7.5	4.5	6.0	8.5	5.0	6.5	6.0	2.5	4.0	7.5	3.5	5.0
27	9.5	4.5	6.0	6.0	4.5	5.5	3.5	1.0	2.0	7.5	4.5	5.5
28	8.5	4.5	7.0	8.5	5.5	7.0	4.0	1.0	2.5	7.5	4.5	5.5
29	11.0	6.0	8.0	7.5	6.5	7.5	5.0	2.5	4.0	7.5	5.0	5.5
30	10.5	7.5	9.0	8.0	6.0	6.5	5.0	1.0	2.5	6.0	4.0	4.5
31	13.5	10.0	11.5	---	---	---	3.5	.0	1.5	6.5	3.5	4.5
MONTH	18.0	4.5	10.9	12.0	1.0	6.2	8.0	.0	4.2	8.0	.0	3.5

ROCK RIVER BASIN
05435943 BADGER MILL CREEK AT VERONA, 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	6.0	4.5	5.0	8.0	4.5	6.0	10.5	7.5	9.0	---	---	---
2	8.0	3.5	5.0	6.5	5.0	6.0	10.0	7.0	8.0	---	---	---
3	6.5	4.0	5.0	7.0	5.0	6.0	8.5	7.0	7.5	---	---	---
4	6.0	2.5	4.0	7.0	4.5	5.5	14.5	6.0	9.5	---	---	---
5	6.5	2.5	4.0	8.0	4.5	6.0	15.0	5.5	9.5	---	---	---
6	8.0	1.5	4.0	8.0	4.5	6.0	15.0	7.0	10.5	---	---	---
7	7.0	2.0	4.0	9.5	3.0	6.0	13.0	8.0	10.0	---	---	---
8	5.5	3.0	4.0	6.0	.5	2.0	9.5	7.5	8.0	---	---	---
9	6.5	3.0	4.5	7.0	1.0	3.5	8.0	6.0	7.0	---	---	---
10	8.0	4.0	5.5	7.0	.0	2.5	14.0	5.5	9.5	---	---	---
11	6.0	2.5	4.5	7.0	.0	3.0	13.5	6.5	10.0	---	---	---
12	7.5	2.0	4.0	6.5	.0	3.0	16.5	9.0	12.0	---	---	---
13	5.5	2.5	4.0	6.5	1.5	4.0	12.0	9.5	10.5	18.5	11.0	14.5
14	7.5	4.5	5.5	8.5	1.0	4.5	17.0	10.5	12.5	19.0	11.0	15.0
15	9.5	4.0	6.0	7.0	1.5	4.0	11.0	8.5	9.5	18.0	13.0	16.0
16	7.0	3.5	5.0	8.0	1.5	4.5	8.5	6.0	7.0	19.0	13.0	15.5
17	4.5	3.5	4.0	6.0	3.5	4.5	14.0	5.5	9.0	19.0	11.0	15.0
18	6.0	4.0	5.0	3.5	2.0	3.0	---	---	---	19.5	12.5	16.0
19	7.5	5.5	6.0	4.5	1.5	3.0	---	---	---	18.0	13.0	15.5
20	9.0	5.5	7.0	8.0	2.5	4.5	---	---	---	15.0	12.0	13.5
21	8.5	5.0	6.5	10.5	2.0	6.0	---	---	---	16.5	11.0	13.5
22	11.0	5.5	7.5	11.5	2.5	6.5	---	---	---	13.5	10.5	11.5
23	7.5	5.0	6.5	12.5	4.0	7.5	---	---	---	16.5	10.5	13.0
24	12.0	5.0	8.0	12.0	3.5	7.5	---	---	---	14.0	11.5	12.5
25	10.0	5.0	7.5	11.5	6.5	9.0	---	---	---	17.0	11.0	13.5
26	11.5	7.0	8.5	15.5	9.0	12.5	---	---	---	17.5	11.5	14.5
27	8.5	5.5	7.0	14.0	11.0	12.5	---	---	---	18.0	12.0	15.0
28	9.0	5.0	6.5	13.5	9.5	11.0	---	---	---	20.5	13.5	17.0
29	---	---	---	18.0	8.5	12.5	---	---	---	19.0	15.5	17.0
30	---	---	---	15.0	12.0	13.0	---	---	---	17.0	13.5	15.5
31	---	---	---	13.0	10.0	11.0	---	---	---	19.5	14.5	16.5
MONTH	12.0	1.5	5.5	18.0	.0	6.3	---	---	---	---	---	---
	JUNE			JULY			AUGUST			SEPTEMBER		
1	16.5	12.0	14.0	19.5	15.5	17.5	17.0	13.5	15.0	18.0	15.0	16.5
2	17.0	12.0	14.0	18.5	15.0	17.0	16.5	14.0	15.0	17.5	15.0	16.5
3	14.5	12.0	13.0	22.5	14.5	17.5	16.5	14.5	15.5	17.5	15.0	16.5
4	14.5	10.0	12.0	20.5	17.0	19.0	19.0	15.0	17.0	18.5	15.5	17.0
5	14.0	11.5	12.5	18.0	14.5	16.5	18.5	16.0	17.5	17.5	14.5	16.5
6	13.0	10.5	11.5	17.0	15.0	16.0	17.5	15.0	16.0	17.5	15.5	16.5
7	15.5	9.5	12.5	16.5	15.0	15.5	17.0	14.5	15.5	17.5	16.0	17.0
8	13.5	11.0	12.5	17.5	14.5	16.0	17.5	15.5	16.0	16.0	14.0	15.0
9	12.5	12.0	12.0	18.0	14.5	16.0	18.0	15.0	16.5	16.0	12.5	14.5
10	14.5	11.5	12.5	18.0	14.5	16.0	18.0	15.0	16.5	17.0	13.5	15.0
11	18.0	12.5	15.0	18.0	14.0	16.0	17.5	14.5	16.0	17.5	14.5	16.0
12	18.5	16.0	17.5	17.5	14.0	16.0	16.5	14.0	15.0	17.5	14.5	16.0
13	17.5	14.5	16.0	18.5	14.0	16.0	17.0	14.5	15.5	17.5	15.0	16.5
14	15.5	13.5	14.5	19.5	15.0	17.0	20.0	14.0	16.0	19.0	16.5	17.5
15	16.5	13.0	14.5	19.0	15.5	17.0	20.0	14.5	16.5	19.0	17.0	18.5
16	18.5	13.5	15.5	18.5	15.0	16.5	17.5	14.5	16.0	17.5	15.5	16.5
17	17.0	13.5	15.0	18.5	15.0	16.5	19.5	15.0	16.0	17.5	14.5	16.0
18	20.5	14.0	17.0	18.5	15.0	16.5	17.0	15.0	16.5	17.0	14.5	16.0
19	20.5	18.0	19.0	22.0	16.0	19.0	17.0	14.0	15.0	18.0	15.0	16.5
20	21.0	17.5	19.0	23.0	17.0	19.0	16.5	14.5	15.5	17.0	15.5	16.5
21	19.5	16.5	18.0	22.0	16.5	19.5	23.5	15.0	17.5	16.0	14.0	15.0
22	17.5	15.5	16.5	18.5	16.0	17.0	21.0	16.0	18.5	15.5	13.5	14.5
23	18.5	14.0	16.5	18.0	15.0	16.0	21.0	16.5	19.0	15.5	12.5	14.0
24	19.5	15.5	18.0	17.5	14.0	15.5	20.5	16.5	18.0	15.0	14.0	14.5
25	21.0	17.0	19.0	16.5	14.0	15.5	19.5	15.5	17.5	16.0	13.5	15.0
26	20.0	16.0	18.0	17.5	13.5	15.5	18.0	15.5	16.5	18.0	15.5	16.5
27	22.5	17.0	19.5	18.0	14.5	16.0	17.5	15.0	16.0	17.5	16.0	16.5
28	25.5	20.0	23.0	18.5	14.5	16.5	18.0	15.5	16.5	16.5	13.5	15.0
29	25.0	19.0	21.5	17.5	14.5	16.0	18.5	15.5	17.0	17.0	14.0	15.5
30	19.5	17.0	18.0	17.0	14.5	15.5	18.0	15.0	16.5	16.5	14.5	15.0
31	---	---	---	17.0	14.0	15.0	17.5	14.5	16.0	---	---	---
MONTH	25.5	9.5	15.9	23.0	13.5	16.6	23.5	13.5	16.4	19.0	12.5	15.9

ROCK RIVER BASIN
05435943 BADGER MILL CREEK AT VERONA, WI--CONTINUED

OXYGEN DISSOLVED (MG/L), 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	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	17.8	6.8	11.1
14	---	---	---	---	---	---	---	---	---	18.8	6.6	11.5
15	---	---	---	---	---	---	---	---	---	18.5	6.3	11.2
16	---	---	---	---	---	---	---	---	---	18.8	6.3	11.2
17	---	---	---	---	---	---	---	---	---	19.0	6.4	11.4
18	---	---	---	---	---	---	---	---	---	19.8	6.3	11.7
19	---	---	---	---	---	---	---	---	---	19.4	5.9	10.8
20	---	---	---	---	---	---	---	---	---	16.7	6.7	11.1
21	---	---	---	---	---	---	---	---	---	18.2	7.3	11.7
22	---	---	---	---	---	---	---	---	---	14.3	7.2	10.5
23	---	---	---	---	---	---	---	---	---	18.2	7.5	11.8
24	---	---	---	---	---	---	---	---	---	7.7	6.4	7.1
25	---	---	---	---	---	---	---	---	---	16.1	6.4	10.5
26	---	---	---	---	---	---	---	---	---	15.8	7.1	10.6
27	---	---	---	---	---	---	---	---	---	15.4	7.1	10.6
28	---	---	---	---	---	---	---	---	---	14.7	4.2	7.3
29	---	---	---	---	---	---	---	---	---	14.2	4.1	8.6
30	---	---	---	---	---	---	---	---	---	13.7	6.0	9.2
31	---	---	---	---	---	---	---	---	---	11.7	4.4	7.6
	JUNE			JULY			AUGUST			SEPTEMBER		
1	13.5	5.6	9.1	13.3	6.7	9.5	15.4	6.7	10.1	11.8	5.8	8.1
2	13.1	7.0	9.6	13.2	6.9	9.7	15.3	6.5	10.3	12.0	5.5	8.1
3	13.3	7.1	9.8	12.1	4.5	7.7	15.3	6.3	9.5	11.9	5.6	8.2
4	13.6	7.8	10.3	9.8	4.2	6.6	8.7	2.7	5.7	12.4	5.6	8.2
5	13.0	7.5	9.9	13.6	6.9	9.7	9.4	3.2	6.3	12.7	5.8	8.6
6	13.7	8.0	10.5	12.8	7.0	9.4	10.3	6.0	7.8	12.5	5.7	8.4
7	13.5	8.1	10.5	13.5	7.2	9.7	12.9	6.0	9.0	12.8	4.2	8.3
8	13.9	7.7	10.4	13.7	7.2	9.8	12.9	5.9	8.9	12.6	6.2	8.8
9	9.5	6.8	8.1	14.3	7.1	10.0	13.3	5.9	9.1	13.2	6.9	9.3
10	13.4	7.1	10.0	13.9	7.2	10.1	13.5	5.9	9.2	13.7	6.5	9.3
11	9.3	5.1	6.9	14.2	6.7	9.8	13.8	6.2	9.5	13.3	6.2	9.0
12	10.6	5.0	7.2	14.4	6.8	10.0	13.7	6.4	9.6	13.6	6.1	9.0
13	13.2	6.0	9.1	15.2	6.8	10.4	14.6	6.3	9.8	13.6	5.9	9.0
14	13.6	6.9	9.7	15.6	6.6	10.4	14.3	3.5	9.3	6.8	4.9	5.8
15	14.1	7.4	10.4	15.5	6.5	10.4	12.9	3.5	7.8	7.7	4.7	5.9
16	14.0	7.2	10.0	16.0	6.6	10.5	14.7	5.3	9.3	12.5	6.2	8.6
17	13.7	6.8	10.0	15.7	6.8	10.5	12.4	5.9	8.5	13.1	6.7	9.1
18	12.7	4.7	7.6	15.6	6.3	10.2	12.6	4.4	8.4	14.7	6.6	9.6
19	5.9	4.3	5.2	12.3	3.9	7.2	13.7	6.0	9.3	14.9	7.4	10.2
20	11.3	5.7	7.9	14.5	2.7	8.0	12.4	6.0	8.9	14.2	7.0	9.7
21	13.0	6.1	8.9	11.4	3.2	6.6	12.9	4.3	7.6	14.8	7.2	10.2
22	13.2	6.7	9.7	14.3	5.2	8.8	10.8	4.5	7.1	14.4	7.4	10.1
23	13.7	7.2	10.0	14.7	6.1	9.7	11.4	3.7	6.4	14.5	7.7	10.2
24	14.1	5.5	9.0	14.7	6.2	9.8	9.5	3.2	6.1	11.0	5.9	8.3
25	14.6	5.1	9.1	14.8	6.3	10.0	10.0	4.6	7.0	13.5	6.9	9.2
26	14.1	4.2	9.3	15.2	6.4	10.1	12.1	5.2	8.1	12.6	2.0	8.5
27	12.7	4.8	7.6	15.3	6.3	9.9	11.1	5.1	7.6	13.1	2.1	8.4
28	6.9	4.1	5.0	15.2	6.1	9.8	7.8	5.1	6.1	13.1	6.3	8.9
29	8.9	4.4	6.3	15.2	5.9	9.9	11.8	5.2	7.9	13.5	6.1	8.6
30	12.0	6.3	8.7	14.5	6.1	9.5	12.0	5.7	8.2	9.7	5.8	7.0
31	---	---	---	15.1	6.4	9.9	11.9	5.9	8.4	---	---	---
MONTH	14.6	4.1	8.9	16.0	2.7	9.5	15.4	2.7	8.3	14.9	2.0	8.7

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 periods, Dec. 26 to Jan. 2, Jan. 9-27, and Mar. 10-15. Records good except those for ice-affected periods, which are fair (see page 12). Some regulation from dam and non-operationl powerplant upstream. 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	231	278	293	180	264	516	1370	619	443	1510	332	331
2	232	281	290	220	284	475	2120	592	435	1060	328	316
3	234	277	281	305	310	411	2040	576	415	683	323	315
4	235	269	278	359	308	387	1460	576	400	593	327	314
5	233	265	277	403	294	371	1080	581	394	639	379	312
6	227	269	266	453	282	360	816	557	388	675	505	306
7	246	283	256	493	275	350	686	643	382	681	772	304
8	214	286	255	466	270	361	723	824	376	661	726	300
9	229	276	254	380	265	375	894	894	385	568	524	297
10	227	269	257	300	262	330	1040	926	397	524	420	294
11	231	265	256	280	280	290	1100	775	425	492	390	291
12	236	259	254	280	384	310	939	624	540	465	369	288
13	246	256	248	270	463	300	780	592	625	446	359	286
14	251	255	237	270	445	300	744	547	658	430	353	313
15	252	259	241	260	409	300	752	507	547	417	361	445
16	245	257	256	250	413	307	968	501	469	404	357	575
17	242	248	247	250	445	310	1210	478	433	376	355	621
18	240	251	248	260	473	358	1450	463	427	379	354	507
19	241	252	247	260	469	472	1260	449	628	390	352	405
20	241	252	249	260	422	563	957	438	862	403	345	364
21	241	250	248	250	386	565	919	422	1110	448	339	347
22	239	251	249	250	365	509	937	425	1060	460	339	337
23	242	245	247	250	350	471	896	424	723	447	372	329
24	266	231	250	250	352	450	834	532	536	408	374	327
25	266	245	251	250	356	433	733	513	474	385	359	328
26	257	254	240	250	355	422	677	514	484	373	356	331
27	259	246	230	260	382	416	676	483	512	365	343	328
28	266	247	210	275	456	410	702	460	757	359	357	320
29	264	251	230	278	---	390	719	464	988	337	378	312
30	267	268	220	266	---	384	668	458	1370	339	390	312
31	269	---	200	263	---	880	---	456	---	336	349	---
TOTAL	7569	7795	7765	9041	10019	12776	30150	17313	17643	16053	12187	10455
MEAN	244	260	250	292	358	412	1005	558	588	518	393	349
MAX	269	286	293	493	473	880	2120	926	1370	1510	772	621
MIN	214	231	200	180	262	290	668	422	376	336	323	286
CFSM	.47	.50	.48	.56	.68	.79	1.92	1.07	1.12	.99	.75	.67
IN.	.54	.55	.55	.64	.71	.91	2.14	1.23	1.25	1.14	.87	.74

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1914 - 1998, BY WATER YEAR (WY)

	MEAN	282	306	270	294	428	667	460	365	356	300	258	296
MAX	788	836	597	1168	1691	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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1914 - 1998
ANNUAL TOTAL	149994	158766	
ANNUAL MEAN	411	435	357
HIGHEST ANNUAL MEAN			694
LOWEST ANNUAL MEAN			172
HIGHEST DAILY MEAN	3950	Feb 22	2120 Apr 2
LOWEST DAILY MEAN	(a)200	Dec 31	(a)180 Jan 1
ANNUAL SEVEN-DAY MINIMUM	(a)226	Dec 25	(a)213 Dec 27
INSTANTANEOUS PEAK FLOW			2380 Apr 2
INSTANTANEOUS PEAK STAGE		6.29	Apr 2
INSTANTANEOUS LOW FLOW			(b)14800 Sep 13 1915
ANNUAL RUNOFF (CFSM)	.79	.83	(c)11.40 Sep 13 1915
ANNUAL RUNOFF (INCHES)	10.67	11.29	35 Sep 19 1959
10 PERCENT EXCEEDS	583	737	580
50 PERCENT EXCEEDS	310	357	260
90 PERCENT EXCEEDS	246	247	150

(a) Ice affected

(b) From rating curve extended above 7,500 ft³/s

(c) From floodmarks

ROCK RIVER BASIN
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.

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: Jan. 12 to Feb. 1. Records good except those for estimated daily discharges, which are poor (see page 12). Low flow regulated by powerplant upstream from station. Gage-height telemeter 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2680	2530	2970	2240	3100	6060	9530	11100	5690	9370	3150	3730
2	2580	2440	3100	2620	3540	6260	10200	10800	5750	9130	3040	3150
3	2510	2350	3040	3000	3700	6370	11000	10600	5420	9040	2980	3110
4	2670	2430	3010	3460	3820	6330	11800	10300	5300	9340	3170	3040
5	2520	2600	3020	3830	3840	6130	12500	10100	5200	9140	5450	2900
6	2480	2700	2920	4230	3750	5930	12600	9750	4930	8780	7810	2920
7	2520	3310	2900	4870	3690	5770	12600	10100	4650	8530	7480	3000
8	2450	3350	2890	5380	3630	6050	13100	10900	4570	8480	6830	3000
9	2420	3300	2920	5020	3580	6630	13700	10700	4480	8230	6790	2940
10	2190	3120	2980	4200	3560	6380	13700	10400	4440	8040	6450	2770
11	2330	2910	2950	3930	3740	5960	13700	10100	4340	7610	6260	2880
12	2200	2740	2930	3400	4290	5670	13500	9930	4770	7100	5850	2690
13	2320	2690	2860	2800	4670	5420	13400	10300	5530	6470	5480	2660
14	1810	2780	2830	2200	4810	5240	13700	9960	5750	6230	5240	3120
15	2310	2810	2810	2300	4810	5170	13400	9410	5820	5710	5040	3740
16	2290	2690	2770	2500	4840	5130	13800	8820	6090	5450	4950	4350
17	2000	2490	2710	2750	5180	5110	13700	8390	5800	5480	4750	4710
18	2020	2630	2670	2900	5030	5330	13300	7990	5830	4710	4560	4760
19	2060	2610	2680	2800	5170	5570	13200	7680	6710	4580	4510	4330
20	2040	2430	2780	2700	5370	5950	13200	7300	6950	4680	4000	4080
21	2070	2660	2780	2600	5370	6230	13700	7070	6930	4850	3850	3610
22	2400	2740	2790	2550	5220	6310	14100	6780	6950	5090	3680	3650
23	2610	2770	2770	2500	5260	6260	13800	6450	7280	4440	3640	3340
24	2610	2670	2830	2450	5340	6280	13500	6480	7640	4740	3480	3280
25	2790	2780	2810	2400	5360	6030	13200	6350	7570	4460	4030	3270
26	2910	2730	2770	2360	5450	6030	13000	6280	10500	4350	3740	3160
27	3000	2700	2650	2340	5560	6030	12800	6130	10100	4110	3820	3060
28	3030	2790	2460	2320	5630	6090	12300	5860	10600	3910	3880	3230
29	2870	2830	2730	2300	---	6020	11700	6020	10900	2990	3920	3140
30	2760	2910	2570	2300	---	5960	11400	5940	9840	2740	3850	3140
31	2480	---	2460	2700	---	7340	---	5820	---	2980	3780	---
TOTAL	75930	82490	87360	93950	127310	185040	385130	263810	196330	190760	145460	100760
MEAN	2449	2750	2818	3031	4547	5969	12840	8510	6544	6154	4692	3359
MAX	3030	3350	3100	5380	5630	7340	14100	11100	10900	9370	7810	4760
MIN	1810	2350	2460	2200	3100	5110	9530	5820	4340	2740	2980	2660
CFM	.38	.43	.44	.48	.71	.94	2.02	1.34	1.03	.97	.74	.53
IN.	.44	.48	.51	.55	.74	1.08	2.25	1.54	1.15	1.12	.85	.59

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1998, BY WATER YEAR (WY)

MEAN	3042	3479	3253	3215	3791	7325	7375	5202	4183	3615	2817	2839
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

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05437500 ROCK RIVER AT ROCKTON, IL--CONTINUED

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1940 - 1998	
ANNUAL TOTAL	1867220		1934330		4178	
ANNUAL MEAN	5116		5300		9484	1993
HIGHEST ANNUAL MEAN					1568	1958
LOWEST ANNUAL MEAN					29700	Mar 25 1975
HIGHEST DAILY MEAN	19800	Feb 23	14100	Apr 22	501	Sep 14 1958
LOWEST DAILY MEAN	1810	Oct 14	1810	Oct 14	622	Oct 2 1958
ANNUAL SEVEN-DAY MINIMUM	2080	Oct 14	2080	Oct 14	30000	Mar 25 1975
INSTANTANEOUS PEAK FLOW			14300	Apr 22	15.54	Mar 25 1975
INSTANTANEOUS PEAK STAGE			9.35	Apr 22		
INSTANTANEOUS LOW FLOW			1320	Oct 14		
ANNUAL RUNOFF (CFSM)	.80		.83		.66	
ANNUAL RUNOFF (INCHES)	10.92		11.31		8.92	
10 PERCENT EXCEEDS	7940		10400		8350	
50 PERCENT EXCEEDS	3970		4350		3120	
90 PERCENT EXCEEDS	2620		2510		1290	

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 12). 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	1.5	1.2	.89	1.0	1.2	3.5	3.1	2.1	3.9	2.1	1.5
2	1.3	1.5	1.2	.93	1.4	1.2	2.9	3.3	2.2	3.3	2.0	1.4
3	1.2	1.4	1.2	1.6	1.3	1.2	2.7	3.6	2.3	4.4	2.0	1.5
4	1.1	1.3	1.2	1.9	1.3	1.2	2.4	3.2	2.3	8.4	2.1	1.5
5	1.1	1.4	1.2	2.4	1.2	1.1	2.2	3.1	2.1	4.2	2.2	1.4
6	1.0	1.4	1.1	2.6	1.1	1.1	2.2	3.1	2.3	3.5	2.1	1.4
7	1.1	1.4	1.1	2.7	1.1	1.1	2.3	13	2.3	3.5	2.0	1.5
8	1.3	1.3	1.0	2.2	1.1	1.4	2.6	11	2.3	3.5	1.9	1.5
9	1.4	1.2	.99	1.9	.99	1.7	3.2	5.2	2.3	3.1	1.8	1.5
10	1.3	1.2	.99	1.5	.99	1.5	3.1	4.0	2.3	2.9	1.8	1.5
11	1.2	1.2	.99	1.5	1.7	1.4	2.6	3.5	2.6	2.8	1.8	1.5
12	1.3	1.2	.99	1.5	2.2	1.4	2.4	3.2	2.9	2.7	1.6	1.5
13	1.5	1.2	.99	1.4	1.8	1.4	2.4	3.0	3.6	2.6	1.5	1.5
14	1.4	1.2	.99	1.4	1.5	1.3	2.3	2.6	2.8	2.5	1.5	1.8
15	1.4	1.2	.99	1.3	1.4	1.2	2.3	2.5	2.7	2.5	1.5	2.1
16	1.4	1.2	.99	1.2	1.4	1.2	2.9	2.5	2.5	2.5	1.5	1.9
17	1.3	1.2	.99	1.2	1.4	1.3	2.8	2.5	2.3	2.4	1.5	1.8
18	1.4	1.2	.89	1.2	1.3	1.5	2.6	2.3	3.6	2.4	1.5	1.7
19	1.4	1.2	.89	1.2	1.2	1.5	2.6	2.3	4.4	2.4	1.5	1.7
20	1.3	1.1	.89	1.2	1.2	1.6	2.5	2.4	2.8	2.4	1.5	1.7
21	1.2	1.1	.89	1.2	1.2	1.5	2.9	2.4	2.6	2.9	1.5	1.6
22	1.1	1.1	.89	1.1	1.1	1.5	3.3	2.3	2.4	2.5	1.5	1.5
23	1.1	.99	.89	.99	1.1	1.4	3.2	2.1	2.3	2.5	1.6	1.5
24	1.1	.99	.89	.99	1.1	1.6	3.1	2.1	2.1	2.4	1.7	1.5
25	1.1	.98	.89	.99	1.1	2.0	3.1	2.0	36	2.3	1.7	1.5
26	1.2	.99	.89	.99	1.3	2.0	3.2	1.8	98	2.3	1.5	1.5
27	1.4	1.0	.89	.99	1.3	2.0	3.1	1.8	6.3	2.3	1.5	1.5
28	1.4	.99	.89	.99	1.2	2.0	3.1	2.1	59	2.3	1.6	1.5
29	1.4	1.0	.89	.99	---	2.0	3.1	2.3	7.0	2.2	1.6	1.5
30	1.3	1.2	.88	.99	---	1.8	3.1	2.1	5.1	2.2	1.5	1.5
31	1.4	---	.89	.90	---	3.4	---	2.2	---	2.2	1.5	---
TOTAL	39.3	35.84	30.56	42.84	35.98	47.7	83.7	102.6	273.5	92.0	52.6	47.0
MEAN	1.27	1.19	.99	1.38	1.28	1.54	2.79	3.31	9.12	2.97	1.70	1.57
MAX	1.5	1.5	1.2	2.7	2.2	3.4	3.5	13	98	8.4	2.2	2.1
MIN	1.0	.98	.88	.89	.99	1.1	2.2	1.8	2.1	2.2	1.5	1.4
CFSM	.13	.12	.10	.14	.13	.16	.29	.35	.95	.31	.18	.16
IN.	.15	.14	.12	.17	.14	.19	.33	.40	1.06	.36	.20	.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1998, BY WATER YEAR (WY)

	1992	1993	1994	1995	1996	1997	1998
MEAN	1.81	1.79	1.86	2.18	5.38	4.51	3.64
MAX	3.68	3.29	4.54	5.85	13.1	12.0	12.4
(WY)	1994	1993	1993	1993	1997	1993	1993
MIN	1.24	1.08	.99	1.16	1.23	.69	1.00
(WY)	1996	1997	1998	1996	1995	1996	1995

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1992 - 1998
ANNUAL TOTAL	1049.73	883.62	
ANNUAL MEAN	2.88	2.42	3.12
HIGHEST ANNUAL MEAN			6.41
LOWEST ANNUAL MEAN			1.32
HIGHEST DAILY MEAN	251 Feb 21	98 Jun 26	251 Feb 21 1997
LOWEST DAILY MEAN	.74 Jan 19,20,28	.88 Dec 30	.58 Mar 10,11 1996
ANNUAL SEVEN-DAY MINIMUM	.79 Jan 26	.89 Dec 24	.62 Mar 9 1996
INSTANTANEOUS PEAK FLOW		433 Jun 25	544 Jun 17 1996
INSTANTANEOUS PEAK STAGE		8.99 Jun 25	10.05 Jun 30 1993
INSTANTANEOUS LOW FLOW		.80 Dec 30	.58 (a) Mar 9 1996
ANNUAL RUNOFF (CFSM)	.30	.25	.33
ANNUAL RUNOFF (INCHES)	4.08	3.43	4.43
10 PERCENT EXCEEDS	2.4	3.1	4.4
50 PERCENT EXCEEDS	1.4	1.5	1.7
90 PERCENT EXCEEDS	.89	.99	.94

(a) Also occurred Mar. 10-12, 1996

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: Dec. 30 to Jan. 1, Jan. 12-16, and 25-26. Records good except those for estimated daily discharges, which are poor (see page 12). Recording rain gage and 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	13	19	108	47	108	170	235	188	37	110	.64	1.2
2	11	15	117	46	149	160	289	164	32	99	.56	1.2
3	9.4	16	113	78	210	149	326	143	25	79	.48	1.3
4	8.7	10	115	123	246	137	337	125	21	92	.49	1.5
5	7.8	9.2	123	185	261	123	327	112	19	132	.87	1.5
6	6.7	12	121	242	263	113	305	98	18	150	1.8	1.6
7	5.4	20	107	307	256	102	278	119	16	151	5.3	1.5
8	5.1	20	88	352	245	115	274	191	14	141	8.3	1.3
9	5.6	20	72	393	231	197	303	229	15	124	6.0	1.3
10	5.4	42	68	402	216	233	343	246	16	101	3.9	1.4
11	5.2	35	79	400	226	235	396	247	22	76	2.6	1.5
12	5.3	21	84	340	318	224	431	240	45	55	1.7	1.5
13	7.9	14	84	295	366	204	433	246	68	39	1.4	1.5
14	13	13	73	260	406	181	410	237	64	28	1.1	1.8
15	12	15	73	230	427	155	375	215	48	18	1.2	12
16	10	18	65	200	419	131	555	183	36	12	1.2	28
17	9.4	19	71	170	401	118	744	144	28	9.6	1.2	19
18	9.3	19	76	145	388	185	782	106	23	8.8	1.1	13
19	7.8	19	79	124	368	274	722	82	26	5.9	1.1	8.2
20	12	18	80	106	347	318	620	69	27	4.7	1.3	4.7
21	9.2	19	82	95	324	342	533	58	24	4.6	1.5	3.0
22	7.2	25	79	90	297	346	460	51	19	5.8	1.5	3.1
23	6.9	34	73	87	268	331	409	51	14	6.8	1.5	3.2
24	7.5	39	68	83	243	305	367	53	11	5.2	1.1	3.2
25	19	34	65	80	221	273	333	53	12	4.1	2.2	5.6
26	16	46	64	78	201	244	313	49	24	2.8	6.0	6.3
27	37	49	66	76	187	213	293	42	44	2.2	4.8	3.6
28	44	52	64	77	177	181	266	36	80	3.6	6.4	2.3
29	32	53	54	82	---	156	240	36	100	1.5	4.7	2.5
30	27	80	52	91	---	138	214	37	109	.91	2.1	2.5
31	26	---	49	99	---	152	---	38	---	.72	1.3	---
TOTAL	401.8	805.2	2512	5383	7769	6205	11913	3888	1037	1474.23	75.34	140.3
MEAN	13.0	26.8	81.0	174	277	200	397	125	34.6	47.6	2.43	4.68
MAX	44	80	123	402	427	346	782	247	109	151	8.3	28
MIN	5.1	9.2	49	46	108	102	214	36	11	.72	.48	1.2
CFSM	.11	.22	.66	1.41	2.26	1.63	3.23	1.02	.28	.39	.02	.04
IN.	.12	.24	.76	1.63	2.35	1.88	3.60	1.18	.31	.45	.02	.04

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1998, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1967	41.7	364	1987	.056	1995
1968	70.1	390	1986	2.75	1972
1969	93.8	382	1983	3.06	1977
1970	68.1	279	1993	1.46	1977
1971	105	327	1974	2.35	1977
1972	221	673	1979	14.9	1968
1973	225	718	1993	33.4	1977
1974	120	410	1996	6.15	1977
1975	80.0	356	1996	1.90	1988
1976	56.5	363	1978	.78	1988
1977	43.7	417	1978	.87	1988
1978	55.6	410	1972	.060	1994

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1967 - 1998
ANNUAL TOTAL	29645.3	41603.87	
ANNUAL MEAN	81.2	114	98.5
HIGHEST ANNUAL MEAN			206
LOWEST ANNUAL MEAN			9.24
HIGHEST DAILY MEAN	799	Feb 24	2100
LOWEST DAILY MEAN	2.0	Sep 16	.00
ANNUAL SEVEN-DAY MINIMUM	2.5	Sep 10	.00
INSTANTANEOUS PEAK FLOW			794
INSTANTANEOUS PEAK STAGE			7.66
INSTANTANEOUS LOW FLOW			.46
ANNUAL RUNOFF (CFSM)	.66		.93
ANNUAL RUNOFF (INCHES)	8.97		12.58
10 PERCENT EXCEEDS	190		320
50 PERCENT EXCEEDS	53		64
90 PERCENT EXCEEDS	5.7		1.8

(a) At times in most years

(b) Gage height, 9.69 ft

(c) Also occurred 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.--Estimated daily discharges: Oct. 1-26. Records are good except those for estimated daily discharges, which are fair (see page 12). 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	30	34	37	22	77	163	302	128	67	49	21	32
2	27	35	34	26	107	158	309	155	53	42	21	45
3	35	31	34	51	117	151	333	152	45	39	22	38
4	29	29	38	72	111	138	307	147	45	39	46	33
5	28	27	37	122	102	121	259	135	45	37	95	30
6	27	40	30	152	95	110	215	121	44	37	164	29
7	26	43	32	193	92	104	178	134	41	36	1070	29
8	24	38	27	182	91	108	175	168	39	35	1320	29
9	22	36	25	128	90	143	226	160	39	33	913	29
10	22	34	33	112	88	108	268	146	50	32	579	28
11	22	30	35	109	109	106	243	126	55	30	349	27
12	25	28	33	95	197	90	225	105	78	29	199	26
13	35	28	28	82	210	87	207	111	63	29	102	24
14	29	26	29	70	191	78	221	97	51	28	71	33
15	27	27	29	68	175	77	213	84	47	30	65	68
16	26	26	32	69	173	70	285	76	44	33	57	46
17	26	21	32	70	196	71	323	68	43	29	52	35
18	26	26	33	70	227	138	289	61	41	27	54	29
19	26	27	33	68	231	217	263	59	61	27	48	27
20	27	25	34	65	219	220	237	55	52	31	44	27
21	27	26	33	64	206	201	231	50	42	66	42	24
22	28	24	28	64	190	180	213	47	39	54	41	26
23	27	24	33	65	169	161	187	45	35	39	41	26
24	27	22	35	67	151	141	167	49	40	33	40	24
25	30	24	33	65	135	120	149	51	43	29	57	25
26	32	26	32	66	116	109	134	47	36	27	50	27
27	55	28	29	68	142	104	127	43	56	26	41	25
28	51	34	28	70	172	100	120	48	101	26	41	23
29	44	33	28	72	---	94	112	88	86	24	42	25
30	39	37	25	74	---	91	109	67	60	23	38	28
31	36	---	24	73	---	186	---	72	---	22	34	---
TOTAL	935	889	973	2574	4179	3945	6627	2895	1541	1041	5759	917
MEAN	30.2	29.6	31.4	83.0	149	127	221	93.4	51.4	33.6	186	30.6
MAX	55	43	38	193	231	220	333	168	101	66	1320	68
MIN	22	21	24	22	77	70	109	43	35	22	21	23

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1998, BY WATER YEAR (WY)

	1993	1994	1995	1996	1997	1998
MEAN	44.7	50.2	49.9	59.5	89.4	114
MAX	57.4	77.6	84.6	86.0	149	163
(WY)	1994	1996	1993	1993	1998	1994
MIN	30.2	29.6	31.4	23.4	29.7	62.5
(WY)	1998	1998	1998	1994	1995	1996

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1993 - 1998
ANNUAL TOTAL	32305	32275	
ANNUAL MEAN	88.5	88.4	76.3
HIGHEST ANNUAL MEAN			93.1
LOWEST ANNUAL MEAN			53.5
HIGHEST DAILY MEAN	1010	Jun 23	1320 Aug 8 1998
LOWEST DAILY MEAN	21	Nov 17	16 Sep 15, 16 1995
ANNUAL SEVEN-DAY MINIMUM	24	Oct 6	23 Jul 28 1995
INSTANTANEOUS PEAK FLOW			1430 Aug 8 1998
INSTANTANEOUS PEAK STAGE			12.07 Aug 8 1998
INSTANTANEOUS LOW FLOW			17 Nov 17 1995
10 PERCENT EXCEEDS	191	194	180
50 PERCENT EXCEEDS	51	47	51
90 PERCENT EXCEEDS	28	26	25

(a) Also occurred Aug. 1,2

ILLINOIS RIVER BASIN

383

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.--Estimated daily discharges: Ice-affected periods, Jan. 10-13 and Mar. 10-13. Records good except those for ice-affected periods, which are fair (see page 12). There is occasional regulation from mill dam 1.0 mi upstream. 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	40	45	54	38	111	216	446	168	88	102	22	40
2	60	44	48	42	150	204	425	192	76	93	21	65
3	71	48	55	68	164	196	409	184	70	77	22	50
4	68	41	58	111	155	184	380	177	59	55	69	40
5	65	45	58	168	145	167	337	157	55	45	166	36
6	61	49	49	208	129	151	288	144	51	44	288	35
7	62	51	51	235	127	142	250	191	46	41	1040	33
8	63	46	47	219	122	156	261	218	44	36	1380	30
9	59	46	45	158	118	190	321	200	53	37	963	29
10	59	43	52	140	116	140	367	179	57	34	632	28
11	57	41	53	120	159	130	335	160	84	32	428	30
12	54	40	48	110	270	120	302	146	108	30	285	32
13	73	40	44	96	295	110	285	144	88	30	185	30
14	68	39	44	83	264	107	294	126	65	29	148	72
15	59	38	43	81	235	109	303	113	55	29	126	113
16	56	37	47	82	237	100	392	130	52	34	112	85
17	54	36	46	81	263	112	432	132	49	31	102	62
18	54	38	48	80	297	206	388	120	69	26	81	51
19	50	39	48	77	299	295	344	97	90	28	60	41
20	47	39	50	75	277	296	311	76	94	50	52	42
21	49	41	49	77	254	262	311	66	71	99	47	39
22	47	39	48	77	231	233	295	57	64	77	43	36
23	50	39	49	78	211	211	261	53	50	51	43	35
24	48	38	49	80	201	195	235	63	68	37	47	34
25	40	39	47	78	183	174	209	62	64	32	84	37
26	48	40	46	80	165	159	195	55	54	28	66	41
27	71	43	42	88	211	153	183	52	97	28	50	37
28	65	46	41	96	232	147	173	81	154	27	50	35
29	55	52	43	102	---	138	164	118	131	25	47	34
30	50	53	40	103	---	144	142	89	112	24	43	48
31	47	---	39	102	---	314	---	102	---	24	38	---
TOTAL	1750	1275	1481	3233	5621	5461	9038	3852	2218	1335	6740	1320
MEAN	56.5	42.5	47.8	104	201	176	301	124	73.9	43.1	217	44.0
MAX	73	53	58	235	299	314	446	218	154	102	1380	113
MIN	40	36	39	38	111	100	142	52	44	24	21	28
CFSM	.45	.34	.38	.83	1.59	1.40	2.39	.99	.59	.34	1.73	.35
IN.	.52	.38	.44	.95	1.66	1.61	2.67	1.14	.65	.39	1.99	.39

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1998, BY WATER YEAR (WY)

	MEAN	75.0	83.1	83.5	65.6	91.0	194	210	123	93.9	77.1	63.5	74.2
MAX	346	303	207	188	213	451	598	371	370	271	217	385	
(WY)	1987	1986	1992	1973	1984	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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1963 - 1998

ANNUAL TOTAL	47709		43324										
ANNUAL MEAN	131		119										
HIGHEST ANNUAL MEAN										104			
LOWEST ANNUAL MEAN										193			1993
HIGHEST DAILY MEAN	1290									31.6			1964
LOWEST DAILY MEAN	33									2160			Apr 22 1973
ANNUAL SEVEN-DAY MINIMUM	38									(a) 3.2	(b) Dec 29-31		1963
INSTANTANEOUS PEAK FLOW										(a) 3.3	Dec 26		1963
INSTANTANEOUS PEAK STAGE										2260	Apr 22		1973
ANNUAL RUNOFF (CFSM)	1.04									7.42	Apr 22		1973
ANNUAL RUNOFF (INCHES)	14.09									.83			
10 PERCENT EXCEEDS	268									11.27			
50 PERCENT EXCEEDS	78									226			
90 PERCENT EXCEEDS	43									64			
										18			

(a) Ice affected

(b) 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, Nov. 17, Jan. 10-13, and Mar. 9-13. Records good except those for ice-affected periods, which are fair (see page 12). 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 1997 TO SEPTEMBER 1998

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	35	29	25	37	78	103	64	55	83	10	23
2	12	33	35	42	41	76	104	63	54	71	10	27
3	13	30	41	47	43	70	101	62	50	68	9.6	27
4	14	28	53	49	47	49	85	64	45	70	12	28
5	14	26	57	53	58	23	60	62	41	74	36	28
6	14	29	53	77	57	19	50	60	24	76	77	27
7	14	36	49	115	52	21	49	79	17	71	104	30
8	13	42	45	122	48	31	71	104	17	73	110	30
9	14	40	43	116	34	72	82	107	19	71	107	28
10	13	39	42	100	32	80	84	82	48	63	91	26
11	13	36	42	90	52	74	82	70	60	59	60	24
12	14	33	41	84	73	70	80	69	66	58	48	23
13	51	32	38	78	77	62	78	68	69	43	38	22
14	59	35	35	36	78	46	76	44	68	27	35	63
15	33	36	33	16	87	18	71	41	79	25	37	94
16	13	36	27	21	87	11	74	45	78	23	39	91
17	14	33	21	27	84	14	76	43	70	24	40	85
18	14	30	22	32	81	49	70	42	49	23	33	78
19	14	30	22	36	69	66	68	39	50	23	30	72
20	15	30	18	36	58	87	66	36	56	26	32	69
21	15	35	17	36	60	90	67	35	61	28	32	30
22	15	36	18	36	61	83	68	32	60	31	31	14
23	15	32	20	36	60	45	69	29	48	36	33	16
24	16	29	23	35	61	32	69	31	41	30	34	19
25	16	27	27	35	59	33	67	33	40	27	44	22
26	17	19	29	34	58	51	64	36	39	24	43	23
27	21	15	29	34	64	58	68	35	65	22	41	24
28	22	18	30	34	70	58	69	35	77	20	52	24
29	24	20	30	35	---	56	68	53	79	19	56	25
30	26	25	29	36	---	55	65	50	92	13	53	25
31	30	---	26	36	---	89	---	55	---	9.8	31	---
TOTAL	590	925	1024	1589	1688	1666	2204	1668	1617	1310.8	1408.6	1117
MEAN	19.0	30.8	33.0	51.3	60.3	53.7	73.5	53.8	53.9	42.3	45.4	37.2
MAX	59	42	57	122	87	90	104	107	92	83	110	94
MIN	12	15	17	16	32	11	49	29	17	9.8	9.6	14
CFSM	.26	.42	.45	.69	.81	.73	.99	.73	.73	.57	.61	.50
IN.	.30	.46	.51	.80	.85	.84	1.11	.84	.81	.66	.71	.56

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1998, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1973	47.6	98.7	1987	19.0	1998
1974	56.5	110	1986	29.2	1977
1975	54.8	83.7	1983	26.2	1990
1976	47.0	77.8	1974	22.8	1977
1977	54.2	83.8	1974	31.1	1978
1978	77.0	151	1974	43.9	1981
1979	77.8	150	1993	43.3	1977
1980	62.4	155	1975	16.9	1977
1981	51.2	138	1975	14.4	1988
1982	43.5	80.8	1993	13.3	1988
1983	45.6	83.5	1979	18.5	1991
1984	46.9	88.7	1986	23.4	1995

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1973 - 1998
ANNUAL TOTAL	15948.3	16807.4	
ANNUAL MEAN	43.7	46.0	55.2
HIGHEST ANNUAL MEAN			90.3
LOWEST ANNUAL MEAN			30.8
HIGHEST DAILY MEAN	228	122	275
LOWEST DAILY MEAN	9.3	9.6	1.8
ANNUAL SEVEN-DAY MINIMUM	13	12	6.8
INSTANTANEOUS PEAK FLOW		(a) 130	(b) 300
INSTANTANEOUS PEAK STAGE		(c) 2.92	3.55
ANNUAL RUNOFF (CFSM)	.59	.62	.74
ANNUAL RUNOFF (INCHES)	8.01	8.44	10.12
10 PERCENT EXCEEDS	76	79	100
50 PERCENT EXCEEDS	38	40	47
90 PERCENT EXCEEDS	16	17	21

(a) Gage height, 2.89 ft

(b) Gage height, 2.50 ft, datum then in use

(c) Backwater from vegetation

ILLINOIS RIVER BASIN

385

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, non-recording 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. 2-5, Jan. 11-14, and Sept. 30. Records good except those for estimated daily discharges, which are poor (see page 12).

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	.97	.00	8.9	3.9	14	54	47	24	4.2	.51	.00	8.0
2	.24	.00	11	4.4	19	52	48	24	4.5	.12	.00	8.9
3	.24	.00	8.0	6.7	21	52	53	25	3.9	.08	.00	7.3
4	.23	.00	3.0	11	23	48	48	24	3.4	1.1	.00	5.9
5	.14	.00	.50	16	24	46	45	24	3.6	.09	.23	4.1
6	.13	.00	.40	23	24	44	44	24	2.9	.05	3.7	3.6
7	.07	.00	.46	69	24	45	44	45	2.7	.12	12	5.6
8	.03	.00	.50	90	24	61	44	69	2.5	.02	23	4.2
9	.00	.00	.78	67	25	70	50	66	2.7	.00	32	2.2
10	.01	.00	3.1	61	25	41	31	63	2.9	.00	35	.95
11	.00	.00	2.1	54	47	32	21	31	3.0	.00	34	.51
12	.00	.00	.90	47	82	23	21	3.2	2.8	.00	28	.60
13	.00	.00	1.4	42	86	23	22	4.8	4.3	.00	24	.41
14	.00	.00	1.8	38	84	23	25	5.0	4.5	.00	20	1.3
15	.00	.00	2.0	19	83	23	34	4.1	4.3	.00	23	6.1
16	16	.00	2.2	16	81	7.4	64	2.8	3.5	.00	17	5.0
17	39	.00	2.3	15	85	.15	55	3.8	3.0	.00	14	4.0
18	39	.00	2.4	14	87	3.0	54	3.2	3.2	.00	16	3.3
19	39	.00	2.5	14	83	9.8	63	4.9	3.1	.00	10	2.8
20	39	.00	2.5	13	79	47	59	4.9	3.3	.00	7.1	2.2
21	39	.00	2.6	14	75	49	63	5.6	3.1	.00	9.0	2.3
22	39	.00	3.0	15	72	43	56	4.9	2.8	.00	12	1.9
23	39	.00	3.0	16	66	42	44	4.0	2.8	.00	8.2	.79
24	39	.00	3.6	15	64	40	45	3.6	2.5	.00	10	.63
25	39	.00	4.0	15	61	40	51	3.0	2.3	.00	24	.53
26	39	.00	3.8	14	55	14	56	2.7	2.3	.00	21	.21
27	39	.00	3.7	14	53	.00	49	2.5	2.5	.00	18	.58
28	19	.00	3.7	14	55	.08	33	2.5	3.2	.00	17	.47
29	.00	.58	4.1	14	---	.18	23	4.0	1.8	.00	16	.43
30	.00	6.9	4.2	13	---	.68	23	5.8	.73	.00	14	.50
31	.00	---	4.1	13	---	31	---	5.4	---	.00	11	---
TOTAL	466.06	7.48	96.54	781.0	1521	964.29	1315	499.7	92.33	2.09	459.23	85.31
MEAN	15.0	.25	3.11	25.2	54.3	31.1	43.8	16.1	3.08	.067	14.8	2.84
MAX	39	6.9	11	90	87	70	64	69	4.5	1.1	35	8.9
MIN	.00	.00	.40	3.9	14	.00	21	2.5	.73	.00	.00	.21
CFSM	.53	.01	.11	.89	1.92	1.10	1.55	.57	.11	.00	.52	.10
IN.	.61	.01	.13	1.03	2.00	1.27	1.73	.66	.12	.00	.60	.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1998, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
MEAN	13.3	13.1	20.8	23.0	37.7	26.0	26.2	10.6	14.3	5.88	5.99	7.18
MAX	44.2	45.6	44.2	43.9	54.3	33.1	46.5	27.9	51.5	20.5	14.8	30.6
(WY)	1996	1996	1988	1988	1998	1996	1988	1996	1996	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 1997 CALENDAR YEAR

FOR 1998 WATER YEAR

WATER YEARS 1988 - 1998

ANNUAL TOTAL	3224.39	6290.03	17.0
ANNUAL MEAN	8.83	17.2	28.2
HIGHEST ANNUAL MEAN			1996
LOWEST ANNUAL MEAN			1989
HIGHEST DAILY MEAN	81	90	115
LOWEST DAILY MEAN	.00	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.00	.00	.00
ANNUAL RUNOFF (CFSM)	.31	.61	.60
ANNUAL RUNOFF (INCHES)	4.24	8.27	8.17
10 PERCENT EXCEEDS	35	53	49
50 PERCENT EXCEEDS	1.5	4.4	8.7
90 PERCENT EXCEEDS	.00	.00	.00

ILLINOIS RIVER BASIN
05544385 MUSKEGO LAKE OUTLET NEAR WIND LAKE, WI--CONTINUED

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, 1.3 tons, Jan. 8; minimum daily, 0 ton, many days.

TOTAL-PHOSPHORUS DISCHARGE: Maximum daily, 30.6 lb, Feb. 15; minimum daily, 0.00 lb, many days.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

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)	SEDI- MENT, SUS- PENDED (MG/L) (80154)
DEC 1997					
05...	1030	.50	.030	--	3
JAN 1998					
*07...	1145	69	.029	--	6
07...	1200	69	.023	--	--
10...	1700	61	.023	--	--
12...	1500	47	.021	--	--
14...	1630	38	.018	--	--
15...	1350	19	.018	--	5
FEB					
05...	0955	24	.015	--	4
13...	1700	86	.016	--	--
15...	0800	83	.073	--	--
17...	1330	85	.059	--	--
18...	0935	87	.028	--	5
22...	1400	72	.028	--	--
24...	1836	64	.030	--	--
26...	1700	55	.021	--	--
MAR					
*03...	1025	52	<.005	--	3
03...	1120	52	<.005	--	3
06...	1730	44	.023	--	--
08...	1200	61	.021	--	--
10...	1615	41	.021	--	--
19...	1700	9.8	.019	--	--
APR					
01...	1745	47	.034	--	--
*03...	1100	53	.028	--	--
03...	1110	53	.027	--	--
MAY					
03...	1045	25	.033	--	--
05...	1120	24	.033	--	5
JUN					
02...	1120	4.5	.052	<.002	3
26...	1345	2.3	.067	.014	--
30...	1035	.73	.047	.005	4
AUG					
06...	1050	3.7	.034	<.002	--
07...	1200	12	.032	--	3
08...	1450	23	.039	--	3
09...	1630	32	.038	--	5
10...	1540	35	.033	--	--
11...	1700	34	.036	--	--
12...	1920	28	.027	--	--
13...	1615	24	.044	--	--
17...	1830	14	.036	--	3
19...	1230	10	.042	--	3
19...	1625	10	.058	--	--
21...	1515	9.0	.040	--	--
23...	1030	8.2	.038	--	3
25...	1120	24	.034	--	1
25...	1930	24	.028	--	1

* Equal-width increment (EWI) sample

05544385 MUSKEGO LAKE OUTLET NEAR WIND LAKE, WI--CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	TIME	DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	SEDI- MENT, SUS- PENDE (MG/L) (80154)
AUG 1998				
27...	1845	18	.022	1
28...	1915	17	.031	--
30...	1945	14	.033	--
31...	2000	11	.028	1
SEP				
02...	1915	8.9	.039	--
04...	1515	5.9	.031	1
06...	1200	3.6	.028	1
07...	1330	5.6	.029	--
08...	1900	4.2	.037	--
09...	2015	2.2	.037	--
11...	1215	.51	.048	8
13...	0930	.41	.092	1
15...	2020	6.1	.030	--
17...	1930	4.0	.032	3
19...	0930	2.8	.029	--
21...	1815	2.3	.033	--
23...	2020	.79	.030	6
25...	1925	.53	.031	--

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	.00	.08	.05	.15	.49	.48	.30	.03	.01	.00	.02
2	.00	.00	.10	.06	.20	.45	.49	.30	.03	.00	.00	.02
3	.00	.00	.07	.10	.22	.44	.54	.31	.03	.00	.00	.01
4	.00	.00	.03	.16	.23	.40	.50	.30	.03	.01	.00	.01
5	.00	.00	.00	.23	.24	.39	.47	.30	.03	.00	.00	.01
6	.00	.00	.00	.34	.25	.38	.46	.30	.02	.00	.03	.01
7	.00	.00	.00	1.0	.25	.39	.46	.55	.02	.00	.08	.02
8	.00	.00	.00	1.3	.26	.53	.47	.83	.02	.00	.20	.02
9	.00	.00	.01	.98	.28	.61	.53	.78	.02	.00	.38	.02
10	.00	.00	.03	.88	.28	.36	.33	.73	.02	.00	.44	.01
11	.00	.00	.02	.77	.55	.28	.23	.35	.03	.00	.41	.01
12	.00	.00	.01	.66	.98	.20	.23	.04	.02	.00	.32	.00
13	.00	.00	.01	.58	1.0	.21	.24	.05	.04	.00	.26	.00
14	.00	.00	.02	.52	1.0	.21	.28	.05	.04	.00	.21	.00
15	.00	.00	.02	.26	1.1	.21	.38	.04	.04	.00	.23	.02
16	.17	.00	.02	.21	1.1	.07	.72	.03	.03	.00	.16	.02
17	.42	.00	.03	.20	1.1	.00	.62	.04	.03	.00	.13	.03
18	.42	.00	.03	.18	1.2	.03	.61	.03	.03	.00	.13	.03
19	.42	.00	.03	.18	1.1	.09	.72	.05	.03	.00	.07	.03
20	.42	.00	.03	.16	1.0	.44	.68	.05	.03	.00	.05	.03
21	.41	.00	.03	.17	.92	.46	.73	.05	.03	.00	.07	.03
22	.41	.00	.04	.18	.85	.41	.65	.05	.03	.00	.10	.03
23	.41	.00	.04	.19	.75	.40	.52	.04	.03	.00	.06	.01
24	.41	.00	.04	.18	.70	.38	.53	.03	.02	.00	.04	.01
25	.41	.00	.05	.18	.64	.39	.61	.03	.02	.00	.07	.01
26	.41	.00	.05	.16	.56	.14	.67	.02	.02	.00	.08	.00
27	.41	.00	.05	.16	.52	.00	.59	.02	.03	.00	.06	.00
28	.20	.00	.05	.16	.52	.00	.40	.02	.03	.00	.06	.00
29	.00	.01	.05	.15	---	.00	.28	.03	.02	.00	.05	.00
30	.00	.06	.06	.14	---	.01	.28	.05	.01	.00	.05	.00
31	.00	---	.06	.14	---	.31	---	.04	---	.00	.04	---
TOTAL	4.93	0.07	1.06	10.63	17.95	8.68	14.70	5.81	0.81	0.02	3.78	0.41

WTR YR 1998 TOTAL 68.85

ILLINOIS RIVER BASIN
05544385 MUSKEGO LAKE OUTLET NEAR WIND LAKE, 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	.24	.00	1.48	.61	1.17	2.65	8.49	4.22	1.16	.13	.00	1.36
2	.06	.00	1.82	.69	1.58	1.89	8.10	4.25	1.26	.03	.00	1.77
3	.06	.00	1.31	1.05	1.73	1.55	7.96	4.45	1.09	.02	.00	1.41
4	.06	.00	.49	1.73	1.88	2.16	7.05	4.28	.95	.27	.00	1.01
5	.03	.00	.08	2.51	1.95	3.30	6.65	4.29	1.00	.02	.04	.65
6	.03	.00	.06	3.61	1.96	4.88	6.55	4.35	.80	.01	.67	.55
7	.02	.00	.07	9.68	1.98	5.37	6.59	8.29	.74	.03	2.14	.89
8	.01	.00	.08	11.2	1.99	6.96	6.64	12.9	.69	.00	4.68	.79
9	.00	.00	.13	8.32	2.09	7.94	7.59	12.6	.74	.00	6.56	.44
10	.00	.00	.50	7.56	2.11	4.65	4.74	12.2	.79	.00	6.47	.21
11	.00	.00	.34	6.46	3.99	3.60	3.23	6.09	.82	.00	6.41	.14
12	.00	.00	.14	5.35	7.02	2.56	3.25	.64	.76	.00	4.51	.22
13	.00	.00	.22	4.46	7.76	2.53	3.43	.97	1.16	.00	5.08	.18
14	.00	.00	.29	3.76	16.9	2.50	3.92	1.03	1.21	.00	4.57	.40
15	.00	.00	.32	1.85	30.6	2.47	5.37	.86	1.15	.00	5.00	1.19
16	3.59	.00	.35	1.54	28.6	.79	10.2	.60	.93	.00	3.52	.83
17	8.70	.00	.37	1.43	25.6	.02	8.81	.82	.80	.00	2.77	.68
18	8.64	.00	.38	1.33	14.3	.31	8.71	.70	.85	.00	3.32	.55
19	8.59	.00	.40	1.31	12.6	1.01	10.2	1.10	.82	.00	2.24	.45
20	8.53	.00	.40	1.21	11.9	5.00	9.64	1.11	.87	.00	1.57	.37
21	8.47	.00	.41	1.29	11.3	5.45	10.4	1.29	.81	.00	1.95	.40
22	8.42	.00	.48	1.37	10.9	5.00	9.27	1.15	.73	.00	2.53	.33
23	8.36	.00	.48	1.45	10.3	5.11	7.34	.96	.73	.00	1.67	.13
24	8.31	.00	.57	1.35	10.2	5.08	7.55	.87	.65	.00	1.94	.10
25	8.26	.00	.63	1.34	8.68	5.32	8.62	.74	.59	.00	4.15	.09
26	8.20	.00	.60	1.24	6.47	1.95	9.53	.68	.59	.00	2.92	.04
27	8.15	.00	.59	1.23	4.78	.00	8.39	.64	.64	.00	2.24	.10
28	3.94	.00	.59	1.22	3.66	.01	5.69	.65	.82	.00	2.58	.08
29	.00	.10	.65	1.20	---	.03	3.99	1.05	.46	.00	2.74	.07
30	.00	1.15	.66	1.11	---	.11	4.02	1.55	.19	.00	2.46	.08
31	.00	---	.65	1.10	---	5.39	---	1.47	---	.00	1.77	---

TOTAL	100.67	1.25	15.54	89.56	244.00	95.59	211.92	96.80	24.80	0.51	86.50	15.51
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WTR YR 1998 TOTAL 982.65

ILLINOIS RIVER BASIN

389

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, Nov. 24, 25, Dec. 28 to Jan. 3, Jan. 10 to Feb. 1, and Mar. 10-18. Records are fair (see page 12). Gage-height telemeter and data-collection platform 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	213	242	311	270	500	865	1310	870	512	945	174	311
2	199	247	379	290	627	878	1400	886	506	726	158	292
3	154	242	395	330	794	841	1370	868	486	523	151	203
4	157	239	398	455	866	769	1300	805	402	581	202	231
5	177	236	402	696	812	700	1220	682	313	642	651	239
6	189	234	336	1050	798	676	1160	693	318	561	1510	231
7	201	248	324	1310	758	626	1150	977	338	444	1250	297
8	212	264	305	1640	734	671	1110	1640	327	485	948	336
9	196	259	263	1370	662	890	1400	1720	345	512	921	298
10	146	261	298	700	532	800	1790	1510	356	452	1000	266
11	196	288	309	640	687	410	1710	1340	388	370	1050	153
12	188	257	312	600	1350	400	1260	1180	516	353	1000	163
13	198	244	323	560	1470	390	1100	1140	551	321	1030	184
14	204	239	320	540	1360	390	1260	1040	509	301	1020	221
15	226	286	319	540	1280	390	1270	851	480	273	902	387
16	237	328	311	540	1270	380	1420	746	442	263	813	445
17	217	293	313	540	1330	380	1710	659	368	253	644	392
18	201	195	313	540	1350	640	1630	566	309	242	550	360
19	214	174	313	540	1320	912	1420	424	453	234	420	269
20	192	186	313	520	1200	1090	1350	480	501	228	313	258
21	238	211	317	500	1160	1020	1400	588	434	273	215	234
22	279	227	315	500	1110	913	1590	473	420	289	271	235
23	268	218	312	490	1080	882	1530	362	354	307	275	226
24	260	210	311	480	1090	882	1340	335	281	328	271	182
25	262	210	316	470	1030	881	1170	389	312	309	435	185
26	265	220	316	460	964	780	1170	426	518	281	538	202
27	286	247	304	450	870	598	1200	418	661	179	325	191
28	285	254	320	450	867	585	1040	379	916	164	323	190
29	258	258	300	460	---	595	868	430	1160	163	312	191
30	240	277	280	470	---	611	871	461	1080	174	308	188
31	237	---	270	470	---	832	---	535	---	187	300	---
TOTAL	6795	7294	9918	18871	27871	21677	39519	23873	14556	11363	18280	7560
MEAN	219	243	320	609	995	699	1317	770	485	367	590	252
MAX	286	328	402	1640	1470	1090	1790	1720	1160	945	1510	445
MIN	146	174	263	270	500	380	868	335	281	163	151	153
CFSM	.27	.30	.39	.75	1.23	.86	1.62	.95	.60	.45	.73	.31
IN.	.31	.33	.45	.87	1.28	.99	1.81	1.10	.67	.52	.84	.35

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1998, BY WATER YEAR (WY)

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 1996, BY WATER YEAR (WY)																									
MEAN	383	479	455	424	525	1126	1078	692	514	387	333	338													
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 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1940 - 1998
ANNUAL TOTAL	189486	207577	
ANNUAL MEAN	519	569	561
HIGHEST ANNUAL MEAN			1240
LOWEST ANNUAL MEAN			174
HIGHEST DAILY MEAN	3130	Feb 22	1790
LOWEST DAILY MEAN	144	Sep 30	146
ANNUAL SEVEN-DAY MINIMUM	176	Sep 30	167
INSTANTANEOUS PEAK FLOW			1830
INSTANTANEOUS PEAK STAGE			10.34
INSTANTANEOUS LOW FLOW			129
ANNUAL RUNOFF (CFSM)	.64	.70	.69
ANNUAL RUNOFF (INCHES)	8.69	9.52	9.40
10 PERCENT EXCEEDS	951	1230	1260
50 PERCENT EXCEEDS	369	410	361
90 PERCENT EXCEEDS	216	204	124

(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 1998 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 .	1959-98	03-29-98 03-20-98	11.30 G11.88	47.1	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	1957-98	03-28-98	11.50	170	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., Bayfield County, Hydrologic Unit 04010301, at box culvert on State Highway 13, 8.0 mi northwest of Red Cliff; drain- age area, 1.09 mi ² .	1959-98	03-30-98	10.82	44.4	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# 1967-98	03-30-98	11.37	343	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., Ash- land 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# 1976-98	03-30-98	7.07	1,640	07-02-92	8.65	2,450

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1998 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 .	1960-98	03-28-98	12.28	204	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	1960-98	04-01-98	9.40	B	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# 1970-98	04-01-98	2.48	62	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 .	1970-98	04-01-98	14.26	1,100	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 .	1970-98	04-01-98	11.74	115	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 .	1958-98	4-01-98	13.00	279	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 .	1961-98	1998	C	<425	06-18-96	16.96	1,810
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., Waush- ara County, Hydrologic Unit 04030201, at concrete culvert on State Highway 21, 0.2 mi west of Wautoma; drainage area, 4.14 mi ² .	1959-98	04-01-98	11.81	83	03-07-73	13.07	190

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1998 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								
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 .	1970-98	04-01-98	9.78	101	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# 1973-98	10-13-97	10.66	37	07-11-82	11.66	80
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# 1967-98	04-01-98	11.02	63	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 .	1961-98	03-31-98	13.43	940	09-11-86	17.47	2,350
04085145 Red River near Dykesville	Lat 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 .	1996-98	04-01-98	12.49	215	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 Chilton; drainage area, 29.4 mi ² .	1961-98	04-01-98	11.73	1,000	03-30-79	14.37	1,840
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.	1996-98	03-31-98 03-29-97 06-17-96	13.93 13.27 13.94	143 86 145	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 .	1996-98	03-31-98	17.81	53	06-17-96	18.33	61

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1998 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								
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 Mil- waukee; drainage area, 3.26 mi ² .	1959-98	08-05-98	21.13	570	06-21-97	22.70	1,100
04087200 Oak Creek near South Milwaukee	Lat 42°52'58", long 87°53'31" on com- mon 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; drain- age area, 13.8 mi ² .	1958-98	04-16-98	15.69	E300	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 .	1960-98	04-16-98	15.02	121	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 .	1958-98	04-01-98	10.73	124	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 .	1996-98	03-30-98	12.60	214	11-17-96	12.76	228
05341900 Kinnickin- nic 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 .	1959-98	06-27-98	16.47	3,590	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 .	1970-98	04-01-98	11.68	315	04-26-96 04-21-96	13.06 G13.18	730

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1998 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								
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# 1967-98	03-28-98	12.20	151	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 .	1961-98	03-28-98	12.35	422	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 .	1970-98	03-28-98	13.06	488	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 .	1996-98	03-30-98	11.29	132	03-29-97	11.35	139
05363775 Babbit 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 cul- vert on State Highway 64 at east side of Gilman; drainage area, 8.49 mi ² .	1996-98	03-28-98	12.87	367	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# 1962-98	03-30-98	11.46	5,300	09-22-86	15.82	16,600
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 .	1962-98	03-30-98	14.04	375	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# 1958-98	04-01-98	7.50	1,010	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# 1958-98	04-02-98	11.21	8,390	06-20-93	19.38	24,500

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1998 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								
05367030 Willow Creek near Eau Claire	Lat 44°44'11", long 91°26'48" on common 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 .	1958-98	03-29-98	10.34	56.3	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 .	1996-98	03-28-98	12.12	249	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 .	1958-98	03-30-98	11.74	288	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 .	1962-98	1998	12.58C	<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 .	1960-98	06-27-98	10.97	48	09-12-78	12.85	188
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 Highway 88, 4.0 mi south of Mondovi; drainage area, 279 mi ² .	1974-98	06-28-98	12.50	990	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 .	1997-98	06-27-98	9.78	623	06-27-98	9.78	623

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1998 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Dis- charge (ft ³ /s)	Date	Gage height (feet)	Dis- charge (ft ³ /s)
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; drainage area, 10.9 mi ² .	1996-98	06-27-98	13.69	405	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 .	1996-98	06-27-98	8.18	225	06-27-98	8.18	225
			07-02-97	F6.22	F86			
			03-13-96	F7.38	F165			
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# 1967-98	03-31-98	14.87	2,740	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 .	1961-98	04-01-98	15.04	1,120	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., Trempealeau 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 .	1960-98	06-27-98	12.14	2,450	06-27-98	12.14	2,450
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# 1967-98	06-28-98	11.29	390	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 .	1970-98	04-01-98	11.46	48	05-09-90	13.33	130

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1998 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								
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 .	1970-98	06-12-98	10.21	12	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; drainage area, 17.6 mi ² .	1958-98	02-28-98	9.85	57.5	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# 1967-98	06-12-98	9.72	80	06-14-81	10.97	180
			02-28-98	G11.11				
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 .	1970-98	03-31-98	12.92	121	06-14-81	14.38	310
			04-05-97	13.37	F176			
			04-19-96	13.58	F207			
			08-13-95	11.96	F60			
			09-15-94	13.34	F180			
			06-20-93	13.02	F138			
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 .	1961-98	03-30-98	12.85	272	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 .	1970-98	10-13-97	12.60	260	06-13-90	>16.00	>1,000
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; drain- age area, 1.58 mi ² .	1959-98	10-14-97	12.33	95	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., Mar-athon 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 .	1982-98	09-26-98	5.73	142	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 .	1959-98	10-14-97	11.61	241	09-27-59	15.18	2,120

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1998 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								
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 .	1973-98	06-27-98	14.88	715	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 .	1959-98	06-25-98	11.55	105	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# 1983-98	03-31-98	6.68	298	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 .	1961-98	06-28-98	12.05	220	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 .	1959-98	06-28-98	11.92	440	07-27-64	18.21	2,460
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# 1967-98	03-30-98	11.89	640	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 Platteville; drainage area, 79.7 mi ² .	1987-90# 1991-98	03-31-98	11.34	1,550	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 .	1960-98	06-18-98	12.33	340	06-29-69	17.32	7,040

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1998 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								
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 Janesville; drainage area, 1.42 mi ² .	1982-98	06-25-98	8.23	419	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 .	1962-98	08-05-98	12.71	1,510	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# 1996-98	03-30-98	10.47	2,480	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 .	1959-98	06-18-98	11.18	90	07-05-93	22.63	3,100
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# 1966-98	06-18-98	5.39	380	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 .	1961-98	06-28-98	13.32	110	03-31-65	15.06	370
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 .	1962-98	08-05-98	12.02	117	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 .	1958-98	08-05-98	11.10	24	04-21-73	14.10	290

Station Number and Name	Location and Drainage Area	Period of Record	Water Year 1998 Maximum			Period of Record Maximum		
			Date	Gage height (feet)	Dis- charge (ft ³ /s)	Date	Gage height (feet)	Dis- charge (ft ³ /s)
ILLINOIS RIVER BASIN--CONTINUED								
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 .	1962-98	06-25-98	12.68	333	09-25-86	13.63	475

Operated as a continuous-record station

B Discharge not determined

C Peak not recorded

E Estimated

F Revised

G Backwater from ice

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table.

[illegible]

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Dis- charge (ft ³ /s)
STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED						
Beaver Dam Creek	Duck Creek	Lat 44°31'03", long 88°05'28", in SE 1/4 SE 1/4 sec.29, T.24 N., R.20 E., Brown County, Hydrologic Unit 04030103, at Hobart Drive just north of West Point, at Ashwaubenon.	--	1997	11/20/97 02/20/98 06/11/98 08/12/98	0.19 0.56 8.24 0.19
Thornberry Creek	Lancaster Brook	Lat 44°33'23", long 88°08'17", in SW 1/4 NE 1/4 sec.13, T.24 N., R.19 E., Brown County, Hydrologic Unit 04030103, near Howard.	--	1997	11/19/97 02/19/98 06/12/98 08/11/98	0.36 0.40 0.56 0.25
Wurches Creek	Green Lake	Lat 43°44'55", long 89°03'15", in NW 1/4 NE 1/4 sec.27, T.15 N., R.12 E., Green Lake County, Hydrologic Unit 04030201, at County Highway B near Green Lake.	--	--	06/11/97 05/13/98	1.00 1.47
Roy Creek	Green Lake	Lat 43°45'57", long 89°01'14", in SE 1/4 SW 1/4 sec.13, T.15 N., R.12 E., Green Lake County, Hydrologic Unit 04030201, at Roy Creek Road near Green Lake.	--	--	06/11/97 05/13/98	0.68 3.19
Spring Creek	Green Lake	Lat 43°46'47", long 89°01'03", in SW 1/4 SE 1/4 sec.12, T.15 N., R.12 E., Green Lake County, Hydrologic Unit 04030201, at Hess Road near Green Lake.	1.96	--	06/11/97 05/13/98	1.33 1.64
Hill Creek	Green Lake	Lat 43°48'53", long 88°56'51", in NE 1/4 SE 1/4 sec.33, T.16 N., R.13 E., Green Lake County, Hydrologic Unit 04030201, at mouth, 2.3 mi south of Green Lake.	6.69	--	06/11/97 05/13/98	1.00 6.36
Lancaster Brook	Duck Creek	Lat 44°33'29", long 88°06'10", in NE 1/4 NW 1/4 sec.17, T.24 N., R.20 E., Brown County, Hydrologic Unit 04030103, at Shawano Avenue at Howard.	--	1997	11/19/97 02/20/98 06/12/98 08/11/98	2.02 12.7 94.2 0.98
North Branch Ash- waubenon Creek	Fox River	Lat 44°23'57", long 88°11'28", in NW 1/4 NW 1/4 sec.10, T.22 N., R.19 E., Brown County, Hydrologic Unit 04030204, near Freedom.	--	1997	11/18/97 02/20/98 06/12/98 08/12/98	<0.01 10.9 0.77 <0.01
Dutchman Creek	Duck Creek	Lat 44°27'59", long 88°08'35", in SE 1/4 NW 1/4 sec.13, T.23 N., R.19 E., Brown County, Hydrologic Unit 04030204, at Cyrus Lane near Ashwaubenon.	--	1997	11/18/97 02/20/98 06/12/98	0.03 30.5 3.69
Dutchman Creek Tributary	Dutchman Creek	Lat 44°28'53", long 88°07'29", in SW 1/4 NW 1/4 sec.7, T.23 N., R.20 E., Brown County, Hydrologic Unit 04030204, at end of County Highway GH behind Austin Straubel Airport, near DePere.	2.41	1973-74 1976 1997	11/20/97 02/10/98 06/12/98 08/12/98	0.06 8.51 3.39 0.19

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Dis- charge (ft ³ /s)
ST. CROIX RIVER BASIN						
Upper Tamarack River	St. Croix River	Lat 46°05'30", long 92°18'32", in NW 1/4 SE 1/4 sec.25, T.42 N., R.16 W., Pine County, MN, Hydrologic Unit 07030001, at County Road 25 near Markville, MN.	--	--	02/25/98 03/30/98 07/22/98 09/22/98	98.0 459 8.98 2.71
Yellow River	St. Croix River	Lat 46°00'44", long 92°21'27", in NW 1/4 NW 1/4 sec.27, T.41 N., R.16 W., Burnett County, Hydrologic Unit 07030001, at State Highway 35, 0.7 mi northeast of Danbury.	374	1976-78 1980-83	02/24/98 03/31/98 07/14/98 09/22/98	380 512 293 180
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	--	02/24/98 03/30/98 07/22/98 09/22/98	293 711 29 5.64
Crooked Creek	St. Croix River	Lat 46°00'42", long 92°31'45", in NE 1/4 NE 1/4 sec.30, T.41 N., R.17 W., Pine County, MN, Hydrologic Unit 07030001, at bridge on State Highway 48, 19 mi east of Hinckley, MN.	93.0	--	07/22/98 09/22/98	17.6 7.82
Clam River	St. Croix River	Lat 45°52'52", long 92°29'16", in SW 1/4 SW 1/4 NW 1/4 sec.9, T.39 N., R.17 W., Burnett County, Hydrologic Unit 07030001, at town road, 6 mi west of Webster.	361	1968-69 1976-78 1980-83	02/23/98 03/31/98 07/14/98 09/24/98	278 530 189 169
Sand Creek	St. Croix River	Lat 45°57'08", long 92°40'04", in NW 1/4 SW 1/4 sec.13, T.40 N., R.19 W., Pine County, MN, Hydrologic Unit 07030001, at Park Road southwest of Hinckley, MN.	110	--	02/24/98 03/30/98 07/22/98 09/22/98	187 311 27.1 8.79
North Fork Wood River	Wood River	Lat 45°47'03", long 92°37'23", in NE 1/4 NW 1/4 sec.17, T.38 N., R.18 W., Burnett County, Hydrologic Unit 07030005, at mouth, 3.0 mi east of Grantsburg.	55.7	--	02/23/98 03/03/98 07/14/98 09/24/98	91.1 290 54.3 33.2
Trade River	Trade River	Lat 45°35'58", long 92°46'02", in SE 1/4 SW 1/4 sec.18, T.36 N., R.19 W., Polk County, Hydrologic Unit 07030005, at town road, 5.9 mi southwest of Trade River.	134	1969	02/23/98 03/31/98 07/22/98 09/24/98	120 219 73 47.7
Willow River	St. Croix River	Lat 45°01'01", long 92°42'23", in SW 1/4 NE 1/4 sec.8, T.29 N., R.19 W., St. Croix County, Hydrologic Unit 07030005, at outlet of Little Falls Lake, 2.0 mi southwest of Burkhardt.	277	--	02/18/98 04/01/98 06/26/98 07/28/98	315 777 266 130
Kinnickinnic River	St. Croix River	Lat 44°52'30", long 92°37'16", in NE 1/4 NE 1/4, sec.36, T.28 N., R.19 W., St. Croix County, Hydrologic Unit 07030005, on left bank 200 ft upstream from bridge on State Highway 35, 1.4 mi northeast of intersection of State Highways 29 and 35 in River Falls.	115	1996-97	10/08/97	67.8

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Dis- charge (ft ³ /s)
ST. CROIX RIVER BASIN--CONTINUED						
South Fork Kinnickinnic River	Kinnickinnic River	Lat 44°51'06", long 92°37'36", in SW 1/4 SE 1/4, sec.1, T.27 N., R.19 W., Pierce County, Hydrologic Unit 07030005, on left bank 0.2 mi upstream from State Highway 29 bridge at River Falls and 0.5 mi upstream from mouth.	18.1	1996-97	10/08/97	11.3
Kinnickinnic River	St. Croix River	Lat 44°50'43", long 92°38'51", in NW 1/4 NE 1/4, sec.11, T.27 N., R.19 W., Pierce County, Hydrologic Unit 07030005, on left bank, approximately 700 ft downstream from intermittent tributary from south, and 1.1 mi southwest of intersection of State Highways 29 and 35 near River Falls.	147	1996-97	10/08/97	94.0
Kinnickinnic River	St. Croix River	Lat 44°49'50", long 92°44'00", in NE 1/4 NW 1/4 sec.18, T.27 N., R.19 W., Pierce County, Hydrologic Unit 07030001, at County Highway F bridge, 1.9 mi upstream from mouth and 5.5 mi west of River Falls.	165	1968	02/18/98 04/01/98 06/25/98 07/28/98	311 640 301 114
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.	--	1992-97	09/24/97 11/06/97 05/11/98 08/13/98	3.36 3.96 3.35 2.51
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.	--	1992-97	11/06/97 05/12/98 08/11/98	0.52 0.09 0.35
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	06/09/98 07/25/98 08/19/98	2.64 2.82 2.87
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	05/01/98	0.63
ROCK RIVER BASIN						
Maunesh 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	05/12/98 07/14/98 08/19/98 09/23/98	30.0 14.5 7.93 6.88

Stream	Tributary to	Location	Drainage area (mi ²)	Measured previously (water years)	Measurements	
					Date	Dis- charge (ft ³ /s)
ROCK RIVER BASIN--CONTINUED						
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	--	05/13/98	17.2
					07/14/98	15.5
					08/20/98	13.0
					09/25/98	11.8
ILLINOIS RIVER BASIN						
Muskego Canal	Fox River	Lat 42°54'26", long 88°08'28", in NE 1/4 SW 1/4 sec.9, T.5 N., R.20 E., Waukesha County, Hydrologic Unit 07120006, at Little Muskego Lake Outlet at Muskego.	--	1997	08/06/98	87.4
					09/24/97	2.0
Muskego Lake Tributary 1	Muskego Lake	Lat 42°53'33", long 88°08'33", in NE 1/4 SW 1/4 sec.16, T.5 N., R.20 E., Waukesha County, Hydrologic Unit 07120006, at County Highway Y south of Muskego.	--	1997	08/06/98	13.6
Muskego Lake Tributary 2	Muskego Lake	Lat 42°52'54", long 88°08'40", in SW 1/4 NW 1/4 sec.21, T.5 N., R.20 E., Waukesha County, Hydrologic Unit 07120006, on County Highway Y, 2 mi south of Muskego.	--	1997	08/06/98	39.0
Muskego Lake Tributary 3	Muskego Lake	Lat 42°51'43", long 88°05'25", in NE 1/4 SE 1/4 sec.26, T.5 N., R.20 E., Waukesha County, Hydrologic Unit 07120006, 1 mi southwest of Durham at Crossing of Highway 36, near Muskego.	--	1997	08/06/98	3.63

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 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN

040719491 SOUTH BRANCH SUAMICO RIVER AT SCHOOL DRIVE NEAR PITTSFIELD, WI (LAT 44 35 37N LONG 088 11 41W)

		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)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	
NOV 1997	19...	0750	.14	1550	7.2	.7	2.1	742	160	67	55	2.5	631
FEB 1998	19...	1045	5.1	1050	7.1	.3	9.3	737	72	29	75	22	233
JUN 12...	1245	35	356	7.5	17.0	7.0	734	--	--	--	--	--	81
AUG 11...	1100	.00	733	7.4	19.8	5.7	741	64	24	24	25	217	
DATE	ALKA-LINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	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)	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)	
NOV 1997	19...	517	160	72	.14	23	952	<.050	<.010	<.020	1.2	.95	1.16
FEB 1998	19...	191	170	61	<.10	8.7	632	1.35	.057	2.00	3.7	3.6	.460
JUN 12...	66	--	--	--	--	--	9.88	.159	.203	2.5	1.4	.774	
AUG 11...	178	73	59	.17	8.8	460	.637	.119	.932	3.4	3.3	.744	
DATE	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-PENDED TOTAL (MG/L AS C) (00689)	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)	
NOV 1997	19...	.845	.880	330	1130	--	--	--	--	--	--	--	--
FEB 1998	19...	.453	.360	110	82	--	--	--	--	--	--	--	--
JUN 12...	.317	.250	--	--	8.3	1.9	1.95	.034	<.0020	E76.2	<.0020	<.0020	
AUG 11...	.705	.580	140	142	--	--	--	--	--	--	--	--	--
DATE	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)	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)	
JUN 1998	12...	<.0030	<.0030	<.0200	.224	<.0020	E.851	<.002	101	<.001	<.0170	1.64	<.0040
DATE	ETHO-PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS D6 SRG WAT FLT DISS REC (UG/L) (04095)	HCH ALPHA 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 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)	
JUN 1998	12...	<.0030	<.0030	92.4	<.004	<.0020	<.005	<.0010	<.0060	10.4	.051	<.0040	<.0030

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

040719491 SOUTH BRANCH SUAMICO RIVER AT SCHOOL DRIVE NEAR PITTSFIELD, WI (LAT 44 35 37N LONG 088 11 41W)--CONTINUED

DATE	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)	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)
JUN 1998 12...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130	<.0070
DATE	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 (UG/L) (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)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	
NOV 1997 19...	--	--	--	--	--	--	--	--	--	--	--
FEB 1998 19...	--	--	--	--	--	--	--	--	--	10	80
JUN 12...	.0401	<.0070	<.0100	<.0130	102	<.0020	<.0010	.117	<.0030	279	80
AUG 11...	--	--	--	--	--	--	--	--	--	--	--

04072031 DUCK CREEK NEAR FREEDOM, WI (LAT 44 24 04N LONG 088 16 43W)

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)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)
NOV 1997 18...	0745	1.2	1550	7.8	1.0	11.6	744	120	47	119	14	388
FEB 1998 19...	1630	74	814	7.7	.8	11.6	738	84	31	26	11	257
JUN 12...	1015	63	610	7.8	15.7	6.5	734	--	--	--	--	173
AUG 11...	1735	.46	1550	9.0	26.9	20.0	744	77	45	187	14	229
DATE	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	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)	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)
NOV 1997 18...	318	210	120	.38	4.1	934	4.93	.022	<.020	1.4	1.2	.939
FEB 1998 19...	211	67	83	.12	6.6	489	4.19	.040	.530	2.0	1.7	.366
JUN 12...	142	--	--	--	--	--	3.20	.095	.274	2.3	1.8	.561
AUG 11...	236	290	160	.82	4.2	995	3.77	.055	.093	1.1	.81	1.06

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072031 DUCK CREEK NEAR FREEDOM, WI (LAT 44 24 04N LONG 088 16 43W)--CONTINUED

DATE	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- PENDE TOTAL (MG/L AS C) (00689)	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)
	NOV 1997 18...	.929	.955	38	13	--	--	--	--	--	--	--
FEB 1998 19...	.273	.239	52	27	--	--	--	--	--	--	--	--
JUN 12...	.349	.281	--	--	15	3.4	.0460	.009	<.0020	2.69	<.0020	<.0020
AUG 11...	.968	.944	<10	22	--	--	--	--	--	--	--	--
DATE	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 (UG/L) (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)
JUN 1998 12...	<.0030	E.0556	<.0040	.142	<.0020	E.108	.020	106	<.001	<.0170	.0050	<.0040
DATE	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 (UG/L) (91065)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THON, DIS- SOLVED (UG/L) (39532)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARA- THON 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)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)
JUN 1998 12...	<.0030	<.0030	99.0	<.004	<.0020	<.005	<.0010	<.0060	1.99	.229	<.0040	<.0030
DATE	PARA- THON, 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)	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)	
JUN 1998 12...	<.004	<.0040	.0220	<.0050	<.0020	<.0060	<.0030	E.0127	<.0040	<.0130	<.0070	
DATE	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 (UG/L) (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)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	
NOV 1997 18...	--	--	--	--	--	--	--	--	--	7	50	
FEB 1998 19...	--	--	--	--	--	--	--	--	--	40	88	
JUN 12...	.0356	<.0070	<.0100	<.0130	99.0	<.0020	<.0010	<.0020	<.0030	85	85	
AUG 11...	--	--	--	--	--	--	--	--	--	12	84	

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072040 FISH CREEK NEAR ONEIDA, WI (LAT 44 26 40N LONG 088 14 07W)

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)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)
NOV 1997 18...	0845	.10	950	7.8	1.6	9.4	748	100	42	24	10	426
FEB 1998 19...	1800	41	649	7.8	.2	12.2	738	61	25	20	12	210
JUN 12...	1105	48	480	7.8	16.0	8.0	734	--	--	--	--	159
AUG 11...	1610	.00	735	7.4	20.4	2.0	744	64	27	24	17	253
DATE	ALKA-LINITY WAT DIS TOT IT (MG/L AS CAC03) (39086)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SI02) (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)
NOV 1997 18...	349	64	50	.22	2.5	564	.083	.019	<.020	.68	.66	.227
FEB 1998 19...	172	60	55	.11	6.9	387	2.91	.027	.416	1.6	1.4	.338
JUN 12...	130	--	--	--	--	--	4.22	.100	.302	1.4	1.1	.462
AUG 11...	207	49	56	.19	7.4	417	2.34	.153	.282	1.5	1.3	.571
DATE	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-PENDED TOTAL (MG/L AS C) (00689)	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)
NOV 1997 18...	.187	.172	67	18	--	--	--	--	--	--	--	--
FEB 1998 19...	.279	.235	66	30	--	--	--	--	--	--	--	--
JUN 12...	.357	.372	--	--	11	2.9	.0284	.088	<.0020	3.45	<.0020	<.0020
AUG 11...	.486	.460	30	104	--	--	--	--	--	--	--	--
DATE	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)	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)
JUN 1998 12...	<.0030	<.0030	<.0040	.0121	<.0020	E.0375	<.002	100	<.001	<.0170	.0054	<.0040
DATE	ETHO-PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS D6 SRG WAT FLT 0.7 U 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 PARA-PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL THION WAT FLT 0.7 U GF, REC (82667)	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)
JUN 1998 12...	<.0030	<.0030	94.3	<.004	<.0020	<.005	<.0010	<.0060	3.25	<.004	<.0040	<.0030

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072040 FISH CREEK NEAR ONEIDA, WI (LAT 44 26 40N LONG 088 14 07W)--CONTINUED

DATE	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)	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)
JUN 1998 12...	<.004	<.0040	.0158	<.0050	.0061	<.0060	<.0030	<.0180	<.0040	<.0130	<.0070
DATE	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 (UG/L) (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)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 1997 18...	--	--	--	--	--	--	--	--	--	53	82
FEB 1998 19...	--	--	--	--	--	--	--	--	--	36	81
JUN 12...	.0086	<.0070	<.0100	<.0130	100	<.0020	<.0010	<.0020	<.0030	97	96
AUG 11...	--	--	--	--	--	--	--	--	--	--	--

040720447 ONEIDA CREEK AT VAN BOXTEL ROAD NEAR ONEIDA, WI (LAT 44 27 45N LONG 088 13 49W)

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)	BICAR- BONATE WATER DIS IT FIELD MG/L AS (00453)
NOV 1997 18...	0945	.36	990	7.8	1.6	11.2	740	110	44	22	6.4	435
FEB 1998 20...	0740	39	630	7.7	.2	12.3	744	62	23	22	9.7	189
JUN 12...	1315	51	320	7.6	17.2	7.3	734	--	--	--	--	78
AUG 11...	1615	.03	618	8.3	23.9	9.6	744	60	29	19	7.2	249
DATE	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	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)	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)
NOV 1997 18...	356	64	56	.12	9.0	603	.051	<.010	<.020	.52	.53	.046
FEB 1998 20...	155	63	54	<.10	6.7	381	2.04	.016	.128	1.2	.95	.189
JUN 12...	64	--	--	--	--	--	5.16	.056	.169	1.8	.95	.424
AUG 11...	222	46	35	.14	4.7	375	<.050	<.010	.041	1.2	.82	.209
DATE	PHOS- PHORUS DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHOR- 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- PENDE TOTAL (MG/L AS C) (00689)	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)
NOV 1997 18...	.039	.045	23	9.7	7.9	.20	<.0020	<.002	<.0020	.055	<.0020	<.0020
FEB 1998 20...	.150	.116	54	28	9.8	.80	<.0020	<.002	<.0020	.036	<.0020	<.0020
JUN 12...	.205	.171	--	--	10	2.2	.0300	.013	<.0020	1.16	<.0020	<.0020
AUG 11...	.129	.129	<10	7.4	--	--	--	--	--	--	--	--

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

040720447 ONEIDA CREEK AT VAN BOXTEL ROAD NEAR ONEIDA, WI (LAT 44 27 45N LONG 088 13 49W)--CONTINUED

DATE	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 (UG/L) (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)
	NOV 1997 18...	<.0030	<.0030	<.0040	<.0040	<.0020	E.0150	<.002	104	<.001	<.0170	<.0020
FEB 1998 20...	<.0030	<.0030	<.0040	<.0040	<.0020	E.0099	<.002	94.2	<.001	<.0170	<.0020	<.0040
JUN 12...	<.0030	<.0030	<.0040	2.10	<.0020	E.0677	.005	102	<.001	<.0170	.0112	<.0040
AUG 11...	--	--	--	--	--	--	--	--	--	--	--	--
DATE	ETHO-PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONO-FOS WATER DISS REC (UG/L) (04095)	HCH ALPHA D6 SRG WAT FLT 0.7 U GF, REC (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)	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)
	NOV 1997 18...	<.0030	<.0030	95.2	<.004	<.0020	<.005	<.0010	<.0060	.034	<.004	<.0040
FEB 1998 20...	<.0030	<.0030	110	<.004	<.0020	<.005	<.0010	<.0060	.049	<.004	<.0040	<.0030
JUN 12...	<.0030	<.0030	94.4	<.004	<.0020	<.005	<.0010	<.0060	8.13	.630	<.0040	<.0030
AUG 11...	--	--	--	--	--	--	--	--	--	--	--	--
DATE	PARA-THION, DIS- SOLVED (UG/L) (39542)	PEB-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)	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)	
	NOV 1997 18...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130	<.0070
FEB 1998 20...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130	<.0070	
JUN 12...	<.004	<.0040	.0582	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130	<.0070	
AUG 11...	--	--	--	--	--	--	--	--	--	--	--	
DATE	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 (UG/L) (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)	2,6-DI-ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	SEDI-MENT, SUS- PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN (70331)	
	NOV 1997 18...	<.0050	<.0070	<.0100	<.0130	105	<.0020	<.0010	<.0020	<.0030	125	52
FEB 1998 20...	.174	<.0070	<.0100	<.0130	104	<.0020	<.0010	<.0020	<.0030	14	90	
JUN 12...	.0076	<.0070	<.0100	<.0130	96.3	<.0020	<.0010	E.0029	<.0030	132	92	
AUG 11...	--	--	--	--	--	--	--	--	--	--	--	

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072100 SILVER CREEK AT HIGHWAY 54 NEAR ASHWAUBENON, WI (LAT 44 30 42N LONG 088 09 04W)

		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)	BICAR-BONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	
NOV 1997	20...	0905	.30	1200	7.8	.3	12.1	742	130	52	42	3.8	479
FEB 1998	20...	0850	19	694	7.5	.2	11.8	738	69	27	25	8.4	217
JUN 12...	1515	16	740	7.8	17.8	7.4	734	--	--	--	--	152	
AUG 12...	1115	.01	1010	8.0	18.4	8.3	749	95	45	44	6.8	378	
DATE	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	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)	NITRO-GEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	
NOV 1997	20...	392	110	82	.13	8.2	684	1.23	<.010	<.020	.73	.41	.142
FEB 1998	20...	178	70	63	.14	7.6	437	3.51	.026	.306	1.4	1.2	.479
JUN 12...	125	--	--	--	--	--	23.0	.207	.145	2.5	1.6	.409	
AUG 12...	314	99	74	.15	6.6	625	.149	<.010	.044	.92	.66	.135	
DATE	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-PENDED TOTAL (MG/L AS C) (00689)	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)	
NOV 1997	20...	.042	.051	65	31	--	--	--	--	--	--	--	
FEB 1998	20...	.436	.400	29	14	--	--	--	--	--	--	--	
JUN 12...	.354	.299	--	--	14	1.7	.359	.008	<.0020	15.2	<.0020	<.0020	
AUG 12...	.087	.084	16	58	--	--	--	--	--	--	--	--	
DATE	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 (UG/L) (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)	
JUN 1998	12...	<.0030	<.0030	<.0040	.181	<.0020	E.936	<.002	101	<.001	<.0170	.0046	<.0040
DATE	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 (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)	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)	
JUN 1998	12...	<.0030	<.0030	93.0	<.004	<.0020	<.005	<.0010	<.0060	1.57	<.004	<.0040	<.0030

E Estimated

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072100 SILVER CREEK AT HIGHWAY 54 NEAR ASHWAUBENON, WI (LAT 44 30 42N LONG 088 09 04W)--CONTINUED

DATE	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)	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)
JUN 1998 12...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0040	<.0040	<.0130	<.0070
DATE	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 (UG/L) (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)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 1997 20...	--	--	--	--	--	--	--	--	--	154	53
FEB 1998 20...	--	--	--	--	--	--	--	--	--	26	86
JUN 12...	.0255	<.0070	<.0100	<.0130	103	<.0020	<.0010	<.0020	<.0030	54	47
AUG 12...	--	--	--	--	--	--	--	--	--	--	--

04072140 UNNAMED DUCK CK TRB @ HAVEN PL NR ASHWAUBENON, WI (LAT 44 31 31N LONG 088 07 45W)

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)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)
NOV 1997 19...	1100	.02	1130	8.0	3.0	12.2	745	110	46	60	1.5	435
FEB 1998 20...	1430	.54	829	7.8	2.0	11.9	740	67	28	47	2.9	327
JUN 11...	2240	--	760	8.3	17.3	8.9	727	--	--	--	--	133
AUG 12...	0750	.14	765	8.3	22.2	12.6	749	120	52	102	2.7	468
DATE	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	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)	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)
NOV 1997 19...	364	130	54	<.10	15	676	1.01	<.010	.039	.37	.37	.031
FEB 1998 20...	268	98	45	<.10	9.6	505	.585	<.010	.074	.60	.50	.056
JUN 11...	109	--	--	--	--	--	.230	.012	.092	1.2	.66	.274
AUG 12...	386	230	61	.12	18	882	1.95	.017	.125	.44	.42	.052

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072140 UNNAMED DUCK CK TRB @ HAVEN PL NR ASHWAUBENON, WI (LAT 44 31 31N LONG 088 07 45W)--CONTINUED

DATE	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- PENDE TOTAL (MG/L AS C) (00689)	ACETO- CHLOR, WATER, FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC (UG/L) (46342)	ALPHA BHC DIS- SOLVED REC (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)
NOV 1997												
19...	.012	.028	18	162	--	--	--	--	--	--	--	--
FEB 1998												
20...	.022	.032	59	91	--	--	--	--	--	--	--	--
JUN 11...	.096	.073	--	--	11	1.0	.0353	.008	<.0020	.076	.0077	<.0020
AUG 12...	.022	.026	11	169	--	--	--	--	--	--	--	--
DATE	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 (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)
JUN 1998												
11...	E.0118	<.0030	<.0040	.0101	<.0020	E.0118	.186	102	<.001	<.0170	.0077	<.0040
DATE	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER DISS (UG/L) (04095)	HCH ALPHA D6 SRG WAT FLT 0.7 U GF, REC (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)	METRI- BUZIN WATER FLTRD 0.7 U GF, REC (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)
JUN 1998												
11...	<.0030	<.0030	94.6	<.004	<.0020	.024	<.0010	<.0060	.034	<.004	<.0040	<.0030
DATE	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)	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)	
JUN 1998												
11...	<.004	<.0040	.0159	<.0050	<.0020	<.0060	<.0030	E.0039	<.0040	<.0130	<.0070	
DATE	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 (UG/L) (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)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	
JUN 1998												
11...	.527	<.0070	<.0100	<.0130	96.4	<.0020	<.0010	.0061	<.0030	302	77	

E Estimated

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072153 TROUT CREEK AT CT HIGHWAY U NEAR ASHWAUBENON, WI (LAT 44 33 04N LONG 088 11 25W)

		DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	BAROMETRIC PRES-SURE (MM OF HG) (00025)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	BICARBONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	
NOV 1997	19...	0945	.00	1330	7.8	.2	10.5	742	170	67	18	9.3	603
FEB 1998	19...	1150	2.7	710	7.3	.3	11.2	738	86	32	18	6.5	295
JUN 11...	2125	5.7	291	7.5	16.2	7.6	727	--	--	--	--	--	49
AUG 11...	1135	.00	1470	7.7	21.4	10.5	741	220	73	10	9.5	194	
DATE	ALKALINITY WATER DIS TOT IT FIELD MG/L AS CACO3 (39086)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	FLUORIDE, 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)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA + ORGANIC TOTAL DIS-SOLVED (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS-SOLVED (MG/L AS N) (00623)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	
NOV 1997	19...	494	71	150	<.10	6.1	876	<.050	<.010	<.020	1.3	1.1	.054
FEB 1998	19...	242	48	90	<.10	9.0	478	.707	<.010	<.020	.87	.84	.094
JUN 11...	40	--	--	--	--	--	9.93	.065	.448	5.2	1.4	1.26	
AUG 11...	159	28	630	<.10	1.7	1240	<.050	<.010	.045	1.5	1.4	.089	
DATE	PHOSPHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOSPHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGANESE, DIS-SOLVED (UG/L AS MN) (01056)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	ACETOCHLOR, WATER FLTRD REC (UG/L) (49260)	ALACHLOR, WATER, DISS, REC (UG/L) (46342)	ALPHA BHC, DIS-SOLVED (UG/L) (34253)	ATRAZINE, WATER, DISS, REC (UG/L) (39632)	BENFLURALIN WAT FLD GF, REC (UG/L) (82673)	BUTYLATE, WATER, DISS, REC (UG/L) (04028)	
NOV 1997	19...	.017	.031	34	11	--	--	--	--	--	--	--	
FEB 1998	19...	.078	.070	67	30	--	--	--	--	--	--	--	
JUN 11...	.117	.109	--	--	8.0	>20	19.2	.006	<.0020	11.5	<.0020	.0141	
AUG 11...	.048	.050	52	81	--	--	--	--	--	--	--	--	
DATE	CARBARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBOFURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLORPYRIFOS DIS-SOLVED (UG/L) (38933)	CYANAZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRAZINE, WATER, DISS, REC (UG/L) (04040)	DI-AZINON, DIS-SOLVED (UG/L) (39572)	DIAZINON D10 SRG WAT FLT 0.7 U GF, REC PERCENT (91063)	DI-ELDRIN DIS-SOLVED (UG/L) (39381)	DISULFOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHALFLURALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	
JUN 1998	11...	<.0030	<.0030	<.0040	15.0	<.0020	E.358	<.002	102	<.001	<.0170	.0134	<.0040
DATE	ETHOPROP 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)	LINURON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALATHION, DIS-SOLVED (UG/L) (39532)	METHYL AZINPHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARATHION WAT FLT 0.7 U GF, REC (82667)	METO-LACHLOR WATER DISSOLV (UG/L) (39415)	METRIBUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOLINATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROPRAMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	
JUN 1998	11...	<.0030	<.0030	95.3	<.004	<.0020	<.005	<.0010	<.0060	.905	.015	<.0040	<.0030

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072153 TROUT CREEK AT CT HIGHWAY U NEAR ASHWAUBENON, WI (LAT 44 33 04N LONG 088 11 25W)--CONTINUED

DATE	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)	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)
JUN 1998 11...	<.004	<.0040	.471	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130	<.0070
DATE	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 (UG/L) (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)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 1997 19...	--	--	--	--	--	--	--	--	--	--	--
FEB 1998 19...	--	--	--	--	--	--	--	--	--	10	85
JUN 11...	<.0050	<.0070	<.0100	<.0130	103	<.0020	<.0010	<.0020	<.0030	1390	100
AUG 11...	--	--	--	--	--	--	--	--	--	--	--

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)	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)
NOV 1997 19...	1035	2.0	820	8.2	.4	14.0	750	94	42	17	2.5	358
FEB 1998 19...	1255	11	719	8.2	.2	13.9	743	75	32	27	3.9	312
JUN 12...	1400	26	438	7.7	18.1	8.0	734	--	--	--	--	100
AUG 12...	1200	1.1	713	8.9	20.0	8.9	750	79	36	15	3.3	300
DATE	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	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)	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)
NOV 1997 19...	307	45	48	.10	10	471	2.16	<.010	<.020	.30	.25	.012
FEB 1998 19...	256	61	44	<.10	11	429	1.49	<.010	.059	.50	.43	.046
JUN 12...	82	--	--	--	--	--	11.6	.141	.608	2.8	1.5	.539
AUG 12...	286	42	45	<.10	10	440	1.03	<.010	.037	.52	.45	.083

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072185 TROUT CREEK NEAR HOWARD, WI (LAT 44 32 10N LONG 088 07 48W)--CONTINUED

DATE	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- PENDE TOTAL (MG/L AS C) (00689)	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)
	NOV 1997											
19...	<.010	.019	34	5.9	4.0	.30	<.0020	<.002	<.0020	.083	<.0020	<.0020
FEB 1998												
19...	.026	.036	40	39	6.1	.30	<.0020	<.002	<.0020	.030	<.0020	<.0020
JUN												
12...	.095	.079	--	--	9.0	8.3	11.4	.248	<.0020	E22.5	<.0020	.181
AUG												
12...	.072	.082	13	10	--	--	--	--	--	--	--	--
DATE	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)	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)
	NOV 1997											
19...	<.0030	<.0100	<.0040	<.0040	<.0020	E.0258	<.002	91.6	<.001	<.0170	<.0020	<.0040
FEB 1998												
19...	<.0030	<.0030	<.0040	<.0040	<.0020	E.0152	<.002	91.8	<.001	<.0170	E.0024	<.0040
JUN												
12...	<.0030	<.0030	<.0040	15.6	<.0020	E.770	<.002	103	<.001	<.0170	.0095	<.0040
AUG												
12...	--	--	--	--	--	--	--	--	--	--	--	--
DATE	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)	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)
	NOV 1997											
19...	<.0030	<.0030	91.5	<.004	<.0020	<.005	<.0010	<.0060	.008	<.004	<.0040	<.0030
FEB 1998												
19...	<.0030	<.0030	105	<.004	<.0020	<.005	<.0010	<.0060	.012	<.004	<.0040	<.0030
JUN												
12...	<.0030	<.0030	100	<.004	<.0020	<.005	<.0010	<.0060	1.84	.025	<.0040	<.0030
AUG												
12...	--	--	--	--	--	--	--	--	--	--	--	--
DATE	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)	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)	
	NOV 1997											
19...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0125	<.0040	<.0130	<.0070	
FEB 1998												
19...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130	<.0070	
JUN												
12...	<.004	<.0040	.0478	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130	<.0070	
AUG												
12...	--	--	--	--	--	--	--	--	--	--	--	

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072185 TROUT CREEK NEAR HOWARD, WI (LAT 44 32 10N LONG 088 07 48W)--CONTINUED

DATE	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)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 1997											
19...	.0110	<.0070	<.0100	<.0130	108	<.0020	<.0010	<.0020	<.0030	41	--
FEB 1998											
19...	<.0050	<.0070	<.0100	<.0130	103	<.0020	<.0010	<.0020	<.0030	34	70
JUN											
12...	.0527	<.0070	<.0100	<.0130	101	<.0020	<.0010	<.0020	<.0030	388	71
AUG											
12...	--	--	--	--	--	--	--	--	--	23	76

04072217 DUCK CREEK SITE NO. 1 NEAR PAMPERIN PARK (LAT 44 32 41N LONG 088 06 09W)

		DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	BAROMETRIC PRES-SURE (MM OF HG) (00025)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	BICARBONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	
NOV 1997	20...	1020	5.8	975	8.2	.8	14.2	744	97	44	36	5.8	380
FEB 1998	20...	1550	182	745	7.9	.2	12.9	742	72	29	27	9.8	244
JUN	13...	0815	149	676	7.7	17.0	7.6	737	--	--	--	--	240
AUG	12...	1020	3.1	770	8.5	21.2	9.2	750	71	36	26	5.0	256
DATE	ALKALINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	FLUORIDE, 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)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. TOTAL (MG/L AS N) (00623)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	
NOV 1997	20...	323	80	62	.14	5.6	576	.537	<.010	<.020	.55	.44	.047
FEB 1998	20...	200	71	66	<.10	7.3	449	2.36	.024	.331	1.5	1.2	.305
JUN	13...	197	--	--	--	--	3.19	.070	.110	1.6	1.0	.253	
AUG	12...	213	57	110	.22	6.1	482	<.050	<.010	.083	1.0	.64	.112
DATE	PHOSPHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOSPHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGANESE, 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)	ACETOCHLOR, WATER FLTRD REC (UG/L) (49260)	ALACHLOR, WATER, DISS, REC, (UG/L) (46342)	ALPHA BHC DIS-SOLVED (UG/L) (34253)	ATRAZINE, WATER, DISS, REC (UG/L) (39632)	BENFLURALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYLATE, WATER, DISS, REC (UG/L) (04028)	
NOV 1997	20...	.034	.042	48	8.6	7.8	.30	<.0020	<.002	<.0020	.052	<.0020	<.0020
FEB 1998	20...	.208	.171	44	17	9.5	1.6	<.0020	<.002	<.0020	.034	<.0020	<.0020
JUN	13...	.180	.131	--	--	11	4.5	1.19	.019	<.0020	3.57	<.0020	.0097
AUG	12...	.058	.039	<10	5.5	--	--	--	--	--	--	--	--

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072217 DUCK CREEK SITE NO. 1 NEAR PAMPERIN PARK (LAT 44 32 41N LONG 088 06 09W)--CONTINUED

DATE	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)	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)
	NOV 1997 20...	<.0030	<.0100	<.0040	<.0040	<.0020	E.0152	<.002	103	<.001	<.0170	<.0020
FEB 1998 20...	<.0030	<.0030	<.0040	<.0040	<.0020	E.0256	<.002	98.1	<.001	<.0170	<.0020	<.0040
JUN 13...	<.0030	<.0030	<.0040	1.54	<.0020	E.135	.018	103	<.001	<.0170	.0047	<.0040
AUG 12...	--	--	--	--	--	--	--	--	--	--	--	---
DATE	ETHO-PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)	FONOFOS WATER FLTRD 0.7 U 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)	NAPROP-AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)
	NOV 1997 20...	<.0030	<.0030	92.3	<.004	<.0020	<.005	<.400	<.0060	.014	<.004	<.0040
FEB 1998 20...	<.0030	<.0030	109	<.004	<.0020	<.005	<.0010	<.0060	.028	<.004	<.0040	<.0030
JUN 13...	<.0030	<.0030	95.0	<.004	<.0020	<.005	<.0010	<.0060	1.03	<.004	<.0040	<.0030
AUG 12...	--	--	--	--	--	--	--	--	--	--	--	--
DATE	PARA-THION, DIS- SOLVED (UG/L) (39542)	PEB-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)	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)	
	NOV 1997 20...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0092	<.0040	<.0130	<.0070
FEB 1998 20...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130	<.0070	
JUN 13...	<.004	<.0040	<.0100	<.0050	<.0020	<.0060	<.0030	E.0062	<.0040	<.0130	<.0070	
AUG 12...	--	--	--	--	--	--	--	--	--	--	--	
DATE	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)	2,6-DI-ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	SEDI-MENT, SUS-PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	
	NOV 1997 20...		.0553	<.0070	<.0100	<.0130	113	<.0020	<.0010	<.0020	<.0030	99
FEB 1998 20...		.0354	<.0070	<.0100	<.0130	107	<.0020	<.0010	<.0020	<.0030	48	98
JUN 13...		.0340	<.0070	<.0100	<.0130	99.0	<.0020	<.0010	<.0020	<.0030	49	88
AUG 12...	--	--	--	--	--	--	--	--	--	--	23	90

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072219 BEAVER DAM CREEK AT ASHWAUBENON, WI (LAT 44 31 03N LONG 088 05 28W)

		DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	BAROMETRIC PRES-SURE (MM OF HG) (00025)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	BICARBONATE WATER DIS IT FIELD (MG/L AS HCO3) (00453)	
NOV 1997	20...	0830	.19	942	7.8	.9	11.3	742	92	36	46	1.5	353
FEB 1998	20...	0940	.56	985	7.8	3.4	11.5	741	80	32	72	2.3	294
JUN 11...	1945	8.2	115	7.6	16.2	7.9	727	--	--	--	--	45	
AUG 12...	1720	.19	960	8.0	17.5	8.2	747	92	36	52	1.6	382	
DATE	ALKALINITY WAT DIS TOT IT FIELD (MG/L AS CACO3) (39086)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	FLUORIDE, 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)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	
NOV 1997	20...	289	92	50	<.10	15	548	2.50	<.010	<.020	.34	.12	.042
FEB 1998	20...	241	130	61	<.10	11	567	1.80	<.010	<.020	.38	.28	.038
JUN 11...	37	--	--	--	--	--	.480	.021	.244	1.5	.35	.206	
AUG 12...	317	99	47	<.10	16	556	2.29	.017	.090	.19	.17	.028	
DATE	PHOSPHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOSPHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGANESE, DIS-SOLVED (UG/L AS MN) (01056)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	ACETOCHLOR, WATER FLTRD REC (UG/L) (49260)	ALACHLOR, WATER, DISS, REC (UG/L) (46342)	ALPHA BHC DIS-SOLVED (UG/L) (34253)	ATRAZINE, WATER, DISS, REC (UG/L) (39632)	BENFLURALIN, WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYLATE, WATER, DISS, REC (UG/L) (04028)	
NOV 1997	20...	<.010	.019	22	6.1	--	--	--	--	--	--	--	
FEB 1998	20...	.014	.026	25	28	--	--	--	--	--	--	--	
JUN 11...	.071	.035	--	--	3.5	7.7	.0216	.007	<.0020	.082	.0050	<.0020	
AUG 12...	.019	.033	<10	6.5	--	--	--	--	--	--	--	--	
DATE	CARBARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBOFURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLORPYRIFOS DIS-SOLVED (UG/L) (38933)	CYANAZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRAZINE, WATER, DISS, REC (UG/L) (04040)	DI-AZINON, DIS-SOLVED (UG/L) (39572)	DIAZINON, D10 SRG WAT FLT 0.7 U GF, REC (UG/L) (91063)	DI-ELDRIN DIS-SOLVED (UG/L) (39381)	DISULFOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHALFLURALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	
JUN 1998	11...	E.236	<.0030	.0475	.0097	E.0011	E.0084	1.18	112	<.001	<.0170	.0069	<.0040
DATE	ETHOPROP 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)	LINURON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALATHION, DIS-SOLVED (UG/L) (39532)	METHYL AZINPHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARATHION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METO-LACHLOR WATER DISSOLV (UG/L) (39415)	METRIBUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOLINATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROPRAMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	
JUN 198	11...	<.0030	<.0030	92.5	<.004	<.0020	<.005	E.0259	<.0060	.035	<.004	<.0040	<.0030

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072219 BEAVER DAM CREEK AT ASHWAUBENON, WI (LAT 44 31 03N LONG 088 05 28W)--CONTINUED

DATE	PARA- THION, DIS- SOLVED (UG/L) (39542)	PEB- ULATE WATER FLTRD 0.7 U (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U (UG/L) (82664)	P, P' DDE (UG/L) (34653)	PRON- AMIDE WATER FLTRD 0.7 U (UG/L) (82676)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRO- PANIL WATER FLTRD 0.7 U (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U (UG/L) (82685)	PROP- CHLOR, WATER, DISS, REC (UG/L) (04024)
JUN 1998 11...	<.004	<.0040	.0146	<.0050	<.0020	<.0060	<.0030	E.0050	<.0040	<.0130	<.0070
DATE	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TER- BACIL WATER FLTRD 0.7 U (UG/L) (82665)	TEBU- THIURON WATER FLTRD 0.7 U (UG/L) (82670)	TER- BUFOS WATER FLTRD 0.7 U (UG/L) (82675)	TERBUTH YLAZINE SURROGT WAT FLT 0.7 U PERCENT (91064)	THIO- BENCARB WATER FLTRD 0.7 U (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U (UG/L) (82661)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U (UG/L) (82660)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 1997 20...	--	--	--	--	--	--	--	--	--	67	71
FEB 1998 20...	--	--	--	--	--	--	--	--	--	55	63
JUN 11...	E.0031	<.0070	<.0100	<.0130	94.4	<.0020	<.0010	E.0033	<.0030	117	83
AUG 12...	--	--	--	--	--	--	--	--	--	67	35

04072228 THORNBERRY CREEK NEAR HOWARD, WI (LAT 44 33 23N LONG 088 08 17W)

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)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)
NOV 1997 19...	0910	.36	660	8.2	.9	12.6	744	75	35	14	1.4	315
FEB 1998 20...	1345	.40	611	8.2	4.5	11.7	733	69	32	16	1.5	307
JUN 12...	1630	.56	520	8.0	16.4	8.3	734	--	--	--	--	249
AUG 11...	1220	.25	660	8.0	17.0	8.5	744	72	33	13	1.5	322
DATE	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	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)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN,AM- MONIA + ORGANIC DIS. TOTAL (MG/L AS N) (00623)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
NOV 1997 19...	258	32	35	<.10	16	374	3.82	<.010	<.020	.18	.22	<.010
FEB 1998 20...	252	37	35	<.10	13	389	2.86	<.010	<.020	.45	.23	.021
JUN 12...	204	--	--	--	--	--	1.83	.011	.065	1.1	.41	.076
AUG 11...	264	32	32	<.10	16	410	3.86	.011	.040	.35	.21	.016

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072228 THORNBERRY CREEK NEAR HOWARD, WI (LAT 44 33 23N LONG 088 08 17W)--CONTINUED

DATE	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- PENDED TOTAL (MG/L AS C) (00689)	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)	
	NOV 1997	19...	<.010	.020	13	7.0	2.5	.20	<.0020	<.002	<.0020	.033	<.0020
FEB 1998	20...	<.010	.022	15	22	3.5	1.3	<.0020	<.002	<.0020	.034	<.0020	<.0020
JUN 12...	<.010	<.010	--	--	6.2	>4.0	.0070	<.002	<.0020	.043	<.0020	E.0025	
AUG 11...	.010	.027	<10	6.3	--	--	--	--	--	--	--	--	
DATE	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 (UG/L) (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)	
	NOV 1997	19...	<.0030	<.0030	<.0040	<.0040	<.0020	E.0332	<.002	7.43	<.001	<.0170	<.0020
FEB 1998	20...	<.0030	<.0030	<.0040	<.0040	<.0020	E.0437	<.002	95.2	<.001	<.0170	<.0020	<.0040
JUN 12...	<.0030	<.0030	<.0040	<.0040	<.0020	E.0277	<.002	104	<.001	<.0170	E.0020	<.0040	
AUG 11...	--	--	--	--	--	--	--	--	--	--	--	--	
DATE	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 (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 FLTRD 0.7 U 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)	
	NOV 1997	19...	<.0030	<.0030	6.45	<.004	<.0020	<.005	<.0010	<.0060	<.002	<.004	<.0040
FEB 1998	20...	<.0030	<.0030	103	<.004	<.0020	<.005	<.0010	<.0060	<.002	<.004	<.0040	<.0030
JUN 12...	<.0030	<.0030	96.0	<.004	<.0020	<.005	<.0010	<.0060	.010	<.004	<.0040	<.0030	
AUG 11...	--	--	--	--	--	--	--	--	--	--	--	--	
DATE	PARA- THION, DIS- SOLVED (UG/L) (39542)	PEB- 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)	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)		
	NOV 1997	19...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130	<.0070
FEB 1998	20...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130	<.0070	
JUN 12...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0053	<.0040	<.0130	<.0070		
AUG 11...	--	--	--	--	--	--	--	--	--	--	--		

E Estimated

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072228 THORNBERRY CREEK NEAR HOWARD, WI (LAT 44 33 23N LONG 088 08 17W)--CONTINUED

DATE	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)	2,6-DI-ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 1997 19...	<.0050	<.0070	<.0100	<.0130	8.50	<.0020	<.0010	<.0020	<.0030	52	63
FEB 1998 20...	<.0050	<.0070	<.0100	<.0130	108	<.0020	<.0010	<.0020	<.0030	61	91
JUN 12...	<.0050	<.0070	<.0100	<.0130	99.2	<.0020	<.0010	<.0020	<.0030	49	62
AUG 11...	--	--	--	--	--	--	--	--	--	28	69

04072233 LANCASTER BROOK AT SHAWANO AVENUE AT HOWARD, WI (LAT 44 33 29N LONG 088 06 10W)

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)	BICAR- BONATE WATER DIS IT FIELD HCO3 (00453)
NOV 1997 19...	0825	2.0	800	8.0	.2	12.9	746	85	40	24	1.8	341
FEB 1998 20...	1230	13	704	7.9	.3	12.7	737	70	32	33	2.7	256
JUN 12...	1200	94	106	7.8	15.7	8.2	734	--	--	--	--	111
AUG 11...	1310	.98	773	8.1	21.3	9.0	746	77	35	25	2.5	331

DATE	ALKA-LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CHLO-RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	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)	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)
NOV 1997 19...	283	61	45	.10	12	454	2.46	<.010	<.020	.36	.22	<.010
FEB 1998 20...	210	72	53	<.10	10	437	.835	<.010	.024	.49	.31	.035
JUN 12...	91	--	--	--	--	--	.611	.016	.090	1.2	.81	.263
AUG 11...	279	57	48	.12	14	469	1.63	<.010	.049	.44	.38	.045

DATE	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- PENDE TOTAL (MG/L AS C) (00689)	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)
NOV 1997 19...	<.010	.012	51	10	--	--	--	--	--	--	--	--
FEB 1998 20...	.024	.031	36	33	--	--	--	--	--	--	--	--
JUN 12...	.092	.051	--	--	12	>4.2	.132	E.002	<.0020	.798	<.0020	.0195
AUG 11...	.042	.050	<10	16	--	--	--	--	--	--	--	--

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04072233 LANCASTER BROOK AT SHAWANO AVENUE AT HOWARD,WI (LAT 44 33 29N LONG 088 06 10W)--CONTINUED

DATE	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)	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)
JUN 1998 12...	E.0077	<.0030	<.0040	.229	<.0020	E.0234	<.002	101	<.001	<.0170	.0060	<.0040
DATE	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)	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)
JUN 1998 12...	<.0030	<.0030	94.6	<.004	<.0020	<.005	<.0010	<.0060	1.21	.040	<.0040	<.0030
DATE	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)	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)	
JUN 1998 12...	<.004	<.0040	.0238	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130	<.0070	
DATE	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)	2,6-DI-ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	
NOV 1997 19...	--	--	--	--	--	--	--	--	--	81	57	
FEB 1998 20...	--	--	--	--	--	--	--	--	--	19	90	
JUN 1998 12...	.0769	<.0070	<.0100	<.0130	96.9	<.0020	<.0010	<.0020	<.0030	294	92	
AUG 1998 11...	--	--	--	--	--	--	--	--	--	25	78	

E Estimated

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

			DIS- CHARGE, IN CUBIC FEET PER SECOND (00060)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
DATE	TIME			
04073002 LITTLE GREEN LAKE OUTLET NEAR MARKESAN, WI (LAT 43 44 04N LONG 088 58 22W)				
OCT 1997				
01...	1810		.17	.197
NOV				
25...	1400		<.01	.170
DEC				
18...	0925		.02	.040
JAN 1998				
06...	0920		.08	.020
16...	1420		.11	.057
FEB				
19...	1450		.50	.023
25...	1350		.77	.036
MAR				
23...	1400		2.4	.033
APR				
01...	1616		2.8	.049
07...	1135		1.7	.049
MAY				
13...	1014		1.4	.041
JUL				
21...	1505		.20	1.24
04073457 WURCHES CREEK AT CT HWY B NEAR GREEN LAKE, WI (LAT 43 44 55N LONG 089 03 15W)				
JUN 1997				
11...	1536		1.0	.020
MAY 1998				
13...	1104		1.5	.173
04073458 ROY CREEK AT ROY CREEK ROAD NEAR GREEN LAKE, WI (LAT 43 45 57N LONG 089 01 14W)				
JUN 1997				
11...	1457		.68	.126
MAY 1998				
13...	1132		3.2	.147
04073460 SPRING CREEK AT HESS ROAD NEAR GREEN LAKE, WI (LAT 43 46 47N LONG 089 01 03W)				
JUN 1997				
11...	1425		1.3	.008
MAY 1998				
13...	1200		1.6	.033

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

040734605 GREEN LAKE SW INLET AT CTH K NEAR GREEN LAKE, WI (LAT 43 46 37N LONG 089 03 23W)

DATE	TIME	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
OCT 1997		
01...	1750	.128
FEB 1998		
25...	1305	.056
APR		
01...	1535	.148
MAY		
13...	1045	.098

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
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040734615 HILL CREEK AT MOUTH NEAR GREEN LAKE, WI (LAT 43 48 53N LONG 088 56 51W)

JUN 1997			
11...	1300	1.0	.263
MAY 1998			
13...	1230	6.4	.166

04073470 PUCHYAN RIVER AT GREEN LAKE, WI (LAT 43 50 48N LONG 088 57 36W)

OCT 1997			
01...	1706	21	.014
NOV			
19...	1206	12	.018
DEC			
18...	1110	14	.015
JAN 1998			
06...	0925	18	.009
FEB			
03...	1045	27	.019
25...	1125	46	.025
MAR			
23...	1200	119	.020
APR			
01...	1347	379	.026
10...	1127	307	.023
22...	1305	170	.024
MAY			
13...	1525	108	.069
JUN			
26...	1135	85	.059
JUL			
09...	1414	73	.051
21...	1140	72	.050
AUG			
12...	1205	28	.042
SEP			
02...	1340	22	.033

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04085064 NORTH BRANCH ASHWAUBENON CREEK NEAR FREEDOM, WI (LAT 44 23 57N LONG 088 11 28W)

		DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	BAROMETRIC PRES-SURE (MM OF HG) (00025)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNESIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	POTASSIUM, DIS-SOLVED (MG/L AS K) (00935)	BICARBONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	
NOV 1997	18...	1100	.00	990	7.2	1.7	2.1	748	98	44	46	22	465
FEB 1998	20...	1100	11	542	7.1	.3	9.1	737	50	22	12	17	115
JUN 12...	0920	.77	1220	7.3	15.9	7.3	734	--	--	--	--	--	83
AUG 12...	0900	.00	1030	7.6	17.0	2.5	749	80	37	27	58	389	
DATE	ALKALINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CHLORIDE, DIS-SOLVED (MG/L AS CL) (00940)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	FLUORIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	PHOSPHORUS TOTAL (MG/L AS P) (00665)	
NOV 1997	18...	381	76	56	.77	15	652	.331	<.010	1.13	3.0	2.4	3.92
FEB 1998	20...	94	55	40	.12	5.7	392	14.0	.224	1.38	3.8	3.6	.583
JUN 12...	68	--	--	--	--	--	74.1	.701	1.14	4.5	4.0	4.0	.727
AUG 12...	323	70	67	.46	12	646	.064	.035	2.43	7.7	6.1	3.00	
DATE	PHOSPHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOSPHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	MANGANESE, DIS-SOLVED (UG/L AS MN) (01056)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	ACETOCHLOR, WATER FLTRD REC (UG/L) (49260)	ALACHLOR, WATER, DISS, REC (UG/L) (46342)	ALPHA BHC DIS-SOLVED (UG/L) (34253)	ATRAZINE, WATER, DISS, REC (UG/L) (39632)	BENFLURALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)	BUTYLATE, WATER, DISS, REC (UG/L) (04028)	
NOV 1997	18...	2.69	2.87	260	1440	--	--	--	--	--	--	--	
FEB 1998	20...	.534	.435	47	34	--	--	--	--	--	--	--	
JUN 12...	.629	.480	--	--	23	2.9	.0420	.011	<.0020	E35.8	<.0020	<.0020	
AUG 12...	2.16	2.10	240	226	--	--	--	--	--	--	--	--	
DATE	CARBARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBOFURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLORPYRIFOS DIS-SOLVED (UG/L) (38933)	CYANAZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRAZINE, WATER, DISS, REC (UG/L) (04040)	DI-AZINON, DIS-SOLVED (UG/L) (39572)	DIAZINON D10 SRG WAT FLT 0.7 U GF, REC (UG/L) (91063)	DI-ELDRIN DIS-SOLVED (UG/L) (39381)	DISULFOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHALFLURALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	
JUN 1998	12...	<.0030	<.0030	<.0040	.0246	<.0020	E.228	.024	96.4	<.001	<.0170	.0048	<.0040
DATE	ETHOPROP 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)	LINURON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALATHION, DIS-SOLVED (UG/L) (39532)	METHYL AZINPHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARATHION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METO-LACHLOR WATER DISSOLV (UG/L) (39415)	METRIBUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOLINATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROPRAMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	
JUN 1998	12...	<.0030	<.0030	94.3	.041	<.0020	<.005	<.0010	<.0060	E53.2	<.004	<.0040	<.0030

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04085064 NORTH BRANCH ASHWAUBENON CREEK NEAR FREEDOM, WI (LAT 44 23 57N LONG 088 11 28W)--CONTINUED

DATE	PARA- THION, DIS- SOLVED (UG/L) (39542)	PEB- ULATE WATER FILTRD 0.7 U (UG/L) (82669)	PENDI- METH- ALIN WAT FLT 0.7 U (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U (UG/L) (82664)	P, P' DDE (UG/L) (34653)	PRON- AMIDE WATER FLTRD 0.7 U (UG/L) (82676)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRO- PANIL WATER FLTRD 0.7 U (UG/L) (82679)	PRO- FARGITE WATER FLTRD 0.7 U (UG/L) (82685)	PROP- CHLOR, WATER, DISS, REC (UG/L) (04024)
JUN 1998 12...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130	<.0070
DATE	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TER- BACIL WATER FLTRD 0.7 U (UG/L) (82665)	TEBU- THIURON WATER FLTRD 0.7 U (UG/L) (82670)	TER- BUFOS WATER FLTRD 0.7 U (UG/L) (82675)	TERBUTH YLAZINE SURROGT WAT FLT 0.7 U (UG/L) (91064)	THIO- BENCARB WATER FLTRD 0.7 U (UG/L) (82681)	TRIAL- LATE WATER FLTRD 0.7 U (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U (UG/L) (82661)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U (UG/L) (82660)	SEDI- MENT, SUS- PENDEED (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN (70331)
NOV 1997 18...	--	--	--	--	--	--	--	--	--	--	--
FEB 1998 20...	--	--	--	--	--	--	--	--	--	15	90
JUN 12...	<.0050	<.0070	<.0100	<.0130	97.2	<.0020	<.0010	<.0020	<.0030	44	80
AUG 12...	--	--	--	--	--	--	--	--	--	--	--

04085074 DUTCHMAN CREEK AT CYRUS LANE NEAR ASHWAUBENON, WI (LAT 44 27 59N LONG 088 08 35W)

		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)	BICAR- BONATE WATER DIS IT FIELD HCO3 (00453)
NOV 1997 18...	1205	.03	1270	7.6	3.0	8.8	740	130	66	24	22	369
FEB 1998 20...	1100	31	710	7.7	.2	9.9	740	66	26	22	15	172
JUN 12...	1010	3.7	684	7.5	17.0	7.3	734	--	--	--	--	71
AUG 12...	1400	.00	922	8.7	22.3	8.7	748	92	49	24	15	185
DATE	ALKA- LITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	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)	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)
NOV 1997 18...	302	52	320	.59	3.5	886	.055	<.010	.071	1.1	.74	.414
FEB 1998 20...	141	79	63	.12	6.5	453	6.88	.129	.613	2.5	2.1	.456
JUN 12...	58	--	--	--	--	--	20.0	.199	.320	1.9	1.4	.254
AUG 12...	182	48	230	.49	.76	629	<.050	<.010	.086	1.2	.75	.499
DATE	PHOS- PHORUS ORTHODIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS ORTHODIS- 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- PENDE TOTAL (MG/L AS C) (00689)	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)
NOV 1997 18...	.232	.245	27	284	8.0	5.2	<.0020	<.020	<.0020	.026	<.0020	<.0020
FEB 1998 20...	.399	.330	65	36	12	1.0	<.0020	<.002	<.0020	.031	<.0020	<.0020
JUN 12...	.206	.195	--	--	10	1.2	12.6	.385	<.0020	21.0	<.0020	<.0020
AUG 12...	.382	.359	<10	7.4	--	--	--	--	--	--	--	--

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04085074 DUTCHMAN CREEK AT CYRUS LANE NEAR ASHWAUBENON, WI (LAT 44 27 59N LONG 088 08 35W)--CONTINUED

DATE	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)	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)
	NOV 1997											
	18...	<.0030	<.0030	<.0040	<.0040	<.0020	E.0055	<.002	120	<.001	<.0170	<.0020
FEB 1998												
20...	<.0030	<.0030	<.0040	<.0040	<.0020	E.0315	<.002	104	<.001	<.0170	<.0020	<.0040
JUN												
12...	E.0219	<.0030	<.0040	1.01	<.0020	E.786	<.002	96.3	<.001	<.0170	.0070	<.0040
AUG												
12...	--	--	--	--	--	--	--	--	--	--	--	--
DATE	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 (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)	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)
	NOV 1997											
	18...	<.0030	<.0030	100	<.004	<.0020	<.005	<.0010	<.0060	.014	<.004	<.0040
FEB 1998												
20...	<.0030	<.0030	113	<.004	<.0020	<.005	<.0010	<.0060	.064	<.004	<.0040	<.0030
JUN												
12...	<.0030	<.0030	91.8	<.004	<.0020	<.005	<.0010	<.0060	E28.5	1.76	<.0040	<.0030
AUG												
12...	--	--	--	--	--	--	--	--	--	--	--	--
DATE	PARA-THION, DIS-SOLVED (UG/L) (39542)	PEB-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)	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)	
	NOV 1997											
	18...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130	<.0070
FEB 1998												
20...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130	<.0070	
JUN												
12...	<.004	<.0040	.0383	<.0050	<.0020	<.0060	<.0030	<.0180	<.0040	<.0130	<.0070	
AUG												
12...	--	--	--	--	--	--	--	--	--	--	--	
DATE	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 (UG/L) (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)	2,6-DI-ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	SEDI-MENT, SUS-PENDEED (MG/L) (80154)	SED.SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	
	NOV 1997											
	18...	<.0050	<.0070	<.0100	<.0130	112	<.0020	<.0010	<.0020	<.0030	102	95
FEB 1998												
20...	<.0050	<.0070	<.0100	<.0130	110	<.0020	<.0010	<.0020	<.0030	17	99	
JUN												
12...	.0270	<.0070	<.0100	<.0130	94.4	<.0020	<.0010	<.0020	<.0030	110	92	
AUG												
12...	--	--	--	--	--	--	--	--	--	--	--	

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04085076 DUTCHMAN CREEK TRIBUTARY NEAR DE PERE, WI (LAT 44 28 53N LONG 088 07 29W)

		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)	BICAR- BONATE WATER DIS IT FIELD HCO3 (00453)	
NOV 1997	20...	0730	.06	950	7.6	.4	6.8	750	100	44	30	2.8	449
FEB 1998	20...	0900	8.5	622	7.6	.7	11.2	740	53	21	37	4.7	173
JUN 12...	1415	3.4	612	7.7	20.2	6.8	734	--	--	--	--	--	166
AUG 12...	1425	.19	823	7.8	20.6	2.6	748	96	38	20	3.5	465	
DATE	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	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)	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)	
NOV 1997	20...	368	62	41	.41	15	539	.434	.010	.022	.51	.40	.014
FEB 1998	20...	142	74	48	<.10	7.9	371	1.01	<.010	.021	.96	.74	.076
JUN 12...	136	--	--	--	--	--	1.25	.023	.066	1.3	.74	.113	
AUG 12...	386	30	29	.42	15	479	.178	.027	.135	.38	.35	.011	
DATE	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- PENDEED TOTAL (MG/L AS C) (00689)	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)	
NOV 1997	20...	<.010	.015	110	70	--	--	--	--	--	--	--	--
FEB 1998	20...	.084	.072	100	28	--	--	--	--	--	--	--	--
JUN 12...	.074	.052	--	--	11	1.1	.0274	.006	<.0020	.183	<.0020	<.0020	
AUG 12...	<.010	.017	96	119	--	--	--	--	--	--	--	--	--
DATE	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 (UG/L) (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)	
JUN 1998	12...	<.0030	<.0030	<.0040	.773	<.0020	E.0274	<.002	105	<.001	<.0170	.0058	<.0040
DATE	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)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN WATER FLTRD 0.7 U GF, REC (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)	
JUN 1998	12...	<.0030	<.0030	97.1	<.004	<.0020	<.005	<.0010	<.0060	.742	<.004	<.0040	<.0030

E Estimated

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04085076 DUTCHMAN CREEK TRIBUTARY NEAR DE PERE, WI (LAT 44 28 53N LONG 088 07 29W)--CONTINUED

DATE	PARA- THION, DIS- SOLVED (UG/L) (39542)	PEB- 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)	PRO- METON, WATER, FLTRD 0.7 U 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)
JUN 1998 12...	<.004	<.0040	<.0100	<.0050	<.0020	<.0060	<.0030	.0194	<.0040	<.0130	<.0070
DATE	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TEBU- THIURON 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 (UG/L) (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)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	SED- SUSP. SIEVE DIAM. % FINER THAN (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN (MG/L) (70331)
NOV 1997 20...	--	--	--	--	--	--	--	--	--	102	72
FEB 1998 20...	--	--	--	--	--	--	--	--	--	6	63
JUN 12...	.176	<.0070	<.0100	<.0130	97.1	<.0020	<.0010	<.0020	<.0030	145	90
AUG 12...	--	--	--	--	--	--	--	--	--	40	80

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 (000060)	DIS- CHARGE, INST. CUBIC FEET PER SECOND (000061)	PH WATER LAB (STAND- ARD UNITS) (00403)	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (003110)	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 1997									
01...	1116	--	1.6	8.4	1.4	360	10	<.010	.105
08...	0904	--	1.6	8.5	1.5	590	13	.017	.156
16...	1424	--	1.6	8.4	1.5	150	7	<.013	.097
24...	1356	--	1.6	8.4	1.7	210	5	<.013	.069
29...	1540	--	1.7	8.6	1.2	150	11	.023	.065
NOV									
13...	0645	--	1.9	8.4	1.2	50	13	.019	.053
DEC									
18...	1222	--	3.2	8.6	<6.0	30	<5	<.013	.036
JAN 1998									
28...	1156	--	4.9	8.1	.2	50	6	.096	.118
FEB									
26...	1356	--	21	8.3	1.4	10	7	.081	.134
MAR									
12...	1345	25	--	8.1	.8	40	9	.036	.088
26...	1122	--	32	--	1.0	180	8	.030	.131
APR									
09...	1146	--	75	8.0	1.2	1400	24	.096	.351
16...	1222	200	--	7.9	2.4	9000	104	.119	.668
23...	1008	--	11	8.6	1.3	20	9	.030	.106
30...	0958	--	6.8	8.5	2.1	130	6	<.013	.070
MAY									
07...	1002	--	8.4	8.4	2.2	70	6	.029	.119
14...	1116	--	5.6	8.7	1.7	90	9	<.013	.115
20...	1052	--	3.2	8.5	2.4	100	8	.064	.149
28...	1152	--	3.2	8.4	2.7	260	11	.100	.133
JUN									
03...	1156	--	3.6	8.5	1.9	60	10	.080	.120
11...	1030	--	2.9	8.3	1.6	200	15	.068	.118
18...	1102	--	3.4	8.4	1.5	1600	10	.038	.140
25...	1234	--	3.6	8.5	1.8	430	11	.045	.190
JUL									
01...	1118	--	5.5	8.4	1.4	450	12	.040	.177
09...	1610	--	3.8	8.6	1.1	900	17	.013	.158
16...	1119	--	2.6	8.5	1.4	240	12	.036	.205
23...	1144	--	2.3	8.4	1.1	260	11	.042	.247
30...	1022	--	2.1	8.4	1.1	270	9	.036	.184
AUG									
07...	1204	--	450	7.6	2.0	39000	26	.019	.471
13...	1147	--	8.4	8.2	2.2	280	13	.066	.384
19...	1152	--	4.1	8.4	1.8	300	9	.021	.204
27...	1146	--	3.1	8.4	1.9	650	11	.019	.191
SEP									
03...	1056	--	4.5	8.4	1.1	1900	12	.033	.154
09...	1116	--	2.7	8.4	<.3	600	8	.047	.125
17...	1404	--	3.9	8.3	1.7	760	11	.064	.182
24...	1006	--	2.9	8.3	2.0	660	10	.040	.107

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

STREAMS TRIBUTARY TO LAKE MICHIGAN--CONTINUED

04087240 ROOT RIVER AT RACINE, WI (LAT 42 45 05N LONG 087 49 25W)

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)	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 DIS. (MG/L AS N) (00623)	
JUN 1998 01...	1100	91	747	7.8	19.0	8.4	747	2.27	.075	.096	.81	
AUG 03...	1015	5.1	753	8.0	23.5	7.1	753	.109	.013	.121	.65	
DATE		PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	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 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)
JUN 1998 01...	.051	.015	.193	.040	<.0020	.351	<.0020	<.0020	E.0655	E.0122	<.0080	
AUG 03...	.124	.117	<.0020	<.002	<.0020	.106	<.0020	<.0020	<.0030	<.0030	<.0040	
DATE		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, WATER, FLTRD 0.7 U GF, REC (UG/L) (39572)	DIAZ-INON, D10 SRG WAT FLT 0.7 U 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)	FONOFOS, WATER, DISS, REC (UG/L) (04095)
JUN 1998 01...	.167	E.0018	E.109	.016	111	<.001	<.0170	.0083	<.0040	<.0030	<.0030	
AUG 03...	.0213	<.0020	E.0152	.010	96.2	<.001	<.0170	.0200	<.0040	<.0030	<.0030	
DATE		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-THION, 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, SENCOR, WATER, FLTRD 0.7 U GF, REC (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)	
JUN 1998 01...	107	<.004	<.0020	<.005	<.0010	<.0060	.181	<.004	<.0040	<.0030		
AUG 03...	102	<.004	<.0020	<.005	<.0010	<.0060	.017	<.004	<.0040	<.0030		
DATE		PARA-THION, DIS-SOLVED (UG/L) (39542)	PEB-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)	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)	
JUN 1998 01...	<.004	<.0040	.0118	<.0050	<.0020	<.0060	<.0030	.0198	<.0040	<.0130		
AUG 03...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	.0314	<.0040	<.0130		
DATE		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 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)	2,6-DI-ETHYL ANILINE, WAT FLT 0.7 U GF, REC (UG/L) (82660)	
JUN 1998 01...	<.0070	.0095	<.0070	.0138	<.0130	122	<.0020	<.0010	.0047	<.0030		
AUG 03...	<.0070	<.0050	<.0070	.0188	<.0130	113	<.0020	<.0010	<.0020	<.0030		

E Estimated

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

ST. CROIX RIVER BASIN

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)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L AS N) (00613)
05335031 YELLOW RIVER AT DANBURY, WI (LAT 46 00 44N LONG 092 21 25W)								
FEB 1998								
24...	0830	380	190	7.8	3.0	12.5	.363	<.010
MAR								
31...	0750	512	155	7.9	4.5	13.9	.241	<.010
JUL								
14...	1625	293	24	8.6	29.2	6.8	.124	.028
SEP								
22...	1550	180	172	7.8	18.9	8.2	.175	<.010
05335500 CLAM RIVER NEAR WEBSTER, WI (LAT 45 52 52N LONG 092 29 16W)								
FEB 1998								
23...	1600	278	217	7.8	3.4	13.2	.394	.012
MAR								
31...	1020	530	152	8.0	5.0	13.3	.071	<.010
JUL								
14...	1440	189	214	8.3	28.8	6.6	.138	.021
SEP								
24...	1630	169	214	8.0	15.4	9.1	.124	<.010
05338955 NORTH FORK WOOD RIVER NEAR GRANTSBURG, WI (LAT 45 47 03N LONG 092 37 23W)								
FEB 1998								
23...	1420	91	210	7.7	3.0	12.9	.317	.013
MAR								
31...	1240	290	129	7.4	3.2	11.8	.081	<.010
JUL								
14...	1215	54	240	7.8	27.4	7.7	.170	.021
SEP								
24...	1450	33	250	7.6	15.1	9.5	.252	<.010
05340370 TRADE RIVER NEAR TRADE RIVER, WI (LAT 45 35 58N LONG 092 46 02W)								
FEB 1998								
23...	1110	120	212	7.9	5.0	12.6	.424	.015
MAR								
31...	1600	219	145	7.8	4.0	13.3	.360	<.010
JUL								
22...	1640	73	202	7.9	21.8	8.4	.105	<.010
SEP								
24...	1130	48	216	8.0	12.2	10.2	.103	<.010
05341500 APPLE RIVER NEAR SOMERSET, WI (LAT 45 09 27N LONG 092 42 59W)								
FEB 1998								
19...	0830	453	291	8.3	3.6	14.2	1.29	<.010
APR								
01...	0830	1430	173	7.6	4.9	13.1	.483	<.010
JUN								
26...	1235	601	239	7.8	22.7	7.6	.439	.018
JUL								
28...	0930	259	280	8.0	22.8	7.8	.804	.013
05341750 WILLOW RIVER NEAR BURKHARDT, WI (LAT 45 01 01N LONG 092 42 23W)								
FEB 1998								
18...	1600	294	409	8.1	3.6	14.4	4.36	.015
APR								
01...	1050	777	171	7.6	6.0	12.8	1.21	.028
JUN								
26...	1430	266	343	8.6	23.1	8.9	1.59	.053
JUL								
28...	1130	130	360	8.1	21.6	8.5	1.58	.046
05342000 KINNICKINNIC RIVER NEAR RIVER FALLS, WI (LAT 44 49 50N LONG 092 44 00W)								
FEB 1998								
18...	1320	310	335	7.9	3.1	14.3	3.31	.051
APR								
01...	1300	640	228	7.8	5.8	12.8	1.70	.016
JUN								
25...	1630	301	316	7.8	20.6	7.9	2.61	.043
JUL								
28...	1340	114	471	8.1	20.6	11.4	4.85	.021

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

ST. CROIX RIVER BASIN--CONTINUED

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- TOTAL (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)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
05335031 YELLOW RIVER AT DANBURY, WI (LAT 46 00 44N LONG 092 21 25W)								
FEB 1998								
24...	<.020	.30	.20	<.010	<.010	.022	2	68
MAR								
31...	.034	.34	.19	.036	.013	.014	3	63
JUL								
14...	.112	.86	.62	<.010	.017	.016	5	81
SEP								
22...	.057	.63	.53	.045	.024	.026	4	80
05335500 CLAM RIVER NEAR WEBSTER, WI (LAT 45 52 52N LONG 092 29 16W)								
FEB 1998								
23...	.155	.60	.47	.037	<.010	.028	13	44
MAR								
31...	.033	.37	.21	.038	.011	.016	100	22
JUL								
14...	.082	.89	.71	<.010	.010	.027	7	70
SEP								
24...	.035	.63	.37	.034	.010	<.010	14	34
05338955 NORTH FORK WOOD RIVER NEAR GRANTSBURG, WI (LAT 45 47 03N LONG 092 37 23W)								
FEB 1998								
23...	.146	.94	.78	.071	.025	.035	35	56
MAR								
31...	.052	.81	.69	.069	.046	.028	25	21
JUL								
14...	.043	.85	.65	.073	.010	.025	17	80
SEP								
24...	.020	.55	.41	E.025	<.010	.010	5	61
05340370 TRADE RIVER NEAR TRADE RIVER, WI (LAT 45 35 58N LONG 092 46 02W)								
FEB 1998								
23...	.139	.76	.58	.049	<.010	.030	18	69
MAR								
31...	.160	.84	.57	.093	.029	.031	40	66
JUL								
22...	.036	.56	.44	.025	.012	.014	5	92
SEP								
24...	.033	.44	.50	.019	<.010	.010	3	83
05341500 APPLE RIVER NEAR SOMERSET, WI (LAT 45 09 27N LONG 092 42 59W)								
FEB 1998								
19...	.122	.38	.33	.038	.029	.032	2	92
APR								
01...	.056	.46	.48	.056	.057	.038	13	79
JUN								
26...	.022	.58	.41	.050	.031	<.010	5	81
JUL								
28...	.042	.51	.30	.030	<.010	.017	2	90
05341750 WILLOW RIVER NEAR BURKHARDT, WI (LAT 45 01 01N LONG 092 42 23W)								
FEB 1998								
18...	.231	.61	.36	.134	.034	.036	26	100
APR								
01...	.298	1.1	1.2	.097	.106	.072	414	25
JUN								
26...	.043	.93	.52	.024	<.010	<.010	11	84
JUL								
28...	.078	.70	.31	.060	<.010	.011	3	76
05342000 KINNICKINNIC RIVER NEAR RIVER FALLS, WI (LAT 44 49 50N LONG 092 44 00W)								
FEB 1998								
18...	2.27	5.5	5.3	1.32	1.03	.928	252	44
APR								
01...	.114	1.4	.74	.381	.202	.158	424	32
JUN								
25...	.028	1.7	.71	.144	.125	.064	318	57
JUL								
28...	.027	.35	.20	.046	.054	.041	16	60

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

CHIPPEWA RIVER BASIN

454657091300600 BIG SISSABAGAMA TRIBUTARY NEAR STONE LAKE, WI (LAT 45 46 57N LONG 091 30 06W)

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)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)
MAR 1998						
02...	1545	--	--	--	--	.170
APR						
14...	1225	66	7.4	9.9	11.1	.057
JUN						
09...	1140	66	7.8	16.0	11.2	.038
JUL						
07...	1040	66	7.7	22.5	8.3	.022
AUG						
10...	1315	72	7.6	25.3	8.3	.046

TREMPEALEAU RIVER BASIN

05379500 TREMPEALEAU RIVER AT DODGE (LAT 44 07 55N LONG 091 33 14 W)

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	ACETO- CHLOR, WATER, UNFLTRD REC (UG/L) (49259)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	ALA- CHLOR (ELISA) WAT FLT 0.7 U GF, REC (UG/L) (82695)	ATRA- ZINE WATER UNFLTRD REC (UG/L) (39630)	CYAN- AZINE TOTAL (UG/L) (81757)
OCT 1997								
14...	1135	814	1.52	<.10	<.150	2.9	<.150	<.500
23...	1745	412	1.80	<.10	.162	1.1	<.150	<.500
NOV								
17...	1445	393	1.52	<.10	<.150	<1.0	<.150	<.500
APR 1998								
15...	0956	566	1.50	<.10	<.150	<1.0	<.150	<.500
28...	1044	477	1.44	<.10	<.150	<1.0	<.150	<.500
MAY								
04...	1148	589	1.10	<.10	<.150	<1.0	<.150	<.500
12...	1002	490	1.61	<.10	<.150	1.0	<.150	<.500
19...	1006	417	1.66	<.10	<.150	<1.0	<.150	<.500
27...	1120	383	1.81	<.10	<.150	1.2	<.150	<.500
JUN								
01...	1036	494	1.65	.34	<.150	2.0	1.24	1.04
08...	1320	346	1.94	<.10	<.150	1.2	<.150	<.500
12...	1144	552	1.60	<.10	<.150	1.1	.666	<.500
16...	1045	403	1.25	<.10	<.150	1.2	<.150	<.500
19...	1345	730	1.43	<.10	.308	<1.0	.892	<.500
23...	1100	380	1.60	<.10	<.150	<1.0	<.150	<.500
25...	1150	1090	1.64	<.10	.556	3.2	2.24	.619
28...	1415	4630	.601	<.10	<.150	<1.0	.792	.570
29...	1622	7330	.570	<.10	<.150	1.8	.951	.931
JUL								
07...	1130	836	1.60	<.10	<.150	<1.0	<.150	<.500
13...	1152	567	7.31	<.10	<.150	7.5	.186	<.500

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

TREMPEALEAU RIVER BASIN--CONTINUED

05379500 TREMPEALEAU RIVER AT DODGE (LAT 44 07 55N LONG 091 33 14 W)--CONTINUED

DATE	DEETHYL ATRA- ZINE, WATER, WHOLE, TOTAL (UG/L) (75981)	DEETHYL DE-ISO PROPYL ATRAZIN WAT, WH TOTAL (UG/L) (75979)	DE-ISO PROPYL ATRAZIN WATER, WHOLE, TOTAL (UG/L) (75980)	DICAMBA TOTAL (UG/L) (82052)	MCP WATER RECOVER (UG/L) (30193)	METOLA- CHLOR WATER WHOLE TOT. REC (UG/L) (82612)	METRI- BUZIN WATER WHOLE TOT. REC (UG/L) (82611)	2,4-D, TOTAL (UG/L) (39730)
OCT 1997								
14...	<.300	<1	<.300	--	--	<.250	<.050	--
23...	<.300	<1	<.300	--	--	<.250	<.050	--
NOV								
17...	<.300	<1	<.300	--	--	<.250	<.050	--
APR 1998								
15...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
28...	<.300	<1	<.300	--	--	<.250	<.050	--
MAY								
04...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
12...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
19...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
27...	<.300	<1	<.300	<.200	<1.0	<.250	<.050	<1.00
JUN								
01...	<.300	<1	<.300	.306	<1.0	.462	<.050	<1.00
08...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
12...	<.300	<1	<.300	.093	<.20	.267	<.050	<.200
16...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
19...	.352	<1	<.300	<.050	<.20	1.24	<.050	<.200
23...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
25...	.757	<1	.434	.059	<.20	2.54	<.050	<.200
28...	.547	<1	.340	<.050	<.20	.878	<.050	<.200
29...	.526	<1	.367	<.050	<.20	.694	<.050	<.200
JUL								
07...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
13...	.352	<1	<.300	<.050	<.20	<.250	<.050	<.200

WISCONSIN RIVER BASIN

05406460 BLACK EARTH CREEK AT CROSS PLAINS, WI (LAT 43 06 38N LONG 089 38 44W)

DATE	TIME	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	CHLO- RIDE, DIS- SOLVED (MG/L) AS CL) (00940)	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- PHORUS TOTAL (MG/L) AS P) (00665)	PHOS- PHORUS ORTHOS- PHORUS TOTAL (MG/L) AS P) (00671)	CHLORO- PHYLL A TRICHR. UNCORR. WHOLE TOTAL (UG/L) (32210)
AUG 1998											
04...	0815	1.6	18	12	9	2.15	.020	.38	.064	.028	18.6

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

WISCONSIN RIVER BASIN--CONTINUED

05406500 BLACK EARTH CREEK AT BLACK EARTH, WI (LAT 43 08 03N LONG 089 43 56W)

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, UM-MF (COLS. / 100 ML) (31625)	STREP-TOCOCCI, FECAL, KF AGAR (COLS. PER 100 ML) (31673)	
MAY 1998												
13...	1220	52	598	8.2	14.5	1.8	12.8	743	<10	200	--	
JUL												
15...	1130	52	621	8.1	17.5	1.0	12.2	739	<10	1200	--	
AUG												
21...	0915	40	628	7.8	15.0	2.2	8.8	747	<10	2900	330	
DATE	TIME	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)
MAY 1998												
13...	292	--	--	--	--	--	14	19	<.10	--	--	.060
JUL												
15...	295	--	--	--	--	--	13	20	<.10	--	--	.021
AUG												
21...	297	68	40	11	1.5	13	21	.11	14	370	.024	
DATE	TIME	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. (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 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)
MAY 1998												
13...	2.22	.051	.49	.092	.037	.035	--	--	--	--	--	--
JUL												
15...	2.53	<.020	.21	.061	.058	.055	--	--	--	--	--	--
AUG												
21...	2.81	.040	.14	.100	.094	.099	<1	20	<1	1	<1	
DATE	TIME	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)	
MAY 1998												
13...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
15...	--	--	--	--	--	--	--	--	--	--	--	6
AUG												
21...	2	210	<10	<1	38	20	<.10	<1	<10	16		
DATE	TIME											
AUG 1998												
21...	0630	627	7.8	15.0	7.8							
21...	0700	628	7.8	15.0	7.9							
21...	0730	628	7.8	15.0	8.1							
21...	0800	628	7.8	15.0	8.2							
21...	0830	628	7.8	15.0	8.4							
21...	0900	628	7.8	15.0	8.8							
21...	0915	628	7.8	15.0	8.8							
21...	0930	627	7.8	15.0	9.2							
21...	1000	627	7.9	15.0	9.8							

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, OCTOBER TO DECEMBER 1998

WISCONSIN RIVER BASIN--CONTINUED

05406500 BLACK EARTH CREEK AT BLACK EARTH, WI (LAT 43 08 03N LONG 089 43 56W)--CONTINUED

		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 1998	16...	1000	43	622	8.0	11.5	3.0	10.0	747	<10	510	297
NOV	16...	1100	44	618	8.0	8.0	2.4	11.6	741	<10	360	293
DEC	09...	1220	37	615	8.1	6.0	1.6	14.0	758	<10	330	296
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, 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)	SEDI-MENT, SUS-PENDED (MG/L) (80154)
OCT 1998	16...	14	21	.13	.010	2.65	<.020	.16	.083	.061	.071	45
NOV	16...	13	20	<.10	.012	2.97	.047	.24	.087	.060	.061	19
DEC	09...	14	19	<.10	<.010	2.85	.025	<.10	.091	.057	.068	18

MISCELLANEOUS WATER-QUALITY DATA, OCTOBER 1997 TO SEPTEMBER 1998

05407000 WISCONSIN RIVER AT MUSCODA, WI (LAT 43 11 53N LONG 090 26 36W)

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)	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 DIS. (MG/L AS N) (00623)	
JUN 1998												
16...	1030	12800	237	8.4	20.5	9.7	737	.175	.010	.051	.37	
AUG 07...	0845	7780	298	7.6	21.5	6.9	747	.561	.015	.055	.59	
DATE		PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS ACETO-CHLOR, WATER, FLTRD REC (UG/L) (00671) (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, REC (UG/L) (82673)	BUTYL-ATE, WATER, DISS, REC (UG/L) (04028)	CAR-BARYL, WATER, FLTRD 0.7 U, REC (UG/L) (82680)	CARBO-FURAN, WATER, FLTRD 0.7 U, REC (UG/L) (82674)	CHLOR-PYRIFOS, DIS-SOLVED (UG/L) (38933)	
JUN 1998												
16...	.037	<.010	.0479	.027	<.0020	.264	<.0020	<.0020	<.0030	<.0030	<.0040	
AUG 07...	.030	.051	E.0084	.009	<.0020	.134	<.0020	<.0020	<.0030	<.0030	<.0040	
DATE		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, WAT FLT 0.7 U, SOLVED (UG/L) (39572)	D10 SRG, WAT FLT 0.7 U, PERCENT (UG/L) (91063)	DI-ELDRIN, DIS-SOLVED (UG/L) (39381)	DISUL-FOTON, WATER, FLTRD 0.7 U, 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)
JUN 1998												
16...	.0671	<.0020	E.0381	.006	109	<.001	<.0170	.0047	<.0040	<.0030	<.0030	
AUG 07...	.0166	<.0020	E.0364	<.002	101	<.001	<.0170	<.0020	<.0040	<.0030	<.0030	

E Estimated

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

WISCONSIN RIVER BASIN--CONTINUED

05407000 WISCONSIN RIVER AT MUSCODA, WI (LAT 43 11 53N LONG 090 26 36W) --CONTINUED

DATE	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 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)
JUN 1998 16...	93.0	<.004	<.0020	<.005	<.0010	<.0060	.171	<.004	<.0040	<.0030
AUG 07...	99.6	<.004	<.0020	<.005	<.0010	<.0060	.032	<.004	<.0040	<.0030
DATE	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)	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)
JUN 1998 16...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0061	<.0040	<.0130
AUG 07...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0082	<.0040	<.0130
DATE	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 (UG/L) (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)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)
JUN 1998 16...	<.0070	.0154	<.0070	<.0100	<.0130	115	<.0020	<.0010	<.0020	<.0030
AUG 07...	<.0070	.0104	<.0070	<.0100	<.0130	124	<.0020	<.0010	<.0020	<.0030

GRANT RIVER BASIN

05413449 RATTLESNAKE CREEK NEAR NORTH ANDOVER, WI (LAT 42 46 49N LONG 090 56 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)	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)
NOV 1997 14...	0950	16	--	--	--	--	--	80	44
APR 1998 15...	1220	32	--	--	--	--	--	81	44
JUN 19...	0930	70	604	8.3	16.5	8.0	--	71	38
AUG 21...	1045	29	761	8.0	21.0	8.9	746	87	48
SEP 22...	1045	26	758	8.3	14.4	13.9	--	85	46

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

GRANT RIVER BASIN

05413449 RATTLESNAKE CREEK NEAR NORTH ANDOVER, WI (LAT 42 46 49N LONG 090 56 32W)--CONTINUED

DATE	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	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)
NOV 1997									
14...	7.9	1.5	25	27	.12	12	461	7.72	.082
APR 1998									
15...	9.2	2.2	27	25	.14	6.6	415	7.39	.035
JUN									
19...	7.9	9.7	23	19	.13	15	429	5.37	.134
AUG									
21...	8.9	3.2	25	23	.16	17	455	7.57	.068
SEP									
22...	8.4	2.1	26	25	.20	16	484	8.70	.030
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)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)
NOV 1997									
14...	<.020	.23	.17	.046	.035	.055	<3.0	13	1.4
APR 1998									
15...	<.020	.42	.32	.094	.086	.076	<10	31	2.9
JUN									
19...	.334	2.1	1.6	.644	.534	.462	27	38	7.5
AUG									
21...	.116	.67	.55	.237	.209	.220	<10	51	3.0
SEP									
22...	.028	.44	.31	.126	.111	.119	<10	30	2.2

ROCK RIVER BASIN

05425830 MAUNESHA RIVER NEAR SUN PRAIRIE, WI (LAT 43 13 10N LONG 089 08 05W)

[illegible]

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

ROCK RIVER BASIN--CONTINUED

05425830 MAUNESHA RIVER NEAR SUN PRAIRIE, WI (LAT 43 13 10N LONG 089 08 05W)--CONTINUED

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 1998					
19...	0630	812	7.9	16.5	8.2
19...	0700	812	8.0	16.5	8.1
19...	0730	811	8.0	16.5	8.3
19...	0800	811	8.0	16.5	8.5
19...	0830	810	8.0	16.5	8.8
19...	0900	809	8.0	16.5	9.1
19...	0915	809	8.0	16.5	9.1
19...	0930	807	8.0	17.0	9.4
19...	1000	805	8.0	17.0	9.7

MISCELLANEOUS WATER-QUALITY DATA, NOVEMBER AND DECEMBER 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)	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 LAB (MG/L AS CACO3) (90410)
NOV 1998											
09...	1030	8.8	811	8.0	5.5	2.6	12.5	752	<10	200	328
DEC											
08...	1410	10	785	8.0	4.5	2.3	15.2	751	<10	260	327

DATE	TIME	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)
NOV 1998												
09...	35	43	.13	.022	7.96	.062	.41	.037	.031	.040	21	
DEC												
08...	35	40	.13	.014	7.32	.024	.37	.074	.058	.043	16	

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

05426031 ROCK RIVER AT JEFFERSON, WI (LAT 42 59 46N LONG 088 48 26W)

DATE	TIME	OXYGEN DEMAND, BIO- CHEM- ICAL, 5 DAY (MG/L) (00310)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDEED (MG/L) (00530)	RESIDUE VOLA- TILE, SUS- PENDEED (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 TRICHR. UNCORR. TOTAL (UG/L) (32210)
AUG 1998											
04...	1150	7.7	47	59	33	.017	.104	2.5	.462	.180	169

ROCK RIVER BASIN--CONTINUED

[illegible]

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

ROCK RIVER BASIN--CONTINUED

05427900 SIXMILE CREEK NEAR WAUNAKEE, WI (LAT 43 10 29N LONG 089 25 58W)--CONTINUED

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 1998					
20...	0630	738	7.9	19.0	7.1
20...	0700	738	7.9	19.0	7.1
20...	0731	738	7.9	19.0	7.2
20...	0800	738	7.9	19.0	7.4
20...	0830	738	7.9	19.0	7.6
20...	0930	737	7.9	19.5	7.9
20...	1000	737	7.9	19.5	8.0

MISCELLANEOUS WATER-QUALITY DATA, NOVEMBER AND DECEMBER 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)	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)
NOV 1998											
09...	1320	12	695	8.1	5.0	3.0	12.9	751	<10	100	310
DEC											
08...	1110	14	676	8.1	3.0	4.3	13.8	751	<10	170	305

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- PENDEDED (MG/L) (80154)
NOV 1998											
09...	19	36	.21	.025	3.43	.090	.35	.070	.050	.061	35
DEC											
08...	21	33	<.10	.019	3.18	.077	.40	.110	.059	.068	27

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

ROCK RIVER BASIN--CONTINUED

BEGIN- NING DATE	BEGIN- NING DATE	END TIME	ENDING TIME	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)
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05427959 GAMMON ROAD GUTTER ISCO AT MADISON, WI (LAT 43 03 31N LONG 089 30 10W)

11-01-97	11-01-97	0049	0443	39	.256	.095
05-15-98	05-15-98	2117	2132	384	1.82	.005
05-31-98	05-31-98	0215	0339	112	.313	.003
06-09-98	06-09-98	0234	0351	74	.779	.540
06-09-98	06-09-98	1451	1512	189	.496	.086
06-11-98	06-11-98	0323	0631	71	.200	.025
06-11-98	06-11-98	1153	1413	79	.289	.035
06-20-98	06-21-98	2039	0343	117	.228	.002
06-24-98	06-24-98	0432	0556	60	.110	.047
06-27-98	06-27-98	0409	0451	158	.196	.001
06-29-98	06-29-98	1517	1559	94	.462	.006

054279591 GAMMON ROAD GUTTER FLOW SHEET AT MADISON, WI (LAT 43 03 31 n LONG 089 30 10W)

11-01-97	11-01-97	0050	0444	30	.081	.033
05-15-98	05-15-98	2116	2131	120	.394	.008
05-31-98	05-31-98	0214	0338	74	.124	<.002
06-09-98	06-09-98	0233	0350	144	.331	--
06-09-98	06-09-98	1450	1511	111	.209	.035
06-11-98	06-11-98	0322	0630	17	.052	.084
06-11-98	06-11-98	1152	1412	139	.301	.104
06-20-98	06-21-98	2038	0342	51	.078	.003
06-24-98	06-24-98	0431	0555	25	.052	.019
06-27-98	06-27-98	0408	0450	40	.069	.006
06-29-98	06-29-98	1516	1558	1990	1.57	.005

05427969 RESERVOIR PARK GUTTER FLOW ISCO AT MADISON, WI (LAT 43 03 55N LONG 089 26 25W)

05-15-98	05-15-98	2113	2129	554	.734	.106
05-31-98	05-31-98	0204	0232	242	.475	.095
06-09-98	06-09-98	1444	1657	216	.527	.081
06-11-98	06-11-98	0322	0500	176	.241	.079
06-11-98	06-11-98	1248	1522	236	.414	.092
06-12-98	06-12-98	1727	1748	182	.741	.322
06-18-98	06-18-98	1211	1356	147	.391	.150
06-18-98	06-18-98	1825	2031	51	.244	.121
06-20-98	06-21-98	2030	0421	51	.440	--
06-24-98	06-24-98	0425	0507	156	.384	.143
06-27-98	06-27-98	0352	0434	165	.615	.306

054279691 RESERVOIR PARK GUTTER FLOW SHEET AT MADISON, WI (LAT 43 03 55N LONG 089 26 25W)

05-15-98	05-15-98	2112	2128	494	.456	.001
05-31-98	05-31-98	0203	0231	140	.151	.038
06-09-98	06-09-98	1443	1656	24	.080	.012
06-11-98	06-11-98	0321	0459	24	.055	.019
06-11-98	06-11-98	1247	1521	14	.042	.009
06-12-98	06-12-98	1726	1747	46	.099	.028
06-18-98	06-18-98	1210	1355	101	.153	.027
06-18-98	06-18-98	1824	2030	41	.042	.003
06-20-98	06-21-98	2029	0420	66	.125	--
06-24-98	06-24-98	0424	0506	11	.028	.018
06-27-98	06-27-98	0351	0433	93	.140	.018

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

ROCK RIVER BASIN--CONTINUED

BEGIN- NING DATE	BEGIN- NING DATE	END TIME	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)
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05427988 SEGOE PLAYGROUND GUTTER FLOW ISCO AT MADISON, WI (LAT 43 03 25N LONG 089 27 45W)

10-09-97	10-09-97	0029	0353	48	11.9	9.90
11-01-97	11-01-97	0046	0440	27	2.03	1.69
05-15-98	05-15-98	2123	2151	340	1.58	.003
05-28-98	05-28-98	0705	0808	676	.623	.028
06-09-98	06-09-98	1504	1535	24	.234	.149
06-11-98	06-11-98	0335	0417	48	.841	.610
06-11-98	06-11-98	1357	1755	17	.117	.040
06-12-98	06-12-98	1745	1813	16	.132	.080
06-18-98	06-18-98	1225	1503	52	.503	.128
06-24-98	06-24-98	0437	0532	10	.391	.155
06-27-98	06-27-98	0407	0501	291	.524	.072
06-29-98	--	1520	--	38	.402	.175
06-29-98	--	1535	--	8	.196	.107

05427981 SEGOE PLAYGROUND GUTTER FLOW SHEET AT MADISON, WI (LAT 43 03 25N LONG 089 27 45W)

10-09-97	10-09-97	0030	0354	32	.377	.182
11-01-97	11-01-97	0047	0441	70	.123	.031
05-15-98	05-15-98	2122	2150	440	.571	.007
05-28-98	05-28-98	0704	0807	1030	.345	.108
06-09-98	06-09-98	1503	1534	19	.051	--
06-11-98	06-11-98	0334	0416	54	.075	.029
06-11-98	06-11-98	1356	1754	16	.024	.005
06-12-98	06-12-98	1744	1812	52	.067	.015
06-18-98	06-18-98	1224	1502	66	.063	.006
06-24-98	06-24-98	0436	0531	45	.045	.012
06-27-98	06-27-98	0406	0500	72	.052	.004
06-29-98	--	1520	--	98	.378	.142
06-29-98	--	1535	--	116	.317	.113

05429065 MONROE STREET GUTTER FLOW ISCO AT MADISON, WI (LAT 43 03 15N LONG 089 26 00W)

10-08-97	10-09-97	2348	0309	54	.597	.348
11-01-97	11-01-97	0043	0337	47	.570	.320
05-28-98	05-28-98	2033	2239	126	.503	.052
05-31-98	05-31-98	0205	0350	86	.272	.091
06-11-98	06-11-98	0314	0539	58	.172	.078
06-11-98	06-11-98	1249	1441	148	.172	.045
06-18-98	06-18-98	1202	1546	72	.303	.103
06-18-98	06-18-98	1820	2239	35	.210	.090
06-24-98	06-24-98	0430	0530	18	.189	.070

05429061 MONROE STREET GUTTER FLOW SHEET AT MADISON, WI (LAT 43 03 15N LONG 089 26 00W)

10-08-97	10-09-97	2349	0310	58	.182	.042
11-01-97	11-01-97	0044	0338	70	.157	.040
05-28-98	05-28-98	2032	2238	122	.289	.069
05-31-98	05-31-98	0204	0349	136	.137	.033
06-11-98	06-11-98	0313	0538	74	.066	.016
06-11-98	06-11-98	1248	1440	129	.157	.013
06-18-98	06-18-98	1201	1545	143	.208	.035
06-18-98	06-18-98	1819	2238	86	.085	.005
06-24-98	06-24-98	0429	0529	29	.054	.025

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

ROCK RIVER BASIN--CONTINUED

05430175 YAHARA RIVER AT STATE HIGH 59 NEAR FULTON, WI (LAT 42 49 35N LONG 089 10 19W)

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	ACETO- CHLOR, WATER, UNFLTRD REC (UG/L) (49259)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	ALA- CHLOR (ELISA) WAT FLT 0.7 U GF, REC (UG/L) (82695)	ATRA- ZINE WATER UNFLTRD REC (UG/L) (39630)	CYAN- AZINE TOTAL (UG/L) (81757)
OCT 1997								
20...	1505	182	4.86	<.10	<.150	<1.0	<.150	<.500
NOV								
19...	1350	360	2.99	.31	<.150	2.7	<.150	<.500
APR 1998								
14...	1028	835	2.33	<.10	<.150	2.0	<.150	<.500
27...	0956	591	2.54	<.10	<.150	3.0	<.150	<.500
MAY								
05...	1038	780	2.34	<.10	<.150	1.5	<.150	<.500
11...	1032	691	2.29	<.10	<.150	1.5	<.150	<.500
13...	0928	777	2.39	.64	<.150	1.7	<.150	.602
18...	0944	606	1.42	<.10	<.150	1.8	<.150	<.500
26...	1005	478	2.77	<.10	<.150	1.8	<.150	<.500
31...	1154	461	3.15	.11	<.150	1.8	<.150	<.500
JUN								
09...	1116	354	2.92	<.10	<.150	<1.0	<.150	<.500
12...	1125	485	4.02	.52	<.150	3.4	.993	<.500
15...	1115	396	2.80	.11	<.150	1.5	<.150	<.500
20...	1218	572	1.94	.22	<.150	<1.0	<.150	<.500
22...	1032	466	2.42	<.10	<.150	2.8	<.150	<.500
28...	1010	1030	2.49	.84	<.150	5.5	.235	1.88
JUL								
08...	0810	660	2.12	<.10	<.150	2.1	<.150	<.500
14...	0954	548	2.40	<.10	<.150	2.6	<.150	<.500

DATE	DEETHYL ATRA- ZINE, WATER, WHOLE, TOTAL (UG/L) (75981)	DEETHYL DE-ISO PROPYL ATRAZIN WATER, WAT, WH TOTAL (UG/L) (75979)	DE-ISO PROPYL ATRAZIN WATER, WHOLE, TOTAL (UG/L) (75980)	DICAMBA TOTAL (UG/L) (82052)	MCP P WATER WHOLE RECOVER (UG/L) (30193)	METOLA- CHLOR WATER WHOLE TOT. REC (UG/L) (82612)	METRI- BUZIN WATER WHOLE TOT. REC (UG/L) (82611)	2,4-D, TOTAL (UG/L) (39730)
OCT 1997								
20...	<.300	<1	<.300	--	--	<.250	<.050	--
NOV								
19...	<.300	<1	<.300	--	--	<.250	<.050	--
APR 1998								
14...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
27...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
MAY								
05...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
11...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
13...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
18...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
26...	<.300	<1	<.300	<.200	<1.0	<.250	<.050	<1.00
31...	<.300	<1	<.300	<.200	<1.0	.446	<.050	<1.00
JUN								
09...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
12...	<.300	<1	<.300	.199	<.20	.423	<.050	<.200
15...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
20...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
22...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
28...	<.300	<1	.407	<.050	<.20	2.78	<.050	<.200
JUL								
08...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200
14...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

ROCK RIVER BASIN--CONTINUED

05430500 ROCK RIVER AT AFTON, WI (LAT 42 36 33N LONG 089 04 14W)

		DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPECIFIC CONDUCTANCE (US/CM) (00095)	PH WATER WHOLE FIELD (STANDARD UNITS) (00400)	TEMPERATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	BAROMETRIC PRESSURE (MM OF HG) (00025)	NITROGEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITROGEN, NITRITE DIS-SOLVED (MG/L AS N) (00613)	NITROGEN, AMMONIA DIS-SOLVED (MG/L AS N) (00608)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	
JUN 1998	17...	0830	2140	639	8.4	22.0	8.0	747	.865	.014	.047	.71
JUL 21...		1000	1780	549	8.6	27.0	9.2	738	.692	.025	.028	.84
DATE		PHOSPHORUS DIS-SOLVED (MG/L AS P) (00666)	PHOSPHORUS ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ACETOCHLOR, WATER FLTRD REC (UG/L) (49260)	ALACHLOR, WATER, DISS, REC, (UG/L) (46342)	ALPHABHC, DIS-SOLVED REC (UG/L) (34253)	ATRAZINE, WATER, DISS, REC (UG/L) (39632)	BENFLURALIN, WAT FLD 0.7 U, GF, REC (UG/L) (82673)	BUTYLATE, WATER, DISS, REC (UG/L) (04028)	CARBARYL, WATER FLTRD 0.7 U, GF, REC (UG/L) (82680)	CARBOFURAN, WATER FLTRD 0.7 U, GF, REC (UG/L) (82674)	CHLORPYRIFOS, DIS-SOLVED REC (UG/L) (38933)
JUN 1998	17...	.062	.043	.127	.010	<.0020	.346	<.0020	<.0020	<.0030	<.0030	<.0040
JUL 21...		.032	.035	.0106	<.002	<.0020	.526	<.0020	<.0020	<.0030	<.0030	<.0040
DATE		CYANAZINE, WATER, DISS, REC (UG/L) (04041)	DCPA, WATER FLTRD 0.7 U, GF, REC (UG/L) (82682)	DEETHYL ATRAZINE, WATER, DISS, REC (UG/L) (04040)	DI-AZINON, AZINON, DIS-SOLVED (UG/L) (39572)	DIAZINON D10 SRG, WAT FLT 0.7 U, GF, REC PERCENT (UG/L) (91063)	DI-ELDRIN, DIS-SOLVED (UG/L) (39381)	DISULFOTON, WATER FLTRD 0.7 U, GF, REC (UG/L) (82677)	EPTC, WATER FLTRD 0.7 U, GF, REC (UG/L) (82668)	ETHALFLURALIN, WAT FLT 0.7 U, GF, REC (UG/L) (82663)	ETHOPROP, WATER FLTRD 0.7 U, GF, REC (UG/L) (82672)	FONOFOS, WATER DISS REC (UG/L) (04095)
JUN 1998	17...	.144	<.0020	E.0624	<.002	113	<.001	<.0170	.0092	<.0040	<.0030	<.0030
JUL 21...		.349	<.0020	E.101	.011	126	<.001	<.0170	<.0020	<.0040	<.0030	<.0030
DATE		HCH ALPHA D6 SRG, WAT FLT 0.7 U, GF, REC PERCENT (91065)	LINDANE, DIS-SOLVED (UG/L) (39341)	LINURON, WATER FLTRD 0.7 U, GF, REC (UG/L) (82666)	MALATHION, DIS-SOLVED (UG/L) (39532)	METHYL AZINPHOS, WAT FLT 0.7 U, GF, REC (UG/L) (82686)	METHYL PARATHION, WAT FLT 0.7 U, GF, REC (UG/L) (82667)	METOLACHLOR, WATER DISSOLV (UG/L) (39415)	METRIBUZIN, SENCOR, WATER, DISS, REC (UG/L) (82630)	MOLINATE, WATER FLTRD 0.7 U, GF, REC (UG/L) (82671)	NAPROPAMIDE, WATER FLTRD 0.7 U, GF, REC (UG/L) (82684)	
JUN 1998	17...	88.7	<.004	<.0020	<.005	<.0010	<.0060	.073	<.004	<.0040	<.0030	
JUL 21...		102	<.004	<.0020	<.005	<.0010	<.0060	.048	<.004	<.0040	<.0030	
DATE		PARATHION, DIS-SOLVED (UG/L) (39542)	PEBULATE, WATER FLTRD 0.7 U, GF, REC (UG/L) (82669)	PENDIMETHALIN, WAT FLT 0.7 U, GF, REC (UG/L) (82683)	PERMETHRIN, 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)	PRONAMIDE, WATER FLTRD 0.7 U, GF, REC (UG/L) (82676)	PROMETON, WATER, DISS, REC (UG/L) (04037)	PROPANIL, WATER FLTRD 0.7 U, GF, REC (UG/L) (82679)	PRO-PARGITE, WATER FLTRD 0.7 U, GF, REC (UG/L) (82685)	
JUN 1998	17...	<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	E.0110	<.0040	<.0130	
JUL 21...		<.004	<.0040	<.0040	<.0050	<.0020	<.0060	<.0030	.0294	<.0040	<.0130	
DATE		PROPCHLOR, WATER, DISS, REC (UG/L) (04024)	SIMAZINE, WATER, DISS, REC (UG/L) (04035)	TERBACIL, WATER FLTRD 0.7 U, GF, REC (UG/L) (82665)	TEBUTHIURON, WATER FLTRD 0.7 U, GF, REC (UG/L) (82670)	TERBUFOS, WATER FLTRD 0.7 U, GF, REC (UG/L) (82675)	TERBUTHYLAZINE, SURROGT, WAT FLT 0.7 U, GF, REC PERCENT (91064)	THIOBENCARB, WATER FLTRD 0.7 U, GF, REC (UG/L) (82681)	TRIALATE, WATER FLTRD 0.7 U, GF, REC (UG/L) (82678)	TRIFLURALIN, WAT FLT 0.7 U, GF, REC (UG/L) (82661)	2,6-DIETHYL ANILINE, WAT FLT 0.7 U, GF, REC (UG/L) (82660)	
JUN 1998	17...	<.0070	.0263	E.0136	E.0061	<.0130	113	<.0020	<.0010	<.0020	<.0030	
JUL 21...		<.0070	.0229	<.0070	<.0100	<.0130	124	<.0020	<.0010	<.0020	<.0030	

E Estimated

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

ROCK RIVER BASIN--CONTINUED

05434500 PECATONICA RIVER AT MARTINTOWN, WI (LAT 42 30 34N LONG 89 47 58W)

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	ACETO- CHLOR, WATER, UNFLTRD REC (UG/L) (49259)	ALA- CHLOR TOTAL RECOVER (UG/L) (77825)	ALA- CHLOR (ELISA) WAT FLT 0.7 U GF, REC (UG/L) (82695)	ATRA- ZINE WATER UNFLTRD REC (UG/L) (39630)	CYAN- AZINE TOTAL (UG/L) (81757)	
OCT 1997									
20...	1635	433	3.73	<.10	<.150	<1.0	<.150	<.500	
NOV									
19...	1520	431	4.15	<.10	<.150	<1.0	<.150	<.500	
APR 1998									
14...	1212	1720	5.79	<.10	<.150	<1.0	<.150	<.500	
27...	1128	1580	5.26	<.10	<.150	<1.0	<.150	<.500	
MAY									
05...	0902	1450	5.12	<.10	<.150	<1.0	<.150	<.500	
11...	1204	1470	4.91	<.10	<.150	<1.0	.195	<.500	
18...	1136	1160	5.26	<.10	<.150	<1.0	.280	<.500	
26...	1220	1340	5.32	.12	<.150	<1.0	.630	<.500	
30...	1056	1190	5.93	<.10	<.150	<1.0	.239	<.500	
JUN									
09...	0944	930	5.63	<.10	<.150	<1.0	<.150	<.500	
13...	1002	1400	6.11	.17	<.150	1.5	.914	<.500	
15...	1320	1170	5.04	.20	<.150	2.4	.541	<.500	
19...	1238	1660	5.47	.49	<.150	1.8	2.31	<.500	
20...	1042	1840	4.11	.52	<.150	2.7	4.29	.658	
21...	1340	1980	3.06	.84	<.150	2.5	2.09	.513	
22...	1235	2060	4.36	.48	<.150	4.2	3.08	.512	
29...	1112	1900	4.50	<.10	<.150	2.1	.776	<.500	
JUL									
08...	0955	1600	5.33	<.10	<.150	<1.0	.241	<.500	
14...	1206	1070	4.50	<.10	<.150	<1.0	.228	<.500	
DATE		DEETHYL ATRA- ZINE, WATER, WHOLE, TOTAL (UG/L) (75981)	DEETHYL DE-ISO PROPYL ATRAZIN WATER, WAT, WH TOTAL (UG/L) (75979)	DE-ISO PROPYL ATRAZIN WATER, WHOLE, TOTAL (UG/L) (75980)	DICAMBA TOTAL (UG/L) (82052)	MCP WATER WHOLE RECOVER (UG/L) (30193)	METOLA- CHLOR WATER WHOLE TOT.REC (UG/L) (82612)	METRI- BUZIN WATER WHOLE TOT.REC (UG/L) (82611)	2,4-D, TOTAL (UG/L) (39730)
OCT 1997									
20'...	<.300	<1	<.300	--	--	<.250	<.050	--	
NOV									
19...	<.300	1	<.300	--	--	<.250	<.050	--	
APR 1998									
14...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200	
27...	<.300	<1	<.300	--	--	<.250	<.050	--	
MAY									
05...	<.300	<1	<.300	.054	<.20	2.06	<.050	<.200	
11...	<.300	<1	<.300	.068	<.20	<.250	<.050	<.200	
18...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200	
26...	<.300	<1	<.300	.379	<1.0	.412	<.050	<1.00	
30...	<.300	<1	<.300	<.200	<1.0	<.250	<.050	<1.00	
JUN									
09...	<.300	<1	<.300	<.050	<.20	<.250	<.050	<.200	
13...	.325	<1	<.300	.655	<.20	.626	<.050	<.200	
15...	<.300	<1	<.300	.263	<.20	1.59	<.050	<.200	
19...	.404	<1	<.300	<.050	<.20	1.05	<.050	<.200	
20...	.698	<1	.380	<.050	<.20	1.84	.055	<.200	
21...	.520	<1	.356	<.050	<.20	3.41	<.050	<.200	
22...	.715	<1	.393	<.050	<.20	3.22	<.050	<.200	
29...	.578	<1	.327	<.050	<.20	.615	<.050	<.200	
JUL									
08...	<.300	1	<.300	<.050	<.20	<.250	<.050	<.200	
14...	.340	<1	<.300	<.050	<.20	<.250	<.050	<.200	

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

ROCK RIVER BASIN--CONTINUED

BEGIN- NING DATE	BEGIN- NING DATE	END TIME	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)
05435931 WALTHAM PARK GUTTER FLOW ISCO AT MADISON, WI (LAT 43 01 33N LONG 089 30 10W)						
05-28-98	05-28-98	2042	2344	94	.420	.144
05-31-98	05-31-98	0219	0250	134	.339	.085
06-09-98	06-09-98	0232	0307	71	1.21	.890
06-11-98	06-11-98	0332	0414	50	.265	.139
06-11-98	06-11-98	1424	1531	6	.417	.058
06-18-98	06-18-98	2011	2210	7	.105	.056
06-20-98	06-21-98	2037	0337	52	.509	.182
06-24-98	06-24-98	0433	0447	191	.497	--
06-27-98	06-27-98	0411	0450	112	.238	.046
06-27-98	06-28-98	2254	0332	14	.114	.056
054359311 WALTHAM PARK GUTTER FLOW SHEET AT MADISON, WI (LAT 43 01 33N LONG 089 30 10W)						
05-28-98	05-28-98	2041	2343	28	.291	.007
05-31-98	05-31-98	0218	0249	116	.278	<.002
06-09-98	06-09-98	0231	0306	30	.318	.216
06-11-98	06-11-98	0331	0413	154	.204	.048
06-11-98	06-11-98	1423	1530	16	.107	.031
06-18-98	06-18-98	2010	2209	51	.088	.028
06-20-98	06-21-98	2036	0336	8	.133	.077
06-24-98	06-24-98	0432	0446	15	.072	--
06-27-98	06-27-98	0410	0449	102	.092	.018
06-27-98	06-28-98	2253	0331	58	.087	.017

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

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MISCELLANEOUS WATER-QUALITY DATA, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

ILLINOIS RIVER BASIN

		DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)		PHOS- PHORUS TOTAL (MG/L AS P) (00665)		
DATE	TIME					
05544379 MUSKEGO CANAL AT MUSKEGO, WI (LAT 42 54 26N LONG 088 08 28W)						
FEB 1998						
18...	1155	E10		.018		
MAR						
03...	1300	E7.0		.022		
31...	1240	E1.0		.039		
JUN						
26...	1455	--		.018		
AUG						
06...	1240	87		.015		
05544381 MUSKEGO LAKE TRIBUTARY 1 AT CTH Y NR MUSKEGO, WI (LAT 42 53 33N LONG 088 08 33W)						
FEB 1998						
18...	1145	E3.5		.042		
MAR						
03...	1205	E.50		.032		
31...	1310	E3.0		.125		
JUN						
26...	1445	--		.097		
AUG						
06...	1220	14		.165		
05544383 MUSKEGO LAKE TRIBUTARY 2 AT CTH Y NR MUSKEGO, WI (LAT 42 52 54N LONG 088 08 40W)						
FEB 1998						
18...	0955	E7.0		.176		
MAR						
03...	1200	E2.0		.064		
31...	1330	E7.0		.273		
AUG						
06...	1145	39		.621		
05544384 MUSKEGO LAKE TRIB 3 @ STATE HWY 36 NR MUSKEGO, WI (LAT 42 51 43N LONG 088 05 25W)						
DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	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)
MAR 1998						
03...	1235	E6.0	--	--	--	.078
31...	1415	E3.0	--	--	--	.109
JUN						
26...	1420	--	<.010	.035	2.2	.445
AUG						
06...	1350	3.6	--	--	--	.159

E Estimated

WATER-QUALITY ANALYSES AT MISCELLANEOUS SITES

The purpose of this sampling was to determine concentrations of trace elements and synthetic organic compounds in biological tissues. The following biota were collected: white sucker (*Catostomus commersoni*), and caddisfly larvae *Hydropsyche/Ceratopsyche* spp. Concentrations of trace elements are in dry weight (DRY WGT) for composite samples of fish livers and whole caddisfly larvae. (SDEV = Standard deviation; N = number of biota in composite sample). Collection methods reference: Crawford, J.K., and Luoma, S.N., 1993, Guidelines for studies of contaminants in biological tissues for the National Water-Quality Assessment Program: U.S. Geological Survey Open-File Report 92-494, 69 p. Analysis methods references: Hoffman, G.L., 1996, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory - preparation procedure for aquatic biological material determined for trace metals: U.S. Geological Survey Open-File Report 96-362, 42 p.; and Leiker, T.J., Madsen, J.E., Deacon, J.R., and Foreman, W.T., 1995, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory - determination of chlorinated pesticides in aquatic tissue by capillary-column gas chromatography with electron-capture detection: U.S. Geological Survey Open-File Report 94-710, 42 p.

CONCENTRATIONS OF TRACE ELEMENTS AND SYNTHETIC ORGANIC COMPOUNDS IN BIOLOGICAL TISSUE FROM SELECTED SITES IN THE WESTERN LAKE MICHIGAN BASIN (NATIONAL WATER-QUALITY ASSESSMENT PROGRAM)

STATION NUMBERS	STATION NAME	DATE	ORGANISM
04075050	Wolf River at Highway M near Langlade	09-23-98	White sucker - livers
04075050	Wolf River at Highway M near Langlade	09-22-98	Caddisfly larvae - whole
04077100	Wolf River at Keshena	09-23-98	White sucker - livers
04077100	Wolf River at Keshena	09-22-98	Caddisfly larvae - whole

STATION NUMBER	ORGANISM	DATE	TIME	TOTAL LENGTH (FISH ONLY)				N	
				MEAN (MM)	SDEV (MM)	MIN (MM)	MAX (MM)		
04075050	Caddisfly	09-22-98	1000	--	--	--	--	312	CADDUS
	White sucker	09-23-98	1330	241	18	220	275	15	FISH
04077100	Caddisfly	09-22-98	1700	--	--	--	--	556	CADDIS
	White sucker	09-23-98	0930	285	88	127	435	8	FISH

STATION	NUMBER	DATE	TIME	ALUMI- NUM, BIOTA, TISSUE, DRY WGT REC (UG/G) (49237)	ANTI- MONY, BIOTA, TISSUE, DRY WGT REC (UG/G) (49246)	ARSENIC BIOTA, TISSUE, DRY WGT REC (UG/G) (49247)	BARIUM, BIOTA, TISSUE, DRY WGT REC (UG/G) (49238)	BERYL- LIUM- BIOTA, TISSUE, DRY WGT REC (UG/G) (49248)	BORON, BIOTA, TISSUE, DRY WGT REC (UG/G) (49239)
04075050		09-22-98	1000	250	<.3	2.0	47	<.3	4.6
		09-23-98	1330	2.6	<.3	.3	4.8	<.3	.6
04077100		09-22-98	1700	280	<.3	1.6	65	<.3	3.4
		09-23-98	0930	<1.0	<.3	.5	3.7	<.3	.6

DATE	CADMIUM BIOTA, TISSUE, DRY WGT REC (UG/G) (49249)	CHROM- IUM- BIOTA, TISSUE, DRY WGT REC (UG/G) (49240)	COBALT, BIOTA, TISSUE, DRY WGT REC (UG/G) (49250)	COPPER, BIOTA, TISSUE, DRY WGT REC (UG/G) (49241)	IRON, BIOTA, TISSUE, DRY WGT REC (UG/G) (49242)	LEAD, BIOTA, TISSUE, DRY WGT REC (UG/G) (49251)	MANGAN- ESE, BIOTA, TISSUE, DRY WGT REC (UG/G) (49243)	MERCURY BIOTA, TISSUE, DRY WGT REC (UG/G) (49258)	MOLYB- DENUM, BIOTA, TISSUE, DRY WGT REC (UG/G) (49252)
09-22-98	<.3	2.4	.5	13	1100	1.0	1900	.1	1.8
09-23-98	<.3	.6	<.3	17	520	<.3	8.0	.1	.5
09-22-98	<.3	2.3	.4	12	1100	.9	1200	<.1	1.5
09-23-98	<.3	.6	<.3	58	890	<.3	9.1	.4	1.0

DATE	NICKEL, BIOTA, TISSUE, DRY WGT REC (UG/G) (49253)	SELEN- IUM, BIOTA, TISSUE, DRY WGT REC (UG/G) (49254)	SILVER, BIOTA, TISSUE, DRY WGT REC (UG/G) (49255)	STRON- TIUM, BIOTA, TISSUE, DRY WGT REC (UG/G) (49244)	URANIUM BIOTA, TISSUE, DRY WGT REC (UG/G) (49257)	VANA- DIUM BIO TIS DRY WGT REC (UG/G) (49465)	WATER, PRESENT BIO TIS DRY WGT PERCENT (49273)	ZINC, BIOTA, TISSUE, DRY WGT REC (UG/G) (49245)
09-22-98	.5	1.2	<.3	1.6	<.3	2.4	84	140
09-23-98	<.3	3.4	<.3	8.1	<.3	.4	80	86
09-22-98	.5	1.0	<.3	1.4	<.3	2.4	85	120
09-23-98	<.3	5.2	.4	9.1	<.3	.6	81	140

References cited:

- Faires, L.M., 1993, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory - Determination of methods in water by inductively coupled plasma-mass spectrometry: U.S. Geological Survey Open-File Report 92-634, 28 p.
- Fishman, M.J., ed., 1993, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory - Determination of inorganic and organic constituents in water and fluvial sediments: U.S. Geological Survey Open-File Report 93-125, 217 p.
- Foreman, W.T., Connor, B.F., Furlong, E.T., Vaught, D.G., and Merten, L.M., 1995, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory - Determination of organochlorine pesticides and polychlorinated biphenyls in bottom sediment by dual capillary-column gas chromatography with electron-capture detection: U.S. Geological Survey Open-File Report 95-140, 78 p.
- Furlong, E.T., Vaught, D.G., Merten, L.M., Foreman, W.T., and Gates, P.M., 1996, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory - Determination of semivolatile organic compounds in bottom sediment by solvent extraction, get permeation, chromatographic fractionation, and capillary-column gas chromatography/mass spectrometry: U.S. Geological Survey Open-File Report 95-719, 67 p.
- Shelton, L.R., and Capel, P.D., 1994 Guidelines for collection and processing samples of stream bed sediment for analysis of trace elements and organic contaminants for the National Water-Quality Assessment Program, Sacramento, CA: U.S. Geological Survey Open-File Report 94-458, 20 p.

GROUND-WATER RECORDS

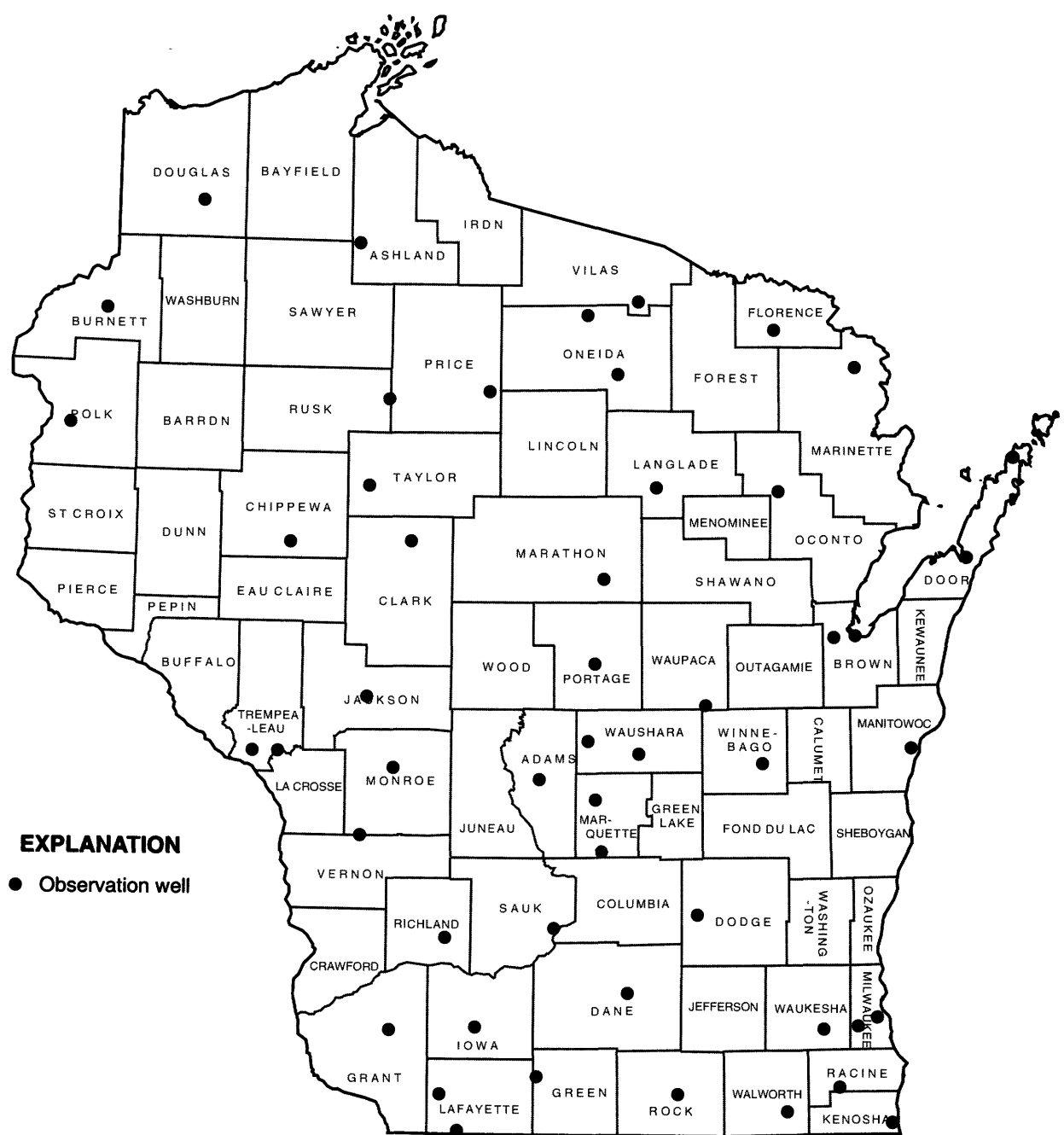


Figure 6. Location of observation wells in Wisconsin.

[illegible]

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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	132.80	JAN 7	129.90	MAR 18	128.40	JUN 1	135.30	JUL 16	139.75	SEP 14	150.47
NOV 25	129.70	FEB 5	130.00	MAY 1	130.50						

443201088074601. Local number, BN-24/20E/19-0335.

LOCATION.--Lat 44°32'01", long 88°07'46", Hydrologic Unit 04030103. Owner: U.S. Geological Survey

AQUIFER.--Dolomite.

WELL CHARACTERISTICS.--Drilled unused observation well, depth 15.7 ft.

INSTRUMENTATION.--Continuous water-level recorder.

DATUM.--Elevation of land-surface datum is 613 ft above sea level. Measuring point: top of 2-in. PVC pipe, 1.95 ft above ground level.

PERIOD OF RECORD.--October 1996 to November 1997.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured. 1.79 ft below land-surface datum, Mar. 28, 1997; lowest water level measured, 7.59 ft below land-surface datum, Oct. 25, 1997.

REVISIONS.--Water-level data for water year 1997, superseding those published for that year, are given below.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5		7.19	6.81	5.50	5.79	3.70	3.32	4.22	5.91	6.02	7.28	5.75
10		7.07	6.77	5.48	5.86	4.08	4.30	4.54	4.69	5.46	7.23	5.23
15		7.05	6.74	5.85	5.90	3.59	4.74	5.24	5.86	6.20	7.17	5.82
20		7.03	6.28	5.87	5.50		5.37	5.48		6.79	5.60	4.97
25	7.59	6.98	6.33	5.58	4.44	2.05	5.68	5.70	4.65	6.99	5.56	5.46
EOM	7.32	7.00	6.27	5.28	4.57	1.79	5.87	5.80	5.95	7.00	5.19	6.02
WY 1997	MAX	7.59	OCT 25	MIN	1.79	MAR 28						

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, OCTOBER TO NOVEMBER 1997

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.31	6.41										
10	6.43	6.38										
15	6.51	6.37										
20	6.44	6.37										
25	6.41	6.38										
EOM	6.46	6.38										
WY 1998	MAX	6.58	OCT 14	MIN	6.10	OCT 1						

GROUND-WATER LEVELS
BROWN COUNTY

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443201088074603. Local number, BN-24/20E/19-0337.

LOCATION.--Lat 44°32'01", long 88°07'46", Hydrologic Unit 04030103. Owner: U.S. Geological Survey

AQUIFER.--Dolomite.

WELL CHARACTERISTICS.--Drilled unused observation well, depth 26 ft.

INSTRUMENTATION.--Continuous water-level recorder.

DATUM.--Elevation of land-surface datum is 613 ft above sea level. Measuring point: top of 2-in. PVC pipe, 1.80 ft above ground level.

PERIOD OF RECORD.--April 1996 to November 1997.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured. 1.38 ft below land-surface datum, Apr. 1, 1997; lowest water level measured, 4.53 ft below land-surface datum, Aug. 7, 1996.

REVISIONS.--Water-level data for water year 1997, superseding those published for that year, are given below.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, APRIL TO SEPTEMBER 1996

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5								4.44				4.53
10											4.53	4.52
15											4.53	4.39
20							2.11					
25							4.32				4.53	
EOM							4.26				4.53	
WY 1996	MAX	4.53	AUG 7	MIN	1.57	SEP 18						

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5		4.37	4.36	4.36	4.41	3.65	2.01	4.17	4.36	4.30	4.33	4.33
10		4.35	4.36	4.35	4.42	3.95	2.86	4.30	4.37	4.30	4.33	4.33
15		4.35	4.36	4.36	4.43	3.39	4.31	4.32	4.37	4.31	4.34	4.33
20		4.36	4.35	4.37	4.44		4.32	4.34		4.33	4.34	4.32
25	4.37	4.36	4.35	4.40	4.34	2.24	4.34	4.35	4.28	4.34	4.34	4.31
EOM	4.37	4.36	4.36	4.41	4.35	1.39	4.35	4.35	4.30	4.34	4.34	4.31
WY 1997	MAX	4.44	FEB 17	MIN	1.38	APR 1						

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, OCTOBER TO NOVEMBER 1997

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	4.28	4.29										
10	4.28	4.29										
15	4.28	4.30										
20	4.29	4.30										
25	4.29	4.30										
EOM	4.29	4.30										
WY 1998	MAX	4.30	OCT 1	MIN	4.26	OCT 3						

GROUND-WATER LEVELS
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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	32.10	NOV 28	32.29	JAN 23	32.33	MAR 20	32.44	JUN 19	32.23	AUG 14	32.39
10	32.22	DEC 5	32.23	30	32.37	27	32.32	26	32.29	21	32.45
17	32.23	12	32.26	FEB 6	32.42	APR 3	32.46	JUL 3	32.34	28	32.83
24	32.12	19	32.28	13	32.39	10	32.36	10	32.32	SEP 4	32.43
31	32.10	26	32.26	20	32.42	17	32.32	17	32.24	11	32.39
NOV 7	32.22	JAN 2	32.36	27	32.44	24	32.31	31	32.44	18	32.45
14	32.15	9	32.32	MAR 6	32.44	JUN 5	32.30	AUG 7	32.40	25	32.47
21	32.21	16	32.28	13	32.35	12	32.23				

CHIPPEWA COUNTY

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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 12	28.42	DEC 14	28.99	MAR 11	29.85	JUN 15	27.97	AUG 14	28.62	SEP 14	28.81
NOV 15	29.00	JAN 13	29.38	APR 13	28.52	JUL 16	28.73				

GROUND-WATER LEVELS
CLARK COUNTY

461

445619090335201. Local number, CK-28/02W/01-0509.

LOCATION.--Lat 44°56'19", 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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 30	23.19	JAN 30	23.40	JUL 30	23.98	MAY 31	23.40	AUG 29	24.06	SEP 18	24.14
DEC 31	23.24										

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 1997 TO SEPTEMBER 1998
LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	27.86	27.76	27.41	27.68	28.01	27.72	25.50	25.03	25.14	24.10	27.29	28.40
10	28.79	27.90	27.61	27.65	27.98	27.61	25.40	25.62	24.74	25.46	27.22	28.73
15	28.48	27.85	27.58	27.79	27.86	27.38	25.06	25.87	24.72	26.36		28.35
20	27.71	27.69	27.58	27.35	27.84	27.43	24.55	25.87	25.45	26.53	27.71	28.05
25	27.45	27.50	27.35	27.36	27.72	27.15	24.53	25.12	25.86	26.41	27.92	28.22
EOM	27.59	27.14	27.84	28.02	27.72	25.97	25.40	24.99	24.53	28.25	27.73	28.29
WY 1998	MAX	29.00	SEP 22	MIN	24.08	JUL 4						

GROUND-WATER LEVELS
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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 6	20.94	JAN 14	21.36	FEB 27	19.27	MAR 16	19.62	MAY 11	18.12	JUL 14	18.98

DOOR COUNTY

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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 1	40.50	DEC 3	41.02	FEB 3	39.66	APR 2	30.22	JUN 2	38.90	AUG 3	41.77
NOV 3	40.60	JAN 6	41.00	MAR 2	35.11	MAY 4	36.42	JUL 6	40.40	SEP 2	41.89

GROUND-WATER LEVELS
DOOR COUNTY

463

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.--Continuous water-level recorder.

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 1997 TO SEPTEMBER 1998
LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5		24.25	24.51	24.50	26.15	10.41	9.56	9.50	9.50	9.62		
10		24.52	24.52	24.55	26.18	11.32	9.56	9.45	9.50	9.65		
15		24.52	24.52	24.53	25.66	15.22	9.56	9.45	9.74	10.94		
20		24.52	24.52	24.90	25.11	14.67	9.56	9.39	9.65	8.65		
25		24.39	24.52	28.77	11.00	16.16	9.56	9.45		7.50	13.69	
EOM		24.52	24.55	28.45	11.29	10.41	9.48	9.48	9.59	7.21		
WY 1998	MAX	30.15	JAN 19	MIN	7.21	JUL 28						

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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 31	78.05	JAN 5	78.36	MAR 2	78.08	APR 14	77.98	AUG 31	78.32	SEP 29	79.44
DEC 1	78.21	FEB 2	78.36	MAR 31	77.97	JUL 31	78.40				

**GROUND-WATER LEVELS
FLORENCE COUNTY**

454622088324802. Local number, FC-38/15E/18-0093.

LOCATION.--Lat 45°46'22", long 88°32'48", Hydrologic Unit 04030108. Owner: U.S. Forest Service.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Augered water-table observation well, diameter 3 in.

DATUM.--Datum of gage is approximately 1,400 ft above sea level.

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

EXTREMES FOR PERIOD OF RECORD.--Maximum observed water level, 65.57 ft, June 20, 1993; minimum observed water level, 62.04 ft, Mar. 10-11, 1990.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	63.95	63.89	63.73	63.58	63.53	63.59	64.15	63.97	63.70	63.45	63.05	62.84
10	64.01	63.87	63.71	63.57	63.51	63.54	64.05	63.93	63.63	63.41	63.02	62.77
15	64.06	63.84	63.68	63.55	63.49	63.50	64.02	63.94	63.66	63.34	62.99	62.72
20	64.01	63.81	63.64	63.54	63.49	63.49	64.02	63.87	63.60	63.27	62.96	62.66
25	63.95	63.78	63.63	63.54	63.49	63.49	64.01	63.81	63.53	63.19	62.96	62.62
EOM	63.92	63.75	63.59	63.53	63.58	64.13	63.99	63.76	63.51	63.11	62.89	62.59
WTR YEAR 1998	MAX	64.15	APR 1	MIN	62.59	SEP 29						

GROUND-WATER LEVELS
GRANT COUNTY

465

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.

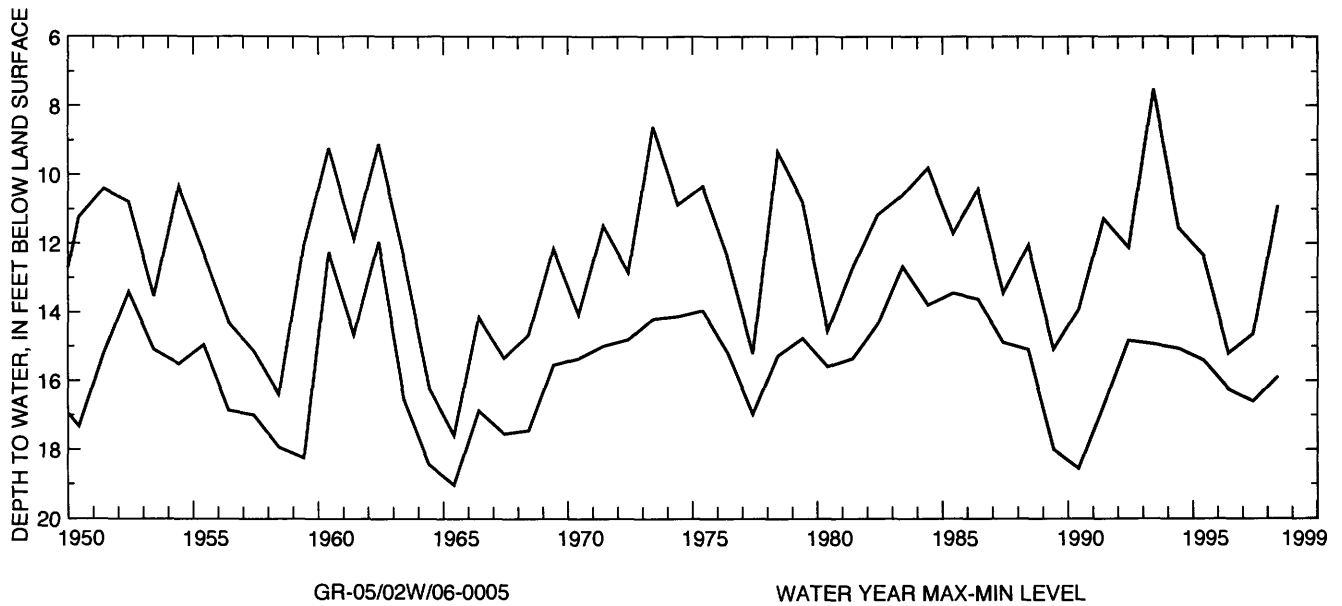
DATUM.--Elevation of land-surface datum is 980 ft above sea level. Measuring point: edge of pump base, 0.50 ft above land-surface datum.

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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	15.70	JAN 8	15.71	MAR 23	13.66	JUN 17	10.91	AUG 31	11.83	SEP 17	12.07
NOV 11	15.89	FEB 18	15.08	APR 6	11.45	JUL 28	11.19				



GROUND-WATER LEVELS
GREEN COUNTY

424427089494701. Local number, GN-03/06E/18-0002.

LOCATION.--Lat 42°44'27", long 89°49'47", Hydrologic Unit 07090003. Owner: Earl Waddington.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in., depth 150 ft.

INSTRUMENTATION.--Water level measured monthly by observer.

DATUM.--Elevation of land-surface datum is 1,020 ft above sea level. Measuring point: hole in 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, 120.17 ft below land-surface datum, Aug. 13, 1997; lowest water level measured, 143.94 ft below land-surface datum, Feb. 18, 1960.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	126.93	NOV 21	128.38	JAN 15	128.16	MAR 16	121.42	MAY 11	120.51	SEP 16	118.96

IOWA COUNTY

425644090101901. Local number, IW-06/03E/32-0032.

LOCATION.--Lat 42°56'44", long 90°10'19", Hydrologic Unit 07090003. Owner: Archie Lee.

AQUIFER.--Galena-Platteville.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth 92 ft.

INSTRUMENTATION.--Water level measured bi-monthly by observer.

DATUM.--Elevation of land-surface datum is 1,200 ft above sea level. Measuring point: 1/4-in. hole in top of casing, at land-surface datum.

PERIOD OF RECORD.--August 1957 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 36.02 ft below land-surface datum, July 22, 1993; lowest water level measured, 68.81 ft below land-surface datum, Aug. 18, 1965.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	56.88	JAN 15	57.10	MAR 17	59.98	MAY 12	59.01	JUL 1	58.22	SEP 17	59.14

GROUND-WATER LEVELS
JACKSON COUNTY

467

441810090484001. Local number, JA-21/04W/13-0038.

LOCATION.--Lat 44°18'10", long 90°48'40", Hydrologic Unit 07040007. Owner: Brockway Sanitation District.

AQUIFER.--alluvium.

WELL CHARACTERISTICS.--Drilled municipal well, diameter 18 in., depth 80 ft, cased to 80 ft, open end.

INSTRUMENTATION.--Water level measured weekly by observer.

DATUM.--Elevation of land-surface datum is 856 ft above sea level. Measuring point: top of vent pipe, 2.5 ft above land-surface datum.

PERIOD OF RECORD.--October 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 42.64 ft below land-surface datum, Sept. 10, 1993; lowest water level measured, 57.29 ft below land-surface datum, May 29, 1998.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	55.44	DEC 5	55.79	FEB 2	56.50	APR 10	56.08	JUN 5	56.84	AUG 7	54.35
10	55.44	12	56.43	18	56.28	17	56.16	12	56.99	14	54.25
17	55.44	19	56.24	20	55.95	24	56.16	19	56.84	21	55.74
24	55.44	26	56.17	27	56.06	MAY 1	56.32	JUL 3	56.35	28	54.88
31	55.40	JAN 3	56.19	MAR 6	56.74	8	56.38	10	56.35	SEP 4	54.15
NOV 7	54.42	9	56.19	13	55.74	15	56.39	17	56.15	11	54.05
14	55.64	13	56.39	20	56.39	22	56.89	24	54.85	18	53.88
21	55.55	16	56.05	27	56.38	29	57.29	31	55.35	25	53.68
28	55.74	23	56.19	APR 3	56.26						

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.

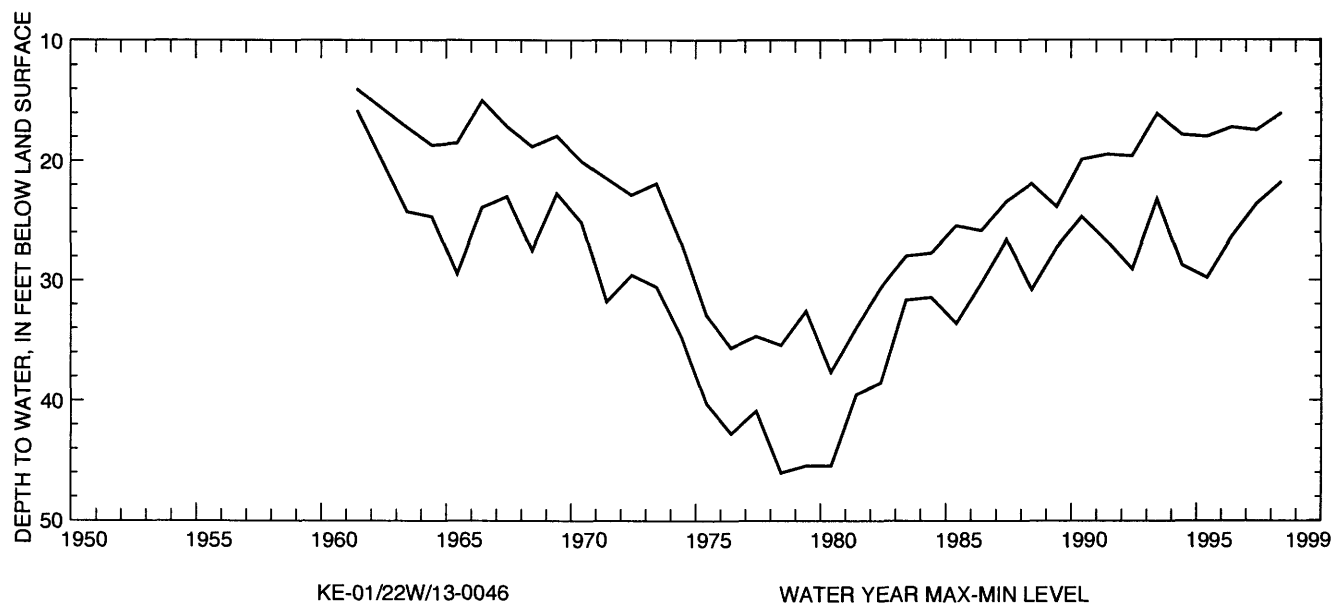
DATUM.--Elevation of land-surface datum is 645 ft above sea level. Measuring point: top of casing, 1.60 ft above land-surface datum.

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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 13	19.81	DEC 22	20.23	FEB 16	17.62	APR 13	16.01	JUN 22	20.40	AUG 17	21.80
20	19.73	29	20.22	23	16.22	20	16.69	29	19.79	24	20.43
27	19.93	JAN 5	20.19	MAR 2	17.75	27	17.04	JUL 6	19.76	31	20.76
NOV 3	20.54	12	19.44	9	18.03	MAY 4	18.36	13	18.89	SEP 7	20.75
10	19.94	19	18.39	16	17.73	11	18.75	20	21.38	14	20.64
24	20.04	26	19.17	23	17.06	18	18.79	27	20.88	21	20.59
DEC 1	19.92	FEB 2	18.49	30	17.07	25	19.43	AUG 3	20.71	28	20.26
15	20.23	9	18.84	APR 6	17.20	JUN 1	18.33	10	21.65		



GROUND-WATER LEVELS
LAFAYETTE COUNTY

469

423114090161101. Local number, LF-01/02E/33-0057.

LOCATION.--Lat 42°31'13", long 90°16'11", Hydrologic Unit 07060005. Owner: Coulthard Estate.

AQUIFER.--Galena-Platteville.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 10 in., depth 265 ft, cased to 16 ft, open end.

INSTRUMENTATION.--Continuous water-level recorder.

DATUM.--Elevation of land-surface datum is 1,000 ft above sea level. Measuring point: top of casing, 3.00 ft above land-surface datum.

PERIOD OF RECORD.--April 1952 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 12.00 ft below land-surface datum, June 26, 1996; lowest water level, 130.99 ft below land-surface datum, Oct. 27, 1959.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5				37.19	36.93	33.73		21.92	23.39	22.86	24.94	27.28
10				37.37	36.89	33.29		22.54	23.40	23.10	25.38	27.69
15				37.09	36.84	32.97		22.85	22.75	23.34	25.76	27.89
20				37.15	36.59	32.15		23.46	22.85	23.61	26.32	27.84
25				37.00	36.53	31.16		23.82	22.51	24.30	26.48	28.10
EOM				36.90	35.78	31.04	21.65	23.51	22.58	24.86	26.96	28.69
WY 1998	MAX	37.58	JAN 13	MIN	21.48	MAY 1						

424004090220601. Local number, LF-02/01E/04-0011.

LOCATION.--Lat 42°40'04", long 90°22'06", Hydrologic Unit 07060005. Owner: Ed Wiegel.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 6 in., depth 64 ft.

INSTRUMENTATION.--Water level measured monthly by observer.

DATUM.--Elevation of land-surface datum is 1,010 ft above sea level. Measuring point: top of casing, 1.00 ft above land-surface datum.

PERIOD OF RECORD.--March 1947 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.58 ft below land-surface datum, July 22, 1993; lowest water level measured, 38.81 ft below land-surface datum, Aug. 1, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	30.39	JAN 15	30.66	MAR 16	29.44	MAY 11	28.64	SEP 17	28.02

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 1997 TO SEPTEMBER 1998

[illegible]

GROUND-WATER LEVELS
MANITOWOC COUNTY

471

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.

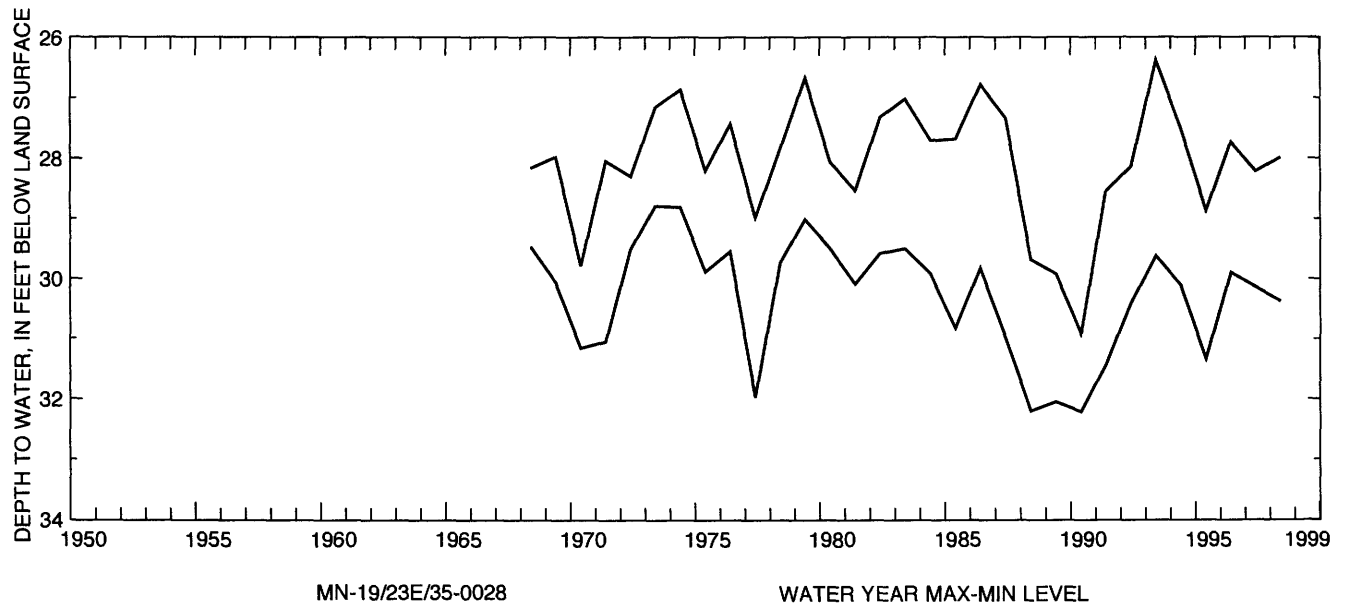
DATUM.--Elevation of land-surface datum is 670 ft above sea level. Measuring point: 1/4-in. hole in pump base, 1.00 ft above land-surface datum.

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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 1	29.87	NOV 25	29.92	FEB 3	30.13	APR 7	28.46	JUN 9	28.20	AUG 5	29.75
3	29.87	DEC 3	30.02	10	30.17	14	28.25	16	29.24	11	29.10
9	29.86	9	29.98	20	29.87	28	28.28	23	29.42	18	29.07
16	30.09	16	30.09	24	29.74	MAY 5	27.99	30	28.91	SEP 1	29.44
22	29.92	30	30.11	MAR 3	29.48	12	28.25	JUL 7	28.88	8	30.37
30	29.96	JAN 6	30.15	10	29.57	19	28.55	14	29.51	15	29.24
NOV 5	29.97	12	30.04	17	29.50	24	28.10	21	29.51	23	29.44
13	29.97	22	30.10	24	29.34	JUN 2	28.55	29	29.98	29	29.43
19	29.99	27	30.07	31	28.91						



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		WATER		WATER		WATER		WATER		WATER					
DATE		LEVEL		DATE		LEVEL		DATE		LEVEL		DATE		LEVEL			
OCT	5	17.84	DEC	7	18.48	FEB	1	18.63	APR	5	19.28	JUN	14	19.62	AUG	9	19.30
	12	17.92		14	18.57		15	18.29		12	19.29		21	19.66		16	19.32
	19	17.98		21	18.62		22	19.15		19	19.33		28	19.24		22	19.37
	26	18.01	28	18.71	MAR	1	18.78	26	19.37	JUL	5	19.29	30	19.42			
NOV	2	18.11	JAN	4		18.83	8	19.01	MAY		3	19.40	12	19.28	SEP	6	19.49
	9	18.18		8		19.25	15	19.13			10	19.47	19	19.28		13	19.52
	16	18.29		11	18.88	22	19.24	24		19.55	26	19.29	19	19.59			
	23	18.31		18	18.97	29	19.13	JUN		7	19.58	AUG	2	19.29		27	19.58
	30	18.32		25	19.03												

**GROUND-WATER LEVELS
MARINETTE COUNTY**

473

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.

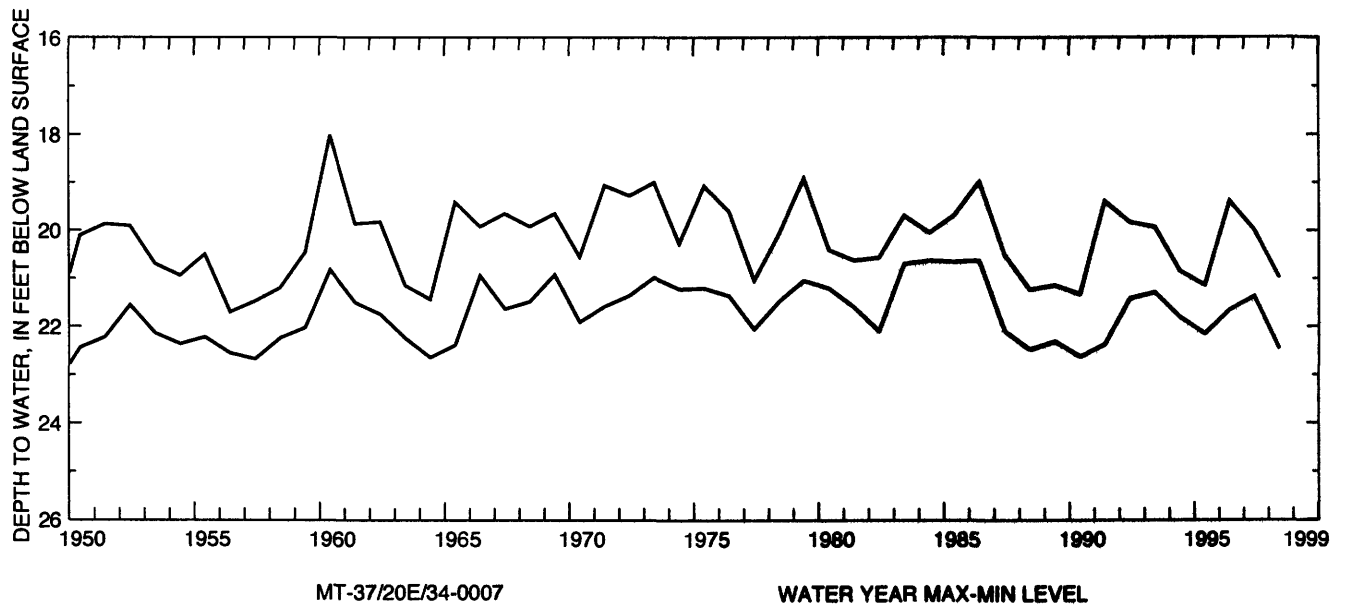
DATUM.--Elevation of land-surface datum is 980 ft above sea level. Measuring point: pointer on float gage, 4.00 ft above land-surface datum.

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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	21.24	DEC 9	21.57	FEB 10	21.95	APR 21	20.98	JUN 16	21.65	AUG 11	22.16
14	21.23	16	21.64	17	21.98	28	21.01	23	21.73	18	22.19
21	21.20	23	21.69	MAR 3	21.77	MAY 5	21.10	30	21.79	25	22.22
28	21.26	30	21.75	10	21.69	12	21.22	JUL 7	21.85	SEP 1	22.27
NOV 4	21.31	JAN 6	21.79	18	21.73	18	21.36	14	21.89	8	22.32
11	21.36	13	21.81	24	21.80	26	21.46	21	21.94	15	22.37
18	21.40	20	21.84	31	21.49	JUN 2	21.53	28	22.03	22	22.43
25	21.47	27	21.90	APR 7	21.08	9	21.64	AUG 4	22.13	29	22.38
DEC 2	21.53	FEB 3	21.93	14	20.98						



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, 18.21 ft below land-surface datum, Feb. 18, 1965.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 5	17.91	JAN 7	17.62	FEB 27	15.49	APR 20	14.78	AUG 11	14.91

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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 6	18.14	JAN 7	18.44	FEB 27	18.10	APR 20	16.26	AUG 11	16.61

GROUND-WATER LEVELS
MILWAUKEE COUNTY

475

425819087551201. Local number, ML-06/22E/20-0085.

LOCATION.--Lat 42°58'19", long 87°55'12", Hydrologic Unit 04040003. Owner: City of Milwaukee.

AQUIFER.--Sandstone.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 16 in., depth 1,834 ft, cased to 705 ft, open end.

INSTRUMENTATION.--Water level measured by observer.

DATUM.--Elevation of land-surface datum is 705 ft above sea level. Measuring point: hole in cover on casing, 6.00 ft below land-surface datum.

PERIOD OF RECORD.--Water years 1938, 1944, 1946, 1950, 1952, 1961, 1973 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level, 110.00 ft below land-surface datum, Jan. 10, 1938; lowest water level, 345.07 ft below land-surface datum, Dec. 3, 1995.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 26	328.00	JUL 8	322.30

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.

INSTRUMENTATION.--Water level measured monthly by observer.

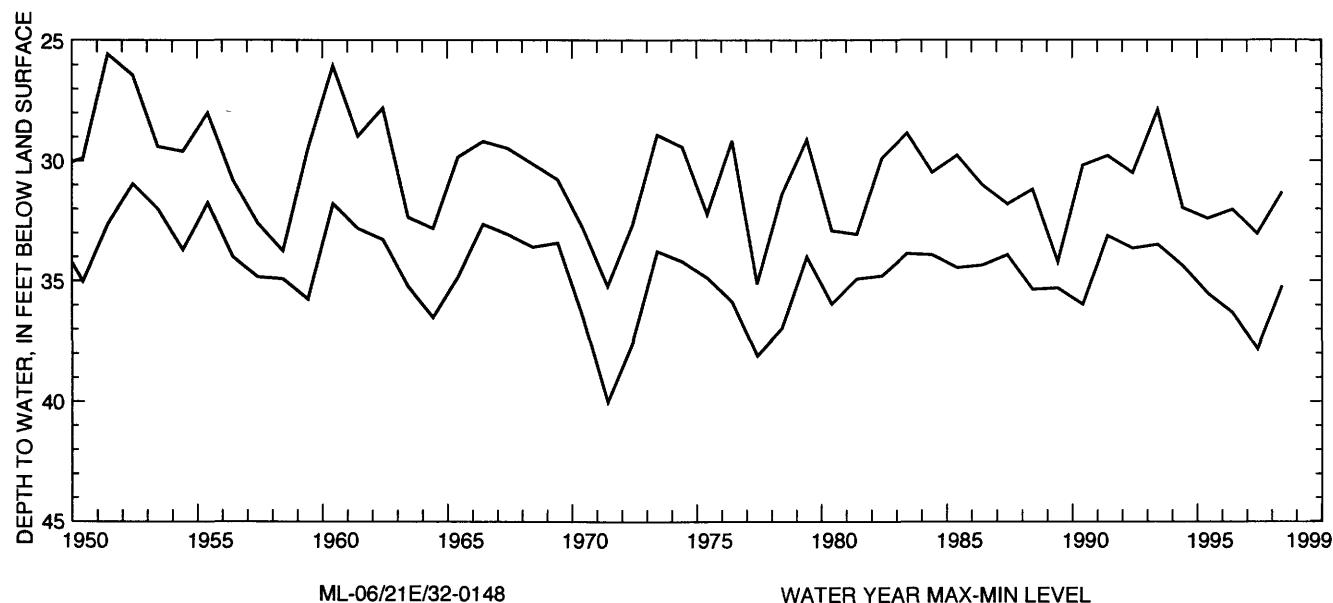
DATUM.--Elevation of land-surface datum is 774 ft above sea level. Measuring point: top of 1/4-in. pipe, at land-surface datum.

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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 20	36.16	FEB 10	35.23	MAR 17	34.18	APR 24	34.09	JUL 7	31.31	AUG 6	32.11
DEC 12	34.20										



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 1997 TO SEPTEMBER 1998
LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	7.50	7.51	7.66	7.74	7.75	6.95	6.65	7.03	7.23	5.42	6.61	6.74
10	7.26	7.52	7.68	7.63	7.78	7.19	6.93	7.02	7.16	6.29	6.54	6.77
15	6.83	7.56	7.72	7.65	7.80	7.35	6.98	7.01	6.90	6.42	6.62	6.79
20	7.17	7.60	7.76	7.73	7.31	7.35	6.84	7.07	7.09	6.49	6.63	6.81
25	7.31	7.64	7.76	7.74	7.11	7.10	6.94	7.13	7.07	6.53	6.62	6.83
EOM	7.38	7.65	7.84	7.76	6.28	6.93	7.03	7.16	6.37	6.63	6.69	6.85

WY 1998 MAX 7.84 DEC 31 MIN 5.13 JUL 4

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 1997 TO SEPTEMBER 1998
LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	6.36	4.99	5.20	4.45							4.27	3.48
10	6.13	5.36	5.31	3.84							3.49	3.65
15	6.01	4.97	5.38	4.27						4.00	3.62	3.84
20	5.88	4.78	5.14	4.21						4.17	3.76	4.06
25	5.79	4.85	4.95	5.20						4.35	3.11	4.17
EOM	5.31	4.74	4.55	5.18						4.57	3.21	4.42

WY 1998 MAX 6.46 OCT 3 MIN 3.10 AUG 28

GROUND-WATER LEVELS
OCONTO COUNTY

477

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, 20.43 ft below land-surface datum, Mar. 22, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 1	19.20	NOV 19	19.35	JAN 28	19.61	APR 8	18.92	JUN 3	19.15	AUG 19	19.72
8	19.23	DEC 3	19.41	FEB 11	19.82	15	18.83	10	19.19	26	19.73
15	19.17	10	19.43	18	19.82	22	18.83	17	19.22	SEP 2	19.86
22	19.21	24	19.46	25	19.74	29	18.83	JUL 22	19.51	9	19.90
29	19.27	31	19.56	MAR 11	19.31	MAY 13	18.89	29	19.59	16	20.00
NOV 5	19.31	JAN 7	19.58	18	19.41	20	18.99	AUG 5	19.62	23	20.02
12	19.32	14	19.62	APR 1	19.11	27	19.08	12	19.69	30	19.97

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.--Jetted unused water-table well, diameter 6 in., depth 27 ft, cased to 27 ft, open end.

INSTRUMENTATION.--Water level measured weekly 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 1997 TO SEPTEMBER 1998
LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	14.95	14.99	15.12		15.76		16.28	15.37				16.50
10	14.95	14.96	15.17		15.82		15.90	15.34		15.73		
15	14.93	15.00	15.00		15.87			15.30			16.32	
20	14.90	15.03	15.28		15.92			15.33				
25	14.96	15.09	15.30		15.99		15.49					
EOM	14.95	15.15	15.37		16.02			15.59			16.42	
WY 1998	MAX	16.74	SEP 26		MIN	14.86	OCT 13					

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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	20.00	DEC 8	20.27	FEB 9	20.70	APR 13	20.53	JUN 15	20.79	JUL 27	20.90
13	20.02	15	20.27	16	20.76	20	20.47	22	20.76	AUG 3	20.70
20	19.93	22	20.32	18	20.83	27	20.48	29	20.70	10	21.00
27	19.85	24	20.36	MAR 2	20.84	MAY 4	20.47	30	20.70	24	21.13
NOV 2	19.87	JAN 5	20.38	9	20.83	11	20.56	JUL 6	20.78	31	21.20
10	19.95	12	20.39	16	20.87	18	20.60	13	20.80	SEP 8	21.25
17	20.00	24	20.41	24	20.88	27	20.67	17	20.98	14	21.30
24	20.06	26	20.46	29	20.87	JUN 1	20.72	20	20.84	28	21.45
DEC 1	20.15	FEB 2	20.55	APR 6	20.70	8	20.78				

GROUND-WATER LEVELS
POLK COUNTY

479

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.

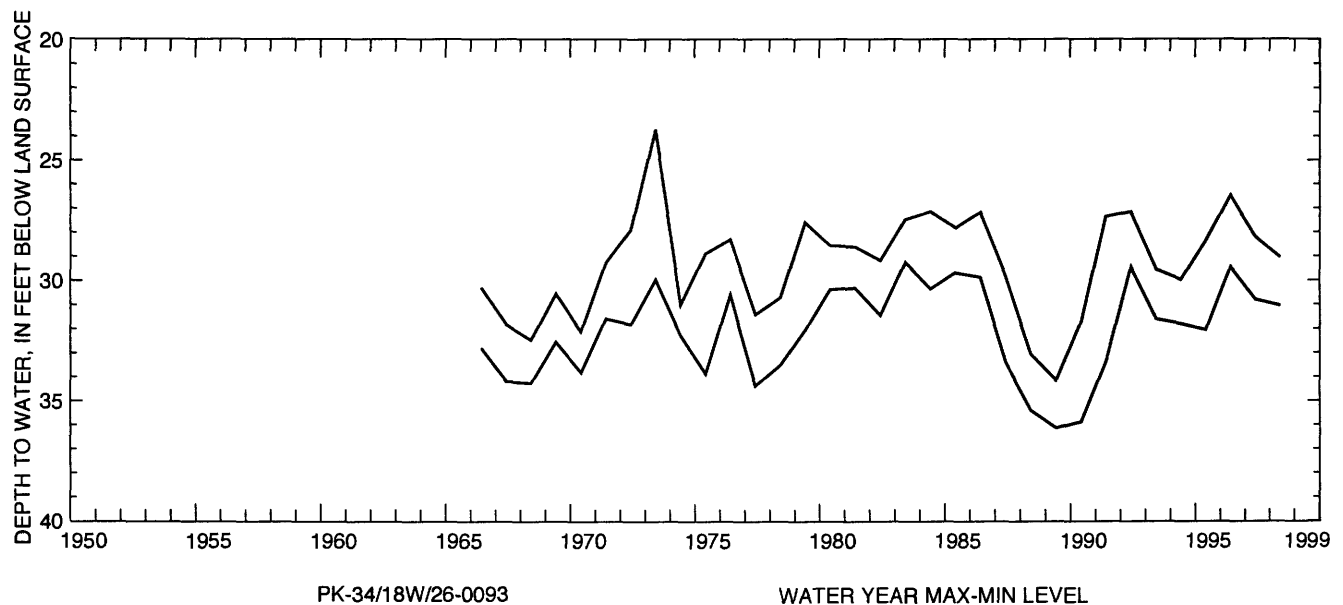
DATUM.--Elevation of land-surface datum is 1,140 ft above sea level. Measuring point: hole in pump base, 2.00 ft above land-surface datum.

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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 7	29.00	NOV 4	29.05	NOV 25	29.20	DEC 16	29.65	APR 15	29.77	JUL 15	31.05
14	29.00	11	29.06	DEC 2	29.50	FEB 18	30.50	MAY 14	29.65	AUG 14	30.30
21	29.00	18	29.10	9	29.60	MAR 16	30.30	JUN 15	29.85	SEP 15	30.60
28	28.98										



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 1997 TO SEPTEMBER 1998

WATER		WATER		WATER		WATER		WATER		WATER	
DATE	LEVEL	DATE	LEVEL	DATE	LEVEL	DATE	LEVEL	DATE	LEVEL	DATE	LEVEL
OCT 11	31.26	DEC 6	31.34	FEB 15	31.44	APR 12	31.58	JUN 13	31.69	AUG 16	31.70
25	31.25	20	31.32	MAR 14	31.50	MAY 17	31.62	JUL 12	31.70	SEP 13	31.70
NOV 20	31.34	JAN 18	31.35								

GROUND-WATER LEVELS
PRICE COUNTY

481

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.

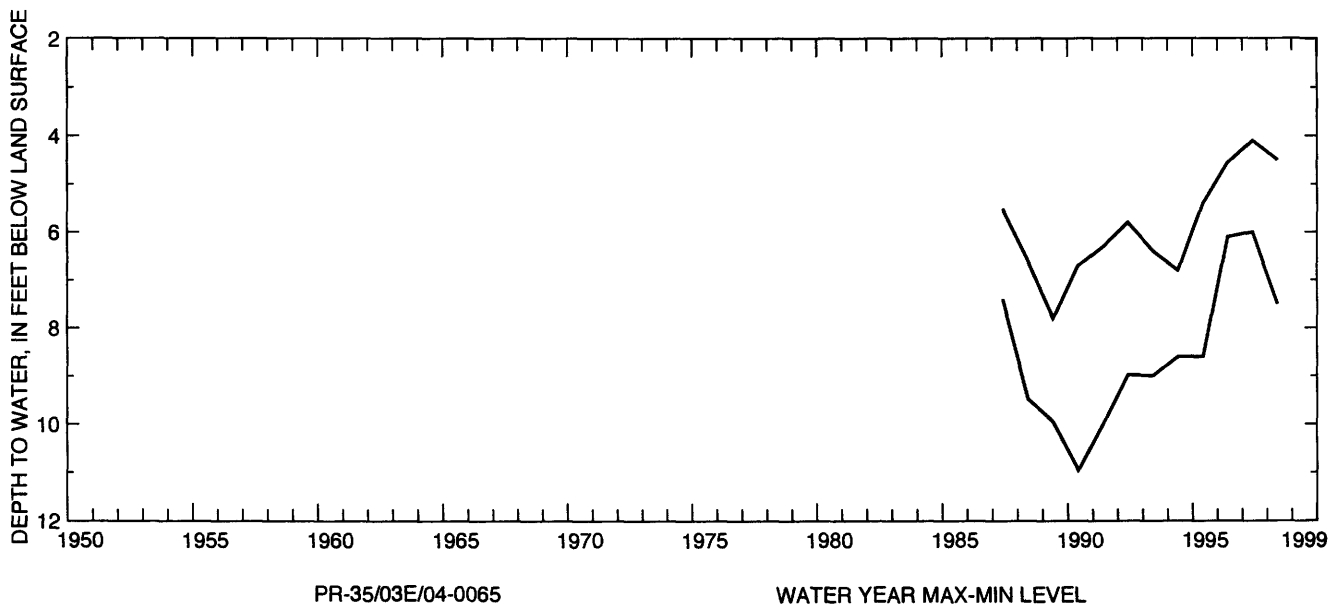
DATUM.--Elevation of land-surface datum is 1,695 ft above sea level. Measuring point: top of casing, 2.00 ft above land-surface datum.

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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 10	4.50	JAN 5	5.10	MAR 10	5.50	MAY 12	5.40	JUL 13	5.70	SEP 14	7.20
DEC 10	5.00	FEB 14	5.50	APR 6	4.80	JUN 6	5.60	AUG 10	6.70		



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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	28.82	NOV 19	27.20	FEB 9	26.96	APR 16	24.52	JUN 8	24.38	AUG 17	26.86
23	27.18	JAN 7	27.76	MAR 11	26.00	MAY 13	23.39	JUL 17	25.09	SEP 9	27.00

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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	13.44	JAN 16	13.69	MAR 3	14.09	MAY 12	13.41	JUL 1	12.96	SEP 17	14.01

483

[illegible]

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 1997 TO SEPTEMBER 1998
LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	75.62	76.01	76.30	76.80	77.30	77.74	77.03	74.63	74.35	73.92	73.57	74.05
10	75.87	75.95	76.49	77.12	77.36	77.89	76.45	74.61	74.33	73.77	73.63	74.14
15	75.97	76.07	76.50	76.99	77.43	77.91	76.02	74.43	74.21	73.61	73.67	74.18
20	75.74	76.06	76.68	77.12	77.50	77.79	75.70	74.45	74.36	73.61	73.81	74.19
25	75.73	76.16	76.59	77.18	77.59	77.83	75.16	74.31	74.28	73.65	73.82	74.23
EOM	75.59	76.34	76.93	77.23	77.54	77.39	74.84	74.23	74.14	73.71	73.97	74.40
WY 1998	MAX	77.94	MAR 11	MIN	73.50	JUL 28						

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 1997 TO SEPTEMBER 1998
LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	9.70	9.07	9.65	9.82	9.73	7.59	6.46			8.70	9.87	10.10
10	8.97	9.23	9.71	9.84	9.60	8.43	10.96			8.76	9.88	10.27
15	7.98	9.39	9.74	9.71	9.90	8.88	14.61			9.11	9.92	10.36
20	8.56	9.50	9.80	9.80	9.20	9.67	15.10			9.40	9.26	10.43
25	8.99	9.54	9.83	9.64	8.89	9.45			8.63	9.67	9.65	10.43
EOM	9.24	9.66	9.87	9.59	6.98	6.30			8.33	9.85	9.94	10.03
WY 1998	MAX	15.35	APR 22	MIN	6.28	APR 1						

485

[illegible]

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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 20	12.58	FEB 17	13.05	APR 20	12.49	JUN 13	12.86	AUG 15	13.18	SEP 15	13.38
JAN 15	12.86	MAR 19	13.12	MAY 15	12.69	JUL 15	12.91				

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, 222.67 ft below land-surface datum, June 19, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

[illegible]

GROUND-WATER LEVELS
WAUKESHA COUNTY

487

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 1997 TO SEPTEMBER 1998
LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	136.42	136.57	136.33	136.39	137.08	137.98	136.19	132.93	134.70	135.65	135.32	138.70
10	136.30	136.39	135.88	136.26	138.18	138.33	136.71	132.95	135.08	136.56	138.19	137.84
15	136.25	136.56	136.25	136.51	138.28	138.47	137.35	133.10	135.10	136.06	139.08	136.76
20	136.70	136.40	136.99	136.94	137.74	138.27	137.94	133.11	135.45	135.80	137.12	137.72
25	136.74	136.53	136.44	137.03	138.03	138.06	138.19	133.11	135.26	135.96	138.96	138.18
EOM	136.61	136.64	136.07	136.71	138.27	136.79	135.37	133.64	135.37	135.43	139.27	138.57
WY 1998	MAX	140.22	AUG 17	MIN	132.85	MAY 8						

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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	13.88	NOV 28	14.05	FEB 6	14.70	APR 24	12.49	JUN 12	13.79	AUG 14	13.66
10	13.91	DEC 12	14.09	14	14.78	MAY 1	12.18	19	13.85	21	13.56
17	13.96	19	14.09	20	14.88	9	12.29	JUL 8	13.54	27	13.41
24	13.86	26	14.13	MAR 6	13.98	15	12.63	17	13.70	SEP 4	13.81
31	13.83	JAN 2	14.13	20	13.56	22	13.02	24	13.77	11	14.08
NOV 7	13.90	9	14.16	28	13.31	29	13.39	31	13.91	18	14.12
14	13.98	16	14.16	APR 4	13.19	JUN 5	13.73	AUG 7	13.78	25	14.14
21	14.03	30	14.55	11	13.01						

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 1997 TO SEPTEMBER 1998
LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	10.05	10.28	10.58	10.91	11.29	11.51	11.14	10.56	10.68	10.75		
10	10.09	10.35	10.63	10.98	11.33	11.60	10.86	10.55	10.72	10.74		
15	10.13	10.40	10.68	11.03	11.41	11.52	10.68	10.55	10.73	10.74		
20	10.14	10.44	10.74	11.09	11.45	11.51	10.58	10.56	10.74	10.78		
25	10.19	10.49	10.80	11.13	11.55	11.51	10.51	10.59	10.76	10.81		
EOM	10.24	10.53	10.86	11.24	11.52	11.45	10.59	10.64	10.76	10.82		
WY 1998	MAX	11.60	MAR 10	MIN	10.04	OCT 1						

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 1997 TO SEPTEMBER 1998
LOWEST VALUE

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	3.13	3.41	3.49	3.63	3.53	-1.94	-2.55	1.85	2.54	2.12	1.95	3.39
10	3.25	3.36	3.53	3.40	3.52	-1.82	-2.45	1.99	2.54	2.33	1.64	3.39
15	2.96	3.44	3.55	3.61	-1.28	-1.64	-2.32	2.14	1.53	2.54	3.16	3.05
20	3.08	3.47	3.57	3.71	-1.88	-1.78	-2.42	2.34	1.55	2.70	2.99	3.35
25	3.29	3.53	3.59	3.71	-1.91	-2.13	-2.21	2.46	1.68	1.81	3.14	3.60
EOM	3.34	3.55	3.71	3.70	-2.26	-3.19	1.91	2.36	1.71	1.92	3.37	3.63
WY 1998	MAX	3.73	JAN 3	MIN	-3.46	APR 1						

GROUND-WATER LEVELS
WINNEBAGO COUNTY

489

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 1997 TO SEPTEMBER 1998

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 29	21.05	DEC 30	21.44	FEB 25	20.73	APR 28	19.13	JUL 28	22.25	AUG 28	22.71
NOV 26	21.18	FEB 2	21.61	MAR 31	19.81	JUN 1	20.50				

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.
- U.S. Geological Survey, 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, Edward, 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, South-western 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

- Saad, David A., and Thorstenson, Donald 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, Dale 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, John F., Saad, David A., and Krohelski, James 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, Kevin D., Sullivan, Daniel J., and Stewart, Jana 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, Jana 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, John F., Manion, Bart J., and Goddard, Gerald 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, Barbara C., Sullivan, Daniel J., Fitzpatrick, Faith A., and Rheaume, Stephen 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, Sharon 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, Daniel J. and Peterson, Elise M., 1997, Fish Communities of benchmark streams in agricultural areas of eastern Wisconsin: Water Resources Investigations Report 96-4038-D, 23 p.
- Sullivan, Daniel 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, Faith A., and Giddings, Elise 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, Herbert S., Olson, Daniel L., Seidel, Tracy L., and Rose, William 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, Andrew D., Bannerman, Roger T., and Panuska, John, 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, Dale M., Field, Stephen J., Elder, John F., Goddard, Gerald L., and James, William F., 1996, Phosphorus dynamics in Delavan Lake Inlet, Southeastern Wisconsin, 1994: U.S. Geological Survey Water-Resources Investigations Report 96-4160, 18 p.
- Robertson, Dale 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, Faith A., Peterson, Elise M., and Stewart, Jana 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.
- Rheaume, S.J., Stewart, J.S., and Lenz, Bernard 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, Dale M., and Saad, David 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, William J., and Graczyk, David 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, John F., and Krohelski, James 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, Gerald L., and Field, Stephen 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, James T., Kammerer, Jr., Phil A., and Conlon, Terrence 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, William 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, Leo 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, William R., Conger, Duane H., and Gebert, Warren A., 1992, Flood-frequency characteristics of Wisconsin Streams: U.S. Geological Survey Water-Resources Investigations Report 91-4128, 185 p.
- Rose, William 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, Stephen J., 1993, Hydrology and water quality of Powers Lake, southeastern Wisconsin: U.S. Geological Survey Water-Resources Investigations Report 90-4126, 36 p.
- Field, Stephen 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, William 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, Stephen J., and Duerk, Marvin 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, Dennis A., and Graczyk, David 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, Leo 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, Duane 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, William R., and House, Leo 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, William 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, Leo B., and Skavroneck, Steven, 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, Gerald, 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 Skavroneck, Steven, 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, Gerald, 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.
- Holmstrom, B.K., 1979, Low-flow characteristics of Wisconsin streams at sewage-treatment plants and industrial plants: U.S. Geological Survey Water-Resources Investigations 79-31, 123 p.
- 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.
- Rathbun, R.E., and Grant, R.S., 1978, Comparison of the radioactive and modified techniques for measurement of stream reaeration coefficients: U.S. Geological Survey Water-Resources Investigations 78-68, 65 p.
- Field, S.J., 1978, Ten-year low mean monthly discharge determinations for ungaged streams near waste-stabilization ponds in Wisconsin: U.S. Geological Survey Water-Resources Investigations 78-49, 16 p.
- 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, Reaeration 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, Reaeration 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 75-47, 27 p.
- Oakes, E.L., Hendrickson, G.E., and Zuehl, E.E., 1975, Hydrology of the Lake Wingra basin, Dane County, Wisconsin: U.S. Geological Survey Water-Resources Investigations 75-17, 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 74-45, 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 73-8, 73 p.

OPEN-FILE REPORTS

- 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, 96p.
- 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 98-78, 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, Roger T., Legg, Andrew D., and Greb, Steven 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, Leo 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, Leo B., Waschbusch, Robert J., and Hughes, Peter 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.
- Walker, John F., 1993, Techniques for detecting effects of urban and rural land-use practices on stream-water chemistry in selected watersheds in Texas, Minnesota, and Illinois: U.S. Geological Survey Open-File Report 93-130, 16 p.
- Maertz, D.E., 1993, Water-resources investigations in Wisconsin, 1993: U.S. Geological Survey Open-File Report 93-129, 91 p.
- 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, John F., Krabbenhoft, David P., and Walker, John 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, David P., and Krohelski, James 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, Warren A., Graczyk, David J., and Krug, William 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, Kraig S., and Krohelski, James 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, William R., Ostenso, Nile A., and Krohelski, James 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, David J., Gebert, Warren A., Krug, William 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, David J., Krug, William R., and Gebert, Warren 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., 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, Phil A., Jr., 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

Wierl, Judy A., Giddings, Elise, M.P., and Bannerman, Roger 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, Todd D., and Bannerman, Roger 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, Steven R., Graczyk, David J., Owens, David W., and Bannerman, Roger 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, David J., and Vanden Brook, James 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, Bernard 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, Randall J., 1996, Do created wetlands replace the wetlands that are destroyed: U.S. Geological Survey Fact Sheet FS-246-96, 4 p.

Elder, John F., and Goddard, Gerald 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, Amy M., and Saad, David 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, David P., 1996, Mercury studies in the Florida Everglades: U.S. Geological Survey Fact Sheet FS-166-96, 4 p.

Fitzgerald, Sharon A., and Steuer, Jeffrey 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, Daniel J., and Richards, Kevin 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, Todd 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, Dale M., and Saad, David 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, David 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, John 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, David P., Bowser, Carl J., Kendall, Carol, and Gat, Joel 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, John F., 1994, Methods for measuring discharge under ice cover: Journal of Hydraulic Engineering, vol. 120, no. 11, p. 1327-1336.

Walker, John 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

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.

Krabbenhoft, David P., and Webster, Katherine 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, Steven R., and Graczyk, David 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, David P., Benoit, Janina M., Babiarz, Christopher L., Hurley, James P., and Andren, Anders 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, Raymond A., and Robertson, Dale 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, Dennis A., Rose, William J., and Webster, Katherine 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, Mark, Endicott, Douglas, Steuer, Jeffrey, Jaeger, Steven, and Patterson, Dale, 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, Dennis A., Krohelski, James T., Rose, William J. Rose, 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.
- 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, John F., and Graczyk, David 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.
- Krabbenhof, David P., and Babiarz, Christopher L., 1992, The role of groundwater transport in aquatic mercury cycling: *Water Resources Research*, v. 28, no. 12, December 1992, p. 3119–3128.
- Mason, John W., Graczyk, David J., and Kerr, Roger 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, David J., and Sonzogni, William 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, John F., and Collins, Jerilyn 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: *ASCE J. 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.

**U.S. DEPARTMENT OF THE INTERIOR
U.S. Geological Survey
8505 Research Way
Middleton WI 53562**



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